HAWAIʻI DAIRY FARMS

FINAL ENVIRONMENTAL IMPACT STATEMENT

VOLUME 7
INDIVIDUAL COMMENT LETTERS AND RESPONSES
(PART 2 OF 2)

This environmental document is prepared pursuant to Hawaiʻi Revised Statutes, Chapter 343, Environmental Impact Statement Law and Chapter 200 of Title 11, Administrative Rules, Department of Health, Environmental Impact Statement Rules.

SUBMITTED BY:

Hawaiʻi Dairy Farms
MAHAʻULEPU, KAUAʻI

JANUARY 2017

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PREPARED BY:

GROUP 70 INTERNATIONAL

Architecture • Planning & Environmental Services • Interior Design • Civil Engineering
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FINAL ENVIRONMENTAL IMPACT STATEMENT
LIST OF VOLUMES

VOLUME

Consulted Parties					
Respondents and Distribution	Early or Ongoing Consultation, Presentation, or Notification	Comments Received EISPN	Received DEIS	Comments Received DEIS	Received FEIS
A. Federal Agencies or Affiliates					
Environmental Protection Agency Region IX Pacific Islands			X		
Department of Agriculture Natural Resources Conservation Service	X		X		
Department of Commerce National Marine Fisheries Service			X		
Department of Homeland Security Coast Guard 14th District			X		
Department of Transportation Federal Aviation Administration			X		
Department of Transportation Federal Transit Administration			X		
Department of Transportation Federal Highways Administration			X		
Department of the Navy			X		
National Oceanic and Atmospheric Administration Fisheries Pacific Island Regional Office	X	X	X	X	X
U.S. Army Corps of Engineers, Honolulu District	X		X	X	X
U.S. Department of the Interior Fish and Wildlife Service, Pacific Islands	X	X	X	X	X
Department of Interior, Geological Survey, Pacific Islands Water Science Center			X	X	X
Department of the Interior National Parks Service, Pacific Islands			X		
B. State Agencies					
Department of Accounting and General Services	X		X	X	X
Department of Agriculture	X	X	X		X
Department of Business, Economic Development & Tourism (DBEDT)	X		X		
DBEDT, Office of Planning	X		X	X	X
DBEDT, Strategic Industries Division	X		X		
Department of Defense			X	X	X
Department of Hawaiian Home Lands			X		X
Department of Land and Natural Resources (DLNR)	X	X	X		X
DLNR, CWRM	X	X	X		X
DLNR, Engineering Division	X	X	X	X	X

Consulted Parties					
Respondents and Distribution	**Early or Ongoing Consultation, Presentation, or Notification**	**Comments Received EISPN**	**Received DEIS**	**Comments Received DEIS**	**Received FEIS**
DLNR, Historic Preservation Division	X	~~X~~	X	X	X
Kauaʻi/Niʻihau Island Burial Council	X	X	X		X
DLNR, Land Division, Kauaʻi District	X	X	X	X	X
DLNR, Soil and Water Conservation District, West Kauaʻi	X		X		
Department of Health (DOH) via Environmental Planning Office	X	X	X	X	X
DOH, Clean Air Branch	X	X	X		X
DOH, Clean Water Branch	X	X	X		X
DOH, Communications Office					X
DOH, Compliance Assistance Office					X
DOH, Environmental Health Services Division (EHSD)					X
DOH, EHSD – Food & Drug Branch – Indoor & Radiological Health Branch					X
DOH, EHSD – Food & Drug Branch – Sanitation Branch					X
DOH, EHSD – Vector Control Branch					X
DOH, Environmental Management Division					X
DOH, Environmental Resources Office					X
DOH, Hazard Evaluation and Emergency Response Office					X
DOH, Health Resources Administration					X
DOH, Kauaʻi District Health Office					X
DOH, Planning, Policy, and Program Development Office					X
DOH, Safe Drinking Water Branch					X
DOH, Sanitation	X	X	X		X
DOH, Solid & Hazardous Waste Branch					X
DOH, State Laboratories Division					X
DOH, Wastewater Branch	X	X	X		X
Department of Transportation (DOT)	X	X	X		X
~~Kauaʻi/Niʻihau Island Burial Council~~	~~X~~		~~X~~		
Office of Environmental Quality Control			X		X

Consulted Parties					
Respondents and Distribution	**Early or Ongoing Consultation, Presentation, or Notification**	**Comments Received EISPN**	**Received DEIS**	**Comments Received DEIS**	**Received FEIS**
Office of Hawaiian Affairs	X	X	X		X
University of Hawaiʻi, Environmental Center			X		X
University of Hawaiʻi, Water Resources Research Center			X		
C. County of Kauaʻi					
Department of Parks and Recreation	X		X		
Department of Planning	X		X		X
Department of Public Works	X	X	X		X
Department of Water	X	X	X		X
Fire Department	X		X		
Office of Economic Development	X		X		
Office of the County Clerk	X	~~X~~	X		
Police Department	X		X		
Transportation Agency	X		X		
E. Elected Officials					
U.S. Senator Brian Schatz			X		X
U.S. Senator Mazie Hirono			X		X
(former) U.S. Representative Mark Takai 1st District			X		
U.S. Representative Colleen Hanabusa 1st District					X
U.S. Representative Tulsi Gabbard, 2nd District			X		X
Council Chair, Mel Rapozo	X		X	X	X
Council Vice Chair, Ross Kagawa	X		X	X	X
Councilmember, Arryl Kaneshiro	X		X		
Councilmember, Gary L Hooser	X	X	X	X	X
Councilmember, JoAnn A. Yukimura	X		X	X	X
Councilmember, KipuKai Kualiʻi	X		X		
Councilmember, Mason K. Chock	X		X	X	X
Honorable Mayor Bernard P. Carvalho, Jr.	X		X		
Representative Dee Morikawa, House District 16	X		X		
~~Representative~~ Councilmember,	X		X	X	X

Consulted Parties					
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Derek S.K. Kawakami ~~House District 14~~					
Representative James K. Tokioka, House District 15	X		X		
Senator Ronald D. Kouchi, Senate District 8	X		X		
F. Media					
Honolulu Star Advertiser			X		X
Hawaiʻi Tribune Herald			X		X
West Hawaiʻi Today			X		X
The Garden Island	X		X		X
Maui News			X		X
Molokaʻi Dispatch			X		X
Honolulu Civil Beat			X		X
H. Libraries					
Department of Education Hawaiʻi State Library Hawaiʻi Documents Center			X		X
Hawaiʻi Kai Regional Library			X		X
Hilo Regional Library			X		X
Kahului Regional Library			X		X
Kaimuki Regional Library			X		X
Kāneʻohe Regional Library			X		X
Legislative Reference Bureau			X		X
Library of the Department of Business, Economic Development, and Tourism			X		
Līhuʻe Regional Library	X		X		X
Hanapepe Public Library			X		X
Kapaʻa Public Library			X		X
Kōloa Public and School Library			X		X
Princeville Public Library			X		X
Waimea Public Library			X		X
Pearl City Regional Library			X		X
University of Hawaiʻi Hamilton Library			X		X

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University of Hawaiʻi at Hilo Edwin H. Moʻokini Library			X		X
University of Hawaiʻi Kauaʻi Community College Library	X		X		X
University of Hawaiʻi, Maui College Library			X		X
I. Community Interest Groups and Individuals					
Aha Moku Advisory Committee				X	X
Center for Biological Diversity				X	X
Center for Food Safety				X	X
Contractors Association Kauaʻi	X		X	X	X
Friends of Māhāʻulepū	X	X	X	X	X
Grove Farm	X	X	X	X	X
Hawaii Cattlemen's Council, Inc.				X	X
Hawaiʻi Chapter of the Sierra Club Kauaʻi Group	X	X	X	X	X
Kauaʻi Chamber of Commerce	X		X	X	X
Kauaʻi County Farm Bureau	X		X	X	X
Kauaʻi Economic Development Board	X		X		
Kauaʻi Filipino Chamber of Commerce	X		X		
Kauaʻi Planning and Action Alliance	X		X		
Kauaʻi Visitors Bureau	X		X		
Kawailoa Development	X	X	X	X	X
Kohola Leo				X	X
Kōloa Community Association	X		X		
Kōloa Landing	X		X		
Malama Kōloa	X		X		
Malama Māhāʻulepū	X	X	X	X	X
Maui School Garden Network				X	X
Poiʻpū Bay Golf Course				X	X
Poʻipū Beach Resort Association	X		X	X	X
Poʻipū Crater Homeowners' Association	X	X	X		X
Poʻipū Kai	X		X		

Consulted Parties					
Respondents and Distribution	Early or Ongoing Consultation, Presentation, or Notification	Comments Received EISPN	Received DEIS	Comments Received DEIS	Received FEIS
Rotary Club of Poʻipū Beach	X		X		
Surfrider Foundation, Kauaʻi Chapter	X	X	X	X	X
Whalers Cove Resort	X		X		
J. Individuals					
Albert, Martin, M.D.	X	X	X		X
Albert, Phyllis	X	X	X		X
Albrecht, Arnold and Jane	X	X	X		X
Alexander, Mary				X	X
Amsterdam, Jo	X	X	X		X
Anderson, Gary R.	X	X	X		X
Andrade, Mac				X	X
Anthony, John				X	X
Aqui, Emeline				X	X
Ascuena, Jodi	X	X	X	X	X
Ascuena, Victor				X	X
Ashkenazy, Janet	X	X	X		X
Baldwin, Peter				X	X
Bandsma, Gloria				X	X
Barich, Terese	X	X	X		X
Barnard, Bill	X	X	X		X
Baron, Chris	X	X	X		X
Bartlett, Tom and Mary	X	X	X	X	X
Basile, Jude	X	X	X		X
Basler, Sabra	X	X	X	X	X
Bator, Bonnie P.	X	X	X	X	X
Bay, Greg & Shelley	X	X	X	X	X
Beall, Allan				X	X
Beall, Charlotte				X	X
Beall, Charlotte and Allen	X	X	X		X
Beam, Craig	X	X	X		X
Bedwell, Curtis J.	X	X	X	X	X

Consulted Parties					
Respondents and Distribution	**Early or Ongoing Consultation, Presentation, or Notification**	**Comments Received EISPN**	**Received DEIS**	**Comments Received DEIS**	**Received FEIS**
Bell, Betty	X	X	X	X	X
Bell, Masai	X	X	X		X
Beuttell, Jack				X	X
Blaich, Beryl	X	X	X	X	X
Bishop, Roger	X	X	X	X	X
Blessing, Alison K. & Breckenridge, Robert L.	X	X	X		X
Blessing, Phillip L. and Kathleen L.	X	X	X		X
Boll, Sharon	X	X	X		X
Boyd, Carylee	X	X	X		X
Boyle, Cornelia	X	X	X	X	X
Brendel, Judith E.	X	X	X		X
Britzmann, Katy	X	X	X	X	X
Brockett, Kyle				X	X
Brockett, Sonja				X	X
Bronzino, Edna				X	X
Brouchoud, Bob & Kathy				X	X
Bulder, Liedeke & Wright, Dick	X	X	X		X
Burkhardt, Joanne	X	X	X		X
Burnham, Deborah				X	X
Burns, Mrs. Robert E.	X	X	X		X
Calipjo, Lesther				X	X
Carrick, Donna			X	X	X
Carrick, George			X	X	X
Carrick, George and Donna	X	X	X		X
Cassidy, Andrea			X	X	X
Cassidy, Michael and Andrea	X	X	X		X
Caylor, Carolyn	X	X	X		X
Cerioni, Lee	X	X	X		X
Clark, Kat				X	X
Clune, Constance A.				X	X
Coe, Charlie				X	X

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Collison, David H. V.	X	X	X		X
Coon, Michael M.	X	X	X		X
Coon-Waymen, Michael & Jenica			X	X	X
Cowden, Felicia	X	X	X	X	X
Cox, Carroll				X	X
Crawford, Brenda S.	X	X	X		X
Curtis, Mya				X	X
Dalton, Judy	X	X	X		X
Davis, Amy Boudreau				X	X
Davis, Eric				X	X
Davis-Briant, Carol Ann	X	X	X		X
Decker, Lori	X	X	X	X	X
DeMarco, Richard				X	X
DeMichiel, Catherine	X	X	X		X
DeMichiel, Robert P.	X	X	X		X
deVries, Diane	X	X	X	X	X
Deyden, Myra VanOrnum				X	X
DeZerega, David	X	X	X		X
DeZerega, Sara	X	X	X		X
Di Pietro, Jeri	X	X	X		X
Diamant, Michael	X	X	X		X
Dorrance, Jay	X	X	X		X
Ebata, Ellen	X	X	X	X	X
Eckberg, Ronalee and Eric	X	X	X		X
EerNisse, Errol P.				X	X
Ellul, Beverley and Joseph	X	X	X		X
Erichsen, Andrew				X	X
Faraldi, Russell	X	X	X		X
Farias, Bronwyn				X	X
Farias, Robert				X	X
Farrell, Cheryl Ann	X	X	X		X

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Faye, Alan	X	X	X		X
Fehring, Bruce				X	X
Feldmeir, Matthew & Susan				X	X
Ferguson, James & Susan	X	X	X	X	X
Fleming, Collin and Factor, Kim	X	X	X		X
Forbes, Micha				X	X
Forer, Karl	X	X	X		X
Freeman, Margery	X	X	X	X	X
Fry, Robert				X	X
Garcia, Shawn				X	X
George, Heather				X	X
Gia, Debborrah				X	X
Gipson, Farouz				X	X
Goeggel, Cathy				X	X
Goodwin, Sharon	X	X	X		X
Gottlieb, Alan				X	X
Grace, Yojana	X	X	X	X	X
Grant, Amy	X	X	X		X
Gudoy, Gina				X	X
Hadwin, Jim	X	X	X	X	X
Hadwin, Kathleen	X	X	X		X
Hagan, Beth	X	X	X		X
Hagan, Pat	X	X	X		X
Hagensen, Julie M.	X	X	X		X
Hager, Vivian	X	X	X		X
Halliday, John & Terri	X	X	X	X	X
Hammerquist, Bridget	X	X	X	X	X
Hanohano, Kalanikumai Ka Maka ʻuli ʻuli ʻO Na Aliʻi	X	X	X		X
Hartman, Diann				X	X
Hartman, Lisa	X	X	X		X

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Hashimoto, Danny				X	X
Hayden, Chris & Diana				X	X
Hayes, Terrie and Kaohelauli'i, Billy	X	X	X	X	X
Heacock, Donald E.	X	X	X	X	X
Healy, John T.	X	X	X		X
Hee, Stephen	X	X	X		X
Heinen, Gary and Jackie	X	X	X		X
Heller, Larry	X	X	X		X
Hennessy, Tom and Ann	X	X	X		X
Herndon, Herb	X	X	X		X
Herndon, Joyce	X	X	X		X
Hibbitt, Mindy				X	X
Hiraoka, Joy				X	X
Hoff, John R.	X	X	X	X	X
Hokupaa				X	X
Holl, Sherrie				X	X
Holt, Howard & Maureen	X	X	X	X	X
Horak, Joe				X	X
Houby, Jens	X	X	X		X
Howell, David & Linda	X	X	X	X	X
Hubner, Andy				X	X
Hurley, Marisa	X	X	X		X
Ito, Y. Marvin				X	X
James, Michael				X	X
Janai, Kapua	X	X	X	X	X
Jarrett, Nancee				X	X
Jerdal, Larry and Karen	X	X	X		X
John, Ronald O.	X	X	X	X	X
Jones, Ruthann				X	X
Jones, Vince and Fran	X	X	X		X
Jorgens, Gayle and Wai, Stanley	X	X	X		X

Consulted Parties					
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Judd, David	X	X	X		X
Kalanikumai Ka Makauliuli O Na Alii Hanohano				X	X
Kallai, Hope				X	X
Kanna, Jacqueline K.				X	X
Kashiwaeda, Suzanne	X	X	X	X	X
Kaui, Trinette				X	X
Kawahara, Dawn Fraser	X	X	X		X
Kawahara, Delano H.	X	X	X		X
Kawahara, Lani	X	X	X		X
Kaye, Melanie				X	X
Keamoai, Hoku				X	X
Kechloian, Eileen	X	X	X	X	X
Kechloian, John (Jay)	X	X	X	X	X
Kelley, MaryLu	X	X	X		X
Kelly, Frank and Marilyn	X	X	X		X
Ken (no last name)	X	X	X		X
Khalsa, Dr. H.S.S.				X	X
Kinsey, Sinclair W.	X	X	X		X
Kroll, Jean				X	X
Kuala, Marty	X	X	X		X
Lauryn, Steven	X	X	X		X
Lawrence, Jr., Delton				X	X
Lee-Jackson, Debra	X	X	X		X
Leininger, Susan	X	X	X		X
Levy, Joan	X	X	X		X
Lo, Karl & Catherine	X	X	X		X
Lott, Jacquelynn K.				X	X
Low, Kristen				X	X
Lucas, Paul	X	X	X		X
Lynam, Christina	X	X	X		X

Consulted Parties					
Respondents and Distribution	**Early or Ongoing Consultation, Presentation, or Notification**	**Comments Received EISPN**	**Received DEIS**	**Comments Received DEIS**	**Received FEIS**
Macdougall, Sandy	X	X	X		X
Malapit, Lon				X	X
Maple, Stuart & Lynne	X	X	X		X
Martin, Marianne	X	X	X		X
Masters, Jeff and Deborah	X	X	X		X
Matsumura, Lynne				X	X
McCaslin, Candace	X	X	X		X
McCoubrey, Sharon	X	X	X	X	X
Meboe, Ellen F.	X	X	X	X	X
Meboe, Joe	X	X	X	X	X
Meyer, Ira & Rayme	X	X	X	X	X
Mikaila, Taressa				X	X
Miller, John W.	X	X	X		X
Mills, Mary P.	X	X	X		X
Miner, Imogene	X	X	X		X
Mizumoto, Lance C.	X	X	X		X
Mizuo, Kenneth & Lynette				X	X
Montgomery, Yuri	X	X	X		X
Morey, Lee	X	X	X		X
Mukai, Richard & Victoria				X	X
Muller, Jan	X	X	X	X	X
Muller, John T. Jr.	X	X	X	X	X
Murguia, Kathleen	X	X	X		X
Muzik, Katherine				X	X
Neudorffer, Mary	X	X	X	X	X
Nishek, Jerry				X	X
Nishimura, Randall				X	X
Norman, Rita	X	X	X		X
O'Connor, Tim	X	X	X		X
Oliver, Polli C.	X	X	X		X
Olry, Michele	X	X	X		X

Consulted Parties					
Respondents and Distribution	**Early or Ongoing Consultation, Presentation, or Notification**	**Comments Received EISPN**	**Received DEIS**	**Comments Received DEIS**	**Received FEIS**
Olson, Dick and Maria	X	X	X		X
Osterer, Lorraine	X	X	X	X	X
Oxford, Patty	X	X	X		X
Oyama, Mark				X	X
Patterson, John	X	X	X		X
Perez, Kymry	X	X	X		X
Pescaia, Carol	X	X	X		X
Petersen, Greg	X	X	X		X
Pilaria, Rowland	X	X	X	X	X
Pilaria, Shari	X	X	X	X	X
Pilaria, Val	X	X	X		X
Pinzon, Crystal				X	X
Plotkins, Pierra A.	X	X	X		X
Poindexter, James M.	X	X	X		X
Pollock, Sherry				X	X
Powers, Eve	X	X	X		X
Purdy, Ken				X	X
Purdy, Susie				X	X
R, Liz				X	X
Rachap, Allan	X	X	X	X	X
Rachap, Judith	X	X	X	X	X
Ray, Robert	X	X	X		X
Rees, Gerald and Hannah	X	X	X	X	X
Riley, Mark and Simpson, Ann	X	X	X		X
Rogers, Puanani				X	X
Rose, Mike and Laurie	X	X	X		X
Rosen, Gail C.	X	X	X		X
Rosen, Henry and Sara	X	X	X	X	X
Rosener, Matt	X	X	X	X	X
Rowe, Rupert				X	X
Rozelle, Linda M.	X	X	X		X

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Ruchaber, Krista				X	X
Rullman, Charles	X	X	X		X
Russell, Richard	X	X	X	X	X
Saiki, Michael				X	X
Salazar, Tiffany L.				X	X
Santos, Ivy				X	X
Sauve, Joe	X	X	X		X
Scamahorn, Elizabeth				X	X
Schimmelfennig, William	X	X	X		X
Schwartz, Ken and Stephanie	X	X	X	X	X
Shablow, Janette	X	X	X		X
Shaffer, Jamie H.	X	X	X		X
Sheffield, Kathy				X	X
Sherman, Dr. Irene & Douglas	X	X	X	X	X
Simms, Shelby				X	X
Sindt, Ed	X	X	X	X	X
Smith, Annick				X	X
Smith, Sarah				X	X
Smith, Stephen E.	X	X	X		X
Snyder, Eleanor	X	X	X	X	X
Sparks, Norma Doctor	X	X	X		X
Sparks, Stephen A.	X	X	X		X
Stecher, Steven & Igarashi, Portia	X	X	X		X
Stein, Jerry and Wendy	X	X	X	X	X
Steinhagen, James & Susan	X	X	X		X
Sterns, Nancy	X	X	X		X
Stone, Mary Isabella	X	X	X		X
Stone, Rebecca	X	X	X		X
Street, Nicole				X	X
Sullivan, Don	X	X	X		X
Sullivan, James	X	X	X	X	X

Consulted Parties					
Respondents and Distribution	**Early or Ongoing Consultation, Presentation, or Notification**	**Comments Received EISPN**	**Received DEIS**	**Comments Received DEIS**	**Received FEIS**
Summerfield, Yvonne	X	X	X		X
Sussman, Jay	X	X	X		X
Suzie				X	X
Swanson, Ashley	X	X	X		X
Swanson, William	X	X	X	X	X
Sweeney, Sean Keoki				X	X
Sylvester, Linda				X	X
Talaber, Cynthia & Dave	X	X	X	X	X
Taylor, Gabriela				X	X
Taylor, Ken	X	X	X		X
Taylor, Terry	X	X	X		X
Thompson, Tayemi Susan	X	X	X	X	X
Thurston, Anne	X	X	X		X
Tilley, Karen	X	X	X		X
Trapp, Max	X	X	X		X
Trentlage, Sheri & Dave	X	X	X		X
Trevino, Luis	X	X	X	X	X
Valentini, George & Littlefield, Pam	X	X	X	X	X
Valenziano, Beth	X	X	X	X	X
Varnel, Deboragh				X	X
Vernon, Ian				X	X
Viluan, Tia				X	X
Vlach, Robert	X	X	X		X
Walden, Diane	X	X	X		X
Walden, Terry	X	X	X		X
Waldrop, Mark	X	X	X		X
Waldrop, Mary	X	X	X	X	X
Waybright, Liz				X	X
Weil, Martin	X	X	X		X
Weiner, Jill				X	X
Welti, Cynthia	X	X	X		X

Consulted Parties					
Respondents and Distribution	Early or Ongoing Consultation, Presentation, or Notification	Comments Received EISPN	Received DEIS	Comments Received DEIS	Received FEIS
Werner, Mariah				X	X
Wesland, Coni	X	X	X		X
White, Allan B.	X	X	X		X
Whitney, William	X	X	X		X
Wiener, Susan	X	X	X		X
Wilcox, Mark	X	X	X		X
Wildman, Kelly	X	X	X		X
Wildman, Randall	X	X	X		X
Williams, Bob				X	X
Williams, Bob and Jeanette	X	X	X		X
Williams, Carol	X	X	X		X
Williams, Jeanette				X	X
Williams, Laura	X	X	X		X
Wollin, Pearl	X	X	X		X
Wolny, Kerry	X	X	X		X
Wolny, Pam	X	X	X	X	X
Wry, Diane				X	X
Wyeth, Hau'onalani	X	X	X	X	X
Yamada, Debbie				X	X
Yamamoto, James				X	X
Yamasaki, Morton				X	X
Yatsuoka, Vanessa				X	X
Yeo, Gwen	X	X	X		X
Zelkovsky, Robert	X	X	X	X	X
Zepeda, Joy				X	X
Zimmerman, Jack	X	X	X		X

INDIVIDUALS (CONTINUED)

Hawaii Dairy Farms DEIS

Jacqueline K Kanna <info@jkannadesign.com>
Sat 7/23/2016 2:53 PM
To:HDF <hdf@group70int.com>;

Aloha,

I am writing to support Hawaii Dairy Farms' draft Environmental Impact Statement (DEIS). I was born and raised in Hanapepe, Kauai. I reside in and operate a small business there today.

Through the voluntary EIS process, Hawaii Dairy Farms has proven that they are willing to engage with the local community, listen to concerns, and go above and beyond requirements to study the environmental impacts of the proposed dairy. It gives me great confidence to know that the DEIS has found that Hawaii Dairy Farms will improve the soil on the farm land, protect water resources, treat cows with the highest quality of care, create jobs, and revitalize the dairy industry. In addition, the DEIS states that Hawaii Dairy Farms will not negatively impact home values and resort areas, and will not affect archaeological and cultural resources.

As a 4th generation Kauai resident, mother of two sons, and aunty to many keiki, I am concerned that Kauai is dependent on importing most of ourfood. When I was a child, Hawaii produced 100% of its own milk. Today, Hawaii produces only 10% of the milk it consumes. This is terribly sad and puts us in an extremely vulnerable situation. Hawaii Dairy Farms is taking a wonderful step to increase local food production and sustainability for ourisland's families, and I am excited and encouraged by their plans.
I trust the DEIS findings and urge the State of Hawaii Department of Health to accept Hawaii Dairy Farms' EIS. I look forward to drinking fresh, local milk for years to come.

Thank you,
Jacqueline K Kanna
j.kanna design, LLC
PO Box 797
Hanapepe, Kaua'i, HI 96716
W 808.335.6468
C 808.635.2645

GROUP 70 INTERNATIONAL

January 3, 2017

Jacqueline K. Kanna
P.O. Box 797
Hanapepe, Kaua'i, Hawai'i 96716
info@jkannadesign.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Jacqueline K. Kanna:

Thank you for your email of July 23, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FROM THE DESK OF

SUZANNE KASHIWAEDA

July 23, 2016

Ms. Laura McIntyre
State Department of Health
Environmental Planning Office
919 Ala Moana Blvd, Room 312
Honolulu, HI 96814
epo@doh.hawaii.gov

Subject: Comment on HDF Draft EIS

Dear Ms. McIntyre:

I had commented during HDF's EIS preparation notice proceedings and the response from Group 70 was a form letter that did not address my initial concern regarding degradation of an ahupua`a that has been a source of rejuvenation from the chronic stresses of an emotionally draining social work career and raising a developmentally disabled son singlehandedly. Although retired, I am still in touch with individual and community needs as well as the worrisome burden of what happens to my son as I age and eventually pass on.

I am supportive of agricultural uses in Mahaulepu Valley especially if proven sustainable and beneficial to our island community. Given the demise of all dairy operations on Kauai and the troubling nature of dairies throughout Hawaii (not to mention on the mainland and in New Zealand), I question the longevity and sustainability of HDF's industrial-sized dairy. Concerns that remain troubling are:

- Should the dairy fail, are there commitments to restore the land for other agricultural uses, to dismantle buildings and other infrastructure, to mitigate any lasting impacts from any grading and use of the area? Who will enforce that the land be restored or be in better condition than before the project began?
- Reefs are already at risk and additional nutrients discharged through ground and surface waters via the extensive lava tube system would only exacerbate the problem. I'd like to see a transparent and ongoing monitoring system in place.
- While "pasture grass will comprise at least 70% of the…diet" for 700 cows, what about 3 times that amount of cows or even more if considering the newborn calves of 2000 milking cows? How do these numbers translate into nutrient discharge,

adequate grazing pastures, importing of additional feed, transportation impacts, and waste management?

- Are ranchers who will take the male calves have a plan to market them? Are restaurants committed to buy these cattle not bred for beef but for milk?
- It's very hard to believe that an extensive Hawaiian presence prior to westernization and advent of sugar plantations would not have left a footprint in Mahaulepu Valley.
- The section describing alternatives to the dairy is limited, shortsighted and not very well developed. Taro, ulu, sweet potato and other local crops have not been adequately explored. It's regretfully disappointing that Ulupono did not engage the community in planning for a project that truly puts us on a path of food sustainability for our island.

Thank you for your consideration of my comments.

Sincerely yours,

Suzanne Kashiwaeda, LSW

PO BOX 862, 4675 KULI ROAD, KALAHEO, HI 96741

GROUP 70 INTERNATIONAL

January 3, 2017

Suzanne Kashiwaeda, LSW
P.O. Box 862
4675 Kuli Road
Kalaheo, HI 96741
keola@hawaiiantel.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Suzanne Kashiwaeda:

Thank you for your email received on July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Section 4 of the EIS provides specific actions proposed to minimize potential impacts in the mitigation measures for each environmental resource category. Sections 4.20 and 4.26 address the potential cumulative effects of the proposed action. The plans for the dairy facilities and operations are subject to numerous County and State regulatory reviews, which include requirements to implement permit conditions to minimize potential impacts. Monitoring requirements will also provide accurate feedback on the effectiveness of measures, which will be refined through ongoing active management.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Setbacks and NRCS standard practices remain the same between the committed and contemplated herd sizes. Nutrients required to sustain the 470 acres of pasture are the same for the committed and the future contemplated herd size.

The development of the dairy farm facilities and future operations is not expected to have a significant impact on traffic operations in the area roadways. The projected increase in vehicle movements related to HDF operations for the future contemplated herd size of 2,000 mature dairy cows is approximately 23 additional vehicle trips per day. Projected daily vehicle counts for the year 2030 on Ala Kinoiki Road are 7,200 trips per day, with an additional 9,500 daily trips projected for Kōloa Road, totaling 16,700 vehicle trips in the vicinity. An increase of 23 vehicles daily from HDF operations would result in 0.14 percent increase in total vehicle trips in the area. HDF will contribute no significant impacts to traffic conditions on County roadways. For more information, see EIS Section 4.24.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawai'i. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land.

With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future.

For dairy operations with 700 or more mature dairy cows, regardless if the operation is feedlot or pasture-based, additional regulatory review and permitting by the State Department of Health would be required. The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to submit an application to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive milking dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

Cattle ranching on Kauaʻi spans generations, and ranchers are stewards of the lands. Healthy lands raise healthy beef cattle. Local ranchers are experienced in animal welfare, and can collaborate with HDF to care for dairy cows during annual rest cycles and to raise calves until old enough to join the dairy herd. The availability of calves from a dairy such as HDF provides new animals to maintain or expand a beef herd. Your comment suggests the potential for raising calves for veal production, which is not part of the HDF dairy farm business operation. Male calf production may be a business objective of the other ranches on Kauai, however, each ranch will manage their own business and operational goals.

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawaiʻi Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhāʻulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Based on the AIS and CIA technical reports, no significant cultural resources are located on the HDF property. Access to adjacent properties will continue to be the responsibility of the land owner, Mahaulepu Farm, LLC.

Of all the alternative actions and locations considered, the planned agricultural operations of Hawaiʻi Dairy Farm, opposed to kalo and other plantings, is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawaiʻi.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 12, 2016

Aloha,

It gives me great pleasure to write a letter in support of Hawaii Dairy Farms draft Environmental Impact Statement (DEIS). My father worked for Waimea Dairy on Kauai's west side, and I was raised there. The dairy provided a great life for my family and me, and through this experience, I saw how a dairy can directly benefit the local community.

Hawaii Dairy Farms' DEIS shows that a dairy located on Important Agricultural Lands in Mahaulepu Valley will be symbiotic with the land and surrounding community. The DEIS notes that Hawaii Dairy Farms will improve the soil of their pasture land; protect water resources; no flies, odor, noise, dust runoff or other nuisances will extend to resort and residential areas; cultural and archaeological resources will not be affected; and home values will not be negatively impacted.

Hawaii Dairy Farms will utilize a sustainable pasture-based model that maintains healthy grass as the primary feed source for the cows. This ensures that their business model will not be solely dependent on importing feed, and increases Kauai's food security should we be faced with a natural disaster or any other issue that will disrupt food imports.

For more than two years, Amy Hennessey from Hawaii Dairy Farms has reached out to the community to share information and answer questions. Hawaii Dairy Farms willingness to collect community feedback and conduct a voluntary EIS is truly commendable. I have found Hawaii Dairy Farms communication to be trustworthy and reassuring.

As a Kauai resident, businessperson, and mother, I welcome Hawaii Dairy Farms into our community to increase locally produced food for local families, revitalize the dairy industry on Kauai, and diversify our agricultural industry. Hawaii Dairy Farms and its DEIS has my full support.

Mahalo nui loa,

Trinette Kaui
243 Koili Lane
Kapaa, HI 96746

GROUP 70
INTERNATIONAL

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OF COUNSEL

Ralph E. Portmore FAICP
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January 3, 2017

Trinette Kaui
243 Koili Lane
Kapaʻa, Hawaiʻi 96746
tpkaui@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Trinette Kaui:

Thank you for your email of July 12, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

HDF@Group70int.com

miss melany <melanie_kaye@hotmail.com>

Tue 7/19/2016 3:39 PM

To:HDF <hdf@group70int.com>;

Please please please for the love of our Father In Heaven, we don't need another cow pasture, nor a dairy farm.
This island is already inundated beyond belief with human waste from ships that dump offshore, portapotty waste dumped in various places, overflowing septic tanks, pig, human, rat, cat, dog, chicken, and goat fecal waste. God only knows what else is in the water.
And will it make milk affordable? No. Look at Kauai Humane eggs. They are like 9 dollars a dozen.
Sorry but no, this isn't worth it. We need a fruit forest, just like Omidyar promised. Ulu, mango fruit trees, puakenikeni trees, flower farms, japanese tea gardens. These are the things that will make this island what it truly is. The Garden island. It's paradise.
Please don't destroy paradise by doing what everyone else is doing.
The world doesn't need another dairy farm. I lived next to one. It was disgusting. The farmer would spray his fecal matter everywhere to "fertilize" the grass. The whole place stunk for miles around. This is the reality. It will also destroy real estate values and I'm sure that's the last thing this beautiful paradisical garden island wants or needs right?

GROUP 70 INTERNATIONAL

January 3, 2017

Melanie Kaye
melanie_kaye@hotmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Melanie Kaye:

Thank you for your email of July 19, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

The planned improvements and operations at Hawaiʻi Dairy Farms are compatible with and supportive of State of Hawaiʻi and County of Kauaʻi land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawaiʻi Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kauaʻi. The dairy is also consistent with the provisions of the State of Hawaiʻi Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhāʻulepū lands under the County of Kauaʻi General Plan and the South Kauaʻi Community Development Plan.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawaiʻi.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Hawai'i Dairy Farm at Maha'ulepu

Onceago Keamoai <onceago@hotmail.com>

Sat 7/23/2016 2:45 AM

To:Laura.McIntyre@doh.hawaii.gov <laura.mcintyre@doh.hawaii.gov>; HDF <hdf@group70int.com>; info@hawaiidairyfarms.com <info@hawaiidairyfarms.com>; councilmembers@kauai.gov <councilmembers@kauai.gov>;

Aloha Everyone,

My name is Hoku Keamoai and I am a resident of Westside Kaua'i.

Today I am writing because I oppose the proposed Dairy Farm at Maha'ulepu. My na'au tells me that this Dairy is a very bad idea and is going to be a decision that we will regret in the future if we allow this to happen today. For those of you who are not from here, born and raised, you will never see this island through our eyes. You see profits and economic gain, we see beauty and history and our ancestors. This perspective will always be the dividing line between us. Although your facts and research have cost you and perhaps us a great deal of time and money, that is not what concerns me. A wise man once told me, "When your attitude is right, the facts don't matter." My attitude right now is to stop this Dairy.

What is the Dairy really about? Be honest. My na'au is telling me that the Dairy is about using agricultural land for economic means as a way in to convert the plan to commercial properties and real estate in the future and bring in the big money. Tell me I'm wrong, but be honest. I would like to believe that the cows will not smell, that the jobs created will be plenty and for the Hawaiian residents, that the milk will be processed here and not be shipped out to another place to be processed and then sold back to the people. But, ...

These are things that make me lie awake and wonder because if we do not listen to our na'au, it will not guide us one day and warn us about such dangers coming in the future. As we sell out more of our lands for money, pieces of our soul are being sold out too. If you are comfortable with that, then perhaps you can sleep at night knowing that you are doing the right thing.

The biggest problem here is that we are buying most of our products from outside of Hawai'i and outside of Kaua'i. If you truly care about Kaua'i, why not apply your money to sustainability? After all we are the Garden Island...

Mahalo nui for your time and understanding,

Hoku Keamoai
a Hawaiian that cares

GROUP 70 INTERNATIONAL

January 3, 2017

Hoku Keamoai
fivestarkauai@aol.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Hoku Keamoai:

Thank you for your email of July 23, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

The planned improvements and operations at Hawaiʻi Dairy Farms are compatible with and supportive of State of Hawaiʻi and County of Kauaʻi land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawaiʻi Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kauaʻi. The dairy is also consistent with the provisions of the State of Hawaiʻi Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhāʻulepū lands under the County of Kauaʻi General Plan and the South Kauaʻi Community Development Plan.

While it may be ideal for Hawaiʻi Dairy Farms to have an on-island milk-processing partner, it is logistically, financially and technically difficult to start such a business in conjunction with developing the first pasture-based dairy farm in the State. The most feasible and sustainable plan is to process HDF's milk with an existing provider on Oʻahu or Hawaiʻi Island. In the future, on-island processing may be a more feasible option. For more information on the purpose and need for the project, see EIS Section 2.0.

Under the proposed action, HDF would sell raw milk wholesale to a processor and packager. Milk processing, including pasteurization, bottling, and packaging of milk, would be done independently of the dairy. For more information on processing, see EIS Section 3.6.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawai'i Island milk.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 25, 2016

State of Hawaii – Department of Health

Laura McIntyre, Environmental Planning Office

919 Ala Moana Blvd., Room 312

Honolulu, HI 96814

Re: Hawaii Dairy Farms, Kauai

Doh.epo@doh.hawaii.gov

HDF@group70int.com

jim@hawaiidairyfarms.com

Comments to be considered in preparation of an Environmental Impact Statement for:

Project Name: Hawai'i Dairy Farms

Island: Kaua'i

District: Poipu

TMK: (4) 2-9-003:001 (portion); 006 (portion)

(4) 2-9-001:001 (portion)

Part 1 document of 3 documents

Aloha Ms. McIntyre:

I was underwhelmed by the response I received on my comments to the EISPN.

I received a form letter that was a cut and paste of the DEIS. It was my understanding that Hawaii Dairy Farms (HDF) and Group 70 were to respond on a question by question, comment by comment manner. (HEPA, January 2012 Section 343-5, HRS, mandates a 45- day comment period for a DEIS. The EIS is a more complex screening tool than either the exemption declaration or the EA to examine proposed actions for probable impacts on the environment. Accordingly, the process around an EIS is augmented with additional tools (beyond those used in the EA) to ensure that the document is distributed for and reviewed by agencies, organizations and individuals, in a timely manner (see Section 11-200-21, HAR, concerning distribution of the draft and final EIS), and to further ensure that comments are responded to by the proposing agency or applicant in a point-by-point manner (see Section 11-200-22, HAR, concerning public review of an EIS). Section 11-200-17, HAR, prescribes the required contents of a DEIS, while Section 11-200-18, HAR, prescribes the contents of a FEIS. *Practice and Implementation of HEPA, January 2012)* What I received was far from a response to my individual questions. It was also filled with information I had not commented on because it was cut and paste. I was very disturbed when I opened the DEIS to see that my letter and Group 70's response were typed sideways and in font so small (7pt. font) so that they could put two pages on one page sideways. This made it so when you opened it up to read it on your computer you would have to use a magnifying glass and stand to the side of your computer screen with your head sideways. This posed even a more significant problem to one man that has recently gotten out of intensive care and could not physically stand with his head tilted sideways to read his response letter. These letters need to be properly done and redistributed to the community. The intent the writers of the DEIS had in making it difficult for the community to read the responses was not missed by myself or the community. If the attempt was to frustrate the community it was successful but it also infuriated the community and showed to us that HDF is anything but a good neighbor. The use of extraneous information, repetitive information and information spread out over different sections instead of being located together also did not go unnoticed. There were multiple places in the DEIS where the facts stated conflicted directly with information on other DEIS pages. The intent was clear.

I was not contacted and asked if I wanted a hard copy of the DEIS. I went to the personal expense to have it printed out. I did receive a CD with the report on it but most newer computers, like mine, no longer come with CD drives. I am sure HDF is aware of the discontinuation of CD drives. I was contacted by an ill gentleman, who could not use a computer to help him. I printed it out for him and mailed it to him at my expense. I made other hard copies available for citizen's that asked for hard copies for various reasons such as partial blindness. No braille copy was made available to my knowledge which placed the visually disabled at a disadvantage.

Hawaii's Environmental Policy Act – Citizen's Guide October 2014 - 6.3 Distribution, Page 19 "To avoid unnecessary printing costs, OEQC recommends contacting the parties identified in the distribution matrix to discuss whether a hard copy or electronic copy of the EIS is preferred."

I would still like answers to my questions. Let's start with the request to have all possible breaches being identified. Please identify them. Saying it won't happen is not sufficient. Saying it has never happened is 100 % inaccurate. Page 7 of your response to me stated "and no flooding events in the period following passages of the storms." In the letters sent to you by Mr. William Schimmelfennig reads:

"**From:** William Schimmelfennig [mailto:wschads@hotmail.com] **Sent:** Monday, February 09, 2015 12:53 PM
To: EPO
Subject:

I've hunted in that valley back in the day and have seen that whole lower section under a foot plus of water. in the 80's, when I worked in the fire dept. we saw a huge waterfall coming off of Mount Haupu. That was on the Koloa end of that valley. Where do you think that water went but in the area where the dairy wants to be.

Submitted by, William Schimmelfennig"

Volume 1 page 70 states," Nonetheless, the storage pond design incorporates an emergency spillway to direct overflow to a secondary containment area in case of a cataclysmic event. This containment is beyond the regulatory requirement, and would only be utilized during an unprecedented rain or flood event. "There is no description as to how the secondary containment is made. What is to stop it from giving way under the weight of flood water? How is the water and contaminants removed from the secondary containment after a rain event? Is it to drain into the ground water and thusly our unconfined aquifer (per County of Kauai SWAP report)? The volume that is stated in the DEIS that this secondary containment is to hold, does this include the water from the rain event that will fall directly into it? Or is the true amount of breach containment less because of the direct rain?

Page 365 of volume 2 states, "Sluice gates emptying into the valley were found, but there were no associated ditches, suggesting the gates may have been placed there to deal with overflow or flooding, and not necessarily for the irrigation of a specific field."

** In September 1996, there were six days of continuous rainfall, followed by a week of intermittent rainfall, bookended with another seven days of continuous rainfall. This event did create flooding in the valley as flash floods came down off Ha'upu. If the dairy were approved and constructed, such a significant rainfall event could cause the lagoons to fail and almost certainly to overflow, releasing substantial amounts of manure that will eventually flow and runoff into surface waters. I witnessed a rain event that lasted 45 days. Cars were floating all over the island. A major dam breached and failed killing eight people below it. (Plueger incident) This tragedy could happen again. HDF should not be in this location.

This valley was once a swamp. It has a shallow water table and the soils are quickly saturated which will cause and has caused significant flooding. HDF should not be in this location. See attachment 1.0

These notations suggest strongly that flooding occurs and a real plan needs to be put in place. At the very least the consequences and impacts of a flood caused by a rain event should be studied and included with detailed a remediation plan. HDF should not be allowed to open a dairy in this location.

Vol. 2 page 19 (27 of 732)

"All of the water ditches on the property (and the 'auwai around the margin of the valley floor) are coded "R4SBCx", which represents: intermittent (seasonally flooded) flowing water, in an excavated channel."

Page 116 of volume 1 reads:

"4.6.2 Impacts that would be considered significant related to natural hazards could include: • Damage to facilities or harm to personnel or livestock from natural hazards; and • Failure to anticipate and plan for protection of the dairy facility and operations from a natural hazard. "

**This appears to only take into consideration the dairy itself and not all that lives downstream from the dairy. This includes but is not limited to, fish, birds, humans, insects, seaweed, endangered species and the coral reef. The damage to these externalities would be a significant impact. You cannot ignore this significant impact, it will not go away. HDF should not be in this location.

These same externalities are minimized in your DEIS when it considers the effect of the Phosphorous and nitrogen. Phosphorous in the stream and ocean will remove the available oxygen from the fish, water plants and coral. This is a significant impact as the stream already has phosphorous in it per USGS tests. See attachment 2. On page 304 of volume 2 it states that on Oct. 14, 2014 site 8 had a reading of 2.30. On Oct. 29, 2014 site 8 had a reading of 4.30, on May 8, 2015 site 8 had a reading of 3.89; phosphorous should be below 0.05 geomean to meet state standards. Based on your own tests the ditch/ stream is substantially over 0.05 How do you think it is possible for you to put any more phosphorous in the stream, even if HDF finally figured out how much it truthfully is going to discharge. HDF should not be in this location.

I find that there is conflicting information in your DEIS when it comes to the amount of phosphorous HDF intends to discharge. On page 151 of volume 1 it states that 1 % of the phosphorous will be discharged. On page 159 of volume 1 it states 900 pounds per year. On page 195 of volume 2 it states 3,695 pounds of phosphorous would be discharged. HDF should not be located here.

Another set of questions that went unanswered. What leads HDF to believe Grove Farms can supply them with 3 million gallons of water per day that they require to operate, When Grove Farms is not a utility company? Saying the water is going to come from your "allocation" of water doesn't cut it. Who allocated it? Certainly not the people of Hawaii.

** The Hawaii constitution in its Public Trust Doctrine states, "The State has an obligation to protect, control and regulate the use of Hawaii's water resources for the benefit of its people." It doesn't read for the benefit of Grove Farms or HDF.

Unanswered question: What will HDF do to get 3 million gallons of water per day when, as in Maui, the water is returned to its natural course?

Unanswered question: What size bond is HDF putting up for cleanup should a natural disaster happen? If there is no bond what is the rationale behind that when anyone who lives here knows it's a matter of when?

Unanswered question: What will be done to protect the cows from the extreme heat (over 90) degrees and up to 104 degrees (per page 59 of HDF waste management plan) of the valley as there are no trees for them, only Norfolk pines lining the driveway? Over 150 trees were destroyed per Jim Garmatz deposition.

Unanswered question: What steps has HDF taken to keep soil from being washed into the stream during grubbing and grading?

**Mr. Moule of the Engineering Department of the County of Kauai wrote regarding the grading and grubbing requirements of Grading Ordinance 808. "HDF acknowledges that its grading and grubbing operations are to be conducted in accordance with County Grade Ordinance No. 808. Specific plans for best management practices will be implemented to minimize soil erosion and sedimentation."

And yet per Jim Garmatz testimony under oath in his deposition on page 78, "Q. Did you have **any** BMP's in placed related to the harrowing that you did on **any** of the acreage on the facility? A. NO."

See number 3 attached testimony.

Unanswered question: How will HDF cleanup the stream before bringing cows? The Dept. of Health showed that in 2008 and 2010 readings for this area were in acceptable range.

Unanswered question: Please cite where you found the information that there were concerned citizens over the loss of Ag land that wanted Grove Farms site (HDF) protected under IAL? Grove Farm submitted the property for IAL designation after they were working with HDF.

Unanswered question: If an invasive species is already on Kauai, explain your thought process that more is better or alright to establish in respect to the Kikuyu grass?

**Especially in the light of the letter HDF and Ulupono received from NRCS stating that NRCS could not recommend the use of Kikuyu grass as it is a noxious weed on the HDF property? See attachment 4

Unanswered question: Kikuyu grass is toxic to cows if they eat it down past a certain point, How is HDF going to monitor the grass so the cows aren't sickened? Does HDF even know this information?

Unanswered question: HDF states the quality of the land was studied during the designation process and was determined to be high quality land. How is that?

**The Garden Island Newspaper reported, "During Friday's hearing, the county of Kaua'I's Planning Department called into question the quality of the soil," also the NRCS soils Report for this specific piece of property states that this site is not good for an animal waste application.

Unanswered question: The EISPN states that in September and October 2014 a waste management plan was reviewed by the DOH. Was the waste management plan approved by DOH? Your DEIS also states it was reviewed by DOH.

****Was HDF's Waste Management Plan APPROVED?**

Unanswered question: Aren't the cow raceways sloped so water will runoff and not destroy the integrity of the walkway? What is the distance from the edge of the walkway to the closest edge of the reopened drainage ditches that are connected to the Waiopili stream?

Unanswered question: Will manure and the urine from the cows twice a day trek to the milking barn be cleaned up off the walkways that are sloped to open ditches? Since the walkways are sloped should the 35-foot setback actually be extended to accommodate the pitch of the road directing the runoff off the road/ walkways?

Unanswered question: What was done to protect the receiving waters of the Waiopili stream and ocean during the cleaning out and reopening of the ditches from soil erosion?

Unanswered question: What will be done with the milk in the storage tank should the milk's temperature reach above 45 degrees? How will this affect the ditches, stream and the ocean? How many gallons of milk would this be if the storage tanks are completely filled?

Unanswered question: Before HDF gets approved for their operating permit from DOH won't HDF need to get approval from DNLR?

Unanswered question: Has HDF considered eliminating the settling pond and instead first removing all of the particulate from the wash down water, using a passive or automated incline screen followed by a continuous sand filter, like a Dynasand? If so why did you not explore this option as by using this process you would have a higher quality effluent to hold in the irrigation pond, making a flooding event considerably less damaging to the environment? For what reason would you not use a system that the solid waste would be dewatered at the source and easily used for composting or waste-to-energy? If this system was used with aeration of the pond then the odor would be minimized. Why would you not be a good neighbor and minimize the odor through this process? If you chose the CAFO alternative and used the Dynasand method then less water would be needed. Why not use less water?

Unanswered question: HDF talks about covering the effluent ponds when speaking with the community, why not commit?

Unanswered question: Why not consider using smaller multiple sites for your cows, when considering alternatives, this would be more environmentally sound? Is it all about the money or is the environment worth spending more money to protect it?

Unanswered question: What large land owners besides Grove Farms in the Hawaiian Islands have you contacted and taken a serious look at the feasibility of their sites? Would any of them been more protective of the environment? How many of the sites be more protective of the environment? If the sites were more protective, what was the rationale behind rejecting the sites?

Unanswered question: Do you believe the Important Agricultural Land designation with all its tax benefits was intended to help small farmers succeed and not for large profitable corporations? If that were the case that it was for large corporations, please explain to me why there was a bill in the house and one in the senate that would of limited the IAL benefits to the small farmer?

Unanswered question: HDF states in the EISPN that initial operations are permitted to begin with up to 699 cows. Where is the operating permit? Could you make a copy available to the community?

Unanswered question: What access will the community be allowed to the cultural sites? How are these sites to be protected from the effects of acid rain that is produced when hydrogen sulfide produced by the cows meets with rain? Please be specific.

Unanswered question: How often does the temperature in the valley exceed 86 degrees? What are the highest of the temperatures that exceed 86 degrees? How will the cows be protected during this extreme heat?

Unanswered question: How many times has the rainfall exceeded 50" per annum? When was the longest and most extended rainfall event recorded on Kauai? What major events happened during this time? How would this effect soil erosion in the valley?

Unanswered question: The EISPN states the average annual rainfall in Maha'ulepu is 50" why is this figure so different than the 60" to 100" mean annual precipitation cited in the 2014 NRCS Soils report?

Unanswered question: The EISPN states that during hurricanes, operational plans for safekeeping of the dairy's livestock will be identified in the Draft EIS. What about the enormous quantity of manure on the ground, how will that be protected from leaving the dairy during a hurricane that comes with torrential rains?

Unanswered question: What are the readings from the baseline air quality test? If HDF hasn't done a current air quality study before any cows come, why not?

Unanswered question: What are the noise readings from HDF baseline study? If HDF hasn't done a baseline study, why not?

Unanswered question: How many decimals is the bawling of a new mother cow when separated from her calf? How many decimals higher in terms of human hearing is the bawling at night when ambient sounds disappear? Based on HDF's plan approximately 333 cows will be separated from their new born calves every two months. What is the decimal reading of 333 cows bawling after being separated from their calves? How many days on average do mother cows bawl for their calves and how many hours per day on those days?

Unanswered question: How does the EPA level compare to the noise level of cows bawling?

Unanswered question: Will HDF have an air monitoring system on location? What type of system? How is it calibrated for accuracy? Who will be responsible for recording the readings and alerting the community and officials when it surpasses Hawaii's or EPA standards, will it be an unbiased person or an HDF employee? How often will the reading be reported to the community so as to alert community members with respiratory problems? What are the readings on the six pollutants for air quality established by EPA (NAAQS) that should not be exceeded? What will HDF do to resolve the problem of poor air quality if it should occur for each of the six pollutants? How will the farm workers be protected from air pollutants seeing as they would get the brunt of the pollution? What kind of health insurance will be provided for the workers?

Unanswered question: In regards to your irrigation system. What is the dimensions of the 2 pivots circles- radius etc.? How many wheel assemblies are there and what is the tonnage load per wheel section both empty and full? How are the certain ruts treated? What is the total mileage of the individual wheel section tracks? What are the specs re: slope climbing ability of the HDF pivot system? Where is it emptied out when transitioning between effluent spreading and irrigation use? What is the uniformity/spread certainty, error rate distance of the end gun system that HDF proposes? Rutting is a common problem with wheels/boons getting stuck. Will this create an over application of effluent? How is HDF going to deal with wheel rutting problems causing new ditches in which the water/effluent can flow into the stream?

Unanswered question: The plan that West Kauai Soil and Water Conservation approved in 2013 is no longer as that plan was unacceptable to DOH and a complete new plan(July 2014) has been adopted by HDF.

When is HDF going to submit the new plan for approval to the West Kauai Soil and Water Conservation? When called WKSWC knew nothing about a new plan nor they know about the review that was "in progress" as stated in the DEIS.

Unanswered question: What is the depth to Water Table for the soil (KavC) pod 159 of the burial pits? Are you planning on leaving 2 feet of soil above the water table before HDF buries a cow? Are you planning on spacing the dead cows 2 feet apart horizontally? HDF's archaeologist said at the Feb 19th, 2014 meeting that the water table was at 3.5 feet deep. If you need to leave 2 feet above the water table that would only leave 18 inches. How wide are dead cows?

What are your calculations on how many dead cows you can bury In your cemetery? Where is HDF going to put them after the cemetery is full? Will the cemetery seep deteriorated matter to the nearby wetland on the property next door? What steps will be taken to stop possible seepage? Should there be seepage how would this impact the endangered and water birds? How is HDF going to stop the large rain runoff from coming down the mountain and floating up the dead cows?

Unanswered question: Where is the large depression referred to in the Kaua'I Reconnaissance Survey? Page 19 reads, "According to a state source, nēnē, koloa and other waterfowl frequent the taro lease land in Māhā'ulepū valley, and a broad natural depression in the valley that fills with water after heavy rain draws many waterbirds. Sixty koloa individuals were counted during one such event (Kaiakapu 2007)."

What is being done to protect it? This wetland has been identified by National Fisheries and wildlife services and is available on the internet. See attachment 5. This is also the marsh paddocks that the AIS draft identifies as paddock 135 to 137. See attachment 6

Jim Garmatz in his deposition identified this area as being flooded during rain event. And yet Tom Nance the hydrologist for Group 70 and HDF failed to find it. That puts his credibility into question. Why was he hiding it? Doesn't the fact that this area is being called a wetland and a marsh and flooded not denote that the water table is very shallow in this location. Also in the AIS the archeologist states that he hit the watertable in nine of his trenches that were all less than 5 feet deep.

Unanswered question: How will the Makauwahi cave that floods every couple of years, be protected from contaminated runoff from the HDF site? This contamination would include manure, urine, fertilizers, antibiotics, hormones and phosphorous and nitrates?

The Kauai Reconnaissance Survey states that it is hydrologically linked. Page 29 reads 'Though Māhā'ulepū valley's streams and wetlands were modified, their remnants remain; these expand and become especially visible during wetter periods. The former Wai'ōpili stream—largely subsumed by the ditch system within the cultivated area at Māhā'ulepū— emerges in more natural form near Makauwahi Cave at the south end of the study area, where it joins forces with a natural spring and a remnant of the once much larger Kapunakea Pond. This wetland juncture attracts waterbirds and serves as nursery habitat for native fish. It is linked hydrologically to the important Makauwahi Cave complex, a critical habitat for endangered arthropods"

Unanswered question: How is HDF going to protect the community from being bit by the biting flies while trying to enjoy the beach? How is HDF going to protect the community at large from biting flies?

Unanswered question: Will HDF be responsible for all medical bills, pain and suffering inflicted by the biting flies as a vector for disease? Have you studied the diseases caused by flies as a vector? Why not? Are you going to make the study available to the community at large?

Unanswered question: What is HDF going to do to protect the wetlands and nesting environments from becoming inundated with the invasive kikuyu grass causing the endangered species loss of their forage?

HDF was told by NRCS that they could not support the choice of Kikuyu grass. Kikuyu is a noxious weed per NRCS letter see attachment 4

Unanswered question: What will be done to protect the waterbirds, the Newell Shearwater, the migratory birds, the indigenous species, the terrestrial Invertebrates, the marine vertebrates, the reef fish, the arthropods and the seaweed that the local people gather? Please address these individually citing their habitat needs and how those are being protected? What will be done in the event of a breach to insure that these species are not desecrated? If a breach were to happen this would be a significant impact. HDF should not be located at this location.

Unanswered question: The social-economic impacts will be greatly significant. How much will house values drop within 5 miles of the dairy? Please denote these figures for every half mile increment.

Please do an accurate and professional social-economic study. Don't tell us that the values of our properties will go up because HDF is located close by. That is preposterous! As a former Real Estate Broker with appraisal credentials, telling the community their property values will go up because of proximity to HDF as you do in this DEIS is a bald face lie.

Unanswered question: How far can flies travel? Once a fly reaches another moist area, how far will it fly from there? How many larvae does each fly lay? What is the exponential number of flies after a year of the dairy opening if we start with one fly per cow (2,000 flies)? How will this affect homes with pools value within 5 miles of the dairy? As it is known that flies are attracted to swimming pools and barbeques.

Unanswered question: Many dairies purchase the homes that are impacted by their operations, how many will HDF purchase? How do we get HDF to purchase our homes?

Unanswered question: How far will the odor travel based on an average day's northeasterly or easterly wind speed of between 15-17mph? How will HDF protect the community including our Keiki and Kapuna from the gases and particulate produced in the air by the dairy? What about the community members that have compromised lungs?

Will HDF pay for their medical expenses if their conditions take a turn for the worst after the dairy is in?

Unanswered question: The EIS must study the impacts to the environment and study the potential impacts to the Poipu visitor economy which will be significantly impacted by the environmental consequences of such an intensive land use in the Maha'ulepu valley. How many jobs would be lost at the Hyatt because of odor and flies? The DEIS does not include a proper economic impact study. The information is severely lacking. Just because you say they will be no odor that will affect our homes doesn't make it so. Provide us with an expert study. The community is not stupid. Many have lived near or on dairies or at a minimum driven by one and could smell it at a distance. Telling us only 50 % of the people will be bothered by the smell is not comforting or acceptable.

Unanswered question: Does HDF plan on remunerating the Hyatt for lost business? What about the owners at Poipu Kai and other vacation rentals loss income?

Unanswered question: What will HDF do to address the impact of acid rain created by the off gassing of their cows? What about the archeological sites, how will the acid rain affect them?

I have more comments and questions that have arisen from reading the DEIS. Please answer these questions and respond to my comments in a question by question, comment by comment manner as required by HEPA 2012 (<u>to further ensure that comments are responded to by the proposing agency or applicant in a point-by-point manner (see Section 11-200-22, HAR, concerning public review of an EIS).</u>

Comments to DEIS on Volume 1

Volume 1 page 114 of 299

"However, natural variability in ocean circulation and atmosphere has allowed potentially destructive storms to reach Hawai'i from the east. Hurricanes Dot (1959), Iwa (1982), and Iniki (1992) all approached from the south and passed near Kaua'i."

**** This is a flagrant misrepresentation of the truth. The Environmental Assessment for Well F states "The work to prepare this Environmental Assessment and contract documents for exploratory well drilling and testing had been delayed two years due to Hurricane Iniki, which struck Kauai in September 1992."**

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"The review of property values adjacent to beef cattle operations in the region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 for a lot, to $2,893,100 for a lot with home. Clearly, beef cattle operations are compatible with nearby homes, commercial areas, resorts and recreational areas. The ranching and rural ambience adds to the value."

**** another flagrant misrepresentation. "In other similar situations, surrounding property values declined by 26% to as much as 88% as a result of these factory farms." Letter to Mayor Carvalho by John Kilpatrick, PHD, MAI. I would like to see at the minimum a study or two that site the effect on property values or an economist's report. I am a former Real Estate Broker with appraisal credentials. The values of homes in Koloa/Poipu will plummet which will start a cascading effect on revenue loss for the county of Kauai, who will in turn need to raise the property taxes on the other homes on the island to meet their budgeted expenses. The dairy will further affect the entire state when the 2600 plus employees on the south shore begin to lose their jobs and need to collect unemployment and many families around the island will file to receive welfare benefits.**

HDF Volume 1 DEIS pg 1-8 (pdf pg 26)
"As a safeguard, the HDF ponds will be sited within a secondary containment area, which provides greater backup containment capacity than called for under the regulatory requirements." HDF Volume 1 DEIS pg 1-8
*** what is the material used for the backup containment? Why will the waste water not travel through the material into the ditches and then the ocean?

HDF Volume 1 DEIS pg 3-29 (pdf pg 81)
"…areas for nutrient application will be recently grazed paddocks that are in a regrowth period for approximately 18 days – a "rest" period for the paddocks, as the grass will require significant nutrient during its regrowth phase.
Soil moisture and the amount of precipitation will also determine the actual amount of both irrigation water and effluent to be applied in an application. Any deficit below field capacity determines the amount that can and may be applied. The frequency and number of heavy rain days will dictate the schedule of both irrigation water and effluent application. The maximum flow rate from the pump injecting the effluent from the storage pond is 320 gallons per minute (gpm). During the 48-hour cycle, roughly 0.12 inches of effluent water is applied via injection into the irrigation water to the center pivot, as part of the 0.39 inches of total irrigation per cycle." HDF Volume 1 DEIS pg 3-29
***** 0.39 inches of total irrigation per cycle is higher than the Ksat indicated in the NRCS soils studies that was done for these soils on this site. This figure needs to be adjusted. It does not account for any rainfall which would also limit the amount of water/ effluent that can be added to the soil.

HDF Volume 1 DEIS pg 3-29 (pdf pg 81)
"The following liquid effluent setbacks are incorporated into the design to prevent application of effluent within the distance specified below:
• County Well Kōloʻa F – 1,000 feet on all sides (through County DOW agreement)
• Irrigation ditch, agricultural water, and natural water resource - 50 feet from top of bank of
the water resource on both sides.
• Cow walkways and races - 6 feet on both sides
• Existing taro farm - 20 feet on all sides
The setback distances from water resources are based upon requirements contained within the "Guidelines for Livestock Waste Management", by University of Hawaiʻi Mānoa, College of Tropical Agriculture and Human Resources (CTAHR)." HDF Volume 1 DEIS pg 3-29
**** One of the raceways parallels in a ditch/stream but if the setback is only 6 feet from the raceway then it would not be far enough away from the ditch/ stream. This can easily be seen by how close the ditch/stream is to the raceway near the Taro field. At the taro field the ditch/stream is open and readily seen, but goes underground it runs east. What is to keep the Manure and urine that are dropped by the cows from entering into the stream/ ditch as they walk down the raceway?

HDF Volume 1 DEIS pg 1-10 (pdf pg 28)
"…thatch, nutrients are incorporated into what is effectively an organic net. Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours. Microbes such as bacteria, protists, and fungi will break down the manure and effluent through decomposition into its nutrient components to make these readily available for uptake into the grass crop and plant matter. Even with the applied manure and effluent nutrients," HDF Volume 1 DEIS pg 1-10
*** break down of manure in 24 hours...fantastic break through! Then why do you need dung beetles?

HDF Volume 1 DEIS pg 1-14 (pdf pg 32)
"With the dairy in operation, during periodic seasonal storm water runoff events (about 10 times/yr) there may be additional nutrients introduced to the agricultural ditches, which ultimately drain to the nearshore ocean water. The findings of the water quality evaluations are presented in Sections 4.16, 4.17 4.22 and 4.23. The complete studies are presented in Appendix E and Appendix F." HDF Volume 1 DEIS pg 1-14

** Seasonal storms only 10 times a year yet Vol. 2 page 92 states, “It is estimated there will be 7 to 8 days a year in which rainfall derived runoff will occur (TNWRE 2016)” So more inaccuracies for the community to deal with in our comments. Which of these statements on your part are true?

HDF Volume 1 DEIS pg 1-14 (pdf pg 32)
"There is also the potential for vector insects such as flies to become established at the dairy farm, controlled by Integrated Pest Management measures. The findings of the manure-related insect study are presented in Section 4.11, and the complete study is presented in Appendix B. Air quality in the immediate vicinity of the dairy farm (within 1,700 feet) may, in the worst-case conditions, be affected with odors from the effluent pond and manure in the pasture paddocks. The findings of the air quality odor model are presented in Sections 4.19 and 4.25, and the complete study is presented" HDF Volume 1 DEIS pg 1-14
**Only stinks 1,700 feet. A bit more than the 50 feet Amy stated at the public meeting.
**“CAFOs uncovered: the untold costs of confined animal feeding operations”; Cambridge, MA : Union of Concerned Scientists, 2008. Doug Gurian-Sherman; Union of Concerned Scientists. Page 60 states “Adverse effects are often significant at distances of up to two or three miles from CAFOs, and become more severe as operation size increases. One study in particular noted a strong correlation between the types of symptoms reported by residents and those studied in CAFO workers, especially respiratory and gastrointestinal distress, strongly suggesting that CAFOs were the cause (Wing and Wolf 2000).”

HDF Volume 1 DEIS pg 1-16 (pdf pg 34)
“It is anticipated that the HDF dairy herd can be increased well beyond 1,000 to 1,500 milking cows and be sustainable from an operational and environmental perspective. Expansion beyond the 699 milking cows level will require issuance of a CAFO/NPDES permit by the State Dept of Health. With careful monitoring of the operations and the natural systems, including the soils, pasture grasses and water quality, the dairy scaling can be accomplished with sensitivity to the various indicators of carrying capacity. The potential for HDF to reach the upper scale of 2,000 milking cows at the dairy may or may not ultimately occur, depending upon the operational sensitivities and the indicators…”
HDF Volume 1 DEIS pg 1-16 (pdf pg 34)
***Why doesn’t HDF get a NPDES for the 699 cows so as to be a good neighbor?

HDF Volume 1 DEIS pg 2-8 (pdf pg 48)
"After significant research and inquiry, New Zealand's grass-fed model was found to be the cleanest, most cost effective method for sustainable dairy production in Hawai‘i.” HDF Volume 1 DEIS pg 2-8 **This is another contradiction in this DEIS as other parts of the DEIS site other models. So which model are you truthfully using?

HDF Volume 1 DEIS pg 2-9 (pdf pg 49)
"For dairy operations with 700 or more mature dairy cows, additional regulatory review and permitting by the State Department of Health is required. The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive milking dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation." HDF Volume 1 DEIS pg 2-9
** I do not believe this DEIS should be used for the larger capacity of more than 699 cows as by time that would happen there will be more information available to inform our comments and the decision making process of the DOH.

HDF Volume 1 DEIS pg 3-2 (pdf pg 54)
"…floor grazed by cattle from 2002 to 2013. Approximately 400 – 500 head of beef cattle were shifted off the valley floor to surrounding properties upon HDF’s lease. Taro cultivation was introduced on an adjacent parcel in 2007 when landowner Grove Farm offered small parcels with access to water to individual farmers in an effort to establish an agricultural park of varied users. The land was originally owned by Grove Farm and Visionary, LLC (Līhue Land Company) and transferred to Mahaulepu Farm LLC in 2011.” HDF Volume 1 DEIS pg 3-2
** Who had 400 to 500 head in the valley, was this at one time? Certainly not the Palama family. What is a shame is that because of HDF wanting the property, the small farmers that were in the valley were displaced. It is further a pity that because the small farmers are only given a month to month lease by Grove Farm dba Maha’ulepu Farm LLC the effect of which is the banks won’t make them small loans as they can so easily be displaced. Why would HDF, Maha’ulepu LLC, Grove Farm create such an Environmental Injustice. Many of these small farmers will not speak of this injustice as they are afraid of retaliation by Grove Farms.

HDF Volume 1 DEIS pg 3-2 (pdf pg 54)
"The nearest populated area to Māhā‘ulepū Valley is the Kōloa town community; residences closest to the site are 2.3 miles west. Kōloa town has its roots firmly tied to the agricultural history of the region. The resort area of Po‘ipū began with oceanfront resort hotel development in the 1960s. During the 1970s and 1980s, agricultural lands in the Po‘ipū area were reclassified from State Agricultural District to Urban District, and rezoned by the County as resort. The Grand Hyatt Kaua‘i is the closest resort to the dairy site, with 1.6 miles between the property boundaries. Significant expansion along this coastline occurred from 1980 to present, with active development of hotels, timeshare condominiums, single-family resort residences, golf courses and commercial centers.” HDF Volume 1 DEIS pg 3-2
**The nearest populated area isn’t 2.3 miles west. The Gillian House is less than a mile. Did you forget? Poipu Aina, where there are multiple homes, is less than 2 miles, Did you forget?

HDF Volume 1 DEIS pg 3-7 (pdf pg 59)
"Normal ongoing farming and ranching activities are exempt from the Clean Water Act Section 404. HDF received confirmation of exemption for maintenance of existing drainage ditches from the Honolulu District, U.S. Army Corps of Engineers (USACE) in

2013. Additional practices, including but not limited to those shown above, are anticipated to fall under the exemption for construction or maintenance of existing or new animal walkways, stream crossings, and farm roads in accordance with best management practices." HDF Volume 1 DEIS pg 3-7
**Your representation to USACE was falsified from what you actually did on the property. Falsified like the falsified information on HDF's NOI application. Per Jim Garmatz testimony under oath. See attachment 7 of deposition pages 227

HDF Volume 1 DEIS pg 3-10 (pdf pg 62)
"…roughly 21 square feet per calf, and are divided into a feeding area and a bedding area." HDF Volume 1 DEIS pg 3-10
**That's crowded, that's about 4 feet by 5 feet to eat, sleep, defecate and exercise. Does this qualify as animal abuse? How often is the manure removed from these small pens?

HDF Volume 1 DEIS pg 3-12 (pdf pg 64)
"Potable water is required for milk cooling, livestock consumption, and consumption within the dairy facility, as well as to supply wash water to maintain animal health and sanitation of the milking parlor, holding yards and calf sheds. State of Hawai'i Department of Health (DOH) Milk Rules require potable water used for milk production – in the milking parlor and for milking operations - be from an approved supply that is properly located, protected, and operated in a sanitary manner." HDF Volume 1 DEIS pg 3-12
**What will the setback be around wells 14 to protect them from contamination?

HDF Volume 1 DEIS pg 3-18 (pdf pg 70)
"Should animals die at the site, they will be buried at a designated area, following plans for carcass management as specified in the Waste Management Plan reviewed by DOH." HDF Volume 1 DEIS pg 3-18
**This is not adequate information about the burial of cows or about the cemetery other than it is on paddock 163. At a bare minimum the Waste Management Plan should be attached.
**How is burial being handled? How many cows will HDF bury per month? Per year? How many pounds of decaying flesh would this be? How deep is the ground water at this location? How is the ground water to be protected? How is the surface water to runoff of paddock 163? How deep will the cemetery be? How long and how wide and how deep will the cemetery be the first year? The fifth year? The twentieth year? How will you know if the ground water swells upward during the raining season and infiltrates the buried decaying flesh and bacteria, contaminates and pathogens? How deep is the ground water in paddock 163. Does paddock 163 have any slope to it? What will the impact be on the neighboring wetlands down slope from paddock 163 during the rainy season? How will the endangered species environment be protected from a 25-year 24-hour rain event hits the cemetery and creates huge runoff into the drainage ditches, neighboring wetlands and the streams located nearby? How is the runoff from the mountainside right behind paddock 163 not going to saturate the disturbed ground in the cemetery and make the carcasses float? There are pictures that show the route rainfall takes down the mountainside to paddock 163. These pictures clearly show no vegetation growing on the mountainside pathway because of the continual rain runoff.
** Why isn't the cemetery included in cumulative impacts? Hundreds or thousands of dead cows have a significant impact and over the years of burying cows on the site would have a horrific impact.

HDF Volume 1 DEIS pg 3-15 (pdf pg 67)

**Figure 3.3-5 shows a stream of water coming down the mountainside close to the animal cemetery. Figure 3.3-5included in the DEIS is incorrect as it is the old map from the EISPN. It is incorrect as it doesn't show the 1,000 foot setback from well F that this report speaks of being in existence. Another inconsistency within the DEIS.

HDF Volume 1 DEIS pg 1-8 (pdf pg 26)
"Storm Water Drainage. Gutters, curbs and swales will direct surface sheet flow. Metal roofing material on dairy buildings will be sloped to adequately sized gutters and downspouts." HDF Volume 1 DEIS pg 1-8
**What size are "adequately sized gutters? How was this determined? "Adequately" is not a scientific term. Adequately sized gutters and downspouts is not quantitative. It is unacceptable in a DEIS to use such vague terms and generalizations. Often the gutters and downspouts are overwhelmed by heavy rainfall. How will this be handled? Is it calculated into the effluent pond size as it will be impossible for the water to be directed as stated?

HDF Volume 1 DEIS pg 4-56 (pdf pg 148)
"Groundwater Source Protection
…potential contamination activities (Spengler, 2014).
The SWAP delineated three zones of contribution referred to as capture zone delineations (CZD) for all public drinking water sources in the State of Hawai'i based on groundwater time-of-travel (TOT) criteria (Whittier and El-Kadi, 2014). The initial zone, Zone A, is the "well control site" zone and consists of a 50-meter diameter around each well. The second CZD, Zone B, delineates the 2-year TOT, which relates to conservative survival times for bacteria and viruses in soil and groundwater. The third CZD, Zone C, delineates the 10-year TOT, which would allow sufficient time to implement management and remedial measures to mitigate contamination from accidental contamination spills or other causes (Whittier, 2010)." HDF Volume 1 DEIS pg 4-5

** The DEIS leaves out "Environmental Protection Agency (EPA) and with existing assessment and protection efforts in Hawai‘i (Whittier et al., 2010). The SWAP process involved: (1) delineation of the area around a drinking water source through which contaminants may travel to the water supply; (2) inventory for potential activities that may release microbiological or chemical contaminants within the delineated area; and (3) determination of the drinking water source susceptibility to surrounding potential contamination activities (Spengler, 2014)."
**The DEIS ignores #2. As dairies are listed as highest risk. #2 should not have been skirted. This table from (Whittier, 2010) shows lagoons as high risk.

Table 1 Listing of data sources and scoring for potential contaminating activities

PCA name	PCA type
Lagoons/liquid wastes	High

Additional buffer zone can be used to delineate a larger setback away from activities that may be significant potential sources of contamination (e.g., land- fills or hazardous material disposal sites), and to provide additional information that may be helpful for longer-term planning.

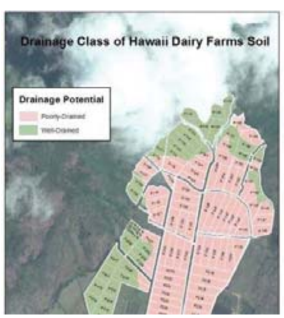
“The Islands of Hawaii are characterized by high rainfall and highly permeable aquifers.” (Whittier 2010)

Aquifer sensitivity takes into account the vulnerability of the aquifer based on the hydrogeologic setting of the aquifer as defined by Mink and Lau (1990). Among other factors, aquifers were classified according to vulnerability to contamination. The aquifer sensitivity attribute in the current study was based upon such vulnerability, and was rated as high, moderate, and low and is reported for each source in the final report.” Whittier 2010)

Groundwater sources provide about 99% of Hawaii’s public water use and 50% of all freshwater used in the state (Gingerich and Oki 2000). At the time of this study, the groundwater comprised 405 sources out of 453 total sources. The rest is served by surface-water sources and groundwater sources under the direct influence of surface water such as spring sources and water-development tunnels. (Whittier, 2010)

What you should be looking at is the specific report for Kauai Well F, Well D and Well C that are all listed in the “Source Water Assessment Program” report for Kauai. This report sites these wells as being at HIGH risk for contamination. It also states the aquifer is UNCONFINED and the wells are IRREPLACEABLE. Why don’t you refer to this report instead of the one you do that is on the island of Oahu??? See attachment 8

HDF Volume 1 DEIS pg 4-57 (pdf pg 149)



***** If you compare the map from Vol 2 page 109 to the Kauai County Water Assessment map, it becomes apparent that the well draining soils which the DEIS states, "This report indicates that the amounts of soil water that can move from the soil surface into underlying groundwater is minimal when the dairy land is irrigated and manure effluents are applied."

"Figure 4.16-2 County Well Head Capture Zone Delineation" HDF Volume 1 DEIS pg 4-57
** The above maps show that the well-draining soil is in fact in Well F’s capture zone C. This would mean that it is a high risk well with manure, a high risk substance being spread in its capture zone and the lagoons (high risk) are located next to the capture zone to recharge our drinking water well. The most this DEIS is willing to admit is that “the amounts of soil water can move from the soil surface into the underlying groundwater is minimal when the dairy land is irrigated and manure effluents are applied.” What about the manure left on the soil in the capture zone by the cows directly?

HDF Volume 1 DEIS pg 4-109 (pdf pg 201)
“SUMMARY OF PROBABLE IMPACTS
Proposed Action - Committed Herd Size:
699 milking cows”
“CUMULATIVE IMPACTS”
"The development and operation of the pasture based dairy will be combined with impacts associated with anticipated future developments in the Poipu and Koloa region. With mitigation, there will be limited short term impacts such as soil erosion, dust, worker traffic and vehicle emissions. Long-term cumulative effects will include limited soil erosion, storm water runoff, groundwater use, nutrient contributions to agricultural ditches, worker vehicle traffic, and air emissions. Odors will be contained within the dairy and limited adjacent farms. In addition to injected wastewater nutrients entering the nearshore ocean waters generated by the Po‘ipū resorts and residential areas, there will be minor amounts of nutrients contributed from the pasture-based dairy. The dairy will provide net economic benefits, adding to the agricultural economy of Kaua‘i."
HDF Volume 1 DEIS pg 6-24
** Just because the stream is polluted does not mean HDF can start to add more pollution. Storm water runoff will definitely pollute the Waiopili stream and the ocean as any storm water must run off the pastures that are laden with manure left by the cows. What is your substantiation for the claim that odors will be contained within the dairy? There is no expert odor study in this DEIS. How is HDF going to stop the winds from blowing the odor into Koloa and Poipu?

HDF Volume 1 DEIS pg 6-24 (pdf pg 276)
CUMULATIVE IMPACTS
"The no-action alternative generally would not contribute to cumulative impacts. Grazing operations without mitigation controls would add to soils erosion, nutrients in storm runoff. Depending upon the herd size, the grazing operation could generate potential odors.”
** This is an inaccurate description of the no alternative. Many of the farmers that were displaced by HDF were farming vegetables. There is nothing saying that this area would only be used for grazing. TheHawaiians used it to grow taro and sweet potato. The land was also covered in sugar cane for many years. You need to address the no alternative from that prospective. Please redo this section.

Volume 1 DEIS pg 6-24 (pdf pg 276)
"The effects associated with the development and operation of a feedlot confined dairy would combine with impacts associated with anticipated future developments in the Poipu and Koloa region. With mitigation, there would be limited short term impacts such as soil erosion, dust, worker traffic and vehicle emissions. Less land would be committed with minimal pasture area. Long-term cumulative effects would include limited soil erosion, storm water runoff, groundwater use, nutrient contributions to agricultural ditches, worker vehicle traffic, and air emissions. Odors would likely extend into the resort community. In addition to injected wastewater nutrients entering the nearshore ocean waters generated by the Poipu resorts and residential areas, there will be comparatively greater amounts of nutrients contributed from the pasture-based dairy. The feedlot dairy will provide net economic benefits, adding to the agricultural economy of Kauaʻi."
**If the cows were housed in a building the ability to clean up after the cows and to process and transport the manure to farms where it would be needed would aid in the reduction of odor and flies. Nutrients that are not sprayed on the field can not runoff. The cows would not be swept away in a flash flood, that has occurred in the past."

Volume 1 DEIS pg 6-24 (pdf pg 276)
"Odors will be contained within the dairy and limited adjacent farms. There would be minor nutrients contributions from the pasture-based dairy to Hulēʻia Stream."
**What about the Waiopili Stream, the one that receives water from the dairy? It appears this report was done by someone that doesn't know Kauai nor knows the site. Volume 2 page 280 states, "Surface waters draining the project site meet Waiopili Ditch, and will eventually reach the ocean." Of course, the person who wrote this piece is referring to a stream as a ditch. When in fact, it was a stream that crossed the dairy site but was turned into a ditch/drain in order to drain the water from what was a "swamp" at the time." See attachment 1 (swamp map) and attachment 9 (proposed drain map 1897)

Volume 1 DEIS pg 6-24 (pdf pg 276)
"Odor conditions at the pasture-based dairy will be limited within the dairy project area and immediate vicinity. In the worst-case meteorological conditions, odor may reach approximately 1,670 feet south of the HDF southern boundary. There are no homes or resort facilities in this area. The odors will not reach resort or residential communities. For the area within the modeled odor isopleth, odor may be
detectable by 50 percent of the population at a frequency of once every 200 hours, or roughly 44 hours per year."
**This statement contradicts itself. Your odor model is sorely lacking. There is a home within 1670 feet of the dairy site! So your statement is false. The statement that states, "odor may be detectable by 50 percent of the population at a frequency of once every 200 hours, or roughly 44 hours per year" is unacceptable as Poipu Kai, the closest community, is primarily older retired people. The odor will carry with it particulate, pathogens, bacteria, super bacteria such as MRSA and sulfides. These will have a significant impact on the elderly community whose immune systems are compromised. The Dairy must not be located near elderly. This is the wrong location for this dairy.

Volume 1 DEIS pg 6-23 (pdf pg 275)
"Episodic, seasonal rainfall events (~10 days/yr.) cause groundwater in the alluvium to rise and intersect with the agricultural ditches and groundwater containing nutrients."

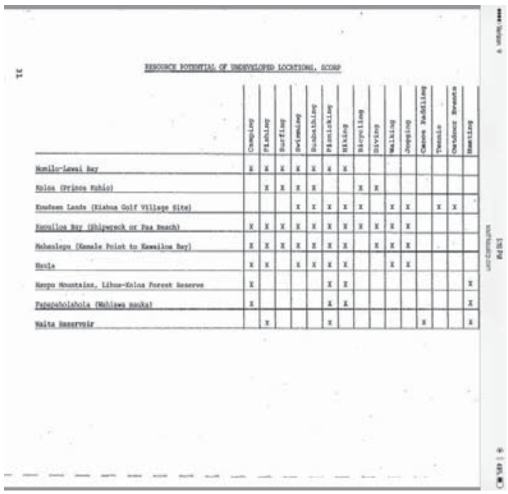
** "Ground water under the direct influence of surface water" per the Island of Kauai Source Water Assessment Program report, states that the entire watershed must be considered as providing recharge water to the drinking water wells. (GWUDI) What analysis or calculations have you done to determine the volume of nitrogen, phosphorus, sulfides, pathogens and bacteria that would move through the groundwater to recharge our drinking water wells taking into account the entire watershed which includes all of the dairy site?

Volume 1 DEIS pg 6-23 (pdf pg 275)
"HDF will release an estimated 10,000 pounds of nitrogen and 900 pounds of phosphorus annually. Contributions of nutrients from episodic rainfall (10 days/yr) will not adversely affect ocean water quality and the marine environment."
**Once again this statement is full of inconsistencies when the rest of the DEIS is taken into account. On page 70 of volume 2 (pdf pg 192 of 732) it shows an excess of 3,695 pounds of phosphorus that will runoff.
Page 4 of volume 2 (pdf page 92 of 732) reads, "It is estimated there will be 7 to 8 days a year in which rainfall derived runoff will occur (TNWRE 2016) You are making Tom Nance look like he doesn't know what he is talking about in his report. Is it 7 to 8 or 10 days? How can you tell how much phosphorus will run off if you don't even how many days you will have runoff?**

HDF Volume 1 DEIS pg 6-23 (pdf pg 275)
"**SURFACE WATER RESOURCES**
ENVIRONMENTAL RESOURCE
PROPOSED ACTION
(699 COWS)
"Over 120 wastewater treatment injection wells serving resort development in Poʻipū. Nitrogen input to the marine environment in the Poiʻpū region is calculated to be 38,510 pounds annually, or 3.5 times more than the potential HDF nutrient throughput. Phosphorus for both domestic wastewater and landscape fertilization in the region is estimated to be 1,260 pounds annually, or 1.4 times greater than the potential discharge from HDF."
HDF Volume 1 DEIS pg 6-23
***so if 75% of all the people, tourists and residents of Koloa and Poipu lived on the farm site and all the golf courses and yards were stacked up on the farm area it would produce the same amount of phosphorus as the dairy will produce. This is not comforting. So if some nitrogen and phosphorus is bad, more is not better but worse.

HDF Volume 1 DEIS pg 6-23 (pdf pg 275)

"State DOH surveys and environmental sampling/testing programs have identified high levels of enterococci bacteria in the agricultural ditches, particularly near the terminus of the ditch near the ocean. State standards apply to recreational waters, and the ditch is not utilized recreationally by bathers."
** If that is the case then why do they need to lock the gate to keep people out while they survey the area? Also why do I have multiple pictures of children playing in the stream, which I personally delivered to Dr. Virginia Pressler head of DOH. But the DEIS refers to the water as "nearshore **recreation waters** at the terminus of Waiopili Ditch" in Vol. 1 pg 4-62.
The Kauai South Shore Community plan includes this chart in their plan. Maha'ulepu appears to have more than enough people and uses to qualify as "Recreational Waters"



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RESOURCE POTENTIAL OF UNDEVELOPED LOCATIONS, SCORP

	Camping	Fishing	Surfing	Swimming	Sunbathing	Picnicking	Hiking	Bicycling	Diving	Walking	Jogging	Canoe Paddling	Tennis	Outdoor Events	Hunting
Nomilo-Lawai Bay	X	X	X	X	X	X	X								
Koloa (Prince Kuhio)		X	X	X	X			X	X						
Knudsen Lands (Kiahuna Golf Village Site)				X	X	X	X	X		X	X		X	X	
Keoniloa Bay (Shipwreck or Poipu Beach)	X	X	X	X	X	X	X	X	X	X	X				
Mahaulepu (Kamala Point to Kawailoa Bay)	X	X	X	X	X	X	X		X	X	X				
Haula	X	X		X	X	X	X			X	X				
Haupu Mountains, Lihue-Koloa Forest Reserve	X					X	X								X
Papapaholahola (Wahiawa mauka)	X					X	X								X
Waita Reservoir		X				X						X			X

" HDF Volume 1 DEIS pg 4-108 and 6-23 (pdf pg 200 and 275)
DEIS pg 4-108 and 6-23 (pdf pg 200 and 275)

DEIS Vol. 1 page 4-108 & 6-23 (pdf page 200) "Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site. The dairy site represents roughly 20 percent of the 2,700-acre Māhā'ulepū Valley sub-watershed, and soil erosion from the HDF site will be reduced by establishment of thick grass ground cover and maintenance of vegetative buffers totaling 70 feet in width – 35 feet on either side of the agricultural drainage ways." HDF Volume 1 DEIS pg 4-108 and 6-23
**There is soil erosion into the Waiopili from the HDF site. This violates the Clean Water Act. Jim Garmatz testified that HDF cleared the 580 acres per his testimony page 75. He also testified that he did not use Best Management practices. Per page 78 of his testimony. Attachment 10 is a picture of HDFs no using BMP, there isn't any vegetative buffer shown.

Attachment 10 No Best Management Practices used

HDF Volume 1 DEIS pg 6-22 (pdf pg 274)
"Water will come from a non-municipal source: either the on-site deep wells; or from the HDF allocation from Waita Reservoir."
HDF Volume 1 DEIS pg 6-22
**Who is allocating Public Trust Doctrine water? The Public Trust doctrine states, " All public and natural resources are held in trust by the State for the benefit of the people." It doesn't read for HDF's benefit or the benefit of Grove Farms or Maha'ulepu LLC. "For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State."

HDF Volume 1 DEIS pg 6-22 (pdf pg 274)
"The no-action alternative would have limited to no effect on groundwater resources. A small portion of nutrients resulting from cattle/sheep manure break- down in pasture areas will enter shallow groundwater." HDF Volume 1 DEIS pg 6-22
****A small portion is not a quantitative amount. This also assumes cattle and sheep will be there what if they are not there? Faulty premise. It could be compared with growing hemp or kalo, not cattle.   Hemp cleans up the environment and uses less of the community's water.

HDF Volume 1 DEIS pg 6-18 (pdf pg 270)
"Alternative Location…UNSUITABLE Site not designated as IAL" HDF Volume 1 DEIS pg 6-18
** It is my understanding that alternative sites were to be compared regardless of cost. IAL establishes a financial benefit.

HDF Volume 1 DEIS pg 6-15 (pdf pg 267)
"Note: Since this alternative location was evaluated in 2015, the land has been contracted for sale to another landowner who is not planning to develop a pasture-based dairy.)" HDF Volume 1 DEIS pg 6-15
** Then this isn't an actual alternative and Group 70 needs to identify one. At one of their early public meetings HDF stated they would have preferred this sold site over the Maha'ulepu site but it had sold. This meeting was held before the EIS was announced. Your time frames are wrong!   It must have been a better location for HDF's needs. There is no consideration of land on other islands or other large landowners.

HDF Volume 1 DEIS pg 4-22 (pdf pg 114)
"With the discontinuation of sugarcane cultivation in 1996, culverts and ditches in the valley became impacted with sediments and vegetation. During periods of high rainfall, reduced capacity caused Waiopili Ditch to be overwhelmed and storm water was reported flowing across Māhāʻulepū Road. Since leasing the site, HDF has worked with the landowner, Mahaulepu Farm, to remove sediments and restore capacity to the ditches. Calculations of rainfall runoff show sufficient drainage capacity in the ditches when maintained with minimal sediment build-up."
HDF Volume 1 DEIS pg 4-22
**So what this suggests is that Maha'ulepu Farm was also aware of the lack of Best Management Practices. Maha'ulepu Farms as the landowner is as culpable as HDF for the discharge of sediment to the ocean via the stream and for lack of Best Management Practices. Did they inform HDF that they needed to use BMP's.

HDF Volume 1 DEIS pg 4-22 (pdf pg 114)
"Historical hurricane paths over the central Pacific show a typical pattern passing to the south of the Hawaiian Islands, with a maximum hurricane occurrence during the late summer when the ocean surface is warmest. Storms that approach the Hawaiian Islands from the east have historically weakened east of Hawaiʻi under the combined influence of unfavorable westerly wind conditions, resulting in large wind shear and cooler sea-surface temperatures. However, natural variability in ocean circulation and atmosphere has allowed potentially destructive storms to reach Hawaiʻi from the east. Hurricanes Dot (1959), Iwa (1982), and Iniki (1992) all approached from the south **and passed near Kauaʻi.** This unusual track requires a breakdown of the semi-permanent ridge of high pressure to the north of the islands, which occurs when a trough of low pressure approaches the island chain from the northwest. Such troughs are generally confined to higher latitudes, except in winter."

HDF Volume 1 DEIS pg 4-22
** Another false statement. The EA that the County of Kauai did before drilling well F states, "HurricaneIniki struck Kauai"
HDF Volume 1 DEIS pg 4-23 (pdf pg 115)
"Although they occur infrequently, Kaua'i has received a greater amount of damage from hurricanes…"
** Iniki made landfall in Maha'ulepu/ Poipu area! It did $3.04 billion of damage to Kauai. Hurricane Dot made landfall on Kauai. Reconnaissance flight determined that hurricane Dot had an unusually large eye, ranging between 35 and 40 miles in diameter. This would mean the cows and their manure would be in the eye of the hurricane. Hurricane Iwa had sustained winds averaged 60 to 75 mph and sustained rain.

HDF Volume 1 DEIS pg 4-25 (pdf pg 117)
"No short-term significant impacts are anticipated related to natural hazards.
Short-term Impacts and Mitigation – Natural Hazards
Geologic and potential natural hazards pose no major constraints to the project."
**Untrue in both Iniki and Dot the cows would have been picked up by the eye. There is insufficient evidence to support the DEIS conclusion. The DEIS must prove that there is no impact not just say so.

"An emergency preparedness plan for protection of animals has been prepared for HDF internal use. Construction design will meet IBC standards with local amendments."
"Emergency management procedures and staff training for emergency events will be in place to implement prevention and mitigation should natural hazards occur in the region that may impact the dairy herd or facilities." HDF Volume 1 DEIS pg 4-25
** Why is this plan not included in the DEIS?
HDF Volume 1 DEIS pg 5-10 (pdf pg 214)
"**<u>Discussion:</u>** The project is a balanced development proposal that is compatible to existing uses and relationships in the Māhā'ulepū agricultural region, and measures to protect water resources and water quality are presented in EIS Sections 4.16, 4.17, 4.23 and 4.24. While the project supports the County's initiatives for shoreline and marine environment protection and conservation, the project is located over one mile inland of the coastline, and does not have any shoreline or marine features." HDF Volume 1 DEIS pg 5-10
**The measuring of distance in this report is deceptive as it is done from the milking shed not the boundary of the site. The Milking shed might be over a mile but the pastures and cows aren't over one mile.
HDF Volume 1 DEIS pg 4-6 (pdf pg 98)
" Terrain within the dairy typically slopes from 2 to 15 percent, which is the gentle slope required for the…" HDF Volume 1 DEIS pg 4-6
**This contradicts HDF Volume 1 DEIS pg 6-14 that reads" Māhā'ulepū Valley, Mostly 0-5% Slopes Generally Level" It also contradicts HDF's Storm water application that reads,0 to 3%. So which is it? These inconsistencies continue throughout the DEIS. This DEIS should be returned to Group 70 as inadequate.

HDF Volume 1 DEIS pg 4-44 (pdf pg 136)

"*<u>Long-term Impacts and Mitigation – Noise</u>*
The dairy farm will utilize milking equipment contained in the milking parlor, and will use field equipment such as tractors. Equipment will typically be used during daylight hours. Dairy operations will comply with applicable noise control ordinances. Under HAR §11-46, agriculture is classified as Zoning District Class C, which specifies maximum permissible sound levels of 70 dBA in the daytime and 70 dBA at nighttime. Maximum permissible sound levels apply to any point at or beyond the property line, and are not to be exceeded more than 10 percent of the time within any 20 minute period.
Dairy operations will generate noise in keeping with agricultural zoning of the parcel. The primary noise receptors in the area would be farmers working nearby parcels. Noise from the dairy will not exceed the DOH threshold, and will not contribute to excessive noise in the region."
HDF Volume 1 DEIS pg 4-44
** What is the dBA of a cow giving birth or crying for her calf? Noise at night carries further than during the day when there are other ambient noises. Is the noise level at the boundary of the site or at the milking shed where most of the measurements are taken from?

HDF Volume 1 DEIS pg 4-49 (pdf pg 141)
"With the demise of sugar and seed crops in Kōloa and Po'ipū, the cattle grazing for the beef market is now the dominant use of agricultural land in the region. Grazing lands to the east, north and west of Kōloa total over 2,900 acres, which is reduced from over 3,300 acres before Māhā'ulepū Valley was leased by HDF. In the near term, grazing is likely to expand onto most of the lands used recently for seed crops. In Kōloa and Po'ipū, grazing occurs less than 200 feet from some homes, less than 1 mile from some visitor units, less than one-third of mile to the east and west of the main commercial area of Kōloa, and less than 200 feet from a golf course.
Many of the homes in the region that are near cattle operations are in the northeast and eastern sections of Kōloa; most of the homes were built before 1980 and are of modest size (less than 1,200 square feet). For these homes, the 2016 median assessed values ranged from $406,100 to $567,500. At the western end of Po'ipū is Kukui'ula—a luxury residential community that abuts grazing land. Most of the homes are newer, built after 2012, and most are large at over 2,100 square feet. For 2016, median assessed values of these residential lots and homes ranged from $1,297,150 for a lot, to $2,893,100 for a lot with home." HDF Volume 1 DEIS pg 4-49
**Why do you not go into the large differences between dairy cows and grazing beef cows? These items should be considered: use of potable water to wash the udders and clean the facilities every few hours? More urine and manure, more noise, flies etc. especially given the concentrated amount of cows in such a small area. Dairy cows produce substantially more manure and urine than beef cows. Also how many acres are these grazing cattle occupying? Density makes a huge difference. What do the ranchers with grazing cattle do with their mortalities, bury them upstream from the ocean below a ountain with substantial runoff?

HDF Volume 1 DEIS pg 4-50 (pdf pg 142)

"Construction of the facilities at HDF would contribute approximately $9.1 million per year during the development phase. This includes direct equipment and construction expenditures, and indirect sales related to construction.

In addition to the creation of an average of 12 construction worker jobs during the estimated construction period, the State of Hawai'i and County of Kaua'i will receive excise tax revenues on finished development and building materials, conveyance taxes, and income taxes on wages. Revenues from development activities to the State is estimated at $650,000, with revenue offset by a tax credit for improvements on lands designated IAL. County revenue derived from development will be negligible." HDF Volume 1 DEIS pg 4-50

** $51,000 is not enough to even begin to clean up the mess after the first rain event. It probably won't cover the cost of filling potholes on our roads caused by HDF's large tanker trucks. With the immediate loss of jobs at the Hyatt when the first fly lands on a bride's face getting married at shipwreck beach there will be a substantial loss of revenue to the county in TAT taxes and income taxes. The reality is the State will lose money as the property owners request their taxes be lowered with the home values dropping. It will cost the county and state as employees that have lost their jobs file for unemployment and welfare. Why is this not considered in the DEIS.

HDF Volume 1 DEIS pg 4-50 (pdf pg 142)

"Once the facility is established and dairy operations have reached the committed herd size, approximately 11 direct and indirect full-time equivalent jobs would be sustained on Kaua'i, including 5 farm jobs and about 6 indirect jobs. An additional 3 indirect jobs would be created on O'ahu. For the contemplated herd size direct and indirect employment will roughly double.

Once fully operational with a herd of 699 mature dairy cows, annual direct-plus-indirect sales are estimated annually at $8.1 million on Kaua'i, with an additional $2 million on O'ahu.

When the dairy has matured to full production for the 699-cow dairy, net income to the State is calculated to exceed $60,000 annually. Net income to the County from HDF is anticipated to generate $51,000 (PEP, 2016)" HDF Volume 1 DEIS pg 4-50

***** This came as a surprise to the Mayor of Kauai. What had HDF been telling him?

HDF Volume 1 DEIS pg 4-33 (pdf pg 125)

"The cultural assessment examined the potential effect of the project on cultural resources, practices or beliefs. Information received from the community indicates the Māhā'ulepū ahupua'a has been and is currently used for traditional cultural purposes. However, the dairy project area has not been included in these activities. Gathering of plants and marine resources, and two known State sites are outside the project area: State Site 50-30-10-2250, the agricultural heiau; and State Site 50-30-10- 3094, a carved petroglyph boulder. No significant cultural sites occur within the HDF site.

No change to current cultural practices within the Māhā'ulepū ahupua'a will occur from dairy establishment or operations."

HDF Volume 1 DEIS pg 4-34

** The Moku for Maha'ulepu Ahupua'a has been denied access by HDF and the landowner.

HDF Volume 1 DEIS pg 4-34 (pdf pg 126)

"A somewhat unusual aspect of the flora is the abundance of a number of weedy herbaceous dicots in the fields. Species, such as false ragweed (Parthenium hysterophorus), kikānia (Xanthium strumarium), little bell (Ipomoea triloba), fuzzy rattlepod (Crotalaria incana), sensitive plant (Mimosa pudica), and prickly sida (Sida spinosa), are especially abundant covering large areas of relatively recently disturbed pastureland. Guinea grass (Urochloa maxima) and California grass (Urochloa mutica) are dominant in areas where the pasture has not been disturbed recently by tilling or ungulate browsing, and are abundant mixed with the dicot herbs just mentioned." HDF Volume 1 DEIS pg 4-34

Why isn't the probability of endangered plants, birds and anthropods thriving if the wetlands that the ditches have destroyed was allowed to comeback. Maha'ulepu valley use to be a swamp per 1897 map see attachment 1. There are two wetlands showing on the US Fisheries and Wildlife's inventory or wetlands. See attachment 11. Also, the Kapunakea Pond was drained. See old map Historic Features of Grove Farm in 1875. See attachment 12.

HDF Volume 1 DEIS pg 3-14 (pdf pg 66)

"The raised, concrete troughs will be placed on a stable crushed rock base at a height that allows cows to reach over and into the water, but…"

" Much of the existing drainage infrastructure, installed and used for sugarcane irrigation, will be restored where possible and reused or improved."

HDF Volume 1 DEIS pg 3-14

**This is a bold face lie, as they are already there. Just like HDF lied about them not being there in their Storm water application. The farm manager said in deposition that they were already there. There are also have pictures of them from our court ordered site visit. See attachment 13.

HDF Volume 1 DEIS pg 3-14 (pdf pg 66)

"Siting, design and construction of the ponds will be in compliance with the University of Hawai'i College of Tropical Agriculture and Human Resources (CTAHR) and technical guidance from NRCS. The Livestock Waste Management Guidelines (U.H., 2010) requires storage facilities for animal wastes should provide a minimum buffer of 1,000 feet from public drinking water resources, and 50-feet from surface water resources. At their closest points, the ponds will be sited approximately 125 feet from the nearest drainage ditch, and 3,420 feet from the nearest public drinking water well (Figure 3.3-5)." HDF Volume 1 DEIS pg 3-14

** The DEIS does not talk about a setback from wells 14. If wells 14 become contaminated, the contamination can affect the public drinking water wells. What about a thousand foot set back from the monitoring wells. One of the monitoring wells is less than 1,000 feet from the public drinking water well. If it gets contaminated it will immediately contaminate well F.

"Guidelines for Livestock Waste Management " January 19, 2010 A.4

B. Site Guidelines
The following are general guidelines for the site of the animal feeding operation.

1. Animal feeding operations and the collection, transfer, treatment and storage facilities for animal wastes should provide a minimum distance of 1,000 feet from public drinking water resources and 50 feet from surface water resources and/or state waters;
2. Livestock facilities should not be located, if at all possible, over critical water aquifers and sources of drinking water.

HAR, Title 11, DOH, Chapter 54, Water Quality Standards
§11-54-01.1 General policy of water quality anti-degradation.
Waters whose quality are higher than established water quality standards shall not be lowered in quality unless it has been affirmatively demonstrated to the director that the change is justifiable as a result of important economic or social development and will not interfere with or become injurious to any assigned uses made of or presently in, those waters.
HAR, Title 11, DOH, Chapter 55, Water Pollution Control
§11-55-02 General policy of water pollution control.
(a)
It is the public policy of this State:
(1) To conserve state waters;
(2) To protect, maintain and improve the quality of state waters:
(i) For drinking water supply and food processing;
(ii) For the growth, support and propagation of shellfish, fish and other desirable species of marine and aquatic life;
(iii) For oceanographic research;
(iv) For the conservation of coral reefs and wilderness areas and
(v) For domestic, agricultural, industrial and other legitimate uses.
(3) To provide that no waste be discharged into any state waters without first being given the degree of treatment necessary to protect the legitimate beneficial uses of such waters;
(4) To provide for the prevention, abatement and control of new and existing water pollution and
(5) To cooperate with the federal government in carrying out these objectives.
Any industrial, public or private project or development which could constitute a new source of pollution or an increased source of pollution shall in its initial project design and subsequent construction, provide the highest and best degree of waste treatment practicable under existing technology.
Permits issued under this chapter and the related applications, processing, issuance and post-issuance procedures and requirements shall be at least as stringent as those required by 40 CFR §123.25(a).
(b)
(c)
Guidelines for Livestock Waste Management January 19, 2010 E.15

HDF Volume 1 DEIS pg 3-18 (pdf pg 70)
"With the committed herd size, there will be approximately 150 calves on the HDF site at any one time. Approximately 50 calves would be housed within the calf sheds, with approximately 100 calves on pasture, grazing. The actual numbers will depend on the calves' age, size and health status. Once the calves reach approximately 165 pounds or 90 days of age, they will be transferred to an offsite calf raising facility (see Sections 3.7 and 3.8.4, Offsite Herd Management)." HDF Volume 1 DEIS pg 3-18
**699 cows are going to give birth within 15 to 60 days of arrival per testimony of Jim Garmatz under oath in deposition, that is substantially more than the sited approximately 150 calves. It says HDF will keep them until 90 days old. If these 699 cows are taking a plane from the Midwest to Honolulu (about a 7-hour flight) then taking a truck to the port, then being barged across the open ocean, then traveling by truck to the dairy farm, how many will die or miscarry?

HDF Volume 1 DEIS pg 3-21 (pdf pg 73)
"3.5.1 PADDOCKS, FENCING AND SETBACKS"
"To protect water quality of surface water and downstream areas, paddock fences are set 35 feet back from the top of bank of drainage ways in the site. Existing vegetation within the setbacks will be managed or restored to reduce erosion, improve stability of ditch banks, increase net carbon storage, and improve and maintain water quality." HDF Volume 1 DEIS pg 3-21
**Because HDF destroyed the buffer zone during grubbing and grading. See attachment 10.

HDF Volume 1 DEIS pg 3-21 (pdf pg 73)
"Fencing is essential to containing cows for safety, protecting water quality, and optimizing animal and pasture health, milking output, grazing coverage, and nutrient distribution. A permanent perimeter fence will be constructed using steel t-posts installed every 10 feet, and a wooden post placed every 50 feet. The fence will include 42-inch woven wire topped with a strand of straight wire at 48-inch height, with a strand of barbed wire at ground level to deter feral pigs. Within the perimeter fence, paddock fencing will consist of two or three strands of electric wire mounted on wooden t-posts. Electric fencing is the standard material used for cows and cattle as it is effective and moved with relative ease to re-configure paddocks." HDF Volume 1 DEIS pg 3-21
** What about the US Fisheries and Wildlife's letter to you stating no barb wire and no electric fences as these will harm our endangered species. See attachment 14.

HDF Volume 1 DEIS pg 4-36 (pdf pg 128)
"There is no critical habitat for endangered species in the upper Māhā'ulepū Valley. Four species of endangered water birds have been recorded on the site, though the area does not provide critical habitat." HDF Volume 1 DEIS pg 4-36
** If there wasn't a US Fisheries and Wildlife's employee to monitor then when HDF ripped out over 150 trees per Jim Garmatz testimony in deposition, substantial habitat would have been destroyed. How much habitat was destroyed? What will happen now to these endangered birds that come back to the same spot to nest every year? This is a significant impact on the endangered birds.
HDF Volume 1 DEIS pg 4-43, 4-105 and 6-21 (pdf pg 135,197 and 273)

"Construction work at the project site will involve activities that may generate an increase in noise levels. Noise related to construction will be a short-term condition, occurring during daylight hours." HDF Volume 1 DEIS pg 4-43, 4-105 and 6-21

HDF Volume 1 DEIS pg 4-38 (pdf pg 130)
"If nighttime construction activity or equipment maintenance is proposed during the construction phases of the dairy farm, all associated lights should be shielded, and when large flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground

- All outdoor lights installed as part of the project will be shielded to reduce the potential for interactions of nocturnally flying seabirds with external lights and man-made structures (Reed et al., 1985; Telfer et al., 1987)
- **These two pages contradict one another. Inconsistencies.

HDF Volume 1 DEIS pg 4-40 (pdf pg 132)
"Bees are an essential part of the agricultural ecosystem. Honey bees (*Apis mellifera*) were observed at the watering trough for the Māhā'ulepū Cattle Co. stock and on the dairy farm overhead pivot irrigation system. It is to be expected that honey bees will visit any water source set up for the dairy herd." HDF Volume 1 DEIS pg 4-40
**Bees often land in ponds and other water features and drown as their wings get wet. How will this be avoided in the effluent ponds? I suggest HDF cover them.

HDF Volume 1 DEIS pg 4-40 (pdf pg 132)
"Kōloa Lava Tube System. There are no known caves or lava tubes found on or adjacent to the dairy farm property. The known caves in the vicinity are approximately 0.75 mile from the closest point to the dairy farm. Several miles away from the dairy farm property is the Kōloa Lava Tube System, which provides habitat for two endemic cave species, the Kaua'i Cave Wolf Spider and the Kaua'i Cave amphipod. Both invertebrates are listed as endangered under the U.S. Endangered Species Act. Not all caves in the Kōloa area contain these animals. Per the 2006 U.S. Fish and Wildlife Service (USFWS) Draft Recovery Plan for Kaua'i Cave Species, most caves in the Kōloa District do not contain the optimal climatological conditions required by these organisms. Continued development for housing and tourism is described by the USFWS (2006) as potentially leading to the destruction of remaining cave habitats in the area."
HDF Volume 1 DEIS pg 4-40

***** you forgot to mention the Waiopili stream that connects the dairy to the cave. You also forgot the "Reconnoissance Survey of Maha'ulepu". Island of Kauai, that clearly states that the Maha'ulepu Is hydrologically connected. You also forgot that US dept of Interior Fisheries and Wildlife sent you a letter dated Feb 23, 2015 that states the dairy is hydrologically linked to the cave. Why are you talking about a 2006 draft plan when you have a letter directed specifically to Jeff Overton, Group 70 that clearly states you

Arthropods
The Kauai cave wolf spider and the Kauai cave amphipod are found only on the island of Kau in the Koloa area from four to six caves respectively. They occur in small, subterranean spac voids, and cracks, requiring a woody debris food source. Cave ecosystems are threatened by contamination from surface sources of toxic chemicals from spills, pesticides, and waste disp which enter caves via streams and/or ground-water seepage. The proposed HDF site is hydrologically linked to the sensitive cave habitats. We recommend the draft EIS address an project components that have the potential to impact the critical habitat (e.g., wastewater and pasture fertilization practices) and minimize potential disturbance.

will have an impact on the endangered blind cave spiders.

HDF Volume 1 DEIS pg 4-66 (pdf pg 158)
"Surface water is estimated to carry three times more nutrients than groundwater moving through the alluvium on the valley floor (see previous discussion, Groundwater). The groundwater and surface water analysis (Appendix E) estimates two percent of total nitrogen and one percent of phosphorus could potentially pass through the turf and soil. Given the poor permeability of the alluvium, groundwater flow would be modest. However, the groundwater level in the alluvium is approximately 80 feet above mean sea level near the HDF monitoring wells 1 and 2. **The groundwater can rise in wetter periods and intersect the deep drainage ditches.** Episodic, seasonal events will result in a modest amount of discharge from groundwater into the surface channel."
HDF Volume 1 DEIS pg 4-66
***** Ground water in contact with surface water. The entire watershed must be considered per Kauai SWAP report. Please take into consideration in your report the entire watershed.

HDF Volume 1 DEIS pg 4-66, 4-67 (pdf pg 158-159)
"Using NRCS curve number method to compute runoff for the sites' B and D class soils and irrigated pasture in good condition, it is estimated that actual runoff into drainage ways from HDF pasture will only occur when rainfall exceeds 0.8 inches. Based on the 30-year daily rainfall record for the area, such rainfall events are estimated to occur approximately three percent of days, or an average of 10 days annually (TNWRE, 2016). Applying the estimates of nutrient pass-through to the HDF operational nutrient mass balance, two percent of nitrogen pass through would total 10,000 pounds per year, and one percent of phosphorus pass through would total 900 pounds per year. Note that nutrient release from the dairy site would not occur as chronic daily release, rather, the runoff contributions would be limited to periods of the major rainfall and storm water events. Per best practices, no effluent application would be conducted during such weather events." HDF Volume 1 DEIS pg 4-66, 4-67

**This contradicts the earlier statement in the DEIS that says these rain events will happen every 7 to 8 days. The assumption here is that all the soils can absorb up to 0.8 inches of rain before the soils start to runoff. This is false the Ksat of the majority of the soils is less than 0.8 inches per the NRCS Soils report for Maha'lepu Valley. This is also assuming that the pastures have not been irrigated recently and that it has not rained for a minimum of 3 days prior so that the soils would be dry. These assumptions make the 10 days annually a miscalculation at the least. The other consideration that must be taken into account is the amount of rainfall that would be coming off the Ha'upu mountain and ridgeline that will at a minimum flood the ditches. There is not enough data included in this DEIS.

HDF Volume 1 DEIS pg 4-67 (pdf pg 159)
"Section 4.20.1, Interrelationships and Cumulative Environmental Impacts, compares the nutrient input from the adjacent Kōloa- Poʻipū region. Nitrogen additions to the near-term marine environment along the Poʻipū coastline are estimated at 38,510 pounds per year from domestic wastewater and landscape fertilization, equating to 3.5 times greater than the potential contribution from HDF; phosphorus of 1,260 pounds per year is calculated and is 1.4 times greater than the potential contribution from HDF." HDF Volume 1 DEIS pg 4-67
** Faulty thinking just because all of Koloa & Poipu adds nitrogen and phosphorus does not mean adding HDF's nutrients on top of what already exists doesn't cause a cumulative affect that creates a significant impact on the environment. This is a serious significant impact. Your figures do not take into account what an ongoing mess the Waiopili already is without any further assistance. HDF should not be located here.

HDF Volume 1 DEIS pg 4-67 (pdf pg 159)

"NRCS Practice Standards and the U.H. Guidebook have established various setbacks to minimize impacts to waterways. Fences will be erected along 35-foot setbacks to exclude cows from drainage ways. The 35-foot setbacks (totaling 70 feet, as setbacks are on both sides of the drainage ways) will be vegetated to act as filter strips and trap soil particles and organic debris from storm water runoff. Manure particles that do not settle out in to the buffer area could be carried into ditch waters and downstream with storm water flows. During runoff events, ditch waters will also contain substantial organic debris, suspended sediment and nutrients from natural and other man- made sources in the watershed. The relative contribution of manure particles in the storm water flows within agricultural ditches will be a small fraction of the total from the watershed."
HDF Volume 1 DEIS pg 4-67
**" a small fraction" is not a quantitative amount. And thusly not appropriate for a DEIS. Why haven't you calculated into your report the runoff from Ha'upu mountain and the ridge as it circles the farm site.
**How is it the wheels won't transport manure on them when they cross the pastures and then cross the bridges over the streams? This is an impossible situation and the discharge off the wheels must be calculated and included in the discharge figures. The wheels will be traveling across fields that are riddled with numerous smaller ditches, How will the manure that is dragged into these smaller ditches, that are interconnected with the larger ditches, be handled to stop still additional manure laden runoff? How is it that this huge irrigation pivot can spread evenly everywhere then stop to cross a bridge over a stream without dripping. See attachment 15 Pivot dripping after being shut off.

HDF Volume 1 DEIS pg 1-8 (pdf pg 26)
"Storage Tanks and Silos. The dairy farm will have milk storage tanks, potable water tanks,
gasoline and diesel fuel tanks." HDF Volume 1 DEIS pg 1-8
**What precautions will be taken so as to guarantee that none of the gas or diesel ends up in the soil? In the drainage from the pastures into the ocean?

HDF Volume 1 DEIS pg 1-9 (pdf pg 27)
"Fencing. A permanent perimeter fence will be constructed steel t-posts installed every 10 feet, and a wooden post placed every 50 feet. The fence will include 42-inch woven

wire topped with a strand of straight wire at 48-inch height, with a strand of barbed wire at ground level to deter feral pigs. Within the perimeter fence, paddock fencing will consist of two or three strands of electric wire mounted on wooden posts."
HDF Volume 1 DEIS pg 1-9
*** The Dept. of Fisheries and Wildlife stated in their letter to HDF that barb wire must not be used because of the endangered species might be harmed by the barbs. Why are you ignoring their directives.

Injury or mortality of adults and juveniles may potentially occur due to entanglement or collision with fencing and/or collision with vehicles on farm roads. Additional details on fencing are necessary to assess potential impacts to Hawaiian waterbirds and Hawaiian geese. Electric fencing (commonly used to control movement of cows in pastures) should not be used for fencing as part of the proposed project. To minimize potential collision with vehicles, the Service recommends you install signage near roadways to warn drivers (e.g., farm workers and visitors) to be wary of birds in the areas.

HDF Volume 1 DEIS 1-10 (pdf pg 28)
"Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours." HDF Volume 1 DEIS 1-10
**Where is the documentation for this statement. Insufficient data.

HDF Volume 1 DEIS 1-10 (pdf pg 28)
"Irrigation. The total pasture area of the farm is 470 acres. The majority of the pastures will be irrigated with irrigation water and/or diluted effluent through the pivot irrigation systems, with the remainder through gun irrigators." HDF Volume 1 DEIS 1-10
** You cannot use effluent with your gun irrigation as it is too close to our drinking water wells. Or near the monitoring wells or wells 14.

HDF DEIS Volume 2 Technical Appendices pg 56 (pdf pg 176)
"8.3.2 Data Acquisition Through the utilization of on-site grass data gathered by HDF, and the Cornell Net Carbohydrate Protein System (CNCPS) model, an estimate of the grass productivity, farm carrying capacity, milk production and manure excretion has been calculated, respectively." HDF DEIS Volume 2 Technical Appendices pg 56
** So which is it? 4 things are named so what was determined by what. (Respectively) Supreme confabulation.

HDF DEIS Volume 2 Technical Appendices pg 59 (pdf pg 179)
** Why does the chart read more rainfall quantity in the effluent pond in January than March when there is less rainfall? Shouldn't the effluent pond be sized on the total rainfall data which is inaccurately identtified at 50" in this DEIS. Data used was prior to 1982 and leaves out 2 hurricanes and the 2006 rain evet of 40+ days and nights.

HDF DEIS Volume 2 Technical Appendices pg 61 (pdf pg 181)
"Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the effluent will be largely broken down by microbial activity within 24 hours."
** Where did you get this information? Not enough data. Vague at best.

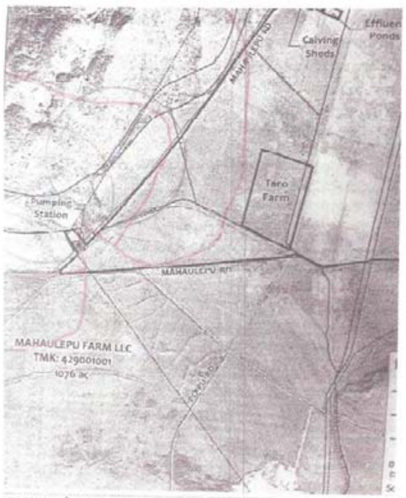
HDF DEIS Volume 2 Technical Appendices pg 19 (pdf pg 105)
"While the underlying hydrological conditions tend to separate the surface and underlying aquifers…"
HDF DEIS Volume 2 Technical Appendices pg 19
** "tend to"! Tend to, is not quantifiable. Must be quantified. DEIS must be accurate and not vague especially since the Source Water Assessment Program report states the aquifer is 51 square miles and unconfined. This DEIS is inaccurate at best.

HDF DEIS Volume 2 Technical Appendices pg 73 (pdf pg 193)
" Table 23B: Summary Nutrient Mass Balance for up to 2,000 Mature Dairy Cows"
** As this DEIS is taking into consideration both the starting herd size and the anticipated herd size. This table shows that the larger herd will create too much phosphorus by 3,695 lbs per year. So it will constantly be leaching and running off into the ocean.

HDF DEIS Volume 2 Technical Appendices pg 4 (pdf pg 48)
Picture of stream/ditch
**There is disturbed dirt piled up and newly excavated rocks close to the ditch

HDF DEIS Volume 2 Technical Appendices pg 23 (pdf pg 109)
"1) The actual productivity of forage grass, and 2) The number of animals consuming forage and 3) The efficiency in returning manures and effluents to the growing grass. The amounts of rainfall are also important in determining the actual nutrient cycles."
**Manure is a very ineffective way of fertilizing the grass as we both know. The amounts of rainfall not only determine the actual nutrient cycles but also the degree to which the manure runs off to the ocean and impacts the coral reef. Please quantify the amount per day of rain each paddock or soil type can take before it runs off and how many days out of the year in the last 25 years have we had that amount of rain. The rainfall figures this DEIS has sited are from before 1982 which means it does not include two hurricanes and the 40+ day rain event of 2006. The reason behind this would be to deceive the community and agencies into thinking 50" is correct. It is not. Provide accurate up to date information. The rainfall that hits the Ha'upu mountain and its ridges must also be calculated into the equation. It's not just the rainfall from the heavens but also the rainfall that propels it way down the mountainside.

HDF DEIS Volume 2 Technical Appendices pg 26 (pdf pg 112)
"Appendix 1. List of HDF paddocks and their most probable drainage class."



...NE STATION/COUNTY WELLS, GROUND WATER RECHARGE AND PCA ZONE

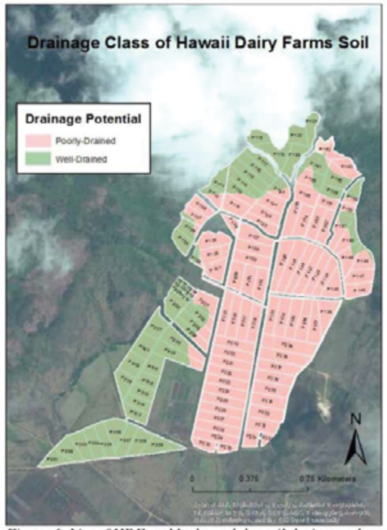


Figure 6. List of HDF paddocks and the soil drainage characteristic of each.

Reduced likelihood of deep leaching of nutrients from surface to groundwater

The hydrology of the proposed dairy site has been thoroughly characterized and documented in the report by Nance (2016). This report indicates that the amounts of soil water that can move from the soil surface into underlying groundwater is minimal when the dairy land is irrigated and manure effluents are applied. While the underlying hydrological conditions tend to separate the surface and underlying aquifers there are important differences reported in the hydrologic study that are discussed above in the section on "poorly drained" soil mapunits. The implications of whether forage is produced on soil mapunits that are "poorly drained" or "well-drained" may affect nutrient and fertilization requirements as well as determination of the nutrient balance of the

15

HDF DEIS Volume 2 Technical Appendices pg 26

**48 well-draining paddocks - 71 poorly-draining paddocks

** Based on this appendix 67.6056% of all the paddocks are poor draining and will have runoff of manure into our ocean via the "numerous" ditches cited in this DEIS, that were not explored by the writer of the DEIS to see how they interconnect to the main ditches/ water features. I believe it is imperative that Group 70 maps all these ditches and show how they are interconnected and how they add to the discharge into waters of the State. The coconut wireless says many more smaller ditches were added into the pastures as they were water logged. Not scientific but neither is this DEIS.

HDF DEIS Volume 2 Technical Appendices pg 19 (pdf pg 105)

"This report indicates that the amounts of soil water that can move from the soil surface into underlying groundwater is minimal when the dairy land is irrigated and manure effluents are applied."

HDF DEIS Volume 2 Technical Appendices pg 19

**** If you compare the map from Vol 2 page 105 to the Kauai County Water Assessment Program map, it becomes apparent that the capture zone C is exactly where the well draining soils which the DEIS states will contaminate our drinking water through the soils of zone C of well F's capture zone. No mention is made of the other two county well that are also within 1,000 feet of the dairy boundary.

***The effluent sprayer has large supports and wheels that would still be dripping effluent when it crosses the stream. These large wheels and the irrigation pipes weigh so much when filled with effluent and water that they dig into the soft clay every time there is any rain or if the irrigation system has sprayed the ground. As they approach the hard metal bridges to get up on them

the wheels must jump up
which will make any effluent on the structure
shake off into the stream.

Part 2 of 3 parts

Attn: Laura McIntyre
State Dept. of Health
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HDF DEIS Volume 2 Technical Appendices pg 31 (pdf pg 151)
Figure 9
**Where is your 1,000 foot set back from well C? It appears the plans calls for sludge to be dumped within 1,000 ft of well C. Also Why isn't there at least a 1,000 ft setback from the Maha'ulepu Reservoir? The plans calls for sludge to be dumped there, too. What about 1,000 foot set back from the monitoring wells and the three wells known at Wells 14?
**The plan calls for sludge to be dumped up by the animal cemetery, the map shows a stream coming down the hillside there which in the event of a storm would flood the sludge area and the cemetery. How will HDF stop this from happening? Also how will HDF keep chemicals used for euthanizing the cows from leaching into the ground water? How will they stop pathogens and bacteria and hormones from leaching into the ground water?

**Figure 9 also shows that the pipes that carry the sludge to multiple sites cross the streams and ditches a minimum of 5 times. White PVC pipe gets brittle when exposed to the sun over time. What is to stop these pipes from breaking open and dumping or dripping the sludge into the ditches and streams? What about the seams where these pipes are joined together, can they potentially leak? Why has HDF not protected the pipes they have laying in a stock pile from UV deterioration? Those pipes have been laying there for years now exposed to the elements and if they are used by HDF surely they will break or leak in their deteriorating state even more quickly.

What is the affect of the noise on the endangered species and critical habitat as sound carries so far here? Will it affect their ability to reproduce?

National Association of Local Boards of Health 1840 East Gypsy Lane Road Bowling Green, Ohio 43402
www.nalboh.org

Understanding Concentrated Animal Feeding Operations and Their Impact on Communities
Rapp technology to control odors and reduce ammonia and hydrogen sulfide levels. However, questions still remain as to whether this addition will fully solve the odor issue. Typically, systems using Rapp technology include an oil cap that coats manure holding pools and helps seal odors inside. These techniques have been researched and proven to reduce odors.

Foot bath uses copper sulfate? Copper Sulfate can pollute the water and the soil if added to the effluent ponds.
What about cooling water? How is it disposed of?

What is your plan for pollutants expelled and deposited outside of and around milking barn from the ventilation system?

Was the effluent pond sized to contain storm water from all buildings and hard surfaces at the milking barn at the size of 2,000 cows in addition to the 25 year storm event and 30 day storage?

"Understanding Concentrated Animal Feeding Operations and Their Impact on Communities"
2010 National Association of Local Boards of Health 1840 East Gypsy Lane Road
Bowling Green, Ohio 43402 www.nalboh.org

Page 3 Understanding Confined Animal Feed Operations"

Groundwater can be contaminated by CAFOs through runoff from land application of manure, leaching from manure that has been improperly spread on land, or through leaks or breaks in storage or containment units. The EPA's 2000 National Water Quality Inventory found that 29 states specifically identified animal feeding operations, not just concentrated animal feeding operations, as contributing to water quality impairment. (Congressional Research Service, 2008).

Page 4 'Understanding Confined Animal Feed Operations"
-When groundwater is contaminated by pathogenic organisms, a serious threat to drinking water can occur. Pathogens survive longer in groundwater than surface water due to lower temperatures and protection from the sun. Even if the contamination appears to be a single episode, viruses could become attached to sediment near groundwater and continue to leach slowly into groundwater. One pollution event by a CAFO could become a lingering source of viral contamination for groundwater (EPA, 2005).

-Groundwater can still be at risk for contamination after a CAFO has closed and its lagoons are empty. When given increased air exposure, ammonia in soil transforms into nitrates. Nitrates are highly mobile in soil, and will reach groundwater quicker than ammonia. It can be dangerous to ignore contaminated soil. The amount of pollution found in groundwater after contamination depends on the proximity of the aquifer to the CAFO. What is HDF's plan to handle pollutants stored in the soil after they close up shop?
-Pollutants can also travel over land or through surface drainage systems to nearby bodies of water, be discharged through manmade ditches or flushing systems found in CAFOs, or come into contact with surface water that passes directly through the farming area. Soil erosion can contribute to water pollution, as some pollutants can bond to eroded soil and travel to watersheds (EPA, 2001). Other types of discharges occur when pollutants travel to surface water through other mediums, such as groundwater or air.

-Contamination in surface water can cause nitrates and other nutrients to build up. Ammonia is often found in surface waters surrounding CAFOs. Ammonia causes oxygen depletion from water, which itself can kill aquatic life. Ammonia also converts into nitrates, which can cause nutrient overloads in surface waters (EPA, 1998). Excessive nutrient concentrations, such as nitrogen or phosphorus, can lead to eutrophication and make water inhabitable to fish or indigenous aquatic life (Sierra Club Michigan Chapter, n.d.). Nutrient over-enrichment causes algal blooms, or a rapid increase of algae growth in an aquatic environment (Science Daily, n.d.). Algal blooms can cause a spiral of environmental problems to an aquatic system. Large groups of algae can block sunlight from underwater plant life, which are habitats for much aquatic life. When algae growth increases in surface water, it can also dominate other resources and cause plants to die. The dead plants provide fuel for bacteria to grow and increased bacteria use more of the water's oxygen supply. Oxygen depletion once again causes indigenous aquatic life to die. Some algal blooms can contain toxic algae and other microorganisms, including Pfesteria, which has caused large sh kills in North Carolina, Maryland, and the Chesapeake Bay area (Spellman & Whiting, 2007). Eutrophication can cause serious problems in surface waters and disrupt the ecological balance.

Page 5 "Understanding Confined Animal Feed Operations"
Water tests have also uncovered hormones in surface waters around CAFOs (Burkholder et al., 2007). Studies show that these hormones alter the reproductive habits of aquatic species living in these waters, including a signifcant decrease in the fertility of female fish. CAFO runoff can also lead to the presence of fecal bacteria or pathogens in surface water. One study showed that protozoa such as Cryptosporidium parvum and Giardia were found in over 80% of surface water sites tested (Spellman & Whiting, 2007).

Air Quality
In addition to polluting ground and surface water, CAFOs also contribute to the reduction of air quality in areas surrounding industrial farms. Animal feeding operations produce several types of air emissions, including gaseous and particulate substances, and CAFOs produce even more emissions due to their size. The primary cause of gaseous emissions is the decomposition of animal manure, while particulate substances are caused by the movement of animals. The type, amount, and rate of emissions created depends on what state the manure is in (solid, slurry, or liquid), and how it is treated or contained after it is excreted. Sometimes manure is "stabilized" in anaerobic lagoons, which reduces volatile solids and controls odor before land application.

The most typical pollutants found in air surrounding CAFOs are ammonia, hydrogen sulfide, methane, and particulate matter, all of which have varying human health risks. Table 1 on page 6 provides information on these pollutants.

Most manure produced by CAFOs is applied to land eventually and this land application can result in air emissions (Merkel, 2002). The primary cause of emission through land application is the volatilization of ammonia when the manure is applied to land. However, nitrous oxide is also created when nitrogen that has been applied to land undergoes nitrification and denitrication. Emissions caused by land application occur in two phases: one immediately following land application and one that occurs later and over a longer period as substances in the soil break down. Land application is not the only way CAFOs can emit harmful air emissions—ventilation systems in CAFO buildings can also release dangerous contaminants. A study by Iowa State University, which was a result of a lawsuit settlement between the Sierra Club and Tyson Chicken, found that two chicken houses in western Kentucky emitted over 10 tons of ammonia in the year they were monitored (Burns et al., 2007).

Most studies that examine the health effects of CAFO air emissions focus on farm workers, however some have studied the effect on area schools and children. While all community members are at risk from lowered air quality, children take in 20-50% more air than adults, making them more susceptible to lung disease and health effects (Kleinman, 2000). Researchers in North Carolina found that the closer children live to a CAFO, the greater the risk of asthma symptoms (Barrett, 2006). Of the 226 schools that were included in the study, 26% stated that there were noticeable odors from CAFOs outdoors, while 8% stated they experience odors from CAFOs inside the schools. Schools that were closer to CAFOs were often attended by students of lower socioeconomic status (Mirabelli, Wing, Marshall, & Wilcosky, 2006).

Page 6 "Understanding Confined Animal Feed Operations"
There is consistent evidence suggesting that factory farms increase asthma in neighboring communities, as indicated by children having higher rates of asthma (Sigurdarson & Kline, 2006; Mirabelli et al., 2006). CAFOs emit particulate matter and suspended dust, which is linked to asthma and bronchitis. Smaller particles can actually be absorbed by the body and can have systemic effects, including cardiac arrest. If people are exposed to particulate matter over a long time, it can lead to decreased lung function (Michigan Department of Environmental Quality [MDEQ] Toxics Steering Group [TSG], 2006). CAFOs also emit ammonia, which is rapidly absorbed by the upper airways in the body. This can cause severe coughing and mucous build-up, and if severe enough, scarring of the airways. Particulate matter may lead to more severe health consequences for those exposed by their occupation. Farm workers can develop acute and chronic bronchitis, chronic obstructive airways disease, and interstitial lung disease. Repeated exposure to CAFO emissions can increase the likelihood of respiratory diseases. Occupational asthma, acute and chronic bronchitis, and organic dust toxic syndrome can be as high as 30% in factory farm workers. (Horrigan, Lawrence, & Walker, 2002). Other health effects of CAFO air emissions can be headaches, respiratory problems, eye irritation, nausea, weakness, and chest tightness.

Page 7 "Understanding Confined Animal Feed Operations"
Greenhouse Gas and Climate Change
Aside from the possibility of lowering air quality in the areas around them, CAFOs also emit greenhouse gases, and therefore contribute to climate change. Globally, livestock operations are responsible for approximately 18% of greenhouse gas production and over 7% of U.S. greenhouse gas emissions (Massey & Ulmer, 2008). While carbon dioxide is often considered the primary greenhouse gas of concern, manure emits methane and nitrous oxide which are 23 and 300 times more potent as greenhouse gases than carbon dioxide, respectively. The EPA attributes manure management as the fourth leading source of nitrous oxide emissions and the fifth leading source of methane emissions (EPA, 2009).
The type of manure storage system used contributes to the production of greenhouse gases. Many CAFOs store their excess manure in lagoons or pits, where they break down anaerobically (in the absence of oxygen), which exacerbates methane production. Manure that is applied to land or soil has more exposure to oxygen and therefore does not produce as much methane. Ruminant livestock, such as cows, sheep, or goats, also contribute to methane production through their digestive processes. These livestock have a special stomach called a rumen that allows them to digest tough grains or plants that would otherwise be unusable. It is during

this process, called enteric fermentation, that methane is produced. The U.S. cattle industry is one of the primary methane producers.

Page 7 "Understanding Confined Animal Feed Operations"
Odors
One of the most common complaints associated with CAFOs are the odors produced. The odors that CAFOs emit are a complex mixture of ammonia, hydrogen sulfide, and carbon dioxide, as well as volatile and semi-volatile organic compounds (Heederik et al., 2007). These odors are worse than smells formerly associated with smaller livestock farms. The anaerobic reaction that occurs when manure is stored in pits or lagoons for long amounts of time is the primary cause of the smells. Odors from waste are carried away from farm areas on dust and other air particles. Depending on things like weather conditions and farming techniques, CAFO odors can be smelled from as much as 5 or 6 miles away, although 3 miles is a more common distance (State Environmental Resource Center, 2004).

Page 8 "Understanding Confined Animal Feed Operations"
CAFO odors can cause severe lifestyle changes for individuals in the surrounding communities and can alter many daily activities. When odors are severe, people may choose to keep their windows closed, even in high temperatures when there is no air conditioning. People also may choose to not let their children play outside and may even keep them home from school. Mental health deterioration and an increased sensitization to smells can also result from living in close proximity to odors from CAFOs. Odor can cause negative mood states, such as tension, depression, or anger, and possibly neurophysciatric abnormalities, such as impaired balance or memory. People who live close to factory farms can develop CAFO-related post-traumatic stress disorder, including anxiety about declining quality of life (Donham et al., 2007).

Pathogens
Pathogens are parasites, bacterium, or viruses that are capable of causing disease or infection in animals or humans. The major source of pathogens from CAFOs is in animal manure. There are over 150 pathogens in manure that could impact human health. Many of these pathogens are concerning because they can cause severe diarrhea. Healthy people who are exposed to pathogens can generally recover quickly, but those who have weakened immune systems are at increased risk for severe illness or death. Those at higher risk include infants or young children, pregnant women, the elderly, and those who are immunosuppressed, HIV positive, or have had chemotherapy. This risk group now roughly compromises 20% of the U.S. population.

Sources of infection from pathogens include fecal-oral transmission, inhalation, drinking water, or incidental water consumption during recreational water activities. The potential for transfer of pathogens among animals is higher in confinement, as there are more animals in a smaller amount of space. Healthy or asymptomatic animals may carry microbial agents that can infect humans, who can then spread that infection throughout a community, before the infection is discovered among animals.

Page 10 "Understanding Confined Animal Feed Operations"
When water is contaminated by pathogens, it can lead to widespread outbreaks of illness. Salmonellosis, cryptosporidiosis, and giardiasis can cause nausea, vomiting, fever, diarrhea, muscle pain, and death, among other symptoms. E.coli is another serious pathogen, and can be life-threatening for the young, elderly, and immunocompromised. It can cause bloody diarrhea and kidney failure. Since many CAFO use sub-therapeutic antibiotics with their animals, there is also the possibility that disease-resistant bacteria can emerge in areas surrounding CAFOs. Bacteria that cannot be treated by antibiotics can have very serious effects on human health, potentially even causing death (Pew Charitable Trusts, n.d.).

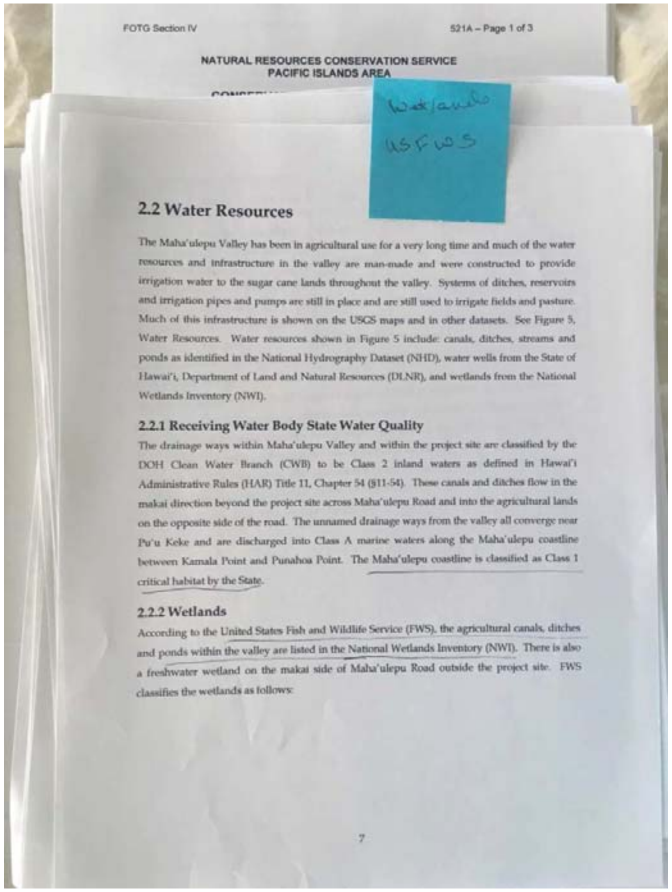
Antibiotics
The main purposes of using non-therapeutic doses of antimicrobials in animal feed is so that animals will grow faster, produce more meat, and avoid illnesses. Supporters of antibiotic use say that it allows animals to digest their food more efficiently, get the most benefit from it, and grow into strong and healthy animals.

Page 13 "Understanding Confined Animal Feed Operations"
Rapp technology to control odors and reduce ammonia and hydrogen sulfide levels. However, questions still remain as to whether this addition will fully solve the odor issue. Typically, systems using Rapp technology include an oil cap that floats on manure holding p ools and helps seal odors inside. These techniques have been researched and proven to reduce odors.

Injury or mortality of adults and juveniles may potentially occur due to entanglement or collision with fencing and/or collision with vehicles on farm roads. Additional details on fencing are necessary to assess potential impacts to Hawaiian waterbirds and Hawaiian geese. Electric fencing (commonly used to control movement of cows in pastures) should not be used for fencing as part of the proposed project. To minimize potential collision with vehicles, the Service recommends you install signage near roadways to warn drivers (e.g., farm workers and visitors) to be wary of birds in the areas.

HDF DEIS Volume 2 Technical Appendices pg 23 (pdf pg 143)

"The walkways and races will be compacted crushed rock access ways that are approximately 16 to 20 feet in width. The cow races will allow twice daily movement of the cows from the paddocks to the Milking Parlor. The cow races are not irrigated and will be frequently maintained to maximize efficient and rapid movement to and



FOTG Section IV 521A – Page 1 of 3

NATURAL RESOURCES CONSERVATION SERVICE
PACIFIC ISLANDS AREA

Wetlands
USFWS

2.2 Water Resources

The Maha'ulepu Valley has been in agricultural use for a very long time and much of the water resources and infrastructure in the valley are man-made and were constructed to provide irrigation water to the sugar cane lands throughout the valley. Systems of ditches, reservoirs and irrigation pipes and pumps are still in place and are still used to irrigate fields and pasture. Much of this infrastructure is shown on the USGS maps and in other datasets. See Figure 5, Water Resources. Water resources shown in Figure 5 include: canals, ditches, streams and ponds as identified in the National Hydrography Dataset (NHD), water wells from the State of Hawai'i, Department of Land and Natural Resources (DLNR), and wetlands from the National Wetlands Inventory (NWI).

2.2.1 Receiving Water Body State Water Quality

The drainage ways within Maha'ulepu Valley and within the project site are classified by the DOH Clean Water Branch (CWB) to be Class 2 inland waters as defined in Hawai'i Administrative Rules (HAR) Title 11, Chapter 54 (§11-54). These canals and ditches flow in the makai direction beyond the project site across Maha'ulepu Road and into the agricultural lands on the opposite side of the road. The unnamed drainage ways from the valley all converge near Pu'u Keke and are discharged into Class A marine waters along the Maha'ulepu coastline between Kamala Point and Punahoa Point. The Maha'ulepu coastline is classified as Class 1 critical habitat by the State.

2.2.2 Wetlands

According to the United States Fish and Wildlife Service (FWS), the agricultural canals, ditches and ponds within the valley are listed in the National Wetlands Inventory (NWI). There is also a freshwater wetland on the makai side of Maha'ulepu Road outside the project site. FWS classifies the wetlands as follows:

7

from the dairy with minimal injury to livestock. The races will be bordered by 3 wire electrical fencing."** US Fisheries and Wildlife Services specifically NOT to use electric fences? Letter dated February 23, 2015.

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"Four endangered waterbird species, Hawaiian Duck, Common Gallinule, Black-necked Stilt and Hawaiian Coot were recorded on the property. The principal potential impacts that the development and operation of the proposed dairy farms on the site poses to these four species fall can be broken down into those potentially associated with construction activities and those associated with dairy farm operations following build-out. During construction especially during clearing and grubbing phases of the project, clearing vegetation, opening up and clearing of agricultural irrigation features and the construction and/or upgrading of roadways within the farm has the potential to disturb nesting waterbirds, nests, eggs and young. Controls should be put in place to avoid deleterious interactions between endangered waterbirds and construction equipment, vehicles and construction personnel. Waterbirds disturbed when nesting may abandon their nest, eggs and to a lesser degree chicks. Increased vehicular traffic associated with construction activities also increases the risk of birds being run over or hit by vehicles, within the project site"

**** Isn't this false representation as the farm has been grubbed and graded and the ditches have been cleared out, water lines have been dug and placed and backfill, the effluent pond is partially dug all without any controls or best management practices put in place? Jim Garmatz under oath stated he didn't even have a copy of them. Much less did he use them. See attachment 16**

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"The principal potential impact that construction of the proposed dairy farms poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the project during the nesting season. The two main ways that outdoor lighting could pose a threat to these nocturnally flying seabirds is if, 1) during construction it is deemed expedient, or necessary to conduct nighttime construction activities, and 2) following build-out, the potential operation of streetlights or security lighting. "

**** Why would you do night construction when US Dept. of Fisheries and Wildlife sent you (Jeff Overton) a letter telling directly not do any construction at night? The letter read," Construction activities should only occur during day light hours. Any increase in use of night time lighting, particularly during peak fall out period (September 15 through December 15), could result in additional seabird injury or mortality."**

Even the children on Kauai don't play night games during the Shearwater fledgling season is Sept. 15 to December 15. You must not build at night during those months. Kaua'i holds 90% of the remaining population of the Newell's Shearwater, making the island the last Refuge for this enigmatic species and critical to its survival. As this species is endemic to the Hawaiian Islands, this means that Kaua'i also holds the largest breeding population of this bird on the planet.

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"These requirements should be included as special Construction BMP contract provisions."

****The inclusion of these requirements are required! It should read that they are required.**

Vol. 2 Page 5 (page 51 of 732)
"This review did not show any previous invertebrate surveys in the area.
The results of recent avian-mammalian and botanical surveys of the project area by David and Guinther (2014) were helpful in preparing for this study. Searches were made in the University of Hawai'i and Bishop Museum

library catalogs and in the University of Hawai'i, Hamilton Library's Hawai'i-Pacific Journal Index (2014). Searches were made for publicly available articles mounted on the web through Google Scholar"
****Try the Reconnaissance Survey of Maha'ulepu**. https://www.nps.gov/pwr/upload/mahaulepu_final.pdf

It covers Terrestrial Invertebrates, Large Marine Vertebrates and Marine Invertebrates. These should all be covered as they will be effected by the nitrogen, phosphorous, hormones, bacteria and pathogens that will come down the stream with your "ten days per year" discharge. Doesn't look like you tried very hard to find this information as you actually quote this source regarding other matters.

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"Several species of birds are present. Many of them feed on seeds and small insects. Numerous manure piles showed signs of being disturbed by birds scratching at, or beaking the pile to find larvae or undigested seeds."
****This could prove to be a significant impact on the avian community especially with the recent outbreak of Avian Pox on our island. This will cause illness and death in our endangered species as the birds get pathogens and antibiotics, that act like hormones as they speed up growth from foraging in the manure. Birds often carry feces on their feet up into trees and bushes. It will put endangered populations at risk.**

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"Stomoxys has the common name "stable fly" due to its association with the manure of horses and cattle, but it also breeds in rotting vegetation, including beach seaweeds. The adult stable fly is 6 millimeters (mm) long, with abdominal spots and prefers to land on animals' legs, causing much annoyance and loss of productivity. The adults feed on the blood of livestock and nearby humans by piercing the skin. Proven control methods include introduction of parasitic micro-wasps and spreading out of manure. (DuPonte and Larish 2003)."

****Maha'ulepu beach is less than a mile away. The flies will breed in seaweed there and bite the children, adults of the community and visitors. This will have serious and significant impact on the health of the community.**

****The large quantity of manure left on the ground will bred thousands of stable flies. You cannot introduce new species of wasps or dung beetles to our island as they will harm the ecosystem as their numbers grow out of control.**

The large number of flies will bite visitors and islanders alike, spreading zoonotic diseases.
http://www.pubs.ext.vt.edu/400/400-460/400-460.html

Zoonotic diseases are diseases that can be transmitted from animals to humans and from humans to animals. Zoonotic diseases may be acquired or spread in a variety of ways: through the air (aerosol), by direct contact, by contact with an inanimate object that harbors the disease (fomite transmission), by oral ingestion, and by insect transmission. There are fifteen cattle diseases with zoonotic potential in the United States, some of which are more common than others. They include anthrax, brucellosis, cryptosporidiosis, dermatophilosis, Escherichia coli, giardiasis, leptospirosis, listeriosis, pseudocowpox, Q fever, rabies, ringworm, salmonellosis, tuberculosis, and vesicular stomatitis. The most common of which are:

1. ***Cyrptosporidium*** **is a protozoal parasite that causes diarrhea. Most animals can be infected with** ***Cryptosporidium*****, but clinical signs are most commonly observed in calves less than 1 month old. Infected animals shed the organism in their feces, contaminating the environment.** ***Cryptosporidium*** **can then be ingested from infected food or water.** **Humans are infected by consuming food or water contaminated with the organism or by failing to wash their hands after exposure to infective feces or animals. Most people who are infected do not become sick. For those individuals that show clinical signs, explosive diarrhea and abdominal pain are common. Vomiting, fever, and muscle cramps may also occur. Young children, pregnant women, and immune compromised adults are most severely affected. Calves with diarrhea should be separated from healthy ones, and the infected area disinfected with bleach. Prevention efforts in humans focus on hand washing, especially after handling or being around animals and before eating or handling food.**

2. ***Escherichia coli (E. coli)*** **are bacteria normally found in the intestines of people and animals. However, some strains cause a severe, often bloody, diarrhea in humans. Animals are the carriers of the bacteria, and humans become infected by ingesting contaminated food or water, especially undercooked ground beef, unpasteurized juice and milk, and vegetables. Humans may also become infected after handling or being exposed to feces of a carrier animal.** ***E.coli*** **can also be transmitted through swimming pools.** ***E. coli*** **O157:H7 is a particularly virulent strain of** ***E. coli*** **that in humans can cause abdominal cramping, bloody diarrhea, and occasionally, especially in young children and the elderly, life threatening kidney disease and a hemolytic uremic syndrome.** ***E. coli*** **O157:H7 may cause diarrhea in young calves, but most infected cattle show no clinical signs. Prevention focuses on hand washing and proper food hygiene. Do not drink unpasteurized milk or milk products, juice, or cider. Make sure drinking water, especially well water, is adequately disinfected. Wash hands after handling animals or being in animal facilities and do not eat or drink around animals. Day-care facilities should wash toys frequently, and individuals with diarrhea should avoid swimming in public areas.**

   THERE ARE HIGH NUMBER OF ENTEROCCUS IN THE DITCHES AND STREAMS AT THE DAIRY SITE PER HDF'S, DOH AND USGS SAMPLING.

3. **Ringworm is a skin infection caused by fungi of the** ***Trichophyton*** **or** ***Microspora*** **species. Animals get ringworm by direct contact with an infected animal or by being in an infected environment, such as a barn. Ringworm is characterized by hairless, crusty circular areas on the skin. People are infected with ringworm through direct contact with infected animals. In humans, ringworm forms itchy areas on the skin that are round and irritated. Good hygiene and thorough hand and forearm washing after handling infected cattle will help decrease the risk of ringworm.**

4. ***Salmonella*** **are bacteria that are shed in the feces of infected animals. Many animals are susceptible to** ***Salmonella*****, including cattle. Infection occurs as a result of the ingestion of contaminated feed, water, or grass. The bacterium can live for months to years in the environment, especially in wet and warm conditions. Young, stressed or pregnant animals are the most susceptible to** ***Salmonella*** **infection. Infection may result in fever, foul smelling diarrhea, and severe dehydration. People acquire** ***Salmonella*** **from undercooked contaminated meat, infected eggs, or unpasteurized milk products. If hands are not washed after direct contact with infected feces, then accidental ingestion of bacteria can occur. Humans may develop diarrhea, abdominal cramping, and fever, which can be very severe. Animals with diarrhea should be isolated and the area disinfected.**

5. **Leptospirosis is a bacterial disease caused by** ***Leptospira interrogans*** **that can occur in a large number of animals, including cattle, sheep, goats, pigs, horses, and dogs. Leptospirosis is spread through the urine of infected animals and can survive in water and soil for months. The most common clinical signs in cattle are abortion and weak newborn calves. Cattle, and especially rodents, may show no signs of illness but carry and pass the organism in their urine. Humans acquire leptospirosis through direct contact, ingestion, or inhalation of the bacteria. Infection usually results in mild flu-like symptoms but may progress to severe liver and kidney disease. Prevention involves rodent control and elimination of standing water. Avoid water, such as ponds, where animals congregate and urinate, and wear gloves when handling reproductive fluids or when being exposed to urine.**

6. ***Giardia lamblia*** **is an intestinal protozoal parasite that may or may not cause disease in cattle.** ***Giardia*** **is present in soil, food, and water that have been contaminated by infected feces. Humans become infected by ingestion of contaminated food or water. Infants and small children may place their hands that have been contaminated with fecal material directly into their mouth. Because a large number of wild animals harbor** ***Giardia*****, water from lakes, streams, or ponds may be unsafe to drink.** ***Giardia*** **causes diarrhea and abdominal cramping in humans. It can be prevented by avoiding untreated drinking water and thoroughly washing all fruits and vegetables. Frequent hand washing is also recommended.**

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" The 5mm horn fly, Haematobia irritans, congregates near the horns of cattle on all isles where their biting causes pain and annoyance, interferes with feeding, but it rarely bites man. It has been widespread since 1898 and Kaua'i herds have benefitted from control by imported micro-wasps and beetles that reduce larvae breeding in dung."

** The Hawaii Invasive Species Council is an inter-departmental collaboration comprised of the Departments of Land & Natural Resources (DLNR), Agriculture (DOA), Health (DOH), Transportation (DOT), Business, Economic Development & Tourism (DBEDT), and the University of Hawaii (UH).

On biting flies states

-The introduction and establishment of any one of these pests could cause serious harm to Hawaii's tourist-based economy, severely impact Hawaii's native and non-native fauna, and forever change the way people live in the islands.

-Biting flies are flies that attack man and other animals.

-Blackflies are vicious biters and serious pests in some parts of U.S. They attack livestock and can cause death to livestock and humans.

**Illinois DOH states in their report on biting flies:

- Flies can fly up to 10 miles
- Each fly has 30 blood meals per day
- Flies lacerate the skin and inject their anticoagulant containing saliva
- Biting flies transmit debilitating diseases to millions of people worldwide. Some diseases that flies spread to children are impetigo and pink eye.
- Biting flies often attack the ankles inflicting sharp, stabbing pain. They prefer to attack the head and where clothing fits tightly.
- The mesh of standard household screens is not fine enough to keep out the tiniest biting flies and should be replaced with finer mesh where these flies are a problem.
- DEET repellant has been found to be less effective against some types of biting flies.
- Biting flies can produce severe allergic reactions. Deaths have been reported from allergic reactions.
- To combat biting flies avoid areas inhabited by the flies, avoiding peak biting times, and wearing heavy-duty, light-colored clothing including long-sleeve shirts, long pants and hats with netting that covers the head, like the "bee bonnets".

University of Florida

- Eggs are laid in masses ranging from 100 to 1000 eggs.
- Eggs hatch in 5 to 7 days depending on the weather conditions.
- Adult fly life span is 30 to 60 days.
- It is not uncommon to see as many as 100 flies on an animal at one time.
- Currently there are no adequate means for managing populations.
- The use of insecticides is generally thought of as economically unfeasible. Granular insecticides were applied to the water in the 1950s but environmental effects were eventually considered.

Spalding Fly Predators state on their website, "Getting rid of flies after the have hatched and built up a tremendous population is like bailing out a sinking boat with a teaspoon."

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"INVERTEBRATES NOT PRESENT: Native Hawaiian No federally or state listed endangered or threatened invertebrate species were noted in this survey (DLNR 1997; USFWS 2014). There is no federally designated Critical Habitat for any invertebrate species on or adjacent to the subject property. No anticipated actions related to the proposed project activity in the surveyed locations are expected to threaten entire species or entire invertebrate populations."

**** The endangered blind cave spider resides in the cave below the farm. In a rain event flooding of the ditches and streams will cause them to rise above their banks. The stream goes very close to the habitat at the critical cave. Richard, who works at the cave with Dr. Burney told me that they cut down a tree outside the cave into wood rounds. After a rain event they came back to the cave to find the rounds had been washed into the cave by the flooding of the stream. So any pathogens, bacteria, nitrogen, phosphorous or other pollutants that leave the farm will end up being carried by the water into the cave. The pH of the cave is critical to the preservation of the geological finds made at the cave. The pH is 7 (neutral) whereas, the pH of the soils at the farm vary widely below 7 for the most part. This would be a significant impact on the geology of the cave and the preservation of artifacts and extinct species. You must consider all areas downstream from the farm as every rain event will have a significant impact on an already significantly impaired stream with a geomean of over 8,000 enterococcus and presence of Humbac 183. The Humbac 183, which stands for human bacteria, was detected by Stanford Labs and can be found on page 105 (attachment11) of the Waiopili Ditch, Sanitary Survey, Kauai March 2016 done by DOH. See attachment 17.**

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"Figure 23. Any water source will attract bees, an important part of the agricultural system. An "escape ramp" can reduce drowning. [photo of non-HDF water trough"

**** With honey bee populations being so diminished and whereas mankind is dependent on the honey bee for pollination of our food supply, it is foolish to not cover the lagoons. Water sources of 87 feet by 133 feet and 215 feet by 133 feet will have a significant impact on honey bees if not covered. What type of "escape ramps" are going to be placed in the 238+ watering troughs that won't be disturbed or annihilated by the cows drinking out of them? Describe these "escape ramps" and how they work. When I was on Hawaii Dairy Farm site I saw and took pictures of the watering troughs that had already been installed. They contained brackish water and I did not see any "escape ramps".**

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"High populations of dung beetles will bury dung pats in one to three days. This destroys the habitat for other insects and internal parasites to complete their life cycle." "A long-term, ecological method of combating manure fly breeding would be increasing the diversity of dung beetle species now present on Kaua'i."

****So what exactly is meant by high populations? "3.3 pounds of the elephant dung can vanish in two hours when 16,000 dung beetles arrive to the scene to collect piece of dung for itself." http://www.softschools.com/facts/animals/dung_beetle_facts/114/**

So, if we do the math for 699 cows producing 90 pounds of manure a day, you would need 25 million 541 thousand 818 hundred dung beetles. (25,541,818 dung beetles) per day to eat the manure. If you had 2,000 cows producing 90 pounds of manure per day, you would need 72 million 727 thousand 272 hundred dung beetles per day to eat the manure produced in one day. The Average lifespan of dung beetles is 3 to 5 years, depending on the species. Once you got to 25 or 72 million plus beetles depending on whether you have 699 or 2,000 cows, you would have to tell them to stop breeding. At that point they would have a significant impact on our island. I don't believe you could find enough dung beetles on the island to meet your needs.

"A long-term, ecological method of combating manure fly breeding would be increasing the diversity of dung beetle species now present on Kaua'i." DEIS

****You cannot arbitrarily import a diversity of dung beetles without having an impact on our island, even if some eat at night and some eat during the day. You must also include research/ information on the dung beetle infestation on Oahu that nearly annihilated the coconut trees.**

Vol. 2 **Page 4-6 (page 93 of 732)**

"Rather, these values represent the net amount of nutrients required to maintain high forage productivity and soil health from commercial fertilizer, which is beyond nutrients available from manure sources. Fertilization, especially the additional of nitrogen from a commercial fertilizer can be inefficient with respect to forage production and protein content, and fertilization needs can be as much as 25% to 50% greater than the arithmetical difference resulting from a nitrogen balance calculation. The addition of phosphorus from a commercial fertilizer is also quite inefficient, because of the extensive sorption and binding reactions of phosphorus with the soils at the HDF site, sharply reducing the amount that becomes plant available (Jackman et al. 1997)."

**** Commercial fertilizers are "inefficient" thusly the increasing the likelihood of runoff containing nitrogen and phosphorous. Manure is also one of the most "inefficient" ways to get nutrients to forage/plants as the nutrients are not readily available. In addition the anaerobic state of the clay soils will turn the nitrogen into nitrates which is extremely toxic to humans and endanger species.**

**** "**extensive sorption and binding reactions of phosphorus with the soils at the HDF site**" also indicates that any turbidity in the Waoipili stream will be carrying with it not only phosphorus, nitrogen , bacteria and pathogens from the farm site.**

"Thus the potential loss of nitrogen and phosphorus is primarily dependent on the amount of surface water and runoff, which is minimal due to minimal rainfall (98% of the days have less than 0.8 inches). It is estimated there will be 7 to 8 days a year in which rainfall derived runoff will occur."

****This is conflicting information. Volume 1 pages 159,176,199,200,275 of 299 all say 10 days of rain events per year over .8 inches. (pages 4-67,4-84,4-107,4-108,6-23) This inconsistency makes all your runoff calculations circumspect.**

You failed to mention that many of the soils can only accept 0.06 inches and others 0.2 inches before they run off. More than half of the soils are clay, they can't absorb 0.8 inches of rain or irrigation. Why?

NOI Form C filed with state of Hawai'i on 8/20/14page 3 of 19 "Capacity to transmit water (Ksat (in./hour)0.14 to 1.98, 0.20 to 2.00, 0.00 to 0.2, 0.00 to 0.02, 0.00 to 0.2, 0.06 to 0.60, 0.6 0 to 1.98, 0.60 to 1.98, 0.00 to 0.06,0.00 to 0.60, 0.00 to 0.06"

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"The HDF Waste Management Plan (Group70, 2014) calls for a series of BMPs (Best Management Practices) that reduce or eliminate nutrient loading from surface water including setbacks, filter strips, buffer plantings and maintaining herbaceous covers. TNRWE, 2016 concludes that the primary challenge will be the operating skills of the HDF personnel, including tracking the actual nutrient balances within the soil, forage, and manure to ensure high forage productivity, avoiding excess fertilizer and anticipating / preparing for weather patterns that might produce runoff."

****I, too, have great concern as well that the challenge will be beyond the operating skills of the HDF personnel. Jim Garmatz in sworn testimony said he didn't even have a copy of NRCS Best Management Practices. He has cleared, grubbed and graded 480 acres per his testimony without Best Management Practices in place; why do you think this will change? Why should we think this will change when Amy Hennesey has on multiple occasions told the public that the farm uses Best Management Practices? See attachment 16**

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"Other research has shown that effluent in particular contains large amounts of salts (Cameron et al., 2003; Valencia-Gica. 2012). Many of those salts are nutritionally beneficial but some require monitoring such as levels of sodium.

**** With the proposed spraying of HDF's effluent onto the pastures and with the proposed discharge and the runoff from clay soils and numerous ditches in the pastures, these salts will pose a problem to the fish (ex. Gobis) in the stream, and wildlife that depend on the stream for as a water source. I have a video of a gobi in the ditch/stream during one of the high turbidity events at the shallowest point of the edge struggling to get oxygen with one third of his body above the water level. Video on available on request**

Page 10 (98 of 732)

Figure 3. Soil sampling design (43 locations), soil mapunits and initial soil pH map. Note: LuB: Lualualei soil series, well-drained, 2 – 6 % slope; Ws: Waikomo, well-drained, stony clay, PdC: Pakala clay loam, well-drained, 2 – 10% slope; PdA: Pakala clay loam, well-drained, 0 – 2 % slope; Ke: Kalihi clay, poorly-drained; KavB: Ka`ena clay brown variant, poorly drained, 1 – 6 % slope; KavC: Ka`ena clay brown variant, poorly drained, 6-12% slope; HsD: Hanamaulu silty clay, well-drained, 15-25% slope. "

**** This information is contradicted throughout this DEIS.**

In Volume 1 on page 6-3 (page 265 of 299) states," Slope: The Kīpū site contains greater slope conditions, with over 10 percent of site containing 5-10 percent slopes, as compared to generally level conditions at the Māhā'ulepū site. "

Vol.1 Page 6-14 (page 266 of 299) "Māhāʻulepū Valley, 557 ac, 699 up to 2,000, Mostly 0-5% Slopes, Generally Level"

Vol. 1. Page 4-6 (page 98 of 299). "Terrain within the dairy typically slopes from 2 to 15 percent, which is the gentle slope required for the comfort of dairy cows when grazing and navigating between paddocks and the milking parlor."

Vol 1. Page 59 (page 59 of 299) "The Māhāʻulepū site ranges from 0-10 percent slope"

Page 15 of 19 NOI form C filed 8/20/14 with the state of Hawai'i "Slightly sloped farmlands (0- 3%) average" (on Group 70 International letterhead)

Page 3 of 19 NOI form C filed with the state of Hawai'i"Slope Range (%), 15 to 20%, 10 to 35 %, 1 to 6 %, 6 to 12 %, 40 to 70%, 0 to 2%, 2 to 10%"

It is beyond difficult to respond to a DEIS that has so many conflicting pieces of information sited by Group 70. Please make all the information coincide.

Why should we trust any information provided by HF and Group 70 when they can't even get their numbers straight?

ANIMAL CEMETERY

The cemetery is mentioned five times in volume 2, and not at all in volume 1. The only information provided is that the cemetery is in paddock 163 and it refers you to the Waste Management Plan, which is not included.

The animal cemetery is very near a stream in an area likely to have high seasonal perched groundwater. The plan does not address the impact to groundwater of decomposing animals being leached by storm water infiltration percolating to groundwater. <u>The DEIS doesn't address the cemetery at all as if it will have no impact</u>! The DEIS should provide the total number of animals that will be buried on site in typical year and in total in the 18 years of operation. It should also address the pharmaceutical that will be used to put the animal down and its half-life and how long it will take to become undetectable. These questions should be answered for any pharmaceutical in the animal system. The chemicals used when burying the animal should also be discussed and their toxicity addressed. This is the wrong location for HDF.

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Table 5. Mean soil nutrient contents of phosphorus, potassium, calcium, and magnesium variation with soil mapunit in relation to recommended levels.

<u>Calcium</u> —cmol kg-1 —, KavB 7.5 b† Ke 25.3 a LuB 9.1 b, PdC 8.7

<u>Potassium</u>, — cmol kg-1 —, Kav B 0.31 b†, Ke 0.34b, LuB 0.50 b, PdC 1.21 a

<u>Magnesium,</u> — cmol kg-1 — , Kav B, 10.1 bc†, Ke 11.3 b, LuB 13.9 a, PdC b 7.4 c

†Values followed by the same letter indicate that the values were essentially the same. Otherwise values are ranked by decreasing alphabetical order. Target values are for the following nutrients: phosphorus: 25-35 (mg/kg or ppm), potassium: 0.5-0.76 (200-300 mg/kg or ppm), calcium: 3.75-5.0 (1500-2000 mg/kg or ppm), and magnesium: 2.5-3.5 (300-400 mg/kg or ppm) (Yost and Uchida, 2000).

****For the most part these readings are higher than acceptable per DOH . No explanation of how this situation will be handled. Why? Do you know these figures are above acceptable levels? Do you know what the acceptable levels are for these nutrients?**

Vol. 2 Page 15 (Page 103 of 732)

"Lime requirement lbs/Acre, 0,0,0,0"

**** In Jim Garmatz deposition he spoke about the ruts created by the large wheels cutting through the pasture. He said, "I purchased calcium finds from Glover and deposited them within the track." He also stated he first put in rocks, this was done in multiple tracks that were up to 16 inches wide. The tracks are deep and make excellent conduits for rain to runoff into the ditches and streams. This should not have been done as the soil didn't need it and neither did the ditches or stream and ocean life. Best management practices were not used per Jim. Attachment 16. This means the recent rain events that have occurred in Maha'ulepu and Poipu were very bad in a rain storm like what Jim describes in his deposition. "Seven-inch rainstorm the day after Thanksgiving of 2013." This rain per Jim occurred in 12 hours. The cave downstream will be destroyed by the lime/ calcium finds changing its pH. This will threaten the blind cave spider's habitat. This is a significant impact! When taken in totality with all the other impacts, this project should be denied an approval and stopped. With the majority of the site being clay with a Ksat between 0 and 0.2" Manure, pathogens, nitrogen phosphorus and bacteria laden runoff would have been in the stream and ocean 33 times per year, a far cry from 7 to 8 or 10 times a year. 0.8" <u>can not</u> be used to figure out runoff.**

Vol. 2 Page 17 (page 105)

"A nutrient balance calculated with a higher number of animals such as 2000 (data not shown) results in a small excess of phosphorus due to much larger amounts of recycled nutrients. "

****over 3,600 pounds per year per your calculations. Current phosphorus loads in the soils needs to be taken into consideration! Please recalculate.**

"Nutrient phosphorus should be monitored carefully" "Nutrient phosphorus is a noteworthy management variable because it typically accumulates or is static because removal rates seldom dramatically exceed application rates. This result also occurs because as indicated earlier, soils especially of the mapunits of the dairy are known to adsorb and retain large amounts of the nutrient phosphorus."

**** If the phosphorus is managed like the calcium was, then the runoff will be substantially higher than 3600+ pounds per year. The soils on Kauai are known for their heavy phosphorus load. This will have a significant impact on this fragile area.**

Vol. 2 Page 18 (page 106 of 732)

"Additionally, "poorly drained" soils often exhibit anaerobic conditions, which are important in both the presence and movement of nutrients that can affect soil environmental health, most importantly nitrogen and its various soluble forms nitrate, nitrite, and ammonium. Anaerobic conditions typically result in higher rates of nitrogen loss due to denitrification, which is the conversion of potentially environmentally hazardous nitrate and nitrite to gaseous, innocuous forms, reducing or eliminating levels in soils of both the nitrate and very toxic nitrite."

**** Nitrogen fixation is a process in which nitrogen (N_2) in the atmosphere is converted into ammonia (NH_3). https://en.wikipedia.org/wiki/Nitrogen_fix**

****This means there will be a significant impact in the way of odor to the surrounding community as the air fills with ammonia because most of the soil is clay. Anaerobic processes and anaerobic ponds smell horribly.**

****"Some wastewater treatment ponds, such as waste sludge storage ponds in activated sludge systems, are purposely designed for anaerobic digestion and thus produce sulfides and odors continuously throughout most of the pond depth. To eliminate odors emanating from these ponds, operators can maintain an oxygenated layer of water at the surface of the pond, sometimes called an "odor cap." When sulfide gas bubbles rise toward the surface of the pond, they are instantly oxidized to non-odorous sulfate as they pass through the oxygenated odor cap." http://www.waterworld.com/articles/print/volume-28/issue-9/weftec-editorial-features/using-circulators-to-control-wastewater-pond-odors.html"**

"Manure Management System. A manure storage facility may be an integral part of the confinement facility or located adjacent to the confinement facility. When manure is handled as a solid, storage may be within the confinement facility or in stockpiles that may or may not be covered. For liquid or slurry manure handling systems, manure may be stored in an integral tank, such as a storage tank under the floor of a confinement building, or flushed to an external facility such as a pond or an anaerobic lagoon. Emissions from storage tanks and ponds will differ from anaerobic lagoons, which are designed for manure stabilization. Stabilization is the treatment of manure to reduce volatile solids and control odor prior to application to agricultural land. The use of the term "stabilization" rather than "treatment" is intended to avoid the implication that stabilized animal manure can be discharged to surface or ground waters." https://www3.epa.gov/ttnchie1/ap42/ch09/draft/draftanimalfeed.pdf

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states ""Well-drained" soils, while allowing movement of water out of the soil profile, still fully support the naturally-occurring, cleansing processes that filter and process water moving through the profile. Other considerations such as depth to the water table and hydrologic conditions are important."

****So tell me how you have taken the water table being at a depth of "2 to 3 feet" (per Garmatz) In the area of the effluent ponds into consideration when you submitted your building application to the County of Kauai. The partial digging of the effluent pond and hitting the water table occurred prior to getting the building permit. Was the County of Kauai or DOH informed of the fact that the water table was too shallow to build the proposed effluent ponds in the proposed location? What about dumping sludge on the well- draining soil by our drinking water wells? I would like you to tell me how all the nitrogen and phosphorus and pathogens will be removed in the "naturally occurring, cleansing processes? What is the flow rate? How much of these chemicals and pathogens are remove per foot of soil depth? To what depth is this soil before the water table is hit? I would like the data from an expert.**

Vol. 2 Page 19 (page 107 of 732) states, "While the underlying hydrological conditions tend to separate the surface and underlying aquifers" and then in DEIS Vol.3 page 813 states "Though the waterbody in which the County wells occur is confined" and further describes no communication between the ground water and the water that recharges our drinking water wells.

****In contrast, the County Water Dept. Page 196 of 405 Appendix B Hawaii Source Water Assessment Program Report for the Island of Kaua'I states "Koloa Well F: Upper Aquifer: unconfined, Upper Aquifer Uniqueness: irreplaceable, Upper Aquifer Vulnerability: High. Lower Aquifer Type: Where water table is upper surface of saturated aquifer" See attachment 8.**

This is a federally mandated report and I sincerely doubt that they are trying to deceive us. Please adjust your DEIS to show the aquifer as unconfined. You might want to hire an expert Geo-hydrologist that understands the geology as well as the hydrology, and not just a hydrologist.

On the latest submission of the AIS the archeologist states, "The water table was exposed at the base of this excavation." This statement was made nine times in regards to his digging of nine Stratigraphic Trenches. "Depth of the trenches varied, depending on the water table. If the table was encountered, excavation was halted. If the water table was not encountered, excavation extended to 2.0 m below the ground surface" page 134 AIS (2.0 m is less than 5 feet.) The water table is very shallow in Maha'ulepu. Kaua'i is known to have the shallowest water table of all the Hawaiian islands. (SWAP report)

1. Vol 2. Page 1 (123 of 732) states "The farm will be based on the most successful island dairy models in the world," but that contradicted in DEIS Vol. 1 Page 48 "After significant research and inquiry, New Zealand's grass-fed model was found to be the cleanest" Vol. 2 Page 178 of 732 "CNCPS was also utilized to forecast the nutrient concentration of the as excreted manure collected at the dairy facility, slurry, and stored lagoon effluent that will be applied through irrigation systems." Cornell Net Carbohydrate Protein System (CNCPS) VOL. 2 PAGE 10 (495 OF 732) The farm will be based on the most successful island dairy models in the world, and will utilize a sustainable, pasture-based rotational-grazing system and 21st century technology
   ****So which model is it that HDF will actually follow if allowed to operate in Kauai? Please rewrite this document (DEIS) and remove all contradicting information. It is impossible for the community to comment on a moving target. Was this the point of all these contradicting comments that riddle this document?**

   Vol.2 Page 12 (429 of 732)
   "Another small intermittent stream enters the project property nearby. This stream originates in a small valley called Kalapa, and is marked by a boulder bed"
   Vol. 2 page 12 (page 496 of 732
   "Soils on the slopes of the valley are also associated with the KEHF series or Kalapa very rocky silty clay (Foote et al. 1972: Sheet 32). This is a well-drained soil that occurs at the base of slopes and is associated with moderately sloping to very steep topography. Elevations range from 200 to 1,200 feet above sea level, with annual rainfall amounts between 60 to 100 inches"
   ** This rainfall must be taken into account in your calculations of rainfall as it adds to the total.
   Vol. 2 (page 653 of 732)
   "Several intermittent streams drain the southern slopes of Hā'upu Ridge"
   **All of these streams contribute to the load of water entering the stream and running off the pastures. 60" to 100" of rainfall is a lot more when added to you calculated rainfall of 50". Which was calculated by rainfall before 1982 so as to skirt Iniki, Dot and 40+ days of rain in 2006. The 2006 rainfall had several cars floating or standing in water for months at Poipu Beach parking lot and the street leading up to it.

Vol. 2 Page 280

"Surface waters draining the project site meet Waiopili Ditch, and will eventually reach the ocean. "

** This leads me to my next question, why were all your tests run in the dry season and none in the wet season? Was this so your numbers would be smaller? It appears that way as this DEIS was conducted over a year and one half and there were multiple opportunities.

Vol 2. Page 19 (page 27 of 732)

"Spread across the pastures on the valley floor are numerous straight agricultural ditches that serve the purpose of draining runoff from various pasture areas. These were nearly all dry during our survey, and the network was not fully explored, nor was it determined how these presently all interconnect. Presumably these drain eventually into one of the three water-filled features on the property described above."

** Once again evidence of an incomplete DEIS. You also forgot to mention the newest water feature that was dug without a building permit or storm water permit by HDF at the site of the proposed effluent ponds per Jim Garmatz testimony. See attachment 19

Volume 3 Comments and Responses to the EISPN - Part A pdf pg 21
"Fences will be erected along the 35-foot setbacks to exclude cows from the buffer areas; vegetation along the buffer will trap soil particles and organic debris in order to minimize inputs to stormwater runoff. Vegetation in and adjacent to the ditches will be maintained to control overgrowth and minimize ditch bank soil erosion."
*Why is soil particles and organic debris going to the ditches? How much runoff are we talking?
***"minimize inputs to storm Water runoff"? There are none of these barriers in place now nor have there been any for the last 3 years per Jim Garmatz testimony, so there have been huge quantities of runoff. See attachment 10.*

Volume 3 Comments and Responses to the EISPN - Part A pdf pg 21
"4. Water Supply. Long-term groundwater supply impacts are not anticipated to be significant. Once fully operational, the dairy will utilize 30,000 gallons per day of groundwater from on-site wells for potable uses: livestock water; and sanitation in the milking parlor. The demands of approximately 30,000 gallons per day (0.03 MGD) for potable water for the 699 mature cows and 84,800 gallons per day (0.08 MGD) for the contemplated herd size of up to 2,000 mature cow are both well within the capacity of the existing onsite Mahaulepu 14 well which produced 3 MGD during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant."
**There will be significant impacts to the groundwater supply, the DEIS states that nitrogen and phosphorus will migrate to the groundwater, Group 70 just doesn't think that is significant. The groundwater is in contact with the surface waters during rainy season per this DEIS. See below. That is a significant impact.
Vol. 2 page 39 (266 of 732) "Average annual rainfall across the flat land is 45 to 55 inches. Average annual rainfall on the steeper ridges is about 60 inches. As a first order approximation, it is assumed that the surface water runoff consists of 15 percent of the rainfall on the flat land and 30 percent of the rainfall on the steeper surrounding ridges. These assumptions translate to average annual runoff rates of 0.40 MGD from the flat land and 1.41 MGD from the steeper ridges."
***Another inconsistency in this DEIS. Vol. 2 page 15 (327 of 732) states, "This land type topography is characterized as nearly level to very steep. Elevations range from near sea level to more than 6,000 feet, with annual rainfall amounts between 15 to 60 inches." And then on Vol2. Page 12 (496 of 732) "This is a well-drained soil that occurs at the base of slopes and is associated with moderately sloping to very steep topography. Elevations range from 200 to 1,200 feet above sea level, with annual rainfall amounts between 60 to 100 inches. So once more the question I have is which rainfall figure is it?

Volume 3 in Comments and Responses to the EISPN - Part A pdf pg 21
"Long-term groundwater supply impacts are not anticipated to be significant. The shallow groundwater aquifer underlying the dairy farm property is a separate waterbody in clay alluvium deposits and is not connected to the deep water aquifer in unweathered volcanic rock. An assessment determined there is no hydrologic connection between the aquifer in the unweathered volcanic series and the groundwater body in the alluvium. Thus nutrients added by the dairy operation will have no impacts to the County drinking water well and potable water within the deep volcanics."
** That is categorically not true. Per Kauai's SWAP report and the Reconnaissance Survey for the Island of Kaua'i. See the comments of Chuck Blay Phd, who has written multiple books on the hydrology and geology of Kaua'i. There is a definite connection between the ground water and the 51 square mile aquifer that lies under the entire HDF site. There will be significant impact. This is the wrong place for a dairy. It's all about the water, groundwater aquifers, streams ditches and the ocean. They are all interconnected.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 25
"As an agricultural project on private lands using private funding."
*HDF stated that their plan was an NRCS plan. So did HDF pay for the NRCS to do the work or did the taxpayers? Taxpayers money is not private money.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 35
"The hydrologic assessment determined that the modest potable water demand by HDF from the remaining onsite wells (referred to as the "Mähäÿulepü 14 wells") will not adversely impact the County's Köloa F well."
*When 84,800 gallons per day, 30,952,000 gallons per year become insignificant especially in light of the upcoming 10,000,000 per year short fall that is predicted for Kauai? Doesn't seem like a "modest" amount to me. This will be a significant impact to our drinking water supply if HDF doesn't contaminate it first.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 36
2". National Pollutant Discharge Elimination System (NPDES). Best management practices are described in Section 4.17, Surface Water Resources & Nearshore Marine Environment. These practices will be documented in the Stormwater Pollution Protection Plan to be submitted as part of the National Pollutant Discharge Elimination System (NPDES) – Construction Stormwater General Permit."
**If you have documented the BMP's why hasn't Jim Garmatz been using them? See attachment 16

"3. Work Not Affecting Waters of the United States. Normal ongoing farming and ranching activities are exempt from the Clean Water Act Section 404. HDF received confirmation of exemption for maintenance of existing drainage ditches from the Honolulu District, U.S. Army Corps of Engineers (USACE) in 2013. Future farm improvements are anticipated to fall under the exemption for construction or maintenance of existing or new animal walkways, stream crossings, and farm roads with application of best practices."
**HDF's statements to the USACE were false. They stated they would be zero discharge to the waters of the State. This has been proven untrue by the turbidity readings of USGS, DOH and Surfrider. In HDF's own reports in Vol. 2 on page 238 & 259 of 732 The turbidity readings for test site 8, which is on HDF's site have ridiculously high readings ranging from 52.7 to 193.0 When the turbidity read 1.2 and 1.3 at site 1 which is just above the HDF site 8 at the lower end of HDF's site read 68.4 and 193.0 This turbidity was all picked up on HDF's site. See attachments 20 & 21

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A (pdf pg 37 of 732)
"During the rainfall and runoff events, the dairy's nutrient contributions would be further diluted by additional volume of surface runoff and ditch flows. The terminus of Waiopili Ditch is a deep, muddy basin that joins the ocean through a channel cut through beach sand."
*HDF will runoff to the stream and ocean. Now if their rainfall figures weren't taken from prior to 1982 but was used recent years their runoff would be substantially higher. Their runoff would also be substantially higher if the used the Ksat of more than half of their site which is 0.2" saturation point, not 0.8 which Group 70 uses for determining the 10 days of runoff per year. This is a substantial impact.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 37
"Sanitary Survey prepared for the Mähäÿulepü sub-watershed by the State of Hawaiÿi Clean Water Branch describes the surface water terminating near the shoreline at the end of Waiopili Ditch is not a recreational body of water. Further, the Sanitary Survey found no significant impact to the Waiopili Ditch from any activity that can be attributed to the dairy."

*This statement means DOH needs to review the pictures of children in the stream that I hand delivered to them and revise their statement. Also DOH needs to refer to the Kauai South shore Community Plan of 2015 that shows the Maha'ulepu is used for hiking, swimming, camping, fishing, surfing, sunbathing, diving, jogging and walking. See attachment 22

DEIS Volume 3 - Part A pdf pg 78
"Though the waterbody in which the County wells occur is confined and established a 1,000- foot setback surrounding Koloa F well in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the surface water section."
*The SWAP report for Kauai states it is unconfined and irreplaceable and at HIGH risk of contamination. The PCAs (Potential Contaminating Activities) listed dairy as a HIGH PCA.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 137
"However, nutrients would be introduced to the HDF site with any use; the Draft EIS identifies the amount of nutrients anticipated from the proposed dairy operations that could pass through to ground and surface waters. Therefore, HDF elected to discontinue use of the term "zero discharge" as it was construed as no nutrients into the system."
*They no longer claim Zero discharge, which is how HDF got their approval from WKSCS, their exemption from USACE, and their exemption from the County of Kaua'I for Grubbing and Grading. These should all be rescinded.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 137
"The term "grass-fed" was used in the HDF EISPN. This term was used to identify HDF's intent to utilize a locally-produced feedstock – grass – for more than 70 percent of the dairy herds' diet. In January 2016, the U.S. Department of Agricultural (USDA) Marketing Survey created a narrow legal definition of "grass- fed". The USDA standard defines what animals can and cannot be fed. The Food Alliance, a project of several northwest colleges, believes that when consumers choose grass-fed products there is an expectation that these will come from animals raised on pasture on a forage-based diet. Due to the evolving definition of "grass- fed", the term in not used in this EIS."
*The "Grass Fed" designation never applied to HDF using definitions from prior to HDF's existence. At HDF's first meeting with the community which I attended they represented to us that they were a "Grass Fed" dairy. Untrue now untrue then.

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 137
"The 470 acres of pasture will be divided into paddocks averaging 3 to 5 acres in size. Smaller paddocks located near the dairy facility will be used as temporary pasture for cows or calves being moved on or off the farm. To protect the water quality of surface water and downstream areas, paddock fences are set back 35 feet from the edge of drainage ways throughout the site. Existing vegetation within the setbacks will be managed or restored to reduce erosion, improve stability of ditch banks, increase net carbon storage, and improve and maintain water quality."
*restored? Did HDF destroy them while grubbing and grading? See attachment 10

HDF DEIS Volume 3 Comments and Responses to the EISPN - Part A pdf pg 145
"Surface Water Quality: The Kaua'i Chapter of the Surfrider Foundation began collecting water samples in Waiopili Ditch near the bridge accessing Makauwahi Cave Reserve in April of 2014. The group reported high levels of enterococcus to the State Department of Health (DOH) and provided its data, however, DOH was unable to utilize the data as it did not meet Clean Water Branch (CWB) quality assurance/quality control requirements, and it could not be used for regulatory purposes. CWB had not conducted water quality sampling for either nearshore recreation waters at the terminus of Waiopili Ditch, or of surface waters"
* contradicts what they quoted about the area not being used for recreation

Vol 3 Page 36 Group 70 letter
"These practices will be documented in the Stormwater Pollution Protection Plan to be submitted as part of the National Pollutant Discharge Elimination System.(NPDES)"

Case 1:15-cv-00205-LEK-KJM Document 110-15 Filed 07/01/16 Page 1 of 1 PageID #: 1455

*This contradicts previous statement that says they have a storm water Pollution Protection Plan on page 21 May 26, 2016. "A Stormwater Pollution Prevention Plan (SWPPP) has been developed for the site to document controls and best management practices to avoid, control, and trap potential erosion associated with construction activities. The SWPPP is required as part of the application for the NPDES – Construction Stormwater General Permit, and specifies any discharge in compliance with relevant regulations." So once again what is the community to believe?

Why is it that HDF dug the effluent pond site without a permit or stormwater permit? HDF hit the watertable at 2-3 ft depth. Why did HDF grow the grass around the dig site of effluent pond taller than my jeep at the site visit?

ERICKSON DEC. EX. 14

1 of 1

JJ

Jim Garmatz testified that the water table was at a depth only 2 to 3 feet.

Q. Did you take pictures for the geophysicist?
A. No, we never did.
Q. How did he get information about what you did?
A. We just told him, called him the next day and told him what we ran into. But this wasn't for his study.
Q. What was it for then?
A. Our own information.
Q. For what kind of information?
A. To determine if there was any stone or what depth the stone was at.
Q. Was this the area where you planned to put the lagoon, the effluent lagoon?
A. Yes.
Q. So was part of the purpose to determine depth to groundwater?
A. No, we were looking for stone.
Q. Have you determined what the depth to groundwater is in that area?
A. Varies from time to time.
Q. Right where the keyhole pond is, have you determined the depth to groundwater there?
A. Like I said, it varies.
Q. From what to what?
A. Two or three feet.

When asked under oath If HDF was planning on moving the effluent ponds as one is 10.75 feet deep and the other is 16 feet deep. Jim replied,"No"

Vol 2. Page 31 (page 258 of 732)

"Depending on location, the samples reflect various components of surface runoff from offsite, Waita Reservoir water brought in for irrigation use, and seepage of shallow groundwater from the alluvium into the drainage courses." And Vol 2. Page 38 (pdf page 265 of 732
" The area of the alluvium in Mahaulepu Valley is approximately 720 acres. HDF comprises 557 acres of this area and will irrigate 347 acres of its 557-acre site. Rainfall across the alluvium varies from 45 inches per year at the makai end (site of Mahaulepu Station 941.1) to about 55 inches at its mauka end. One order of magnitude estimate assumes 10 percent of the rainfall on the 373 acres of unirrigated area and 10 percent of the applied irrigation on the remaining 347 acres becomes recharge to groundwater in the alluvium. These assumptions amount to a year-round average flowrate of groundwater in the alluvium of about 0.27 MGD."

** There is shallow ground water and there are seeps of groundwater and 10% of the sprayed effluent will become recharge for the ground water. Seems as if the ground water and the effluent will be in contact more often than 10 % of the time. Especially as Group 70 stated earlier during rainy season the groundwater intersects (in contact) with the surface water, which will be highly polluted.

Vol 2 page 41 (pdf page 268)

"In rounded numbers and on an annual basis for both herd sizes, HDF will be circulating 490,000 pounds of nitrogen and 87,000 pounds of phosphorus. These amounts are about 325 and 815 times greater than the estimates of nitrogen and phosphorus currently carried in surface and groundwater moving through the HDF site and ultimately discharging into the marine environment."

**** What would happen if you fertilized less so that HDF didn't have 3,695 lbs too much phosphorus? You failed to mention that many of the soils can only accept 0.06 inches and others 0.2 inches before they run off. More than half of the soils are clay, they can't absorb 0.8 inches of rain or irrigation. Why did you pick the figure 0.8" of rain? How exactly did you calculate it? Please substantiate with references.**

**On page 40 of vol. 2 (page 267 of 732) The table is printed too small to decipher the amounts of Nitrogen and Phosphorus and whatever else is in the table. What were you trying to do? Make the numbers disappear? Please enlarge this chart.

Vol2 page 43 (270 of 732)

"Relative to the nutrient loading under existing conditions, the potential increases due to the operation of HDF are obviously substantial." And Group 70 states "Compared to the present contribution from and through the HDF site, these additions would represent 6.6- and 8.4- fold increases of nitrogen and phosphorus moving to ultimate discharge into the marine environment, respectively."

** If you look to the readings of phosphorus currently the level of phosphorus is higher than the acceptable amount. As is nitrogen. It would be of significant impact if HDF was allowed to add any phosphorus or nitrogen.

Vol. 2 page 2 (page 280 of 732)

"Proposed land uses do not include any direct alteration of coastal areas or nearshore waters. However, the dairy operation will result in some changes to the composition and volume of surface water and groundwater that flows beneath the property."

** Why would DOH, USFWS, USACE, EPA or any other agency allow HDF to operate if it will result in "changes to the composition and volume of surface and groundwater"? It sounds inane to allow HDF to violate the water that flows to our aquifer and to our ocean. They are suppose to protect our water under the Public Trust Doctrine.

Vol 2 page 41 (pdf page 268)

"Manure production rates by the cows are based on available data from cows elsewhere. In the future, the nutrient balance calculations will be updated based on actual manure production at HDF"

**Why is it you can't get the actual number of pounds of waste each cow produces per day from the farm you purchased the first batch of cows but then had to sell?

Vol. 2 page 5 (pdf 283 of 732)

"Several patterns of distribution are evident in Tables 1-2 and Figures 2-5. With the exception of Si, concentrations of all dissolved nutrients (NO3-, PO43-, NH4+, TN, TP) are relatively low at mauka sampling stations 1-3 located near the upper boundary of the property (Figures 2 and 3). Concentrations of these constituents increase to higher values at Stations 4-10, located within the boundaries of the HDF site. Values then decrease to relatively constant values at Stations 11-12 makai of the HDF site. Concentrations of all nutrients in the nearshore ocean samples are of similarly low values as concentrations from stations located at the mauka boundary of the HDF property."

** What is HDF doing on the farm currently to cause so much runoff of nitrate, phosphate, ammonium, total nitrogen and total phosphorus? What is HDF doing to cause so much turbidity as shown on page 299 chart in vol.2 especially at sites 5 and 8. When the sites at the top of HDF property are substantially lower readings and then the readings get higher as the water goes through the property and then drops back down after the water leaves the property, it pont to HDF as currently polluting the Waiopili. Dilution is not a viable solution to pollution when your contaminates will affect critical habitat and endangered species. Also one of the criteria for writing a DEIS is to make it understandable to the community at large, (NO3-, PO43-, NH4+, TN, TP) are not easily understood unless they have a chemistry background. Please rewrite this to the common names not their formulations.

Cornell University Manure Mangement Guidelines for Limestone/Karst Page 1

"Karst" is the term used for areas associated with carbonate bedrock (limestone or dolomite), where cracks, fractures, and other solution channel irregularities are present. Karst conditions enhance these bedrock features over time through the action of flowing water to create sinkholes, depressions in the land surface, disappearing streams, etc., which provide a direct connection between surface water and ground water – these enhanced connections are known as "focused recharge". While the cracks and karst channels in the bedrock provide for high yielding wells, this type of landscape and geology, especially where the topsoil is thin, allows water to rapidly flow into (or out of) bedrock with little or no filtration. In such areas where ground water is under the influence of surface water, recharge waters influenced by residential, commercial, industrial, wildlife, or agricultural activities may also generate a contaminant risk to surface and ground water supplies."

**Based on what Cornell University states the assumption on Tom Nance's part that the aquifer is confined seems totally inaccurate. Since the DEIS is written in a circular manner and all the contributors refer to Tom Nance's report that was done for his clients HDF, that would make the other reports inaccurate as well. These cracks and fissures can be seen by anyone at our sinkhole located just down the Waiopili Stream from the dairy site.

More from Cornell University Manure Mangement Guidelines for Limestone/Karst

"In karst areas, any soil and water condition that generates flowing water on the surface can potentially impact groundwater by moving into bedrock pathways." Page 3

"Seven- thousand gallons of liquid manure/acre is approximately equal to a 0.25 inch rainfall, and when combined with wet soils, additional rain or snowmelt, and permeable bedrock, could be enough to trigger runoff or movement of pollutants." Page 3

"It appears that manure applied to soils 40 inches or less in thickness directly over some types of permeable limestone are most vulnerable to contaminating groundwater" page 3

How many thousands of gallons of effluent is HDF going to need to spray? If they spray just 7,000 gallons per acre creating the equivalent 0.25" of rain, it would be too much for over 50% of the soils that have a Ksat of 0.0 to 0.2"

Vol 2 page 5 (283 of 732)

"Concentrations of Si are highest at the mauka end of the sampling scheme and lowest at the ocean (Figure 2). As Si is generally higher in groundwater relative to surface water, the observed pattern suggests that the surface water at upper elevations contains of a higher proportion of groundwater."

** Groundwater mixing with surface water is the best way to contaminate our aquifer that covers 51 square miles and sits right under the HDF site. This makes it very understandable why the map from 1897 has Maha'ulepu as a swamp. See attachment 1. This will cause the dairy to have a very significant impact and there is no way to mediate it except moving the site.

The accumulative effect of the following: the shallow water table, clay soil with low Ksat, the Waiopili Stream (ditch) running through the property carrying with it pollutants, the fact that this site was swamp in 1897, the numerous ditches created by the sugar cane industry to drain this site, the rainfall run off of the Ha'upu mountain and the mountain range rushing down to the HDF site, missing wetlands, USFWS concerns for the endangered species that breed on the site, the proximity to the cave reserve with its preserved artifacts and specimen, the close proximity to all Koloa/ Poipu drinking water wells, our 51 square mile aquifer being located under the dairy site, the fact the site is less than a mile from the ocean and our coral reef, our coral reef being at the very mouth of the Waiopili into which all the drains from HDF are routed, the historical sites that need preserving located on or next to HDF's site, the Kanaka maoli being barred from practicing their customs by HDF and Grove Farms, the damaging effect the ammonia, hydrogen sulfide, methane gas would have on the petroglyph rock, the damage to the petroglyph rock and other historic sites when hydrogen sulfide mixes with rain and becomes acid rain, the high levels of enterococcus, total nitrogen and phosphorus currently in the Waiopili stream that are above the acceptable limit per State standards, the 84,800 gallons per day of potable water when we are facing a drinking water shortage, the lack of alternate agricultural water should Earth Justice win their court case and restore natural water flow, the 2600 jobs at stake downwind from HDF's uncovered effluent ponds and 180,000 pounds of fresh manure every day, the fact that HDF's site is surrounded by a mountain range on three sides with the only way for runoff to leave the site being directed down to the ocean, the health hazard to the town of Koloa, Poipu, and the tourists from zoonotic diseases, the severe change the residents will face in their life style due to biting flies and odor, the inability for the Kanaka to practice their customs due to the flies, odor and health risks, the impact the dairy will have on the subsistence fishermen, whom fish at the Waiopili stream's mouth, the endangered monk seals and turtles that pull out to rest on the beach, the flash flooding that Kauai experiences regularly during hurricane season, the fact that both Iniki and Dot made landfall at Maha'ulepu where the dairy site is located, hurricane Iwa also caused this area severe destruction, the fact that Kauai had 40 plus days and nights of rain in 2006, these things together make a significant impact.

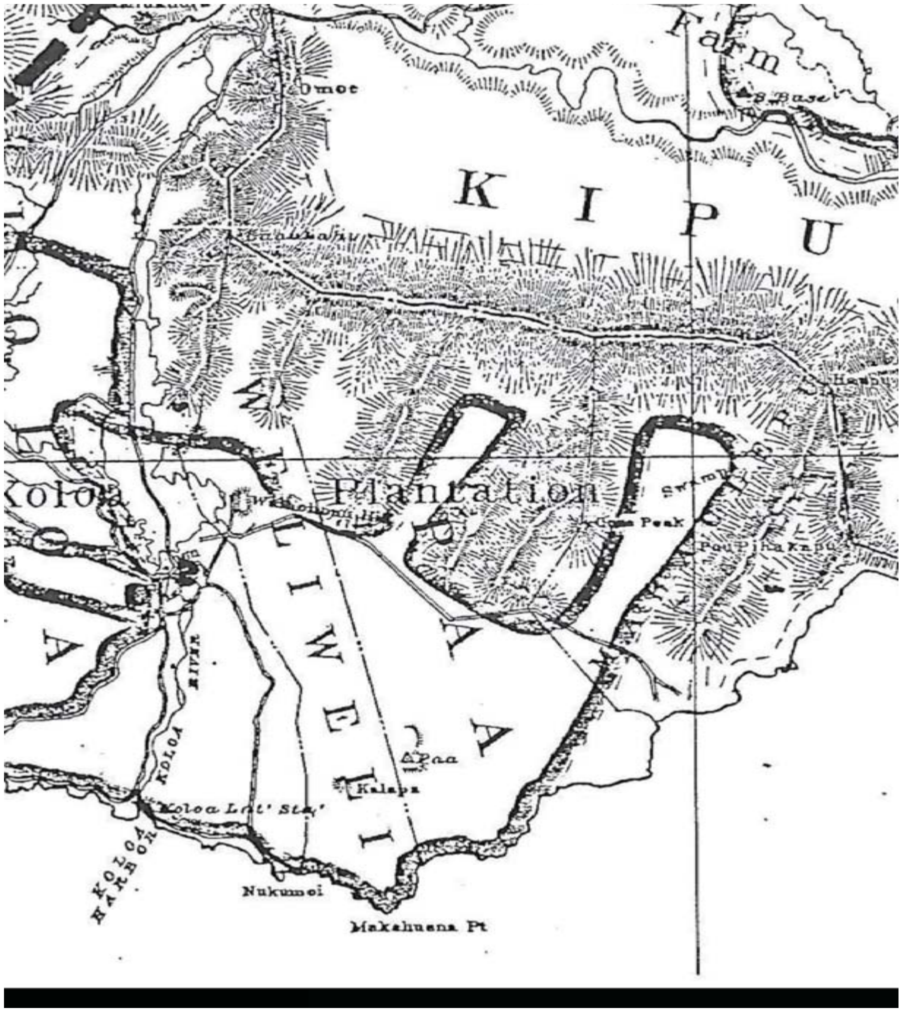
The fact that HDF is run by bad actors that they think nothing about the damage they have caused by grubbing and grading, ripping out over 150 trees, ripping bushes out from the sides of the stream bed, allowing sediment to cause turbidity in the stream with no concern for the fish and other animals whose habitat is there, digging their effluent pond without a NPDEs permit and hitting our water table at 2-3 feet yet not planning on moving their 16 foot and 10 foot deep ponds, that they told the community they had a NRCS permit when NRCS doesn't give permits, said that the largest rainfall in the last 25 years was 6 inches when it was not difficult to discover that it was over 10 inches, they have lied on their NOI application made to the State by saying they are not applying for an after the fact permit when the work had been done, that they had the nerve to tell the local community that the wind came out of an incorrect direction when in fact the wind blows across the dairy site directly to Poipu and Koloa, that HDF dug trenches and ditches without the Office of Hawaiian Affairs being notified as they were told to do by USFWS in a letter, that they only reduce the beginning herd size to be one cow under the requirements of more regulations, that they told the community for over two years that they were a "grass fed" and "no discharge" dairy when in fact they aren't, the above listed are all reasons why Hawaii Dairy Farms should not be allowed to put their experimental dairy by out ocean.

Mahalo for taking the time to read these comments.

Eileen Kechloian

Part 3 of 3 is the separate attachments

Attachment 1



Attachment 11. *Microbial Source Tracking Data*

Sample ID	Location	Time Sampled	Entero1A (CE/Filter)	Entero1A SD (CE/Filter)	HF183 (Copy/Filter)	HF183 SD (Copy/Filter)	BacHum (Copy/Filter)	BacHum SD (Copy/Filter)	Rum2Bac (Copy/Filter)	Rum2Bac SD (Copy/Filter)	BacR (Copy/Filter)	BacR SD (Copy/Filter)
7/23/14—1 CO	Waiopili Ditch	8:32	73393	9380	241	106	BLOQ	NA	BLOQ	NA	ND	NA
7/23/14—2 CO	Gillin's Beach	8:50	182001	21275	BLOQ	NA	BLOQ	NA	ND	NA	BLOQ	NA
7/23/14 Blank CO	Filtration Blank	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA
EB	Extraction Blank	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA
SP5 5/26/15 Cave	Cave	8:13	673	261	ND	NA	ND	NA	ND	NA	BLOQ	NA
5/26/15 Blank	Filtration Blank	NA	BLOQ	NA	ND	NA	ND	NA	ND	NA	BLOQ	NA
5/26/15 SP1	Mahaulepu 9	7:11	2000	600	ND	NA	ND	NA	644	193	1740	453
5/26/15 SP3	Mahaulepu 11	7:46	22234	3445	BLOQ	NA	BLOQ	NA	BLOQ	NA	BLOQ	NA
5/26/15 SP2	Mahaulepu 10	7:31	913	297	BLOQ	NA	BLOQ	NA	ND	NA	BLOQ	NA
5/18/15 Blank	Filtration Blank	NA	BLOQ	NA	ND	NA	ND	NA	ND	NA	ND	NA
5/26/15 SP4	Mahaulepu 12	8:00	36443	1306	BLOQ	NA	ND	NA	BLOQ	NA	BLOQ	NA
5/26/15SP6 Waikomo	Waikomo Stream	8:50	5990	1182	ND	NA	ND	NA	ND	NA	ND	NA
EB	Extraction Blank	NA	BLOQ	NA	ND	NA	ND	NA	ND	NA	ND	NA

* Entero1A = enterococcus spp., HF183 = human specific Bacteroidales marker, BacHum = human specific Bacteroidales marker, Rum2Bac = ruminant specific marker, BacR = ruminant specific marker

* ND = non detect, NA = not applicable, BLOQ = below limit of quantification

LOQ: Entero1A = 75 CE/Filter; HF183,BacHum, Pig2Bac, Rum2Bac & BacR = 447 copies/Filter

105

Attachment 2

Attachment 3

A. Twice.
Q. Okay. So when you harrow it, you brought the soil so it's basically just a big soil field, correct?
A. Yes.
Q. Did you place any -- do you know what a best management practice is?
A. Uh-huh (moves head up and down).
Q. In the context of the work you're doing on the HDF property, what's constitutes a best management practice?
MR. PALOUTZIAN: I'm going to object that it calls for an expert opinion, lacks foundation, calls for speculation.
BY MR. TEBBUTT:
Q. Go ahead.
A. BMPs, best management practices are procedures outlined in writing as to how work should be done.
Q. Okay. Did you have any BMPs in place related to the harrowing that you did on any of the acreage on the facility?
A. No.
MR. PALOUTZIAN: Same objections.
BY MR. TEBBUTT:
Q. And the answer is no?
A. No.

Attachment 4

To: Enright, Scott
Cc: 'Arama Kukutai'; Robert C. Fry
Subject: Fw: conservation plan questions

Scott

Hope you had a great weekend. I received the below email from Ben Vinhateiro our District Conservationist. This comes to our group as a great concern. I spoke with Kyle Datta earlier this weekend and asked that I reach out out to you and get some feedback. We want to move ahead as scheduled but on the second hand we do NOT want to upset the NRSC folks.

We are really looking forward to your comments and will be around all week.

We thank you in advance for your help and advice here.

Jim Garmatz
Hawaii Dairy Farms LLC
808-212-5985

From: Vinhateiro, Ben - NRCS, Lihue, HI
Sent: Friday, November 08, 2013 4:11 PM
To: mailto:jamesgarmatz@hotmail.com
Subject: conservation plan questions

Hey Jim,

I've made some progress in reviewing your plan and have some important comments to discuss. Most importantly, I got some more information about the kikuyu grass that you have indicated you want to use as your dominant forage. That is indeed a federally-listed noxious weed species, with a high PIER rating of 18 (http://www.hear.org/pier/wra/pacific/pennisetum_clandestinum_htmlwra.htm) due to its aggressive nature in Hawaii. For tha reason, I have to recommend against planting that grass as your forage in the pastures. Have you considered other grass specie for the site? If so, would you consider changing the species selection to something less invasive? If you are interested, I would b happy to consult with our grazing specialist on other options suitable for your location and intended use.

If you intend to move ahead with using kikuyu as your forage planting, I cannot incorporate that activity into your conservation plan or provide any guidance or approval for the prep work or establishment. In that case, your plan could include the other conservation measures you intend to adopt (irrigation improvements, waste management, access roads, cattle exclusion and native plantings, etc.), but not the pasture renovations portion. I would also encourage you to pursue any permits required to accept and plant those materials if that is the route you choose. I imagine APHIS would be a good place to start for that.

Please let me know how you would like me to proceed with that portion of your conservation plan. I also have some questions regarding the cultural site you mentioned. Do you have pictures of the cultural site in its current condition? If not, can we arrange a time to visit it together? I'd like to flesh out your plans for that area so that I can incorporate that into my review.

Attachment 5

Attachment 6

STRATIGRAPHIC TRENCH EXCAVATIONS

Stratigraphic trench excavations were conducted mechanically with a backhoe in areas within and around historically interesting areas, one known site (Site -3094), and proposed effluent ponds along the western flank of the project area (Figure 73). Several of the trenches were concentrated near the cluster of LCA's located on the east side of the Main East Ditch. These LCAs were awarded during the Great Māhele in 1848 and were occupied and/or utilized until approximately the 1880s, when individual ownerships passed over to group and corporate development for the Koloa Sugar Cane Plantation.

A total of nine (9) trenches were mechanically excavated within the exact location of the former LCA cluster area. The trenches, designated Stratigraphic Trenches (ST), were numbered sequentially and excavated in rows of three. The southernmost row, ST-1 to ST-3 was excavated east to west. The middle row, ST-4 to ST 6, was excavated west to east. The northernmost row, ST-7 to ST-9, was excavated east to west. This area is identified on the soils map as P-131 through P-134. To the east from this point, P-135 to P-137 is currently marshland and an excavator could not safely be brought in to excavate. The previously noted soils map identified the soils exposed by ST-1 through ST-9 as KavB or Kaena Clay, Brown Variant.

The next area of excavation occurred around Feature 1 of Site -3094, the previously-identified petroglyph boulder. Four (4) trenches were mechanically excavated here. This area is identified on the soils map as P-120. The soils map identified the soils exposed by ST-10 through ST-13 as HsD or Hanamaulu Silty Clay.

A single trench was excavated east of the -2254 retaining wall in an attempt to find remnants of a historic household that is shown on older maps of the area. This area is identified on the soils map as P-161 and P-162. The soils map identified these soils as KavB or Kaena Clay, Brown Variant.

Trenches were desired on a small knoll at the northwest turn of Māhā'ulepū Road. On older maps of the area, this location is designated as "Camp", but no further explanation is provided. However, a trench with water lines is present alongside the road and prevented access to this area. Alternatively, two trenches were excavated to the southeast of the knoll, in the fields south of existing pump station structures. These structures service a series of wells known as Māhā'ulepū 14, drilled during the 20th century to service irrigation for the plantation. This area is identified on the soils map as P-103. The soils map identified the soils as KavB or Kaena Clay, Brown Variant.

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Attachment 7

of you?

A. Uh-huh.

Q. It has, Disturbed area for farm improvements under NOI, NPDES general permit. Do you see that?

A. Say that again.

Q. It says down at the bottom, it's the map, Figure 6B, Disturbed area for farm improvements under NOI, NPDES general permits. Right?

A. 92493?

Q. (Indicating.)

A. Okay, okay.

Q. See that?

A. (No response.)

Q. Did I read that correctly?

A. Yeah.

Q. Okay. And the listings under there include installation and trenching for watering facilities at each paddock, correct? It's one of the listings. The third one down under the disturbed area. Do you see that?

A. Yeah. That's the disturbed area that's already in place.

Q. Right. So those are the water troughs, correct?

A. Yes.

Attachment 8

KOLOA WELL F
KOLOA-POIPU (DOW)

USGS ID : 9998-02 SYSTEM ID : 408-034
LOCATION OF THE SOURCE: LATITUDE: XXX LONGITUDE: XXX
SOURCE OWNER OR USER: Kauai Dws
DATE OF CONSTRUCTION: 1998
GROUND ELEVATION: 130 feet above mean sea level WELL DEPTH: 377 feet below ground surface
CASING DIAMETER: 16 inches SOLID CASING to 123 feet below ground surface
PERFORATED CASING to 175 feet below ground surface
INITIAL WATER LEVEL: 25.86 feet above mean sea level INITIAL CHLORIDE: 84 ppm
PUMP CHARACTERISTICS SPECIFIC CAPACITY: gpm/ft PUMP CAPACITY: gpm
AQUIFER CHARACTERISTICS AQUIFER SECTOR: Lihue AQUIFER SYSTEM: Koloa

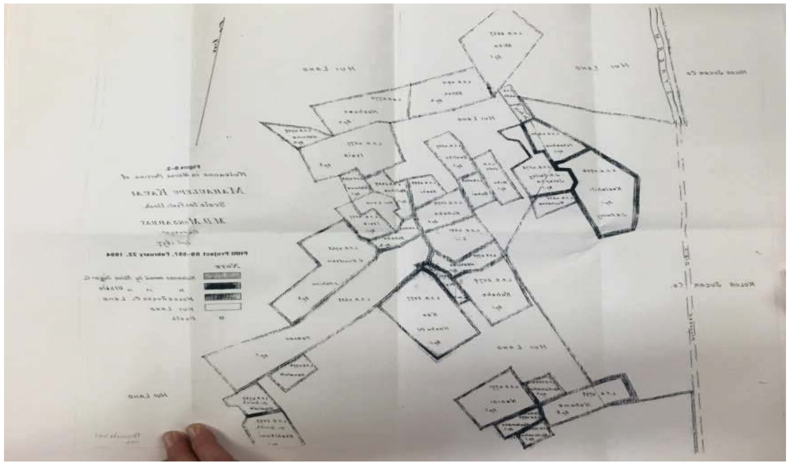
UPPER AQUIFER HYDROLOGY: Basal ; Fresh water in contact with seawater
UPPER AQUIFER TYPE: Unconfined ; Where water table is upper surface of saturated aquifer
UPPER AQUIFER GEOLOGY: Dike ; Aquifers in dike compartments
UPPER AQUIFER USE STATUS: Potential use
UPPER AQUIFER UTILITY STATUS: Drinking
UPPER AQUIFER SALINITY in mg/l: Fresh (<250)
UPPER AQUIFER UNIQUENESS: Irreplaceable
UPPER AQUIFER VULNERABILITY: High

LOWER AQUIFER HYDROLOGY: ; Fresh water in contact with seawater
LOWER AQUIFER TYPE: ; Where water table is upper surface of saturated aquifer
LOWER AQUIFER GEOLOGY: ; Aquifers in dike compartments
LOWER AQUIFER USE STATUS:
LOWER AQUIFER UTILITY STATUS:
LOWER AQUIFER SALINITY in mg/l:
LOWER AQUIFER UNIQUENESS:
LOWER AQUIFER VULNERABILITY:
WELL GEOLOGY DESCRIPTION:

Printed: 16-Mar-04

Appendix B-1 **PRELIMINARY RESULTS** Page 196 of 405

Attachment 9



Attachment 10

Attachment 11

Attachment 12

Attachment 13

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850

In Reply Refer To:
2015-TA-0138

FEB 2 3 2015

Jeffrey H. Overton
Group 70 International, Inc.
925 Bethel Street, Fifth Floor
Honolulu, Hawaii 96813

Subject: Technical Assistance for the Proposed Hawaii Dairy Farms, Kauai

Dear Mr. Overton:

The U.S. Fish and Wildlife Service (Service) received your letter, dated January 26, 2015, requesting our comments on the Notice of Preparation of Environmental Impact Statement (EISPN) for the proposed Hawaii Dairy Farms (HDF) on the island of Kauai. Hawaii Dairy Farms, LLC proposes to establish and operate a grass-fed diary, capable of supporting 2,000 dairy cows, including commercial dairy facilities and pastures managed for Kikuyu and Kikuyu-Guinea grasses. The proposed dairy facilities consist of barn and milking parlor, cow walkways, farm roads, effluent settling and storage ponds, water distribution system and tanks, operations buildings, and associated infrastructure (electrical power, wastewater, and communications). The pasture design will include approximately 118 fenced paddocks (~4.5 to 5.0 acres each). The development will be located on approximately 578 acres consisting of portions of three larger parcels (TMK (4) 2-9-003:001 and 006 portion; TMK (4) 2-9-001:001) adjacent to Mahaulepu Road, east of Koloa town. We offer the following comments to assist you in the preparation of the draft Environmental Impact Statement (EIS). Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*), and the Fish and Wildlife Coordination Act of 1934 (FWCA), as amended (16 U.S.C. 661 *et seq.*; 48 Stat. 401).

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, as it pertains to federally listed species and designated critical habitat. The following species are known to occur or transit through the proposed project area: the endangered Hawaiian black-necked stilt (*Himantopus mexicanus knudseni*), Hawaiian moorhen (*Gallinula chloropus sandvicensis*), Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*) (hereafter collectively referred to as Hawaiian waterbirds);the endangered Hawaiian goose (*Branta sandvicensis*); the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); and the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*), and a candidate for listing the band-rumped storm-petrel (*Oceanodroma castro*) (hereafter collectively referred to as seabirds). The proposed project area is in the vicinity of designated critical habitat

Exhibit B

for the following species: two endangered arthropods, the Kauai cave wolf spider (*Adelocosa anops*) and the Kauai cave amphipod (*Spelaeorchestia koloana*) (hereafter collectively referred to as arthropods); and an endangered plant, ohai (*Sesbania tomentosa*). We provide the following comments which include recommendations to avoid and minimize project impacts to listed species, candidate species, and critical habitat.

Hawaiian Waterbirds and Hawaiian Goose

The EISPN states that Hawaiian waterbirds and Hawaiian geese are known to utilize water features around the HDF parcel. Our information suggests that considerable numbers of Hawaiian waterbirds frequent the project area. The Service recommends you incorporate the following measures into your project description to avoid and minimize impacts to Hawaiian waterbirds and Hawaiian geese.

Waterbirds and geese may be attracted to the effluent settling and storage ponds as well as managed pastures. Waterbirds and geese attracted to sub-optimal habitat may suffer adverse impacts, such as predation and/or reduced reproductive success, and thus the project may create an attractive nuisance. Measures to minimize their attraction to ponds, such as covering or enclosing the ponds, should be considered. To minimize predation and/or reduced breeding success of waterbirds and geese using pastures, a predator control program should be implemented to control non-native predators, such as feral cats and rats.

Injury or mortality of adults and juveniles may potentially occur due to entanglement or collision with fencing and/or collision with vehicles on farm roads. Additional details on fencing are necessary to assess potential impacts to Hawaiian waterbirds and Hawaiian geese. Electric fencing (commonly used to control movement of cows in pastures) should not be used for fencing as part of the proposed project. To minimize potential collision with vehicles, the Service recommends you install signage near roadways to warn drivers (e.g., farm workers and visitors) to be wary of birds in the areas.

Under certain environmental conditions, *Clostridium botulinum*, a bacteria commonly occurring in nutrient-rich substrate, may produce toxins that when ingested by Hawaiian waterbirds or Hawaiian geese results in paralysis and most often mortality (referred to as avian botulism). The EISPN states that 100% of manure from up to 2,000 dairy cows will be treated and applied to fertilize pasture grasses. The spraying of pastures with decaying animal materials will promote a nutrient-rich bacterial substrate. We recommend you work with our office so that we may assist you in developing measures to avoid fostering conditions that promote avian botulism and a monitoring plan for early detection and response.

Displacement and/or loss of nests may potentially occur during project construction and operation (e.g., clearing areas, disking, and/or mowing of pastures). To minimize and avoid impacts due to displacement and/or loss of nests, we recommend the following measures:

- A biological monitor should conduct Hawaiian waterbird and Hawaiian goose nest surveys at the proposed project site prior to project initiation.
- Any documented nests or broods within the project vicinity should be reported to the Service within 48 hours.

Attachment 14

- If exterior facility lights cannot be eliminated due to safety or security concerns, then they should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below.

The draft EIS should examine potential impacts to the Newell's shearwater, Hawaiian petrel, and band-rumped storm petrel that may occur as a result of construction and the operational use exterior lights associated with the proposed project.

Utility poles and overhead lines may constitute a collision hazard for seabirds as they traverse between the ocean and their breeding colonies. Additional information on the design of the proposed utility system for the development, including the number of utility poles, length of powerline, configuration of powerlines, and height of utility poles and overhead powerlines, in the area is necessary to assess the potential impacts to seabirds. We suggest the draft EIS provide this additional informational as well as determine whether undergrounding power lines in the proposed development area is feasible to avoid impacts to seabirds. If it is not feasible to underground power lines or install power lines at or the below the vegetation layer, other measures to minimize the potential for seabird collision should be analyzed in the draft EIS (e.g., vertical versus horizontal arrays, etc.).

Arthropods
The Kauai cave wolf spider and the Kauai cave amphipod are found only on the island of Kauai in the Koloa area from four to six caves respectively. They occur in small, subterranean spaces, voids, and cracks, requiring a woody debris food source. Cave ecosystems are threatened by contamination from surface sources of toxic chemicals from spills, pesticides, and waste disposal which enter caves via streams and/or ground-water seepage. The proposed HDF site is hydrologically linked to the sensitive cave habitats. We recommend the draft EIS address any project components that have the potential to impact the critical habitat (e.g., wastewater and pasture fertilization practices) and minimize potential disturbance.

Sesbania tomentosa
Sesbania tomentosa occurs on the coast located southeast of the HDF site. The primary threat to the species on the island of Kauai is habitat degradation caused by competition with various introduced plant species, including but not limited to buffelgrass (*Cenchrus ciliaris*), swollen fingergrass (*Chloris barbarta*), sourgrass (*Digitaria insularis*), and haole koa (*Leucaena leucocephala*). Other threats include lack of adequate pollination, fire, destruction by off-road vehicles, other human disturbances, and storms. The Service recommends that your draft EIS address any project components that have the potential to impact the critical habitat and minimize potential disturbance.

Under the ESA, take is defined to mean "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the

Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering.

When additional information on the proposed project description becomes available, we recommend you contact our office early in the planning process so that we may further assist you with ESA compliance. If it is determined that the proposed project may affect federally listed species or critical habitat, the project proponent(s) should coordinate with us under section 10 of the ESA or consult with us pursuant to section 7 of the ESA as follows. If the proposed project is funded, authorized, or permitted by a Federal agency, then that agency should consult with us pursuant to section 7(a)(2) of the ESA. If no Federal agency is involved with the proposed project, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the ESA. A section 10 permit application must include a habitat conservation plan that identifies the effects of the action on listed species and their habitats, and defines measures to minimize and mitigate those adverse effects.

Additionally, we recommend you incorporate the attached best management practices into your project description to avoid and minimize impacts to water resources that have the potential to occur during establishment and construction of the proposed project.

We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Adam Griesemer, Endangered Species Biologist (phone: 808-285-8261).

Sincerely,

Aaron Nadig
Island Team Manager
Oahu, Kauai, North Western Hawaiian Islands, and American Samoa

cc: Laura McIntyre, HDOH

Attachment 15

Attachment 16 see attachment 3

Attachment 17 see attachment 2

A. Yeah.

Q. So October, November?

A. October. October.

Q. Okay. Track six, when was that compacted?

A. That was November when it started raining.

Q. November of '14?

A. Right.

Q. And track seven, when was that compacted?

A. In conjunction with six. Same time.

Q. Okay. So when it's rained on the site, I assume you've seen some pretty heavy rains?

A. Uh-huh (moves head up and down).

Q. What do you think the heaviest rainfall is that you've observed on the site since you've been there?

MR. PALOUTZIAN: Objection, calls for speculation, lacks foundation. It's overbroad. Go ahead.

THE WITNESS: Seven-inch rainstorm the day after Thanksgiving of '13.

BY MR. TEBBUTT:

Q. Was that a 24-hour event?

A. No, it was an overnight event.

Q. So less than 24 hours, seven inches of rain?

A. Twelve, about 12 hours, yeah.

Q. Twelve hours.

Attachment 18

Attachment 20

Attachment 19

Table 5. Results of Surface Water Sampling on and Near to the Hawaii Dairy Farms Site

Sample Site	Sample Date	Forms of Nitrogen: $NO_3^-+NO_2^-$ (µM)	NH_4^+ (µM)	TON (µM)	TN (µM)	Forms of Phosphorus: PO_4^{3-} (µM)	TOP (µM)	TP (µM)	Silica (µM)	Turbidity (ntu)	Salinity (ppt)	pH (pH Units)
1	10/6/2014	0.05	1.70	7.55	9.30	0.10	0.40	0.50	479	1.2	0.203	6.647
	10/29/2014	0.05	0.33	18.90	19.28	0.05	0.38	0.43	377	1.3	0.222	7.551
	3/4/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	5/8/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	7/9/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Average	0.05	1.02	13.23	14.29	0.08	0.39	0.47	428	1.3	0.213	7.099
2	10/6/2014	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	10/29/2014	0.00	0.10	11.65	11.75	0.05	0.25	0.30	418	0.8	0.157	7.497
	3/4/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	5/8/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	7/9/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Average	0.00	0.10	11.65	11.75	0.05	0.25	0.30	418	0.8	0.157	7.497
3	10/6/2014	0.10	1.65	5.30	7.05	0.05	0.45	0.50	315	3.0	0.274	7.057
	10/29/2014	0.03	0.20	13.88	14.10	0.05	0.28	0.33	306	2.5	0.267	7.588
	3/4/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	5/8/2015	0.10	1.05	9.23	10.38	0.50	0.01	0.51	274	0.8	0.267	7.163
	7/9/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Average	0.08	0.97	9.47	10.51	0.20	0.25	0.45	298	2.1	0.269	7.269
4	10/6/2014	6.00	1.30	0.90	8.20	0.05	0.40	0.45	316	0.9	0.165	6.609
	10/29/2014	12.43	0.50	10.78	23.70	0.18	0.13	0.31	291	1.0	0.181	7.246
	3/4/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	5/8/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	7/9/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Average	9.22	0.90	5.84	15.95	0.12	0.27	0.38	304	0.9	0.173	6.928
5	10/6/2014	0.60	1.75	15.15	17.50	0.45	0.35	0.80	235	38.5	0.315	7.582
	10/29/2014	0.15	2.75	38.93	41.83	0.63	0.28	0.91	274	35.3	0.299	7.501
	3/4/2015	0.15	1.58	49.48	51.20	1.45	0.50	1.95	205	68.1	0.135	7.795
	5/8/2015	0.10	6.08	34.65	40.83	1.38	0.76	2.14	223	63.4	0.138	7.272
	7/9/2015	0.71	2.50	31.43	34.64	0.26	1.07	1.33	181	61.4	0.178	7.504
	Average	0.34	2.93	33.93	37.20	0.83	0.59	1.43	224	53.3	0.213	7.531
5A	10/6/2014	3.05	2.00	8.40	13.45	0.10	0.70	0.80	249	4.9	0.166	7.676
	10/29/2014	7.00	0.80	15.28	23.08	0.23	0.18	0.41	271	2.8	0.191	7.910
	3/4/2015	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	5/8/2015	2.58	2.55	22.80	27.93	1.15	0.04	1.19	231	19.3	0.119	7.539
	7/9/2015	3.24	1.55	18.95	23.74	0.24	0.62	0.86	238	16.3	0.136	7.601
	Average	3.97	1.73	16.36	22.05	0.43	0.39	0.82	247	10.8	0.153	7.682
7	10/6/2014	0.50	1.40	11.70	13.60	0.35	0.45	0.80	210	28.9	0.113	7.579
	10/29/2014	2.28	0.60	18.40	21.28	0.33	0.35	0.68	194	16.6	0.098	8.167
	3/4/2015	0.10	0.45	22.50	23.05	0.55	0.10	0.65	220	25.7	0.119	8.119
	5/8/2015	0.13	1.70	19.48	21.30	0.93	0.14	1.06	204	29.4	0.113	7.544
	7/9/2015	0.12	0.82	18.61	19.55	0.22	0.64	0.86	209	19.8	0.122	7.837
	Average	0.63	0.99	18.14	19.76	0.48	0.34	0.80	207	24.1	0.113	7.849
8	10/6/2014	1.70	10.15	3.60	15.45	1.45	0.85	2.30	175	68.4	0.121	7.190
	10/29/2014	0.23	51.70	75.35	127.28	4.25	0.05	4.30	219	193.0	0.168	7.378
	3/4/2015	0.50	2.00	42.50	45.00	1.73	0.40	2.13	204	52.7	0.187	7.532
	5/8/2015	1.60	7.38	45.55	54.53	3.00	0.89	3.89	213	114.0	0.133	7.088
	7/9/2015	0.45	5.43	29.47	35.35	0.71	1.42	2.13	144	77.9	0.131	7.431
	Average	0.90	15.33	39.29	55.52	2.23	0.72	2.95	191	101.2	0.138	7.324
9	10/6/2014	1.30	3.95	6.55	11.80	0.95	0.10	1.05	193	48.0	0.124	7.939
	10/29/2014	0.20	0.55	25.48	26.23	0.33	0.43	0.76	193	21.7	0.100	8.049
	3/4/2015	1.33	3.28	35.73	40.33	1.05	0.55	1.60	199	40.0	0.126	7.747
	5/8/2015	0.93	3.65	27.33	31.90	1.85	0.36	2.21	209	71.7	0.123	7.381
	7/9/2015	0.20	1.20	18.83	20.23	0.27	0.72	0.99	184	21.6	0.124	7.366
	Average	0.79	2.53	22.78	26.10	0.89	0.43	1.41	196	45.4	0.119	7.696
10	10/6/2014	3.85	0.40	3.60	7.85	0.15	0.50	0.65	246	19.6	0.167	7.501
	10/29/2014	6.48	0.93	19.05	26.45	0.25	0.25	0.50	272	4.8	0.185	7.888
	3/4/2015	4.20	0.23	22.93	27.35	0.35	0.25	0.60	232	19.5	0.128	7.912
	5/8/2015	2.65	1.98	19.88	24.50	1.05	0.01	1.06	233	19.6	0.118	7.513
	7/9/2015	4.16	1.55	21.43	27.14	0.36	0.75	1.11	240	29.9	0.113	7.505
	Average	4.27	1.02	17.38	22.66	0.43	0.35	0.78	245	18.7	0.142	7.664
11	10/6/2014	4.45	0.90	3.05	8.40	0.25	0.40	0.65	210	35.3	0.114	7.556
	10/29/2014	0.75	0.75	18.58	20.08	0.43	0.63	1.06	200	37.3	0.103	7.921
	3/4/2015	3.53	0.95	24.10	28.58	0.85	0.08	0.93	198	28.7	0.120	7.884
	5/8/2015	1.03	1.98	23.30	26.30	1.18	0.21	1.39	211	30.4	0.115	7.550
	7/9/2015	1.78	1.23	20.73	23.74	0.28	0.76	1.04	206	20.4	0.123	7.508
	Average	2.31	1.16	17.95	21.42	0.60	0.42	1.01	205	30.4	0.115	7.684
12	10/6/2014	4.15	1.05	1.80	7.00	0.20	0.45	0.65	211	43.5	0.113	7.633
	10/29/2014	0.35	0.85	21.28	22.48	0.58	0.23	0.81	197	42.5	0.114	7.985
	3/4/2015	3.53	1.48	23.75	28.75	0.93	0.08	1.00	198	31.6	0.123	7.995
	5/8/2015	1.08	2.18	22.30	25.55	1.23	0.24	1.46	204	38.0	0.120	7.560
	7/9/2015	1.76	1.67	17.45	20.88	0.26	0.54	0.80	202	19.5	0.431	7.503
	Average	2.17	1.45	17.32	20.93	0.64	0.31	0.94	202	35.0	0.180	7.735

Table 2. Quality of Water Samples Taken from the Monitor Wells on the Hawaii Dairy Farms Site

Monitor Well No.	Sample Date	Depth into Water (Feet)	Forms of Nitrogen: $NO_3^-+NO_2^-$ (µM)	NH_4^+ (µM)	TON (µM)	TN (µM)	Forms of Phosphorus: PO_4^{3-} (µM)	TOP (µM)	TP (µM)	Silica (µM)	Turbidity (ntu)	Salinity (ppt)	pH (pH Units)
HDF-1	5/8/2015	5	21.23	1.05	5.00	27.28	0.63	0.11	0.74	437	0.99	0.257	6.315
	7/9/2015	5	10.24	1.07	20.42	31.73	0.10	0.25	0.35	360	1.31	0.281	5.938
	5/8/2015	50	28.18	0.93	5.67	34.78	0.73	0.06	0.79	441	1.98	0.241	6.273
	7/9/2015	50	29.29	0.52	12.01	41.82	0.13	0.23	0.36	383	0.95	0.249	6.084
HDF-2	5/8/2015	5	19.50	1.45	12.23	33.18	0.90	0.01	0.91	312	2.32	0.192	6.464
	7/9/2015	5	21.79	0.73	16.26	38.78	0.06	0.24	0.30	294	4.43	0.191	6.130
	5/8/2015	55	13.43	1.00	14.80	29.23	0.63	0.24	0.86	322	1.87	0.184	6.468
	7/9/2015	55	26.05	0.67	9.80	36.52	0.14	0.31	0.45	308	11.2	0.185	6.137
HDF-3	5/8/2015	5	11.90	1.78	15.98	29.65	1.10	0.26	1.36	416	3.02	0.391	7.054
	7/9/2015	5	1.92	0.75	30.02	32.69	0.30	0.42	0.72	379	1.41	0.442	6.805
	5/8/2015	25	14.98	1.30	9.18	25.45	1.23	0.04	1.26	410	1.36	0.474	6.974
	7/9/2015	25	5.31	0.69	21.79	27.79	0.60	0.32	0.92	380	1.01	0.492	6.821
HDF-4	5/8/2015	5	0.63	1.55	19.43	21.60	0.95	0.39	1.34	429	12.7	0.211	6.614
	7/9/2015	5	2.99	0.32	38.01	41.32	0.16	0.48	0.64	432	1.81	0.329	6.378
	5/8/2015	25	13.90	1.68	13.48	29.05	1.03	0.14	1.16	468	18.5	0.357	6.319
	7/9/2015	25	15.8	0.41	12.58	28.79	0.28	0.42	0.70	417	4.49	0.363	6.141

Attachment 21

Attachment 22

RESOURCE POTENTIAL OF UNDEVELOPED LOCATIONS, SCORP

	Camping	Fishing	Surfing	Swimming	Sunbathing	Picnicking	Hiking	Bicycling	Diving	Walking	Jogging	Canoe Paddling	Tennis	Outdoor Events	Hunting
Nomilo-Lawai Bay	X	X	X	X	X	X	X								
Koloa (Prince Kuhio)		X	X	X	X			X	X						
Knudsen Lands (Kiahua Golf Village Site)				X	X	X	X	X		X	X		X	X	
Keouiloa Bay (Shipwreck or Paa Beach)	X	X	X	X	X	X	X	X	X	X	X				
Mahaulepu (Kamale Point to Kawailoa Bay)	X	X	X	X	X	X	X		X	X	X				
Haula	X	X		X	X	X	X			X	X				
Haupu Mountains, Lihue-Koloa Forest Reserve	X					X	X								X
Papapaholahola (Wahiawa mauka)	X					X	X								X
Waita Reservoir		X				X						X			X

Q. Did you take pictures for the geophysicist?
A. No, we never did.
Q. How did he get information about what you did?
A. We just told him, called him the next day and told him what we ran into. But this wasn't for his study.
Q. What was it for then?
A. Our own information.
Q. For what kind of information?
A. To determine if there was any stone or what depth the stone was at.
Q. Was this the area where you planned to put the lagoon, the effluent lagoon?
A. Yes.
Q. So was part of the purpose to determine depth to groundwater?
A. No, we were looking for stone.
Q. Have you determined what the depth to groundwater is in that area?
A. Varies from time to time.
Q. Right where the keyhole pond is, have you determined the depth to groundwater there?
A. Like I said, it varies.
Q. From what to what?
A. Two or three feet.

GROUP 70 INTERNATIONAL

January 3, 2017

Eileen Kechloian
catchalion@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Eileen Kechloian:

Thank you for your email received July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments. Our responses to your various topics have been grouped into topic categories for ease of understanding and organization.

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

EIS Preparation
While an agricultural project on agricultural lands implemented and operated with private funds does not require environmental disclosure, HDF responded to community concerns by agreeing to prepare an EIS. The EIS is a disclosure document that analyzes the effects of a proposed project or program on the environment including direct, indirect and cumulative impacts, discusses alternative methods or designs to the proposed action, and formulates minimization and mitigation measures to eliminate, reduce, or rectify adverse impacts of the proposed action. This EIS was prepared in accordance with Hawaiʻi Administrative Rules Title 11 Chapter 200, implementing Hawaiʻi Revised Statutes (HRS) Chapter 343.

The Final EIS volumes are available in electronic format for everyone to read on a standard computer screen at the most comfortable view orientation and enlargement. When printed with two pages per sheet this entire document is contained within a total of nine volumes. Larger format single page printing would increase this total to more than 15 volumes, making it extremely unwieldy for agencies and the public, and therefore less accessible. Also, generation of this huge amount of printed material would not be consistent with our common objectives of sustainability. Formatting of the Final EIS page margins and dividers has been improved in Volumes 3 through 9 to aid readability.

Government Rules and Regulations
The construction and operation HDF will be in compliance with government rules and regulations. Guidance from NRCS has been followed in the management of the farm. Refer to EIS Section 3, Appendices C, D and K, and Volume 5.

Flood Preparation
An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhāʻulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated her size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the largest possible herd size.

Upslope Drainage
Drainage and flooding analysis conducted for the dairy project is presented in EIS Sections 4.6 and 4.17, Appendix K and Volume 5. The upslope ditches surrounding the upslope boundary of the dairy farm site were created during the prior agricultural operations. The ditches are effective in diverting surface runoff waters away from the farm, preventing the buildup of upslope runoff waters on the subject farm lands.

Nutrients and Marine Environment
The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A larger body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure

of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. Future water quality tests will identify any increase of nutrients and bacteriological constituents to the near-shore marine environment. Data from the nearshore water monitoring program will be made available to DOH CWB, dairy neighbors and the local Kauaʻi community, and allow for evaluation of possible contamination sources.

Ditch Setbacks
The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irrigation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

The setbacks from agricultural ditches have been established consistent with Best Management Practices for site earthwork, such as would be required by NPDES. Refer to EIS Section 3, Appendices C, D and K, and Volume 5. HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Water Demand
Once fully operational at the committed herd size of up to 699 mature dairy cows, the dairy will utilize 30,000 gallons per day (gpd), which is 0.03 million gallons per day (MGD), of potable (drinking water quality) water from groundwater provided through an on-site well. The State of Hawaiʻi Department of Health Milk Rules require that potable water be used for milk production, both in the milking parlor and for milking operations; another potable water use will be for livestock drinking water. Should HDF decide, in the future, to expand to the contemplated herd size of up to 2,000 mature dairy cows, potable water demand will increase to 84,800 gpd (0.085 MGD). These demands are a small fraction of the 3 MGD produced by the on-site, existing Māhāʻulepū 14 well during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant.

Leased Farmland
HDF is the lessee of lands owned by Mahaulepu Farm LLC (formed by Grove Farm). This land has been designated as Important Agricultural Land, which is intended for the production of food crops and support of long-term local food sustainability.

Public Trust Doctrine

The proposed action is consistent with the public trust doctrine. The Hawai'i Constitution states that all public natural resources, including water resources, are held in trust by the State of Hawai'i for the benefit of the people of Hawai'i and that the State should "conserve and protect" those natural resources but also "promote the development and utilization of these resources." The Hawai'i Supreme Court has held that, as a result, the State has a "dual mandate." That mandate is 1) to conserve and protect the water resources of the State, which include both groundwater and surface water and but also 2) to allow for "maximum beneficial use" of those resources, including for agriculture. The Hawai'i Supreme Court has therefore expressly rejected the concept that "resource protection" is a categorical imperative. It has held that the State should allow "controlled development" that, while giving preference to public use, access and enjoyment, "promote[s] the best economic and social interests of the people of this state."

Based on this dual mandate, the State has developed the State water code, which states that it should be "liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic use, aquaculture uses, irrigation and other agricultural uses, power development and commercial and industrial uses" while also adequately providing for the "protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture and navigation. Such objectives are declared to be in the public interest."

The public trust doctrine therefore involves a balance--protection and conservation of the public natural resources of the State and a maximum beneficial use of those resources, including for agriculture. Designated of "important agricultural lands", including the HDF site, heightens the public interest in development of agriculture as the Hawai'i State legislature has declared that the people of the State have a "substantial interest in the health and sustainability of agriculture as an industry" and, when so designated, the policy of the State is to promote the long-term viability of agricultural uses on those lands, including by "promot[ing] the maintenance of essential agricultural infrastructure, including the irrigation systems." This serves the "compelling state interest in conserving the State's agricultural land resource base."

The proposed dairy farm will use water from Waita Reservoir for irrigation, which is also the water source for several other farmers and ranchers in the area, including a taro farmer. Non-potable water from Waita Reservoir, which uses water from upland streams, provided irrigation water to the sugar plantation that historically operated in the Māhā'ulepū area, and is used for recreational fishing. The reservoir is located west of the HDF site.

Potable water for the dairy farm will be drawn from deep groundwater wells that were installed by the sugar plantation that formerly operated on the site. The potable water will be used as drinking water for people working on the dairy farm and for the cows. As a result, the proposed action will advance both purposes of the public trust doctrine. The dairy farm will advance the important public interest in protecting and conserving agriculture in the State, including on important agricultural lands, and also further the goal of maximum beneficial use of the surface water and groundwater on those important agricultural lands.

Waiopili Ditch

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH

CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Po'ipū/Kōloa watershed differs from Māhā'ulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Po'ipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period – that is, reduced virulence of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhā'ulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

State and County Land Use Policies

The planned improvements and operations at Hawai'i Dairy Farms are compatible with and supportive of State of Hawai'i and County of Kaua'i land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawai'i Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land (IAL) on Kaua'i. The dairy is also consistent with the provisions of the State of Hawai'i Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhā'ulepū lands under the County of Kaua'i General Plan and the South Kaua'i Community Development Plan.

The IAL designation process determined that the land meets a number of requirements established in HRS §205-45, including contiguous, functional land units large enough to allow flexibility in agricultural production near appropriate infrastructure and water, with 88.5 percent of the area featuring an overall soil agricultural productivity rating of "B" (with "A" representing the class of highest productivity soils and "E" representing the lowest) per the Land Study Bureau of U.H.

Kikuyu Grass

HDF has gathered over 2 years of trial data for Kikuyu grass located at the center of Māhā'ulepū Valley on HDF's leased property. The Kikuyu grass measured consists primarily of Kikuyu with some guinea grass mixed in. Cover crops (diversified forage) were also inserted into the Kikuyu grass during the winter months to provide the additional forage needed when the primarily Kikuyu grass mix may not be as productive. The use of diversified forage is recommended by the National Resource Conservation Service (NRCS) Conservation Practice Standard – Nutrient Management Code 590.

Forages were cut, analyzed, and measured for production, nutrient content and quality, and nutrient uptake rates, over this 2 year span by HDF's forage expert, Farms n' Forages, a locally-owned business that assists many farmers here in Hawai'i. The forage was tested and analyzed by Cumberland Valley Analytic Services (CVAS) which is certified by the National Forage Testing Association, who performed wet chemistry analysis for Dry Matter (DM), Crude Protein, Soluble Protein, Acid Detergent Fiber (ADF), Neutral Detergent Fiber (NDF), Ash, Calcium (CA), Phosphorus (P), Magnesium (Mg), Potassium (K), Sodium (Na), Iron (Fe), Manganese (Mn), Zinc (Zn), Copper (Cu), and in vitro NDF analysis as a method of assessing the nutritive value of the grass trial samples. The nutrient value of the grasses analyzed was then converted to nutrient uptake rates (in lbs of nitrogen and phosphorus per ton of DM by Atlantic Dairy Consulting, through the use of the Cornell Net Carbohydrate and Protein System (CNCPS) Model, which uses farm-specific inputs on feed and diets to yield both approximate milk production and manure excretion values and quality.

HDF coordinated the collection of grass samples beginning September 2, 2014 and repeated sampling every fourth harvest after an 18-day rest period. The intent was to simulate the harvest of grass by cows grazing a paddock every 18 days. Even with the frequent cutting (every 2.5 weeks), forage yields exceeding 16.3 tons of DM per acre per year (incorrectly noted as 16.4 in the CH2M Hill comments) were realized and measured by Farms n' Forages, even in the winter months (with diversified forage). Nutrient uptake, content, and the chemical composition of the grass samples are based upon this cutting schedule, without over-fertilization based upon HDF's grass & forage expert's recommended fertilizer application rates, or over-irrigation based upon visual observation beyond the agronomic need of the crop.

HDF believes grass yield rate of 16.3 tons of DM per acre per year and the nutrient uptake rates of 64 pounds of nitrogen removed per ton of DM and 11.4 lbs of phosphorus removed per ton of DM, as shown in the Nutrient Balance Analysis of the DEIS, are reasonable and realistic rates based upon the work and analytics performed by Farms n' Forages, CVAS, and Atlantic Dairy Consulting. *Other data from Hawaii also with the highly productive C4 grasses document world class, high levels of productivity are realistic (Valencia-Gica et al. 2012 data from Hawai`i) (Yost).* The yield rates and nutrient uptake/removal rates provided are in accordance with NRCS guidance and provide a realistic projection of the yield production and nutrient uptake for a planned dairy operation. It is consistent with the requirements and processes of the NRCS – Nutrient Management Code 590.

While the yield production and nutrient removal rates shown in the DEIS would not be the exact nutrient uptake numbers based upon the actual operation of the planned dairy, with the commencement of actual animal grazing, manure production, and effluent application, the trials are representative of and realistic for a rotational-grazing, pasture-based dairy operation. The yield production and nutrient uptake rates are based upon appropriate site-specific inputs and certified laboratory testing for yield results and nutrient content and value to the proposed cows used by HDF. Actual grass is being grown on the farm which is fertilized and irrigated, cut, and sampled for actual production and nutrient content and uptake data.

Waste Management Plan
The State of Hawai'i, Department of Health (DOH), Wastewater Branch reviewed HDF's 2014 Waste Management Plan (WMP) for an operation of 699 mature dairy cows, as required by the *Guidelines for Livestock Management* (DOH, 2010). DOH Wastewater Branch completed its review, and HDF obtained building permits for construction of the dairy facility. The WMP is not a component of the EIS, however, all relevant information in the updated WMP was incorporated into the DEIS to ensure consistency and transparency for public review and disclosure.

Manure Nutrient Source
There are no plans for using manure for the development of compost material or for waste-to-energy purposes. The manure will be utilized as a nutrient source for the pasture grass, as elaborated upon in EIS Chapter 3, Appendix D and Volume 5.

Irrigation System
The EIS Section 3 presents the project description, and EIS Appendix D includes the updated Nutrient Balance Analysis (NBA) which describes more details on the irrigation systems. HDF is following all appropriate USDA – NRCS and DOH standards, practices, and guidelines, which allow for livestock as-excreted manure in addition to land application of manure on agricultural facilities for the use in growing crops. If not for the assumption that over a period of time, manure application is spread relatively evenly over the paddock and not concentrated in one spot, virtually every livestock or ranching operation would have flawed nutrient balance calculations with respect to accounting for nutrients from as-excreted manure.

The original Waste Management Plan called for drip irrigation in the makai areas of the farm, which will now be irrigated using gun irrigation system. The irrigation system consists of pivots which cross portions of the Waiopili drainage ditch and another separate agricultural drainage ditch which ultimately discharge to the ocean. The pivot systems are equipped with a drop hose valve that is composed of a composite material, with small sensors that are low maintenance and resistant to salty weather conditions.

Proper operations, maintenance, and repairs of the irrigation system will prevent potential impacts to water quality and prevent direct discharge into the drainage ditches. Stringent preventative maintenance will be in place to make sure all facets of the irrigator operate to the pivot operator's needs. The pivot operator will be responsible to maintain and look after each pivot while in operation. Only one pivot will operate at any given time (though the system is designed and is automated enough such that two pivots may run at the same time), ensuring that the operator is focused and attentive to the one operating pivot.

Acoustics
EIS Section 4.12 discusses noise impacts and mitigation. The dairy farm will utilize milking equipment contained in the milking parlor, and will use field equipment such as tractors. Equipment will typically be used during daylight hours. Dairy operations will comply with applicable noise control ordinances. Under HAR §11-46, agriculture is classified as Zoning District Class C, which specifies maximum permissible sound levels of 70 dBA in the daytime and 70 dBA at nighttime. Maximum permissible sound levels apply to any point at or beyond the property line, and are not to be exceeded more than 10 percent of the time within any 20 minute period.

Dairy operations will generate noise in keeping with the agricultural zoning of the parcel. The primary noise receptors in the area would be farmers working nearby parcels. Noise from the dairy will not exceed the DOH threshold, and will not contribute to excessive noise in the region.

Animal Cemetery
HDF has adequately planned its cemetery site and has incorporated Best Management Practices to protect water resources surrounding the HDF site. The animal cemetery is specifically located on the north side of the farm, in an area of relatively flat pasture. Site selection criteria for the cemetery paddock included protection from prevailing winds, and distance more than 100 feet away from any drainageway, 200 feet from any natural watercourse, 300 feet from any well, and more than 20 feet from any buildings. Within the cemetery paddock, pits will be sited based on soil suitability and slope. A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. An area of approximately 5,000 square feet is needed for the animal cemetery at the contemplated herd size of up to 2,000 mature

dairy cows, which is a fraction of a 3- to 5-acre paddock. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area. Pits will be lined as needed in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality.

Setbacks

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waipili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waipili Ditch will be improved by active management of the dairy site.

Animal Cemetery

Additional detail is provided to the previous response to the comment on the animal cemetery.

A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. Six (6) pits, approximately 20' x 40' overall and 8 to 10' deep, are designed to accommodate carcasses of up to 150 cows and 360 calves or stillborn animals at the contemplated herd size. Individual pits within the area will be a minimum of 2-feet wide with a length appropriate to bury the carcass. Pits will be lined as required in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality. Each animal carcass will be dusted on all sides with ground limestone. The bottom of each pit will be also dusted. Pits can be reused every 18 to 24 months, which is the typical time for a carcass to decompose.

Pit bottoms will be level, and carcasses will be placed in a single layer and covered with at least 2 feet of organic material. Multiple layers may be created with subsequent burials, or additional area within the cemetery paddock may be used as needed. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area when excavating the pits. The paddock area will not be grazed.

HDF may also consider procuring and installing an incinerator to use for managing mortality on the farm. The incinerator would meet the appropriate guidance from NRCS Conservation Practice Standard – Animal Mortality Code 316 as well as State and EPA emissions regulations, to ensure no adverse air quality impact from the incinerator operations.

Fauna

Per the advisement of the U.S. Fish and Wildlife Service and the State Division of Forestry and Wildlife, HDF will follow best practices and operational procedures to protect any protected animal species. While there are almost no suitable roost trees within the dairy site, HDF will not disturb, remove or trim woody plants greater than 15 feet tall during the Hawaiian hoary bat pupping season. No effect to bats is expected from

activities and operations of the dairy farm. All outdoor lights installed as part of the project will be shielded to reduce the potential for interactions of nocturnally flying seabirds with external lights and man-made structures. A predator control program will be implemented and maintained to reduce threats to waterbirds or nēnē transiting through or possibly nesting. A Draft Endangered Species Awareness and Protection Plan has been completed in consultation with USFWS and DOFAW prior to dairy construction and operations, to ensure that dairy operations would not result in deleterious impacts to protected wildlife.

HDF shares the concern of herbicide and pesticide impacts on the HDF site and surrounding environment. Insecticides and herbicides are non-discriminatory and kill beneficial as well as pest insects. Such control would only be used when needed by those qualified to apply chemicals, and in accordance with authorized procedures and regulatory labeling requirements. Safe application practices for any unavoidable herbicide or pesticide include specifically targeting the problem pest species. Integrated pest management (IPM) will be the preferred means to control pests; this method disrupts the reproduction potential of pests by appropriate means at key points in the life cycle.

There are no known caves or lava tubes found at or adjacent to the dairy farm property. The nearest cave of the Kōloa Lava Tube System, which provides habitat for two endemic cave species, the Kaua'i Cave Wolf Spider and the Kaua'i Cave amphipod, is located 0.75 miles from the dairy farm property. There is no evidence of lava tubes or caves on the property, and no such features have been reported for the area near the HDF site. No cave invertebrate species will be affected by the dairy farm.

Based on hydrological knowledge derived from all drilled wells analyzed by Nance, the downslope movement of ground water from below the pastures toward the habitats of listed arthropods will not reach into the referenced habitats. Recognizing that the food supply of the wholly saprophagic amphipod is organic matter derived from roots and other decaying plant debris, and since nitrogenous and phosphoric nutrients will promote plant growth, their effects, if anything at all, can be expected to expand the food supply in this oligotrophic subterranean ecosystem.

Flies

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Economics

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will negatively impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Air Quality/Odor

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods:

1. Exponent used different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and
2. Odor results were compared against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area."

Exponent concurred with the emission methods and results presented by Arcadis that quantify odor from the effluent ponds and the dairy facility buildings. The air emission components of the Arcadis May 2016 report were not commented on by Exponent.

The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report. To consider the two alternate methods used by Exponent, Arcadis verified operational procedures with HDF: 1) Slurry application will not coincide with effluent application, and 2) slurry will not be applied during days with average wind speeds less than approximately 9 miles per hour (mph) (4 meters per second - m/s) or with winds greater than 20 mpg (8.9 m/s). Additionally, HDF confirmed that the dilution of irrigation water with effluent will change based on field conditions. For these reasons, Arcadis recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent. The findings of the revised odor technical report are summarized below.

On the second point, Arcadis responded that an evaluation by Mahin (2001) show off-site standard or guidelines in the U.S. to be between 2 and 50 OU/m^3 with the majority of values between 5 and 7 OU/m^3. Low OU/m^3 values are often difficult to observe. For instance, California's South Coast Air Quality Management District states that at 5 D/T (OU/m^3) people become consciously aware of the presence of an odor and that at 5 to 10 D/T odors are strong enough to evoke registered complaints. Given the conservative nature of the air dispersion modeling, a threshold of 6.5 OU/m^3 continues to be appropriate.

For the reasons above, the revised odor report modelled irrigation effluent at two dilutions in no-wind conditions (considered "worst case"), and slurry effluent with wind speeds between 9 and 20 mph, and again used the threshold of the 6.5 OU/m3 annual extent odor level. Modeling was done for both the herd size of 699 mature dairy cows (Section 4.19.2) and for the contemplated herd size of up to 2,000 dairy cows (Section 4.25.2). The colored areas in the figures depict the 99.5th percentile threshold of 6.5 OU/m3. Within the detection area odors may be detectable by 50 percent of the sensitive population once per 200 hours, or 44 hours per year.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows For the typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year. It should be noted that the parameters used in the odor assessment were intentionally very conservative and the impacts shown depend on an unlikely confluence of worst-case meteorological data, irrigation location, and grazing location; thus, actual offsite odor impacts are likely to be much lower and/or less frequent than displayed. All potential odor would remain on surrounding agricultural lands.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, the nearest recreational area, Po'ipū Bay Golf Course, lies another 0.3 miles beyond the odor extent for the typical effluent application (EIS Figure 4.25-1). During unusually wet periods, odor could extend approximately 4,085 feet (approximately three-quarters of a mile) beyond the southern boundary for the contemplated herd size. With application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile), which would not reach recreational or residential areas (Figure 4.25-1). As explained in Section 4.19.2, the parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown (Arcadis, 2016).

The full Exponent report *Odor Impact Assessment Hawaii Dairy Farms* (2016) is in the Final EIS, Volume 5, Appendix B. The complete response by Arcadis is contained in the Final EIS Volume 5, Appendix B-B. The revised odor report by Arcadis is also attached to their initial air quality and odor report in the Final EIS Volume 2, Appendix I as Attachment 1.

Groundwater

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west. HDF is to the east (EIS Figure 4.16-3).

While the shallow groundwater in the alluvium is hydrologically separate from the source of drinking water in the deep volcanics, HDF installed four groundwater monitoring wells to allow monitoring of water quality within the shallow groundwater. Existing water quality was sampled to serve as a baseline for the nutrient and chemical constituents of the shallow groundwater within the alluvium. Future water quality samples can then be compared to the data documenting the baseline, or pre-dairy, conditions. Periodic assessments would identify any change to nutrient content that may indicate seepage of nutrients into this shallow waterbody, which could inform nutrient management of HDF and allow for management changes to minimize nutrients not being effectively utilized by the grass crop. Results from the monitoring program will be shared with the DOH CWB, dairy neighbors and the local Kaua'i community.

Dairy Model

HDF has adapted the New Zealand model – pastoral-based rotational grazing dairy – to U.S. standards and best management practices. NRCS provides extensive guidance for agricultural operations to meet stringent standards including those under the Clean Water Act. Nutrient management is a key tenet, and the protection of waterways has been applied to the design of HDF paddocks using fencing to create large setbacks from drainages. Setbacks at HDF are designed 35-feet from each bank – for a total of 70 feet – to exclude cows from waterways. The setbacks are vegetated to create filter strips to effectively trap soil particles and organic debris from entering stormwater runoff. Setbacks and buffers from public drinking water resources are also incorporated into the farm design (EIS Section 3.3.2 *Agricultural Infrastructure* and Appendix D *Nutrient Balance Analysis*).

HDF's Nutrient Balance Analysis is predicated on farm specific inputs and calculated outputs using the Cornell Net Carbohydrate and Protein System (CNCPS) model. While the Standard D384.2 Manure Production and Characteristics (ASABE, 2005) can still be used today to estimate manure production and nutrient excretion, the CNCPS model uses more realistic nutrient inputs. ASABE is a simplified and general standard last updated in 2005. The ASABE calculations were reasonably correct in year 2000 but have not accounted for changes in genetics, management systems, and nutritional advances over the past 16 years. The ASABE equations, unlike the CNCPS system, does not use farm specific animal, environmental, and dietary inputs to determine its manure production and nutrient excretion estimates, and instead uses "book values".

NRCS Conservation Practice Standard Code 590 – Nutrient Management allows for the use of realistic nutrient inputs when planning for nutrient outputs. The manure production and nutrient excretion estimates from the CNCPS model are more accurate and represent farm specific animal inputs, dietary inputs from available grass trials from the HDF site, and incorporate changes in farm management, genetics, and nutritional advances. Therefore the CNCPS model is more accurate than if manure excretion and nutrient output was based upon "book values". Manure production and nutrient excretion estimates from Exponent Table 1 are based upon "book values" of the ASABE Standard, which uses the publication

Dairy NRC 1988 for diet formulations and input (NRC is the National Research Council that published a handbook, "The Nutrient Requirements of Dairy Cattle"). The 28 year old Dairy NRC 1988 is the predecessor of the most recent NRC publication, last updated in 2001. Because of obsolescence associated with these NRC predictions, the 2015 CNCPS model was used for HDF calculations.

References to the CNCPS model calculations can also be found in peer review scientific literature, namely, in the Journal of Dairy Science 98:6361–6380 The Cornell Net Carbohydrate and Protein System: Updates to the model and evaluation of version 6.5 M. E. Van Amburgh, et. al. and also in the JDS 95 :2004–2014 Development and evaluation of equations in the Cornell Net Carbohydrate and Protein System to predict nitrogen excretion in lactating dairy cows R. J. Higgs, et. al. and JDS 81: 2029 - 2039 Evaluation and Application of the Cornell Net Carbohydrate and Protein System for Dairy Cows Fed Diets Based on Pasture Kolver, E.S. et al.

Dairy Herd Size

The herd size for HDF is consistently represented as the potential maximum number of cows guided by the results of the nutrient analysis which reflects the carrying capacity of the land (EISPN Section 2.3 *Proposed Action*; EIS Section 1.2 *Proposed Project*). The distinction between the herd sizes and permit differences is explained in the EIS Section 2.4 *Planned Dairy Development on Māhā'ulepū Agricultural Lands*. During the public scoping meeting, participants expressed an interest to understand impacts of the committed herd size (up to 699 mature dairy cows). HDF agreed to analyze and present impacts at both the committed and contemplated (up to 2,000 mature dairy cows) herd size. Therefore, the probable impacts of the potential contemplated herd size are also analyzed and clearly identified in the Draft and Final EIS.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawai'i. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land.

With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future. For dairy operations with 700 or more mature dairy cows, regardless if the operation is feedlot or pasture-based, additional regulatory review and permitting by the State Department of Health would be required. The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to submit an application to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive mature dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

NPDES Permit

HDF met with DOH in March, 2014 to determine construction activities that would require an NPDES permit, and was advised such a permit was needed for only construction of the dairy facilities themselves. DOH confirmed that construction activities for the sole purpose of growing crops do not require an NPDES permit per HAR §11-55, Water Pollution Control, Appendix C. HDF also consulted with the U.S. Army Corps of Engineers (USACE) which confirmed, in a letter dated October 22, 2014, that maintenance of existing drainage ditches on an existing farm at the HDF site are not prohibited by or otherwise subject to regulation under Section 404 in accordance with 33 CFR Part 323.4.

Cumulative Impacts
Subjects raised in your comments regarding cumulative effects are addressed in EIS Sections 4.20 and 4.26. These sections present summary assessments of the potential cumulative impacts and contextual issues associated with the committed herd size and contemplated herd size.

Alternatives
As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project. Further discussion of alternatives can be found in EIS Section 6. Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

Alternative dairy locations were carefully evaluated in the EIS, with specific consideration of achieving the project objectives and meeting each of the five Evaluation Criteria. The selected site represents the best option among those considered. The alternative location studied in the EIS is a valid representation of other siting options available. Preliminary site screening found other locational options to have unsuitable or less desirable conditions for the dairy in terms of land control, IAL status, soils, slopes, climate, water access, neighboring uses, access and other factors. To provide a meaningful analysis, the EIS evaluation of other alternatives (no action, agricultural subdivision, conventional feedlot) each included quantitative estimates of potential uses and associated impacts.

We appreciate the information you provide regarding alternative locations for the pasture-based dairy. Final EIS Section 6.5 Alternative Location provides elaboration on the very extensive process undertaken to identify the site.

The Hawai'i Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on O'ahu; two on Hawai'i Island; and two on Kaua'i. Kaua'i was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kaua'i in the Māhā'ulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January

2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

Rainfall Events and Flooding
The period of daily rainfall of the Māhā'ulepū gauge (No. 941.1), located on the farm site, that was used for the DEIS is from January 1, 1984 through December 31, 2013, a period of 10,957 days. The available record is for 10,597 of these days, of which only 360 days is truly missing recorded data. Moreover, statistics of this available record closely match the Online Rainfall Atlas of Hawai'i (2013) by Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.L. Chen, P.S. Chu, J.K. Eischeid, and D.M. Delparte. Based on this, the available rainfall records of Station 941.1 were taken to be a reasonable representation of this site's actual rainfall (Nance). In total, 360 days of truly missing records account for only 3.3% of the total time period.

Additionally, points identified by error codes in the publicly available rainfall data also do not necessarily truly reflect missing data. The Māhā'ulepū gauge does not record data every day and in many instances, records a multi-day precipitation record collecting data over a multiple day period instead. In these instances when a multi-day record is collected, the days over that record are labeled with error codes (-9999). The use of the error code does not actually reflect "missing" data in this scenario. A reasonable and realistic daily rainfall estimate may be determined over that multi-day period (e.g. by averaging or by comparison to other available rain gauge data in the area such as HDF's Ag Hub system). As shown in the following table for the month of September 1992, which the CH2M Hill comments specifically point out as a month with significant "missing" data, there are three (3) sets of multi-day precipitation records (MDPR), as well as eight (8) sets of daily records (PRCP). CH2M Hill has identified 19 days of missing data in this month. In fact, there are no days with actual missing data when taking into the account the MDPR readings. The table below reflects the publicly available data in the format received from the National Oceanic and Atmospheric Administration (NOAA) for the Māhā'ulepū 941.1 rain gauge, with the "Notes" column added for discussion:

DATE	MDPR, (0.1mm)	MDPR, (in)	DAPR	PRCP (0.1 mm)	PRCP (in)	Notes:
19920930	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920929	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920928	5	0.0	6	-9999		MDPR Recording Taken over 6 Days = 0"
19920927	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920926	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920925	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920924	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920923	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920922	660	2.6	12	-9999		MDPR Recording Taken over 12 Days = 2.6"
19920921	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920920	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920919	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920918	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920917	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"

19920916	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920915	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920914	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920913	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920912	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920911	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920910	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920909	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920908	13	0.1	4	-9999		MDPR Recording Taken over 4 Days = 0.1"
19920907	-9999		-9999	-9999		If MDPR = 0.1", then Daily PRCP = +/-0.03"
19920906	-9999		-9999	-9999		If MDPR = 0.1", then Daily PRCP = +/-0.03"
19920905	-9999		-9999	-9999		If MDPR = 0.1", then Daily PRCP = +/-0.03"
19920904	-9999		-9999	114	0.45	PRCP Recording Taken = 0.45"
19920903	-9999		-9999	229	0.90	PRCP Recording Taken = 0.90"
19920902	-9999		-9999	41	0.16	PRCP Recording Taken = 0.16"
19920901	-9999		-9999	41	0.16	PRCP Recording Taken = 0.16"

As noted in the table, the multi-day precipitation total from September 23 to September 28 shows a MDPR of 0 inches. Total rainfall for each day can be assumed to be 0 inches. From September 5 to September 8, another MDPR was recorded of 0.1 inches, also negligible (if averaged, the daily rainfall would equal 0.03", quite insignificant to any agricultural operation). Even within the twelve (12) day MDPR recording of rainfall from September 11 to September 22, a total of 2.6 inches of rainfall was recorded. While the daily totals are not provided, the data is sufficient to characterize rainfall and for use within HDF's Nutrient Balance Analysis and its irrigation management plan, which is based upon monthly rainfall totals. CH2M Hill's comment that the month of September 1992 contains excessive "missing" data is therefore not supported.

Referring to **Table 4 – NOAA – Average Monthly Precipitation Data**, and **Table 12 – Monthly Irrigation Demand** within the Nutrient Balance Analysis, based on the available historical data, NOAA data from the Māhāʻulepū 941.1 rain gauge shows an average rainfall in the month of September of 2.73 inches. Based upon the September 1992 total rainfall for the month at 2.7 inches from the NOAA Māhāʻulepū 941.1 rain gauge, the month appears consistent compared to the historical average, of which the multi-day precipitation data totals do not have any effect on the irrigation demand analysis, as the total rainfall each month is used in irrigation planning. Daily irrigation planning is simply not effective or realistic for farm management.

The Līhuʻe rain gauge, utilized in the CH2M Hill comments, is also not representative of the Māhāʻulepū site. It is located on the windward side of the Hāʻupu mountain range, some six miles from the project site. The CH2M Hill modeled rainfall used is 70.14 inches per year from the Līhuʻe station. The modeled rainfall rate is unrealistically high as compared to the average 44.26 inches per year from the Māhāʻulepū rain gauge 941.1. The Māhāʻulepū gauge, in turn, is located on the project site and provides site specific data. *Statistics of this available record closely match the Online Rainfall Atlas of Hawaii (2013) by Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.L. Chen, P.S. Chu, J.K. Eischeid, and D.M. Delparte. Based on this, the available rainfall records of Station 941.1 were taken to be a reasonable representation of this site's actual rainfall (Nance).*

Historic Preservation

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Traditional and historic use of the Māhāʻulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

Historic sites identified by the archaeological consultant within the HDF site are associated with Plantation-era sugarcane cultivation and will not be adversely affected by the proposed project. Two sites identified outside the HDF project boundary are associated with pre-European contact and/or early historic times, and while considered significant under multiple criteria occur, these sites are outside the project area. The dairy will be fully enclosed by perimeter fencing along the boundary of the leased premises. Neither site will be adversely affected by the proposed dairy project.

Based on the AIS and CIA technical reports, no significant cultural resources are located on the HDF property. Access to adjacent properties will continue to be the responsibility of the land owner, Mahaulepu Farm, LLC.

Waiopili Ditch

The EIS in Section 4.17.2 refers to polluted streams that have been tested by the Surfrider Foundation. The Kauaʻi Chapter of the Surfrider Foundation began collecting water samples in Waiopili Ditch near the bridge accessing Makauwahi Cave Reserve in April of 2014. The group reported high levels of enterococcus to the State Department of Health (DOH) and provided its data, however, DOH was unable to utilize the data as it did not meet Clean Water Branch (CWB) quality assurance/quality control requirements, and it could not be used for regulatory purposes. At the time, CWB had not conducted water quality sampling for either nearshore recreation waters at the terminus of Waiopili Ditch, or of surface waters in the Māhāʻulepū Surface Water Hydrologic Unit.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted CWB to conduct a "Sanitary Survey" of the Māhāʻulepū and adjacent watersheds. DOH conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. Following EPA standards for a Sanitary Survey, DOH has completed Part I of its report: Waiopili Ditch Sanitary Survey, Kauai, Part I. The Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors in the indicator levels found in ditches running through Māhāʻulepū Valley.

Antibiotics and Hormones

All vaccines, antibiotics, ionophores and hormone therapy will be prescribed via a veterinarian – client – patient – relationship (VCPR). The Animal Medicinal Drug Use Clarification Act (AMDUCA) provides veterinarians acting within the VCPR to provide options so that cows and calves can receive the medications and hormones they need when they need them. Animal History, disease incidence, disease risk, local prevalence, product cost, Federal Drug Administration (FDA) approval and route of administration will be part of HDF-specific veterinary protocols to ensure best animal welfare with the least amount of pharmaceuticals. All vaccination and treatment protocols will follow FDA and AMDCU guidelines.

Unlike conventional feedlot dairy operations, HDF cows will be on pasture up to 22 hours a day, which enhances overall health of the animals and further reduces risk of illness and the need for antibiotics. There will be no use of sub-therapeutic, preventative, or growth promoting use of antibiotics, ionophores or hormones (such as rBST). Antibiotics will only be used to treat individual animals with life threatening situations and only after prescribed by veterinarians following all guidelines of AMDUCA. Furthermore, HDF will follow the best animal welfare protocols, including vaccination protocols for all age classes further to prevent bacterial infection and to minimize the use of antibiotics on HDF. Antibiotics are costly, lead to wasted milk and mean a cow is unhealthy, which is not beneficial to the animals or operations. HDF will limit the use of antibiotics as much as possible. HDF will follow all regulatory guidelines when handling and discarding milk, urine and manure that may contain trace residue from treated animals. HDF estimates less than 5 percent of the herd may be treated for at most 10 days out of the year.

BMPs to be implemented, including the 35-foot setbacks from drainage ways, will additionally reduce the risk of any waste runoff that may include possible product residues. Further, within the paddocks, populations of microorganisms stimulated by additions of effluent are super-active and very effective in inactivating pharmaceuticals and additives due to the reduced half-life resulting from enhanced immobilization and degradation by the microbiological community.

Agricultural Use Consistent with County and State Plans

The planned improvements and operations at Hawai'i Dairy Farms are compatible with and supportive of State of Hawai'i and County of Kaua'i land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawai'i Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kaua'i. The dairy is also consistent with the provisions of the State of Hawai'i Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhā'ulepū lands under the County of Kaua'i General Plan and the South Kaua'i Community Development Plan.

The development and long-term operation of HDF will be in full compliance with its agricultural State Land Use District designation, ALISH classifications, and County zoning. The dairy farm will embody the intent of the IAL designation per the Hawai'i State Constitution, by using these protected lands for the intended purpose of diversified agriculture, food production and agricultural self-sufficiency. HDF's development of a dairy also supports the "secondary intent" for lands in the Agriculture land designation, to provide an opportunity for Kaua'i citizens to reside in an agricultural community.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Fwd: Jay's Comment

Eileen Kechloian <backonisland@gmail.com>

Mon 7/25/2016 4:24 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>;

Cc:Charlie Tebbutt <Charlie@tebbuttlaw.com>; Sarah Matsumoto <Sarah@tebbuttlaw.com>; Eileen Kechloian <backonisland@gmail.com>;

8 attachments

HDF-Alec Wong Letter re HDF Needs Storm Water NPDES Permit.pdf; 2016.0613 GARMATZ JAMES V1.pdf; Soil Saturation Analysis Area of Impact.pdf; HDF WMP - Revisions.pdf; 2016 0614 GARMATZ JAMES V2.pdf; FOM Kechloian Comment.docx; EISPN Comment response to Jay Kechloian.pdf; Jay Kechloian DEIS Comment 7-22-16.docx;

Attn: Laura McIntyre (808)586-4337 July 25, 2016

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The following is offered in the hope that DOH will take Hawaii Dairy Farms to task for its deliberate and repeated flagrant misrepresentations and downright falsehoods (lying to State agencies and the public). Their conduct with the public and myself, as a long time resident of Kauai is truly deplorable. There are so many dishonest misrepresentations that it is virtually impossible to capture them all in one document. The underpinning of this comment however, is, that this agency and the State of Hawaii should have nothing further to do with Hawaii Dairy Farms. There should be no permits granted and they should be asked to take their Plan out of Hawaii as they do not deserve to do business in this State.

As the following details, Hawaii Dairy Farms and their agents have not only misrepresented critical, factual and scientific claims in their Draft Environmental Impact Statement but they have also deliberately falsified the factual information stated on their General Stormwater Permit Application filed and pending with the Department of Health. The applicant may be under the misguided impression that if they lie on a Permit Application filed with the Clean Water Branch and/or Waste Water Branch that their statements are immaterial to those contained in the Draft EIS. Nothing should be further from the truth.

The State Department of Health has an affirmative duty to protect and safeguard the natural resources of the State, Hawaii State Constitution, article XI, section 7. DOH should also care about the risks to the publics health. It was only last year that DOH traveled the State explaining the new state law that promotes the conversion of all cesspools to septic or sewer hookup to avoid groundwater pollution and contamination of the ocean. Clearly, the intent of the Legislature and our Govenor is to eliminate the risk of raw or untreated waste contamination of our ground waters and ocean. Why would DOH or any government official permit an animal feed operation that proposes to apply 2-3 million pounds of liquid manure each and every month, untreated, on the valley floor of Maha`ulepu less than one mile upslope from the ocean?

Please protect us from this untreated waste. Do not allow to happen here what happened to Flint, MI. Our publics heath is also at risk. The nitrates and untreated bacteria and pathogens from the large animal waste deposits anticipated can not help but harm human health and the environment:

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DOH must protect us and deny/reject HDF's DEIS, particularly in light of potential devastating consequences if HDF's dairy operation is approved despite HDF's flagrant and repeated falsehoods to State officials and the public.

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The attached transcripts of the testimony of James Garmatz, proposed Farm Manager, reveal multiple instances in which Mr. Garmatz confirms that work for which HDF is specifically seeking a permit, work that is itemized on their Permit Application, has already been completed or partially completed. Despite that fact, Mr. Garmatz admits he signed the Permit Application Oath paragraph which asks the Applicant to affirm that the Permit sought is not for "after work" initiated or completed items. Mr. Garmatz testified that, many of the *exact* construction activities for which HDF must and is seeking NPDES coverage for, have already taken place. Testimony describing the timing and extent of HDF's construction activities listed on their Permit Application can be found on pp. 43-45, 53, 56-57, 75-77, 84-90, 92-93, 96, 104-06, 110-11, 118-19, 123-24, 128, 140-41, 149-51, 157, and 165. For example, on pages 56-57, Mr.Garmatz describes the irrigation piping that was installed:

1. Okay. When was the pipeline installed?
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THE WITNESS: Late March of 2014.

BY MR. TEBBUTT:

1. Q. Okay. And who installed it?
2. A. Effluent Irrigation Company.
3. Q. Effluent?
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6. A. (Moves head up and down.)
7. Q. Okay. And was it all installed in March of 2014?

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On review of Garmatz's testimony, transcript pages 56:5-57:13, Jim Garmatz admits that in his August 17 NPDES submission to the Department of Health, he represented that "land disturbance associated with this project as listed in the NOI has not commenced, including, but not limited to, preliminary site construction such as **installation of fencing and irrigation systems**." (emphasis added). In fact, when under oath at his deposition and having been advised of the penalty for perjury, Mr. Garmatz admitted that HDF's Permit Application, prepared in conjunction with Paul Matsuda of Group70, was not correct:

1. Q. Under the query 2, it says, Land disturbance associated with this project as listed in the NOI has not at [sic] commenced?
2. A. Uh-huh.
3. Q. Including, but not limited to, preliminary site construction such as installation of fencing and irrigation systems. Irrigation systems had already been -- some of the irrigation systems had already been put in place prior to that letter, correct?

1. A. That's correct.
2. Q. So this letter is incorrect, again, isn't it?
3. A. Yes.

This is just one example of the multiple misrepresentations that have been made to the Department of Health in connection with HDF's NPDES permit applications. Other construction activities that HDF has performed and also lists in its scope of work in the NOI include: (1) clearing and grubbing of dairy facility site (Garmatz Testimony pages 75:12-17); (2) grading for and installation of waste settling and storage ponds (Garmatz Testimony pages105:23-106:6, 108:12-109:4); (3) trenching for and installation of new potable water distribution systems for livestock consumption through watering facilities and concrete troughs (Garmatz Testimony pages 84:8-89:8); and (4) grading and maintenance for existing agricultural ditches on site (as needed) (Garmatz Testimony pages165:19- 23). The transcripts also establish that, contrary to HDF's assertions, construction on the site has continued. Mr. Garmatz testified that site work involving the use of a backhoe has been performed multiple times: Garmatz Testimony pages 118:3-119:6; 123:6-17; 123:23-124:6; and 128:9-19. HDF also admits, in its Motion for Summary Judgment before the District Court, that groundwater wells were constructed between February and June 2015 and all were done without any NPDES Permit. HDF's flagrant disregard for the environment and pollution of the waters of the U.S. must be stopped.

The acreage disturbed and the dirt excavated without the required Permits were never contained and have been free to discharge through the extensive ditch network on the site, all of which HDF admits ultimately drains into the Waiopili Ditch which becomes the Waiopili Stream, below the site, before emptying into the ocean at Maha'ulepu Beach:

"At the time we visited, the branch off Kāmaulele had seeps in the bed starting a short distance up from the convergence. Below the convergence, slow moving water is present in a man-made channel running through the project site. The ditch extends southward off the property, passing under lower Māhā'ulepū Road. A second ditch parallels to the west the one described above. This second ditch originates in the vicinity of a pond in an area of water wells in the upper west side of the valley. We did not establish the source of the water in this ditch, but the ditch contains water and extends south, passing beside an agricultural operation that includes *kalo lo'i* (taro fields), from which it receives additional flow. This ditch then joins a larger ditch known as Mill Ditch (USGS, 1996) carrying water flowing from west to east across the valley within the project area. Mill Ditch turns southward near the center of the valley, passes under Māhā'ulepū Road, and some 460 meters south, joins the first ditch coming down the valley. The two become Waiopili Ditch, with an outlet at Māhā'ulepū Beach." DEIS Volume 2, Biological Surveys, page 18-19.

"Spread across the pastures on the valley floor are numerous straight agricultural ditches that serve the purpose of draining runoff from various pasture areas. These were nearly all dry during our survey, and the network was not fully explored, nor was it determined how these presently all interconnect. Presumably these drain eventually into one of the three water-filled features on the property as described above." DEIS Volume 2, Biological Surveys, page 19.

Also stated in the DEIS: "Surface waters draining the project site meet Waiopili Ditch, and will eventually reach the ocean." Volume 2, Surface Water and Marine Assessment, page 2.

There is no speculation that manure on the ground will liquify further with rain events and irrigation. The foregoing text clearly establishes the known risk of contamination and devastating harm to the reefs, marine life and endangered species that populate the critical habitat immediately below the farm on its 3/4 mile course to the ocean. It is patently absurd that any alledgedly well-meaning company would propose an animal feed operation with a plan for total land application of all waste produced upslope from the ocean after they have already acknowleged the information set forth above.

Does HDF or its DEIS admit there is a known high risk for the operation they've proposed at Maha'ulepu? No. Despite interspersing their DEIS with risk admissions stated in minimalist terms, they claim their Plan will be safe for the environment. Other patently false claims in the DEIS are:

1. On the hurricane risk, HDF had the audacity to put before our community and the State the following, "However, natural variability in ocean circulation and atmosphere has allowed potentially destructive storms to reach Hawai'i from the east. Hurricanes Dot (1959), Iwa (1982), and Iniki (1992) all approached from the south and passed near Kaua'i." HDF, DEIS Volume 1, pg 4-22

- Those hurricanes each struck Kauai and a simple review of weather records establish that Iniki with its eye passed directly over Kauai. Iniki is described as the strongest hurricane on record to have hit the State of Hawaii.

- Iniki made its landfall on Kauai. Hundreds of millions of dollars of damage were done by the time the hurricane passed. HDF's proposal is nothing short of a "Fukushima" waiting to happen. The proposed industrial dairy should not be at sea level any more than a nuclear reactor. Both have long term, devastating contamination consequences.

2. New Zealand Model: From November 2013 until June 1, 2016, HDF claimed their plan relied on a "New Zealand Model". "After significant research and inquiry, New Zealand's grass-fed model was found to be the cleanest, most cost effective method for sustainable dairy production in Hawai'i." HDF Volume 1 DEIS pg 2-8 Not only could we not find a New Zealand Model that proposed a dairy plan with as dense a

rotational grazing as that proposed by HDF but the government records and reports from the Independent Parliamentary Commissioner for the Environment documented an island wide water degradation and pollution problem from New Zealand animal agriculture. HDF delivered a "WMP Update" to the wastewater branch Chief 6/1/2016. See attached. That document announced that HDF was abandoning its reliance on the New Zealand Model.

- The DEIS never told the public or the Offices of Environmental Quality Control that HDF had decided to cease reliance on the New Zealand model. Rather, as shown above, the DEIS specifically references the New Zealand model and then repeats the following statement, word for word, on 7 different pages of the DEIS: "**The farm will be based on the most successful island dairy models in the world, and will utilize a sustainable, pasture-based rotational-grazing system and 21st century technology**." HDF DEIS Vol 2. Page 3 (pdf pg 9 of 732); page 1 (pdf pg 121 of 732); page 1 (pdf pg 277 of 732); page 8 (pdf pg 318 of 732); page 11 (pdf pg 493 of 732); page 1 (pdf pg 693 of 732); and page 17 (pdf pg 709 of 732) Hawaii Dairy Farms has not filed an EIS based on science. This is pure and simply a propaganda paper, where glitch phrases designed to persuade the reader are repeated throughout, insulting the intelligence of both agents for the State and the public. One can only wonder if there is any model anywhere that supports what HDF is proposing to do or is HDF's Plan an experiment on Kauai?

3. In the DEIS, HDF purports to consider an alternative site. The location they reference was sold before HDF's decision to conduct an EIS. HDF's claim that the Puhi site was their first choice of locations is suspect. In November of 2013 HDF had already prepared and submitted a 100 page Plan to the West Kauai Soil and Water Conservation District. HDF claim and logic would suggest that their Plan took some time to develop. It was developed for the Maha`ulepu site at a time when the Puhi parcel was not yet sold. No one has ever seen a Plan for the alleged alternative Puhi site. Despite this fact, however, HDF's "alternative" site was no longer an alternative, having been sold, when they announced, in November 2014 that an EIS was to be done. A subset of this point, worth mentioning, is that the original announcement by HDF (Kyle Datta) was that HDF had voluntarily decided to do an EIS. In the months that followed the voluntary decision to conduct an EIS morphed into a "Voluntary" EIS as if that meant they were doing something other than an EIS. Perhaps this explains why so much of their DEIS sounds like an ad campaign or hype rather than a scientifically based Environmental Impact Statement.
4. Distance: The following is a prime example of the point just made, hype vs fact:
"The project is a balanced development proposal that is compatible to existing uses and relationships in the Māhā'ulepū agricultural region, and measures to protect water resources and water quality are presented in EIS Sections 4.16, 4.17, 4.23 and 4.24. While the project supports the County's initiatives for shoreline and marine environment protection and conservation, the project is located over one mile inland of the coastline, and does not have any shoreline or marine features."
HDF Volume 1 DEIS pg 5-10 (pdf pg 214)

- Reading further in the DEIS, it becomes evident that the point of measurement used by HDF is their milking parlor facility. The measuring of distance is deceptive as it is done from the milking parlor not the boundary of the site. The milking parlor might be over a mile but the pastures and cows aren't over one mile from the ocean. There are ditches and streams right on the site that will carry waste directly to the ocean despite any distance stated and the contamination of surface water, ground water, aquifers and the ocean with fecal pollutants is the issue.
5. Rain Days

"With the dairy in operation, during periodic seasonal storm water runoff events (about 10 times/yr) there may be additional nutrients introduced to the agricultural ditches, which ultimately drain to the nearshore ocean water. The findings of the water quality evaluations are presented in Sections 4.16, 4.17 4.22 and 4.23. The complete studies are presented in Appendix E and Appendix F." HDF Volume 1 DEIS pg 1-14 (pdf pg 32)

- Contrary to their claim, the soil saturation report documents that 52.9% of the soils on the proposed dairy site (primarily clay) are saturated after 0.2 inches of rainfall. Using that number, there is an average of 33 rain events per year that create runoff from 52.9% of the farm. An additional 30% of the soils (also clay), are saturated after 0 .6 inches of rainfall. Those are the areas that will result in 10 rain runoff events per year based on the rainfall data from Maha`ulepu recorded with the state over the last 25 years. (6/1/1991-6/1/2016) In the DEIS HDF, however, relied on data from 1901 to 1982 conveniently excluding Iwa, Iniki and the 40 day rain event of 2006.
6. In their DEIS HDF suggests that a slope of 2 to 15 percent is sufficiently gentle to allow comfortable movement of the cows to and from the milking parlor:

"Terrain within the dairy typically slopes from 2 to 15 percent, which is the gentle slope required for the comfort of dairy cows when grazing and navigating between paddocks and the milking parlor." HDF Volume 1 DEIS pg 4-6

-Once again, HDF stretches the truth. Per their own topographical chart in volume 2 where most of the technical information is hidden, there are at least 35.7 acres with slopes in excess of 15%, many of which have slopes between 40% and 70%. HDF DEIS Volume 2, pg 13 (pdf pg 705)
7. Grass Mat: Another obvious untruth is HDF's contention that the manure and its nutrients will be absorbed by the thatched based kikuyu grass within a day after the cow excretes the manure. Anyone who has ever gardened knows that fresh uncured manure is more likely to burn than feed the plant on which it falls. Uptake and use of manure before bacterial breakdown will not happen in one day as the following falsehood contends:
"...thatch, nutrients are incorporated into what is effectively an organic net. Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours. Microbes such as bacteria, protists, and fungi will break down the manure and effluent through decomposition into its nutrient components to make these readily available for uptake into the grass crop and plant matter. Even with the applied manure and effluent nutrients," HDF Volume 1 DEIS pg 1-10 (pdf pg 28)

- A breakdown of manure in 24 hours...fantastic break through… If this were true, why does HDF need dung beetles?
8. More confabulation: "8.3.2 Data Acquisition Through the utilization of on-site grass data gathered by HDF, and the Cornell Net Carbohydrate Protein System (CNCPS) model, an estimate of the grass productivity, farm carrying capacity, milk production and manure excretion has been calculated, respectively." HDF DEIS Volume 2 Technical Appendices pg 56 (pdf pg 176)

- 4 things are named so what was determined by what and where are their calculations?
9. Troughs "The raised, concrete troughs will be placed on a stable crushed rock base at a height that allows cows to reach over and into the water, but..."" Much of the existing drainage infrastructure installed and used for sugarcane irrigation, will be restored where possible and reused or improved."HDF Volume 1 DEIS pg 3-14

- That statement of future work is a bold face lie, because the troughs and irrigation for them are already there. HDF also lied about the troughs and work that was already done in their Storm water application. See Garmatz testimony attached.
10. Phosphorus "HDF will release an estimated 10,000 pounds of nitrogen and 900 pounds of phosphorus annually. Contributions of nutrients from episodic rainfall (10 days/yr) will not adversely affect ocean water quality and the marine environment." Volume 1 DEIS pg 6-23 (pdf pg 275)

- Once again this statement is inconsistent with the rest of the DEIS. On page 70 of volume 2 (pdf pg 192 of 732) HDF reports an excess of 3,695 pounds of phosphorus that will not be taken up by the grass crop and thus will runoff. Page 4 of volume 2 (pdf page 92 of 732) reads, "It is estimated there will be 7 to 8 days a year in which rainfall derived runoff will occur (TNWRE 2016) Tom Nance, HDF's hydrologic specialist, not only has the rainfall events wrong as noted above in #3, but he reports conflicting numbers of rain events. Is it 7 to 8 or 10 days? How can you tell how much phosphorus will run off if you don't even how many days you will likely have excessive rain events?
11. Flooding Page 7 of your response to me states: "… and no flooding events in the period following passages of the storms." In the letters sent to you by Mr. William Schimmelfennig, who identifies himself as a retired fireman who responded to an emergency call after flooding on the property, states: "I've hunted in that valley back in the day and have seen that whole lower section under a foot plus of water. in the 80's, when I worked in the fire dept. we saw a huge waterfall coming off of Mount Haupu. That was on the Koloa end of that valley. Where do you think that water went but in the area where the dairy wants to be." HDF DEIS Volume 4.

- Volume 1 page 70 states," Nonetheless, the storage pond design incorporates an emergency spillway to direct overflow to a secondary containment area in case of a cataclysmic event. This containment is beyond the regulatory requirement, and would only be utilized during an unprecedented rain or flood event." There is no description as to how the secondary containment is made. What is to stop it from giving way under the weight of flood water? How is the water laden with manure solids, urine and contaminants removed from the secondary containment after a rain event? Is it to drain into the ground water and thusly our unconfined aquifer (per County of Kauai SWAP report)? The volume that is stated in the DEIS that this secondary containment is to hold, does this include the water from the rain event that will fall directly into it? Or is the true amount of breach containment less because of the direct rain?

- Page 365 of volume 2 states, "Sluice gates emptying into the valley were found, but there were no associated ditches, suggesting the gates may have been placed there to deal with overflow or flooding, and not necessarily for the irrigation of a specific field."** In September 1996, there were six days of continuous rainfall, followed by a week of intermittent rainfall, bookended with another seven days of continuous rainfall. In 2006 there were 30 days of continuous rainfall with more than an inch of rain per day followed by an additional 10 days of intermittent rainfall. These events did create flooding in the valley as flash floods came down off Ha'upu Ridge. If the dairy were approved and constructed, such a significant rainfall would not only liquefy and discharge 90% of the dairy's waste which remains on the pastures where it falls but it would also likely cause the lagoons, housing the remaining 10%, to fail and almost certainly to overflow, releasing substantial amounts of manure that will eventually flow and runoff into surface waters. I witnessed a rain event that lasted 45 days. Cars were floating all over the island. A major dam breached and failed killing eight people below it. (Plueger incident) This tragedy could happen again. HDF should not be in this location. This valley was once a swamp per 1897 map. It has a shallow water table and the soils are quickly saturated which will cause and has caused significant flooding. HDF should not be in this location. These notations suggest strongly that flooding occurs and a real plan needs to be put in place. At the very least the consequences and impacts of a flood caused by a rain event should be studied and included with detailed a remediation plan. HDF should not be allowed to open a dairy in this location.

In addition to the foregoing, I strongly disagree with the Department of Health's statement that there is no evidence of recreational use of Maha'ulepu Beach where the waters of the Waiopili flow into the ocean. I walk that beach at least 4 times a week and have done so for the last 10 years. Over that interval I have seen hundreds of people enjoying the beach as they walk through and wade in the waters of the Waiopili.

The concerns I expressed in my Comment to the EISPN were inadequately addressed. The many protected and endangered species were not addressed and/or there was nothing more than a superficial unsupported statement that their operation would be of minimal or no impact. Their contention on the environment of Maha`ulepu is absurd. In my opinion, HDF was particularly despicable in their decision to print my letter and their response sideways in 7 pt. font, making it impossible to read.

As amply documented in the foregoing, Hawaii Dairy Farms has demonstrated as little regard for the environment as they have for the public. HDF's DEIS must be rejected, if for no other reason, because of its total disregard and failure to evaluate the sea life and thriving coral reefs at Maha`ulepu. There was no effort to document or study the impact on this very important resource.

John Jay Kechloian

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July 22, 2016

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The following is offered in the hope that DOH will take Hawaii Dairy Farms to task for its deliberate and repeated flagrant misrepresentations and downright falsehoods (lying to State agencies and the public). Their conduct with the public and myself, as a long time resident of Kauai is truly deplorable. There are so many dishonest misrepresentations that it is virtually impossible to capture them all in one document. The underpinning of this comment however, is, that this agency and the State of Hawaii should have nothing further to do with Hawaii Dairy Farms. There should be no permits granted and they should be asked to take their Plan out of Hawaii as they do not deserve to do business in this State.

As the following details, Hawaii Dairy Farms and their agents have not only misrepresented critical, factual and scientific claims in their Draft Environmental Impact Statement but they have also deliberately falsified the factual information stated on their General Stormwater Permit Application filed and pending with the Department of Health. The applicant may be under the misguided impression that if they lie on a Permit Application filed with the Clean Water Branch and/or Waste Water Branch that their statements are immaterial to those contained in the Draft EIS. Nothing should be further from the truth.

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Q. So this letter is incorrect, again, isn't it?
A. Yes.

This is just one example of the multiple misrepresentations that have been made to the Department of Health in connection with HDF's NPDES permit applications. Other construction activities that HDF has performed and also lists in its scope of work in the NOI include: (1) clearing and grubbing of dairy facility site (Garmatz Testimony pages 75:12-17); (2) grading for and installation of waste settling and storage ponds (Garmatz Testimony pages105:23-106:6, 108:12-109:4); (3) trenching for and installation of new potable water distribution systems for livestock consumption through watering facilities and concrete troughs (Garmatz Testimony pages 84:8-89:8); and (4) grading and maintenance for existing agricultural ditches on site (as needed) (Garmatz Testimony pages165:19-23). The transcripts also establish that, contrary to HDF's assertions, construction on the site has continued. Mr. Garmatz testified that site work involving the use of a backhoe has been performed multiple times: Garmatz Testimony pages 118:3-119:6; 123:6-17; 123:23-124:6; and 128:9-19. HDF also admits, in its Motion for Summary Judgment before the District Court, that groundwater wells were constructed between February and June 2015 and all were done without any NPDES Permit. HDF's flagrant disregard for the environment and pollution of the waters of the U.S. must be stopped.

The acreage disturbed and the dirt excavated without the required Permits were never contained and have been free to discharge through the extensive ditch network on the site, all of which HDF admits ultimately drains into the Waiopili Ditch which becomes the Waiopili Stream, below the site, before emptying into the ocean at Maha'ulepu Beach:

> "At the time we visited, the branch off Kāmaulele had seeps in the bed starting a short distance up from the convergence. Below the convergence, slow moving water is present in a man-made channel running through the project site. The ditch extends southward off the property, passing under lower Māhā'ulepū Road. A second ditch parallels to the west the one described above. This second ditch originates in the vicinity of a pond in an area of water wells in the upper west side of the valley. We did not establish the source of the water in this ditch, but the ditch contains water and extends south, passing beside an agricultural operation that includes *kalo lo'i* (taro fields), from which it receives additional flow. This ditch then joins a larger ditch known as Mill Ditch (USGS, 1996) carrying water flowing from west to east across the valley within the project area. Mill Ditch turns southward near the center of the valley, passes under Māhā'ulepū Road, and some 460 meters south, joins the first ditch coming down the valley. The two become Waiopili Ditch, with an outlet at Māhā'ulepū Beach." DEIS Volume 2, Biological Surveys, page 18-19.

> "Spread across the pastures on the valley floor are numerous straight agricultural ditches that serve the purpose of draining runoff from various pasture areas. These were nearly all dry during our survey, and the network was not fully explored, nor was it determined how these presently all interconnect. Presumably these drain eventually into one of the three water-filled features on the property as described above." DEIS Volume 2, Biological Surveys, page 19.

Also stated in the DEIS: "Surface waters draining the project site meet Waiopili Ditch, and will eventually reach the ocean." Volume 2, Surface Water and Marine Assessment, page 2.

There is no speculation that manure on the ground will liquify further with rain events and irrigation. The foregoing text clearly establishes the known risk of contamination and devastating harm to the reefs, marine life and endangered species that populate the critical habitat immediately below the farm on its 3/4 mile course to the ocean. It is patently obsurd that any alledgedly well-meaning company would propose an animal feed operation with a plan for total land application of all waste

produced upslope from the ocean after they have already acknowleged the information set forth above.

Does HDF or its DEIS admit there is a known high risk for the operation they've proposed at Maha'ulepu? No. Despite interspercing their DEIS with risk admissions stated in minimalist terms, they claim their Plan will be safe for the environment. Other patently false claims in the DEIS are:

1. On the hurricane risk, HDF had the audacity to put before our community and the State the following, "However, natural variability in ocean circulation and atmosphere has allowed potentially destructive storms to reach Hawai'i from the east. Hurricanes Dot (1959), Iwa (1982), and Iniki (1992) all approached from the south and passed near Kaua'i." HDF, DEIS Volume 1, pg 4-22

   - Those hurricanes each struck Kauai and a simple review of weather records establish that Iniki with its eye passed directly over Kauai. Iniki is described as the strongest hurricane on record to have hit the State of Hawaii.
   - Iniki made its landfall on Kauai. Hundreds of millions of dollars of damage were done by the time the hurricane passed. HDF's proposal is nothing short of a "Fukushima" waiting to happen. The proposed industrial dairy should not be at sea level any more than a nuclear reactor. Both have long term, devastating contamination consequences.

2. New Zealand Model: From November 2013 until June 1, 2016, HDF claimed their plan relied on a "New Zealand Model". "After significant research and inquiry, New Zealand's grass-fed model was found to be the cleanest, most cost effective method for sustainable dairy production in Hawai'i." HDF Volume 1 DEIS pg 2-8 Not only could we not find a New Zealand Model that proposed a dairy plan with as dense a rotational grazing as that proposed by HDF but the government records and reports from the Independent Parliamentary Commissioner for the Environment documented an island wide water degradation and pollution problem from New Zealand animal agriculture. HDF delivered a "WMP Update" to the wastewater branch Chief 6/1/2016. See attached. That document announced that HDF was abandoning its reliance on the New Zealand Model.

   - The DEIS never told the public or the Offices of Environmental Quality Control that HDF had decided to cease reliance on the New Zealand model. Rather, as shown above, the DEIS specifically references the New Zealand model and then repeats the following statement, word for word, on 7 different pages of the DEIS: "**The farm will be based on the most successful island dairy models in the world, and will utilize a sustainable, pasture-based rotational-grazing system and 21st century technology**." HDF DEIS Vol 2. Page 3 (pdf pg 9 of 732); page 1 (pdf pg 121 of 732); page 1 (pdf pg 277 of 732); page 8 (pdf pg 318 of 732); page 11 (pdf pg 493 of 732); page 1 (pdf pg 693 of 732); and page 17 (pdf pg 709 of 732) Hawaii Dairy Farms has not filed an EIS based on science. This is pure and simply a propaganda paper, where glitch phrases designed to persuade the reader are repeated throughout, insulting the intelligence of both agents for the State and the public. One can only wonder if there is any model anywhere that supports what HDF is proposing to do or is HDFs Plan an experiment on Kauai?

3. Alternatives. In the DEIS, HDF purports to consider an alternative site. The location they reference was sold before HDFs decision to conduct an EIS. HDFs claim that the Puhi site was their first choice of locations is suspect. In November of 2013 HDF had already prepared and submitted a 100 page Plan to the West Kauai Soil and Water Conservation District. HDF

claimed and logic would suggest that their Plan took some time to develop. It was developed for the Maha`ulepu site at a time when the Puhi parcel was not yet sold. No one has ever seen a Plan for the alleged alternative Puhi site. Despite this fact, however, HDFs "alternative" site was no longer an alternative, having been sold, when they announced, in November 2014 that an EIS was to be done. A subset of this point, worth mentioning, is that the original announcement by HDF (Kyle Datta) was that HDF had voluntarily decided to do an EIS. In the months that followed the voluntary decision to conduct an EIS morphed into a "Voluntary" EIS as if that meant they were doing something other than an EIS. Perhaps this explains why so much of their DEIS sounds like an ad campaign or hype rather than a scientifically based Environmental Impact Statement.

4. Distance: The following is a prime example of the point just made, hype vs fact:
"The project is a balanced development proposal that is compatible to existing uses and relationships in the Māhā'ulepū agricultural region, and measures to protect water resources and water quality are presented in EIS Sections 4.16, 4.17, 4.23 and 4.24. While the project supports the County's initiatives for shoreline and marine environment protection and conservation, the project is located over one mile inland of the coastline, and does not have any shoreline or marine features."
HDF Volume 1 DEIS pg 5-10 (pdf pg 214)

- Reading further in the DEIS, it becomes evident that the point of measurement used by HDF is their milking parlor facility. The measuring of distance is deceptive as it is done from the milking parlor not the boundary of the site. The milking parlor might be over a mile but the pastures and cows aren't over one mile from the ocean. There are ditches and streams right on the site that will carry waste directly to the ocean despite any distance stated and the contamination of surface water, ground water, aquifers and the ocean with fecal pollutants is the issue.

5. Rain Days

"With the dairy in operation, during periodic seasonal storm water runoff events (about 10 times/yr) there may be additional nutrients introduced to the agricultural ditches, which ultimately drain to the nearshore ocean water. The findings of the water quality evaluations are presented in Sections 4.16, 4.17 4.22 and 4.23. The complete studies are presented in Appendix E and Appendix F." HDF Volume 1 DEIS pg 1-14 (pdf pg 32)

- Contrary to their claim, the soil saturation report documents that 52.9% of the soils on the proposed dairy site (primarily clay) are saturated after .2 inches of rainfall. Using that number, there is an average of 33 rain events per year that create runoff from 52.9% of the farm. An additional 30% of the soils (also clay), are saturated after .6 inches of rainfall. Those are the areas that will result in 10 rain runoff events per year based on the rainfall data from Maha`ulepu recorded with the state over the last 25 years. (6/1/1991-6/1/2016) In the DEIS HDF, however, relied on data from 1901 to 1982 conveniently excluding Iwa, Iniki and the 40 day rain event of 2006.

6. In their DEIS HDF suggests that a slope of 2 to 15 percent is sufficiently gentle to allow comfortable movement of the cows to and from the milking parlor:
"Terrain within the dairy typically slopes from 2 to 15 percent, which is the gentle slope required for the comfort of dairy cows when grazing and navigating between paddocks and the milking parlor." HDF Volume 1 DEIS pg 4-6

-Once again, HDF stretches the truth. Per their own topographical chart in volume 2 where most of the technical information is hidden, there are at least 35.7 acres with slopes in excess of 15%, many of which have slopes between 40% and 70%. HDF DEIS Volume 2, pg 13 (pdf pg 705)

7. Grass Mat: Another obvious untruth is the HDF contention that the manure and its nutrients will be absorbed by the thatched based kikuyu grass within a day after the cow excretes the manure. Anyone who has ever gardened knows that fresh uncured manure is more likely to burn than feed the plant on which it falls. Use of manure before bacterial breakdown will not happen in one day as the following falsehood contends:
"...thatch, nutrients are incorporated into what is effectively an organic net. Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours. Microbes such as bacteria, protists, and fungi will break down the manure and effluent through decomposition into its nutrient components to make these readily available for uptake into the grass crop and plant matter. Even with the applied manure and effluent nutrients,"
HDF Volume 1 DEIS pg 1-10 (pdf pg 28)

- A breakdown of manure in 24 hours...fantastic break through… If this were true, why does HDF need dung beetles?

8. More confabulation: "8.3.2 Data Acquisition Through the utilization of on-site grass data gathered by HDF, and the Cornell Net Carbohydrate Protein System (CNCPS) model, an estimate of the grass productivity, farm carrying capacity, milk production and manure excretion has been calculated, respectively." HDF DEIS Volume 2 Technical Appendices pg 56 (pdf pg 176)

- 4 things are named so what was determined by what and where are their calculations?

9. Troughs "The raised, concrete troughs will be placed on a stable crushed rock base at a height that allows cows to reach over and into the water, but..."" Much of the existing drainage infrastructure installed and used for sugarcane irrigation, will be restored where possible and reused or improved."HDF Volume 1 DEIS pg 3-14

- That statement of future work is a bold face lie, because the troughs and irrigation for them are already there. HDF also lied about the troughs and work that was already done in their Storm water application. See Garmatz testimony attached.

10. Phosphorus "HDF will release an estimated 10,000 pounds of nitrogen and 900 pounds of phosphorus annually. Contributions of nutrients from episodic rainfall (10 days/yr) will not adversely affect ocean water quality and the marine environment." Volume 1 DEIS pg 6-23 (pdf pg 275)

- Once again this statement is inconsistent with the rest of the DEIS. On page 70 of volume 2 (pdf pg 192 of 732) HDF reports an excess of 3,695 pounds of phosphorus that will not be taken up by the grass crop and thus will runoff. Page 4 of volume 2 (pdf page 92 of 732) reads, "It is estimated there will be 7 to 8 days a year in which rainfall derived runoff will occur (TNWRE 2016) Tom Nance, HDF's hydrologic specialist, not only has the rainfall events wrong as noted above in #3, but he reports conflicting numbers of rain events. Is it 7 to

8 or 10 days? How can you tell how much phosphorus will run off if you don't even how many days you will likely have excessive rain events?

11. Flooding Page 7 of your response to me states: "… and no flooding events in the period following passages of the storms." In the letters sent to you by Mr. William Schimmelfennig, who identifies himself as a retired fireman who responded to an emergency call after flooding on the property, states:
"I've hunted in that valley back in the day and have seen that whole lower section under a foot plus of water. in the 80's, when I worked in the fire dept. we saw a huge waterfall coming off of Mount Haupu. That was on the Koloa end of that valley. Where do you think that water went but in the area where the dairy wants to be." HDF DEIS Volume 4.

   - Volume 1 page 70 states," Nonetheless, the storage pond design incorporates an emergency spillway to direct overflow to a secondary containment area in case of a cataclysmic event. This containment is beyond the regulatory requirement, and would only be utilized during an unprecedented rain or flood event." There is no description as to how the secondary containment is made. What is to stop it from giving way under the weight of flood water? How is the water laden with manure solids, urine and contaminants removed from the secondary containment after a rain event? Is it to drain into the ground water and thusly our unconfined aquifer (per County of Kauai SWAP report)? The volume that is stated in the DEIS that this secondary containment is to hold, does this include the water from the rain event that will fall directly into it? Or is the true amount of breach containment less because of the direct rain?

   - Page 365 of volume 2 states, "Sluice gates emptying into the valley were found, but there were no associated ditches, suggesting the gates may have been placed there to deal with overflow or flooding, and not necessarily for the irrigation of a specific field."** In September 1996, there were six days of continuous rainfall, followed by a week of intermittent rainfall, bookended with another seven days of continuous rainfall. In 2006 there were 30 days of continuous rainfall with more than an inch of rain per day followed by an additional 10 days of intermittent rainfall. These events did create flooding in the valley as flash floods came down off Ha'upu Ridge. If the dairy were approved and constructed, such a significant rainfall would not only liquefy and discharge 90% of the dairy's waste which remains on the pastures where it falls but it would also likely cause the lagoons, housing the remaining 10%, to fail and almost certainly to overflow, releasing substantial amounts of manure that will eventually flow and runoff into surface waters. I witnessed a rain event that lasted 45 days. Cars were floating all over the island. A major dam breached and failed killing eight people below it. (Plueger incident) This tragedy could happen again. HDF should not be in this location. This valley was once a swamp. It has a shallow water table and the soils are quickly saturated which will cause and has caused significant flooding. HDF should not be in this location. These notations suggest strongly that flooding occurs and a real plan needs to be put in place. At the very least the consequences and impacts of a flood caused by a rain event should be studied and included with detailed a remediation plan. HDF should not be allowed to open a dairy in this location.

In addition to the foregoing, I strongly disagree with the Department of Health's statement that there is no evidence of recreational use of Maha`ulepu Beach where the waters of the Waiopili flow into the ocean. I walk that beach at least 4 times a week and have done so for the last 10 years. Over that interval I have seen hundreds of people enjoying the beach as they walk through and wade in the waters of the Waiopili.

The concerns I expressed in my Comment to the EISPN were inadequately addressed. The many protected and endangered species were not addressed and/or there was nothing more than a superficial unsupported statement that their operation would be of minimal or no impact. That contention in the environment of Maha`ulepu is absurd. In my opinion, HDF was particularly despicable in their decision to print my letter and their response sideways in 7pt font, making it impossible to read.

As amply documented in the foregoing, Hawaii Dairy Farms has demonstrated as little regard for the environment as they have for the public. HDF's EIS must be rejected, if for no other reason, because of its total disregard and failure to evaluate the sea life and thriving coral reefs at Maha`ulepu. There was no effort to document or study the impact on this very important resource.

John Jay Kechloian
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February 21, 2015

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Comments to be considered in preparation of an Environmental Impact statement for:
Project Name: Hawaiʻi Dairy Farms
Island: Kauaʻi
District: Poipu
TMK: (4) 2-9-003:001 (portion); 006 (portion)
(4) 2-9-001:001 (portion)

To whom it may concern,

The following is my response and comment to the Hawaii Dairy Farms EISPN, posted on January 23rd, 2015. Each of the comments below need to be included and fully addressed by the Hawaii Dairy Farm EIS due to the substantial adverse environmental impact likely to be sustained if an Industrial Dairy is allowed to operate at Maha'ulepu on Kaua'i:

As all wildlife has what is known as a 'tolerance range,' once that range is exceeded the wildlife and threatened and endangered species may leave an area or die. Those amphibians that can't leave will die. For this reason each rare or endangered species, necessary habitat, mating behaviors, sensitivity to sound, sensitivity to methane gas, hydrogen sulfide, acid rain, and sensitivity light & glare, needs to be addressed in the EIS on an individual, per species, basis. The cumulative effect of all of these sensitivities on their survival as well as their potential inability to increase their numbers needs to be addressed. The necessary environment required to enhance the livability of our Federally threatened endangered species must be addressed in the EIS.

Specific Endangered birds

The native and endemic endangered birds known in the Maha'ulepu area are the Hawaiian Coot ('alae ki'oke'o), Common Moorhen ('alae'ula), Hawaiian Duck (Koloa), Hawaiian stilt (ae'o) and Hawaiian goose (nene). The impacts to each of these endangered birds need to be addressed separately in the EIS as each has its own nesting habits, food sources and environmental requirements .

Wetlands and Endangered birds

The Intermittent streams and wetlands at Maha'ulepu and Kipu Kai provide habitat for these endangered birds. The placement of a cow burial site near the edge of the HDF's property just adjacent to, and upland from, a known wetland needs to be addressed especially in light of the hydrologic interconnection of the valley, according to the Maha'ulepu, Island of Kaua'i Reconnaissance Survey (completed by the National Park Service, U.S. Dept. of the interior in 2008) on page 29. The 600+ dead cows that HDF needs to dispose of per year is an environmental threat to the wetlands and the endangered birds that live or frequent there. (Dead cow tally on record at the county council meeting in May 2014.) This significant adverse impact needs to be addressed in the EIS. The specifics of the method used and the value judgments made need to be disclosed by HDF to enable proper review of significant adverse impacts that may occur. Any manure or urine left on the paddocks that are upland of wetlands needs to be addressed in the EIS because of the possibility of runoff contaminating the wetlands with total nitrogen, ammonium nitrogen, nitrate and nitrite phosphorous, Enterococcus and hormones.

Waterbirds

Along the Māhāʻulepū watershed coastline, other small wetland ecosystems fed by rain and groundwater lie just inland of the dunes. These, too, attract native waterfowl; biologists believe they once supported larger populations, and have excellent restoration potential. Resource specialists told NPS that Māhāʻulepū and Kīpū Kai, in combination with Hulēʻia, provide a much-needed mosaic of varied wetland habitats that should to be reliably available for endangered Hawaiian waterbirds. (MIKRS) All wetlands small and large need to be individually identified in the EIS. Protection of these wetlands or potential wetlands needs to be addressed in the EIS. The specifics of the method used and the value judgments made need to be disclosed by HDF to enable proper review of significant adverse impacts that may occur.

Taro Patch and rain event

"According to a state source, nēnē, koloa and other waterfowl frequent the taro lease land in Māhāʻulepū valley, and a broad natural depression in the valley that fills with water after heavy rain draws many waterbirds. Sixty Koloa individuals were counted during one such event (Kaiakapu 2007)." (Page 19 MIKRS) The exact area of the "broad natural depression" needs to be determined and protected for the wild birds. The area of the depression needs to be established with the necessary fauna and flora to provide the bird's habitat. If the depression area has been disturbed by the grubbing and grading that occurred in 2014 by HDF, it needs to be restored. The specifics of the restoration need to be spelled out in the EIS. If the depression area is still viable then the area needs to be protected for the wild birds and named in the EIS. Any potential significant adverse impacts from dairy operation such as grazing, irrigation, herd movement, etc., must be addressed in the EIS. Additionally protection measures taken must be elucidated in the EIS.

Newell's Shearwater

Newell's Shearwater, a threatened native bird species, and nests on Ha'upu ridge, just above the dairy site (USFWS Recovery Plan for Newell's Shearwater). The fledglings leave their nests on Ha'upu ridge and fly towards the ocean directly over HDF's facilities. "Kauai is home to 90% of the total population of Shearwaters" (The bird that Darkened Kauai" by Coco Zickos).

"Transitioning to bird-friendly lighting at all county facilities has been one of our priorities, so we've budgeted for the retrofits for several years," Mayor Bernard Carvalho Jr. wrote in an email. "The new lights, Rapozo said, will be available seven days a week from 6 to 10 p.m. during 'non-fledgling season' — dates outside of the Shearwaters' fledgling season, which runs from Sept. 15 to Dec. 15. The systems at each facility include a push button to turn the lights on for an hour at a time and an alert system at the end of each hour that will warn users that the button needs to be pushed again for additional use. If the button is not pressed, the lights will turn off, which could save the county money on its electricity bill" (The Garden Island January 29th, 2015).

"The upgrades were one of the steps taken by the county to comply with a 2010 Justice Department plea agreement in which the county and Kauai Island Utility Cooperative admitted to violating the Migratory Bird Treaty Act. The charges, at the time, blamed the deaths of Newell's shearwaters on the lighting policies at county facilities. Officials said seabird fledglings can become confused by stray light during their first nocturnal flight from their nesting burrow to the sea. Some of these birds end up falling inland, where they can become prey for predators" (The Garden Island January 29th, 2015).

The Waste Management Plan for HDF submitted to the DOH states, "Rotary Milking System of 60 clusters that provides for a throughput of 360 cows every hour and allows for a maximum milking time of 6 hours approximately per milking and 12 hours per day." To accomplish milking the herd it will take approximately 12 hours. Additional time will be needed for cleaning out the facility and directing the waste to the effluent ponds, maintenance of equipment, to convey feed from 2 large silos to disc mill, and to take processed feed from mill to 904 feed system silo then to convey the feed to the feed shed. Additional time will be needed for delivery of grains to facility and maintenance of the feed system. These and many other processes will take beyond 12 hours per day. In fact, HDF at their public meeting in Lihue at KCC, on March 27th, 2014, stated that the milking would begin at 4am and go until 10am then start again at 4 pm, going until 10 pm. The issue here becomes many of these processes needing to be done at night and the lighting that would be needed. This will interfere with the migration of the shearwater fledglings to the ocean. The Migratory Bird Act comes into play here. The county stopped all games at the stadiums at night to comply. How will HDF comply when in fact there isn't enough daylight to run their operations? This needs to be addressed in the EIS. The specifics of the method used and the value judgments made need to be disclosed by HDF to enable proper review of significant adverse impacts that may occur.

Migratory Birds

"Four migratory bird species that winter in Hawai'i and return to the Arctic to breed were noted in the study area." The Pacific Golden Plover, Ruddy Turnstone, Wandering Tattler and the Sanderling (MIKRS). There are additional migratory shorebirds that frequent the coastline occasionally, and other seabird species likely transit the coast. A State study notes that seabirds use the coastal sea cliffs and foothills for nesting and loafing (OSP 1992). The environmental requirements of these migratory birds need to be addressed in the EIS as well as the impact of the dairy's runoff, grey water, and predatory animals attracted by the dairy operation and the waste produced. The presence of rats and egrets, known to consume bird eggs, need to be addressed. Rats are currently having a substantial impact on the bird population in Koke'e. The State is also presently addressing a major rat infestation in Lehua, the Island adjacent to Ni'ihau. Steps to protect these birds from all adverse externalities need to be addressed in the EIS.
The cattle egret may consume the young of endemic waterbirds (USFWS 2005) and compete with native waterbirds for food (Hawaii Audubon Society 2005). The number of egrets attracted by 2,000 cows needs to be addressed in the EIS. Protection of food sources for waterbirds needs to be addressed in the EIS.

Native Species

Five native species are known to frequent the area: the Black Crowned Night Heron, White Tailed Tropicbird, Great Frigate bird, Wedge Tailed Shearwater, and Red Tailed Tropicbird. The Black Crowned Night Heron finds breeding habitat at Hulēʻia NWR and was spotted during the survey. Biologists describe Frigate bird sightings at Māhāʻulepū and on Mt. Hāʻupu. (MIKRS) These birds, their special needs and what methods will ensure their survival need to elucidated in the EIS.

Terrestrial Invertebrates

Two notable and extremely rare terrestrial invertebrates live in the Maha'ulepu area: the Kauaʻi Cave Wolf Spider (*Adelocosa anops*) and the Kauaʻi Cave Amphipod (*Spelaeorchestia Hanamāʻuluna*). In 2000, both the spider and the amphipod were Federally Listed by USFWS as endangered species. All known populations occur in the Kōloa basin on Kauaʻi, within a 4-square-mile area (CBD 2007). Both species have been reduced to a few small populations; exact numbers remain unknown. Researchers say the spider is seen regularly in only one cave with a population of 16 to 28 individuals (USFWS 2005). The cave-laced corridor along the Māhāʻulepū coast of the study area, from Makawehi Point to Kawelikoa Point, is designated by USFWS as Critical Habitat for both of these endangered species. How is HDF going to protect their Critical Habitat from a deluge of manure laced water coming down the Waipili Stream and flooding the cave and vicinity during a rain event, tropical storm, or Hurricane? The cave floods from the rising waters of the Waiopili approximately every four years. This issue needs to be thoroughly addressed especially in light of the fact that Maha'ulepu Valley is hydrologically connected to the cave. (MIKRS)

The Marine Vertebrates

The beaches and near shore waters are home to three important large marine vertebrates: the endangered Hawaiian Monk Seal, known in Hawaiian as ʻīlio holo ika uaua (*Monachus schauinslandi*), the endangered Humpback Whale or kohala (*Megapteranovaeangliae*), and the threatened Green Sea Turtle or honu (*Chelonia mydas).*

Successful Monk Seal puppings occurred at Maha'ulepu in 2000 and 2007 (MIKRS). Monk seal occurrences within the study area take on increasing significance as the overall population continues declining at about 4 percent each year. The updated Recovery Plan for the Hawaiian Monk Seal, released in August 2007, states that the species "is headed to extinction if urgent action is not taken." Its recovery strategy calls for actions to ensure continued growth of the Seal population in the main Hawaiian Islands (NOAA 2007b). Fast forward to February 2015, The Garden Island Newspaper states, "The Marine Conservation Institute is calling for the National Oceanic and Atmospheric Administration to 'redouble its efforts' to conserve and recover the endangered Hawaiian Monk Seal. 'Although NOAA's field staff has made progress on some fronts to protect and save the lives of individual seals, we think NOAA can — and must — do more to slow down and eventually reverse the decline,' MCI's Conservation Advisor William Chandler said during a teleconference Thursday. Despite continued efforts, the population of between 900 and 1,100 seals is declining at an annual rate of 4 percent — a trend MCI estimates would halve the population in less than 20 years" The impact on Monk Seals due to rain events, tropical storms and hurricanes polluting the ocean via Waiopili stream with manure, urine, nitrogen, phosphorous, hormones and other fertilizers used by HDF needs to be address in the EIS.

Fish

The Reef Environmental Education Foundation recorded 24 species of fish at Kawailoa Bay (Māhāʻulepū), and 43 species at Kīpū Kai. An additional eight appeared in records kept by proprietors at Kīpū Kai. Kauaʻi residents describe the near shore waters of the study area as a "prime fishing area." Telltale pipes for holding fishing poles are embedded at favored sites along the shoreline. Fish abundance is also implied by the presence of monk seals—the seals feed on reef fish as well as octopus, lobster, and eel (MIKRS). The EIS needs to address how HDF will protect the fish species during rainy season, how the algae causing pollutants will be monitored and how the stream and ocean would be cleaned up. The EIS needs to address coral death caused by nutrients and algal blooms as coral is an intricate part of the environment. Climate change needs to be addressed in the EIS as the culminate effect of higher nitrogen and phosphorous levels in the waterways could cause faster algae blooms leading to rapid coral death.

Algae

"We saw no invasive or alien algae" (MIKRS). This is the condition of Maha'ulepu waters now, but in New Zealand it's a different story. "'Already choked with weeds and algae, waterways will get even worse as the dairy industry continues to boom,' the Environment Commissioner says. Poor-water quality is caused by the run-off of nutrients from farm land, which breeds invasive weeds, slime and potentially toxic algal blooms" (Waterways will get worse – Commissioner, article in NZFarmer.co.nz 2013). Nutrients, urine, manure entering the waterways and groundwater from runoff is likely because of the low Ksat of the two major clay soil types found on HDF site (Custom Soil Resources Report for Island of Kauai 2014) (CSRRIK). These issues need to be elucidated in the EIS. The likelihood of contamination of seaweed that is collected for human consumption needs to be addressed in the EIS.

Wetlands

The portion of Māhāʻulepū watershed that lies within the study area stretches from the Hāʻupu ridgeline southward through Māhāʻulepū valley and eastward to the coast. Agricultural operations began in the mid-1800's in Māhāʻulepū valley; its intermittent streams and wetlands were long ago modified for irrigation purposes. The landowner Grove Farm operates a water system that includes wells, ditches, tunnels and reservoirs. Māhāʻulepū Reservoir, at the back of the valley, is part of that system. Both it and the County-owned Puʻu Hi reservoir (at the very southern end of the study area) serve as important attractors for Hawaiʻi waterfowl.

A broad natural depression in the valley also fills with water after heavy rains and temporarily draws water birds in large numbers. Though Māhāʻulepū valley's streams and wetlands were modified, their remnants remain. These expand and become especially visible during wetter periods. The former Waiʻōpili Stream, largely subsumed by the ditch system within the cultivated area at Māhāʻulepū, emerges in more natural form near Makauwahi Cave at the south end of the study area, where it joins forces with a natural spring and a remnant of the once much larger Kapunakea Pond. This wetland juncture attracts waterbirds and serves as nursery habitat for native fish. It is linked hydrologically to the important Makauwahi Cave Reserve, a critical habitat for endangered arthropods that rely on seepage of nutrient-rich water (MIKRS).
Restoring and protection from cows, manure & urine polluted water of this large Wetland area needs to be addressed in the EIS. Protection of the two mentioned area reservoirs needs to be addressed in the EIS. Protection of the area around and in the broad natural depression needs to be addressed in the EIS.

Because all of Maha'ulepu valley is hydrologically linked to the Makauwahi Cave, any breaches of the effluent ponds have a likelihood of ending up in the cave from weather events, hurricanes, to tropical storms and flash flooding this needs to be addressed in the EIS. The feasibility and positive impacts to the environment of disconnecting the direct access of the irrigation ditches to the Waiopili stream and instead being processed as waste water prior to entering the stream needs to be addressed (Especially in light of the high bacteria counts and turbidity readings of the Waipili this last year- DOH & Surfrider).

We do not want the Waiopili stream to become like the New Zealand streams. "We also need to have a long-term vision about what sort of land use is appropriate according to the sensitivity of the receiving waters"(Waterways will get worse – Commissioner, article in NZFarmer.co.nz 2013). HDF's land use needs to be reconsidered in Maha'ulepu, an environmentally sensitive site, in the EIS.

Arthropods

Intensifying and adversely impacting land uses and activities poses current and potential threats to important natural and cultural resources within the study area. Kaua'i's endangered arthropods in the study area are especially vulnerable to impacts from quarrying and other activity on the marginal agricultural soils overlying their cave habitats. Grading, fill, and excavation result in disturbance, compaction or blockage of the subterranean cracks where these species find refuge during drought. Blocked areas break up the cave system into separate areas, isolating the already small populations and increasing their risk of extinction (MIKRS). The further endangering of the arthropods through grubbing and grading activities

Makauwahi Cave and Sinkhole

Makauwahi cave and sinkhole is equally important for the light it sheds on Hawai'i's human story. According to scientists working at the site, it contains "in a single stratigraphic sequence an encapsulated view of the full span of human occupation, including the millennia preceding human arrival, earliest human evidence, subsequent population increase and cultural change, European contact, and modern transformation" (Burney and Kikuchi 2006). Due to its neutral pH environment, Makauwahi's fossil and artifact finds are exceptionally well preserved. Its sinkhole walls surround an ordered column of sediment layers that tell a nearly unbroken tale of conditions on Kaua'i, from before the arrival of people through the changes wrought by a millennium of human activity. Researchers are piecing together new and detailed views of Kaua'i's past based on analysis of the Cave's sediments, combined with oral and archival sources (MIKRS). With the Cave's hydrological linking to the valley it would seem that cow urine would possibly change the pH of the water going into the Cave, thereby destroying all the perfectly preserved extinct life forms. The possibility of pH change and the impacts thereof need to be addressed in the EIS. An active sand quarry excavation operates adjacent to Makauwahi cave and sinkhole—so close that one small cave opening in the west sinkhole wall rises diagonally only about 50 feet before it ends in a surface collapse at the edge of the quarry (Burney and Kikuchi2006). Heavy equipment in use at the quarry can sometimes be felt within the cave environment, causing fear of potential rockfall or collapse. A heiau on the quarry site has already suffered significant damage. A future quarry site farther north at 'Āweoweo may potentially impact dune burials (MIKRS). The quarry on HDF's site needs to be addressed in the EIS for possible burial site as well as artifacts.

Invasive Alien Plant Species

Non-Native species dominate parts of the study area, and threaten or encroach on significant resources on the shoreline, at Hulē'ia, and on Hā'upu ridge. Once established, some of these aliens are difficult to remove. Ungulate disturbance destroys native vegetation, increases erosion, and provides fertile ground for invasive species (MIKRS). Cows could cause ungulate disturbances thereby increasing soil erosion and giving invasive species a foothold at the expense of the native species. This needs to be addressed in the EIS.

Weather Hazards

Environmental events such as hurricanes, fires, tsunamis and landslides are potential study area threats that can not only wreak direct havoc, but also set into motion long-term landscape changes, such as erosion and alien plant invasion, that gradually degrade and destroy native habitats. State officials report that two hurricanes in recent decades damaged the Newell's Shearwater habitat on Hā'upu ridge, and allowed invasive species to spread across newly-eroded slopes. Kīpū Kai representatives say the mountainsides above their valley were lushly vegetated before the hurricanes. By the time of the National Park Service (NPS) site visit, the slopes were bare and roamed by goats, and a small recent landslide was apparent on the upper part of the access road (MIKRS).

The entire study area shoreline is highly vulnerable to storms and hurricanes. Long-term coastal erosion hazard is high at Māhā'ulepū Beach and moderately high at Kawailoa Bay, Hā'ula, Kīpū Kai beaches, and the southern portion of

Niumalu (KC 2003). Potential tsunami hazard intensity is considered high along the Māhāʻulepū coast between Punahoa Point and Hāʻupu Bay, and at Long Beach in Kīpū Kai. These moderately sloped areas are also vulnerable to coastal stream flooding from seasonal rainfall (KC 2003). The EIS needs to address where and how the cows will be protected and or evacuated and the possibility that the cows will be swept into the ocean during a hurricane. The EIS needs to address what will happen to the manure that has been left on the fields near the stream that takes runoff from Ha'upu ridge and delivers it to the ocean. The EIS needs to consider the alternative of collecting the manure from the fields vs. the planned land application to minimize the threat to the environment. The EIS needs to address the possibility of using the collected field manure in methane gas generators/digesters to produce bio-gas energy.

HDF must prove that there will never be discharge of pollutants from direct surface runoff or ditch discharge into Waiopili stream as it courses directly into the ocean, and that percolation into both shallow and deep groundwater will not contaminate stream, estuarine and coastal waters, especially in light of the hydrologic linking of the valley, streams, aquifers and ocean.

Several state planning documents related to tourism, recreation, and historic trails emphasize the importance of recreational access and resource protection along this coast, especially in light of increasing public use (OSP 1992).

In 1992, Hawaiʻi 's Office of State Planning conducted a land use review that recognized Māhāʻulepū's "combination of outstanding coastal recreational areas, native coastal strand vegetation, significant physiographic, archaeological and scenic resources." Anticipating future development pressure, it said "measures will need to be taken to assure that the sensitive resources here will be protected." Suggested ways to achieve that protection include transfer of development rights and purchase of easements (OSP 1992). The possibility of transfer of development rights needs to be explored/addressed in the EIS.

NRCS Custom Soil Resource Report

On June 5th, 2014, the Natural Resource Conservation Service published a Custom Soil Resource Report focused specifically on the parcel of land intended for use by Hawaii Dairy Farms. The fact of this report, and its findings, was not referenced or included by Hawaii Dairy Farm's when submitting their current Waste Management Plan for approval to DOH (July 23rd, 2014). Since that filing, Hawaii Dairy Farms has never corrected this omission or explained their lack of any reference to this document or its findings. That omission must be corrected, and the NRCS findings need to be specifically addressed by the EIS.

The Custom Soil Resource Report states that, virtually all of the soils underlying the site have "very limited" capacity for disposal of manure through irrigation. The soils were also determined to be highly susceptible to surface water runoff. The study concluded that the soil types in the area have anywhere from "medium" to "very high" likelihood of surface runoff. The study further concluded that soil remediation on the scale necessary was not feasible.

Water

There are at least three County Wells (F, C, and D- in order of proximity) dangerously close to the proposed farm property that would be covered by planned land applied waste from grazing cattle as well as pumped de-sludged waste residue. These three wells provide the potable water for all of Poipu and most of Koloa. Well F, the nearest, is less than 750 ft. from Block H, a parcel specifically designated for receipt of pumped de-sludge residue. When this same area is actively grazed by cattle (HDF's Plan identifies specific grazing paddocks at this same site), there will be no less than 100,000 lbs of wet manure, and at least 6,000 gallons of urine applied to and left on this site each day. Unfortunately, this same area happens to contain some of the best draining soil of the farm site (as per NRCS Study and HDF's latest Plan). Consequently, the migration of both bacteria and harmful nitrates into the wells is a certainty. The EIS needs to establish how this can be prevented.

Conclusion

Not only does the EIS need to address the foregoing, but its EISPN is notably deficient in its proposal to consider Alternative Locations. In fact, HDF's idea of alternatives is to consider taking no further action at the proposed site, operating a CAFO at the same site, or finding one other potential site. If HDF approaches the EIS process using the methods commonly followed during an EIS process, alternatives should encompass consideration of more than one other location at which their proposed plan could proceed if necessary. In this case however, HDF has predesigned a very limited alternative consideration and the single alternative site, not yet identified, is inadequate to satisfy the intent of the EIS process. It is interesting to note that when discussing the one alternative location in their EISPN, HDF states, "The micro-climate requires soil conditions favorable for nutrient absorption with access to a reasonable priced irrigation water source, to sustain nutritious grass pastures." The EIS needs to address how HDF could possibly proceed at Maha'ulepu when both the NRCS and their own Iowa Based Soil Study indicate that the soils there are anything but "favorable for nutrient absorption." HDF needs to solidly refute the obvious conclusion that the sensitive ecosystem of Maha'ulepu would be irreparably harmed if their Industrial Dairy is allowed to proceed as proposed.

Sincerely,

John (Jay) Kechloian
1722 Keoniloa Pl.
Koloa, HI 96756

GROUP 70 INTERNATIONAL

RECEIVED
JUN 01 2016
WASTEWATER BRANCH

May 25, 2016

State of Hawai'i
Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Attn: Ms. Sina Pruder, Chief, Wastewater Branch

Subject: **Hawai'i Dairy Farms**
Waste Management Plan – Updates for Review
Māhā'ulepū, Kaua'i, Hawai'i
TMK: (4) 2-9-003: 001 por and 006 por & (4) 2-9-001: 001 por

Dear Ms. Pruder:

As you have been aware, in late 2013, Ulupono Initiative made the investment to fund Hawai'i Dairy Farms, the first pasture-based rotational-grazing dairy in the state. Hawai'i Dairy Farms, LLC (HDF) was formed as a positive step toward the island state's food security, economic diversity, and sustainability. At steady-state production with 699 milking cows, the farm will produce roughly 1.2 million gallons annually at market price.

The farm will be based on the most successful island dairy models in the world, and will utilize a sustainable, pasture-based rotational-grazing system and 21st century technology. The farm will be very different from conventional feedlot dairy farms found elsewhere in the state.

HDF is committed to establishing a herd of up to 699 mature dairy cows, and demonstrating the pasture-based system as an economically and environmentally sustainable model for Hawai'i. With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future to up to 2,000 productive milking cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

The State of Hawai'i, Department of Health (DOH), Wastewater Branch has previously reviewed HDF's submitted Waste Management Plan (WMP) for an operation of 699 mature dairy cows, as required by the "Guidelines for Livestock Waste Management". In the WMP, HDF detailed the operations and management of the effluent ponds, which will be used to store effluent and manure for re-use as a primary nutrient source for growing Kikuyu grass, the cows' main food source. With the final review of the WMP by DOH in October 2014, HDF obtained their required building permit and approval to construct the dairy facility.

In the course of this effort, opponents to the dairy filed a lawsuit against HDF, claiming that an Environmental Impact Statement (EIS) was required prior to use of the agricultural land that HDF is situated upon. While HDF strongly disagrees with that requirement, HDF has *voluntarily* agreed to prepare and submit an EIS

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pursuant to HRS Chapter 343. The purpose of the EIS is to evaluate potential environmental impacts of a pasture-based, rotational-grazing dairy system at 699 mature dairy cows and up to 2,000 mature dairy cows in Māha'ulepū Valley, Kaua'i.

While the EIS process was progressing, on-going technical studies and field trials were continued for various dairy components, including and not limited to groundwater and surface water quality assessments, historical and archeological studies, nutrient management calculations, and forage trials. Refinements to the dairy operation, including and not limited to adjustments to the total available pasture area, physical setbacks, inclusion of calves in the nutrient model, and current forage data, improved the nutrient mass balance analysis within the WMP previously submitted to DOH. The following attachment consists of an executive summary and description of those changes.

HDF would like to emphasize that the pasture-based, rotational-grazing dairy system, including the design of the effluent ponds, is fundamentally the same and has not changed. At 699 mature dairy cows, the updates to the mass balance analysis have minimal effect on the effluent ponds as the farm's infrastructure had been sized for up to 2,000 mature dairy cows. The expected percentage of the nutrient demand for healthy pasture productivity which will be provided by the animals is 30.5% for nitrogen and 35.8% for phosphorus, both of which show that the nutrients applied from the animals (at the 699 mature dairy cow herd size) are only about one-third of what the grass crop requires.

Please feel free to let me know if you have any questions or comments regarding these changes or the information presented herein or in the attachment. Please also let me know if any additional information or copies are required. Thank you for your consideration and review.

Sincerely,

Paul T. Matsuda, PE
Principal/Director of Civil Engineering
Group 70 International

Attachment(s): Update to Waste Management Plan, Hawai'i Dairy Farms

Copy: Kyle Datta, Hawai'i Dairy Farms
Jim Garmatz, Hawai'i Dairy Farms
Jenna Dunn, NRCS District Conservationist, Pacific Island Area, Lihue Service Center
Adam Reed, NRCS State Agronomist, Pacific Island Area, State Office

ATTACHMENT

UPDATES TO WASTE MANAGEMENT PLAN HAWAI'I DAIRY FARMS

MĀHĀ'ULEPŪ, KAUA'I, HAWAI'I

Prepared By:

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Red Barn Consulting
3050 Yellow Goose Road
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(717) 393-2176

Dated:

May 25, 2016

EXECUTIVE SUMMARY

The Waste Management Plan (WMP) for Hawai'i Dairy Farms, focusing on a pasture-based, rotational-grazing dairy system with 699 mature dairy cows located in Māhā'ulepū, Kaua'i, was submitted to DOH on July 23, 2014. Subsequently, the WMP was reviewed by the State of Hawai'i, Department of Health (DOH), Wastewater Branch (WWB).

On October 24, 2014, the DOH-WWB indicated that HDF has addressed all of DOH-WWB comments from their review of the WMP and that there were no further comments on the WMP. DOH-WWB indicated there would be no further action on the WMP at that time, signaling that HDF had met the requirements of the "Guidelines for Livestock Waste Management" for effluent pond systems in the State of Hawai'i.

However, before construction was able to commence, HDF voluntarily agreed to prepare and submit an Environmental Impact Statement (EIS) pursuant to HRS Chapter 343. Based upon current environmental regulations and confirmed by the State of Hawaii Department of Health, the preparation of an EIS was not required, but was requested by neighboring developments and a select group of the public. Nevertheless, HDF agreed to conduct the environmental assessment with the State of Hawaii, Department of Health agreeing to be the accepting authority.

While the EIS process was progressing, previously on-going technical studies and field trials continued and discussions with other regulatory agencies were held. Forage productivity sampling was conducted to provide current data for nutrient management consideration. This updated information, specific to the project site, requires refinements to the WMP previously reviewed by DOH-WWB.

HDF would like to emphasize that the pasture-based, rotational-grazing dairy system, including the design and sizing of the effluent ponds, is fundamentally the same and has not changed. Simply put, field-tested and proven data, based on ground-level trials and studies, can improve the basis of the WMP.

#	Current WMP	Proposed Change	Justification
1	174 calves on site	150 calves on site	No more than 150 calves will be kept on site at any time, based on size and age.
2	**Nutrient Mass Balance Table is populated by the Dairy New Zealand Model.**	**Nutrient Mass Balance Table is updated with the Cornell Model.**	**The Cornell Net Carbohydrate Protein System Model is a United States industry-recognized nutrient and milk production model. While HDF recognizes the success of the Dairy New Zealand model for evaluation of nutrients, HDF ultimately believes that the United States standard is best suited for operation on Kaua'i.**
3	Project Boundary	Reduced Project Boundary	The boundary has slightly adjusted along the perimeter of the farm.
4	**Receiving Water Body State Water Quality = Class A Marine Waters / Class 1 Critical Habitat**	**Receiving Water Body State Water Quality = Class A Marine Waters**	**The State of Hawai'i has recently updated its water quality classifications for this region.**
5	Water Wells = 14	Water Wells = 14 original, 3 remaining.	Most of Well Battery 14 was abandoned, with only 3 wells remaining.
6	**Total Lease Area = 577.9 acs**	**Total Lease area = 556.8 acs**	**Field conditions and negotiations with Mahaulepu Farm (landowner) have resulted in a defined and measureable lease area.**
7	Grazing Area = 517.3 acs	Grazing Area = 469.9 acs	Area has been set aside for project buffers, setbacks, raceways, and other areas not available for pasture grazing.
8	**Land Use Summary Table**	**Revised Land Use Summary Table**	**With revisions to the project boundary, the total farm acreage has changed, including the pasture acreage, facility acreage, and open space acreage.**
9	Total Paddocks = 118	Total Paddocks = 119	With the revision to the farm area, paddock layouts were slight altered, resulting in 1 new paddock formed. Though the farm area decreased, several paddocks were divided to create additional paddocks near the calf sheds for housing the calves.
10	**Area Percentages**	**Revised Area Percentages**	**Percent areas for the dairy facility, effluent ponds, etc. compared to the total farm area have changed due to the change in leased area.**

11	Access Road and Tanker Truck Turnaround	New Location for Access Road and Tanker Truck Turnaround moved to east side of facility	The new location makes access to the facility both safer and cost effective, as the steep downhill grade on the west side of the facility is avoided.
12	**Drip Irrigation in areas outside of the pivot extent**	**Gun Irrigation in areas outside of the pivot extent**	**Drip irrigation tubing and infrastructure would likely be destroyed often by grazing cows and require significant repair.**
13	Irrigated Area Percentages	Revised Irrigated Area Percentages	Percent areas for irrigated farm areas versus non-irrigated farm areas, etc. compared to the total farm area have changed due to the change in leased area.
14	**Irrigation Demand Summary**	**Revised Irrigation Demand Summary**	**Revised amounts of irrigated areas and non-irrigated areas results in changes in demand.**
15	Section 6.1 – Irrigation Schedule	Renumbered Section 6.1 to Section 6.6	Duplicate section heading number to be renumbered for clarity and to avoid confusion.
16	**Wastewater Treatment Section**	**Wastewater Management Section**	**Public comments on the original WMP correctly indicated that the ponds are not treatment systems, as the original WMP did not indicate any wastewater treatment systems for the effluent. Wastewater is stored and not treated in the effluent ponds.**
17	Cow Weight = 1,210 lbs	Cow Weight = 1,200 lbs	Same cow but parameter has changed, with switch to Cornell Model
18	**Manure Production = 143 lbs per day**	**Manure Production = 90.8 lbs per day**	**Manure production is affected by the nutrient content and chemical composition of the forage. With updated forage testing incorporated into the Cornell Model, manure production values have been updated and are consistent with the USDA/NRCS Agricultural Waste Management Field Handbook (March 2008), which utilizes established American Society of Agricultural Engineers (ASAE) values for manure production per cow per day.**
19	Effluent / Manure Volume	Revised Effluent / Manure Volume for Calves	Added in generation of manure from calves and updated based on total manure produced. Increased daily generation effluent due to increase in wash water projections at 699 cows.
20	**Minimum Effluent Storage = 23 days**	**Minimum Effluent Storage = 25 days**	**Incorporated 2 days of storage before forecasted rain event. No effect as total storage provided is still 30 days.**
21	Effluent Totals within Storage Pond Volume	Revised Effluent Totals within Storage Pond Volume	**NOTE: The sizes of the ponds have not changed.** Because of the increase in daily wastewater generation, more volume is required in storage

			pond at 699 cows. However, since the pond is designed for up to 2,000 cows, the increase has no impact.
22	Grass Yield Goal = 20 tons DM per acre per year	Grass Yield Goal remains the same. However, calculations are based upon ongoing grass trials = 16.3 tons DM per acre per year	HDF has committed to studying the operation of the farm at current grass trial levels. While HDF expects the yield goal to realize, existing trial data guarantees that 16.3 tons DM per acre per year can be produced by the current field and system.
23	Nutrient Mass Balance Tables	Revised Nutrient Mass Balance Tables	Balance based upon revised manure numbers, revised pasture acreage, & revised grass yields.
24	Soil Sampling Frequency = Every Three Years	Soil Sampling Frequency = Every Year	Allows for better and more efficient farm management. Sampling the soil for nutrient content and fertility recommendations more often ensures that nutrients are 1) not over applied but 2) not wasted.

DESCRIPTION OF CHANGES

A description of the changes above is detailed by item number below, with the corresponding section reference to the original WMP in **bold**.

1) **Letter to DOH from Group 70 International, "Hawaii Dairy Farm, Waste management Plan – Review Comments", Dated June 23, 2014:** The number of calves on-site has been evaluated to consist of, at most, 150 calves on site, instead of 174 calves as shown in the original WMP. Calves will be managed to be moved off-site after 90 days or after they reach 150 lbs. At 699 calves, this equates to 150 calves.

2) **Section 1.0 – Project Overview:** The Cornell Net Carbohydrate Protein System (CNCPS) model is being used for the basis of estimating nutrient content of the manure, based upon grass inputs. The nutritional content of the grass has also been analyzed within field trials and actual grass grown on the Māhā'ulepū site has been input into the CNCPS model to determine the nutritional value to the animals, and ultimately the nutrient content of their manure. While the original WMP previously utilized the Dairy New Zealand model, HDF believes each model is comparable and ultimately will be used to provide the same information, but the CNCPS model is recognized in the United States. It allows for easier comparison of farm-specific data with other farms in the State of Hawaii and throughout the country. Just as significant, the inputs into the model are now based upon field trials.

3) **Figure 2 – Project Location Map**: The project boundary has been slightly altered. The taro farm within the center of the project will occupy more area than anticipated in the original WMP. Additionally, the perimeter boundary has been updated based upon a topographic survey performed for the project by Red Barn Consulting.

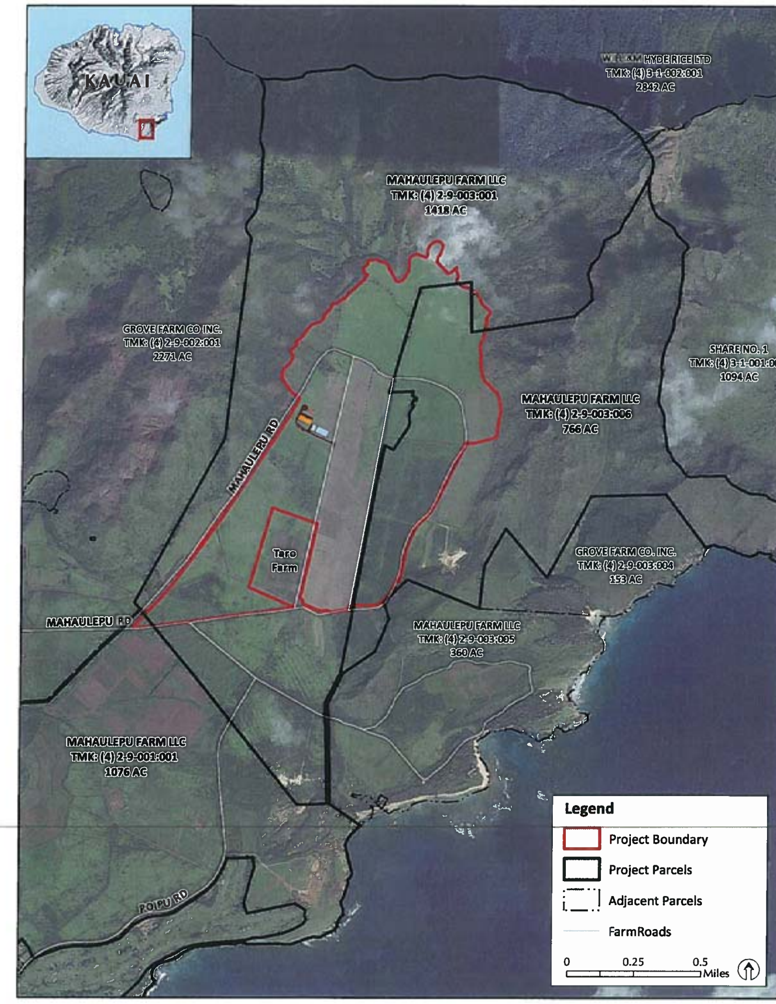


Figure 2 – Project Location Map

4) **Section 2.2.1 – Receiving Water Body State Water Quality:** The Water Quality Maps available from the State of Hawai'i Department of Health are no longer applicable to the project site, and State Water Body Quality is now available only within HAR §11-54. The WMP will now state that this stretch of open coastal waters is classified as Class A for water quality standards in HAR §11-54.

5) **Section 2.2.3 – Water Wells:** The existing private water wells on-site were described. Further field study has indicated that of the original 14 wells in the Māhā'ulepū 14 Well Battery, only 3 remain. These wells will be used for potable water use, a backup source, and for groundwater monitoring.

6) **Section 3.0 - Land Use Summary**: As the project boundaries have changed, the total lease area agreed upon between HDF and Mahaulepu Farms (Owner) has reduced from 577.9 acres to 556.8 acres. As mentioned, more area was reserved for the taro farm and area was removed based upon the topographic survey of the site, which identified perimeter roads and the tree line.

7) **Section 3.0 – Land Use Summary:** At 699 mature dairy cows, the original WMP included setbacks and project buffers, raceways, etc., but did not specify its total area within the pasture area calculations. The total area of the setbacks and buffers is now calculated, and the available grazing and pasture area is now 469.9 acres. Setbacks and buffers include:

- 35-foot setback (fencing) from water resources on the farm
- 1,000-foot setback (fencing) from the County of Kaua'i Kōloa F Well.
- 16-foot to 20-foot wide raceways

The addition of the 1,000-foot setback from the County of Kaua'i Kōloa F Well was requested by the County of Kauai Department of Water following submission and review of the original WMP. HDF has agreed to provide this setback and the WMP must be updated to reflect the change in available pasture areas.

8) **Section 3.0 – Land Use Summary:** Changes in the land use table are required as the project boundary, pasture acreage, and other farm features have been incorporated into the WMP.

Land Use	Acres
Farm	
Paddocks / Pasture	469.9
Cow Races, Farm Roads, Drainage Ways & ~~Setbacks / Vegetated Buffers~~	77.2
Subtotal	**547.1**
Headquarters / Dairy Facility	
Milking Parlor, Yards, Sheds, Road, Ponds	9.7
Subtotal	**9.7**
TOTAL	**556.8**

9) **Section 3.0 – Land use Summary:** The net total amount of paddocks has been revised. With reconfiguration to the project area and boundaries, the paddocks and cow raceway layouts were updated. Several paddocks were created in the mauka sections of the farm, while several paddocks were removed to maintain a 1,000 foot setback from the Kōloa F County Well, which was agreed to by the County of Kauai and HDF. Several paddocks near the calf sheds were divided into smaller paddocks to allow better management of the grazing calves. The net number of paddocks, therefore, increased by one (1).

Field	Acres	Field	Acres	Field	Acres	Field	Acres
P 101	3.62	P 133	4.26	P 202	3.60	P 234	4.64
P 102	1.12	P 134	4.73	P 203	3.99	P 235	4.62
P 103	4.47	P 135	4.74	P 204	3.40	P 236	4.67
P 104	4.54	P 136	4.78	P 205	6.01	P 237	5.04
P 105	3.08	P 137	4.81	P 206	6.04	P 238	6.14
P 106	2.94	P 138	5.06	P 207	4.17	P 239	7.63
P 107	3.02	P 139	5.53	P 208	4.41	P 301	3.29
P 108	2.91	P 140	6.57	P 209	0.55	P 302	3.94
P 109	1.69	P 141	4.76	P 210	0.59	P 303	3.65
P 110	2.83	P 142	4.93	P 211	0.63	P 304	3.97
P 111	3.04	P 143	4.32	P 212	0.52	P 305	4.01
P 112	4.19	P 144	3.94	P 213	0.51	P 306	4.16
P 113	4.12	P 145	3.87	P 214	0.48	P 307	4.11
P 114	3.80	P 146	3.43	P 215	4.24	P 308	4.02
P 115	4.51	P 147	3.89	P 216	4.54	P 309	4.55
P 116	4.29	P 148	3.88	P 217	4.64		
P 117	3.29	P 149	4.11	P 218	4.20		
P 118	4.54	P 150	4.17	P 219	4.41		
P 119	3.06	P 151	4.23	P 220	4.32	P 313	3.00
P 120	3.49	P 152	3.44	P 221	4.30	P 314	3.01
P 121	3.17	P 153	4.03	P 222	4.29	P 315	3.01
P 122	4.25	P 154	4.46	P 223	4.35	P 316	3.02
P 123	3.53	P 155	3.94	P 224	4.41	P 317	3.78
P 124	3.90	P 156	4.46	P 225	4.38	P 318	3.64
P 125	3.89	P 157	4.14	P 226	4.42	P 319	4.34
P 126	3.24	P 158	5.24	P 227	4.46	P 320	4.29
P 127	4.59	P 159	4.49	P 228	4.50		
P 128	4.38	P 160	4.56	P 229	4.47		
P 129	4.35	P 161	4.52	P 230	3.69		
P 130	4.10	P 162	3.54	P 231	3.39		
P 131	4.02	P 163	3.43	P 232	4.26		
P 132	3.94	P 201	4.47	P 233	4.55	Total	469.9

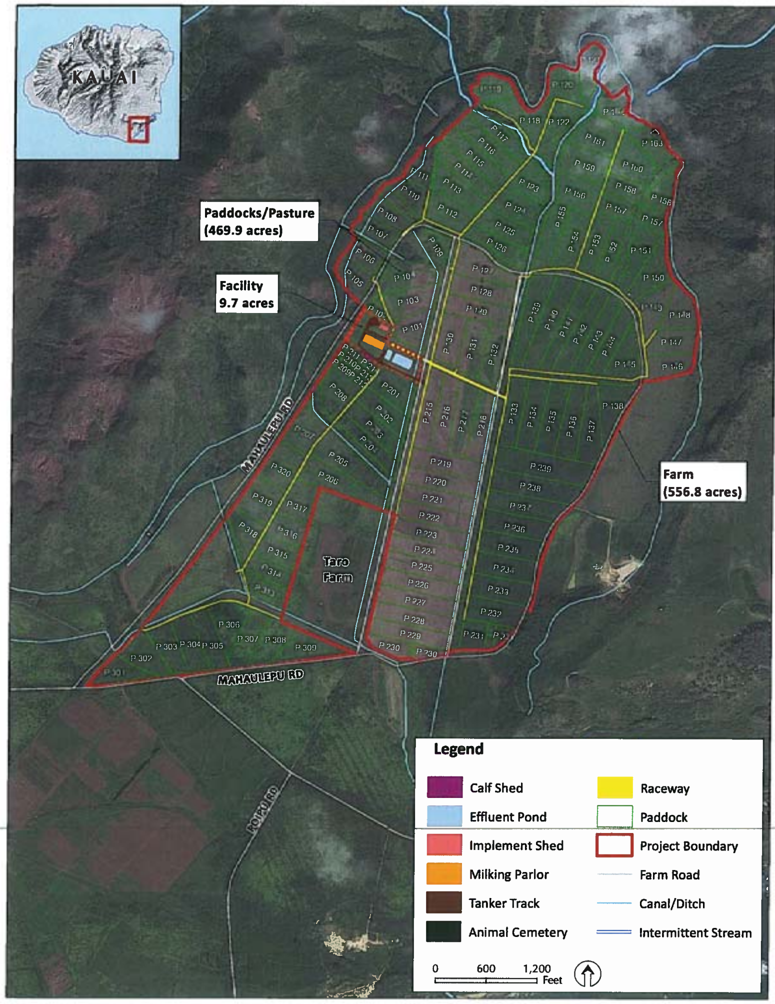


Figure 6 – Paddock Map

10) **Section 4.0 – Farm Description:** The original WMP noted several percentage calculations of areas for specific facilities with respect to the overall farm area. These numbers have been updated as the total farm boundary has been updated and the overall area specified as the "dairy facility" has been slightly altered to 9.7 acres (change in "open space" to paddocks).

    The majority of the dairy farm area ***(i.e. ~83%)*** *is dedicated to pasture. Much of the remaining area is dedicated to access roads, cow races, the dairy facility, and waterway setback / buffers. The dairy facility including the parlor, effluent ponds and secondary containment areas is contained within a* ***9.7-acre*** *area, which represents about* ***1.7%*** *of the entire farm. The corresponding building areas are under* ***0.1%*** *of the total farm area.*

11) **Section 4.2.6 – Access Road and Tanker Truck Turnaround:** Access to the dairy facility was provided off of Māhā'ulepū Road on the western side of the facility in the original WMP. Due to steeper terrain and the condition of Māhā'ulepū Road along the western side of the valley, access was relocated to one of the main farm roads in the center of the valley. The existing farm road, which passes by the taro farm and Pivot #2, is flat and is the current, operational access road to the various parts of the farm. Relocation of the access will save on construction costs and improve safety for tanker trucks to the facility. The configuration of the tanker truck turnaround adjacent to the implement shed will remain the same as in the original WMP.

12) **Section 6.2 – Drip Irrigation System:** The original WMP called for drip irrigation features in the makai areas of the farm where the center pivots could not reach. HDF has decided it will install a gun irrigation system instead, to allow for better management of the system and reduce required upkeep, as maintenance of drip irrigation facilities in active pastures where cows are grazing is expected to be more intense. The gun irrigation design will utilize a hard-hose reel gun nozzle on a cart, which attaches to hydrants, but can be moved around the area to provide even irrigation coverage.

13) **Section 6.5 – Irrigation Demand:** With the reconfiguration of the paddock layout on the farm, irrigated area totals have changed from the original WMP. Percentages of the farm that are irrigated versus non-irrigated have been updated.

Irrigated Pasture Areas:

Irrigated Pasture Area	Acres
Irrigation Pivot #1 (Full Circle)	164.7
Irrigation Pivot #2 (Partial Circle)	120.4
Subtotal	285.1
Gun Irrigation Area	61.4
Total Irrigated Pasture Area	**346.5**

Non-Irrigated Pasture Areas:

Non-Irrigated Pasture Area	Acres
Pasture Area within 50' Pivot Irrigation Setback	13.8
Remaining Non-Irrigated Pasture Area	109.6
Total Non-Irrigated Pasture Area	**123.4**

14) **Section 6.5 – Irrigation Demand:** With changes in the irrigation areas, the overall irrigation demand from the grass crop has changed. A reduction in irrigated area results in less irrigation water demand per day. The upper-end irrigation demand estimate, used for planning purposes, will be 2.26 MGD in lieu of 2.93 MGD as indicated in the original WMP.

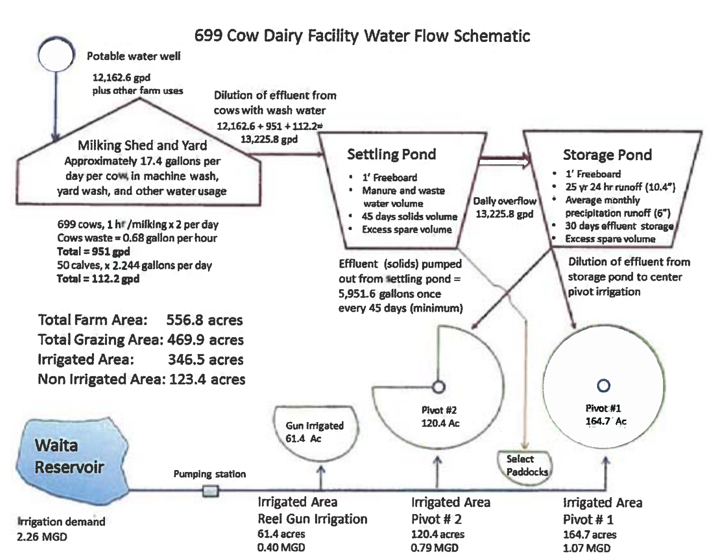
15) **Section 6.1 – Irrigation Schedule** on page 37 of the original WMP should be renumbered to Section 6.6 – Irrigation Schedule for clarity and to avoid confusion.

16) **Section 7.0 – Wastewater Treatment:** Public comments on the original WMP correctly indicated that the ponds are not treatment systems, as the original WMP did not indicate any wastewater treatment systems for the effluent. To avoid confusion and for added clarity, Section 7 – Wastewater Treatment in the original WMP should be renamed to Section 7 – Wastewater Management.

17) **Section 7.1 – Effluent / Manure Volume:** The mature cow's weight has been slightly adjusted from 1,210 lbs to 1,200 lbs.

18) **Section 7.1 – Effluent / Manure Volume:** Manure production per mature dairy cow has reduced from 143 lbs per day to 90.8 lbs per day. The change incorporates actual grass trials and forage testing data from grass grown on the farm. Manure production is affected by the nutrient content and chemical composition of the forage. With the updated forage testing data incorporated into the Cornell Model, manure production values have been updated and are consistent with the USDA/NRCS Agricultural Waste Management Field Handbook (March 2008), which utilizes established American Society of Agricultural Engineers (ASAE) values for manure production per cow per day.

19) **Section 7.1 – Effluent / Manure Volume:** The original WMP did not account for calves in the volume projections for sizing of the effluent ponds. Because the calves produce very little manure per day (19 lbs per day) and only a fraction of the calves are within the sheds which ultimately discharge to the effluent ponds, calves are typically not required to be taken into account for nutrient management purposes. However, HDF has updated the WMP to include manure production for calves, meaning there is a slight increase in the daily wastewater generation collected by the ponds. Additionally, wash water projections were increased at 699 mature dairy cows from 10,667 gpd to 12,162.6 gpd based upon an estimated requirement of 17.4 gpd of wash water per mature dairy cow. See revised waterflow schematic:



20) **Section 7.1 – Effluent / Manure Volume:** The original WMP noted that the required storage period, utilized to size the storage pond, was 23 days, including 17 days for the longest recorded consecutive day rainfall event on record, 4 days between scheduled irrigation of effluent, and 2 days for a forecasted storm event. The total storage period was then set to 30 days to provide additional capacity. 2 additional days are added into the 23 day total for pasture dry time following a significant rain event, bringing the total required minimum storage period to 25 days. However, the 30 day storage period will remain the same and will still provide additional buffer capacity.

21) **Section 7.2 – Effluent Ponds:** Overall storage pond volumes shown in the original WMP have remained the same. However, because of increased storage requirements – due to increased projections in wash water usage (10,667 gpd to 12,162.5 gpd) at 17.4 gpd per mature dairy cow as well as due to the inclusion of calves in the pond sizing calculations, more effluent is shown to be entering into the storage pond at 699 animals. However, since the pond is designed for up to 2,000 cows, there is no impact to the pond sizes.

Design Criteria/Assumption	699 Mature Dairy Cows	2,000 Mature Dairy Cows	Pond
Daily Wastewater Generation	13,225.8 gpd	37,891.7 gpd	
Percentage of Solids	1%	1%	Settling
Volume of Accumulated Solids for 45-day Period Between Application	5,951.6 gal	17,052.6 gal	Settling
Daily Flow to Storage Pond	13,225.8 gpd	37,891.7 gpd	
Minimum Volume of Effluent for 30-day Design Volume Period	396,774 gal	1,136,841 gal	Storage
Depth of 25-Year, 24 Hour Storm	10.4 inches	10.4 inches	Storage
Depth of Normal Precipitation for 30-day Design Volume Period	6 inches	6 inches	Storage

22) **Section 8.2 – Pasture Based Dairy:** Grass yields in the original WMP were projected for 20 tons of dry matter (DM) per acre per year and were the basis for all nutrient application rates and nutrient management planning.

HDF has approximately 18 months of grass trial data, for grass growth on over 70 acres of pasture on the project site. The grass trials simulate an expected grazing and 18-day rest period that a paddock would be subject to on the operational dairy. Current yields (as of 2015) indicate a production of 16.3 tons of DM per acre per year, only after 18 months of trials. Once the pasture is established and has matured, yields of 20 tons of DM per acre per year, or even greater, are anticipated. However, for the purposes of the WMP, HDF has elected to utilize the current grass yield at 16.3 tons of DM per acre per year as the basis of the nutrient management section, as physical trials have proven that the field is at least capable of producing this much forage.

23) **Section 8.4.2 – Nutrient Mass Balance:** With the use of 16.3 tons of DM per acre per year in the nutrient mass balance calculations, the nutrient demand of the grass crop is reduced. In the overall farm ecosystem, less production of grass means that fewer nutrients are required from the crop. However, because the quantity of nutrients supplied by 699 mature dairy cows and 150 calves is minimal on the 469.9 acres of pasture, the nutrient mass balance of the farm is not significantly impacted by the reduction in the grass yield to current data from a yield goal of 20 tons of DM per acre per year. Commercial fertilizer is still required to fulfill the grass nutrient need and maintain high productivity and soil health.

Nutrient Application	Area (acre)	Nitrogen Applied (lbs N/year)	Phosphorous Applied (lbs P_2O_5/year)
Manure As- Excreted	469.9	129,556	26,966
Liquid Effluent	285.1	11,980.8	2,586.7
Slurry Application	42.0	7,987.2	1,724.4
Total		**149,524**	**31,277**
Plant Nutrient Demand		**490,200**	**87,317**
Percentage from Animals		30.5%	35.8%
Required Chemical Fertilizer		340,676	56,040
Percentage Demand from Fertilizer		69.5%	64.2%

Month	N Collected in Pond (lbs-N/mo)	P Collected in Pond (lbs-P/mo)	N Excreted on Pasture (lbs-N/mo)	P Excreted on Pasture (lbs-P/mo)	N Total Deposited on Farm (lbs-N/mo)	P Total Deposited on Farm (lbs-P/mo)	N Total Uptake from Farm (lbs-N/mo)	P Total Uptake from Farm (lbs-P/mo)	N Deficit (lbs-N/mo) (Fertilizer Need)	P Deficit (lbs-P/mo) (Fertilizer Need)
January	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
February	1,532	331	9,939	2,069	11,470	2,399	37,604	6,698	26,134	4,299
March	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
April	1,641	354	10,648	2,216	12,290	2,571	40,290	7,177	28,001	4,606
May	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
June	1,641	354	10,648	2,216	12,290	2,571	40,290	7,177	28,001	4,606
July	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
August	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
September	1,641	354	10,648	2,216	12,290	2,571	40,290	7,177	28,001	4,606
October	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
November	1,641	354	10,648	2,216	12,290	2,571	40,290	7,177	28,001	4,606
December	1,696	366	11,003	2,290	12,699	2,656	41,633	7,416	28,934	4,760
Annual Total	19,968	4,311	129,556	26,966	149,524	31,277	490,200	87,317	340,676	56,040

24) **Section 8.8.1 – Soil Testing Frequency:** In the original WMP, soil sampling was expected every three years. However, based upon the public's input as well as additional soils testing by Dr. Russell Yost, with the University of Hawai'i, soil sampling and testing for nutrient content and fertility recommendations will be conducted yearly. Increased testing will ensure that nutrients are not over-applied past the grass nutrient demand, and HDF will benefit from more frequent testing to ensure that nutrients are not wasted.

SUMMARY

HDF believes that the changes made above improve the original Waste Management Plan, submitted to DOH on July 23, 2014, which was subsequently reviewed. These changes not only address public concern over the proposed dairy (with the addition of calves, reduction in available pasture area, etc.), but also are grounded in scientific reality with the additional incorporation of field-tested and site-specific, proven data (grass yields and soils analysis) and technical studies conducted within the last year.

HDF would like to emphasize that the pasture-based, rotational-grazing dairy system, including the design and sizing of the effluent ponds, is fundamentally the same and has not changed. Simply put, better and more current data, based on ground-level trials and studies, can improve the basis of the WMP.

Map Unit Legend

Island of Kaua'i, Hawaii (HI960)

Map Unit Symbol	Map Unit Name	Acres in AOI	KSAT	Percent of AOI
HsD	Hanamaulu silty clay, 15 to 25 percent slopes	17.3	0.14-1.98	2.9%
HnE	Hanamaulu stony silty clay, 10 to 35 percent slopes	1.1	0.2-2.0	0.2%
KavB	Kaena clay, brown variant, 1 to 6 percent slopes	152.0	0.0-0.2	25.4%
KavC	Kaena clay, brown variant, 6 to 12 percent slopes	17.0	0.0-0.2	2.8%
KdF	Kalapa silty clay, 40 to 70 percent slopes	12.5	0.0-0.2	2.1%
Ko	Kalihi clay	182.8	0.06-0.6	30.5%
KEHF	Kalapa very rocky silty clay, 40 to 70 percent slopes	4.0	0.0-0.2	0.7%
LB	Lihue gravelly silty clay, 0 to 8 percent slopes	0.5		0.1%
LuB	Lualualei clay, 2 to 6 percent slopes	78.2	0.0-0.2	13.1%
PdA	Pakala clay loam, 0 to 2 percent slopes	31.1	0.6-1.98	5.2%
PdC	Pakala clay loam, 2 to 10 percent slopes	45.0	0.6-1.98	7.5%
rRK	Rock land	0.0	0.0-0.06	0.0%
rRU	Rubble land	1.7		0.3%
W	Water > 40 acres	1.9		0.3%
Ws	Waikomo stony silty clay	54.0	0.0-0.06	9.0%
Totals for Area of Interest		598.9		100.0%

0-0.2 52.9%
0.06-0.6 30.5%
Total 83.4%

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF HAWAII

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FRIENDS OF MAHAULEPU, INC.,      ) CIVIL NO.
Hawaii non-profit corporation,   ) 1:15-cv-00205-
                     Plaintiff,  ) LMK-KJM
                vs.              )
HAWAII DAIRY FARMS, LLC, a       )
Delaware Limited Liability       )
Company; ULUPONO INITIATIVE, LLC; )
a Delaware Limited Liability     )
Company; MAHAULEPU FARMS, LLC; a )
Delaware Limited Liability       )
Company,                         )
                Defendants.      )
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DEPOSITION OF JAMES J. GARMATZ,

VOLUME 1,

Taken on behalf of Plaintiff at Koloa Public Library, 3451 Poipu Road and Sheraton Kauai Resort, 2440 Hoonani Road, Koloa, Hawaii 96756, commencing at 9:02 a.m. on June 13, 2016, pursuant to Notice.

REPORTED BY:

TERRI R. HANSON, CSR 482
Registered Professional Reporter

APPEARANCES

For Plaintiff:

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For Defendants:

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Fresno, California 93704-2209

Also Present:

Bridget Hammerquist

I N D E X

EXHIBITS FOR IDENTIFICATION

Index (Continued) PAGE

WHEREUPON, the following proceedings were duly had:

JAMES J. GARMATZ,
after having been first duly sworn,
was examined and testified as follows:

EXAMINATION

BY MR. TEBBUTT:

Q. Good morning, Mr. Garmatz.
A. Good morning.
Q. Please state your full name and residence address for the record.
A. James John Garmatz, 3755 Omao Road, Koloa, Hawaii.
Q. And, sir, what is your present employment?
A. I'm a farm manager, Hawaii Dairy Farms.
Q. And how long have you been in that position?
A. Since October of 2013.
Q. And who hired you?
A. Mr. Kyle Datta.
Q. How did you find out about the job opportunity?
A. They had been in a long association with Kyle and some of the earlier investors.
Q. You have? You have?

A. I had been in a relationship with Kyle and some of the earlier investors in the project.
Q. In what form? In what relationship?
A. We looked at purchasing a dairy on the Big Island in 2011, and the sale didn't go through. And when that purchase was originated, I was going to be the farm manager.
Q. Okay. Had you meet Mr. Datta -- Dotta or Datta?
A. Datta.
Q. Had you met Mr. Datta prior to 2011?
A. Yes, I met Mr. Datta in 2010.
Q. In what situation did you meet him? How did you meet him?
A. I came to the Big Island to look at the dairy that they were going to try to purchase and spent some time with him there, and we kept in communication past that.
Q. So were you asked to come to the Big Island by Mr. Datta?
A. Yes, sir.
Q. Where were you when you were asked to come to the Big Island?
A. Where was I located?
Q. Yes.

A. Friona, Texas.
Q. Okay. And how did Mr. Datta find out about you?
MR. PALOUTZIAN: May call for speculation, lack of foundation. Go ahead.
THE WITNESS: From some of the folks that he was partnering with in the new venture, Dr. Bob Fry, Arama Kukutai, who I'd had a long relationship with, goes back to the early 2000s. I've known Bob very long.
BY MR. TEBBUTT:
Q. Okay. Was that -- were those relationships in New Mexico?
A. No, primarily in southeast Missouri.
Q. Okay. All right. We'll get back to some of this, but I just want to go over some background before I start getting into substance. Have you ever been deposed before?
A. Yes, sir.
Q. How many times?
A. Twice.
Q. In what context?
A. Both of them were in issues concerning collections of monies that was owed.
Q. In what type of business?
A. Cattle feeding operations.

Q. Were you the plaintiff or the defendant in those cases?
A. We were the plaintiff, both cases.
Q. So you were seeking money?
A. Yes, sir.
Q. Okay. And these cattle feeding -- let me -- these cattle feeding operations, were they in New Mexico?
A. Texas.
Q. Where in Texas?
A. One was in Amarillo, Texas. No, I need to retract that statement. I was deposed in El Paso, Texas.
Q. Okay.
A. And the complaint, I believe, was heard in Parmer County, Texas.
Q. Okay. In both cases?
A. Yes.
Q. Both situations?
A. Yes.
Q. Okay. I'm just going to go over a little more background here first. The court reporter can only get one of us down at a time, and sometimes it's human nature to try to anticipate questions. But you and I are going to be in communication quite a bit today. So

I'm going to ask you to wait till I finish my question before you answer, okay?

And this is the next one, is you need to give an audible answer. Whenever I ask you a question --

A. Yes, sir.

Q. Yeah, there was the anticipation. You also need to give an audible answer. So yes, no, or something other than that if that's required. But nods of the heads and uh-huhs and un-uns don't work very well for the court reporter. So you need to give clear, audible answers. Do you understand that?

A. Yes, sir.

Q. Thank you. And your deposition today is taken under oath. Do you understand that?

A. Yes, sir.

Q. And for multiple purposes for a deposition like this. One is to gather facts. The other is if we were to go to trial, and you were to give different answers than you gave today, I could use this to impeach you at trial. Do you understand that?

A. Yes, sir.

Q. And so are you under any medications or under any influences today that would prohibit you from giving truthful testimony?

A. No, sir.

Q. Okay. So the depositions that you were in previously, when were they?

A. Late 1990s. I can't give you the exact time.

Q. Were they both around the same time?

A. Yes, sir.

Q. Were they separate actions against different defendants?

A. Yes, sir.

Q. Okay. Was it involving the same facility?

A. Yes, sir.

Q. What facility was that?

A. Boy. Henry Lawson, who was out of -- I can't give you the exact location, but he was located down in central Texas, north of San Angelo.

Q. Did you work for Mr. Lawson?

A. Yes, sir.

Q. Okay. And was that a beef feeding operation?

A. That's correct.

Q. A couple of other just background things. If you don't understand a question of mine, I'm going to ask that you tell me that. And if you don't tell me that, I'll assume that you understood my question, okay?

A. Okay. Let me backtrack just a second here.

Q. Sure.

A. At Mr. Lawson's we also fed dairy heifers.

Q. All right.
A. There's a distinct difference between beef heifers and dairy -- beef animals and dairy heifers.
Q. All right. So you did both, you fed beef animals and dairy heifers?
A. Primarily, yes. Primarily dairy heifers.
Q. Primarily dairy, okay. How many head did you have there?
A. We had 2,000 head there.
Q. Okay. And how many beef animals?
A. Six hundred beef animals, 1,400 dairy heifers.
Q. Did that facility have an NPDES permit?
A. No.
Q. NPDES is the acronym that we use. I might say nipdeez or something like that for your information.
Have you worked for any dairies in New Mexico?
A. Yes, sir.
Q. How many?
A. One.
Q. What was the name of that dairy?
A. Buena Vista Dairy.
Q. What years did you work there?
A. 2003 through 2009.
Q. And where is that located?
A. Mesquite, New Mexico.

Q. And how big a facility was Buena Vista Diary?
A. Buena Vista Diary was -- consisted of two facilities. Buena Vista 1 milked about 1,500 cows, Buena Vista No. 2 milked about 2,000 cows and raised heifers.
Q. How many heifers?
A. Four thousand.
Q. What was your capacity? What was your job for Buena Vista?
A. I was originally hired as the manager of both operations, overseeing the operations. And after a short time on the job, it was decided that I would go ahead and take control of Buena Vista No. 2 and the heifer operation but still oversee some of the work and the things that were being accomplished at Buena Vista No. 1. We had a man in place there that was the manager there also.
Q. So does that sum up your job responsibilities during the full time period of 2003 to 2009 at Buena Vista?
A. I believe so, yes.
Q. Why did you leave Buena Vista?
A. Michael Weatherly, who was the owner, decided to participant in the CWT cow program, which forced us to kill all of our milking stock to eliminate numbers

out of the cattle market. And so when I left there, there was no cattle there at all.

Q. What does this -- what's the CWT program?

A. Cooperatives Working Together. It was a program that was based in the early 2000s where the cooperatives -- the milk cooperatives across the United States would put money together via the customer's milk check -- the dairymen's milk check. And that they would on a quarterly basis they would bid to take some dairies out of the market. If you wanted to participate, you gave them a bid. And if the bid was warranted and was served correctly, they would pay you for that milk.

Q. And pay for the animals to be --

A. Yes, you got paid for the animals.

Q. Okay.

MR. PALOUTZIAN: Let him get his question out.

BY MR. TEBBUTT:

Q. Was that a cooperative payment or was it a government payment?

A. Cooperative payment.

Q. Okay. Did Buena Vista Diary have an NPDES permit?

A. Buena Vista Diary had a CAFO permit.

Q. Did it have a federal CAFO permit?

A. Correct.

Q. So that was -- was that an NPDES permit?

A. I don't consider the NPDES the same as the CAFO.

Q. I mean, what's the difference to you?

A. It's honestly --

MR. PALOUTZIAN: This may call for a legal opinion. Go ahead.

THE WITNESS: The difference is I've never seen the NPDES alongside of the CAFO, because we've always referred to it as the CAFO. Now, if the government says the two are the same or if they're defining that as an NPDES, that's fine. But I always referred to it as CAFO. We kept the records for CAFO. We kept everything that was necessary. We did our updates every five years and went through that process and dealt with that. Now, if the NPDES is the same as the CAFO, that's fine. But I just understood it to be a CAFO.

BY MR. TEBBUTT:

Q. What agency did you go through the process with every five years?

A. The EPA, Region 6, based out of Dallas.

Q. Was Buena Vista required to put in monitoring wells?

A. Yes. They were in place already.
Q. When you arrived in 2003?
A. Yes.
Q. How many?
A. They purchased the facility out of a bankruptcy in 2001, and those monitoring wells were already in place, basis the CAFO permit that was in place. They were required already.
Q. And was that required by the State of New Mexico or EPA, do you know?
A. EPA.
Q. And were you responsible for making sure those monitoring wells were sampled on a regular basis?
A. Yes, sir.
Q. How often were they sampled?
A. We sampled the wells ourself annually, and EPA would come on different occasions and sample the wells. 'Cause they'd come unannounced, and they would sample the wells, and we would let them do it. It was primarily done by the state.
Q. Did you sample for nitrate?
A. Yes, sir.
Q. And what were the highest levels you got?
A. Oh, I can't recall.
Q. More than 10 parts per million?

A. I can't recall.
Q. How deep were the wells, do you know?
A. I can't recall. It's been some time ago. I can't answer that correctly.
Q. Did you work for any other dairies in New Mexico?
A. No, sir.
Q. Did you work for any other dairies anywhere else?
A. Currently?
Q. Other than HDF, which, you know, doesn't -- isn't an operating dairy, but have you worked for any other operating dairies?
A. Yes, sir, I worked for Bos Bouma.
Q. Where was that?
A. Clint, Texas.
Q. And when did you do that?
A. From 1998 through 2003.
Q. And what was your role there?
A. Logistics manager and environmental.
Q. Okay. Tell me what the logistics manager did.
A. Procured all the feed, procured all the cattle, handled all incidents with permitting and just a general do everything that's possible.
Q. Were you the manager, the farm manager?

A. No.
Q. There was somebody above you as the farm manager?
A. Yeah, the owners.
Q. And who -- what were their names?
A. Tony Bos and Brad Bouma.
Q. Bos is that B-o-s?
A. B-o-s, yes.
Q. And Bouma, can you spell that?
A. B-o-u-m-a.
Q. How big a facility was that?
A. It incorporated three large dairies; Desert View Dairy milked 1,500 cows, Rio Grande Valley Dairy milked 2,100 cows, and then Bos Dairy milked 3,000 cows.
Q. And how many -- other than the milking cows, how many additional animals did they have?
A. Well, the heifers at Bos Dairy equivalent to about 4,000, and the heifers for Desert View Dairy and Rio Grande Valley Dairy were located at Tornillo -- at the Tornillo feedyard, which Bos Bouma owned, and we probably had 3,000, 3,500 heifers there.
Q. Okay. So the three facilities that you just talked about, one was separate from the other two?
A. Yes.
Q. And the other two were adjacent to one another?

A. Uh-huh (moves head up and down).
Q. So were they operated as one unit for regulatory purposes?
A. No, both separate entities for EPA reasons, yes. They both had their separate CAFOs.
Q. They had separate CAFO permits?
A. Uh-huh (moves head up and down).
Q. Okay. So all three of them had CAFO permits?
A. Uh-huh (moves head up and down).
Q. Were you charge of applying for those permits?
A. Renewing of the permits. Those permits were already in place when I went there. I managed all the ins and the outs of the record taking, the information needed to -- soil sampling, effluent sampling, and basically the management of the effluent ponds.
Q. Did any of the three that we're talking about now in Texas, did any of those three facilities that you worked for have discharges to surface waters while you were there?
A. Yes.
Q. Explain what kind of discharges they had.
A. We had a heavy rain one night, and one of the effluent pond's berms broke, and it leaked down into fields, down into the area down below of the dairy onto some houses and backyards of folks.

Q. How many gallons?
A. I can't recall that number.
Q. Hundreds of thousands?
A. No.
Q. Tens of thousands?
MR. PALOUTZIAN: Calls for speculation, lacks foundation. Go ahead.
THE WITNESS: I just don't know.
BY MR. TEBBUTT:
Q. How big was the lagoon that ruptured?
A. I wouldn't have the exact measurements.
Q. No, I understand that. But you would know a rough approximation of the size of the lagoon, wouldn't you?
A. Around 60 by a 100.
Q. How many feet deep?
A. Eight feet deep.
Q. So about a million gallons capacity?
A. It didn't all leak out.
Q. No, I know. But what was capacity of the lagoon? Was it about a million?
A. Yeah. Yes, sir.
Q. Okay. And about how much it -- so was it overfull when it leaked, when it -- when the berm breached?

A. No, it wasn't overfull. The breach was caused by rodents digging into the sides of the berm. And when we had the rain, the rain penetrated those holes that the rodents had put into it and caused the escape of the water.
Q. About how much of the water escaped from the lagoon?
A. Oh, I'd say 20 to 25 percent, because we found it right away.
Q. Good. At Buena Vista did you have any discharges of effluent from that facility while you were there?
A. While I was there?
Q. Yes.
A. No. But prior to, yes.
Q. What kind of discharge happened prior?
A. They had a heavy rain. When I say heavy, it probably rained three hours in less than -- excuse me -- three inches in less than an hour.
MR. PALOUTZIAN: Let me just insert an objection. I think it lacks foundation, calls for speculation. Go ahead. Go ahead.
THE WITNESS: And some of the water from the pens and the calf area breached the berm that protected the farm from water leaving the farm and went

onto another neighbor's property.

BY MR. TEBBUTT:

Q. Was that something that you had to account for when you reapplied for the CAFO permit?

A. Yes, sir.

Q. Is that how you know about it?

A. Yes, sir.

Q. Have you worked for any other dairies other than the ones you've testified about this morning so far?

A. Worked at Tiller-Cohen.

Q. At what?

A. Tiller-Cohen.

Q. Can you spell that, please?

A. T-i-l-l-e-r slash Cohen, C-o-h-e-n. It was a limited partnership. It was located in Matthews, Missouri, in southeastern Missouri. It was a pasture-based operation, and was there about two and a half years.

Q. Was that in the early '90s? The mid '90s?

A. That was 2010; that was between 2009, 2010.

Q. How big a facility was that? How many animals?

A. When I arrived there was about 2,500 milking cows.

Q. And how many support animals?

A. Support animals were all raised off farm at a lease facility, and we probably had a thousand support animals.

Q. Okay. That would be heifers?

A. Yes.

Q. And dry animals, dry cows?

A. Yes.

Q. And so you were there from 2010 till when?

A. 2012, late 2012.

Q. And what did you do after 2012?

A. I returned to Friona, Texas, and had a medical issue that I dealt with, and was getting ready to take a dairy operation over there in Friona, and found out about the medical issue and wasn't able to do that at that point because of the medical issue. And I took a part-time position at Hi-Pro Feeds in Friona, Texas, and managed their heads positions and bought corn and purchased ingredients.

Q. Okay. What was the facility you were intending to take over in Friona, Texas?

A. It was owned by Charlie Hauge, H-a-u-g-e. And Charlie was just starting that dairy operation there. It had been abandoned for -- or not used for two or three years, and he was bringing animals from the northwest. And my physical inabilities didn't allow me to take the position after all.

Q. Okay. I don't want to get into your personal medical issues, but I assume you're okay today?

A. Uh-huh (moves head up and down).

Q. Took care of it?

A. Uh-huh (moves head up and down).

Q. That's good. Prior to -- or let's say the dairies that we've talked about thus far, are there other dairies you worked for in the '80s or '90s?

A. I was employed by Seven Rivers Cattle Company in Carlsbad, New Mexico. I went to Seven Rivers Cattle Company in 1980 and spent a long time there. We had raised dairy heifers for dairy clients. Roswell area is a large dairy operation area.

Q. Yes, it is.

A. And they would bring their heifers to us to raise their heifers from little ones all the way up to springers.

Q. Okay. So that was in the Roswell area?

A. That was in Carlsbad area.

Q. Okay. How far is that from Roswell?

A. It's about 50 miles south of Roswell.

Q. Describe your educational background, sir.

A. Attended high school.

Q. After high school.

A. Two years got an associate degree from Northeastern Junior College in Sterling, Colorado.

Q. In where?

A. Sterling, Colorado.

Q. Sterling, okay.

A. And then got a degree in animal science and nutrition from panhandle state -- Oklahoma Panhandle State University in Goodwell, Oklahoma.

Q. What year did you graduate?

A. '76.

Q. And what was your major?

A. Nutrition, animal nutrition.

Q. Did you take any courses in hydrogeology?

A. No.

Q. Did you take any courses in hydrology?

A. No.

Q. Any courses in soil management?

A. Yes.

Q. What type of soil management courses?

A. The required soil -- the required soils class. We call it the soils class that all animal science and all agricultural kids had to take. They had a division of the school that was soils management also, and it was their beginning class that they took there.

Q. Okay. Is that the only soils class that you took?

A. Yeah, we took a biochemistry class that was related to agricultural. They called it ag biochemistry. And we took the normal organic chemistry and nonorganic -- I mean, organic history like chemistry and then the regular chemistry, and then I took all the biology classes also. You know, the microbiology.

Q. Okay. So microbes in the soil?

A. Yes.

Q. And how they interact with --

A. That's correct.

Q. Yeah. Let me finish my question. So microbes and how they interact with the nutrients in the soil?

A. Yes.

Q. Is that fair to say?

A. Yes, sir.

Q. You studied the nitrogen cycle?

A. Yes, sir.

Q. And you studied the impacts of phosphorus on vegetation?

A. Yes, sir.

Q. Did you take any regulatory classes?

A. No.

Q. How did you come to be -- I noted in your testimony that you've been in charge of the regulatory

side of a number of facilities. How did you come to be in charge of the regulatory facilities?

MR. PALOUTZIAN: The question is vague and ambiguous. Go ahead.

THE WITNESS: It's something that I always would -- had somewhat of an interest in, felt responsible enough that I could do it and just took the reins and went on with it.

BY MR. TEBBUTT:

Q. Okay. Did you have any formal education in the regulatory aspect --

A. No, no, just the guidance that the readings gave us.

Q. What readings?

A. Well, they would publish a -- Texas published a book and New Mexico published a book of rules and regulations that you had to live by, and then the interaction I had with the NRCS folks and the EPA folks and stuff like that. Made it a point to understand what they were doing.

Q. Okay.

A. I mean, they didn't go away without a question. If I didn't understand something, I asked.

Q. Okay. You didn't take any classes or seminars in permitting?

A. I took numerous seminars.

Q. What kind of seminars?

A. Just basically regulations, permitting regulations. And any time that there was a discussion group or any time that there was a get-together concerning regulations, primarily out of New Mexico State University took the biggest portions. And then later on we -- I attended a seminar at Texas A&M concerning the same situations.

Q. When did you do that?

A. That was in 2000, year 2000 that there was a seminar.

Q. Describe the seminar.

A. It was a two-day session with the EPA guys and the Texas people. Because EPA contracts the Texas water folks to do their regulatory work for them. They do all the inspections, state inspections. They do the inspections at the dairy by the state people.

And we would all get together and sit down and go over the new revisions and some of the issues that were facing the CAFO.

The CAFOs at that time were under a lot of scrutiny, and there was lots of answers to be added concerning that as too how they were going to be managed and what they were going to be doing and the changes

that they made in those. I wanted to be up to date with that.

Q. Do you know why the CAFOs were under scrutiny at that time?

MR. PALOUTZIAN: Calls for speculation, lacks foundation. Go ahead.

THE WITNESS: There were some points there within the CAFO regulations as far as the storage of effluence in ponds. There was a push for all CAFOs to have a lined lagoons. And they wanted all waters in the confined operations, all waters within the confined operations to be able -- to be able to be contained on the properties. Which essentially made everyone increase their pond capacities, put liners in them.

And there was a lot of changes within the record keeping. I can't recall what those are right now. If I looked them up, I probably could.

BY MR. TEBBUTT:

Q. And so what we're talking about, what you were just testifying about, is that in relation to New Mexico only?

A. No, Texas.

Q. Texas. Is it Texas only?

A. Texas A&M. Yeah, Texas only. But the CAFO is U.S. Government. It's EPA. So it would reflect into

New Mexico also.

Q. Okay. Between the time you graduated in 1976 and 1980 when you started in Carlsbad, did you have another job in the dairy industry?

A. Yeah, I was a consulting nutritionist for Farmers Marketing Association.

Q. Located where?

A. In Denver, Colorado.

Q. Okay. Sir, what did you do to prepare for your deposition today?

A. I looked at the invoices supplied.

Q. Supplied by whom?

A. The invoices that you folks had.

Q. Okay. That you provided, that your -- you and your counsel provided to us?

A. That's correct.

Q. Okay.

A. Went through all those invoices and just generally briefed myself, spent some time just thinking to myself what each of these invoices represented and how it was done.

Q. How much time did you spend doing that?

A. Say 10 hours.

Q. And when did you do that, those 10 hours?

A. I did it about six hours Saturday morning, and

I did another four hours yesterday.

Q. Did you meet with your counsel as part of your preparation?

A. Yes.

Q. And how much time did you spend with your counsel?

MR. PALOUTZIAN: I'm going to object. That's --

MR. TEBBUTT: I'm not asking for attorney-client privileged information. I'm just asking for the amount of time spent.

MR. PALOUTZIAN: Well, I'm going to object and instruct him not to answer. I don't know how that's at all relevant to any of the issues in the case, time spent with lawyers preparing.

MR. TEBBUTT: It's just background. It's very common to do that. Every case I've ever done in my life we've discussed that. And it's not attorney-client privilege because there is no specific information that we're giving out other than the amount of time spent.

MR. PALOUTZIAN: Well, I'm going to assert my objection. Go ahead. You can answer that question.

THE WITNESS: About four hours.

BY MR. TEBBUTT:

Q. Did you do about by telephone or in person?

A. In person.
Q. Okay. When did you do that?
A. Yesterday.
Q. Is that the only time you met with your lawyers in preparation for this deposition?
A. We had a casual dinner Saturday night.
Q. All right. So those two times, are those the only two times that you met with your lawyers in preparation for this deposition?
A. Yes, sir.
Q. Okay. Did you speak with anyone else with regard to the upcoming deposition?
A. Yes.
Q. Who?
A. Scott Bloemke.
Q. When did you speak with Mr. Bloemke?
A. Scott and I are -- we were close in our working relationship, and we spent a lot of time when work outside was being done. It would come up in conversation. And there was a question as to whether he was going to be deposed or not deposed. We would talk about that. And I would give him an opinion whether he was going to be deposed or not.
Q. What opinion did you give him?
A. I -- it changed from day to day, you know,

depending on --
Q. When did you start talking to Mr. Bloemke about this?
A. When I received notice that I'd been deposed.
Q. Are you aware that Mr. Bloemke has been subpoenaed to testify?
A. Yes, sir.
Q. Okay. And when did you become aware of that?
A. His boss, Adam Killerman, had spoke to me about some conversations that he had with Sarah, some emails that he had with Sarah concerning some questions that she had concerning the invoices. Adam didn't know how to answer those questions.
And I said, Well, you need to decide yourself how you're going to answer those questions, but I can't give you any feeling towards that.
And then he said, Oh, yeah, and by the way, Scott's going to get deposed.
Q. Okay. How long did you speak with Mr. Killerman?
A. Concerning that?
Q. Yes.
A. Oh. Adam called me three or four times concerning different questions. There was a train of emails and phone conversations that he had with Sarah.

Q. Okay. Do you -- were all your communications with Mr. -- is it Killerman?
A. Killerman, yes.
Q. K-i-l-l-e-r-m-a-n?
A. Yes.
Q. Were all your communications with Mr. Killerman by telephone?
A. Yes.
Q. Any emails?
A. No.
Q. Okay. And how long did you speak with Mr. Killerman the first time you spoke with him about the depositions?
A. Oh, we don't talk very long, two or three minutes.
Q. Okay. Is that true for each of the four conversations that you had?
A. Yes, yeah.
Q. Okay. What types of things did you talk about with regard to Mr. Bloemke?
A. Just No. 1, if he was going to be deposed, and who was going to represent him and different things like that. Mr. Killerman was going to be on vacation last week, and he was concerned that Scott was going to get taken care of, that he had a good attorney, you know, or

attorney ready for him. And they've never been in this situation before. This is all new to them. You know, they're just farmers.
Q. Now, did you tell Mr. Killerman that HDF would provide an attorney for them?
A. No, we never had that discussion because I think it was assumed that that was going to happen. I don't know. I don't think Adam ever questioned that.
Q. Okay. So that's what's going to happen? Have you told Mr. Bloemke that one of the HDF lawyers would represent him at the deposition?
A. Well, we knew that that wasn't going to be possible. We made that decision.
MR. PALOUTZIAN: Don't talk about attorney-client communications, all right?
BY MR. TEBBUTT:
Q. I'm just asking you about your communications with Mr. Killerman or Mr. Bloemke when there wasn't an attorney present. Did you discuss with Mr. Bloemke or Mr. Killerman what lawyer would represent him at the deposition?
A. Yes.
Q. And who's that lawyer?
A. I can't recall her name.
Q. Okay.

A. I'm sorry.
Q. Is she a Kauai lawyer, do you know?
A. Yes, sir.
Q. Okay. Just so you know, Mr. Garmatz, if you want to take a break at any time, feel free to do so. I just ask that if there's a question pending, that we answer the question before we take a break. But feel free to take a break at any time. I'm one of those people who just kind of keeps going and finds a natural break. But if you need to take a break, by all means, please do, okay?
A. Okay.
Q. Other than the invoices that you reviewed that you testified about, what other documents did you review in preparation for your deposition today?
A. The first stage of interrogatories.
Q. The HDF's answers to the plaintiff's first set of interrogatories?
A. Correct, yes.
Q. And did you read through them all?
A. Oh, yes.
Q. Okay. And did you read through HDF's responses?
A. Yes.
Q. Was there anything in the first set of

interrogatory responses from HDF that you thought was inaccurate?
MR. PALOUTZIAN: Objection, the question is overbroad. Go ahead.
THE WITNESS: No.
BY MR. TEBBUTT:
Q. What else did you review?
A. I went back and looked at some of the project plans that we have in place.
Q. Which project plans?
A. Various solutions, project plans for the facility.
Q. And are these documents, do you know that whether they've been produced --
A. Yes.
Q. -- by your counsel to --
A. Yes, yes.
Q. One moment please. Let me finish my question.
By your counsel to Friends of Mahaulepu in this case? Do you know if they've been provided?
A. I believe they're going to be provided today.
Q. Did you bring any documents with you today?
A. No, sir.
Q. What other documents did you review in preparation for the deposition?

A. That was about it. Nothing else.

Q. Did you review any of the NPDES applications?

A. No.

Q. Were you involved in drafting any permit applications, NPDES permit applications for the HDF proposed facility?

A. I didn't do any writing, but I had input.

Q. What kind of input?

A. General information concerning some of the questions that were required to be answered.

Q. Like what kind of questions?

A. Head count, number of cows. Just numerous questions, you know.

Q. Give me some other examples.

A. We talked about the percent grass compared to the percent grain that was going to be fed inside the parlor. We talked about the size of the cattle. We talked about how much water they were going to consume, how much feed that they were going to consume, how much fecal matter they would produce, how much -- I might have said this, but how large they were. We talked about their life cycle. We talked about their locations as to where everything was going to be handled at and how they were going to be cared for, and just basically general operating conditions, you know, things that

you'd come up with, that you'd think about as far as...

Q. As far as what?

A. The operation of the dairy.

Q. Okay.

A. And the questions per the permit.

Q. Okay. When you talk about a life cycle, what kind of life cycle are you talking about?

A. Cattle life cycle.

Q. Right. What's the life cycle of a dairy cow?

A. Well, the heifer is born, kept in a crate for 60 days, fed milk, grain, water, released to grass after 60 days. At a year old, depending on her size and her weight, if she's large enough, you go ahead and breed her, AI breed her, artificially insemination. And hopefully at 21, 22, 23 months old she has a calf, and she goes into the milking herd. And then after 45 days after she's given birth, 40 days -- 45 days in milk, we begin to cycle her for an exact estrous date when we can go ahead and breed her, and hopefully have them all bred again by the time she's 90 days old. And then --

Q. I'm sorry. Bred again after 90 days?

A. She's bred after -- she's bred by 90 days, and by 90 days in milk.

Q. Okay.

A. So she's been in the milking bed for 90 days and she's bred. She's got a calf in her. And she continues to milk until she gets to about 200, 205, 206 days in milk and she's got a calf in her, and we go ahead and take her out and dry her out, keep her dry for 60 days where she's ready to have that calf again.

Q. And how long will that cow normally stay in the herd? Till what age?

A. Three or four lactations. So, you know, figure 14 months per lactation. So she's in there until she's six years old, seven years old. That's a good healthy cow.

Q. Okay. So that's the high end -- that's the high-end expectation?

A. No, that would be the expectation for a pasture-based operation.

Q. So that's the average then you would expect?

A. Yes, sir.

Q. And you talked about a percent feed versus percent pasture. What's the percent feed anticipated for the HDF operation versus percent pasture feed?

A. Thirty percent grain, 70 percent grass.

Q. And what's that projection based on?

A. Based on the amount of energy needed to produce the kind of milk that we want to produce, the pounds of milk that we want to produce.

Q. How many pounds of milk do you expect to produce per cow? Let's say --

A. On an average?

Q. Yeah.

A. On an average for a 305-day lactation, we're hoping for 38 to 40 pounds.

Q. A day?

A. Yeah.

Q. Okay. When you first came on to your employment, who hired you?

MR. PALOUTZIAN: Asked and answered. Go ahead.

THE WITNESS: With HDF?

BY MR. TEBBUTT:

Q. Yes.

A. Kyle Datta.

Q. Okay. And were you hired as an employee of HDF first off?

A. Originally I was hired as a consultant to the development of Hawaii dairy operations.

Q. Okay. So who did you work for at that time?

A. I worked for Ulupono Industries.

Q. So that was --

A. I was a consultant to Ulupono Industries.

Q. Okay. And is that when you started in October

of 2013?
A. No, that was prior to that. That -- I started that in February of '13. I maintained my residence on the mainland, did a lot of work on the mainland for them as far as the operations. But then I did not become an employee of Hawaii Dairy Farms until October because that's the first day that Hawaii Dairy Farms enacted for employment.
Q. Okay. So from February 2013 to October 2013, what things did you consult on?
A. Well, we had to -- we had the heifer herd that was located in southwest Missouri.
Q. Who's we?
A. Hawaii Dairy Farms.
Q. Hawaii Dairy Farms had a facility in Missouri?
A. No, they had heifers purchased there and that were located still on the dairy -- still on the facility that they had bought them from.
Q. Okay. What else did you do? What other consulting work?
A. Worked in the development of the design of the operation, handled all the mainland logistics that needed to be handled, monitored the quality and the feeding of the dairy heifers in Missouri. We had weekly calls and handled all to-do operations that needed to be

done by the mainland at that point.
Q. How many heifers does -- or in 2013 how many heifers did HDF own?
A. Eleven hundred.
Q. And where are those heifers today?
A. We sold them.
Q. When?
A. In 2014.
Q. Were they all sold the same month in 2014?
A. Uh-huh, sold to the same individual.
Q. When was that? When in 2014?
A. June or July of 2014.
Q. And who they sold to?
A. I couldn't tell you that. I can't remember that.
Q. Does HDF own any heifers presently?
A. No.
Q. Does it own any mature cows presently?
A. No.
Q. Does it own any animals presently?
A. No.
Q. And it hasn't since those animals were sold in 2014?
A. Correct, yes.
Q. When you came on to HDF as an employee in

October 2013, what did you -- what were your first functions?
A. Farm manager. We needed to grow grass.
Q. For what?
A. We needed to grow grass on the farm and establish grass so we could have grass when the cattle were going to start milking.
Q. Okay. So what did you do to establish grass on the facility?
A. Started with the nursery. The nursery was a four-acre patch. We planted that in November of 2013. Prior to the planting, we disked that ground with a harrow disk six times. We installed --
Q. Over what period time did you harrow the six times?
A. We probably started the first part of November, November of '13.
Q. Right. But over what period of time did you disk the six times? How many? Over days, weeks?
A. Thirty days.
Q. Okay.
A. We installed a drip system, drip irrigator system under the ground of the four acres, and then we sprayed the seed on via mulch.
Q. The drip irrigation system that you installed,

how was that installed?
A. With a drip irrigation plier. It's a two-row plier. It's an instrument that puts the tube in the level ground that you ask for. You pull it with a tractor. It's called an applicator.
Q. Okay. And how deep were the irrigation system --
A. We put them at 12 inches.
Q. Just a minute. How deep was the irrigation system prepared and installed?
A. Twelve inches deep.
Q. Okay. And how did you create the 12-inch deep rows?
A. The machine has got controls on it that measures that and allows you to plant at any depth that you wish.
Q. Okay. And so essentially those are rows, I assume?
A. Right.
Q. How long were the rows?
A. A hundred feet.
Q. Each row was a hundred feet?
A. I want to retract that 'cause I don't know that it is a hundred feet. I'm confused right now, and I can't tell you that for sure.

Q. Okay. I mean, you sounded rather emphatic that it was a hundred feet. Are the lengths of hose a hundred feet?

A. No, no. I wouldn't know the exact measurement without measuring it. I wouldn't want to be wrong.

Q. No, I understand that. And I am asking for -- you know, if you need to approximate something, that's okay. If you're telling me you don't know exactly, that's okay. But I do want an approximation or your approximate.

A. Between a hundred and 200 feet.

Q. Okay. And did you purchase the irrigation -- is it pipe?

A. Drip hose.

Q. Pardon?

A. Drip hose.

Q. Drip hose. Did you purchase the drip hose yourself?

A. No, Adam Killerman did, AJAR.

Q. Okay. So the invoices should tell us how many feet of drip hose was purchased?

MR. PALOUTZIAN: May call for speculation, lack of foundation. Go ahead.

THE WITNESS: I don't think it's on that invoice. I remember that invoice. I don't think it's

on there.

BY MR. TEBBUTT:

Q. Do you have any records that would tell us how many feet of drip hose you purchased?

A. I could go measure it.

Q. No, that's not my question. I mean, when you purchase something, usually you get a receipt for, you know, X number of feet. You're usually charged by probably the foot, right?

A. No.

Q. Or something like that?

MR. PALOUTZIAN: Objection, argumentative. Go ahead.

THE WITNESS: The project was to put a drip irrigation system in at the nursery. And Adam quoted me a flat figure for doing that.

BY MR. TEBBUTT:

Q. And so you relied on Mr. Killerman --

A. Yeah.

MR. PALOUTZIAN: I don't think he was done with his answer.

BY MR. TEBBUTT:

Q. Okay. Go ahead.

A. And we checked it against some other folks that were here on the island that do that kind of stuff, and his price was the best, so we went ahead and did his.

Q. Do you know how many feet of irrigation drip hose you needed for the project?

A. No.

Q. Would Mr. Killerman know that?

MR. PALOUTZIAN: Calls for speculation. Go ahead.

THE WITNESS: Yeah, I'm sure he could figure it.

BY MR. TEBBUTT:

Q. Did Mr. Bloemke actually lay the hose?

A. He was there to -- he was there doing it. Adam had his whole crew there doing it.

Q. Okay. So there were multiple people?

A. (Moves head up and down.)

Q. Okay. Did you assist with that?

A. No.

Q. Did you oversee it?

A. No. I oversaw. I mean, I saw them doing it, but I didn't get to participate in it or anything like that.

Q. But you were present when it was laid?

A. Yeah, just towards the tail end when they were just finishing on the tail end. I had to go out and tell them how to use it.

Q. Okay. And so that was the initial four-acre nursery patch?

A. Uh-huh (moves head up and down).

Q. Okay. All right. So after that was done, what else was done on the site? What did you do next?

A. Well, we went to the far north pivot, and we established a 16-acre patch within that -- that could be irrigated under the pivot. And we set three different ways that we planted grass.

No. 1, we harvested the grass off the nursery, placed it into a bale, hand carried the bales via machine to a 5-acre patch within the 16-acre patch, and we used the stolons that we had harvested, which was as a source of planting the grass.

Q. When you said the stolons, what do you mean by the stolons?

A. Stolons is basically the length of the grass from the top to the bottom.

Q. Okay.

A. Kikuyu has numerous stolons in it that breaks every growth areas because kikuyu typically goes across the ground.

Q. Fans out and grows from those?

A. Yeah.

Q. From the stolons?

A. Uh-huh (moves head up and down).
Q. So the stolons becomes a source?
A. The stolons, once it hits soil, it starts to grow, develops the root base.
Q. Okay. Is stolen spelled the way we think it is?
A. Yes. S-t-o-l-o-n-s.
Q. Okay. And so that was used to essentially seed, if you will?
A. Correct.
Q. The next 5 acres within the 16 acres, you said?
A. That's correct. We had seen that method used different places in South Africa, in Australia, in Nicaragua, Mexico. They had done it that way.
Q. Had you traveled to any of those areas to see that?
A. No.
Q. When you prepared the four-acre patch at the nursery in addition to the harrowing, did you do anything else to that four-acre patch?
A. Fertilized it.
Q. Okay. Did you do anything before you harrowed it?
A. No. Yes, sir. Yes, sir. I'll retract that. We sprayed it.

Q. With?
A. Roundup.
Q. Okay.
A. One-percent solution.
Q. All right. And then the 16-acre patch that you talked about at the north pivot, what did you do to prepare that length?
A. We mowed it initially.
Q. What was there at the time?
A. A hundred percent guinea grass.
Q. Okay. And what did you do with the mowings?
A. Left the clippings on the ground.
Q. Okay.
A. 'Cause organic matter was in real bad condition, so we left them. Then we let it grow up a little bit, oh, 8 or 10 inches tall, and we sprayed it, one-percent solution. We sprayed it twice.
Q. With Roundup again?
A. Yes, sir.
Q. Okay. And then what?
A. We disked numerous times. Six times.
Q. Six times just like you did with the nursery patch?
A. Yep, yeah.
Q. And that was over a period of 30 days?

A. That's correct.
Q. And when did that start?
A. We started doing that in February of '14, February or March of '14, yeah.
Q. Okay. Then what?
A. Then we planted a grass that we call mallato.
Q. How do you spell that?
A. M-a-l-l-a-t-o.
Q. What kind of grass is that?
A. It's a broad-leafed grass that is grown primarily in the topics or in tropical conditions, year-round conditions. It's a quality grass as far as protein, and we wanted to try some of that. And we planted that on 3 acres of the 16.
Q. And when did you do that?
A. Just about the same time that we were preparing the soil for the -- we prepared the whole 16 acres at one time.
Q. And that was in February and March of 2014?
A. Right.
Q. Okay. And then you brought the stolons --
A. Right.
Q. -- over for five acres?
A. And then I planted the seed, the mallato seed.
Q. Okay.

A. And we finished the balance of the 16 acres with kikuyu seed, via kikuyu grass. Purchased the seed.
Q. All right. Purchased the seed for the kikuyu?
A. Uh-huh (moves head up and down).
Q. So you purchased more seed for the rest of the 16 acres 'cause you didn't have enough stolons from the nursery?
A. Yeah.
Q. Okay.
A. We wanted to try both ways.
Q. Okay.
A. Whichever way would work best.
Q. Did you determine which way worked better?
A. Yeah.
Q. Which way?
A. Seed.
Q. So after the first 4-acre patch and then the 16 acres, what did you do on the site?
A. We --
MR. PALOUTZIAN: I'm just going to object, calls for a narrative. Go ahead.
THE WITNESS: The 16 acres was all planted, and we watered it on a daily basis with at least 3/10s of an inch of rain on a daily basis. And if we received that much moisture within the last 24 hours, we wouldn't

water it that following day. So it was the management of the pivot system. And at that point we began to till the grounds on both sides of the 16-acre patch for some additional grass growing that we were going to -- seeding that we were going to do.

BY MR. TEBBUTT:

Q. With kikuyu?

A. Yes.

Q. Okay.

A. I had to move all the fencing material that was located on the farm.

Q. What fencing material is that?

A. The posts that were there, because the place where we were going to plant this additional kikuyu was right where that stuff was unloaded out of the containers initially. And I wanted to use that ground 'cause it was under the pivot so we could water it.

So I moved all the fencing material down along the main road that runs through the dairy. And then there were some culverts and stuff like that, pipe, white PVC pipe. We removed all that off of there. We cleaned that ground up, and we sprayed it twice again, and we used the disk harrow on it and prepared it to be planted in kikuyu. And that was finally done, I'd say, in July of 2014.

Q. Okay. And how many acres was in addition to the original that was planted at that point by July 2014?

A. Total acreage in the whole thing was 36 acres, so we planted an additional 20 acres.

MR. PALOUTZIAN: Counsel, when it's convenient, I'd like to take a 5- or 10-minute break.

MR. TEBBUTT: All right. Let me just ask a couple follow-ups here, and then we'll take a quick break.

MR. PALOUTZIAN: Thank you.

BY MR. TEBBUTT:

Q. Other than the planting that you're discussing, 36 acres, what other site activities did you undertake starting in October 2013?

MR. PALOUTZIAN: The question's overbroad and calls for a narrative. Go ahead.

THE WITNESS: Well, like I told you, we fertilized.

BY MR. TEBBUTT:

Q. Okay. The whole place? How much did you -- well, let me --

A. Fertilize the nursery and the 36-acre patch.

Q. Okay.

A. We sprayed for broad leafs one time. That's all. And we watered it to maintain it, and that was -- and then we mowed it.

Q. Did you install any fences when you first got there?

A. No.

Q. None?

A. None, no. There's not been any fences installed at all.

Q. Okay. The staging material -- or the fence material, the PVC material, is now, when we went on our site inspection in March, in one general area. Was that where you moved everything?

A. That's correct.

Q. Or did you move it multiple times?

A. No, just one time. It was right there above that, north of that, in that field there over where it was. And then we moved it down there along the road.

MR. TEBBUTT: All right. Let's take a break.

(Break from 10:13 to 10:26.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, we're back on the record. And you understand that every time we go off the record and come back you're still under oath, correct?

A. Correct.

Q. Okay. You had mentioned that you irrigated the 36 acres that we talked about just prior to the break. How did you get the water to the fields?

A. Pipeline from Waita Reservoir.

Q. Okay. When was the pipeline installed?

MR. PALOUTZIAN: Well, I think the question is vague as posed. Go ahead. And it may call for speculation, lack of foundation. Go ahead.

THE WITNESS: Late March of 2014.

BY MR. TEBBUTT:

Q. Okay. And who installed it?

A. Effluent Irrigation Company.

Q. Effluent?

A. Effluent.

Q. E-f-f?

A. (Moves head up and down.)

Q. Okay. And was it all installed in March of 2014?

A. To the best of my knowledge.

Q. Do you know how many feet of irrigation pipe was installed in March of 2014?

A. Exact number, no.

Q. Approximate?

A. A thousand to 1,500 feet.

Q. And was that one line or multiple lines?

A. One line.
Q. And did you oversee the installation of that pipe?
A. Yes.
Q. And how was that installed?
A. Excavator, dug the line, pipe was placed in the hole, glued together and back filled.
Q. How deep was the pipe laid?
A. Varied, but the deepest point would probably have been four feet.
Q. Was any of the excavated material moved off site?
A. No.
Q. Was it just laid back over the --
A. Backfilled.
Q. Backfilled. And what was done with the backfilled area? Anything? Was it just allowed to vegetate again normally?
A. Correct.
Q. How did you get water to the nursery area that was planted in November of 2013?
A. Existing waterline.
Q. Do you know when that waterline had been installed?
A. No.

Q. Did you inspect that waterline before you used it?
A. No.
Q. Did you have to do any maintenance to that waterline before you used it?
A. Hook up a riser.
Q. And is that the riser that's at the nursery?
A. Correct.
Q. What did that entail?
A. Kind of putting a T in the line.
Q. Did you have to dig into the ground to get there?
A. Yes, yes.
Q. How deep?
A. Twelve inches.
Q. Over what square foot or yard area?
A. Two by -- two-foot by two-foot.
Q. Were any roads installed or work done starting in October 2013 to, let's say, the March 2014 timeline?
A. Roads, no.
Q. Has there been any time when any roads have been installed or improved on the site since you've been there?
A. No.
Q. You said earlier that no fencing had been

installed, is that correct?

A. Yes.

(Garmatz Deposition Exhibit No. 1 was marked for identification.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, you have in front of you what's been marked as Deposition Exhibit 1. This is a series of invoices with HDF Bates Nos. 000481 through HDF 000555.

I'm going to ask you questions throughout the day about various parts of these. But are these invoices that you recognize -- well, let me strike that.

Are these the invoices that you reviewed in preparation for your deposition today?

A. Yes.

Q. Do you know if this is a complete set of the invoices that you reviewed for your deposition today?

MR. PALOUTZIAN: The question is overbroad. Go ahead.

THE WITNESS: Say that again.

BY MR. TEBBUTT:

Q. Yes, is this a complete set of the invoices that you reviewed for your deposition today?

A. No.

Q. What additional invoices did you review?

A. All those that you supplied.

Q. That who supplied?

A. That you supplied to our attorney and my attorney sent to me.

Q. So you're saying that Friends of Mahaulepu supplied the invoices from HDF?

A. Yes.

Q. That's an interesting way to proceed.

Are you sure your attorneys didn't just provide you with a package of what they provided Friends of Mahaulepu.

A. Where they got them, I don't know. I just got the copies.

Q. All right. Let's take a look at -- and I'm going to refer to the Bates number, just the last three digits of the Bates numbers, okay?

A. Yes, sir.

Q. Down in the lower -- they're generally in the lower right portion of the page. If you turn to 484, please, which I believe is about the fourth page in. And these are front and back. So the fourth page in to Exhibit 1. Do you see that?

A. Uh-huh (moves head up and down).

Q. It says 10 -- 12/10/13, install hogwire fence in grass area dairy site.

A. Yes. That's a fence to prevent the pigs from eating the grass up.

MR. PALOUTZIAN: Let him ask the question.

BY MR. TEBBUTT:

Q. Where was that installed?

A. Huh?

Q. Where was that installed?

A. Around the perimeter of the nursery.

Q. Okay. 'Cause I asked you just a few minutes ago whether any fence had been installed and you said no. Is that -- that's not a correct statement, is it? The earlier statement.

A. You need to define for me fence.

Q. Well, this says, Install hogwire fence, doesn't it? Do you consider that a fence?

A. I assumed when you asked the question that you're talking about permanent fencing.

Q. Okay. What type of hogwire fence was installed on December 10, '13?

A. Placed steel posts in the ground, hung the wire to it.

Q. What kind of posts?

A. Steel posts.

Q. What's a steel post?

A. T posts.

Q. What do they look like?

A. Long and slender.

Q. Wood?

A. Metal.

Q. How long?

A. They're six-foot long.

Q. And how are they installed?

A. Pound them in.

Q. With what?

A. Post pounder.

Q. By hand?

A. Yes.

Q. Did you have a post pounder on any mechanical implement or did you install them all by hand, pound them by hand?

A. I can't tell you that.

MR. PALOUTZIAN: It assumes facts not in evidence. Go ahead.

THE WITNESS: I can't tell you that.

BY MR. TEBBUTT:

Q. Were you present when the fences were installed?

A. No, no.

Q. Who installed them?

A. AJAR.

Q. Is that Scott Bloemke?
A. I don't know that 'cause I wasn't there.
Q. So you're saying that the fence that was installed on December 10th, '13, was only around the nursery area, is that correct?
A. Correct.
Q. You can put that aside for right now. We'll get back to it.
What other irrigation pipe was installed after that first line from the Waita Reservoir?
A. A portion of the waterline to the lower pivot.
Q. When was that installed?
A. In April of '14.
Q. And how many feet of irrigation pipe was installed then?
A. About 1,100 feet.
Q. When were the pivots brought in?
A. They were delivered in January of '14.
Q. Both pivots?
A. Yes.
Q. Just the two pivots?
A. Yes.
Q. And today there's still just the two pivots?
A. Yes.
Q. Who installed the pivots?

A. Effluent Irrigation.
Q. And did you oversee that installation?
A. Yes.
Q. And was it done to your satisfaction?
A. Yes, sir.
Q. What other preparation -- well, let's start with the nursery area. You said the nursery area was sprayed with Roundup before it was harrowed, correct?
A. Yes.
Q. Okay. Was it sprayed with Roundup just one time?
A. Twice.
Q. Twice. And was it -- the second spraying after harrowing had begun?
A. Yes.
Q. So sometime in the middle of the harrowing process?
A. Yes.
Q. Were there any trees cleared in that nursery area?
A. No.
Q. Trees or shrubs. None?
A. None.
Q. What was there previously? Just --
A. Guinea grass.

Q. Okay. What trees or shrubs clearing took place on the site from the time you started there in October 2013 until June 2014?

A. Just any tree that was taller than what our pivot could go under or go over.

Q. So what height would that be?

A. Eight to 10 feet.

Q. So anything over 8 to 10 feet was cleared, was that on the whole over 500 acres?

A. Yes.

Q. And how many of those trees or shrubs were there, would you say?

A. Numerous.

Q. How many?

A. Fifty.

Q. What kind of trees were they?

A. Primarily -- you know, I can't identify that 'cause I just don't know.

Q. Okay. What were the tallest trees that were cleared?

A. The albizia trees.

Q. And how tall were they?

A. Some of them as high as 20 feet.

Q. How many of them would you say were 20 feet?

A. Six or seven of them.

Q. Were any over 20 feet?

A. Yes.

Q. What were the tallest ones?

A. Thirty footers, 30 to 35 feet.

Q. And how many were in the 30- to 35-foot range?

A. Just two.

Q. And you think about a total of 50 trees of approximately 20 feet?

MR. PALOUTZIAN: Objection, misstates testimony.

BY MR. TEBBUTT:

Q. Is that a fair statement?

A. Say that again.

Q. About 50 trees that were approximately 20 feet tall?

A. No. Most of -- the balance of the 50 would have been 10 foot at the max, but they were tall enough we couldn't get the pivot across.

Q. Okay. About how many would you say were 15 feet or more?

A. Ten to 15.

Q. And what did you do with those trees?

A. We ground them to the stump.

Q. Okay. And just left the material on site?

A. Uh-huh. Let me say that again. We ground them to the stump, which means (indicating).

Q. Right. Had the stumps been removed since?

A. No.

Q. They're still -- are they still there?

A. Yes.

Q. So the nursery started out with four acres, correct, in 2014?

A. Yes, sir.

Q. Has that been expanded?

A. No.

Q. So it's still four acres?

A. No.

Q. How many acres is it now?

A. Three and a half.

Q. And what do you do with the cuttings from the nursery? Well, let me back up.

How often is the nursery area cut, mowed, whatever? What do you call it cut or mowed?

A. Mowed. Ten to 18 days.

Q. And what do you do with the cuttings?

A. Where?

Q. From the nursery.

A. They're left.

Q. Just right on the nursery property itself?

A. Yep. Except for the one time we baled them and

hauled them to plant in the 16 acres.

Q. How often do you mow the 16 acres?

A. Same. Ten to 18 days.

Q. And what do you do with the cuttings?

A. Most of the time they're left. Sometimes we bale some.

Q. And when you bale them, what do you do with them, with the bales?

A. Give them to the ranchers.

Q. How many bales do you give to the ranchers?

A. Oh, I wouldn't have the exact count. Two hundred, 250.

Q. Total? That's the total number of bales you've given to the ranchers since you started in 2013?

A. Yes, sir.

Q. And you don't charge the ranchers?

A. No.

Q. Okay. The term grubbing and grading has been used. Are you familiar with that term?

A. Yes, sir.

Q. And you've got a grubbing and grading permit from the County of Kauai, correct?

A. Correct.

Q. Describe for me what you mean by grubbing and grading.

A. Two separate terms.

Q. Okay. Let's go with grubbing first.

A. Grinding of a forage product or a tree product or a bush product to the ground.

Q. Okay. And you testified about that just a little while ago. Other than the approximately 50 trees that were grounds down to the stump, was there other grubbing practice that went on on the site?

A. Yes.

Q. And describe that for me, please.

A. We had a large accumulation of guinea grass and koa trees or koa bushes, I should say. I don't think they're a tree. I think they're a bush. And we had to grub those to get rid of them.

Q. Okay. And what did you could to grub them?

A. Used the grinder on the front of the excavator, hydraulic-driven grinder.

Q. Okay. So the koa trees you would classify as bushes?

A. Yes.

Q. And how tall were they?

A. Oh, some as high as 10-foot tall, and the others, you know, four or five foot tall.

Q. How many of the koa bushes or trees would you say --

A. About thousands.

Q. And was that material just left on site?

A. Yes.

Q. What other types of brush or small trees were grubbed, other than the ones you've just testified about?

A. I'm sure that there was other trees there, but I can't -- I couldn't name them for you.

Q. And was this all over the 500 and some acres?

A. Yes.

Q. What kind of grading was done on the property?

A. None.

Q. What type of work was done at the construction entrance?

A. Define construction entrance.

Q. Well, where the trailer is where I met you during the Rule 34 inspections, is that considered the entrance to the dairy site?

A. Yeah, I would consider that.

Q. Okay. What was done to prepare that area?

A. Nothing.

Q. Were there any fences installed?

A. No.

Q. No posts installed there?

A. Just the posts -- steel posts they put in the ground to keep the trailer from blowing away.

Q. And what about the gate? Was the gate already there?

A. Gate's always there.

Q. What utility lines were installed on the property since you started there?

A. None.

(Garmatz Deposition Exhibit Nos. 2 and 3 were marked for identification.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, I'd like you to take a look at Exhibit 2, please?

A. That's it right there -- here. Yes, right there.

Q. And I'm going to ask if you've seen this document before.

A. Yes, sir.

Q. And when did you first see it?

A. I think Dirk sent it to me.

Q. Do you know when that was?

A. About two weeks ago. I don't know which date.

Q. I'm sorry. About two weeks ago, did you say?

A. Yeah.

Q. Okay. And do you see Exhibit A to Exhibit 2?

A. Exhibit 2 for activities?

Q. The Exhibit A.

MR. PALOUTZIAN: It's on page 3.

BY MR. TEBBUTT:

Q. Right here, Exhibit A. Just flip it over. There you go. Do you see that list of --

A. Uh-huh.

Q. Okay. And you're designated here as the -- well, I use the word corporate for purposes of HDF today, okay?

A. Uh-huh (moves head up and down).

Q. The corporate representative with respect to all areas in No. 1 and No. 2, correct?

A. Correct.

Q. We've discussed the grubbing and grading that's depicted in 1A. Do you see that?

A. Uh-huh (moves head up and down).

Q. Is that the full extent -- what you testified about already, is that the full extent to the grading and grubbing of vegetation throughout the site or is there other?

MR. PALOUTZIAN: The question is overbroad, go ahead.

THE WITNESS: What do you mean here by native vegetation?

/

BY MR. TEBBUTT:
Q. Well, the vegetation that existed on the site at the time you came on.
A. Yes.
Q. Okay. So were there any other grubbing or grading activities that occurred that you haven't testified about yet?
MR. PALOUTZIAN: I'm going to object to the form of the question because it misstates the prior testimony with respect to grading, but go ahead.
BY MR. TEBBUTT:
Q. All right. Let's stick with grubbing, is there any other grubbing activity other than what you've described that occurred on the site?
A. Yes.
Q. What?
A. We grubbed the fence line.
Q. And when did you do that?
A. In August of '15. August or September of '15.
Q. Okay. And when you said you grubbed the fence line, what fence line are you referring to?
A. The perimeter fence line.
Q. So around the outside perimeter of the property?
A. Correct.

Q. And that's separate from what we talked about just a minute ago, correct?
A. Uh-huh (moves head up and down).
Q. Okay. So along the perimeter -- you said yes?
A. Yes.
Q. Okay. So along the fence line, did you determine how many feet around that was, around the perimeter?
A. Estimated length, about 2,200 feet.
Q. Around the perimeter of the entire property?
A. Yes, that we grubbed.
Q. That you grubbed, okay. And in that area that was grubbed, how many trees were over -- were 15 feet or more?
A. None.
Q. Any vegetation that was 15 feet or more?
A. No.
Q. What was the highest vegetation that you grubbed?
A. Ten feet.
Q. Okay. What kind of vegetation was that?
A. Mostly just dead trees and dead stock materials that had just accumulated.
Q. Were there any koa trees that you had grubbed?
A. Some.

Q. Along the fence line?
A. Some.
Q. Okay. And what did you do with that material?
A. Left it. It was ground.
Q. So other than what you've just discussed, we've discussed three general areas of grubbing, the one with the trees that we talked about, the taller trees, then the whole property, which you grubbed -- how -- of the 580 acres or so on the site, there's about 580 acres on site, correct?
A. Uh-huh (moves head up and down).
Q. How many of those acres did you grub?
A. The whole 580 acres was grubbed because if we could cover the ground with a mower, we mowed it down. I would consider that a portion of the grubbing. So regardless of how it was grubbed, all the acres were grubbed.
Q. Okay. SO describe for me the different grubbing practices that you did.
A. Well, 15-foot mower propelled by a John Deere tractor or a small excavator with a hydraulically-driven grinder on the front. And then we also utilized a large disk that was pulled by a D8 Cat.
Q. Okay. Did you harrow -- how much of the property did you harrow?

A. Approximately 480 acres.
Q. The whole thing?
A. (Moves head up and down.)
Q. And did you replant it in some type of grass?
MR. PALOUTZIAN: I'm going to object to the question. Misstates the testimony. Go ahead. I think you said 480 acres.
BY MR. TEBBUTT:
Q. And that's what you said, right, 480 acres?
A. Oh, I'm sorry. You said whole thing.
Q. Okay. And of the 480 acres, how much did you harrow?
A. All of it.
Q. Okay. And what did you do after you harrowed it?
A. We left it.
Q. How many times did you harrow it?
A. Some places two times. Most places three times.
Q. Okay. Did you apply pesticides?
A. No.
Q. To any of that 480 acres?
A. Define pesticides.
Q. Roundup.
A. Well, Roundup's a herbicide.

Q. Well, herbicide is a category of pesticides, isn't it?
A. Some portions of it we did and some we didn't.
Q. Okay. So about -- of the 480 acres, had many acres did you apply Roundup on?
A. Seventy-five at the most.
Q. Okay. And why did you apply Roundup to 75 acres?
A. Because we knew we were going to plant grass on it.
Q. What did you plant on it?
A. Kikuyu grass.
Q. On all 75 acres?
A. Uh-huh.
Q. So since the time that you planted the 36 acres that we discussed earlier, you planted another 39 acres?
A. Yes.
Q. When did you do this?
A. In July of '15, July and August of '15.
Q. Okay. So in July and August of '15 you harrowed that 39 acres?
A. Yes.
Q. How many times?
A. Five times.
Q. And applied Roundup how many times?

A. Twice.
Q. Okay. So when you harrow it, you brought the soil so it's basically just a big soil field, correct?
A. Yes.
Q. Did you place any -- do you know what a best management practice is?
A. Uh-huh (moves head up and down).
Q. In the context of the work you're doing on the HDF property, what's constitutes a best management practice?
MR. PALOUTZIAN: I'm going to object that it calls for an expert opinion, lacks foundation, calls for speculation.
BY MR. TEBBUTT:
Q. Go ahead.
A. BMPs, best management practices are procedures outlined in writing as to how work should be done.
Q. Okay. Did you have any BMPs in place related to the harrowing that you did on any of the acreage on the facility?
A. No.
MR. PALOUTZIAN: Same objections.
BY MR. TEBBUTT:
Q. And the answer is no?
A. No.

Q. The area that you harrowed, how close was that to any of -- any edges of the fields? How close was that to any irrigation ditches?

MR. PALOUTZIAN: The question is over broad, lacks foundation, calls for speculation. Go ahead.

THE WITNESS: Restate that question again.

BY MR. TEBBUTT:

Q. Yes, the field that you harrowed to plant kikuyu grass in July and August of 2015, what was the closest irrigation ditch to any of those fields?

MR. PALOUTZIAN: Same objections. Go ahead.

THE WITNESS: They were around two of the ditches. An eight-acre patch was around two ditches and then the --

BY MR. TEBBUTT:

Q. The what? I'm sorry.

A. An eight-acre patch was near the ditches.

Q. Okay.

A. And then the balance of it was located near one of the ditches.

MR. TEBBUTT: Go off the record for just a second.

(Off the record from 11:05 to 11:06.)

(Garmatz Deposition Exhibit No. 4 was marked for identification.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, I'm going to hand you a green marker, which I think might be a good color for what we're about to do. Yeah. And if you could with the green marker, please, on Exhibit 4, which is -- let me strike all that.

Do you recognize Exhibit 4, sir?

A. Yes.

Q. Okay. And do you recognize it to be a figure from -- produced by HDF as part of its proposal to put a dairy site at the Mahaulepu property?

A. Yes.

Q. Okay. I'm going to ask you to draw the area that was planted in July and August of 2015 on Exhibit 4 with the green marker. Can you do that for us?

A. (Writing.)

Q. Okay. So there are two areas -- well, actually, if I may ask you, this line here that goes to the irrigation pivot, does it complete --

A. (Writing.)

Q. There we go. All right. So there are essentially two areas that you've indicated on Exhibit 4 as the areas that were harrowed and then planted in

kikuyu grass in July and August 2015, correct?
A. Yes.
Q. Could you please put the No. 1 in one of them and 2 in the other?
A. (Writing.)
Q. And then circle the number, please.
A. (Writing.)
Q. Okay. Do you know how many -- approximately how many acres No. 1 is?
A. Eight.
Q. Okay. And No. 2, how many acres?
A. Just thinking here.
Q. Okay.
A. Approximately 30.
Q. Okay. And the total is approximately 39, you said earlier?
A. Yeah.
Q. Okay. I'm going to hand you a brown marker, and if you could tell me where the irrigation ditches are in proximity to fields 1 or 2. Well, hang on just a second. Let me back up. Move your hand, please. Okay.
Before you do that, do you see the stream or river markings are in light blue on the key?
A. Uh-huh (moves head up and down).
Q. Is that yes?

A. Yes.
Q. Okay. And the stream or river marking, is that what runs right along the green line that you have on the west side of field one?
A. Yes.
Q. And is there a name for that river or stream?
A. Ditch.
Q. What do you call it?
A. Ditch.
Q. Is that -- that's all you call is the ditch?
A. Uh-huh (moves head up and down).
Q. And does a ditch also enter in the upper left-hand corner of field two coming from north of the green line that you put in?
A. Yes, yes.
Q. And does that join up with the ditch that --
A. Yes.
Q. Just a moment, please. That borders the green line that you drew in on the west side of one?
A. Yes.
Q. And where does that ditch go? The ditch where -- after the confluence of the two ditches that we're discussing here, and I'm going to ask you with my blue pen to circle the confluence of those ditches.
A. Define confluence.

Q. Where this ditch that we talked about that runs into the northwest corner of field two meets up with the ditch that comes in along side the west edge of field one.

A. (Writing.)

Q. Okay. So that's the confluence where you've circled there.

And then where does that ditch proceed then? Before you mark, just tell me where it goes.

A. (Indicating.) Straight to the south.

Q. Okay. So is that the purple line at that point?

A. Yes.

Q. Okay. And is that open to the surface all the way?

A. Define open to the surface.

Q. Open to the air.

A. Yes.

Q. Okay. So none of it is piped underground?

A. Oh, no, no.

Q. That's what I was trying to get at. Okay.

THE WITNESS: I need to take a break.

(Break from 11:13 to 11:18.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, I'm going to ask you some more

questions with respect to the categories of questioning in Exhibit 2. Have we discussed everything there is to discuss about 1A with grading and grubbing?

MR. PALOUTZIAN: I'm going to object to the form of the question. Go ahead.

THE WITNESS: Yes.

BY MR. TEBBUTT:

Q. With respect to 1B, the watering troughs, how many watering troughs have been installed?

MR. PALOUTZIAN: Object to the form of the question on that as well. Go ahead.

THE WITNESS: Approximately 160.

BY MR. TEBBUTT:

Q. Okay. And those to the concrete watering troughs referred to in 1B in Exhibit 2, correct?

A. Correct.

Q. And what did you do to prepare the area for the installation of the water troughs? Was it -- well, let me ask you this: Was the preparation similar for all 160?

A. Yes.

Q. Tell me what the preparation was.

A. The ground was left as is, level as it was, and we brought in the limestone from the quarry and leveled the ground and raised the water trough up on a level plane so they could place the water trough on that level plane.

Q. Okay. Was there any excavation work done?

A. No.

Q. So the limestone was added to the surface?

A. Correct.

Q. And built up?

A. Built up and leveled.

Q. Okay. And it was brought from the neighboring quarry?

A. Yes.

Q. The one that's pretty close to the site?

A. Yes.

Q. That you can see from the site?

A. Yes.

Q. And how much over ground level was each water trough built up or the setting for the water trough?

A. The design was 12 to 15 inches, but some places we had to put more. If the ground was unlevel, we had to put more.

Q. Okay. And are all the watering troughs, do they now have waterlines that connect them?

A. No.

Q. Do any of them have waterlines that feed them?

A. Some.

Q. How many?

A. Forty.

Q. Are they in one particular area, those 40?

A. Yes.

Q. Okay. And are they fed by one of the two irrigation pipes that was installed at the facility that you testified about earlier?

A. No.

Q. Are they fed by an existing waterline?

A. No.

Q. How are they fed?

A. Not fed at all yet.

Q. Right. But that infrastructure is there, correct?

A. Uh-huh.

Q. Is that a yes?

A. The infrastructure to the --

Q. To the watering troughs.

A. That was installed.

Q. Okay. And when was that installed?

A. April of '14, March and April of '14.

Q. And those installations were in addition to the two pipes that you testified about earlier, correct?

A. Correct.

Q. And how was that piping installed?

A. We used a tool that digs down in the ground by the force of a bucket of an excavator, large excavator. We call it the wedge bullet. And the pipe is attached to the bullet that comes along in the ground underneath. It digs down about 16, 18 inches. Just a thin line.

Q. Okay.

A. And the pipe trailer is right behind it. And as you -- as the excavator moves backwards, the bullet stays in the ground continuously, and the excavator just drives it where he wants the line to go.

Q. Okay. So the earth along the line is disturbed, it's moved up and around, is it or not?

A. Yes, it is.

Q. Okay.

A. Just a small portion. Not very large. I mean, four or five inches might be the most because that bullet stays in the ground as it pulls that pipe. And then the pipe is in the ground and right behind the bullet. The ground comes together. I mean, it's just a thin piece of steel, real (indicating).

Q. Okay. And how wide is the area of disturbance?

A. Two to three inches, four inches. Let's just say six inches.

Q. And how many feet of the bullet piping, is that what you call it? What was the phrase you used? I'm

sorry, Mr. Garmatz.

A. Bullet. We call it the bullet drill is what we call it.

Q. Bullet drill.

A. Yeah.

Q. Okay. How many feet of piping was installed with the bullet drill?

A. I wouldn't know that figure. I couldn't tell you that.

Q. Approximately.

MR. PALOUTZIAN: Lacks foundation, calls for speculation. Go ahead.

THE WITNESS: Thirty-five hundred feet.

BY MR. TEBBUTT:

Q. Okay. Do you know what the distance is between the water troughs? Is it kind of a similar distance between them?

A. It's a similar pattern.

Q. Okay. So are they laid out circularly, linearly?

A. Linearly.

THE COURT REPORTER: Hang on one second. Something happened with my machine.

(Court Reporter machine malfunction.)

(Off the record from 11:25 to 11:27.)

BY MR. TEBBUTT:

Q. Do you know what the distance is between the water troughs generally?

A. Estimate 200 feet.

Q. Okay. And the water troughs are patterned such that they'd be available in the paddocks that the cows would be able to use, correct?

A. Two water troughs per paddock.

Q. Okay. Are all the water troughs that would be -- that are planned for the site installed now?

A. No.

Q. How many more water troughs need to be installed?

A. Well, the difference in the number that I gave you before from -- no, there's a total of 238 water troughs. What's the number I gave before?

Q. You said there're 40 that had piping to them.

A. Yeah. But you asked me how many had been installed.

Q. Right. And I don't remember.

A. I don't know what that difference number is.

MR. PALOUTZIAN: I believe the testimony was more than 60.

THE WITNESS: Yes. So there's probably 70 to 80 that need to be installed yet.

BY MR. TEBBUTT:

Q. Okay. Are there any other waterlines other than the two irrigation lines that we talked about and the waterlines that are installed to the approximately 40 troughs that are already installed? Are there any other waterlines that have been installed on the site since you started in October 2013?

A. No.

Q. The first the pivot, when was that installed?

A. March 2014.

Q. Okay. And is that Pivot 1 as depicted on Exhibit 4?

A. Yes.

Q. So that's March 2014 was its installation, correct?

A. Yes.

Q. Were there bridges or ramps installed to allow Pivot 1 to do its job?

A. Yes.

Q. And how many pivots or ramps were installed?

A. Well, you've got 12 towers.

Q. Let's just say for Pivot 1 to start with.

A. I'd say 18 to 20.

Q. Okay. In the field that covers Pivot 1, about 18 to 20 ramps?

A. Uh-huh (moves head up and down).
Q. Describe how a ramp is installed.
A. Well, they're mechanically --
MR. PALOUTZIAN: Let me just state the question is vague and overbroad. Go ahead. Go ahead.
THE WITNESS: They're mechanically put together. They're welded together before they're placed.
BY MR. TEBBUTT:
Q. Where was that work done?
A. On the edges.
Q. Of the fields?
A. In the fields, yes.
Q. Okay.
A. And then the large excavator would attach it in the middle, and each location of bridge had a GPS site. We would determine that GPS site and center one into the bridge on one side of the bank, and then we would go to the other side and determine what the GPS point is and situate that point in the middle. And then we had -- there's long spikes, 32 inches long, that are on the edge -- ends of the bridges. And we would have a backhoe that would be there, that once it was set and everybody agreed it matched the GPS, would set both sides down into the ground.

Q. How would you set them down?
A. Backhoe, hydraulic. The bucket would push it in the ground.
Q. Would push the spike down?
A. Yes.
Q. Did you prepare the areas where the anchor ends of the bridges went?
A. Where it was needed.
Q. And so what would you do to prepare the ground where it was needed?
MR. PALOUTZIAN: The question is vague. Go ahead.
THE WITNESS: We would drag the soil back, just the width of the bridge.
BY MR. TEBBUTT:
Q. And how wide are the bridges?
A. Thirty inches.
Q. Okay. And how far would you drag the soil back?
A. Just far enough to make sure that the tire could get on top of the bridge.
Q. How many feet would that be?
A. In worst case scenario, probably three feet.
Q. What do you think the average is?
A. Two to three feet.

Q. And how many bridges did you have to do that for?
A. I couldn't tell you that exactly.
Q. More than half of them?
A. Oh, no. No.
Q. More than five?
A. Yeah. Let's say 5 to 10.
Q. Five to 10 for Pivot 1?
A. Uh-huh (moves head up and down).
Q. Was that also true for Pivot 2? Same number -- are there the same number of ramps or are their fewer?
A. There's fewer, because it only crosses one drain. It crosses this drain right here (indicating).
Q. Okay. Does Pivot 2 not cross the drain that comes through the field where Pivot 1 is?
A. Yes.
Q. It does cross that?
A. Yes.
Q. So are there ramps there, too?
A. Yeah, there's ramps there, too. My mistake.
Q. And is there actually a third waterway that Pivot 2 crosses right here?
A. Yeah, but it's not designated for bridges.
Q. There are no bridges on this --
A. No.

Q. -- particular segment?
A. No, it's just a swale, going to be a swale.
Q. Okay. So do you have names for these -- this particular what you call a swale?
A. No.
Q. Do you have a name for this one (indicating)?
A. We call it the main drain -- main ditch.
Q. Okay. Can you just write the initials -- or just write the word, main ditch, somewhere right next to that and point to it, please?
A. (Writing.)
Q. And just draw an arrow.
A. (Writing.)
Q. Okay. And what do you call this -- the ditch that's to the --
A. Center ditch.
Q. -- east of it? Is that right? West, east?
A. East, east.
Q. I'm confused. East. Thank you.
A. (Writing.)
Q. Okay. Are there any other ditches on the property that you have names for?
A. I call this the No. 6 (writing).
Q. So that's the swale we were just talking about?
A. Uh-huh.

Q. Would you put an arrow to that, please?
A. (Writing.)
Q. Okay.
A. Call this one the one that comes down here. That's right here, the No. 3 (writing).
Q. And the No. 3 goes into a little pond on the property?
A. No. This map isn't a hundred percent right. It goes into this -- it goes into the main ditch.
Q. So can you take my blue pen and draw the continuation where it goes into the main ditch?
A. (Writing.) That's where it needs to be, right here, not here.
Q. Okay. So this ditch is off, you think, a little bit?
A. Yes.
Q. Potentially a little bit to the northeast?
A. Yes. Northwest.
Q. Northwest, okay. So that's No. 3 ditch?
A. Uh-huh (writing).
Q. Okay. And you drew squiggly lines through the other No. 3 ditch because you think that's incorrectly sited on the map, correct?
A. Yes.
Q. Okay. Any other water courses or ditches that

you have names for on the site?
A. No.
Q. And all of these ditches eventually converge just south of the site, correct?
A. Correct.
Q. Okay. And then eventually go to the ocean through the Waiopili Stream?
A. Correct.
Q. And are there other swales on the property that are unnamed?
A. No.
Q. There are no other ditches or swales that could carry water off the site in your mind?
MR. PALOUTZIAN: Lacks foundation, calls for speculation. Go ahead.
THE WITNESS: No.
BY MR. TEBBUTT:
Q. Were you present when the ground water monitoring wells were installed on the site?
A. Yes, sir.
Q. For all four of them?
A. Yes, sir.
Q. And have there been just four thus far?
A. That's all.
Q. Describe the site preparation for the first

monitoring well.

A. Just mowed the grass. They went in and started.

Q. Did you do any excavating or digging?

A. No.

Q. When the wells were drilled, where did the cuttings from the drilling go?

A. We kept them local. Just brought 'em off to the side.

Q. How far away from the actual drilling site?

A. Twenty feet at the most.

Q. And did you do anything to them?

A. No, just kept them there.

Q. Just going back to my question earlier. I just wanted to clarify. You said -- well, let me ask you this question with respect to the other ditches: Are there any other smaller unnamed ditches that go to the main ditches that drain to -- that eventually drain into the ocean?

MR. PALOUTZIAN: Lacks foundation, calls for speculation. Go ahead.

THE WITNESS: Yeah.

BY MR. TEBBUTT:

Q. And are they depicted on Exhibit 4?

A. Yeah.

Q. All right. Circle, if you will, the headwaters of those ditches.

A. (Writing).

Q. Okay. So that's the beginning of it?

A. Uh-huh.

Q. Okay. And that's actually along the -- okay. Is that the eastern ridge or western ridge? Eastern ridge of the -- eastern edge of the property?

A. Uh-huh.

Q. Okay. And that doesn't go onto the property?

A. Yes.

Q. It does?

A. Uh-huh.

Q. Where does it go onto the property?

A. Right here (indicating).

Q. Okay. And so take your pen and draw where it goes.

A. (Writing.)

Q. Okay. Does it end there?

A. Yes.

Q. Or does it hook up with the center ridge?

A. Ends there. Ends there.

Q. And so it doesn't hook up with any of the other ditches or water courses? Does it continue somewhere?

A. It ends here.

Q. What does it end in?
A. In a field.
Q. Okay.
A. The large area currently.
Q. All right. So do you have a name for that ditch?
A. No, no.
Q. Okay.
A. Haven't worked with it.
Q. Okay. You haven't done anything on that?
A. No.
Q. Okay. So can you put an X on the spot where you said it terminates.
A. (Writing.)
Q. Okay. And then circle it, please.
A. (Writing.)
Q. Okay. Are there any other ditches like that on the property or just -- are there other ditches that come onto the property?
A. Yeah, we've got one back here.
Q. So take the blue pen and draw the outline of that one, too, please.
A. (Writing.)
Q. And did that -- the one you just drew with the blue pen starting on the western side by the pumping

station going right across the top where it says, Drip irrigation 3.9 percent, and then continuing over, does that continue over to the main ditch?
A. Yes.
Q. And it --
A. Enters the main ditch.
Q. Enters the main ditch. And do you see water flowing in that ditch sometimes?
A. Yes.
Q. Okay.
A. That's the Waita drain.
Q. That's what's called the Waita drain?
A. Right.
Q. Okay. And are there other low spots on the site that when, you know, we were there during the Rule 34 inspection, you said there were a number of low spots around the facility. Are there other low spots that are not drawn on Exhibit 4?
A. You mean -- what do you mean by low spots?
Q. Well, low spots that or old swales or something like that.
MR. PALOUTZIAN: The question is overbroad, it's vague.
THE WITNESS: There's a line that runs right through here (indicating).

BY MR. TEBBUTT:

Q. What kind of line?

A. It's where the old PVC line is that feeds all these people down here (indicating).

Q. Feeds them what?

A. Water.

Q. From where?

A. Waita.

Q. So has that sort of eroded and become a low spot where that pipe is over time?

A. Yes.

Q. Okay. And so that runs parallel to the center between the main ditch and the center ditch?

A. Right here, right here (indicating). Parallel to it all the way down.

Q. Okay. Where does it start?

A. Right here (indicating).

Q. And it comes off the dotted yellow line?

A. No, no, no, no, no, no, no. It starts -- there's a pump station right here (indicating).

Q. Okay.

A. We call it a pump station.

Q. All right.

A. And that's where that P --

Q. Can you write PS next to that, please?

A. (Writing.)

Q. Okay. And then draw where it goes.

A. (Writing.)

Q. So it goes from the pump station, fairly close to the middle of where the main ditch and the center ditch are, correct?

A. Yes, yes.

Q. And what does it go to once it goes off the HDF site?

A. To other people.

Q. Other farms?

A. Yes.

Q. For irrigation?

A. Yes.

Q. Is there an end point right there where it ends?

A. I couldn't tell you that. I wouldn't know.

Q. Okay. And so that's -- the PS line is a low spot in the fields?

A. Uh-huh (moves head up and down).

Q. Okay. Have you ever seen water running in there?

A. No.

Q. Were you responsible for the well completion reports?

A. No.
Q. Were the well drillers responsible for that?
A. Correct.
Q. Did you review their reports?
A. Yes, sir.
Q. Did you review them before they were submitted to the state?
A. No.
Q. Do you know if anyone from HDF reviewed them before they were submitted to the state?
A. Tom Nance or our advisor.
Q. One of your consultants?
A. Yes.
Q. Have you done any work on repairing or replacing fencing along the perimeter of the HDF property?
A. No. Define repairing or fencing.
Q. Well, is there -- all right. Let's try it this way: Is there a fence all around the perimeter of the HDF property?
A. Some fencing, which would be neighbors' fencing.
Q. Okay. Does HDF own fence that goes all around its property?
A. We don't have anything installed.

Q. Okay. So the fences then are all neighbors' fences, not HDF fences?
A. Uh-huh (moves head up and down).
Q. Has HDF maintained any of those fences?
A. No.
(Garmatz Deposition Exhibit No. 5 was marked for identification.)
BY MR. TEBBUTT:
Q. Sir, handing you what's been marked Exhibit 5, an aerial photo, do you recognize the area that's depicted in this photo?
A. Yeah.
Q. Do you recognize it to be some portion, at least, of the HDF site?
A. Yeah.
Q. Do you see what we're going to refer to and what was referred to in Exhibit 2 as the keyhole pond?
A. Yes, sir.
Q. Tell me how that pond -- well, strike that.
When was that keyhole pond dug?
A. Late April or early May of '14.
Q. And why was it dug?
A. Observation purposes.
Q. Observation of what?
A. Possible rock formations closer to the surface.

Q. So would you characterize it as a geological excavation?

A. Yeah.

Q. All right. And what were the results of that excavation?

A. That there was no rock there.

Q. Okay. Were any samples taken?

A. No.

Q. Any soil samples taken?

A. No.

Q. No water quality samples?

A. No.

Q. What's the source of the water in that pond?

A. Probably groundwater.

Q. How deep was that pond dug?

A. Originally dug about 8 to 10 feet.

Q. And what about the area around it, was that excavated at all before that pond was dug?

A. No, we just had the excavator down -- well, the excavator might have done some work around it. But I was there that day, and I don't recall any of that going on there.

Q. The excavated material, what was done with that?

A. As you see there, it's placed to your left in

that little berm, that grassy berm.

Q. Can you, with my blue pen, please circle the area where the excavated material was placed?

A. (Writing.) How do you want me to identify it?

Q. Just put EXC.

A. (Writing.)

Q. Do you see how the area there looks squared off?

A. Uh-huh (moves head up and down).

Q. Where keyhole pond was.

A. Uh-huh.

Q. Was there excavation done to create that square or rectangular area?

A. I couldn't tell you that. I wouldn't know.

Q. Wasn't, in fact, that whole area excavated before the keyhole pond was dug?

A. I couldn't tell you that.

Q. Who could?

MR. PALOUTZIAN: Calls for speculation, lacks foundation. Go ahead.

THE WITNESS: Probably Mason, the excavator operator.

BY MR. TEBBUTT:

Q. Mason who?

A. Slako, S-l-a-k-o.

Q. Were you there with him the whole day when that --

A. No, I came later that day when they decided to go ahead, but I remember we followed the excavator in there.

Q. Who's we?

A. Myself and Doyle Waybright.

Q. Just the two of you?

A. No, Marty was there also.

Q. Who's Marty?

A. Marty Forster is the guy that owns Effluent Irrigation.

Q. Okay. Who else was there?

A. Myself and Doyle and Mason. And I believe Adam was with us, too. I'm not for sure about that.

Q. Who requested that this area be dug?

A. The geophysicist that was doing the soil work, the geophysical study for the slab for the parlor, the dairy parlor.

Q. And who is that?

A. I can't recall his name.

Q. Was he present during the excavation?

A. No.

Q. Was this all done in one day?

A. Yeah, one afternoon.

Q. Did you take pictures for the geophysicist?

A. No, we never did.

Q. How did he get information about what you did?

A. We just told him, called him the next day and told him what we ran into. But this wasn't for his study.

Q. What was it for then?

A. Our own information.

Q. For what kind of information?

A. To determine if there was any stone or what depth the stone was at.

Q. Was this the area where you planned to put the lagoon, the effluent lagoon?

A. Yes.

Q. So was part of the purpose to determine depth to groundwater?

A. No, we were looking for stone.

Q. Have you determined what the depth to groundwater is in that area?

A. Varies from time to time.

Q. Right where the keyhole pond is, have you determined the depth to groundwater there?

A. Like I said, it varies.

Q. From what to what?

A. Two or three feet.

Q. Have you changed your lagoon design plan for the proposed dairy based on the work that was done at the site?
A. No.
Q. Do you know if any neighbors have installed additional fencing along the perimeter of the HDF property since HDF said it was planning to put a dairy site there?
A. Yes.
Q. How many?
A. Only one to my knowledge.
Q. And how much additional fencing?
A. Oh, man. He probably put in a thousand feet.
Q. Where?
A. On his boundaries.
Q. Yeah. Which are his boundaries?
A. He's right here (indicating).
Q. Okay. Draw just a line across the red for where it starts.
A. His boundaries?
Q. No, where the -- where you say the fence is.
A. Okay. It started way back here (writing).
Q. Okay. And if you go above that line, just put the name of the person, say right up here.
A. (Writing.)

Q. Whose property it is.
A. Evan Vasconcelles.
Q. Okay. I'm just going to take my pen and draw an arrow to the fence. All right. And I'm just going to write down, New fencing, okay? When was that installed, do you know?
A. The summer of '15.
Q. Okay. I'll just writing down, New fencing summer of 2015, all right?
A. No, put repaired fencing.
Q. Repaired fencing. Okay.
A. Not new, repaired.
Q. All right. Did HDF assist with any of that --
A. No.
Q. -- repair?
A. No.
Q. Did it pay for any of it?
A. No.
Q. When we were there at the nursery in March; end of this group of questions for now; there was additional disturbed area around the perimeter, the planted area, correct?
A. Correct.
Q. When had that been plowed?
A. Disked.

Q. Disked. Pardon me.
A. I've maintained that disked area since late '14, early '15 to keep any grasses that might leach into the field, into the nursery. We had a lot of watergrass down there.
Q. A lot of what? Watergrass?
A. Watergrass, yeah.
Q. Okay. And so that area was disked, how deep?
A. Six inches.
Q. Okay. And is that a practice that you do regularly on that same area?
A. Yes.
Q. Do you intend to plant that area?
A. Yes.
Q. The part that was disked?
A. Uh-huh (moves head up and down).
Q. Has it been planted since we were there?
A. No.
Q. Has there been any soil amendments or other materials brought in and added to that area that was disked when we were there in March 2016?
A. Define soil amendments.
Q. Well, anything from off the site. Let's start with that.
A. Okay. Now repeat your question again.

Q. Yes. Has anything from off site been added to the area that was disked in March 2016?
A. No.

(Garmatz Deposition Exhibit No. 6 was marked for identification.)

BY MR. TEBBUTT:
Q. Handing you what's been marked as Exhibit 6, is this the area, part of the area at least, where we were just talking about that was disked?
A. Uh-huh (moves head up and down).
Q. When was that disked? This is, I will represent you, is a picture from the site inspection in March of 2016.
A. No, it was probably done 30 days before then based on the growth of what you see there.
Q. Okay. And has it been disked since?
A. I don't believe so.
Q. Is it still in that similar condition?
A. Pretty much so, yeah, yeah.
Q. So that's native soil that we see there?
A. Yeah, yeah.
Q. Has there been anything -- any fertilizers or any pesticides, herbicides, added to that area?
A. I've sprayed the green grass that's growing.
Q. In the disked area?

A. Yes, sir.
Q. Sprayed it with what?
A. Roundup.
Q. So it looks mostly the same as what it did in March at this point?
A. Yeah, yeah.
MR. TEBBUTT: Why don't we take a break for lunch?
MR. PALOUTZIAN: Okay.
(Break from 12:03 to 4:47. Moved location.)
(Garmatz Deposition Exhibit No. 22 was marked for identification.)
MR. TEBBUTT: Back on the record with Mr. Garmatz.
BY MR. TEBBUTT:
Q. Mr. Garmatz, it's my duty it remind you that you're still under oath.
A. Correct.
Q. Do you understand that?
A. Correct.
Q. Okay. When we were talking this morning, one question -- or one answer you gave me about the nursery, you said the nursery is now three and a half acres and it was originally four. Do you recall that testimony?

A. Correct, yes, yes.
Q. Why it is 3.5 acres now when it was initially four?
A. When the E&I folks came to install the pivot, the main point section was located in the area right in the middle of the pivot -- right in the middle of the nursery. And so they tore out a lot of the ground around it, and I never replaced it.
Q. Okay. Did it have anything to do with any archeological issues around the nursery?
A. No, no.
Q. When you first started for HDF, you had one other employee, Mr. Waybright, is that right in October 2013?
A. No. No, not at that time.
Q. When did Mr. Waybright start?
A. February of '14.
Q. Okay. Was it January or February, do you remember?
A. February.
Q. Okay. Has HDF had any other employees since Mr. Waybright left besides you?
A. No.
Q. During the Rule 34 inspection, there were two guys there wearing HDF construction crew shirts. Who

were they?
A. They were Grove Farm personnel.
Q. What were their names?
A. Roy Gagasa.
Q. Gagasa?
A. Yeah.
Q. How do you spell that, do you know?
A. G-a- -- just a second for this phone to come on. G-a-g-a-s-a.
Q. And the other person?
A. Royce. Just a second. I'll get you that. Royce Kawabata, K-a-w-a-b-a-t-a.
Q. And you said they were both Grove Farm employees?
A. Uh-huh.
Q. How many HDF construction crew T-shirts did you guys make up?
A. I think it was 300 Approximately. I don't know that number for sure, but approximately 300.
Q. Di you just give 'em out?
A. Yeah.
Q. I'm going to hand you what's been marked as Exhibit 22 in this case, which is a declaration of you in support of the defendants' motion for summary judgment filed back on November 25th, 2015. Do you see

that?
A. Uh-huh (moves head up and down).
Q. I'm going to ask you some questions about it. You signed that under penalty of perjury, correct?
A. Uh-huh.
Q. In paragraph five of your declaration you list the construction that was performed at the property from February 2014 to June '14. Is that a complete list?
A. (Writing.) Just two or all of -- just five?
Q. Yeah, five, A through F. Is that a complete list of the construction activities that took place between February 2014 and June 2014?
A. Yeah, yes, (writing).
Q. Paragraph seven --
MR. PALOUTZIAN: Let's not mark it up. Don't mark it.
MR. TEBBUTT: Did he mark on it?
MR. PALOUTZIAN: He put some checkmarks on there.
BY MR. TEBBUTT:
Q. Okay. So the checkmarks next to -- on Exhibit 22 next to paragraph five A through F, were made by you, correct?
A. That's correct.
Q. Okay. All right. Keep that in front of you,

but let's not mark on this anymore, please.
In paragraph seven, it says, In addition, between February and April of 2015, ground work, drilling, casing and grouting work was completed on four separate vertical monitor wells.
What groundwork was done?
A. Well, they drilled the wells from the ground, from the top of the ground.
Q. Understood. How is that different than drilling? What's the groundwork that was done?
MR. PALOUTZIAN: Objection, asked and answered. Go ahead.
THE WITNESS: The only groundwork that we did there was we sprayed the ground before they went in there.
BY MR. TEBBUTT:
Q. How soon before?
A. A couple weeks.
Q. To kill the vegetation to allow easier access?
A. Yes, sir.
Q. Did you do any backhoe work or any harrowing?
A. No. We also mowed some areas there also.
Q. Okay. So you also did some mowing, too, for access?
A. Yeah.

Q. And you said no backhoe work?
A. No.
Q. Sir, if you'll take a look at Exhibit 1 to your deposition. That's the pile of invoices that we talked about earlier this morning. I'd like you to take a look at HDF 000544 and 545. Do you see those two pages?
A. Yeah.
Q. And do you see the entries for backhoe, well drilling?
A. Yeah.
Q. On 3/25/15 three hours at $75?
A. Uh-huh.
Q. What was done with the backhoe associated with the well drilling?
A. I couldn't tell you.
Q. And so there was backhoe work done?
A. Well, if they're billing us for it, yeah.
Q. Okay. And you even have notes. It says, Under budget. Is that your language?
A. Yeah, that's mine, that's mine.
Q. Okay. So you approved that invoice?
A. Yeah, yeah.
Q. Okay. Same thing with -- on 545, entry for 4/8/15 backhoe, well drillers, two hours at 75. And you said that that was on budget, correct?

A. Yeah.
Q. So you approved that work as well?
A. That's correct.
Q. So that contradicts your prior statement about whether there was backhoe work being done, correct?
A. That's right, correct.
Q. Are there any other statements that you've made thus far today that you'd like to correct that are incorrect?
A. No.
MR. PALOUTZIAN: I'm going to object to the form of the question.
BY MR. TEBBUTT:
Q. If you look at HDF 000548. Do you have that in front of you?
A. Uh-huh (moves head up and down).
Q. The entry is --
A. Hold on, hold on, hold on. Yeah. 548, okay.
Q. 548. The entry for 6/9/2015, irrigation repairs, nine hours. What type of irrigation repairs were undertaken?
A. That's back in June. I'm sorry. I can't tell you that. I'm sure that it was done, but I can't tell you what that would be. I just can't recall that far back.

Q. Okay. Are there any documents that you would have that would tell you what was done other than this invoice?
A. No, sir.
Q. Do you know who did that work? Whether it was Mr. Bloemke?
A. Mr. Bloemke.
Q. On 6/26/15, entry for replace eight-inch valve at pivot, labor.
MR. PALOUTZIAN: Are we on a different page now?
BY MR. TEBBUTT:
Q. Yeah, next page, 549. Do you see that entry?
A. Uh-huh (moves head up and down).
Q. What was that, do you know?
A. Well, the valve at the No. 1 pivot froze, and we had to replace the eight-inch valve.
Q. So was that all above-ground work?
A. Yeah, yeah.
Q. Turn to the next page, 550. There are two entries for fencing on 7/15 and 7/14/15. Do you see that?
A. Uh-huh (moves head up and down).
Q. Do you know what kind of fencing work was done?
A. Well, that was about the time that we were

starting to set the fence line by the GPS points, and I would use Scott Bloemke to help me do that.

Q. What fencing line?

A. The perimeter fence line.

Q. So --

A. The perimeter.

Q. So I'm sorry. What were you doing? Explain to me what that was?

A. There's GPS locations for all the fence posts.

Q. And so you were doing the GPS locating?

A. Uh-huh (moves head up and down).

Q. And he was assisting you with that?

A. Yes, yes.

Q. On the entry for 7/18/15 on that same page, harrow. Do you know what area was harrowed?

A. Down around the nursery.

Q. On a page or two later, 552, on 7/1/15, entry for backhoe work. Do you know what kind of backhoe work was done?

A. 7/1, that was the day that we lost the -- the bolts broke on the end portion of the pivot, the end gun. And Scott and myself and one -- another AJAR employee came down, and we used the backhoe to lift the end section up so we could place new bolts through.

Q. The next page, 553, there's an entry for a

period of time June 29, '15 through July 23, '15. It says, Shred trees and grass for fence installation. Do you see that?

A. Yes.

Q. How many trees were shredded during that time period?

A. Same thing we discussed this morning when I told you we shredded so many lineal feet.

Q. Okay.

A. We discussed this already.

Q. All right. Next page, 554, there are a series of entries for fencing. What kind of fencing was done? Let's start with 7/23.

A. Same thing we were doing before. Setting those -- setting that fence line.

Q. Okay. So that was all GPS work?

A. Yes.

Q. Did you stake anything?

A. Yes, sir.

Q. What did you stake with?

A. Wooden stakes.

Q. Are those stakes still in place today?

A. The biggest portion of them are not.

Q. Have they been removed by you or?

A. No, not been removed by me.

Q. Do you know who they've been removed by, if anyone?
A. I couldn't tell you that, wouldn't know.
Q. They've just kind of fallen off over time?
A. Yeah, yeah.
Q. On 8/6/15 on 554, entry backhoe, pivot. Can you tell me what that is?
A. I'd be guessing if I told you that.
Q. Okay. You remembered the one on 7/1/15, but you don't know what happened on 8/6/15, is that correct?
A. Yeah, I recall the date at that point that that pivot broke.
Q. Okay. Nothing jumps out in your memory about 8/6?
A. The only thing it could possibly be is the lower pivot, the No. 2 pivot on your map. We had some backfill work that needed to be done there.
Q. Okay. Does the next page help you with that, 555. It says, Cap eight-inch line, field 728?
A. No, no.
Q. Is that different than the 8/6 entry?
A. Yeah, yeah.
Q. Okay. So labor and backhoe for the 8/3/15 entry, what was -- what did that entail?
A. There was a line riser broke, and it was

leaking severely, so we turned off the water and dug down like, again, 8 or 12 inches and reset the riser on the main line.
Q. Is that the one at the nursery, the riser at the nursery?
A. Yes.
Q. And I think we have might have had a picture of it earlier in Exhibit 6.
A. Yeah.
Q. Is that it? Is that the riser?
A. No, because it's back here a ways. It's not in the picture.
Q. Okay. Is it close to that apparatus?
A. Yeah, yeah.
Q. Okay. Do you still have Exhibit 1 in front of you, sir?
A. Yes.
Q. I just want to ask you a few more questions. 518, HDF 518, maybe halfway through the bundle. Do you have that one in front of you?
A. Uh-huh.
Q. There are a number of things crossed out.
A. Uh-huh.
Q. Why are they crossed out?
A. I don't know why they're crossed out. There's

another invoice that goes with that, because this is 235 -- 203505B, so there's goes to be 203505A.

Q. Or maybe even just 505?

A. Huh?

Q. Or maybe even just the 505?

A. Oh, here it is right here. Your number is 510.

Q. Okay.

A. No, this is 405. That's not the right one.

Q. How about 532?

A. Yeah, that's it.

Q. Okay.

A. Notice the dates. Some of the work was done in November, and some of the other work was done in December. As it states -- as it's written up there on the top. Yeah there, see --

MR. PALOUTZIAN: Just let him ask a question.

BY MR. TEBBUTT:

Q. Yeah, I'm just kind of curious why I have two, but I guess it doesn't really matter, does it?

All right. Next, 533. There's an entry for backhoe work. Do you know what that was regarding?

A. I couldn't tell you.

Q. So in your preparation for the deposition did you look over the backhoe entries --

A. No.

Q. -- and try to determine what they were about?

A. No, I didn't.

Q. Okay. Let's look at 530, please. And again, this is still in Exhibit 1. The entry for 11/10/14, it says, Move fence post, three hours at 60. What fence post was moved?

A. Like we talked about this morning. We moved fence posts from one area to the other so I could plant that kikuyu in that field where the fence posts were at. We talked about it this morning.

Q. So is that the fence posts that were just laid in the field?

A. They were in bundles.

Q. In bundles, okay. So it wasn't that you were actually replacing the fence post?

A. No, no.

Q. Okay. What about the repair of the two-inch drain in that next entry on 11/18/14, what was that about?

A. I couldn't tell you.

Q. What is the two-inch drain?

A. That's probably the two-inch drain on the nursery. The drip system has a drain on it.

Q. Is that -- that's a two-inch drain system?

A. Uh-huh (moves head up and down).
Q. All right. Let's take a look at 534, please, entry on 1/14/15 for backhoe. Do you know what that was in relation to?
A. No, I sure wouldn't.
Q. Does the context of the other work done help you -- help tell you what that might have been related to?
A. No, no.
Q. All right. Let me ask you questions for the next one, 535, entry on 1/5/15 for backhoe.
A. Again, I can't tell you.
Q. Same with 1/9.
A. Uh-huh.
Q. Is that the same answer, you don't know?
A. Yes, sir.
Q. All right. 536, entry for backhoe and bold, 1/28/15, two hours.
A. Couldn't tell you that either.
Q. All right. Take a look at 540, entry on 2/17/15, water irrigation, any idea what that is?
A. More than likely it's just a short period of time, and I probably was away from the trailer, and Scott probably turned on the pivot system.
Q. Okay. Entry 2/19/15, mowing, soil samples.

What kind of soil samples were taken?
A. That's when the U of H came out and took the samples for the EIS instead of -- that's all.
Q. Okay. Instead of the what?
A. Nothing.
Q. There was something there. Instead of who? Somebody else was going to take the soil samples?
A. No, U of H was collecting their soil samples.
Q. 541, next page, there's a column for backhoe and dump truck in March of 2015. What backhoe work was done?
A. Probably the loading of the HDF truck.
Q. With what?
A. I couldn't tell you. I'd have to get refreshed on this.
Q. Okay. Same thing with the dump truck that was used for four hours, it looks like, on one of the days. What was the dump truck used for?
A. I'd have to get my mind refreshed and find out.
Q. Did it have anything to do with moving rocks around?
A. No, no.
Q. Dirt?
A. I just don't want to guess now.
Q. Okay. What do you recall ever using a dump

truck for on site?
A. I don't.
Q. At all.
A. At this point, no. I mean, I can --
Q. Okay. Just asking. Next page, 542, did AJAR assist the well drillers?
A. Yeah.
Q. How did they assist them?
A. We supplied them water so that they could run their rigs. We had to stay there and pay attention to the well.
Q. What kind of drilling system was used, do you recall?
A. It's an upright system, runs in the back end of a truck, large truck.
Q. So is the water used to --
A. Cool.
Q. Cool the bit?
A. Yeah.
Q. And so the water that was used to cool the bit got spit back up onto the ground?
A. Yeah, you had some of that coming back up.
Q. Did you see any of that run off anywhere, the water that was used?
A. No, we contained it.

Q. How did you contain it?
A. With small berms that we built around the well site -- that the well drillers built around the well site. They used sandbags to contain the water.
Q. How long did they leave the sandbags in place after they finished drilling?
A. They were finished with the well, they were gone.
Q. Had the water disappeared at that point?
A. Oh, yeah.
Q. Okay. I don't know if I've asked you about 544 yet. I don't think I have, right? I asked about a few of the others. You see, backhoe, well drilling there?
A. Uh-huh (moves head up and down).
Q. What kind of work would the backhoe --
A. I don't couldn't tell you that either.
Q. Okay. On --
MR. PALOUTZIAN: I think you did ask about that.
MR. TEBBUTT: Well, I did about some others. I don't think it was that one.
MR. PALOUTZIAN: I wrote down, 544 and 545, does not know what the backhoe work was done on 3/25.
BY MR. TEBBUTT:
Q. All right. On 545, the entry for 4/6/15, it

says, Move PVC pipe. What was that?
A. PVC pipe that was located within that area where we had the -- where the fence posts were, and I wanted to get that out of there, clean that area all up.
Q. So those were the bundles of PVC pipe?
A. Yes, and there was some loose PVC pipe also.
Q. How much of that PVC pipe had been used for the irrigation system?
A. Had been used or was going to be used?
Q. Had been used.
A. There was probably twice that much there, so what's there probably represents the other half that needs to be installed yet.
Q. Okay. I want to ask you some more questions about -- have we looked at Exhibit 22, your declaration?
A. Yes, we have.
Q. Do you have that in front of you?
A. Yeah. That's the one I marked.
Q. All right. Don't do that again.
A. Yep.
Q. Paragraph 13, it says, I continue to gather various materials that were spread out over the property when construction was halted.
In addition to, you talk about including irrigation piping and fencing materials. What other

materials?
A. That's all.
Q. That's all?
A. Yeah.
Q. Do you remember receiving a specific basically stop work order on construction activities from Mr. Datta?
A. Yeah, an email, and then him and I would communicate on the phone.
Q. Did he help define what things to do and not to do?
A. Yes, sir.
Q. What did he tell you to do and not to do? Let's start with the to-dos. What did he tell you to do, to continue doing or?
A. Continue to produce grass, manage the grass.
Q. Anything else?
A. (Moves head from side to side.)
Q. Okay. What did he tell you not to do?
A. Any additional development of the grass crop other than what he told me to do.
Q. So does that include laying more irrigation?
A. Yeah.
Q. Or installing waterlines to the water troughs?
A. That's correct.

Q. Or installing more water troughs?

A. Couldn't do that.

Q. Did he tell specifically not to do that stuff?

A. I understood that, yes.

Q. My question is: Did he tell you specifically not to do that stuff?

A. Yes, yes.

Q. Okay. Did you have any other lists of things, that you said, Can I do this or can I not do this, other than the things I've mentioned?

A. No, he was very clear. I understood what he wanted to do.

MR. TEBBUTT: I think we're going to break for the rest of the day.

MR. PALOUTZIAN: All right.

MR. TEBBUTT: We'll pick up in the morning.

THE COURT REPORTER: Reading and signing?

MR. PALOUTZIAN: Yes.

(Concluded at approximately 5:22 p.m., June 13, 2016.)

* * * * *

I, JAMES J. GARMATZ, VOLUME 1, hereby certify that I have read the foregoing typewritten pages 1 through 133, inclusive, and corrections, if any, were noted by me, and the same is now a true and correct transcript of my testimony.

DATED: Koloa, Hawaii __________________________

____

JAMES J. GARMATZ

Signed before me this ______
day of ________________ 2016.

____

Friends of Mahaulepu, Inc. vs. Hawaii Dairy Farms, LLC; Civil No. 1:15-cv-00205-LMK-KJM; Deposition taken on June 13, 2016, by Terri R. Hanson, RPR, CSR 482.

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STATE OF HAWAII      )
                     )  ss.
COUNTY OF KAUAI      )
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I, TERRI R. HANSON, RPR, CSR 482, do hereby certify:

That on Monday, June 13, 2016, at 9:02 a.m. appeared before me JAMES J. GARMATZ, VOLUME 1, the witness whose deposition is contained herein; that prior to being examined, the witness was by me duly sworn;

That pursuant to Rule 30(e) of the Hawaii Rules of Civil Procedure, a request for an opportunity to review and make changes to this transcript:

_X_Was made by the deponent or a party (and/or their attorney) prior to the completion of the deposition.
___Was **not** made by the deponent or a party (and/or their attorney) prior to the completion of the deposition.
___Was waived.

That the foregoing represents, to the best of my ability, a full, true and correct transcript of said deposition.

I further certify that I am not an attorney for any of the parties hereto, nor in any way concerned with the cause.

This 135-page Deposition of James J. Garmatz, Volume 1, dated June 13, 2016, was subscribed before me this 23rd day of June, 2016, in Lihue, Hawaii.

____
TERRI R. HANSON, CSR 482
Registered Professional Reporter

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF HAWAII

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FRIENDS OF MAHAULEPU, INC.,      ) CIVIL NO.
Hawaii non-profit corporation,   ) 1:15-cv-00205-
                     Plaintiff,  ) LMK-KJM
                vs.              )
HAWAII DAIRY FARMS, LLC, a       )
Delaware Limited Liability       )
Company; ULUPONO INITIATIVE, LLC; )
a Delaware Limited Liability     )
Company; MAHAULEPU FARMS, LLC; a )
Delaware Limited Liability       )
Company,                         )
                Defendants.      )
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DEPOSITION OF JAMES J. GARMATZ,

VOLUME 2,

Taken on behalf of Plaintiff at Sheraton Kauai Resort, 2440 Hoonani Road, Koloa, Hawaii 96756, commencing at 8:35 a.m. on June 14, 2016, pursuant to Notice.

REPORTED BY:

TERRI R. HANSON, CSR 482
Registered Professional Reporter

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Also Present:
Bridget Hammerquist

I N D E X

EXHIBITS FOR IDENTIFICATION

WHEREUPON, the following proceedings were duly had:

JAMES J. GARMATZ,
after having been first duly sworn,
was examined and testified as follows:

EXAMINATION

BY MR. TEBBUTT:
Q. Good morning, Mr. Garmatz.
A. Good morning.
Q. We are back on the record, in both your individual and your 30(b)(6) deposition continuing from yesterday. Do you understand that?
A. Yes, sir.
Q. And you're still under oath.
A. Yes, sir.
Q. Okay. Today I just want to ask you a few questions -- well, about a number of topics. So let's just start with, in 2014, did a number of workers come from New Zealand to work on the HDF site?
A. Yes.
Q. How many?
A. Eight to 10 depending on which time.
Q. Okay. And did HDF arrange for their work visas to come to work at HDF?

A. No.
Q. Did HDF pay for their lodging while they were here?
A. Yes.
Q. Okay. And so HDF arranged housing for them while they were here?
A. Correct, yes.
Q. And what did those -- you said 8 to 10 people?
A. (Moves head up and down.)
Q. What did those 8 to 10 people do? Well, first of all. Let me back up.
Approximately when did they arrive?
A. First part of February of 2014.
Q. Okay. And how long did they stay?
A. Stayed until middle part of May. The last -- the 15th of May and the 30th of May.
Q. Okay. Was that about when you got the stop work order from Mr. Datta or was it before that that they left?
A. It was that time.
Q. Okay. And during that three or so month period, what did they do?
A. Well, they manufactured all the water troughs, they constructed the water pads that the water troughs

go on, they installed some of the water trough waterlines, they built both pivots, No. 1 and No. 2, they installed the waterline in Pivot No. 2, partially installed the waterline in No. 1, they installed the water trough -- excuse me -- the water -- the pivot bridges.
Q. Anything else you can think of?
A. They helped in the unloading of some of the containers of equipment that had been received, they put together the pivot bridges, and they made sure that the No. 1 pivot was functional before they left.
Q. What do you mean by that?
A. We ran water through it, we made sure it moved, we made sure that the electronics was correct, just made sure that it was workable.
Q. Okay. Pivot 1 is operating now?
A. I need to change that 'cause you and I are opposite.
Q. Okay.
A. I call the top pivot No. 1.
Q. Okay.
A. Pivot No. 2 is the lower one.
Q. So you call 2 --
A. (Indicating.)
Q. -- the northern most one, correct? Even though

the map that we have --
A. No.
Q. Just a second. Let me just clear the record up. Exhibit 4 is the map that we talked about, and it says Irrigation Pivot No. 1 on the more northerly of the two pivots, and the southerly is Pivot 2. But you referred to -- when you're testifying now, you're referring to Pivot 1 as Pivot 2 and Pivot 2 as Pivot 1, correct?
A. No, sir. It's exactly like you got on the map. It's Pivot Irrigation No. 1 is the top pivot and Pivot No. 2 is the bottom pivot.
Q. Oh, so we're correct then?
A. Yes.
Q. Okay. I just wanted to clarify that.
A. I remembered it different.
Q. All right. So I'll just ask you this: Is Pivot 1 operating now?
A. Yeah.
Q. It's functional? It's operating? It's -- you're using it for irrigation purposes?
A. Uh-huh (moves head up and down).
Q. Same with pivot 2?
A. No.
Q. It doesn't have water to it?

A. It doesn't have water to it.
Q. Okay. So your question earlier about -- or your statement earlier about getting water to Pivot 2, is that what they tested to make sure it was running properly?
A. No, never did anything with this one but just install it and put it in place.
Q. Okay. So has Pivot 2 operated at all?
A. No.
Q. Have you done any test runs with Pivot 2?
A. No.
Q. Okay. So there's no water to Pivot 2 right now?
A. No, no.
Q. Is that correct?
A. That's correct.
Q. Okay. Where were the water troughs manufactured?
A. We manufactured the water troughs in the begass-house. The begass-house.
Q. Is that the old sugarcane factory?
A. That's correct.
Q. Okay. So right near the proposed dairy farm site but not on it?
A. Correct.

Q. Okay. And where were the water pads manufactured?
MR. PALOUTZIAN: Misstates testimony. Go ahead.
THE WITNESS: The water pads were constructed --
BY MR. TEBBUTT:
Q. Constructed.
A. No, no. The water pads were prepared on site with the hauling in of the material that is stored within the farm to have a level pad of --
Q. Right. Okay. And so what's the name of the New Zealand group that did this?
A. Effluent and Irrigation.
Q. Okay. So they manufactured the water troughs to the begass-house, correct?
A. Yes.
Q. B-e-g-a-s-s?
A. Yes.
Q. They then constructed the water pads on which the troughs would be placed, correct?
A. Yes.
Q. And --
A. I think a better word instead of construction would be developed, because there was no construction

involved. We just hauled the equipment -- the material in and leveled it.

Q. I see. So it was laying limestone and what other materials you used to create the water pads in place?

A. Correct.

Q. And once they manufactured the water troughs, did they install them?

A. Yes.

Q. And I think we discussed yesterday, it was about 160 of them that were installed, correct?

A. Correct.

Q. Had the other remaining ones that would be needed for the proposed dairy site, have they been constructed, too?

A. No.

Q. Are there any water troughs that have been constructed sitting around that haven't been installed?

A. Yes.

Q. How many?

A. Probably 30 approximately.

Q. The pivots, were they constructed in place?

A. Define in place.

Q. On site.

A. Yes, sir.

Q. Okay. So close to where they were going to be used?

A. Yes.

Q. Was there any preparation of the work areas where the pivots -- I'll say assembled, is that a proper term or?

A. No.

Q. Constructed a better term?

A. No.

Q. What's the term we should use?

A. Placed together 'cause that's what you do, is you place them -- you put 'em together.

Q. Put 'em together. That's why I said assembled.

A. Yeah.

Q. Is assembled --

A. Assembled, yeah, that's a good word.

Q. Is that a good word?

A. Yeah.

Q. Okay. So were there any assembly areas created for the workers when they assembled the pivots?

A. No, there wasn't, because you had to go -- each station was different.

Q. Okay. Did you mow the areas where --

A. No.

Q. Just a minute. Let me finish my question,

please.
A. Okay.
Q. Just like yesterday. Let's not talk over each other, please.
Did you mow any areas to make it easier to assemble the pivots?
A. No.
Q. Did you disturb any ground in any other way --
A. No.
Q. Okay. Again, you've got to let me finish my question.
MR. PALOUTZIAN: I think he thought you were done.
MR. TEBBUTT: I understand that, but sometimes it doesn't happen that way.
BY MR. TEBBUTT:
Q. So were there any other ground preparations that were done to assemble the pivots?
A. No.
Q. So this is the group, you said, that installed the waterline to Pivot 2?
A. Which group?
Q. The E&I group.
A. Correct, yes.
Q. And partially -- you testified earlier

partially installed the waterlines to Pivot 1, isn't it the other way around?
A. Correct.
Q. So they partially installed the waterline to Pivot 2?
A. Correct, yes.
Q. And they did install the waterline to P1, correct?
A. Correct.
Q. 'Cause P1 has been operating since that time, correct?
A. Correct.
Q. While E&I was here, were there any alterations to the pivot tracks made while Pivot 1 was operational?
MR. PALOUTZIAN: Object, vague and ambiguous.
THE WITNESS: Rephrase your question.
BY MR. TEBBUTT:
Q. Yes, were there any alterations to the tracks over which the pivot moved?
A. Define alterations.
Q. Any kind of modifications to the pivot track, to the ground itself.
A. While E&I was here?
Q. Correct.

A. No.
Q. Okay. There were some afterwards, correct?
A. No, there wasn't.
Q. The Pivot 1 got stuck at various times, didn't it?
A. Oh, yeah.
Q. So that's what I'm referring to about alterations to the ground to make the pivot track run better.
A. Okay. Yes. In that case, yes.
Q. Okay. How many times have the pivot tracks been modified at Pivot 1?
A. Numerous times.
Q. Okay. And more than 10?
A. Yes.
Q. More than 20?
A. Yes.
Q. More than 30?
A. No.
Q. Okay. What types of modifications have been made to the pivot tracks?
A. Placing of rocks found within the fields into the bottoms of the pivot tracks.
Q. Why?
A. To improve the hardness of the ground

underneath the tire tracks.
Q. Are you done with your answer?
A. Yes.
Q. Okay. And is that because the pivot tracks got -- or the wheels of the pivot got stuck?
A. That's correct.
Q. Any other reason why you had to do that, or you chose to do that?
A. Initially, before the pivot ran, we should have compacted that ground and altered it, but we didn't do it. So that caused the pivot tracks to be made. Since that time, we've improved our working -- our practices on that, and it shouldn't happen no more.
Q. Have you compacted some ground in the field where Pivot 1 is located?
A. Yes, sir.
Q. How much of the land?
A. Probably a 13- to 16-inch width and the length of the wheel track within the working area of Pivot No. 1, present working area of Pivot No. 1.
Q. For all the tire tracks?
A. No, not all.
Q. Okay. How many?
A. One, two, three, four, five, six. I believe I'm up to seven. Number seven now.

Q. And how many tracks are there?
A. Ten.
Q. And is part of your plan to compact the other three tracks as well?
A. That's my plan.
Q. And when you have compacted the seven tracks thus far, have you removed rocks that were in -- that you had placed in there?
A. No.
Q. Okay. And let me just clarify the record. Had you placed rocks in those seven pivot tracks that have been compacted?
A. Yes.
Q. In all seven?
A. No.
Q. How many of them?
A. Just three of 'em.
Q. Okay. I'm going to show you, again, Exhibit 4. Starting with the most outside track -- I assume that the tracks run the full circumference of the area, correct?
A. That's correct.
Q. So the outside one would have the largest circumference and the inside would have the shortest?
A. That's correct.

Q. Did you start with the longest track or the shortest track for the seven that you've done?
A. Shortest.
Q. So you started from the inside out?
A. Correct.
Q. Okay. And from the inside out, let's just imaginarily for the time being call the tracks 1 through 10. One being the shortest circumference.
A. Correct.
Q. Are there rocks in the first track?
A. No.
Q. Second track?
A. No.
Q. Third track?
A. No.
Q. Fourth track?
A. Yes.
Q. How many rocks did you place in the fourth track?
A. Numerous.
Q. More than 20?
A. Yes.
Q. More than 50?
A. Yes.
Q. More than a hundred?

A. Yes.
Q. More than 200?
A. Yes. Thousands.
Q. Thousands in track two.
A. Track.
Q. Well, what's -- I'm sorry. Track four. What size rocks were placed in there?
A. Do you mean anything --
Q. Use your hands and show me the smallest one and the largest one.
A. Smallest one.
Q. Would be about fist size?
A. Yeah.
Q. Okay. And the largest.
A. And the largest one, anything that I could handle. Anything that I could lift.
Q. So up to about a hundred pounds?
A. Yes.
Q. Is that a fair assessment?
A. Yes, very.
Q. Okay. Having moved a lot of rocks in my day, I can gather that.
A. Yeah.
Q. All right. And then anything in between?
A. Yes.

Q. Just whatever you found on the site?
A. Yes.
Q. Okay. So that's pivot four. When was that done?
A. Early -- no, from April of '14 through January of '15.
Q. Okay. And then pivot five?
A. No.
Q. You haven't done any in pivot five?
A. No.
Q. Or track five we're talking. Track six?
A. Yes.
Q. Okay. And how many -- when did you start putting rocks in track six?
A. Same time, same time we talked about above.
Q. Okay. Okay. And is it about the same number? Hundreds or thousands of rocks?
A. Yeah.
Q. And all the same size?
A. Yes. Same process.
Q. That we talked about?
A. Same process, yes.
Q. Okay. And track seven?
A. Small portion of track seven.
Q. Okay.

A. Let's just say a hundred foot of track seven.

Q. Okay. So we have rocks -- a significant number of rocks in four and six?

A. Right.

Q. And a small number in seven?

A. Correct.

Q. Are you done with seven, adding rocks?

A. Yes.

Q. Okay. And do you need to add -- have you added rocks to 8, 9 or 10?

A. No.

Q. And you don't think you do?

A. No.

Q. Okay. And it's 8, 9, and 10 that haven't been compacted yet, correct?

A. That's correct.

Q. When did you do the compacting on track one?

A. April of '14. That's the first one I did.

Q. Okay. Is that the rolling machine that's referred to in the invoices?

A. No, sir.

Q. What did you use to compact the tracks?

A. I purchased calcium finds from Glover and deposited them within the track.

Q. And what did you use to compact the tracks?

A. Tractor tire.

Q. Is that it?

A. Uh-huh (moves head up and down).

Q. Yes?

A. Yes, sir.

Q. Okay. So track two, when was that compacted?

A. After No. 1 was complete, which was within weeks. Within a couple weeks after No. 1 was complete.

Q. So that was approximately what month?

A. May.

Q. Of 2014?

A. May of '14.

Q. And then track three, when was that compacted?

A. June.

Q. Of 2014?

A. Yes, sir.

Q. Track four, when would that have been compacted?

A. We did -- we did No. 1 and No. 4 in conjunction with each other because they were the worst ones. So No. 4 was scattered all the way from April all the way till late in the year, 'cause it was the worst one.

Q. Okay. Track five, when was that compacted?

A. Late in the year.

Q. Of 2014?

A. Yeah.
Q. So October, November?
A. October. October.
Q. Okay. Track six, when was that compacted?
A. That was November when it started raining.
Q. November of '14?
A. Right.
Q. And track seven, when was that compacted?
A. In conjunction with six. Same time.
Q. Okay. So when it's rained on the site, I assume you've seen some pretty heavy rains?
A. Uh-huh (moves head up and down).
Q. What do you think the heaviest rainfall is that you've observed on the site since you've been there?
MR. PALOUTZIAN: Objection, calls for speculation, lacks foundation. It's overbroad. Go ahead.
THE WITNESS: Seven-inch rainstorm the day after Thanksgiving of '13.
BY MR. TEBBUTT:
Q. Was that a 24-hour event?
A. No, it was an overnight event.
Q. So less than 24 hours, seven inches of rain?
A. Twelve, about 12 hours, yeah.
Q. Twelve hours.

A. Let's say 12 to 18 hours 'cause -- yeah, 12 to 18 hours.
Q. Okay. And how much -- and how did you know that there was seven inches of rain that day?
A. We've got a weather data on our farm. And then Grove Farms also has a weather data machine on our farm also. Not a machine but an instrument.
Q. So there's two difference weather stations on that site?
A. Uh-huh (moves head up and down).
Q. Is that yes?
A. Yes.
Q. And do you operate them both?
A. No.
Q. You operate just one?
A. The HDF weather station, yes. I don't operate it. It operates itself.
Q. Okay. And has that been functioning the entire time you've been there?
A. Yes, sir.
Q. And so how does that record weather events?
A. Electronically through satellite. It delivers the information to Ag Hub in New Zealand. Ag Hub sends it back to me via computer.
Q. Okay. And how often does Ag Hub sent it back

to you?
A. Instantaneously.
Q. So you get it every day?
A. Yes.
Q. You get the feed for what's happened every day?
A. Yes.
Q. Does this aid you in determining how much to irrigate?
A. Yes, it's what I use.
Q. During the seven-inch rain event after Thanksgiving in 2014 --
A. '13.
Q. '13, sorry. Thank you. Did you observe the water flow through the ditches on the site?
MR. PALOUTZIAN: The question is overbroad and vague as to time. Go ahead.
THE WITNESS: Just the lower ditches is all. I didn't observe the upper ditches.
BY MR. TEBBUTT:
Q. Okay. When you refer to the lower ditches, what lower ditches are you referring to? Let's refer to Exhibit 4.
A. This one and this one (indicating).
Q. So the main ditch and the center ditch?
A. Yes, yeah. Where it comes together.

Q. Okay. So you went down to off site where it -- there's a confluence of the two, is that correct?
A. Yeah, yeah.
Q. And was there flooding in -- over the banks of either of those ditches?
A. There was flooding right here (indicating). Okay.
Q. At the bottom of the taro farm field?
A. Right, right.
Q. The bottom, the southeast corner?
A. Yeah. This takes a real tight cut right there, that cut at that turn.
Q. Okay.
A. And there's a bridge that sits right here (indicating).
Q. Right.
A. And that bridge was full of silt that hadn't been properly maintained. This bridge is off property now, okay?
Q. Okay.
A. And Grove Farms is responsible for that bridge, and they had not cleaned the silt out of that. And they arrived on the morning after Thanksgiving and cleaned the silt out from underneath that bridge and all through this area, and the water began to flow, and everything

above -- the surface water that I saw right here at that area went down immediately.

Q. Okay. And so the flooded area -- actually that bridge that you're referring to, that's where we took one of the samples during the Rule 34 inspection, correct?

A. Yes, sir.

Q. Okay. And during the time of the Rule 34 inspection, you said that property was not on site, correct?

A. That's correct.

Q. But in Exhibit 4 it is shown as being on site, correct?

A. Yeah, this map is out of date.

Q. Okay. So did the property line boundaries change then since this map was created?

MR. TEBBUTT: Objection, calls for speculation, lacks foundation. Go ahead.

THE WITNESS: Yes.

BY MR. TEBBUTT:

Q. Okay. And when was the property line boundary changed?

MR. PALOUTZIAN: Same objections.

THE WITNESS: July or August of '15.

MR. TEBBUTT: Okay. Obviously the witness

knows the answers, so I don't know if your objection is proper.

MR. PALOUTZIAN: It's not for you to decide, I don't think.

BY MR. TEBBUTT:

Q. Why was the property boundary line changed?

MR. PALOUTZIAN: Same objections.

THE WITNESS: Request from Grove Farms.

BY MR. TEBBUTT:

Q. From whom at Grove Farms?

A. Arryl Kaneshiro, Dave Hinazumi.

Q. And were those --

A. Warren Haruki.

Q. Okay. Sorry. Are there other people?

A. No.

Q. Were those requests made to you?

A. Yeah.

Q. How? By phone or in person?

A. Phone, by phone.

Q. Okay. And what was the reason for the request to change the site boundaries?

MR. PALOUTZIAN: Calls for speculation, lacks foundation. Go ahead.

THE WITNESS: Mr. Haruki wanted an eight-foot barrier around the boundary in the placement of the fencing so that there could be a path -- pathway to walk around the facility, a maintained pathway around the boundary of the facility.

BY MR. TEBBUTT:

Q. When you say the facility, you're talking about the --

A. Entire.

Q. -- proposed HDF dairy?

A. The entire facility, yes.

Q. So the whole boundary was moved in approximately eight feet, the whole perimeter?

A. Some boundaries were -- most boundaries were done at eight foot. There were some boundaries done more than that.

Q. Okay. To allow access depending on --

A. There you go. There you go.

Q. -- the topography of the area?

A. Yes.

Q. So I'm trying to recall. The original acreage of the site was some 586, is that correct?

A. That's correct.

Q. So how much did the boundary change affect the amount of property that the dairy is now leasing from Grove Farm?

MR. PALOUTZIAN: Misstates the evidence.

Go ahead.

THE WITNESS: I could not correctly quote you that number because I'd have to look it up for you at this point.

BY MR. TEBBUTT:

Q. Do you have that somewhere, that number?

A. Would have it, yes.

Q. Where would you have it?

A. In the latest WMP plan.

Q. And when was the latest WMP plan created?

A. Within the last 30 days to coincide with the EIS.

Q. So was that submitted with the EIS?

A. No, it was submitted separately.

Q. So that was submitted to DOH within the last 30 days?

A. Correct.

Q. And that has the new correct acreage amount in it?

A. Correct.

Q. Do you remember about how many acres it reduced the overall property?

A. Between 15 and 16 acres.

One thing that I want to mention there that I think is important along with that, is those changes also took into effect the 35-foot barrier that we were going to keep with -- out of the fence lines to the drains or the ditches. We've got an area on each side of the ditches that goes out 35 feet.

Q. What do you mean an area?

A. We measure 35 feet away from the bank, and that will be the first existing fence line, which means there's a boundary or a -- let me think of a good word. Barrier or safety zone or setback. Thirty-five-foot setback from all drains. And this new acreage takes into consideration that 35-foot setback because that's not going to be a part of the property that we'll be able to farm because it will be out of the fence line.

Q. So then will you -- HDF will not be leasing that land? Is that -- will that be Grove Farm land or will that be HDF-leased land?

A. That would be HDF's land to care for per NRC requirements.

Q. What requirements are you referring to?

A. The planting of native plants, the maintenance of the grass, the maintenance of the sides -- the bank sides, the size of the drains or the ditches. Just overall taking care of them. Keeping them in --

Q. Okay. Is there a particular regulation or guidance that you're referring to?

A. NRCS has a plan -- has a guidance within their plan that indicates that we should have a 35-foot setback on all their -- on all blueline drains.

Q. Okay. Do you remember the number of that guideline?

A. No, sir. No, sir.

Q. Okay. So asking you some more questions of Exhibit 4 here again. Will there be -- you have already identified ditch number -- a number of ditches that you handwrote onto the map, and we discussed that yesterday. Will there be a 35-foot setback on either side of No. 3 ditch?

A. Yes, yes.

Q. Did we have a name for the ditch that is in the upper right-hand corner?

A. No, no.

Q. We don't, okay. So that's the one on the east side of Pivot 1, the unnamed ditch, correct?

A. Yes.

Q. All right. Just for purposes of this deposition, is it okay if I write in here unnamed ditch for purposes of identifying this one?

A. Yes.

Q. Okay. Will there be a 35-foot setback on either side of the unnamed ditch?

A. Yes.
Q. And similarly will there be the 35-foot setback on either side of the center ditch?
A. Yes.
Q. And same question, will there be a 35-foot setback on either side of the main ditch?
A. Yes.
Q. Will there be a 35-foot setback on either side of No. 6 ditch?
A. Yes.
Q. And will there be a 35-foot setback on the southwestern ditch that runs from the pumping station into the main ditch?
A. Yes, sir.
Q. Do you have a name for that ditch? I think you mentioned one yesterday, and I don't think we --
A. We call it the Waita ditch.
Q. Okay. Is it okay if I write on here Waita ditch?
A. Uh-huh (moves head up and down).
Q. Okay. And how do you spell Waita?
A. W-a-i-t-a.
Q. Okay. Are there any other places on the site that I have not asked you about where there will be 35-foot setbacks?

A. Up here (indicating).
Q. Okay.
A. And up here (indicating).
Q. Okay. So the two that you're referring to are the ones we discussed yesterday that come from off the site and then converge where you have the circle right below where No. 1 is indicated on Pivot 1, correct?
A. Yes.
Q. Okay. Any other places?
A. As this ditch comes down in the final plans.
Q. And this is the unnamed ditch we're talking about right now.
A. Yes, yes. It will be fed -- it will be deadheaded here and fed into this drain around here and coming to here (indicating).
Q. So it will be rerouted so that it will be hydrologically diverted to the center ditch?
A. Correct, that's in the plans.
Q. That's in the plans.
A. It's not been completed or done with or anything done with it yet. And there'll be a 35-foot setback from here and all the way into here (indicating).
Q. Okay. When you said to a ditch over here, what ditch exists there now?

A. There's a large swale there right now.
Q. Okay. 'Cause I asked you about as far as on the property yesterday, and we --
A. I'm sorry.
Q. Just a minute, just a minute. And we didn't get that answer. So this is a new swale from yesterday, correct?
A. Yes, yes, I did --
Q. I would like you with my blue pen to draw that existing swale, please?
A. (Writing.)
Q. Okay. And do you have a name for that?
A. No, never named it.
Q. How about if I just write in here swale?
A. It would be great.
Q. Okay?
A. Yes, sir.
Q. Because we don't have that anywhere else on the map. So it's the only swale.
Are there other swales that you can remember today that you didn't remember yesterday?
A. There's a low spot that runs the edge of this property up and down determining -- determined by the actual elevation of this ground. Sometimes it's deep. Sometimes it's level. Sometimes it's deeper.

Q. Okay.
A. I would go ahead and list that if we're talking about swales.
Q. All right. Why don't you take my blue pen and right that one in?
A. (Writing.)
Q. Okay. Why don't we call that -- let's rename this one Swale 1. Can we just put a one next to that?
A. (Writing.)
Q. And call that Swale 2.
A. (Writing.)
Q. Okay. And Swale 2, is that still within the HDF boundary after the lot line adjustment, I'll call it?
A. Some yes and some no.
Q. Okay. And eventually Swale 2 converges with the center ditch, correct?
A. That's correct.
Q. And let me ask you some questions about the storm event in November of 2013. Did you go over and look at the whole site after that storm event?
A. Yeah. The following Saturday afternoon.
Q. So two days after Thanksgiving?
A. Yes.
Q. Okay. And the storm had happened on Friday?

A. Friday starting at 3:00 a.m. in the morning and rained until noon, and then it rained off and on from noon on till evening, and then it cleared up.
Q. Okay. On the day after -- so Thanksgiving night really into Friday, 3:00 a.m., all day Friday mostly?
A. Yes.
Q. Not quite, but mostly?
A. Yeah, yeah.
Q. Okay. So did you walk over the whole site then on Saturday?
A. Yes.
Q. Did you see water in the unnamed ditch on that Saturday?
A. No.
Q. Did you see water in Swale No. 1?
A. Small portions, just small portions.
Q. Okay. Did you go to the unnamed ditch?
A. Yeah, yeah.
Q. Okay. So you saw some amount of water in Swale 1?
A. Yes.
Q. Did you follow Swale 1 to where it converges with the center ditch?
A. Swale 1 --

MR. PALOUTZIAN: Let me insert a belated objection. I think the question misstates testimony. Go ahead.
THE WITNESS: Swale 1 will not be -- is not built at this point or constructed or developed at this point.
BY MR. TEBBUTT:
Q. Okay. So you think there is an end point of Swale 1?
A. Yeah, it's right here, right there in the middle of that field (indicating). Like we talked yesterday. We referred to that yesterday.
Q. So the unnamed ditch and Swale 1 then converge at that end point?
A. No. Swale 1 doesn't exist at this point. It's just -- we're going to turn this into a ditch.
Q. Okay.
A. It's just a low area right now.
Q. Okay.
A. And this unnamed ditch comes down here and dumps right in the middle this field (indicating).
Q. Okay. So Swale 1 has an end point similar to what the unnamed ditch has right now?
A. Well, it comes and ultimately will drain into this (indicating).

Q. All right. But I'm asking right now, is there a swale right now where you drew that line?
A. Yes, yeah. But it -- go ahead.
Q. So when you saw water in Swale 1 on the day after or two days after Thanksgiving in November 2013, where did you see water in Swale 1?
MR. PALOUTZIAN: Misstates testimony. Go ahead.
THE WITNESS: Just right here in this area right here (indicating).
BY MR. TEBBUTT:
Q. Okay. So can you put a bracket or maybe a paren on either side where you saw water?
A. (Writing.)
Q. Okay. And did you follow -- did you look at the end point of where you saw the water to see if it continued anywhere?
A. Yeah. It continued on down this line right here (indicating).
Q. The water did continue down the line?
A. Yeah.
Q. And did it reach the center ditch?
A. Yes.
Q. Okay. So on that day the water in Swale 1 did continue down and it discharged into the center ditch?

A. Correct.
Q. Okay. So the second bracket then isn't really correct then, is it? Because you said there was water all the way through there.
A. There was water collecting here because this is a low spot right there (indicating).
Q. Okay. But there was water flowing the rest of the way through?
A. Yeah, yeah.
Q. Okay. And did you go up to the small streams that converge near the top of Pivot 1 where we have the circle?
A. Yes, sir.
Q. And was there water flowing in both portions of those streams?
A. No.
Q. Was there one flowing in either of them?
A. The one coming from the northwest.
Q. Okay. And how much water, would you say?
A. Two feet. Two feet high, two feet deep; 24 inches deep.
Q. Okay. Are you good at estimating cubic feet per second flows?
A. No.
Q. Okay. Or gallons per minute?

A. Even worse.
Q. All right. Fair enough. There was water flowing though from the northwest ditch to that convergence, correct?
A. Correct.
Q. Did you see any water coming from the northeast ditch?
A. Very, very little.
Q. But some?
A. Yeah. Very minimal.
Q. Okay. How about Ditch 3, did you go -- did you observe Ditch 3?
A. Yeah, there was water in that also.
Q. How much?
A. Probably three feet wide. The problem with that is it would come down here and then this ditch ends. Okay. There's no destination for it to come across here, across this road at present (indicating). So all this water just went shwoo.
Q. So it fanned out?
A. Yeah.
Q. Did it go up across the road?
A. No.
Q. So it just created a lake basically?
A. Right. Right behind here (indicating).

Q. How long did it take for that lake that you're referring to to disappear?
A. Everything was pretty much gone by Monday.
Q. Okay. Did you go back and observe that lake?
A. Oh, yeah.
Q. And was it completely gone by Monday?
A. No, not a hundred percent. I would probably say it was down to less than 10 percent of the volume that I saw initially.
Q. All right. Was there still water flowing in the northwest ditch that we talked about?
A. Yes, yes.
Q. Okay. And that's right next to No. 1 on the map, correct?
A. Uh-huh, uh-huh (moves head up and down).
Q. Was there still water in Swale No. 1 on the Monday?
A. No.
Q. So did you see any water flowing in Swale No. 1 into the center ditch on Monday?
A. Just what was draining out of this one.
Q. So there was some that was still draining all the way through and into the center ditch?
A. Yeah, yeah. It had eroded a point right here where it was building (indicating). And then it eroded

a point, pretty much drained that very same day, that Saturday or gone by Sunday.
Q. You know, water has a funny way of doing that, doesn't it?
A. Yeah.
Q. No. 6 ditch, did you observe water -- or did you observe Ditch 6?
A. Yes.
Q. And did it have water in it?
A. No.
Q. None whatsoever?
A. None whatsoever.
Q. I assume the main ditch had water in it?
A. Yes.
Q. Did it have a lot of water in it?
A. Yeah.
Q. How much would you say?
A. Probably six feet across and three feet high.
Q. Okay.
A. Thirty-six inches deep. Yeah, that would be about right.
Q. Okay. Where we talked about where the flooding occurred down by the bridge, how much -- how far upstream did it back up?
A. It backed into the taro farm.

Q. How far into the taro farm?
A. It had about a 30-foot radius right inside his gate there.
Q. Go ahead and just kind of draw that radius that you talked about.
A. (Writing.)
Q. So that's the flooding. Could you just put F 11/13 there, please? 11/13.
A. (Writing.)
Q. And there you go. And that would designate the flooding in November of 2013, okay?
A. Uh-huh.
Q. The Waita ditch, did you observe that ditch?
A. No, no.
Q. You didn't observe it at all?
A. I observed it, yes.
Q. Did it have water in it?
A. No. Well, the same amount that it always carries.
Q. So it does carry water?
A. All the time.
Q. All right. So there's constant flow there?
A. Yes, it's overflow from the dam.
Q. All right. But you didn't observe more water in there?

A. No.
Q. How about Swale No. 2, did you observe water in that? Or, first, did you observe it?
A. This one over here (indicating)?
Q. Yes, in that same time period, that Saturday.
A. Yeah, yeah, yeah.
Q. And was there water flowing in that?
A. No. No, not flowing, just standing. Standing. It's pretty difficult to flow 'cause there's high spots and low spots along here (indicating).
Q. Okay. Did you follow that swale to its confluence with the center ditch?
A. Yes.
Q. And was there water flowing into the center ditch from that swale, too?
A. Yes, yes.
Q. How much?
A. Oh, a smaller head, probably two-foot wide; 12, 13, 14 inches deep.
Q. Okay. Since you've been there -- since this event in November 2013, have there been other events where you've observed similar water flows on the site from storm events?
MR. PALOUTZIAN: Objection, vague.
THE WITNESS: Just one time.

BY MR. TEBBUTT:
Q. When was that?
A. I can't even recall now. It had to have been the winter of '14.
Q. The winter of '14. '14-'15?
A. '14.
Q. Of, well --
A. Winter. Let's just say February and March of '14. February or March of '14.
Q. Okay. So a couple months after the event you saw in November of 2013?
A. Uh-huh (moves head up and down).
Q. Okay. Do you remember what the rain amount was then?
A. It was like over five inches. Just a little over five inches over about a three-day period.
Q. Okay. And did you see similar amounts of water in all the ditches we just talked about?
A. Yes.
MR. PALOUTZIAN: Objection, vague.
THE WITNESS: Yes. Somewhat less.
BY MR. TEBBUTT:
Q. Somewhat less, okay.
A. Yeah.
Q. From your weather station information that

you've obtained since 2013, how many rain events have been over five inches?

A. Just those two to my knowledge.

Q. And so the rain events are recorded on a daily basis, is that correct?

A. Yes, sir. Yes, sir.

Q. So they're summarized on a daily basis?

A. Yeah.

Q. 'Cause it's constant information, right?

A. Every 24 hours.

Q. Every calendar day it's summarize?

A. That's correct.

Q. And does it have information by 60-second intervals, 30-second intervals?

A. One-minute intervals, but it's recorded on hourly at the most.

Q. Okay.

A. And daily in the reports.

Q. Okay. But the raw data has it compiled on an hourly basis?

A. Yes.

Q. Okay.

A. Upon request.

Q. So is that information still available today, that computer data?

A. Yes.

Q. And so whose computer is that located in?

A. Mine.

Q. And is that the same computer that you've had since you started in 2013?

A. Yes.

Q. Are you going to upgrade that computer?

A. Yes.

Q. When?

A. Very soon.

MR. TEBBUTT: Okay. I'm going to ask that there be a hold put on the old computer as the information is transferred so it not be lost in the transfer in case we need that for some reason.

MR. PALOUTZIAN: Okay.

MR. TEBBUTT: Okay. You agree to do that?

MR. PALOUTZIAN: I do.

THE WITNESS: I need to take a break.

(Break from 9:29 to 9:39.)

BY MR. TEBBUTT:

Q. Just to wrap this up, are there any other unnamed ditches on the property that you haven't identified on Exhibit 4?

A. (Writing.)

Q. One more?

A. Yeah.
Q. Okay. Any others you can think of?
A. No.
Q. You're sure?
A. That's it.
Q. Okay. And so the one you just added in, let's call that --
A. Let's call it No. 3, 'cause that's how --
Q. Well, we already have a No. 3 ditch.
A. Okay.
Q. All right. Do you have a name for that?
A. Un-un (moves head from side to side.)
Q. Let's call it Unnamed Ditch 2.
MR. TEBBUTT: Off the record.
(Off the record from 9:41 to 9:41.)
BY MR. TEBBUTT:
Q. Okay.
A. I want to make a point here.
Q. Yes.
A. The Waita ditch and the unnamed ditch run parallel to each other here.
Q. Okay. And do they meet at the main ditch by the bridge?
A. Yes.
Q. The bridge we're referring to is the one that

flooded in November 2013.
A. No. Let me correct that, no.
Q. Okay.
A. This water comes around here, okay. It comes down to here, and then these two ditches come into the ditch back here a ways (indicating).
Q. The Waita ditch comes into the main ditch, right?
A. Uh-huh.
Q. And the other ditch, how does that traverse -- no, not yet. Don't write on the back of that yet. How does the Unnamed Ditch 2 traverse the main ditch? Is it culverted under it?
A. Repeat that question.
Q. Yeah. I'm just trying to figure out the hydrology here of the unnamed Ditch 2. You said it flows down on the edge of the taro farm, correct?
A. Uh-huh (moves head up and down).
Q. And you said it doesn't discharge into the main ditch?
A. Yes, it does.
Q. Oh, it does?
A. Yes, it does.
Q. Above the bridge or below the bridge? Above meaning to the west, and below meaning to the east.

A. I've got to draw it for you.

Q. All right. Let's just do it with a separate piece of paper then. Let's use that piece of paper. Draw me the hydrology filtrator. Refer to Exhibit 4. So you're referring to Exhibit 4. Can we call this Exhibit 4A? Just this piece of paper, just for fun?

MR. PALOUTZIAN: Whatever you want to do.

BY MR. TEBBUTT:

Q. All right. Let's call it Exhibit 4A. We'll mark it at the end when he's done.

A. Okay.

Q. Hang on. Don't talk yet. The court reporter's not ready. Okay. Go ahead.

A. This is the bridge that you're talking about. It's a concrete bridge.

Q. Right. Where we took that sample during the Rule 34 inspection, yes.

A. You took this sample right here on this bank.

Q. Correct. From the bridge. We dipped the bucket down off the bridge. Do you remember that?

A. Yeah.

Q. Okay.

A. This is the road, and this is the ditch over here. Okay. This continues down this way, and then continues this way (writing).

Q. Okay.

A. Okay. You've got the Waita ditch that comes down here and comes into there (writing).

Q. All right. Below the bridge.

A. Discharges below the bridge, yeah.

Q. Okay.

A. Then you've got the No. 2.

Q. No. 2 unnamed.

A. Unnamed ditch that runs parallel to this and comes into this at that point (writing).

Q. All right. Beautiful. So that also comes in and converges with the main ditch below the bridge?

A. Correct.

Q. Okay.

A. But not before the bridge.

Q. Okay. So if you would just put Waita on the bottom one.

A. (Writing.)

Q. And Unnamed No. 2.

A. (Writing.)

Q. Okay. And Waita is W-a-i-t-a, is that right?

A. Waita, yeah.

Q. Okay. So can we correct the spelling on that? You just put the A and the I in different places.

A. (Writing.)

Q. Okay. And so let's put bridge right where you have that written in there.
A. (Writing.)
Q. Okay. And then let's draw some crosshatches across the road so we know which is the road.
A. (Writing.)
Q. And then if you'll write, Road, next to it with an arrow.
A. (Writing.)
Q. Okay. And then main ditch for --
A. (Writing.)
Q. Okay. Anything else you want to use for what will be marked as Exhibit 4A?
MR. PALOUTZIAN: The question is overbroad and vague.
BY MR. TEBBUTT:
Q. Anything else we need to identify on here?
A. No.
MR. PALOUTZIAN: Same objection.
MR. TEBBUTT: Okay. All right. Let's take a break so we can put Exhibit 4A on there.
(Garmatz Deposition Exhibit No. 4A was marked for identification.)
BY MR. TEBBUTT:
Q. And would you just put your name at the bottom

of 4A, Jim Garmatz's drawing?
A. (Writing.)
Q. Okay. And I forget whether I asked you this or not, but Unnamed Ditch No. 2, on the Saturday after Thanksgiving in November 2013, did you see water flowing in that ditch?
A. Very minimal.
Q. Okay. But some?
A. Some.
Q. Okay. And did you see water flowing in that ditch in February or March, the other storm event of 2014?
A. Very minimal again.
Q. About the same amount?
A. Yes.
Q. Okay. Is there going to be a 35-foot -- what was the word you used?
A. Setback.
Q. Setback.
A. Yes.
Q. From Unnamed Ditch 2 as well on both sides?
A. Yes.
Q. So does that mean the area between Unnamed Ditch 2 and the Waita ditch where it comes pretty close to one another will not be able to be used at all for

paddocks?

A. Yes, yes.

Q. Do you know whether the acreage that will not be available to use for paddocks is calculated into the EIS?

A. The exact acreage?

Q. Yes, the reductions because of the setbacks. Do you know if there's a special calculation for that?

A. I can't tell you that.

Q. Okay.

A. I don't know that.

Q. I think we're done with that, but I won't guarantee it. I'm going to wrap this around.

When did you first see nene on the site?

A. I've seen nene as early as I got here.

Q. So in October 2013?

A. Well, I arrived on the site in July of '13, still as a consultant.

Q. Okay. And you saw nene then?

A. Oh, yeah.

Q. How many?

A. See a couple flying.

Q. How many on the ground on the site?

A. I would never count them exactly, you know.

Q. Dozens?

A. Sometimes 4, sometimes 12, sometimes 20. You know, I just would never count 'em, you know. They blend in well with the ground, and sometimes it's hard to count 'em.

Q. How many nests have you seen on the site?

A. Oh, numerous nests.

Q. Numerous?

A. Yeah, 15, 16.

Q. Have you seen any nests in 2016?

A. Yes.

Q. How many?

A. Three. Three that I've seen.

Q. Okay. And when you've seen a nest in 2016, what do you do?

A. I build a -- mark an area 50 feet around the nest.

Q. So 50 feet circumference?

A. Uh-huh (moves head up and down).

Q. So what's the radius from the nest?

A. I said that wrong. Fifty feet from the nest.

Q. Okay.

A. Okay. That's just here with the 50 feet this way and make a circle.

Q. Okay. So a 50-foot radius?

A. Right.

Q. Okay. And what do you make a circle with?
A. Basically I'll put signs up. I've got signs that I maintain in my pickup, and I'll put signs up.
Q. What kind of signs?
A. Indicating -- they're just a small sign. (Indicating), nenes are nesting.
Q. What are they made of?
A. Plastic -- they're made of paper and then they're coasted with plastic, a plastic covering. And then I'll mark off the area. I and my -- Scott and myself are the only ones that are ever on the farm or supposed to be on the farm ever, okay. And we know where those areas are, so we know -- we'll close the road or -- we had one nene alongside that road, and we closed that road until she nested out and left.
Q. How long was that, what kind of period of time?
A. Oh, shoot, it was almost 30 days.
Q. So other than -- how many signs do you put around the nest? Do you have standard --
A. Depending on where they're at. You know, one or two.
Q. And is there anything else that you do as part of your normal procedure?
A. I won't touch the area within it. I won't water it. I won't mow it. I won't fertilize it.

Q. Do you contact anyone and let 'em know that it's there?
A. The state people come on the property on nearly on a weekly to biweekly basis, and I always inform them of stages as to where we're at with those nests.
Q. What state people?
A. DLNR people they're hired --
Q. DLNR?
A. Yes, Department of Land and Natural Resources.
Q. And why do they come on the site?
A. It's their job.
Q. I know. But to do what?
A. Monitor nenes. We've got a nene biologist and then we've got her two assistants.
Q. Okay. Are there other endangered species that you monitor for on site?
A. I'm sure that they have been there, but as far as me being attentive to them, no.
Q. So no other endangered species that you're aware of?
A. Oh, I'm definitely aware.
Q. Okay. What other species are you aware of that use the site?
A. I couldn't list them for you. The nenes are the only ones that I really stay cautious about.

Because in the portion that we're on on a daily basis -- of the farm that we're on a daily basis, the nenes are the only ones that we see.

Q. Okay. So you don't take any other mitigative measures for other species?

A. If the biologist is to see 'em when they come onto the farm, he will let me know, and we do protect their nesting also if they're nesting. Or if he sees another endangered species on the farm, he'll notify me and let me know and let me know where he saw it and what I need to do to set aside the area.

Q. How many times have you been notified by the biologist of other endangered species on the site?

A. Two or three times. Three times, three times.

Q. When?

A. Oh, I couldn't give you the exact dates on that.

Q. Was it this year?

A. Oh, no, no.

Q. 2015?

A. 2014 when construction was going on. They were -- I asked them to come onto the farm on a weekly basis and even twice-a-week basis to make sure that --

Q. Back during construction?

A. Uh-huh (moves head up and down).

Q. Have you asked them to come on site at all in 2016?

A. Oh, yeah, they're there all the time.

Q. Do they come in at their will or at your request?

A. No, their will. They got a key to the farm.

Q. Okay. And so do you remember what species you were notified were present?

A. We talked a lot about the nene, and then we saw an owl.

Q. What kind of an owl?

A. Oh, I couldn't tell you. I'm sure there's a name for it, but I didn't pay that close of attention to it.

Q. 'Cause we had talked about the nenes, but you said there were three times you were notified in 2014 about other endangered species other than nene.

A. Yeah, but I can't recall the actual bird -- I can't remember the bird that they were talking about or the --

Q. But it was a bird? Was it a shearwater, does that ring a bell?

A. No, no, it wasn't a shearwater. I know that one.

Q. Okay.

A. I recall the owl, because the owl was very, very large, very large. And they ultimately displaced that -- caught the owl, trapped the owl, and took it to another place.

Q. Do you know why they did that?

A. 'Cause of the construction that was going on.

Q. Okay.

A. They didn't want to have the owl to have a problem with the construction.

Q. Okay. Have you ever mowed over a nene nest?

A. No. No, no, no, no, no, no, no.

Q. Have you ever mowed over a live nene?

A. No. Oh, my God, no.

Q. Well, sometimes these things happen.

A. Yep.

Q. When you're not paying attention or even if you are, it can happen.

A. Do you know a nene nest? You know it.

Q. Why? What's distinguishing about it?

A. Well, the female's laying and the male's guarding.

Q. Do they squawk?

A. Oh, shoot. You come within a hundred feet of him, he's raising all sorts of hell. That's why they're so easy to find.

Q. Do you have any communications with the United States Fish and Wildlife Service?

A. No.

Q. Have you ever seen a letter from the United States Fish and Wildlife Service regarding your project here?

A. I'm sure there might have been, but I can't recall one right offhand.

(Garmatz Deposition Exhibit No. 23 was marked for identification.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, handing you what's been marked as Exhibit 23, a letter from the U.S. Fish and Wildlife to Jeffrey Overton at Group 70, subject: Technical assistance for the proposed Hawaii Dairy Farms, Kauai. The letter stamped February 23rd, 2015. Do you see that?

A. Yes.

Q. Have you ever seen this letter before?

A. No.

Q. I'm just going to ask you a few questions. Do you know if one of the birds that the state DLNR asked you about was a Hawaiian petrel? Does that sound familiar?

A. No, sir.

Q. How about a band-rumped storm petrel?
A. No, sir.
Q. Have you ever seen a requirement from the Fish and Wildlife Service to have a hundred-foot buffer around active nene nests or broods?
A. No, I've never seen that.
Q. Do you see that at the top of page three, the very first bullet?
A. Yes, yeah.
Q. So you don't do that, you do a 50-foot, correct?
MR. PALOUTZIAN: I'm going to object that the question is vague, as is the statement, a hundred-foot buffer.
MR. TEBBUTT: Okay. Well, as the old objection, goes the document speaks for itself.
MR. PALOUTZIAN: I agree.
BY MR. TEBBUTT:
Q. And so you haven't notified the Fish and Wildlife Service of the presence of nene, correct?
A. No, I've notified -- no.
Q. And so you've never -- do you know if you've submitted a post-construction report, the last bullet on the top of page three, to the Fish and Wildlife Service after completion of your project?

A. No, that's not been done.
Q. There was some water quality sampling that was done on the site in, I believe it was 2015, right? Do you recall that?
A. State that again, I'm sorry.
Q. Water quality sampling done on the site by HDF in 2015?
A. Yes. Surface water or groundwater?
Q. Surface.
A. Okay.
Q. Is that a fair assessment, that there was surface water sampling done?
A. Yes.
Q. Do you know if there was any surface water sampling done during the period that construction was going on in 2014?
A. No.
Q. There was no water quality sampling done then?
A. No.
Q. By HDF?
A. No.
Q. That's correct? Am I correct?
A. No sampling was conducted.
Q. Right. Okay. We had some double negatives there. I just wanted to make sure we were getting the

right statement.

What level of involvement did you have with the surface water sampling in 2015?

A. I took them to the collection areas, delivered them to the collection areas.

Q. So you were present when the samples were taken?

A. Yes, sir.

Q. And did you get the results of the samples, too?

A. Yes, sir.

(Garmatz Deposition Exhibit No. 24 was marked for identification.)

BY MR. TEBBUTT:

Q. Mr. Garmatz, I've handed you Exhibit 24, which is two pages of results of sampling from the HDF site and some places, I think, just off site, samples that were taken November 24, 2014, one by Mr. Steven Dollar and the other by the Department of Health. Do you see those?

A. Yes, sir.

Q. Mr. Dollar is a consultant for HDF, correct?

A. Yes.

Q. And he was at that time?

A. Yes.

Q. And you said you've seen these kinds of -- you've seen these sample results, correct?

A. Yes.

Q. Did you have any discussion with Mr. Dollar about why the results on the second page of Exhibit 24 are so different than the results on the first page of Exhibit 24?

MR. PALOUTZIAN: Objection, argumentative and it's vague and overbroad. Go ahead.

THE WITNESS: No.

BY MR. TEBBUTT:

Q. Do you see that the enterococcus numbers are significantly different?

A. Yes, sir.

Q. Did you ever ask Mr. Dollar why that was the case?

A. No.

Q. Did he ever raise it with you?

A. Not to my knowledge, no.

Q. Have you ever discussed why these results are so different with anyone other than Mr. Dollar?

MR. PALOUTZIAN: Same objection.

BY MR. TEBBUTT:

Q. You didn't talk to Mr. Dollar. Did you speak with anyone about why the results are so different?

MR. PALOUTZIAN: Objection, argumentative. Go ahead.

THE WITNESS: Discussed it amongst our team members.

BY MR. TEBBUTT:

Q. Who?

A. Greg Gaug and Kyle Datta.

Q. Who's Greg Gaug?

A. Gaug, G-a-u-g.

Q. Who's Greg Gaug?

A. He's an employee of Ulupono.

Q. Okay. In what capacity?

A. I don't know what Greg's capacity is. He heads up the financial side of the project.

Q. Okay. So what was your discussion with Mr. Datta and Mr. Gaug about the Exhibit 24 results?

A. The difference it 'em.

Q. And what was the discussion?

A. Well, we just discussed them as far as why they were -- why there was a difference.

Q. And what was the discussion about?

A. Greg and Kyle were going to get with Steve and ask him.

Q. And did they?

A. I couldn't tell you.

Q. They didn't follow up with you about that?

A. No, no. A lot of stuff they don't follow up with me about.

Q. Having looked at this more, is there any other -- anything that comes to your mind about why those differences existed?

MR. PALOUTZIAN: Objection, that calls for an expert witness. Go ahead.

THE WITNESS: No, I can't comment on that. I'm not an expert in water quality.

I need to take a break.

(Break from 10:14 to 10:22.)

BY MR. TEBBUTT:

Q. Sir, I just want to ask you a few more follow-up questions about endangered species. Have you seen a Koloa duck on the site?

A. Yes.

Q. How many times.

A. Just twice.

Q. Were those some of the ones that you notified DLNR about?

A. No, because they notified me about it, and I went and looked at 'em. They saw 'em before I did. And then they said, Here they're at. Let's go look at 'em so I can see 'em.

Q. Were they nesting sites?
A. No, no. They were just -- in fact, the first time they showed me, they weren't even on the site. They were off the site.
Q. Okay.
A. And then the second time they were sitting on the road that was within the boundaries, the main road that goes down the center of the farm.
Q. How about the stilt, have you seen the stilt?
A. No.
Q. You haven't seen one?
A. No, no.
Q. You're not aware of any?
A. Not on the farm, no, sir.
Q. How about a coot?
A. No. Now, people tell me that -- no, I'm not going to say that.
Q. Go ahead. You can say it.
A. No, I'm fine.
Q. Please complete. People tell you what?
A. That they're hard to distinguish between other birds, too. So you might not see what they're like. So...
Q. Okay. I don't mean this in a bad way or anything else. But I'm just noticing, and I just want

to ask you, do you feel agitated or anything right now? Are you feeling all right? 'Cause I noticed you took a break rather sharply. And I just want to ask if you're feeling okay.
A. Feeling great.
Q. Okay. I'd like you to take a look at Exhibit 14, which has been marked in this case. Have you ever seen this document before? Go ahead and read it to yourself. Take your time. Let me know when you're done.
A. Okay. I was --
Q. Yeah. Have you seen this document?
MR. PALOUTZIAN: He's asking whether you've seen it before.
THE WITNESS: Not the top one, no.
BY MR. TEBBUTT:
Q. Okay. The bottom one obviously was to you.
A. Yes.
Q. Did you forward that -- the email dated Friday, March 24, 2014, at 4:30 p.m. from Sina Pruder, did you forward that to Mr. Datta?
A. Yes.
Q. But you hadn't seen Mr. Datta's email?
A. No, no.
Q. How do you get along with Mr. Datta?

A. Fine.

Q. Does the email that -- from Mr. Datta to Mr. Clay and Ms. Hennessey influence your opinion of how you get along with Mr. Datta at all?

A. No, because Mr. Datta before he sent this email called and confirmed the same thing in a conversation with me. So we had a long discuss before this email was written.

Q. About what?

A. About all these topics.

Q. I see. About the sizing of the facility?

A. No, not so much that. It was that he was not comfortable with me going forward with heading up the permitting. And, you know, he asked -- first question out of his mouth, he says, Are we ready to load up?

And I said, Load up. And I said, Yeah, we're ready to load up.

And he says, You're not comfortable going forward with what's going on?

And I said, No. And I said --

And he said, Neither am I.

Q. What does load up mean?

A. Attach Group 70, get Patricia Henry involved.

Q. So you wanted to load up, you mean, bringing in more experts and lawyers?

A. Yes.

Q. Did you have a discussion with him about whether to scale the facility down from 2,000 head to 699?

A. Well, that was an ongoing discussion early on after we felt the pushback from the community. Initially, you know, it was going to be a larger facility. The original plans were going to be a larger facility. But both myself and Ms. Hennessey, who was their PR relations folks who -- her and I had been on the island discussing this, and we had suggested that we possibly change our numbers down to a number that would be less than 700 to start the facility out with.

Q. And was that to avoid the large CAFO regulatory process?

MR. PALOUTZIAN: I'm going to object that it calls for specification. It's vague. Go ahead.

THE WITNESS: No, because we knew the large CAFO would take longer than what we had intended to get done.

BY MR. TEBBUTT:

Q. Right. So is that why you scaled the project down to 699?

A. No.

MR. PALOUTZIAN: Same objections.

THE WITNESS: No.

BY MR. TEBBUTT:

Q. Why did you scale it down to 699?

MR. PALOUTZIAN: Same objections and it's misleading. Go ahead.

BY MR. TEBBUTT:

Q. At least the initial phase.

MR. PALOUTZIAN: Same objections.

THE WITNESS: We felt it would be community friendly to start out at a lower amount.

BY MR. TEBBUTT:

Q. But you still intended to get to 2,000, correct?

MR. PALOUTZIAN: Same objections. You're asking his personal view of the project?

MR. TEBBUTT: What his knowledge of it is.

MR. PALOUTZIAN: Well, the question is vague as posed. Go ahead.

THE WITNESS: We just felt it would be more friendly to the neighbors.

BY MR. TEBBUTT:

Q. Why would it be more friendly?

A. 'Cause we could prove to them that the project works.

Q. And then you'd scale it up to 2,000?

MR. PALOUTZIAN: Same objections.

THE WITNESS: If the grass could handle it.

BY MR. TEBBUTT:

Q. So is your main contention whether the grass can handle more than 699 cows?

MR. PALOUTZIAN: Objection, vague.

THE WITNESS: I know that it can handle more than 699, but whether we go there or not will be determined later.

BY MR. TEBBUTT:

Q. And when you say whether the grass can handle it, is that in terms the glass feeding the animals?

A. That's correct.

Q. What about whether the grass can uptake the waste from the animals?

A. Well, I know that it can do that.

Q. Why do you know that?

A. Because of the grass yield test that we've taken and studies we've done.

Q. And what studies are those?

A. The grass yield studies that have been performed over the past two years.

Q. Okay. And are those included in the EIS?

A. Yes.

Q. And is it your contention that they show that the grass will take up all the nutrients from --

A. Yes.

Q. Just a minute. From the manure waste?

A. Yes.

Q. What happens in a storm event of the size of the ones you saw in November 2013 and February of 2014? What happens to the lagoons in that situation?

MR. PALOUTZIAN: Objection, the question is overbroad, it calls for an expert opinion, it's an incomplete hypothetical, lacks foundation, calls for speculation. Go ahead.

THE WITNESS: Ask the question again.

BY MR. TEBBUTT:

Q. Yes. When a large storm event like the two that happened right after Thanksgiving in 2013 and then the other one you testified about in February or March 2014, over -- it was over five inches, what happens to the lagoons in that situation?

MR. PALOUTZIAN: Same objections.

THE WITNESS: The lagoons will be managed to best management practices and that would not happen.

BY MR. TEBBUTT:

Q. What would not happen?

A. The overflow of the lagoons.

Q. Isn't part of the present protocol that you

would have to empty the lagoons prior to such a storm event?

A. Not for that size of a storm event, no.

Q. What size storm event would require you to empty the lagoons prior to storm events?

MR. PALOUTZIAN: Same objections. It's also getting into the realm of not being relevant to the claims in this case. Go ahead.

THE WITNESS: Twenty-four-hour, 25-year event.

BY MR. TEBBUTT:

Q. And what size is that?

A. Over eight inches.

Q. Now, just to clarify, the 699 cows that are planned to be brought into the facility, they would be brought in pregnant cows, correct? That's the plan?

MR. PALOUTZIAN: Same objections.

THE WITNESS: Say that again.

MR. PALOUTZIAN: Let me just state an objection. I don't think that's relevant to the claims being made in this litigation. Go ahead and answer the question.

BY MR. TEBBUTT:

Q. Yeah. So the plan is to bring in 699 pregnant cows, correct?

A. To the facility, yes.
Q. Right. And how long would it be before they gave birth?
MR. PALOUTZIAN: Same objection.
THE WITNESS: Should give birth within 60 days of each other, beginning to end.
BY MR. TEBBUTT:
Q. Okay. And from the time they're brought onto the facility till they give birth, how much time would you expect?
MR. PALOUTZIAN: Same objection.
THE WITNESS: They will not come onto the facility until they're within 15 days of giving birth.
MR. TEBBUTT: Okay. Can we take about a six-minute break?
MR. PALOUTZIAN: All right.
(Break from 10:37 to 10:46.)
BY MR. TEBBUTT:
Q. I just have a few more questions for you. You know, famous last words. I want to ask you if you've ever heard of mill ditch?
A. Mill ditch?
Q. Yeah.
A. No.
Q. Okay. Not Mill Ditch 9, A or B?

A. No.
Q. Okay. How about Waiopili ditch?
A. Yes.
Q. Okay. And what do you consider Waiopili ditch? Is it on the map? Is it on Exhibit 4?
A. Yeah.
Q. What do you consider to be Waiopili ditch?
A. These two drains come together right down here underneath your white portion of your map (indicating).
Q. So the center ditch and the main ditch, where they converge?
A. Yes.
Q. That in your estimation become Waiopili ditch?
A. Yeah, that's how I consider it. I don't know what everybody else considers it, but that's how I consider it.
Q. You don't consider anything on the property to be part of Waiopili ditch?
A. No.
Q. Okay. Did you help the Ulupono Initiative or Mr. Omidyar prepare their tax rebate request in any way?
A. No.
Q. Did you provide any answers to questions from their accountant about that tax application?
A. No, no, no.

Q. What about the invoices that were related to the work that was requested for the rebate?
A. No, no.
Q. Did you answer any questions about the invoices and whether they related to this project or not for the tax rebate?
MR. PALOUTZIAN: Objection, calls for speculation, lacks foundation. Go ahead.
BY MR. TEBBUTT:
Q. Go ahead and answer.
A. I don't recall.
Q. So it's possible Mister -- that you spoke with Mr. -- is it Haed?
A. I don't recall that name.
Q. Okay.
MR. TEBBUTT: Off the record for just a second.
(Off the record from 10:48 to 10:51.)
BY MR. TEBBUTT:
Q. Mr. Garmatz, I'm going to show you an invoice from All Property Consulting, Inc, dated February 2, 2014. And I'm going to ask you some questions about it.
A. Okay.
Q. We only have the one electronic copy. So it will become Exhibit 25 to the deposition.

A. Okay.
Q. So if you don't mind, I'm going to look over your shoulder.
A. That's fine.
Q. While I ask you some questions.
MR. PALOUTZIAN: Or I can show him on my computer. Whatever you prefer. I have it pulled up on my screen as well.
MR. TEBBUTT: All right. Do you want to do that? That would probably be little easier. Thanks.
BY MR. TEBBUTT:
Q. And let's just make sure we're looking at the right thing.
A. Yes.
Q. Just to be on safe side. Looks good, okay.
Mr. Garmatz, do you know who Bob Farias is?
A. Yeah, yeah, Bobby Farias. I know him very well.
Q. Okay. F-a-r-i-a-s.
A. Yes. There's junior now. Make sure we refer to junior.
Q. Okay. So there's a junior and a senior?
A. Yes.
Q. Okay. And I assume senior is junior's father?
A. Yes.

Q. And do you work with both gentlemen?
A. Yes.
Q. In what capacity have you worked with Mr. Farias, Sr.?
A. He did some clearing out at the farm.
Q. When?
A. In 2014, early 2014.
Q. So that -- is this invoice, is this name from the senior?
A. No, this is from junior.
Q. Okay. I was asking you about senior. So did senior do some of the clearing, too?
A. Yes, yes.
Q. But junior is the one that does the invoices?
A. No. Junior is a totally separate entity. All property consulting is junior's entity.
Q. Okay. So Mr. Farias does he -- Mr. Farias, Sr., does he has a separate entity or is he just on his own?
A. Yeah, separate entity.
Q. Do you know the name of his entity?
A. I was afraid you were going to ask me that. I can't tell what it is right offhand.
Q. Okay. It's not R Ranch is?
A. No, it's Ross Farias.

Q. Okay. I'm going to just go through this invoice and ask you some stuff. 'Cause I asked -- earlier we discussed some invoices, and there wasn't as much detail. This might help with some detail.
So on the left side of the page, I assume those are the dates of the work, is that correct?
A. Uh-huh (moves head up and down). Yeah.
Q. And is that billing for February 2014 work or January 2014 work. Do you know?
A. January.
Q. Okay. 'Cause the invoice is February 2nd, right?
A. Right.
Q. Okay. So the first entry says, 2nd, so that would be the 2nd of January?
A. Uh-huh (moves head up and down).
Q. Locate disk for farm to prep ground.
A. That's correct.
Q. What does that mean, locate disk, do you know?
A. Well, he was looking for a disk. I'd asked him to find me a disk that we could start some prep ground with on the farm.
Q. Okay. If you don't mind, could you take your hand from in front of your mouth. Thanks. It's clearer for the court reporter.

A. Mr. Farias is a consultant, and he just does active work for me in the month of January, and these are the tasks that I asked him to help me with. And this is the hours spent.
Q. Does this every January?
A. No.
Q. Or just January of 2014?
A. Yeah, yeah.
Q. Okay.
A. And all those are tasks that I asked him to do for me.
Q. Sure.
A. And you see the hours that he spent doing those, and he totals them up there, and it's a total of 36 hours at $95, and we paid that.
Q. Right. Sure. The second entry says, Meetings at the farm, grass plot, land clearing, ground prep.
A. Yes.
Q. What's the land clearing and ground prep refer to?
A. That's basically what we discussed while we were at the farm having our meeting.
Q. But yet there was actually work done, too, right, the land clearing and ground prep?
A. No, no.

Q. So the meeting took five hours?
A. Yeah, you betcha. Yeah, we talked a bunch about how we were going to do it, where we were going to do it, how it was going to get done.
Q. Okay. The entry on the 14th.
A. Okay.
Q. It says, Worked at farm site drainage and cleaning, prepared for delivery of pivots, six hours.
A. That was some work that we talked about there. And, let's see, where's the drain? It's also a possibility that Bobby might have used my tractor that day to mow some grass because we did have the pivots coming in about that time in containers.
Q. So you're saying he mowed some grass for the delivery of the pivots?
A. Yeah, to place the pivots out of the containers.
Q. Okay. 'Cause I think I asked you --
A. I can't tell you exactly how that was -- what was done there on that date.
Q. Yeah. 'Cause I asked you earlier about whether you did any special preparation for the pivots, and I think you said no earlier.
A. Yeah.
Q. Does this refresh your recollection that there

was some preparation done?

A. Well, this is for the delivery of the pivots, you know, the containers that came in that they were delivered in. And you have to take the containers -- the material out of the containers. And there was six of the containers. So I'm sure that we did some ground prep for it, yeah. I'll have to change my wording.

Q. Okay. I'm done with that one. Can you go to the June 1, letter, please. Mr. Garmatz, you have in front of you what will be labeled under stipulation of counsel as Exhibit 25 [sic], the June 1, 2016, letter from Group 70 to Hawaii Department of Health. Do you see that letter? Do you see that document in front of you? Sir, do you see the document?

A. Yeah, I see it.

Q. Okay. It's a two-page letter, correct?

A. Yes.

Q. And have you seen this letter before today?

A. No.

Q. This is the first time you've seen it?

A. Uh-huh (moves head up and down). Let me finish reading it, please.

MR. TEBBUTT: Okay. While you're reading it, I would just like to say for the record that Exhibit 25 [sic] is a document dated June 1, 2016, from

Group 70 to the Department of Health that should have been provided to us in response to request for production of documents, and to our understanding was not. We found this on our own.

MR. PALOUTZIAN: Okay. Well, I'm not sure what you consider to be the deadline for production of documents. But...

THE WITNESS: Okay.

BY MR. TEBBUTT:

Q. Does having read through the letter refresh your recollection whether you've seen this letter before?

A. I've not seen this letter before.

Q. Okay. Have you discussed the contents of the letter with anyone at Group 70?

A. It was discussed in a phone conversation.

Q. When?

A. Three weeks ago.

Q. Who was on the call?

A. Just myself and Paul Matsuda.

Q. And how long did that discussion take place?

A. Two to three minutes.

Q. And did you initiate the call or did Mr. Matsuda?

A. Matsuda called me.

Q. What did he ask you?
A. Just keep me updated.
Q. Did he tell you that the request for an extension of the storm water permit was going to be filed?
A. Uh-huh.
Q. And did you -- did he ask for any specific information from you?
A. No, no, just an update.
Q. He was just letting you know that the request would be filed?
A. Correct.
Q. And what did you say?
A. Fine.
Q. Did you discuss anything other than -- or did you say anything other to him than, Fine, during the conversation?
A. No, just indicated to him that that would be all right. So thank you for the information.
Q. What information -- additional information relevant to the NOI application was needed, do you know?
MR. PALOUTZIAN: Objection, lacks foundation, calls for speculation.
THE WITNESS: I wouldn't know that. I wouldn't know that.

BY MR. TEBBUTT:
Q. Did you discuss any of that additional --
A. No.
Q. Just a minute. Please let me finish my question.
Did you discuss any of what additional information was needed with Mr. Matsuda on that phone call?
A. No.
Q. Have you had any discussions with him on any other phone calls about what additional information was needed for NOI application?
A. I do not recall.
Q. Sir, if you'll take a look at Exhibit 20. I think we're done with this one. You can move the computer.
This is a submission dated August 17, 2015, from HDF concerning the storm water permit. Do you see that?
A. Uh-huh (moves head up and down).
Q. Have you seen this document before?
A. Yeah, I've seen portions of this, yes, sir.
Q. Okay. I'd like you to turn to -- towards the back, FOM_002602 through 2608. Let me know when you get there. Do you see 2602 through 2608?

A. Uh-huh (moves head up and down).
Q. Oh, okay. So you're looking at that upside down. It's okay. So if you turn just briefly to 2608, please. Do you see the signature line on 2608, and it has your name on it?
A. Uh-huh.
Q. Did you actually submit that document?
A. Yes.
Q. Who wrote that document for you or did you write it yourself?
A. Oh, no. Group 70.
Q. Okay. Did Mr. Matsuda write that for you?
A. Yes, sir.
Q. And how much time did you spend working with Mr. Matsuda on that letter?
A. Oh, 20, 25 hours.
Q. Okay. Did you do that with him in person or over the phone or --
A. Both.
Q. How did you do it?
A. Both.
Q. Okay. Did you go to Honolulu and meet with him about the letter?
A. Yes.
Q. And how much time did you spend with him

working on that letter?
A. About six hours over there in Honolulu.
Q. And did he come over here to work with you on this, too?
A. Yes.
Q. And how much time did he spend with you working on it?
A. Full day, eight-hour day, long day.
Q. Just the two of you?
A. Ryan Char was also there.
Q. And who's Ryan Char?
A. He's another individual at Group 70.
Q. Okay. He's not an attorney, though, is he?
A. No.
Q. Okay. So it was just at most the three of you working on this?
A. Uh-huh (moves head up and down).
Q. Okay.
A. I believe Amy Hennessey was there also.
Q. Okay. Is the information in the letter dated August 14, 2015, correct?
MR. PALOUTZIAN: Objection overbroad.
THE WITNESS: To the best of my knowledge.
BY MR. TEBBUTT:
Q. Okay. Take a look at 2604 of that letter. Do

you have that in front of you?
A. Uh-huh.
Q. Look at E, Locations of any crossing of state waters as required by Section 7.2.6.1. Do you see that?
A. Uh-huh.
Q. And it says, Crossings of Mahaulepu Ditch are indicated in Figure 6B. Crossings will be constructed per applicable NRCS conservation practice standards. Do you see that?
A. Yes.
Q. Where is Mahaulepu Ditch?
A. Mahaulepu Ditch is the main ditch on the farm. That's what they designated it as.
Q. So on Exhibit 4, Mahaulepu Ditch is the main ditch or the center ditch or is that both?
A. It's this one (indicating).
Q. So that's the center ditch, correct?
A. Yeah.
Q. And that starts all the way at the top of the property?
A. Yes.
Q. Next to 1 and 2?
A. Yeah.
Q. And where they converge?
A. That's correct.

Q. Okay. And it says, Crossings will be constructed. Hadn't the crossings already been constructed and put in place?
A. At this point?
Q. Yes.
A. Yes.
Q. In August of 2015.
A. Yes.
Q. So that's an incorrect statement, isn't it?
A. Yes, that's incorrect.
Q. It's a lie basically, isn't it?
MR. PALOUTZIAN: Objection, it's argumentative.
BY MR. TEBBUTT:
Q. And it says, Will, which means future, correct? Is that correct?
A. Yes.
Q. And that had already been done, correct?
A. Yes.
Q. So the letter is incorrect, isn't it?
A. (Moves head up and down.)
Q. Isn't it, Mr. Garmatz?
A. Yes, yes.
Q. And I'd like you to take a look at FOM_002493 earlier on in the submission. Do you see that in front

of you?

A. Uh-huh.

Q. It has, Disturbed area for farm improvements under NOI, NPDES general permit. Do you see that?

A. Say that again.

Q. It says down at the bottom, it's the map, Figure 6B, Disturbed area for farm improvements under NOI, NPDES general permits. Right?

A. 92493?

Q. (Indicating.)

A. Okay, okay.

Q. See that?

A. (No response.)

Q. Did I read that correctly?

A. Yeah.

Q. Okay. And the listings under there include installation and trenching for watering facilities at each paddock, correct? It's one of the listings. The third one down under the disturbed area. Do you see that?

A. Yeah. That's the disturbed area that's already in place.

Q. Right. So those are the water troughs, correct?

A. Yes.

Q. And the next line down, the next bullet point is, Installation/Trenching for new potable water distribution line from existing potable well source to the dairy facility. Has that been put in place?

A. No.

Q. On the map itself there are four references to new animal crossings per NRCS Practice Code 578. Do you see that?

A. Uh-huh.

Q. Those had already been installed by the time this was submitted, hadn't they?

A. No.

Q. Okay.

A. Nope.

Q. Okay. How about -- strike that.

Oh, the maintenance of all agricultural ditches and Mahaulepu Ditch in accordance with MOU between USACE, NRCS and EPA. Do you see that?

A. Yes, sir.

Q. That maintenance had already been done, hadn't it?

A. No.

Q. The maintenance, had it been done on the ditches, had it not been done as of August of 2015?

A. No, no.

MR. PALOUTZIAN: Assumes facts not in evidence.

BY MR. TEBBUTT:

Q. What was the maintenance that was done on those ditches prior to 2015?

A. The same thing we discussed this morning, maintenance within the 35-foot setback per NRCA -- NRCS rules.

Q. Okay. And then if you'll take a look at 002602, please. It's the first page of the letter. Do you see that?

A. Uh-huh.

Q. Under the query 2, it says, Land disturbance associated with this project as listed in the NOI has not at commenced?

A. Uh-huh.

Q. Including, but not limited to, preliminary site construction such as installation of fencing and irrigation systems.

Irrigation systems had already been -- some of the irrigation systems had already been put in place prior to that letter, correct?

A. That's correct.

Q. So this letter is incorrect, again, isn't it?

A. Yes.

MR. TEBBUTT: I'm done. Thanks.

MR. PALOUTZIAN: Request to review the transcript.

(Garmatz Deposition Exhibit Nos. 25 and 26 were marked for identification.)

(Concluded at approximately 11:15 a.m., June 14, 2016.)

* * * * *

I, JAMES J. GARMATZ, VOLUME 2, hereby certify that I have read the foregoing typewritten pages 136 through 230, inclusive, and corrections, if any, were noted by me, and the same is now a true and correct transcript of my testimony.

DATED: Koloa, Hawaii __________________________

____
JAMES J. GARMATZ

Signed before me this ______
day of ________________ 2016.

____

Friends of Mahaulepu, Inc. vs. Hawaii Dairy Farms, LLC; Civil No. 1:15-cv-00205-LMK-KJM; Deposition taken on June 14, 2016, by Terri R. Hanson, RPR, CSR 482.

STATE OF HAWAII)
) ss.
COUNTY OF KAUAI)

I, TERRI R. HANSON, RPR, CSR 482, do hereby certify:

That on Tuesday, June 14, 2016, at 8:35 a.m. appeared before me JAMES J. GARMATZ, VOLUME 2, the witness whose deposition is contained herein; that prior to being examined, the witness was by me duly sworn;

That pursuant to Rule 30(e) of the Hawaii Rules of Civil Procedure, a request for an opportunity to review and make changes to this transcript:

_X_Was made by the deponent or a party (and/or their attorney) prior to the completion of the deposition.
___Was **not** made by the deponent or a party (and/or their attorney) prior to the completion of the deposition.
___Was waived.

That the foregoing represents, to the best of my ability, a full, true and correct transcript of said deposition.

I further certify that I am not an attorney for any of the parties hereto, nor in any way concerned with the cause.

This 97-page Deposition of James J. Garmatz, Volume 2, dated June 14, 2016, was subscribed before me this 24th day of June, 2016, in Lihue, Hawaii.

____
TERRI R. HANSON, CSR 482
Registered Professional Reporter

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
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In reply, please refer to:
File:

01018PGH.15

January 16, 2015

Hawai'i Dairy Farms, LLC.
P.O. Box 1690
Koloa, Hawaii 96756-1690

To Whom It May Concern:

SUBJECT: Comments on Environmental Impact Statement – Preparation Notice
Hawaii Dairy Farms
Mahaulepu, Island of Kauai, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges your request for comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at:
http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

    a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

    b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

    c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form")

through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 438-9258) regarding their permitting requirements.

Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

GH:bk

c: Jeff Overton, Group 70 International, Inc. [via e-mail HDF@Group70int.com only]
DOH-EPO [via e-mail only]

Soil conservation is a core principal behind establishment of the NRCS, which was formed out of the Soil Conservation Service to acknowledge its expanded role in watershed-scale approach using science-based tools and standards in agronomy, engineering economics, wildlife biology and other disciplines to aid landowners in implementation of conservation practices. NRCS conservation practices are listed in Chapter 3, Section 3.2; these practices codes identify design and construction standards related to drainage, materials, operations and applicable engineering standards. HDF will follow the developed Conservation Plan, which was approved by the West Kaua'i Soil & Water Conservation District in December, 2013.

The United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) has mapped and classified soils for more than 95 percent of the United States. Comments received during the initial scoping for this EIS included a "Custom Soils Resource Report for Island of Kaua'i, Hawai'i." The report was generated from the USDA NRCS website, which allows any internet user to define an area of interest, customize data results, and generate a Custom Soil Resource Report. The user can select or deselect parameters based upon which data the user would like to display. These user-generated reports are not evaluated by NRCS.

The NRCS soils classifications and descriptions provide a good information base, however, in-field soils testing is needed to identify existing soil nutrient levels and conditions. The most abundant soil types at the HDF site are Kaloa Clay at 32 percent, Ka'ena Clay Brown Variant at 29 percent, and Lualualei Clay at roughly 14 percent of the dairy site. Laboratory analysis of soil samples collected in 2014 identified levels of pH, phosphorus, nitrogen, potassium, calcium, magnesium, organic matter, salinity, micronutrients and other constituents. The results illustrate that the soils are depleted of nutrients, which is typical for lands formerly used for sugarcane. The soil nutrient status and fertility demands of the primary crop, Kikuyu grass, were used to identify the quantities of nutrients required for productive grass growth. The soils data provide a baseline to guide adaptive nutrient management throughout establishment and maturity of the dairy.

A second round of field sampling was conducted in 2015, and focused on evaluation of soils characterized as "poorly drained", and established a quantitative baseline of soil salinity and sodicity to provide for future monitoring of soil health with application of manure effluent. Laboratory analysis determined electrical conductivity and exchangeable sodium percentage, in addition to nutrient levels of nitrogen phosphorus calcium, magnesium, and potassium.

Poorly drained is not an indication of low or poor infiltration. Infiltration refers to the ability of water to enter the soil surface, whereas "drainage" refers to the movement of water within or from the soil profile. Poorly drained soils typically have low hydraulic conductivity, or a slow rate of groundwater movement through the soil. This slow movement can create anaerobic conditions, which typically result in higher rates of denitrification. This is the conversion of potentially nitrates and nitrites to gaseous forms, which reduces the potential for impacts on waterbodies.

In this way, "poorly drained" soils may represent less risk of nitrate and nitrite leaching to associated waterbodies than "well drained" soils (Yost, 2016).

As a result of reduced movement of water through the soil profile, the mobility of nutrients such as potassium and phosphorus is also reduced. Soil types at the HDF site are known to adsorb and retain large amounts of phosphorus. Under the NRCS phosphorus leaching index for Hawai'i soils, HDF soils show low risk for leaching. With low risk, phosphorus can be applied at rates greater than crop requirements if manure or other organic materials are used to supply nutrients.

The dairy's focus on robust and healthy grass growth will build organic matter in soils through use of manure as a natural fertilizer. Soil can incorporate carbon from the atmosphere, which benefits soil health. According to recent studies in the Soil Science Society of America Journal, the conversion of formerly tilled cropland to grazed pasture can drive substantial accumulation of organic carbons in soil, with a potential to offset up to one-third of the annual increase in atmospheric carbon dioxide. The potential soil organic matter and carbon dioxide sequestration benefits are likely greatest in highly degraded soils in warm subtropical climates, partly due to long pasture-growing seasons. Long-term soil impacts are anticipated to result in improvement to the physical, chemical, and biological condition of the soil.

NATURAL HAZARDS: The potential impacts of natural hazards are evaluated in the Draft Environmental Impact Statement (EIS), including flooding, tsunami, earthquakes, and hurricanes. Draft EIS Section 4.6 addresses natural hazards.

The Māhā'ulepū property is not known to experience flooding conditions. The area is located within Federal Emergency Management Agency (FEMA) Zone X, areas determined to be outside the 0.2% annual chance floodplain. The proposed location for Hawai'i Dairy Farms (HDF) lies between the 60 and 150 feet elevation, outside the tsunami evacuation zone. The Kaua'i and Ni'ihau region of the Hawaiian Islands has experienced tremors from earthquakes originating further south in the island chain but no known seismic activity has originated among these northern islands.

Although they occur infrequently, Kaua'i has received a greater amount of damage from hurricanes when compared to the other Hawaiian Islands. Land management personnel in the Māhā'ulepū region during and following the hurricanes that affected Kaua'i in 1982 and 1992 observed defoliation of vegetation and no flooding events in the period following passage of the storms.

Preparedness is the best protection for natural disasters. Structural design of dairy facilities will meet International Building Code (IBC) 2006 standards with local amendments. Provisions in design will address wind loading (including hurricane gusts), rain and flood loading, and earthquake loading. A geotechnical evaluation of the area recommended Seismic Site Class D under IBC standards be utilized for foundation design where the barns and agricultural infrastructure will be constructed.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond

which their proposed plan could proceed if necessary. In this case however, HDF has predesigned a very limited alternative consideration and the single alternative site, not yet identified, is inadequate to satisfy the intent of the EIS process. It is interesting to note that when discussing the one alternative location in their EISPN, HDF states, "The micro-climate requires soil conditions favorable for nutrient absorption with access to a reasonable priced irrigation water source, to sustain nutritious grass pastures." The EIS needs to address how HDF could possibly proceed at Maha'ulepu when both the NRCS and their own Iowa Based Soil Study indicate that the soils there are anything but "favorable for nutrient absorption." HDF needs to solidly refute the obvious conclusion that the sensitive ecosystem of Maha'ulepu would be irreparably harmed if their Industrial Dairy is allowed to proceed as proposed.

Sincerely,

John (Jay) Kechloian
1722 Keoniloa Pl.
Koloa, HI 96756

May 26, 2016

John (Jay) Kechloian
1722 Keoniloa Place
Koloa, HI 96756

Subject: Hawai'i Dairy Farms
Environmental Impact Statement Preparation Notice
Māhā'ulepū Road
Kaua'i, Hawai'i
TMK: (4) 2-9-003: 001 portion and 006 portion
(4) 2-9-001:001 portion

Dear John (Jay) Kechloian:

Thank you for your letter concerning the Environmental Impact Statement Preparation Notice.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawai'i. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land. With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future. For dairy operations with 700 or more mature dairy cows, additional regulatory review and permitting by the State Department of Health is required. At the discretion of HDF, management may choose to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive milking dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

The following responses are offered to your comments:

SOILS: Soil is an ecosystem that can be managed to provide nutrients for plant growth, to absorb and hold rainwater for use during dryer periods, to filter and buffer potential pollutants from leaving fields, to serve as a firm foundation for agricultural activities, and to provide habitat for soil microbes to flourish and diversify to keep the ecosystem healthy. Two rounds of independent soil sampling were undertaken at HDF to understand and characterize available soil nutrients and conditions. Section 4.3 of the Environmental Impact Statement (EIS) characterizes soil conditions, and anticipated impacts from effluent and supplemental nutrient application. Recommendations from Dr. Russell Yost and Nicholas Krueger of the University of Hawai'i at Mānoa are summarized. Their baseline nutrient report is included as Appendix C of the Draft EIS.

present at the HDP site. Pest insects such as flies can negatively impact livestock health and production, and are therefore actively managed to prevent stress and loss of productivity at dairy operations.

At the HDP site, two common flies were identified: the stable fly and the horn fly. Both of these flies are widespread throughout the Hawaiian Islands. The greenbottle fly was reared from manure taken back to a laboratory following the field survey. Additionally, flies known to exist on Kaua'i but not seen at the HDP site during the survey were identified and include the house fly, the dog dung fly, and the chicken dung fly. These pests are common in areas with high pet populations.

In response to cattle-related insect pests, numerous species known to compete with the pests were introduced to Hawai'i between 1898 and 1982. Twenty species of predators and competitors to the horn fly were successfully established during that period. Cattle egrets break up dung patties while searching for prey, and were introduced to Hawai'i in the late 1950s to control cattle-associated insects. Extensive introduction of dung beetle species resulted in 14 dung beetle species becoming established on Kaua'i.

A healthy population of dung beetles can bury a dung pat in one to three days, which disrupts reproduction of flies such as the stable fly and horn fly. The stable fly requires approximately 21 days within the dung patty for the immature life stage (egg to pupa) to survive; the horn fly takes 10 to 20 days from egg to adult. Incorporation of the manure into the soil profile by dung beetles removes the habitat these flies require to complete their lifecycle. Research shows that 95 percent fewer horn flies emerged from dung patties containing a dung beetle species that has been identified at the HDP site. Proven control methods for the stable fly include parasitic micro-wasps and spreading out manure.

Among the invertebrates previously introduced to Hawai'i to combat livestock-related flies are extremely tiny parasitic wasps that prey on various fly species. The adult wasps could be described as the size of gnat. Using an ovipositor – described by lay people as a "stinger" – the female lays eggs in the larvae or pupa of flies. The male wasp has no such "stinger". See Draft EIS Section 4.11 for a photo providing scale for these tiny, non-stinging wasps.

To minimize potential establishment of pest flies or other insects, food waste generated during the construction phase will be bagged, covered, contained and disposed of in order to limit possible breeding habitat for flies. Inspections of building materials for ants or other insects will be conducted to prevent introduction of new pests to the HDP site. Short-term controls, including mechanical methods (e.g. sticky tapes or ribbons in the milking parlor, or traps with or without attractants) and chemical methods may be used to prevent short-term spikes in pest populations.

Insecticides and herbicides are non-discriminatory and kill beneficial as well as pest insects. Beneficial insects include primary decomposers such as earthworms and dung beetles, and pollinators including bees. Should chemical control be needed for short-term spikes in pest populations, application would be by those qualified, and

in accordance with regulatory labeling requirements. HDP will implement long-term integrated pest management, which utilizes knowledge of the ancient food web among species by disrupting the manure habitat required to complete the fly life cycle. HDP and other ranchers on Kaua'i may choose to engage with the State Department of Agriculture to translocation dung beetle species already introduced on Kaua'i to Māhā'ulepū and other areas where manure-related flies may be a problem.

IMPACT OF SPRAYS ON BEES

Beneficial insects include primary decomposers such as earthworms and dung beetles, and pollinators including bees. Honey bees are an essential part of any agricultural ecosystem, and were observed on site during the invertebrate species survey. Pesticides and herbicides can reduce populations of beneficial insects, which is why HDP will utilize an integrated pest management approach.

It is expected that honey bees will visit water sources set up for the HDP herd. Preventative measures will be built into any open water source to prevent bees from being trapped, and HDP will contact local beekeepers for advice regarding any bees or bee colonies encountered on site. Safe application practices for any unavoidable herbicide or pesticide will be utilized in order to narrowly target the correct pest species without harming other insects and animals in the area. Anyone using herbicides or pesticides will be properly trained and informed, and if a honey bee colony location appears to be a danger to workers or cattle, or to be in danger itself, a local beekeeper will be contacted for advice and removal.

WATER QUALITY: Technical consultants conducted field studies and analysis on groundwater and surface water resources in the area, and evaluated potential impacts from the proposed Hawai'i Dairy Farms (HDP) actions. Existing conditions and probable impacts are presented in the Draft Environmental Impact Statement (EIS) sections 4.16, 4.17, 4.22 and 4.23; the technical reports are in Appendices E and F. The location and connectivity of groundwater bodies were determined, and the quality of groundwater and surface water was documented.

GROUND WATER

Hydrology: The area's hydrology is shaped by its geology. The Kōloa area was built by Napali formation lavas of the Waimea volcanic series. Surface lavas of the Napali formation exhibit extensive weathering which may extend to considerable depths – as great as 400 feet below sea level. Weathered lava in the area is typically Saprolite, a soft, thoroughly decomposed rock. The Māhā'ulepū Valley floor is filled with alluvium, which generally extends about 60 feet under the surface and is underlain by highly weathered lava at a shallow depth by secondary eruptions of the Kōloa series. The alluvial material is highly weathered lava and is comprised of dark brown to black silty clay and clayey silt.

The groundwater and surface water analysis conducted for this Draft EIS identified two groundwater bodies within the valley: (1) groundwater located in a deep aquifer system within unweathered volcanic material, which is buried beneath thick

capacity has been designed above the regulatory requirement to contain the 25-year, 24-hour rainfall event. An emergency containment berm with additional capacity for another 30 days is included in the design. This design exceeds regulatory requirements, with containment in excess of the major rainfall events recorded on Kaua'i over the past three decades.

An emergency preparedness plan for protection of animals has been prepared for HDP internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDP is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in the Draft EIS Section 4.6.2.

FLORA AND FAUNA: Botanical, avian, and mammalian surveys of the property were conducted for the Draft Environmental Impact Statement (EIS) to assess existing species on site, including identifying any species listed as endangered, threatened, or proposed under any state or federal endangered species programs in or near the property. EIS Sections 4.9 and 4.10 address the evaluation of flora and fauna resources, with technical studies in Appendix A and B.

A botanical survey of the dairy property was conducted in August 2014 by AECOS Consulting to assess existing plant species. The survey also investigated for the presence of plants currently listed as endangered, threatened or proposed for listing under Federal or the State of Hawai'i's endangered species programs, located onsite or within the immediate vicinity of the dairy site. The nature of the land and its present and historical uses for intensive agriculture very much limit the natural botanical resources anticipated to occur on this land. Complete species lists are included in the EIS, and no protected botanical species occur on the project property. The project will include vegetated buffer strips along the drainage ways as part of the Conservation Plan to reduce erosion and stabilize slopes. Where native plants occur or could survive if planted, native plants will be used in the stabilization. No long-term impacts to native plant habitats or endangered or threatened plants species will occur as a result of the dairy.

Avian and mammalian surveys were conducted in August 2014 by Rana Biological Consulting, Inc. This survey was conducted to assess the potential presence of avian or mammalian species currently listed as endangered, threatened or proposed for listing under either Federal or the State endangered species lists. The survey covered the dairy site area and immediate vicinity. Common birds and terrestrial mammals were encountered on the property. There is no critical habitat for endangered species in the upper Māhā'ulepū Valley.

Four species of endangered waterbirds were recorded on the site and at the nearby taro farm located within the HDP site. Though the area does not provide critical habitat, seabirds that nest in upland areas of Kaua'i may overfly the site. The

endangered Hawaiian goose, nēnē was also seen on the site. State Division of Forestry and Wildlife biologists have noted nēnē are regularly seen on the subject property. It is probable that some nest on or adjacent to the site as this species nests in the general Kōloa area, and the habitat present on parts of the site is suitable for nēnē nesting.

The principal potential impacts posed to the five endangered species include those potentially associated with construction activities, and those associated with dairy farm operations following build-out. Measures will be adopted to avoid potential seabird and nēnē goose collisions with fences and structures. Potential measures include lowering construction cranes at night, using conservation fencing to project specified areas, marking tall structures and fencing with white visibility polytape, limiting nighttime lighting, and shading any outside lights used at night. Ongoing mitigation strategies will be implemented for day-to-day preventative measures, including an Avian Species Protection Plan. Mitigation measures are further described in DEIS Section 4.10.2.

It is also likely that Hawaiian hoary bats overfly the project area on a seasonal basis. While caution will be taken during any potential disturbance or vegetation removal, there are almost no suitable roost trees within the dairy site, thus it is expected that the dairy farm will not affect this listed mammalian species.

INVERTEBRATE SPECIES: A study of invertebrate species and pest insects was conducted by Steven Lee Montgomery, PhD, Consulting Biologist. The study summarizes the presence or absence of native species or pest species associated with cattle manure in the general Māhā'ulepū area, as well as the parasites and predators on site that control those species. Fieldwork was conducted during September 15-16, 2014. The entire study is included in Draft Environmental Impact Statement (EIS) as Appendix B.

CAVE AND LAVA TUBE INVERTEBRATES

There are no known caves or lava tubes found at or adjacent to the dairy farm property. The Kōloa Lava Tube System, which provides habitat for two endemic cave species, the Kaua'i Cave Wolf Spider and the Kaua'i Cave amphipod, is located several miles away from the dairy farm property. Both invertebrates are listed as endangered under the U.S. Endangered Species Act. Not all caves in the Kōloa area contain these invertebrates, as many do not contain the optimal climatological conditions required by these organisms. Neither the botanical and faunal survey nor the invertebrate survey revealed any evidence of lava tubes or caves on the property, and no such features have been reported for the area near the Hawai'i Dairy Farms (HDF) site. Thus no cave invertebrate species will be affected by the dairy farm.

INTRODUCED PREDATOR INSECTS

An invertebrate study of manure-associated insects was conducted for the Draft EIS. The study included a field survey that used manure from an adjacent beef cattle herd as a lure, and determined flies and other manure-related insects currently

Surface Water Quality: The Kaua'i Chapter of the Surfrider Foundation began collecting water samples in Waiopili Ditch near the bridge accessing Makauwahi Cave Reserve in April of 2014. The group reported high levels of enterococcus to the State Department of Health (DOH) and provided its data, however, DOH was unable to utilize the data as it did not meet Clean Water Branch (CWB) quality assurance/quality control requirements, and it could not be used for regulatory purposes. CWB had not conducted water quality sampling for either nearshore recreation waters at the terminus of Waiopili Ditch, or of surface waters in the Māhā'ulepū Surface Water Hydrologic Unit as the remote areas are on private lands.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and concerns about the proposed dairy prompted CWB to conduct a "Sanitary Survey" of the Māhā'ulepū and adjacent watersheds. DOH conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. Following EPA standards for a Sanitary Survey, DOH has completed Part I of its report: *Waiopili Ditch Sanitary Survey, Kauai, Part 1*. The Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors in the indicator levels found in ditches running through Māhā'ulepū Valley. The dense canopy along the makai end of Waiopili ditch blocks ultraviolet rays, which could help reduce bacteria levels. CWB noted that Waiopili Ditch is a man-made drainage on private property, and is not an inviting recreational body of water utilized by people. The Sanitary Survey can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

Long-term Operations, Setbacks and Buffers. Normal ongoing farming and ranching activities are exempt from the Clean Water Act Section 404. HDF received confirmation of exemption for maintenance of existing drainage ditches from the Honolulu District, U.S. Army Corps of Engineers (USACE) in 2013. Additional practices are anticipated to fall under the exemption for construction or maintenance of existing or new animal walkways, stream crossings, and farm roads in accordance with best management practices.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to reduce runoff that could carry particles into surface waters. Fences will be erected 35-feet from the top of drainageway (totaling 70-feet in width) to keep cows away from surface waters. Vegetated buffers will be established between the fences and drainageways to create filter strips that could capture particulates during stormwater runoff events. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used in these areas as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways.

Nutrients from Effluent Irrigation and Commercial Fertilizer Application: The natural fertilizer from manure deposited directly to pasture and effluent collected from the milking parlor is insufficient to meet the agronomic need of the pasture grass crop with the committed herd size of 699 mature dairy cows, and supplemental commercial fertilizer will be required. Nutrients required to sustain

the 670 acres of pasture are the same for the future contemplated herd size of up to 2,000 mature dairy cows, though the proportion of nutrients supplied as natural fertilizer (manure and effluent) and commercial fertilizer changes. With the potential future contemplated herd size, supplemental nitrogen will be needed, and a small excess of phosphorus could occur. However, with an increase in dry matter (DM) yield (a measure of grass growth) of one ton per acre, phosphorus would be in a deficit and require commercial supplementation. Grass yields are anticipated to increase more than three tons DM per acre with dairy establishment, from the current 16.2 tons DM per acre to 20 tons DM per acre. Section 4.23 of the EIS provides additional information.

The groundwater and surface water analysis conducted for the Environmental Impact Statement estimated that surface water from Māhā'ulepū will carry three times more nutrients than groundwater, due to the poor permeability of the alluvium. Groundwater can discharge from the alluvium when it rises in wetter periods and intersects the deep drainage ditches. Such discharge to the channels could occur on an episodic, seasonal basis when rainfall exceeds 0.8 inches.

The groundwater engineer estimated potential nutrient pass-through to groundwater from the HDF nutrient budget at two percent of nitrogen (totaling 10,000 pounds per year), and one percent of phosphorus (totaling 500 pounds per year). Again, this nutrient run-off would not occur as chronic daily release, rather, the runoff contributions would be limited to periods of the major rainfall over 0.8 inches. Such rainfall events are estimated to occur approximately three percent of days, or an average of 10 days annually. Per best practices, no effluent application would be conducted during such weather events.

To provide perspective, nutrient inputs from the adjacent Kōloa-Po'ipū region were also calculated. Nitrogen input to the marine environment in the Po'ipū region is calculated to be 38,510 pounds annually, or 3.5 times more than the estimate of potential nutrient throughput from HDF. Phosphorus for both domestic wastewater and landscape fertilization in the region is estimated to be 1,260 pounds annually, or 1.4 times greater than the potential discharge from HDF. The nutrient inputs from domestic uses in the Po'ipū region are constant throughout the year and no mitigation is applied to reduce the quantities.

Impacts to the Nearshore Marine Environment. An assessment of groundwater and surface water interaction with the marine water downgradient from the dairy site was conducted by Marine Research Consultants, Inc. (MRCI). Surface water from the Waiopili Ditch provides the majority of freshwater input in the immediate coastal area. Water chemistry measurements made by MRCI identified mixing of ditch water occurs rapidly and within a short distance of the shoreline.

The minor contributions of nutrients from episodic rainfall anticipated to occur just 10 days annually from dairy operations will not adversely affect ocean water quality and the marine environment. The nearshore area is a highly mixed environment which actively disperses inputs within several meters from shore. Comparing nutrient constituents in surface water samples taken from the HDF site and the agricultural ditches down gradient to nutrients sampled in the nearshore ocean

alluvium that covers the valley floor; and (2) groundwater in the thick alluvium. The aquifer of highest value and use resides deep within the unweathered volcanic material. The alluvial material blanketing the valley floor is less permeable than the unweathered volcanics by orders of magnitude. Hydraulic conductivity represents the ability of soils to transport water given a hydraulic gradient, and is expressed in units of feet per day. It is a measure of how easily water will move within the ground. The hydraulic conductivity of the alluvium that underlies Māhā'ulepū Valley and the HDF site ranges from 10.5 – 50 feet per day. The hydraulic conductivity of soils in the adjacent Kōloa-Po'ipū region is on the order of 201 – 500 feet per day. Therefore, water movement through soils under the proposed dairy site is 10 times slower than the neighboring area.

The groundwater and surface water analysis for this Draft EIS examined whether the two waterbodies within Māhā'ulepū may be connected. Four studies were conducted to determine whether the shallow groundwater in the alluvial material might discharge into the lower aquifer confined in the unweathered volcanic material at depth, which is the source of potable water. The results demonstrate there is no hydrologic connection between the deep aquifer in the unweathered volcanic series and the groundwater body in the alluvium. Section 4.16.1 of the Draft EIS provides further detail.

Potable Water: Once fully operational at the committed herd size of 699 mature dairy cows, the dairy will utilize 30,000 gallons per day (gpd), which is 0.03 million gallons per day (MGD), of potable (drinking water quality) water from groundwater provided through an on-site well. The State of Hawai'i Department of Health Milk Rules require that potable water be used for milk production, both in the milking parlor and for milking operations; another potable water use will be for livestock drinking water. Should HDF decide, in the future, to expand to the contemplated herd size of up to 2,000 mature dairy cows, potable water demand will increase to 84,000 gpd (0.085 MGD). These demands are a small fraction of the 3 MGD produced by the on-site, existing Māhā'ulepū 14 well during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant.

The assessment concludes that the modest potable water demand from the dairy operation, and the 4,500-foot distance between the Māhā'ulepū 14 well and the County's Kōloa F well, will result in no adverse impacts to ongoing use of groundwater in the volcanic aquifer layer, which is the source of potable water. Groundwater in the alluvium will not impact the County drinking water well.

Though the waterbody in which the County wells occur is confined and hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the Kōloa F well in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section.

Groundwater Monitoring: Four groundwater monitoring wells were installed by HDF into the shallow groundwater within the alluvium to allow monitoring of water quality. Baseline data on water quality for both groundwater in the alluvium and groundwater in the deep aquifer were documented. Future monitoring will allow comparison between conditions prior to, and during, HDF operations. Results from the monitoring program will be shared with the Department of Health Clean Water Branch, dairy neighbors and the local Kaua'i community.

Regional Water Demand: The adjacent, developed Kōloa-Po'ipū region shows large and increasing demand for potable water for community and resort development. The State Department of Economic Development and Tourism (DBEDT) projects the population of Kaua'i will increase county-wide by 17,300 residents by 2030. The South Kaua'i population is estimated to reach 16,855 in 2035, when it is projected to encompass 19.2 percent of the County population. For the South Kaua'i region (the Kōloa - Po'ipū - Kalāheo districts), water use in 2035 is projected to be 3.24 MGD, an increase of nearly 1 million gallons per day. An evaluation of the island's infrastructure capacity for projected growth in population (both residents and visitors) through the year 2035 predicts the island will be facing a shortage of well water. Water resources must therefore be carefully managed to accommodate the projected growth and water demand anticipated in the region through 2035.

SURFACE WATER

The State Department of Land and Natural Resources Commission on Water Resource Management has established surface water hydrologic units for managing surface water resources. The project area is located within the Māhā'ulepū Surface Water Hydrologic Unit, which features relatively high precipitation with relatively low stream discharge. There are no perennial streams in the Māhā'ulepū watershed.

The HDF site is located on the bottom-land of the upper Māhā'ulepū Valley, which is fed by several intermittent streams coming off of the south slope of the Ha'upu Ridge. These normally dry streams converge into man-made channels running through the HDF site across the valley floor, and meet a concrete ditch that parallels lower Māhā'ulepū Road. This ditch, named Waiopili Ditch, is joined by a reach from the west that originates at a small unnamed reservoir, and continues off site towards the south.

Potential Impacts from Construction: The dairy facility and associated infrastructure will be constructed in a 10-acre area located along the site's western boundary. Built facilities within this area will total less than 2 percent of the HDF site. A Stormwater Pollution Prevention Plan (SWPPP) has been developed as part of the application for the National Pollutant Discharge Elimination System (NPDES) – Construction Stormwater General Permit. Management controls will include: minimizing exposure of disturbed surfaces; monitoring and repair of structural controls; and prohibiting leaking or poorly-maintained construction equipment and machinery. Structural controls to be utilized during construction will include: silt fence installed in key locations; sand bags barriers in swales; and geotextile filter fabric and sediment logs around drain inlets.

January 3, 2017

John Jay Kechloian
kauaijk@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear John Jay Kechloian:

Thank you for your email received July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

NPDES Permit

HDF met with DOH in March, 2014 to determine construction activities that would require an NPDES permit, and was advised such a permit was needed for only construction of the dairy facilities themselves. Construction activities for the sole purpose of growing crops do not require an NPDES permit per HAR §11-55, Water Pollution Control, Appendix C. HDF also consulted with the U.S. Army Corps of Engineers (USACE) which confirmed, in a letter dated October 22, 2014, that maintenance of existing drainage ditches on an existing farm at the HDF site are not prohibited by or otherwise subject to regulation under Section 404 in accordance with 33 CFR Part 323.4.

Waste Management Plan

In preparation to develop the Draft EIS, HDF listened to public concerns, retained knowledgeable consultants to conduct technical analyses, refined data gathered from field trials on site, and further incorporated U.S. standards and best management practices to create a world-class design for the environmentally sound pasture-based, rotational-grazing dairy. These technical studies and ground-level trials provided additional field-tested data to refine the Waste Management Plan (WMP).

It is common practice to periodically update a WMP as site conditions change or are better known to ensure the regulators are reviewing the most current information. HDF prepared a summary of the changes for the Wastewater Branch to highlight the refinements. On July 13, 2016, DOW Wastewater Branch acknowledged that its questions on the updates to the WMP had been addressed by HDF, and that WWB had no further comments at that time. The WMP is not a component of the EIS, however, all relevant information in the updated WMP was incorporated into the DEIS to ensure consistency and transparency for public review and disclosure.

The State of Hawai'i, Department of Health (DOH), Wastewater Branch reviewed HDF's 2014 Waste Management Plan (WMP) for an operation of 699 mature dairy cows, as required by the *Guidelines for Livestock Management* (DOH, 2010). DOH Wastewater Branch completed its review, and HDF obtained building permits for construction of the dairy facility.

Waiopili Ditch

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Po'ipū/Kōloa watershed differs from Māhā'ulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Po'ipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhā'ulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

The EIS in Section 4.17.2 refers to polluted streams that have been tested by the Surfrider Foundation. The Kaua'i Chapter of the Surfrider Foundation began collecting water samples in Waiopili Ditch near the bridge accessing Makauwahi Cave Reserve in April of 2014. The group reported high levels of enterococcus to the DOH and provided its data, however, DOH was unable to utilize the data as it did not meet CWB quality assurance/quality control requirements, and it could not be used for regulatory purposes. At the time, CWB had not conducted water quality sampling for either nearshore recreation waters at the terminus of Waiopili Ditch, or of surface waters in the Māhā'ulepū Surface Water Hydrologic Unit.

Hurricane Preparedness

An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated her size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the largest possible herd size.

Dairy Model

HDF has adapted the New Zealand model – pastoral-based rotational grazing dairy – to U.S. standards and best management practices. NRCS provides extensive guidance for agricultural operations to meet stringent standards including those under the Clean Water Act. Nutrient management is a key tenet, and the protection of waterways has been applied to the design of HDF paddocks using fencing to create large setbacks from drainages. Setbacks at HDF are designed 35-feet from each bank – for a total of 70 feet – to exclude cows from waterways. The setbacks are vegetated to create filter strips to effectively trap soil particles and organic debris from entering stormwater runoff. Setbacks and buffers from public drinking water resources are also incorporated into the farm design (EIS Section 3.3.2 *Agricultural Infrastructure* and Appendix D *Nutrient Balance Analysis*).

HDF's Nutrient Balance Analysis is predicated on farm specific inputs and calculated outputs using the Cornell Net Carbohydrate and Protein System (CNCPS) model. While the Standard D384.2 Manure Production and Characteristics (ASABE, 2005) can still be used today to estimate manure production and nutrient excretion, the CNCPS model uses more realistic nutrient inputs. ASABE is a simplified and general standard last updated in 2005. The ASABE calculations were reasonably correct in year 2000 but have not accounted for changes in genetics, management systems, and nutritional advances over the past 16 years. The ASABE equations, unlike the CNCPS system, do not use farm specific animal, environmental, and dietary inputs to determine its manure production and nutrient excretion estimates, and instead uses "book values".

NRCS Conservation Practice Standard Code 590 – Nutrient Management allows for the use of realistic nutrient inputs when planning for nutrient outputs. The manure production and nutrient excretion estimates from the CNCPS model are more accurate and represent farm specific animal inputs, dietary inputs from available grass trials from the HDF site, and incorporate changes in farm management, genetics, and nutritional advances. Therefore the CNCPS model is more accurate than if manure excretion and nutrient output was based upon "book values". Manure production and nutrient excretion estimates from Exponent Table 1 are based upon "book values" of the ASABE Standard, which uses the publication Dairy NRC 1988 for diet formulations and input (NRC is the National Research Council that published a handbook, "The Nutrient Requirements of Dairy Cattle"). The 28 year old Dairy NRC 1988 is the predecessor of the most recent NRC publication, last updated in 2001. Because of obsolescence associated with these NRC predictions, the 2015 CNCPS model was used for HDF calculations.

References to the CNCPS model calculations can also be found in peer review scientific literature, namely, in the Journal of Dairy Science 98:6361–6380 The Cornell Net Carbohydrate and Protein System: Updates to the model and evaluation of version 6.5 M. E. Van Amburgh, et. al. and also in the JDS 95 :2004–2014 Development and evaluation of equations in the Cornell Net Carbohydrate and Protein System to predict nitrogen excretion in lactating dairy cows R. J. Higgs, et. al. and JDS 81: 2029 - 2039 Evaluation and

Application of the Cornell Net Carbohydrate and Protein System for Dairy Cows Fed Diets Based on Pasture Kolver, E.S. et al.

Alternatives

As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project. Further discussion of alternatives can be found in EIS Section 6. Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

Alternative dairy locations were carefully evaluated in the EIS, with specific consideration of achieving the project objectives and meeting each of the five Evaluation Criteria. The selected site represents the best option among those considered. The alternative location studied in the EIS is a valid representation of other siting options available. Preliminary site screening found other locational options to have unsuitable or less desirable conditions for the dairy in terms of land control, IAL status, soils, slopes, climate, water courses, neighboring uses, access and other factors. To provide a meaningful analysis, the EIS evaluation of other alternatives (no action, agricultural subdivision, conventional feedlot) each included quantitative estimates of potential uses and associated impacts.

We appreciate the information you provide regarding alternative locations for the pasture-based dairy. Final EIS Section 6.5 Alternative Location provides elaboration on the very extensive process undertaken to identify the site.

The Hawai'i Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on O'ahu; two on Hawai'i Island; and two on Kaua'i. Kaua'i was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kaua'i in the Māhā'ulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January 2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

Agricultural Use Consistent with County and State Plans

The planned improvements and operations at Hawai'i Dairy Farms are compatible with and supportive of State of Hawai'i and County of Kaua'i land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawai'i Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kaua'i. The dairy is also consistent with the provisions of the State of Hawai'i Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhā'ulepū lands under the County of Kaua'i General Plan and the South Kaua'i Community Development Plan.

The development and long-term operation of HDF will be in full compliance with its agricultural State Land Use District designation, ALISH classifications, and County zoning. The dairy farm will embody the intent of the IAL designation per the Hawai'i State Constitution, by using these protected lands for the intended purpose of diversified agriculture, food production and agricultural self-sufficiency. HDF's development of a dairy also supports the "secondary intent" for lands in the Agriculture land designation, to provide an opportunity for Kaua'i citizens to reside in an agricultural community.

Rainfall Events and Flooding

The period of daily rainfall of the Māhā'ulepū gauge (No. 941.1), located on the farm site, that was used for the DEIS is from January 1, 1984 through December 31, 2013, a period of 10,957 days. The available record is for 10,597 of these days, of which only 360 days is truly missing recorded data. Moreover, statistics of this available record closely match the Online Rainfall Atlas of Hawai'i (2013) by Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.L. Chen, P.S. Chu, J.K. Eischeid, and D.M. Delparte. Based on this, the available rainfall records of Station 941.1 were taken to be a reasonable representation of this site's actual rainfall (Nance). In total, 360 days of truly missing records account for only 3.3 percent of the total time period.

Additionally, points identified by error codes in the publicly available rainfall data also do not necessarily truly reflect missing data. The Māhā'ulepū gauge does not record data every day and in many instances, records a multi-day precipitation record collecting data over a multiple day period instead. In these instances when a multi-day record is collected, the days over that record are labeled with error codes (-9999). The use of the error code does not actually reflect "missing" data in this scenario. A reasonable and realistic daily rainfall estimate may be determined over that multi-day period (e.g. by averaging or by comparison to other available rain gauge data in the area such as HDF's Ag Hub system). As shown in the following table for the month of September 1992, which the CH2M Hill comments specifically point out as a month with significant "missing" data, there are three (3) sets of multi-day precipitation records (MDPR), as well as eight (8) sets of daily records (PRCP). CH2M Hill has identified 19 days of missing data in this month. In fact, there are no days with actual missing data when taking into the account the MDPR readings. The table below reflects the publicly available data in the format received from the National Oceanic and Atmospheric Administration (NOAA) for the Māhā'ulepū 941.1 rain gauge, with the "Notes" column added for discussion:

DATE	MDPR, (0.1mm)	MDPR, (in)	DAPR	PRCP (0.1 mm)	PRCP (in)	Notes:
19920930	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920929	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920928	5	0.0	6	-9999		MDPR Recording Taken over 6 Days = 0"
19920927	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920926	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920925	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920924	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920923	-9999		-9999	-9999		If MDPR = 0", then Daily PRCP = 0"
19920922	660	2.6	12	-9999		MDPR Recording Taken over 12 Days = 2.6"
19920921	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920920	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920919	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920918	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920917	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920916	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920915	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920914	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920913	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920912	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920911	-9999		-9999	-9999		If MDPR = 2.6", then Daily PRCP = +/-0.22"
19920910	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920909	-9999		-9999	0	0	PRCP Recording Taken = 0"
19920908	13	0.1	4	-9999		MDPR Recording Taken over 4 Days = 0.1"
19920907	-9999		-9999	-9999		If MDPR = 0.1", then Daily PRCP = +/-0.03"
19920906	-9999		-9999	-9999		If MDPR = 0.1", then Daily PRCP = +/-0.03"
19920905	-9999		-9999	-9999		If MDPR = 0.1", then Daily PRCP = +/-0.03"
19920904	-9999		-9999	114	0.45	PRCP Recording Taken = 0.45"
19920903	-9999		-9999	229	0.90	PRCP Recording Taken = 0.90"
19920902	-9999		-9999	41	0.16	PRCP Recording Taken = 0.16"
19920901	-9999		-9999	41	0.16	PRCP Recording Taken = 0.16"

As noted in the table, the multi-day precipitation total from September 23 to September 28 shows a MDPR of 0 inches. Total rainfall for each day can be assumed to be 0 inches. From September 5 to September 8, another MDPR was recorded of 0.1 inches, also negligible (if averaged, the daily rainfall would equal 0.03", quite insignificant to any agricultural operation). Even within the twelve (12) day MDPR recording of rainfall from September 11 to September 22, a total of 2.6 inches of rainfall was recorded. While the daily totals are not provided, the data is sufficient to characterize rainfall and for use within HDF's Nutrient Balance Analysis and its irrigation management plan, which is based upon monthly rainfall totals. CH2M Hill's comment that the month of September 1992 contains excessive "missing" data is therefore not supported.

Referring to **Table 4 – NOAA – Average Monthly Precipitation Data**, and **Table 12 – Monthly Irrigation Demand** within the Nutrient Balance Analysis, based on the available historical data, NOAA data from the Māhā'ulepū 941.1 rain gauge shows an average rainfall in the month of September of 2.73 inches. Based upon the September 1992 total rainfall for the month at 2.7 inches from the NOAA Māhā'ulepū 941.1 rain gauge, the month appears consistent compared to the historical average, of which the multi-day precipitation data totals do not have any effect on the irrigation demand analysis, as the total rainfall each month is used in irrigation planning. Daily irrigation planning is simply not effective or realistic for farm management.

The Līhu'e rain gauge, utilized in the CH2M Hill comments, is also not representative of the Māhā'ulepū site. It is located on the windward side of the Haupu mountain range, some six miles from the project site. The CH2M Hill modeled rainfall used is 70.14 inches per year from the Līhu'e station. The modeled rainfall rate is unrealistically high as compared to the average 44.26 inches per year from the Māhā'ulepū rain gauge 941.1. The Māhā'ulepū gauge, in turn, is located on the project site and provides site specific data. *Statistics of this available record closely match the Online Rainfall Atlas of Hawaii (2013) by Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.L. Chen, P.S. Chu, J.K. Eischeid, and D.M. Delparte. Based on this, the available rainfall records of Station 941.1 were taken to be a reasonable representation of this site's actual rainfall (Nance).*

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed above the regulatory requirement to contain the 25-year, 24-hour rainfall event. An emergency containment berm with additional capacity for another 30 days is included in the design. This design exceeds regulatory requirements, with containment in excess of the major rainfall events recorded on Kaua'i over the past three decades.

Kikuyu Grass

HDF has gathered over 2 years of trial data for Kikuyu grass located at the center of Māhā'ulepū Valley on HDF's leased property. The Kikuyu grass measured consists primarily of Kikuyu with some guinea grass mixed in. Cover crops (diversified forage) were also inserted into the Kikuyu grass during the winter months to provide the additional forage needed when the primarily Kikuyu grass mix may not be as productive. The use of diversified forage is recommended by the National Resource Conservation Service (NRCS) Conservation Practice Standard – Nutrient Management Code 590.

HDF understands the concerns regarding non-irrigated areas and their lower potential yields. HDF has conducted more than 2 years of grass yield trials on HDF sites, and has engaged Farms n' Forages to complete these trials. Farms n' Forages has extensive experience in grass and forage production on each of the major islands in the State of Hawai'i. Based upon the field trials, utilizing primarily Kikuyu grass mixed with some guinea grass, and interspersed with diversified forages from November to March, average annual yields on the HDF site range from 17 tons DM per acre per year to over 20 tons DM per acre per year, with appropriate fertilizer and irrigation applications that do not exceed the agronomic need of the crop. These monthly yields often exceeded 20 tons DM per acre per year in the summer months and lowered to between 15 and 18 tons DM per acre per year in the winter months (with diversified forage). This was verified by forage testing and on-site soil sampling performed by Farms n' Forages (grass yields), Spectrum Analytics (soils and fertility recommendations), Cumberland Valley Analytic Services (grass nutrient) as well as Dr. Yost (soils and fertility recommendations in Appendix C of the EIS).

Farms n' Forages also has experience with non-irrigated pastures in Hawaii and has previously measured approximately 30 to 40 percent greater yields in irrigated pastures than in non-irrigated pastures. Approximately 74 percent of HDF's pastures are irrigated and 26 percent are non-irrigated, and the effect on yield estimates must be taken into account by HDF for its nutrient management planning, as noted by the CH2M Hill comments. HDF has been conservative in its average annual yield estimate used in the Nutrient Balance Analysis specifically to account for non-irrigated fields and seasonal variability in forage production.

HDF believes that 16.3 tons of DM per acre per year is a conservative and realistic weighted yield goal which meets NRCS Conservation Practice Standard - Nutrient Management Code 590 requirements for both irrigated and non-irrigated fields combined and accounts for seasonal variability. Code 590 requires that a realistic yield goal be used in the planning of a new dairy operation. Taking the reduction in grass yields in non-irrigated fields, based upon the percentages provided by Farms n' Forage, the 16.3 tons of DM per acre per year is a conservative production estimate, considering that irrigated fields can yield over 20 tons of DM per acre per year in the summer and between 15-18 tons DM per acre per year in the winter.

While the yield production and nutrient removal rates shown in the DEIS would not be the exact nutrient uptake numbers based upon the actual operation of the planned dairy, with the commencement of actual animal grazing, manure production, and effluent application, the trials are representative of and realistic for a rotational-grazing, pasture-based dairy operation. The yield production and nutrient uptake rates are based upon appropriate site-specific inputs and certified laboratory testing for yield results and nutrient content and value to the proposed cows used by HDF. Actual grass is being grown on the farm which is fertilized and irrigated, cut, and sampled for actual production and nutrient content and uptake data.

Dung Beetles

Integrated pest management utilizes knowledge of the ancient food web among species. Section 4.11 of the EIS addresses the implementation of an integrated pest management plan including the function of dung beetles. Disrupting reproduction of potential pests with appropriate means at key points in the life cycle has been used in Hawai'i for decades (Figure 4.11-2). Extensive introduction of dung beetle species between 1898 and 1985 in response to cattle-related insect pests resulted in 14 dung beetle species becoming established on Kaua'i. Cattle egrets, a bird species introduced to Hawai'i in the late 1950s to control cattle-associated insects, break up dung patties while searching for prey (Figure 4.11-3).

Dung beetles speed incorporation of the manure into the soil by breaking up bovine manure pats and transporting the organic material into the soil. A healthy population of dung beetles can bury a dung pat in one to three days. Breaking up and burying the dung patty destroys the habitat for insects such as flies to complete their life cycle. The stable fly requires approximately 21 days within the dung patty for the immature life stage (egg to pupa) to survive. The house fly takes 7 to 10 days from egg to fly, and can use a number of damp, decaying material as habitat. The horn fly takes 10 to 20 days from egg to adult.

The behavioral diversity among dung beetle species working together can bury dung pats in one to three days. Some beetle species fly at night and some during the day; some prefer older manure over fresh. HDF and other ranchers on Kaua'i may choose to engage with the State Department of Agriculture to translocate dung beetle species already introduced on Kaua'i to Māhā'ulepū and other areas to help mitigate potential impacts from manure-related flies (Figure 4.11-2).

Water Troughs
Watering troughs will contain water for the period of 12 to 24 hours when cows are utilizing the troughs in the occupied paddocks. HDF personnel will fill troughs just before the cow "mobs" enter the paddock(s) for the grazing period; troughs will be emptied after the cows are moved to another paddock. Thus troughs will be managed to prevent mosquito breeding.

Nutrients
The groundwater engineer consulting to HDF estimated the potential nutrients that could leave the site from HDF operations as two percent of nitrogen (totaling 10,000 pounds per year), and one percent of phosphorus (totaling 900 pounds per year). This would not occur as chronic daily releases, rather, contributions would be limited to periods of major rainfall events that exceed 0.8 inches. Such rainfall events are estimated to occur, on average, 10 days annually. No effluent application would be conducted two days prior to, during, and two days after such weather events per best management practice guidelines. The estimate of nutrients leaving the site is the same for both the committed herd size of 699 mature dairy cows and the contemplated herd size of up to 2,000 mature dairy cows.

To provide perspective, nutrient inputs from the adjacent Kōloa-Poʻipū region were also calculated. Nitrogen input to the marine environment in the Poʻipū region is calculated to be 38,510 pounds annually, or 3.5 times more than the estimate of potential nutrient throughput from HDF. Phosphorus for both domestic wastewater and landscape fertilization in the region is estimated to be 1,260 pounds annually, or 1.4 times greater than the potential discharge from HDF. The nutrient inputs from domestic uses in the Poʻipū region are constant throughout the year and no mitigation is applied to reduce the quantities.

Secondary Containment
The storage pond will have an emergency overflow spillway that will allow discharge from the pond in the event of a cataclysmic emergency, such as a rainfall event greater than the 25-year, 24-hour storm or other natural disaster. This secondary berm will be constructed downhill of the effluent ponds before the existing drainage way and access/farm road, to contain an emergency discharge from the pond from the overflow spillway. Although not required by the Guidelines, this secondary containment area will provide additional containment that will be roughly equivalent to 30 days of total liquid effluent volume collected over the 30-day storage period, or 1,136,841 gallons of additional emergency storage.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

No Dairy Please

Hari Khalsa <dryogi108@gmail.com>

Mon 7/18/2016 10:39 AM

To:HDF <hdf@group70int.com>;

I highly suggest that we do NOT build a dairy on Kauai!
The solution from so many cows is NOT insignificant & the runoff will invade the water table.
The stream is already polluted and this will add only more problems.
Less milk will increase the general health of the island! Fact!
The use of Antibiotics is of major concern, and the effect on the reef is very serious.
Please NO Dairy in Kauai.

NO Dairy!

Dr H.S.S. Khalsa
Chiropractor: Kapaa
Resident of Anahola

GROUP 70 INTERNATIONAL

January 3, 2017

Dr. H.S.S. Khalsa
dryogi108@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Dr. H.S.S. Khalsa:

Thank you for your email of July 18, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Healthy cows are a priority for HDF, and antibiotics as prescribed by a licensed veterinarian may be used from time to time, to ensure cows remain healthy and are treated humanely. Guidelines set by Food and Drug Administration (FDA) will be followed to avoid any antibiotic adulteration of milk. Additionally, HDF will routinely conduct laboratory tests on milk for any trace of antibiotic residue. HDF will not treat cows with bovine growth hormones (rBST or rBGH).

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Huge dairy farm on Kauai

Jean Kroll <jean@kananilynn.com>

Fri 6/10/2016 9:59 AM

To:HDF <hdf@group70int.com>;

Aloha. This dairy is not appropriate for the community because of its large scale.
Encouragement is needed for smaller operations that would be more sustainable for our island land.
Mahalo

GROUP 70 INTERNATIONAL

January 3, 2017

Jean Kroll
jean@kananilynn.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Jean Kroll:

Thank you for your email of June 10, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Until 1984, 100 percent of Hawaiʻi's milk was produced by local dairies. As explained in Section 2.2, the number of dairies on Kauai went from 34 small dairies in 1923, to two large dairies in the early 1960s. The dairies were eventually consolidated to just one, which closed in the year 2000. Reasons for the closure included market competition from rapidly consolidating regional and national producers with large-scale production advantages in lower cost areas, and the advent of bulk milk importation to Hawaiʻi. Meadow Gold, the state's only current milk processor and bottler, has no operational facilities on Kauaʻi. Sufficient milk production would be required to make the retrofit of the closed facility financially feasible. For more information on the purpose and need for the project, see EIS Section 2.0.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawaiʻi.

The herd size for HDF is consistently represented as the potential maximum number of cows guided by the results of the nutrient analysis which reflects the carrying capacity of the land (EISPN Section 2.3 *Proposed Action*; EIS Section 1.2 *Proposed Project*). The distinction between the herd sizes and permit differences is explained in the EIS Section 2.4 *Planned Dairy Development on Māhāʻulepū Agricultural Lands*. During the public scoping meeting, participants expressed an interest to understand impacts of the committed herd size (up to 699 mature dairy cows). HDF agreed to analyze and present impacts at both the committed and contemplated (up to 2,000 mature dairy cows) herd size. Therefore, the probable impacts of the potential contemplated herd size are also analyzed and clearly identified in the Draft and Final EIS.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawaiʻi. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land.

With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future.

For dairy operations with 700 or more mature dairy cows, regardless if the operation is feedlot or pasture-based, additional regulatory review and permitting by the State Department of Health would be required. The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to submit an application to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive milking dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

Delton Lawrence Jr <parishiltoneast@gmail.com>

Fri 6/10/2016 11:39 AM

To:HDF <hdf@group70int.com>;

I was at anahola Kauai in 1999 when meadow gold dairy had a 700 cow there. Two times there were disastrous wastewater discharges. They went all the way to the ocean and resulted in a fish kill. It was the demise of the dairy farm.

GROUP 70 INTERNATIONAL

January 3, 2017

Delton Lawrence Jr.
parishiltoneast@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Delton Lawrence Jr.:

Thank you for your email of June 10, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Agricultural infrastructure and utilities required for the dairy operations will include storage tanks and silos, effluent storage ponds, livestock water systems, and drainage improvements. Effluent storage ponds are sized to accommodate 30 days of storage for up to 2,000 mature dairy cows, and over 85 days of storage for 699 mature dairy cows. It will be highly unlikely that the storage pond will be full at any time for the contemplated 2,000-cow dairy, and nearly impossible for the committed 699-cow dairy.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhāʻulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

My letter objecting to the manure plant proposal on KAUAI

jjshot@aim.com

Sun 7/24/2016 3:53 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>; bridgethammerquist@gmail.com <bridgethammerquist@gmail.com>; iamabeall@cs.com <iamabeall@cs.com>;

7 24 2016
Dear Mahal'uepu Manure Operation, aka Kauai Dairy Proposal,

This is a letter of objection to locate your proposed factory milk production on the South shore of Kauai, certainly you have heard of and ignored that this is sacred land, because it is clear there are already cement and plastic drains, large, very large ones, being installed already.

So, let me get right to the two major concerns of this letter. One, is the environmental impact to humans, animal species and insect and plant species.
Two is the impact that this will have on thousands of local individuals and their families. Detrimental effects. Not reversible effects. Not effects that can go to hospital to heal.

1. Your environmental report makes no mention of the damage to the coral. This beautiful sacred land is very close to a part of the island where the corals abound, Humpback whales are known to raise their calves in the area, monk seals pup regularly at the beaches where the manure runoff seeping from the ground would run to the sea. Toxins that you mention in your EIR (environmental impact report) would kill, mame, affect reproduction of these animals, not to mention the fish and many, many species associated with coral. Did I mention the impact on the humans that fish, dive, swim in these same waters?! What about the humans who lose their income because they can't get employment from the companies who will no longer take fishermen and women, whale watchers, environmentalists like hikers to see up close these species. Shame on your approach to an EIR that does nothing to mention coral affect. It this kind of arrogance that those fighting you are enraged about.
2. Your own report and the advertisements on local internet and newspapers say this is going to boost the economy, really, four employees going to boost Kauai's economy? This is why you have done irreversible damage to the local trust. This is a money grab by wealthy rich people. Ask anyone who reads your EIR if they believe the MILK is going to stay in Kauai. Of course the milk is going to Oahu and will be sold to whomever pays the said premium at the time, probably not Kauai!!

It is difficult to even want to write this letter because of the inconsistencies (aka lies) between the truth and what history tells us WILL happen. We don't have 100s of thousands of dung beetles on Kauai to eat the larvae of black stinger flies. So, we will have a nasty fly problem.
Individual problems like the Hyatt having to lay off hundred's of employees, to eventually closing, will affect 100's more people because their homes values will decrease. They won't be able to go outside to bbq or swim in the pools they have built on their property. The loss in tax revenue will affect thousands more on the island as the Kauai council will have less and less for infrastructure, parks, affordable housing, to name a few.

In conclusion, let me remind you Kauai attracts very intellectual people and their families. We have Scientists and Administrators and Professors from Cal Berkley, Stanford, UCLA, to name a few. You can't tell lie after lie about your business that will be within the wind and smell corridors where they live and expect them to sit by and be idle. We may not win in the lower courts, but environmental justice will prevail in the supreme courts of Hawaii or beyond. See you in court and yes you can consider that a threat!

Sincerely,
Jacquelynn K. Lott
Kauai resident and lover of all things Kauai
Email: jjshot@aim.com

GROUP 70 INTERNATIONAL

January 3, 2017

Jacqueline Lott
jjshot@aim.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Jacqueline Lott:

Thank you for your email received July 24, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community, and will allow for evaluation of possible contamination sources.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawaiʻi for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kauaʻi and those species already in Māhāʻulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

Aloha,

I am writing to state my support for Hawaii Dairy Farms draft Environmental Impact Statement (DEIS). I am a 5th generation Kauai resident, mother and business owner. My family and I are ranchers, and therefore, very familiar with Kauai ranch lands and cattle rearing.

When Hawaii Dairy Farms first announced their dairy plans, I was happy to hear that fresh local milk would once again be produced on Kauai. My family and I are big milk drinkers, and we welcome new options to locally produced food.

I am familiar with the area in Mahaulepu Valley that the farm will be located. It has been used for cattle grazing by local ranchers in recent years with no detriment to the environment and surrounding neighborhoods.

The findings of the DEIS prove that the dairy is a good fit for Mahaulepu Valley. There are many great impacts that the dairy will bring, including that it will be a start to revitalizing the dairy industry on Kauai, improve the property's soil quality, and protect water resources. Nearby residents and visitors will not be affected by flies or odor. Home values will not be negatively impacted.

The DEIS shared that Hawaii Dairy Farms will take great care of their cows and utilize state-of-the art technology to assess their cattle's health and well being. In addition, Hawaii Dairy Farms will also work with other Kauai ranchers to transfer and care for cows in various stages of rest and lactation, which is encouraging and shows their willingness to collaborate with as well as boost the Kauai ranching community.

Hawaii Dairy Farms is a positive step in the right direction for diversifying Kauai's agriculture industry and producing Kauai-grown food for local families. The DEIS and Hawaii Dairy Farms has my full support.

Mahalo,

Kristen K. L. Low

1530 Haleukana St.

Lihue, HI 96766

(808) 652-6144

Nextlevelcustoms808@gmail.com

GROUP 70 INTERNATIONAL

January 3, 2017

Kristen K.L. Low
nextlevelcustoms808@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Kristen K.L. Low:

Thank you for your email of July 20, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

I Support Hawaii Dairy Farms

Lon Malapit <kesuradio@gmail.com>

Mon 7/18/2016 10:56 AM

To: HDF <hdf@group70int.com>;

Here is my comment on Hawaii Dairy Farms draft Environmental Impact Statement due July 25, 2016:

I believe that Kauai's milk should come from Kauai. I support Hawaii Dairy Farms for their interest in providing fresh, nutritious milk that's affordable for me, my family, our local people, and everyone who visits the Garden Island. I was born and raised in Poipu, Kauai, on Hoonani Road, and lived there for the first 40 years of my life.

My wife and I own and operate three small business pharmacies, one of which is located in old Koloa town.

We deal with peoples health and finances on a daily basis, and we understand how this dairy could benefit and fulfill the health and economic needs of our community. As stewards of our land, a dairy farm would be good for our environment, and be the best use of the many acres of land that are not being utilized. This is a no brainer.

Hawaii's Dairy Farm will improve our lives, help us get closer to become a self sustaining island community, and be a blessing to our entire state.

Lon Malapit
Phone:(808)639-1261

Lifeway Pharmacy Koloa
5330 Koloa Road
Koloa, Kauai, HI 96766

Lifeway Pharmacy Lihue
3-3295 Kuhio Highway
Lihue, Kauai HI 96766

Lifeway Pharmacy Waimea
4643A Waimea Canyon Dr
Waimea, Kauai, HI 96766

GROUP 70 INTERNATIONAL

January 3, 2017

Lon Malapit
5330 Koloa Road
Koloa, HI 96766
kesuradio@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Lon Malapit:

Thank you for your email of July 18, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

From: marem@aloha.net
To: DOH.EPO
Subject: My comments on the Dairy Farm in Poipu (DOH, GP70)
Date: Saturday, July 23, 2016 10:46:48 PM

Aloha

I have been living on Kauai since 2000.
There was a fire on the by pass road near the Hyatt.
The ash from the fire was arched over the south shore like a black rainbow.
Homes near the Beach House Restaurant were covered in ash.
If the ash can travel that far on a normal Poipu Day,
What will the aroma and insects do once Dairy Manure is there?
I have relatives in agriculture areas on the mainland.
If you think Pig Farms are bad, try driving by a Dairy Farm.
Try holding your breath driving 70 miles an hour for 3 miles.
Not to mention the biting insects for miles around these farms.
My friends had so much trouble with their animals and family and these bites.
I can't believe the county and state is considering a dairy farm in this area.
I am against it.

Marianne

1) State of Hawai'i, Department of Health
ATTN: Laura McIntyre
1250 Punchbowl Street
Honolulu, HI 96813
doh.epo@doh.hawaii.gov

2) Group 70 International, Inc.
ATTN: Jeff Overton
925 Bethel Street, 5th Floor
Honolulu, HI 96813
HDF@Group70int.com

3) Hawai'i Dairy Farms, LLC
P.O. Box 1690
Koloa, HI 96756-1690
jim@hawaiidairyfarms.com

GROUP 70 INTERNATIONAL

January 3, 2017

Marianne
marem@aloha.net

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Marianne:

Thank you for your email of July 23, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Dust particles are described in EIS Section 4.19. Using atmospheric dispersion modeling system (AERMOD), the rates were scaled to the size of the non-pasture areas used by cows at HDF. Results were added to the background concentration of particulate matter (both PM10 and PM2.5) measured on the island of Kauaʻi, and the total concentration was compared to the State ambient air quality standards. Only the contemplated herd size of up to 2,000 mature dairy cows was modeled, as at the lower threshold of 699 cows, the potential fugitive dust impact would be negligible. The estimated concentration for PM10 in the model is 2.01 μg/m3, well below the State standard of 150 μg/m3. The model's estimated concentration for PM2.5 is 0.23 μg/m3, well below the Federal standard of 35 μg/m3 (see EIS Section 4.19 and Table 4-19.2).

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Hawaii Dairy Farms

From: Lynne Matsumura [mailto:lmatsumura@hawaii.rr.com]
Sent: Tuesday, July 19, 2016 9:21 PM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Hawaii Dairy Farms

Dear Ms. McIntyre,

I would like to voice my opposition to the Hawaii Dairy Farms, and do not agree that the Draft EIS has addressed potential problems.

As a lifetime Kauai resident, with children who also make their homes here, I believe that it is not in the best interest of the island to have a dairy in the proposed location.
I believe that the dairy will result in more harm than good.

Respectfully,

Lynne Matsumura
3300 Kilikina Place
Lihue, HI 96766

GROUP 70 INTERNATIONAL

January 3, 2017

Lynne Matsumura
lmatsumura@hawaii.rr.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Lynne Matsumura:

Thank you for your email of July 19, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawaiʻi.

The planned improvements and operations at Hawaiʻi Dairy Farms are compatible with and supportive of State of Hawaiʻi and County of Kauaʻi land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawaiʻi Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kauaʻi. The dairy is also consistent with the provisions of the State of Hawaiʻi Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhāʻulepū lands under the County of Kauaʻi General Plan and the South Kauaʻi Community Development Plan.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Attn: Laura McIntyre

Sharon McCoubrey <srmccoubrey@me.com>

Sat 7/16/2016 4:24 PM

1 attachment

Water.pdf;

Re: Hawaii Dairy Farms, LLC

Dear Sir or Madam,

Mahalo for taking the time to read my note.

I am a homeowner living in the homes next door to the Hyatt Hotel. There are many reasons I oppose the dairy but I will name only a few. My first concern is the health of residents, visitors and sea life. It has been proven over and over that the runoff from the dairy will poison the air, water and a very large surrounding area. Water cleanliness is a big factor which is already a problem, even before cows are on property. Please note the shocking figures attached. With the addition of the cows it can only get worse.

The problem of stench and flies will directly effect my property value and standard of living. Living in a million-dollar neighborhood and having just built a large pool and outdoor area, I doubt I will be able to use it. With the southern trade winds blowing right into my home this is not a pleasant thought. If I decide to move to another area of Kaua'i, will prospective buyers pay the going price for my home? When the Hyatt looses guests they will have to lay-off employees, etc. This is a perfect example of the domino effect that brings nothing good to Kaua'i and takes away the good life we enjoy here on island.

In the past 2 years I have tried to see what positive effect the dairy will bring and I find none. The employment of 4 workers is not worth the losses we will feel. The dairy purchases will not be from local merchants as a large organization will buy at a reduced cost and ship items. The milk will be shipped out and not returned to families on Kaua'i. What's the real point? It has been suggested that Grove Farm decide on another location away from the streams, ocean and population. This does not seem unreasonable. Why is this option not considered? I do not object to a dairy, just not right next door to my home and the ocean.

The County of Kaua'i needs to consider the loss of revenue it will have once the homes in this area are devalued. Will this mean a loss of County jobs? As mentioned, this is the worst type of domino effect and it starts with my home. A little Aloha spirit would go a long way when considering the very obvious harm and negative feelings that will occur.

Aloha nui loa for your consideration,

Sharon McCoubrey/sm
Bayview Homes
Po'ipu, Kaua'i
See Attached

Surfrider Kauai - Blue Water Task Force
July 9, 2016
Enterococcus bacteria per 100 ml

SURFRIDER

Site	Single day results	2016 geomean
Kapa'a Reef Surf	<10	2.8
Waiohai Surf, Poipu	<10	2.9
Kapa'a Beach Park Surf	<10	5.4
Salt Pond Surf	10	2.9
Waikoko Surf, Hanalei	10	4.8
Kealia Surf	10	5.1
PK's Surf, Poipu	10	7.8
Middles Surf, Hanalei	10	9.3
Pinetrees Surf, Hanalei	10	9.3
Kalapaki Bay Surf	10	15.7
The Bowl, Surf, Hanalei	10	20.0
Kalihiwai Surf	10	20.8
Moloa'a Stream	10	465.1
Lumahai Stream	20	64.2
Moikeha Canal, Kapa'a	75	537.0
Pakalas Surf	122	169.9
Waimea River Mouth	122	245.6
Wailua River mouth	173	225.1
Waikomo Stream - Koloa Landing	496	672.0
Niumalu Beach Park, boat ramp	512	709.9
Gillin's Beach, Mahaulepu	529	536.3
Hanamaulu Stream	598	909.4
Nawiliwili Stream	712	352.5
Waiopili Stream, Mahaulepu	8664	7,935.4
<10 = below detection limit of 10		
Single day sample should be <130		
Mean of samples should be <35		

GROUP 70 INTERNATIONAL

PRINCIPALS

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OF COUNSEL

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January 3, 2017

Sharon McCoubrey
srmccoubrey@me.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Sharon McCoubrey:

Thank you for your email of July 16, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Po'ipū/Kōloa watershed differs from Māhā'ulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Po'ipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhā'ulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The Waiopili Ditch Sanitary Survey, Kauai Part 1 can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

While it may be ideal for Hawai'i Dairy Farms to have an on-island milk-processing partner, it is logistically, financially and technically difficult to start such a business in conjunction with developing the first pasture-based dairy farm in the State. The most feasible and sustainable plan is to process HDF's milk with an existing provider on O'ahu or Hawai'i Island. In the future, on-island processing may be a more feasible option. For more information on the purpose and need for the project, see EIS Section 2.0.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawai'i Island milk.

As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project. Further discussion of alternatives can be found in EIS Section 6.

Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

RECEIVED
JUL 20 2016
GROUP 70 INT'L

1901 Poipu Road, K714
Koloa, HI 96756
July 18, 2016

Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Re: DEIS

Dear Mr. Overton,

The DEIS response to my concerns is vague and doesn't answer my questions directly.

My question was: How will Hawaii Dairy Farms on Mahaulepu prevent the overwhelming stench of the urine and feces of 2,000 cows, carried by the trade winds, from engulfing the Poipu community?

The DEIS states, "The no-action alternative: Depending upon the herd size, the grazing operation could generate potential odors." Or "Odor conditions at the pasture-based dairy will be limited within the dairy project area and immediate vicinity. In the worst-case meteorological conditions, odor may reach approximately 1,670 feet south of the HDF southern boundary. There are no homes or resort facilities in this area. The odors will not reach resort or residential communities. For the area within the modeled odor isopleth, odor may be detectable by 50 percent of the population at a frequency of once every 200 hours, or roughly 44 hours per year." Or "Odors will be contained within the dairy and limited adjacent farms." DEIS Volume 1 Page 276.

Now HDF admits there will indeed be odors but asserts they will be contained within the immediate vicinity. How will you attain this ideal? The consistent, strong trade winds we experience on the South shore of Kauai prevent such containment. This was experienced within the last year when there was a fire on the Mahaulepu lands, and we could indeed smell and see the strong smoke in the Poipu area of homes and resorts. HDF says the odor will reach 1,670 feet south of the HDF southern boundary. Sorry, but the trade winds blow from east to west. They do not just blow south.

The DEIS talks about a "model odor isopleth." However, you have not done an odor study and the odor "facts" you present are filled with conflicting information. Where do you get the idea that only 50 percent of the population can smell odors? And how can you assert that that 50 percent of the population will only smell it once every 200 hours, or roughly 44 hours per year? This statement is ludicrous!

Until an odor study is conducted by an expert in the field, no such assertions can be made. When you actually have a valid study, done by an odor expert, that proves how far this odor will travel, given the actual, not hypothetical, wind patterns, and how many people, for how many hours of the year will be affected, only then will you have a reputable study. We, the public, demand and are entitled to nothing less.

Now to the matter of biting flies that will accompany the cows brought in to Mahaulepu.

DEIS Volume 2 page 15 (page 61 of 732): "The 5 mm horn fly, Haematobia irritans, congregates near the horns of cattle on all isles where <u>their biting causes pain</u> and annoyance, interferes with feeding, but it rarely bites man. It has been widespread since 1898 and Kauai herds have benefited from control by imported micro-wasps and beetles that reduce larvae breeding in dung." Do we want any of these biting flies on

Kauai? Do we want our children, grandchildren, we ourselves, or tourists bitten by these painful biting flies?

With 2,000 cows on Mahaulepu, each excreting 90 or 143 lbs. of manure per day - depending on which source is quoted: (HDF Waste Management Plan Revision of 6/1/16 states that each cow will now excrete only 90 lbs whereas the DEIS Volume 2 page 591 states each cow will excrete 143 lbs per day), how many dung beetles would be required to digest this amount of liquid manure to prevent the biting flies from multiplying to astronomical numbers? At 90 to 143 lbs. per cow per day there would be between 2 to 3 million pounds of liquid manure dumped monthly on 469 total grazing acres from just the startup herd of 699 cows. For the targeted 2,000 cows the total per month would be almost three times this amount of manure or 6 to 9 million pounds of manure monthly!

3.3 pounds of the elephant dung can vanish in two hours when 16,000 dung beetles arrive to the scene to collect piece of dung for itself.
http://www.softschools.com/facts/animals/dung_beetle_facts/114/

16,000 dung beetles are needed to process 3.3 lbs of elephant dung. So 699 cows times 90 lbs of manure each per day equals 62,910 lbs of manure per day, times 4,848 beetles per pound of dung, equals 304,987,680 dung beetles needed for the smallest herd of cows of 699. With 2,000 cows you would need 872,640,000 dung beetles! Do you really think this is realistic or desirable? There will be 2,000 cows in no time on Mahaulepu because the farm manager testified that the 699 initial cows brought will all be pregnant and calves will be born within two weeks of arrival.

Face it: there will be biting flies aplenty and the flies carry many diseases! The flies will cause us all to have to wear long pants, long sleeved shirts and hats with netting over

our faces. This happened in Moloaa, Kauai when the small dairy was there, and it will happen here. This will drive the tourists away from the Poipu area, and greatly affect the income of the people who depend on Poipu tourism for their livelihood as well as drastically drive down Poipu real estate prices.

Our family loves to go to Mahaulepu. We walk on the beach and walk across the stream. With the presence of the dairy, the whole area will be polluted so people will become sick who go there, the sensitive coral reefs and fish will be killed. The DEIS didn't address the 10,000 lbs of nitrogen and approximately 4,000 lbs of phosphorus that will flow down the stream per year from the Hawaii Dairy Farm operation. Pollution through air and ground will abound. Our tiny island of Kauai cannot handle this onslaught. We would be giving up our delicate ecosystem for milk that will never be sold or consumed on Kauai!

Sincerely,

Ellen F. Mebre

Ellen F. Meboe

GROUP 70 INTERNATIONAL

January 3, 2017

Ellen F. Meboe
1901 Poipu Road, K714
Koloa, HI 96756

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Ellen F. Meboe:

Thank you for your letter dated July 18, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The planned Hawai'i Dairy Farms ("HDF" or "Dairy") will be the first in Hawai'i to employ rotational pasture-grazing. The pasture-based model was determined to be a clean, cost-effective and sustainable method. Sustainable is defined in this EIS as "Meeting the needs of the present without compromising the ability of future generations to meet their own needs". Benefits of pasture grazing includes, but are not limited to improved grass growth, even deposits of manure for fertilization, and reduced erosion and runoff. Also, the Dairy will feature modern facilities and practices, and will comply with all applicable Federal and State environmental standards.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods, using different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and comparing odor results against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area." The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report and recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent.

The air quality technical report found in Appendix I was prepared by Arcadis, the leading global natural and built asset design and consultancy experts. Founded in 1888, Arcadis has integrated health, safety, and sustainability into the design and delivery of solutions across the globe for over 128 years, with more than 350 offices in over 40 countries. Arcadis has extensive experience assessing the impact of new, existing, or modified sources of air contaminants on ambient air quality and public health through the use of customized, numerically based air quality dispersion models. Arcadis uses the latest EPA recommended air dispersion models to predict potential off-site concentrations and aerial extent from one or more sources.

Dispersion modeling provides the ability to conduct many runs quickly, thus enabling experts to assess several different operating and emissions control scenarios in order to reduce ambient air and odor impacts.

The scientists and engineers at Arcadis have expertise in dispersion modeling, the application of standard regulatory models such as AERMOD and CALPUFF, and utilize specialized models designed for accidental releases and/or unique dispersion conditions. Modeling for air permitting generally includes developing, assessing and obtaining appropriate background air quality data, collecting or developing emission rates and modeling parameters for neighboring sources within the impact area of concern, and performing multisource modeling to determine the impact of the client's existing or proposed facility.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

An especially important insect to minimize manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

RECEIVED
JUL 19 2016
GROUP 70 INT'L

1901 Poipu Road, K714
Koloa, HI 96756
July 18, 2016

Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Re: DEIS

Dear Mr. Overton,

The DEIS response to my concerns is vague and doesn't answer my questions directly.

My question was: How will Hawaii Dairy Farms on Mahaulepu prevent the overwhelming stench of the urine and feces of 2,000 cows, carried by the trade winds, from engulfing the Poipu community?

The DEIS states, "The no-action alternative: Depending upon the herd size, the grazing operation could generate potential odors." Or "Odor conditions at the pasture-based dairy will be limited within the dairy project area and immediate vicinity. In the worst-case meteorological conditions, odor may reach approximately 1,670 feet south of the HDF southern boundary. There are no homes or resort facilities in this area. The odors will not reach resort or residential communities. For the area within the modeled odor isopleth, odor may be detectable by 50 percent of the population at a frequency of once every 200 hours, or roughly 44 hours per year." Or "Odors will be contained within the dairy and limited adjacent farms." DEIS Volume 1 Page 276.

Now HDF admits there will indeed be odors but asserts they will be contained within the immediate vicinity. How will you attain this ideal? The consistent, strong trade winds we experience on the South shore of Kauai prevent such containment. This was experienced within the last year when there was a fire on the Mahaulepu lands, and we could indeed smell and see the strong smoke in the Poipu area of homes and resorts. HDF says the odor will reach 1,670 feet south of the HDF southern boundary. Sorry, but the trade winds blow from east to west. They do not just blow south.

The DEIS talks about a "model odor isopleth." However, you have not done an odor study and the odor "facts" you present are filled with conflicting information. Where do

you assert that that 50 percent of the population will only smell it once every 200 hours, or roughly 44 hours per year? This statement is ludicrous!

Until an odor study is conducted by an expert in the field, no such assertions can be made. When you actually have a valid study, done by an odor expert, that proves how far this odor will travel, given the actual, not hypothetical, wind patterns, and how many people, for how many hours of the year will be affected, only then will you have a reputable study. We, the public, demand and are entitled to nothing less.

Now to the matter of biting flies that will accompany the cows brought in to Mahaulepu.

DEIS Volume 2 page 15 (page 61 of 732): "The 5 mm horn fly, Haematobia irritans, congregates near the horns of cattle on all isles where their biting causes pain and annoyance, interferes with feeding, but it rarely bites man. It has been widespread since 1898 and Kauai herds have benefited from control by imported micro-wasps and beetles that reduce larvae breeding in dung." Do we want any of these biting flies on Kauai? Do we want our children, grandchildren, we ourselves, or tourists bitten by these painful biting flies?

With 2,000 cows on Mahaulepu, each excreting 90 or 143 lbs. of manure per day - depending on which source is quoted: (HDF Waste Management Plan Revision of 6/1/16 states that each cow will now excrete only 90 lbs whereas the DEIS Volume 2 page 591 states each cow will excrete 143 lbs per day), how many dung beetles would be required to digest this amount of liquid manure to prevent the biting flies from multiplying to astronomical numbers? At 90 to 143 lbs. per cow per day there would be between 2 to 3 million pounds of liquid manure dumped monthly on 469 total grazing acres from just the startup herd of 699 cows. For the targeted 2,000 cows the total per month would be almost three times this amount of manure or 6 to 9 million pounds of manure monthly!

3.3 pounds of the elephant dung can vanish in two hours when 16,000 dung beetles arrive to the scene to collect piece of dung for itself.
http://www.softschools.com/facts/animals/dung_beetle_facts/114/

16,000 dung beetles are needed to process 3.3 lbs of elephant dung. So 699 cows times 90 lbs of manure each per day equals 62,910 lbs of manure per day, times 4,848 beetles per pound of dung, equals 304,987,680 dung beetles needed for the smallest herd of cows of 699. With 2,000 cows you would need 872,640,000 dung beetles! Do you really think this is realistic or desirable? There will be 2,000 cows in no time on

Mahaulepu because the farm manager testified that the 699 initial cows brought will all be pregnant and calves will be born within two weeks of arrival.

Face it: there will be biting flies aplenty and the flies carry many diseases! The flies will cause us all to have to wear long pants, long sleeved shirts and hats with netting over our faces. This happened in Moloaa, Kauai when the small dairy was there, and it will happen here. This will drive the tourists away from the Poipu area, and greatly affect the income of the people who depend on Poipu tourism for their livelihood as well as drastically drive down Poipu real estate prices.

Our family loves to go to Mahaulepu. We walk on the beach and walk across the stream. With the presence of the dairy, the whole area will be polluted so people will become sick who go there, the sensitive coral reefs and fish will be killed. The DEIS didn't address the 10,000 lbs of nitrogen and approximately 4,000 lbs of phosphorus that will flow down the stream per year from the Hawaii Dairy Farm operation. Pollution through air and ground will abound. Our tiny island of Kauai cannot handle this onslaught. We would be giving up our delicate ecosystem for milk that will never be sold or consumed on Kauai!

Sincerely,

Joseph A. Meboe

Joseph A. Meboe

January 3, 2017

Joseph A. Meboe
1901 Poipu Road, K714
Koloa, HI 96756

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Joseph A. Meboe:

Thank you for your letter dated July 18, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

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For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods, using different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and comparing odor results against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area." The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report and recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent.

The air quality technical report found in Appendix I was prepared by Arcadis, the leading global natural and built asset design and consultancy experts. Founded in 1888, Arcadis has integrated health, safety, and sustainability into the design and delivery of solutions across the globe for over 128 years, with more than 350 offices in over 40 countries. Arcadis has extensive experience assessing the impact of new, existing, or modified sources of air contaminants on ambient air quality and public health through the use of customized, numerically based air quality dispersion models. Arcadis uses the latest EPA recommended air dispersion models to predict potential off-site concentrations and aerial extent from one or more sources.

Dispersion modeling provides the ability to conduct many runs quickly, thus enabling experts to assess several different operating and emissions control scenarios in order to reduce ambient air and odor impacts.

The scientists and engineers at Arcadis have expertise in dispersion modeling, the application of standard regulatory models such as AERMOD and CALPUFF, and utilize specialized models designed for accidental releases and/or unique dispersion conditions. Modeling for air permitting generally includes developing, assessing and obtaining appropriate background air quality data, collecting or developing emission rates and modeling parameters for neighboring sources within the impact area of concern, and performing multisource modeling to determine the impact of the client's existing or proposed facility.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and

removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

An especially important insect to minimize manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Consulted Party Comments on DEIS for Hawaii Dairy Farms' Proposed Dairy Operation

Rayme Meyer <rayme_meyer@hotmail.com>

Thu 7/21/2016 11:04 AM

To:epo@doh.hawaii.gov <epo@doh.hawaii.gov>; HDF <hdf@group70int.com>;

1 attachment

HDF DEIS comments letter July 21 16.pages;

July 21, 2016

Laura McIntyre
State of Hawaii, Department of Health
Environmental Planning Office
919 Ala Moana Blvd., Room 312
Honolulu, HI 96814 epo@doh.hawaii.gov

Jeff Overton
Group 70 International
925 Bethel St., 5th Floor
Honolulu, HI 96813 HDF@Group70int.com

Submitted via E-mail to all parties.

Subject: Consulted Party Comments on Draft Environmental Impact Statement (DEIS) for Hawaii Dairy Farms' Proposed Dairy Operation

Dear Ms. McIntyre and Mr. Overton,

Thank you for the opportunity to comment on the DEIS for Hawaii Dairy Farms' Proposed Dairy Operation in Maha'ulepu. We are neighbors of the Maha'ulepu Valley and frequent visitors to the beach there and have been for over two decades.

Objectives

The proposed project's stated purpose is to "bolster Hawaii's declining dairy industry …"
Given the importance HDF considers this statewide goal, how can the DEIS fail to consider land parcels without the enormous potential for environmental damage? By limiting the considerations to a small portion of available lands, it is clear that the applicant simply wants to put something in Maha'ulepu.

This document lacks facts to substantiate that HDF will provide more than 1,000,000 gallons of fresh nutritious milk to Hawaii families. What is the guarantee (what contract exists) that any milk will be kept in Hawaii by Meadow Gold or anyone else who processes and distributes the end product?

-
"Effectively integrate dairy operations within the island community …"
With so much local opposition, and so few mitigation suggestions regarding odors, flies, noise, waste or water discharges, how will HDF's willingness to risk contamination and economic deficiencies result in integration into the community? "Integrating" a feedlot into a resort community dependent on tourism and enjoyment of peace and serenity is an impossibility. The proposal has already turned the community into opposing camps.

"Optimize dairy product shipping and marketing"
HDF has no control over shipping and marketing, relying on others such as Meadow Gold, a completely separate entity over whom they have no control.

"Provide local farming employment …"
HDF proposes to add about six jobs to the local economy. That needs to be balanced against the loss of jobs in other segments of the local economy, especially tourism and hospitality.

"Protect and enhance the area's natural, cultural, social, and economic environment …"
There are already groups in place to protect the natural, cultural, and social environment, all of whom are opposed to this dairy. The potential harm to the natural cultural, and social environment caused by a dairy of this kind in this particular special place, shows disregard for conservation of land and lack of respect for those who value tradition and culture.

2.21 The Dairy Market in Hawaii
FDH acknowledges that to overcome the cheaper milk from the mainland that has undercut the market for Hawaii milk in the past, it must overcome the hurdles in high costs of production, processing, and distribution. While HDF may be able to control its production costs (which previous dairies in Kauai apparently have not been able to do), it has no control over the costs of processing and distribution. How does it plan to compete with lower milk prices from the mainland? The last remaining locally owned dairy in Hawaii is in danger of closing within 6 months because of the low price for milk it has received from Meadow Gold. Ulupono offered to buy that dairy for a million dollars less than the asking price, but their offer was rejected. And if the shelf price of local milk is higher than the shelf price of mainland milk, locals will not buy it.

4.0 Environmental setting, impacts and mitigation

It is scientifically inaccurate to claim that herd sizes of 699 and 2000 would have the same impact on the environment and that the same mitigation applies to both numbers of cattle.

The use of AVERAGES of wind speeds and rainfall masks the actuality of weather behaviors. Wind speeds and rainfall are frequently above (or below) the range of averages shown. Using averages is misleading and the impacts HDF discloses from using them understates the scope of damages to air quality, noise and effluent materials. Dust, biting flies, and odors will disseminate to a wider area than shown. Runoff into the ocean has not been adequately addressed.

Runoff into the ocean now occurs into a shallow and well-protected area which attracts children and adults who think they've found the safest place to play. Our family frequently waded and played in that area with our small son. Any belief that the Waiopili stream is not now used extensively recreationally is wrong. How can that stream not be further affected by upstream activity?

Although HDF alleges that no noticeable odors, flies, noise, waste, or water discharges will reach resort or residential areas, what will HDF do to mitigate these problems if they prove to be wrong about them?

What will HDF do to mitigate the loss of residential values if property values decline due to the existence of any of the above factors caused by HDF operations?

Section 4.15.1 Existing conditions … Property values …

"Most homes and visitor units on the island are within one mile of some agricultural activity…"

What constitutes this agricultural activity? Backyard fruit trees are not the same as 699 milk cows. Traditional farms are not the same as factory farms or feedlots. All agriculture is not the same. Use of these broad terms obfuscates the unpleasant and unhealthy reality that people who have lived or visited within one mile of *this type* of activity can attest to.

Section 4.15.2 Long-term impacts and mitigation … Demographic and economic …

ANYTHING other than tourism "would contribute to diversification of Kauai's economy." A thorough EIS should consider other alternative agricultural uses that would be farm-to-table without the negative impact potential – that would contribute immediately to food sustainability goals without off-site processing, transporting, etc.

Furthermore:

A consideration of future planning should not take past deleterious activities into account as a means of comparisons. Kauai's history of sugarcane growth, burning and harvesting does not mitigate possible degradation of the environment by further industrial agriculture. Are we to believe that any action that may be less damaging than past activities are therefore supportable?

We do not believe that the concern about future beneficial uses of the area are considered adequately in the DEIS. How might truck traffic around the proposed dairy and beyond, in addition to activities within the confine of the operation and impact on the surrounding area permanently destroy (at worst) or be a disincentive to scholarly, historical and archeological exploration and restoration of this area OR organic farming of traditional crops?

The above reflects some of our many concerns. And of course we cannot address changes to the DEIS which have not been made public for comment.

Respectfully submitted,
Ira and Rayme Meyer

1660 Pe'e Road
Koloa, HI 96756

GROUP 70 INTERNATIONAL

January 3, 2017

Ira and Rayme Meyer
1660 Pe'e Road
Kōloa, Hawai'i 96756
rayme_meyer@hotmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Ira and Rayme Meyer:

Thank you for your email of July 21, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project, including alternative locations. Further discussion of alternatives can be found in EIS Section 6.

The Hawai'i Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on O'ahu; two on Hawai'i Island; and two on Kaua'i.

Kaua'i was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kaua'i in the Māhā'ulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January 2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

Under the proposed action, HDF would sell raw milk wholesale to a processor and packager. Milk processing, including pasteurization, bottling, and packaging of milk, would be done independently of the dairy. For more information on processing, see EIS Section 3.6.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawai'i Island milk.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

EIS Sections 4.18 and 4.24 include an evaluation of roadways and traffic conditions, along with potential impacts of the dairy farm construction and operation.

At the committed herd size of 699 cows, 12 vehicle trips per day would result from HDF operations over the long-term. A summary of all regional traffic with projections to 2035 is shown in Table 4.18-1 of the EIS; HDF trips would increase projected traffic by less than one-twentieth of one percent (0.17 percent).

For HDF operations at the contemplated herd size of up to 2,000 mature dairy cows, additional vehicular trips are projected at 11 more per day than at the committed herd size. The projected trips totaling 23 vehicles per day would include employees and delivery vehicles, and represents an increase in the regional traffic of less than one-third of one percent (approximately 0.30 percent).

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhā'ulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Based on the AIS and CIA technical reports, no significant cultural resources are located on the HDF property. Access to adjacent properties will continue to be the responsibility of the land owner, Mahaulepu Farm, LLC.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: To Whom it May Concern

From: TARESSA MIKAILA [mailto:taressa@shaw.ca]
Sent: Monday, July 25, 2016 8:01 PM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: To Whom it May Concern

Proposed Daily farm at Maha'ulepu

I have lived in Kauai and one of my favourite beaches to hike, swim and enjoy the rivers is the above beach.

The clean ocean and river is an incredible place for adventure and the beach is abundant and clear.

I know a dairy farm would greatly diminish the clean environment that is naturally inherent to this area of Kauai.

Please preserve this area and keep it free from manure and let the rivers and ocean water remain healthy for the children of our children.

Warm gratitude and blessings,
Taressa Mikaila

Thank you for your time.

GROUP 70 INTERNATIONAL

January 3, 2017

Taressa Mikaila
taressa@shaw.ca

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Taressa Mikaila:

Thank you for your email of July 21, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Water is essential for life. Hawaii must become as efficient as possible in its use of limited fresh water supplies due to the need for fresh water for increasing resident and visitor populations. More than 9 percent of the State's drinking water comes for groundwater sources, while much of the water used for agriculture irrigation comes from surface water sources.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: No HDF

From: L. Mizuo [mailto:kmizuo@hawaiiantel.net]
Sent: Wednesday, July 20, 2016 1:05 PM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: No HDF

We oppose the HDF project. Common sense tells us that a Dairy Farm will smell, will pollute and will negatively impact our environment. The livelihood and quality of life of our residents and visitors will be greatly diminished. No Dairy Farm please.

Mahalo,
Kenneth and Lynette Mizuo

GROUP 70 INTERNATIONAL

January 3, 2017

Kenneth and Lynette Mizuo
kmizuo@hawaiiantel.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Kenneth and Lynette Mizuo:

Thank you for your letter dated July 18, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

We are against a dairy farm of that size on Kauai

Richard Mukai <mukairv@sbcglobal.net>

Mon 7/18/2016 10:57 AM

To:HDF <hdf@group70int.com>;

Dear Sirs/Madams,

The idea that a dairy farm does not produce smells and waste is totally untrue.

Waste material either stays on the surface of the feeding areas and attracts flies besides running off to the the lowest point on the ground, or penetrates the soil and gets into the water table.

There may be dairy farms that collect the manure and with care and diligence actually produce a fertilizer mix for use elsewhere.

There is no mention of the calves produced by the dairy farm and the fact that calves are then slaughtered for veal, a highly desirable beef product.

However, any slaughterhouse is then a source of animal waste of great concern. This is not a small issue.

Treating raw sewage is of big concern.

Do not ignore the pollution aspects of a large dairy farm.

Thank you for paying attention to people's concern.

Richard and Victoria Mukai

property owners

Kapaa, Kauai

GROUP 70 INTERNATIONAL

January 3, 2017

Richard and Victoria Mukai
diane@islandarchitect.net

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Richard and Victoria Mukai:

Thank you for your email of July 18, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Successful pastoral dairies exist at numerous locations in New Zealand, as well as suitable farming regions in the United States. Several rotational grazing dairy operations located in Florida and Georgia operate successfully, with farms containing over 2,000 animals. Successful rotational grazing dairies also exist in Maryland, North Carolina, and Missouri. Numerous articles and publications on rotational grazing dairies are cited in Progressive Dairyman and other industry news sources.

Cattle ranching on Kauaʻi spans generations, and ranchers are stewards of the lands. Healthy lands raise healthy beef cattle. Local ranchers are experienced in animal welfare, and can collaborate with HDF to care for dairy cows during annual rest cycles and to raise calves until old enough to join the dairy herd. The availability of calves from a dairy such as HDF provides new animals to maintain or expand a beef herd. Your comment suggests the potential for raising calves for veal production, which is not part of the HDF dairy farm business operation. Male calf production may be a business objective of the other ranches on Kauai, however, each ranch will manage their own business and operational goals.

HDF has adequately planned its cemetery site and has incorporated Best Management Practices to protect water resources surrounding the HDF site. The animal cemetery is specifically located on the north side of the farm, in an area of relatively flat pasture. Site selection criteria for the cemetery paddock included protection from prevailing winds, and distance more than 100 feet away from any drainageway, 200 feet from any natural watercourse, 300 feet from any well, and more than 20 feet from any buildings. Within the cemetery paddock, pits will be sited based on soil suitability and slope. A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. An area of approximately 5,000 square feet is needed for the animal cemetery at the contemplated herd size of up to 2,000 mature dairy cows, which is a fraction of a 3- to 5-acre paddock. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area. Pits will be lined as needed in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Fwd: DEIS

Jan M <janskauaikondos@gmail.com>

Mon 7/25/2016 4:08 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>;

From: Jan M <janskauaikondos@gmail.com>
Date: Sun, Jul 24, 2016 at 3:14 PM
Subject: DEIS

ATTENTION: LAURA McIntyre

July 24, 2016

State of Hawaii, Department of Health

1250 Punchbowl St

Honolulu, HI 96813

Attention: Jeff Overton

Group 70 International Inc.

925 Bethel St. 5th Floor

Honolulu, HI 96813

Hawaii Dairy Farm

PO Box 1690

Koloa, HI 96756-1690

ATTENTION : Jim Garmatz

ALOHA TO ALL INVOLVED IN DECISION MAKING RE PROPOSED HAWAII DAIRY FARM ON MAHA'ULEPU VALLEY

HDF'S Draft Environmental Impact Statement is very extensive but is not satisfactory proof of an environmentally sound project. It is an overwhelming task for our people with normal jobs and family schedules to digest the volumes of material HDF has presented . Group 70/HDF has had unlimited time and numbers of employee hours to prepare it and we need to respond, in depth, in 45 days. I was a biology major and hold a masters degree and perhaps even more important, I grew up on a dairy farm. I need more time to study your DEIS. It is unfortunate that when requested by FOM we were not given more time. We also requested an extension because of a pending hearing for our case under the Clean Water Act.

HDF you mention your goal of expanding to a 2,000 milking cow dairy three times in your opening paragraph . Using comments " will contemplate", " at our own discretion" and "plan to expand to what "someone" had determined to be the CAPACITY of the LAND.". Who is that expert ? How long has he/she experienced this island? What are his/her credentials ? Perhaps the purpose of these words is just to get by the Certification of the Department of Health, Waste Water Treatment Branch . HDF, I'm sure your fabrications are also an attempt to build trust and promote calm among the citizens of Kauai. Nearly everyone I speak to on the island is very upset and against a dairy of this size going into operation just above the only natural undeveloped beach left on the South shore. For local citizens this beach is where they go with their families to fish or swim or just relax and read a book under a tree. The young children play in the pooled waters(now polluted) before learning to cope with the waves. I've loved going there since 1985 and the cave is amazing. This is an ill conceived plan. HDF has not alleviated my many following concerns: Even more pollution into the Waiapili Stream and into the ocean killing our sea life, destroying our drinking water with excessive nitrates, , polluting the aquifers, and threatening our endangered species . Add risking the health of our citizens and guests , jobs lost by the thousands and economic tax instability of the south shore and consequently the entire island. What about the quality of life of the south shore locals and visitors with terrible odors, biting flies, various infections and zoonotic diseases and crying cows . Did you know that Kauai was chosen as the Most beautiful spot in the world in a recent Forbes Magazine report. It was chosen Number One of the 21 most beautiful spots in the world. It is so sad but statistically proven that the entire island of Kauai will be negatively affected if this dairy is allowed to operate, even at the level of 699 pregnant cows. No amount of study and copy /paste from big agricultural organizations or textbooks from Universities offering majors in Agriculture can make a WRONG INTO A RIGHT . Nowhere in the United States has this been done with the number of acres HDF is using for the extreme density of the Milking Cows . Many of your comments sound great if one has never been to a CAFO operation, read the news of what's happening in Animal Husbandry all over the world or grew up on a dairy farm. None Group 70 people or HDF people have the appropriate experience to try this huge experiment anywhere let alone at this unique and revered location. Do you know it has been surveyed for a list of potential National Parks? Group 70, we know you are a real estate developing company and this is your first try at developing a successful Plan for a dairy. Kyle Data has had no experience with dairies, let alone industrial dairies(CAFO's)He says he just hires people and especially attorneys. Jim Garmatz has had minimal experience and none in Hawaii. I don't believe the Omidyars have any idea of the environmental disaster and ensuing economic collapse that is most likely going to occur with this Venture Capital Project. So None of you have had the necessary experience to tackle such an "Experiment" and certainly not on a location that is so highly cherished by Hawaii citizens and guests. Much local experience is a necessary teacher. What did HDF learn from the dairy at Moloaa and Cloverleaf? Things don't always go as planned. Hurricanes and tsumani's happen, liners tear, tech breaks down, tech experts have to be flown in, vets have to be flown in as there are no large animal vets on island (breach birthing occurring frequently and usually at night.) Cows get sick and die prematurely or are eliminated and buried near our water wells.

The way you HDF has presented issues sounds hopeful but is not statistically proven with experience. The opposite results of what they predict is true in many places on the mainland and in the world. It is experience which brings reality to words. Even with 699 milking cows, plus the calves, heffers , bulls and resting cows, this dairy is destined to fail and cause permanent damage with only possibly a tiny benefit for Kauai.

HDF you can not prove with a DEIS that a "satisfactory limit of Odor" will reach the neighboring properties on our trade winds. You can not prove success of limiting reproduction of biting flies with dung beetles,It would take billions of tunneling dung beetles with that volume of manure (approximately) 2 feet or more after the second rotation. (almost 3 million pounds a month). This DEIS suggests 1/3 to 1/2 miles affected by odor?? Have you never driven by the Moloaa dairy and tried to hold your breath for 2 miles.? Have you never been near a CAFO in the states? How was the smell at the Cloverleaf farm on the big island ? Their density of animals to acre was much superior to what you have planned. Their problems were many. HDF, you must realize that the manure laden spray from the injection guns with ride on our Easterly Trades or Kona Winds for miles. The same scenario will happen with flies: house, stable & biting horn flies.

HDF as you have stated, it takes 4 days to empty your effluent ponds. You would not find it to be cost effective to empty them for the dozen or so tropical storms we may expect nearly every year. We are never given 4 days warning when experts know that a hurricane is going to hit Kauai. Statistically, we are about due for either a hurricane or a Tsumani. HDF,you will not have 4 days to empty the ponds and they will flood quickly causing unimaginable disaster. Prove me wrong in your final EIS. On any day, once pollution leaves the ditches it feeds into the Waipili and then downhill and into the Ocean., It will go downstream to all the beaches on the south shore. When it enters the Children's Swimming Area of Poipu Beach Park, it will not naturally go back out but stagnate and stink. Poipu Beach is always in the top 10 beaches in the United States, It's Children's Swimming area is the most perfect spot I've ever experienced for toddlers and preschoolers to safely learn to love the ocean and begin to learn to swim. .Ask our life guards if this is going to happen. They were among the first people to become very worried when HDF made it's proposed plan public.

It is obvious why Kauai /Hawaii was chosen for this project- the reasons are quite similar to those of the GMO Companies.

.1. Our year round mild climate allows for much lower costs and thus much higher profits.

2. We have the best water source in the Waita Reservoir on the island . However, it is water that is diverted by a residual stream diversion, a holdover of the

sugar operation at Koloa. Grove Farm, owned by Steve Case has promised HDF up to 3,000,000 gallons of this water per day in their 20 year lease with Ulupono.

3. The islands often do not have as strong a government control and oversight as many states and countries in the world.

HDF is required to consider, and told the public that they would seriously consider an alternative location in their EISPN. The Kipu area which we are told , was your first choice , was purchasedt by a developer before HDF's decision to do an EIS. Mentioning it now as an alternative location is disingenuous. You have not satisfied that requirement and have not considered an alternative location.. HDF perhaps you cannot meet your initial goals but you must provide an alternate location if you are operating in good faith even if your planned density or profit margin will not be as high. Or is the issue that you, have no genuine intent to protect the environment or the people of Kauai because you are strictly profit motivated without regard for the economy of this island?

SUGGESTION. One of our citizens mentioned that a HEMP Farm might be a win, win situation for everyone . What has already been done by HDF, could be infrastructure for a successful Hemp farm providing a healthy, forward looking, food source(Hemp Milk). A 500 plus acre hemp farm would provide many more local jobs in farming, be a source for at least 125 alternative local products while actually increasing food sustainability.

I have a lot of unanswered questions and could not read the entire DEIS to find the answers. A huge percentage of it was unreadable by many of us because of the tiny size 7 or below print. The letters from our citizens are just one example of that illegible print. plus most of volume 4 etc.

1. HDF has stated that water monitoring results will be shared with the DOH, the dairy neighbors and the community . That sounds great. Who will do the testing? Where are any of the results from water testing after"test wells" were installed(albeit not usually 90 ft deep when the intent is to measure impact to ground water). Who will do the testing? Based on HDF's misrepresentations to the public, I'm afraid that the community at large will never have any idea how many cows you own, or where they are located, if they are sick or dying or anything about your operation if you are ever to receive the permission to proceed with HDFs plan. We will not be told honest, regular results of water testing and will not have access to the site to do our own testing. We will definitely FEEL the effects of what you are doing but will never be privy to your business decisions. You have not been forth coming from the very beginning even with stating falsehoods and failing to follow the rules required. .It was interesting how you had to hurry and fill your ditches before the inspection allowed by the Judge for the Clean Water Act. Will things be different if you are allowed to proceed? How? .

2..HDF has admitted to the DOH that you are not a 'zero discharge project as reported" Your choice of words is intentionally deceptive on page 2 regarding manure. Change "nutrient COULD pass through to ground and surface water to WILL PASS THROUGH TO GROUND AND SURFACE WATER."There is no doubt that this will happen. Jim Garmatz was unable to "lie" under oath on this issue.

3. HDF Your choice of words about the evolving definition of "grass fed" is also deceptive. It never was a grass fed dairy by any regulated definition. Regarding your "grass trials" at five locations on the islands, our experts need to know the exact location of these experimental grass trials so they can access the results. Grass using any sort of modern technology does not regenerate quicky under 2 feet of by the second rotation.. HDF Why were these locations and grass results not part of your DEIS

4.HDF Where are examples of the Cornell Model you are now following?. Please be specific so we can determine: (1) that there is indeed a Cornell rotational grazing model and (2) it comports to what HDF proposes for Maha"ulepu. Why did HDF fail to include a copy of the "Cornell Model" in their DEIS instead of just secretly going to the Waste Water Branch Chief with 24 changes, aka "Updates" 8 days before releasing the DEIS to the public. Why is HDF hiding from the public the fact that they no longer intend to rely on the New Zealand model?

5. The DEIS states that the cows move around freely and lie down to rest to digest. At HDF's planned density in the mobs, they will be almost belly to belly and it will be difficult and not frequent that they can lie down to rest. How long will the cows be at full productivity before you bury them in the gravesite not far from out water wells with porus lava substrata? Mastitis is common and sometimes hard to detect and the milk needs to be kept separate. This is just one example of problems ahead. I understand that we do not have a single large animal vet on the island of Kauai. What about breech births , usually at night? I guess the mom and baby will just both be buried in HDFs grave site near our water wells. . Inhumane treatment of these animals is likely to be the 'norm" in this proposed dairy project for profit.. How many large animal vets are on this island?

6. I need to go back to drinking water.. It is of critical importance to all citizens and currently the world's Number One greatest problem. HDF states in their DEIS that water monitoring results will be shared with the Department of Health, Clean Water Branch, dairy neighbors and the local Community. .Based on HDF's extreme secrecy and avoidance of legal guidelines thus far, we find it difficult to believe that you will share anything with the greater community. Where is "proof of character" if not from "past experience". We must protect our environment and the livelihoods of our citizens. Grove Farm, owned by Steve Case, will not even allow a pollution alert sign to be posted at the Waipili Stream to protect the children of locals and guests from serious illness. There were children playing in the stream today. More photos are surfacing and will be used in court.

7. In what way will HDF's project be advantageous to our local economy? We may get up to 1,000.000 gallons of milk a year for Kauai or It did not say Hawaiii? Four terriblydirty jobs will be offered locally. Hundreds /thousands of jobs will be lost for our locals in the tourist industry. Because of State set up Important AG Lands, Our taxes have paid HDF $625,000 while they have been grubbing and grading with out proper permitting.. After construction HDF will only pay $51,000 in taxes to our county per year even if the herd is allowed to expand to 2,000 milking cows plus calves, heefers, bulls, and resting cows. . The south shore tourist industry currently pays over 1/4th of the total tax revenue to support the County. As home values tank and people get their property taxes adjusted, the county will need to greatly increase taxes on the rest of the island to function. I ask again, In what way will HDF's Cow Factory help the island and citizens of Kauai if allowed to operate?. I would like HDF to respond in depth on this issue if they do a final EIS.

8. HDFs start up herd of 699 pregnant cows must not be allowed to take up residence at Maha'ulepu . Even that number will l devastate this county in less than a year with irreparable damage.. Will HDF leave then? Will They pick up the tab to heal the environment? Probably not since HDF will be an LLC,with very limited liability. Will the State of Hawaii Government Departments if they support this endeaver come to our aid to attempt to reverse the damage. Or Will the people who have suffered great loss be expected to come up with the solutions and pay the price tag. That won't happen. We don't have the resources so the island devastation if left to our finances will absolutely be permanent . Environmental devastation is permanent in many places already.

I want to mention , in summary, three quick thoughts on my mind.

A. The laws of gravity are not able to be modified by modern technology. The Pollution will seep downward to our wells and aquifers and from the paddocks to the ditches, to the Waipili Stream and to the ocean. Then the pollution will stagnate and/or go downstream with the prevailing current to our other popular South Shore beaches Shipwrecks,, Poipu Beach, Lawai Beach and Kukio ula Harbor and stagnate in inlets along the shore...

B. Three million pounds of manure a month produces volumes of methane odor. It will spread through the air and no amount of tech knowledge can stop that. This huge volume of gas will permeate the air for at a minimum 2-4 miles . Add the trade winds which will spread it out but move it much farther from the source. Our locals and guests will become bitter from this experience.

C. You state that dung beetles will reduce the amount of odor by tunneling the manure underground. That does work somewhat but it would take billions of dung beetles to handle the quantity of manure on your farm site..Cattle egrets will soon look like the flocks in FL,

In Conclusion, I plead with you to Stop this ill conceived project for Maha'ulepu now before damage is done. HDF's proposed dairy abandon its plan. If unwilling they must downsize and find an alternate location away from communities, streams and the ocean. We know from much research and study for two years and much past experience of islanders and mainlanders that this project will be a disaster for Kauai, it's environment, it's economy and the health and well being of it's citizens .That will also affect Oahu because of a huge drop in TA and GE taxes and people on state subsidies and unemployment. No doubt the homeless population will grow quickly as parents can not support their children. There are no real "positives" from this proposed dairy for Kauai and many many "Negatives" Please Stop It from proceeding. Sincerely, Janet Muller.

GROUP 70 INTERNATIONAL

January 3, 2017

Jan Muller
jankauaikondos@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Jan Muller:

Thank you for your email received on July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Waste Management Plan

In preparation to develop the Draft EIS, HDF listened to public concerns, retained knowledgeable consultants to conduct technical analyses, refined data gathered from field trials on site, and further incorporated U.S. standards and best management practices to create a world-class design for the environmentally sound pasture-based, rotational-grazing dairy. These technical studies and ground-level trials provided additional field-tested data to refine the Waste Management Plan (WMP). It is common practice to periodically update a WMP as site conditions change or are better known to ensure the regulators are reviewing the most current information. HDF prepared a summary of the changes for the Wastewater Branch to highlight the refinements. On July 13, 2016, DOW Wastewater Branch acknowledged that its questions on the updates to the WMP had been addressed by HDF, and that WWB had no further comments at that time. The WMP is not a component of the EIS, however, all relevant information in the updated WMP was incorporated into the DEIS to ensure consistency and transparency for public review and disclosure.

Herd Size

The herd size for HDF is consistently represented as the potential maximum number of cows guided by the results of the nutrient analysis which reflects the carrying capacity of the land (EISPN Section 2.3 *Proposed Action*; EIS Section 1.2 *Proposed Project*). The distinction between the herd sizes and permit differences is explained in the EIS Section 2.4 *Planned Dairy Development on Māhā'ulepū Agricultural Lands*. During the public scoping meeting, participants expressed an interest to understand impacts of the committed herd size (up to 699 mature dairy cows). HDF agreed to analyze and present impacts at both the committed and contemplated (up to 2,000 mature dairy cows) herd size. Therefore, the probable impacts of the potential contemplated herd size are also analyzed and clearly identified in the Draft and Final EIS.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawai'i. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land. With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future.

EIS Preparation

While an agricultural project on agricultural lands implemented and operated with private funds does not require environmental disclosure, HDF responded to community concerns by agreeing to prepare an EIS. The EIS is a disclosure document that analyzes the effects of a proposed project or program on the environment including direct, indirect and cumulative impacts, discusses alternative methods or designs to the proposed action, and formulates minimization and mitigation measures to eliminate, reduce, or rectify adverse impacts of the proposed action. This EIS was prepared in accordance with Hawai'i Administrative Rules Title 11 Chapter 200, implementing Hawai'i Revised Statutes (HRS) Chapter 343.

The Final EIS volumes are available in electronic format for everyone to read on a standard computer screen at the most comfortable view orientation and enlargement. When printed with two pages per sheet this entire document is contained within a total of nine volumes. Larger format single page printing would increase this total to more than 15 volumes, making it extremely unwieldy for agencies and the public, and therefore less accessible. Also, generation of this huge amount of printed material would not be consistent with our common objectives of sustainability. Formatting of the Final EIS page margins and dividers has been improved in Volumes 3 through 9 to aid readability.

Waiopili Ditch

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Po'ipū/Kōloa watershed differs from Māhā'ulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Po'ipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhāʻulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

A larger body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community, and will allow for evaluation of possible contamination sources.

Kikuyu Grass

HDF has gathered over 2 years of trial data for Kikuyu grass located at the center of Māhāʻulepū Valley on HDF's leased property. The Kikuyu grass measured consists primarily of Kikuyu with some guinea grass mixed in. Cover crops (diversified forage) were also inserted into the Kikuyu grass during the winter months to provide the additional forage needed when the primarily Kikuyu grass mix may not be as productive. The use of diversified forage is recommended by the National Resource Conservation Service (NRCS) Conservation Practice Standard – Nutrient Management Code 590.

HDF understands the concerns regarding non-irrigated areas and their lower potential yields. HDF has conducted more than 2 years of grass yield trials on HDF sites, and has engaged Farms n' Forages to complete these trials. Farms n' Forages has extensive experience in grass and forage production on each of the major islands in the State of Hawaiʻi. Based upon the field trials, utilizing primarily Kikuyu grass mixed with some guinea grass, and interspersed with diversified forages from November to March, average annual yields on the HDF site range from 17 tons DM per acre per year to over 20 tons DM per acre per year, with appropriate fertilizer and irrigation applications that do not exceed the agronomic need of the crop. These monthly yields often exceeded 20 tons DM per acre per year in the summer months and lowered to between 15 and 18 tons DM per acre per year in the winter months (with diversified forage).

This was verified by forage testing and on-site soil sampling performed by Farms n' Forages (grass yields), Spectrum Analytics (soils and fertility recommendations), Cumberland Valley Analytic Services (grass nutrient) as well as Dr. Yost (soils and fertility recommendations in Appendix C of the EIS).

Farms n' Forages also has experience with non-irrigated pastures in Hawaii and has previously measured approximately 30 to 40 percent greater yields in irrigated pastures than in non-irrigated pastures. Approximately 74 percent of HDF's pastures are irrigated and 26 percent are non-irrigated, and the effect on yield estimates must be taken into account by HDF for its nutrient management planning, as noted by the CH2M Hill comments. HDF has been conservative in its average annual yield estimate used in the Nutrient Balance Analysis specifically to account for non-irrigated fields and seasonal variability in forage production.

HDF believes that 16.3 tons of DM per acre per year is a conservative and realistic weighted yield goal which meets NRCS Conservation Practice Standard - Nutrient Management Code 590 requirements for both irrigated and non-irrigated fields combined and accounts for seasonal variability. Code 590 requires that a realistic yield goal be used in the planning of a new dairy operation. Taking the reduction in grass yields in non-irrigated fields, based upon the percentages provided by Farms n' Forage, the 16.3 tons of DM per acre per year is a conservative production estimate, considering that irrigated fields can yield over 20 tons of DM per acre per year in the summer and between 15-18 tons DM per acre per year in the winter.

While the yield production and nutrient removal rates shown in the DEIS would not be the exact nutrient uptake numbers based upon the actual operation of the planned dairy, with the commencement of actual animal grazing, manure production, and effluent application, the trials are representative of and realistic for a rotational-grazing, pasture-based dairy operation. The yield production and nutrient uptake rates are based upon appropriate site-specific inputs and certified laboratory testing for yield results and nutrient content and value to the proposed cows used by HDF. Actual grass is being grown on the farm which is fertilized and irrigated, cut, and sampled for actual production and nutrient content and uptake data.

Dairy Model

HDF has adapted the New Zealand model – pastoral-based rotational grazing dairy – to U.S. standards and best management practices. NRCS provides extensive guidance for agricultural operations to meet stringent standards including those under the Clean Water Act. Nutrient management is a key tenet, and the protection of waterways has been applied to the design of HDF paddocks using fencing to create large setbacks from drainages. Setbacks at HDF are designed 35-feet from each bank – for a total of 70 feet – to exclude cows from waterways. The setbacks are vegetated to create filter strips to effectively trap soil particles and organic debris from entering stormwater runoff. Setbacks and buffers from public drinking water resources are also incorporated into the farm design (EIS Section 3.3.2 *Agricultural Infrastructure* and Appendix D *Nutrient Balance Analysis*).

HDF's Nutrient Balance Analysis is predicated on farm specific inputs and calculated outputs using the Cornell Net Carbohydrate and Protein System (CNCPS) model. While the Standard D384.2 Manure Production and Characteristics (ASABE, 2005) can still be used today to estimate manure production and nutrient excretion, the CNCPS model uses more realistic nutrient inputs. ASABE is a simplified and general standard last updated in 2005. The ASABE calculations were reasonably correct in year 2000 but have not accounted for changes in genetics, management systems, and nutritional advances over the past 16 years. The ASABE equations, unlike the CNCPS system, does not use farm specific animal, environmental, and dietary inputs to determine its manure production and nutrient excretion estimates, and instead uses "book values".

NRCS Conservation Practice Standard Code 590 – Nutrient Management allows for the use of realistic nutrient inputs when planning for nutrient outputs. The manure production and nutrient excretion estimates from the CNCPS model are more accurate and represent farm specific animal inputs, dietary inputs from available grass trials from the HDF site, and incorporate changes in farm management, genetics, and nutritional advances. Therefore the CNCPS model is more accurate than if manure excretion and nutrient output was based upon "book values". Manure production and nutrient excretion estimates from Exponent Table 1 are based upon "book values" of the ASABE Standard, which uses the publication Dairy NRC 1988 for diet formulations and input (NRC is the National Research Council that published a handbook, "The Nutrient Requirements of Dairy Cattle"). The 28 year old Dairy NRC 1988 is the predecessor of the most recent NRC publication, last updated in 2001. Because of obsolescence associated with these NRC predictions, the 2015 CNCPS model was used for HDF calculations.

References to the CNCPS model calculations can also be found in peer review scientific literature, namely, in the Journal of Dairy Science 98:6361–6380 The Cornell Net Carbohydrate and Protein System: Updates to the model and evaluation of version 6.5 M. E. Van Amburgh, et. al. and also in the JDS 95 :2004–2014 Development and evaluation of equations in the Cornell Net Carbohydrate and Protein System to predict nitrogen excretion in lactating dairy cows R. J. Higgs, et. al. and JDS 81: 2029 - 2039 Evaluation and Application of the Cornell Net Carbohydrate and Protein System for Dairy Cows Fed Diets Based on Pasture Kolver, E.S. et al.

Economics

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will negatively impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

EIS Preparers

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the HDF EIS. The EIS was prepared in accordance with the requirements of Chapter 343 Hawaiʻi Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawaiʻi Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawaiʻi Chapter of the American Planning

Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawaiʻi Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Rainfall and Flooding

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhāʻulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

Flies

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawaiʻi for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kauaʻi and those species already in Māhāʻulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Air Quality/Odor

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5

miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: Air Emissions and Odor Evaluation Technical Report (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods, using different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and comparing odor results against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area." The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report and recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent.

Alternatives
The alternatives section follows HRS Chapter 343 requirements, which limiting alternatives to attain objectives of the purpose and need of the action. Hemp does not meet these objectives, so it was not considered as a part of further consideration. Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4. Further discussion of alternatives can be found in EIS Section 6.

Groundwater
Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

While the shallow groundwater in the alluvium is hydrologically separate from the source of drinking water in the deep volcanics, HDF installed four groundwater monitoring wells to allow monitoring of water quality within the shallow groundwater. Existing water quality was sampled to serve as a baseline for the nutrient and chemical constituents of the shallow groundwater within the alluvium. Future water quality samples can then be compared to the data documenting the baseline, or pre-dairy, conditions. Periodic assessments would identify any change to nutrient content that may indicate seepage of nutrients into this shallow waterbody, which could inform nutrient management of HDF and allow for management changes to minimize nutrients not being effectively utilized by the grass crop. Results from the monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community.

Animal Cemetery
HDF has adequately planned its cemetery site and has incorporated Best Management Practices to protect water resources surrounding the HDF site. The animal cemetery is specifically located on the north side of the farm, in an area of relatively flat pasture. Site selection criteria for the cemetery paddock included protection from prevailing winds, and distance more than 100 feet away from any drainageway, 200 feet from any natural watercourse, 300 feet from any well, and more than 20 feet from any buildings. Within the cemetery paddock, pits will be sited based on soil suitability and slope. A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. An area of approximately 5,000 square feet is needed for the animal cemetery at the contemplated herd size of up to 2,000 mature dairy cows, which is a fraction of a 3- to 5-acre paddock. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area. Pits will be lined as needed in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality.

A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. Six (6) pits, approximately 20' x 40' overall and 8 to 10' deep, are designed to accommodate carcasses of up to 150 cows and 360 calves or stillborn animals at the contemplated herd size. Individual pits within the area will be a minimum of 2-feet wide with a length appropriate to bury the carcass. Pits will be lined as required in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality. Each animal carcass will be dusted on all sides with ground limestone. The bottom of each pit will be also dusted. Pits can be reused every 18 to 24 months, which is the typical time for a carcass to decompose.

Pit bottoms will be level, and carcasses will be placed in a single layer and covered with at least 2 feet of organic material. Multiple layers may be created with subsequent burials, or additional area within the cemetery paddock may be used as needed. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area when excavating the pits. The paddock area will not be grazed.

HDF may also consider procuring and installing an incinerator to use for managing mortality on the farm. The incinerator would meet the appropriate guidance from NRCS Conservation Practice Standard – Animal Mortality Code 316 as well as State and EPA emissions regulations, to ensure no adverse air quality impact from the incinerator operations.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

2363 Puu Rd. Apt 1D
Kalaheo, HI 96741
July 20, 2016

State of Hawaii, Dept. of Health, Att: Laura McIntyre, &
Group 70 International, Inc., Att: Jeffrey Overton &
Hawaii Dairy Farms, LLC,

RECEIVED
JUL 25 2016
GROUP 70 INT'L

RE: Comments on the Group 70 Reply To My Letter of 2/12/2016

Dear Sirs/Ma'am,

Thank you for your reply to my letter of February 12, 2016. Although my concerns are manifold, my letter focused on water pollution. Your claims that the proposed dairy farm will not adversely affect ocean water quality or drinking water quality are demonstrably false.

HDF claimed that it's operations would be patterned on the New Zealand dairy farming standards. New Zealand dairy farming has proved to be an environmental disaster. The following is an excerpt from from Environmental Management, Sept. 2015, Vol. 56, Issue 3, pp 709-720. It summarizes my positions regarding the HDF Draft EIS.

"Intensified dairy farming incurs considerable environmental externalities: impacts that are not paid for directly by the dairy farmer. These externalities are left for the wider New Zealand populace to deal with, both economically and environmentally. Significant costs arise from nitrate contamination of drinking water, nutrient pollution of drinking water, nutrient pollution to lakes, soil compaction, and greenhouse gas emissions. At the higher end, the estimated cost of some environmental externalities surpasses the dairy export revenue and almost reaches the combined export revenue and dairy's contribution to Gross Domestic Product. This assessment is in fact extremely conservative as many impacts have not been valued, thus the total negative external impact of intensified dairying is probably grossly underestimated."

These are serious concerns that have not been adequately addressed by your response to my letter. If the history of New Zealand dairy farming is replicated by your proposed dairy farm at Mahaulepu, the results will be massive, devastating, and virtually impossible to remedy. Do you propose any remedies? The only practical remedy is to move the dairy operations to a less environmentally sensitive location, before any environmental and economic damage is done.

In my letter to you of Feb. 12th, I asked if HDF causes water pollution at Mahaulepu, what can be done about about it? You gave no response. Also, I asked if HDF causes water pollution at Mahaulepu, who pays for the cleanup? Again, no response. Will Hawaii Dairy Farm pay for the cleanup or will they indemnify the county for cleanup expenses? Again no response. Is HDF willing to give a bond to the county to cover potential environmental cleanup costs? No response. If or when HDF's experimental dairy fails our environment, do you propose that the citizens of Kauai be burdened with paying for the cleanup of HDF's failed experiment? Again, no response. Will a cleanup of the environment even be possible? These issues should be important parts of the EIS and should not be ignored.

Sincerely,

John T Muller Jr

GROUP 70 INTERNATIONAL

January 3, 2017

John Muller Jr.
2363 Puu Road Apt 1D
Kalaheo, Hawai'i 96741

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear John Muller Jr.:

Thank you for your email received on July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Successful pastoral dairies exist at numerous locations in New Zealand, as well as suitable farming regions in the United States. Several rotational grazing dairy operations located in Florida and Georgia operate successfully, with farms containing over 2,000 animals. Successful rotational grazing dairies also exist in Maryland, North Carolina, and Missouri. Numerous articles and publications on rotational grazing dairies are cited in Progressive Dairyman and other industry news sources.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Section 4 of the EIS provides specific actions proposed to minimize potential impacts in the mitigation measures for each environmental resource category. Sections 4.20 and 4.26 address the potential cumulative effects of the proposed action. The plans for the dairy facilities and operations are subject to numerous County and State regulatory reviews, which include requirements to implement permit conditions to minimize potential impacts. Monitoring requirements will also provide accurate feedback on the effectiveness of measures, which will be refined through ongoing active management.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

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Re: Proposed Hawaii Dairy Farms Project at Maha'ulepu
Comment/Response to Draft EIS (DEIS)

This Comment is filed in response to my review of the Hawaii Dairy Farms DEIS. My area of expertise as a marine biologist is tropical coral reefs, which I have studied professionally for 45 years. My Ph.D. study was of Octocorallia found throughout the Hawaiian Islands, from Hawaii Island to Midway, based on collections at the Smithsonian Institution, the British Natural History Museum, the Zoological Museum of Amsterdam, the Harvard University Museum of Comparative Zoology, and additional corals I personally collected around Oahu and the Big Island of Hawaii. More recently, from 2011 to 2016, I have been diving on coral reefs all around Kaua'i, to study their health and diversity. In 2015 I received a unique permit from the Hawaii State Department of Aquatic Resources, to begin a "Coral Gardening" project in Kapa'a. (A resume of my education and field experience is attached to this comment. My website, at www.ourwaterdrop.org, provides details of my coral project here). I currently reside and work here on Kaua'i, where I conduct research on coral health and stresses to the marine environment, especially from watershed pollution.

I am shocked by the lack of attention paid to the marine life in the nearshore coastal waters at Maha'ulepu, including corals, coralline algae, sea grasses and associated fauna, such as fish, sea cucumbers, lobsters, octopus and turtles. My brief surveys of corals within 90 feet of shore reveal a healthy and diverse coral population near Gillins Beach, including the various colonies of *Porites lutea*, *Porites lobata*, *Porites compressa* and *Pocillopora meandrina* figured here below.

A giant colony of *Porites lutea*, over 12 ft wide, a minute's swim from shore.

A close-up view of the *P. lutea* colony above, featuring healthy coral polyps and numerous sea cucumbers

Outstandingly healthy colonies of *Pocillopora meandrina* (center) and *Porites compressa* (left)

Not only corals such as *Porites lobata* are healthy nearshore at Maha‘ulepu, but also ecologically important sea urchins are present, showing a balanced ecosystem here. (In contrast, Anini Reef is plagued by cyanobacterial disease, and there are no urchins at all at my nascent reef garden project in Kapa‘a , both of which are unhealthy reefs off eastern Kaua‘i).

Healthy coralline algae (pink), Porites lobata (green), and a sand-covered sea cucumber. (right)

The unusual, giant *Porites* colony illustrated above is less than a one-minute swim from shore, at Gillins Beach, near T-2 on the Map showing ocean sampling transects by Marine Research Consultants (Please see their Figure 1, of Appendix F, following page 17). The close-up photograph reveals healthy coral polyps and numerous sea cucumbers. (Hawaii Aquatic Resources officials believe sea cucumbers are facing “imminent peril” from fisheries supplying China‘s appetite for food and medicine and are now protected by a State-wide ban on large-scale commercial harvest signed into law 12/31/2015.) The other coral colonies are slightly further from shore, but within 90 feet of the beach.

Maha‘ulepu‘s beautiful beaches are visited year-round by tourists, locals, and even occasional resting monk seals. Hikers, swimmers, snorkelers, kite-surfing enthusiasts and fishermen frequent the area. Further from shore, whales and dolphins bring sight-seeing tour boats.

Local fishermen enjoy their delicious morning catch from the Maha‘ulepu sea.

ONO!

Tourists on any given day at Maha‘ulepu include families visiting from around the world and Kaua‘i too. These sandcastles are being built between T-2 and T-3 of the DEIS report, and may be impacted by discharge of nutrients, pharmaceuticals and bacteria from runoff during storm events.

Therefore, I am against the proposed Dairy, fearing contamination of our waters, soils (by manure, fertilizer chemicals, antibiotics, hormones, etc.) and air (odors and flies). The nutrient pollution reaching the sea through surface and ground waters will favor harmful algal blooms, which will suffocate the corals. Although the Report mentions a “modest amount of discharge”, only 10 days a year (p. 4-67), hurricanes and storms are ever-more frequent, stronger and unpredictable, worldwide. Runoff from the dairy, during storm flooding and hurricane events will surely contain not just cow feces and urine and commercial fertilizers, but also the bacteria, antibiotics and hormones contained in the cattle excreta. Recent scientific studies show that pharmaceutical pollution (birth-control pills, Prozac, anti-seizure medicines, etc.) are significantly harmful to marine life, disrupting growth and adversely affecting nervous and reproductive systems. Besides sex effects, agricultural runoff is suspected of contributing to fish kills. Yet I found no mention in the DEIS of possible pollution from the certain use of pharmaceuticals at the dairy! As for air pollution, according to page 4-75, Figure 4.19-1, this entire beach area (from Gillins to Pao‘o Point) is certainly within the 0.6 odor detection limits for the 699 herd size.

Unfortunately, corals are increasingly dying worldwide not just from pollution from land, but by overfishing, global warming, growing acidification of the seas, destructive mining and shipping, and increasing militarization of islands and coastlines. Those problems are beyond my control, but certainly helping to stop this Dairy is within my purview. In summary of this Comment, corals and people need clean, clear water! Stop the Dairy!

GROUP 70 INTERNATIONAL

January 3, 2017

Katherine Muzik, Ph.D.
4896 Nunu Road
Kapa'a, Hawai'i 96746
kmuzik@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Dr. Katherine Muzik:

Thank you for your email of July 18, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

State of Hawaii, Department of Health July 24, 2016

Environmental Planning Office.

Attention: Laura McIntyre

919 Ala Moana Blvd., Room 312

Honolulu, HI 96814

Group 70 International

Attn: Jeff Overton, HDF Project

925 Bethel St., 5th Floor

Honolulu, HI 96813

SUBJECT: Comments on Hawaii Dairy Farms' Draft EIS from Mary Neudorffer

Aloha Laura McIntyre and Jeff Overton,

I am consultant party for the draft EIS.

I have been living in Po'ipu, Koloa, for more than 14 years. I love to visit Maha'ulepu to hike, swim, spend the day, and generally enjoy the beauty, the fresh air and the peacefulness of this open, undeveloped area. And I love living in Po'ipu free of cattle noise, smells and pests.

After reviewing your draft EIS, I am even more concerned about the impacts of the proposed dairy on Maha'ulepu, Po'ipu, Koloa and the other south shore areas. Your proposed dairy has so much potential to adversely impact our south shore communities, our health, our ecosystem, our economy, and our enjoyment of such a special place as Maha'ulepu.

Numbers on paper are not the same as a reality you have to live with day to day.
If you lived here, you would not put your dairy a mile or two upwind of your home or business, nor would you put it half a mile from your favorite peaceful quiet beaches (Maha'ulepu Beach and Kawailoa Bay). You would not do this dairy in this location if you lived here.

Specific points that are inadequately addressed or ignored in the draft EIS are as follows:

1. The Final EIS needs to set forth environmental impact monitoring with criteria for actions to be taken when certain criteria are exceeded, including reduction of herd size below the 849 size (699 cows + 150 calves) presently planned and including criteria that would cause closure of the dairy. Actions should include requirements for 1) impact mitigation; 2) alternative operational planning, including when to cease operations; and 3) restoration of the areas impacted. The EIS needs to identify which environmental monitoring methods will be used for odor, noise, pests, and fresh and ocean water; establish criteria for each, and identify actions proposed that would be binding. The draft did not state how they would be enforced and how any changes to monitoring, or enforcement would be vetted with concerned parties.

2. The Final EIS needs to show how the public will be kept informed of environmental impact monitoring results and actions; and how related issues will be vetted with concerned parties should they occur.

3. The Final EIS needs to identify what environmental and economic remediation bonds will be procured and what will be covered. The Final EIS needs to identify what bonds would be posted to ensure impacts can be remediated, INCLUDING the case where bankruptcy is declared. The Final EIS needs to address HOW and WHEN the Maha'ulepu area will be restored when dairy operations cease for any reason.

4. The Final EIS needs to include the Maha'ulepu beaches and coastal trails in each of its evaluations of impacts with monitoring and mitigation actions identified for odor, noise and pests impacts and for water changes. Specifically the Final EIS needs to spell out what happens when a peaceful day at Maha'ulepu is disturbed by dairy odors, noise and flies, or the water is not fit for swimming. These areas are only half a mile away.

5. The Final EIS needs to address environmental and usage impacts using realistic range of scenarios for at least a hundred (100) year worst case. The 25 year event base used is not adequate, especially given the worsening weather and storm conditions we and the world are experiencing due to climate change. It is realistic to expect during the life of the dairy that there will be one or more hurricanes like Iniki; sporadic very heavy rains like the 42 days of constant rain a few years ago, where the ground was thoroughly saturated; heavy winds; and increasingly frequent temperature highs like the record highs we are now getting.

NOTE: the DRAFT EIS CLAIMS INIKI CAME CLOSE TO KAUAI BUT IN FACT THE EYE OF THIS CATEGORY FIVE STORM WENT STRAIGHT OVER KAUAI. And Dot and Iwa did more than just "pass near" Kauai. These need to be corrected in the Final EIS.

6. The Final EIS needs to assess the impact of normal strong trade winds, like 20-30 mph, and of sporadic high winds when assessing impacts for odors, noise, pests and

dust around Maha'ulepu and toward Koloa/Po'ipu. Using average wind speeds for assessing impacts for odors, noise, pests and dust is NOT adequate! It will not identify what happens much of the time here on the south shore. The Final EIS needs to evaluate winds at least at 20 mph and at 30 mph to determine the impacts of odor, noise and pests and dust on the MAHA'ULEPU BEACHES and trails and on Po'ipu and other south shore areas. AN average speed of 10 mph will not identify the problems we will face with 2500 head or even the smaller 849 cows and calves at the dairy. WE really do GET 20-30 mph winds here! And not just once in a blue moon.

7. The Final EIS needs to consider the impact of a 20 foot tsunami with a predicted run up of 80 foot elevation (as used by Kauai civil defense) and look at pollution caused by such flooding. While the dairy is outside the tsunami evacuation zone, it is not outside the tsunami impact area. Possible impacts of at least a 20 foot tsunami need to be included in the Final EIS.

Didn't the Cave Reserve archeological data indicated a tsunami closer to 100 feet high occurred in the past at Maha'ulepu?

8. The Final EIS needs to address the impact of moving cows and calves, milk, feed and equipment, to and from the dairy to and from other areas on the island, not just on traffic numbers as is done in the draft EIS with vehicle numbers, but must take into account the extra weight of most of the vehicles and their impacts on the roads and especially on pothole creation which would be exacerbated by the trucks. This need to be incorporated into county models and repair cycles which are already way underfunded. Also the Final EIS MUST address using the tunnel, even if they have to improve that road as an alternative to going thru Koloa.

9. The Final EIS needs to be clearer about grass fed vs grain fed criteria than the draft EIS is. At what point will this no longer be a grass fed dairy, but be grain fed (feedlot). Below 70%? Around 50%? How will this be handled if it drops below the numbers predicted in the draft EIS? Will the dairy be closed at 50%, or will the herd size be reduced to keep it above the 790-80% predicted by the draft?

10. The Final EIS needs to be clear as to the maximum number of cattle that will be allowed to be buried at the site. If there is a disaster or epidemic and dozens of head die or have to be euthanized, at what point will they be carried elsewhere to be buried? Will this be limited to 2 a year for 20 years? Or 100? Or?

11. The Final EIS needs to identify many more other locations that would be better suited to this sort of dairy, especially locations away from resident populations and visitor destinations and including those on other, larger islands. Placing a dairy as close as this anywhere near homes, businesses and recreation areas is not acceptable, just like here on the south shore. (If you tried to do this this near to Lihue, Kapa'a, or Princeville like you are trying to do here, can you imagine what screams you would hear?)

12. The Final EIS needs to seriously consider moving the dairy off Kauai. NOTE: Kauai may be just too small for any suitable dairy location for this size of an operation.

13. The Final EIS needs to identify alternatives uses for this land: especially taro and breadfruit and small grazing operations.

14. The Final EIS needs to identify types and quantities of pesticides for parasite prevention that will be used, as well as drugs, hormones and antibiotics, that could be used. The draft did not address these. And then the final EIS needs to evaluate their impacts, especially on water purity levels for drinking water (hormones, drugs, antibiotics that will be excreted into the water, and parasite pesticides washed off.) this should be done for both size herds (849 & 2500 cows and calves.)

15. The Final EIS needs to consider the impact of the color of the outside lighting at night on endangered birds. PMRF has information on how some colors are more disruptive to bird flight than other colors.

16. The Final EIS needs to specify that a neutral party will do the environmental monitoring.

17. The Final EIS needs to include a commitment tracking local and visitor complaints as a way of assessing the impact of dairy dust, odors, noise and pests. This should augment whatever instrumental and laboratory measurements will be made. Establishing a hot line and website for complaints and following places like Trip Advisor are ways to do this using social technology available and established.

18. The Final EIS needs to correct section 4.21.2 paragraph four. This is grossly misleading. The data is not for luxury homes a mile or two downwind from 849 to 2500 cows and calves. Nor such homes with a favorite beach half a mile from such a dairy. Beef cattle operations are not clearly compatible with what we have here. The comparison is not anywhere near adequate. The Final EIS needs to delete this section or give addresses of the homes and comparable dairy locations next to them!!!

19. The Final EIS needs to expand on the last paragraph of section 4.20.3 which refers to using the land for other purposes as a part of an expanded alternatives section.

Mahalo for addressing these concerns.

Mary Neudorffer
1870 Ho'one Rd #821
Koloa, HI, 96756
emeleanae@gmail.com

GROUP 70 INTERNATIONAL

January 3, 2017

Mary Neudorffer
1870 Ho'one Road #821
Kōloa, HI 96756

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Mary Neudorffer:

Thank you for your letter dated July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

EIS Preparation

While an agricultural project on agricultural lands implemented and operated with private funds does not require environmental disclosure, HDF responded to community concerns by agreeing to prepare an EIS. The EIS is a disclosure document that analyzes the effects of a proposed project or program on the environment including direct, indirect and cumulative impacts, discusses alternative methods or designs to the proposed action, and formulates minimization and mitigation measures to eliminate, reduce, or rectify adverse impacts of the proposed action. This EIS was prepared in accordance with Hawai'i Administrative Rules Title 11 Chapter 200, implementing Hawai'i Revised Statutes (HRS) Chapter 343.

Odor

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Hurricane Preparedness

Historical hurricane paths over the central Pacific show a typical pattern passing to the south of the Hawaiian Islands, with a maximum hurricane occurrence during the late summer when the ocean surface is warmest. Storms that approach the Hawaiian Islands from the east have historically weakened east of Hawai'i under the combined influence of unfavorable westerly wind conditions, resulting in large wind shear and cooler sea-surface temperatures. However, natural variability in ocean circulation and atmosphere has allowed potentially destructive storms to reach Hawai'i from the east. Hurricanes Dot (1959), Iwa (1982), and Iniki (1992) all approached from the south, and the hurricane force winds of all three hurricanes caused extensive damage to Kaua'i. This unusual track requires a breakdown of the semi-permanent ridge of high pressure to the north of the islands, which occurs when a trough of low pressure approaches the island chain from the northwest. Such troughs are generally confined to higher latitudes, except in winter. Although they occur infrequently, Kaua'i has received a greater amount of damage from hurricanes when compared to the other Hawaiian Islands.

An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

Air Quality/Odor

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods:

1. Exponent used different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and
2. Odor results were compared against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area."

Exponent concurred with the emission methods and results presented by Arcadis that quantify odor from the effluent ponds and the dairy facility buildings. The air emission components of the Arcadis May 2016 report were not commented on by Exponent.

The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report. To consider the two alternate methods used by Exponent, Arcadis verified operational procedures with HDF: 1) Slurry application will not coincide with effluent application, and 2) slurry will not be applied during days with average wind speeds less than approximately 9 miles per hour (mph) (4 meters per second - m/s) or with winds greater than 20 mpg (8.9 m/s). Additionally, HDF confirmed that the dilution of irrigation water with effluent will change based on field conditions. For these reasons, Arcadis recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent. The findings of the revised odor technical report are summarized below.

On the second point, Arcadis responded that an evaluation by Mahin (2001) show off-site standard or guidelines in the U.S. to be between 2 and 50 OU/m^3 with the majority of values between 5 and 7 OU/m^3. Low OU/m^3 values are often difficult to observe. For instance, California's South Coast Air Quality Management District states that at 5 D/T (OU/m^3) people become consciously aware of the presence of an odor and that at 5 to 10 D/T odors are strong enough to evoke registered complaints. Given the conservative nature of the air dispersion modeling, a threshold of 6.5 OU/m^3 continues to be appropriate.

For the reasons above, the revised odor report modelled irrigation effluent at two dilutions in no-wind conditions (considered "worst case"), and slurry effluent with wind speeds between 9 and 20 mph, and again used the threshold of the 6.5 OU/m3 annual extent odor level. Modeling was done for both the herd size of 699 mature dairy cows (Section 4.19.2) and for the contemplated herd size of up to 2,000 dairy cows (Section 4.25.2). The colored areas in the figures depict the 99.5th percentile threshold of 6.5 OU/m3. Within the detection area odors may be detectable by 50 percent of the sensitive population once per 200 hours, or 44 hours per year.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows For the typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year. It should be noted that the parameters used in the odor assessment were intentionally very conservative and the impacts shown depend on an unlikely confluence of worst-case meteorological data, irrigation location, and grazing location; thus, actual offsite odor impacts are likely to be much lower and/or less frequent than displayed. All potential odor would remain on surrounding agricultural lands.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, the nearest recreational area, Po'ipū Bay Golf Course, lies another 0.3 miles beyond the odor extent for the typical effluent application (EIS Figure 4.25-1). During unusually wet periods, odor could extend approximately 4,085 feet (approximately three-quarters of a mile) beyond the southern boundary for the contemplated herd size. With application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile), which would not reach recreational or residential areas (Figure 4.25-1). As explained in Section 4.19.2, the parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown (Arcadis, 2016).

The full Exponent report *Odor Impact Assessment Hawaii Dairy Farms* (2016) is in the Final EIS, Volume 5, Appendix B. The complete response by Arcadis is contained in the Final EIS Volume 5, Appendix B-B. The revised odor report by Arcadis is also attached to their initial air quality and odor report in the Final EIS Volume 2, Appendix I as Attachment 1.

Animal Cemetery

HDF has adequately planned its cemetery site and has incorporated Best Management Practices to protect water resources surrounding the HDF site. The animal cemetery is specifically located on the north side of the farm, in an area of relatively flat pasture. Site selection criteria for the cemetery paddock included protection from prevailing winds, and distance more than 100 feet away from any drainageway, 200 feet from any natural watercourse, 300 feet from any well, and more than 20 feet from any buildings. Within the cemetery paddock, pits will be sited based on soil suitability and slope. A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. An area of approximately 5,000 square feet is needed for the animal cemetery at the contemplated herd size of up to 2,000 mature dairy cows, which is a fraction of a 3- to 5-acre paddock. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area. Pits will be lined as needed in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality.

A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. Six (6) pits, approximately 20' x 40' overall and 8 to 10' deep, are designed to accommodate carcasses of up to 150 cows and 360 calves or stillborn animals at the contemplated herd size. Individual pits within the area will be a minimum of 2-feet wide with a length appropriate to bury the carcass. Pits will be lined as required in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality. Each animal carcass will be dusted on all sides with ground limestone. The bottom of each pit will be also dusted. Pits can be reused every 18 to 24 months, which is the typical time for a carcass to decompose.

Pit bottoms will be level, and carcasses will be placed in a single layer and covered with at least 2 feet of organic material. Multiple layers may be created with subsequent burials, or additional area within the cemetery paddock may be used as needed. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area when excavating the pits. The paddock area will not be grazed.

HDF may also consider procuring and installing an incinerator to use for managing mortality on the farm. The incinerator would meet the appropriate guidance from NRCS Conservation Practice Standard – Animal Mortality Code 316 as well as State and EPA emissions regulations, to ensure no adverse air quality impact from the incinerator operations.

Natural Hazards - Flood Hazard and Tsunami Inundation

EIS Section 4.6 addresses the subject of flood hazard and tsunami inundation potential. Natural hazards affecting Hawai'i include flooding, tsunamis, earthquakes, and hurricanes. According to the 2002 USGS Atlas of Natural Hazards in the Hawaiian Coastal Zone, the Po'ipū coast has an Overall Hazard Assessment that ranges between low (3) to moderate (5). EIS Figure 4.6-1 depicts the hazard ratings for the various natural hazards that could affect the Po'ipū coastal area.

The Māhā'ulepū area is located within Federal Emergency Management Agency (FEMA) Zone X, based on FEMA Flood Insurance Rate Map (FIRM), which includes areas outside the 0.2% annual chance floodplain (EIS Figure 4.6-2). With the discontinuation of sugarcane cultivation in 1996, culverts and ditches in the valley became impacted with sediments and vegetation. During periods of high rainfall, reduced capacity caused Waiopili Ditch to be overwhelmed and stormwater was reported flowing across Māhā'ulepū Road. Mahaulepu Farm has worked, to remove sediments and restore capacity to the ditches. Calculations of rainfall runoff show sufficient drainage capacity in the ditches when maintained with minimal sediment build-up.

The proposed location for HDF lies between the 60 and 150 feet elevation, outside the tsunami evacuation zone (EIS Figure 4.6-2). There is no threat of tsunami inundation at the project site. Agencies responsible for defining and verifying this potential have not disputed the tsunami information reported in the EIS.

Roadways and Traffic

The EIS Sections 4.18 and 4.24 include an evaluation of the existing and future traffic conditions. There are no plans for the dairy-related trucks to make use of the existing cane haul road and tunnel. There will be no significant change to traffic patterns or infrastructure related to the public roads. Construction equipment mobilization will comply with Hawai'i Department of Transportation and County requirements. Delivery trucks and milk tanker trucks will be in compliance with State and County size and weight limits; no oversized vehicles will be used for ongoing operations. The potential traffic impact based on the contemplated herd size is discussed in EIS Section 4.24.

Nutrient Balance Analysis and Herd Size

The herd size for HDF is consistently represented as the potential maximum number of cows guided by the results of the nutrient analysis which reflects the carrying capacity of the land (EISPN Section 2.3 *Proposed Action*; EIS Section 1.2 *Proposed Project*). The distinction between the herd sizes and permit differences is explained in the EIS Section 2.4 *Planned Dairy Development on Māhā'ulepū Agricultural Lands*. During the public scoping meeting, participants expressed an interest to understand impacts of the committed herd size (up to 699 mature dairy cows). HDF agreed to analyze and present impacts at both the committed and contemplated (up to 2,000 mature dairy cows) herd size. Therefore, the probable impacts of the potential contemplated herd size are also analyzed and clearly identified in the Draft and Final EIS.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawai'i. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land. With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future.

For dairy operations with 700 or more mature dairy cows, regardless if the operation is feedlot or pasture-based, additional regulatory review and permitting by the State Department of Health would be required. The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to submit an application to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive mature dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

Reference is made to the Nutrient Balance Analysis in EIS Appendix D and related technical memoranda which address the pasture-based dairy system, including herd size, pasture grass and supplemental feed. Soils and pasture grasses at the HDF site have been analyzed as part of the agronomic plans for the dairy. HDF will not apply nutrients past the plant uptake requirements and agronomic need. In both the 699 mature dairy cow and 2,000 mature dairy cow scenarios, at a grass yield of 16.3 tons of DM per acre per year, there is simply not enough nitrogen nutrient from manure sources (as-excreted, liquid effluent, slurry applied) and a slight excess of phosphorus only in the 2,000 mature dairy cow scenario. HDF will not apply excess phosphorus because the herd size would be increased incrementally, to ensure no over-application of nutrients. Ultimately, commercial fertilizers will still be required. Nutrients are broken down quickly and absorbed by the crop. Cows are rotated so over-application of nutrients does not occur.

Alternatives

The Hawai'i Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on O'ahu; two on Hawai'i Island; and two on Kaua'i. Kaua'i was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kaua'i in the Māhā'ulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January 2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

Antibiotics and Hormones

All vaccines, antibiotics, ionophores and hormone therapy will be prescribed via a veterinarian – client – patient – relationship (VCPR). The Animal Medicinal Drug Use Clarification Act (AMDUCA) provides veterinarians acting within the VCPR to provide options so that cows and calves can receive the medications and hormones they need when they need them. Animal History, disease incidence, disease risk, local prevalence, product cost, Federal Drug Administration (FDA) approval and route of administration all will be part of HDF-specific veterinary protocols to ensure best animal welfare with the least amount of pharmaceuticals. All vaccination and treatment protocols will follow FDA and AMDCU guidelines.

Unlike traditional confined dairy operations, HDF cows will be on pasture up to 22 hours a day, which enhances overall health of the animals and further reduces risk of illness and the need for antibiotics. There will be no use of sub-therapeutic, preventative, or growth promoting use of antibiotics, ionophores or hormones (such as rBST). Antibiotics will only be used to treat individual animals with life threatening situations and only after prescribed by veterinarians following all guidelines of AMDUCA. Furthermore, HDF will follow the best animal welfare protocols, including vaccination protocols for all age classes to further prevent bacterial infection and to minimize the use of antibiotics on HDF. Antibiotics are costly, lead to wasted milk and mean a cow is unhealthy, which is not beneficial to the animals or operations. HDF will limit the use of antibiotics as much as possible.

HDF will follow all regulatory guidelines when handling and discarding milk, urine and manure that may contain trace residue from treated animals. HDF estimates less than 5 percent of the herd may be treated for at most 10 days out of the year.

BMPs to be implemented, including the 35 foot setbacks from drainage ways, will additionally reduce the risk of any waste runoff that may include possible product residues. Further, within the paddocks, populations of microorganisms stimulated by additions of effluent are superactive and very effective in inactivating pharmaceuticals and additives due to the reduced half-life resulting from enhanced immobilization and degradation by the microbiological community.

Fauna, Lights and Chemical Uses

Per the advisement of the U.S. Fish and Wildlife Service and the State Division of Forestry and Wildlife, HDF will follow best practices and operational procedures to protect any protected animal species. While there are almost no suitable roost trees within the dairy site, HDF will not disturb, remove or trim woody plants greater than 15 feet tall during the Hawaiian hoary bat pupping season. No affect to bats is expected from activities and operations of the dairy farm. All outdoor lights installed as part of the project will be shielded to reduce the potential for interactions of nocturnally flying seabirds with external lights and man-made structures. A predator control program will be implemented and maintained to reduce threats to waterbirds or nēnē transiting through or possibly nesting. An Endangered Species Protection Plan will be completed in consultation with USFWS and DOFAW prior to dairy construction and operations, to ensure that dairy operations would not result in deleterious impacts to protected wildlife.

HDF shares the concern of herbicide and pesticide impacts on the HDF site and surrounding environment. Insecticides and herbicides are non-discriminatory and kill beneficial as well as pest insects. Such control would only be used when needed by those qualified to apply chemicals, and in accordance with authorized procedures and regulatory labeling requirements. Safe application practices for any unavoidable herbicide or pesticide include specifically targeting the problem pest species. Integrated pest management (IPM) will be the preferred means to control pests; this method disrupts the reproduction potential of pests by appropriate means at key points in the life cycle.

Economics

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Letter of Support for the Hawaii Dairy Farms Project

July 18, 2016

To Whom It May Concern:

I am writing to express my support of Hawaii Dairy Farms draft Environmental Impact Statement (DEIS). I was born and raised in North Dakota on a family farm and have since lived on Kauai for the last 36 years involved in the agriculture field my whole life.

I commend Hawaii Dairy Farms for their interaction with the local community and willingness to conduct an EIS, even when it was not required, to make certain that the dairy is a safe and compatible use of the land.

I have visited the project site and feel they have a well thought out plan for the dairy operation.

The findings of the DEIS indicate:

- Water resources will be protected
- Soil quality will be improved
- Odor from the farm will not affect visitors or residents
- Flies will be minimized
- Cows will be treated with a high standard of care
- Home values will not be negatively impacted
- Archaeological and cultural resources will not be affected

I am reassured by these results, and welcome Hawaii Dairy Farms into our community to diversify our island's agricultural industry, produce local food, and feed Hawaii's families.

Mahalo,

Jerry Nishek
P. O. Box 1040
Hanapepe, HI. 96716

GROUP 70 INTERNATIONAL

January 3, 2017

Jerry Nishek
P.O. Box 1040
Hanapepe, HI 96716
jerry@kauainursery.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Jerry Nishek:

Thank you for your email of July 18, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Hawaii Dairy Farms DRAFT Environmental Impact Statement

Randall Nishimura <r.t.nishimura@gmail.com>

Thu 7/7/2016 1:02 PM

To:HDF <hdf@group70int.com>;

Aloha,

I am writing to support Hawaii Dairy Farms' draft Environmental Impact Statement (DEIS).

The voluntary EIS process shows that Hawaii Dairy Farms is willing to engage with the local community, listen to concerns, and go above and beyond the minimum requirements to study the environmental impacts of the proposed dairy. The DEIS has found that Hawaii Dairy Farms will improve the soil on the farm land, protect water resources, treat cows with the highest quality of care, create jobs, and revitalize the dairy industry. In addition, the DEIS states that Hawaii Dairy Farms will not negatively impact home values and resort areas, and will not affect archaeological and cultural resources.

As a full-time Kauai resident born and raised on Kauai, I appreciate the importance of having food security, on-island food resources, and a thriving agricultural sector. Hawaii Dairy Farms is taking a big step toward increasing local food production and increasing Kauai's sustainability for local families. I look forward to having a dairy on island, much as we have had in the past.

As a past Water Board Member, I was encouraged to learn that the ground water impacts from the Dairy are secondary to the existing impacts from the surrounding Residential, commercial and resort activities in the area. Like many opposed to the dairy, this was a primary concern for me in considering support of the project. Further, the remedial proposed measures appear to address/mitigate other waste impacts that I had concerns about.

I urge the State of Hawaii Department of Health to accept Hawaii Dairy Farms' EIS.

Mahalo,
Randall Nishimura
3520 Kahumoku Road
Lihue, Hawaii 96766
808-245-7453
808-639-0101

GROUP 70
INTERNATIONAL

January 3, 2017

Randall Nishimura
r.t.nishimura@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Randall Nishimura:

Thank you for your email of July 7, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Corrected Comments in Response to Hawaii Dairy Farms DEIS

L Osterer <losterer@hotmail.com>

Mon 7/25/2016 7:23 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>;

Cc:L Osterer <losterer@hotmail.com>; Bridget Hammerquist <bridgethammerquist@hawaiiantel.net>;

by email July 25, 2016, with minor corrections, replacing earlier letter

Attn: Laura McIntyre
State of Hawai'i, Department of Health
1250 Punchbowl Street,
Honolulu, HI 96813
Phone: (808) 586-4337
Email: doh.epo@doh.hawaii.gov

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Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813
Phone: (808) 523-5866
Email: HDF@Group70int.com

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-
Hawai'i Dairy Farms, LLC.
P.O. Box 1690
Kōloa, HI 96756-1690
Email: jim@hawaiidairyfarms.com

Comments to be considered for Hawaii Dairy Farms EIS, TMK 4-2-9-003-001 and 006, 4-2-9-001-001

General Deficiencies: After more than a year in preparation, the draft EIS is woefully deficient. I am disappointed that your responses to public comments were the same answers to all persons, that is duplicated paragraphs according to subject, with no individual answers. Referring to my letter of February 23, 2015, there was no explanation of why the EIS could not be prepared by an impartial agency instead of the prejudice of HDF's architectural design company. You did not answer the questionable rights to 3 million gallons a day from Waita Reservoir water, which is evidently now under lawsuit, or the question of violations of the Clean Water Act, when pollution extends beyond the farm into state waters. In over a year, you claim there are no flow studies of the planned ditches, which were already dredged by HDF and which drain into the ocean. In your consideration of alternative sites, you did not consider the selection of a site on the Big Island, where dairy operations not only exist, but where the milk is also processed by Meadow Gold. Evidently this site was of such interest for Omidyar to offer a purchase of the dairy, which was retracted when a 4 million dollar clean-up was indicated. Whether this same dairy could be expanded with a larger herd, or another site in the interior grasslands of the Big Island as an alternative site, it would not interfere with tourism, beaches and recreation as on Kauai's south shore. Instead, the DEIS selection of an alternate site at Kipu was compared, when already known to be unavailable.

Application of Land Restrictions and Herd Size The herd size of 699 is such a blatant misuse of avoiding controls and restrictions that any permit should be denied until the CAFO requirements are met. It is only a matter of days into operation when the first calf is born and increases the animals onsite. DEIS p. 4-85 describes trucking animals between the site and nearby ranches one to two times daily. The dairy is surrounded by private land and herd size is hard to monitor under these conditions. The continual reference to the expanded herd size of 2000 clearly states the intended use. I believe a dairy farm or numerous livestock should not qualify for Important Agricultural Land, "sensitive land" which is intended for use by small diversified crop farms. An investigation should be launched to qualify Commercial Dairy use of IAL and the same leaser allegedly contracting 10 years of septic dumping on IAL This dairy site is only an average of 1/4 to 1/2 mile up-slope above designated Special Management Area and the ocean. Degradation of this SMA from the dairy should preclude this site.

Pollution: Evidently the waste management plan continues to be updated with at least 24 changes and has not been incorporated into the DEIS for public comment. This plan is an essential part of an EIS. Comments from Mark Madison/CH2M Hill dated August 21, 2014 describe the waste management plan's inaccuracies and inadequacy. Any updates or reports from Mark Madison should also be incorporated into the EIS. Detailed studies are needed, not dependent on yearly averages rainfall, etc. but actual scenarios of worst case rain storms, flood potential, and runoff with the predominant clay soil, considering an aquifer system connecting with ground water, swamp area management, and the water table only 2 to 3 feet below ground in some places. I am most concerned with bacteria contamination from runoff, but also with the immense use of well water lowering the water table and allowing salt water intrusion. These and nitrate/phosphorus intrusion would affect the public water supply from nearby wells and will continue to worsen for the predictable future warmer weather and droughts. DEIS p.4-66 admits additional supplementation of nitrogen and phosphorus besides that provided by manure will add to the unavoidable runoff. DEIS p. 4-87. It also indicates that the regional water demand for projected population growth will create a shortage of well water and that water resources must therefore be carefully managed." DEIS p. 4-82. The Dairy will draw from 30,000 gallons per day from Farm well 14, DEIS p.6-22, to 86,000 gallons a day for the expanded herd. The county wells C,D and F are all shallower than the Dairy Farm well 14 (table 4.16.1 DEIS p. 4-54) and would run out first. It's not a matter of digging new wells. The water will not be there, as the water table lowers and cannot be replenished with polluted groundwater.

The enterococus bacteria pollution has been admitted and identified from animal and human sources, but in over a year, the DEIS failed to identify the cause. Other areas of Kauai with similar composition do not exhibit these extremely high counts. It is plainly illegal to allow particulates and bacteria beyond the property boundaries, and yet HDF has constructed the drainage ditches for just that, to flow into conservation zone and the ocean. Can HDF be trusted to monitor and protect this area when they first denied the problem and then refused access for testing? Now admitted and test results verified by DOH, (DEIS 4-62), the high bacteria counts have not been mitigated, so how would pollution from an entire dairy farm operation be mitigated? The waste management plan did not even include manure digesters or other technological advances for minimizing pollution. No matter what the estimated days to break down manure, there will be fresh manure deposited each day when cows are on the paddock and spray effluent on other days. Do the estimates for storage ponds include the gallons of heavy rain in addition to effluent? Guaranteed the liners will leak as they wear out. Guaranteed the ponds will overflow sometime. Guaranteed the effluent sprayers will sometimes jam, create over-spray and spillage. Please do a reality check. No commercial operation should be allowed without proof of control of bacteria, and while the current pollution is not under control.

Other Environmental objections Episodic heavy driving rains are common to Kauai; trade winds are strong. It doesn't matter what the averages are if you are downwind or downstream on those days. The DEIS reports that other properties add to the nitrate/phosphate imbalance in the area, already measured as twice the state standards. Does that justify HDF adding more to it? No, it has to be brought down to state standards first. The same is true of adding more cattle to a resort area, where formerly removed because of growing pollution and nuisance. The DEIS refers to adding relatively little more wastewater than already used in the area, but waste water plants process it to a safe level first, and are regulated to monitor it daily. In contrast, the cow manure left on the land and effluent disbursed is not at safe levels.

When referring to nuisances - odor, and pests, page 4-53 of the DEIS blatantly denies any affect to the nearby tourist areas: "No noticeable odors, flies, noise, waste or water discharge will impact resort or residential areas. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area." Even someone trying to support this operation could not be so gullible to believe statistical reports compared to common experience of the smell, flies and pollution problems of dairies all over the world, that are currently facing millions or billions for remediation. Where would those funds come from if remediation is needed, the county, the state? Our year round warm temperatures, prevailing strong winds and strong ocean currents would exacerbate these affects. When it's too late, the damage is done, fines may be applied, and the operation even closed, it could take decades to recover. A Dairy of questionable economic success (the last one failed on Kauai), should not outweigh the certain detriment to Kauai's tourist industry. Poo to the DEIS denial of economic effect. Realize this is 5 times as much unprocessed poop in one place as the entire human population of Kauai produces. Picture that poop left out on the ground day after day, with only natural elements to decompose and disseminate it. Do you think it would be "unnoticeable"?

Economics and Alternatives The economic studies of the DEIS should include reports of hotel reservation cancellations due to the news of the pending dairy and planned hotel sales if HDF comes to Mahaulepu. Again the DEIS did not provide an unbiased fair reporting of property devaluation. Any time an industrial operation is added to a tourist recreational vacation destination, it would have potentially disastrous consequences. This is an industrial operation, not just a farm, and it doesn't belong in IAL (important Agricultural Land) which is intended for diversified farming. It interferes with Poipu as a major resort destination. The other alternatives of agricultural park and agricultural subdivision may be more compatible, but should be carefully evaluated in light of Omidyar's attempted subdivisions in other sensitive areas of Kauai.

In addressing other alternatives, the response seems very biased against them. By defining the goal of the project specifically to produce more milk, the DEIS eliminated alternatives that could very well fit the Ulupono initiatives. An Agricultural Park supported by a non-profit could very well succeed and should be considered. Another omission in comparing potentially harmful impacts of alternatives, is the consequences of introducing a non-native invasive weed as the pasture grass on over 547 acres. Does this remind anyone of the introduction of Buffalo grass and the extensive measures needed for control, including poisoning our land with toxic Rouondup, still failing to control it?

Wrong Assumptions HDF's assertion that Mahaulepu is a well suited site is contradicted by the NRCS Custom Soil Resource Report, which concludes that most of soil at this site is "very limited" to absorb animal waste and high to very high risk for runoff due to the clay composition. On DEIS p. 4-88, it is speculated that the dairy will be perceived as similar to ranching with "rural ambiance". The EIS should survey former Moloaa Dairy neighborhoods and Poipu neighborhoods including hotels and rental businesses for an accurate assessment of whether or not a dairy in their area is desirable.

Other discrepancies in the DEIS from reported data are documented in Eileen Kechloian's letter dated July 25,2016 and "Friends of Maha'ulepu Fact Sheet" at http://friendsofmahaulepu.org/hawaii-dairy-farms-critical-facts/ DOH did independent testing which substantiated the Surfrider results for water pollution. The regulatory process following those tests should be documented. The DEIS is surely incomplete in the economic evaluation. DEIS appendix III p.8-9 states: "The Dairy must be compatible with and not cause adverse impacts on regional resorts, commercial areas, homes, recreational activities, etc. ... which could result in reduced tourism, sales, employment, salaries and wages, property values, personal wealth, State and County tax revenues, enjoyment of homes and recreational activities, etc." then admits studies show significantly lower home values can extend beyond 3 miles from CAFOs. The EIS should incorporate John Kilpatrick's economic analysis of July 25, 2016, which contradicts the DEIS statement of insignificant economical impacts. The EIS should also respond to all data submitted and provide transparency to the public and government agencies about the approval or disapproval of other agencies.

In contradiction to the DEIS, Mark Madison's report, Aug 21, 2014, p. 3 states "A waste management program on this site will likely result in contamination of groundwater that is extracted by community wells within the aquifer recharged by the farm. Surface runoff from this site will contain manure contaminants that will be conveyed to streams, wetlands, and coastal waters." Effluent application will not be practical in wet months such as November to December and storage pond capacity is not estimated for 2 month holding periods. "The excess manure and nutrients will be readily available to runoff with irrigation and rainfall and percolate into the groundwater." Ibid, p.5

Personal Experiences The DEIS claims that odors and particulates, effluent spray will not reach the residential areas. However at my house, about 2 miles downwind, we did experience the noxious effects of GMO spraying from the very same area adjacent to the dairy. The DEIS implication that there is no recreational use of the Mahaulepu shoreline near the Waiopili ditch outflow is untenable. It is in regular use by hikers, swimmers, windsurfers, and the endangered monk seals. I stopped going there when the stream pollution looked dangerous, and I miss going to this formerly pristine area. I have no doubt that the strong westerly current will spread dairy runoff pollution all along the rest of the popular Poipu Hotel and park beaches. Show me any dairy near any shore that has not produced pollution of the surrounding waters, terrible smell and flies!

Respectfully,
Lorraine Osterer
1640 Makanui Road, Unit 2,
Koloa, Hi 96756

GROUP 70 INTERNATIONAL

January 3, 2017

Lorraine Osterer
1640 Makanui Road, Unit 2
Kōloa, Hawai'i 96756

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Lorraine Osterer:

Thank you for your email received on July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

EIS Preparation
While an agricultural project on agricultural lands implemented and operated with private funds does not require environmental disclosure, HDF responded to community concerns by agreeing to prepare an EIS. The EIS is a disclosure document that analyzes the effects of a proposed project or program on the environment including direct, indirect and cumulative impacts, discusses alternative methods or designs to the proposed action, and formulates minimization and mitigation measures to eliminate, reduce, or rectify adverse impacts of the proposed action. This EIS was prepared in accordance with Hawai'i Administrative Rules Title 11 Chapter 200, implementing Hawai'i Revised Statutes (HRS) Chapter 343.

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the HDF EIS. The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning.

Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawaiʻi Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Public Trust Doctrine

The proposed action is consistent with the public trust doctrine. The Hawaiʻi Constitution states that all public natural resources, including water resources, are held in trust by the State of Hawaiʻi for the benefit of the people of Hawaiʻi and that the State should "conserve and protect" those natural resources but also "promote the development and utilization of these resources." The Hawaiʻi Supreme Court has held that, as a result, the State has a "dual mandate." That mandate is 1) to conserve and protect the water resources of the State, which include both groundwater and surface water and but also 2) to allow for "maximum beneficial use" of those resources, including for agriculture. The Hawaiʻi Supreme Court has therefore expressly rejected the concept that "resource protection" is a categorical imperative. It has held that the State should allow "controlled development" that, while giving preference to public use, access and enjoyment, "promote[s] the best economic and social interests of the people of this state."

Based on this dual mandate, State has developed the water code, which states which states that it should be "liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic use, aquaculture uses, irrigation and other agricultural uses, power development and commercial and industrial uses" while also adequately providing for the "protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture and navigation. Such objectives are declared to be in the public interest."

The public trust doctrine therefore involves a balance--protection and conservation of the public natural resources of the State and a maximum beneficial use of those resources, including for agriculture. Designated of "important agricultural lands", including the HDF site, heightens the public interest in development of agriculture as the Hawaiʻi State legislature has declared that the people of the State have a "substantial interest in the health and sustainability of agriculture as an industry" and, when so designated, the policy of the State is to promote the long-term viability of agricultural uses on those lands, including by "promot[ing] the maintenance of essential agricultural infrastructure, including the irrigation systems." This serves the "compelling state interest in conserving the State's agricultural land resource base."

The proposed dairy farm will use water from Waita Reservoir for irrigation, which is also the water source for several other farmers and ranchers in the area, including a taro farmer. Non-potable water from Waita Reservoir, which uses water from upland streams, provided irrigation water to the sugar plantation that historically operated in the Māhāʻulepū area, and is used for recreational fishing. The reservoir is located west of the HDF site.

Potable water for the dairy farm will be drawn from deep groundwater wells that were installed by the sugar plantation that formerly operated on the site. The potable water will be used as drinking water for people working on the dairy farm and for the cows. As a result, the proposed action will advance both purposes of the public trust doctrine. The dairy farm will advance the important public interest in protecting and conserving agriculture in the State, including on important agricultural lands, and also further the goal of maximum beneficial use of the surface water and groundwater on those important agricultural lands.

Once fully operational at the committed herd size of 699 mature dairy cows, the dairy will utilize 30,000 gallons per day (gpd), which is 0.03 million gallons per day (MGD), of potable (drinking water quality) water from groundwater provided through an on-site well. The State of Hawaiʻi Department of Health Milk Rules require that potable water be used for milk production, both in the milking parlor and for milking operations; another potable water use will be for livestock drinking water. Should HDF decide, in the future, to expand to the contemplated herd size of up to 2,000 mature dairy cows, potable water demand will increase to 84,800 gpd (0.085 MGD). These demands are a small fraction of the 3 MGD produced by the on-site, existing Māhāʻulepū 14 well during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant.

Herd Size

The herd size for HDF is consistently represented as the potential maximum number of cows guided by the results of the nutrient analysis which reflects the carrying capacity of the land (EISPN Section 2.3 *Proposed Action*; EIS Section 1.2 *Proposed Project*). The distinction between the herd sizes and permit differences is explained in the EIS Section 2.4 *Planned Dairy Development on Māhāʻulepū Agricultural Lands*. During the public scoping meeting, participants expressed an interest to understand impacts of the committed herd size (up to 699 mature dairy cows). HDF agreed to analyze and present impacts at both the committed and contemplated (up to 2,000 mature dairy cows) herd size. Therefore, the probable impacts of the potential contemplated herd size are also analyzed and clearly identified in the Draft and Final EIS.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawaiʻi. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land. With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future.

For dairy operations with 700 or more mature dairy cows, regardless if the operation is feedlot or pasture-based, additional regulatory review and permitting by the State Department of Health would be required. The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to submit an application to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive mature dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

Nutrient Balance Analysis

Soils at the HDF site have been analyzed as part of the agronomic plans for the dairy. HDF will not apply nutrients past the plant uptake requirements and agronomic need. In both the 699 mature dairy cow and 2,000 mature dairy cow scenarios, at a grass yield of 16.3 tons of DM per acre per year, there is simply not enough nitrogen nutrient from manure sources (as-excreted, liquid effluent, slurry applied) and a slight excess of phosphorus only in the 2,000 mature dairy cow scenario. HDF will not apply excess phosphorus because the herd size would be increased incrementally, to ensure no over-application of nutrients. Ultimately, commercial fertilizers will still be required. Nutrients are broken down quickly and absorbed by the crop. Cows are rotated so over-application of nutrients does not occur.

The comments provided by CH2M Hill Engineers, Inc. (May 2016) are fully addressed in the EIS, including a detailed technical memorandum integrated with the update to EIS Appendix D.

Air Quality/Odor

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods:

1. Exponent used different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and
2. Odor results were compared against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area."

Exponent concurred with the emission methods and results presented by Arcadis that quantify odor from the effluent ponds and the dairy facility buildings. The air emission components of the Arcadis May 2016 report were not commented on by Exponent.

The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report. To consider the two alternate methods used by Exponent, Arcadis verified operational procedures with HDF: 1) Slurry application will not coincide with effluent application, and 2) slurry will not be applied during days with average wind speeds less than approximately 9 miles per hour (mph) (4 meters per second - m/s) or with winds greater than 20 mpg (8.9 m/s). Additionally, HDF confirmed that the dilution of irrigation water with effluent will change based on field conditions. For these reasons, Arcadis recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent. The findings of the revised odor technical report are summarized below.

On the second point, Arcadis responded that an evaluation by Mahin (2001) show off-site standard or guidelines in the U.S. to be between 2 and 50 OU/m^3 with the majority of values between 5 and 7 OU/m^3. Low OU/m^3 values are often difficult to observe. For instance, California's South Coast Air Quality Management District states that at 5 D/T (OU/m^3) people become consciously aware of the presence of an odor and that at 5 to 10 D/T odors are strong enough to evoke registered complaints. Given the conservative nature of the air dispersion modeling, a threshold of 6.5 OU/m^3 continues to be appropriate.

For the reasons above, the revised odor report modelled irrigation effluent at two dilutions in no-wind conditions (considered "worst case"), and slurry effluent with wind speeds between 9 and 20 mph, and again used the threshold of the 6.5 OU/m3 annual extent odor level. Modeling was done for both the herd size of 699 mature dairy cows (Section 4.19.2) and for the contemplated herd size of up to 2,000 dairy cows (Section 4.25.2). The colored areas in the figures depict the 99.5th percentile threshold of 6.5 OU/m3. Within the detection area odors may be detectable by 50 percent of the sensitive population once per 200 hours, or 44 hours per year.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows For the typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest

public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year. It should be noted that the parameters used in the odor assessment were intentionally very conservative and the impacts shown depend on an unlikely confluence of worst-case meteorological data, irrigation location, and grazing location; thus, actual offsite odor impacts are likely to be much lower and/or less frequent than displayed. All potential odor would remain on surrounding agricultural lands.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, the nearest recreational area, Po'ipū Bay Golf Course, lies another 0.3 miles beyond the odor extent for the typical effluent application (EIS Figure 4.25-1). During unusually wet periods, odor could extend approximately 4,085 feet (approximately three-quarters of a mile) beyond the southern boundary for the contemplated herd size. With application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile), which would not reach recreational or residential areas (Figure 4.25-1). As explained in Section 4.19.2, the parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown (Arcadis, 2016).

The full Exponent report *Odor Impact Assessment Hawaii Dairy Farms* (2016) is in the Final EIS, Volume 5, Appendix B. The complete response by Arcadis is contained in the Final EIS Volume 5, Appendix B-B. The revised odor report by Arcadis is also attached to their initial air quality and odor report in the Final EIS Volume 2, Appendix I as Attachment 1.

Alternatives

As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project. Further discussion of alternatives can be found in EIS Section 6. Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

Alternative dairy locations were carefully evaluated in the EIS, with specific consideration of achieving the project objectives and meeting each of the five Evaluation Criteria. The selected site represents the best option among those considered. The alternative location studied in the EIS is a valid representation of other siting options available. Preliminary site screening found other locational options to have unsuitable or less desirable conditions for the dairy in terms of land control, Important Agricultural Lands (IAL) status, soils, slopes, climate, water access, neighboring uses, access and other factors. To provide a meaningful analysis, the EIS evaluation of other alternatives (no action, agricultural subdivision, conventional feedlot) each included quantitative estimates of potential uses and associated impacts.

We appreciate the information you provide regarding alternative locations for the pasture-based dairy. Final EIS Section 6.5 Alternative Location provides elaboration on the very extensive process undertaken to identify the site.

The Hawai'i Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on O'ahu; two on Hawai'i Island; and two on Kaua'i. Kaua'i was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kaua'i in the Māhā'ulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January 2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

Economics

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical

studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Soils

Application of manure provides organic matter that will dramatically improve soil health and allow nutrients from manure to be accessible to grow the grass crop. Traditionally, soil has been the largest area of storage for carbon on earth. However, human disruption of the carbon cycle throughout periods of modern industrialization has released excess carbon into the atmosphere and into the oceans, resulting in a lack of stable carbon that was previously stored in soils. Photosynthesis is the greatest catalyst of transferring carbon from the air into soil. Once in soils, carbon feeds soil microbes that assist plants in acquiring nutrients and create stable forms of soil carbon. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

The State of Hawai'i Department of Health (DOH) Clean Water Branch (CWB) conducted a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Po'ipū/Kōloa watershed. DOH CWB expressed concern in the survey results that the number of injection wells and cesspools in the Po'ipū/Kōloa watershed are impacting the waters of the Waiopili Ditch. This is largely from the different geological and hydrological composition of the watersheds. Groundwater in the highly urbanized Po'ipū/Kōloa watershed is calculated to move an average of 10 feet per day. The groundwater in the Māhā'ulepū sub-watershed has a calculated velocity on the order of 1.2 feet per day. The Sanitary Survey identifies the Kōloa karst topography and lava tube system that straddles the Po'ipū/Kōloa watershed and the Māhā'ulepū sub-watershed as a possible subterranean transport of injection well and cesspool effluent to the Waiopili Ditch.

Soils in the Māhā'ulepū sub-watershed are formed by the poorly permeable alluvium that covers the valley floor. Alluvium is highly weathered lava that forms silty clay layer, which is described as "poorly drained". The classification of soils as poorly drained indicates a relatively slow rate water movement within soil and to surrounding areas. Poorly drained is not an indication of low or poor infiltration. Infiltration refers to the ability of water to enter the soil surface, whereas "drainage" refers to the movement of water within or from the soil profile. This slow movement allows for attenuation (reduction) of bacteria, pathogens, and nutrients from manure.

Section 4.3 of the EIS characterizes soil conditions, and anticipated impacts from effluent and supplemental nutrient application.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Hawaii Dairy Farms DEIS

Mark Oyama <mark@contemporaryflavorscatering.com>

Thu 6/30/2016 12:41 PM

To:HDF <hdf@group70int.com>;

Cc:info@fmpr.com <info@fmpr.com>;

To Whom It May Concern:

It gives me great pleasure to express my support for Hawaii Dairy Farms and its draft Environmental Impact Statement (DEIS), which has concluded that the dairy would greatly benefit Kauai: its land, families, economy, and agriculture industry.

I was born and raised on Kauai, and spent a lot of time working on my Uncle's farm in my younger years. I also raised market hogs, steers and heifers as a member of the 4-H Lifestock Club. Today, I am a culinary professor at Kauai Community College as well as a chef and owner of several restaurants and a catering company. I also serve on the Kauai Economic Board Food and Ag Committee, American Culinary Federation, and the Mayor's Advisory Council on Agriculture. Through my upbringing and profession, I am very familiar with the agriculture and food industry, its challenges and needs, on Kauai. I believe that Hawaii Dairy Farms will be a wonderful addition to Kauai's agricultural mix and enthusiastically welcomed by many farmers and chefs, like myself.

The fact is that local food production needs to increase for our island to feed itself and not rely as heavily on imports. To that end, this dairy is a step in the right direction.

Furthermore, our island's food industry that serves residents and visitors daily has the opportunity to be enhanced by a new, locally-made food product. The beautiful thing about milk is that it can be used to make other products, such as cream, butter, cheese, ice cream, etc. Establishing a successful dairy on Kauai paves the way for the possibility of producing these types of food items on island.

The pasture land that the dairy will be located on is zoned Important Agricultural Lands, the highest level of agriculture zoning in our State. This land was meant for agriculture, and the draft EIS findings solidify that the dairy will be an appropriate use of the land, and in fact, it will actually improve the property's soil, protect water resources, protect cultural areas of significance and not negatively impact surrounding home values. Significantly, the DEIS concludes that nearby residents and visitors will not be affected by flies or odor.

I have spoken with representatives of Hawaii Dairy Farms at length about this proposed dairy. They have been open and accessible and willing to answer all of my questions. I believe Hawaii Dairy Farms is a good company that will be an active, responsible Kauai community member.

Hawaii Dairy Farms DEIS has my full support, and I urge the State of Hawaii Department of Health to accept it so that the company can begin operation.

Mahalo,

Mark Oyama

GROUP 70 INTERNATIONAL

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January 3, 2017

Mark Oyama
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Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Mark Oyama:

Thank you for your email of June 30, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Thank you for your supportive comments on the HDF proposed rotational-grazing dairy. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

We appreciate your review of the HDF EIS and its findings that soils will be improved by the additional organic matter, erosional run-off will be reduced through pasture management practices, and HDF monitoring of soil and water conditions will ensure the health and safety of the community and the environment for years to come.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Hawaii Dairy Farm Island Of Kauai

From: rowlie [mailto:rowliep@aol.com]
Sent: Monday, July 25, 2016 11:44 PM
To: McIntyre, Laura <Laura.McIntyre@doh.hawaii.gov>
Subject: Hawaii Dairy Farm Island Of Kauai

Aloha Laura McIntyre,

There are many statements in the HDF EISPN as well as Amy Hennessy's (director of communications for Hawaii Dairy Farms) featured TGI FORM article in the July 24, 2016 Kauai Garden Island News paper. They state they will retain 98 percent of the nutrients from manure in the pasture by the manure being filtered by the grass , as well as Dung beetles and microbes breaking down the manure in two to three days. This sounds good but I encourage you to strongly challenge them on this claim because it is not achievable.

Manure is primarily organic matter and Nitrogen. The Nitrogen is in the form of Ammonium. The odor one smells is the Ammonium escaping into the atmosphere in a gaseous state. Ammonium has a positive charge and will attach to soil particles such as clay. When soil temperatures are 50 degrees or greater the Ammonium converts to Nitrate Nitrogen with in 2 or 3 days. Nitrate has a negative charge and does not attach to soil particles such as clay. It remains in the soil solution (the film of water surrounding soil particles) and is moved readily by water in all directions. that is why it is impossible to contain Nitrate Nitrogen in a given area. It makes it's way into irrigation ditches, drainage ditches, water wells, streams, regardless of the size of the proposed buffer zones and the distance to the water well.
Primary movers of Nitrate is rain run off, irrigation, wind moving microscopic water particles from sprinkler irrigation of manure diluted in water, soil erosion, and the water table at the location being only at a 2 to 4 foot depth.

Flies and odors are easily detectable.....But Nitrate is a " silent contaminate" to water ways, oceans, and water wells. they are slow movers and don't show up right away. But by the time the damage is discovered it's to late.
This has been demonstrated not only with Nitrate contamination but also with herbicide products previously considered safe by moving only min able depths into the soil. Only to discover through newly developed analytical procedures that previously considered safe products were showing up in water wells. In the case of this dairy we know Nitrate moves with water. the volume of Nitrate the dairy will produce is the contamination of our streams, ocean, and key water wells waiting to happen.

There is no good argument to place a dairy up wind from a key tourist area and residential area. that will only employ 3 or 4 employees from the island. Where the tourist industry and residence employ thousands of jobs to local people. Please don't buckle to the big money behind this dairy project. Today's advanced transportation supplies all of us with top grade milk from off island. There is no need for a controversial dairy.
We are all for agriculture, but compatible agriculture. Grow a crop such as taro, bananas, or papaya . that's compatible, but not a dairy.

Thank you for allowing me to point out an area that should be challenged. The perfect situation that they propose does not exist.

Rowland G. Pilaria
PO BOX 1235
Koloa, Hi 96756
(808) 742-2638

GROUP 70 INTERNATIONAL

January 3, 2017

Rowland G. Pilaria
P.O. Box 1235
Kōloa, Hawai'i 96756
rowliep@aol.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Rowland G. Pilaria:

Thank you for your email of July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

The Ka'ena and Kalihi soil series that underlies the HDF site are described as poorly drained. The designation of "poorly drained" is not an indication of low or poor infiltration, which refers to the ability of water and effluents to enter the soil surface. Said another way, soil "drainage" refers to the movement of water within or through the soil profile rather than entry through the soil surface. Additionally, "poorly drained" soils can exhibit anaerobic conditions, which are important in both the presence and movement of nutrients that improve soils health, most importantly nitrogen and its various soluble forms nitrate, nitrite, and ammonium.

The thick thatch formed by Kikuyu grass greatly improves infiltration of applied water and effluents, as additions of irrigation water and liquid effluent will microbiologically energize the surface soil (EIS, Section 4.11). Stimulated populations of microorganisms are very effective in inactivating pharmaceuticals and additives due to the reduced half-time resulting from enhanced immobilization and degradation by the superactive microbiological community. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment that today's advanced transportation supplies all of us with top grade milk from off-island, and removes the need for a dairy, runs counter to State policies encouraging locally grown food sources to reduce our dependence on imported mainland goods. Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawai'i via ocean and air shipping. The recent announcement by Hawai'i Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawai'i.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: South Shore property values in jeopardy

From: shari pilaria [mailto:pilaria@icloud.com]
Sent: Monday, July 25, 2016 1:11 PM
To: mayor@kauai.gov
Cc: Pressler, Virginia Ginny, M.D. <Ginny.Pressler@doh.hawaii.gov>; Kawaoka, Keith E <keith.kawaoka@doh.hawaii.gov>; senkouchi@Capitol.hawaii.gov; repmorikawa@Capitol.hawaii.gov; reptokioka@Capitol.hawaii.gov; repkawakami@Capitol.hawaii.gov; ghooser@kauai.gov; mfrapozo@kauai.gov; rkagawa@kauai.gov; kipukai.kualii@gmail.com; jyukimura@kauai.gov; mchock@kauai.gov
Subject: South Shore property values in jeopardy

Aloha Mayor and Council Members

Just wanted to recap the last neighborhood meeting in Koloa last two Thursdays ago that you did not attend regarding the proposed dairy. A guest speaker John Kilpatrick PhD, who is an expert real estate appraiser and economist spoke. Please Google him for his whole list of credentials, but in short he serves on the Finance Department Advisory Board for Washington State University, he is a Fellow of the Royal Institution of Chartered Surveyors (RICS) and of the American Real Estate Society (ARES) and a Nationally Certified Appraisal Standards Instructor. Dr. Kilpatrick specializes in property valuation after a community has been negatively impacted by toxic negatives such as the Gulf Oil Spill, and various other industrial and factory farming nightmares impacting private property. He came to speak on how the proposed factory farm by HDF will affect our livelihoods and property values on the South Shore. His study did not reinvent the wheel to come up with these projections, these are actualities that WILL happen, as it has happened else where.

Based on data he uses to calculate on the mainland for properties in similar positions to "factory farms" which this will be with the density of animals per acre - he told us to expect at least a 20% drop in property values up to 10 miles downwind from the dairy once it goes into operation. Because being in a resort area greatly inflates our property values, we could expect up to a 50% drop off in value after the negative effects of a dairy impacting our local South Shore community becomes a reality. The shallow aquifers which supply Poipu's well water, which are sure to be tainted, the biting flies and algae blooms from the enormous amounts of liquid waste (manure and urine) expelled from each cow, each day, between 96lbs and 143lbs daily per cow (depending on which HDF document you read) WILL find its way to the streams during heavy rains and further pollute the water in Maha'ulepu worse than it already is from the wild pigs and small herds nearby. These contributing factors to why property values will plummet once the dairy is operational, don't even begin to address the obvious stench to expect, and the allergens released in to the air that will wreak havoc on many people who are sensitive to airborne allergens.

The dairy will be providing only 4 full time jobs for local people who are from Kauai. The other 8 jobs will be on Oahu. There are roughly 2,618 jobs on the South Shore fueled by the hotels and tourism. Most of those jobs will be lost once the Golden Goose is dead and the tourists do not choose to come spend their vacation dollars on the smelly side of the island that's polluted beaches and biting flies make wearing short pants and sleeves a thing of the past. When our property values drop at least 20% - more likely closer to 50% - this will lead to a tax reassessment for those of us who live in Poipu/Koloa. 24% of the of the total property tax revenue to the County comes exclusively from South Shore properties. Kauai's total property tax revenues are $119,399,436. The Poipu area kicks in 24% of those revenues which is $28,655,864.60. Dr. Fitzgerald predicts that the dip in property values will be closer to 50% rather than a conservative 20%. This will cause tax increases to the other areas on Kauai as no mayor and council has ever found a way to cut taxes by at least 20%. I would love to be one of the many flies on the wall at the mayor and council meetings trying to figure that one out!!!

I would think the fact that the Dairy does not pencil out as a plus for the island of Kauai is quite clear. The dairy has a 20 year lease with a ceiling of annual tax revenue it will contribute which is only $51,000.00 out of their pocket per year, for what ever reason the media is quiet on this. The property value loss/tax revenue loss (at 20% conservatively $5,731,172.00) vs. the laughable annual $51,000.00 tax revenue and 4 Kauai jobs contributed from HDF does not take a math genius (of which I am not) to figure out. Obviously someone is getting something out of this deal and it is not the citizens of Kauai, as the numbers do not add up, none of the milk will be sold here. The HDF DEIS does not address any of the above, and pretty much presents a ridiculous work of fiction that the rainy days in Mahaulepu will be a fraction of what they average now, the wind will change course from what we all know it is here, and basically their cows "solid waste" will not stink.

Like so many things that have quietly happened on Kauai this dairy seems to be getting railroaded into the minds of the community as a "done-deal" (which it is not) of which we are powerless to fight. Dr. Fitzgerald met with you last week Mayor, and strongly reiterated to to you that there is no positive economic impact the dairy will have on Kauai, only harm.

I hope you and the council will consider strongly what your legacy will be for your turn at the helm concerning the health and stability of the South Shore community. This harm will negatively effect the entire island.
This is not a WIN for Kauai. Please do what is right. There is "agriculture" which is a wonderful thing that has employed and sustained rural places like Kauai for centuries. Then there is more presently what I call "AGRO-culture" which are factory farm-corporate driven bulldozers that plow through communities with their money and political favors and are very short sighted and have little regard or sensitivity to the health and welfare of the communities in which they seek opportunity for profits. As a realtor I hear of rumblings amongst realtors of class action suits for property owners on the South Shore to join in to for practices on what is supposed to be ag land for growing food near Poipu and Koloas' residential and resort community - turning into something harmful that deteriorates our nest eggs and lively hoods. The dairy is a good idea but in the wrong place. It does not take a rocket scientist to figure that out.

Mahalo for your consideration,

Shari Pilaria

PS: Not sure if you are aware of this, but when KDF says maximum 2,000 head of cows - that does not include the bulls (to impregnate them) or the calves each cow will give birth to each year to keep her udders full. A friend of ours who owns a dairy in California's central valley (who will no longer be visiting Kauai's South shore if it is soon to smell like home to him) wanted us to be clear on that.

shari pilaria, RA
pilaria@icloud.com
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Koloa, HI 96756
808-652-1664

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RECEIVED
JUL 27 2016
GROUP 70 INT'L

July 25th, 2016

Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Dear Jeff Overton

I am writing with concerns to the HDF EISPN. I am not in agreement with a lot of their "study" and find they have an inaccurate view of the impact the high density animal operation will have upwind from our community, and close to our already polluted shore in Mahaulepu. I would like full disclosure and for HDF to withdraw its documents, resubmit a comprehensive Plan with all parts of the Plan in one document so the public can knowingly comment. I am also very concerned that the "New Zealand model" they are touting as the ideal is costing millions of dollars of clean up for the country of New Zealand where these dairy practices are already being applied.

Sincerely yours,

Shari Pilaria

GROUP 70
INTERNATIONAL

January 3, 2017

Shari Pilaria
P.O. Box 30848
Anahola, Hawai'i 96703-0848

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Shari Pilaria:

Thank you for your letter dated July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Section 4 of the EIS provides specific actions proposed to minimize potential impacts in the mitigation measures for each environmental resource category. Sections 4.20 and 4.26 address the potential cumulative effects of the proposed action. The plans for the dairy facilities and operations are subject to numerous County and State regulatory reviews, which include requirements to implement permit conditions to minimize potential impacts. Monitoring requirements will also provide accurate feedback on the effectiveness of measures, which will be refined through ongoing active management.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Impacts from Hawaii dairy farm

From: Crystal Pinzon [mailto:rainbowteek@yahoo.com]
Sent: Tuesday, July 19, 2016 8:41 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Impacts from Hawaii dairy farm

I object the dairy farm because of water contamination, air contamination and biting flies.

Crystal Pinzon

GROUP 70 INTERNATIONAL

January 3, 2017

Crystal Pinzon
rainbowteek@yahoo.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Crystal Pinzon:

Thank you for your email of July 19, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Proposed Maha'ulepu Dairy

Sherry Pollock <gaiasbeloved@gmail.com>

Mon 7/25/2016 4:40 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>;

To Laura McIntyre, Jeff Overton, and Hawaii Dairy Farms:

Maha'ulepu is such a special, beautiful place, and so close to the ocean - it is the WORST place you could possibly build a dairy. The whole plan is seriously flawed. The smell and the pollution of the stream and ocean will drive tourists away, and deprive locals of a beautiful recreation area. Think of all the jobs that will be lost when our visitors decide they don't want to come back to the Poipu area.

And the milk won't even be processed or sold here! All we get is the stink and pollution!

Why is a company that builds resorts and high end homes now designing a dairy?

Who benefits from this? Certainly not the residents of Kauai!

Please do not build this dairy in Maha'ulepu!

Mahalo.

Sherry Pollock

--
"There is no passion to be found playing small - in settling for a life that is less than the one you are capable of living." Nelson Mandela

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GROUP 70 INTERNATIONAL

January 3, 2017

Sherry Pollock
gaiasbeloved@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Sherry Pollock:

Thank you for your email of July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

The planned improvements and operations at Hawai'i Dairy Farms are compatible with and supportive of State of Hawai'i and County of Kaua'i land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawai'i Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kaua'i. The dairy is also consistent with the provisions of the State of Hawai'i Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhā'ulepū lands under the County of Kaua'i General Plan and the South Kaua'i Community Development Plan.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Under the proposed action, HDF would sell raw milk wholesale to a processor and packager. Milk processing, including pasteurization, bottling, and packaging of milk, would be done independently of the dairy. For more information on processing, see Final EIS Section 3.6.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawai'i Island milk.

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the HDF EIS. The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 24, 2016

State of Hawaii, Department of Health, ATTN: Laura McIntyre
1250 Punchbowl Street
Honolulu, HI 96812
Doh.epo@doh.Hawaii.gov

Group 70 International, Inc. ATTN: Jeff Overton
925 Bethel Street, 5th floor
Honolulu, HI 96813
HDF@group70int.com

Hawaii Dairy Farms, LLC
P.O. Box 1690
Koloa, HI 96756-1690

Friends of Maha'ulepu
P.O. Box 1654
Koloa, HI 96756
friendsofmahaulepu@hawaiiantel.net

RE: Opposed to Dairy Farm at Maha'ulepu

To Who It May Concern,

I am writing this letter as a very concerned citizen living on the small beautiful island of Kauai. I live here for the quality-of-life , pristine ocean, open space, desirable resort location, outdoor activities and beautiful weather.

I am horrified by the fact that someone wants to put a dairy of 2,000 cattle in Mahaulepu. It's wrong for so many reasons. A better location would be somewhere in the middle of nowhere on the mainland where there's no houses, no resorts, no oceans and no tourism. Visitors from around the world come to Kauai on a regular basis to enjoy the beautiful clean oceans, open-space, clean air, quality of life. It's our main source of revenue - tourism. Oh and clean drinking water which is necessary to survive.

After reviewing the information on the EIS and listening to experts Friends of Mahaulepu have hired to do extensive research to try & save the beautiful island of .Kauai from this disastrous dairy project, I've come to the conclusion that there are so many reasons to stop this project immediately and fine the developer for doing work without a permit. Therefore I object to the proposed dairy at Mahaulepu.

A. Clean Water Act –

1. HDF & DEIS Vol. 3 page 813 states “Though the waterbody in which the County wells occur is confined” and further describes no communication between the ground water and the water that recharges our drinking water wells.

***In contrast, the County Water Dept Page 196 of 405 Appendix B Hawaii Source Water Assessment Program Report for the island of Kauai states “Koloa Well F:

Upper Aquifer: unconfined, Upper Aquifer Uniqueness: Irreplaceable,

Upper Aquifer Vulnerability: High

Lower Aquifer Type: Where water table is upper surface of saturated aquifer:

2. DEIS Vol 2 page 571 “the settling pond woud be 12 feet deep and the storage pond wold be 10.75 deep.”

***The watertable at the site of the effluent ponds if “two to three feet” below the ground. Per Jim Garmatz’s testmory, May 13, 2016, page 106 FOM expert hydrologists states it will be impossible to dig two effluent ponds on this site.

3. DEIS Vol. 2 Page 28 of 732 “Two reservoirs are indicated within the project area, but one may no longer exist “could not be located in field” and the other is the small pond in the well area on the upper northwest side”

***AIS Page 132 of 169 “To the east from this point, P-135 to P-137 is currently marshland and an excavator could not safely be brought in to excavate.” Archeological Impacat Study AIS Consequently, when the archeologist was on site in July, there was a marsh/wetland that has now likely been drained as Jim Garmatz did testify that the wet area would need to be drained.

4. HDF Waster Management Plan, 723/14, page 42 said the cows would each excrete 143 lbs of manure per day or Vol. 2 Page 591 of 732 “Pasture Manure Emissions Flux Estimate-Daily rate (lbs. per day) 143”. DEIS, vol. 2, page 591 HDF states that the daily output would be 90 pounds per cow per day. There will be between 2 and 3 million pounds of liquid manure dumped monthly on 469 total grazing acres from just the startup herd of 699 cows.

5. HDF said “Zero Discharge”

Now the DEIS Vol. 1 page 275 of 299: “Episodic, seasonal rainfall events (-10days/yr) cause groundwater in the alluvium to rise and intersect with the agricultural ditches and groundwater containing nutrients. HDF will release an estimated 10,000 pounds of nitrogen and 900 pounds of phosphorus annually. Contributions of nutrients from episodic rainfall (-days/yr) will not adversely affect ocean water quality and the marine environment.”

6. DEIS Vol. 1 Page 198 of 299 “Water will come from a non-municipal source; either the on-site deep wells; or from the HDF allocation of water from Waita Reservoir.”

***Water of the State belongs to the people per The Public Trust Doctrine. Grove Farms cannot make allocations of State water from the diversion of the Huleia.

B. Ocean quality and marine life, reefs

1. HDF’s DEIS documents that the technical consultants concluded the draininage ditches ultimately end up draining into the ocean after collecting in several “water-filled features” on the site. They define the “water=filled features” as a network of natural streams that flow into an extensive network of irrigation ditches running through their pasture area, all draining eventually into a major ditch, Mill Ditch 9 and the Waiopoli Ditch.
2. The cow cemetery is very near a stream in an area likely to have high seasonal perched groundwater. The plan does address the impact to groundwater of decomposing animals being leached by storm water infiltration percolating to groundwater. The Plan should provide the total number of animals that will be buried on site in a typical year and in total over 20 years of operations.
3. Many natural water courses are canals or ditches. Although the streams may be been straightened or cleaned I segments that cross the farm, they are still natural water courses and contain Waters f the State protected with water quality standards. The Plan does NOT address how non-point discharges to these waters will affect aquatic habitat on the farm and downstream to the ocean.
4. The Palustrine and Riverine wetlands within the site receive water from runoff and groundwater originating in the pastures. The Plan SHOULD address how the manure on the pastures that dissolves and moves with the water or is carried in storm water from large events like the 25 yr 24 hr storm will affect the wetlands flora and fauna and ecosystem functions in the ocean.

C. Kauai Economic disaster/Property Values Decline/County Tax Revenue declines:

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I look forward to your response

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January 3, 2017

Ken Purdy
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Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Ken Purdy:

Thank you for your email of July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Until 1984, Hawaii produced 100 percent of its milk through local dairies. By 2008, costs for importing feed and other operational expenses had skyrocketed, causing nearly all of the local dairies to close. The two remaining dairies on the Big Island only produce about 9 percent of the state's milk supply, leaving the rest to be imported. Hawaii Dairy Farms goal is to take steps toward Hawaii's food security, economic diversity, and sustainability through significantly reducing Hawaii's reliance on imported milk from the mainland United States.

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Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

The depth to groundwater within the alluvial layer is varied. The relatively shallow groundwater within the alluvial material (highly weathered lava composed of silty clay) is hydrologically separated from deep groundwater (the source of the County drinking water wells) that lies within unweathered volcanic material. Wells drilled into the shallow alluvial groundwater bodies to facilitate water quality monitoring reveal that the depth to groundwater ranges from 8 feet below surface to 24 feet below surface. In general, groundwater in the alluvium slopes downward in the mauka to makai direction, but not at the same gradient as the land surface. Depths to groundwater will not be the same across the site. Groundwater levels in the alluvial layer are 30-feet to more than 50-feet higher than the piezometric head of the groundwater in the confined underlying volcanic series, which is the source of drinking water. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Your comment references the summary of subsurface test trenching activitiy which was conducted for the archeological inventory survey. The survey investigation included two areas near an existing agricultural ditch. Some of these lands contained high soil moisture conditions referred to as "marshland" by the archaeologist, who deemed it unsafe for the excavator to operate. This area of the farm does not possess the characteristics required for classification as a wetlands area.

An especially important insect to minimize manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching.

The proposed action is consistent with the public trust doctrine. The Hawai'i Constitution states that all public natural resources, including water resources, are held in trust by the State of Hawai'i for the benefit of the people of Hawai'i and that the State should "conserve and protect" those natural resources but also "promote the development and utilization of these resources." The Hawai'i Supreme Court has held that, as a result, the State has a "dual mandate." That mandate is 1) to conserve and protect the water resources of the State, which include both groundwater and surface water and but also 2) to allow for "maximum beneficial use" of those resources, including for agriculture. The Hawai'i Supreme Court has therefore expressly rejected the concept that "resource protection" is a categorical imperative. It has held that the

State should allow "controlled development" that, while giving preference to public use, access and enjoyment, "promote[s] the best economic and social interests of the people of this state."

Based on this dual mandate, the State has developed the water code, which states that it should be "liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic use, aquaculture uses, irrigation and other agricultural uses, power development and commercial and industrial uses" while also adequately providing for the "protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture and navigation. Such objectives are declared to be in the public interest."

The public trust doctrine therefore involves a balance--protection and conservation of the public natural resources of the State and a maximum beneficial use of those resources, including for agriculture. Designation of "important agricultural lands", including the HDF site, heightens the public interest in development of agriculture as the Hawaiʻi State legislature has declared that the people of the State have a "substantial interest in the health and sustainability of agriculture as an industry" and, when so designated, the policy of the State is to promote the long-term viability of agricultural uses on those lands, including by "promot[ing] the maintenance of essential agricultural infrastructure, including the irrigation systems." This serves the "compelling state interest in conserving the State's agricultural land resource base."

The proposed dairy farm will use water from Waita Reservoir for irrigation, which is also the water source for several other farmers and ranchers in the area, including a taro farmer. Non-potable water from Waita Reservoir, which uses water from upland streams, provided irrigation water to the sugar plantation that historically operated in the Māhāʻulepū area, and is used for recreational fishing. The reservoir is located west of the HDF site.

Potable water for the dairy farm will be drawn from deep groundwater wells that were installed by the sugar plantation that formerly operated on the site. The potable water will be used as drinking water for people working on the dairy farm and for the cows. As a result, the proposed action will advance both purposes of the public trust doctrine. The dairy farm will advance the important public interest in protecting and conserving agriculture in the State, including on important agricultural lands, and also further the goal of maximum beneficial use of the surface water and groundwater on those important agricultural lands.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community, and will allow for evaluation of possible contamination sources.

The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irrigation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawai'i.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. Fly minimization measures are further described in EIS Section 4.11.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

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July 24, 2016

State of Hawaii, Department of Health, ATTN: Laura McIntyre
1250 Punchbowl Street
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Group 70 International, Inc. ATTN: Jeff Overton
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Koloa, HI 96756-1690

Friends of Maha'ulepu
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Koloa, HI 96756
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RE: Opposed to Dairy Farm at Maha'ulepu

To Who It May Concern,
I am writing this letter as a very concerned citizen living on the small beautiful island of Kauai. I live here for the quality-of-life , pristine ocean, open space, desirable resort location, outdoor activities and beautiful weather.

I am horrified by the fact that someone wants to put a dairy of 2,000 cattle in Mahaulepu. It's wrong for so many reasons. A better location would be somewhere in the middle of nowhere on the mainland where there's no houses, no resorts, no oceans and no tourism. Visitors from around the world come to Kauai on a regular basis to enjoy the beautiful clean oceans, open-space, clean air, quality of life. It's our main source of revenue - tourism. Oh and clean drinking water which is necessary to survive.

After reviewing the information on the EIS and listening to experts Friends of Mahaulepu have hired to do extensive research to try & save the beautiful island of .Kauai from this disastrous dairy project, I've come to the conclusion that there are so many reasons to stop this project immediately and fine the developer for doing work without a permit. Therefore I object to the proposed dairy at Mahaulepu.

A. Clean Water Act –

1. HDF & DEIS Vol. 3 page 813 states "Though the waterbody in which the County wells occur is confined" and further describes no communication between the ground water and the water that recharges our drinking water wells.

***In contrast, the County Water Dept Page 196 of 405 Appendix B Hawaii Source Water Assessment Program Report for the island of Kauai states "Koloa Well F:

Upper Aquifer: unconfined, Upper Aquifer Uniqueness: Irreplaceable,

Upper Aquifer Vulnerability: High

Lower Aquifer Type: Where water table is upper surface of saturated aquifer:

2. DEIS Vol 2 page 571 "the settling pond woud be 12 feet deep and the storage pond wold be 10.75 deep."

***The watertable at the site of the effluent ponds if "two to three feet" below the ground. Per Jim Garmatz's testmory, May 13, 2016, page 106 FOM expert hydrologists states it will be impossible to dig two effluent ponds on this site.

3. DEIS Vol. 2 Page 28 of 732 "Two reservoirs are indicated within the project area, but one may no longer exist "could not be located in field" and the other is the small pond in the well area on the upper northwest side"

***AIS Page 132 of 169 "To the east from this point, P-135 to P-137 is currently marshland and an excavator could not safely be brought in to excavate." Archeological Impacat Study AIS Consequently, when the archeologist was on site in July, there was a marsh/wetland that has now likely been drained as Jim Garmatz did testify that the wet area would need to be drained.

4. HDF Waster Management Plan, 723/14, page 42 said the cows would each excrete 143 lbs of manure per day or Vol. 2 Page 591 of 732 "Pasture Manure Emissions Flux Estimate-Daily rate (lbs. per day) 143". DEIS, vol. 2, page 591 HDF states that the daily output would be 90 pounds per cow per day. There will be between 2 and 3 million pounds of liquid manure dumped monthly on 469 total grazing acres from just the startup herd of 699 cows.

5. HDF said "Zero Discharge"

Now the DEIS Vol. 1 page 275 of 299: "Episodic, seasonal rainfall events (-10days/yr) cause groundwater in the alluvium to rise and intersect with the agricultural ditches and groundwater containing nutrients. HDF will release an estimated 10,000 pounds of nitrogen and 900 pounds of phosphorus annually. Contributions of nutrients from episodic rainfall (-days/yr) will not adversely affect ocean water quality and the marine environment."

6. DEIS Vol. 1 Page 198 of 299 "Water will come from a non-municipal source; either the on-site deep wells; or from the HDF allocation of water from Waita Reservoir."

***Water of the State belongs to the people per The Public Trust Doctrine. Grove Farms cannot make allocations of State water from the diversion of the Huleia.

B. Ocean quality and marine life, reefs

1. HDF's DEIS documents that the technical consultants concluded the draininage ditches ultimately end up draining into the ocean after collecting in several "water-filled features" on the site. They define the "water=filled features" as a network of natural streams that flow into an extensive network of irrigation ditches running through their pasture area, all draining eventually into a major ditch, Mill Ditch 9 and the Waiopoli Ditch.
2. The cow cemetery is very near a stream in an area likely to have high seasonal perched groundwater. The plan does address the impact to groundwater of decomposing animals

being leached by storm water infiltration percolating to groundwater. The Plan should provide the total number of animals that will be buried on site in a typical year and in total over 20 years of operations.

3. Many natural water courses are canals or ditches. Although the streams may be been straightened or cleaned I segments that cross the farm, they are still natural water courses and contain Waters f the State protected with water quality standards. The Plan does NOT address how non-point discharges to these waters will affect aquatic habitat on the farm and downstream to the ocean.
4. The Palustrine and Riverine wetlands within the site receive water from runoff and groundwater originating in the pastures. The Plan SHOULD address how the manure on the pastures that dissolves and moves with the water or is carried in storm water from large events like the 25 yr 24 hr storm will affect the wetlands flora and fauna and ecosystem functions in the ocean.

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I look forward to your response

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GROUP 70 INTERNATIONAL

January 3, 2017

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Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

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Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

The depth to groundwater within the alluvial layer is varied. The relatively shallow groundwater within the alluvial material (highly weathered lava composed of silty clay) is hydrologically separated from deep groundwater (the source of the County drinking water wells) that lies within unweathered volcanic material. Wells drilled into the shallow alluvial groundwater bodies to facilitate water quality monitoring reveal that the depth to groundwater ranges from 8 feet below surface to 24 feet below surface. In general, groundwater in the alluvium slopes downward in the mauka to makai direction, but not at the same gradient as the land surface. Depths to groundwater will not be the same across the site. Groundwater levels in the alluvial layer are 30-feet to more than 50-feet higher than the piezometric head of the groundwater in the confined underlying volcanic series, which is the source of drinking water. Sections 4.16 Hydrology and 4.17 Surface Water Resources & Nearshore Marine Environment and Appendices E and F contain further information on the analyses.

Your comment references the summary of subsurface test trenching activitiy which was conducted for the archeological inventory survey. The survey investigation included two areas near an existing agricultural ditch. Some of these lands contained high soil moisture conditions referred to as "marshland" by the archaeologist, who deemed it unsafe for the excavator to operate. This area of the farm does not possess the characteristics required for classification as a wetlands area.

The proposed action is consistent with the public trust doctrine. The Hawaiʻi Constitution states that all public natural resources, including water resources, are held in trust by the State of Hawaiʻi for the benefit of the people of Hawaiʻi and that the State should "conserve and protect" those natural resources but also "promote the development and utilization of these resources." The Hawaiʻi Supreme Court has held that, as a result, the State has a "dual mandate." That mandate is 1) to conserve and protect the water resources of the State, which include both groundwater and surface water and but also 2) to allow for "maximum beneficial use" of those resources, including for agriculture. The Hawaiʻi Supreme Court has therefore expressly rejected the concept that "resource protection" is a categorical imperative. It has held that the State should allow "controlled development" that, while giving preference to public use, access and enjoyment, "promote[s] the best economic and social interests of the people of this state."

Based on this dual mandate, the State has developed the water code, which states that it should be "liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic use, aquaculture uses, irrigation and other agricultural uses, power development and commercial and industrial uses" while also adequately providing for the "protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture and navigation. Such objectives are declared to be in the public interest."

The public trust doctrine therefore involves a balance--protection and conservation of the public natural resources of the State and a maximum beneficial use of those resources, including for agriculture. Designation of "important agricultural lands", including the HDF site, heightens the public interest in development of agriculture as the Hawaiʻi State legislature has declared that the people of the State have a "substantial interest in the health and sustainability of agriculture as an industry" and, when so designated, the policy of the State is to promote the long-term viability of agricultural uses on those lands, including by "promot[ing] the maintenance of essential agricultural infrastructure, including the irrigation systems." This serves the "compelling state interest in conserving the State's agricultural land resource base."

The proposed dairy farm will use water from Waita Reservoir for irrigation, which is also the water source for several other farmers and ranchers in the area, including a taro farmer. Non-potable water from Waita Reservoir, which uses water from upland streams, provided irrigation water to the sugar plantation that historically operated in the Māhāʻulepū area, and is used for recreational fishing. The reservoir is located west of the HDF site.

Potable water for the dairy farm will be drawn from deep groundwater wells that were installed by the sugar plantation that formerly operated on the site. The potable water will be used as drinking water for people working on the dairy farm and for the cows. As a result, the proposed action will advance both purposes of the public trust doctrine. The dairy farm will advance the important public interest in protecting and conserving agriculture in the State, including on important agricultural lands, and also further the goal of maximum beneficial use of the surface water and groundwater on those important agricultural lands.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community, and will allow for evaluation of possible contamination sources.

The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irrigation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawaiʻi.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. Fly minimization measures are further described in EIS Section 4.11.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Disgusting

Liz R <misspakalolo@gmail.com>

Tue 7/5/2016 12:15 PM

To:HDF <hdf@group70int.com>;

No respect for Hawaiian culture go build your dairy somewhere else! We will protest we will fight and make you wish you never choose Kaua'i

Sent from my iPhone

GROUP 70 INTERNATIONAL

January 3, 2017

Liz R
misspakalolo@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Liz R:

Thank you for your email of July 5, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawai'i via ocean and air shipping. The recent announcement by Hawai'i Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawai'i.

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhāʻulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Hawaii Dairy Farms (HDF) DEIS

Allan Rachap <allanjudy@gmail.com>

Tue 7/19/2016 3:17 PM

To:HDF <hdf@group70int.com>; info@hawaiidairyfarms.com <info@hawaiidairyfarms.com>; doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>;

In my letter of February 18, 2015 I wrote to express concerns over the harm that would result if an industrial dairy were to go into operation in the Mahaulepu valley on Kauai. The response to my letter came in one signed by Jeff Overton, dated May 26, 2016. That response only reinforced my concerns. The DEIS shows a complete lack of intellectual integrity, and a willingness to bend the truth
beyond recognition in order to cast the proposed HDF operation in a favorable light.

My letter focused on two main issues - *Economic Considerations* and *Water Supply Issues.*

ECONOMIC CONSIDERATIONS

Mr. Overton's response is largely based on the findings of their consultants, Plasch Econ Pacific (PEP). Their work is flawed because it is based on the faulty assumption that HDF's operations at Mahaulepu would be benign to the surrounding environment. In Appendix J of the DEIS under item 6, NUISANCE ISSUES AND IMPACTS - the statement is made that ...
"The environmental studies indicate that no noticeable noise, dust, odors, flies, runoff, or other nuisance impacts will extend to resort, commercial, residential or recreational areas." That statement flies in the face of reality. It is contradicted by the significant levels of odors, flies and noise experienced at properties in the proximity of industrial dairy locations worldwide. Those adverse effects have in fact have resulted in substantial value losses at nearby properties and businesses.

A dairy at Mahaulepu would have huge negative impacts on the entire island of Kauai. Hundreds of visitor industry jobs would be lost due to declining occupancy rates. Who would want to spend hundreds of dollars a day to go to Poipu to be bitten by flies and smell cow manure and urine?

Real estate values in all categories would decline substantially - as would Kauai County real estate tax revenue. Rather than my repeating various citations to back up my opinions, I wish to incorporate by reference the work of nationally-renowned expert, John Kilpatrick, Phd. It may be found in the submission you shall receive from Friends of Mahaulepu.

WATER SUPPLY ISSUES

Potable water for all of Poipu and a substantial portion of the Koloa area is derived by the Kauai Department of Water (DOW) wells in Mahaulepu. I have written to the DOW to express my concerns, and am attaching a copy of that letter which I wish to incorporate into this DEIS letter. Again, I wish to refer to you to the DEIS submission of Friends of Mahaulepu which contains much factual data relating to the geology and hydrology of Mahaulepu, which make that area totally unsuitable as an industrial dairy farm location.

I believe that an unbiased, scientific, factual analysis will conclusively show that an industrial dairy in the Mahaulepu valley is fraught with negative consequences and is totally inappropriate. The only mitigation that could possibly be recommended would be relocation to another area.

Allan Rachap email: allanjudy@gmail.com
1714 Keoniloa Pl. phone: 808-212-3108
Koloa HI 96756

Gmail - Proposed Dairy Farm at Mahaulepu, Kauai...

GROUP 70 INTERNATIONAL

January 3, 2017

Allan Rachap
1714 Keoniloa Place
Koloa, HI 96756
allanjudy@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Allan Rachap:

Thank you for your email of July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Opponents to the dairy have contradicted findings of HDF's Hawai'i-based expert consultants by using wildly different assumptions and, in several cases, incorrect data. In most cases, the assumptions are based on poorly-managed conventional feedlot dairy operations on the mainland. HDF stands by the environmental analyses conducted for the EIS, which uses reasonable and diligent processes to disclose all probable impacts and demonstrates the dairy will not create nuisance impacts downstream or beyond surrounding agricultural lands.

The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 18, 2016

State of Hawaii - Department of Health
Laura McIntyre, Environmental Planning Office
1250 Punchbowl Street
Honolulu, HI 96813

Re: Hawaii Dairy Farms, LLC Project

Regarding: The May 26, 2016 letter to me from Jeffrey H. Overton, Principal Planner, Group 70 International, Inc.,

The letter, and especially as it relates to the Draft Environmental Impact Statement dated May 2016, fails to adequately respond to the questions and comments I posed in my letter dated February 21, 2015 to the State of Hawaii Department of Health. Below are questions to which I require substantive and specific answers:

In **paragraph 2**, starting with the words: "HDF is committed to ..." you state: "With proven success at a herd size of 699 ..."

- What constitutes "proven success"?
- Who will prove that success?
- What criteria will be used to prove success?
- "... capacity of the land, which is estimated to be ..." Estimated by whom?
- What are the credentials of the person(s) who has done this estimation?
- Where is that estimate shown in writing?
- Show proof of this statement

Section entitled **PESTS:** In the second paragraph you state: "Flies were identified on the HDF site using manure from neighboring livestock as bait for invertebrates."

- Specifically, what neighboring livestock was used?
- Was manure from any milking (dairy) cows included?
- Was there, in fact, manure from 699 milking cows included?
- How much manure was used?
- What season of the year was it?
- If manure from 699 milking cows was not used, state proof as to why your conclusions have any merit.

You also state: "The two flies associated ... and the horn fly, the latter known for biting cattle."

- Do they also bite people?
- Do they also bite other animals?
- What kinds of other animals do they bite?
- Can you state, categorically, that cattle are the <u>only</u> animals or people that they bite? If you can, then you must prove that.

In the fifth (5th) paragraph you state: "Localized controls to reduce pest populations need to address breeding sites in and amongst the food and animal wastes within the area."

- What, specifically, are the localized controls?
- Where will these localized controls come from?
- What season(s) of the year will this be done?
- How many times a year will it be done?
- Who will create these localized controls?
- Who will enforce the localized controls?

Section entitled **DEMOGRAPHIC AND ECONOMIC:**

- Paragraphs three (3) and five (5) discuss benefits to O'ahu - name the specific sites you considered on O'ahu for the location of the HDF
- Explain the reason(s) for locating and operating the dairy on Kaua'i.
- Explain the reasoning for your incurring the expense and logistical difficulties of transporting the milk from Kaua'i to O'ahu for processing rather than locating the dairy on O'ahu

Paragraph seven (7) states: "Results of technical studies ..."

- Exactly what studies are you referring to?
- Who did the studies?
- When were the studies begun?
- When did the studies end?
- What/Who determines what noticeable odors are?
- What is the most far-reaching distance that the stable fly - as mentioned in PESTS - can fly?
- What is the most far-reaching distance that the horn fly - as mentioned in PESTS - can fly?

Section entitled **WATER QUALITY.** Sub-heading **Potable Water**

- Paragraph four (4) states: "Future monitoring will allow ..."
- What will this monitoring consist of?
- Who will do the monitoring?
- What season(s) of the year will the monitoring be done?
- Specify the criteria to be used in the monitoring

Section entitled **SURFACE WATER.** Sub-heading **Surface Water Quality**

- Reference to Waiopili Ditch states: "... is not an inviting recreational body of water utilized by people"
- I challenge you to prove this statement
- Show photographs you have collected of the stream as it nears the ocean's edge
- Do you have photographs taken 7 days per week during full daylight hours?
- For what length of time - how many weeks - were those pictures taken?
- How many photographs, in total, do you have?
- Was there ever any person or pet shown on any picture?
- To whom have you made these pictures available?
- When did you make these pictures available?
- Where can I view those pictures?
- What specific arrangements will you make for me to see these pictures?

Section entitled **SURFACE WATER.** Sub-heading **Nutrients from Effluent Irrigation and Commercial Fertilizer Application**

- "Such discharge ... when rainfall exceeds 0.8 inches"
- Explain, in detail, your plans should Kaua'i again experience 40 continuous days and nights of rain as it did in March/April 2006
- What will you do with the cows?
- How will you prevent run-off from your property?
- Do you even know anything about that 40-day rain period?

Section entitled **SURFACE WATER.** Sub-heading **Establishment of Water Quality Monitoring**

- "... ocean quality monitoring will be instituted ..."
- What is the name of the company/person/people who will do this monitoring?
- State that company/person's monitoring qualifications
- "the ongoing testing program ..." what are the specifics of this testing program?

- How often will this monitoring be done?
- What are the "levels of environmental concern?" Provide the actual numbers
- What specific plans are established to rectify any deviation from what is acceptable?

Section entitled **ODOR**

- Paragraph three (3) discusses "worst case meteorological conditions"
- Show data you have collected over the past 5 years reporting "… these periods without normal tradewind flow"
- How many days per month did that occur?
- How many days per year did that occur?
- Paragraph four (4) "… Results for the committed herd …"
- Results of what?
- Who gathered these results?
- What criteria was used to compile these results?
- "… assume an unlikely confluence of worst-case …"
- On what specific data do you base your conclusion that it is an unlikely confluence?
- Prove everything you say in this paragraph – you offer only unsubstantiated statements with no references stated to back up your claims

Judith G. Rachap

Judith G. Rachap

1714 Keoniloa Place
Koloa, HI 96756
Phone: 808-651-8123
E-mail: judyrachap@yahoo.com

cc: Hawaii Dairy Farms, LLC
PO Box 1690
Koloa, HI 96756-1690

cc: Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street – 5th Floor
Honolulu, HI 96813

GROUP 70 INTERNATIONAL

January 3, 2017

Judith G. Rachap
1714 Keoniloa Place
Koloa, HI 96756
judyrachap@yahoo.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Judith G. Rachap:

Thank you for your email of July 24, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

The herd size for HDF is consistently represented as the potential maximum number of cows guided by the results of the nutrient analysis which reflects the carrying capacity of the land (EISPN Section 2.3 Proposed Action; EIS Section 1.2 Proposed Project). The distinction between the herd sizes and permit differences is explained in the EIS Section 2.4 Planned Dairy Development on Māhāʻulepū Agricultural Lands. During the public scoping meeting, participants expressed an interest to understand impacts of the committed herd size (up to 699 mature dairy cows). HDF agreed to analyze and present impacts at both the committed and contemplated (up to 2,000 mature dairy cows) herd size. Therefore, the probable impacts of the potential contemplated herd size are also analyzed and clearly identified in the Draft and Final EIS.

HDF is committed to establishing a herd of up to 699 mature dairy cows to demonstrate the pasture-based system as an economically and environmentally sustainable model for Hawaiʻi. Precision agricultural technology that monitors cows' health, grass productivity, and effluent management will be used to ensure environmental health and safety, as well as best management practices, and help determine the ultimate carrying capacity of the land.

With proven success at a herd size of 699, HDF will contemplate the possibility of expanding the herd in the future.

For dairy operations with 700 or more mature dairy cows, regardless if the operation is feedlot or pasture-based, additional regulatory review and permitting by the State Department of Health would be required.

The application process for a National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) permit includes public notification and input. At the discretion of HDF, management may choose to submit an application to expand operations up to the carrying capacity of the land, which is estimated to be up to 2,000 productive milking dairy cows. Permit process compliance would be followed at such time HDF may decide to pursue an expanded operation.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

The range a fly can travel is not the range a fly will travel. More realistic than any theoretical calculations of fly expansion is modern experience in the Islands. Parker Ranch has been upwind of the Mauna Kea Beach Hotel and two other coastal Kohala Resorts sited from Puakō to Waikoloa since they were built decades ago, and the lack of dung fly complaints arising from Parker Ranch is solid evidence that cattle flies overwhelmingly remain close to livestock habitats.

The stable fly was identified as a manure-related insect that currently exists on manure in the immediate vicinity of the HDF site. Natural fly control species such as dung beetles were also identified at the HDF site. Disruption of the dung by birds and dung beetles reduces habitat for breeding flies. The stable fly and other dung-related flies are undoubtedly present nearer to Koloa and Poipu in association with cattle grazing that has been ongoing for generations in the region; beef cattle herds in Kipu and Kipu Kai number over 1,000 and are within 5 miles. If dispersal of manure breeding pests into Poipū resorts were to be a public nuisance, such expansion would have already occurred.

The Hawai'i Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on O'ahu; two on Hawai'i Island; and two on Kaua'i. Kaua'i was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kaua'i in the Māhā'ulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January 2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

While the shallow groundwater in the alluvium is hydrologically separate from the source of drinking water in the deep volcanics, HDF installed four groundwater monitoring wells to allow monitoring of water quality within the shallow groundwater. Existing water quality was sampled to serve as a baseline for the nutrient and chemical constituents of the shallow groundwater within the alluvium. Future water quality samples can then be compared to the data documenting the baseline, or pre-dairy, conditions. Periodic assessments would identify any change to nutrient content that may indicate seepage of nutrients into this shallow waterbody, which could inform nutrient management of HDF and allow for management changes to minimize nutrients not being effectively utilized by the grass crop. Results from the monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community.

The entire coastline along this region is recognized for its general scenic, environmental and recreational resource values. The EIS does not, however, identify the waters of the agricultural ditch (Waiopili Ditch) as a recreational resource. In response to findings of water quality testing in 2016, the State Department of Health has posted these waters as unsafe for human contact.

There are no perennial streams in the Māhā'ulepū watershed. It is estimated that actual runoff into drainageways from HDF pasture will only occur when rainfall exceeds 0.8 inches per rain event. Additionally, groundwater contained in the shallow alluvial material fluctuates with seasonal high rainfall, and may rise to the surface through the deep ditches cut for sugarcane irrigation that remain on the HDF site. The potential for this seasonally high groundwater to intersect with the deep ditches occurs only in the mid-section of the HDF site due to the descending depth of the groundwater in the alluvium towards the makai end of the site. Over the past 30 years, rainfall events exceeding 0.8 inches occurred approximately 10 days per year.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Hawaii Dairy Farm Att: Jeff Overton

Hannah Rees <hrees101@gmail.com>

Sun 7/24/2016 6:11 AM

To:HDF <hdf@group70int.com>;

I am writing because I am very concerned about the ecological and economical impact of the proposed Hawaii Dairy Farm on Mahalapu's pristine site on Kauai. Dr John Kilpatrick PhD, economist, stated that the dairy would use 3 million gallons of water a day with the return of 150 tons of manure a day, which would have to be disposed of some way and would most probably pollute the ocean , ground water and lovely beaches. In addition to water pollution, the air would be contaminated with cattle smells and biting flies. This pollution and destruction of one of our favorite areas on the island would affect the neighborhood - property values would decline, tourists would hesitate or more likely refuse to come, the income from the homes and resorts would be less as the value of the property would have decreased, causing a great tax burden on the north shore residents. Furthermore it was stated that only 4 people from Kauai would be employed at the dairy. The benefits of this dairy are slim to non existent for Kauai. In fact, allowing this dairy to commence would decimate a most beautiful, historical and sacred part of the island. Thousands would suffer so a few dairymen could become more wealthy.

Hannah Rees
101 South Lewis Ave
Lombard, IL 60148

GROUP 70 INTERNATIONAL

January 3, 2017

Hannah Rees
101 South Lewis Ave
Lombard, Illinois 60148
hrees101@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Hannah Rees:

Thank you for your email of July 24, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Once fully operational at the committed herd size of 699 mature dairy cows, the dairy will utilize 30,000 gallons per day (gpd), which is 0.03 million gallons per day (MGD), of potable (drinking water quality) water from groundwater provided through an on-site well. The State of Hawaiʻi Department of Health Milk Rules require that potable water be used for milk production, both in the milking parlor and for milking operations; another potable water use will be for livestock drinking water. Should HDF decide, in the future, to expand to the contemplated herd size of up to 2,000 mature dairy cows, potable water demand will increase to 84,800 gpd (0.085 MGD). These demands are a small fraction of the 3 MGD produced by the on-site, existing Māhāʻulepū 14 well during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawaiʻi for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kauaʻi and those species already in Māhāʻulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

2016 July 21

Puanani Rogers
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RE: Hawai'i Dairy Farms, LLC. Draft Environmental Impact Statement
TMK: (4) 2-9-003:001 (portion); 006 (portion) ,
(4) 2-9-001:001 (portion)

Aloha e Department of Health:

Please reject the Draft Environmental Impact Statement[1] as presented. There are significant Public Trust and irreversible water quality issues to this project that are not adequately considered.

The DEIS erroneously states that Waitā Reservoir is the water source for 2.26 million gallons of water needed per day to spray slurry-manure over the fields. Please have this corrected. Waitā Reservoir is just a High-Hazard-rated storage reservoir. The water originates from Mount Waialeale, not Waitā Reservoir. It is delivered through the `Ili`ili`ula/North Fork Wailua diversion through the KIUC hydropower plant after which it enters a diversion from the Wailua system into Grove Farm's Hanamaulu ditch. It is not available for a water license or lease due to previous requests for studies not being completed.

> The Water Code defines surface water as "both contained surface water – that is, water upon the surface of the earth in bounds created naturally or artificially including, but not limited to, streams, other watercourses, lakes, reservoirs, and coastal waters subject to state jurisdiction – and diffused surface water – that is, water occurring upon the surface of the ground other than in contained waterbodies." Haw. Rev. Stat. § 174C- 3. Regardless of whether surface water is contained in streams or springs, or diffused in some other form, it is a public trust resource that must be managed for the benefit of present and future generations.[2]

[1] 2016-06-08-KA-5E-DEIS-Hawaii-Dairy Farms, LLC ,Volume 1, prepared by Group 70 International, May, 2016. 2,607 pages.

[2] 2009. ***Ola i ka wai.*** A legal primer for water use and management in Hawaii. D. Kapua`ala Sproat. Ka Huli Ao Center for Excellence in Native Hawaiian Law and OHA. Page 26 of 81 pages.

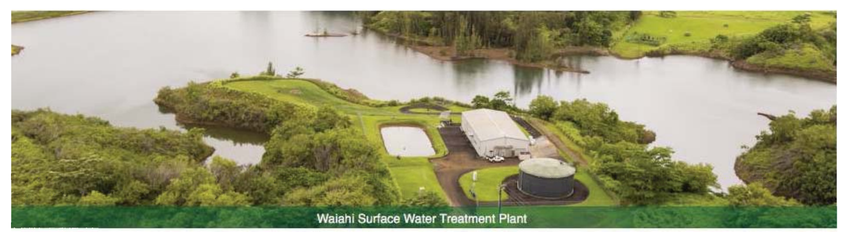
In December, 2004[3], the Board of Land and Natural Resources considered the request by Kauai Island Utilities Corporation for a 65 year license for the diversion of 100% of water of the North Fork, Wailua River ("Blue Hole diversion"). The Office of Hawaiian Affairs (OHA) and The Life of the Land requested a Contested Case hearing. In 2012, the request was withdrawn if KIUC would conduct specific studies in connection with their use of the requested surface water including:[4] a watershed protection plan as part of a watershed management plan, cultural impact assessment, water rights reservation for DHHL, monthly recording and reporting of diversion amounts.

In 2013, a revised biological modeling report was submitted entitled "Assessment of the environmental impact of the Upper and Lower Waiahi Hydroelectric Plants on the native stream animals with respect to habitat changes, barriers to migration, and entrainment using the GIS model-based Hawaiian Stream Habitat Evaluation Procedure. Submitted 5/13/2013; Resubmitted with review edits 9/16/2013, available at https://www.dropbox.com/s/w63p2ogiqyno7xj/Upper%20and%20Lower%20Waiahi%20Hydropower%20Habitat%20Assessment%20Final%20Report%20Revised.pdf.

The Cultural Impact Assessment has not been submitted yet. There is no Watershed Management Plan or a water reservation for DHHL lands. There is no recordation or reporting of water diverted into the Hanamalu Ditch system. This water is not available for lease consideration until these conditions are completed, yet the Hanamalu Ditch water is being obligated and sold without these conditions being met. There is no lease or sub-lease for the North Fork Wailua waters to be delivered to Hawaii Dairy Farms in Māhā`ulepū. There is no consideration for the domestic use of the diverted surface water from the North Fork Wailua River.

The new Waiahi Water Treatment Plant now sells/"delivers" a new 3 mgd of water from the Hanamalu Ditch/North Fork Wailua to Lihue and Puhi, as stated on www.grovefarm.com:

Waiahi Water



Waiahi Water Company, LLC., is a division of Grove Farm. In 2005, Waiahi Water Company celebrated the opening of its new state-of-the-art surface water purification facility on Kauai, Also known as the Grove Farm Surface Water Treatment Plant, the nearly $10,000,000 investment resulted through the private-public partnership between Waiahi Water Company and the County of Kauai, Department of Water, to develop the Kapaia Reservoir water source.

The Grove Farm Surface Water Treatment Plant processes water collected at Kapaia Reservoir, via the Hanamaulu Ditch system and delivers water to the Department's Lihu'e-Hanama'ulu-Puhi Water Systems. The initial capacity of the plant allows for approximately 3,000,000 gallons of water per day to be delivered to households in the area and ultimately serves nearly 15,000 residents. As planning for this project began in the late 1990's, the plant took many years to come to fruition. Due in part to its innovative partnership, Grove Farm and the County's Department of Water had to resolve a number of logistical issues to ensure viability.

The entire Surface Water Treatment Plant project, through its planning, design and construction phases was entirely privately built and financed. In addition to fulfilling Grove Farm's obligation to provide a water source for its new residential and commercial properties, Grove Farm is also ensuring that Kauai's island community has critical access to water in the Lihue-Hanama'ulu-Puhi areas for years to come. www.grovefarm.com

Grove Farm's obligation to new residents does not consider water delivery to DHHL lands. A new residential development project has begun in the Hanamaulu triangle. Grove Farm's four-phase Kohea Loa (Ho`oluana first) will have a density estimated at 440 housing units, probably using another 2 mgd of water.Where is the water reservation for the development of DHHL lands in Wailua? Page 10 of the Withdrawal of Contested case[5] states

- DHHL's Kauai Island Plan anticipates the development of the second largest DHHL community on the island over the next 20 years that includes 651 residential units, a 12-acre school/park, 50 units of kupuna housing and day-care center, and a regional commercial and social service center. DHHL is also planning to establish a district office and 99-acre agricultural community in the area. DHHL questions whether the water quality will be affected by the use of the water by the hydroelectric plants and indicates that a watershed management plan could address those concerns.

Sugar Cane went pau in Koloa in 1996, but the diversion of billions of gallons of water into Waitā and Māhā`ulepū Reservoir continues, without recording or lease payment to DHHL. The use of water for entertainment and a dairy farm operating on former sugar cane lands requires a new water license with the State of Hawaii for use of the Public Trust water. In 2012, Important Agricultural Lands were designated,including the 3.2 billion gallon water storage system of Waitā Reservoir.[6]

In 1948, Grove Farm Company, Inc. purchased Kōloa Plantation.

From 1960 to 1965, the Ku'ia-Waitā Tunnel was constructed. The tunnel is approximately 2 miles long and currently provides up to 250 million gallons per day of water to Waitā Reservoir. The Ku'ia intake can be opened and closed and is utilized as a tool to manage the water level in Waitā Reservoir to this day. When Ku'ia-Waitā Tunnel started operating in 1965, the Wilcox Ditch and the Kōloa Ditch were no longer used to supply water to Waitā Reservoir.

After nearly a century of independent sugar production, Grove Farm ceased sugar cultivation in 1974 and leased its Kōloa Lands, as well as the Kōloa Mill, to McBryde Sugar Company. From 1974 until 1996, McBryde Sugar Company continued the sugar production. In September of 1996, McBryde Sugar Company had their last harvest and the Kōloa Mill closed.

The uses of former agricultural ditch water have changed. Waitā now has "entertaining uses"[7]

In 1998, Kaua'i Freshwater Aquatics leased Waitā Reservoir. In 2000, Kaua'i ATV took over the lease of Waitā Reservoir and continues to utilize it for commercial fishing tours and Kayaking. Besides the entertaining uses, Waitā Reservoir continues to serve the critical role in agricultural operations as well. As described in the agricultural history of Hā'upu Lands, Waitā Reservoir has been used for water storage and distribution for the agricultural operations in the Kōloa-Weliweli-Pa'a-Māhā'ulepū region. Currently, approximately 3,700 acres of agricultural land in that region are irrigated with reservoir water or utilize Waitā Reservoir as a source to water the livestock.

Figure 2 illustrates and lists the current tenants and the uses on the proposed IAL Lands. Also illustrated on Figure 2, approximately 178 acres of the proposed IAL lands are included in an Option Agreement with Hawaii BioEnergy LLC (HBE). HBE is a consortium of some of the largest landowners in the State: Grove Farm Company, Inc., Kamehameha Schools, and Maui Land and Pineapple Company, Inc. and other partners include leaders from the venture capital community: Vinod Khosla, Ohana Holdings, and Finistere Ventures. Their mission is to reduce Hawai'i's energy costs, greenhouse gas emissions, and dependence on imported fossil fuels. Their interest in the land is for the purpose of growing biomass, which will be converted into oil or electricity. The growing of biomass to produce energy will perpetuate agriculture and the land's long tradition of providing for Hawai'i's residents.

On October 21, 2011, Hā'upu Land Company LLC signed the lease option agreement (to August 2015) with HBE to lease a portion of IAL lands illustrated. HBE plans to implement the Biomass to Energy project within the next five years. If the HBE option is exercised, the term of the lease is for a total of 30 years.

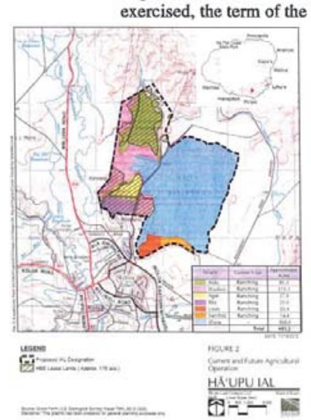


Figure 2.[8] Map details 178 acres of Hawaii BioEnergy and 685 acres of ranch land are irrigated with Waitā water. It is unclear where the remainder of the alleged irrigated 3,700 acres are and if the water is used to grow biomass for the "venture capital community". This map was prepared in 2012, without the addition of Māha`ulepū lands to be irrigated by HDF, which plans to use ~3 million gallons of water per day to dilute manure slurry and irrigate fields.

[5] Ibid. Page10.

[6] 2012 Exhibit C. Agricultural Land Assessment for Hā`upu Land Company, LLC, Hā`upu, Hawaii, prepared by PBR Hawaii & Associates, Honolulu, HI. November, 2012. Page 4 of 15 Pages.

The Constitution of the State of Hawaii entitles an obligation to protect, control and regulate the use of Hawaii's water.

THE CONSTITUTION OF THE STATE OF HAWAII
ARTICLE XI
CONSERVATION, CONTROL AND DEVELOPMENT OF RESOURCES
CONSERVATION AND DEVELOPMENT OF RESOURCES

WATER RESOURCES Section 7. The State has an obligation to protect, control and regulate the use of Hawaii's water resources for the benefit of its people.
The legislature shall provide for a water resources agency which, as provided by law, shall set overall water conservation, quality and use policies; define beneficial and reasonable uses; protect ground and surface water resources, watersheds and natural stream environments; establish criteria for water use priorities while assuring appurtenant rights and existing correlative and riparian uses and establish procedures for regulating all uses of Hawaii's water resources. [Add Const Con 1978 and election Nov 7, 1978]

The state Constitution guarantees each person to a clean and healthful environment:

ENVIRONMENTAL RIGHTS Section 9. Each person has the right to a clean and healthful environment, as defined by laws relating to environmental quality, including control of pollution and conservation, protection and enhancement of natural resources. Any person may enforce this right against any party, public or private, through appropriate legal proceedings, subject to reasonable limitations and regulation as provided by law. [Add Const Con 1978 and election Nov 7, 1978]

The Hawaii Constitution also provides for 30% of the lease or sale of former sugar cane land or water licenses to go to the Department of Hawaiian Home Lands:

ARTICLE XII
HAWAIIAN AFFAIRS

HAWAIIAN HOMES COMMISSION ACT Section 1. Thirty percent of the state receipts derived from the leasing of cultivated sugarcane lands under any provision of law or from water licenses shall be transferred to the native Hawaiian rehabilitation fund, section 213 of the Hawaiian Homes Commission Act, 1920, for the purposes enumerated in that section.

Thirty percent of the state receipts derived from the leasing of lands cultivated as sugarcane lands on the effective date of this section shall continue to be so transferred to the native Hawaiian rehabilitation fund whenever such lands are sold, developed, leased, utilized, transferred, set aside or otherwise disposed of for purposes other than the cultivation of sugarcane. There shall be no ceiling established for the aggregate amount transferred into the native Hawaiian rehabilitation fund. [Ren and am Const Con 1978 and election Nov 7, 1978]

Hawaii Revised Statutes §171-58 Minerals and water rights, here are condensed and excerpted:.

(a) the right to any mineral or surface or ground water shall not be included in any lease, agreement, or sale, this right being reserved to the State

(b) Disposition of mineral rights shall be in accordance with the laws.

(c) Disposition of water rights may be made by lease at public auction …or by permit for temporary use on a month-to-month basis

(d) Any lease of water rights shall contain a covenant on the part of the lessee that the lessee shall provide from waters leased from the State under the lease or from any water sources privately owned by the lessee to any farmer or rancher engaged in irrigated pasture operations, crop farming, pen feeding operations, or raising of grain and forage crops, or for those public uses and purposes as may be determined by the board… to be surplus to the lessee's needs

Subject to the applicable provisions of section 171-37(3), the board, at any time during the term of the lease of water rights, may withdraw from waters leased from the State and from sources privately owned by the lessee so much water as it may deem necessary to (1) preserve human life and (2) preserve animal life, in that order of priority;

(e) Any new lease of water rights shall contain a covenant that requires the lessee and the department of land and natural resources to jointly develop and implement a watershed management plan. The board shall not approve any new lease of water rights without the foregoing covenant or a watershed management plan. The board shall prescribe the minimum content of a watershed management plan; provided that the watershed management plan shall require the prevention of the degradation of surface water and ground water quality to the extent that degradation can be avoided using reasonable management practices.

(f) Upon renewal, any lease of water rights shall contain a covenant that requires the lessee and the department of land and natural resources to jointly develop and implement a watershed management plan. The board shall not renew any lease of water rights without the foregoing covenant or a watershed management plan. The board shall prescribe the minimum content of a watershed management plan; provided that the watershed management plan shall require the prevention of the degradation of surface water and ground water quality to the extent that degradation can be avoided using reasonable management practices.

(g) The department of land and natural resources shall notify the department of Hawaiian home lands of its intent to execute any new lease, or to renew any existing lease of water rights. After consultation with affected beneficiaries, these departments shall jointly develop a reservation of water rights sufficient to support current and future homestead needs. Any lease of water rights or renewal shall be subject to the rights of the department of Hawaiian home lands as provided by section 221 of the Hawaiian Homes Commission Act.

L 1962, c 32, pt of §2; am L 1965, c 239, §32; Supp, §103A-55; HRS §171-58; am L 1970, c 101, §1; am L 1987, c 367, §1; am L 1990, c 201, §1; am L 1991, c 325, §3]

There is no lease or license for the 3 mgd of water that the HDF requires to dilute the manure of 2,000 cows. This project cannot be approved without a valid water lease.

The HDF admits that manure-laden water will enter Waiopili Stream and the waters of the Pacific Ocean, 10 times per year - about once/month.

> With the dairy in operation, during periodic seasonal storm water runoff events (about 10 times/yr) there may be additional nutrients introduced to the agricultural ditches, which ultimately drain to the nearshore ocean water.

This project will require a National Pollutant Discharge Elimination System (**NPDES**) from the Environmental Protection Agency to discharge manure into the Pacific Ocean. The Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit with limits on what you can discharge, monitoring and reporting requirements, and other provisions to ensure that the discharge does not hurt water quality or people's health.

Page 158 of the DEIS states

> This stretch of open coastal waters is classified as class A under State Water Quality Standards, as no embayments, marine waters, or open coastal waters in the vicinity are listed in HAR §11-54 for special protection. Use of class A waters in the standards state: "the objective of class A [marine] waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with the recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class" (DOH, 2014).

Dumping manure-laden water to the Class A receiving waters is not compatible with protection of fish or recreation and should not be considered. The beach fronting the Māhā`ulepū ahupua`a is important to Native Hawaiians, Hawaiian monk seals and green sea turtles. Negative impacts to these protected species by the manure laden waters is not considered. What happened to the right to a healthful environment as guaranteed in the Hawaii Constitution?

There is daily recreational use of Waiopili Stream and the nearshore waters of the Pacific Ocean, contrary to what the DEIS Volume 1, states on pages 170-171:

> ***Surface Water and Nearshore Marine Resources***
>
> The surface waters crossing the dairy farm site include some input from an intermittent stream above the site and drainage collected in agricultural ditches developed during the sugarcane plantation era. These surface waters are not a recreational resource and are not used by the public, even near the ditch terminus at the ocean.

Waiopili Stream near it's terminus at the ocean, <u>is</u> a recreational resource.

As stated in HDF Volume 2 Technical Appendices[9], a 25 year storm event prediction of 3.17" per hour, 10.4" per day will cause manure-laden water to enter the Pacific Ocean, even at 699 cows. This project intends to have 2,000 cows and should present it as such, not downscale impacts to 699 cows.

> **Effluent Storage Ponds**. Collection and storage of of effluent allows the dairy manager to control the schedule, timing, and mix of nutrients to be applied, as presented in detail in Chapter 3. Sizing of the storage facility allows flexibility in scheduling land application when weather and field conditions are suitable. Design guidance for effluent storage requires sizing of the pond to contain all wastewater, manure, clean water, solids accumulation, net surface rainfall including runoff, and the direct precipitation sized for a 25-year, 24-hour rainfall event. In consideration of the contemplated possible expansion of the herd, the ponds for HDF will be sized to accommodate the potential maximum effluent generated by up to 2,000 milking cows. For the committed herd size of 699 milking cows, the ponds would have excess capacity and minimum storage of 394,956 gal (30-day storage).[10]

What about the storm water storage for 2,000 cows and a precipitation event that lasts more than one day?

> The ***Livestock Waste Management Guidelines*** (U.H., 2010) requires storage facilities for animal wastes should provide a minimum buffer of 1,000 feet from public drinking water resources, and 50-feet from surface water resources. At their closest points, the ponds will be sited approximately 125 feet from the nearest drainage ditch, and 3,420 feet from the nearest public drinking water well (Figure 3.3-5). Design guidance for effluent storage requires sizing of the pond to contain all wastewater, manure, clean water, solids accumulation, net surface rainfall including runoff, and the direct precipitation sized for a 25-year, 24-hour rainfall event. [11]

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[9] 2016-06-08-KA-5E-DEIS-Hawaii-Dairy Farms, LLC ,Volume 2, Technical Appendices, prepared by Group 70 International, May, 2016. Page 130 of 730 pages.

[10] DEIS, Volume 1, op cit. Page29

[11] Ibid Page 58

The town of Koloa is located at the base of Waitā Reservoir. 0.2 of a mile away. Waitā is a High Hazard dam, containing 3.2 billion gallons of water. Waitā delivering 3 mgd is integral to the HDF plan and no alternative is presented.

The DLNR Engineering Division, Dam Safety, Dam & Reservoir Online Database shows the proximity of houses and town, but does not show the breach pattern or include the Emergency Action Plan.

Waitā overtopped and flooded Koloa town as recently as 2006, only 10 years ago. From the March 17, 2006 Honolulu StarBulletin lead story entitled *Residents flee more flooding on Kauai: »*

Two women tried to fish a wooden pallet yesterday from the wash of spillage from Waita Reservoir at Waikapao Street near Koloa, Kauai.

People watched drainage yesterday from the Waita Reservoir, which flooded the area near Aloha Place and Wailaau Road near Koloa, near Koloa, Kauai

***Up to an inch of rain an hour** in some spots forces evacuations on the South Shore*

On the South Shore, dozens of Kauai homes and two Koloa businesses, Crazy Shirts and Koloa Natural Foods, were evacuated as Waikomo Stream flowed over its banks and into the small South Shore neighborhood.

Cedric Ramos used his 20-ton excavator to drive across the overflowing stream to bring out four neighbors on Kapau Road in Koloa.

Continuing from the March 17, 2006 StarBulletin lead story, *Residents flee more flooding on Kauai:*

Instead of asphalt, the street in front of their homes had become a fast-moving river of brown water, effectively trapping them.

A four-wheel-drive Toyota pickup tried to make it across Waikomo Stream, and "he almost lost it," Ramos said. He estimated about a dozen homes were cut off by the high water.

Waikomo Stream began rising about noon, residents said. By 3 p.m. people began leaving their homes. Kathy Thompson, a spokeswoman for Grove Farm Co., said the overflow from Waita Dam rose to about 9 inches over the spillway yesterday from 2 inches over the spillway Wednesday because of heavy rains in the mountains.

Grove Farm also sent out heavy equipment along the stream to clear out debris and keep the water flowing.

Further upstream, homes along Aloha Place and Wailaau Road were flooded by the rising waters. Melissa Shaw waded through knee-deep water on Aloha Place to bring out some computer and camera equipment from her home.

Melissa Shaw, right, walked through Aloha Place with belongings from her house, which had begun to flood.

RICHARD WALKER / RWALKER@STARBULLETIN.COM

"Can you canoe?" her neighbor Maria Arakaki shouted from higher ground. "Bring the canoe."

"This is nuts," Shaw said.

Near Poipu, the Kiahuna Plantation Golf Course appeared cut in half by a raging river running through the middle of several fairways.

A month later, *The Garden Island* newspaper's lead story on Tuesday, April 11, 2006 was ***Koloa Residents Fear Kilauea Dam Repeat:***

Speaking to about 300 flood-wary citizens, various state and county officials, experts and local business leaders continually stressed the integrity of the Waita Reservoir dam.

Grove Farm owns the Waita Reservoir, which is currently classified as "high hazard" in the FEMA hazard-rating system, meaning there is significant potential for commercial and residential destruction in the event of a breach.

In the wake of the Ka Loko disaster that spilled an estimated 420 million gallons of water, killed seven people and caused between $15 million and $30 million worth of property damage on Kaua'i's North Shore, residents living below Waita — by far the island's largest reservoir with a maximum capacity of 3.2 billion gallons — organized Monday's informational session to put fears at ease and formulate a solution.

In addition to more water, the potential flood zone below Waita consists of a shallow layer of soil above hard volcanic rock, meaning if the dam failed, there would be nothing to contain or direct the flow.

State and county officials said efforts were underway to share the findings of the statewide dam inspections, as well as increase prevention methods.

In a rare moment of frankness, Kaua'i Mayor Bryan J. Baptiste described a state scrambling to adjust to a new problem.

"As far as these breaching activities, in terms of how much water would come down and where it would go, we don't know," he said. "We've done (models) for (disasters) that we're used to, the hurricanes, the tsunamis, but not for dams. We don't know what would happen and how massive it would be. I'm not going say we know everything. We don't.
"

"They're not going to give us any solutions tonight," said Koloa resident Lambert Kaiminaauao. "They're just going to tell us about the problem, but the problem is not new. We know about the problem."

The root of the problem is rainfall. Starting on Feb. 20, Hawai'i's western islands have been pounded by unseasonably hard rains. Kaua'i received 36.13 inches at Lihu'e Airport for the month of March, well above the normal three to four inches, said Mark Marshall, director of the Kaua'i Civil Defense. The state Attorney General's office recently announced its probe into the Ka Loko disaster is now a criminal investigation, and authority figures are quick to defer any blame.

"There is not anyone in this room who, during this disaster, did anything wrong," said Baptiste. "We just had more water than we knew what to do with."

"More water than we knew what to do with," said Mayor Baptiste. The safety of Koloa must be included when considering a project requiring impounding 900 millions of water per month (to just to dilute manure and spray slurry), stored immediately upstream from the town of Koloa, into a system that has overtopped within the past decade, when we had 40 days of rain. Onsite storage of one month of manure does not consider continual input and weather patterns that remain for a month.

Increasing the buffer zone around public drinking water wells is good, but there also needs to be a manure-free buffer zone from any lo`i to protect human food products from being sprayed with effluent-slurry irrigation water from guns.

This project has no Water License, no Watershed Management Plan, no Habitat Conservation Plan, no consideration of a water reservation for DHHL lands or lease payment to DHHL. It is only designed for a 25 year storm event and does not consider past flooding events or global climate change impacts intensifying storms and precipitation events. It does not consider impacts to protected species or cultural practitioners. It denies recreational use of popular beaches and waters.

Waiopili Stream at Māhā`ulepū.

There have been way too many errors, omissions and changes to this DEIS as originally presented to consider acceptance. Mahalo in advance for rejecting the DEIS for HDF at Māhā`ulepū.

Puanani Rogers, Moku Po`o

January 3, 2017

Puanani Rogers, Moku Poʻo
Ahupuaʻa Council of Puna Moku
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Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Puanani Rogers:

Thank you for your email received on July 21, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Public Trust Doctrine

The proposed action is consistent with the public trust doctrine. The Hawaiʻi Constitution states that all public natural resources, including water resources, are held in trust by the State of Hawaiʻi for the benefit of the people of Hawaiʻi and that the State should "conserve and protect" those natural resources but also "promote the development and utilization of these resources." The Hawaiʻi Supreme Court has held that, as a result, the State has a "dual mandate." That mandate is 1) to conserve and protect the water resources of the State, which include both groundwater and surface water and but also 2) to allow for "maximum beneficial use" of those resources, including for agriculture. The Hawaiʻi Supreme Court has therefore expressly rejected the concept that "resource protection" is a categorical imperative. It has held that the State should allow "controlled development" that, while giving preference to public use, access and enjoyment, "promote[s] the best economic and social interests of the people of this state."

Based on this dual mandate, the State has developed the water code, which states that it should be "liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic use, aquaculture uses, irrigation and other agricultural uses, power development and commercial and industrial uses" while also adequately providing for the "protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture and navigation. Such objectives are declared to be in the public interest."

The public trust doctrine therefore involves a balance--protection and conservation of the public natural resources of the State and a maximum beneficial use of those resources, including for agriculture. Designation of "important agricultural lands", including the HDF site, heightens the public interest in development of agriculture as the Hawaiʻi State legislature has declared that the people of the State have a "substantial interest in the health and sustainability of agriculture as an industry" and, when so designated, the policy of the State is to promote the long-term viability of agricultural uses on those lands, including by "promot[ing] the maintenance of essential agricultural infrastructure, including the irrigation systems." This serves the "compelling state interest in conserving the State's agricultural land resource base."

The proposed dairy farm will use water from Waita Reservoir for irrigation, which is also the water source for several other farmers and ranchers in the area, including a taro farmer. Non-potable water from Waita Reservoir, which uses water from upland streams, provided irrigation water to the sugar plantation that historically operated in the Māhāʻulepū area, and is used for recreational fishing. The reservoir is located west of the HDF site.

Potable water for the dairy farm will be drawn from deep groundwater wells that were installed by the sugar plantation that formerly operated on the site. The potable water will be used as drinking water for people working on the dairy farm and for the cows. As a result, the proposed action will advance both purposes of the public trust doctrine. The dairy farm will advance the important public interest in protecting and conserving agriculture in the State, including on important agricultural lands, and also further the goal of maximum beneficial use of the surface water and groundwater on those important agricultural lands.

Dairy Water Use

Once fully operational at the committed herd size of 699 mature dairy cows, the dairy will utilize 30,000 gallons per day (gpd), which is 0.03 million gallons per day (MGD), of potable (drinking water quality) water from groundwater provided through an on-site well. The State of Hawaiʻi Department of Health Milk Rules require that potable water be used for milk production, both in the milking parlor and for milking operations; another potable water use will be for livestock drinking water. Should HDF decide, in the future, to expand to the contemplated herd size of up to 2,000 mature dairy cows, potable water demand will increase to 84,800 gpd (0.085 MGD). These demands are a small fraction of the 3 MGD produced by the on-site, existing Māhāʻulepū 14 well during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant.

Cultural Impact Assessment

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhāʻulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Waiopili Ditch

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhāʻulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Poʻipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Poʻipū/Kōloa watershed differs from Māhāʻulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Poʻipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhāʻulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irrigation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Marine Environment

The EIS documents both surface water and marine water quality downgradient of Māhāʻulepū Valley. Intermittent streams and man-made ditches convey surface water from the 2,700-acre Māhāʻulepū Valley sub-watershed, which includes the 557-acre proposed HDF site, to the Waiopili Ditch. The terminus of Waiopili Ditch is a deep, muddy basin that joins the ocean through a channel cut through beach sand. The ditch is not an inviting body of water for recreation, though people may cross the channel on foot nearest the beach at a point also utilized by a commercial horse-back riding operation during its twice-daily trail rides. Water quality constituents, including nutrients and bacteria, were quantified at surface water and marine sites. Results of the water chemistry analysis identify that ditch water mixes rapidly and within a short distance of the shoreline. Marine Research Consultants, Inc. (MRCI) concluded input from ditch water is highly restricted in terms of effects to the marine environment, and there will be no substantial effects to marine water quality from dairy operations. However, comments received on the Draft EIS included interest in the marine biota.

To address the comments to the Draft EIS, HDF engaged MRCI to survey the marine biotic community structure and provide baseline documentation of existing conditions in the Addendum to EIS Appendix F. The typical weather and sea conditions in the area are characterized as a high energy environment due to frequent tradewinds and long-period ocean swell, which rapidly mix the water column. This translates to rough water conditions considered dangerous for human recreation during periods of exceptionally calm wind and waves. The survey was conducted during such a period in November 2016, to allow for safety as well as for visibility within the water.

The shoreline and nearshore marine environment is shaped by a submerged basaltic shelf, formed from ancient lava flows. A semi-embayment is created seaward of the basaltic shelf, bounded by extrusions of pillow lava that form distinct shallow dikes on either side. Within the central area of this semi-embayment are expansive sand flats. Biotopes – areas of uniform environmental conditions that provide a living place for a specific assemblage of plants and animals - were documented and described for the Māhāʻulepū area. The open coastal exposure to long-period south swells and tradewind-generated seas are reflected in the survey findings. There is essentially no biotic community structure in the areas where the ditch water flow meets the ocean.

Coral community structure throughout the nearshore zone that has a hard bottom is generally restricted to the hardy pioneering coral *Pocillopora meandrina*. Where substratum is more sheltered from wave effects or has more complexity in the form of undercuts, ridges and knolls, additional common species are seen: *Porites lobata* and *P. compressa*, and *Montipora patula* and *M. capitata*. Coral cover in such areas was 10 to 20 percent of bottom cover. The exception was a small area approximately 0.3 miles south of the ditch point of discharge, where a well-established coral community was identified. The larger coral colonies likely exist due to a protective lava extrusion that shelters the area from destructive waves; assumedly these corals withstood wave forces associated with two hurricanes that directly impacted Kaua'i in 1981 and 1992. The corals within this area, while not common for the high energy marine environment, are composed of the most common components of most Hawaiian reefs. Due to the distance from the discharge point (approximately 2,000 feet, or 0.3 mile), nutrient or biological inputs from the ditch would be diluted to background marine levels and create no impact.

A larger body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

<u>Storm Water Storage</u>

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

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PLEASE ACKNOWLEDGE RECEIPT OF THIS LETTER

July 25, 2016

Re: Comments on Hawaii Dairy Farm's Draft EIS, dated May 2016

We are homeowners at Poipu Sands in the Poipu Kai complex. 0ur home is both a source of serenity and, in our absence, a business. The attraction is the physical beauty and the wholesomeness of the environment. As we and our guests immerse ourselves in the awesomeness that is Kauai we generate real estate tax revenue for the county and transient accommodations tax for the state. It's a small amount as individuals but there are many like us in Po'ipu.

We are deeply troubled by the proposal to establish a large dairy, 700-2000 cows, at Maha'ulepu. There has been a significant history of inaccuracies and outright prevarication in the information provided to the public by HDF beginning with the assertion that they collaborated with UH Agriculture in developing the plan - the cited faculty denied any contact. The initial indications that they would pursue a farming model that New Zealand now deeply regrets and that they would use "native grass" feeding employing species that cannot thrive in the Maha'ulepu environment was just the beginning. They have lost our trust and have done nothing to earn it back.

Of particular concern to us is the risk of foul odors, massive proliferation of biting flies and bacterial and chemical pollution of the reef and waters of Mahaulepu, an area that, contrary to HDF assertions, we and many others frequent. Estimates of the consequent decline in Po'ipu property values range from 20-50%. This would translate to a serious decline in Kauai tax revenue that would require rate increases for the entire island in order to remain revenue neutral. Declines in tourism would also seriously impact state taxes and local businesses including consruction.

Even accepting the dubious HDF assertion that they could contain 90% of the odor, flies and pollution, the remaining 10% is still a terrible environmental impact. From our view, the bang that HDF claims they will bring to the Kauai community nowhere near justifies the probable and irreversible bucket will cost in environmental devastation.

If HDF is so sure that they will cause so little harm perhaps we should require, as a condition of going forward, that they indemnify the community with a prospective insurance policy for any environmental and economic harm their operations would cause.

Henry and Sara Rosen
115 Po'ipu Sands
1565 Pe'e Road
Koloa, HI

GROUP 70 INTERNATIONAL

January 3, 2017

Henry and Sara Rosen
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hquincyr@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Henry and Sara Rosen:

Thank you for your email of July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Successful pastoral dairies exist at numerous locations in New Zealand, as well as suitable farming regions in the United States. Several rotational grazing dairy operations located in Florida and Georgia operate successfully, with farms containing over 2,000 animals. Successful rotational grazing dairies also exist in Maryland, North Carolina, and Missouri. Numerous articles and publications on rotational grazing dairies are cited in Progressive Dairyman and other industry news sources.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

North Shore Hydrological Services
Matt Rosener, MS, PE, Principal

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GROUP 70 INT'L

24 June 2016

Laura McIntyre
State of Hawai'i, Department of Health
1250 Punchbowl Street
Honolulu, Hawai'i 96813

Dear Ms. McIntyre,

In response to the Draft Environmental Impact Statement (DEIS) submitted by Hawai'i Dairy Farms, LLC (dated May 2016), I would like to express my significant concerns about the potential impacts of the proposed dairy operation on local water resources, particularly impacts to water quality. As a water resource engineer and hydrologist involved in land and water resource management on Kaua'i for the past 12 years, I have seen firsthand the degradation of water quality due to cattle grazing and associated land use practices. I previously submitted comments (dated 19 February 2015) on the Environmental Impact Statement Preparation Notice (EISPN) submitted by Hawai'i Dairy Farms, LLC (dated January 2015). While I appreciate the response I received from Group 70 International, LLC on behalf of Hawai'i Dairy Farms (dated 26 May 2016), I was disappointed that some of my comments and concerns were not addressed in this response letter. These include the following:

1. How will compaction of soils by grazing cattle be accounted for in the hydrologic modeling and/or analysis in the Groundwater Hydrology Technical Study? Soils in the proposed project area are predominantly fine-grained (i.e. clay) with poor drainage qualities, and soil compaction due to cattle grazing can and probably will significantly reduce the soil's ability to infiltrate rainwater resulting in more frequent surface runoff and higher runoff volumes than under current conditions. Runoff retention/detention strategies should be considered for pasture lands.

2. How will pollutant migration from proposed dairy operations to groundwater be analyzed and/or modeled? What impacts (if any) to groundwater quality are expected due to the proposed dairy? Given the presence of limestone and known Karst features like the Makauwahi cave/sinkhole in the watershed, how will pollutant fate & transport be evaluated for the aquifer underlying the proposed dairy? Portions of the proposed project area are known to have a relatively shallow water table; can vadose zone/groundwater models be used to show that pollutants such as fecal bacteria and nutrients (e.g. N, P, K) will not migrate through the soil column into local groundwater?

3. How will climate change impacts on local hydrology be addressed in the analysis? We know that future rainfall regime cannot be cleanly predicted from past records, so rainfall parameters used for modeling and/or computations should be based on future rainfall

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projections that account for increased frequency of high-intensity rainfall events that can produce substantial surface runoff in the proposed project area.

4. What models will be used to simulate rainfall-runoff response and associated non-point source pollutant transport? We know that most hydrologic models have been developed for very different environmental conditions than those found in Hawai'i, and many model predictions generally do not track well with observed data. A factor of safety should be used to account for this.

5. Assuming buffer strips will be used between grazed lands and any surface waters present in the proposed dairy area, what model(s) will be used to determine suitable buffer strip width? What other Best Management Practices (BMPs) being proposed can be incorporated into hydrologic modeling to determine their effectiveness in reducing non-point source pollution from the proposed dairy farm? Again, given the significant uncertainty regarding the effectiveness of pollutant load reduction from various agricultural BMPs in the tropical island environment, it is suggested that a factor of safety approach be used in the analysis to site and size BMPs.

After a thorough review of the DEIS document (including study several reports in the appendices), I offer the following additional comments to the Department of Health (DOH) to consider in evaluating HDF's proposal. First off, I appreciate the diligence of HDF and their consultants in performing several studies for the DEIS, and it seems their planning team generally did a good job of characterizing and evaluating the potential environmental impacts of the proposed dairy. I also appreciate HDF's stated commitment to using modern technologies in management of farm operations (e.g. GPS-aided irrigation and nutrient application, nutrient management based on updated monitoring results, etc.). Also, I recognize the potential significant benefits of a functional, rotational-grazing, pasture-based dairy on Kaua'i. However, I do have continued concerns, particularly regarding the potential impacts of the proposed dairy on water quality and aquatic habitat in the area's waterways and the nearshore marine environment of Māhā'ulepū. I will provide some general comments first, followed by comments on specific sections and appendices of the DEIS package.

It was clear in reading through the documents that proper nutrient management would be critical to the proposed project's economic success as well as its ability to avoid contamination of local water resources. I spent two years working with dairy farmers in Tillamook, Oregon where I saw firsthand the degradation of water quality and stream habitat that can occur when excessive nutrients are introduced from dairy farms to the environment without adequate control over their fate and transport. While the DEIS documents describe nutrient cycling at the proposed dairy as a "semi-enclosed loop" (Appendix E, pg. 39) and an "essentially closed system" (Appendix F, page 15), the reality is that the system is leaky, and there will be nutrients lost from the loop via hydrologic processes at the ground surface (i.e. runoff) and in the subsurface (i.e. leaching). As you know, these are common pathways travelled by non-point source pollutants in agricultural and other landscape settings.

The numbers in the proposed nutrient budget for the HDF site are a bit staggering, honestly. While HDF highlights the possibility of being able to produce 70-85% of the feedstock for their dairy cows on-site (using Kikuyu grass in the grazed pastures), this will only be possible through the addition of substantial chemical fertilizers. The DEIS states that, "manure is the primary source of nutrients for the Kikuyu crop" (pg. 3-31), but the nutrient mass balance presented in Table 3.5-1 shows that 69.5% and 64.2% of the nitrogen (N) and phosphorous (P), respectively, needed by the grass crop will be provided through the addition of commercial fertilizers. According to HDF estimates, this projects to 340,676 lbs/year of N and 56,040 lbs/year of P that will be imported from off-site and introduced to the system on an annual basis. This is certainly not an "essentially closed system". Manure deposited on the pastures in-situ and effluent from the manure storage ponds applied to the paddocks via irrigation systems would provide for the remainder of nutrient additions on the farm. All together, HDF would be circulating approximately 490,000 lbs/year of N and 87,000 lbs/year of P if the dairy is implemented as currently planned.

HDF and their consultants estimate that only 2% of the N and 1% of the P applied to the dairy paddocks will escape the farm and enter surface water or shallow groundwater. The source of these values is unclear as no reference or justification is provided. The origin appears to be the Tom Nance Water Resource Engineering (TNWRE) report on Potential Impacts to Surface and Groundwater at the HDF Site (Appendix E). Based on these nutrient loss factors, HDF estimates that roughly 10,000 lbs/year of N and 900 lbs year of P would escape the farm and enter surface water or groundwater within the dairy site. These values represent roughly 7- and 9-fold increases in the present levels of N and P leaving the HDF site, respectively. Narrowing the focus to nutrient loading into surface and groundwater generated on the proposed dairy property only, the increases in N and P are 20-fold by my calculations.

It should be noted that by no means are the nutrient loss factors used by HDF conservative. A brief review of the literature on the topic of nutrient leaching from dairy effluent applied to farm pastures shows that substantial N losses have been measured and documented at several experimental sites in New Zealand where water quality degradation due to dairy farm practices is an extremely important issue (Ref: Houlbrooke et al., 2004). For total nitrogen, several field studies showed losses of 2 - 20% via leaching and/or runoff, with a mean value of 8%. Of the 10 studies summarized in the Houlbrooke et al. paper, none measured N losses as low as the value estimated by HDF (2%). For nutrient loading calculations, I feel strongly that more conservative estimates for the loss rates should have been used, at least for Nitrogen, based on the available research findings. P tends to become immobilized in the soil column as it readily adsorbs to soil particles, moreso than the various forms of N, but even so the 1% loss estimate for P used for the EIS study seems overly optimistic as well.

Note that if actual nutrient losses from the HDF farm end up in the upper range of what has been documented in the New Zealand field trials, additional N loading of 50,000 - 100,000 lbs/year should be expected in the Māhā'uplepū watershed and at the shoreline. It is not difficult to imagine this type of nutrient enhancement causing significant ecological impacts in the nearshore marine environment. In comparing nutrient loading from the proposed HDF operation to other significant sources of nutrients in waters of southern Kaua'i, the TNWRE report (Appendix E) assumes that 8% of N and 2% of P are lost from fertilizers used on golf course and park lawns. These figures may represent a more realistic scenario for nutrient losses at the HDF site, but in any case, given the potential consequences of large-scale nutrient releases to surface waters, groundwater, and/or the marine environment in this area, more conservative estimates are warranted.

Nutrient enhancement in aquatic environments can have serious deleterious effects by altering the trophic structure in the ecosystem. Coral reef ecosystems are particularly sensitive to nutrient pollution as corals can thrive in relatively nutrient-poor water while algae tends to benefit from nutrient enhancement at the expense of coral reef communities. The reef areas fronting the Māhā'ulepū and Po'ipū shorelines are already threatened by the combined influences of land-based pollution, global climate change effects (including sea-level rise and ocean acidification), etc. Water quality data presented in the DEIS documents as well as the recent DOH Sanitary Survey report for the Māhā'ulepū watershed clearly show evidence of degraded water quality in areas within and around the proposed dairy farm site. Even if the projected nutrient load increases from HDF operations are less than existing loads from lawn fertilization and domestic wastewater disposal in the area, this is an issue of cumulative effects. By introducing new sources of nutrients to this watershed at the projected amounts, there would be serious potential for further water quality degradation at substantially higher levels than presently occurring.

Another important factor that strongly affects the potential for water quality degradation in the watershed is the relative significance of runoff mechanisms occurring now at the HDF site, and how these might change in the future with the proposed land use change. From what I read, this topic was not fully addressed in the DEIS or its appendices. The two primary runoff mechanisms that I would expect at this site are 1.) surface runoff (i.e. Horton overland flow), a process which occurs when rainfall exceeds the infiltration capacity of soils, and 2.) groundwater runoff, which represents drainage of rainfall through the soil column to a water table that discharges to a stream or ditch channel. Variables that influence how much runoff moves to surface water via surface and subsurface pathways include rainfall regime (intensity, duration, frequency), soil infiltration qualities (rates, capacity), and land-cover conditions (type and quality). Obviously, there is higher potential for pollutants to enter surface water bodies in surface runoff vs. subsurface because surface runoff travels relatively quickly while subsurface flow is essentially "filtered" by the soil (removing sediment particles, pathogens, organic matter, etc.). Also, nutrients in shallow groundwater runoff are often broken down in the soil and captured by plants and microbes before reaching surface waters. Land uses and land treatments that encourage subsurface flow paths instead of surface runoff help to mitigate water pollution potential in a very significant way.

There was some hydrological modeling performed for the DEIS that provided basic information about the total amount of runoff that could be expected to pass through and leave the project site during storms of various frequencies (e.g. 2-year, 10-year, 100-year). However, the modeling did not include detailed analysis of the relative significance of surface vs. subsurface flow paths. The model that was used, the "SCS Curve Number" method, has been shown to not fit conditions in Hawai'i very well, even though it is commonly used for engineering (design) hydrology here. More detailed hydrological testing and analyses should have been performed for this study to determine the likely frequency of surface runoff at the dairy site under existing conditions.

Rainfall depths for various frequency and duration combinations are easily accessible for all of Hawai'i in the NOAA Rainfall Atlas 14 (http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_hi.html). Had soils at the HDF site been tested to determine their infiltration qualities, these data could be used together to estimate runoff frequency and amounts at the project site under current conditions. There are simple, inexpensive ways of measuring soil infiltration rates (e.g. mini disk infiltrometer, double-ring infiltrometer, etc.); that this wasn't included in the field data collected at the project site is surprising and disappointing. Unfortunately, very little soil infiltration rate data exists for Kaua'i. Previous research has documented infiltration rates of 0.05 to 4.5 cm/hour for various soil types under pasture around the Hawaiian Islands (Ref: Wood, 1977). Unfortunately this is a wide enough range to not be very helpful evaluating runoff potential as the lower value combined with area rainfall data results in a projection of very frequent surface runoff occurring while the upper value yields a projection of very infrequent surface runoff. But with in-situ soil infiltration measurements from the HDF site, a proper analysis of runoff frequency could be performed, and this would allow for a more thorough evaluation of on-site hydrology and the potential for water quality degradation.

It is clear that the infiltration capacity of the soils under the HDF site are very important in determining how much rain water goes into the ground instead of running off at the ground surface. Another point to consider is how the soil column and its hydrological properties might change once hundreds (or thousands) of cows are on the property. The weight of these animals creates the potential for significant soil compaction which may reduce infiltration capacity and thus increase the frequency (and volume) of surface runoff at the site. It should be noted that the planned fertilization of the pastures resulting in better vegetative growth could result in positive effects on soil infiltration rates (via bioturbation of soils), but it is unknown whether the net effect of the proposed dairy farm at Māhā'ulepū on infiltration processes will be positive or negative. Based on my personal observations around Kaua'i, I would anticipate overall reduction of infiltration rates at the HDF site due to soil compaction, and this would result in a higher proportion of runoff from the site as surface runoff vs. subsurface runoff, thereby increasing the pollutant loading potential.

While the comments provided above are more general in nature, the following comments refer to specific sections and appendices of the DEIS and are labeled as such:

4.16 Groundwater Resources

The DEIS documents state that there are two distinct bodies of groundwater located under the proposed HDF site. The first is a shallow aquifer residing in the alluvium that fills the valley floor, and the second is a deep aquifer in unweathered volcanic rock. Several tests along with associated analyses were performed to determine that these two groundwater bodies are not hydrologically connected, meaning that water does not move freely from the shallow aquifer to the deep aquifer. I have reviewed the information presented to reach this determination, and while it does not seem that there is a strong hydrologic connection between the two water bodies, it is unlikely that there is complete separation. While the TNWRE study report generally states that leaching of pollutants from the HDF operation to the deep aquifer located under the site is not likely due to the presence of low-permeability layers that act as an aquiclude, the reality is that there will be some unquantified amount of percolation from the ground surface through the shallow groundwater that resides in the valley-floor alluvium and ultimately into the deeper basal aquifer unit. This should be an important consideration as there are several existing wells currently producing potable water for domestic use in the vicinity of the proposed HDF operation.

The DEIS states that some groundwater discharge to the deep drainage ditches located near monitoring wells HDF-1 and HDF-2 will occur as the water table is relatively close to the ground surface in this area. The document also states that groundwater discharge to the drainage ditches is not expected in the lower part of the HDF property (near HDF-3 and HDF-4 monitoring wells). It should be noted, however, that during a very wet monitoring period in November 2015 the water level in the HDF-3 well peaked at 56.7 feet (MSL) while the ground elevation at this well site is only 57 feet (MSL), meaning the water table was essentially at the ground surface (i.e. saturation). It is unclear why drainage of groundwater into the ditches running through the lower portion of the HDF site would not occur during conditions such as these.

4.17 Surface Water Resources & Nearshore Marine Environment

Water quality testing in the area of the proposed HDF dairy has shown that both agricultural ditches and intermittent streams in this watershed experience chronically-degraded conditions for nutrients and pathogens, both pollutants that are associated with animal waste (as well as other sources). The recent DOH Sanitary Survey documented high levels of Enterococcous and Clostrudium Perfringens (CP) fecal indicator bacteria (FIB) in Waiopili Ditch sediments. Additional water quality testing for the DEIS performed by Marine Resource Consultants, Inc. (MRCI) showed that FIB counts were generally high at most surface water sampling sites in the watershed but variable between sampling sites and sampling periods. A more detailed water quality evaluation for surface waters in the HDF site area was included in the DEIS in Appendix F. Based on data presented, it is evident that existing surface water quality is already degraded in the Māhā'ulepū watershed to an extent, and HDF is proposing an intensive land-use on approximately 20% of the watershed area that is known for its water pollution potential.

Marine water quality testing was also performed by MRCI along several transects extending from the shoreline at Māhā'ulepū to roughly 200 meters offshore. Because water chemistry analyses showed only "small elevations of inorganic nutrients at the shoreline", MRCI interpreted this to mean that not much groundwater is being discharged along this coastal segment, in general. The notable exception to this was in Transect 3, near the outlet of Waiopili Stream where several water quality parameters were substantially elevated close to shore, including dissolved nutrients, turbidity, and Chlorophyll a. These were interpreted to be the result of the stream discharging at this point and not groundwater discharge which seems reasonable. Steep gradients of nutrient concentrations, salinity, and turbidity observed in marine waters near the Waiopili Stream outlet led the authors to conclude that, " input from ditch water is highly restricted in terms of effects to the marine environment". However, it should be noted that water quality sampling for this study presumably did not occur during periods of high streamflow when the impact zone in nearshore marine waters would be expected to be much larger.

This section of the DEIS does acknowledge that manure could runoff into drainage ditches, even with the prescribed 35-foot buffer strips installed on both sides of all waterways at the HDF site. "Manure particles that do not settle out into the buffer area could be carried into ditch waters and downstream with stormwater flows" (pg. 4-67). Also acknowledged is the potential of elevated nutrient levels in surface waters and groundwater due to the proposed dairy farm. "Increases in nutrients as a result of dairy establishment or operations can inform modification of the operation's nutrient management" (pg 4-66).

5.8 State of Hawai'i Water Policies

This section essentially states, with very little justification, that the proposed HDF project supports the State's Anti-degradation policy (HAR-11-54-1.1) for Inland Waters (Class 1 and 2) and Marine Waters (Class A). There is no acknowledgement of the likelihood for further water quality degradation to occur as a result of this project. Instead, the DEIS language reasons that during periods of heavy rainfall and runoff, the dairy's nutrient losses will be diluted by additional streamflow. As the DEIS document states repeatedly, these are the times when nutrients and other pollutants will be mobilized from the dairy farm site so both pollutant concentrations and loads are likely to increase during these periods, not decrease through dilution. It is well known that in many island watersheds the bulk of the pollutant load is transported during relatively short time periods while heavy rainfall and runoff occur, and pollutant concentrations in surface water discharge tend to increase during these conditions, not decrease. As we now know, the solution to pollution is not always dilution.

In regards to impacts on the marine environment, the DEIS language simply states that, "There will be no substantial effects to marine water quality from the HDF dairy", reasoning that vigorous mixing near the Waiopili Stream outlet will limit water quality degradation. This explanation is likely based on the limited water quality data collected in the nearshore performed for this study. Again, it is improbable that samples and/or data were collected during high rainfall/runoff events when the bulk of the pollutant loads are transported from coastal watersheds to the marine environment.

Appendix E: Estimates of the Potential Impact on Groundwater and Surface Water by Hawaii Dairy Farms in Mahaupleu, Kauai (TNWRE)

To expand on the earlier discussion regarding nutrient load augmentation, I performed computations using information provided in Appendix E. Based on the estimates presented in the report for N and P loads carried in groundwater and surface water as well as the projected new N and P subsidies from the dairy farm, we can calculate the expected increase in nutrient loading to local waterways. To do this, the report author computed the total N and P loads leaving the HDF site at the makai boundary based on several assumptions about groundwater flow, rainfall, runoff, and nutrient concentrations in surface- and groundwater. His approach was to estimate total nutrient loads moving downstream from the HDF property, then compare them to the new N and P subsidies. While this approach is defensible and results in useful information, there was no presentation of the increase in nutrient loading from the HDF property only. The analysis presented in the report included surface- and groundwater flows from the upstream watershed area that drains through the HDF site which resulted in estimates of 6.6- and 8.4-fold increases in N and P, respectively, leaving the makai border of the HDF site. By subtracting the flows and nutrient contributions from the watershed area outside the HDF boundary, the analysis results in 20-fold increases (2000%) in both N and P loading from the HDF site only compared to existing conditions.

Appendix F: Baseline Conditions and an Assessment of the Effect of the Proposed Hawaii Dairy Farm on Surface Water and Marine Water Chemistry, Mahaulepu, Kauai, Hawaii (MRCI)

Results of the surface water chemistry testing showed that spatial distribution of dissolved nutrient concentrations displayed apparent trends, with the lowest values in the farthest upland (mauka) sample stations, elevated values in the middle stream/ditch reaches within the HDF site, and lower values in the lower reaches near the stream mouth (but not as low as levels at the mauka stations). Increases in existing nutrient concentrations within the HDF site were attributed to leachate "subsidies" from ongoing or prior land use. The authors reason that because nutrient values near the stream outlet are similar to the values measured at the mauka stations, concentrations at the makai stations are the same now as they would be without the nutrient leachate subsidy from the HDF site. This defies logic as a simple mass balance would suggest that if the subsidy is removed from the equation, downstream concentrations should be reduced.

Spatial trends in turbidity and Chlorophyll a levels were generally similar to those described above for inorganic nutrients (i.e. lowest at highest stations, elevated in middle HDF reach, lower at lowest stations). The report states that these parameter values returned to "baseline low levels" below the dairy site, but data presented in the report do not support this statement. The spatial trend observed for FIB levels was generally increasing counts moving closer to the shoreline. Many of the FIB samples yielded very high counts for both Enterococcous and Clostridium Perfringens. The higher CP values were some of the highest I've seen anywhere. Because of the notable absence of human residence in the watershed, the authors noted that it is clear that sources other than human presently contribute to the high FIB counts here, many well above the levels of DOH Water Quality Standards, and I would agree although I don't agree with their assertion of "natural conditions" being the culprit.

Marine water quality testing along four transects running perpendicular to the coastline was also completed. Notable results include Transect 3 (starting near Waiopili Stream mouth) exhibiting "substantially higher" values for all dissolved nutrients, turbidity, and Chlorophyll a at the 5-meter (offshore) station compared to all other transects. This indicates water quality degradation near the stream mouth which is not surprising. However, values of these parameters were in-line with those from the other transects at the 10-meter (offshore) station, and the authors concluded that rapid mixing in the nearshore zone quickly brings elevated pollutants down to background levels. While this may be true under most conditions, it is unclear how far offshore this mixing zone extends during heavy rainfall/runoff events when the bulk of the pollutant load is expected to be mobilized and transported.

Appendix K: Hydrologic Assessment for the Pasture Areas for Hawai'i Dairy Farms, Māhā'ulepū, Kaua'i, Hawai'i

This report, produced by Group 70 International for HDF, represents standard engineering/design hydrology analyses, and nothing contained in it was surprising or exceptional. The report essentially lays out the hydrologic design criteria for various drainage infrastructure and conservation practices to be installed and/or maintained at the proposed HDF property. Traditional design hydrology equations and models were used to compute design discharge values which are presented in the report. In comparing the pre-project and post-project hydrology using the SCS Curve Number method/model, the only apparent change was in the curve number value to reflect a change from pasture grass conditions from "fair" to "good" following dairy establishment. While this seems like a reasonable assumption, I wonder if actual improvements in soil and grass conditions realized from the proposed irrigation and fertilization schedule may be offset by the trampling effect of hundreds of cows which can compact soils and promote runoff generation. The potential for soil compaction at the HDF site was not adequately addressed in any of the DEIS sections or appendices.

The predicted post-project peak flows leaving the HDF site range from 1,723 cfs for a 2-year flood to 11,054 cfs for a 100-year flood. It is hard to imagine the drainage ditches running through the HDF site containing even the 2-year food flow, and given the large volumes of runoff that can be generated at this site, it is understandable that many people are concerned about the potential for significant non-point source pollution occurring. Also notable are Figures 8 and 9 which show a small area in the upper, eastern portion of the HDF pasture draining to areas outside of the HDF site to an unnamed drainage ditch. Most of the pasture area appears to drain to the two central drains that run through the length of the farm property.

I hope the information and comments presented here are helpful to your efforts in evaluating whether the HDF proposal is a suitable land use in the Māhā'ulepū Valley. Given the current situation regarding water quality degradation in streams and ditches in the area, along with the projected increases in nutrient loading from HDF's nutrient management plan, I still have major reservations about this project and it's suitability at the proposed site. Please give the comments included here the proper consideration as the EIS process moves forward. If any clarification of these comments is needed, please do not hesitate to contact me at (808) 639-2640 or laminarmatt@gmail.com.

Best Regards,

Matt Rosener

Matt Rosener
Hydrologist/Water Resource Engineer

North Shore Hydrological Services
Matt Rosener, MS, PE, Principal

Ref: Houlbrooke, D.J., D. J. Horne , M. J. Hedley , J. A. Hanly & V. O. Snow, 2004. A review of literature on the land treatment of farm dairy effluent in New Zealand and its impact on water quality, New Zealand Journal of Agricultural Research, 47:4, 499-511.

Wood, H.B., 1977. Hydrologic differences between selected forested and agricultural soils in Hawaii. Soil Science Society of American Journal, Volume 41, January 1977.

CC: Jeff Overton, Group 70 International, Inc., 925 Bethel Street, 5th Floor, Honolulu, HI 96813

Hawaii Dairy Farms, LLC., P.O. Box 1690, Kōloa, HI 96756-1690

GROUP 70 INTERNATIONAL

January 3, 2017

Matt Rosener, MS, PE
North Shore Hydrological Services
P.O. Box 4032
Port Angeles, Washington 98363

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Matt Rosener:

Thank you for your letter dated June 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Pasture Grass and Grazing Cattle
Concern about hoof compaction fails to consider the rotational grazing method, which relies upon rotation amongst paddocks as a method to increase grass quality, and improve animal health and productivity, and utilizes manure for its nutrients to grow the grass crop. Additionally, the Kikuyu grass as forage forms a thick, cushioning, thatch that will both reduce and mitigate soil compaction while at the same time increasing surface infiltration of irrigation or rainfall. For additional details on this subject refer to EIS Appendix C Soils and Agronomy Analysis (Yost and Kreuger UH Manoa) and Appendix D Nutrient Balance Analysis (Group 70 and Red Barn Consulting).

Groundwater Studies
The depth to groundwater within the alluvial layer is varied. The relatively shallow groundwater within the alluvial material (highly weathered lava composed of silty clay) is hydrologically separated from deep groundwater (the source of the County drinking water wells) that lies within unweathered volcanic material. Wells drilled into the shallow alluvial groundwater bodies to facilitate water quality monitoring reveal that the depth to groundwater ranges from 8 feet below surface to 24 feet below surface. In general, groundwater in the alluvium slopes downward in the mauka to makai direction, but not at the same gradient as the land surface. Depths to groundwater will not be the same across the site. Groundwater levels in the

alluvial layer are 30-feet to more than 50-feet higher than the piezometric head of the groundwater in the confined underlying volcanic series, which is the source of drinking water. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

While the shallow groundwater in the alluvium is hydrologically separate from the source of drinking water in the deep volcanics, HDF installed four groundwater monitoring wells to allow monitoring of water quality within the shallow groundwater. Existing water quality was sampled to serve as a baseline for the nutrient and chemical constituents of the shallow groundwater within the alluvium. Future water quality samples can then be compared to the data documenting the baseline, or pre-dairy, conditions. Periodic assessments would identify any change to nutrient content that may indicate seepage of nutrients into this shallow waterbody, which could inform nutrient management of HDF and allow for management changes to minimize nutrients not being effectively utilized by the grass crop. EIS Section 4.16.2 discusses the groundwater monitoring plans. Results from the monitoring program will be shared with the DOH CWB, dairy neighbors and the local Kauaʻi community.

Though the confined groundwater tapped by the County wells occur is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west. HDF is to the east (EIS Figure 4.16-3).

There are no known caves or lava tubes found at or adjacent to the dairy farm property. The nearest cave of the Kōloa Lava Tube System, which provides habitat for two endemic cave species, the Kauaʻi Cave Wolf Spider and the Kauaʻi Cave amphipod, is located 0.75 miles from the dairy farm property. There is no evidence of lava tubes or caves on the property, and no such features have been reported for the area near the HDF site.

Based on hydrological knowledge derived from all drilled wells analyzed by Nance, the downslope movement of ground water from below the pastures toward the habitats of listed arthropods will not reach into the referenced habitats. Recognizing that the food supply of the wholly saprophagic amphipod is organic matter derived from roots and other decaying plant debris, and since nitrogenous and phosphoric nutrients will promote plant growth, their effects, if anything at all, can be expected to expand the food supply in this oligotrophic subterranean ecosystem.

Climate Change
Climate change is being observed globally. In Hawaiʻi, trends documented over the last 40 or more years include warmer air temperatures, decreased prevailing northeasterly trade winds, decline in rainfall, and warming sea surface temperatures (SOEST, 2014). Hawaiʻi's total annual average rainfall has decreased over the last century (Chu, 1995, Chu and Chen 2005 in: SOEST, 2014). Rain gauge stations across Hawaiʻi have recorded a 27 percent decrease in high intensity rain events, while the frequency of low intensity rain events has increased (Timm et al., 2001; Chu et al., 2010 in: SOEST, 2014). Rainfall has become less intense for the western islands (Oʻahu and Kauaʻi) over the last 60 years, but more intense for the island of Hawaiʻi.

Natural variability in rainfall patterns make future climate predictions challenging. Rainfall varies based on trade winds, topography, mid-latitude weather systems, storms and cyclones, and phases such as the El

Niño Southern Oscillation (Sea Grant and COK, 2014). Climate change scientists use computer models to predict future conditions, and such models have limitations, and varying degrees of uncertainty. Projections for Hawaiʻi at the end of the 21st century are for a general wet-season drying trend, according to two recent assessment reports by the Intergovernmental Panel on Climate Change (IPCC) (Timm et al., 2014). The projected regional rainfall changes represent mostly open-ocean conditions so reliable estimates for change in rainfall over land need to take into account the geometry of islands and orographic features (mountains and their effects on air streams).

Future rainfall anomalies for the main Hawaiian Islands were projected based on a linear statistical downscaling of a global model (Timm et al., 2014). Applied to project both wet and dry season rainfall changes in Hawaiʻi for the middle and late 21st century, the results are thought to be more reliable for the wet season than for the dry season. Dry leeward sides of Kauaʻi (such as Poʻipū), Oʻahu, Maui and Hawaiʻi Island exhibit the strongest drying trends. The wet sides of the islands are likely to see small increases in the average wet-season rainfall amounts. A trend toward drier than normal conditions is estimated to affect all climatically dry regions of the Hawaiian Islands during both seasons (Timm et al., 2014). Given the degree of uncertainty in the climate change models, the impact on HDF operations cannot be predicted.

Sea level rise predictions also vary by location and under different scenarios. The University of Hawaiʻi Sea Grant College Program (Sea Grant) prepared a technical study *Kauaʻi Climate Change and Coastal Hazards Assessment* as an update to the Kauaʻi General Plan and to assist the County of Kauaʻi with adaptive policies for future climate change related hazards. Based on the best available science, a range of sea-level rise of 1 foot by 2050 and 3 feet by 2100 is a reasonable, and possibly conservative, target for Kauaʻi and other Hawaiian Islands (Sea Grant and COK, 2014). Sea level rise will not directly impact the HDF site, and is not further discussed in this EIS.

Runoff Model
Runoff modelling for the HDF site was conducted following the County of Kauai Storm Water Runoff System Manual (July 2001) and County-required guidance from the USDA NRCS Technical Release 55 (TR-55) Urban Hydrology for Small Watersheds (June 1986). Hydrologic models utilize mathematical equations to model the hydrologic processes from precipitation, surface condition, topography, and culminating into watershed runoff. For the HDF site, civil engineers and hydrologists utilized the TR-55 model to estimate surface runoff peak flows. Future considerations for drainage and runoff may make use of other suitable publications to assess, model, and manage surface runoff conditions as recommended or required, such as use of the National Engineering Handbook, Part 650, Engineering Field Handbook, Chapter 14 Water Management (Drainage) (April 2001) and related chapters, by the USDA NRCS.

Buffer Strip BMPs
The EIS description of setbacks references appropriate standards, from both the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) and State of Hawaiʻi standards, practices, and guidance. The main drainage ways within the HDF property have two setbacks:

1. A physical setback of 35'. No grazing dairy animal is physically allowed within 35' of the drainage ways on the HDF site (fenced off). In addition, these 35' areas will be vegetated to protect water quality within the drainage ways. Refer to: Natural Resources Conservation Service (NRCS) Pacific Islands Area. November 2012. *Conservation Practice Standard - Riparian Herbaceous Cover Code 390.* Field Office Technical Guide (FOTG) Section IV.

2. A setback of 50' for liquid effluent application. No application with effluent is allowed within 50' of the drainage ways on the HDF site. Irrigation with non-potable water (i.e. water from Waita Reservoir only)

may occur within the 50' setback for liquid effluent application and 35' vegetated setback to allow for proper vegetation growth, as needed. Refer to: State of Hawai'i Department of Health (DOH). January 19 2010. *Guidelines for Livestock Management.* Prepared in collaboration with the University of Hawai'i at Manōa, Cooperative Extension Service, College of Tropical Agriculture and Human Resources, West Maui Soil & Water Conservation District, USDA – Natural Resource Conservation Service, U.S. Environmental Protection Agency – Region 9. Appendix Page A.4, #2.

The 35' vegetated buffers will not be regularly mowed but will be maintained to protect water quality and reduce overgrowth to maintain flow capacities of the drainage ways. Plant matter removed from the buffers will not be disposed of directly into the water resource. Fences will be provided and designed with openings that allow the pivot wheels to pass through the fence but not allow livestock through.

Waiopili Ditch Flows to Marine Environment
The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Nutrient Loss Factors
Two percent (2%) of nitrogen and one percent (1%) of phosphorus nutrients excreted as manure, applied as effluent or slurry, or applied as commercial fertilizer are conservatively estimated to be potentially lost to the environment as a result of dairy operations on the site. HDF has developed and plans to incorporate several best management practices to ensure that this nutrient loss is minimized, if not removed, on a more typical basis. 35-foot vegetation setbacks from drainage ditches on site, retention areas adjacent to the raised cow raceways, and irrigation of effluent matching the crop demand and ensuring no over-application

of effluent are Best Management Practices and are ways that HDF intends to contain all nutrients on site during typical dairy operations and under typical weather conditions.

Daily nutrients are contained on the farm and reutilized by the pastoral-based, rotational grazing system and the thick Kikuyu grass thatch. Nutrients potentially carried in runoff will be contained by vegetated buffers and retention areas adjacent to the raised cow raceways, and will not discharge nutrient directly to any on-site ditch in typical rain events.

State of Hawaii Water Policies
Flowing inland waters within the Māhāulepū Watershed fall into Class 2, not otherwise classified for protection [HAR §11-54-5.1(a)(1)(C)]. "The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation . . . These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. . . ." (DOH, 2014).

The stretch of open coastal waters at the terminus of Waiopili Ditch is classified as Class A under State Water Quality Standards, as no embayments, marine waters, or open coastal waters in the vicinity are listed in HAR §11-54 for special protection. Use of Class A waters in the standards state: "the objective of Class A [marine] waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with the recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class" (DOH, 2014).

HDF intends to include best management practices to protect water quality within the man-made and natural portions of Waiopili Ditch, as well as the coastal waters and beach. Such practices included installation of 35-foot wide vegetated buffers and filter strips, 50-foot setbacks with effluent irrigation, on-site retention areas adjacent to the raised raceways, and development of the Kikuyu thatch which will attenuate surface runoff and prevent pollutants from reaching the on-site water ways. Even in the winter months, where diversified forages will be used, the Kikuyu thatch will be maintained by using no-till planting methods when diversified forages must be planted in November and December to boost forage yields.

Marine Baseline Assessment
The EIS documents both surface water and marine water quality downgradient of Māhā'ulepū Valley. Intermittent streams and man-made ditches convey surface water from the 2,700-acre Māhā'ulepū Valley sub-watershed, which includes the 557-acre proposed HDF site, to the Waiopili Ditch. The terminus of Waiopili Ditch is a deep, muddy basin that joins the ocean through a channel cut through beach sand. The ditch is not an inviting body of water for recreation, though people may cross the channel on foot nearest the beach at a point also utilized by a commercial horse-back riding operation during its twice-daily trail rides. Water quality constituents, including nutrients and bacteria, were quantified at surface water and marine sites. Results of the water chemistry analysis identify that ditch water mixes rapidly and within a short distance of the shoreline. Marine Research Consultants, Inc. (MRCI) concluded input from ditch water is highly restricted in terms of effects to the marine environment, and there will be no substantial effects to marine water quality from dairy operations. However, comments received on the Draft EIS included interest in the marine biota.

To address the comments to the Draft EIS, HDF engaged MRCI to survey the marine biotic community structure and provide baseline documentation of existing conditions. Refer to EIS Appendix F. The typical weather and sea conditions in the area are characterized as a high energy environment due to frequent tradewinds and long-period ocean swell, which rapidly mix the water column. This translates to rough water conditions considered dangerous for human recreation except during periods of exceptionally calm wind and waves. The survey was conducted during such a period in November 2016, to allow for safety as well as for visibility within the water.

The shoreline and nearshore marine environment is shaped by a submerged basaltic shelf, formed from ancient lava flows. A semi-embayment is created seaward of the basaltic shelf, bounded by extrusions of pillow lava that form distinct shallow dikes on either side. Within the central area of this semi-embayment are expansive sand flats. Biotopes – areas of uniform environmental conditions that provide a living place for a specific assemblage of plants and animals - were documented and described for the Māhā'ulepū area. The open coastal exposure to long-period south swells and tradewind-generated seas are reflected in the survey findings. There is essentially no biotic community structure in the areas where the ditch water flow meets the ocean.

Coral community structure throughout the nearshore zone that has a hard bottom is generally restricted to the hardy pioneering coral *Pocillopora meandrina*. Where substratum is more sheltered from wave effects or has more complexity in the form of undercuts, ridges and knolls, additional common species are seen: *Porites lobata* and *P. compressa*, and *Montipora patula* and *M. capitata*. Coral cover in such areas was 10 to 20 percent of bottom cover. The exception was a small area approximately 0.3 miles south of the ditch point of discharge, where a well-established coral community was identified. The larger coral colonies likely exist due to a protective lava extrusion that shelters the area from destructive waves; assumedly these corals withstood wave forces associated with two hurricanes that directly impacted Kaua'i in 1981 and 1992. The corals within this area, while not common for the high energy marine environment, are composed of the most common components of most Hawaiian reefs. Due to the distance from the discharge point (approximately 2,000 feet, or 0.3 mile), nutrient or biological inputs from the ditch would be diluted to background marine levels and create no impact.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 25, 2016

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RE: Hawaii Dairy Farms (HDF) Proposed Dairy for Maha`ulepu Kaua`i
Response to Draft EIS

Aloha,

I was born in Hawai`i and raised on Kaua`i, Hawai`i. My Ohana dates back many years on Kaua`i. My grandfather owned land at Maha`ulepu and I spent many years there while I was growing up. Through my family, I know I have ancestors buried at Maha`ulepu. Their graves and so many archaeological and cultural treasures are deserving of protection from millions of pounds of cow manure. As Kapuna with knowledge of the soils at Maha`ulepu, I know personally that the soil at Maha`ulepu is almost entirely clay. Manure on that surface will be at high risk of runoff, something that happens now where rain runs off to the ocean, causing the Waiopili to swell with every rainfall event of an inch or more. The dairy proposes to have all the cow manure remain of the land where it falls. The part that falls in the milking barn and concrete leading to it is supposed to be washed into effluent ponds.

As County officials on Kaua`i know, I have been a long time advocate of the need to protect the South Shore and the ocean from harmful drainage. Our County, in fact, adopted a resolution to study the drainage from Ha`upu Ridge because there is no drainage study or drainage plan on the South Shore. If the dairy is allowed to operate, that plan must first be conducted because it will be confirmed that the low point on the South Shore where drainage will collect is right along our shoreline and the drainage ultimately goes into the ocean. It is upsetting to me that HDF already knows this, knows that their manure cannot stay on the surface which is a short distance upslope from Maha`ulepu Beach.

We already know from tests by Surfrider and USGS that the sediment and nitrates in the Waiopili are too high. The acreage tilled and the dirt freed when many ditches were cleared of brush, without the required stormwater permit, was not contained and was allowed to flow through the site, all of which, HDF now admits ultimately drained into the Waiopili Ditch which becomes the Waiopili Stream, below the site, before emptying into the ocean at Maha`ulepu Beach:

"At the time we visited, the branch off Kāmaulele had seeps in the bed starting a short distance up from the convergence. Below the convergence, slow moving water is present in a man-made channel running through the project site. The ditch extends southward off the property, passing under lower Māhā'ulepū Road. A second ditch parallels to the west the one described above. This second ditch originates in the vicinity of a pond in an area of water wells in the upper west side of the valley. We did not establish the source of the water in this ditch, but the ditch contains water and extends south, passing beside an agricultural operation that includes *kalo lo'i* (taro fields), from which it receives additional flow. This ditch then joins a larger ditch known as Mill Ditch (USGS, 1996) carrying water flowing from west to east across the valley within the project area. Mill Ditch turns southward near the center of the valley, passes under Māhā'ulepū Road, and some 460 meters south, joins the first ditch coming down the valley. The two become Waiopili Ditch, with an outlet at Māhā'ulepū Beach." DEIS Volume 2, Biological Surveys, page 18-19.

"Spread across the pastures on the valley floor are numerous straight agricultural ditches that serve the purpose of draining runoff from various pasture areas. These were nearly all dry during our survey, and the network was not fully explored, nor was it determined how these presently all interconnect. Presumably these drain eventually into one of the three water-filled features on the property as described above." DEIS Volume 2, Biological Surveys, page 19.

Also stated in the DEIS: "Surface waters draining the project site meet Waiopili Ditch, and will eventually reach the ocean." Volume 2, Surface Water and Marine Assessment, page 2.

Just today, there is a Brown Water Alert for all of Oahu from sewers that filled with rain and overflowed. With every tropical storm we are at risk for a seriously polluted ocean if nearly 100,000 pounds of cow manure each day is to be dropped on the Kikuyu covering the clay soils of Maha`ulepu. As a farmer I know it takes many many months before a plant can effectively use raw cow dung. As it sits it will start to break down but will liquefy and run to the ocean. It will destroy one of our few remaining beautiful reefs. With just an inch of rain or more we risk the loss of fish, our reefs and our health from contaminated drinking and ocean water. The aquifers under the dairy site that fill our drinking water wells will easily be contaminated by the drainage. Bacteria can be addressed, but the nitrates cannot be extracted. It makes no sense to risk our safety and way of life. Please reject the Draft EIS. It has not established that this operation will be safe for the environment. If you do nothing else than read the above quote, it will be clear that even HDF knows they are going to pollute the South Shore with their cow waste. They must take their plan elsewhere and move to a safe location.

Mahalo,

Rupert H Rowe

Rupert Rowe
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January 3, 2017

Rupert Rowe
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Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Rupert Rowe:

Thank you for your letter dated July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhā'ulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Based on the AIS and CIA technical reports, no significant cultural resources are located on the HDF property. Access to adjacent properties will continue to be the responsibility of the land owner, Mahaulepu Farm, LLC.

Application of manure provides organic matter that will dramatically improve soil health and allow nutrients from manure to be accessible to grow the grass crop. Traditionally, soil has been the largest area of storage for carbon on earth. However, human disruption of the carbon cycle throughout periods of modern industrialization has released excess carbon into the atmosphere and into the oceans, resulting in a lack of stable carbon that was previously stored in soils. Photosynthesis is the greatest catalyst of transferring carbon from the air into soil. Once in soils, carbon feeds soil microbes that assist plants in acquiring nutrients and create stable forms of soil carbon. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

The State of Hawaiʻi Department of Health (DOH) Clean Water Branch (CWB) conducted a "Sanitary Survey" of the Māhāʻulepū sub-watershed and the adjacent Poʻipū/Kōloa watershed. DOH CWB expressed concern in the survey results that the number of injection wells and cesspools in the Poʻipū/Kōloa watershed are impacting the waters of the Waiopili Ditch. This is largely from the different geological and hydrological composition of the watersheds. Groundwater in the highly urbanized Poʻipū/Kōloa watershed is calculated to move an average of 10 feet per day. The groundwater in the Māhāʻulepū sub-watershed has a calculated velocity on the order of 1.2 feet per day. The Sanitary Survey identifies the Kōloa karst topography and lava tube system that straddles the Poʻipū/Kōloa watershed and the Māhāʻulepū sub-watershed as a possible subterranean transport of injection well and cesspool effluent to the Waiopili Ditch.

Soils in the Māhāʻulepū sub-watershed are formed by the poorly permeable alluvium that covers the valley floor. Alluvium is highly weathered lava that forms silty clay layer, which is described as "poorly drained". The classification of soils as poorly drained indicates a relatively slow rate water movement within soil and to surrounding areas. Poorly drained is not an indication of low or poor infiltration. Infiltration refers to the ability of water to enter the soil surface, whereas "drainage" refers to the movement of water within or from the soil profile. This slow movement allows for attenuation (reduction) of bacteria, pathogens, and nutrients from manure.

Section 4.3 of the EIS characterizes soil conditions, and anticipated impacts from effluent and supplemental nutrient application.

The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irritation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawaiʻi State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhāʻulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Poʻipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Poʻipū/Kōloa watershed differs from Māhāʻulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Poʻipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhāʻulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhāʻulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 24, 2016

State of Hawai'i
ATT: Laura McIntyre
Department of Health
1250 Punchbowl Street
Honolulu, HI 96813

Group 70 International, Inc.
ATT: Jeff Overton
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Hawai'i Dairy Farms, LLC
PO Box 1690
Koloa, HI 96756-1690

Friends of Maha'ulepu
P.O. Box 1654
Koloa, HI 96756

RE: Hawai'i Dairy Farm's ("HDF") May 2016 Draft Environmental Impact Statement (DEIS)

To whom it may concern,

This is a response to the Hawai'i Dairy Farm's proposed dairy on Kauai, Hawaii. The project site is located in Maha'ulepu Valley on 557 acres. The proposed dairy project is in the area surrounding the Waiopili Ditch known as Waiopili Stream. High enterococci bacteria levels have been measured in the Waiopili Ditch according to the Department of Health Clean Water Branch study, *Waiopili Ditch Sanitary Survey, Kauai Part 1, March 2016*. High bacteria levels have also been reported and documented by Surfrider Kauai Blue Water Task Force.

1) **The DEIS states that the Sanitary Survey found no significant impact to the Waiopili Ditch from any activity that can be attributed to the dairy, Section 4.17.**

The DEIS does acknowledge that the Sanitary Survey was conducted in response to complaints of Waiopili Ditch contamination. This recognition is followed by stating "The Sanitary Survey found no significant impact to the Waiopili Ditch from any activity that can be attributed to the dairy."

The Survey (page 8), reads, "No significant grading, grubbing, or facility construction activity has occurred recently at the proposed dairy site and no cattle currently exists on the site. There is no point source discharge of pollutants into Waiopili Ditch and the proposed construction area receives a significant amount of solar radiation throughout the day. **Currently**, there is no significant impact to the Waiopili Ditch from any activity that can be attributed to the proposed dairy."

The Survey continues by noting: "As in the case with any new project, the establishment of the proposed HDF dairy may become a possible source of contaminants in MVSW. Great thought must be exercised in the design and layout of the dairy and the establishment of best management practices to prevent discharges and contamination."

In addition, the Survey did conclude (CWB 7.0. Conclusions):

a. Confirmed the presence of elevated levels of enterococci and Clostridium perfringens in the Waiopili Ditch in the Mahaulepu Valley sub-watershed.

b. The area identified in the subwatershed is privately owned and is subject to restricted access. For these reasons, the *DOH does not believe that the posting of warning signs* at any of the locations in the Mahaulepu Valley sub-watershed or along the Waiopili Ditch in accordance with HAR 11-54-8 *is warranted.*

The DOH confirms water contamination does exist but notice to the public of this health issue is not necessary. This is contrary to DOH's responsibility to the public. At a minimum, HDF, as a responsible neighbor, should post health warring signs.

Conclusion:

The DEIS repeatedly disavows any responsibility for the current and documented water contamination. The DEIS must develop and describe an action plan for the remediation of the conditions currently present on the project site.

2) The DEIS is silence concerning past practices, specifically that of applying sludge on and near the project site and the residues' potential harmful effect on the water and soils, particularly Waiopili Stream and Gillian's Beach.

Section 3.1.3 of the CWB Survey describes the past activities engaged on the project site. As noted above the word *currently* is used to identify present time. The Survey describes a ten year long activity on the project site that began in 2003:

> *In 2003, Aqua Engineers, Inc. leased 45 acres from Grove Farm. Aqua Engineers, Inc. provides water and wastewater services on Kauai and were applying sludge from various sewage treatment plants to grow forage crop to be harvested for animal feed. Sludge from the LihuePuhi, Princeville, Poipu Water, and Popiu Kai treatment plants were applied to the Mahaulepu lands. In January 2011, the land within the MVSW was sold to Mahaulepu Farm LLC, and in December of 2013, sludge delivery from the Lihue-Puhi, Princeville, and Poipu Water WWTP was stopped. In September 2014, Poipu Kai Resort WWTP stopped its sludge delivery. Today, sludge is no longer applied to the area. (CWB 3.1.3. Past Land Use Page 28.)*

This practice was permitted by the DOH, but as reported in the Survey, NO water monitoring was done. It was not until Surfrider Kauai Blue Water Task Force began monthly and bimonthly water tests at two locations down from the project site and the numerous reports of illnesses experienced by residents that attention was given to the contamination. These folks who fished, swam, walked and enjoyed the beach and stream outlet area have provided documented accounts of illness. The Waiopili Stream bridge location specifically have had bacteria levels thousands of times above acceptable levels (see Attachment A). The Task Force and DOH used the same water test samples sites (Attachment "B"). The DEIS provide the following:

> *Counts of indicator bacteria (enterococcus and C. perfringens) in surface water samples and nearshore marine samples showed no repetitive pattern: counts were high and variable between sampling sites, and showed variation among periods sampled. As no dairy activities existed during the sampling, the high levels of indicator bacteria appear to be the result of naturally occurring sources, as well as other ongoing land uses (DEIS 4.17).*

Conclusion:

The DEIS is remiss in ignoring these concerns, not acknowledging the practice of applying sludge to the site occurred and the potential long term harm. The water contamination is a fact. The DEIS does note the existing contamination. However; the DEIS makes no attempt to actively resolve the issue; no cattle no responsibility.

Summary

The applicant has a responsibility to address the ongoing water contamination associated with the ditch, soils, agricultural practices and the proposed project design to remediate this very serious issue. The addition of cattle and fertilizer are expected to increase pollution levels. The State, the landowner and the community are aware of the chronically high levels of pollution, therefor, no advancement of this proposed dairy should be permitted.

Sincerely,

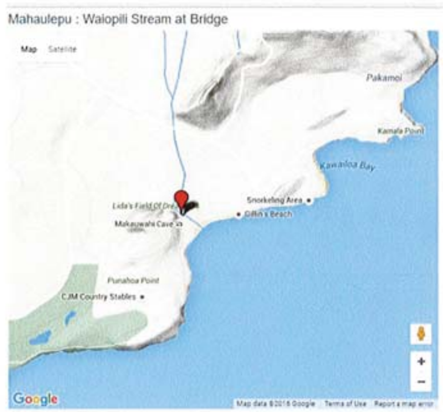
Krista Ruchaber
P.O. Box 860
Lawai, HI 96765

Enclosed: Attachments A and B

ATTACHMENT "A"

Surfrider Kauai – Blue Water Task Force Enterococcus bacteria per 100ml

07/09/16	Dr Carl Berg	8664	High Bacteria
06/11/16	Dr Carl Berg	8164	High Bacteria
05/07/16	Dr Carl Berg	6867	High Bacteria
04/09/16	Dr Carl Berg	9804	High Bacteria
03/12/16	Dr Carl Berg	15531	High Bacteria
02/13/16	Dr Carl Berg	5475	High Bacteria
01/09/16	Dr Carl Berg	4884	High Bacteria
12/12/15	Dr Carl Berg	8664	High Bacteria
11/14/15	Dr. Carl Berg	8664	High Bacteria
10/10/15	Dr. Carl Berg	10462	High Bacteria
09/12/15	Dr. Carl Berg	10462	High Bacteria
08/08/15	Dr. Carl Berg	5794	High Bacteria
07/11/15	Dr. Carl Berg	3873	High Bacteria
06/13/15	Dr Carl Berg	1421	High Bacteria
05/09/15	Dr Carl Berg	11199	High Bacteria
04/11/15	Dr Carl Berg	24196	High Bacteria
03/14/15	Dr Carl Berg	14136	High Bacteria
02/14/15	Dr Carl Berg	24196	High Bacteria
01/10/15	Dr Carl Berg	8164	High Bacteria
12/13/14	Dr. Carl Berg	19863	High Bacteria
09/14/14	Dr Carl Berg	8164	High Bacteria
08/25/14	Dr Carl Berg	5475	High Bacteria
08/10/14	Dr Carl Berg	5475	High Bacteria
08/06/14	Dr Carl Berg	6131	High Bacteria
07/27/14	Dr Carl Berg	7270	High Bacteria
07/20/14	Dr Carl Berg	24196	High Bacteria
07/13/14	Dr Carl Berg	12997	High Bacteria
07/06/14	Dr Carl Berg	10462	High Bacteria
06/29/14	Dr Carl Berg	9208	High Bacteria
06/22/14	Dr Carl Berg	8164	High Bacteria
06/14/14	Dr Carl Berg	8664	High Bacteria
05/10/14	Dr Carl Berg	14136	High Bacteria
04/12/14	Dr Carl Berg	5794	High Bacteria



Surfrider Kauai - Blue Water Task Force
June 11, 2016
Enterococcus bacteria per 100 ml

SURFRIDER FOUNDATION

Site	Single day results	2016 geomean
Pinetrees Surf, Hanalei	<10	2.3
Salt Pond Surf	<10	2.3
Kapa'a Reef Surf	<10	2.9
Lydate, beach south of park	<10	3.9
Anahola Bay Surf	<10	4.4
Kapa'a Beach Park Surf	<10	6.2
Kalapaki Bay Surf	<10	16.9
Waiohai Surf, Poipu	10	3.1
Waikoko Surf, Hanalei	10	3.8
Kealia Surf	10	4.5
PK's Surf, Poipu	10	7.4
Kalihiwai Surf	20	23.5
Middles Surf, Hanalei	31	9.2
Rock Quarry Surf, Kilauea	41	15.4
Wailua River mouth	52	240.4
Lumahai Stream	107	81.1
The Bowl, Surf, Hanalei	134	25.2
Nawiliwili Stream	311	313.5
Waimea River Mouth	350	282.4
Pakalas Surf	545	181.6
Hanamaulu Stream	571	975.2
Waikomo Stream - Koloa Landing	581	714.0
Niumalu Beach Park, boat ramp	697	749.7
Gillin's Beach, Mahaulepu	801	537.5
Moloa'a Stream	836	3,171.7
Waiopili Stream, Mahaulepu	8164	7,820.1
Port Allen Sewage Spill 6/10/2016	<10	
<10 = below detection limit of 10		
Single day sample should be <130		
Mean of samples should be <35		

South side

ATTACHMENT "B"

WAIOPILI DITCH SANITARY SURVEY, KAUAI PART I

March 2016

Clean Water Branch, Hawaii Department of Health

Figure 18. DOH Sampling Sites in Mahaulepu

Source: DOH 2015

GROUP 70 INTERNATIONAL

January 3, 2017

Krista Ruchaber
P.O. Box 860
Lawai, Hawai'i 96765

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Krista Ruchaber:

Thank you for your letter dated July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Po'ipū/Kōloa watershed differs from Māhā'ulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Po'ipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhā'ulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

From: Jane Russell [mailto:janerussell@runbox.com]
Sent: Monday, July 25, 2016 8:31 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Comments to DEIS for proposed Maha'ulepu Dairy

Dear Sir or Madam,

My comments to the subj DEIS is attached. I strongly oppose the establishment of an industrial scale dairy farm in the Maha'ulepu valley and hope that the land can be used to develop sustainable cultivation of food that will be grown, processed, and consumed on Kauai, such as vegetables or taro. I believe that this was the intent of designating the land as significant agricultural land; not for use by an industrial operation or as a dump for thousands of tons of manure.

Respectfully,
Richard Russell

Sent from Mail for Windows 10

2230 Loke Rd
Koloa, HI 96756
22 July 2016

Group 70 International, Inc
ATTN: Jeff Overton
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Dear Mr. Overton,

1. I am writing to provide public comment to the Draft Environmental Impact Statement (DEIS) for the proposed Hawaii Dairy Farms to be located in the Maha'ulepu Valley. The document, as written, does not provide sufficient information for the State of Hawaii to make an informed risk based decision on whether to allow the project to proceed. Request that the project not be approved without additional information.

2. I do not claim to be an expert in biology or geology; however, I do have a background in risk assessment/management. The DEIS does not provide a risk assessment. Instead, the document reads more like a sales pitch and appears to consider only the most optimistic possible outcome. A few examples to illustrate what I am trying to say follow; the whole document contains these kinds of errors.

a. Page 1-10 of the DEIS contains the statement that "Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours." This is a critical assumption that underpins almost all of the DEIS impact conclusions, yet it is provided without proof or further comment. Obvious questions include:

-What data exists to prove this assumption? Where did the estimate of 24 hours come from (literature search or actual field trials on site)? Is there a lot of data in the literature on manure breakdown rates or very little? What is the variation in rates in the literature, is 24 hours an average figure or a worst case figure?

-Under what conditions of moisture and temperatures is this true? How do these conditions compare to the conditions that will be expected in Maha'ulepu?

-What exactly does "largely" mean?

-What exactly does "broken down" mean? Where does the total mass of fecal matter go?

b. Appendix I of the DEIS pertains to Air Quality and Odor Assessment. This appendix is pretty well written, but it has the same problems. In order to perform their plume modeling the researchers need to estimate a variable called Emission Flux (measured in $OU/s/m^2$). The assumed values of Emission Flux are contained in Table 1 of the Appendix. The problem is that Emission Flux is estimated as a single value instead of a range of possible values. The report says where they got the value (an Australian study they found in a literature search), however, the same types of questions pop up:

-What range of values exists in the literature? Is there a large amount of uncertainty in the data?

-Are the values from the Australian study conservative or did they cherry pick optimistic numbers?

-Based upon the quality of existing input data into their model, how confident are the researchers with their model predictions? Would they recommend any additional efforts, such a field testing, to improve the quality of the input parameters to their model?

c. Appendix B of the DEIS pertains to biological controls for insect pests that will be created by dairy farm operations. The breeding of large numbers of biting flies is a huge concern to Poipu residents and business owners. This appendix does not even attempt to predict biting fly populations, it simply says that Hawaii Dairy Farms will use an Integrated Pest Management (IPM) approach, and thus all will be well. Specific issues:

-The appendix fails to demonstrate that IPM will prevent biting flies from becoming a public nuisance in Poipu. There is no statistical or mathematical analysis, only a description of how IPM works.

-The appendix does not provide examples of existing equivalent farming operations where IPM has prevented pests from becoming a public nuisance. At the beginning of the report the researcher provides one antidotal example. Instead, the DEIS should provide a number of real world "success stories" where IPM succeeded in reducing pests to a level that was acceptable to the surrounding local population. An example of a large scale dairy farm that has successfully operated within 2 miles of an up-market resort area would be particularly helpful.

-The appendix is not consistent with other parts of the DEIS. For example, appendix I states that a key element of IPM, dung beetles, will bury dung pats in 1-3 days. Section 1 of the DEIS says that "Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours". If the later statement is true then dung beetles may have a difficult time completing their life cycle.

d. Appendix E attempts to estimate the potential impact on farm operations on ground and surface water. Examples of poor methodology include:

-The study attempts to prove that there is no risk of contamination to Poipu's water supply, which is in a deeper aquifer, by conducting a pump test in the shallow aquifer. The study claims that this test proves that there is "no hydrologic connection" between the two aquifers, and thus no risk of public water supply contamination. I do not think that you can draw such a sweeping conclusion from this type of test. The test may indicate that the two aquifers are not directly connected, but it does not prove that contamination from one aquifer cannot seep into, and eventually contaminate the other.

-The study only talks about nitrogen and phosphorus. I realize that these are nutrients with specific environmental concerns; however, what the general public is worried about is what physically happens to all of the manure that the cows are dumping on the paddocks. The DEIS needs to account for the total mass of manure generated and clearly explain what happens to it. In addition, the study needs to address the possibility of fecal bacteria contamination of due to groundwater or surface runoff.

-Critical parameters used in the analysis are presented without any explanation of how they were determined or the range of possible values that should be considered.

-The analysis presented uses only rough approximations for critical analysis parameters. For example, the Existing Groundwater Flow and Nitrogen and Phosphorus Loading discussion on pp-38 of the appendix starts out by saying that " Two **order of magnitude** estimates of the groundwater flow in the alluvium beneath the HDF site have been made to provide an approximation of the flowrate." On pp 43 of the appendix the document states that "As **a first order approximation**, it is assumed that two (2) percent of the nitrogen and one (1) percent of the phosphorus of HDF's annual manure and commercial fertilizer amounts are carried into the drainageways and/or percolate to the shallow groundwater in the alluvium." An order of magnitude estimate is, by definition, an estimate that may be wrong by a factor of 10. It is dangerous to draw specific conclusions from studies with large uncertainties in critical parameters. Additional information, probably from on-site field testing, should be required to refine these parameters.

3. From an economic point of view the proposed dairy constitutes a very poor risk vs benefit tradeoff. Approving any dairy farm operation near a major tourist area is a high risk economic strategy equivalent to "picking up nickels in front of a steamroller".

a. The DEIS does not provide an accurate estimate of the potential economic impact of this project to Kauai. The study claims that there will be a modest benefit and no negative impact. HDF makes this claim because the DEIS presents only a best case scenario and does not attempt to address the scientific uncertainty of their key assumptions or consider the fact that they will make mistakes when operating the farm (nobody is perfect).

b. There is a high probability that HDF will be wrong and that the dairy farm will create a noticeable downwind biting fly or odor problem in Poipu, or environmentally impact the south shore coastline. If this were to happen, even infrequently, then the economic consequences to the south shore would be severe. The Hyatt alone provides 50 times the number of direct jobs that the dairy farm will. Poipu is considered an upscale tourist destination, visitors will have a very low tolerance for odor or biting flies. Social media will ensure that the story of even a single spoiled vacation is quickly and widely disseminated.

4. Thank you for the opportunity to provide comments on the DEIS.

Respectfully,

Richard Russell

GROUP 70 INTERNATIONAL

PRINCIPALS

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OF COUNSEL

Ralph E. Portmore, FAICP
Hitoshi Hida, AIA

January 3, 2017

Richard Russell
janerussell@runbox.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Richard Russell:

Thank you for your email received July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

EIS Preparation
While an agricultural project on agricultural lands implemented and operated with private funds does not require environmental disclosure, HDF responded to community concerns by agreeing to prepare an EIS. The EIS is a disclosure document that analyzes the effects of a proposed project or program on the environment including direct, indirect and cumulative impacts, discusses alternative methods or designs to the proposed action, and formulates minimization and mitigation measures to eliminate, reduce, or rectify adverse impacts of the proposed action. This EIS was prepared in accordance with Hawaiʻi Administrative Rules Title 11 Chapter 200, implementing Hawaiʻi Revised Statutes (HRS) Chapter 343.

Manure Breakdown
With respect to the breakdown rates and plant uptake for manure produced from up to 2,000 mature dairy cows at HDF, we refer to the technical presentation included in EIS, specifically Appendix C. The analysis of HDF's pastoral-based, rotational grazing system utilizes field-gathered, laboratory-tested data including grass yields and nutrient uptake analyses.

The analysis accounts for farm-specific animals and dietary inputs that account for changes in genetics, management systems, and nutritional advances over the past 16 years. *(1) Journal of Dairy Science 98:6361–6380 The Cornell Net Carbohydrate and Protein System: Updates to the model and evaluation of version 6.5 M. E. Van Amburgh, et. al. (2) JDS 95 :2004–2014 Development and evaluation of equations in the Cornell Net Carbohydrate and Protein System to predict nitrogen excretion in lactating dairy cows R. J. Higgs, et. al. (3) JDS 81: 2029 - 2039 Evaluation and Application of the Cornell Net Carbohydrate and Protein System for Dairy Cows Fed Diets Based on Pasture Kolver, E.S. et al.*

Fly Populations and Dung Beetles

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Dung beetles speed incorporation of the manure into the soil by breaking up bovine manure pats and transporting the organic material into the soil. A healthy population of dung beetles can bury a dung pat in one to three days. Breaking up and burying the dung patty destroys the habitat for insects such as flies to complete their life cycle. The stable fly requires approximately 21 days within the dung patty for the immature life stage (egg to pupa) to survive. The house fly takes 7 to 10 days from egg to fly, and can use a number of damp, decaying material as habitat. The horn fly takes 10 to 20 days from egg to adult.

The behavioral diversity among dung beetle species working together can bury dung pats in one to three days. Some beetle species fly at night and some during the day; some prefer older manure over fresh. HDF and other ranchers on Kaua'i may choose to engage with the State Department of Agriculture to translocate dung beetle species already introduced on Kaua'i to Māhā'ulepū and other areas as a way to mitigate potential impact from manure-related flies (Figure 4.11-2).

Air Quality/Odor

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods:

1. Exponent used different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and
2. Odor results were compared against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area."

Exponent concurred with the emission methods and results presented by Arcadis that quantify odor from the effluent ponds and the dairy facility buildings. The air emission components of the Arcadis May 2016 report were not commented on by Exponent.

The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report. To consider the two alternate methods used by Exponent, Arcadis verified operational procedures with HDF: 1) Slurry application will not coincide with effluent application, and 2) slurry will not be applied during days with average wind speeds less than approximately 9 miles per hour (mph) (4 meters per second - m/s) or with winds greater than 20 mpg (8.9 m/s). Additionally, HDF confirmed that the dilution of irrigation water with effluent will change based on field conditions. For these reasons, Arcadis recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent. The findings of the revised odor technical report are summarized below.

On the second point, Arcadis responded that an evaluation by Mahin (2001) show off-site standard or guidelines in the U.S. to be between 2 and 50 OU/m^3 with the majority of values between 5 and 7 OU/m^3. Low OU/m^3 values are often difficult to observe. For instance, California's South Coast Air Quality Management District states that at 5 D/T (OU/m^3) people become consciously aware of the presence of an odor and that at 5 to 10 D/T odors are strong enough to evoke registered complaints. Given the conservative nature of the air dispersion modeling, a threshold of 6.5 OU/m^3 continues to be appropriate.

For the reasons above, the revised odor report modelled irrigation effluent at two dilutions in no-wind conditions (considered "worst case"), and slurry effluent with wind speeds between 9 and 20 mph, and again used the threshold of the 6.5 OU/m3 annual extent odor level. Modeling was done for both the herd size of 699 mature dairy cows (Section 4.19.2) and for the contemplated herd size of up to 2,000 dairy cows (Section 4.25.2). The colored areas in the figures depict the 99.5th percentile threshold of 6.5 OU/m3. Within the detection area odors may be detectable by 50 percent of the sensitive population once per 200 hours, or 44 hours per year.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows For the typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year. It should be noted that the parameters used in the odor assessment were intentionally very conservative and the impacts shown depend on an unlikely confluence of worst-case meteorological data, irrigation location, and grazing location; thus, actual offsite odor impacts are likely to be much lower and/or less frequent than displayed. All potential odor would remain on surrounding agricultural lands.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, the nearest recreational area, Po'ipū Bay Golf Course, lies another 0.3 miles beyond the odor extent for the typical effluent application (EIS Figure 4.25-1). During unusually wet periods, odor could extend approximately 4,085 feet (approximately three-quarters of a mile) beyond the southern boundary for the contemplated herd size.

With application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile), which would not reach recreational or residential areas (Figure 4.25-1). As explained in Section 4.19.2, the parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown (Arcadis, 2016).

The full Exponent report *Odor Impact Assessment Hawaii Dairy Farms* (2016) is in the Final EIS, Volume 5, Appendix B. The complete response by Arcadis is contained in the Final EIS Volume 5, Appendix B-B. The revised odor report by Arcadis is also attached to their initial air quality and odor report in the Final EIS Volume 2, Appendix I as Attachment 1.

Groundwater

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west. HDF is to the east (EIS Figure 4.16-3).

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics.

While the shallow groundwater in the alluvium is hydrologically separate from the source of drinking water in the deep volcanics, HDF installed four groundwater monitoring wells to allow monitoring of water quality within the shallow groundwater. Existing water quality was sampled to serve as a baseline for the nutrient and chemical constituents of the shallow groundwater within the alluvium. Future water quality samples can then be compared to the data documenting the baseline, or pre-dairy, conditions. Periodic assessments would identify any change to nutrient content that may indicate seepage of nutrients into this shallow waterbody, which could inform nutrient management of HDF and allow for management changes to minimize nutrients not being effectively utilized by the grass crop. Results from the monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community.

Dairy Model and Nutrient Balance

HDF has adapted the New Zealand model – pastoral-based rotational grazing dairy – to U.S. standards and best management practices. NRCS provides extensive guidance for agricultural operations to meet stringent standards including those under the Clean Water Act. Nutrient management is a key tenet, and the protection of waterways has been applied to the design of HDF paddocks using fencing to create large setbacks from drainages. Setbacks at HDF are designed 35-feet from each bank – for a total of 70 feet – to exclude cows from waterways. The setbacks are vegetated to create filter strips to effectively trap soil particles and organic debris from entering stormwater runoff. Setbacks and buffers from public drinking water resources are also incorporated into the farm design (EIS Section 3.3.2 *Agricultural Infrastructure* and Appendix D *Nutrient Balance Analysis*).

HDF's Nutrient Balance Analysis is predicated on farm specific inputs and calculated outputs using the Cornell Net Carbohydrate and Protein System (CNCPS) model. While the Standard D384.2 Manure Production and Characteristics (ASABE, 2005) can still be used today to estimate manure production and nutrient excretion, the CNCPS model uses more realistic nutrient inputs. ASABE is a simplified and general standard last updated in 2005. The ASABE calculations were reasonably correct in year 2000 but have not accounted for changes in genetics, management systems, and nutritional advances over the past 16 years. The ASABE equations, unlike the CNCPS system, do not use farm specific animal, environmental, and dietary inputs to determine its manure production and nutrient excretion estimates, and instead uses "book values".

NRCS Conservation Practice Standard Code 590 – Nutrient Management allows for the use of realistic nutrient inputs when planning for nutrient outputs. The manure production and nutrient excretion estimates from the CNCPS model are more accurate and represent farm specific animal inputs, dietary inputs from available grass trials from the HDF site, and incorporate changes in farm management, genetics, and nutritional advances. Therefore the CNCPS model is more accurate than if manure excretion and nutrient output was based upon "book values". Manure production and nutrient excretion estimates from Exponent Table 1 are based upon "book values" of the ASABE Standard, which based upon "book values" of the ASABE Standard, uses the publication Dairy NRC 1988 for diet formulations and input (NRC is the National Research Council that published a handbook, "The Nutrient Requirements of Dairy Cattle"). The 28 year old Dairy NRC 1988 is the predecessor of the most recent NRC publication, last updated in 2001. Because of obsolescence associated with these NRC predictions, the 2015 CNCPS model was used for HDF calculations.

References to the CNCPS model calculations can also be found in peer review scientific literature, namely, in the Journal of Dairy Science 98:6361–6380 The Cornell Net Carbohydrate and Protein System: Updates to the model and evaluation of version 6.5 M. E. Van Amburgh, et. al. and also in the JDS 95 :2004–2014 Development and evaluation of equations in the Cornell Net Carbohydrate and Protein System to predict nitrogen excretion in lactating dairy cows R. J. Higgs, et. al. and JDS 81: 2029 - 2039 Evaluation and Application of the Cornell Net Carbohydrate and Protein System for Dairy Cows Fed Diets Based on Pasture Kolver, E.S. et al.

The water quality impact report included as Appendix E of the EIS, was prepared by Tom Nance of Tom Nance Water Resource Engineering (TNWRE). Tom Nance has over 50 years of experience in water quality research and water resource engineering here in Hawaiʻi, and is considered one of the foremost experts in the field. His qualifications, experience, level of research, and the precision of his calculations are at the very high end of the industry standard.

Economics

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Michael K. Saiki, Ph.D.
337 Nana Place • Kapaa, HI 96746
Tel: (808) 378-4826 • E-mail: msaiki1067@att.net

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GROUP 70 INT'L

July 21, 2016

Group 70 International
ATTN: Jeff Overton/Hawaii Dairy Farms
925 Bethel Street 5th Floor
Honolulu, HI 96813

Dear Mr. Overton:

I am a retired fishery biologist and concerned citizen who was born and raised on Kauai, but worked for several decades on the mainland until retirement enabled me to once again live on Kauai. I have more than 35 years of professional experience as a research scientist specializing in fisheries, aquatic ecology, and environmental contaminants. Although I favor the creation of local agricultural industries that provide new jobs and lessen our dependence on imported food products, I also believe our natural environment must be protected from pollution and other undesirable anthropogenic effects often associated with such industries.

Construction and operation of the Hawaii Dairy Farms (HDF) facility have the potential to adversely affect nearshore marine waters along the Mahaulepu coastline mainly through discharge of pollutants from Waiopili Ditch. The marine waters off the Mahaulepu coastline are listed as Class A under the Hawaii Water Quality Standards. Water quality standards for Class A marine waters state that "… their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with the recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class" (DOH 2014).

(DOH 2014; State of Hawaii, Department of Health, Clean Water Branch. 2014. Hawaii Administrative Rules, Title 11, Chapter 54, Water Quality Standards. (HAR) 11-54. November 15.)

In an effort to assess potential impacts from the HDF, Marine Research Consultants, Inc. (MRCI), conducted six water quality surveys during 2014-2015 in intermittent streams and agricultural ditches draining into and including Waiopili Ditch (see Appendix F of the HDF Draft Environmental Impact Statement [DEIS]). These surveys consisted of grab samples of water from which selected nutrient concentrations and bacterial counts were measured, along with measurements of turbidity, salinity, silica, chlorophyll, and possibly other variables. In addition, water quality surveys were conducted on one occasion (October 2, 2014) at several transects in nearshore marine waters at or near the mouth of Waiopili Ditch.

General Comments:

Although data generated by MRCI are informative, apparent deficiencies in the survey design could limit their reliability and usefulness for assessing impacts to aquatic biota in the nearshore marine environment. Examples of deficiencies include the following: (i) lack of statistical robustness in summaries of water quality data (i.e., statistical variation is not reported); (ii) absence of water samples collected during high rainfall events (i.e., data are biased towards low rainfall conditions); and (iii) absence of relevant biological measurements for gauging the wellbeing of nearshore marine flora and fauna.

In addition to general comments, specific comments are provided below.

Specific Comments:

Page 1-13, lines 26-28; also Page 1-15, lines 3-6: Where are the data to support your contention that pasture creation and management will indeed reduce soil erosion and suspended sediment runoff to drainage ways and the nearshore ocean waters? Even if buffer strips and other erosion control practices are implemented, the concentrated trampling from as many as 699 adult cows (they will not be homogeneously spread over 470 acres) is likely to increase soil erosion and suspended sediment runoff during heavy rainfall events.

Page 3-32, lines 1-4: If the effluent storage pond must be emptied due to a forecasted cataclysmic storm event, how and where would the pond effluent (17,000+ gallons) be disposed without discharging either as raw effluent or as effluent-laden storm runoff into Waiopili Ditch?

Page 4-35, line 18: Field surveys were conducted for birds and mammals, but not for freshwater fish and aquatic macroinvertebrates (shrimp, etc.), presumably because they (fish, macroinvertebrates) do not include examples of threatened and endangered (T&E) species. However, by not surveying for fish and macroinvertebrates, their potential use as bioindicators of environmental quality is ignored. Fish and macroinvertebrates are useful for monitoring environmental contaminants (especially chemical residues that bioaccumulate through the food chain) in aquatic habitats. Aquatic birds (heron, goose, duck, stilt, etc.) are known to accumulate high body burdens of certain contaminants by foraging on macroinvertebrates, fish (heron only), and other foods (e.g., aquatic macrophytes) in polluted environments.

Page 4-44, lines 38-39: If there are no available documents on historical chemical use on the dairy site, is that sufficient justification to dismiss them from consideration in the DEIS? Analytical techniques are available to scan for inordinately high concentrations of many organic and inorganic chemicals in tissue samples of resident biota (fish, macroinvertebrates, amphibians, etc.).

Page 4-62, lines 34-35: This sentence sounds implausible—how could the Sanitary Survey find "no significant impact to Waiopili Ditch from any activity attributed to the dairy" if the HDF does not yet exist?

Page 4-62, lines 38-39; also Page 4-84, lines 1-2: The comment that Waiopili Ditch "…is not an

inviting recreational body of water utilized by people" fails to recognize that some people enjoy recreational and subsistence fishing in manmade waterways, including drainage ditches. Has anyone conducted properly designed recreational surveys that conclusively demonstrate an absence of use of Waiopili Ditch downstream from privately owned lands, as well as the Mahaulepu coastline?

Page 4-62, lines 40-41: The Hawaii Department of Health CWB is referenced as stating that "[t]he predicted risk of illness from recreation exposure to a cattle-impacted waterbody is 25- to 150-times lower than the risk of illness associated with human sources of contamination." However, this statement differs from results obtained during a metadata modelling study by Soller et al. (2010), which concluded that gastrointestinal risks associated with exposure to recreational waters impacted by fresh cattle feces may not be substantially different from water impacted by human sources.

(Soller, J.A., M.E. Schoen, T. Bartrand, J.E. Ravenscroft, and N.J. Ashbolt. 2010. Estimated human health risks from exposure to recreational waters impacted by human and non-human sources of faecal contamination. Water Research 44:4674-4691.)

Page 4-63, line 29: In addition to the listed nutrients, un-ionized ammonia (NH_3) should be measured especially in Waiopili Ditch water because its percentage in ammonia-nitrogen (and hence, its toxicity to aquatic life) increases considerably as pH increases, especially at pH 8.0 and higher). High water temperatures can also increase ammonia toxicity. In addition, dissolved oxygen concentrations and possibly even hydrogen sulfide concentrations should be monitored in ditch water because these variables are often linked to die-offs of aquatic organisms in organically enriched waters.

Page 4-63 lines 37-38; also, Page 4-84, lines 24-27: The conclusion that "…ditch water (from Waiopili Ditch) is highly restricted in terms of effects to the marine environment" may be correct for the measured variables and the times that water samples were collected. However, sampling by MRCI did not include sensitive measures of coral reef health, including viability of coral polyps and ecological changes in the structure and function of nearshore marine floral and faunal communities to potential pollutants in discharge from Waiopili Ditch. Also, at a minimum, MRCI should have included water samples collected from Waiopili Ditch and the nearshore marine environment during or immediately following at least one major rainfall event.

Page 4-66, line 28: If supplemental commercial fertilizer will be applied to pasturelands, the composition of "inert" ingredients in the fertilizer should be identified because they could represent significant sources of contamination to surface waters.

Page 4-67, lines 36-37: Although MRCI concluded there will be no substantial effects to marine water quality from the HDF dairy, their field surveys occurred only under low-rainfall conditions. During high-rainfall conditions, excessive runoff from the dairy facilities and associated pasturelands could transport large amounts of organic debris (including cow manure), suspended sediments, and other pollutants into the marine environment, with "brown water" conditions extending several hundred yards from shore. Particulates settling on coral reefs and dissolved pollutants have the potential to cause catastrophic harm to the marine ecosystem.

Page 4-68, lines 16-18: Water quality monitoring alone in nearshore marine waters might be insufficient to predict long-term ecological effects from dairy operations. Biological monitoring is also needed.

Appendix E, Page 31, line 1: Water from Waita Reservoir is delivered to Mahaulepu Valley via a 12-inch pipeline, so it is very likely that freshwater fish and other aquatic life from the reservoir also occur in Waiopili Ditch and elsewhere on the valley floor.

Appendix E, Page 43, lines 27-31: According to estimates performed by Tom Nance Water Resource Engineering, the HDF is likely to increase nitrogen discharged into the marine environment by 6.6-fold, and phosphorus by 8.4-fold, with discharge of these nutrients occurring mostly during and immediately following major rainfall events. Thus, the nearshore marine environment is expected to receive "slugs" of nutrient-enriched floodwaters at infrequent intervals.

Appendix F, Page 3, lines 10-11: Grab samples of water were not collected during high discharge in Waiopili Ditch, resulting in biased data that typify low-flow (non-turbid) conditions. Under low-flow conditions, discharge from Waiopili Ditch is expected to have negligible (minimal) effect on marine receiving waters. Also, by not using continuous monitoring instrumentation (e.g., Hydrolab Datasonde multiprobes, which can be programed to record water quality measurements at selected time intervals over several days), diurnal variation in water quality variables could not be characterized.

Appendix F, Page 5, lines 10-11: When water samples were collected in Waiopili Ditch on several occasions during 2014-2015, the ditch was overgrown with "dense vegetation." I suspect the vegetation reduced downstream concentrations of nutrients and turbidity due to reduction in discharge (water flow) and enhanced biological uptake.

Appendix F, Page 6, lines 10-11: Another possibility is that aquatic vegetation in the weed-choked ditch is binding up the nutrients. This nutrient-absorbing capacity could be exceeded by very high inputs of nutrients when the dairy becomes operational, or if instream vegetation is removed to promote better drainage.

Appendix F, Page 8, lines 5-7: However, during high rainfall events, the zone of mixing could be greatly enlarged due to discharge of massive volumes of muddy flood waters (marine waters several hundred yards offshore can turn brownish from suspended sediments for several days).

Appendix F, Page 9, lines 28-30: The sampling design did not capture occasions when peak nutrient concentrations were likely to be present (as during or immediately following major rainfall events). Thus, for water samples collected during low flow conditions in 2014-2015, you might not expect measured water quality to exceed DOH criteria.

Appendix F, Page 10, lines 10-12: Due to a strongly biased sampling design (especially

collection of grab samples only during low rainfall time periods and calm ocean conditions), I don't believe this assessment is capable of yielding "... valid evaluations of the potential for impact to the marine environments from the proposed Hawaii Dairy Farms operation." Moreover, the reliance on only a few grab samples (instead of continuous monitoring instrumentation to detect possible diurnal variations) and a very limited list of water quality variables (macronutrients, turbidity, chlorophyll, bacteria) leave gaping holes in the information base needed to confidently evaluate potential threats to the marine environment. The lack of ecological monitoring data on the vulnerable coral reef ecosystem may be an especially glaring shortcoming of this impact assessment.

Appendix F, Page 12, lines 10-12: A comparison of nutrient input to the marine environment "... along the Poipu shoreline ..." and the HDF is not very meaningful. Nutrient input from the Poipu vicinity occurs along an extended shoreline, whereas input from the HDF occurs from a single point source discharge (mouth of Waiopili Ditch).

Appendix F, Page 13, lines 22-24: Even if measurable changes are not detected in marine water quality, ecological changes to the marine ecological community might still occur if biota are hypersensitive to exceedingly small variations in water quality. The only feasible way to detect ecological changes in the marine community is to conduct long-term monitoring of flora and fauna (health of coral polyps, abundance and distribution of sensitive species, etc.).

Appendix F, Page 14, lines 7-11: These statements suggest a cultural bias or, at minimum, a callous attitude towards the few people who may fish or otherwise use marine resources at or near the mouth of Waiopili Ditch compared to much larger numbers of people who use the Poipu vicinity for recreation.

Appendix F, Page 15, lines 16-17: How can you include the nearshore marine samples in this generalized conclusion of "no repetitive pattern" if samples were collected only during a single occasion (October 2, 2014)? Perhaps you are thinking of spatial (not temporal) repetitive patterns.

Appendix F, Page 16, lines 23-25: The conclusion of "little evidence that operation of the HDF will result in any substantial changes to the marine environment" is simply not justified by the data under consideration. For example, there was no assessment of potential contaminants (pesticides, metals, antibiotics, etc.) typically associated with dairy operations. Moreover, the marine environment includes numerous other physicochemical and biological variables that were never measured or even considered by this assessment. What about potential impacts to the nearshore coral reef ecosystem and the fishes, birds, reptiles (turtles), and mammals (Monk seal) that use the area?

Sincerely,

Michael K. Saiki

Michael K. Saiki, Ph.D.

GROUP 70 INTERNATIONAL

January 3, 2017

Michael K. Saiki, Ph.D.
337 Nana Place
Kapa'a, Hawai'i 96746

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Dr. Michael K. Saiki:

Thank you for your letter dated July 21, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

State of Hawaii Water Policies
Flowing inland waters within the Māhā'ulepū Watershed fall into Class 2, not otherwise classified for protection [HAR §11-54-5.1(a)(1)(C)]. "The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation . . . These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. . . ." (DOH, 2014).

The stretch of open coastal waters at the terminus of Waiopili Ditch is classified as Class A under State Water Quality Standards, as no embayments, marine waters, or open coastal waters in the vicinity are listed in HAR §11-54 for special protection. Use of Class A waters in the standards state: "the objective of Class A [marine] waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with the recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class" (DOH, 2014).

HDF intends to include best management practices to protect water quality within the man-made and natural portions of Waiopili Ditch, as well as the coastal waters and beach. Such practices included installation of 35-foot wide vegetated buffers and filter strips, 50-foot setbacks with effluent irrigation, on-site retention areas adjacent to the raised raceways, and development of the Kikuyu thatch which will attenuate surface runoff and prevent pollutants from reaching the on-site water ways. Even in the winter months, where diversified forages will be used, the Kikuyu thatch will be maintained by using no-till planting methods when diversified forages must be planted in November and December to boost forage yields.

Marine Water Quality and Marine Environment
Marine water quality assessment is presented in the EIS at Section 4.17 and Appendix F. Surface water sampling of the ditch waters and ocean waters conducted for these assessments followed standard protocols for sampling and analytical testing accepted by the State DOH.

The EIS documents both surface water and marine water quality downgradient of Māhā'ulepū Valley. Intermittent streams and man-made ditches convey surface water from the 2,700-acre Māhā'ulepū Valley sub-watershed, which includes the 557-acre proposed HDF site, to the Waiopili Ditch. The terminus of Waiopili Ditch is a deep, muddy basin that joins the ocean through a channel cut through beach sand. The ditch is not an inviting body of water for recreation, though people may cross the channel on foot nearest the beach at a point also utilized by a commercial horse-back riding operation during its twice-daily trail rides. Water quality constituents, including nutrients and bacteria, were quantified at surface water and marine sites. Results of the water chemistry analysis identify that ditch water mixes rapidly and within a short distance of the shoreline. Marine Research Consultants, Inc. (MRCI) concluded input from ditch water is highly restricted in terms of effects to the marine environment, and there will be no substantial effects to marine water quality from dairy operations. However, comments received on the Draft EIS included interest in the marine biota.

To address the comments to the Draft EIS, HDF engaged MRCI to survey the marine biotic community structure and provide baseline documentation of existing conditions. Additional information can be found in the biota report addendum to EIS Appendix F. The typical weather and sea conditions in the area are characterized as a high energy environment due to frequent tradewinds and long-period ocean swell, which rapidly mix the water column. This translates to rough water conditions considered dangerous for human recreation except during periods of exceptionally calm wind and waves. The survey was conducted during such a period in November 2016, to allow for safety as well as for visibility within the water.

The shoreline and nearshore marine environment is shaped by a submerged basaltic shelf, formed from ancient lava flows. A semi-embayment is created seaward of the basaltic shelf, bounded by extrusions of pillow lava that form distinct shallow dikes on either side. Within the central area of this semi-embayment are expansive sand flats. Biotopes – areas of uniform environmental conditions that provide a living place for a specific assemblage of plants and animals - were documented and described for the Māhā'ulepū area. The open coastal exposure to long-period south swells and tradewind-generated seas are reflected in the survey findings. There is essentially no biotic community structure in the areas where the ditch water flow meets the ocean.

Coral community structure throughout the nearshore zone that has a hard bottom is generally restricted to the hardy pioneering coral *Pocillopora meandrina*. Where substratum is more sheltered from wave effects or has more complexity in the form of undercuts, ridges and knolls, additional common species are seen: *Porites lobata* and *P. compressa*, and *Montipora patula* and *M. capitata*. Coral cover in such areas was 10 to 20 percent of bottom cover. The exception was a small area approximately 0.3 miles south of the ditch point of discharge, where a well-established coral community was identified. The larger coral colonies likely exist due to a protective lava extrusion that shelters the area from destructive waves; assumedly these corals withstood wave forces associated with two hurricanes that directly impacted Kaua'i in 1981 and 1992. The corals within this area, while not common for the high energy marine environment, are composed of the most common components of most Hawaiian reefs. Due to the distance from the discharge point (approximately 2,000 feet, or 0.3 mile), nutrient or biological inputs from the ditch would be diluted to background marine levels and create no impact.

Nutrients and Marine Environment
The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A larger body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Soils and Pasture Function
Section 4.3 of the EIS characterizes soil conditions, and anticipated impacts from effluent and supplemental nutrient application. The Ka'ena and Kalihi soil series that underlies the HDF site are described as poorly drained. The designation of "poorly drained" is not an indication of low or poor infiltration, which refers to the ability of water and effluents to enter the soil surface. Said another way, soil "drainage" refers to the movement of water within or through the soil profile rather than entry through the soil surface. Additionally, "poorly drained" soils can exhibit anaerobic conditions, which are important in both the presence and movement of nutrients that improve soils health, most importantly nitrogen and its various soluble forms nitrate, nitrite, and ammonium.

The thick thatch formed by Kikuyu grass greatly improves infiltration of applied water and effluents, as additions of irrigation water and liquid effluent will microbiologically energize the surface soil (EIS, Section 4.11). Stimulated populations of microorganisms are very effective in inactivating additives due to the reduced half-life resulting from enhanced immobilization and degradation by the super-active microbiological community. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

Application of manure provides organic matter that will dramatically improve soil health and allow nutrients from manure to be accessible to grow the grass crop. Traditionally, soil has been the largest area of storage for carbon on earth. However, human disruption of the carbon cycle throughout periods of modern industrialization has released excess carbon into the atmosphere and into the oceans, resulting in a lack of stable carbon that was previously stored in soils. Photosynthesis is the greatest catalyst of transferring carbon from the air into soil. Once in soils, carbon feeds soil microbes that assist plants in acquiring nutrients and create stable forms of soil carbon. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

Concern about hoof compaction fails to consider the rotational grazing method, which relies upon rotation amongst paddocks as a method to increase grass quality, and improve animal health and productivity, and utilizes manure for its nutrients to grow the grass crop. Additionally, the Kikuyu grass as forage forms a thick, cushioning, thatch that will both reduce and mitigate soil compaction while at the same time increasing surface infiltration of irrigation or rainfall.

Effluent Storage and Large Rainfall Events
There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

The storage pond will have an emergency overflow spillway that will allow discharge from the pond in the event of a cataclysmic emergency, such as a rainfall event greater than the 25-year, 24-hour storm or other natural disaster. A secondary berm will also be constructed downhill of the effluent ponds before the existing drainage way and access/farm road, to contain an emergency discharge from the pond from the overflow spillway. Although not required by the Guidelines, this secondary containment area will provide additional containment that will be roughly equivalent to 30 days of total liquid effluent volume collected over the 30-day storage period, or 1,136,841 gallons of additional emergency storage.

Fauna Assessment
EIS Section 4.11 addresses the faunal community at the HDF site and vicinity. Per the advisement of the U.S. Fish and Wildlife Service and the State Division of Forestry and Wildlife, HDF will follow best practices and operational procedures to protect any protected animal species. An Endangered Species Awareness and Protection Plan will be completed in consultation with USFWS and DOFAW prior to dairy construction and operations, to ensure that dairy operations will not result in deleterious impacts to protected wildlife.

HDF shares the concern of herbicide and pesticide impacts on the HDF site and surrounding environment. Insecticides and herbicides are non-discriminatory and kill beneficial as well as pest insects. Such control would only be used when needed by those qualified to apply chemicals, and in accordance with authorized procedures and regulatory labeling requirements. Safe application practices for any unavoidable herbicide or pesticide include specifically targeting the problem pest species. Integrated pest management (IPM) will be the preferred means to control pests.

Waiopili Ditch

DOH issued its March 2016 Sanitary Survey report which identifies water quality conditions at Waiopili Ditch. We rely on its expertise to document these existing conditions. We further acknowledge your anecdotal information on recreational uses of this man-made drainage ditch. These conditions are clearly unrelated to the future dairy which has yet to be constructed or operate.

The EIS in Section 4.17.2 refers to polluted streams that have been tested by the Surfrider Foundation. The Kaua'i Chapter of the Surfrider Foundation began collecting water samples in Waiopili Ditch near the bridge accessing Makauwahi Cave Reserve in April of 2014. The group reported high levels of enterococcus to DOH and provided its data, however, DOH was unable to utilize the data as it did not meet CWB quality assurance/quality control requirements, and it could not be used for regulatory purposes. CWB had not conducted water quality sampling for either nearshore recreation waters at the terminus of Waiopili Ditch, or of surface waters in the Māhā'ulepū Surface Water Hydrologic Unit.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted CWB to conduct a "Sanitary Survey" of the Māhā'ulepū and adjacent watersheds. DOH conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. Following EPA standards for a Sanitary Survey, DOH has completed Part I of its report: Waiopili Ditch Sanitary Survey, Kaua'i, Part I. The Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors in the indicator levels found in ditches running through Māhā'ulepū Valley.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Objection of Dairy Farm

From: Tiffany L. Salazar [mailto:tyadao23@hotmail.com]
Sent: Tuesday, July 19, 2016 10:49 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Objection of Dairy Farm

Laura,

As a young Kauai resident, I'm writing to you in objection to the development of the Dairy Farm in the Poipu area.

Air pollution, flies, and contamination into our beautiful Kauai oceans and streams will forever have an impact on Kauai and especially Poipu and it's people.

I have 3 young children that enjoys time in the water and exploring what their home has to offer and the last thing we need is this dairy farm to obstruct the future of my children.

Thanks for your time.

Tiffany L Salazar

GROUP 70 INTERNATIONAL

January 3, 2017

Tiffany L. Salazar
Tyadao23@hotmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Tiffany L. Salazar:

Thank you for your email of July 19, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary.

For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Hawaii Dairy Farms

From: Ivy [mailto:ivy@poipubaygolf.com]
Sent: Monday, July 25, 2016 11:36 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Hawaii Dairy Farms

Aloha Laura,

My name is Ivy Santos and I am a resident of Kauai, and I live in Kapaa and I do work in Poipu. I do appreciate your time spent in reading all the comments about our feelings towards this Hawaii Dairy Farm issue.

This year marks 25 years of working as an employee at the Poipu Bay Golf Course, which is very very close to the vicinity of Mahaulepu. I am originally from Honolulu and moved over to Kauai in 1991. My first impression that I did get from seeing this Island was the untouched beauty of it. The beaches are so beautiful and they are accessible to everyone. It is not so commercialized like the city life that I had in Oahu. I have grown accustom to everything here and want it to stay as it is.

When I first heard of the Hawaii Dairy Farm coming into Poipu, I was sadden to see the comments of how it will affect everyone living around this area (Poipu) and for the people working for the Hotels as well. I am one of these so called individual that will be affected by this. Having a Dairy Farm where majority of the tourist do vacation will certainly hurt our economy. They will eventually never return or maybe start seeking other areas to spend their vacation. And if our tourism rate decreases, it will have an effect on OUR jobs here. Have you ever thought of this? Have you thought of how we locals here are really making a living? It is bad enough as it is when the tourism drops due to other reasons but to have a Dairy operation starting up in Poipu, there will be a drastic change. It will be hurting our environment as well as our health.

Please put yourself in our situation and see what we all are feeling. I do have a family to raise and my job most of all depends on it.

As the price of milk is high as it is, I do not mind paying the price for it than seeing the change happen here on Kauai.

Please rethink the planning of this Hawaii Dairy Farms with the consideration of KEEPING KAUAI AS KAUAI.....

Mahalo,

Ivy Santos

7-25-2016

GROUP 70 INTERNATIONAL

January 3, 2017

Ivy Santos
ivy@poipubaygolf.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Ivy Santos:

Thank you for your email of July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: request for consideration

From: elizabeth@readkauai.com [mailto:elizabeth@readkauai.com]
Sent: Monday, July 25, 2016 9:10 PM
To: Pressler, Virginia Ginny, M.D. <Ginny.Pressler@doh.hawaii.gov>; Kawaoka, Keith E <keith.kawaoka@doh.hawaii.gov>
Subject: request for consideration

Aloha,
I ask you to support my dissatisfaction for the Kauai southside's location for the Hawaii Dairy.
I could go into all the pros and cons, but I want you to know I enjoy the aina and wai around the shores of Maha'ulepu ... along with my age, research and experience here, I know this is not a positive addition to our community. Please do something more for us ... the sensitive ecosystem of Maha'ulepu would be irreparably harmed if the Omidya Dairy is allowed to proceed as proposed.

I remain humbly one of your taxpayers,
Elizabeth Scamahorn

GROUP 70 INTERNATIONAL

January 3, 2017

Elizabeth Scamahorn
elizabeth@readkauai.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Elizabeth Scamahorn:

Thank you for your email of July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawaiʻi via ocean and air shipping. The recent announcement by Hawaiʻi Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawaiʻi.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 20, 2016

Ken & Stephanie Schwartz
417 19th Street
Manhattan Beach, CA 90266

Group 70 International Inc.
925 Bethel Street, Fifth floor
Honolulu, Hawaii 96813
Mr. Jeffrey Overton, Principal Planner

Re: Hawaii Dairy Farms (HDF) Draft Environmental Impact Study (DEIS) response:

Dear Mr. Overton

We've received your response letter of May 26, 2016. Thank you for taking time to reply to our February 7, 2015 letter and for addressing our comments and concerns regarding the proper Agency oversight and Agency approvals that we continue to believe, should be part of the required reviews, permits and approvals process.

In reviewing the HDF DEIS Section 1.8 (page 1-20) "Listing of Required Government Permits and Approvals" table, neither CZM nor CNPCP were included specifically, however thank you for bringing to our attention that the enforcement authority for the Federal Coastal Management Program (Public Law 104-150, as amended in 1996) has been delegated to the State of Hawai'i under HRS Chapter 205A, CZM Program and that the CNPCP is under the authority and approvals of the EPA and NOAA.

As we stated in our letter: *"oversight in the areas of pollution runoff and in particular with Vegetated Treatment Systems should be a part of the Review and Approval process and as such these Agencies CZM, CNPCP should be included".*

You state in your letter of May 26, 2016, that "*The project improvements are designed to conform to the goals and objectives of the CZM Program*" and directed us to take note of specific resource chapters in the DEIS Sec. 3 & 4, which you state, include significant measures to minimize or mitigate potential non-point source pollution impacts to the aquatic resources and nearshore coastal waters.

We'd like to point out some of our concerns with the DEIS data presented and voice our further insistence, that these Agencies CZM (as represented by the State of Hawaii) and CNPCP (as represented by EPA and NOAA) be included in the **"final review, permit and approval process"**, along with other State and Federal Agencies.

Our concerns:

1. **Table 5-5 State of Hawaii Water Policies - Department of Health - HDF DEIS - page 5-30**

Class II: It is the objective of this class of waters to be protected for their uses including fish, shellfish, and wildlife. propagation and for recreational purposes. The uses to be protected in this class are all uses compatible with the protection of and propagation of fish, shellfish, and wildlife and with recreation. Any action which may permanently or completely modify, alter, consume, or degrade Marine bottoms, such as structural flood control channelization (dams); landfill and reclamation; navigational structures (harbors, ramps); structural shore protection (seawalls, revetments) and wastewater effluent outfall structures may be allowed upon securing approval in writing from the director, considering the environmental impact and the public interest.

"The HDF response was **not applicable (N/A)** to State of Hawaii Water Policies Class II and is based that conclusion on this HDF statement:

Discussion: "During the rainfall and runoff events, the dairy's nutrient contributions would be further diluted by additional volume of surface runoff and ditch flows. The terminus of Waiopili Ditch is a deep, muddy basin that joins the ocean through a channel cut through beach sand. Water chemistry measurements identified mixing of ditch water occurring rapidly and within a short distance of the shoreline. There will be **no substantial effects** to Marine water quality from the HDF dairy".

Our response: This hypothesis and conclusion seem totally unrealistic with the amount of rain that can occur, the amount of effluent the farm will be producing on a daily basis, the composition of the soil in Maha'ulepu and it's close proximity to the shoreline.

The HDF conclusion says **No substantial effect? Unlikely! Compliance with Hawaii State Water Policies Class II - DOH - should be mandatory.

2. Table 5-6 Objectives and Policies of the CZMP - HDF DEIS - page 5-30

Coastal ecosystems

*The HDF response was **not applicable (N/A)** to the following Objectives and Policies of the CZMP:

C. Preserve valuable ecosystems, including reefs, of significant or economic importance **N/A**

D. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs. **N/A**

Our response: Is your Group 70 response letter of May 26, 2016 in which you state.

*"In 1972, the Federal government enacted the **CZMA to effectively manage, use, protect, and develop coastal areas in the U.S.** The CZMA was a government response to increasing and competing demands upon habitats and resources of coastal lands and waters. Such demands often resulted in a loss of living marine resources and wildlife; depleted nutrient-rich areas; shoreline erosion; diminished open space for public use; and permanent and adverse changes to ecological systems. Under the CZMA, States are authorized to work in a unified manner with Federal and local governments to develop programs, policies, evaluation criteria, development standards that lend to the effective protection and prudent use of coastal lands and waters". "The (HDF) project improvements are designed to **conform to the goals and objectives** of the CZM Program"* (HDF letter attached).

** HDF must decide is it applicable or not applicable (N/A). Protect and preserve CZMA or **N/A.** It cannot be both ways! Compliance with these and other applicable CZMA Objectives and Policies should be mandatory.

3. Table 5-6 Objectives and Policies of the CZMP - HDF DEIS - page 5-30

Public participation

*The HDF response was **not applicable (N/A)** to the following:

A. Promote Public involvement in coastal zone management processes **N/A**

B. Disseminate information on Coastal management issues by means of educational materials, published reports, staff contact, and public workshop for persons and organizations concerned with coastal issues, developments and govt. activities. **N/A**

C. Organize workshops, policy dialogues and site specific mediations to respond to coastal issues and conflicts. **N/A**

Marine Resources.

C. Encourage research and development of new, innovative technologies for exploring, using or protecting marine and coastal resources **N/A**

Compliance with these CZMA Objectives and Policies should be looked upon as in the best interest of the public and with the intention of complying with the Coastal Zone Act Reauthorization Amendments (CZARA) of **"Protecting Coastal Waters".

Our response in summary:

We care!! We breathe this Air, Drink this Water and Rely on these Marine Resources and Habitats for food and recreation. Government Agencies are in place to Protect and Serve all of us. The protection of these fragile Ecosystems and Natural resources by the appropriate Federal and State Agencies as noted, should be included in the required Review, Permitting and Final Approvals for HDF in the Maha'ulepu Valley. Additionally, there should be a plan in place for the continual monitoring for "Compliance" to the rules and Regulations of the Federal and State statutes governing these matters.

With Aloha,

Ken & Stephanie Schwartz
Poipu Sands #534

GROUP 70 INTERNATIONAL

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Ralph E. Portmore FAICP
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January 3, 2017

Ken and Stephanie Schwartz
417 19th Street
Manhattan Beach, California 90266
k-vision@earthlink.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Ken and Stephanie Schwartz:

Thank you for your letter dated July 20, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Flowing inland waters within the Māhāulepū Watershed fall into Class 2, not otherwise classified for protection [HAR §11-54-5.1(a)(1)(C)]. "The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation . . . These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class".

The stretch of open coastal waters at the terminus of Waiopili Ditch is classified as Class A under State Water Quality Standards, as no embayments, marine waters, or open coastal waters in the vicinity are listed in HAR §11-54 for special protection. Use of Class A waters in the standards state: "the objective of Class A [marine] waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with the recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class".

HDF intends to include best management practices to protect water quality within the man-made and natural portions of Waiopili Ditch, as well as the coastal waters and beach. Such practices included installation of 35-foot wide vegetated buffers and filter strips, 50-foot setbacks with effluent irrigation, on-site retention areas adjacent to the raised raceways, and development of the Kikuyu thatch which will attenuate surface runoff and prevent pollutants from reaching the on-site water ways. Even in the winter months, where diversified forages will be used, the Kikuyu thatch will be maintained by using no-till planting methods when diversified forages must be planted in November and December to boost forage yields.

EIS Section 5.0 addresses HDF's compliance with State and County policies. The site is outside the SMA as delineated by the County of Kaua'i. An archaeological survey was performed for the project area in compliance with Chapter 6E of the Hawai'i Revised Statutes, supporting the CZMP's objective to protect and preserve historic resources. Water quality management practices are promoted by Hawai'i Dairy Farms through soils conservation, nutrient management, and water monitoring.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

HDF-Are you kidding me?

Kathy Sheffield <sheffieldkathy@gmail.com>

Sat 6/11/2016 5:58 PM

To:HDF <hdf@group70int.com>;

I am so totally opposed to the HDF. Are a few "well greased" palms, in the form of payoff, as important as what will happen to the south side if this dairy is allowed to continue?. I was at shipwreck beach last week with out of town visitors. We sat on the grass adjacent to the Hyatt. The flies were so terrible we had to leave. I presume they were from the horses at CJM stables.

The following are facts which I am sure the dairy has not made public:

* In order for mammals to produce milk, they must become pregnant. Dairy cows are continually re-impregnated through artificial insemination within 2-3 months of having their previous calf. Naturally, a cow would nurse her calf for 9 months to one year, but the dairy industry removes the calf from the mother after only a few days, so that the milk that was meant to nourish her baby can be made into cheese for you. Separation of calf from mother is extremely traumatic. Both the cow and the calf bellow and show obvious signs of distress when they are separated, often continuing for several days, leaving those within earshot in no doubt that it is a harrowing experience for both.

* The calf that was taken from its mother is slaughtered for veal (Yes, the dairy industry fuels the veal industry.)

*Many cows are physically exhausted after 2-3 lactation periods, at which point they are sent to slaughter and end up in "low quality" beef products like ground beef, canned goods, and baby food. If you think no animals are being slaughtered as a result of a dairy, you are completely wrong.

* A single dairy cow produces about 120 pounds of manure per day, which is equivalent to the waste produced by 20-40 people. Millions of gallons of liquefied feces and urine seep into the environment contaminating rivers and groundwater, killing millions of fish, and delivering antibiotics and hormones into our water sources.

HDF has already made arrangements with local farmers to harvest their beef off these cows. Do you really believe as the EIS states, that the dairy will improve soil quality and protect water resources; that it won't impact local real estate values; that "thick patches of pasture grass will pass as "essentially an organic net" that quickly absorbs manure from the cows; that manure will break down in three days "thanks to a healthy ecosystem of microbes and dung beatles (which will be brought to our beautiful island by HDF); that the ground cover will eliminate soil erosion?

Ann Hennessy states that the cows won't even produce enough manure to fertilize the grass growing on the site. They will of course put additional fertilizer on the land. The EIS states that 'THE DAIRY WILL PROVIDE A JOLT TO THE ECONOMY" by providing 11 full time jobs and 36 construction jobs. I'm really wondering how much money has passed hands to our officials to allow this monstrosity to be permitted on our pristine south shore. I am also insulted that Ulupono Initiative believes we are so stupid that the people of Kauai would allow this impactful project to desecrate our tourism and housing markets. They can say anything they want about how the calves will be treated, but once they bring those cows to Kauai, we will be powerless over how they really treat them. Please do not accept this EIS; it is a total conflict of interest because of the work done by Group 70 International on both the EIS as well as the plans for the dairy. Please also be aware that the majority of the population of Kauai will not speak of because of their ethnic values.

Someone needs to speak for those who choose to remain silent because of their culture. They may remain silent, but they can vote...

Kathy Sheffield
P.O. Box 1644
Koloa, HI 96756
805-886-6175

January 3, 2017

Kathy Sheffield
sheffieldkathy@gmail.com

Subject: Hawai‘i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā‘ulepū, Kōloa District, Kaua‘i, Hawai‘i
Response to Comment on Draft EIS

Dear Kathy Sheffield:

Thank you for your email of June 11, 2016 regarding the Hawai‘i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai‘i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai‘i's dairy industry.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai‘i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua‘i and those species already in Māhā‘ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Dairy operations will generate noise in keeping with agricultural zoning of the parcel. Those within hearing range would be farmers working nearby parcels. Noise from the dairy will not exceed the DOH threshold, and will not contribute to excessive noise in the region.

Cattle ranching on Kaua‘i spans generations, and ranchers are stewards of the lands. Healthy lands raise healthy beef cattle. Local ranchers are experienced in animal welfare, and can collaborate with HDF to care for dairy cows during annual rest cycles and to raise calves until old enough to join the dairy herd. The availability of calves from a dairy such as HDF provides new animals to maintain or expand a beef herd. Each ranch will determine its capacity based on business and operational goals.

Water is essential for life. Hawaii must become as efficient as possible in its use of limited fresh water supplies due to the need for fresh water for increasing resident and visitor populations. More than 9 percent of the State's drinking water comes for groundwater sources, while much of the water used for agriculture irrigation comes from surface water sources. [FEIS 4.16]

Both groundwater and surface water conditions in and around Māhā‘ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā‘ulepū Valley has a unique geology from the surrounding Kōloa-Po‘ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā‘ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā‘ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the HDF EIS. The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

RECEIVED
JUL 21 2016
GROUP 70 INT'L

1763 Pe'e Road, Apt. 503
Koloa, HI
July 19, 2016

Group 70 International Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

RE: Group 70 Draft EIS for Hawaii Dairy Farms

To Whom It May Concern:

We have received and studied Group 70's DEIS for Hawaii Dairy Farms. It did NOT satisfactorily address our concerns. In our opinion, this document does not bear any resemblance to a truly scientific EIS. Rather it reads like a public relations publication supporting HDF. We believe that HDF should, under Hawaii Law 343, be required to conduct a MANDATORY EIS instead of this voluntary "EIS."

The following important considerations are completely lacking from this DEIS:

1 – Impact on the Local Economy

a – There are 2200 jobs in the area that would be affected;

b – Loss of Property Tax Revenue (see Dr. Kilpatrick below);

c – Loss of Tourist Generated Revenue to Local Businesses and the County of Kauai;

d – LACK OF ANY MITIGATION;

2 – Impact on the Recreational Enjoyment of the Community;

3 – Impact on the Hawaiian Lifestyle

Documented experience of other communities faced with similar factory "farms" tells us that residents in the affected areas can no longer safely venture forth from their homes. To avoid being bitten, they must wear long sleeve clothing, long pants, shoes, and socks. This is in no way consistent with life on our island.

4 - Impact on the Marine Environment – Marine Life and Coral;

5 – Impact on Birds;

6 – Impact on Site Archeology.

In addition, we wish to challenge the following findings:

1 – GROUP 70 OBJECTIVITY

Group 70 prepared the initial proposal for Hawaii Dairy Farms' (HDF) industrial dairy to be placed at Mahaulepu on Kauai. Now the same firm has prepared the DEIS for Hawaii Dairy Farms.

Group 70 cites their 40 year history of completing several hundred EIS documents, their professional staff, and their receipt of Chapter awards for excellence from the American Planning Association as evidence of their objectivity. These statements do not address the issue of objectivity in this specific instance in any way.

No where in Group 70's response to this issue do they state how often they have been both the author of the initial proposal as well as the author of the DEIS. Clearly, having written the initial proposal, they have a vested interest in its successful outcome. This makes it impossible for them to be truly unbiased in conducting the DEIS. THIS IS A CLEAR CONFLICT OF INTEREST and should make their findings suspect and therefore not accepted as valid.

2 – DAIRY OPERATIONS

We are being asked to respond to this DEIS that was written in accord with HDF's initial plan. Since this DEIS was released, HDF has modified their plan in several significant ways. Therefore this DEIS is not current and should be disregarded.

Throughout this entire section, Group 70 speaks about the proposed industrial dairy "farm" as a "fait a compli." It regurgitates all of HDF's public relations propaganda and ignores any and all impact on Maha'ulepu and the people of Kauai.

3 – PESTS

Group 70 states: "HDF will prevent and control fly population growth through diligent clean up and sanitation practices regarding any trash and food waste, as well as through efficient manure composting practices." Also, "Fly populations at HDF will be minimized through a process known as Integrated Pest Management."

They reference the dung beetle and predict that the population of these insects "will increase". Applying a scientific formula reveals that it would take millions of these dung beetles to control the flies generated by HDF's cow manure. Where will these millions come from??

Using HDF's own numbers, we know that each cow will produce 90-143 lbs. of manure per day. We also know that HDF's goal is to have 2000 cows on site. Simple math tells us that we would be dealing with 180,000-286,000 lbs. of manure each and every day. The second figure is from their DEIS, the first is from their original plan. Which is correct?? In either case, it would be overwhelmingly unmanageable.

Just what "manure composting practices" are they referring to? And what evidence is there to support their prediction that the population of dung beetles "will increase?" What evidence is there to support their assumption that either or both of these interventions will resolve the problem??

4 – DEMOGRAPHIC AND ECONOMIC

Group 70 tells us that this industrial dairy will generate approximately 28 jobs on Kauai. The proposed site is located less than 2 miles from the Grand Hyatt Resort which employs over 1000 local people. Due to the overwhelming problems that will be created should this dairy be allowed, the owners of the Grand Hyatt have said that if the dairy begins operations, they will close the resort and leave our island. Thus, we are facing a net loss of at least 972 jobs!

Group 70 further states that the dairy "would contribute to diversification of Kauai's economy" by increasing "the supply of local fluid milk by approximately 1.2 million gallons of milk annually." This is a direct contradiction of what was stated in Group 70/HDF's initial proposal. According to their own documents, ALL of the milk from this dairy will be shipped to Oahu for processing and then sold to Meadowgold. At that point, HDF has no further legal claim to the milk and, to the best of our knowledge, Meadowgold is under NO obligation to return any portion of the milk to Kauai. Where are the legal documents proving that Meadowgold is required to return any of this milk to Kauai?? Meadowgold contracts with large buyers such as the U.S. Military and Cruise Ship Lines. It is highly doubtful that any of the milk would return to Kauai to be sold in small retail establishments.

Group 70 also maintains that: "The State will derive approximately $360,000 annually in revenues from the contemplated 2,000 mature dairy cow dairy." Even is this is correct, how much of this revenue will return to the County of Kauai?? Certainly not enough to compensate for the loss of revenue the County will suffer.

Presently, Kauai depends upon the tourist industry for the bulk of its income. Of that, the south shore contributes approximately 25%. This 25% will be totally lost if the dairy becomes operational as the south shore will become unlivable (see below).

Finally, Group 70 concludes that: "No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area." These statements are based upon unidentified "technical studies and the findings of this EIS."

This is in contrast to the myriad of scientific evidence to the contrary compiled and already submitted to the State by Friends of Maha'ulepu. Further evidence, which contradicts the DEIS findings in this area, is offered by John Kilpatrick, Ph.D., world renowned real estate appraisal expert.

Per Dr. Kilpatrick:

- Factory "farms" give off potassium oxide. When this comes in contact with water, fish are poisoned and die (impact on marine life);
- Dust generated by factory "farms" carries pathogens and results in a higher level of illness among residents; (impact on the Hawaiian lifestyle)
- Studies by farm friendly universities like Iowa State show that property values are negatively impacted up to 11 miles away from the facility (loss of property tax revenue);
- Currently, the affected area on Kauai accounts for 1 billion dollars of tax value annually (loss of property tax revenue);
- Taxable property values in the affected area would fall by 25% (loss of property tax revenue);
- The reduction in taxable property values is the direct consequence of the flies, dust, and odor generated by the factory "farms." (loss of property tax revenue).

5 – WATER QUALITY

Group 70 acknowledges that: "the dairy will utilize 30,000 gallons of water per day ..." They say that "Water will come from a non-municipal source: either the on-site deep wells; or from the HDF allocation of water from Waita Reservoir." However, whether potable or not, all water of the State belongs to the people per the Public Trust Doctrine. Grove Farms CANNOT legally make allocations of State water from the diversion of the Huleia.

It further acknowledges that: "An evaluation of the island's infrastructure capacity for projected growth in population (both residents and visitors} through the year 2035 predicts the island will be facing a shortage of well water. Water resources must therefore be carefully managed ...." Yet incredibly their DEIS does NOT identify the dairy's use of our water as a negative impact.

According to Group 70, the dairy "will result in no adverse impacts to ongoing use of groundwater in the volcanic aquifer layer, which is the source of potable water." They claim that "the waterbody in which the County wells occur is confined" and that "there is "no communication between the ground water and the water that recharges our drinking water wells."

Once again, this statement is in direct conflict with the myriad of scientific evidence on this subject compiled and already submitted to the State by Friends of Mahaulepu. The County Water Department report regarding Koloa Well F states that the upper aquifer is "UNCONFINED" and "IRREPLACEABLE." It further states that the upper aquifer vulnerability is "HIGH."

6 – AIR QUALITY

Once again, Group 70 sidesteps the issue by saying: "No State or Federal regulations for greenhouse gas emissions from farm operations or small businesses currently exist." The absence of said regulations does NOT prove the absence of a problem.

Group 70 does admit that "Dust will be generated" but say that the "impact would be negligible." This is totally contrary to Dr. Kilpatrick's studies which prove that said dust carries pathogens and results in higher levels of illness.

As to foul odor, they admit that "odors may be detectable by 50 percent of the sensitive population ... 44 hours per year ... within 1/3 of a mile beyond the diary farm boundary, and does not reach recreational or residential areas." Anyone who has had any contact whatsoever with industrial dairy "farms" knows from experience that this is completely untrue. The stench is strong, unrelenting, and widespread.

A map provided by attorneys for the Hyatt Grand Resort shows the true extent of the odor problem that would occur. It includes not only the Hyatt, but also all of the vacation rentals along Pe'e Road, Brenneke's Beach, world-famous Poipu Beach, the Marriot Waiohai, Kiahuna Plantation, the Koa Kea Hotel, and the Sheraton.

7 - ALTERNATIVES

In this section, Group 70 declares: "The alternatives that do not meet the project purpose are not advanced for analysis of environmental benefits, costs, and risks." In other words, the primary goal of Group 70's EIS was and is to meet the project's (HDF's) purpose. This is a clear admission by Group 70 that it is biased and has placed HDF's financial interest ahead of the interests of the people of Kauai and our environmental concerns. Alternatives are irrelevant! The only thing that is relevant to this issue is whether or not this land use will cause environmental harm to our island and its people.

SUMMARY

Based upon the solid, scientific evidence referenced above and the similar experience of other communities both in the U.S. and New Zealand, we know that this dairy will result in an unmitigated disaster for Maha'ulepu and the entire south shore of Kauai.

Specifically:

1 - the water will be contaminated and undrinkable nor suitable for cooking and bathing;

2 - the ocean will be contaminated and no longer available to residents and guests for recreation;

3 - residents and guests will be besieged by painful, biting flies;

4 - residents and guests will have to endure a chronic stench.

As a result of the above:

1 - the south shore tourist industry will die resulting in a significant loss of GET and TAT revenue to the County;

2 - property values will plummet; indeed property owners may find their homes unsellable and simply abandon them resulting in a further loss of property tax revenue to the County;

3 - the Grand Hyatt Resort will close its doors leaving over 1000 Kauai residents unemployed.

Historical evidence shows that once thus harmed, it literally takes decades for a community to recover. Dr. Kilpatrick cited the experience of Ellenburg, WA. The people of this community are still struggling - 18 years later - to reclaim the abandoned land that was once used by a factory "farm." It is currently a contaminated pile of manure unfit for any purpose.

On a personal note, it is ironic that HDF's latest plan acknowledges that the dairy will not operate as a "zero discharge" facility as previously maintained. A few years ago, my husband and I were assessed a sizable sum by our condominium association for converting our waste removal system from the use of lava tubes (into the ocean) to a contained septic tank system. This was done per local environmental law. Yet if approved, HDF will be allowed to pollute our ocean. Why??

From another perspective, what genuine benefit does this proposed dairy bring to Kauai? More milk? No! More jobs? No! Better living conditions? No! Economic prosperity for local people? No! The answer is obvious. The only ones that would benefit in any way are Grove Farm, HDF, and the Ulupono Initiative.

Since becoming kamaaianas, we have enjoyed the unique beauty and tranquility of Maha'ulepu. It has been our favorite recreation spot. Now we can no longer bathe in its ocean waters for fear of acquiring a staph infection.

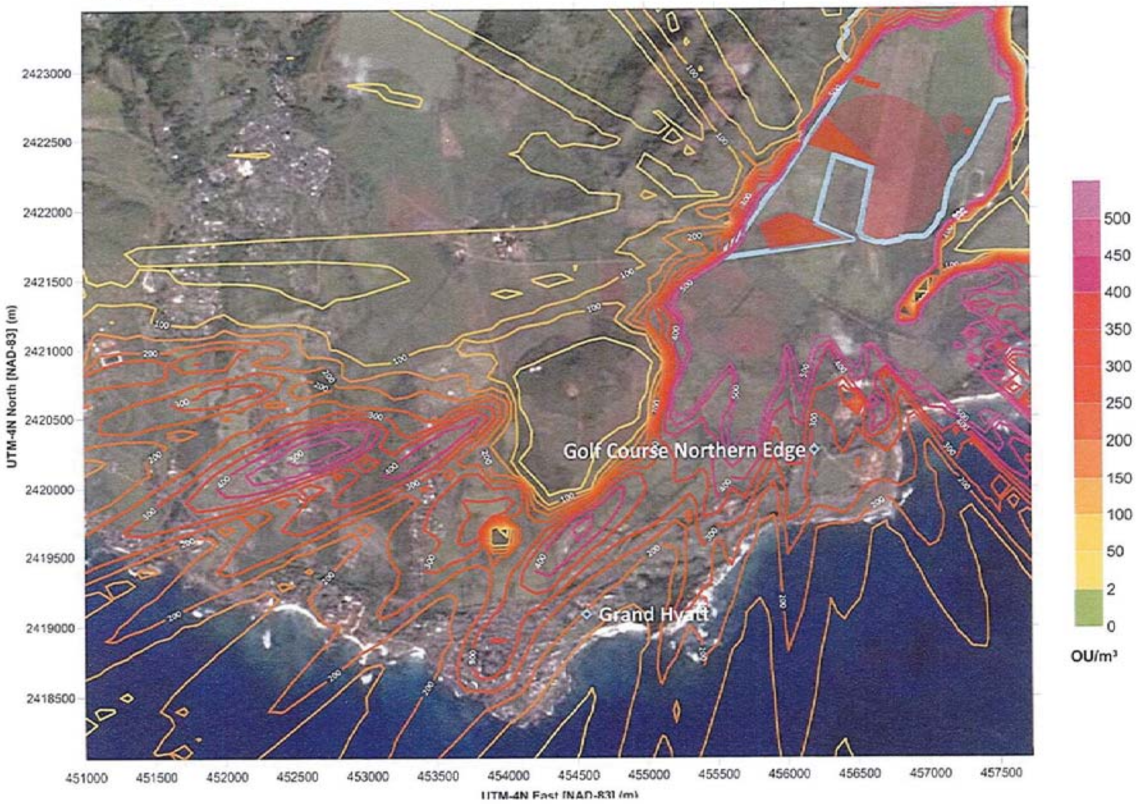
Your website says, the mission of Group 70 includes considering a project's "worth to the community." We implore you therefore to acknowledge that this project has NO WORTH to the people of Kauai and stop promoting this proposed dairy before our beautiful Maha'ulepu and our lives are irrevocably destroyed.

Yours truly,

Dr. Irene Sherman
Douglas Sherman

Dr. Irene and Douglas Sherman

Maximum 15-minute Averaged Odors from Proposed Hawaii Dairy Farm (2000 herd size)



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January 3, 2017

Dr. Irene and Douglas Sherman
1763 Pe'e Road, Apt 503
Kōloa, Hawai'i 96756

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Dr. Irene and Douglas Sherman:

Thank you for your letter received July 21, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will negatively impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

In preparation to develop the Draft EIS, HDF listened to public concerns, retained knowledgeable consultants to conduct technical analyses, refined data gathered from field trials on site, and further incorporated U.S. standards and best management practices to create a world-class design for the environmentally sound pasture-based, rotational-grazing dairy. These technical studies and ground-level trials provided additional field-tested data to refine the Waste Management Plan (WMP). It is common practice to periodically update a WMP as site conditions change or are better known to ensure the regulators are reviewing the most current information. HDF prepared a summary of the changes for the Wastewater Branch to highlight the refinements. On July 13, 2016, DOW Wastewater Branch acknowledged that its questions on the updates to the WMP had been addressed by HDF, and that WWB had no further comments at that time. The WMP is not a component of the EIS, however, all relevant information in the updated WMP was incorporated into the DEIS to ensure consistency and transparency for public review and disclosure.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawai'i Island milk.

The proposed action is consistent with the public trust doctrine. The Hawai'i Constitution states that all public natural resources, including water resources, are held in trust by the State of Hawai'i for the benefit of the people of Hawai'i and that the State should "conserve and protect" those natural resources but also "promote the development and utilization of these resources." The Hawai'i Supreme Court has held that, as a result, the State has a "dual mandate." That mandate is 1) to conserve and protect the water resources of the State, which include both groundwater and surface water and but also 2) to allow for "maximum beneficial use" of those resources, including for agriculture. The Hawai'i Supreme Court has therefore expressly rejected the concept that "resource protection" is a categorical imperative. It has held that the State should allow "controlled development" that, while giving preference to public use, access and enjoyment, "promote[s] the best economic and social interests of the people of thisstate."

Based on this dual mandate, the State has developed the water code, which states that it should be "liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic use, aquaculture uses, irrigation and other agricultural uses, power development and commercial and industrial uses" while also adequately providing for the "protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture and navigation. Such objectives are declared to be in the public interest."

The public trust doctrine therefore involves a balance--protection and conservation of the public natural resources of the State and a maximum beneficial use of those resources, including for agriculture. Designation of "important agricultural lands", including the HDF site, heightens the public interest in development of agriculture as the Hawai'i State legislature has declared that the people of the State have a "substantial interest in the health and sustainability of agriculture as an industry" and, when so designated, the policy of the State is to promote the long-term viability of agricultural uses on those lands, including by "promot[ing] the maintenance of essential agricultural infrastructure, including the irrigation systems." This serves the "compelling state interest in conserving the State's agricultural land resource base."

The proposed dairy farm will use water from Waita Reservoir for irrigation, which is also the water source for several other farmers and ranchers in the area, including a taro farmer. Non-potable water from Waita Reservoir, which uses water from upland streams, provided irrigation water to the sugar plantation that historically operated in the Māhā'ulepū area, and is used for recreational fishing. The reservoir is located west of the HDF site.

Potable water for the dairy farm will be drawn from deep groundwater wells that were installed by the sugar plantation that formerly operated on the site. The potable water will be used as drinking water for people working on the dairy farm and for the cows. As a result, the proposed action will advance both purposes of the public trust doctrine. The dairy farm will advance the important public interest in protecting and conserving agriculture in the State, including on important agricultural lands, and also further the goal of maximum beneficial use of the surface water and groundwater on those important agricultural lands.

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods:

1. Exponent used different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and
2. Odor results were compared against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area."

Exponent concurred with the emission methods and results presented by Arcadis that quantify odor from the effluent ponds and the dairy facility buildings. The air emission components of the Arcadis May 2016 report were not commented on by Exponent.

The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report. To consider the two alternate methods used by Exponent, Arcadis verified operational procedures with HDF: 1) Slurry application will not coincide with effluent application, and 2) slurry will not be applied during days with average wind speeds less than approximately 9 miles per hour (mph) (4 meters per second - m/s) or with winds greater than 20 mpg (8.9 m/s). Additionally, HDF confirmed that the dilution of irrigation water with effluent will change based on field conditions. For these reasons, Arcadis recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent. The findings of the revised odor technical report are summarized below.

On the second point, Arcadis responded that an evaluation by Mahin (2001) show off-site standard or guidelines in the U.S. to be between 2 and 50 OU/m^3 with the majority of values between 5 and 7 OU/m^3. Low OU/m^3 values are often difficult to observe. For instance, California's South Coast Air Quality Management District states that at 5 D/T (OU/m^3) people become consciously aware of the presence of an odor and that at 5 to 10 D/T odors are strong enough to evoke registered complaints. Given the conservative nature of the air dispersion modeling, a threshold of 6.5 OU/m^3 continues to be appropriate.

For the reasons above, the revised odor report modelled irrigation effluent at two dilutions in no-wind conditions (considered "worst case"), and slurry effluent with wind speeds between 9 and 20 mph, and again used the threshold of the 6.5 OU/m3 annual extent odor level. Modeling was done for both the herd size of 699 mature dairy cows (Section 4.19.2) and for the contemplated herd size of up to 2,000 dairy cows (Section 4.25.2). The colored areas in the figures depict the 99.5th percentile threshold of 6.5 OU/m3. Within the detection area odors may be detectable by 50 percent of the sensitive population once per 200 hours, or 44 hours per year.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows For the typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year. It should be noted that the parameters used in the odor assessment were intentionally very conservative and the impacts shown depend on an unlikely confluence of worst-case meteorological data, irrigation location, and grazing location; thus, actual offsite odor impacts are likely to be much lower and/or less frequent than displayed. All potential odor would remain on surrounding agricultural lands.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, the nearest recreational area, Po'ipū Bay Golf Course, lies another 0.3 miles beyond the odor extent for the typical effluent application (EIS Figure 4.25-1). During unusually wet periods, odor could extend approximately 4,085 feet (approximately three-quarters of a mile) beyond the southern boundary for the contemplated herd size.

With application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile), which would not reach recreational or residential areas (Figure 4.25-1). As explained in Section 4.19.2, the parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown (Arcadis, 2016).

The full Exponent report *Odor Impact Assessment Hawaii Dairy Farms* (2016) is in the Final EIS, Volume 5, Appendix B. The complete response by Arcadis is contained in the Final EIS Volume 5, Appendix B-B. The revised odor report by Arcadis is also attached to their initial air quality and odor report in the Final EIS Volume 2, Appendix I as Attachment 1.

As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project. Further discussion of alternatives can be found in EIS Section 6.

Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

HDF. DEIS

Shelby Simms <shelbysimms@icloud.com>

Wed 7/20/2016 4:11 PM

To:HDF <hdf@group70int.com>;

Cc:Friends of Maha'ulepu <friendsofmahaulepu@hawaiiantel.net>;

Jim Overton
Group70 International

Aloha, my name is Shelby Simms. I am a 13 year resident of Kauai and a retired RN for the state of Hawaii.
I am contacting you today to share my concerns and strong opposition to the proposed plan of Hawaii Dairy Farms (HDF) plan for a industrial size dairy farm in Mahaulepu on the beautiful south shore of Kauai.
Allowing an industrial operation of this size with all the hazardous toxic waste on a 600 acre property would cause and Environmental injustice to our beautiful south shore and surrounding area. The 26,000 page DEIS address pasture rotations, effluent systems, holding areas but I don't feel they fully comprehend the amount of hazardous toxic waste that this operation will produce or have a viable plan to deal with it. This is very alarming to me as it should be for all Kauai residents because it will affect everyone on Kauai and those who visit.
In the Revised DEIS, HDF states each cow will deposit 90+- pounds of poo and pee/day estimate using "Cornell Method"....well when you look at the numbers 699 pregnant cows=2-3 Million pounds of Toxic waste a month on the "Farm". That's a lot of Poo to handle and the land in Mahalepu can not handle. Plus the waste from birth, dead animals, calves that die...there is no throwing away on our small island. The deposit of so much hazardous toxic waste builds up and begins leeching into the land, into the streams, aquifers, drinking water wells and our beautiful ocean. Waiopili stream in this area is 250x the allowed bacterial counts. Highest on Kauai. Yet this contaminated stream is not posted by DLNR or DOH for public safety.
Once nitrates contaminate the drinking wells located close to proposed HDF the water is contaminated... No more drinking water.
Along with the 2-3 million pounds of hazardous toxic waste on the fragile Eco System of Mahaulepu then you deal with what comes with all the waste: biting flies, the awful smell, pollutants and pathogens gently floating on the trades! Seriously! Towards local homes and a very busy tourist destination. No Thanks.
Ultimately if HDF is allowed to continue with this industrial dairy and hazardous toxic waste site it will lead to economic devastation to the south shore and surrounding area. Decrease in property values, drop in tourism (no tourist wants to pay to come smell poo) and all the other risks associated with such a toxic site. HDF does not clearly address these issues in their DEIS and is always being updated/changed.
I realize it may provide a handful of jobs and milk to be shipped off Kauai for processing maybe to return to Kauai maybe not. But to take on 2-3 million lbs+- of toxic hazardous waste per month does not seem to be a wise idea or a beneficial trade off.
The contamination of Kauai's land, water, streams and ocean by Industrial hazardous can not be allowed to happen.
Stop the environmental injustice to Kauai before it goes any further.
Mahalo for considering my concerns.
Shelby Simms
PO Box 1303
Koloa, Hi. 96756
Sent from my iPhone

GROUP 70 INTERNATIONAL

January 3, 2017

Shelby Simms
shelbysimms@icloud.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Shelby Simms:

Thank you for your email received July 20, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

HDF has adequately planned its cemetery site and has incorporated Best Management Practices to protect water resources surrounding the HDF site. The animal cemetery is specifically located on the north side of the farm, in an area of relatively flat pasture. Site selection criteria for the cemetery paddock included protection from prevailing winds, and distance more than 100 feet away from any drainageway, 200 feet from any natural watercourse, 300 feet from any well, and more than 20 feet from any buildings. Within the cemetery paddock, pits will be sited based on soil suitability and slope. A containment berm will be created around the pit area to prevent both run-off on to, and from, the cemetery site. An area of approximately 5,000 square feet is needed for the animal cemetery at the contemplated herd size of up to 2,000 mature dairy cows, which is a fraction of a 3- to 5-acre paddock. Based on preliminary analysis, HDF does not anticipate encountering groundwater in the cemetery paddock area. Pits will be lined as needed in accordance with NRCS Conservation Practice Standard, Animal Mortality Facility Code 316, to protect groundwater quality.

Once fully operational at the committed herd size of 699 mature dairy cows, the dairy will utilize 30,000 gallons per day (gpd), which is 0.03 million gallons per day (MGD), of potable (drinking water quality) water from groundwater provided through an on-site well. The State of Hawaiʻi Department of Health Milk Rules require that potable water be used for milk production, both in the milking parlor and for milking operations; another potable water use will be for livestock drinking water. Should HDF decide, in the future, to expand to the contemplated herd size of up to 2,000 mature dairy cows, potable water demand will increase to 84,800 gpd (0.085 MGD). These demands are a small fraction of the 3 MGD produced by the on-site, existing Māhāʻulepū 14 well during the sugarcane plantation era. All potable water used as wash water will be re-applied to pasture and thus remain a part of the evapotranspiration cycle. Long-term groundwater supply impacts are not anticipated to be significant.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Why this Location????

Ed Sindt <ed.sindt@kauairoots.com>

Sun 7/24/2016 5:10 AM

To:HDF <hdf@group70int.com>;

I have put this question forward to the HDF group before with no response. I do feel that a dairy would be a positive addition to Kauai Ag so am not looking for the positives of this endeavor, only a direct answer to this question.

Why with the many environmentally suitable and community acceptable alternative locations for a dairy have you folks chosen such a controversial and environmentally sensitive location for your dairy?

Is it cost, access, resources or ???? Many of us on island believe that this is a "Red Herring" project that if not approved will be replaced with a second project more in tune with the financiers economically driven objectives like a major resort development.

Mahalo for your reply.

Ed Sindt
Kauai Roots Farm

GROUP 70 INTERNATIONAL

January 3, 2017

Ed Sindt
ed.sindt@kauairoots.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Ed Sindt:

Thank you for your email of July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

As a part of the EIS, alternatives were evaluated that could attain the objectives of the action's purpose and need, and were compared with environmental benefits, costs, and risks of each reasonable alternative against those of the proposed dairy project. Further discussion of alternatives can be found in EIS Section 6.

Of all the alternative actions and locations considered, the planned agricultural operations of Hawai'i Dairy Farm is the only approach that achieves project objectives and meets each of the five Evaluation Criteria described in EIS Section 2.3.4.

The planned improvements and operations at Hawai'i Dairy Farms are compatible with and supportive of State of Hawai'i and County of Kaua'i land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawai'i Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kaua'i. The dairy is also consistent with the provisions of the State of Hawai'i Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhā'ulepū lands under the County of Kaua'i General Plan and the South Kaua'i Community Development Plan.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Hawaii Dary Farms' Draft EIS comment

Annick Smith <annick@blackfoot.net>

Thu 7/21/2016 9:44 AM

To:epo@doh.hawaii.gov <epo@doh.hawaii.gov>; HDF <hdf@group70int.com>;

To Whom It May Concern,

I am sending this to you as a comment regarding the Draft Environmental Impact Statement re Hawaii Dairy Farms proposal for an industrial dairy operation at Mahaulepu in Kauai.

Although I am not a resident of Kauai, I am a writer and a frequent visitor, and have done research on the Mahaulepu area for an article about the importance of preserving the area for both environmental and cultural reasons. The area under consideration is one of the last largely intact mountain-to-ocean lands on the south shore and a great recreational destination for both local people and visitors from the Mainland and around the globe. Its pristine waters, beaches, cliffs, and watershed are irreplaceable. An industrial dairy farm would threaten the purity of running and underground waters, and pollute the air, and taint the earth of this unique open space. Other sites should be explored before settling on this precious piece of land. Or less harmful alternative uses should be suggested, such as organic agriculture, which are more friendly to both the environment and culture, as well as to the economy of the area.

Mahaulepu is also a sacred area for native Hawaiians, with still undiscovered archeological treasures, burial grounds, and cultural artifacts of historical and spiritual significance. It is a place for worship and stories and education for both Hawaiians and visitors— not a place for industrial exploitation of this intrusive kind. A huge dairy farm with polluting excrement, chemical residues, gasses, and smells may affect the adjoining resort areas and living spaces as well as the immediate lands and prove detrimental to the essential tourist economy that supports this region.

For these reasons as well as other more technical issues that I am not conversant with, I urge you to include more thorough examinations of environmental hazards in the EIS, and to give more weight to the cultural, spiritual, and economic benefits of preserving this precious, and unique place.

Thank you for your consideration.

Sincerely,
Annick Smith
898 Bear Creek Road
Bonner, MT 59805

GROUP 70 INTERNATIONAL

January 3, 2017

Annick Smith
898 Bear Creek Road
Bonner, MT 59805
annick@blackfoot.net

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Annick Smith:

Thank you for your email of July 21, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The planned improvements and operations at Hawaiʻi Dairy Farms are compatible with and supportive of State of Hawaiʻi and County of Kauaʻi land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawaiʻi Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kauaʻi. The dairy is also consistent with the provisions of the State of Hawaiʻi Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhāʻulepū lands under the County of Kauaʻi General Plan and the South Kauaʻi Community Development Plan.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS.

Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhā'ulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Dairy

Sarah Smith <sarahkauai@me.com>

Wed 7/20/2016 8:17 PM

To:HDF <hdf@group70int.com>;

Please do not allow this dairy to be built.

It will be in environmental disaster and there is much evidence to show that.
I'm sure if we put our minds together we can think of a better project for our beloved island. Land is scarce, use it wisely.

Sent from my iPhone

GROUP 70 INTERNATIONAL

January 3, 2017

Sarah Smith
sarahkauai@me.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Sarah Smith:

Thank you for your email of July 20, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

FW: please do not allow a dairy in precious Maha`uplepu

From: Ellie Snyder [mailto:mehitibel@gmail.com]
Sent: Friday, July 22, 2016 4:01 PM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: please do not allow a dairy in precious Maha`uplepu

You have heard all the reasons.

Aloha,
Eleanor Snyder
Lawai Hawaii

332 7988

GROUP 70 INTERNATIONAL

January 3, 2017

Eleanor Snyder
mehitibel@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Eleanor Snyder:

Thank you for your email of June 10, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

JERRY AND WENDY STEIN
1646 KELAUKIA STREET
KOLOA, KAUAI, HI 96756
Jstein6678@me.com
206-617-3259

Via Certified Mail, Return Receipt Requested:

July 25, 2016

Laura McIntyre
State of Hawai'i
Department of Health
1250 Punchbowl Street
Honolulu, HI 96813

Attention: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Hawai'i Dairy Farms, LLC
PO Box 1690
Koloa, HI 96756-1690

Also via e-mail to: HDF@Group70int.com
laura.mcintyre@doh.hawaii.gov

Re: COMMENTS ON HAWAI'I DAIRY FARMS' DRAFT ENVIRONMENTAL IMPACT STATEMENT, DATED MAY, 2016.

Dear Ms. Mcintyre:

My wife, Wendy, and I are residents of Hawaii and the owners of 1646 Kelaukia Street which is in the Lanai Villas subdivision of the Poipu Kai development. Our home is the last house on the eastern side of the Poipu Kai development (the side closest to the Grand Hyatt) and, therefore, one of the first single family residential homes that will be impacted if there are any airborne contaminates from the proposed dairy farm.

Having reviewed the Draft Environmental Impact Statement ("DEIS") submitted by Hawai'i Dairy Farms ("HDF") it is our opinion that the DEIS does not meet the requirements for an Environmental Impact Statement as set forth in Hawai'i Revised Statutes, Chapter 343,Environmental Impact Statement Law and Chapter 200 of Title 11, Administrative Rules, Department of Health, Environmental Impact Statement Rules.

HAR § 11-200-14 provides in relevant part that: "…the EIS process involves more than the preparation of a document; it involves the entire process of research, discussion, preparation of a statement, and review. The EIS process shall involve at a minimum: identifying environmental concerns, obtaining various relevant data, conducting necessary studies, receiving public and agency input, evaluating alternatives, and proposing measures for avoiding, minimizing, rectifying or reducing adverse impacts. **An EIS is meaningless without the conscientious application of the EIS process as a whole, and shall not be merely a self-serving recitation of benefits and a rationalization of the proposed action**." [Emphasis Added]

The requirement that an Environmental Impact Statement be more than a self-serving recitation of benefits and a rationalization of the proposed action is echoed in HAR § 11-200-16's requirement that:

> The environmental impact statement shall contain an explanation of the environmental consequences of the proposed action. **The contents shall fully declare the environmental implications of the proposed action and shall discuss all relevant and feasible consequences of the action.** In order that the public can be fully informed and that the agency can make a sound decision based upon the full range of responsible opinion on environmental effects, a statement shall include responsible opposing views, if any, on significant environmental issues raised by the proposal. [Emphasis Added]

In deciding whether a proposed environmental impact statement meets the statutory requirements Hawaiian Courts have held that while an environmental impact statement need not be exhaustive to the point of discussing all possible details bearing on the proposed action it must have been compiled in good faith and must set: "… forth sufficient information to enable the decision-maker to consider fully the environmental factors involved and to make a reasoned decision after balancing the risks of harm to the environment against the benefits to be derived from the proposed action, as well as to make a reasoned choice between alternatives."

As detailed below, HDF's DEIS is little more than a self-serving recitation of benefits and a rationalization of the proposed action. HDF fails to support the DEIS with hard data.]]

Rather than simply reporting the facts the DEIS repeatedly attempts to "spin" the facts. For example, at page 1-13 of the DEIS HDF declares:

> Increased Net Revenues to County and State Governments. Hawai'i Dairy Farms will create $6 million to $9 million in annual operating expenditures to help support Kaua'i's economy, **providing net revenues to County and State governments.** [Emphasis added]

However, in Appendix J, DEMOGRAPHIC AND ECONOMIC ANALYSIS Hawai'i Dairy Farms: Demographic and Economic Assessment ("HDF's Economic Analysis"), the report acknowledges that the Dairy will generate only 5 direct jobs and that: "Development of the Dairy is expected to have a negligible impact on County finances…" and at most generate approximately $60,000 of net income to the state. To create five jobs and $60,000 of net income to the State hardly seems worth the serious environmental and economic risks involved in HDF's proposed Dairy.

In addition, HDF's Economic Analysis acknowledges that a number of mainland studies have addressed the impact of large concentrated animal feeding operations ("CAFOs") and concluded that: [m]ost CAFOs generate significant odors and other nuisance impacts (flies, dust, noise, runoff, etc.) that can extend beyond the CAFO property boundaries, thereby affecting nearby and downwind properties. Usually, but not always, property values of homes near CAFOs are lower than those of similar homes that are not affected by nuisance impacts of CAFOs." The Economic Analysis goes on to state: "Significantly lower home values can be limited to less than 1 mile from a CAFO, but some studies have found that lower values can extend beyond 3 miles."[1]

My home is approximately 1.6 miles from the Dairy and a three mile radius would include the Grand Hyatt and a good portion of most of the developed areas of Poipu Beach. Again potentially threatening hundreds of millions of dollars of property values to create 5 jobs and no financial benefit to the County seem ridiculous on its face. However, this does not even consider that the operation of the Grand Hyatt is essential to the economy of Kauai and that any disruption in its operations would be an economic catastrophe for the Island.[2]

One of the reasons given by HDF in its Economic Analysis as to why its dairy will not have the negative impacts associated with CAFOs is its assertion that: "The Dairy will use the most advanced dairy-farming techniques, including: (1) precision monitoring of the health of the cows and the productivity of the grass; (2) technology to determine the productivity of the land and, ultimately, its carrying capacity; (3) effluent management to ensure environmental health and safety; and (4) other best management practices." However, nowhere in its Economic Analysis (or in the body of the DEIS) does HDF describe in any detail any of the four items set forth above. How can anyone determine that HDF's dairy won't have the same negative impacts as a CAFO without knowing what technology, precision monitoring and "best management practices" HDF intends to employ at its Dairy?

In its Economic Analysis HDF takes the position that its dairy will not have the negative impact of a CAFO because its environmental study demonstrates that there will be no noticeable odors, noise, flies, dust, runoff, or other nuisance impacts from the dairy operation that will extend to residential areas. Much of the support for this conclusion in the Economic Analysis and the body of the DEIS is supposedly found in Appendix I to the DEIS, the AIR QUALITY/ODOR ASSESSMENT/GREENHOUSE GAS Hawaii Dairy Farms Air Emissions and Odor Evaluation Technical Report (the "Air Quality and Odor Report").

[1] According to John Kilpatrick PhD, an expert retained by Friends of Maha'ulepu, the negative impact of property values will range 10 miles and result in a 50% loss in property values.

[2] According to HDF's the Grand Hyatt is the largest employer in the County.

The Air Quality and Odor Report uses computer modeling to supposedly demonstrate, among other things, that the noxious odors generated by the dairy operation will extend no more than a half mile beyond the dairy itself. However, the Air Quality and Odor Report apparently is completely unreliable.

The Air Quality and Odor Report cites to 8 reference articles to support its conclusion that there will be no adverse air or odor impacts from the dairy. However, the most recent of these reference articles is from December of 2008. A technical report which relies on scientific articles more than 8 years old should raise red flags as to whether the conclusions in the report are still current and accurate.

Even more red flags are raised about the accuracy of the Air Quality and Odor Report when the reference articles themselves are reviewed. For example, the Air Quality and Odor Report relies heavily on information published in *Dairy Australia*. 2008. Effluent and Manure Management Database for the Australian Dairy Industry. December .[3] However, while relying on data from the *Dairy Australia* article the Air Quality and Odor Report fails to report that the conclusion of the *Dairy Australia* article that:

> The limited data available do not allow a representative range of odour emission rates to be selected. **Therefore, the accuracy of any attempts at odour modelling for dairy developments must be considered questionable until additional information can be developed.** A research program investigating emission rates from the range of sources around the dairy and the impacts of loading rates, age and maintenance regime on pond emissions is urgently needed. [Emphasis Added]

Thus, according to the *Dairy Australia* article relied upon by the Air Quality and Odor Report, **any attempts at odor modelling for dairy developments must be considered questionable**. Absent HDF and its experts demonstrating that odor modelling for dairy developments is reliable, the DEIS cannot be relied upon for evaluating the environmental risks of HDF's proposed dairy project.

The problems with the Air Quality and Odor Report are not the only defects in the studies that HDF is relying upon to support its DEIS. In the DEIS HDF repeatedly takes the position that: "Introduction of dung beetles to the pasture paddocks will increase manure breakdown and

[3] For example the Air Quality and Odor Report provides at page 4:

> Emission rates were taken from Feitz 2002 (*Dairy Australia*, December 2008) which measured 30 ponds over 12 months in Australia. These results were selected over other data presented in *Dairy Australia* (2008) as it was measured using a wind tunnel apparatus as opposed to isolation flux hoods. According to *Dairy Australia*, most research shows that isolation flux hoods under-predict odor emissions relative to wind tunnels.

minimize odor generation"[4] and also help reduce fly populations. HDF's support for the reliance upon dung beetles is from Appendix B of the DEIS HDF's "MANURE RELATED INSECTS Cattle Manure-related Insect Species and Biological Controls for Hawai'i Dairy Farms (the "Insect Report")

With respect to the beneficial impact of dung beetles the Insect Report claims that the dung beetles break down the dung thereby reducing odor and destroy the breeding grounds for flies thereby reducing the fly population. With respect to the reduction of the fly population the Insect Report at page 30 discusses the CSIRO Dung Beetle Project from Australia which was initiated by Professor George Bornemissza, and concludes that: "Dr. Bornemissza found that 95% fewer horn flies emerged from cow pats attacked by the beetle, Onthophagus gazella, than from pats without beetles. (Ürményházi 2010)."

There are several troubling aspects of this portion of the Insect Report. First, if dung beetles only reduce the fly population created by cow manure by at most 95%, how big a problem is a 5 % increase in the fly population created by somewhere between 699 and 2,000 cows. The impact of a 5% increase in the fly population is not addressed in the DEIS.

Second, the Insect Report's support for its conclusion that dung beetles will reduce fly population created by cow manure is not a reference to a scientific journal but to an article entitled "Immigration Place Australia." Scientific conclusions need to be based upon scientific, peer reviewed studies, and not hearsay from on article on immigration.

Finally, there is contrary information with respect to the efficacy of dung beetles reducing fly populations from the CSIRO program. For example, in an article entitled "History Of The CSIRO Dung Beetle Project (1966-86) the author concluded:

> By 1980 there were up to six species of dung beetles established at a few release sites in Queensland, including Rockhampton. **Here dung beetles often appeared in huge numbers, although their activity fluctuated considerably throughout the growing season.**
>
> Dung dispersal was spectacular at times and during such episodes, buffalo fly breeding in dung pats was much reduced. **When intensive dung beetle activity persisted for more than a couple of weeks, longer than the lifespan of the flies, buffalo fly numbers on cattle declined, often to rise again as beetle activity decreased.**
>
> **This was clear evidence that the beetles were having some impact on fly breeding, but the overall effect was not as great as had been hoped initially**. [Emphasis Added]

Thus according to this article activity of the dung beetles was not consistent for the whole year, fly numbers initially declined but then increased, and the overall effect was not as great as

[4] See page 1.15 for example.

had been hoped. In other words, the dung beetles' impact on fly population likely will not be as effective as predicted by HDF. Once again, HDF need to recheck and redo a report it uses to support the DEIS

In addition, the Insect Report is completely vague about the specifics of using the dung beetles. For example, other than references to the fact that high populations are needed, there is nothing in the Insect Report which states the number of dung beetles that will be required to combat manure generated by somewhere between 699 and 2,000 cows, and whether any other animals and/or insects that feed on dung beetles will be attracted to the area, or whether there is any risk of "high" populations of dung beetles transmitting diseases. These are all questions that need to be answered by HDF.

However, an even more troubling omission in the Insect Report is that while acknowledging that in order to be effective strains of dung beetles non-native to Kauai will have to be imported, there is nothing in the Insect Report addressing potential impact of importing non-native insects. The history of Kauai is replete with instances of environmental problems created by the introduction of non-native species. Again this is an issue that needs to be specifically addressed before a reasoned decision can be made on the potential environmental impact of the dairy.

There is also an issue of whether three is any real justification for the proposed dairy. HDF claims that the project will provide more than 1,000,000 gallons annually of fresh, nutritious milk for Hawai'i families; revitalize the dairy industry in Hawaii, and will lead to improving food security for Hawaii. At Section 2.3.2 of the DEIS entitled "PROJECT NEED" HDF explains what it means by food security as follows:

> "Currently, residents and visitors to Hawai'i rely on air- and ship-freight for 90 percent of goods, including food. Food sustainability is of growing interest to residents, especially those who have experienced low available supplies when faced with natural disasters, labor disputes that affect shipping ports, and geopolitical events such as 9-11."

HDF claim that its dairy will improve food security is misleading. The milk produced at the HDF dairy on Kauai will have to be shipped to Oahu or the Big Island for processing and then shipped back to Kauai. It is hard to imagine (and never explained by HDF) that a process in which raw milk has to be shipped to and from another island before it can be consumed in Kauai is somehow not susceptible to disruption by natural disasters, labor disputes and geopolitical events that affect shipping ports. Nor does HDF explain how milk shipped to and from another Island will be considered locally produced.

There is also an issue of whether it makes sense to create a new source of producing 1,000,000 gallons of milk per year. A simple internet search demonstrates that there currently is a worldwide milk glut. For example according to an article published on May 27, 2016 by the Mississippi State University:

"**Higher U.S. production combined with sharply higher European milk production has contributed to what is currently a global surplus**," Williams said. "The price of milk has experienced a linear downward trend since November, when futures were $16 per hundredweight…."

"Overall U.S. production is expected to be at 212.4 billion pounds," Williams said, "which is up more than half a billion pounds from last month's estimate and up from 208.6 billion pounds a year ago." [Emphasis added]

It is well documented in the scientific community that diseases including: "anthrax, brucellosis, cryptosporidiosis, dermatophilosis, Escherichia coli, giardiasis, leptospirosis, listeriosis, pseudocowpox, Q fever, rabies, ringworm, salmonellosis, tuberculosis, and vesicular stomatitis" can be transmitted from cattle to humans via "air (aerosol), by direct contact, by contact with an inanimate object that harbors the disease (fomite transmission), by oral ingestion, and by insect transmission." *See* Pelzer and Currin, Zoonotic Diseases of Cattle [http://friendsofmahaulepu.org/wp-content/uploads/2014/09/Zoonotic-Diseases-of-Cattle-Virginia-Tech.pdf] Hawaii Dairy Farms does not even address the increased risk of disease from cattle in its DEIS. Beach goers and hikers would be in the surrounding area and would potentially be affected by new diseases from over 2,000 cattle.

Additionally, in California, a study found that cows were a major source of nitrate pollution in more than 100,000 square miles of polluted groundwater. http://www.nrdc.org /water/pollution/ffarms.asp. Pollution from agricultural runoff into water sources during heavy rains already contributes to water pollution in Kauai, and is bound to be a significant problem at the dairy farm. *See* http://thegardenisland.com/lifestyles /health-med-fit/kauai-ocean-safety-report/article_c39c9d9a-93b7-11e3-8c68-001a4bcf887a.html.

Significantly, HDF does not deal adequately in their DEIS with the evidence that the topography and geology of the proposed site increases the risks of environmental damage to the coast and our drinking water.

Finally, we agree with the issues being raised by Friends of Maha'ulepu and the experts retained by Friends of Maha'ulepu, especially with respect to issues related to quality of air and water being impacted by the proposed dairy. Consequently, we adopt by reference all of the objections being raised by Friends of Maha'ulepu and incorporate those objections as part of our objections to the DEIS.

Respectfully,

Jerry Stein

Wendy Stein

Jerry and Wendy Stein
1646 Kelaukia St.
Koloa, HI, 96756

GROUP 70 INTERNATIONAL

January 3, 2017

Jerry and Wendy Stein
1646 Kelaukia Street
Kōloa, Hawai'i 96756
jstein6678@me.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Jerry and Wendy Stein:

Thank you for your email received July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

EIS Preparation
HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

While an agricultural project on agricultural lands implemented and operated with private funds does not require environmental disclosure, HDF responded to community concerns by agreeing to prepare an EIS. The EIS is a disclosure document that analyzes the effects of a proposed project or program on the environment including direct, indirect and cumulative impacts, discusses alternative methods or designs to the proposed action, and formulates minimization and mitigation measures to eliminate, reduce, or rectify adverse impacts of the proposed action. This EIS was prepared in accordance with Hawai'i Administrative Rules Title 11 Chapter 200, implementing Hawai'i Revised Statutes (HRS) Chapter 343. Upon publication by the Office of Environmental Quality Control in the Environmental Notice issue of June 8, 2016, the Draft EIS underwent a 45-day agency and public review.

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the HDF EIS. The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Economics

You raise several questions on the economics of the dairy, a project that which has been created to directly address the problem with food sustainability in Hawai'i. Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawai'i via ocean and air shipping. The recent announcement by Hawai'i Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawai'i.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will negatively impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Odor and Air Quality

HDF considered comments provided by Exponent to the odor results for the dairy contained in the Draft EIS: *Air Emissions and Odor Evaluation Technical Report* (Arcadis, May 2016). Exponent prepared its own odor emission report based on two alternate methods:

1. Exponent used different assumptions on the timing of effluent irrigation and slurry application, as well as different sources for odor emission rates, and
2. Odor results were compared against a lower threshold than that used by Arcadis. Exponent argued the threshold "was not considered appropriate for a sensitive population such as hotel guests at a resort area."

Exponent concurred with the emission methods and results presented by Arcadis that quantify odor from the effluent ponds and the dairy facility buildings. The air emission components of the Arcadis May 2016 report were not commented on by Exponent.

The HDF air quality and odor technical expert, Arcadis, reviewed Exponent's comments and odor report. To consider the two alternate methods used by Exponent, Arcadis verified operational procedures with HDF: 1) Slurry application will not coincide with effluent application, and 2) slurry will not be applied during days with average wind speeds less than approximately 9 miles per hour (mph) (4 meters per second - m/s) or with winds greater than 20 mpg (8.9 m/s). Additionally, HDF confirmed that the dilution of irrigation water with effluent will change based on field conditions. For these reasons, Arcadis recommended refining the odor model to depict both the "typical" irrigation effluent odor and the "wet condition" irrigation effluent odor. Additionally, Arcadis adapted the data used by Exponent (Jacobson et al., 2001) to account for differences in diet and for the Kikuyu thatch that will receive manure at HDF as opposed to a conventional compacted dirt feedlot which was used by Exponent. The findings of the revised odor technical report are summarized below.

On the second point, Arcadis responded that an evaluation by Mahin (2001) show off-site standard or guidelines in the U.S. to be between 2 and 50 OU/m^3 with the majority of values between 5 and 7 OU/m^3. Low OU/m^3 values are often difficult to observe. For instance, California's South Coast Air Quality Management District states that at 5 D/T (OU/m^3) people become consciously aware of the presence of an odor and that at 5 to 10 D/T odors are strong enough to evoke registered complaints. Given the conservative nature of the air dispersion modeling, a threshold of 6.5 OU/m^3 continues to be appropriate.

For the reasons above, the revised odor report modelled irrigation effluent at two dilutions in no-wind conditions (considered "worst case"), and slurry effluent with wind speeds between 9 and 20 mph, and again used the threshold of the 6.5 OU/m3 annual extent odor level. Modeling was done for both the herd size of 699 mature dairy cows (Section 4.19.2) and for the contemplated herd size of up to 2,000 dairy cows (Section 4.25.2). The colored areas in the figures depict the 99.5th percentile threshold of 6.5 OU/m3. Within the detection area odors may be detectable by 50 percent of the sensitive population once per 200 hours, or 44 hours per year.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows For the typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year. It should be noted that the parameters used in the odor assessment were intentionally very conservative and the impacts shown depend on an unlikely confluence of worst-case meteorological data, irrigation location, and grazing location; thus, actual offsite odor impacts are likely to be much lower and/or less frequent than displayed. All potential odor would remain on surrounding agricultural lands.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, the nearest recreational area, Po'ipū Bay Golf Course, lies another 0.3 miles beyond the odor extent for the typical effluent application (EIS Figure 4.25-1). During unusually wet periods, odor could extend approximately 4,085 feet (approximately three-quarters of a mile) beyond the southern boundary for the contemplated herd size.

With application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile), which would not reach recreational or residential areas (Figure 4.25-1). As explained in Section 4.19.2, the parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown (Arcadis, 2016).

The full Exponent report *Odor Impact Assessment Hawaii Dairy Farms* (2016) is in the Final EIS, Volume 5, Appendix B. The complete response by Arcadis is contained in the Final EIS Volume 5, Appendix B-B. The revised odor report by Arcadis is also attached to their initial air quality and odor report in the Final EIS Volume 2, Appendix I as Attachment 1.

Manure Related Insects

EIS Section 4.11, *Invertebrate Species and Pest Insects*, identifies the operational protocol of cleaning spilled grain to minimize attraction to pest and predator species. EIS Section 4.10 *Fauna*, documents elements of the predator control program, the terms of which will be finalized in the ESPP in coordination with the U.S. Fish and Wildlife Service. The response "d. Pasture Management", preceding, includes the HDF soils expert's statement that the application of water and liquid effluent will microbiologically energize the soil; stimulated populations of microorganisms are very effective in inactivating additives due to the reduced half-time resulting from enhanced immobilization and degradation by the superactive microbiological community (Yost, 2016). Further, HDF recognizes – as stated in the EIS and above in this response - that insecticides and herbicides are non-discriminatory and kill beneficial as well as pest insects. Such control would only be used when needed by those qualified to apply chemicals, and in accordance with authorized procedures and regulatory labeling requirements." (Section 4.11.2 *Probable Impacts and Mitigation Measures – Invertebrate Species and Pest Insects*).

Recommendations for integrated pest management of dairy cattle identify waste management as a primary way to break the fly breeding cycle (Cornell/Penn State, 2010). The rotational, pasture-based model to be utilized by HDF disperses manure for rapid integration into grass and soils. The manure to be collected from the milking parlor and holding yard will be washed out with water and stored in ponds for use as fertilizer. This differs from conventional feedlot waste management which typically uses heavy equipment to scrape manure from barns and to transfer into lagoons where it is stockpiled.

The following responses were provided by the HDF invertebrate expert, Dr. Steven L. Montgomery, who has 48 years of field experience in Hawai'i environments from mountaintops to lava tubes. He has conducted numerous biological surveys on all islands. Dr. Montgomery has discovered 30+ Hawaiian insects and rediscovered 'lost' species of insects, snails, and plants. He served 8 years as a Natural Area Reserve System Commissioner, 4 years as a Land Use Commissioner, and as a board member on several conservation citizen groups. It should be notes that the comments from Pacific Analytics are based on theoretical information, rather than an on-site evaluation. Dr. Montgomery conducted fieldwork on site and in adjacent property. Ms. Manning conducted archival research with resources at Bishop Museum, University of Hawai'i, and other repositories with applicable collections. The full response by Dr.

Montgomery to the referenced comments from Kawailoa Development, LLC Appendix C can be found attached as Appendix C-C.

It is important to note that not all nonnative species are considered invasive, only those that cause environmental or economic harm, or harm to human health or native. Dung beetles do not fall into these categories, and with few exceptions were purposefully introduced to benefit public health and the livestock industry by reducing manure-related pests. While dung beetles are non-native they are NOT invasive. No scholarly discussion of invasive species in Hawaii mentions dung beetles. The beetles reduce manure related pests, and do not prey on or adversely affect any native species of plant or animal. They are not the only control, but part of an integrated system of multiple methods of control. They do not compete with or attack any native species.

Dung beetles are winter dormant in locations where the temperate drops dramatically in winter. Hawaii does not experience that level of temperature change in winter and the dormancy is NOT triggered. A review of collecting dates and scholarly publications that show the activity levels of dung beetles in locations such as Louisiana and Florida show year round activity. An example of practical ground truthing in Hawai'i is that in February 2011, Dr. Montgomery assisted with a week of filming in the fields of Hawai'i Island's Kohala Cloverleaf Dairy, where active dung beetles were seen.

The comment regarding efficacy of beetles in various soil types fails to acknowledge the field work documented as EIS Appendix B, which documents the adjacent cattle operation that moves beef cattle within that property, has a healthy, functioning population of dung beetles in the same soil types as the proposed dairy.

The dung does not need to be entirely consumed or buried, but tunneled, dried and variously disrupted as an intact, moist breeding site for the pest species. The beetles are one part of Integrated Pest Management, as are the other actors, such as birds scratching apart the pats and eating the pest larvae. The various species work at different times of day/year, parts of the pest cycle, etc. An Integrated Pest Management Plan is a composite of complementary parts. It is not rational to pull out individual components, suggest failure of one at one time, and then conclude that the whole system will fail. IPM works because each component reduces a part of the problem. They work together, with one unit working to pick up when or where another is not present.

The range manure-related flies may be able to fly is not the range a fly will travel. More realistic than any theoretical calculations of fly expansion is modern experience in the Islands. Parker Ranch has been upwind of the Mauna Kea Beach Hotel and 2 other coastal Kohala Resorts sited from Puakō to Waikoloa since they were built decades ago, and the lack of dung fly complaints arising from Parker Ranch is solid evidence that cattle flies overwhelmingly remain close to livestock habitats. EIS Appendix B entitled *Cattle Manure-related Insect Species and Biological Controls for the Hawaii Dairy Farms* describes the field work conducted for the study which observed that flies on manure did not come to baited insect traps or to food scraps left in the immediate vicinity, thus demonstrating manure as the preferred ecological niche (Montgomery, 2016).

Milk Production and Shipping

Under the proposed action, HDF would sell raw milk wholesale to a processor and packager. Milk processing, including pasteurization, bottling, and packaging of milk, would be done independently of the dairy. For more information on processing, see EIS Section 3.6.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawai'i Island milk.

Nutrients and Pathogens

Application of manure provides organic matter that will dramatically improve soil health and allow nutrients from manure to be accessible to grow the grass crop. Traditionally, soil has been the largest area of storage for carbon on earth. However, human disruption of the carbon cycle throughout periods of modern industrialization has released excess carbon into the atmosphere and into the oceans, resulting in a lack of stable carbon that was previously stored in soils. Photosynthesis is the greatest catalyst of transferring carbon from the air into soil. Once in soils, carbon feeds soil microbes that assist plants in acquiring nutrients and create stable forms of soil carbon. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Fwd: Dairy

Nicole Street <nicolemstreet@gmail.com>

Mon 7/25/2016 6:24 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>; Bridget Hammerquist <friendsofmahaulepu@hawaiiantel.net>;

6 attachments

20_20160723_154955.jpg; 20_20160723_155030.jpg; 20_20160723_155041.jpg; 20_20160723_155047.jpg; 20_20160723_173256.jpg; 20_20160723_173301.jpg;

---------- Forwarded message ----------
From: <kireeus@gmail.com>
Date: Mon, Jul 25, 2016 at 6:12 PM
Subject: Dairy
To: nicolemstreet@gmail.com

To whom it may concern:

Since moving to Kauai three years ago, Mah'ulepu has been my favorite destination, a seemingly pristine, remote, and spectacular spot, where I love to swim, picnic, and hike. I have taken numerous groups of visitors to the area, have participated in beach clean-ups, and gone on healing walks to the memorial labyrinth between Maha'ulepu beach and the beach to the north. As one can imagine, I was aghast to learn that the Waiopili river, the nearest outflow of water to the area, is the most polluted river on the entire island of Kauai.

This past weekend, a friend, Erik Horsley, and I visited the Makauwahi Cave, an important geologic site who's entrance is about fifteen feet from the stream's bank and at most approximately one hunderd and fifty feet from the river's delta. Where it nears the ocean, people wade across the stream guiding horses, and the natural shelf makes a perfect shallow and protected swimming area for young children, the elderly, and all people who would have a difficult time at other types of beaches. The ideal configuration of the stream opening for recreational use invites all unsuspecting visitors to the cave, the horseback riders, and hikers to wade in, and wallow in the seemingly safe water. But we know it is not safe.

My friend Erik and I took photos near the stream's mouth of the following (see attached): a man with three tiny children playing and digging in the sand in front of the shallow area, and one might assume that they went near or into the water to fill their small buckets and to wade; two surfers at the first break; and two young teenage girls swimming. A short distance from the pool, a woman was sunbathing and a man was sitting in the water at the water's edge. Down the beach we could see an occasional person on the beach or in the water. In the past I have seen windsurfers out from the same location. I have been to this location many times, and I have never not seen numerous people enjoying this stretch of beach.

It is my sincere hope, for all the residents, tourist, and every living creature that comes, or will ever come into contact with water from Waiopili, that there will be no dairy to further pollute its water, and that whatever is currently polluting it will be remedied.

Respectfully,

Nicole Street

--
NIcole Martine Street






GROUP 70 INTERNATIONAL

January 3, 2017

Nicole Street
nicolemstreet@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Nicole Street:

Thank you for your email of July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Po'ipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Po'ipū/Kōloa watershed differs from Māhā'ulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Po'ipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhā'ulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Based on hydrological knowledge derived from all drilled wells analyzed by Nance, the downslope movement of ground water from below the pastures toward the habitats of listed arthropods will not reach into the referenced habitats. Recognizing that the food supply of the wholly saprophagic amphipod is organic matter derived from roots and other decaying plant debris, and since nitrogenous and phosphoric nutrients will promote plant growth, their effects, if anything at all, can be expected to expand the food supply in this oligotrophic subterranean ecosystem.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The entire coastline along this region is recognized for its general scenic, environmental and recreational resource values. The EIS does not, however, identify the waters of the agricultural ditch (Waiopili Ditch) as a recreational resource. In response to findings of water quality testing in 2016, the State Department of Health has posted these waters as unsafe for human contact.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

HDF EIS (so-called)

James Sullivan <jimsull@dakotacom.net>

Wed 7/20/2016 1:04 PM

To:HDF <hdf@group70int.com>;

July 20, 2016

James Sullivan
P.O. Box 798
Koloa, HI 96756
808 855 5558
jimsull@dakotacom.net

State of Hawaii, Department of Health; Group 70 International, Inc.;
Hawai'i Dairy Farms, LLC.

To Whom It may Concern:

I am writing to express my committed and vehement opposition to the proposed 2,000 cow (more or less, like nearly everything in the EIS) industrial dairy farm in Maha'ulepu Valley on the island of Kauai. And to strongly urge that this project absolutely not be approved for its current siting, and if it is to be placed elsewhere on the Island, that it undergo this same rigorous approval process.

The EIS that was produced by the very same resort-development specialist company that designed the proposed industrial feed site contains absolutely no actual or workable environmental and economic impact data. Given that fact and the revisions that have come from Hawaii Dairy Farms even after (!) the EIS document (6 inches thick) was submitted, we demand an extension on the comment period and consideration of this horrific project.

My name is James Sullivan, and I work at Poipu Kai Tennis Club and live between Koloa Town and Poipu, just off Poipu Rd. In my service position, so close to the proposed site, I have visitors tell me every week that if an industrial dairy is built in Maha'ulepu they will look into staying on the North Shore or other islands altogether.
The damaging (perhaps devastating) economic impact has already begun. We must stop it.

Ever since moving to Kauai eleven years ago I have enjoyed scores of visits to this bay. I bring all of my visitors, friends, my dogs and anyone I can get to go with me for the swimming and walking and to experience the power of nature in one of the very last near-pristine bays on the island.

The first and most urgent, most life-or-death, is water quality. By this I mean all forms of water, from the aquifers we drink and cook from, to the streams and watercourses of this traditional Hawaiian ahupua'a, the two wetlands in the area. and finally the ocean into which it all flows in this sacred area, the last wild bay on Kauai's South Shore.

We have all seen various staggering statistics on the amount of waste a herd of 2,000 cows will produce. the easiest way for me to visualize it is to realize that this would be, on average, the amount of waste (solid and liquid) generated by a human population of 328,800. That is FIVE TIMES the population of the entire island.

The clay soil that exists throughout most of the land will never be able to handle a wasteload that massive, and any projections by HDF that they will be able to manage that load without catastrophic effects on the Valley's fragile ecosystem are simply specious fantasies. The alarming readings of water quality in the stream and ocean of late are a crystal clear warning of future devastation. consider that a Koloa drinking water well is just 750 feet (not the one mile HDF claimed) from one of the proposed holding tanks and you have a disaster waiting to happen.

When (not if) we have our next major rain episode, the amount of nitrates and phosphates flowing into our sensitive lands and bodies will have devastating cosequences to the seawater, the coral and marine life. The EIS contains no safeguards for fish or birds.
Swimming, fishing, snorkeling, and beach combing are vital to our lives on this island. All of these activities, of course, are engaged in by tens of thousands of South Shore visitors, these visitors providing millions of dollars in taxable revenue. We quite simply cannot afford to risk losing significant percentages of that revenue for a project which we provide precious few long-term jobs and which will be sending all of its product off-island to be sold to be processed and shipped to who-knows-where.

And have I mentioned the flies? Tens or hundreds of thousands of swarming, biting flies sweeping throughout the South Shore resort district. The editors of *Conde Nast travel guides are going to love hearing that.* Please, do not let that happen. The keiki have to be able to visit this sacred area.

Sincerely,
James Sullivan

GROUP 70 INTERNATIONAL

January 3, 2017

James Sullivan
jimsull@dakotacom.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear James Sullivan:

Thank you for your email of July 20, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the HDF EIS. The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Water is essential for life. Hawaii must become as efficient as possible in its use of limited fresh water supplies due to the need for fresh water for increasing resident and visitor populations. More than 9 percent of the State's drinking water comes for groundwater sources, while much of the water used for agriculture irrigation comes from surface water sources. [FEIS 4.16]

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

The Ka'ena and Kalihi soil series that underlies the HDF site are described as poorly drained. The designation of "poorly drained" is not an indication of low or poor infiltration, which refers to the ability of water and effluents to enter the soil surface. Said another way, soil "drainage" refers to the movement of water within or through the soil profile rather than entry through the soil surface. Additionally, "poorly drained" soils can exhibit anaerobic conditions, which are important in both the presence and movement of nutrients that improve soils health, most importantly nitrogen and its various soluble forms nitrate, nitrite, and ammonium.

The thick thatch formed by Kikuyu grass greatly improves infiltration of applied water and effluents, as additions of irrigation water and liquid effluent will microbiologically energize the surface soil (EIS, Section 4.11). Stimulated populations of microorganisms are very effective in inactivating pharmaceuticals and additives due to the reduced half-life resulting from enhanced immobilization and degradation by the superactive microbiological community. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community, and will allow for evaluation of possible contamination sources.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawaiʻi for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kauaʻi and those species already in Māhāʻulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Dairy farm

Suzie <suzieluvstohike@gmail.com>

Sun 6/12/2016 4:44 PM

To:HDF <hdf@group70int.com>;

I feel that the impact of large dairy is too much for the environment of the islan
Sent from suzies I pod

GROUP 70 INTERNATIONAL

January 3, 2017

Suzie
suzieluvstohike@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Suzie:

Thank you for your email of June 12, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

William Swanson
4413 Panui Street
Kalaheo HI 96741

RECEIVED JUL 27 2016 GROUP 70 INT'L

July 24, 2016

Laura McIntyre
Environmental Planning Office
State of Hawaii Dept of Health
1250 Punchbowl Street
Honolulu HI 96813

Jeff Overton
Group 70 International
925 Bethel Street 5th Floor
Honolulu HI 96813

Amy Hennessey
Hawaii Dairy Farms
PO Box 1690
Koloa HI 96756

RE: Hawaii Dairy Farms Draft Environmental Impact Statement

Dear Ms McIntyre,

I've been living on Kauai for 34 years. When I came here in 1982 my friend drove me from the airport to Shipwrecks Beach and then on to Mahaulepu Beach, and we walked the coastline to Waiopili Stream. We walked across the stream and into the Cave. I was amazed at the natural beauty of this coastline and I have been enjoying this coastline ever since.

I have three adult children and four grandchildren now. We've been going to Mahaulepu Beach weekly ever since my children were toddlers. We've enjoyed the beach, surfing at Gillins, playing in the Waiopili Stream, swimming in the ocean, up and down the whole Mahaulepu coastline. This coastline has become a huge part of our island life and means the world to me, my family and friends. This is last jewel on this coastline and I wouldn't know what to do if this recreational area was deemed unsafe for swimming and surfing. We've kept the grandchildren away from Waiopili Stream since we read about the contamination levels. We really hope Waiopili Stream will be restored before any additional agricultural activity is introduced to the valley.

I've worked in the Poipu visitor industry for 34 years. I am an avid surfer, diver and waterman. I am in the ocean in Poipu three-six days per week, surfing, swimming, and paddling. When I'm not in the water, I'm riding my bike or walking along the Poipu coastline. I've worked at the Grand Hyatt Kauai for twenty years now. My workplace is less than 2 miles downwind of the proposed industrial dairy operation. I suffer from asthma, a disease which took my father's life at 31.

The trade winds blow from the northeast 275 days a year, blowing straight into the porte cochere of the Hyatt, where I am stationed. My initial questions to HDF were:

1. Should my health and well being be affected by a for-profit raw milk producer?
2. Will I have to quit my job to save my life because an air polluting dairy development is permitted to operate upwind of my work place?
3. Will I get laid off because guests stop staying at the beautiful Hyatt because of dairy cow air pollution?
4. What distance will aerosolized manure and urine travel in Kauai's trade winds when effluent is spread through overhead irrigation?

The draft EIS did not answer my initial questions. Hawaii Dairy Farms EIS needs to answer my questions.

I believe that Hawaii Dairy Farms EIS should include an economic impact study to measure the proposed dairy operation impact on Poipu tourism, jobs, and property values. It doesn't seem right to risk 2000 established Poipu tourism jobs for 5-10 proposed dairy jobs.

The Economic Impact Study needs to be prepared by an independent non-biased consultant who has experience preparing such studies.

The draft EIS does not address noise pollution related to 699-2000 cows crying and bellowing through Mahaulepu Valley to Poipu and Koloa during the night time quiet hours. The EIS needs to include such a study.

The proposed dairy site is situated next to community wells and on top of the Koloa Aquifer, which are interconnected and supplied Koloa and Poipu. Independent studies must be done and included in the EIS to show the community that our water tables will not get contaminated by manure and nitrates and deemed unusable for drinking and bathing.

Hawaii Dairy Farm EIS needs an independent study by a non-biased qualified consultant regarding the fly control issue because diseases are spread from dairy biting flies to humans and pets. The fly control issue is a serious concern, and Hawaii Dairy Farms proposed dung beetle solution doesn't cut it.

Aloha,

William Swanson

GROUP 70 INTERNATIONAL

January 3, 2017

William Swanson
4413 Panui Street
Kalaheo, Hawai'i 96741

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear William Swanson:

Thank you for your letter dated July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Dr. Bruce S. Plasch, principal of Plasch Econ Pacific LLC, prepared the economic analysis presented in Appendix J. Dr. Plasch received his Master's and Ph.D. degrees from Stanford University in Engineering-Economic Systems, which gave him a strong background in economics, finance, and quantitative analysis. He has a B.S. degree in engineering from the University of California, Santa Barbara.

He started his professional career in Hawaiʻi in 1967 as a student intern working for the State Department of Planning, Economic Development and Tourism. In the early 1970s, he taught graduate level economics and statistics at the University of Hawaiʻi. Since the early 1970s, he has been an economic consultant, first for the State and then for private companies, landowners, and Federal and county agencies.

Dr. Plasch has extensive consulting experience in economic development (including agriculture and tourism), land and resource economics, market assessments, feasibility studies, valuations, infrastructure financing, public policy analysis, and assessing economic benefits and impacts.

Clients for Dr. Plasch's agricultural assessments have included State, Federal and county agencies; the University of Hawaiʻi; Kamehameha Schools; the James Campbell Company; A&B-Hawaiʻi; Dole Food Company Hawaiʻi; Del Monte Fresh Produce (Hawaiʻi); Amfac/JMB; C. Brewer; Gay and Robinson; Princeville; Kapalua Land Co./Maui Land & Pineapple; Molokaʻi Ranch; Kapapala Ranch; and others.

A sample of his agricultural work in the public domain is the report, "Oʻahu Agriculture: Situation, Outlook and Issues," 2011, prepared for the Department of Planning and Permitting, City & County of Honolulu. Another sample of work that addressed broader economic impacts in Poʻipū and Kōloa is the report, "Draft Economic Analysis of Proposed Critical Habitat Designation for the Kauaʻi Cave Wolf Spider and the Kauaʻi Cave Amphipod, Island of Kauaʻi, Hawaiʻi," prepared in 2002 for the Pacific Islands Fish and Wildlife Office, U.S. Fish and Wildlife Service.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawaiʻi for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kauaʻi and those species already in Māhāʻulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 24, 2016

Attn: Laura McIntyre (808) 586-4337
State of Hawai'i, Department of Health
1250 Punchbowl Street
Honolulu, HI 96813
doh.epo@doh.hawaii.gov

Attn: Jeff Overton (808) 523-5866
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813.
HDF@Group70int.com

Hawai'i Dairy Farms, LLC.
P.O. Box 1690
Kōloa, HI 96756-1690
jim@hawaiidairyfarms.com

To whom it may concern:

Please accept the following Comment. As someone who was born in Hawaii and who lived on Kauai for many years until leaving the island for college, I am familiar with the proposed dairy site at Maha`ulepu Kauai, much of which is comprised of clay soil. After my undergraduate degree, I continued my education and received a two year certificate in Park Management from San Francisco State University. I recently retired after 35 years with the San Francisco Park and Recreation Division.

During my career I was the Golf Course Superintendent at Sharp park golf course for 9 years which is primarily a kikuyu grass facility. I ended my career as Golf Program Director working in that position for 8 years prior to retirement. Much of my work was involved with managing all aspects of maintaining kikuyu grass. The following statement contained in Hawaii Dairy Farms Draft EIS is contrary to the scientific literature, with which I am familiar, as well as years of direct field experience:

> "...thatch, nutrients are incorporated into what is effectively an organic net. Due to the high moisture and moderate temperatures, the microbial activity in the thatch is very high and the excreted manure and effluent will be largely broken down by microbial activity within 24 hours. Microbes such as bacteria, protists, and fungi will break down the manure and effluent through decomposition into its nutrient components to make these readily available for uptake into the grass crop and plant matter. Even with the applied manure and effluent nutrients," HDF Volume 1 DEIS pg 1-10 (pdf pg 28)

The above statement was made with no supporting documentation or publications. In my experience, as is born out in the literature I have reviewed, fresh dairy cow manure is not available to the turf crop until soil bacterial have mineralized and transformed the ammoniacal nitrogen in the manure to a nitrate form that can be absorbed by the grass crop. Under ideal conditions, this process takes from 6 to 10 months when the manure is in direct contact with mineral soil (sub-surface soil). Kikuyu grass is a rhizomatic and stoloniferous warm season grass that creates a dense thatch layer which will hinder direct manure to soil contact which is necessary for mineralization of fresh manure to a useable nitrate fertilizer. There is no question that decomposition of the dairy cow manure will take much longer than the 24 hour claim stated above. Some of the relevant source that one can review to confirm what is required to render dairy cow manure an effective fertilizer are:

- "Most of the nitrogen in manures is in the organic form and must be mineralized-converted to ammonium or nitrate forms-before it is available to plants. "
  Available Nitrogen From Animal Manures, July-August 1981, Parker F. Pratt, Javier Z. Castellanos
  http://ucce.ucdavis.edu/files/repositoryfiles/ca3507p24-61767.pdf

- "Mineralization is the conversion of organic nitrogen into mineral forms that are available to crops. Long-term research has shown that nitrogen release from the organic nitrogen in manure takes place over years…"
  Calculating Plant-Available Nitrogen and Residual Nitrogen Fertilizer Value in Manure, December 2007, John A. Lory, Division of Plant Sciences and the Commercial Agriculture Program, Glenn Davis, USDA Natural Resources Conservation Service, Ron Miller and Glenn Davis, USDA Natural Resources Conservation Service, Darrick Steen and Barbara Li, Missouri Department of Natural Resources, Water Pollution Control Division, Charles Fulhage, Biological Systems Engineering
  http://extension.missouri.edu/p/G9186

- "Therefore, the value of the manure can best be thought of as the overall crop yield and quality response over several years." Solid Cattle Manure, Saskatchewan Soil Conservation Association
  http://www.soilcc.ca/ggmp_fact_sheets/pdf/Cattle%20manure.pdf

An additional Comment I feel compelled to offer is based on my 17 years of working with kikuyu. Kikuyu is vulnerable to traffic when wet, particularly under saturated soil conditions. The compaction with traffic (likely to be very significant with 1200lb dairy cows) that occurs under wet conditions causes poor regrowth and regeneration of this grass. Based on the soil chart in the DEIS over 80% of the soils on the proposed site are listed as clay soils. 52.9% of those soils are saturated after 0.2 inches of rain or irrigation (per the Ksat reading). 30% of the remaining clay soils have a saturation point after 0.6 inches of rain or irrigation. These conditions will not only result in soil compaction under traffic but, in my experience, will result in thin unproductive pastures.

Respectfully submitted,
Sean Keoki Sweeney
Golf Program Director, Ret.
City and County of San Francisco
seanzoe@comcast.net

January 3, 2017

Sean Keoki Sweeney
seanzoe@comcast.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Sean Keoki Sweeney:

Thank you for your letter dated July 21, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Paragraph 3 of your letter assumes fresh dairy manure will not be able to reach the soil beneath the Kikuyu grass, however this is not the case. Manure excreted on the farm, primarily consisting of liquid due to the cow's diet, will be able to reach the soil, and solids will be broken down by dung beetle and microbial activity. The manure from the facility will be processed through the cleaning system of the dairy and will be gathered in effluent ponds. Some anaerobic digestion in the ponds will occur to break down organic component of the manure into soluble forms, usually of ammonium, potassium, and phosphorus and other soluble nutrients from both feces and urine.

The liquid effluent is then applied to the pasture and thus is in solution and readily available for absorption by the pasture grass. There is only a small component that remains as fiber from the cellulosic portion of the roughage component of the ration provided to the dairy cows. This component is the solid portion of the manure slurry that is selectively applied to portions of the dairy where the soils are particularly poor and in need of nutrient.

While Kikuyu grass does indeed form a "dense thatch layer," the effluent is in liquid solution as it is pumped through the irrigation system, applied through sprinklers, and will move through Kikuyu grass to reach the soil.

Ammoniacal forms of nitrogen do not need to be converted to nitrate forms for plant absorption. Ammoniacal forms of nitrogen are readily absorbed by grasses of the Kikuyu type. This fact is pointed out in the University of Missouri publication cited in your letter.

The NRCS soils classifications and descriptions provide a good information base, however, in-field soils testing is needed to identify existing soil nutrient levels and conditions. The most abundant soil types at the HDF site are Kalihi Clay at 32 percent, Ka'ena Clay Brown Variant at 29 percent, and Lualualei Clay at roughly 14 percent of the dairy site.

Laboratory analysis of soil samples collected in 2014 identified levels of pH, phosphorus, nitrogen, potassium, calcium, magnesium, organic matter, salinity, micronutrients and other constituents. The results illustrate that the soils are depleted of nutrients, which is typical for lands formerly used for sugarcane. The soil nutrient status and fertility demands of the primary crop, Kikuyu grass, were used to identify the quantities of nutrients required for productive grass growth. The soils data provide a baseline to guide adaptive nutrient management throughout establishment and maturity of the dairy.

Poorly drained is not an indication of low or poor infiltration. Infiltration refers to the ability of water to enter the soil surface, whereas "drainage" refers to the movement of water within or from the soil profile. Poorly drained soils typically have low hydraulic conductivity, or a slow rate of groundwater movement through the soil. This slow movement can create anaerobic conditions, which typically result in higher rates of denitrification. This is the conversion of potentially nitrates and nitrites to gaseous forms, which reduces the potential for impacts on waterbodies. In this way, "poorly drained" soils may represent less risk of nitrate and nitrite leaching to associated waterbodies than "well drained" soils. The nutrient components of manure improve soil health and biological activity with organic inputs, notably soluble carbon. These organic nutrients increase biological activity and the pastures' ability to effectively utilize nutrients, thus and markedly improve the soil and environmental health.

The Hawai'i Dairy Farms management of the grass is quite different than the usage of Kikuyu in the golf industry. The grass will be managed to ensure near maximum productivity and rapid growth. The resulting water relations in the intensively grazed Kikuyu pasture are quite different from those of importance in the golfing industry where the objective is to provide a uniform, soft, green surface. In view of the daily observations by HDF staff, saturation comments are a misrepresentation of actual conditions. HDF has added four more rain gauges across its site to account for the significant viability of rainfall from one location to the other. Irrigation applications will be guided by these rain gauges to maximize grass growth and avoid saturated conditions. With the grasses in near maximum productivity, the evapotranspiration rate will be substantially higher than that applicable in a golf course. In addition, the dairy will be intensively measuring, monitoring, and adjusting effluent applications to meet the grass needs and ensuring minimal if any excess application.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

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Mahaulepu

linda@greatvacationretreats.com

Mon 7/18/2016 10:13 AM

To: HDF <hdf@group70int.com>;

Cc: susan@greatvacationretreats.com <susan@greatvacationretreats.com>; Manoel IV <manny@aloha.net>;

We are residents of Poipu and are very opposed to the dairy moving into Mahaulepu. The water is already contaminated and we don't need any more environmental problems in such a beautiful part of Kauai. No matter what you are doing to stop the flies, the potential of having problems in the Poipu area is not worth a dairy. We do not want to see our real estate values decline and our much needed tourism decline. It's a HUGE NO from us.

Linda Sylvester
Susan Leininger
Manuel R. Sylvester, Jr.

Linda Sylvester (RB)
Owner Liaison
Great Vacation Retreats
www.alohagvr.com
(808) 742-9202
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GROUP 70 INTERNATIONAL

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OF COUNSEL

Ralph E. Portmore, FAICP
Hitoshi Hida, AIA

January 3, 2017

Linda Sylvester
linda@greatvacationretreats.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Linda Sylvester:

Thank you for your email of July 18, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawaiʻi State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhāʻulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Poʻipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Poʻipū/Kōloa watershed differs from Māhāʻulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Poʻipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhāʻulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The Waiopili Ditch Sanitary Survey, Kauai Part 1 can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways.

Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS. Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

RECEIVED
JUL 18 2016
GROUP 70 INT'L

July 12, 2016

Dear Mr. Overton:

We ask you to address the imminent environmental disaster in the Mahaulepu coastline of Kauai. As you know, Hawaii Dairy Farms has submitted a Draft Environmental Impact Statement for their proposed commercial dairy operation…but secretly inserted numerous changes without public notice. HDF did not disclose or give the public any notice of the changes they are asking the Department of Health to accept as they continue to seek approval.

One of the more startling changes in their secret update: HDF has decided to abandon the New Zealand (NZ) model. Before now, the NZ dairy model was the basis for their claim that they were doing something that was safely done elsewhere. That is untrue: the model resulted in major NZ pollution problems, the cleanup of which is costing some areas of the country as much as $50 million per year. The DEIS however, still describes the NZ model as the basis for HDF's proposed dairy, DEIS Vol. I page 48. Friends of Mahaulepu presented the dairy with the fact that environmental pollution would be unavoidable. HDF now admits that HDF's dairy will not be "zero-discharge" as previously claimed. Our drinking water, the Valley's streams, and the ocean are all admittedly at risk.

This isn't the only way HDF is keeping information from the public. HDF Farm Manager admitted to signing a Storm Water Permit application to DOH submitted under oath when he knew the information on the form was false. HDF Farm Manager, Jim Garmatz, also testified that facts contained in his Declaration filed in the Clean Water Act case, currently pending before a Federal District Judge, Leslie T. Kobayashi, were false.

The disastrous reality of HDF's most recent bait and switch is that there are numerous ditches crossing HDF's site, all of which drain to a freshwater stream that flows across Maha'ulepu Beach and empties into the Pacific Ocean. Any farm animals added to this site will carry additional fecal bacteria to a stream that has been chronically and severely polluted for more than 2 years.

We have been hiking through this area for 30 years. The stream coming down to Mahaulepu Beach is a family magnet because of its shallow wading areas and tidepools.

Please demand that HDF withdraw its documents and resubmit a comprehensive Plan with all parts of the Plan in one document so the public can knowingly comment.

Thank you,

Cynthia Talaber Dave Talaber

Cynthia and Dave Talaber
1871 Pee Rd #4
Koloa, HI 96756

Hawai'i Dairy Farms, LLC.
P.O. Box 1690
Kōloa, HI 96756-1690

July 12, 2016

HDF:

We ask you to address the imminent environmental disaster in the Mahaulepu coastline of Kauai. You secretly inserted numerous changes into the DEIS without public notice. HDF did not disclose or give the public any notice of the changes they are asking the Department of Health to accept as they continue to seek approval.

We have been hiking through this area for 30 years. The stream coming down to Mahaulepu Beach is a family magnet because of its shallow wading areas and tidepools.

Please withdraw the current documents and resubmit a comprehensive Plan with all parts of the Plan in one document so the public can knowingly comment.

Thank you,

Cynthia Talaber Dave Talaber

Cynthia and Dave Talaber
1871 Pee Rd #4
Koloa, HI 96756

GROUP 70
INTERNATIONAL

January 3, 2017

Cynthia and Dave Talaber
1871 Pee Rd #4
Kōloa, Hawai'i 96756
ceejtal@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Cynthia and Dave Talaber:

Thank you for your letter dated July 12, 2016 the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

In preparation to develop the Draft EIS, HDF listened to public concerns, retained knowledgeable consultants to conduct technical analyses, refined data gathered from field trials on site, and further incorporated U.S. standards and best management practices to create a world-class design for the environmentally sound pasture-based, rotational-grazing dairy. These technical studies and ground-level trials provided additional field-tested data to refine the Waste Management Plan (WMP). It is common practice to periodically update a WMP as site conditions change or are better known to ensure the regulators are reviewing the most current information. HDF prepared a summary of the changes for the Wastewater Branch to highlight the refinements. On July 13, 2016, DOW Wastewater Branch acknowledged that its questions on the updates to the WMP had been addressed by HDF, and that WWB had no further comments at that time. The WMP is not a component of the EIS, however, all relevant information in the updated WMP was incorporated into the DEIS to ensure consistency and transparency for public review and disclosure.

Successful pastoral dairies exist at numerous locations in New Zealand, as well as suitable farming regions in the United States. Several rotational grazing dairy operations located in Florida and Georgia operate successfully, with farms containing over 2,000 animals. Successful rotational grazing dairies also exist in Maryland, North Carolina, and Missouri. Numerous articles and publications on rotational grazing dairies are cited in Progressive Dairyman and other industry news sources.

HDF met with DOH in March, 2014 to determine construction activities that would require an NPDES permit, and was advised such a permit was needed for only construction of the dairy facilities themselves. Construction activities for the sole purpose of growing crops do not require an NPDES permit per HAR §11-55, Water Pollution Control, Appendix C. HDF also consulted with the U.S. Army Corps of Engineers (USACE) which confirmed, in a letter dated October 22, 2014, that maintenance of existing drainage ditches on an existing farm at the HDF site are not prohibited by or otherwise subject to regulation under Section 404 in accordance with 33 CFR Part 323.4.

The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irrigation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: testimony re. Proposed Dairy

From: Gabriela Taylor [mailto:gabrielataylor40@gmail.com]
Sent: Monday, July 25, 2016 8:34 PM
To: Gabriela Taylor <gabrielataylor40@gmail.com>
Subject: testimony re. Proposed Dairy

To whom it may concern,
"It will be impossible for HDF's large scale dairy operation to be a "Zero-point source discharge, meaning 100 percent of the cow's manure will remain on the farm as fertilizer for the pasture grass" as stated in the HDF Environmental Impact Statement Preparation Notice. "

The above quote is from Randall Wildman, Water Resources Management,MS who sent in testimony. He is an authority in this field and has worked with dairy farms. This proposed dairy farm is upland from the ocean.

It's clear that there's a high risk that runoff water will be contaminated with bacteria and will contaminate the fresh water stream and also find it's way to the ocean.

This bacterial contamination is harmful to humans as well as sea life. The Health Department should be alarmed and testify against this proposed dairy farm.

There are other reasons that this is the wrong place for a dairy farm. Flies and odor near a resort area are noxious and a financial hazard re tourism, as well.

I ask you to use your influence and position to put a halt to this potentially dangerous dairy farm. We are a small island and cannot take the risk of contaminating our aina and ocean. The few jobs provided are not worth

the cost. Kauai residents have spoken up against it. Please support us and the future of Kauai.

Thank you, K. Gabriela Taylor, Kapaa, BS Microbiology, MS Nutritional Sciences

GROUP 70
INTERNATIONAL

January 3, 2017

Gabriela Taylor
gabrielataylor40@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Gabriela Taylor:

Thank you for your email of July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Both groundwater and surface water conditions in and around Māhāʻulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhāʻulepū and Vicinity displays the volcanic geological history of the area.

There are no perennial streams in the Māhā'ulepū watershed. It is estimated that actual runoff into drainageways from HDF pasture will only occur when rainfall exceeds 0.8 inches per rain event. Additionally, groundwater contained in the shallow alluvial material fluctuates with seasonal high rainfall, and may rise to the surface through the deep ditches cut for sugarcane irrigation that remain on the HDF site. The potential for this seasonally high groundwater to intersect with the deep ditches occurs only in the mid-section of the HDF site due to the descending depth of the groundwater in the alluvium towards the makai end of the site. Over the past 30 years, rainfall events exceeding 0.8 inches occurred approximately 10 days per year.

The groundwater engineer consulting to HDF estimated the potential nutrients that could leave the site from HDF operations as two percent of nitrogen (totaling 10,000 pounds per year), and one percent of phosphorus (totaling 900 pounds per year). This would not occur as chronic daily releases, rather, contributions would be limited to periods of major rainfall events that exceed 0.8 inches. Such rainfall events are estimated to occur, on average, 10 days annually. No effluent application would be conducted two days prior to, during, and two days after such weather events per best management practice guidelines. The estimate of nutrients leaving the site is the same for both the committed herd size of 699 mature dairy cows and the contemplated herd size of up to 2,000 mature dairy cows.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

From: Susan Thompson
To: DOH.EPO
Subject: DEIS statement for HDF at Mahau"lepu
Date: Sunday, July 24, 2016 11:33:08 AM

July 24, 2016

Att. Laura McIntyre
State of Hawaii, Dept. of Health
doh.epo@doh.hawaii.gov

RE: DEIS statement from Group70 for HDF

Dear Ms. McIntyre,

As a resident of Poipu, Kauai, after reading the DEIS I continue to be vehemently opposed to the HDF plan to install a commercial dairy at Mahau'lepu. My and my neighbors' qualities of life will be severely impacted. By whose standards will "not significantly impacted" (term frequently used in the DEIS)be judged?

My home is located a few miles downwind of the site. I have spoken to several people who have experienced living or travelling near similar operations. To a person, they related that the doors and flies were considerable. I believe that the DEIS does not adequately address these issues.

In perusing the HDF website I was struck by the fact that there are no posted letters of support for the dairy written after 2014. The community does not want a commercial dairy! Also, importantly, I found a very different description of the farm operation than that contained in either the DEIS or the recent revised WMP. I do not have confidence in the DEIS or HDF. Why did HDF select Group70 to prepare the report when Group70 had already done preliminary work on the dairy for them?

Finally, the DEIS does not alleviate the concerns I have for Mahau'lepu which is a beautiful, pristine environment that should remain as such for posterity. It is unique, of cultural and historical significance, and should not be disturbed in any way. A large, commercial activity as proposed by HDF cannot help but have irreparable, damaging effects on Mahau'lepu.

There are too many cons and uncertainties and few, if any, ASSURED positives for this project. Please, consider the future and find another location, far from the ocean and residences, for the dairy.

Respectfully,
Susan Thompson
2237 Iukika Pl.
Koloa, HI 96756
tuzi@earthlink.net

GROUP 70 INTERNATIONAL

PRINCIPALS

Francis S. Oda, Arch.D., FAIA, AICP, LEED AP
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Ma Ry Kim RIBA, ARB
Craig Takahata AIA

OF COUNSEL

Ralph E. Portmore FAICP
Hitoshi Hida AIA

January 3, 2017

Susan Thompson
2237 Lukika Place
Kōloa, Hawai'i 96756
tuzi@earthlink.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Susan Thompson:

Thank you for your email of July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J. Additional letters of support from the community for the Hawai'i Dairy Farm during the Draft EIS comment period in 2016 can be found in the Final EIS, Section 7.2.

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the Hawai'i Dairy Farms Environmental Impact Statement (EIS). The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning.

Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhā'ulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

RECEIVED
JUL 27 2016
GROUP 70 INT'L

July 25, 2016
Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Dear Jeff Overton

Regarding the HDF EISPN. I and many others are very concerned about the dairy factory farm they propose in Mahaulepu a couple miles from homes and the South Shore resorts. The wind and the water all flows towards Poipu. The plan does not mention any study on the disastrous effects the smell and the pollutants from the massive amounts of solid waste from 2000 cows will have our communities economy and the island as a whole when property values have to be reassessed due to devaluation. I would like full disclosure and for HDF to withdraw its documents, resubmit a comprehensive Plan with all parts of the Plan in **one document** so the public can comment on the whole. I am also very concerned that the "New Zealand model" they are touting as the ideal is costing millions of dollars of clean up for the country of New Zealand where these dairy practices are already being applied.

Sincerely yours,

Luis Trevino

2551 ala kinoiki c, koloa, hawaii 96756 808-652-1663 luisinkauai@aol.com

GROUP 70 INTERNATIONAL

January 3, 2017

Luis Trevino
2551 Ala Kinoiki C
Kōloa, Hawai'i 96756

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Luis Trevino:

Thank you for your letter dated July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Successful pastoral dairies exist at numerous locations in New Zealand, as well as suitable farming regions in the United States. Several rotational grazing dairy operations located in Florida and Georgia operate successfully, with farms containing over 2,000 animals. Successful rotational grazing dairies also exist in Maryland, North Carolina, and Missouri. Numerous articles and publications on rotational grazing dairies are cited in Progressive Dairyman and other industry news sources.
Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhāʻulepū Valley has a unique geology from the surrounding Kōloa-Poʻipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 *Geology of Māhāʻulepū and Vicinity* displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhāʻulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Hawaii Dairy Farms DEIS

From: George Valentini [mailto:n3twork.designs@gmail.com]
Sent: Wednesday, July 20, 2016 12:14 PM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Hawaii Dairy Farms DEIS

July 20, 2016

Laura McIntyre
State of Hawai'i, Department of Health
1250 Punchbowl Street,
Honolulu, HI 96813
doh.epo@doh.hawaii.gov

Dear Laura,

This correspondence is in response to the DEIS prepared by Group 70 International of Honolulu Hawaii for Hawai'i Dairy Farms (HDF), Mala'ulepu Kauai.

It is with great disappointment and consternation that we have been told that the above EIS was prepared by the same company that did the design! How could it be that the credibility of this study is not in question? To get at the believable results of this study an independent evaluation of the environmental impact of this industrial dairy farm needs to take place. Considering all the deleterious environmental effects so well documented throughout the world of industrial dairy farms this must be a minimum requirement.

We ask that when reading this document, you consider the context and its credibility and not let the 'fox guard the chicken house', and insist on an independent environmental study to validate the DEIS.

Respectfully,

George and Pam Valentini, 1870 Ho'one Road, Koloa, HI 96756

GROUP 70 INTERNATIONAL

January 3, 2017

George & Pam Valentini
n3twork.designs@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear George & Pam Valentini:

Thank you for your email of July 20, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Group 70 International, Inc. (Group 70) is responsible for the preparation and processing of the Hawai'i Dairy Farms Environmental Impact Statement (EIS). The EIS was prepared in accordance with the requirements of Chapter 343 Hawai'i Revised Statutes and the "Environmental Impact Statement Rules" (Chapter 200 of Title 11, Hawai'i Administrative Rules). The environmental planning team at Group 70 has prepared several hundred Environmental Assessment and EIS documents over the past 40 years, and every document has been accepted by the responsible County, State and Federal agency. On numerous past EIS projects, the Hawai'i Chapter of the American Planning Association has recognized Group 70's professional work with Chapter awards for excellence in environmental planning. Part of the EIS scoping process involves Group 70's experienced team of technical sub consultants that are well-known and qualified in their respective fields of study. For this project, Group 70 is preparing the Hawai'i Dairy Farms EIS with the level of analysis required to properly evaluate and disclose the existing environmental conditions, probable impacts with mitigation, and potential cumulative and secondary effects.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 15, 2016

RECEIVED
JUL 27 2016
GROUP 70 INT'L

Attn: Jeff Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Dear Mr. Overton,

In response to your Environmental Impact Statement Notice dated May 26 2016, I would like to reiterate my concerns:

If this dairy farm operates at the full proposed capacity, the manure produced by these cows will amount to 8.5 million pounds per month. It is difficult to imagine how this waste will be managed given the type of soil and the location of this facility. The proximity of the facility to fresh water supplies is also alarming when considering the potential contamination that could take place. HDF promotes itself as a sustainable farming facility. The true definition of sustainable farming is not only to provide local sourced food but also to have no long term negative impact on the environment. It is difficult to imagine how this amount of waste will be managed without any negative effect on air and water quality.

I would also like you to please take into consideration the potential negative economic impact this facility could have. The 28 jobs created by this facility is negligible compared to the lost property tax revenue and tourism jobs that will no doubt be a result of the operation of this facility. Property tax revenues in Poipu amount to close to 26 million dollars per year. This is almost 25% of the property tax revenues generated on the entire island. The potential for reduced property values seems inevitable considering the effect other large scale dairy operations have had on property values in other parts of the country. I do not see how it is possible that the HDF could be considered a positive factor from a property value perspective. It is difficult to imagine how this lost revenue will be recouped.

Lost property taxes will not be the only unintended consequences of this operation. The domino effect of reduced occupancy at the Hyatt and other resort properties will prove devastating for local residents and small businesses on the South Shore who rely on the constant influx of tourists to the South Shore. It is difficult to imagine anyone wanting to spend the minimum $500 per night at the Hyatt only to wake up to the smell of cow manure. Please consider the fact that the Hyatt is the largest employer on the South Shore. Jobs at the Hyatt offer benefits that most small employers on the island cannot offer. Is the potential job loss at the Hyatt worth the 28 jobs that will be gained from operations at the Dairy Farm? Hawaii is one of the most expensive places to live in the country. I can't imagine the stress that potential job losses and reduced economic activity will have on the local community.

As I mentioned, I am a property owner on the South Shore of Kauai and I therefore have an obvious economic interest. I am also an environmentalist who is saddened by the potential damage the HDF will have on Maha'ulepu Valley, its indigenous wildlife and the local population. Please also consider the increased contamination that will certainly occur on other local beaches such as Poipu Beach which is frequently voted one of the top beaches in the country. I can only imagine the effect of elevated E.coli counts on tourism. When I am on the island, I walk to Maha'ulepu everyday and marvel at its pristine beauty as do most people who have had the opportunity to be lucky enough to experience such a special place. I hope you will recognize the importance of Maha'ulepu from an environmental, economic and cultural perspective and not allow the HDF to operate in such an important and significant place.

Mahalo for your consideration,

Beth Valenziano

Beth Valenziano

GROUP 70
INTERNATIONAL

January 3, 2017

Beth Valenziano
520 Country Lane
Glenview, IL 60025

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Beth Valenziano:

Thank you for your letter dated July 15, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhā'ulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Comments from a tourist re:proposed industrial dairy operation at Maha ' ulepu

Deboragh Varnel <dvarnel123@gmail.com>

Mon 7/25/2016 7:11 PM

To:doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>;

To.
Laura McIntyre
State of Hawaii, Department of Health,1250 Punchbowl Street,
Honolulu, Hawaii, 96813

Jeff Overton
Group 70, International Inc.
925 Bethel Street, 5th Floor
Honolulu,Hawaii 96813

Hawaii Dairy Farms, LLC
PO Box 1698, Kiloa, Hawaii
96756-1690

Aloha,

I am responding to the proposal put forth by Hawaii Dairy Farms for an industrial dairy to be located at Maha ' ulepu.

I am a woman tourist who has visited Maha' ulepu and deeply enjoyed the experience as the all time highlight of my time in Kauai.

The Maha' ulepu Beach is a world gem and should be guarded and protected. It is a paradise that has not been ruined by commercialization.

The archeaological cave, native plant reserve, and legends of the area are historic treasures that add to the cultural and recreational experience as a peak destination..

I am writing to express my concerns regarding the risk of degradation of marine life, drinking water, and clean beaches from the volume of cow manure produced which will inevitably seep into the ocean.

.I was stunned to find out that the Waipoli stream is the most polluted stream in Kauai. I have walked through this stream many times and swam in the area around the stream. I find it both strange and negligent that there was no sign warning of pollution at the stream. I would certainly not have crossed this stream and swam in this area had I known.

From the experience of the degradation of the environment as a result of the industrial dairies in Florida, Yakima and New Zealand, it does not make sense to risk this pristine natural environment for the gain of a few jobs managing the dairy. The overall loss to the environment , to the tourist industry and taxes from the tourist industry could be catastrophic to Kauai.... and to the world.

As the south shore of Kauai is a primo world destination during the winter months, Kauai could loose its reputation as a destination for health and natural rejuvenation.

Sincerely,

Deboragh Varnel, B.A. Hon D.W.P.
President, AV Royal Consulting
5455 Balsam St. #606
Vancouver BC V6M 4B3
July 25 , 2016

GROUP 70 INTERNATIONAL

January 3, 2017

Deboragh Varnel
dvarnel123@gmail.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Deboragh Varnel:

Thank you for your letter dated July 25, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

There are no known caves or lava tubes found at or adjacent to the dairy farm property. The nearest cave of the Kōloa Lava Tube System, which provides habitat for two endemic cave species, the Kaua'i Cave Wolf Spider and the Kaua'i Cave amphipod, is located 0.75 miles from the dairy farm property. There is no evidence of lava tubes or caves on the property, and no such features have been reported for the area near the HDF site. No cave invertebrate species will be affected by the dairy farm.

Based on hydrological knowledge derived from all drilled wells analyzed by Nance, the downslope movement of ground water from below the pastures toward the habitats of listed arthropods will not reach into the referenced habitats. Recognizing that the food supply of the wholly saprophagic amphipod is organic matter derived from roots and other decaying plant debris, and since nitrogenous and phosphoric nutrients will promote plant growth, their effects, if anything at all, can be expected to expand the food supply in this oligotrophic subterranean ecosystem.

As part of the EIS process, the HDF project is subject to a historic preservation review by the State Historic Preservation Division under Hawai'i Revised Statute Chapter 6E and Chapter 13-284. An Archaeological Inventory Survey (AIS) and a Cultural Impact Assessment were conducted by Scientific Consultant Services for the proposed project. Sections 4.7 and 4.8 of the EIS provide an evaluation of archaeology and cultural resources, with the full reports in Volume 2, appendices G and H.

Traditional and historic use of the Māhā'ulepū area includes intensive sugarcane cultivation throughout the entire valley (including the project area), as evidenced by the infrastructure in the valley. Early 20th century maps also document the extent of the fields throughout the Kōloa area, showing the entirety of the current project area consisted of sugarcane lands. Based on the research and comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights or any ethnic group related to numerous traditional cultural practices will not be impacted by establishment of the dairy.

The State Historic Preservation Division accepted the AIS on December 19, 2016 (Appendix G). SHPD concurs with the significance assessments and mitigation recommendations in the AIS, which identifies the 14 plantation-era sites within the project area as significant only under Criterion d (information potential). The letter states no further work is recommended for these sites (50-30-10-2251 through 2262). Two sites outside the Project Area, an enclosure (Site -2250) and a petroglyph complex (Site -3094), were assessed as significant under Criterion d (information potential) and e (cultural value). The SHPD letter states that the current proposed project will not affect these two sites, and no further mitigation is recommended for the project.

Based on the AIS and CIA technical reports, no significant cultural resources are located on the HDF property. Access to adjacent properties will continue to be the responsibility of the land owner, Mahaulepu Farm, LLC.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

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Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Dairy

vernonhanalei@gmail.com

Wed 7/20/2016 8:49 AM

To:HDF <hdf@group70int.com>;

The dairy is a horrible idea. I am opposed to this development.
Submitted by Ian Vernon, po box 112, Hanalei 96714.
Sent from my iPhone

GROUP 70 INTERNATIONAL

January 3, 2017

Ian Vernon
vernonhanalei@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Ian Vernon:

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Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: HDF

From: soblessed@hawaii.rr.com [mailto:soblessed@hawaii.rr.com]
Sent: Wednesday, July 13, 2016 10:00 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject:

To Whom it May Concern,
Thank you for your time and all you do for our state. Please allow me a few minutes of your time.

My husband and I work at the Hyatt in Poipu and have been employed there for over 20 years. As beautiful as the Hyatt is and incomparable as the service is, the competition for our share of market is daunting. Many of our potential customers have not been to Kauai or even the state so we rely on our reputation and the accolades that our guests give us to win new travelers and companies to our property. We know that these customers could choose Mexico or the Bahamas to get more for their money and yet the chose us and do so over and over again.

I know that I speak on behalf of all my coworkers when I ask that you strongly consider the financial impacts that having a dairy adjacent to our property will have. With reduced business many of us will not be needed at the Hyatt. I make the 50 mile trip 5 days a week because there isn't anything comparable on the east side where I reside. Please consider the minimal gains that the dairy will bring compared to the massive losses should they be allowed to operate in our neighborhood.

For the sake of our beautiful Kauai please stop the Hawaii Dairy Farm.

Sincerely,
Tia Viluan

GROUP 70 INTERNATIONAL

January 3, 2017

Tia Viluan
soblessed@hawaii.rr.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Tia Viluan:

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Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

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Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

FW: comment HDF - Mark & Mary Waldrop

From: Mary Waldrop <marygwaldrop@yahoo.com>
Date: June 25, 2016 at 12:31:59 AM EDT
To: "keith.kawaoka@doh.hawaii.gov" <keith.kawaoka@doh.hawaii.gov>
Subject: comment HDF
Reply-To: Mary Waldrop <marygwaldrop@yahoo.com>

Mark and Mary Waldrop
2721 Poipu Rd #321, Koloa, HI 96756
marklwaldrop@yahoo.com marygwaldrop@yahoo.com

June 24, 2016

Dear Mr Kawaoka,
We are writing in regards to the proposed dairy located in the Maha'ulepu area on Kauai. We wholeheartedly oppose locating a dairy in this area for a variety of reasons. Although we received a response to our early comment, our opposition has not changed. Frankly, we believe it is impossible not to negatively affect our environment and water source if a dairy is put into operation in the Maha'ulepu area. The HDF's responses of how they plan to prevent negative impacts are just not realistic in accomplishing that goal. As we mentioned in our earlier comments, we have lived several miles from cattle, yet their presence was very noticeable from the smell alone. We know from experience how having a dairy within a several miles devastate the value of property. It is lunacy to think the benefits of having a dairy in this area will outweigh the loss of property value, quality of lives of the residents nearby, and the loss of tourism in the Poipu area. There is no comparison when the monetary value of the loss is compared to relatively small workforce employed and the milk it will produce. The vast majority of Kauai residents and property owners oppose this dairy and will not change their positions no matter how many wishful thinking letters or studies are handed out. The realistic, negative impacts are just too many and devastating. Please work to keep this dairy from being built and operated in the Maha'ulepu area of Kauai.

Sincerely,
Mark and Mary Waldrop

GROUP 70 INTERNATIONAL

January 3, 2017

Mark & Mary Waldrop
2721 Poipu Rd #321
Koloa, Hawai'i 96756
marygwaldrop@yahoo.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Mark & Mary Waldrop:

Thank you for your email of June 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

G70 spam filter Hawaii Fairy Farm on KAUAI

Liz Waybright <lizway@comcast.net>

Fri 6/10/2016 1:39 PM

To:HDF <hdf@group70int.com>;

Please count my vote against the dairy farm!
I am an owner and taxpayer of a POIPU condo. We need to protect our livelihoods.
It's a resort area for tourists, not cows. Find another place.
Thank you,
Liz Waybright
301-908-6081
lizway@comcast.net

Opposed to dairy farm at Mahaulepu

Liz Waybright <lizway@comcast.net>

Tue 7/19/2016 3:45 AM

To:HDF <hdf@group70int.com>;

Aloha,
We own a condo in Poipu.
We are opposed to having a dairy farm at Mahaulepu.
We feel it would destroy the environment and the tourism business in the area.
Please do not let it happen.
Thank you,
Liz & Bob Waybright

Sent from my iPhone
Liz Waybright
301-908-6081
lizway@comcast.net

GROUP 70
INTERNATIONAL

January 3, 2017

Liz Waybright
lizway@comcast.net

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Liz Waybright:

Thank you for your email of June 10, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The Hawai'i Dairy Farms site is on agricultural land in Māhā'ulepū Valley, an area with a long history of agricultural use as it was the first place in the island chain where sugarcane was commercially grown. The site is in the Agricultural District per State Land Use District designations, and per the County of Kaua'i zoning ordinance. The site consists of land classified as Prime per the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawai'i (ALISH). The HDF site is outside of the County-designated Special Management Area under the Coastal Zone Management Program. The evaluation of land use is presented in EIS Chapter 4.4, and the project's consistency with government plans and policies is presented in EIS Chapter 5.0.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

Comment

Jill Weiner <jwskatz@yahoo.com>

Sun 7/24/2016 2:16 AM

To:HDF <hdf@group70int.com>;

I am not a special interest group. Just a concerned citizen. While a local dairy with local processing facility for local consumption would be great for Kauai, that is not my understanding of the proposed dairy. This is milk that will be shipped off island for sale and processing.
I'm not against cows. I have them in my "back yard" in Kilauea. They are nice peaceful creatures, but they do not belong grazing on volcanic soil that is close to streams and beaches where their urine and feces can and will percolate through to pollute the waters. Just move the cows inland. Grove farm has lots of land inland. Why be so stubborn. I know it's easier to say, "Oops", after the damage is done but I would hope that humans, after seeing what destruction the Industrial Revolution has caused to our planet

Sent from my iPod
Please excuse any typo's

GROUP 70 INTERNATIONAL

PRINCIPALS

Francis S. Oda, Arch.D., FAIA, AICP, LEED AP
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Ma Ry Kim RIBA, ARB

OF COUNSEL

Ralph E. Portmore FAICP
Hitoshi Hida AIA

January 3, 2017

Jill Weiner
jwskatz@yahoo.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Jill Weiner:

Thank you for your email of July 24, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Under the proposed action, Hawaiʻi Dairy Farms (HDF) would sell raw milk wholesale to a processor and packager. Milk processing, including pasteurization, bottling, and packaging of milk, would be done independently of HDF. For more information on processing, see EIS Section 3.6.

While it may be ideal for Hawaiʻi Dairy Farms to have an on-island milk-processing partner, it is logistically, financially and technically difficult to start such a business in conjunction with developing the first pasture-based dairy farm in the State. The most feasible and sustainable plan is to process HDF's milk with an existing provider on Oʻahu or Hawaiʻi Island. In the future, on-island processing may be a more feasible option. For more information on the purpose and need for the project, see EIS Section 2.0.

Dairy operations in Hawaiʻi face significant hurdles, including a monopoly milk processor, limited breeding stock, and a need to educate the consumer on benefits of truly local milk. For Hawaiʻi to re-establish its dairy industry, it will require the introduction of advanced dairy farming technologies, efficient operational processes, and monitoring to ensure environmental protection standards are upheld. For more information on the purpose and need for the project, see Final EIS Section 2.0.

Application of manure provides organic matter that will dramatically improve soil health and allow nutrients from manure to be accessible to grow the grass crop. Traditionally, soil has been the largest area of storage for carbon on earth. However, human disruption of the carbon cycle throughout periods of modern industrialization has released excess carbon into the atmosphere and into the oceans, resulting in a lack of stable carbon that was previously stored in soils. Photosynthesis is the greatest catalyst of transferring carbon from the air into soil. Once in soils, carbon feeds soil microbes that assist plants in acquiring nutrients and create stable forms of soil carbon. Microbes such as mycorrhiza effectively transport a variety of needed nutrients effectively into plants, including nitrogen and phosphorus.

The State of Hawai'i Department of Health (DOH) Clean Water Branch (CWB) conducted a "Sanitary Survey" of the Māhā'ulepū sub-watershed and the adjacent Po'ipū/Kōloa watershed. DOH CWB expressed concern in the survey results that the number of injection wells and cesspools in the Po'ipū/Kōloa watershed are impacting the waters of the Waiopili Ditch. This is largely from the different geological and hydrological composition of the watersheds. Groundwater in the highly urbanized Po'ipū/Kōloa watershed is calculated to move an average of 10 feet per day. The groundwater in the Māhā'ulepū sub-watershed has a calculated velocity on the order of 1.2 feet per day. The Sanitary Survey identifies the Kōloa karst topography and lava tube system that straddles the Po'ipū/Kōloa watershed and the Māhā'ulepū sub-watershed as a possible subterranean transport of injection well and cesspool effluent to the Waiopili Ditch.

Soils in the Māhā'ulepū sub-watershed are formed by the poorly permeable alluvium that covers the valley floor. Alluvium is highly weathered lava that forms silty clay layer, which is described as "poorly drained". The classification of soils as poorly drained indicates a relatively slow rate water movement within soil and to surrounding areas. Poorly drained is not an indication of low or poor infiltration. Infiltration refers to the ability of water to enter the soil surface, whereas "drainage" refers to the movement of water within or from the soil profile. This slow movement allows for attenuation (reduction) of bacteria, pathogens, and nutrients from manure. Section 4.3 of the EIS characterizes soil conditions, and anticipated impacts from effluent and supplemental nutrient application.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

I love Mahaluepu!

Mariah Werner- Van Embden <mariahv2010@hotmail.com>

Mon 7/18/2016 8:42 PM

To:HDF <hdf@group70int.com>;

Sent from my iPhone

Mahaluepu

Mariah Werner- Van Embden <mariahv2010@hotmail.com>

Mon 7/18/2016 8:46 PM

To:HDF <hdf@group70int.com>;

Please don't do anything to harm Mahaluepu. It is an amazing place that should somehow be protected. What is wrong with this world when something

GROUP 70 INTERNATIONAL

January 3, 2017

Mariah Werner
mariahv2010@hotmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Mariah Werner:

Thank you for your email of July 18, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

MĀHĀ'ULEPŪ

Bob Williams <bob@bookdarts.com>

Sun 7/24/2016 4:35 PM

To:HDF <hdf@group70int.com>;

1 attachment

mah'ulepu ltr 1.pages;

July 19, 2016

Jeff Overton

Group 70 International, Inc.

935 Bethel Street, 5th Floor

Honolulu, HI 96813

Dear Mr. Overton,

I am a (now retired) teacher and have been coming to Po'ipu with my wife since 1979. We love this part of the Island. My wife and I would deliver the "Advertiser" all night and then make our way to the beaches east of Po'ipu to sleep and swim. A lot of what is very special to my family and me there is Maha'ulepu, the remaining pristine part of things where we often just take little chairs and sit in the shade for hours between dips in the ocean. It seems almost a sacred spot, very special and rare.

Where else these days can we continue to find something that is perfect and stays that way year after year. And for a budget traveler, it is ideal.

I am wondering if it could be true that the proposed dairy will not affect this beach or Po'ipu area by smell or poison wastes runoff. Are you fully certain of this? I know that at the other end of things, near Waucoma Stream, the waste treatment area often makes the air unpleasant such that we won't stay there any more.

Of course, one solution if there is any chance of such runoff would be to require the dairy animal wastes to be taken off island and perhaps made into fertilizer elsewhere. If this is what it takes to prevent poisoning the ocean, then that is what must happen, and I am sure you, of course, will require it.

And if the smells will stink up the air on that part of the island, then whatever steps will fully and with certainty prevent such an occurrence will be embraced by you as your responsibility as well.

I have kept abreast of Hawai'i state politics for many years and believe you are that rare state which safeguards the rights of the People.

I *guess the nub of this letter is my begging you to make dead sure that the money behind the dairy proposal, the "importance and influence" of Mr. Omidyar, is not a deciding influence that leads to any harmful change, however "slight", in this pristine and unique and, really, perfect part of the world.*

Surely there are interior areas of the island that would grow the grass necessary for a dairy operation. And surely the Maha'ulepu land could be traded for such a more appropriate setting.

I trust that your decision will be in keeping with these obvious ways of protecting this beach for our futures so that even my grandchildren and maybe theirs (I pray) will find the same solitude and dreamy unvarnished contentment that my wife and I have depended on when we need to "recharge our batteries", revitalize our souls.

I thank you for your time and consideration.

Thanks,

Bob Wiliams

3945 Willow Flat Rd.

Hood River, Oregon 97031 541-354-2230

ps I would actually become surprised if this is not a ploy to fill this fine, natural beach with real estate developments. There are plenty of other, more inland, places a dairy farm could go. Hmmm..

GROUP 70
INTERNATIONAL

January 3, 2017

Bob Williams
bob@bookdarts.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Bob Williams:

Thank you for your email of July 24, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

The Hawaiʻi Dairy Farms project emerged from a group of partners and affiliates, including Grove Farm, Finistere Ventures, Kamehameha Schools, Maui Land & Pineapple and Ulupono Initiative. The group conducted grass trials statewide to determine the best site for a rotational-grazing pasture based dairy. In addition to the grass trials, HDF coordinated with landowners of agriculturally-zoned lands in the State, as well as the Department of Agriculture, the Agribusiness Development Corporation, and the Trust for Public Land. The broader team identified, toured and evaluated six parcels of sufficient size: two on Oʻahu; two on Hawaiʻi Island; and two on Kauaʻi. Kauaʻi was found to be the optimal location, as it met all the operational requirements for pasture-based dairy:

- Relatively flat, contiguous acres to move cows with minimal stress,
- Soils suitable to efficiently utilize applied nutrients for growth of forage,
- Adequate water for irrigation and operations,
- Suitable climate conditions for animals and grass growth,
- Agricultural-zoned land available for 20 years or more of sufficient acreage to support an economically viable dairy, preferably IAL, and
- Access to required operational support elements (trucking, pasteurization, work force, etc.).

In response to comments on the Draft EIS, Ulupono Initiative again searched for agriculturally-zoned land with potential long-term availability that may have become available in the past few years. An additional 1,300 acres of Grove Farm property on Kauaʻi in the Māhāʻulepū area were recently vacated by Pioneer Seed Company. These fields are closer to resorts and residences, and do not provide further benefit to the project or community than the HDF site evaluated in this EIS. Alexander & Baldwin announced in January 2016 that Maui lands in sugarcane will be transitioned to diversified agriculture in the future. However, water rights and access for diversified agriculture must be settled through a forthcoming process, and water availability is currently unknown. Thus Ulupono Initiative, which conducted the research, is unaware of any new property meeting the requirements for a pasture-based dairy that has become available since its initial evaluation.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

JUL 22 2016

Malama Maha'ulepu 07/18/16

I am writing to you in opposition of the dairy farm that is proposed on the south shore of Kauai. My husband Bob and I have been coming to this island since 1979. We have many local friends and some we consider as family. Some of my favorite memories are times we have spent on this beautiful island. My children who are now young adults learned to swim in the ocean at Brennekes Beach & Poipu. They now have children of their own and have vacationed with us with their babies & young toddlers. Please do not let this industrial dairy farm ever be permitted on our beautiful island of Kauai, putting our ocean & water at risk. The odor from manure will be devastating to the homes, businesses and resorts. It is preposterous that this dairy farm would ever be considered. Please keep Kauai healthy for everybody.

Mahalo,

Jeanette Williams
3945 Willow Flat Rd
Hood River, Oregon 97031

GROUP 70 INTERNATIONAL

January 3, 2017

Jeanette Williams
3945 Willow Flat Road
Hood River, Oregon 97031

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Jeanette Williams:

Thank you for your letter dated July 18, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Opponents to the dairy have contradicted findings of HDF's Hawai'i-based expert consultants by using wildly different assumptions and, in several cases, incorrect data. In most cases, the assumptions are based on poorly-managed conventional feedlot dairy operations on the mainland. HDF stands by the environmental analyses conducted for the EIS, which uses reasonable and diligent processes to disclose all probable impacts and demonstrates the dairy will not create nuisance impacts downstream or beyond surrounding agricultural lands.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Proposed Dairy

Pam <pamwolny@gmail.com>

Mon 7/25/2016 7:35 PM

To: doh.epo@doh.hawaii.gov <doh.epo@doh.hawaii.gov>; HDF <hdf@group70int.com>; jim@hawaiidairyfarms.com <jim@hawaiidairyfarms.com>;

I am writing this letter in opposition to the proposed dairy in Mahaulepu. I have a bachelors degree in Environmental Studies from UCSB and feel that a dairy in this location will be a huge disaster for our island. Each cow with about 140 pounds of manure per day on clay soil will surely runoff into the ocean and contaminate our coral reefs and all the marine animals who need a clean environment. The Waiopili Stream is already severely contaminated and in violation of the Clean Water Act. So adding further pollution in an area already heavily polluted is preposterous. The feces will also contaminate well water, destroy home values in the vacation destination area nearby and hence all the myriad of local jobs they provide while providing only a handful of new dairy jobs, and bring odors and biting flies. It would be like putting a dairy right next to Waikiki, which is unthinkable. Pierre Omyidar already has enough money. We don't need to destroy our precious environment in order to line his pockets more.

Sincerely,
Pam Wolny
Koloa

GROUP 70 INTERNATIONAL

January 3, 2017

Pam Wolny
pamwolny@gmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Pam Wolny:

Thank you for your letter dated July 21, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Complaints from the public citing the high levels of enterococcus in Waiopili Ditch and public concerns about the proposed dairy prompted the Hawaiʻi State Department of Health (DOH) Clean Water Branch (CWB) to conduct a "Sanitary Survey" of the Māhāʻulepū sub-watershed and the adjacent Waikomo watersheds. DOH CWB conducted water sampling within the Waiopili Ditch and areas upstream, and initiated a series of investigations into water quality issues. The Sanitary Survey findings resulted in an expression of concern by DOH CWB that the number of injection wells and cesspools in the adjacent Waikomo watershed, which includes Kōloa and Poʻipū, are impacting the waters of the Waiopili Ditch.

The geological and hydrological composition of the highly urbanized Poʻipū/Kōloa watershed differs from Māhāʻulepū sub-watershed, resulting in different rates of groundwater movement. Groundwater velocity under the proposed HDF site is on the order of 1.2 feet per day, while the groundwater under the Poʻipū-Kōloa watershed area averages 10 feet per day. The faster movement of groundwater reduces the attenuation period of bacteria, viruses, and nutrients that occurs with movement through soils.

The Part 1 Sanitary Survey found no significant impact to the ditch from any activity that could be attributed to the dairy. Feral animal waste, decaying organic debris and inputs from existing agricultural operations may all be contributing factors to the fecal indicator bacteria (FIB) levels in ditches running through Māhāʻulepū Valley. CWB noted that Waiopili Ditch is a man-made drainage ditch on private property, and is not an inviting recreational body of water utilized by people. Further testing is needed to more clearly identify whether the source(s) of FIB is human or animals, and DOH CWB has partnered with a University of California laboratory to more definitively determine the source of the fecal contamination in Waiopili Ditch. Results will be published as Part 2 of the Waiopili Ditch Sanitary Survey. The *Waiopili Ditch Sanitary Survey, Kauai Part 1* can be accessed on the DOH Clean Water Branch website under "Library" (http://health.hawaii.gov/cwb).

The drainageways and ditches installed in the late 1800s and early 1900s were developed to bring water to and through the site for sugarcane irrigation. HDF will protect water resources from runoff through both physical setbacks and effluent application limits.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 *Geology of Māhā'ulepū and Vicinity* displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas. The review of property values adjacent to beef cattle operations in the Kōloa region reveals newer homes with large square footage in a luxury residential community with 2016 assessed values of $1,297,150 per lot, to $2,893,100 per lot with a home. The proposed dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: Hawaii Dairy Farms

From: Diane Wry [mailto:diane@islandarchitect.net]
Sent: Monday, July 25, 2016 11:37 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Hawaii Dairy Farms

Dear Fellow Kauaiians,

Please consider the dire consequences of the HI Dairy Farm development on Maha'ulepu:
decimation of our coral reefs, fish populations and beaches on our beautiful South Shore, the nauseating smell of decaying excrement and urine, the loss of tourism dollars, jobs and property values.
Families here enjoy hiking from Shipwreck's Beach to Maha'ulepu, picnicking , and , enjoying a swim. I, myself , children and visitors partake in this activity many times each year.

I do not believe there are any benefits for Kauai to have this factory dairy farm. Please reject this proposal.
Aloha,
Diane Wry

GROUP 70 INTERNATIONAL

January 3, 2017

Diane Wry
diane@islandarchitect.net

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Diane Wry:

Thank you for your email of July 25, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawaiʻi, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kauaʻi community, and will allow for evaluation of possible contamination sources.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

RECEIVED
JUL 20 2016
GROUP 70 INT'L

POB 189
Anahola 96703
17 July, 2016

Aloha,

In February of last year I wrote of my opposition to the proposed Hawai`i Dairy Farm at Maha`ulepu. Nothing I have read in the 8 June Draft Environmental Impact Statement has changed my opinion. In fact, the shell games that HDF has been playing with its various revisions and submissions to various agencies have only reinforced my conviction that the company cares not a whit for Kaua`i and its people. Its sole objective seems to be to get the dairy approved/built regardless of environmental, social, or economic consequences to anyone but HDF. Our island does not need either this business or the attitude it has been displaying.

Kaua`i unquestionably needs sources of revenue other than tourism. It also needs to produce more of its own food, and to keep its agricultural lands for agriculture. Having its own dairy could benefit the community. However, from what I have read of the HDF materials, the proposed Maha`ulepu facility will not.

"Damn the torpedoes, full speed ahead", may be a fine motto for a naval battle, but not for a farm. Please do not inflict this farm on Kaua`i!

Heu`ionalani Wyeth

c/c Friends of Maha`ulepu

GROUP 70
INTERNATIONAL

January 3, 2017

Heu'ionalani Wyeth
P.O. Box 189
Anahola, Hawai'i 96703

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Heu'ionalani Wyeth:

Thank you for your letter dated July 17, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

Roughly 90 percent of goods used in the state, including daily food requirements of residents and visitors, arrive in Hawai'i via ocean and air shipping. The recent announcement by Hawai'i Governor Ige at the 2016 World Conservation Congress in Honolulu, to double local food production in the state by 2030, reflects yet another initiative to advance agricultural self-sufficiency within the State. HDF's objectives to produce more than 1 million gallons of milk annually for local consumption through growing more than 70 percent of the herd's feedstock within the HDF site will play a large role in the food sustainability movement in Hawai'i.

The planned improvements and operations at Hawai'i Dairy Farms are compatible with and supportive of State of Hawai'i and County of Kaua'i land use policies, plans and control related to the natural and social environment. The Proposed Project is consistent with and permitted by applicable land use designations and, as discussed in EIS Section 5.0, will contribute a wide range of benefits to further established goals, objectives and policies. In particular, Hawai'i Dairy Farms is consistent with the State and County initiatives for food sustainability and the long-term intended use of Important Agricultural Land on Kaua'i. The dairy is also consistent with the provisions of the State of Hawai'i Agricultural Functional Plan, and long-range planning for diversified agricultural use of Māhā'ulepū lands under the County of Kaua'i General Plan and the South Kaua'i Community Development Plan.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. A copy of the Final EIS is included on a compact disc with this letter. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

FW: Hawaii Dairy Farm comments

From: debbie.yamada@hyatt.com [mailto:debbie.yamada@hyatt.com]
Sent: Friday, July 22, 2016 11:28 AM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: Hawaii Dairy Farm comments

Aloha,
I live and love the island of Kauai and am employed in the Poipu area. I am very concerned about the proposed dairy planned in Mahaulepu Valley.
Some of my major concerns are:

- Employment. We work hard to bring tourists to the hotel which employs over 900 employees, however the odor, flies and polluted waters will encourage guests to go to the competition, and that will not be any hotel on this island. They will go to Maui, Hawaii, Lanai or Oahu. This will cost the county reduced tax revenues, unemployment costs, reduced property value and reduction in property taxes. I don't understand why we would do this in the Poipu area which has gained a high reputation. Some of our repeat guests have even mentioned that we are a hidden gem and they don't want too many people to find out about us, out of selfishness.
- Odor. The projected odor detection map figure 4.19-1 indicates that in a worst case scenario the odor will travel no more than 1 mile, yet experts other than those hired by HDF for the Draft EIS have determined that it has the potential to travel across virtually all of Koloa/Poipu.
- Caring about people. Why would we allow a dairy farm that is creating 5 direct and 6 indirect jobs take precedent over a company that employs over 900 employees. If occupancy drops so will the need for employees…and this is just one hotel. The Hyatt is repeatedly rated #1 in Trip Advisor. With the strong use and popularity of social media, the results will not just affect this hotel, but all hotels in the Poipu area. People speak freely on Trip Advisor so it will be embarrassing for this island as people will wonder who made this kind of poor decision to bring a dairy farm so close to a resort. Reminder again that our competition is not any hotel on this island…it is always a hotel on Maui or the Big Island. If they don't come here, they will not go to St. Regis or Marriott, they will go to the Fairmont Orchid or Grand Wailea…so much for revenue growth on Kauai…not to mention reduction in TAT.

Mahalo for considering my concerns.

Sincerely,

Debbie Yamada
Revenue Manager
Grand Hyatt Kaua'i Resort & Spa
1571 Poipu Road, Koloa, HI, 96756
808.240.6451 TELEPHONE
debbie.yamada@hyatt.com
e-brochure | www.grandhyattkauai.com

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Travel+Leisure Worlds Best
AAA Four Diamond

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GROUP 70 INTERNATIONAL

January 3, 2017

Debbie Yamada
debbie.yamada@hyatt.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Debbie Yamada:

Thank you for your email of July 22, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

HDF will be the first dairy in Hawaiʻi to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

The air quality technical report found in Appendix I was prepared by Arcadis, the leading global natural and built asset design and consultancy experts. Founded in 1888, Arcadis has integrated health, safety, and sustainability into the design and delivery of solutions across the globe for over 128 years, with more than 350 offices in over 40 countries. Arcadis has extensive experience assessing the impact of new, existing, or modified sources of air contaminants on ambient air quality and public health through the use of customized, numerically based air quality dispersion models. Arcadis uses the latest EPA recommended air dispersion models to predict potential off-site concentrations and aerial extent from one or more sources. Dispersion modeling provides the ability to conduct many runs quickly, thus enabling experts to assess several different operating and emissions control scenarios in order to reduce ambient air and odor impacts.

The scientists and engineers at Arcadis have expertise in dispersion modeling, the application of standard regulatory models such as AERMOD and CALPUFF, and utilize specialized models designed for accidental releases and/or unique dispersion conditions. Modeling for air permitting generally includes developing, assessing and obtaining appropriate background air quality data, collecting or developing emission rates and modeling parameters for neighboring sources within the impact area of concern, and performing multisource modeling to determine the impact of the client's existing or proposed facility. Modeling results were generated for worst case meteorological conditions (low wind velocity / mixing). Generally, tradewinds will disperse odors to less than detectable levels beyond the HDF site; in periods of no wind, odor may not be dispersed creating the "worst case" scenario. In these periods without normal tradewind flow, the odor plume would extend to the south of the HDF site. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

Group 70 International • 925 Bethel Street, 5th Floor • Honolulu, HI 96813-4398 • tel. 808.523.5866 • fax. 808.523.5874 • www.group70int.com

From: James Yamamoto
To: DOH.EPO
Subject: Kauai Resident
Date: Friday, July 22, 2016 8:33:03 PM

Dear Ms McIntyre:

As I see the situation re this dairy development, are we possibly sacrificing the economic security of one industry for the benefit of the other? The dairy would produce milk. That milk will be sold elsewhere? And not on this island?

But producing this milk for people outside this island could have a negative effect on a large hotel in the area and quite possibly necessitate the laying off of people now employed in this hotel? And this is for a large dairy enterprise that will produce milk for people not on this island? Sorry to be redundant but it surely does not make sense to me.

Why not have this daily complex on the island that is to benefit the most from the sale of this milk? That would make more sense to me.

Sincerely,

James T. Yamamoto
Kauai resident for 76 years

GROUP 70 INTERNATIONAL

January 3, 2017

James Yamamoto
jyamamoto13@twc.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear James Yamamoto:

Thank you for your email of July 22, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawaiʻi's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawaiʻi's dairy industry.

Under the proposed action, HDF would sell raw milk wholesale to a processor and packager. Milk processing, including pasteurization, bottling, and packaging of milk, would be done independently of the dairy. For more information on processing, see EIS Section 3.6.

While it may be ideal for Hawaiʻi Dairy Farms to have an on-island milk-processing partner, it is logistically, financially and technically difficult to start such a business in conjunction with developing the first pasture-based dairy farm in the State. The most feasible and sustainable plan is to process HDF's milk with an existing provider on Oʻahu or Hawaiʻi Island. In the future, on-island processing may be a more feasible option. For more information on the purpose and need for the project, see EIS Section 2.0.

Milk distribution decisions will be determined by Meadow Gold at a future time. Meadow Gold is the only statewide distributor of milk products processed locally from both U.S. Mainland and Hawaiʻi Island milk.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

From: Carolyn Yamasaki
To: DOH.EPO
Subject: Proposed dairy farm on Kauai
Date: Friday, July 22, 2016 8:27:16 PM

As a concerned citizen of Kauai I feel that I should voice my opinion on the Hawaii Dairy Farm projects at Mahalepu, Kauai. If you have ever visited Tillamook, Oregon, where they have large dairies, one can smell the cow manure miles from the town of Tillamook.
The tropical heat of Kauai will definitely enhance the smell and would surely affect the area that is downwind.
The Grand Hyatt Kauai hotel and all the condominiums in the area will suffer great business loss and may go out of business which will impact all the residents of Kauai.
No one can say for sure what the environmental impact of all that manure and urine will do to the ground water, but that the one thing that is for sure, is that the smell would be awful and no one would want to stay in that area.
We must **not allow this project to go through.**

Morton Yamasaki
A concerned resident of Kauai

Sent from my iPad

GROUP 70 INTERNATIONAL

January 3, 2017

Morton Yamasaki
ctyamasaki@yahoo.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Morton Yamasaki:

Thank you for your email of July 22, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

Unlike a conventional feedlot dairy facility that must collect and store all manure produces until future disposal, the majority of manure from a pastoral-grazing operation will be deposited directly on the pasture where it will break down and be incorporated into the soil within a one- to three-day period.

Without a dairy in operation, computer-generated modeling was used to determine the potential impact. Results for the committed herd size of 699 mature dairy cows using typical effluent irrigation conditions show that odors may be detectable by 50 percent of the sensitive population once per 200 hours, or just 44 hours per year, within one-quarter of a mile south of the dairy farm boundary. For wet periods, odor could extend approximately 2,151 feet (less than one-half of a mile) beyond the southern boundary. The closest public use areas beyond the odor extent south of HDF are a stable and golf course, both approximately 0.5 miles further south, and the closest residential and resort units are 1.3 miles beyond the possible odor extent (EIS Figure 4.19-1).

HDF has elected to restrict slurry application to periods when wind speeds are between 9 and 20 mph. With application at the most impactful location, paddocks south of the taro farm, the odor from slurry application barely crosses the southern boundary. Due to wind speeds within this range occurring on average 243 days of the year, the 99.5th percentile is reduced to potentially perceiving the odor just 29 hours per year.

For the potential future contemplated herd size of up to 2,000 mature dairy cows, during unusually wet periods, with application at the most impactful location – paddocks south of the taro farm – the odor from slurry application could extend approximately 1,580 feet, or less than one-third of a mile. The odor isopleth for the typical irrigation effluent extends beyond the dairy farm boundary approximately 3,070-feet (over one-half mile) which would not reach recreational or residential areas. The parameters used in the analysis were intentionally conservative, and the impacts shown assume an unlikely confluence of worst-case meteorological data irrigation location, and grazing location. Actual offsite odor impacts are likely to be much lower and/or less frequent than shown.

Under either herd size, odors would not reach recreational or residential areas. Sections 4.19.2 and 4.25.2 of the EIS include graphics of the potential odor isopleths. The full odor report can be found in Appendix I.

Both groundwater and surface water conditions in and around Māhā'ulepū Valley are described and analyzed in the EIS. The nearshore marine water quality downgradient of HDF was also evaluated. Evaluations varied by the water resource as appropriate, and included testing of physical, chemical and biological water quality. Sections 4.16 *Hydrology* and 4.17 *Surface Water Resources & Nearshore Marine Environment* and Appendices E and F contain further information on the analyses.

Māhā'ulepū Valley has a unique geology from the surrounding Kōloa-Po'ipū area. Rather than the permeable karst lavas of the Kōloa volcanic series to the west, the valley floor is filled with alluvial material which generally extends about 60 feet under the surface. This material is highly weathered lava composed of dark brown to black silty clay and clayey silt. These layers are essentially impermeable and function as an aquiclude to separate shallow groundwater in the alluvium from the confined groundwater in the underlying volcanics. Groundwater confined within the underlying volcanics is the source of drinking water. EIS Figure 4.16-1 Geology of Māhā'ulepū and Vicinity displays the volcanic geological history of the area.

Though the confined groundwater tapped by the County wells is hydrologically separated from shallow groundwater in the Māhā'ulepū Valley, HDF established a 1,000-foot setback surrounding the nearest County well (Kōloa F) in agreement with the County Department of Water. Within this setback, no effluent will be applied and no animals will deposit manure as the area will not be used for grazing. Additional setbacks to protect water resources are included in the Surface Water section of the EIS. Additionally, the flow of groundwater to the County's Kōloa wells is shown as "pathlines" that identify the direction from which deep volcanic groundwater flows to the well from. The flow is modeled from the west- north-west, and HDF is to the east (EIS Figure 4.16-3).

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawaiʻi Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

July 21, 2016

Aloha, I am a Kauai born resident employed on the Southshore and very concerned about the proposed dairy Hawaii Dairy Farms has planned in Maha'ulepu Valley.

It is very difficult to understand how the dairy will not adversely affect residents, recreational activities, restaurants and most importantly guests at the Grand Hyatt Kauai. Or, that there will be no noticeable odor, flies, or that discharge waste will not reach the resort and residential areas.

The tradewinds come from the direction of the proposed farm so the odor will be travelling from the Northeast to the Southwest which will blow in the direction of the resort, homes, restaurants, etc.

The Grand Hyatt employees close to 1,000 employees and has supported this community in many ways. The groups and leisure travelers that frequent the Resort has brought in millions of revenue to all the businesses on the Island i.e., activities, restaurants, rental cars, etc. Our groups have also supported the community by donating money and time to the local schools, boys and girls club, humane society, hui o laka, national tropical botanical garden and more organizations.

If the dairy impacts the Resort in any way this will be a huge financial loss for the Resort and the community.

Please consider the potential risks it may pose both environmentally and economically.

Sincerely,

Vanessa N. Yatsuoka

cc: Laura.McIntyre@doh.hawaii.gov
HDF@Group70int.com
info@hawaiidairyfarms.com

GROUP 70 INTERNATIONAL

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Hitoshi Hida AIA

January 3, 2017

Vanessa Yatsuoka
vanessa.yatsuoka@hyatt.com

Subject: Hawai'i Dairy Farms Final Environmental Impact Statement (EIS)
Māhā'ulepū, Kōloa District, Kaua'i, Hawai'i
Response to Comment on Draft EIS

Dear Vanessa Yatsuoka:

Thank you for your email of July 22, 2016 regarding the Hawai'i Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The HDF project purpose is to establish a sustainable, pastoral rotational-grazing dairy farm that will increase current local milk production, bolster Hawai'i's declining dairy industry, and reduce reliance on imported milk from the mainland United States. The rotational-grazing dairy system utilizes 100 percent of all manure on-site as natural fertilizer to grow grass. This cost-effective method reduces imported fertilizer and feed, and minimizes potential impacts to the environment. HDF reflects a viable approach to apply use of Important Agricultural Lands to agricultural self-sufficiency and food production. HDF represents a continued commitment by the landowner to support farming and local food production, and to aid in the resurrection of Hawai'i's dairy industry.

HDF will be the first dairy in Hawai'i to employ rotational-grazing, which utilizes manure as a valuable resource. This is a fundamental difference and advantage over conventional feedlot dairy operations, which typically have insufficient land to recycle the nutrients for uptake by forage plants and instead rely on imported feed and large storage lagoons to hold manure. The rotational-grazing method is cost-effective as it reduces the need to import fertilizer and feed, and minimizes potential impacts to the environment by using 100 percent of the manure as nutrients to grow the majority of the forage for the herd. Benefits of pasture grazing include, but are not limited to, improved soil health, and increased animal health and productivity. The dairy will feature modern facilities and practices that will comply with all applicable Federal and State environmental standards.

Comments by Kilpatrick about the adverse economic impacts of the dairy appear to be based on nuisance parameters and footprints of conventional feedlot dairies found on the mainland, not on those of the planned Dairy which will be a modern facility that uses rotational pasture-grazing. Results of technical studies presented in this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort and residential areas.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

DEIS - HDF

Robert Zelkovsky <Robert@bamboomoonvideo.com>

Wed 7/20/2016 1:01 PM

To:HDF <hdf@group70int.com>;

Thank you for this chance to comment. I have a few.
Greenhouse gasses. From where did you get these percentages? It is my understanding that industrial ag, plant and animal, contribute a much higher percentage of greenhouse gasses to environment than the 9% listed. Some sources list it as the highest contributor.
Flies. I have lived on Long Island, New York back in 60's when there were more farms. I used to surf Gilgo Beach, no farms in sight, and we used to get bit by flies, they were called horse flies. I don't think you can mitigate the amounts of animal waste that will be generated every day to rid fly production. Flies into Hyatt? Flies into Kauai Community College? Koloa?
Water Pollution. The DEIS does not account for worse case scenario as far as the rain events that can happen.
I have seen 40 straight days of rain. I have seen 3 15" days in a row. These events not taken into account.
What would be mitigation of runoff into the ocean?
Traffic. Looks like a lot of cow movement to Kapa`a, Oma`o. The road is bad, trucks with cows will make it worse.

In general there are not any good stories of industrial animal ag.
Thank You,
Robert Zelkovsky
Wailua Homesteads

GROUP 70 INTERNATIONAL

January 3, 2017

Robert Zelkovsky
robert@bamboomoonvideo.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Robert Zelkovsky:

Thank you for your email of July 20, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

There are no State or Federal regulations for greenhouse gas emissions from farm operations or small businesses. However, livestock and agriculture as an industry contributes to greenhouse gas emissions, so HDF engaged a technical expert to model potential greenhouse gas (GHG) emissions based on the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories, as no dairy is currently in operation. The GHG emissions included methane and nitrous, converted to carbon dioxide equivalents (CO_2e) using the IPCC's AR3 global warming potential (GWP) that relates the GHG to CO_2. The IPCC Parameters for Oceanic dairy cattle in warm climates were selected as most applicable to the rotational-grazed dairy operation and conditions at HDF. See the EIS Sections 4.19 and 4.26, and Appendix I for complete information.

The emissions potential for GHG at HDF with the committed herd size of 699 milking cows was estimated as 2,693 CO2e metric tons (2,969 U.S. tons) per year. This is equivalent to the GHG generated by 170 4-person households. Potential GHG emissions from the contemplated future herd size of up to 2,000 milking cows was estimated at 7,705 CO_2e metric tons (8,493 U.S. tons) which is equivalent to 485 4-person households. GHG estimates for household energy consumption includes home energy use, transportation and waste.

While the presence of cows may increase GHG, a long-term beneficial impact of the grazing fields is the sequestration of carbon as CO_2 captured by the process of photosynthesis by the grass. According to recent studies in the Soil Science Society of America Journal, converting formerly tilled cropland to grazed pasture can drive substantial accumulation of organic carbons in soil, which enhances soil quality, grass production, and has the potential to offset up to one-third the annual increase in CO_2 production of an area.

Operational practices to protect air quality by reducing nitrogen emissions will come from guidance in NRCS Conservation Practice Standard 590, Nutrient Management. Application of nutrients must be adjusted to minimize negative impacts of GHG release to the environment through adjustments to the source, timing, amounts, and placement of nutrients. Specific practices to be utilized at HDF include: slow release fertilizers; nutrient enhancement technologies; and stabilized nitrogen fertilizers.

Fly populations at HDF will be minimized through a process known as Integrated Pest Management (IPM). Essentially, IPM disrupts reproduction with appropriate means at key points in the pest's life cycle. Used in Hawai'i for decades, a number of invertebrates and a bird (the cattle egret) were introduced between 1898 and 1950 to reduce livestock-related insects. IPM utilizes knowledge of the ancient food web among species. An especially important insect to minimize fly breeding habitat in manure is the dung beetle, which can bury manure in one to three days and thereby incorporate organic matter into the soil. Disrupting and removing the dung interrupts the egg to fly lifecycle, which requires from 7 to 20 days depending on the type of fly. Populations of dung beetles found on Kaua'i and those species already in Māhā'ulepū Valley will expand with the growing manure food source, thus increasing and speeding breakdown of manure while preventing fly larvae from hatching. Fly minimization measures are further described in EIS Section 4.11.

There has been no rainfall event that would exceed the capacity of the effluent ponds since rainfall has been recorded in Māhā'ulepū Valley. The effluent pond capacity has been designed to exceed the regulatory requirement of containing the 25-year, 24-hour rainfall event. Under the committed herd size of 699 mature dairy cows, the ponds could hold an additional 45 percent volume; under the contemplated herd size of up to 2,000 mature dairy cows, the ponds could hold an additional 12 percent volume. An emergency containment berm has also been added to the design, providing additional capacity equivalent to 30 days of effluent for the potential contemplated herd size up to 2,000 mature dairy cows.

An emergency preparedness plan for protection of animals has been prepared for HDF internal use that addresses hurricane, fire, and potential flooding hazard scenarios. HDF is not in a tsunami inundation area, so this scenario is not planned for in the disaster plan. The disaster plan relies upon knowledge of cow behavior, and is based on extensive guidance for livestock protection from NRCS, the Florida State Agricultural Response Team (SART), Pennsylvania State College of Agricultural Sciences, and Cornell University Cooperative Extension. The plan includes safety procedures during any disaster, follow up actions, and emergency contacts for assistance before, during or following the event. Further information is provided in EIS Section 4.6.2.

EIS Sections 4.18 and 4.24 include an evaluation of roadways and traffic conditions, along with potential impacts of the dairy farm construction and operation.

At the committed herd size of 699 cows, 12 vehicle trips per day would result from HDF operations over the long-term. A summary of all regional traffic with projections to 2035 is shown in Table 4.18-1 of the EIS; HDF trips would increase projected traffic by less than one-twentieth of one percent (0.17 percent).

For HDF operations at the contemplated herd size of up to 2,000 mature dairy cows, additional vehicular trips are projected at 11 more per day than at the committed herd size. The projected trips totaling 23 vehicles per day would include employees and delivery vehicles, and represents an increase in the regional traffic of less than one-third of one percent (approximately 0.30 percent).

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

FW: No dairy farm in Mahalapu Attn: Laura McIntyre

From: Antonia Elizabeth Joy [mailto:ilovekauaiyoga@hotmail.com]
Sent: Monday, June 27, 2016 7:51 PM
To: DOH.EPO <DOH.epo@doh.hawaii.gov>
Subject: No dairy farm in Mahalapu Attn: Laura McIntyre

Aloha Ms. McIntyre,

I am a concerned resident of the south shore of Kauai, and I work at the Hyatt and several other resorts. The area near the Grand Hyatt Kauai & Mahalapu is a high residential area and a vacation destination area.
Having 699 cows right next to us could potentially destroy Poipu as a residential area and a VDA, the run off of the waste from the cows would flow right down into the ocean and into Poipu beach which has been named one of the most beautiful beaches in the world by several sources. The keiki of the aina play and swim in this beach and so do our tourists, monk seals, turtles, dolphins, whales who come to have their babies here.

It is ludicrous that the HDF and it's supporters can pretend the farm will do no harm, we do not need a EIS to show it, we just need common sense and a little bit of intelligence. Please do all you can to help our community, island, jobs, say absolutely not to the HDF in Mahalapu (Poipu).

Thank you,

Joy Zepeda

Sent from Outlook

GROUP 70 INTERNATIONAL

January 3, 2017

Joy Zepeda
ilovekauaiyoga@hotmail.com

Subject: Hawaiʻi Dairy Farms Final Environmental Impact Statement (EIS)
Māhāʻulepū, Kōloa District, Kauaʻi, Hawaiʻi
Response to Comment on Draft EIS

Dear Joy Zepeda:

Thank you for your email of July 5, 2016 regarding the Hawaiʻi Dairy Farms (HDF) Draft EIS. The following responses are offered to your comments:

The development and long-term operation of HDF will be in full compliance with its agricultural State Land Use District designation, ALISH classifications, and County zoning. The dairy farm will embody the intent of the IAL designation per the Hawaiʻi State Constitution, by using these protected lands for the intended purpose of diversified agriculture, food production and agricultural self-sufficiency. HDF's development of a dairy also supports the "secondary intent" for lands in the Agriculture land designation, to provide an opportunity for Kauaʻi citizens to reside in an agricultural community.

Results of technical studies and the findings of this EIS show no unmitigated nuisances that could affect property values as a result of dairy construction or operations. No noticeable odors, flies, noise, waste or water discharges will impact resort or residential areas. Odor is a nuisance impact that may reach beyond the dairy boundaries but will be limited to adjacent farm and ranch lands owned by Mahaulepu Farm, LLC, lessor of the dairy site, and would occur for limited and infrequent duration. As such, the dairy will not adversely affect residents, nearby recreational activities, guests in nearby resorts, or diminish property sales or property values in the area. EIS Section 4.15 addresses demographic and economic factors, with the complete report in Appendix J.

HDF operations will follow the practice standards of the Natural Resources Conservation Service (NRCS). These practices include setbacks to minimize impacts to waterways. Physical setbacks will be created with fences installed 35-feet from drainageway (totaling 70-feet in width) to keep cows away from surface waters. Within the 35-foot setback, vegetation will be established to create filter strips to capture particulates during stormwater runoff. Another setback restricts application of effluent within 50 feet of the drainageways; only irrigation water will be used as needed to maintain the vegetated buffer and pasture grass, keeping nutrient applications away from waterways. See Section 3.5.1, Paddocks, Fencing and Setbacks in the EIS.

Waiopili Ditch receives runoff from the larger 2,700-acre Māhāʻulepū Valley sub-watershed, including the lands mauka and makai of the proposed dairy. The dairy site represents roughly 20 percent of the sub-watershed. Soil erosion within the dairy will be reduced by establishment of the thick grass ground cover for pasture and filter strips along drainageways. Over the long-term, the surface water quality in the agricultural ditches and Waiopili Ditch will be improved by active management of the dairy site.

The EIS documents the existing conditions of the nearshore marine environment, including a characterization of the biotic environment where water flows to the ocean through Waiopili Ditch. Comparing the characterization of nutrients and biological constituents from surface water samples to those water samples taken in the nearshore marine area reveal that indicator bacteria were substantially lower in the ocean than in the ditch. The rapid decrease is a result of physical mixing of water masses. Water sampling results show that elevated levels of indicator bacteria do not extend beyond the shoreline. See EIS Section 4.17.3 *Nearshore Marine Waters*, and Appendix F.

The assertion that "algae blooms" will occur due to elevated nutrients from stormwater has not borne out in the nearshore marine environment off Waiopili Ditch. Even during the typical low rainfall conditions, there is always a discharge from Waiopili Ditch to the ocean, and water quality sampling has documented that the ditch water is elevated in nutrients. Therefore, it would be expected that algae blooms would be occurring under current conditions, but inspection of the nearshore mixing zone indicates that such blooms are not occurring.

A large body of scientific literature documents that, contrary to popular belief, reef corals do not necessarily require low nutrient water. In Hawai'i, Atkinson et al. 1994 showed that a multitude of corals from around the Pacific Basin growing at the Waikiki Aquarium in high nutrient marine groundwater have higher linear growth rates than corals in the wild. There is no reason to expect that a short-term exposure of a very limited community to elevated nutrients will result in any negative impacts to corals in the mixing zone of Waiopili Ditch and the ocean.

Long-term ocean water quality monitoring has been initiated to provide a baseline for the nearshore ocean waters. HDF will regularly sample and analyze nutrient and chemical constituent levels in the near-shore marine environment. Data from the nearshore water monitoring program will be made available to the DOH CWB, dairy neighbors and the local Kaua'i community, and will allow for evaluation of possible contamination sources.

Your comment, along with this response, will become part of the public record and will be published in the Final EIS. When published, the Final EIS will be available on the OEQC website which you can access using the following URL, and search "Hawai'i Dairy Farms": http://tinyurl.com/OEQCKAUAI.

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner