31826037

Solid Waste Management Plan Update

FINAL

CONTRACT N40085-07-D-2611
TASK ORDER 0037

Prepared for:
Marine Corps Installations East-Marine Corps Base Camp Lejeune
North Carolina

Prepared by:
URS Group, Inc.
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560

July 2012

Table of Contents

Attachments

List of Figures

List of Tables

List of Acronyms

ADC	Alternative Daily Cover
AMCC	Atlantic Marine Corps Communities
BEQ	Bachelor Enlisted Quarters
BO	Base Order
BPO	Base Property Office
BRAC	Base Realignment and Closure
C&D	Construction and Demolition
CCA	Chromated Copper Arsenate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CETEP	Comprehensive Environmental Training and Education Program
CFR	Code of Federal Regulations
CPG	Comprehensive Procurement Guidelines
CRP	Community Relation Plan
DECA	Defense Commissary Agency
DLADS	Defense Logistics Agency Disposition Services
DoD	Department of Defense
DODI	Department of Defense Instruction
DOE	Department of Energy
DON	Department of the Navy
DRMO	Defense Reutilization and Marketing Office
DSSC	Direct Stock Support Control
EAD	Environmental Affairs Division
E-LMS	Electronic-Learning Management System
EMD	Environmental Management Division
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
EPEAT	Electronic Product Environmental Assessment Tool
ER	Environmental Restoration
ESOP	Environmental Standard Operating Procedure
FEMP	Federal Emergency Management Program
FMR	Financial Management Regulation
FOUO	For Official Use Only
FY	Fiscal Year
GHG	Greenhouse Gas
GIS	Geographic Information System
GPP	Green Procurement Program
GPS	Global Positioning System

GSA	General Services Administration
HDPE	High-Density Polyethylene
IEEE	Institute of Electrical and Electronics Engineers
IF&E	Installation, Facilities, and Environment
IR	Installation Restoration
ISWH	Integrated Solid Waste Hierarchy
ISWMP	Integrated Solid Waste Management Plan
LEED	Leadership in Energy and Environmental Design
LOGCOM	Logistics Command
LSS	Lejeune Support Services
MAG	Marine Aircraft Group
MARSOC	Marine Corps Forces Special Operations Command
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCCS	Marine Corps Community Services
MCIEAST	Marine Corps Installation East
MCO	Marine Corps Order
MEF	Marine Expeditionary Force
MEO	Most Efficient Organization
MEU	Marine Expeditionary Unit
MLG	Marine Logistics Group
MoM	Measure of Merit
MR	Munitions Response
MRE	Meal, Ready-to-Eat
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
MSWL	Municipal Solid Waste Landfill
MWR	Morale, Welfare, and Recreation
NAVFAC	Naval Facilities Engineering Command
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NCDWM	North Carolina Division of Waste Management
NCGA	North Carolina General Assembly
NCGS	North Carolina General Statute
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
NRC	National Recycling Coalition
OICC	Officer in Charge of Construction
OPNAVINST	Office of the Chief of Naval Operations Instruction
P2	Pollution Prevention
P2ADS	Pollution Prevention Annual Data Summary
PCP	Pentachloraphenol

PETE	Polyethylene Terephthalate
PP&P	Preservation, Packaging, and Packing
PPA	Pollution Prevention Act
PPV	Public-Private Venture
PWD	Public Works Division
QRP	Qualified Recycling Program
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RCRS	Resource Conservation Recovery Section
SARA	Superfund Amendments and Reauthorization Act
SECNAVINST	Secretary of the Navy Instruction
SSPP	Strategic Sustainability Performance Plan
SWAR	Solid Waste Annual Reporting
SWDA	Solid Waste Disposal Act
SWMP	Solid Waste Management Plan
T&P	Treatment and Processing
TRI	Toxic Chemical Release Inventory
USC	United States Code
USMC	United States Marine Corps

This page intentionally left blank.

EXECUTIVE SUMMARY

Developing and implementing a Solid Waste Management Plan (SWMP) is a requirement for all Navy installations as outlined in Chief of Naval Operations Instructions (OPNAVINST) 5090.1C, *Navy Environmental and Natural Resources Program Manual* (2007) and Marine Corps Order (MCO) P5090.2A W/CH 1-2, *Environmental Compliance and Protection Manual*.

The North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management (NCDWM) requires that local governments' SWMPs be updated at least once every three years (North Carolina General Statute [NCGS] 130A-309.09A). This requirement does not apply to military installations (Brown, personal communication, 26 April 2012); however, this SWMP has been updated to reflect the current status of the Solid Waste Management Program at Marine Corps Installations East-Marine Corps Base (MCIEAST-MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River, and is effective for 2012-2015. Along with incorporating current solid waste generation and disposition (i.e., recycling vs. disposal) rates, this update provides a broad assessment of program performance in terms of meeting and/or exceeding program goals, identifies areas for improvement, and provides recommendation for improving and enhancing the Solid Waste Management Program.

Program Overview

The Solid Waste Management Program at MCIEAST-MCB Camp Lejeune is implemented primarily via the collaborative efforts of Public Works, the Defense Logistics Agency Disposition Services (DLADS), and the Environmental Management Division (EMD). Together, these entities work to manage the Solid Waste Management Program at the Base with an emphasis on the diversion of waste disposed to the maximum extent practicable by means of reduction, reuse, and recycling, based on the Marine Corps Integrated Solid Waste Hierarchy (ISWH) outlined in MCO P5090.2A W/CH 1-2. Since the last update of the SWMP in 2008, MCIEAST-MCB Camp Lejeune has made significant progress toward successfully achieving federal, state, and Department of Defense (DoD) solid waste management goals and mandates, meeting or exceeding DoD goals every year.

A Qualified Recycling Program (QRP) has been implemented on Base, according to the guidelines set forth in Base Order (BO) 5090.17, *Solid Waste Reduction – Qualified Recycling Program*, which sets the requirements for solid waste reduction, pollution prevention, and management of recyclable material at MCIEAST-MCB Camp Lejeune. Recycling facilities on Base include a materials recovery facility (MRF), satellite collection sites for recyclable materials, a treatment and processing (T&P) facility, and a composting facility. Waste materials that are not reused or recycled through Base-sponsored programs are disposed of at a 60.6 acre Subtitle D Landfill located on Base. Implementation of the QRP and a focus on diverting solid waste has proven to be cost-effective for MCIEAST-MCB Camp Lejeune, as indicated in Table ES-1.

Table ES-1. Cost Summary of Solid Waste Management 2007-2011

	2007	2008	2009	2010	2011
Landfill/Disposal					
Total Tons	52,917	57,313	51,602	59,403	34,124
Total Cost	$2,305,511	$2,497,144	$2,562,532	$2,195,587	$1,852,035
Net Cost per Ton	**$44**	**$44**	**$50**	**$37**	**$54**
Diverted (Recycled & Composted)					
Total Tons	24,342	45,569	51,442	71,359	65,395
Total Cost	$838,913	$918,640	$1,022,128	$1,087,952	$1,013,135
Total Revenue	$348,867	$881,409	$700,814	$1,642,973	$2,300,044
Net Cost	$490,045	$37,230	$321,314	$ (555,021)	$ (1,286,909)
Net Cost per Ton	**$20**	**$1**	**$6**	**$ (8)**	**$ (20)**
Total Solid Waste Generated					
Total Tons	77,259	102,882	103,044	130,762	99,519
Total Net Cost	$2,795,556	$2,534,374	$2,883,846	$1,640,566	$565,126
Total Net Cost per Ton	**$36**	**$25**	**$28**	**$13**	**$6**

Note: Data obtained from Solid Waste Annual Data Call (formerly Pollution Prevention Annual Data Summary [P2ADS]) reports for 2007-2011. Values in parenthesis indicate revenue.

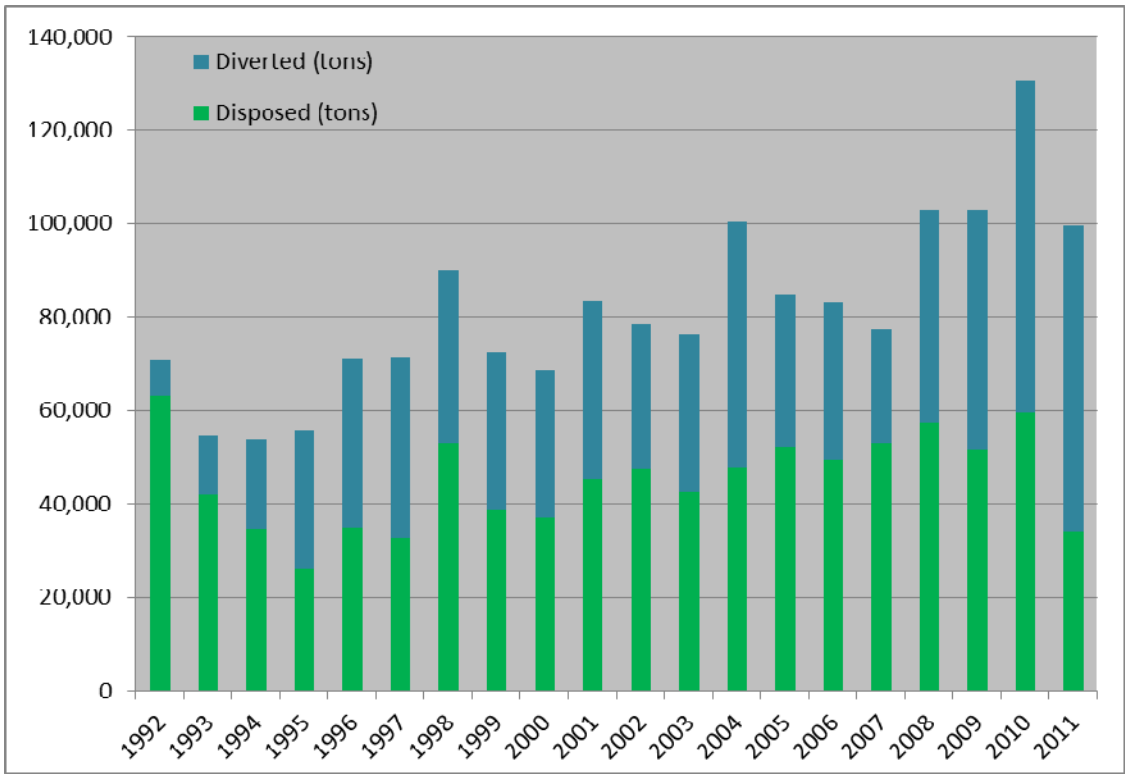
Program Vision Statement, Goals, and Performance

The long-term vision statement for the MCIEAST-MCB Camp Lejeune Solid Waste Management Program is to provide centrally managed guidance on solid waste reduction, recycling, collection, and disposal, while achieving or exceeding federal, state, and DoD requirements and increasing the amount of waste diverted from the waste stream through recycling and composting. Specific performance measure goals were also set in order to meet DoD solid waste diversion goals outlined in the Fiscal Year (FY) 2011 DoD Strategic Sustainability Performance Plan (SSPP):

1. Diverting 50% of total non-hazardous Base-generated solid waste each year by 2015.
2. Diverting 60% of total construction and demolition (C&D) debris generated each year by 2015.
3. Implementing a policy to establish a program for reducing the use of printing paper and actively implementing that policy by 2014.

MCIEAST-MCB Camp Lejeune is currently in compliance with federal, state and DoD solid waste regulatory requirements and goals.

As shown in Table ES-1 and Figure ES-1, from 2008 through 2011 the total volume of solid waste disposed of in the landfill has generally decreased, with the exception of 2010, which showed an increase that was predominantly caused by construction and demolition waste from large military family housing and other “Grow the Force” initiative projects. The large decrease in waste generated in 2011 as compared to the previous three years is primarily due to a decrease in construction, demolition, and renovation projects associated with the “Grow the Force” initiative. Since 2008, the Base has consistently exceeded the applicable DoD solid waste diversion goals, as shown in Tables ES-2 and ES-3.



Note: Data for 1992-2006 were obtained from 2008 SWMP. Data for 2007-2011 were obtained from Solid Waste Annual Data Call reports for those years.

Figure ES-1. Solid Waste Management Quantities

Table ES-2. Solid Waste Reduction and Diversion

Year	Waste Generated	Waste Recycled	Waste Composted	Waste Disposed	% Diverted Annually	1998 MoM/ DoD Goal
	(thousand tons)					
2007	77.3	23.8	0.5	52.9	32%	>40%
2008	102.9	44.5	1.1	57.3	**44%**	>40%
2009	103.0	48.8	2.6	51.6	**50%**	>40%
2010	130.8	69.3	2.1	59.4	**55%**	40%
2011	99.5	63.5	1.9	34.1	**66%**	42%

Notes:

1. Data for 2007 was obtained from the 2008 SWMP and does not include Defense Commissary Agency (DECA) and Marine Corps Community Services (MCCS) recycling quantities. Data for 2008-2011 was obtained from Solid Waste Annual Data Call reports for those years and includes other select waste data.
2. The 1998 Measure of Merit (MoM) was diversion of greater than 40% of non-hazardous waste. The DoD goal referenced is Goal 5.2: diversion of 50% of total non-hazardous solid waste from the waste stream each year by FY 2015 and thereafter through FY 2020 (starting with a target of 40% by FY 2010 and increasing by 2% each year through 2015).
3. **Bold** values indicate that the relevant solid waste minimization goal was met or exceeded.

Table ES-3. Construction and Demolition Waste Diversion

Year	C&D Waste Disposed (tons)	C&D Waste Recycled (tons)	Total C&D Waste Generated (tons)	% Diverted Annually	DoD Goal 5.3
2007	8,994	13,204	22,198	**59%**	N/A
2008	14,081	27,613	41,694	**66%**	N/A
2009	5,496	26,642	32,138	**83%**	N/A
2010	20,184	55,103	75,288	**73%**	50%
2011	3,246	49,190	52,436	**94%**	52%

Notes:

1. Data was obtained from other select waste values in the Solid Waste Annual Data Call reports for 2007-2011.
2. DoD Goal 5.3: Diversion of 60% of total C&D debris from the waste stream each year by FY 2015 and thereafter through FY 2020 (starting with a target of 50% by FY 2010 and increasing by 2% each year through 2015).
3. **Bold** values indicate that the relevant solid waste minimization goal was met or exceeded.

Opportunities to Improve and Enhance Program Performance

A review of the current Solid Waste Management Program identified opportunities that could improve the overall performance of the program. Highlights of these opportunities are provided in Table ES-4 below.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Source Reduction	
E-mail and Internet	The use of e-mail and the Internet can significantly reduce the use and disposal of paper. Although both are available and currently in use on Base, a majority of correspondence via e-mail and reference material, reports, and policy manuals continue to be printed to retain hard copies. Instead, these documents could be saved on hard drives and internet portals, reducing the need to print and distribute multiple copies.
Electronic Faxes	The use of computers to send and receive faxes directly is another way to reduce the need and disposal of paper. By using desktop computers to directly transmit and receive faxes, the cost of preparing and receiving faxes is also reduced.
Duplex Printing	Making duplex (double-sided) printing the default printer setting for Base-controlled computers can reduce the amount of paper used.
Written Correspondence	By examining how and what is communicated and distributed, the amount of paper consumed can be reduced.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Source Reduction (Continued)	
Food Service	Food service facilities are significant generators of solid waste. Additional proven practices that can reduce the amount of waste generated include: • Purchasing local fresh food • Using reusable coffee filters • Using washable rags • Developing menus based on customer preferences to reduce the amount of wasted food • Working with vendors and suppliers to reduce packaging material of supplies • Encouraging the use of coffee mugs as opposed to disposable cups
Construction and Demolition Debris	Encourage deconstruction over demolition. By the selective dismantling or removal of materials from buildings prior to or instead of demolition, the following may be realized: • Lower building removal costs based on salvage value vs. avoided disposal costs • Increased diversion of building materials into reuse or recycling
Pallets	MCIEAST-MCB Camp Lejeune actively recycles pallets through either direct reuse or transfer to the T&P Facility. The Base can continue to reduce the number of pallets requiring management by requiring suppliers use: • Pallets only when necessary • Reusable shipping containers as opposed to pallets • Standard pallets (single wing stringer or flush style stringer) to reduce the chance of damaging the pallet and to provide a more readily reusable pallet

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Solid Waste Collection	
Waste Characterization Project with GIS Component	An investigation to provide an updated solid waste characterization for the Base and to gather solid waste container pickup volume data would facilitate future collection optimization projects. In conjunction with this effort, EMD should work with Geographic Information System (GIS) personnel to enlist their aid in route collection optimization. By employing ArcGIS Network Analyst tools and entering existing solid waste and recyclables routes into the MCIEAST-MCB Camp Lejeune GIS, the Base can develop an origin-destination cost matrix that will derive the best routes possible between pickup locations (origin) and the Base Landfill facility (destination). Input and analysis of other parameters, such as capacity of the fleet vehicle and volume and type of waste at each pickup through the use of hand-held global positioning system (GPS) units, can also be evaluated to aid in finding the best routes for Public Works solid waste collection fleet. Optimizing collection routes in conjunction with an updated waste characterization / generation profile will ultimately improve solid waste management efforts through: • More efficient allocation of resources: Improved routing maximizes resource efficiency by ensuring waste is picked up when necessary (i.e., full dumpster vs. half-full dumpster pickup) and that the best pickup sequence is employed between each pickup and return to the Base Landfill. As the demand for employee resources is lessened by improved collection efficiencies, these resources can be shifted to recycling efforts at the MRF. • Increased segregation of recyclables from refuse: Improved analysis of waste generated at each location facilitates placement of the proper size and type of collection containers. Containers placed and tailored to the generation site increases customer convenience, which in turn makes the customers more likely to segregate recyclables. • Proper placement of collection containers: The right container at the right location promotes both efficient allocation of resources and increased segregation of recyclables. A prime example of this is the current “blue bin” collection sequence. Public Works resources could be reallocated by limiting individual blue bin pickup from the administrative offices of Commanding Generals and Directorate levels. Providing larger capacity, centrally located, recycling bins for administrative buildings or groups of buildings would result in increased recycling.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Solid Waste Collection (Continued)	
Increase/Replace Equipment and Increase Manpower	Providing new trucks and equipment would increase pickup capacity and optimize manpower use for collection and landfilling activities. Currently, the trucks and equipment used are not reliable enough to maintain the level of service needed. Of the twelve front loading garbage trucks, several are old and nearing the end of their serviceable life. Often, multiple trucks are out of service and cannot be used for the collection routes. Additionally, the roll-off trucks often need maintenance and cannot be used for their routes; there are only three trucks for the three routes, and all three are rarely in working condition at the same time. The roll-off routes also have limited drivers available. Additionally, some of the equipment used at the landfill is over 20 years old and is frequently in need of repair. Due to the limited number of trucks in working condition and limited manpower, 87 new front loader dumpsters for the collection of plastics are not being put into commission for Base-wide use. The purchase of additional trucks and hiring of staff would allow for improved recycling service and an increased diversion of plastics from the landfill.
Recycling and Reuse	
Barracks Recycling	Currently there is no organized recycling program at the barracks. Visual observation of the waste dumpsters at several barracks indicated a high percentage of potentially recyclable material including cardboard, aluminum cans, and plastic bottles. Placing and servicing recyclable containers at the barracks could recover these materials. Each resident could be issued a small blue recycling bin to maintain in their room. When full, the residents could transfer their recyclables to a centralized collection center at the barracks for pickup by Public Works. Additionally, recycling bins could be placed in common locations, such as lounges or laundry rooms with easy access for residents to drop off recyclables. For a Barracks Recycling Program to be successful, it must be convenient for the residents. Due to the high turnover rate of Base residents, a successful program must also have dedicated staff to take ownership of the program and reinforce the benefits of recycling to the residents and monitor resident participation. Due to a lack of manpower at the Base Landfill & Recycling Center, allocating resources to pick up recyclables at the barracks and Bachelor Enlisted Quarters (BEQ) is not currently a feasible option. An assessment of equipment and funded positions required should be conducted to determine feasibility of a barracks/BEQ recycling program.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Recycling and Reuse (Continued)	
Expansion of DoD Schools Recycling	The DoD schools currently have a recycling program that includes paper, plastic, and cardboard. Additionally, the after school programs collect these recyclables and deliver them to the Base Landfill. Expansion of the school recycling program to include aluminum, glass, Styrofoam, and the collection of food waste for composting would increase solid waste reduction at the schools and possibly revenues if aluminum were collected and sold.
Monitor Contractors to Ensure C&D Debris is Recycled	Contracting language has been improved to require that contractors for construction, demolition and/or renovation projects on Base who use the Base Landfill follow procedure for acceptance of wastes and management of recyclables. However, the contractors are not being monitored to ensure adherence to recycling requirements, and there is no system in place to track which contracts require recycling and allow use of the Base Landfill. Construction contracts include clauses requiring contractors transferring wastes off-site to provide 1) a copy of their solid waste permit for the off-site facility, and 2) weights of all wastes either disposed or recycled. Contracts should be monitored more closely to ensure compliance with these mandatory recordkeeping requirements. Tracking C&D debris more closely is necessary to promote recycling and to aid in the development of recycling metrics for the Base and for inclusion of recycling metrics in contracts. Additionally, for contracts that allow use of the Base Landfill, the Officer in Charge of Construction (OICC) office is responsible for sending a memo to the landfill to indicate that the contractor is allowed to utilize the landfill. A system that automatically produces these memos and sends them to the Base Landfill Clerk would improve efficiency at the landfill when these loads arrive. Alternatively, an Environemental Management System (EMS) Environmental Standard Operating Procedure (ESOP) could be developed to implement a clear procedure for drafting and sending these memos. Additionally, contract language could be added to promote diverting waste off-Base and using air curtain burning on project sites for land clearing debris.
Require Contractors to Use Base-Generated Recyclables	MCIEAST-MCB Camp Lejeune generates construction products (rip-rap, aggregate, compost, etc.) that could be used by contractors performing construction activities on Base. It is encouraged that contractors make use of these materials, and several recent contracts have utilized the construction products staged at the Treatment & Processing Facility. Additional contracts for construction work should include a requirement to utilize Base-generated materials.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Recycling and Reuse (Continued)	
Research Options for Requiring Payment of Concrete Processing Contractor	Currently the contractor that processes (crushes) concrete stockpiled at the T&P Facility is paid by the Base for these services. Because the contractor is using this material to make salable products, it may be possible to require payment or to have a no-cost transaction with the contractor to save money for the Base.
Free Issue of Furniture at DLADS	Approximately 50% to 75% of usable wood furniture is sent to the landfill when it could be sold or issued during a monthly free issue day. Implementing a monthly free issue day would provide the opportunity for reuse of usable furniture; however, sufficient storage space needs to be provided to DLADS to make this a viable option for MCIEAST-MCB Camp Lejeune.
Improved Cardboard Collection	Cardboard is collected in dumpsters throughout the Base. During development of this SWMP update, many dumpsters were observed with the dumpster lids in the open position. Wet cardboard received at the Base Landfill is currently disposed of as garbage as it is difficult to bale, prohibiting off-site transfer by the current QRP cardboard recycler. Many dumpster lids are left open by Base personnel and improved education could increase awareness of the problem. Additionally, locking the lids and allowing access only through the side of each dumpster would potentially eliminate the problem, but becomes time-consuming for landfill staff during collection.
Increased Recycling at Military Family Housing	Currently the recycling program at Military Family Housing includes newspaper, magazines, cans (bi-metal and aluminum), glass, plastic, white goods, cardboard, and yard waste. This includes all readily recyclable material. MCIEAST-MCB Camp Lejeune can increase the participation rate by providing additional educational activities that emphasize recycling and larger recyclable storage containers.
Composting of Food Waste at Dining Facilities	The dining facilities at MCIEAST-MCB Camp Lejeune produce a large amount of food waste that could be diverted from the Base Landfill through composting or recycling. Composting organic matter from dining facilities has been done at several military installations across the country and includes an education component to educate Base personnel and dining facility staff. Once personnel have been educated and food waste is being sorted between organic and inorganic material, it can then be transported to the composting area or can be composted at each dining facility. Several companies specialize in equipment that allows on-site composting at each individual facility. A full study and plan to institute composting activities at the Base dining facilities is recommended prior to beginning such a project.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Recordkeeping	
CompuWeigh Training for Base Landfill Personnel	The software program CompuWeigh is currently used by the Base Landfill for recordkeeping and data management. Based on discussion with Public Works staff, further training on the CompuWeigh program would be beneficial to its further use. The Paradigm Software website provides many options for training, including training materials on their website for registered users, on-site training, and webinars.
Software System for Solid Waste Annual Data Call Reporting Data	EMD is currently using an Excel spreadsheet and does not have a procedure in place to ensure data is tracked and calculated consistently each year for the Solid Waste Annual Data Call reports. It is recommended that EMD consider using a solid waste reporting tool such as the Solid Waste Annual Reporting (SWAR) software or another database and reporting tool created specifically for this purpose. SWAR for Installations is a user-friendly database system that tracks data relevant to solid waste management. The SWAR-Base software package is designed to provide a tool for tracking solid waste handling information at the activity level. These data include disposal sites, disposal and recycling transactions, recycling revenues, and recycling program management. Solid waste data collected throughout a fiscal year can then be uploaded/exported to the major claimant/command to fulfill the reporting requirement and to track compliance with DoD waste reduction and recycling goals. Alternatively, EMD could use a software or consulting firm to develop practical recordkeeping and database software to meet their needs.
Development of a Solid Waste Annual Data Call Reporting ESOP	EMD is currently using an Excel spreadsheet and does not have a procedure in place to ensure data is tracked and calculated consistently each year for the Solid Waste Annual Data Call reports. During this update, it was noted that there are discrepancies between the solid waste quantities reported in the Solid Waste Annual Data Call, the annual reports submitted to NCDENR, and the data exported from the CompuWeigh system. The development of EMS ESOP specifically for the development of the Solid Waste Annual Data Call report should be considered. The procedure could clearly outline what types of data are included in the calculations, where and when the data can be obtained, entities responsible for collecting and generating necessary data, and methods for checking data for compliance with the written procedures.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Education	
Dumpster Safety Training	Base Landfill & Recycling Center personnel identified that dumpster safety awareness is an issue on Base. On Base residents, particularly in BEQ, often compromise their own safety and the safety of the dumpster truck operators by walking under dumpsters when they are being lifted by the trucks to empty or by parking inappropriately close to dumpster areas. Dumpster/dumpster truck safety training could be included in formal general environmental or EMS training already in place or in a relaxed format in the Base newspaper.
Social Media	Utilizing social media as an education tool for both on-Base and off-Base personnel. Not only can Facebook and Twitter be used to promote community events, such as Earth Day, they can also be utilized for providing public service messages regarding solid waste. Also, social media can be used to facilitate a Base-wide discussion on solid waste practices, providing an open forum for the Base to ask about acceptable recyclables, how to dispose of electronics or hazardous materials, or handling damaged furniture, as an example.
Barracks Recycling Program	Implementing a barracks recycling program, which includes recycling pickup and education, would further promote the importance of recycling materials at both work and home.
Awards	Awards acknowledging neighborhoods, active military, and civilian employees who have made a significant impact on the environment through wise solid waste practices is suggested to encourage greater participation and creativity. Signs could be installed at the entrance of neighborhoods and units that have met or exceeded recycling goals. Awards could also be made during Earth Day ceremonies to help spur greater participation.
Additional Training for Contractors	Base Landfill & Recycling Center personnel identified a gap between information provided to contractors in both the Contractor Environmental Guide (2008) and the pre-construction meetings. Additional in-depth training in procedures at the landfill as well as general solid waste and recycling practices could assist in further diversion of contractor waste from the landfill. Providing an online training course for contractors could prove helpful in further education of contractors. As they account for over 50% of solid waste generated on Base, additional training in these areas could only help decrease waste produced by Base contractors. Furthermore, creating an online portal for contractors to track their waste and obtain resources for proper waste management would be helpful to landfill staff and contractors alike.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Education (Continued)	
Source Reduction Education Activities	Educate Base residents about the benefits of source reduction and the measures they can take to reduce the amount of waste consumed through Environmental Protection Agency (EPA) publications such as The Consumers Handbook for Reducing Solid Waste, which could be applicable to Military Family Housing residents. Include solid waste reduction measures in educational materials related to recycling and pollution prevention that are already distributed during Earth Day activities, electronics turn-in day and the Energy Fair, and other venues.
Procurement	
Training	Training procurement personnel on the benefits and availability of purchasing sustainable products is important to maintain compliance with federal procurement mandates. MCIEAST-MCB Camp Lejeune could utilize already developed training information, such as the On-line Green Purchasing Training available at the Office of Personnel Management's GoLearn e-learning center, to train contracting personnel, purchase card holders, facility personnel, and product specifiers on green procurement requirements.
Targeted Items	MCIEAST-MCB Camp Lejeune requires a proactive use of recycled-content material by contractors. This approach is currently used with paving contractors, who are required to recycle excavated pavement. Each contractor should be required to price alternative recycled-content items in addition to their standard material. If the contractor does not bid an environmentally preferable alternate material, the contractor would be required to submit a reason in writing as to why an alternate was not bid. In addition, Public Works should include requirements for use of materials with recycled content in their specifications to the maximum extent practical. For example, contractors working on Base should be required to use Base-generated compost, when available, as soil conditioner for vegetating disturbed areas around new construction areas or for use in Base landscaping and grounds maintenance projects. The use of recycled concrete from the Base T&P Facility, when available, should also be required for Base construction activities where suitable.

Table ES-4. Future Opportunities for the Solid Waste Management Program

Recommendation	Description
Procurement (Continued)	
Tracking System	It is recommended that a tracking system be instituted for all materials addressed by Executive Order requirements and procured on Base. The Solid Waste Annual Report requires information on the amount of various materials and their respective recycled content purchased during the year. The materials addressed include: • Insulation • Motor oils • Cement and concrete • Paper products • Tires The tracking system should include information from both government direct purchases and purchases made by contractors on behalf of MCIEAST-MCB Camp Lejeune. The tracking system should be set up to gather data on quantities purchased, total costs, and recycled content.
Public Participation	
Participate in Onslow County SWMP Development	North Carolina General Statute (NCGS) 130A-309.9A requires local governments, including counties, to involve the public and incorporated municipalities in the development of their SWMPs. Although NCGS 130A-3209.9A does not apply to military installations (Brown, personal communication, 26 April 2012), it would be beneficial for MCIEAST-MCB Camp Lejeune and MCAS New River to participate in the Onslow County SWMP update process. It is recommended that EMD contact Onslow County concerning their involvement in future solid waste management planning and reporting activities.

This page intentionally left blank.

1.0 INTRODUCTION

The Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic has tasked URS Group, Inc. (URS) with preparing an updated Solid Waste Management Plan (SWMP) for Marine Corps Installations East-Marine Corps Base (MCIEAST-MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River. Developing and implementing a SWMP is a requirement for all Navy installations as outlined in Chief of Naval Operations Instructions (OPNAVINST) 5090.1C, *Navy Environmental and Natural Resources Program Manual* (2007) and Marine Corps Order (MCO) P5090.2A W/CH 1-2, *Environmental Compliance and Protection Manual* (2009).

The North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management (NCDWM) requires that local governments' SWMPs be updated at least once every three years (North Carolina General Statute [NCGS] 130A-309.09A). This requirement does not apply to military installations (Brown, personal communication, 26 April 2012); however, this SWMP has been updated to reflect the current status of the Solid Waste Management Program at MCIEAST-MCB Camp Lejeune and Marine Corps Air Station (MCAS) New River, effective for 2012-2015, and incorporates the topics outlined in the NCDWM guidance document, *Ten Year Solid Waste Management Plan Guide,* dated June 2011. Attachment A provides a cross-reference to indicate where topics recommended in the *Ten Year Solid Waste Management Plan Guide* are discussed in this SWMP.

1.1 Purpose

The purpose of this SWMP is to provide information to all Base personnel (both military personnel and civilians) regarding proper management of solid waste materials, excluding hazardous waste, generated at MCIEAST-MCB Camp Lejeune and MCAS New River. Since implementation of the original SWMP in 1995, MCIEAST-MCB Camp Lejeune has made significant progress toward successfully achieving federal, state, and Navy/Marine Corps solid waste management goals and mandates, which are referenced throughout this document. In an effort to further enhance the Base's solid waste management programs and activities, this update highlights MCIEAST-MCB Camp Lejeune's progress thus far and offers recommendations to help ensure success in meeting applicable solid waste management objectives.

A SWMP is required of all Navy installations by OPNAVINST 5090.1C (2007). In addition, Chapter 17 of MCO P5090.2A W/CH 1-2 (2009) requires the development of SWMPs and authorizes the development of source reduction plans and recycling plans as required. This SWMP, together with Base Order 5090.17, MCO P5090.2A W/CH 1-2 (Chapter 17), and OPNAVINST 5090.1C, is to be used by all Base personnel to determine the proper manner in which to handle solid waste materials generated aboard MCIEAST-MCB Camp Lejeune and MCAS New River.

1.2 Installation Description

MCIEAST-MCB Camp Lejeune is located within Onslow County, North Carolina, approximately 45 miles south of New Bern and 47 miles north of Wilmington. It covers approximately 246 square miles and is bisected by the New River, which flows into the Atlantic Ocean. MCIEAST-MCB Camp Lejeune is bordered by the City of Jacksonville, North Carolina, and State Route 24 to the north; the Atlantic shoreline to the south and east; and U.S. Route 17 to the west.

MCIEAST-MCB Camp Lejeune functions as the premier amphibious training facility on the Atlantic Coast. The II Marine Expeditionary Force (II MEF) and additional subordinate commands, including the 2nd Marine Division; 2nd Marine Logistics Group (MLG); 22nd, 24th, and 26th Marine Expeditionary Units (MEU); and the Marine Corps Forces Special Operations Command (MARSOC) are stationed at MCIEAST-MCB Camp Lejeune. MCIEAST-MCB Camp Lejeune's mission is to provide housing, training facilities, logistical support, and certain administrative support for tenant units and for other units assigned to the Base and to conduct specialized schools and other training maneuvers, as directed.

MCIEAST-MCB Camp Lejeune encompasses 156,000 acres that include 11 miles of beach capable of supporting amphibious operations, 32 gun positions, 48 tactical landing zones, three state-of-the-art training facilities for Military Operations on Urban Terrain, and 80 live fire ranges (MCIEAST-MCB Camp Lejeune, 2011).

The Base and surrounding suburbs include several distinct areas: Hadnot Point, French Creek, Camp Johnson, Camp Geiger, Courthouse Bay, Stone Bay, and the Greater Sandy Run Area. Hadnot Point includes the organizational offices for the Base, headquarters and regimental areas, the Exchange Annex and Commissary, and other recreational and cantonment areas. The French Creek area is located directly south of Hadnot Point and is occupied by the 2nd MLG. Activities of the 2nd MLG are directed toward providing combat service and technical support. Family housing areas are concentrated throughout the central portion of the Base and along the shores of the New River directly north of Hadnot Point. In addition, major personnel support facilities, including the Naval Hospital, school sites, recreational areas, as well as additional family housing areas (e.g., Tarawa Terrace) are all located in the north central portion of the Base.

Camp Johnson, previously known as Montford Point, is located in the north end of the Base and is the location of Marines' follow-on training. Camp Geiger, located northwest of Camp Johnson, is also a training facility and is the location of the School of Infantry for Marine Combat Training. Courthouse Bay, located on one of a series of small bays formed by the New River, is the home of the amphibious assault Marines and vehicles, the Marine Corps Engineer School, and Joint Maritime Training Center. The Greater Sandy Run Area is the location of rifle ranges and other training areas.

Onslow Beach is located along Onslow Bay east of the New River Inlet and provides assets for amphibious training as well as recreational use.

MCAS New River is located northwest of MCIEAST-MCB Camp Lejeune, approximately four miles south of Jacksonville, North Carolina. The mission of MCAS New River is to provide support for its tenant units, Marine Aircraft Group 26 (MAG-26) and MAG-29, which play a major role in support of the 2nd Marine Air Wing and 2nd Marine Division (Marine Corps USA website, 2012). Other operations at MCAS New River include air support activities, troop housing, and personnel support facilities, all of which surround the aircraft operations and maintenance areas.

1.3 Applicable Policies, Regulations, and Statutes

A myriad of Navy/Marine Corps policies along with federal and state regulations and statutes govern the management of solid waste at MCIEAST-MCB Camp Lejeune. Requirements identified by each regulation form the framework for development of this SWMP. Table 1-1 provides a summary of these requirements.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
Federal		
29 Dec 2000 (Amended)	10 United States Code (USC) 484 et seq., *Federal Property and Administrative Services Act of 1949*	This Act contains provisions on the sale of recyclable materials procured with appropriated government funds.
27 Dec 1977	33 U.S.C. 1251 et seq., *Clean Water Act (CWA) of 1977, as Amended*	This Act is the major federal legislation protecting surface water quality in the United States. This Act governs discharges of pollutants into waters of the United States and regulates quality standards for surface waters. The Act requires that point source discharges (including landfill leachate), industrial stormwater dischargers (including landfill runoff), and municipal separate storm sewer systems be permitted through the National Pollutant Discharge Elimination System (NDPES) program. The Act requires the development of water body-specific water quality standards and municipal and industrial wastewater treatment standards, and contains specific provisions for the regulation of the disposal of dredge soil within navigable waters and placement of material into wetlands.
1 May 1995	40 Code of Federal Regulations (CFR) 247, *Comprehensive Procurement Guideline for Products Containing Recovered Materials*	This regulation provides guidelines for the procurement of products containing recovered materials, establishes product categories, and recommends the recovered material content for those products.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
Federal (continued)		
5 Nov 1990	42 USC 13101 et seq., *Pollution Prevention Act (PPA) of 1990*	This Act establishes the national policy that pollution should be prevented at the source whenever feasible. Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.
20 Oct 1965	42 USC 3251 et seq., *Solid Waste Disposal Act (SWDA) of 1965, as Amended*	This Act requires that federal facilities comply with all federal, state, interstate, and local requirements concerning the disposal and management of solid wastes. The Act encourages the beneficial reuse of waste through recycling and burning for energy recovery and provides standards for the management of used oil.
21 Oct 1976	42 USC 6901 et seq., *Resource Conservation and Recovery Act (RCRA) of 1976, as Amended*	This Act gives the Environmental Protection Agency (EPA) the authority to regulate the generation, transportation, treatment, storage, and disposal of solid and hazardous wastes ("cradle-to-grave" management). The objective of Subtitle D of the Act is to assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources recoverable from solid waste. Subtitle D has mandatory technical standards for nonhazardous solid waste disposal facilities and recommends that states develop comprehensive plans to manage nonhazardous industrial solid waste and municipal solid waste, sets criteria for municipal solid waste landfill programs, and prohibits the open dumping of solid waste.
29 Dec 1959	7 CFR 330, *Federal Plant Pest Regulations; General; Plant Pests; Soil, Stone, and Quarry Products; Garbage*	This regulation prevents the dissemination of plant pests into the United States by regulating the movement of plant pests and the means of conveyance, earth, stone, and quarry products, garbage, and certain other products and articles into or through the United States.
16 Feb 1994	Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*	This order requires federal agencies to identify and address the potential for their programs, policies, and actions to disproportionately and adversely affect human health or environment in minority or low-income populations. The DoD Strategy on Environmental Justice, states that Restoration Advisory Boards (RABs) and Community Relation Plans (CRPs) are vehicles for implementation of environmental justice principles.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
Federal (continued)		
24 Jan 2007	EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*	This order calls for all federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. The head of each agency shall ensure that the agency reduces energy intensity, greenhouse gases (GHG), and the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of by the agency; uses alternative fuels and renewable power; enhances building performance, water conservation, pollution prevention, and procurement of environmentally sound goods; and implements the environmental management system.
5 Oct 2009	EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*	This order does not revoke or remove the requirements under EO 13423, rather it expands upon them. The main goal of this order is "to establish an integrated strategy towards sustainability in the federal government and to make reduction of GHG emissions a priority for federal agencies." Federal agencies are required to meet a series of deadlines critical to achieving the GHG reduction goals.
30 Jun 1980	Public Law 96-294, *Energy Security Act*	Includes provisions for municipal waste-to-energy facilities and the securing of loans to speed their implementation.
3 Apr 1990	Public Law 101-549, *Clean Air Act Amendments of 1990*	This Act is the major federal legislation concerning the control of the Nation's air quality. It requires the setting of National Ambient Air Quality Standards and the development of federal and state programs to achieve these standards through the control of air pollution sources. The Act also sets a standard for the control of asbestos fibers regulating its disposal in solid waste landfills.
6 Oct 1992	Public Law 102-386, *Federal Facilities Compliance Act of 1992*	This Act amends the Solid Waste Disposal Act (SWDA) to waive governmental immunity, subjects federal agencies to civil and administrative penalties, and requires payment of any nondiscriminatory charges that are assessed in connection with a federal, state, or local solid waste or hazardous waste regulatory program. The Act also provides Federally Owned Treatment Works with the same sewage exclusion from hazardous waste regulation as afforded to Publicly Owned Treatment Works and annual inspections of federal facilities by EPA or any state with an authorized hazardous waste program.
12 Jul 1982	Public Law 97-214, *Military Construction Codification Act of 1982*	This Act allows net proceeds from the sale of recyclable materials to be used for morale, welfare, and recreation (MWR) purposes by Marine Corps installations having Qualified Recycling Programs.
17 Oct 1986	Public Law 99-499, *Superfund Amendments and Reauthorization Act (SARA) of 1986*	This Act was enacted as an amendment to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). SARA addresses response actions at federal facilities by providing that all federal facilities are subject to and comply with CERCLA.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
State		
1969-2005	Article 9, Chapter 130A, North Carolina General Statutes (NCGS), *Solid Waste Management*	This article specifies the requirements for solid waste management within North Carolina. It encourages recycling and resource recovery to the greatest extent possible and sets a per capita waste reduction goal of 40% by 30 June 2006. Waste reduction is to be achieved through efforts based on the following activities: source education, material reuse, recycling, and composting. This article authorized the Department of Environment and Natural Resources to develop a permit system for the operation of solid waste management facilities and draft other regulations as necessary. This article requires local governments to develop a 10-year SWMP, updated every three years, with public participation. Local governments are also required to submit an annual report to the State by September 1 of each year that summarizes the solid waste management program and waste reduction activities conducted that year. At this time, military installations are not considered "local governments" and do not fall under the SWMP development and submittal requirements in 130A-309.9A (Brown, personal communication, 26 April 2012).
1 Feb 1976	15A North Carolina Administrative Code (NCAC) 02H .0100, *Point Source Discharges to the Surface Waters*	This rule requires permits for control of sources of water pollution by providing the requirements and procedures for application and issuance of state National Pollutant Discharge Elimination System (NPDES) permits for discharge from an outlet (e.g., stormwater outlet), point source (e.g., landfill leachate), or disposal system discharging to the surface waters of the state, and for the construction and operation of treatment works with such a discharge.
1 Apr 1982	15A NCAC 13B, *Solid Waste Management*	These rules specify the requirements of solid waste management for facilities in North Carolina and addresses management of hazardous and nonhazardous materials. They establish requirements for the transport, collection, storage, processing, and disposal of all types of solid waste. Permit requirements are included in these regulations as well as design standards for various types of facilities. These rules also address management of medical waste.
1 Jun 1988	15A NCAC 13C, *Inactive Hazardous Substance or Waste Disposal Sites*	This rule establishes a comprehensive scheme for participation in restoration/remedial activities. These are similar to the federal laws governing the Installation Restoration (IR) program. Often referred to as the state "Superfund" Program.
1 Feb 1976	15A NCAC 2H.0200, *North Carolina Non-Discharge Regulations*	These regulations govern the land application and reuse of wastewater sludge and establish the permitting, monitoring, and recordkeeping requirements for these activities.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
State-Issued Permits		
29 Aug 2011	Permit No. 67-08, *Permit to Construct Municipal Solid Waste Landfill (MSWL) Phase II Closure* (Expires 17 December 2013) and *Permit to Operate MSWL Existing Phase III Cell I Horizontal Expansion and New Phase III Cells 2 and 3I* (Expires 20 May 2014)	This permit, issued by NCDENR Division of Waste Management, Solid Waste Section, allows the Base to operate the Phase III landfill in accordance with Article 9, Chapter 130A of the General Statutes of North Carolina and all rules promulgated thereunder. The landfill is approved to accept up to 160 tons per day (47,400 tons of municipal solid waste per year). The permit also has conditions for daily cover, operator training, types of waste allowed, and monitoring and reporting requirements.
24 Jul 2006	Permit No. 67-11, *Permit to Operate Solid Waste Treatment and Processing Facility* (Expires 31 July 2011) (The renewal permit is currently under review by NCDENR Division of Waste Management, Solid Waste Section)	This permit, issued by NCDENR Division of Waste Management, Solid Waste Section, allows the Base to operate the T&P Facility in accordance with Article 9, Chapter 130A of the General Statutes of North Carolina and all rules promulgated thereunder. Permit conditions include requirements for leachate, stormwater runoff, materials allowed, groundwater monitoring, etc.
12 Jan 2010	Permit No. SWC-67-10, *Permit to Operate a Large, Type 4 Solid Waste Composting Facility* (Expires 12 Jan 2015)	This permit, issued by NCDENR Division of Waste Management, Solid Waste Section, allows the Base to operate the Composting Facility in accordance with Article 9, Chapter 130A of the General Statutes of North Carolina and all rules promulgated thereunder. Permit conditions include requirements for leachate, stormwater runoff, materials allowed, testing and reporting, dust control, windrow operating conditions, odor management, etc. Currently, the permit is in review with NCDENR to modify the composting facility from a Type 4 to a Type 3 facility.
Onslow County		
16 Jul 2007	*Solid Waste Ordinance of the County of Onslow, North Carolina*	This ordinance regulates the storage, collection, and disposal of solid waste in Onslow County, North Carolina, and governs areas of Onslow County that are outside the jurisdiction of any incorporated municipality.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
Department of Defense (DoD)		
1 Feb 2008	01 February 2008 Memorandum, *DoD Integrated (Non-Hazardous) Solid Waste Management Policy*	This memorandum implements the solid waste and recycling requirements of Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, by requiring all facilities to maintain waste prevention and recycling programs in the most cost-effective manner possible and setting solid waste diversion goals to be achieved by 2010 for the Department of Defense. This memorandum also implements the use of Integrated Solid Waste Management in order to achieve these goals.
27 Aug 2004	27 August 2004 Memorandum, *Establishment of the DoD Green Procurement Program (GPP)*	This memorandum formally introduces the Green Procurement Program for federal facilities. It defines green procurement as "the purchase of environmentally preferable products and services in accordance with federally mandated 'green' procurement preference programs." The memo also sets a goal of 100% compliance with mandatory federal GPP programs in all acquisition transactions, including acquisitions from major systems programs to individual unit supply and service requisitions.
Aug 2006	*Department of the Navy (DON) Environmental Restoration Program Manual*	This Manual applies to all DON Environmental Restoration (ER) and Munitions Response (MR) sites on active and Base Realignment and Closure (BRAC) installations in the United States. It summarizes the organization and responsibilities of DoD and DON offices and provides detailed discussions of terminology and procedures used in implementing the ER program including funding eligibility, priority setting, reporting, and information management systems.
1 Jun 1997	DoD Directive 5030.41, *Oil and Hazardous Substances Pollution Prevention and Contingency Program*	This directive implements the EPA regulations on Oil Pollution Prevention and establishes a DoD Oil and Hazardous Substances Pollution Prevention and Contingency Program.
2008	*DoD Electronic Stewardship Plan*	This plan addresses how DoD will implement electronics stewardship goals outlined in EO 13423. End-of-life management strategies include following Financial Management Regulation (FMR) guidance and DLADS requirements for the donation, sale, and recycling of electronics; donation of used electronics through the Computers for Learning program; utilizing recycling companies with environmentally sound management practices; and utilizing refurbishing companies with "take back" guarantees.
18 Jun1996	DoD Instruction 4715.4, *Pollution Prevention*	This instruction requires military departments to establish procedures that ensure all installations have, or participate in, a QRP to serve host and tenant organizations alike. Most importantly for QRP Managers, *DoD Instruction 4715.4* authorizes installations to directly sell recyclable and other qualified Recycling Program materials, or to consign them to the Defense Reutilization and Marketing Office (DRMO) (now referred to as the Defense Logistics Agency Disposition Services since July 2010) for sale.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
DoD (continued)		
24 Apr 1996	DoD Instruction 4715.6, *Environmental Compliance*	This instruction implements policy, assigns responsibilities, and prescribes procedures for achieving compliance with applicable executive orders and federal, state, interstate, regional, and local statutory and regulatory environmental requirements.
23 Apr 2009	*DON Strategy for Green Information Technology Electronic Stewardship and Energy Savings Strategy*	Policy memorandum that implements EO 13423, the DoD Electronic Stewardship Plan, and Secretary of the Navy Instruction (SECNAVINST) 5090.8A with regards to electronic stewardship and energy savings of information technology. The enclosure, DON Information Management Electronic Stewardship Criteria, requires the following waste minimization activities: • Reuse, surplus, or dispose of old equipment in accordance with appropriate procedures. Recycle print/toner cartridges. • Ensure that General Services Administration (GSA) or certified electronic recycling companies are used for disposal. • Ensure that component materials within purchased devices are capable of recycling in accordance with the Electronic Product Environmental Assessment Tool (EPEAT) Gold and the Institute of Electrical and Electronics Engineers (IEEE) 1680 requirements. • Ensure default double-sided printing settings on all duplication equipment, if available, without requiring the user to manually load the paper. • Ensure that new contract actions require contractors to provide printing devices that optimize the number of printed sheets before having to replace throw-away print/toner cartridges.
21 May 2009	MCO P5090.2A W/CH 1-2, *Environmental Compliance and Protection Manual, Chapters 15 and 17*	This MCO establishes Marine Corps policies and responsibilities for compliance with both statutory/regulatory requirements and the management of Marine Corps programs. Chapter 17, Solid Waste Management and Resource Recovery, of the MCO establishes Marine Corps policy and responsibilities for compliance with statutory and procedural requirements for solid waste disposal, waste minimization, recycling, and resource recovery requirements. Chapter 15, Pollution Prevention, of the MCO establishes Marine Corps policy and responsibilities for compliance with pollution prevention and Toxic Chemical Release Inventory (TRI) reporting requirements under the Emergency Planning and Community Right-To-Know (EPCRA) and the Pollution Prevention Act (PPA).
18 Jul 2011	OPNAVINST 5090.1C, *Environmental Readiness Program Manual*	This instruction discusses requirements, delineates responsibilities, and issues policy for the management of the environmental, natural, and cultural resources for all Navy ships and shore activities. Chapters 4 and 16 of the instruction address Pollution Prevention and Solid Waste Management and Resource Recovery Ashore, respectively, and require the development of a Solid Waste Management Plan and the submission of the Environmental Portal (EPR Portal) Solid Waste Annual Data Call report.

Table 1-1. Applicable Regulations, Policies, and Statutes

Date	Regulation	Requirement
DoD (continued)		
30 Jan 2006	SECNAVINST 5090.8A, *Policy for Environmental Protection, Natural Resources, and Cultural Resources Programs*	Re-issues policy and assigns responsibilities within the DON concerning environmental protection, natural resources, and cultural resources programs. The instruction states that it is DON policy to "achieve and maintain compliance through pollution prevention measures wherever practical" and "program and budget sufficient resources to support all compliance."
1 Nov 2005	SECNAVINST 5720.44B, *Public Affairs Policy and Regulations*	This instruction provides basic policy and regulations for carrying out the public affairs and internal relations programs of the DON.
Apr 2009	User Guide UG-2084-ENV, *Integrated Solid Waste Management Plan (ISWMP) Guide. Naval Facilities Engineering Service Center.*	This guide provides a generic framework for developing and implementing an Integrated Solid Waste Management Plan at Navy installations.

2.0 DEFINITIONS

Definitions for common solid waste management terms are provided below:

Ash. The noncombustible material that remains after a fuel or solid waste has been burned. Ash is produced aboard MCIEAST-MCB Camp Lejeune by the steam generation plant.

Backyard composting. The composting of organic solid waste, such as grass clippings, leaves, or food waste, that is typically generated by a homeowner and composted at the homeowner's dwelling.

Baler. A machine used to compress recyclable materials into bundles to reduce volume. Balers are often used for aluminum cans, food and beverage cans, plastics, and corrugated cardboard.

Collection station. Any location on Base where solid waste is collected in appropriate containers for routine disposal or recycling.

Commercial solid waste. Solid waste generated by commercial enterprises, including offices, stores, retail and wholesale outlets, office buildings, hospitals (non-infectious solid waste), and other commercial facilities that would generate solid waste.

Composting. The controlled biological decomposition of organic matter (e.g., yard trimmings) in the presence of oxygen into a humus or soil-like material.

Composting Facility. The composting site aboard MCIEAST-MCB Camp Lejeune that is located across Piney Green Road adjacent to the T&P Facility.

Construction and demolition debris. Solid waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land clearing debris, or yard debris.

Curbside collection. Programs in which recyclable materials are collected at the curb, often from special containers, and then taken to various processing facilities.

E-waste. Discarded electrical or electronic devices.

Final cover. The materials used to cover the top and sides of a landfill when fill operations cease and that are designed to minimize rainfall infiltration into the landfill after closure.

Financial assurance. Proving the financial ability to close and provide long-term care for a solid waste management facility after operations have ceased.

Hazardous waste. Waste material that meets the criteria listed in 40 CFR 261.3 or is designated locally or by the state as hazardous or undesirable for municipal solid waste handling and would, therefore, need to be treated as regulated hazardous waste if not from a household.

Household hazardous material. Waste materials generated by residential activities that could cause harm to humans or the environment if improperly managed. Household hazardous material includes unused household solvents, cleaning agents, paints, dyes, petroleum products, and pesticides. Household hazardous material is not subject to federal disposal requirements for hazardous waste but can be distinguished from household solid waste and properly managed to reduce environmental harm.

Industrial solid waste. Non-process related solid wastes, which are similar in physical, chemical, and biological characteristics to commercial and residential solid waste generated by offices, warehouses, cafeterias, and shipping activities in industrial operations.

Institutional solid waste. Solid waste generated by social, charitable, and education activities.

Integrated Solid Waste Management. Includes a hierarchy employed for solid waste management that helps ensure resource conservation environmental protection to the maximum extent possible. The hierarchy is as follows:

- Source Reduction
- Reuse
- Donation
- Recycling
- Composting/Mulching
- Incineration for Volume Reduction with Energy Recovery
- Other Forms of Volume Reduction
- Landfilling

Landfilling. The disposal of solid waste at engineered facilities in a series of compacted layers that are covered with a layer of soil each day to minimize vectors and air pollution. Fill areas are prepared to prevent nuisances or public health hazards, and clay and/or synthetic liners are used to prevent releases to groundwater consistent with state and federal regulations.

Landfill gas. A mixture of primarily methane and carbon dioxide that is generated in a landfill by the anaerobic decomposition of organic wastes.

Leachate. Any liquid, including any suspended components in liquid, that has percolated through or drained from solid waste.

Materials Recovery Facility (MRF). The recycling center aboard MCIEAST-MCB Camp Lejeune that is located adjacent to the Subtitle D Landfill, which processes the recyclable materials.

Municipal solid waste (MSW). Household waste, garbage, commercial solid waste, nonhazardous sludge, conditionally exempt small quantity hazardous waste, and industrial solid waste.

Pollution prevention. The use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source, including practices that reduce the use of hazardous materials, energy, water, or other resources, and practices that protect natural resources through conservation or more efficient use.

Post-closure care. A procedure of maintaining the environmental controls and appearance of a landfill after it has ceased operations. This period is also known as long-term care and can last up to 30 years after the landfill has been closed.

Qualified Recycling Program (QRP). An organized operation, established under Base Order 5090.17 and Department of Defense Instruction (DODI) 4715.4, that requires concerted efforts in recycling, recovering, identifying, segregating, and enhancing the marketability of materials for the purpose of returning the proceeds from the sale of recyclable materials to the generating military installation.

Recyclable material. Materials that are normally discarded (e.g., scrap and waste) that may be reused after physical or chemical reprocessing. Such materials do not include precious metal-bearing scrap or items that may be used again for their original purposes or functions without any special processing (e.g., used vehicles, vehicle or machine parts, bottles that are not scrap glass, electrical components, unopened containers of unused oil or solvent). Recyclable materials also do not include ships, planes, weapons, or any discarded material that must undergo demilitarization or mutilation prior to sale.

Recyclable Material Collection Site. A designated area where recyclable materials are deposited in recycling collection containers, typically located outside the building in which the materials are generated, per the provisions of Base Order 5090.17.

Recycling. The process by which materials are collected and used as raw materials for new products. The process consists of four steps: collect the recyclable solid waste components, separate by type (before or after collection), process them into reusable forms, and purchase and use the goods made with reprocessed materials.

Residential solid waste. Solid waste generated by households (both individual and multiple family dwellings).

Reuse. A process by which resources are reused or rendered usable.

Satellite Recycling Collection Site. A designated area, serving a number of buildings, where recyclable materials are deposited in containers per the provisions of Base Order 5090.17. The currently operating satellite recycling collection sites aboard MCIEAST-MCB Camp Lejeune are:

- Base Landfill & Recycling Center
- Courthouse Bay: Engineer School Support Services

- Camp Johnson, Combat Service Support Schools
- MCAS New River, Environmental Affairs Department

Solid waste. Any nonhazardous garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, institutional, commercial, mining, and agricultural operations, and from community activities. The term does not include solid or dissolved material in domestic sewage; solid or dissolved material in irrigation return flows; industrial discharges that are point sources subject to NPDES permits under the Clean Water Act; or source specific nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. Sec 2011). The regulatory definition of "solid waste" is provided in 40 CFR Part 261.2, and includes hazardous waste. The definition has been narrowed for the purposes of this document, which is intended to address only nonhazardous solid waste.

Source reduction. Reducing at the point of production the volume or toxicity of material used before products are purchased, used, or discarded. This includes reuse of materials, items, or products prior to recycling and extension of shelf life. Source reduction can help to reduce the amount of waste generated and thereby reduce waste disposal and handling costs; it can also serve to conserve resources and reduce pollution.

Source separation. The segregation of recyclable materials from nonrecyclable materials at their point of generation by the generator.

Subtitle D Landfill. A landfill that accepts municipal solid waste and nonhazardous industrial waste according to the criteria in Subtitle D of the Resource Conservation and Recovery Act.

Tipping fee. A fee charged for the unloading or dumping of material at a landfill, transfer station, recycling center, or waste-to-energy facility, usually stated in dollars per ton.

Treated regulated medical waste. Regulated medical waste that has been treated by a process, such as incineration, steam sterilization, or chemical sterilization, to substantially reduce or eliminate its potential for causing disease.

Treated, painted, or stained wood waste. Solid waste consisting solely of lumber that has been painted or treated with either stain, creosote, chromated copper arsenate (CCA), pentachloraphenol (PCP), or other similar coatings.

Treatment & Processing (T&P) Facility. The facility where C&D waste, untreated wood waste, and yard waste are staged, treated, and processed. The facility is located adjacent to the Composting Facility on Piney Green Road.

Untreated wood waste. Solid waste consisting of lumber, tree debris, pallets, plywood, or other similar construction materials, excluding treated, painted, or coated lumber and all products incorporating treated lumber into the construction (e.g., furniture).

Waste reduction. A broad term encompassing all waste management methods, such as source reduction, recycling, and composting, that result in reduction of waste transferred to a combustion facility or landfill.

Yard waste. Vegetative matter resulting from landscaping maintenance or land clearing operations, including tree shrub trimmings, grass clippings, palm fronds, trees, and tree stumps.

This page intentionally left blank.

3.0 SOLID WASTE MANAGEMENT PROGRAM OVERVIEW

The Solid Waste Management Program at MCIEAST-MCB Camp Lejeune is implemented primarily via the collaborative efforts of Public Works, DLADS, and the EMD. Together, these entities work to manage the solid waste program at the Base with an emphasis on the diversion of waste disposed to the maximum extent practicable by employing the solid waste hierarchy.

A QRP has been implemented that sets the requirements for solid waste reduction, pollution prevention, and management of recyclable material at MCIEAST-MCB Camp Lejeune. Base Order 5090.17 establishes the guidelines for the management and implementation of the QRP and plays a pivotal role in the goals and management activities outlined in this SWMP. Recycling facilities on Base include a MRF, satellite collection sites for recyclable materials, a T&P facility, and a composting facility. Waste materials that are not reused or recycled through Base-sponsored programs are disposed of at a 60.6 acre Subtitle D Landfill on Base.

Implementation of the QRP and a focus on diverting solid waste has proven to be cost-effective for MCIEAST-MCB Camp Lejeune, as indicated in Table 3-1.

Table 3-1. FY11 Cost Summary of Solid Waste Management

	Diverted (Recycle & Compost)	Landfill/Disposal	Total
Tons	65,395	34,124	99,519
Total Cost	$1,013,135	$1,852,035	$2,865,170
Revenue	$2,300,044	$0	$2,300,044
Net Cost	$(1,286,909)	$1,852,035	$565,126
Net Cost Per Ton ($/ton)	$(20)	$54	$6

Note: Data was obtained from the 2011 Solid Waste Annual Data Call report and includes other select waste. Dollar amounts shown in parenthesis indicate revenue generated.

3.1 Program Goals and Vision Statement

MCIEAST-MCB Camp Lejeune's Solid Waste Management Program was developed to ensure the Base successfully satisfies federal, state, and Marine Corps solid waste management goals and objectives. The current waste management programs and activities aboard MCIEAST-MCB Camp Lejeune have allowed the Base to move progressively toward realizing applicable present and future solid waste management requirements.

As programs and activities are evaluated and enhanced to minimize waste generation and increase diversion, it is essential that the following solid waste management goals established by the Base along with applicable regulatory requirements inform the decision process:

1. Providing centrally managed guidance on solid waste reduction, recycling, collection, and disposal.
2. Setting forth procedures to achieve or exceed the DoD solid waste reduction goals of diverting 50% of total non-hazardous Base-generated solid waste generated each year

(DoD Goal 5.2) and diverting 60% of the total C&D debris generated each year (DoD Goal 5.3) by 2015 (DoD, 2011).

3. Implementing a policy that establishes a program for reducing the use of printing paper and actively implementing that policy by 2014 in support of DoD solid waste minimization goals (DoD Goal 5.1) (DoD, 2011).
4. Outlining a plan of action to assist in the achievement of North Carolina's goal of sustainably increasing the amount of waste diverted from the waste stream through recycling and composting (NCDENR, 2005).

3.1.1 DoD Goals

DoD has established critical success factors, also known as Measure of Merits (MoMs), for waste management that apply to all U.S. military facilities. To monitor waste management performance throughout the DoD, MoM reduction goals were originally established in a 16 May 1995, memorandum by the Deputy Undersecretary of Defense. This MoM, which employed a 1992 dataset baseline, required a 50% reduction in the amount of non-hazardous solid waste landfilled by 31 December 1999.

The 1995 MoM was superseded by a 13 May 1998 memorandum stipulating that by the end of FY 2005, Defense Agencies must "ensure the diversion rate for non-hazardous solid waste is greater than 40%, while ensuring integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using landfilling and incineration alone." EO 13423, dated 26 January 2007, required that federal agencies increase diversion of solid waste as appropriate, but no quantitative targets were set.

EO 13514, dated 8 October 2009, set new requirements for environmental stewardship and sustainability, including pollution prevention and solid waste elimination. The FY 2011 DoD Strategic Sustainability Performance Plan (SSPP) provides a DoD-wide approach for implementing the requirements outlined in EO 13514 and establishes the following goals for solid waste reduction and management:

Goal 5.1 All DoD components implementing policies by FY 2014 to reduce the use of printing paper

Goal 5.2 Diversion of 50% of non-hazardous solid waste from the waste stream by FY 2015 and thereafter through FY 2020 (starting with a target of 40% by FY 2010 and increasing by 2% each year through 2015)

Goal 5.3 Diversion of 60% of C&D debris from the waste stream by FY 2015 and thereafter through FY 2020 (starting with a target of 50% by FY 2010 and increasing by 2% each year through 2015)

Goal 5.4 Ten DoD landfills or wastewater treatment facilities recovering biogas by FY 2020

Table 3-2 presents the Base's quantities of waste generated, diverted, and disposed; percentage reduction compared to the 1992 baseline; and percentage diverted for 1992-2011. It also

demonstrates the Base's performance compared to the 1995 MoM, the 1998 MoM, and DoD Goal 5.2 since the 1992 baseline. Table 3-3 shows the Base's C&D debris diversion and performance compared to DoD Goal 5.3 for 2007-2011.

Table 3-2. Waste Reduction and Diversion

Year	Waste Generated	Waste Recycled	Waste Composted (thousand tons)	Waste Diverted	Waste Disposed	% Reduction (1992 Baseline)	1995 MoM	% Diverted Annually	1998 MoM/ DoD Goal
1992	70.7	7.6	N/A	7.6	63.1	0%	-	11%	-
1993	54.5	12.4	N/A	12.4	42.1	33%	-	23%	-
1994	53.7	18.9	N/A	18.9	34.8	45%	-	35%	-
1995	55.8	29.7	N/A	29.7	26	**59%**	50%	53%	-
1996	71.2	36.2	N/A	36.2	34.9	45%	50%	51%	-
1997	71.4	38.7	N/A	38.7	32.7	48%	50%	54%	-
1998	90.2	37.2	N/A	37.2	53	16%	-	**41%**	>40%
1999	72.2	33.5	N/A	33.5	38.7	39%	-	**46%**	>40%
2000	68.7	31.6	N/A	31.6	37	41%	-	**46%**	>40%
2001	83.2	37.8	N/A	37.8	45.4	28%	-	**45%**	>40%
2002	78.3	30.8	N/A	30.8	47.5	25%	-	39%	>40%
2003	76.3	33.8	N/A	33.8	42.5	33%	-	**44%**	>40%
2004	100.4	52.5	N/A	52.5	47.9	24%	-	**52%**	>40%
2005	84.9	32.6	N/A	32.6	52.3	17%	-	38%	>40%
2006	83	33.7	N/A	33.7	49.3	22%	-	**41%**	>40%
2007	77.3	23.8	0.5	24.3	52.9	16%	-	32%	>40%
2008	102.9	44.5	1.1	45.6	57.3	9%	-	**44%**	>40%
2009	103.0	48.8	2.6	51.4	51.6	18%	-	**50%**	>40%
2010	130.8	69.3	2.1	71.4	59.4	6%	-	**55%**	40%
2011	99.5	63.5	1.9	65.4	34.1	46%	-	**66%**	42%

Notes:

1. Data for 1992-2006 was obtained from the 2008 SWMP and does not include DECA and MCCS recycling quantities. Data for 2007-2011 was obtained from Solid Waste Annual Data Call reports for those years and includes other select waste data.
2. 1995 MoM is a 50% reduction in the amount of non-hazardous waste landfilled by 1999, which was superseded in May 1998. The 1998 MoM is diversion of greater than 40% of non-hazardous waste. The DoD goal referenced is Goal 5.2: diversion of 50% of non-hazardous solid waste from the waste stream by FY 2015 and thereafter through FY 2020 (starting with a target of 40% by FY 2010 and increasing by 2% each year through 2015).
3. **Bold** values indicate that the relevant solid waste minimization goal was met or exceeded.

Table 3-3. C&D Diversion

Year	C&D Waste Disposed (tons)	C&D Waste Recycled (tons)	Total C&D Waste Generated (tons)	% Diverted Annually	DoD Goal 5.3
2007	8,994	13,204	22,198	**59%**	N/A
2008	14,081	27,613	41,694	**66%**	N/A
2009	5,496	26,642	32,138	**83%**	N/A
2010	20,184	55,103	75,288	**73%**	50%
2011	3,246	49,190	52,436	**94%**	52%

Notes:

1. Data was obtained from other select waste values in the Solid Waste Annual Data Call reports for 2007-2011.
2. DoD Goal 5.3: Diversion of 60% of C&D debris from the waste stream by FY 2015 and thereafter through FY 2020 (starting with a target of 50% by FY 2010 and increasing by 2% each year through 2015).
3. **Bold** values indicate that the relevant solid waste minimization goal was met or exceeded.

As illustrated in Table 3-2, the Base has consistently met or exceeded the applicable DoD non-hazardous solid waste diversion goals since 1998, with the exception of three years (2002, 2005, and 2007), which were only 1-5% below the goal. The data used to calculate the solid waste diversion percentages for years 1992-2007 do not include recycling data for DECA and MCCS, who are significant recyclers of cardboard and other materials. This may have contributed to the Base missing their diversion goals these three years. Since 2007, the Base has been extremely successful in the diversion of C&D waste from the landfill, exceeding the ultimate DoD goal of 60% diversion nearly every year. This indicates that waste minimization practices employed by the Base as part of the QRP have been successful and will likely continue to result in the Base meeting their goals.

3.1.2 State Goals

The North Carolina General Statutes (Chapter 130A, Article 9, 130A-309.04) encourage source reduction, reuse, recycling, and composting. They set a per capita waste diversion goal of 40% by 30 June 2001, compared to a 1992 baseline. In the 2003 update to the North Carolina Solid Waste Management Plan, the state set a goal to increase the amount of waste diverted from landfills through recycling and composting, but did not assign a quantitative goal. MCIEAST-MCB Camp Lejeune has implemented many waste diversion programs that keep them on track with the goals of North Carolina. Such activities have steadily decreased the amount of solid waste disposed of at the Base Landfill, as demonstrated in Table 3-2.

3.1.3 County Goals

Requirements related to the disposal and storage of solid waste in Onslow County are documented in the Solid Waste Management Ordinance of the County of Onslow, North Carolina (Onslow County, 2007). In 2009, Onslow County updated their Ten Year Solid Waste

Plan and set a waste reduction goal of 2% by FY 2013 and 5% by FY 2016 (Onslow County, 2009). The county does not include MBC Camp Lejuene's solid waste data in their totals. The county plans to achieve these goals predominantly through diversion of residential waste through source reduction, recycling, and reuse (Onslow County, 2009). The county operates a curbside recycling program that allows residents to recycle newspapers, aluminum and metal cans, paper, cardboard, and plastic containers. A county program, "Keep Onslow Beautiful," aims to engage individuals to take greater responsibility for improving their community environments through teaching citizens about the environment, environmental laws, environmental quality, and how to protect the environment. The program also encourages environmental stewardship and creates programs to encourage recycling and waste reduction goals.

3.2 Roles and Responsibilities

To ensure proper management of solid waste, delineation of responsibilities, authorities, and accountability of involved personnel is essential. Management of solid waste aboard MCIEAST-MCB Camp Lejeune is an intricate, multifaceted program requiring the participation and cooperation of all commands located at the Base.

Figure 3-1, located at the end of this section, provides an organizational chart of MCIEAST-MCB Camp Lejeune's Solid Waste Management Program responsibilities. This figure summarizes the specific roles of each Department/Division Director as discussed in the following sections and formalized within Base Order 5090.17.

Figure 3-2, located at the end of this section, presents an overview of material responsibilities and is intended to be used as a quick reference for the proper management of specific materials generated aboard MCIEAST-MCB Camp Lejeune.

3.2.1 Commanding General, MCB, Camp Lejeune

The Commanding General is responsible for the implementation of solid waste reduction and management and qualified recycling programs that meet federal, state, Navy/Marine Corps, and local regulations and directives.

3.2.2 Director, Installation, Facilities, and Environment Department

The primary responsibility of the Director, Installation, Facilities, and Environment (IF&E) Department is to exercise staff cognizance for the solid waste reduction and QRP aboard MCIEAST-MCB Camp Lejeune and MCAS New River. Development of the SWMP is directed by the Director, as is the development of plans addressing special wastes such as recyclable materials and wastewater sludge. Other specific duties of the Director, Installation and Environment Department follow:

- Serve as command point of contact for the SWMP
- Operate the Pollution Prevention Program

- Oversee Base compliance with regulatory requirements for the solid waste management program
- Educate Base personnel on the solid waste management program

Solid Waste Working Group

The Solid Waste Working Group is administered by the Base Environmental Management System Coordinator under the Director, EMD. The primary focus of the group is successful management of solid waste and implementation of the QRP. Other group responsibilities follow:

- Identify additional potentially recyclable materials generated on Base
- Ensure improvement of existing programs, including collection procedures, storage practices, and marketing efforts through the United States Marine Corps (USMC) EMS used aboard MCIEAST-MCB Camp Lejeune
- Participate in promotional and educational efforts regarding solid waste management and support such efforts made by other units aboard MCIEAST-MCB Camp Lejeune
- Monitor progress towards meeting solid waste and recycling goals implemented as objectives and targets within the EMS

The Solid Waste Working Group meets quarterly to address solid waste management issues and is composed of representatives from the following organizations:

- Base Environmental Management Division
- Base Public Works Division (PWD)
- MCAS New River Environmental Affairs Division
- DLADS-Lejeune Recyclable Property Disposal Specialist
- MCIEAST-MCB Camp Lejeune Officer in Charge of Construction (OICC)

3.2.3 Director, Public Works Division

The PWD is an integral part of the solid waste management system at MCIEAST-MCB Camp Lejeune. Personnel from Public Works operate many of the solid waste facilities located aboard MCIEAST-MCB Camp Lejeune. Specific responsibilities of the Director, Public Works Division, are the following:

- Properly manage and collect Base generated solid waste
- Operate, maintain, repair, and replace the Base's Subtitle D Landfill and associated equipment in a manner, which promotes the goals and objectives of the SWMP
- Use materials generated at the Treatment and Processing Facility and Composting Facility, i.e. mulch, compost, gravel, rip-rap, etc., where appropriate, prior to purchasing these materials off-Base
- Incorporate provisions into construction and service contracts that implement the goals and objectives of EO 13514

Various programs to manage particular materials, such as office paper recycling and satellite recycling collection sites located around the Base, are planned and implemented by the Solid Waste Services section of PWD. Public Works has the responsibility to furnish the QRP with sufficient resources (i.e., adequate personnel, equipment, and contract services) to carry out the following activities:

- Ensure timely pickup of recyclable materials from Recyclable Material Collection Sites and Satellite Recycling Collection Sites
- Ensure that Recyclable Material Collection Sites are maintained in such a manner as to prevent the creation of nuisance and unsanitary conditions, or a potential public health hazard
- Process recyclable materials in a timely and effective manner so that the materials can be successfully marketed
- Provide a work request center for calls on recyclable material pickup and technical assistance

Other specific duties of the Solid Waste Services section of Public Works are the following:

- Collect recyclable materials from designated locations
- Operate treatment and processing facility and equipment
- Operate solid waste composting facility and equipment

3.2.4 Director, Marine Corps Installation East (MCIEAST) Comptroller

The Director, MCIEAST Comptroller is responsible for overall budgeting for MCIEAST-MCB Camp Lejeune and MCAS New River. Solid waste management activities including personnel, vehicles, and equipment requirements must be properly funded to ensure protection of public health and the environment and to meet regulatory and military mandates. Specific responsibilities of the MCIEAST Comptroller are the following:

- Provide proper consideration to the goals and objectives of the solid waste management program when allocating operating funds
- Establish accounting records and procedures for collection of funds from the sale of recyclable materials and disbursement of funds for operation of the Pollution Prevention Program
- Coordinate with the Defense Finance and Accounting Service to provide records of collections and disbursements as needed to satisfy budgeting requirements

3.2.5 Director, Base S-4/S-6/BPO

As one of the major purchasers, and therefore generators of solid waste, the Base Property Office (BPO), has an important role in solid waste management. Specific responsibilities of the Director, Base S-4/S-6/BPO are the following:

- Implement procedures to ensure that activity supply management, materials handling, and materials shipping functions are carried out in a manner consistent with the goals and objectives of this SWMP and appropriate Base Orders

- Procure materials and equipment to minimize the generation of wastes consistent with federal, Navy, and Marine Corps policy
- Procure recycled-content products to the maximum extent practical
- Use materials generated at the Treatment and Processing Facility and Composting Facility (e.g., mulch, compost, gravel, rip-rap) where appropriate prior to purchasing these materials off-Base
- Ensure that mess hall personnel and contractors promote and participate in waste reduction and recycling programs for items such as corrugated cardboard and food and beverage can recycling, to the maximum extent practical

3.2.6 Director, Department of Public Safety

The Director, Installation Security and Safety, is responsible for ensuring that safe procedures are implemented at all waste management facilities aboard MCIEAST-MCB Camp Lejeune. Fire inspections and safety audits are conducted periodically under the direction of the Fire Chief and Safety Officer. Other specific responsibilities of the department are to ensure that safe procedures are enforced at all waste management facilities.

3.2.7 Director, Base S-3

As one of the principal contacts with the military personnel on Base, the Director, Base S-3 plays an important role in informing personnel of proper waste management procedures. The Director, Base S-3 is specifically responsible for the following:

- Ensuring solid waste and recyclable materials are collected during military field training exercises in a manner consistent with the goals, objectives, and directions of this SWMP and applicable Base Orders
- Monitoring firing range operations and other military training areas to ensure proper collection, sorting, and handling of metals for recycling per DoD guidelines
- Operating and maintaining satellite recycling collection sites at Stone Bay Rifle Range and School of Infantry at Camp Geiger for the recyclables generated on the firing ranges at each location
- Serving as a principal contact with the military personnel on Base

3.2.8 Director, Marine Corps Community Services (MCCS)

Clubs and other recreational facilities managed by MCCS generate significant quantities of solid waste, much of which is addressed through specific recycling programs implemented aboard MCIEAST-MCB Camp Lejeune. Specific responsibilities of the MCCS are the following:

- Ensure MCCS functions are carried out in a manner that promotes waste reduction, pollution prevention, recycling, and proper solid waste management consistent with the goals and objectives of this SWMP and applicable Base Orders
- Incorporate provisions in construction and service contracts that implement the goals and objectives of this SWMP

- Supervise the use of used oil and antifreeze collection tanks at MCCS-operated hobby shops
- Manage solid waste such as batteries and tires deposited in designated areas and inform EMD of the amounts of such materials collected and disposition of such materials
- Provide containers for recycling aluminum cans and plastic bottles at MCCS vending machines, where feasible, and provide containers for recycling all beverage containers (cans, glass, plastic) at all MCCS clubs

3.2.9 DLADS-Lejeune

DLADS-Lejeune oversees marketing of waste materials that have been collected and sufficiently separated to be saleable. In addition, DLADS-Lejeune serves as an installation warehouse, storing materials that may be reusable by on-Base commands. Other responsibilities of the DLADS-Lejeune include the following:

- Ensure that adequate markets for recyclable materials are identified and engaged to successfully award contracts for the sale of recyclable materials collected by the Base
- Provide technical information and advice to the Recycling Program Manager on various ways to improve marketing techniques and increase proceeds generated from the sale of recyclable materials
- Maintain records of quantity, revenue, and types of material sold for recycling
- Transfer funds received from the sale of recyclable materials on a continual basis to the Director, IF&E; MCIEAST-MCB Camp Lejeune; and the QRP Account

3.2.10 Public Affairs Office

Education and promotion are necessary to ensure participation in MCIEAST-MCB Camp Lejeune's Solid Waste Management Program. The Public Affairs Office assists with promotion and publicity of:

- Proper solid waste management practices
- Waste reduction
- Pollution prevention
- Recycling program activities and initiatives

3.2.11 Commanding General, Naval Hospital

The MCIEAST-MCB Camp Lejeune Naval Hospital and associated clinics generate both solid waste and regulated medical waste, a special waste category. The Medical Division is responsible for proper management of its regulated medical waste and operates an on-site medical waste incinerator for this purpose. Other responsibilities of the Medical Division are the following:

- Inspect solid waste and recycling facilities and sites to ensure that practices are consistent with established Preventative Medicine Unit Programs

- Guide EMD on environmental health and safety guidelines and techniques for accumulation and collection of solid waste and recyclable materials
- Periodically provide information to EMD regarding management practices and quantities of waste generated

3.2.12 Base and Tenant Commanders, Organizations, and Activities

As generators of solid waste aboard MCIEAST-MCB Camp Lejeune, each command has a responsibility to follow proper waste management procedures as stipulated in this SWMP. Commanding Generals must ensure that their personnel are informed of proper procedures and adhere to all solid waste management requirements. They are also required to perform the following activities:

- Ensure the SWMP has the widest publicity possible
- Ensure the participation of each organization in recycling and other solid waste reduction and minimization initiatives
- Cooperate in the proper collection, identification, and segregation of recyclable materials
- Ensure that recyclable materials are uncontaminated and properly sorted and/or returned to the designated facility
- Provide adequate interior space for the placement of office recycling collection containers and provide suitable containers in which to accumulate recyclable materials
- Investigate reported incidents of failures to segregate recyclables into designated categories
- Prepare standard operating procedures for the operation of the organization's solid waste reduction, pollution prevention, and recycling program activities consistent with the QRP
- Identify and describe potential recyclable material collection projects and other solid waste reduction opportunities and submit this information to the Pollution Prevention Program Manager
- Appoint an Environmental Compliance Coordinator or Officer as appropriate for compliance issues

3.2.13 Base Contractors

Contractors on Base are required to follow solid waste management practices as outlined in the MCIEAST-MCB Camp Lejeune *Contractor Environmental Guide*, and ESOP 17.1, *Recycling and the Qualified Recycling Program*. Contractors are also required to adhere to solid waste disposal and recycling requirements as written in their contracts, such as conducting ordering and disposal practices in a manner that is compliant with federal and state regulations and meeting EO 13514 diversion requirements for construction and demolition debris.

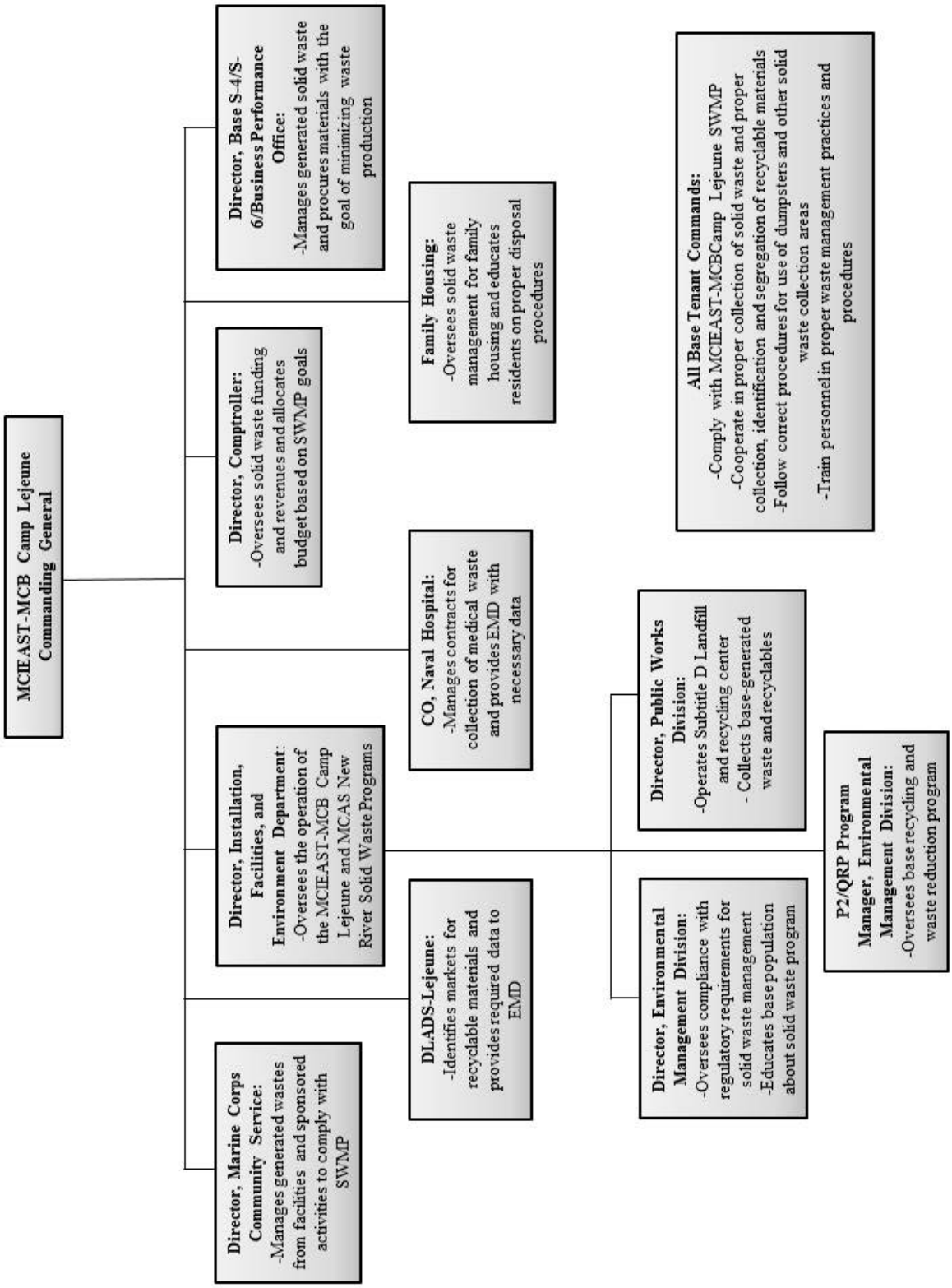


Figure 3-1. Solid Waste Management Responsibilities

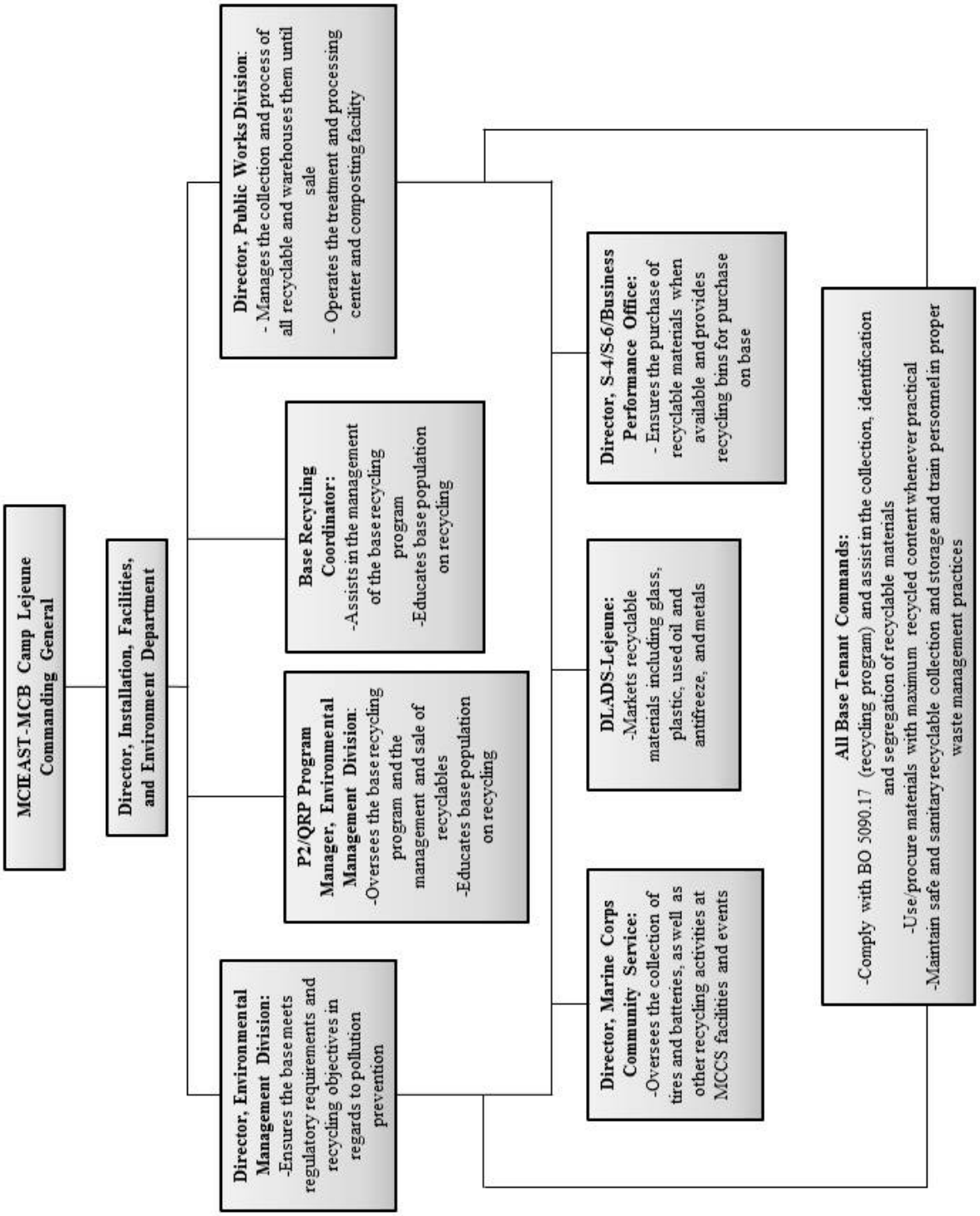


Figure 3-2. Recyclables Management Responsibilities

4.0 SOLID WASTE CHARACTERIZATION

This section details the following solid waste characterization elements: waste generation rates, primary sources of solid waste, and waste compositions. Data provided herein was obtained from Base Landfill & Recycling Center personnel from the CompuWeigh solid waste accounting system, Solid Waste Annual Data Call reports, and general discussions with Base personnel.

4.1 Waste Generation

Solid waste at MCIEAST-MCB Camp Lejeune is generated from three distinct sources on Base: Base residents (personnel and dependents); personnel (both military and civilian workforce); and commercial, institutional, and industrial activities. Solid waste generation has varied over the years at MCIEAST-MCB Camp Lejeune and can be attributed to activities such as natural disasters (i.e., hurricanes), fluctuations in Base unit deployment or reassignment, and construction and demolition projects. Quantities of solid waste managed (collected, disposed, and diverted) are tabulated in Table 4-1 and displayed graphically in Figure 4-1. A decreasing trend in solid waste generation can be expected over the next few years as construction/renovation projects from the "Grow the Force" initiative end. The "Grow the Force" initiative, announced in January 2007, was implemented to increase the Marine Corps by 27,000 personnel by 2011 in order to "enhance U.S. forces, reduce stress on deployable personnel, and provide necessary forces for success in the Global War on Terrorism" (GAO, 2008). A significant decrease in waste generated between 2010 and 2011 can already be seen, largely due to a decrease in C&D waste.

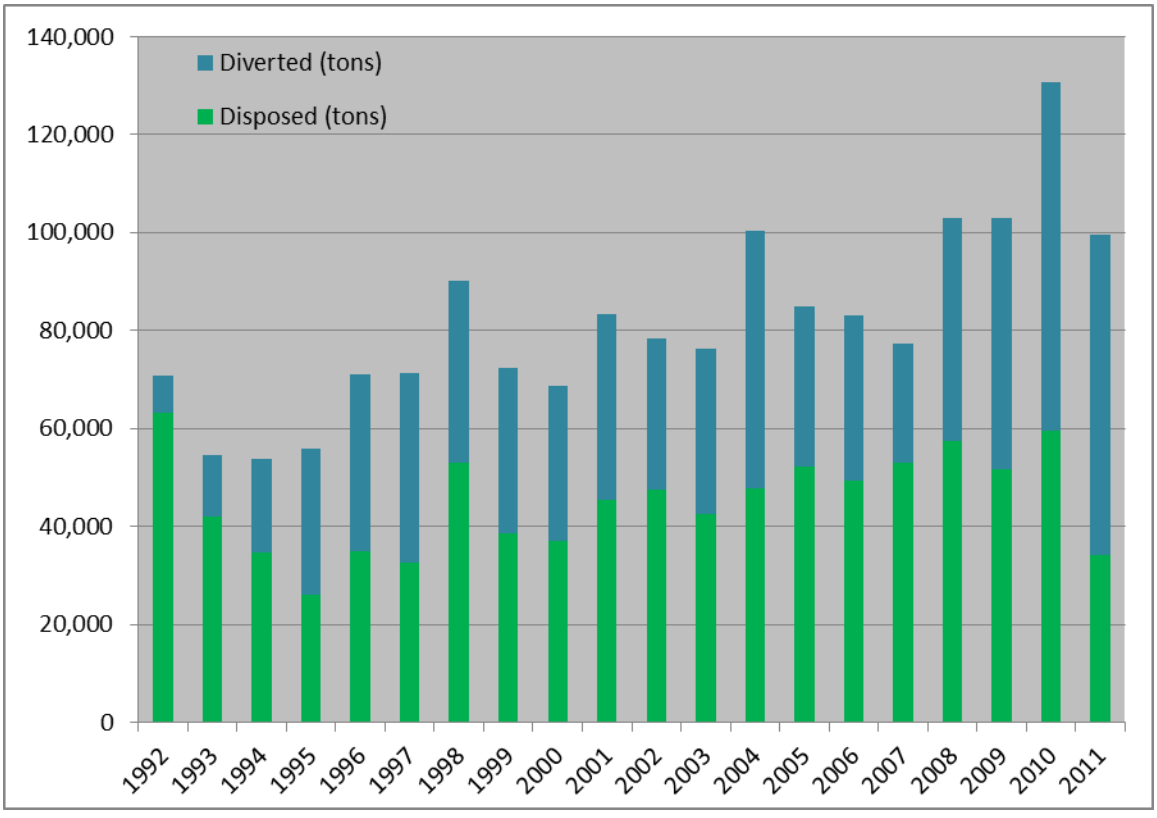
Table 4-1. Solid Waste Management Quantities

Year	Disposed (tons)	Diverted (tons)	Total (tons)
1992	63,100	7,600	70,700
1993	42,100	12,400	54,500
1994	34,800	18,900	53,700
1995	26,049	29,709	55,758
1996	34,945	36,221	71,166
1997	32,694	38,722	71,416
1998	53,030	37,174	90,204
1999	38,729	33,496	72,225
2000	37,033	31,632	68,665
2001	45,405	37,822	83,227
2002	47,471	30,797	78,268
2003	42,498	33,841	76,339

Table 4-1. Solid Waste Management Quantities

Year	Disposed (tons)	Diverted (tons)	Total (tons)
2004	47,861	52,504	100,365
2005	52,314	32,551	84,865
2006	49,272	33,721	82,993
2007	52,917	24,342	77,259
2008	57,313	45,569	102,882
2009	51,602	51,442	103,044
2010	59,403	71,359	130,762
2011	34,124	65,395	99,519

Note: Data for 1992-2006 were obtained from 2008 SWMP. Data for 2007-2011 were obtained from Solid Waste Annual Data Call reports for those years.



Note: Data for 1992-2006 were obtained from 2008 SWMP. Data for 2007-2011 were obtained from Solid Waste Annual Data Call reports for those years.

Figure 4-1. Solid Waste Management Quantities

Base Landfill scale logs provide a record of the various materials managed by Public Works, including waste intended for disposal at the Subtitle D Landfill and waste that is intended to be managed by the MRF or the T&P Facility. Solid wastes entering the Base Landfill scales are tracked by generating unit and tallied to individual accounts as itemized in Table 4-2.

Table 4-2. Solid Waste Generating Units

Account Number	Account Name	Description
10	In-house	All waste collected and delivered to the landfill by Public Works
20	Marines	All material delivered by Marines from MCIEAST-MCB Camp Lejeune and MCAS New River units
30	Contractors	All material delivered by contractors authorized to use the Landfill
40	MCCS	All material delivered by or on behalf of Marine Corps Community Services (includes Commissary and Burger King)
50	LSS/EMI	All material delivered by or on behalf of Lejeune Support Services/EMI Services (maintenance contractors)
60	Actus	All material delivered by or on behalf of Actus (Military Family Housing)
65	AMCC	All material delivered by or on behalf of Atlantic Marine Corps Communities (Military Family Housing)
70	Lincoln	All material delivered by or on behalf of Lincoln Park Housing

Note: Information obtained from Base Landfill & Recycling Center personnel from CompuWeigh system.

In-house waste represents the daily collection of solid wastes, both for disposal and for recycling, throughout the Base and MCAS New River. As shown in Table 4-3, this activity has contributed on average approximately 20% of the solid wastes generated since 1998.

Contractors performing a variety of new construction and demolition projects have contributed approximately 67% of the solid waste generated on Base. As depicted in Table 4-3, contractor waste showed a steady increase from 2003 to 2010, attributed primarily to new family housing construction and construction/renovation projects associated with the Marine Corps “Grow the Force” initiative; however, with the end of “Grow the Force,” contractor waste began to decline in 2010. Additionally, new construction and renovation contracts are increasingly written for Leadership in Energy and Environmental Design (LEED) certification, which decreases associated solid waste.

Table 4-3. Solid Waste Generated by Units

Unit / Account	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2010	2011	Average
In-house	19%	20%	25%	25%	22%	39%	22%	22%	16%	18%	8%	17%	21%
Marines	6%	3%	8%	3%	4%	4%	5%	5%	6%	1%	2%	2%	4%
Contractors	69%	67%	58%	63%	66%	42%	64%	67%	74%	76%	86%	77%	67%
MCCS	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
LSS/EMI	5%	4%	2%	2%	2%	2%	3%	2%	1%	1%	1%	0%	2%
Family Housing	1%	6%	7%	7%	6%	13%	6%	5%	4%	4%	3%	2%	5%
Total	100%	100%	100%	100%	100%	100%	100%	101%	101%	100%	100%	100%	100%

Note: Data for 1998-2007 were obtained from the 2008 SWMP. Percentages given in the 2008 SWMP for 2005 and 2006 totaled to over 100%; however raw data was unavailable to determine the source of the error, most likely due to rounding. Data from 2010 and 2011 were obtained from Base Landfill & Recycling Center personnel from the CompuWeigh system. No per unit/account data is available for 2008 and 2009.

4.2 Waste Composition

Solid waste generated by the Base can be grouped into four broad categories or generation groups: construction and demolition debris (C&D waste), commercial and institutional waste, industrial waste, and residential waste.

As indicated previously, contractor waste associated with construction and demolition activities is the single, largest solid waste stream produced on Base. C&D waste generated at the Base generally consists of asbestos-containing materials; clean, scrap wood; lead-contaminated wood and concrete; scrap metals; and plastics.

Commercial and institutional wastes are generated by the commercial enterprises (offices, stores, retail outlets, office buildings) and the various social and education activities on Base. Primary wastes generated by these entities and activities include aluminum cans, cardboard, food wastes, metal cans, paper, plastics and shrink-wrap, used furniture, white-goods, and wood.

Solid wastes resulting from industrial activities (warehouses, cafeterias, and shipping activities) include cardboard, food wastes, metal cans, paper, plastic and shrink-wrap, and wood pallets. Industrial activities also result in the generation of wastes requiring special handling such as used antifreeze, used oil, lead-acid batteries, and used tires.

Household trash, such as yard trimmings, food scraps, household hazardous wastes, paper, plastic, and used batteries are typical of residential wastes generated by family housing areas at MCIEAST-MCB Camp Lejeune.

The majority of these wastes are collected and managed by Public Works for disposal at the Subtitle D Landfill or recycling at the MRF or the T&P Facility. However, some Base entities maintain contracts independent of Public Works and the QRP for management of a portion or all of their solid waste, including Family Housing, MCCS, and the DECA. Solid wastes managed independently by these groups include recyclables at Family Housing; wood pallets at MCCS; and cardboard, fat and bone scraps, and plastics by DECA.

Table 4-4 summarizes the types of solid wastes managed at the MCIEAST-MCB Camp Lejeune Landfill and managed by the landfill's accounting database. Table 4-5 provides the composition of recyclables managed by the QRP and reported in the Solid Waste Annual Data Call reports for the past five years.

A waste characterization project has not been conducted recently for the Base and may be useful for updating and streamlining the solid waste management process and the QRP. Such an effort could consist of a field investigation to determine/update points of waste generation on Base and the types and quantities of waste materials generated, provide an updated solid waste characterization for the Base, gather solid waste container pickup volume data facilitating future collection schedule optimization (both recycling and disposal), and identify additional opportunities to promote recycling.

Table 4-4. Composition of Solid Waste Delivered to Base Landfill & Recycling Center 1998 – 2011 (in tons)

Type of Waste[1]	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Landfilled														
Solid Waste	43,130	29,063	30,779	31,052	28,756	28,879	34,751	27,535	28,917	28,554	29,059	33,491	30,048	29,784
Asbestos	696	571	562	712	662	591	548	1,227	938	689	2,533	1,880	398	256
Cardboard	544	17	-	1	27	45	50	193	663	323	243	97	43	31
Creosote Lumber	391	103	100	176	64	155	149	117	89	128	482	78	30	9
Fly Ash	3,468	4,717	3,920	5,175	4,122	5,001	5,560	4,325	4,729	4,947	4,426	4,520	3,892	4,160
Lead Concrete	4,704	167	776	2,681	9,400	5,693	3,111	14,548	11,669	6,335	3,947	4,569	4,915	806
Lead Painted Wood	0	937	616	750	2,819	853	421	552	284	146	1,508	1,712	1,721	290
Salt Treated Lumber	96	298	280	236	249	568	686	685	632	499	568	773	755	700
Food Waste	-	-	-	-	-	8	-	-	-	-	-	-	-	-
DLADS	-	1,214	2,054	816	766	705	1,053	889	854	693	1,482	244	201	112
Animal Waste[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	3	10
Metal[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	378	466
Sludge (Landfilled)[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	318	21	960	-
Subtotal	**53,029**	**37,087**	**39,087**	**41,599**	**46,865**	**42,498**	**46,329**	**50,071**	**48,775**	**42,314**	**N/A**	**N/A**	**43,343**	**36,624**
Recovered														
Concrete	16,344	13,112	12,191	22,801	12,487	16,365	29,050	18,211	15,710	13,946	14,996	26,784	26,126	29,108
Cut Tree/Stumps	4,515	4,700	6,885	5,160	8,923	8,127	13,000	5,520	11,664	3,064	11,523	8,576	15,498	13,385
Food Waste	71	58	-	-	-	-	-	-	-	-	-	-	-	-
Horse Manure	213	174	207	205	181	129	149	158	65	21	272	238	257	191
Wood	7,138	2,783	5,279	3,572	2,778	2,880	4,205	2,377	1,996	2,493	3,914	22,294	4,508	3,773
Sludge	3,002	1,666	5	-	-	-	-	-	-	-	-	-	-	-
Trickle Filter Rock	-	6,375	-	-	-	-	-	-	-	-	-	-	2,185	-
Wood Chips	286	555	241	338	124	263	72	293	334	66	2,619	6,636	1,233	1,649
Yard Waste	1,080	1,330	1,278	1,400	1,394	1,900	2,064	1,106	559	417	46,675	1,344	1,831	2,075
DRMO (Recovered)[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	487	371	150	256
Compost[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	382	1,002
Cardboard and Paper[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,294	8,043	5,613	5,516
Plastic[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	117	98
Vinyl Siding[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	122	94
HazMat[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	24	4
Subtotal	**32,649**	**30,753**	**26,086**	**33,476**	**25,887**	**29,664**	**48,540**	**27,665**	**30,328**	**20,007**	**N/A**	**N/A**	**58,023**	**57,145**

Notes:

1. Quantities shown in tons. Quantities of waste types for 1998-2007 were obtained from the 2008 SWMP, Exhibit 4-5; however, subtotals presented in the 2008 SWMP did not always equal the sum of the waste category data presented. The subtotals presented in this table were calculated using the quantity data and do not all match the subtotals presented in the 2008 SWMP. Data for 2008-2011 was obtained from Base Landfill & Recycling Center personnel from the CompuWeigh system.
2. This waste category was added due to differences in the solid waste accounting system used at the landfill starting 2010; no data is available for this category prior to 2010.

Table 4-5. Composition of Recycled Materials

Waste Type	2007 (tons)	2008 (tons)	2009 (tons)	2010 (tons)	2011 (tons)
Recyclable Material					
Food	0	0	0	0	12
Glass	39	0	0	52	83
Metals	1,576	2,227	2,290	2,904	3,240
Other Non-Food	0	0	0	1,086	106
Paper & Cardboard	713	2,204	2,442	3,451	4,283
Plastic	21	0	76	339	307
Wood	7,744	11,586	16,570	4,445	4,176
Yard/Green Waste	0	0	0	1,195	1,195
Other Select Wastes (Recycled)					
C&D Waste	13,204	27,613	26,642	55,103	49,190
Antifreeze	0	161	114	0	225
Batteries	100	116	110	167	136
Used Oil	443	551	548	559	498

Note: Data obtained from Solid Waste Annual Data Call reports for years 2007-2011.

4.3 Demographics

As of January 2012, the MCIEAST-MCB Camp Lejeune Base population consists of 46,928 active military personnel, 6,060 civilian employees, 52,585 military family members, and 12,808 reserve/guard personnel, with a total Base population of 147,704. Based on the 2010 Economic Impact Statement for MCAS New River, the New River Base population consists of 317 active military personnel, 504 civilian employees, 6,784 tenant personnel, 8,920 military family members, and 1,986 retired personnel, with a total population of 18,511.

As the Global War on Terror draws to a close, with the official ending of Operation Iraqi Freedom/ Operation New Dawn in December 2011 and the proposed ending of Operation Enduring Freedom in 2013/2014, both MCIEAST-MCB Camp Lejeune and MCAS New River will see significant changes in Base population, deployments, and solid waste production. With troops returning home from deployment, an initial increase in population may occur and with it the potential for an increased generation of solid waste. Furthermore, as troops are transitioned into different roles or to civilians, overall Base population may decrease and along with it a natural decrease in solid waste. However, the Base must remain vigilant in anticipating increases or decreases in population and solid waste generation as the role of MCIEAST-MCB Camp Lejeune and MCAS New River evolve with the ever-changing global environment.

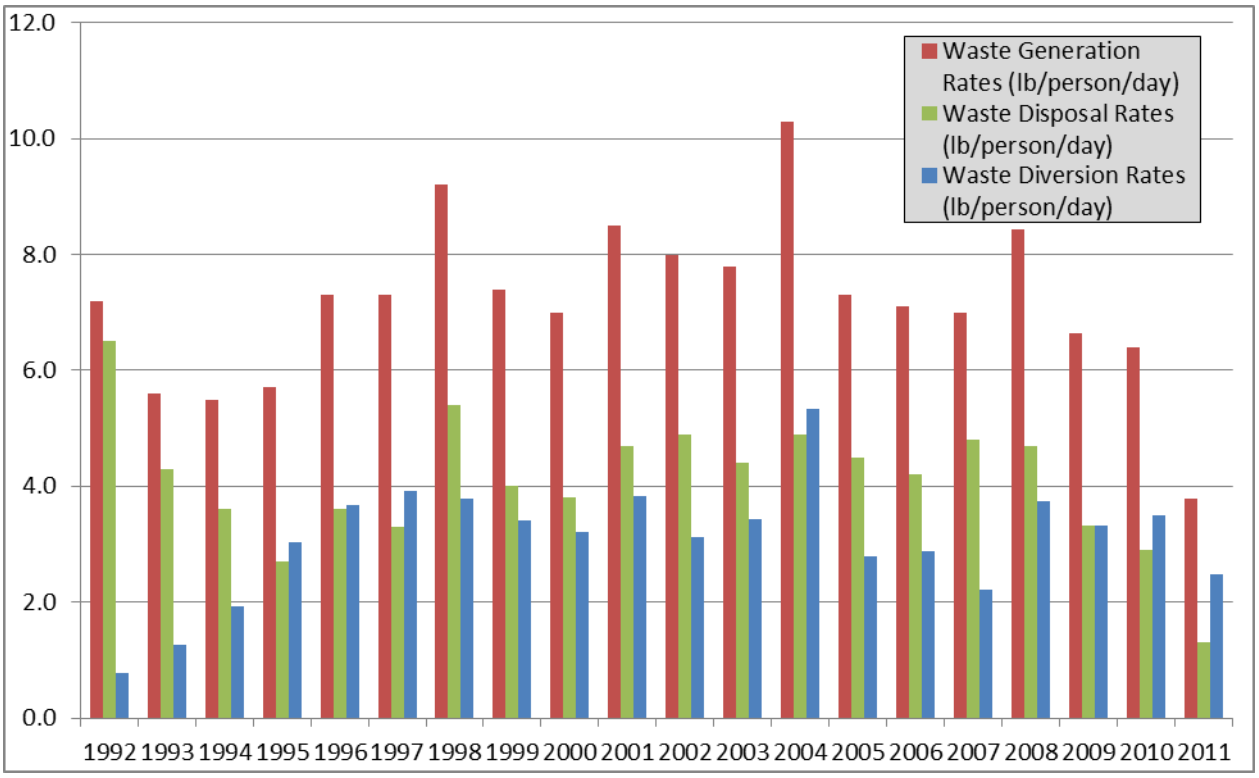
Table 4-6 provides solid waste generation and disposal rates (in terms of Base population) as taken from Solid Waste Annual Data Call tabulation. This information is displayed graphically in Figure 4-2.

As shown in Table 4-6, the Base waste diversion rate per capita for 2011 was 2.5 lb/person/day, which is significantly higher than the local government recovery rate for FY 2010-2011, which was reported as 0.76 lb/person/day in the North Carolina Solid Waste and Materials Management Annual Report for FY 2010-2011 (NCDENR, 2011).

Table 4-6. Solid Waste Generation, Disposal, and Diversion Rates

Year	Waste Generated	Waste Disposed	Waste Diverted	Average Base Population	Waste Generation Rates	Waste Disposal Rates	Waste Diversion Rates
	(thousand tons)			(thousands)	(lb/person/day)		
1992	70.7	63.1	7.6	54	7.2	6.5	0.8
1993	54.5	42.1	12.4	54	5.6	4.3	1.3
1994	53.7	34.8	18.9	54	5.5	3.6	1.9
1995	55.8	26.0	29.8	54	5.7	2.7	3.0
1996	71.2	34.9	36.3	54	7.3	3.6	3.7
1997	71.4	32.7	38.7	54	7.3	3.3	3.9
1998	90.1	52.7	37.4	54	9.2	5.4	3.8
1999	72.2	38.7	33.5	54	7.4	4.0	3.4
2000	68.7	37.0	31.7	54	7.0	3.8	3.2
2001	83.2	45.4	37.8	54	8.5	4.7	3.8
2002	78.3	47.5	30.8	54	8.0	4.9	3.1
2003	76.3	42.5	33.8	54	7.8	4.4	3.4
2004	100.4	47.9	52.5	54	10.3	4.9	5.3
2005	84.9	52.3	32.6	64	7.3	4.5	2.8
2006	83.0	49.3	33.7	64	7.1	4.2	2.9
2007	77.3	52.9	24.3	60	7.0	4.8	2.2
2008	102.9	57.3	45.6	67	8.4	4.7	3.7
2009	103.0	51.6	51.4	85	6.6	3.3	3.3
2010	130.8	59.4	71.4	112	6.4	2.9	3.5
2011	99.5	34.1	65.4	144	3.8	1.3	2.5

Note: Data for 1998-2006 were obtained from the 2008 SWMP. Data for 2007-2011 were obtained from the Solid Waste Annual Data Call reports for those years.



Note: Data for 1998-2006 were obtained from the 2008 SWMP. Data for 2007-2011 were obtained from the Solid Waste Annual Data Call reports for those years.

Figure 4-2. Solid Waste Generation, Disposal, and Diversion Rates

This page intentionally left blank.

5.0 SOLID WASTE MANAGEMENT PRACTICES

This section addresses the following elements of the Camp Lejeune's Solid Waste Management Program:

- Source Reduction
- Collection
- Recycling and Reuse
- Incineration and Energy Recovery
- Disposal
- Disaster Response
- Program Monitoring

The following subsections provide a description of the current operations and then an examination of potential opportunities for improvement for each program area.

5.1 Source Reduction

Source reduction, the practice of minimizing the amount of waste generated, is a core principle of any solid waste management program. Although source reduction is the first priority of all waste management activities, this fundamental concept is one of the more difficult methods to effectively implement and document. Source reduction is less tangible than simply diverting wastes that are produced. To achieve true source reduction requires a knowledge and understanding of the process generating the waste; effort devoted to planning and evaluation of options to minimize or even eliminate generation of the waste; and, perhaps more importantly, the resolution and commitment to changing behaviors and lifestyles.

The benefits realized through the implementation of source reduction activities expand beyond the simple reduction in waste volume. Source reduction results in cost savings, often without requiring additional equipment, labor, or other resources, and better and more efficient allocation of resources due to a reduced level of effort required for the collection, transport, and disposal of the waste.

5.1.1 Pollution Prevention Program

Source reduction activities implemented at the Base to minimize/eliminate waste generation or reduce waste toxicity have generally been addressed via the Pollution Prevention (P2) Program and have included the following:

- Implementation of a paint solvent recovery system
- Reduction in the application of pesticides through tracking and controlling the types and quantity of pesticides stored and applied on Base
- Implementation of a battery exchange program managed by Logistics Command (LOGCOM)

- Implementation of HazMat Shelf Life Management Program and Free Issue site
- Double-sided (duplex) copying and purchase of recycled paper

5.1.1 Base Property Office

Strides have been made in source reduction at the Base as is evidenced by the activities of the BPO, which provides procurement services supporting Base property and retail stores. Among the various responsibilities of the BPO is the procurement of property (e.g., furniture for administrative offices and marine barracks), which when damaged or expended becomes an item requiring management.

The BPO has undertaken the following initiatives to minimize property requiring disposal:

- Mattresses - Expended mattresses from barracks renovations can be a sizeable waste. Historically, mattresses are disposed as wear and tear makes them often unsuitable for reuse. To minimize generation of this waste stream, BPO is currently evaluating the potential to sterilize and reuse mattresses, thus extending mattress life. A requirements contract has been awarded for a 5 year period to allow a vendor to clean and sterilize mattresses within the Bachelor Enlisted Quarters (BEQ). BPO is also evaluating varying types of mattress construction to maximize service life and minimize waste generation.
- Promoting the purchase of metal furniture for Marine barracks - Metal furniture is more durable than wood furniture and is 100% recyclable if not suitable for reuse. However, because the purchase of metal furniture cannot be mandated, much of the new furniture purchased by the Base is made of wood or particleboard.
- Purchase of 25-year warranties on furniture - The warranty program includes conducting periodic inspections of installed furniture by the item manufacturers. Repairs can be made during the inspection, which extends the property life-span and minimizes the generation of unusable items.
- Sectional furniture installation - Although sectional furniture is the popular choice by many when renovating an office space, the glue used as the fastening agent for the pieces often prohibits the recycling of the wood when an item is damaged and must be removed from service. Sectionals are easily damaged when disassembled improperly. To avoid damaging the unit and generating solid waste for disposal, the BPO employs the manufacturers, rather than Base personnel, to disassemble sectionals when required. Assembled sectional office models are on display at the BPO warehouse to promote informed selections; thus, reducing the likelihood of rejection post-installation and possible generation of unusable items.
- Wood Pallets - Wood pallets are reused within the BPO organization for shipping purposes and to stage warehouse inventory. The BPO promotes ordering of furniture delivered without wood pallets; this minimizes excess wood pallets and saves approximately $20-$30 per furniture order. At the landfill, wood pallets are also reused. Once pallets are no longer usable, they are shredded and burned for energy recovery.

5.1.1 ServMart and Commissary

Base Supply Management Division is also pursuing source reduction opportunities within their retail sales store, ServMart, and is moving from government-owned to vendor consignment for retail items. Currently, ServMart has vendors on board for provision of tools, safety items, hardware, and administrative office supplies. Vendor-owned inventories help reduce serviceable but unnecessary stock. Vendors also have a faster turnaround between ordering and placement of the retail shelves, which should help reduce "hoarding of materials" by Base consumers, which often leads to increased generation of solid waste when materials expire and are no longer suitable for use.

Additionally, the Base is in the process of implementing a Lean Six Sigma Continuous Process Improvement Black Belt Project at ServMart that focuses on hazardous material product reduction. Under this project, which started in 2011, the Base is developing a process to reduce, replace, or eliminate products containing hazardous materials by increasing the percentage of bio-based ingredients in hazardous materials products per the applicable United States Department of Agriculture (USDA) categories and reducing toxic chemical content by 15% by 2020. An additional goal of the project is to reduce, reuse, and recycle packaging from these products to assist in the Base solid waste diversion goals.

Other examples of source reduction initiatives include the DECA "Go Green" campaign introduced in 2007. The "Go Green" campaign promotes the consumption of energy-efficient products and products that ultimately produce less waste and/or less toxic waste. "Green" products available through DECA include a variety of organic produce and groceries, organic cleaning supplies, energy-efficient light bulbs, and recycled paper products. DECA also promotes the use of reusable, machine-washable, mesh grocery bags in lieu of traditional plastic bags.

The commissary encourages the use of reusable shopping bags to reduce plastics waste (DECA, 2012).

5.2 Collection

The collection of solid waste is a key component in solid waste management. At MCIEAST-MCB Camp Lejeune and MCAS New River, collection of solid wastes is primarily a function of the Public Works Division. The exceptions to this are: 1) household solid wastes and recyclables generated at Military Family Housing and 2) C&D wastes generated by contractors working on construction/renovation projects within the Base.

5.2.1 Military Family Housing Solid Waste Collection

To improve living conditions and better served tenants, MCIEAST-MCB Camp Lejeune privatized Military Family Housing through a Public-Private Venture (PPV) beginning in October 2005. As a result of this effort, the management of on-Base housing units was turned over to a private company, Atlantic Marine Corps Communities LLC (AMCC). AMCC contracts out both refuse and recycling collection within the housing areas.

Collection of household solid waste refuse and recyclables is conducted once per week, with the residents having separate containers for trash and recyclables, respectively. Green waste is also picked up weekly. The solid waste contractor provides bulk pickup for oversized trash items at least once every other week. Additional bulk pickup services are provided in the month of January for Christmas trees.

General household refuse collected from Family Housing is transported to the Base Landfill facility for management, and recyclables are transported by the contractor to the Jacksonville Commission of the Blind where they are sorted for subsequent management.

5.2.2 Industrial Base Solid Waste Collection

As established under the Solid Waste Most Efficient Organization (MEO), Public Works is the primary entity responsible for the collection of solid waste generated aboard MCIEAST-MCB Camp Lejeune and MCAS New River, maintaining a fleet of trucks for collection of refuse and recyclables along 21 established routes on Base. Table 5-1 below summarizes the general types of pickup routes serviced by Public Works. Route collection information was provided by Base Landfill Personnel, and is subject to change. Public Works should be consulted for the most current collection route information.

Table 5-1. Public Works Solid Waste Collection Route Summary

Route Nos.	Solid Waste	Recyc-lables	Collection Description	Equipment and Personnel
1-5	X		General refuse	12 front loading garbage trucks; 5 drivers
6, 6A, 6B	X	X	General refuse, cardboard, metal, wood, glass in temporary open-top/roll-off compactor containers	3 roll-off trucks; 3 drivers
7, 8		X	Cardboard	Front loading garbage trucks; 2 drivers (QRP funded)
9-16		X	Newspaper, white paper, magazines, plastics, shredded paper in recyclables blue bins	1 cargo van; 1 materials examiner and identifier and 1 laborer (QRP funded)
17		X	Metal and aluminum piggybacks	1 piggyback truck; 1 driver (QRP funded)
18-20	X	X	Paper, plastics, and wood/garbage piggybacks	3 piggyback trucks; 2 drivers
21		X	Recycling drop-off at the landfill	All drivers at the landfill help keep these dumpsters emptied

Public Works' resources utilized for the collection of wastes and recyclables includes:

- Four piggyback trucks with three drivers
- Three roll-off trucks with three drivers
- Twelve dumpster trucks with seven drivers
- One cargo van with laborer and one WG-5 material examiner and identifier for blue bin collection

Collection containers are dedicated to a specific service and are stenciled to avoid mixing of recyclables and nonrecyclables, as shown in Figure 5-1. Table 5-2 summarizes types of containers typically utilized for the collection of solid waste and recyclables.

Figure 5-1. Dumpsters Marked with Allowable Materials

Table 5-2. Solid Waste Collection Capacities

Container Type	Capacity	Quantity	Contents
Dumpster	8 CY	1002	Solid waste (refuse)
Dumpster	8 CY	362	Cardboard
Open Tops	20-47 CY	87	Solid waste (refuse), metal, cardboard
Blue Bins	varies	14	Newspaper
Blue Bins	varies	337	White paper
Blue Bins	varies	41	Aluminum cans
Blue Bins	varies	8	Magazines
Blue Bins	varies	34	Plastic
Blue Bins	varies	63	Shredded paper
Blue Bins	Varies	71	Ink toner
Piggy Back	6-8 CY	95	Metal and aluminum
Piggy Back	4-8 CY	38	Paper
Piggy Back	8 CY	29	Plastic
Piggy Back	8 CY	42	Wood

Note: Solid waste collection capacity and quantity information provided by Base Landfill & Recycling Center personnel.

Refuse and recyclables are collected on varying schedules, depending on the amount and type of waste generated at each location. Some locations, such as mess halls and schools, have daily pickups, while others, such as administrative offices, are serviced less frequently, typically once a week. Some locations are on an on-call or as-needed basis, which is the case for the majority of the "blue bin" recycle pickups. The "blue bin" collection is a labor-intensive effort requiring PWD personnel to enter "blue-bin" buildings to remove the recyclables from each bin and re-bag.

To promote recycling by providing additional convenience for Base personnel, Public Works operates four Satellite Recycling Collection Centers throughout the Base and MCAS New River:

- Base Landfill & Recycling Center: Piney Green Rd, Public Works (910-451-2946)
- Courthouse Bay: Marine Corps Engineering School (Bldg 51), Engineer School Support Services (910-450-7360)
- Camp Johnson: Marine Corps Service Support School (Bldg 80), Combat Service Support Schools, S-4 (910-450-0839)
- MCAS New River: Building AS116, Environmental Affairs Department (910-449-5997)

Recyclables are collected from these centers on a regular basis by Public Works and transported to the MRF for further processing.

5.2.3 Contractor Solid Waste Collection

Contractors performing construction/demolition and renovation projects at the Base are responsible for the collection and management of waste materials generated at their work sites in accordance with applicable federal and state regulations and Base Orders. Typically, waste management services are subcontracted with roll-off boxes maintained at the site for collection of refuse and recyclables. Most contracts allow the use of the Base Landfill for contractor disposal of waste and the Base MRF and T&P Facility for recyclables. For contracts that do not include subcontracting with the Base Landfill for collection and disposal, contractors transport waste to the Sampson County Landfill.

5.3 Recycling and Reuse

Base Order 5090.17, *Solid Waste Reduction – Qualified Recycling Program (QRP)*, provides the framework for recycling at MCIEAST-MCB Camp Lejeune and MCAS New River and requires the implementation of comprehensive solid waste reduction, recycling, and pollution prevention programs. The QRP is managed as a coordinated effort between Public Works and DLADS-Lejeune with assistance provided by EMD. The QRP is the primary mechanism for recycling at the Base; however, it is not the sole recycling program implemented at MCIEAST-MCB Camp

Lejeune. Other Base entities, including DECA, Military Family Housing (AMCC), and MCCS also promote recycling and manage additional recycling efforts independent of the QRP.

MCIEAST-MCB Camp Lejeune EMD and MCAS New River Environmental Affairs Department (EAD) are actively pursuing expansion of their recycling programs. A full-time recycling manager was hired in at the MCIEAST-MCB Camp Lejeune MRF. With the addition of this position, there has been an improvement in the recycling efforts across Base. EMD is actively investigating several recycling opportunities, among them are recycling of plastic film (shrink-wrap primarily from warehouse and retail operations), boxboard/paperboard (meal, ready-to-eat [MRE] boxes) and cans (mess hall tin cans).

The primary facilities at the Base used for the management of QRP recyclables are detailed in Section 5.3.1. Subsequent subsections (5.3.2 and 5.3.3) discuss waste materials currently recycled at MCIEAST-MCB Camp Lejeune and MCAS New River, respectively.

5.3.1 Recycling Facilities

As indicated in Section 3, recycling facilities on Base include the Material Recycling Facility, which is co-located with the Base Landfill on Piney Green Road. The T&P Facility is located north on Piney Green Road across from the landfill facility. Recyclables brought to the landfill are first weighed in at the scale and then transferred either to the MRF or the T&P Facility for further processing. Each load is screened for metals, such as scrap metal, steel, brass, copper, or aluminum. Such metals are delivered to the DLADS Metal Lot 203.

Material Recycling Facility (MRF)

The MRF, as depicted in Figure 5-2, consists of a single building, approximately 12,000 square feet, with multiple bays to provide for additional sorting, processing, and storage of recyclables. The MRF houses a baler purchased and installed in 2011 to prepare cardboard, paper, and plastic for off-site recycling by outside contractors. Roll-off bins are staged outside for storage of glass, metal, and plastics pending processing at the MRF and/or pickup by outside contractors for recycling off-site. Following weigh in at the landfill scale, cardboard loads are taken to the MRF and baled. Paper (shredded and white) is stored at the MRF until there is enough volume to make at least three or four bales. The MRF also houses a shredder to provide shredding services for For Official Use Only (FOUO) documents; the shredded paper can be sold. However, many Base tenants still use outside vendors who provide on-Base pickup for shredding FOUO documents. Plastics are also baled, though not as frequently, as it requires two, 20-yard roll-off boxes to make a single bale.

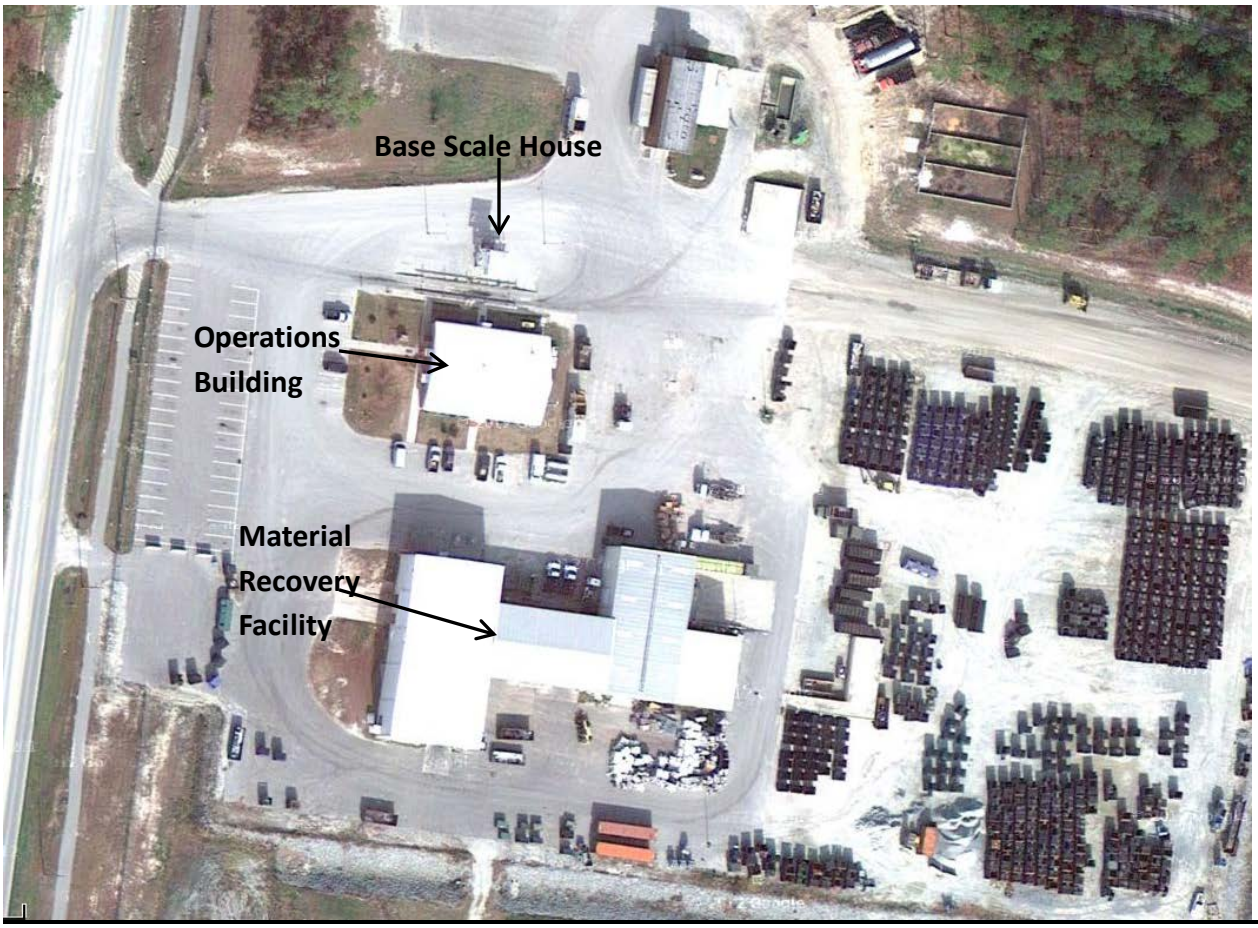


Figure 5-2. Material Recovery Facility Site

Treatment and Processing and Composting Facilities

The T&P and Composting Facilities, depicted in Figure 5-3, comprise 6-acres and are dedicated to the management of C&D clean concrete, untreated wood, and yard waste providing the following services:

- Concrete crushing
- Wood waste chipping
- Composting

Figure 5-3. Treatment and Processing and Composting Facilities

Concrete is stockpiled, as shown in Figure 5-4, and periodically processed (crushed) by an outside contractor; crushed concrete is reused as road Base material, beneficial fill, and other uses. Debris from concrete crushing operations (e.g., metal) is set aside for transfer to the DLADS Metal Lot 203.

Figure 5-4. Concrete and Tree Debris Piles

Clean wood waste is also processed at the T&P. The received material, approximately 30,000 tons per year, is managed by an outside contractor who shreds the material using an industrial tub grinder. The finished product is used on Base as mulch or transferred by the contractor for reuse as boiler fuel at an off-site facility. Figure 5-5 illustrates the facility's processing activities.

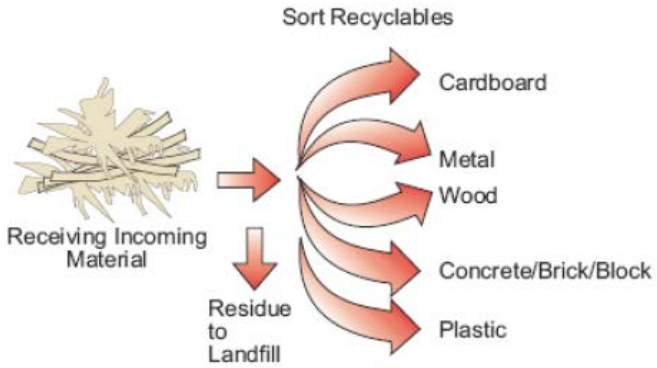


Figure 5-5. C&D Process Flow Diagram

Yard debris, grass, leaves, and manure are composted at the south end of the compound. The compost facility has several windrows for the processing of the organic wastes and a leachate pond to collect run off from the area. Figure 5-6 shows the process flow for composting operations.

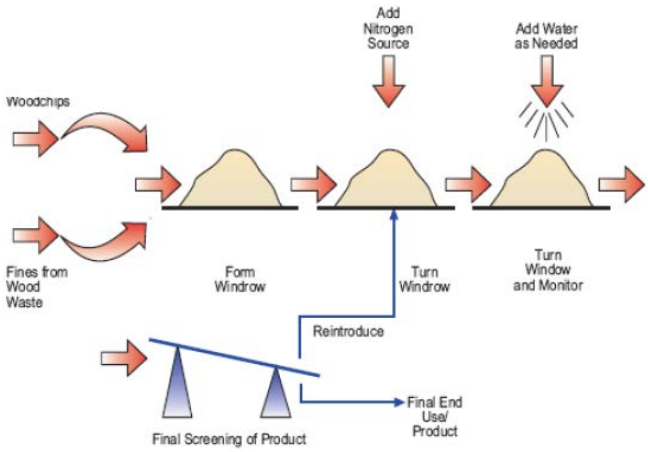


Figure 5-6. Compost Process Flow Diagram

5.3.2 Industrial Base Recycling

Base Order 5090.17 outlines the Qualified Recycling Program (QRP) for MCIEAST-MCB Camp Lejeune and MCAS New River. The QRP provides the foundation for solid waste reduction and recycling and requires the participation of the entire command to ensure its success.

As indicated, many materials generated by MCIEAST-MCB Camp Lejeune and MCAS New River can be recycled. Recyclables are either collected by Public Works or delivered to the MRF or satellite collection centers by the generators. Specific recyclable materials that can be recycled at MCIEAST-MCB Camp Lejeune are itemized in Table 5-3.

Table 5-3. MCIEAST-MCB Camp Lejeune and MCAS New River Recyclable Materials

Item	Collection/Management
Aluminum	Aluminum cans are collected in blue bin containers placed at numerous locations at the Base and are not to be disposed in the Base Landfill. The Base is paid for recycling aluminum cans.
Brass	Brass from spent ammunition cartridges must be sorted from unfired ammunition at the point of generation. All ammunition items must be inspected by the generating unit and certified and verified by authorized individuals appointed by the unit Commanding General. When ammunition items are are turned in to the satellite sites at the Rifle Range and School of Infantry or DLADS-Lejeune, they shall be accompanied by a signed, typed statement to read, “This material has been inspected by (signing individual) and it contains no live rounds/live blanks, unfired primers, hazardous waste, hazardous materials, or other dangerous materials.” Spent brass shells are collected, mutilated, and stored until they are sold and removed by a contractor.
C&D – clean concrete and wood	All such material should be delivered to the T&P Facility where it is staged for crushing and chipping by a contractor.

Table 5-3. MCIEAST-MCB Camp Lejeune and MCAS New River Recyclable Materials

Item	Collection/Management
Electronics waste (e-waste)	Electronics waste (e-waste) is collected by the Base during collection events open to the public and recycled.
Glass containers – clear, green, brown (excluding light bulbs, pyrex and plate glass)	Glass containers are collected at the satellite recycling collection sites and are taken to the MRF, where they are stored until they are sold and removed by a contractor. For proper collection, the lids must be removed, the container rinsed and separated by color, and placed in the corresponding recycling bin. Labels may be left on glass containers.
Horse manure	Horse manure generated at the Scarlet and Gold Riding Club, formerly the Base stables, is collected and placed in a storage container on-site. The manure is transported to the composting facility for compost production.
Metals - cast iron, heavy iron/steel, light steel, white goods, metal drums, bronze, bullet metal, copper, electronic scrap, and stainless steel	Metals are source separated from the solid waste stream and placed in marked dumpsters and/or roll-off boxes provided by Public Works. Collected metals are delivered to DLADS-Lejeune by Public Works or the generating unit, where they are stockpiled until they are sold and removed by a contractor.
Military tires	Tires are turned in to DLADS-Lejeune for storage until sold and removed by a contractor. Scrap tires stored indoors must be stored in compliance with the National Fire Protection Association's (NFPA) publication "The Standard for Storage of Rubber Tires" (NFPA 231P), which has been adopted for application in North Carolina by NCGS 150B-14(c). Storage of scrap tires outdoors must comply with a permit as required by 15A NCAC 13B.1100.
Paper – white office paper, computer printouts, corrugated cardboard, newspaper and inserts, magazines, catalogs, paperback books, and telephone directories	Paper products are collected in blue bin containers placed at numerous locations at the Base. Cardboard is collected in bulk via dumpsters placed throughout the Base. Generating units may also transport paper and cardboard directly to the MRF. Paper products should be segregated into separate containers and should be free of contaminants such as plastic, garbage, etc., to ensure marketability. The Base is paid by the contractor for both cardboard and paper collected for recycling.
Plastics	Plastics are collected in marked containers placed around MCIEAST-MCB Camp Lejeune. All coded plastics (#1-7) are currently collected for recycling (no plastic bags are accepted). Lids must be removed, and the containers rinsed and segregated by code prior to being placed in the collection containers. A contractor pays MCIEAST-MCB Camp Lejeune for recyclable plastics.
Steel and bi-metal food and beverage cans	Steel and bi-metal food and beverage cans are collected in marked containers placed around the Base. The cans should be rinsed and their lids placed inside and flattened. Metals are sold to a contractor for recycling.
Textiles (cotton only)	Cotton textiles (miscellaneous rags, scrap material, cotton comforters, etc.) are recyled. These materials are turned in to DLADS-Lejeune where they are stored until sold and removed by a contractor.

Table 5-3. MCIEAST-MCB Camp Lejeune and MCAS New River Recyclable Materials

Item	Collection/Management
Toner cartridges	Toner cartridges may be collected at the office recyclable consolidation sites, or taken to the collection point at Self Serve, to be collected by Public Works and taken to the MRF. These items are recycled at cost to the Base.
Tree waste	Tree waste includes tree limbs and branches, trimmings, trunks and stumps, and other similar materials. Tree waste should be delivered to the T&P Facility to be processed into feedstock for compost production.
Wood boxes	Wood boxes should be taken to Preservation, Packaging, and Packing (PP&P), 2nd Supply Battalion, 2nd FSSG for inspection. Serviceable boxes will be stored by PP&P for refurbishment and reuse. Untreated, unserviceable boxes will be taken to T&P Facility where they will be processed into mulch used as a feedstock for compost production, or woodchips for sale and removal by a contractor.
Wood pallets	Wood pallets are to be taken to the MRF for inspection. Serviceable pallets are warehoused at the MRF and are available to Base personnel for reuse. Unserviceable pallets will be taken to the T&P facility where they are processed into mulch used as a feedstock for compost production, or woodchips for sale and removal by a contractor.
Yard waste	Yard waste includes solid waste consisting solely of vegetative matter such as leaves, grass clippings, shrubbery trimmings, pine straw, and other similar materials resulting from landscaping maintenance. All such material should be delivered to the T&P Facility where it is processed into a feedstock for compost production.

In addition to the items listed in Table 5-3, the Base promotes recycling of other items, such as asphalt, batteries, unused hazardous materials, and used oil, which are briefly discussed below.

Asphalt pavement: Asphalt removed from construction/demolition/renovation projects must be delivered to an off-Base asphalt recycling facility. Contractors must provide a record of total tons recycled and the name/location of the recycling facility to their OICC or Contract Representative with a copy to the Base Landfill Manager.

Batteries: Batteries are turned into EMD Resource Conservation Recovery Section (RCRS) (Building 977) and lead-acid batteries are recycled by off-site contractors.

Unused hazardous materials: Unused hazardous materials may be turned into the Hazardous Material Free Issue point at Building 908.

Used oil: Used oil is collected in containers labeled “Used Oil”. EMD RCRS manages the used oil program on Base and performs regularly scheduled runs to collect used oil for consolidation at the Base Fuel Farm. Used oil is sold to an outside contractor for recycling. Approximately 150,000 gallons are sold annually (data from Solid Waste Annual Data Call for 2007-2011).

5.3.3 Non-QRP Industrial/Commercial Base Recycling

Other Base entities, such as DECA and MCCS, manage recycling activities independently of those managed and funded by the QRP.

DECA, through daily operations at the Commissary generate cardboard, food waste, meat and bone waste, shrink-wrap and wood pallets. Cardboard is a high volume waste stream at the DECA Commissary. The cardboard and plastics are baled on site, with the bales stored outside until transported by a contractor for off-site recycle approximately twice a month.

Currently, there is no mechanism for recycling of food waste on Base. DECA, similar to other Base entities, bags food wastes for placement in Public Works dumpsters for disposal at the Base Landfill. Wooden pallets, associated with incoming inventory, are generally returned upon receipt to the distributor; however, DECA does maintain a limited inventory of pallets to stage inventory. Pallets that are damaged either upon arrival or through warehouse use are stockpiled and transferred by DECA monthly to the Base MRF for recycling.

MCCS Building 1402 is the central receiving point for MCCS retail operations. Materials are received here, repackaged and transferred to the various MCCS retail areas throughout MCIEAST-MCB Camp Lejeune and MCAS New River. Wastes generated from receiving operations include cardboard, shrink-wrap, and wooden pallets. MCCS cardboard and shrink-wrap is recycled via the Base MRF; wooden pallets are managed independently by MCCS and re-used. Once a wooden pallet can no longer be used it is taken to the landfill for disposal.

MCCS Property Warehouse, located in Building 1108, also promotes recycling. MCCS Property is responsible for the management of all MCCS expended /damaged property and reduced (i.e., damaged) retail items.

To the extent practicable, attempts are made to reuse and re-issue items returned to MCCS Property. Items furnished via appropriated funds that cannot be re-issued are turned into the DLADS-Lejeune for subsequent management. Items furnished via nonappropriated funding that cannot be re-issued are managed by MCCS Property.

MCAS New River received a National Recycling Coalition (NRC) Bin Grant from the Coca-Cola Company, which provided them with 50 plastic blue bins for the recycling of beverage cans and bottles. The Coca-Cola NRC supports community recycling programs by providing bins to selected grant recipients for the collection of beverage container recyclables. Grants are provided to a limited number of applicants who can demonstrate how their proposals will lead to sustainable recycling opportunities. The Coca-Cola NRC grant program is open to government, civic, school, nonprofit groups and for-profit companies.

Ash from the Base steam plant is used as a conditioner for soil cover in the Subtitle D Landfill. The reuse of coal ash generated by the Base steam plant has been previously evaluated (Parsons, 1995). The results of that evaluation indicated a number of options for the beneficial reuse of mixed fly ash and bottom ash including concrete/cement applications, brick manufacturing, and asphalt production. However, not enough ash is produced to make this a viable option.

5.3.4 Military Family Housing Recycling Program

The recycling program at Military Family Housing includes newspaper, magazines, paper bags, telephone books, cans, glass, plastic, white goods, cardboard, and yard waste. Items are commingled in a single collection container provided for each household. The contractor is responsible for collecting, segregating, and marketing recyclable material.

Recyclables generated by Military Family Housing residents should be managed as outlined in Table 5-4.

Table 5-4. Military Family Housing Recyclable Materials

Item	Collection/Management
Aluminum cans	Aluminum should be placed in the recycling container provided by Family Housing. Aluminum cans are prohibited from landfill disposal and therefore should not be placed in solid waste destined for the Base Landfill.
Glass containers	Glass should be placed in the recycling container provided by Family Housing. The containers should be rinsed and their lids removed.
Paper Products - cardboard, magazines, newspaper, telephone books	Paper products should be placed in the recycling container provided by Family Housing.
Plastics	Plastics (specifically PETE, #1 plastic—soft drink bottles and HDPE, #2 plastic—milk and detergent bottles) should be placed in the recycling container provided by Family Housing. The containers should be rinsed and the lids removed.
Steel and bi-metal cans	Metal cans such as soup cans, should be rinsed, with the lids placed inside, flattened, and placed in the recycling container provided by Family Housing.
Yard waste	Yard wastes, consisting solely of vegetative matter such as leaves, grass clippings, shrubbery trimmings, pine straw, and other similar materials, should be placed in a pile adjacent to the refuse and recycling containers. Yard Waste is collected by the contractor on regularly scheduled collection days, and transported T&P Facility where it is processed into a feedstock for compost production.

5.4 Incineration and Energy Recovery

Incineration currently is not employed by MCIEAST-MCB Camp Lejeune or MCAS New River as a management option for disposition of solid wastes. Energy recovery from solid wastes, however, has been the subject of historical investigations and at present remains as an option under evaluation.

5.4.1 Biomass Facility

MCIEAST-MCB Camp Lejeune Public Works Utilities Division previously investigated the potential generation of steam via an on-site biomass facility. Alternatives evaluated included 1) the conversion of the existing Main Steam Plant to a biomass facility, which was determined to be not economical and 2) replacement of both the Camp Geiger and MCAS New River Steam Plants with a biomass facility situated at Camp Geiger. A proposal was submitted to Public Works Utilities Division in 2008 discussing a proposed biomass facility at Camp Geiger to serve both MCAS New River and Camp Geiger (Ameresco Federal Solutions, 2008).

The new MCAS New River steam plant, if built, would be a wood burning biomass facility, which would generate steam and provide for renewable generation of electricity, using wood waste from both on-site and off-site sources. This project would require a proposed amount of 50,000 – 60,000 pounds of biomass to support Base steam production needs. At the time of this SWMP update, this project is no longer being pursued.

5.4.2 Gas Recovery

To thoroughly explore the potential for recovering usable energy from these sources, the Base commissioned a landfill gas to energy feasibility study by Radian Corporation in 1997. According to Radian's report, the closed Sneads Ferry landfill is potentially capable of producing sufficient amounts of combustible gas to justify recovering gas for the following alternatives:

- Supplying landfill gas to existing boiler No. 5 at the Base main steam plant
- Generating electricity with an internal combustion engine

According to the Radian report, each of the above alternatives was found to be technically feasible. The most economically attractive alternative identified at the time involved piping the landfill gas from the Sneads Ferry landfill to the Base main steam plant and co-firing the gas in boiler No. 5.

In 2007, MCIEAST-MCB Camp Lejeune commissioned URS to complete a follow up feasibility study for utilizing landfill gas from the closed Sneads Ferry landfill and the closed Piney Green landfill for heating or electric purposes. Based on the information received from this report, the yearly combined gas production for both landfills is 860 cubic feet per minute (cfm), which is insufficient to maintain heating or electric systems. Therefore, gas recovery has been determined to not be a viable option for MCIEAST-MCB Camp Lejeune.

5.5 Disposal

5.5.1 On-Site Disposal

On-site landfilling has been the most common form of waste management for Base-generated solid waste over the past quarter century and continues to serve as the primary method of disposal. In the past, the Base operated an unlined landfill for disposal of Base-generated solid

waste just off Sneads Ferry Road. This landfill was closed under Subtitle D regulations after 25 years of operation.

MCIEAST-MCB Camp Lejeune began disposal operations in 1998 at the current Subtitle D Landfill located on Piney Green Road, approximately 1.5 miles north of the closed landfill. This facility was conceived after detailed evaluations of other waste disposal/management alternatives, which indicated that an on-site solid waste disposal facility would provide the greatest combination of cost and control advantages to the Base.

5.5.2 Sneads Ferry Closed Landfill

MCIEAST-MCB Camp Lejeune began closure of the landfill located at Sneads Ferry Road in 1998 after receiving the final waste for its vertical expansion, which was granted by the State of North Carolina in 1992. Certification of the closure was submitted to North Carolina Department of Environment and Natural Resources in November 1998.

The Sneads Ferry landfill began operations in 1973 as an unlined solid waste landfill to serve the disposal needs of MCIEAST-MCB Camp Lejeune. The original facility, covering approximately 65 acres, was permitted to contain over 1.46 million yards of waste (including cover material) at closure. The vertical expansion covered approximately 16 acres of the eastern portion of the original disposal area (estimated at 80 acres) and allowed an additional 400,000 cubic yards of disposal capacity on its top surface. Historically, the landfill had accepted solid waste generated by Base housing, offices, mess halls, and the commercial and industrial operations located on Base. Significant amounts of coal ash and wastewater treatment sludge contributed to the annual waste flow into the landfill. Other materials typically landfilled included creosote and salt-treated lumber, construction debris and other wood wastes, shredded tires, cardboard unsuitable for recycling, and asbestos materials (segregated in a designated asbestos-disposal area).

The State of North Carolina originally approved the landfill closure plan in 1995, which proposed the regulatory minimum cap (featuring a soil layer with a permeability of 1×10^{-5} centimeters per second or less). Subsequent design changes resulted in an alternative cap consisting of the following:

- Minimum 12-inch layer of intermediate soil cover
- Gas transmission conduits (non-woven geotextile) connected to gas vents
- 30-mil polyvinyl chloride flexible membrane liner
- Non-woven geotextile drainage layer
- Minimum 24-inch thick soil layer
- Vegetative layer/positive drainage features

The area to be closed using the alternative cap included approximately 44 acres of landfill surface, which was 27 acres more than the original 17 acres approved under the regulatory minimum cap scenario.

Post-closure activities conducted at the landfill included groundwater monitoring, passive gas venting, cover system maintenance, and operation of two surface water sedimentation basins.

5.5.3 Piney Green Subtitle D Landfill

Construction of MCIEAST-MCB Camp Lejeune's current landfill, located on Piney Green Road, began in 1996. The Phase I area became operational in 1998 and is now capped. The Phase II area became operational in 2004, reached capacity in 2010 and is now capped. Phase III became operational in 2010 and is currently in use. The current facility plans include a future Phase IV and Phase V, which will maintain the Base at a total permitted capacity of 4,089,000 cubic yards. Figure 5-7 presents the footprint for both existing and planned operational phases of the Piney Green Subtitle D Landfill.

Capacity

The initial phase covers 12.3 acres and has a permitted capacity of 702,000 cubic yards including soil cover. Phase I provided approximately 6.8 years of disposal service at capacity usage rate of 103,240 cubic yards per year. Phase II, spanning 11.0 acres, consisted of three cells with a total a permitted capacity of 629,000 cubic yards including intermediate soil cover and final cover Phase III, spanning 11.6 acres, has a total permitted capacity of 662,000 cubic yards. Anticipated acreage and capacity for the remaining three phases of the permitted landfill area include:

- Phase IV - 12.9 acres (1,051,572 cubic yards)
- Phase V - 12.8 acres (1,044,428 cubic yards)

Figure 5-7. Piney Green Subtitle D Landfill Site Layout

Remaining Life

Phase III of the landfill is currently in operation. Based on data compiled June 2010 through December 2011, landfill capacity is being consumed at an approximate rate of 10,301.67 cubic yards per month including intermediate cover. Using this rate, it can be estimated that the Phase III landfill, as of December 2011, has an additional four years of use prior to reaching capacity.

Conservation of landfill capacity has been and remains a prime objective of the Base waste management program. To maximize the utilization of the landfill, a permit modification was submitted and approved by the North Carolina Department of Environment and Natural Resources in January 2000 to allow the use of an alternative daily cover (ADC). Upon approval, the Base began the use of "posi-shell," which resulted in the operational waste to soil ratio becoming more consistent with the industry average.

However, the best strategy for landfill capacity conservation is to promote Base-wide source reduction and recycling. Utilizing many of the strategies outlined in Section 5.1 and 5.2 will increase the reduction of solid waste and continue in the conservation of landfill space. Through active waste diversion, the Base will be able to preserve landfill capacity and life expectancy further than with operational changes at the landfill alone.

5.5.4 Off-Site Transfer and Disposal

As detailed previously, solid waste generated at MCIEAST-MCB Camp Lejeune and MCAS New River is primarily managed through the Base Landfill, MRF, T&P Facility, Composting Facility, and DLADS, with the exception of some contractor C&D waste and family housing recyclables. In 2011, approximately 12,319 tons of C&D waste was transported to the Sampson County Landfill. Existing contract mechanisms for construction and demolition projects currently make it difficult to obtain an accurate accounting of all C&D wastes transferred by Base contractors to outside area landfills.

Outside landfills utilized by Base contractors include the WI-Sampson County Disposal Inc. (Permit #8202) landfill, with an approximate $45/ton tipping fee. Although the Base resides within Onslow County, the Onslow County Subtitle D Landfill (Permit #6709) is prohibited (by county ordinance) from accepting solid wastes produced from within federal military facilities. According to the North Carolina Solid Waste Management Annual Report for 2010-2011, the Sampson County landfill disposed of 52,872 tons of municipal solid waste and C&D waste in 2010-2011, and the Onslow County disposed of 175,208 tons.

5.6 Disaster Response

Dealing with the remnants of a natural disaster presents a challenge for those responsible for solid waste management. In addition to daily waste loads, one also has to effectively manage the added waste loading, primarily debris, resulting from the incident. Given their proximity to the Atlantic coast, an element of solid waste planning for MCIEAST-MCB Camp Lejeune and MCAS New River is preparation for debris management from hurricanes and resulting flooding.

Strong winds, storm surges causing flooding, and rain associated with hurricanes results in the following types of debris requiring management:

- C&D wastes from damaged infrastructure
- Damaged vehicles and boats
- Damaged furniture and other personal property
- Fallen trees and other vegetative debris
- Displaced sand, soils and sediments

Dealing with storm debris is a joint effort between Public Works, who provides collection and management services, and EMD functioning in a regulatory oversight capacity. To the extent practicable, storm debris is to be managed through the Base MRF, T&P Facility, Composting

Facility, and DLADS. For consolidation of vegetative debris, the Base maintains four storm debris staging sites:

- Mainside Hurrican Debris Burn Site: 4.7 acres, located northeast of the Base Landfill, at the landfill cover borrow area
- Camp Johnson Hurricane Debris Burn Site: 0.2 acreas, located in the Camp Johnson area off of the tank trail accessed from Hoover Road
- Courthouse Bay Hurrican Debris Burn Site: 10.6 acreas, located in the Courthouse Bay area off of the tank trail that runs parallel to Sneads Ferry Road
- Camp Geiger Hurrican Debris Burn Site: 3.9 acreas, located on White Street near the intersection with Curtis Road

These areas are permitted with the state of North Carolina for air curtain burning of vegetative debris. Air curtain burning involves burning the debris in a pit over which air is blown. The "air curtain" traps the debris in the pit and raises temperatures providing more complete combustion and minimal residue generation. Air curtain burning of debris is employed by the Base only in instances of debris excess that cannot be efficiently managed through the T&P Facility. Although the sites are permitted for air curtain burning, notification to NCDENR Department of Air Quality and Division of Waste Management along with agency approval is required before any burning event. The last permitted air curtain burn using a debris burn site was in August 2011.

Should additional debris staging areas be required, North Carolina has a myriad of pre-approved disaster debris sites across the state. Currently, only one staging site exists in Onslow County. The site is adjacent to the Onslow County Subtitle D Landfill and is pre-approved for acceptance of vegetative storm debris only.

Responding to a natural disaster often requires resources beyond those available at the facility. To supplement Base resources, MCIEAST-MCB Camp Lejeune and MCAS New River have access to the Naval Facilities (NAVFAC) command. Upon contacting NAVFAC, the Base would provide funding and then receive assistance as specified in response to a natural disaster. Quick response through NAVFAC provides the additional personnel, equipment, materials, and labor necessary to effectively manage the aftermath of a natural disaster.

5.7 Program Monitoring

Monitoring of solid waste practices is an essential element of any successful solid waste management program. Activities conducted at MCIEAST-MCB Camp Lejeune and MCAS New River to monitor solid waste practices are provided below.

5.7.1 MCIEAST-MCB Camp Lejeune Public Works

Collection Monitoring

As Public Works completes their daily collection routes, the drivers identify containers and their contents that are not in compliance with Base solid waste requirements as outlined in BO

11350.2D – Refuse Disposal Procedures. These containers are logged by Public Works within the Landfill Dumpster Discrepancy Report. The report, which details the date, building number (i.e., container location) and discrepancy is emailed daily to all Tenant/Unit S-4 Officers. Containers identified in the Dumpster Discrepancy Report are precluded from pickup until the noted discrepancy is resolved. A sampling of daily reports indicates that infractions range from access restrictions (e.g., parked vehicle blocking access to container) to improper mixing of waste (e.g., mixed metals in metal containers, furniture in dumpster etc.).

Landfill Acceptable Waste Monitoring

Procedures for monitoring wastes entering the landfill facility are established within the Landfill Operations Plan and are briefly discussed below.

Upon entering the landfill facility, all vehicles are to proceed to the scale house for security check-in, inspection and load weight determination. At the scale house, the scale operator logs the vehicle license plate along with vehicle number, customer, waste material codes, and load weight for recordkeeping purposes. If the load is from a contractor, the contractor must present a construction pass and a copy of the active contract (face copy) or memo from contracting office under which the work is authorized. A cursory visual inspection is performed by the scale operator prior to acceptance of each load.

Two-way communication maintained between the scale operator, landfill personnel, and T&P Facility personnel keep all apprised of incoming loads at the respective facilities subsequent to log in and acceptance at the scale.

In-depth screening of each load generally is not practicable. However, in addition to the visual inspections performed and general monitoring for prohibited waste, Public Works does perform random screenings of incoming loads. These screenings are performed weekly; however, if conditions warrant, additional screenings will be performed. Typically, contractor-generated loads are targeted for inspection as they most often originate in areas requiring off-Base travel before arrival at the Base Landfill and employ local commercial solid waste haulers for transportation. Haulers selected for screening are directed to the screening pad where their load is dumped for inspection by landfill personnel. Loads containing improper materials are rejected by the landfill and precluded from disposal at the facility.

As indicated in Section 4, contractor C&D debris is a high volume waste stream accounting for greater than 60% of the solid waste generated at the Base. During 2008, a concerted effort to monitor contractor solid waste activities was undertaken by EMD over a three-week period. During this time frame, solid waste management activities of contractors, including transportation of solid wastes to the Base Landfill were observed. The findings from this project were reported and resulted in a change in contract language regarding contractor use of the landfill. It is recommended that contractor use of the Base Landfill be re-evaluated yearly to determine the best mechanisms for decreasing contractor solid waste.

5.7.2 MCAS New River

MCAS New River Buildings and Grounds perform visual inspections of collection containers three times per week. Utilizing two personnel on roving patrol and one manned vehicle, Buildings and Grounds visually inspects approximately 200 dumpsters each day for improper wastes (e.g., vegetative debris in dumpster, trash in recycling containers, recyclables in trash dumpsters, etc.). Items recovered from the dumpsters are brought to the Building and Grounds compound where they are stored until transferred by the unit to the Base Landfill facility or DLADS.

5.8 Recordkeeping

5.8.1 Permit Compliance Requirements

MCIEAST-MCB Camp Lejeune is required by its Municipal Solid Waste Landfill (MSWL) Permit No. 67-08, Solid Waste Treatment and Processing Facility Permit No. 67-11, and Solid Waste Compost Facility Permit No. SWC 67-10 to maintain accurate and detailed records. This section presents recordkeeping requirements by permit.

MSWL Permit No. 67-08

MCIEAST-MCB Camp Lejeune's Permit to Construct (MSWL Phase II Closure, effective 29 August 2011 – 17 December 2013) requires the following reporting and recordkeeping:

- Well construction records
- Well abandonment records

MCIEAST-MCB Camp Lejeune's Permit to Operate (MSWL Phase III Cells 1, 2, and 3, effective 29 August 2011 – 20 May 2014) requires the following reporting and recordkeeping:

- Reports of the analytical data for each groundwater monitoring event, untreated leachate test results, groundwater and surface water test results, well construction records, and soil boring logs must be submitted to NCDWM.
- The permanent facility record must include:
  - Records of all groundwater, surface water, and leachate analytical data.
  - Field log book that details activities associated with each monitoring well, surface water sampling location, and leachate sampling location.
- A record of the amount of solid waste received at the landfill, compiled on a monthly basis.
- An annual facility report must be submitted to NCDWM on or before August 1 annually and should include the following (annual reports for 2008-2011 are provided in Attachment D):
  - Waste received and landfilled in tons and compiled on a monthly basis by origin, specific waste type, disposal location, and diversion to alternative management facilities for each year (July 1 – June 30).

- Volume utilized in the landfill cells (performed during the second quarter of the calendar year)
- Amount of waste, in tons, disposed in landfill cells from the initial placement of waste through the date of the annual volume survey.

Solid Waste Treatment and Processing Facility Permit No. 67-11

MCIEAST-MCB Camp Lejeune's Permit to Operate a Solid Waste Treatment and Processing Facility (Permit No. 67-11, effective 24 July 2006 – 31 July 2011) requires the Base to submit an annual report to NCDWM that provides that the amount of waste received and the amount and type of products sold each year (July 1 – June 30). Annual reports for 2008-2011 are provided in Attachment D. At the time of this SWMP update, the renewal application for this permit was under review by NCDWM.

Solid Waste Compost Facility Permit No. SWC 67-10

MCIEAST-MCB Camp Lejeune's Permit to Operate a Large, Type 4 Solid Waste Compost Facility (Permit No. SWC 67-10, effective 12 January 2010 – 12 January 2015) requires the Base to submit an annual report to NCDWM that provides an account of the facility activities and materials composted in tons for each year (July 1 – June 30). Annual reports for 2008-2011 are provided in Attachment D. Additionally, the permit requires that testing and reporting be conducted in accordance with the requirements of 15A NCAC 13B, Section .1407, which are summarized below. This permit is currently in review with NCDENR to modify the facility from a Type 4 to a Type 3 solid waste composting facility.

For composting performed at MCIEAST-MCB Camp Lejeune, the following records are required to be maintained for a minimum of 5 years:

- Daily operational records including, at a minimum, temperature data (length of composting period) and quantity of material processed
- Analytical results of compost testing in intervals of every 20,000 tons of compost produced, or every 6 months, whichever comes first (15A NCAC 13B, Section .1400 for parameters)
- The quantity, type, and source of waste received
- The quantity and type of waste processed into compost
- The quantity and type of compost produced by-product classification
- The quantity and type of compost removed for use or disposal, by-product classification, and the market or permitted disposal facility

5.8.2 MCIEAST-MCB Camp Lejeune Recordkeeping Requirements

In addition to the regulatory requirements discussed above, the Base stipulates other internal reporting requirements for solid waste. Besides fulfilling general monitoring requirements and facilitating additional annual reporting, records that are compiled summarizing disposed and recycled materials are used to demonstrate the Base's progress toward meeting or exceeding

diversion goals set forth by the Navy and North Carolina. These additional reporting activities are briefly described below.

Reports of solid waste weight and volume by type and source as obtained from landfill weigh station logs are prepared by solid waste staff and submitted monthly. Copies of this report are submitted to the Director, IF&E, EMD, and the Military Family Housing solid waste contractor. Recordkeeping for recycling received from Military Family Housing Contractor is primarily used to account for revenues received. Weight records are also maintained for the Solid Waste Annual Report.

At the end of each fiscal year, the EPR Portal Solid Waste Annual Data Call report is generated. The report is prepared on a standard form and summarizes all solid waste activities on Base (including recycling). This report is submitted to the Commanding General of Naval Facilities Engineering Service Center in Port Hueneme, CA.

Current Recordkeeping System

Public Works and EMD currently use two independent recordkeeping software programs to track solid waste received at the landfill, recyclable tonnages, and revenues.

Public Works uses a software program called CompuWeigh, which was developed by Paradigm Software. The CompuWeigh program provides Public Works the ability to record all transactions and manage loads being brought into the landfill. The program is integrated with the scale so that data is automatically entered into the database as vehicles are weighed upon entrance to the facility. The program has the ability to produce various reports summarizing material received at the landfill over identified periods of time.

EMD staff is currently utilizing an Excel spreadsheet to track the sale of recyclables and the revenue received from the sale. The information to populate this spreadsheet is obtained monthly from the landfill scale reports and sale documentation.

This page intentionally left blank.

6.0 EDUCATION AND AWARENESS

6.1 Introduction

The development of a comprehensive public awareness and involvement program is central to successfully managing a solid waste program. Public information and education programs initially require considerable resources, but they are essential for Base acceptance and participation. Because the target audiences on Base require different approaches, a professional, consistent, and well-funded effort should be established to ultimately reduce the quantity of material being taken to the Base Landfill.

The EMD has primary responsibility for educating the Base population on the Solid Waste Management Program. This responsibility has been integrated into the Comprehensive Environmental Training and Education Program (CETEP). Compliance with goals established in the CETEP can only occur if the personnel responsible for the specific waste reduction requirements receive appropriate training. The goal of the training program is to empower workers to perform their assigned jobs in a manner that minimizes waste generation. It is critical that adequate resources be provided to EMD to allow the goals of the CETEP be met for the Base.

The EMD and Public Works are responsible for designing, developing, and implementing the Base's environmental community outreach program related to solid waste and recycling. Included among these activities could be an advertising campaign to enhance existing knowledge and influence prevailing attitudes regarding solid waste management for the Base. A successful campaign would necessitate the support of the public relations division, billboards on Base, public service announcements on the Base television channel, paid advertising in off-Base commercial print and electronic media, printed materials, and promotional items.

Each hands-on activity in which the public can participate in the aspects of "Reduce, Reuse, Recycle" becomes an educational opportunity. A variety of planned activities, especially as they touch a part of the Base personnel lives (school, business and home), will instill in the public mind the importance and far-reaching impact of their behavior in dealing with waste. Recycling, source reduction, composting, new collection methods, and MRFs all have the potential for influencing public opinion and behavior.

6.2 Current Activities

A variety of educational information is available to the Base population including the following:

Earth Day Celebrations. Representatives from both MCIEAST-MCB Camp Lejeune and MCAS New River's environmental staff, along with supporting contractors discuss their roles in maintaining environmental programs aboard the Base and air station. Activities typically include an environmental expo and several Base-wide clean-ups and river clean-ups.

Energy Awareness Month Energy Fair. Sponsored by Public Works Energy section, the Energy Fair is a one-day event held during Energy Awareness Month. It provides a gathering place for MCIEAST-MCB Camp Lejeune and MCAS New River personnel and contractors invested in energy awareness and conservation and a location to educate the public. Additionally, other activities during Energy Awareness Month include focus groups for junior and senior Base personnel and civilians, a youth poster contest, and a youth leadership luncheon.

Photo 1. A winning poster from the 2011 Energy Awareness Fair poster contest.

Articles in the Globe (Base newspaper). Typically, articles on recycling and other environmental issues, including Earth Day, scrap metals, and the Energy Awareness Month.

Military Family Housing Education. Information about recycling and household hazardous waste disposal is provided to Military Family Housing residents. Recycling containers are provided to residents which aid in sorting the materials as they are disposed of at the residence.

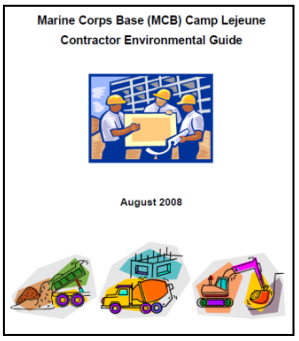
EMD and Air Station Websites. Contain information regarding environmental impacts of Base activities and environmental efforts involving the community such as Earth Day activities, Christmas tree collection, used electronic waste (e-waste) collection, etc.

Environmental Management System (EMS) Training. Instruction is provided by EMD designed to familiarize military and civilian personnel, including contractors and vendors, with MCIEAST-MCB Camp Lejeune's EMS and how it functions. Through this program, Base personnel have the opportunity to use an Electronic-Learning Management System (E-LMS), which offers online training access to courses taught by Base staff.

General Environmental Awareness Training. Instruction that is designed to familiarize military and civilian personnel, including contractors and vendors, with the local environmental policies and programs for regulatory compliance, such as natural resource conservation, pollution prevention, and environmental protection. An example of this training is EM101, which is given to Environmental Management Unit personnel annually.

Town Meetings. Held to disseminate information such as the environmental effects of the Marine Corps' "Grow the Force Initiative," other major construction projects, or Environmental Impact Assessments where input from the public is valuable or required.

Landfill Visits. Landfill staff provides school-aged children with educational visits to the Base Landfill & Recycling Center. During these trips, students have the opportunity to see solid waste management practices in action, including a visit to the composting center and wood lot, a tour of the MRF, and a trip to the landfill.



Contractor Education. Base Landfill & Recycling Center personnel hold pre-construction meetings with contractors to discuss solid waste policies on Base, including items that are and are not allowed for disposal at the Base Landfill. Additionally, a Contractor's Environmental Guide (2008) that includes a section on solid waste, recycling, and pollution prevention is made available to Base contractors.

Recycling Bins during Public Events. For events hosting large gatherings, such as at the field house, specialized containers for recyclable materials (plastics, aluminum, and glass) are provided.

Community Outreach. Representatives from the Base participate in various outreach events in the surrounding area communities, including the Sneads' Ferry Shrimp Festival, where they provide general environmental awareness materials and "Reduce, Reuse, Recycle" sand pails, magnets, and reusable shopping bags.

Base Staff Education. Flyers, newsletters, in-house presentations, and incentives for participation are some of the ways to communicate the problem and the solutions to MCIEAST-MCB Camp Lejeune staff. EMD will continue to assist with the design and development of education materials and communicate to other Base divisions to assure that every employee, classroom, and contractor is informed about Base recycling initiatives. EMD will also continue to make presentations and hold workshops for the various divisions as needed and/or requested.

Solid Waste Management Working Group. A working group made up of solid waste management representatives should continue to meet quarterly and develop feasible goals for the Base to achieve in the solid waste arena. Bringing these diverse groups together on a regular basis provides a forum for feasible waste reduction opportunities on MCIEAST-MCB Camp Lejeune. Discussion items and goals established to date include reiterating individual programmatic requirements, opportunities for solid waste reduction, and establishing realistic goals for solid waste disposal by reducing material directed to the Base Landfill.

Dumpster Discrepancy Reports. The Base Landfill Quality Control Coordinator regularly inspects dumpsters around the Base to ensure that units are following proper procedures. A monthly report is generated and distributed to offending units along with a list of "do's and don'ts" for proper dumpster use. Included in the list are instructions for allowable materials, parking restrictions, and safety concerns.

Community Events. MCIEAST-MCB Camp Lejeune's EMD has been actively promoting Earth Week each year with displays and other events. EMD can build on this awareness and enthusiasm to include similar activities throughout the year, such as recycling and composting fairs on Base, as well as other events that will be instructional, educational, and fun.

Scrap Metal Scavenging Letter. The Base Landfill recently hired a driver to pick up scrap metal bins because there have been problems with people scavenging metal out of them. A Base-wide letter has been developed and distributed to discourage scavenging.

7.0 PROCUREMENT

7.1 Introduction

In Onslow County, North Carolina, MCIEAST-MCB Camp Lejeune is the single largest contributor to the local economy (Onslow County, 2011). According to the MCIEAST-MCB Camp Lejeune FY 2010 Direct Economic Impact Statement, the Base purchased $680,403,260 of supplies, materials, and services which had an immense influence on the market for recyclable materials (MCIEAST-MCB Camp Lejeune PAO, 2010). Through a series of Executive Orders intended to strengthen the market for recycled materials, federal agencies have made great strides in improving environmental performance.

On 14 September 1998, Executive Order 13101 was signed with the intent to strengthen the market for recycled materials. This order required all federal agencies to set recycling goals and mandated that procurement agencies buy printing and writing paper with a minimum post-consumer recycled content of 30% by 31 December 1998. This order also directed EPA to monitor compliance with the recycled product procurement guidelines into federal facility inspections.

The most recent Executive Order associated with sustainable purchasing, EO 13423, was passed on 24 January 2007. Executive Order 13423, *Strengthening Federal Environment, Energy, and Transportation Management*, aims to further expand government success in environmental and energy performance by directing agencies to develop sustainable practices and programs for the following:

- Energy efficiency and reductions in greenhouse gas emissions.
- Use of renewable energy.
- Reduction in water consumption intensity.
- Acquisition of green products and services.
- Pollution prevention, including reduction or elimination of the use of toxic and hazardous chemicals and materials.
- Cost-effective waste prevention and recycling programs.
- Increased diversion of solid waste.
- Sustainable design/high performance buildings.
- Vehicle fleet management, including the use of alternative fuel vehicles and alternative fuels and the further reduction of petroleum consumption.
- Electronics stewardship.

Under this order, procurement and acquisition programs are to give preference to the purchase of the following:

- Recycled content products designated in EPA's Comprehensive Procurement Guidelines.
- Minimum 30% postconsumer fiber content for printing/writing paper.

- Minimum 20% postconsumer fiber content acceptable only if 30% is not reasonably available, does not meet reasonable performance requirements, or is unreasonably priced.
- Energy Star® products identified by the Department of Energy (DOE) and EPA, as well as Federal Emergency Management Program (FEMP)-designated energy-efficient products.
- Water-efficient products, including those meeting EPA's WaterSense standards.
- Biobased products designated by the U.S. Department of Agriculture in the BioPreferred program.
- Environmentally preferable products and services as detailed in EPA's Guidance on the Acquisition of Environmental Preferable Products and Services.
- Alternative fuel vehicles and alternative fuels required by EPAct.
- Products with low or no toxic or hazardous constituents.
- Non-ozone depleting substances, as identified in EPA's Significant New Alternatives Program.

7.2 MCIEAST-MCB Camp Lejeune Procurement

MCIEAST-MCB Camp Lejeune has multiple supply organizations including Base S-4, ServMart, the Supported Activities Supply System Management Unit, Solid Waste Services, the Naval Hospital, and MCCS. MCIEAST-MCB Camp Lejeune's supply function has implemented an affirmative procurement program where products that contain recycled content are preferred for procurement purposes. The Base is currently awaiting additional guidance from Marine Corps Headquarters on implementation of a Green Procurement Program. Generally, supply is divided into system and non-system items, further discussed below.

7.2.1 System Items

The majority of system or retail items are procured from the Defense Logistics Agency (DLA) or the General Services Administration (GSA). Typical system or property items include furniture such as desks, sofas, and mattresses as well as other accessories for barracks or offices, such as televisions and refrigerators.

An Environmental Products Guide is produced annually that identifies environmentally-oriented products and services available through the supply system of GSA's federal supply service. The Environmental Products Guide contains information concerning more than 2,900 items and is currently used in conjunction with a wide range of other catalogs by the Technical and Research Branch, Direct Stock Support Control (DSSC), to ensure compliance with Executive Order 13423 for new or non-system item procurement. Over 150 items containing recovered materials are available for purchase at the self-service and shop stores. For requested items that are not found in the GSA catalog, Logistics has a research branch that investigates the availability of environmentally preferable substitutes and the feasibility of purchasing such products.

7.2.2 Non-System Items

The Supply Management Division, a branch of the Base S-4, controls procurement methods for non-system supplies and services. Non-system supplies may be procured by individual marine units with the use of credit or DoD purchase cards, blanket purchase agreements, purchase orders, and delivery orders. Credit cards can be utilized to purchase supplies from off-Base suppliers in the surrounding areas. DoD purchase cards are part of a government-wide Commercial Purchase Card Program established to streamline acquisition processes by providing a low-cost, efficient method for obtaining goods and services directly from vendors. At MCIEAST-MCB Camp Lejeune, when a unit requires a specific good that cannot be provided by the ServMart, they can use their purchase card to procure the item from a private vendor; however, transactions must be approved by a ServMart representative. As of 2007, there were over 200 Marines stationed at MCIEAST-MCB Camp Lejeune properly trained in the use of government purchasing cards. Blanket purchase agreement authorization with off-Base suppliers must be granted by Base Purchasing and Contracting. Purchasing and Contracting may place restrictions on blanket purchase agreements concerning types of materials, dollar value procedures, etc. Adherence to these restrictions is the responsibility of the unit and is monitored by Base Purchasing and Contracting.

This page intentionally left blank.

8.0 COST AND FINANCIAL ANALYSIS

North Carolina General Statute 130A-309.08 requires local jurisdictions to determine and report the full cost of solid waste management, and OPNAVINST 5090.1C and MCO P5090.2A W/CH 1-2 specify that all Navy and Marine Corps shore activities worldwide that generate more than one ton per day of solid waste must prepare an EPR Portal Solid Waste Annual Data Call report, which includes cost and revenue information. Table 8-1 provides a financial summary from the 2007-2011 Solid Waste Annual Data Call reports.

Table 8-1. Cost Summary of Solid Waste Management 2007-2011

	2007	2008	2009	2010	2011
Landfill/Disposal					
Total Tons	52,917	57,313	51,602	59,403	34,124
Total Cost	$2,305,511	$2,497,144	$2,562,532	$2,195,587	$1,852,035
Net Cost per Ton	**$44**	**$44**	**$50**	**$37**	**$54**
Diverted (Recycled & Composted)					
Total Tons	24,342	45,569	51,442	71,359	65,395
Total Cost	$838,913	$918,640	$1,022,128	$1,087,952	$1,013,135
Total Revenue	$348,867	$881,409	$700,814	$1,642,973	$2,300,044
Net Cost	$490,045	$37,230	$321,314	$ (555,021)	$ (1,286,909)
Net Cost per Ton	**$20**	**$1**	**$6**	**$ (8)**	**$ (20)**
Total Solid Waste Generated					
Total Tons	77,259	102,882	103,044	130,762	99,519
Total Net Cost	$2,795,556	$2,534,374	$2,883,846	$1,640,566	$565,126
Total Net Cost per Ton	**$36**	**$25**	**$28**	**$13**	**$6**

These results indicate that MCIEAST-MCB Camp Lejeune's Solid Waste Management Program is continually improving and is meeting the Base's solid waste management goals.

This page intentionally left blank.

9.0 FUTURE OPPORTUNITIES

A review of the current Solid Waste Management Program identified opportunities that could improve the overall performance of the program. These opportunities are described in detail in the following sections.

9.1 Source Reduction Opportunities

Source reduction can be realized through various means include selective buying patterns and the elimination, reuse, substitution, and use minimization of products. Other strategies recommended for implementation by the Solid Waste Working Group are detailed below.

E-mail and Internet. The use of e-mail and the Internet can significantly reduce the use and disposal of paper. Although both are available and currently in use on Base, a majority of correspondence via e-mail and reference material, reports, and policy manuals continue to be printed to retain hard copies. Instead, these documents could be saved on hard drives and internet portals, reducing the need to print and distribute multiple copies.

Electronic Faxes. The use of computers to send and receive faxes directly is another way to reduce the need and disposal of paper. By using desktop computers to directly transmit and receive faxes, the cost of preparing and receiving faxes is also reduced.

Written Correspondence. By examining how and what is communicated and distributed, the amount of paper consumed can be reduced.

Duplex Printing. Making duplex (double-sided) printing the default printer setting for Base-controlled computers can reduce the amount of paper used.

Food Service. Food service facilities are significant generators of solid waste. Additional proven practices that can reduce the amount of waste generated include:

- Purchasing local fresh food
- Using reusable coffee filters
- Using washable rags
- Developing menus based on customer preferences to reduce the amount of wasted food
- Working with vendors and suppliers to reduce packaging material of supplies
- Encouraging the use of coffee mugs as opposed to disposable cups Base-wide

Construction and Demolition Debris. Encourage deconstruction over demolition. By the selective dismantling or removal of materials from buildings prior to or instead of demolition, the following may be realized:

- Lower building removal costs based on salvage value vs. avoided disposal costs
- Increased diversion of building materials into reuse or recycling

Pallets. MCIEAST-MCB Camp Lejeune actively recycles pallets through either direct reuse or transfer to the T&P Facility. The Base can continue to reduce the number of pallets requiring management by requiring suppliers use:

- Pallets only when necessary
- Reusable shipping containers as opposed to pallets
- Standard pallets (single wing stringer or flush style stringer) to reduce the chance of damaging the pallet and to provide a more readily reusable pallet

9.2 Solid Waste Collection Opportunities

Two opportunities for improving the solid waste collection activities on Base were identified during this update. These are detailed below.

Waste Characterization Project. An investigation to provide an updated solid waste characterization for the Base and to gather solid waste container pickup volume data would facilitate future collection optimization projects. In conjunction with this effort, EMD should work with Geographic Information System (GIS) personnel to enlist their aid in route collection optimization.

By employing ArcGIS Network Analyst tools and entering existing solid waste and recyclables routes into the MCIEAST-MCB Camp Lejeune GIS, the Base can develop an origin-destination cost matrix that will derive the best routes possible between pickup locations (origin) and the Base Landfill facility (destination). Input and analysis of other parameters, such as capacity of the fleet vehicle and volume and type of waste at each pickup through the use of hand-held GPS units, can also be evaluated to aid in finding the best routes for Public Works solid waste collection fleet. Optimizing collection routes in conjunction with an updated waste characterization/generation profile will ultimately improve solid waste management efforts through:

- More efficient allocation of resources: Improved routing maximizes resource efficiency by ensuring waste is picked up when necessary (i.e., full dumpster vs. half-full dumpster pickup) and that the best pickup sequence is employed between each pickup and return to the Base Landfill. As the demand for employee resources is lessened by improved collection efficiencies, these resources can be shifted to recycling efforts at the MRF.
- Increased segregation of recyclables from refuse: Improved analysis of waste generated at each location facilitates placement of the proper size and type of collection containers. Containers placed and tailored to the generation site increases customer convenience, which in turn makes the customers more likely to segregate recyclables.
- Proper placement of collection containers: The right container at the right location promotes both efficient allocation of resources and increased segregation of recyclables. A prime example of this is the current “blue bin” collection sequence. Public Works resources could be reallocated by limiting individual blue bin pickup

from the administrative offices of Commanding Generals and Directorate levels. Providing larger capacity, centrally-located, recycling bins for administrative buildings or groups of buildings would result in increased recycling.

Increase/Replace Equipment and Increase Manpower. Several deficiencies in equipment and manpower were identified that if remediated would promote improved collection and optimization of time and collection routes. Of the twelve front loading garbage trucks, several are old and nearing the end of their serviceable life. Often, multiple trucks are out of service and cannot be used for the collection routes. Additionally, the roll-off trucks often need maintenance and cannot be used for their routes; there are only three trucks for the three routes, and all three are rarely in working condition at the same time. The roll-off routes also have limited drivers available. Additionally, some of the equipment used at the landfill is over 20 years old and is frequently in need of repair. Providing new trucks and equipment would increase pickup capacity and optimize manpower use for collection and landfilling activities. Currently, the trucks and equipment used are not reliable enough to maintain the level of service needed. For example, 87 new front loader dumpsters were purchased for the collection of plastics. However, due to the limited number of trucks in working condition and limited manpower, they are not being put into commission for Base-wide use. The purchase of additional trucks and hiring of staff would allow for improved recycling service and an increased diversion of plastics from the landfill.

9.3 Recycling and Reuse Opportunities

MCIEAST-MCB Camp Lejeune EMD and MCAS New River EAD are actively pursuing expansion of their recycling programs. A full-time recycling manager was hired in at the MCIEAST-MCB Camp Lejeune MRF. With the addition of this position, there has been an improvement in the recycling efforts across Base. EMD is actively investigating several recycling opportunities, among them are recycling of plastic film (shrink-wrap primarily from warehouse and retail operations), boxboard/paperboard (MRE boxes) and cans (mess hall tin cans).

There are several additional opportunities that could increase the amount of material recycled aboard MCIEAST-MCB Camp Lejeune. These opportunities are detailed below.

Barracks Recycling. Currently there is no organized recycling program at the barracks. Visual observation of the waste dumpsters at several barracks indicated a high percentage of potentially recyclable material including cardboard, aluminum cans, and plastic bottles. Placing and servicing recyclable containers at the barracks could recover these materials. Each resident could be issued a small blue recycling bin to maintain in their room. When full, the residents could transfer their recyclables to a centralized collection center at the barracks for pickup by Public Works. Additionally, recycling bins could be placed in common locations, such as lounges or laundry rooms with easy access for residents to drop off recyclables. For a Barracks Recycling Program to be successful, it must be convenient for the residents. Due to the high turnover rate of Base residents, a successful program must also have dedicated staff to take ownership of the program and reinforce the benefits of recycling to the residents and monitor resident

participation. Due to a lack of manpower at the Base Landfill & Recycling Center, allocating resources to pick up recyclables at the barracks and BEQs is not currently a feasible option. An assessment of equipment and funded positions required should be conducted to determine feasibility of a barracks/BEQ recycling program.

Expansion of DoD Schools Recycling. The DoD schools currently have a recycling program that includes paper, plastic, and cardboard. Additionally, the after school programs collect these recyclables and deliver them to the Base Landfill. Expansion of the school recycling program to include aluminum, glass, Styrofoam, and the collection of food waste for composting would increase solid waste reduction at the schools and possibly revenues if aluminum were collected and sold.

Monitor Contractors to Ensure C&D Debris is Recycled. Contracting language has been improved to require that contractors for construction, demolition and/or renovation projects on Base who use the Base Landfill follow procedure for acceptance of wastes and management of recyclables. However, the contractors are not being monitored to ensure adherence to recycling requirements, and there is no system in place to track which contracts require recycling and allow use of the Base Landfill. Construction contracts include clauses requiring contractors transferring wastes off-site to provide 1) a copy of their solid waste permit for the off-site facility, and 2) weights of all wastes either disposed or recycled. Contracts should be monitored more closely to ensure compliance with these mandatory recordkeeping requirements. Tracking C&D debris more closely is necessary to promote recycling and to aid in the development of recycling metrics for the Base and for inclusion of recycling metrics in contracts. Additionally, for contracts that allow use of the Base Landfill, the OICC office is responsible for sending a memo to the landfill to indicate that the contractor is allowed to utilize the landfill. A system that automatically produces these memos and sends them to the Base Landfill Clerk would improve efficiency at the landfill when these loads arrive. Alternatively, an EMS ESOP could be developed to implement a clear procedure for drafting and sending these memos. Additionally, contract language could be added to promote diverting waste off-Base and using air curtain burning on the project site for land clearing debris.

Require Contractors to Use Base-Generated Recyclables. MCIEAST-MCB Camp Lejeune generates construction products (rip-rap, aggregate, compost, etc.) that could be used by contractors performing construction activities on Base. It is encouraged that contractors make use of these materials, and several recent contracts have utilized the construction products staged at the T & P Facility. Additional contracts for construction work should include a requirement to utilize Base-generated materials.

Research Options for Requiring Payment of Concrete Processing Contractor. Currently the contractor that processes (crushes) concrete stockpiled at the T&P Facility is paid by the Base for these services. Because the contractor is using this material to make salable products, it may be possible to require payment or to have a no-cost transaction with the contractor to save money for the Base.

Free Issue of Furniture at DLADS. Wood furniture given to DLADS is currently being sent directly to the Base Landfill regardless of its condition. Although ESOP 15.1, under Camp Lejeune's EMS program, outlines the procedure for reissue of usable material that is destined for disposal at the landfill, there is a lack of storage space for such items. According to DLADS personnel, approximately 50% to 75% of usable wood furniture is sent to the landfill when it could be sold or issued during a monthly free issue day. MCAS Cherry Point currently has a monthly free issue sale for all usable furniture that is no longer in use. Implementing a similar activity at MCIEAST-MCB Camp Lejeune would provide the opportunity for reuse of usable furniture; however, sufficient storage space needs to be provided to DLADS to make this a viable option for MCIEAST-MCB Camp Lejeune.

Improved Cardboard Collection. Cardboard is collected in dumpsters throughout the Base. During development of this SWMP update, many dumpsters were observed with the dumpster lids in the open position. Wet cardboard received at the Base Landfill is currently disposed of as garbage as it is difficult to bale, prohibiting off-site transfer by the current QRP cardboard recycler. Many dumpster lids are left open by Base personnel and improved education could increase awareness of the problem. Additionally, locking the lids and allowing access only through the side of each dumpster would potentially eliminate the problem, but becomes time-consuming for landfill staff during collection.

Increased Recycling at Military Family Housing. Currently the recycling program at Military Family Housing includes newspaper, magazines, cans (bi-metal and aluminum), glass, plastic (PETE and HDPE), white goods, cardboard, and yard waste. This includes all readily recyclable material. MCIEAST-MCB Camp Lejeune can increase the participation rate by providing additional educational activities that emphasize recycling and larger recyclable storage containers.

Composting of Food Waste at Dining Facilities. The dining facilities at MCIEAST-MCB Camp Lejeune produce a large amount of food waste that could be diverted from the Base Landfill through composting or recycling. Composting organic matter from dining facilities has been done at several military installations across the country and includes an education component to educate Base personnel and dining facility staff. Once personnel have been educated and food waste is being sorted between organic and inorganic material, it can then be transported to the composting area or can be composted at each dining facility. Several companies specialize in equipment that allows on-site composting at each individual facility. A full study and plan to institute composting activities at the Base dining facilities is recommended prior to beginning such a project.

9.4 Opportunities for Improved Recordkeeping

Improvements in data management at the Base Landfill, through additional training, and associated with the EPR Portal Solid Waste Annual Data Call reports were identified during this update and are detailed below.

CompuWeigh Training. The software program CompuWeigh is currently used by the Base Landfill personnel for recordkeeping and data management. Based on discussion with Public Works staff, further training on the CompuWeigh program would be beneficial to its further use. The Paradigm Software website provides many options for training, including training materials on their website for registered users, on-site training, and webinars.

Solid Waste Annual Data Call Software and Procedure. EMD is currently using an Excel spreadsheet and does not have a procedure in place to ensure data is tracked and calculated consistently each year for the Solid Waste Annual Data Call reports. During this update, it was noted that there are discrepancies between the solid waste quantities reported in the Solid Waste Annual Data Call, the annual reports submitted to NCDENR, and the data exported from the CompuWeigh system. It is recommended that EMD consider using a solid waste reporting tool such as the Solid Waste Annual Reporting (SWAR) software or another database and reporting tool created specifically for this purpose. Alternatively, EMD could use a software or consulting firm to develop practical recordkeeping and database software to meet their needs.

SWAR for Installations is a user-friendly database system that tracks data relevant to solid waste management. The SWAR-Base software package is designed to provide a tool for tracking solid waste handling information at the activity level. These data include disposal sites, disposal and recycling transactions, recycling revenues, and recycling program management. Solid waste data collected throughout a fiscal year can then be uploaded/exported to the major claimant/command to fulfill the reporting requirement and to track compliance with DoD waste reduction and recycling goals.

Also, the development of an EMS ESOP specifically for the development of the Solid Waste Annual Data Call report should be considered. The procedure could clearly outline what types of data are included in the calculations, where and when the data can be obtained, entities responsible for collecting and generating necessary data, and methods for checking data for compliance with the written procedures.

9.5 Education Opportunities

The following opportunities were identified during the research conducted for this SWMP update.

Dumpster Safety Training. Base Landfill & Recycling Center personnel identified that dumpster safety awareness is an issue on Base. On Base residents, particularly in BEQ, often compromise their own safety and the safety of the dumpster truck operators by walking under dumpsters when they are being lifted by the trucks to empty or by parking inappropriately close to dumpster areas. Dumpster/dumpster truck safety training could be included in formal general environmental or EMS training already in place or in a relaxed format in the Base newspaper.

Social Media. Utilizing social media as an education tool for both on-Base and off-Base personnel. Not only can Facebook and Twitter be used to promote community events, such as

Earth Day, they can also be utilized for providing public service messages regarding solid waste. Social media can also be used to facilitate a Base-wide discussion on solid waste practices, providing an open forum for the Base to ask about acceptable recyclables, how to dispose of electronics or hazardous materials, or handling damaged furniture, as an example.

Barracks Recycling Program. Implementing a barracks recycling program, which includes recycling pickup and education, would further promote the importance of recycling materials at both work and home.

Source Reduction Education Activities. Educate Base residents about the benefits of source reduction and the measures they can take to reduce the amount of waste consumed through EPA publications such as *The Consumers Handbook for Reducing Solid Waste*, which could be applicable to Military Family Housing residents. Include solid waste reduction measures in educational materials related to recycling and pollution prevention that are already distributed during Earth Day activities, electronics turn-in day and the Energy Fair, and other venues.

Awards. Awards acknowledging neighborhoods, active military, and civilian employees who have made a significant impact on the environment through wise solid waste practices is suggested to encourage greater participation and creativity. Signs could be installed at the entrance of neighborhoods and units that have met or exceeded recycling goals. Awards could also be made during Earth Day ceremonies to help spur greater participation.

Additional Training for Contractors. Base Landfill & Recycling Center personnel identified a gap between information provided to contractors in both the Contractor Environmental Guide (2008) and the pre-construction meetings. Additional in-depth training in procedures at the landfill as well as general solid waste and recycling practices could assist in further diversion of contractor waste from the landfill. Providing an online training course for contractors could prove helpful in further education of contractors. As they account for over 50% of solid waste generated on Base, additional training in these areas could only help decrease waste produced by Base contractors. Furthermore, creating an online portal for contractors to track their waste and obtain resources for proper waste management would be helpful to landfill staff and contractors alike.

9.6 Procurement Opportunities

Given the purchasing power that MCIEAST-MCB Camp Lejeune has on the local and regional economy, future opportunities to improve in purchasing environmentally sustainable goods and services are ample. As changes occur on MCIEAST-MCB Camp Lejeune, there is always an opportunity to improve on current procurement practices. Over the next few years, the Base should focus on continuing to train and educate Base personnel on green purchasing practices, researching markets for low-cost materials containing recycled content, furnishing newly developed buildings with items containing post-recycled material and taking care of those products to maximize their value. Additional opportunities for improving the procurement program are detailed below.

Training. Training procurement personnel on the benefits and availability of purchasing sustainable products is important to maintain compliance with federal procurement mandates. A document prepared in 2005, "Department of Defense Green Procurement Strategy: Promoting Environmental Stewardship throughout the Department of Defense" provides several sources for training on Green Procurement including on-line Green Purchasing Training available at the Office of Personnel Management's GoLearn e-learning center. This purchasing training course is directed towards contracting personnel, purchase card holders, facility personnel, and product specifiers and is designed in modules to be used as both an introductory training and refresher training. Other agencies conducting procurement training include the DLA, the US Army Center for Health Promotion and Preventive Medicine, and the USEPA.

Targeted Items. Through the Comprehensive Procurement Guidelines (CPG), EPA designates items that must contain recycled content when purchased by federal, state, and local agencies, or by government contractors using appropriated funds. The EPA has designated products in eight different categories: construction, landscaping, non-paper office products, paper products, park and recreation products, transportation, vehicular, and other miscellaneous products. Research shows that items designated in the CPG are of high quality, widely available, and cost-competitive with virgin products. Product categories that should be evaluated to ensure MCIEAST-MCB Camp Lejeune meets EPA's buy-recycled requirements include paper products, non-paper office products, vehicular products, transportation products, and construction products. The USEPA also provides a database of vendors that carry items described in the CPG to assist purchasing agencies in finding a feasible method of obtaining goods while meeting the requirements of the Executive Orders. Through contacting local vendors and communicating with other nearby federal agencies, Base purchasing personnel may glean knowledge of the most feasible choice for purchasing sustainable goods.

For some materials, recent advancements in technology have allowed for a higher percentage of recovered materials than the EPA recommended amount. These products sometimes contain up to double the amount of recovered material than the minimum recommended by the EPA and could considerably improve the market for recyclable materials. Using these materials for construction and furnishing of a new building at the Base, for example, could save tons of potentially landfilled materials. Vendors who sell products with recovered materials would also benefit from the increase and sales which could potentially lower prices.

Because Executive Orders apply to government contractors in addition to government agencies, MCIEAST-MCB Camp Lejeune requires a proactive use of recycled-content material by contractors. This approach is currently used with paving contractors, who are required to recycle excavated pavement. Each contractor should be required to price alternative recycled-content items in addition to their standard material. If the contractor does not bid an environmentally preferable alternate material, the contractor would be required to submit a reason in writing as to why an alternate was not bid.

In addition, Public Works should include requirements for use of materials with recycled content in their specifications to the maximum extent practical. For example, contractors working on Base should be required to use Base-generated compost, when available, as soil conditioner for vegetating disturbed areas around new construction areas or for use in Base landscaping and grounds maintenance projects. The use of recycled concrete from the Base T&P Facility, when available, should also be required for Base construction activities where suitable.

Tracking System. All of the efforts to increase the use of recycled-content materials must be documented to enable accurate accounting of the efforts. It is recommended that a tracking system be instituted for all materials addressed by Executive Order requirements and procured on Base. The Solid Waste Annual Report requires information on the amount of various materials and their respective recycled content purchased during the year. The materials addressed include:

- Insulation
- Motor oils
- Cement and concrete
- Paper products
- Tires

The tracking system should include information from both government direct purchases and purchases made by contractors on behalf of MCIEAST-MCB Camp Lejeune. The tracking system should be set up to gather data on quantities purchased, total costs, and recycled content.

9.7 Public Participation Opportunities

North Carolina General Statutes (NCGS) 130A-309.9A requires local governments, including counties, to involve the public and incorporated municipalities in the development of their SWMPs. Although NCGS 130A-3209.9A does not apply to military installations (Brown, personal communication, 26 April 2012), it would be beneficial for MCIEAST-MCB Camp Lejeune and MCAS New River to participate in the Onslow County SWMP update process. It is recommended that EMD contact Onslow County concerning their involvement in future solid waste management planning and reporting activities.

This page intentionally left blank.

10.0 REFERENCES

Amersco Federal Solutions. 2008. Biomass & Alternative Methane Fuel (BAMF) Technology Specific Super ESPC. 3 December 2008.

Brown, Ethan. 2012. Personal communication (telephone) with Ethan Brown, Environmental Senior Specialist, North Carolina Department of Environment and Natural Resource, Division of Waste Management, Solid Waste Section, Planning and Program Management Branch. Phone: 919-707-8249.

Congressional Budget Office. 2011. Budget and Economic Outlook: Fiscal Years 2011 to 2021.

Defense Commissary Agency. 2012. DeCA's Award-Winning Environmental Initiative. Official Defense Commissary Agency Website. http://www.commissaries.com/green/deca_initiative.cfm.

Department of Defense. 2011. *Department of Defense Strategic Sustainability Performance Plan, FY 2011.* Fort Belvoir, VA: Defense Technical Information Center (DTIC).

Department of the Navy. 2009. Marine Corps Order P5090.2A W/ CH 1-2, *Environmental Compliance and Protection Manual*. 21 May 2009. Washington, D.C: Headquarters, U.S Marine Corps.

Department of the Navy. 2011. OPNAVINST 5090.1C, *Environmental Readiness Program Manual*. 18 July 2011. Washington, D.C: DON, Office of the Chief of Naval Operations.

Federal Register. 2007. Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management.* 26 January 2007. Federal Register Vol. 72, No. 17. Washington, D.C.: National Archives and Records Administration (NARA).

Federal Register. 2009. Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*. 8 October 2009. Federal Register Vol. 74, No. 194. Washington, D.C.: National Archives and Records Administration (NARA).

Government Accountability Office. 2008. *Report to Congressional Committees, Defense Infrastructure, Army and Marine Corps Grow the Force Construction Projects Generally Support the Initiative.* GAO-08-375. March 2008. Washington, D.C.: U.S. GAO.

MCCS Camp Lejeune. 2011. 2011 Energy Awareness Month Poster Contest Overview and Photo Recap. http://www.mccslejeune.com/energy/

MCIEAST-MCB Camp Lejeune. 1999. *Landfill-Gas-to-Energy Feasibility Analysis for Marine Corps Base Camp Lejeune*. Prepared by Radian International. January 1999. Camp Lejeune, NC: MCIEAST-MCB Camp Lejeune.

MCIEAST-MCB Camp Lejeune. 2006. Base Order 11350.2D, *Refuse Disposal Procedures*. 23 October 2006.

MCIEAST-MCB Camp Lejeune. 2007. *Landfill Compliance Evaluation, Final*. Prepared by URS Group, Inc. January 2007. Camp Lejeune, NC: MCIEAST-MCB Camp Lejeune.

MCIEAST-MCB Camp Lejeune. 2008. *MCIEAST-MCB Camp Lejeune Contractor Environmental Guide*. August 2008. http://www.lejeune.usmc.mil/emd/CONSOLIDATED_MCB_CONT_ENV_GUIDE.pdf

MCIEAST-MCB Camp Lejeune. 2011. *2011 Newcomer's Guide MCIEAST-MCB Camp Lejeune*. San Diego, CA: MARCOA Publishing Inc.

MCIEAST-MCB Camp Lejeune. 2011. Base Order 5090.17, *Solid Waste Reduction – Qualified Recycling Program*. 31 January 2011.

MCIEAST-MCB Camp Lejeune. 2011. ESOP 15.1, *Recycling Excess Material Inventory/Reissue Procedure*. January 2011.

MCIEAST-MCB Camp Lejeune. 2012. 2012 Recycling Plan.

MCIEAST-MCB Camp Lejeune, Public Affairs Office (PAO). 2010. Fiscal Year 2010 Direct Economic Impact Statement Brochure.

Marine Corps USA. New River MCAS: History and Overview. http://marinecorpsusa.org/content/index.php?option=com_sectionex&view=category&id=10&Itemid=97. (accessed 13 March 2012).

Naval Facilities Engineering Command. 2008. Final Report Marine Corps Base Camp Lejeune Solid Waste Management Plan Update. Prepared by Baker Environmental, Inc. Norfolk, Virginal: Naval Facilities Engineering Command (NAVFAC) Atlantic Division.

North Carolina Department of Environment and Natural Resources. 2005. An Update of the North Carolina Solid Waste Management Plan 2003 to 2013. http://portal.ncdenr.org/c/document_library/get_file?uuid=6ac408fb-db10-4728-9fd9-3a840ed038c8&groupId=38361

North Carolina Department of Environment and Natural Resources. 2011. North Carolina Solid Waste and Materials Management Annual Report for FY2010-2011. http://portal.ncdenr.org/c/document_library/get_file?p_l_id=4649434&folderId=4667253&name=DLFE-46021.pdf

North Carolina Department of Environment and Natural Resources. 2011. Ten Year Solid Waste Management Guide. Raleigh, NC: NCDENR, Division of Waste Management. Also

available at http://portal.ncdenr.org/c/document_library/ get_file?uuid=a5e6ccea-e1e7-410e-9b36-d02bb01abf3e&groupId=38361.

North Carolina General Assembly. 2010. North Carolina General Statutes, Chapter 130A, Article 9, 130A-309.04. Raleigh, NC: North Carolina General Assembly (NCGA).

Onslow County. 2007. Solid Waste Management Ordinance of the County of Onslow, North Carolina. July 2007. Jacksonville, NC: Onslow County Board of Commissioners.

Onslow County. 2011. Annual Budget Document for FY 2011-2012. Available at http://www.onslowcountync.gov/workarea/downloadasset.aspx?id=19569

Parson Engineering Science, Inc. 1995. *Camp Lejeune Marine Corps Base Solid Waste Management Plan, Final Report.* Prepared for: Camp Lejeune Environmental Management Department. Under Contract to: U.S. Air Force Armstrong Laboratories(AL/OEB), Brooks AFB. April 1995.

This page intentionally left blank.

Attachment A

NCDENR DWM "Ten Year Solid Waste Management Plan Guide" Recommended Section Cross-Reference

This page intentionally left blank.

Table A-1. NCDENR DWM "Ten Year Solid Waste Management Plan Guide" Recommended Section Cross-Reference

NCDENR DWM "Ten Year Solid Waste Management Plan Guide" Recommended Sections	Corresponding Section in MCIEAST-MCB Camp Lejeune Solid Waste Management Plan
Table of Contents	Table of Contents
Executive Summary	Executive Summary
Vision Statement	Executive Summary and Section 3.1
Today's Situation	Sections 1.2, 4.3, and 8
Waste Characterization	Section 4.2
Goals/Objectives/Options/Recommendations	Section 3.1
Waste Reduction Goal	Section 3.1
Appendices	Attachments A, B, and C
Planning Elements	
Reduction Element	Section 5.1
Collection Element	Section 5.2
Recycling and Reuse Element	Section 5.3
Composting and Mulching Element	Section 5.3
Incineration Element	Section 5.4
Transfer Outside Geographic Area Element	Section 5.5.4
Disposal Element	Section 5.5
Education with the Community and Through the Schools Element	Section 6.0
Special Waste Element	Sections 5.2 and 5.3
Illegal Disposal / Litter Element	N/A
Purchasing Recycled Products Element	Section 7.0
Disaster Response Element	Section 5.6
Collection of Discarded Computer Equipment and Televisions Element	Section 5.3

This page intentionally left blank.

Attachment B

2007-2011 EPR Portal Solid Waste Annual Data Call History

This page intentionally left blank.

P2ADS SOLID WASTE HISTORY

Calendar Year	2007	2008	2009	2010	2011	2012
			Population Data			
Military Resident	31,186	41,432	45,439	93,760	78,983	
Military Non-resident	23,907	20,711	34,256	12,558	59,422	
Civilian Residents	0	0	0	0		
Civilian Non-resident	5,392	4,769	5,218	5,794	5,579	
Total	60,485	66,912	84,913	**112,112**	**143,984**	
Recycle Category			**Tons Recycled**			
Food	0	0	0	0	12	
Glass	39	0	0	52	83	
Metals	1,576	2226.8	2290.27	2,904	3,240	
Other Non-Food			0	1,086	106	
Paper & Cardboard	713	2204.39	2441.62	3,451	4,283	
Plastic	21		76.1	339	307	
Wood	7,744	11585.8	16570.32	4,445	4,176	
Yard/Green Waste		0		1,195	1,195	
Total	10,092.45	16,016.99	21,378.31	13,472.84	13,401.27	
Solid Waste Category			**Solid Waste Summary**			
Landfilled	43,923.89	43,232.63	46,105.63	39218.97	30,878.39	
Tons	43,923.89	43,232.63	46,105.63	39,218.97	30,878.39	
Cost	$1,913,763.89	$1,883,645.69	$2,289,605.58	$1,664,088	$1,699,494	
Incinerated						
Tons	0	0	0.00	0		
Cost	$0	$0	$0	$0		
Composted						
Tons	505	1110.38	2649.98	2,056	1944.21	
Cost	$5,136	$11,293	$26,950	$3,563	$4,077	
Revenue	$0	0	0			
Cost Avoidance	$24,254	$45,897	$112,874	$91,898	$107,699	
Recycled						
Tons	10,090	16016.99	21378.31	13,473	13,401	
Cost	$699,490	$600,000	$670,741	$780,000	$857,000	
Revenue	$343,226	$771,872	$626,795	$1,528,949	$2,161,119	
Cost Avoidance	$484,612	$662,051	$910,592	$602,346	$742,370	
			Total Solid Waste Handling			
Total Tons	54,519	60,360	70,134	54,747	46,224	
Total Cost	$2,618,390	$2,494,938	$2,987,297	$2,447,651	$2,560,571	
Total Cost per Ton	$48	$41	$43	$45	$55	

Costs associated w/ composting are itemized by combining the labor of 1, WG-08 heavy equipment operator and 1, WG-02 Laborer/Spotter.

Other Select Waste (P2ADS - from Alicia)

	Disposed				
2011	tons	Dipsosal Cost	Recycled tons	Recycle Cost	Recycle Revenues
Ethylene Glycol	0	$0.00	225.23	$1.00	$0.00
Lead Acid batteries			136.3	$0.00	$54,452.10
Used oil			497.79	$0.00	$84,473.38
C&D	3245.56	$152,541.32	49190.21	$152,057.00	$0.00

2010	Disposed	Dipsosal Cost	Recycled tons	Recycle Cost	Recycle Revenues
Ethylene Glycol	121.76	$13,312.42	0	$0.00	$0.00
Lead Acid batteries			167.33	$0.00	$12,650.15
Used oil		$0.00	559.05	$0.00	$101,374.00
C&D	20184.17	$531,499.19	55103.39	$304,389.00	$0.00

2009	Disposed	Dipsosal Cost	Recycled tons	Recycle Cost	Recycle Revenues
Ethylene Glycol	0	$0.00	113.76	$18,714.47	$0.00
Lead Acid batteries	0	$0.00	109.92	$0.00	$8,252.15
Used oil			548.08	$0.00	$65,767.00
C&D	5495.9	$272,926.39	26642.15	$305,722.40	$0.00

2008	Disposed	Dipsosal Cost	Recycled tons	Recycle Cost	Recycle Revenues
Ethylene Glycol	0	$0.00	161.22	$26,522.04	
Lead Acid batteries			116.04		$8,711.61
Used oil			551.16		$100,825.54
C&D	14080.75	$613,498.27	27613.03	$280,824.51	

2007	Disposed	Dipsosal Cost	Recycled tons	Recycle Cost	Recycle Revenues
Ethylene Glycol	0	$0.00	0	$0.00	$0.00
Lead Acid batteries	0	$0.00	99.84	$0.00	$5,641.01
Used oil			442.55	$0.00	$0.01
C&D	8993.5	$391,746.80	13204.18	$134,286.51	$0.00

22197.68

Attachment C

Data and Updates Provided by Base Landfill Personnel: Landfill Data Obtained from CompuWeigh and the 2008 SWMP Update

This page intentionally left blank.

Jan 11,2012 02:28 pm

Transaction Rate Table

Entry	Label	UM	Rate	Minfee	Tax Rate	SiteCode	Conversion
10	Inhouse		$0.00	$0.00	0.0		
20	Marines		$0.00	$0.00	0.0		
30	Contracters		$0.00	$0.00	0.0		
40	MCCS		$0.00	$0.00	0.0		
50	LSS/EMI		$0.00	$0.00	0.0		
60	Actus		$0.00	$0.00	0.0		
65	AMCC		$0.00	$0.00	0.0		
70	Lincoln		$0.00	$0.00	0.0		
100	Outbound Load		$0.00	$0.00	0.0		

ENCL 01

This list identifies who/where the waste material is coming from
Transaction Table

Entry	Label	
10	Inhouse	All waste colected and delivered to the landfill by us.
20	Marines	All material deliverd by Marines from Marine Coprs units
30	Contracters	All material deliverd by Contractores autorised to use the Landfill
40	MCCS	All material delivered by or on behalf of MCCS
50	LSS/EMI	All material delivered by or on behalf of or EMI
60	Actus	All material delivered by or on behalf of ACTUS
65	AMCC	All material delivered by or on behalf of AMCC
70	Lincoln	All material delivered by or on behalf of Lincoln Park Housing
100	Outbound Load	All material Leaving the Base

4

Base landfill scale logs provide an accounting of the various materials managed by Public Works including that intended for disposal at the Subtitle D landfill and that to be managed by the Materials Recycling Facility (MRF) or the Treatment & Processing Facility (T&P). Solid wastes entering the Base landfill scales are tracked by generating unit and tallied to individual accounts as itemized in Exhibit 4-3.

Exhibit 4-3
Solid Waste Generating Units

Account Number	Account Name	Description
1	Shop 75	Public Works Base-wide general solid waste collection routes
2	LSS	Lejeune Support Services (LSS Maintenance Contractor)
3	MCB Units	Base military units - hauled by individual unit
4	DRMO	Any non-recyclables from DRMO - hauled by Shop 75
5	MCCS	Marine Corps Community Services - hauled by MCCS
6	Housing	Housing curbside SW contractor
7	Commissary	MCX open top dumpsters - hauled by Shop 75
8	EMD	Base Environmental sporadic, miscellaneous solid wastes - hauled by Shop 75
9	Burger King	~~Base Burger King - hauled by Shop 75~~
~~10~~	~~MCAS Shop~~	~~MCAS military units - hauled by Shop 75~~
11	NH-100	~~Navy Hospital - hauled by Shop 75~~
12	Contractor MCB	Base contractors (e.g., C&D)
13	Contractor MCAS	MCAS contractors (e.g., C&D)
14	MCAS Units	MCAS military units - hauled by individual unit

Shop 75 represents the daily collection of solid wastes, both for disposal and for recycling, throughout the Base and MCAS New River. As shown in Exhibit 4-4, this activity has contributed on average <25% of the solid wastes generated over the past 10 years.

Contributing to >60% of the solid waste generated on Base are contractors performing a variety of new construction and demolition projects. As depicted

Material Rate Table

Entry	Label	UM	Rate	Minfee	Tax Rate	SiteCode	Conversion
1	Solid Waste	TN	$0.00	$0.00	0.0		
2	Scrap Wood	TN	$0.00	$0.00	0.0		
3	Wood Chips	TN	$0.00	$0.00	0.0		
4	Cut Trees & Stumps	TN	$0.00	$0.00	0.0		
5	Dirt	TN	$0.00	$0.00	0.0		
6	Concrete	TN	$0.00	$0.00	0.0		
7	Pinestraw & Leaves	TN	$0.00	$0.00	0.0		
8	Asbestos	TN	$0.00	$0.00	0.0		
9	Metal for Lot 203	TN	$0.00	$0.00	0.0		
10	Cresote Lumber	TN	$0.00	$0.00	0.0		
11	Salt Treated	TN	$0.00	$0.00	0.0		
12	Cardboard Trash	TN	$0.00	$0.00	0.0		
13	Wet Garbage	TN	$0.00	$0.00	0.0		
14	DRMO	TN	$0.00	$0.00	0.0		
15	Horse Droppings	TN	$0.00	$0.00	0.0		
16	Servicable Pallets		$0.00	$0.00	0.0		
17	Fly Ash	TN	$0.00	$0.00	0.0		
18	Composte outbound	TN	$0.00	$0.00	0.0		
19	Outbound Wood Chips	TN	$0.00	$0.00	0.0		
20	Lead Painted Concrete	TN	$0.00	$0.00	0.0		
21	DRMO Furniture	TN	$0.00	$0.00	0.0		
23	Lead Painted Wood	TN	$0.00	$0.00	0.0		
24	Outbound Concrete	TN	$0.00	$0.00	0.0		
25	Recyclable Cardboard	TN	$0.00	$0.00	0.0		
26	Outbound Cardboard	TN	$0.00	$0.00	0.0		
27	Recyclable Paper Pro	TN	$0.00	$0.00	0.0		
28	Outbound Paper	TN	$0.00	$0.00	0.0		
29	Sludge	TN	$0.00	$0.00	0.0		
30	Outbound Contaminate	TN	$0.00	$0.00	0.0		
31	Cut Trees Stumps	TN	$0.00	$0.00	0.0		
32	Outbound Crushed Rock	TN	$0.00	$0.00	0.0		
33	Crushed Rock form Kno	TN	$0.00	$0.00	0.0		
34	Wood Ash		$0.00	$0.00	0.0		
35	Outbound RipRap	TN	$0.00	$0.00	0.0		
40	B-MAKK	TN	$0.00	$0.00	0.0		
41	Treated Wood Housing	TN	$0.00	$0.00	0.0		
42	Scrap Wood Housing	TN	$0.00	$0.00	0.0		
43	Concrete Housing	TN	$0.00	$0.00	0.0		
44	Contaminated Concrete	TN	$0.00	$0.00	0.0		
45	Dirt Housing	TN	$0.00	$0.00	0.0		
46	Tree Debris Housing	TN	$0.00	$0.00	0.0		
47	Leaves PStraw Grass	TN	$0.00	$0.00	0.0		
48	Demolition Housing	TN	$0.00	$0.00	0.0		
49	Asbestos for Housing	TN	$0.00	$0.00	0.0		
55	Animal Waste	TN	$0.00	$0.00	0.0		
60	Vinyl Siding Housing	TN	$0.00	$0.00	0.0		
61	Outbound Vinyl Siding	TN	$0.00	$0.00	0.0		
62	Huricane Irene	TN	$0.00	$0.00	0.0		
77	Textiles	TN	$0.00	$0.00	0.0		
88	Green Side Metal	TN	$0.00	$0.00	0.0		
89	Shop 75 Metal	TN	$0.00	$0.00	0.0		
90	Recyclable Plastic	TN	$0.00	$0.00	0.0		
91	Outbound Plastic	TN	$0.00	$0.00	0.0		
999	Not Specified	TN	$0.00	$0.00	0.0		

ENCL 02

4-4

ENCL 03

2/14/12Tue NC 3:13 pm
Ver 5.02041 Page 1

Transaction Totals
CLNCTRAN - ACCOUNTING
[Date Out] Between 1/1/2011 and 12/31/2011

Tbl Entry	Label	Count	Net Tn	Vol
10	Inhouse	5171	22932.37	52459.49998
20	Marines	2502	4636.09	10785.30002
30	Contracters	20084	241526.64	336865.9
40	MCCS	878	2405.25	5606.4
50	LSS/EMI	495	1460.21	2675.29999
60	Actus	914	4451.66	8929.1
65	AMCC	1258	4781.06	10174.49999
70	Lincoln	21	13.1	31.6
100	Outbound Load	136	2950.07	11245.10003
	Totals	31459	285156.45	438772.7

4-4

2/14/12 Tue NC 3:14 pm
Ver 5.0.2041 Page 1

Transaction Totals
CLNCTRAN - ACCOUNTING
[Date Out] Between 1/1/2010 and 12/31/2010

Tbl Entry	Label	Count	Net Tn	Vol
10	Inhouse	7170	36639.83	41259.24999
20	Marines	2844	4988.91	11269.76001
30	Contracters	17239	164800.12	250968.275
40	MCCS	523	632.5	1752.3
50	LSS/EMI	327	908.75	1395.2
60	Actus	1083	4925.66	9729
65	AMCC	2	1.25	4.9
100	Outbound Load	169	2170.08	6438.51998
	Totals	29357	215067.1	322817.2

in Exhibit 4-4, contractor waste has shown a steady increase over the past few years, attributed primarily to new family housing construction and construction/renovation projects associated with the Marine Corps' "Grow the Force" initiative.

Exhibit 4-4
Solid Waste Generated by Units

Unit	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Shop 75	18%	20%	25%	24%	21%	39%	22%	22%	16%	18%
Facilities Dept.(LSS)	5%	4%	2%	2%	2%	2%	3%	2%	1%	1%
DRMO	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MCCS	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Family Housing	1%	6%	7%	7%	6%	13%	6%	5%	4%	4%
Contractor MCB	66%	47%	53%	62%	64%	41%	64%	66%	71%	72%
Contractor MCAS	3%	20%	5%	1%	2%	1%	0%	1%	3%	4%
MCB Units	6%	3%	7%	3%	4%	4%	5%	5%	5%	1%
MCAS Units	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%
EMD	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Scale reports from 1998 to 2007

4.2 Waste Composition

Solid waste generated by the Base can be grouped into four broad categories or generation groups:

- Construction and demolition debris (C&D waste)
- Commercial and institutional waste
- Industrial waste
- Residential waste

As indicated previously, contractor waste associated with construction and demolition activities is the single, largest solid waste stream produced on Base. C&D generated at the Base is generally comprised of asbestos containing

ENCL 14

1A

1/11/12 We NC 3:26 pm
Ver 5.0.2041 Page 1

Material Totals
CLNCTRAN - ACCOUNTING
Volume Totals
[Date Out] Between 1/1/2010 and 12/31/2010

Tbl Entry	Label	Count	Net Tn	Vol
1	Solid Waste	6301	27229.2	48087.13997
2	Scrap Wood	2851	3593.46	9684.23
3	Wood Chips	209	1228.76	4295.6
4	Cut Trees & Stumps	3879	15401.84	32138.99999
5	Dirt	6249	107849.17	131215.66
6	Concrete	2207	23837.99	24507.58
7	Pinestraw & Leaves	951	736.5	2374.02
8	Asbestos	125	392.12	1436.70001
9	Metal for Lot 203	25	25.5	22.9
10	Cresote Lumber	13	29.75	89.2
11	Salt Treated	461	717.6	1943.09999
12	Cardboard Trash	30	43.09	204.5
13	Wet Garbage	4	19.65	25.5
14	DRMO	218	124.18	815
15	Horse Droppings	44	257.39	1035.20001
17	Fly Ash	305	3891.74	3921.00001
18	Composte outbound	87	381.72	325.4
19	Outbound Wood Chips	1	4.34	13
20	Lead Painted Concrete	408	4786.26	4206.86
21	DRMO Furniture	222	200.83	1401.9
23	Lead Painted Wood	247	1720.63	4066.30999
24	Outbound Concrete	6	107.58	16.1
25	Recyclable Cardboard	1767	2808.05	17161.63001
26	Outbound Cardboard	131	2582.26	8728.29995
27	Recyclable Paper Pro	174	129.79	472.5
28	Outbound Paper	7	93.28	373.1
29	Sludge	70	959.92	1152.1
30	Outbound Contaminate	2	23.72	6.6
31	Cut Trees Stumps	25	96.3	221.6
32	Outbound Crushed Rock	131	2177.93	1669.08001
33	Crushed Rock form Kno	1	6.82	47.7
40	B-MAKK	353	2793.1	3817.9
41	Treated Wood Housing	11	37.22	101.2
42	Scrap Wood Housing	327	914.71	2249.49999
43	Concrete Housing	206	2180.91	2153.6
44	Contaminated Concrete	8	129	148.3
45	Dirt Housing	429	5827.9	7517.1
46	Tree Debris Housing	172	660.82	1444.7
47	Leaves PStraw Grass	230	433.57	1334.3
48	Demolition Housing	2	6.13	18.4
49	Asbestos for Housing	5	6.34	21
55	Animal Waste	3	2.8	16.8
60	Vinyl Siding Housing	57	120.61	255.9

61	Outbound Vinyl Siding	1	1.55	2.3
77	Textiles	1	0.21	1.6
89	Shop 75 Metal	269	377.95	513.2
90	Recyclable Plastic	129	61.91	352.9
91	Outbound Plastic	3	55.01	165
	Totals	29357	215067.11	321772.21

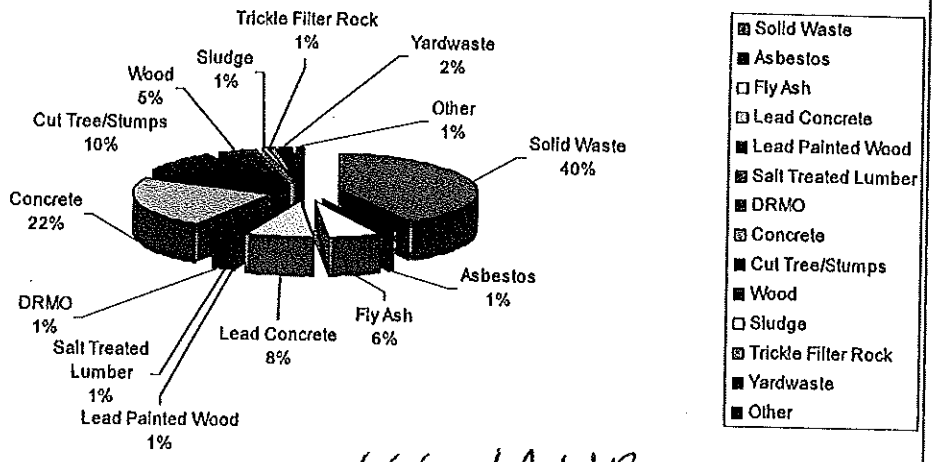
1/11/12 W NC 3:21 pm
Ver 5.0.2041 Page 1

Material Totals
CLNCTRAN - ACCOUNTING
Volume Totals
[Date Out] Between 1/1/2011 and 12/31/2011

Tbl Entry	Label	Count	Net Tn	Vol
1	Solid Waste	6553	29783.35	59571.1
2	Scrap Wood	2307	3322.09	9976.8
3	Wood Chips	49	251.12	879.3
4	Cut Trees & Stumps	3544	13358.28	30725
5	Dirt	10535	191060.6	246468.4
6	Concrete	2355	27826.12	32002.2
7	Pinestraw & Leaves	858	711.91	3132
8	Asbestos	87	238.84	955.3
9	Metal for Lot 203	36	127.75	140.4
10	Cresote Lumber	4	8.68	26
11	Salt Treated	408	680.52	2042.3
12	Cardboard Trash	15	30.94	216.6
13	Wet Garbage	2	0.86	1.1
14	DRMO	161	128.09	1024
15	Horse Droppings	38	190.69	954.5
16	Servicable Pallets	66	27.5	93.7
17	Fly Ash	328	4160.14	5408.3
18	Composte outbound	103	1002.11	7.4
19	Outbound Wood Chips	69	1397.45	4192.5
20	Lead Painted Concrete	74	806.47	927.4
21	DRMO Furniture	153	112.3	898.3
23	Lead Painted Wood	67	289.71	869.6
24	Outbound Concrete	1	0.85	1
25	Recyclable Cardboard	1717	2694.64	18870.1
26	Outbound Cardboard	119	2547.03	10187.7
27	Recyclable Paper Pro	225	178.56	714.4
28	Outbound Paper	6	95.54	382.2
30	Outbound Contaminate	1	3.82	7.6
31	Cut Trees Stumps	7	23.98	55.3
32	Outbound Crushed Rock	1	0	0
41	Treated Wood Housing	5	19.38	58.2
42	Scrap Wood Housing	128	423.07	1269.7
43	Concrete Housing	118	1280.73	1473
45	Dirt Housing	32	342.99	442.6
46	Tree Debris Housing	546	1072.89	2467.9
47	Leaves PStraw Grass	239	290.27	1276.7
49	Asbestos for Housing	7	17.12	68.5
55	Animal Waste	20	9.72	0.7
60	Vinyl Siding Housing	41	93.54	257.3
61	Outbound Vinyl Siding	1	0.32	0.5
62	Huricane Irene	1	2.34	5.4
88	Green Side Metal	1	6.12	12.2
89	Shop 75 Metal	277	460.02	242.7

90	Recyclable Plastic	153	77.07	461.8
91	Outbound Plastic	1	20.81	62.4
	Totals	31459	285176.3	438830.1

Exhibit 4-6
Solid Waste Managed at Landfill 1998-2007



SEE 1A+1B

The composition of recyclables managed by the Base is provided in Exhibit 4-7.

The types of solid wastes generated at MCB Camp Lejeune do not exhibit significant variation from that itemized and discussed throughout this plan. However, what does vary in regards to the types of solid wastes produced are: 1) points of generation, and 2) types as well as volume at each generation point. Fluctuations of this type are to be expected given the natural cycle of renovation, construction and expansion at the Base and should be reviewed periodically to:

- Ensure waste characterization is current
- Promote optimum collection schedules
- Identify additional opportunities to promote recycling

A limited field investigation is planned to determine/update quantities of waste materials generated on Base. The primary objectives of this effort are twofold: 1) to provide an updated solid waste characterization for the Base, and 2) to gather solid waste container pick-up volume data facilitating future collection schedule optimization (both recycling and disposal).

Exhibit 4-5

Solid Waste Delivered to Landfill 1998 to 2007

Waste Type	1998 (tons)	1999 (tons)	2000 (tons)	2001 (tons)	2002 (tons)	2003 (tons)	2004 (tons)	2005 (tons)	2006 (tons)	2007 (tons)
Landfilled										
Solid Waste	43,130	29,063	30,779	31,052	28,756	28,879	34,751	27,535	28,917	28,554
Asbestos	696	571	562	712	662	591	548	1,227	938	689
Cardboard	544	17	0	1	27	45	50	193	663	323
Creosote Lumber	391	103	100	176	64	155	149	117	89	128
Fly Ash	3,468	4,717	3,920	5,175	4,122	5,001	5,560	4,325	4,729	4,947
Lead Concrete	4,704	167	776	2,681	9,400	5,693	3,111	14,548	11,669	6,335
Lead Painted Wood	0	937	616	750	2,819	853	421	552	284	146
Salt Treated Lumber	96	298	280	236	249	568	686	685	632	499
Food Waste	0	0	0	0	0	8	0	0	0	0
DRMO	0	1,214	2,054	816	766	705	1,053.10	889	854	693
Subtotal	53,030	37,087	39,087	41,599	46,864	42,498	45,276	50,070	48,775	42,315
Recovered										
Concrete	16,344	13,112	12,191	22,801	12,487	16,365	29,050	18,211	15,710	13,946
Cut Tree/Stumps	4,515	4,700	6,885	5,160	8,923	8,127	13,000	5,520	11,664	3,064
Food Waste	71	58	0	0	0	0	0	0	0	0
Horse Manure	213	174	207	205	181	129	149	158	65	21
Wood	7,138	2,783	5,279	3,572	2,778	2,880	4,205	2,377	1,996	2,493
Sludge	3,002	1,666	5	0	0	0	0	0	0	0
Trickle Filter Rock	0	6,375	0	0	0	0	0	0	0	0
Wood Chips	286	555	241	338	124	263	72	293	334	66
Yard waste	1,080	1,330	1,278	1,400	1,394	1,900	2,064.07	1,106	559	417
Subtotal	**32,650**	**30,753**	**26,087**	**33,477**	**25,887**	**29,664**	**46,476**	**27,665**	**30,328**	**20,008**

SEE 1A-13

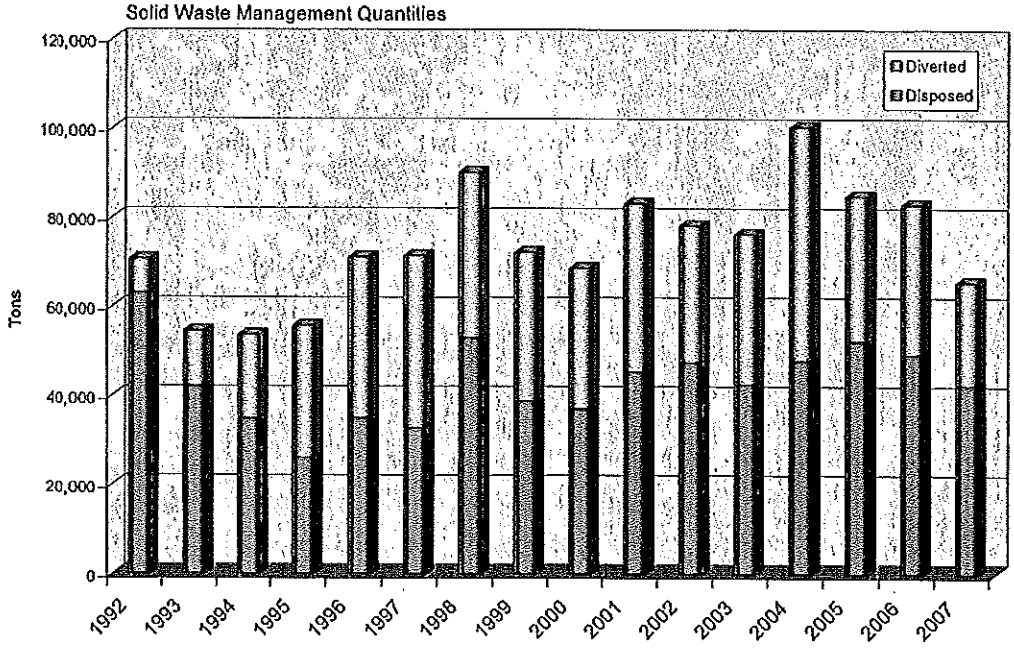
PULL FROM 1A + 1B

Exhibit 4-1
Solid Waste Management Quantities

Year	Disposed	Recycled	Total
1992	63,100	7,600	70,700
1993	42,100	12,400	54,500
1994	34,800	18,900	53,700
1995	26,049	29,709	55,758
1996	34,945	36,221	71,166
1997	32,694	38,722	71,416
1998	53,030	37,174	90,204
1999	38,729	33,496	72,225
2000	37,033	31,632	68,665
2001	45,405	37,822	83,227
2002	47,471	30,797	78,268
2003	42,498	33,841	76,339
2004	47,861	52,504	100,365
2005	52,314	32,551	84,865
2006	49,272	33,721	82,993
2007	42,316	23,260	65,576
	689,617	**490,350**	**1,179,967**

Values presented in tons

Exhibit 4-2
Solid Waste Management Quantities



Year to Date Report for DECEMBER 2008

			Ntons
Descrip:	Solid Waste		
Totals for Descrip:	Solid Waste	1	21378.15
Descrip:	Asbestos		
Totals for Descrip:	Asbestos	8	1332.11
Descrip:	Concrete		
Totals for Descrip:	Concrete	6	6412.85
Descrip:	Cut Trees & Stumps		
Totals for Descrip:	Cut Trees & Stumps	4	11522.57
Descrip:	Dirt		
Totals for Descrip:	Dirt	5	31103.25
Descrip:	DRMO		
Totals for Descrip:	DRMO	14	1220.09
Descrip:	DRMO Furniture		
Totals for Descrip:	DRMO Furniture	21	262.18
Descrip:	Fly Ash		
Totals for Descrip:	Fly Ash	17	4425.69
Descrip:	Lead Painted Concrete		
Totals for Descrip:	Lead Painted Concrete	20	2980.10
Descrip:	Lead Painted Wood		
Totals for Descrip:	Lead Painted Wood	23	1507.79
Descrip:	Metal for Lot 203		
Totals for Descrip:	Metal for Lot 203	9	487.16
Descrip:	Out Bound Wood Chips		

Totals for Descrip:	Out Bound Wood Chips	19		0.00
Descrip:	Pinestraw & Leaves			
Totals for Descrip:	Pinestraw & Leaves	7		606.50
Descrip:	Salt Treated			
Totals for Descrip:	Salt Treated	11		416.63
Descrip:	Scrap Wood			
Totals for Descrip:	Scrap Wood	2		2386.03
Descrip:	Wood Chips			
Totals for Descrip:	Wood Chips	3		2618.72
Descrip:	Cardboard			
Totals for Descrip:	Cardboard	12		242.78
Descrip:	Cresote Lumber			
Totals for Descrip:	Cresote Lumber	10		481.82
Descrip:	Horse Dropping			
Totals for Descrip:	Horse Dropping	15		272.48
Descrip:	Sludge			
Totals for Descrip:	Sludge	29		317.82
Descrip:	Outbound Crushed Concrete			
Total for Descrip:	Outbound Crushed Concrete		32	1523.78
Descrip:	Riprap			
Total for Descrip:	Riprap		35	0.00
Descrip:	Recyclable Cardboard			
Total for Descrip:	Recyclable Cardboard		25	2664.80
Descrip:	Outbound Cardboard			

Total for Decrip:	Outbound Cardboard	26	1540.45
Descrip:	Recyclable Paper		
Total for Descrip:	Recyclable Paper	27	67.79
Descrip:	Outbound Paper Product		
Total for Descrip:	Outbound Paper Product	28	21.25
Descrip:	Solid Waste / Housing		
Totals for Descrip:	Solid Waste / Housing	40	7590.80
Descrip:	Treated wood / Housing		
Totals for Descrip:	Treated Wood / Housing	41	151.50
Descrip:	Scrap wood / Housing		
Totals for Descrip:	Scrap Wood / Housing	42	1528.21
Descrip:	Concrete / Housing		
Totals for Descrip:	Concrete / Housing	43	7059.28
Descrip:	Contaminated Concrete/Housing		
Totals for Descrip:	Contaminated Concrete/Housing	44	966.43
Descrip:	Dirt / Housing		
Totals for Descrip:	Dirt / Housing	45	3184.92
Descrip:	Tree Debris / Housing		
Totals for Descrip:	Tree Debris / Housing	46	23034.42
Descrip:	Leaves, Pinestraw, Grass / Housing		
Totals for Descrip:	Leaves, Pinestraw, Grass / Housing	47	23034.42
Descrip:	Demolitioin / Housing		
Totals for Descrip:	Demolition / Housing	48	89.91
Descrip:	Asbestos / Housing		

Totals for Descrip:	Asbestos / Housing	49	1201.11
	LANDFILLED WASTE TOTALS:		44564.91
	LANDFILLED DAILY AVERAGE:		170.75

Year to Date Report for December 2009

			Ntons
Descrip:	Solid Waste		
Totals for Descrip:	Solid Waste	1	25295.40
Descrip:	Asbestos		
Totals for Descrip:	Asbestos	8	502.85
Descrip:	Concrete		
Totals for Descrip:	Concrete	6	11546.39
Descrip:	Cut Trees & Stumps		
Totals for Descrip:	Cut Trees & Stumps	4	8575.95
Descrip:	Dirt		
Totals for Descrip:	Dirt	5	54584.36
Descrip:	DRMO		
Totals for Descrip:	DRMO	14	70.68
Descrip:	DRMO Furniture		
Totals for Descrip:	DRMO Furniture	21	172.85
Descrip:	Fly Ash		
Totals for Descrip:	Fly Ash	17	4519.52
Descrip:	Lead Painted Concrete		
Totals for Descrip:	Lead Painted Concrete	20	4069.81
Descrip:	Lead Painted Wood		
Totals for Descrip:	Lead Painted Wood	23	1712.18
Descrip:	Metal for Lot 203		
Totals for Descrip:	Metal for Lot 203	9	365.51
Descrip:	Out Bound Wood Chips		

Totals for Descrip:	Out Bound Wood Chips	19		5402.05
Descrip:	Pinestraw & Leaves			
Totals for Descrip:	Pinestraw & Leaves	7		753.80
Descrip:	Salt Treated			
Totals for Descrip:	Salt Treated	11		665.80
Descrip:	Scrap Wood			
Totals for Descrip:	Scrap Wood	2		2781.25
Descrip:	Wood Chips			
Totals for Descrip:	Wood Chips	3		1233.92
Descrip:	Cardboard			
Totals for Descrip:	Cardboard	12		97.25
Descrip:	Cresote Lumber			
Totals for Descrip:	Cresote Lumber	10		78.29
Descrip:	Horse Dropping			
Totals for Descrip:	Horse Dropping	15		237.75
Descrip:	Sludge			
Totals for Descrip:	Sludge	29		20.61
Descrip:	Outbound Crushed Concrete			
Total for Descrip:	Outbound Crushed Concrete		32	11064.89
Descrip:	Riprap			
Total for Descrip:	Riprap		35	0.00
Descrip:	Recyclable Cardboard			
Total for Descrip:	Recyclable Cardboard		25	2917.58
Descrip:	Outbound Cardboard			

Total for Decrip:	Outbound Cardboard	26	4831.05
Descrip:	Recyclable Paper		
Total for Descrip:	Recyclable Paper	27	196.61
Descrip:	Outbound Paper Product		
Total for Descrip:	Outbound Paper Product	28	97.92
Descrip:	Solid Waste / Housing		
Totals for Descrip:	Solid Waste / Housing	40	8179.92
Descrip:	Treated wood / Housing		
Totals for Descrip:	Treated Wood / Housing	41	107.03
Descrip:	Scrap wood / Housing		
Totals for Descrip:	Scrap Wood / Housing	42	19512.34
Descrip:	Concrete / Housing		
Totals for Descrip:	Concrete / Housing	43	4172.93
Descrip:	Contaminated Concrete/Housing		
Totals for Descrip:	Contaminated Concrete/Housing	44	499.38
Descrip:	Dirt / Housing		
Totals for Descrip:	Dirt / Housing	45	1536.80
Descrip:	Tree Debris / Housing		
Totals for Descrip:	Tree Debris / Housing	46	163.12
Descrip:	Leaves, Pinestraw, Grass / Housing		
Totals for Descrip:	Leaves, Pinestraw, Grass / Housing	47	427.27
Descrip:	Demolitioin / Housing		
Totals for Descrip:	Demolition / Housing	48	15.37
Descrip:	Asbestos / Housing		

Totals for Descrip:	Asbestos / Housing	49	1377.39
Descrip:	Textiles		
Totals for Descrip:	Textiles	77	5.09

LANDFILLED WASTE TOTALS:	47384.33
LANDFILLED DAILY AVERAGE:	191.07

Attachment D

Annual Reports Submitted to NCDENR DWM 2008-2011

This page intentionally left blank.

Municipal Solid Waste Landfill Annual Reports
Submitted to NCDENR DWM 2008-2011

This page intentionally left blank.

MSW

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

MUNICIPAL SOLID WASTE LANDFILL

Facility Annual Report

For the period of JULY 1, 2007-JUNE 30, 2008

Facility Name: Camp Lejeune MSW Landfill Permit: 6708 ID: P0702

Address: Marine Corps Base; PSC Box 20004

City: Camp Lejeune State: North Carolina Zip: 28542-0004

Contact: John R. Townson

Phone Number: (910) 451-5003 Fax: (910) 451-1143 Email: john.townson@usmc.mil

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G. S. 130A-309.09D(b)) completed forms must be returned byAugust 1, 2008 and a copy of this report must be sent to the County Manager of each county from which waste was received.

1.Tipping Fee: $ 0.00 /Ton (Attach a schedule of tipping fees if appropriate.)

2. Since the opening of the Subtitle D Lined facility, how much volume has been used at the landfill as determined by aerial or ground survey? 1,097,227.00 cubic yards

3. What was the date of the last survey used to determine the volume used at the landfill? Jun 7, 2008

4. How much waste has been disposed, according to scale records, from Jan 1, 1998 (Opening date of the lined facility)

through the date of the survey indicated above? 476,773.10 tons

5. Please report the longitude and latitude of your facility.

Longitude: 18.287151 E Latitude: 38.41206 N

Indicate method of collection: GPS

6. Please provide the Emergency 911 Address of the facility:

Street 1: Building 982, Piney Green Road

Street 2:

City: Camp Lejeune State: North Carolina Zip: 28542

7. Total waste landfilled at this facility during the period of July 1, 2007, through June 30, 2008. Indicate tonnage received by COUNTY of waste origin. If waste was received from a transfer station, indicate the COUNTY LOCATION OF THE TRANSFER STATION. DO NOT include waste diverted for recycling, reuse, mulching, or composting. Please list ALL counties from which you received waste. Add Row

Tons From \Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
MCB Camp Lejeune	3,047.86	3,890.72	2,020.12	3,078.07	3,294.22	3,782.55	4,777.90	3,432.94	3,155.04	3,425.26	3,360.91	3,406.49	40,672.08

Grand Total 40,672.08

Other Comments We would appreciate your comments about this report or other matters regarding solid waste management inNorth Carolina. Thank you for your cooperation.

*****According to (G.S. 130A-309.09D(b))**
This report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: _____

Name: John R. Townson

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

NC DENR
Division of Waste Management - Solid Waste Section

Risk Assessment Form

Facility Name: Camp Lejeune MSW Landfill Permit: 6708

Address: Marine Corps Base; PSC Box 20004

City: Camp Lejeune State: North Carolina Zip: 28542-0004

Person completing Assessment: Andrew Smith Date: Jul 9, 2008

Phone Number: (910) 451-9017 Fax: (910) 451-5997 Email: stephen.a.smith2@usmc.mil

Instructions:	Please indicate either *Yes or No* for each Receptor and Post Closure Maintenance question. Then please determine the distance or distances for each Receptor from the *Edge of Waste* (using range finders and/or GIS maps) and type that information into the form. Please attach additional information including GIS maps, lists of potable well locations, etc.

Receptors

1. Are there Residential Dwellings Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

2. Are there Potable Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

3. Are there Community/Municipal Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

4. Are there Surface Water Bodies Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

   Please list the names of the water bodies: _____

5. Is Public Water Available Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many of the Residential Dwellings noted above are connected? 0

Corrective Measures

6. Is there an active methane extraction system (blower, flare, etc.)? ☐ Yes ☒ No

7. Is there a passive methane extraction system (trench, vents in cap, flare, etc.)? ☒ Yes ☐ No

8. Is there groundwater remediation taking place on site? ☐ Yes ☒ No

   If Yes, what is the specific remedial technology used? _____

Comments

MSW

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

MUNICIPAL SOLID WASTE LANDFILL

Facility Annual Report

For the period of JULY 1, 2008-JUNE 30, 2009

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2009 and a copy of this report must be sent to the County Manager of each county from which waste was received.

Facility Name: CAMP LEJEUNE MSW LANDFILL Permit: 6708-MSWLF-1997 ID: P0702

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Building 982 Piney Green Rd	Street 1: Marine Corps Base; PSC Box 20004
Street 2:	Street 2:
City: Camp Lejeune	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542-0004

Facility Contact: Primary	Facility Contact: Secondary
Name: John R. Townson	Name: Joe Powers
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-4998 Fax: (910) 451-9935
Email: john.townson@usmc.mil	Email: joseph.powers@usmc.mil

1. Tipping Fee: $18.09 per Ton (Attach a schedule of tipping fees if appropriate.)
2. Does the tip fee above include the $2.00 Solid Waste Tax? ☐ Yes ☒ No
3. What was the opening date of the facility? January 1, 1998
4. What was the date of the last survey used to determine the volume used at the landfill? May 31, 2009
5. How much waste has been disposed, according to scale records, since the opening date through the date of the survey? 519,092.63 tons
6. Since the opening of the landfill, how much volume has been used at the landfill as determined by aerial or ground survey? 1,209,345.00 cubic yards
7. How much volume remains at the landfill as determined by aerial or ground survey? 51,723.00 Constructed (cubic yards) 2,183,723.00 Overall (cubic yards)

8. Indicate type and tonnage of material separated from received waste (recycling/recovery) which did not go into the landfill.

Material	Tons	Material	Tons	Material	Tons
Paper		Wood	20,000.26	Computer Equipment	
Cardboard		Glass		Televisions	
Aluminum Cans		PETE (#1) Plastic		Concrete/rubble/asphalt	8,958.6
Steel Cans		HDPE (#2) Plastic		Contaminated Soils (for ADC)	
Other Metal		Other Plastic		Other	
Other		Other		Other	
				Total	28,958.86

9. Indicate the quantity of unprocessed material stockpiled on-site as of June 30, 2009 (tons) 0

10. Total waste landfilled at this facility during the period of July 1, 2008, through June 30, 2009. Indicate tonnage received by COUNTY of waste origin. If waste was received from a transfer station, indicate the COUNTY LOCATION OF THE TRANSFER STATION. Do not include waste diverted for recycling, reuse, mulching, or composting. Please list ALL counties from which you received waste. Add Row

Tons From \Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	3,692.73	3,657.67	4,169.85	4,440.37	4,278.59	3,705.21	3,428.68	2,787.25	4,231.28	3,505.62	4,422.28	3,600.57	45,920.10

Grand Total 45,920.10

*****According to (G.S. 130A-309.09D(b))**
This report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: Jul 27, 2009

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE, NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
JUL 29 2010

Mr. Ray Williams
North Carolina Department of Environment
and Natural Resources
Division of Waste Management
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Dear Mr. Williams:

Enclosed is the Municipal Solid Waste Landfill Facility, Permit Number 67-08, Annual Report for the reporting period July 1, 2009 through June 30, 2010 for Marine Corps Base, Camp Lejeune.

If you have any questions or concerns regarding this report, please contact Ms. Charity Rychak, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at (910) 451-9386.

Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosure: 1. Municipal Solid Waste Landfill Facility
Annual Report for Permit Number 67-08

Copy to: (w/encl)
Onslow County Manager (Mr. Hudson)
PWD/SWS (Mr. Powers)

Blind copy to:
EMD/ECB (Ms. Raper)

MSW

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

MUNICIPAL SOLID WASTE LANDFILL

Facility Annual Report

For the period of JULY 1, 2009-JUNE 30, 2010

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2010 and a copy of this report must be sent to the County Manager of each county from which waste was received.

Facility Name: CAMP LEJEUNE MSW LANDFILL Permit: 6708-MSWLF-1997 ID: P0702

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Building 982 Piney Green Rd	Street 1: Marine Corps Base; PSC Box 20004
Street 2:	Street 2:
City: Camp Lejeune County: Onslow	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542-0004

Primary Facility Contact Person	Billing Contact Person
Name: John R. Townson	Name: John R. Townson
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-5003 Fax: (910) 451-1143
Email: john.townson@usmc.mil	Email: john.townson@usmc.mil

1. Tipping Fee: $26.33 per Ton (Attach a schedule of tipping fees if appropriate.)

2. Does the tip fee above include the $2.00 Solid Waste Tax? ☐ Yes ☒ No

Airspace (Capacity): Questions in this section relate to all cells/units of the lined facility operated under the current 4-digit permit number regardless of whether the cells/units are closed or are not contiguous at the time of this report. Tonnage questions must be based on scale records and cover the period between the opening date and the date of the last survey unless another time period is approved. Airspace measurements include daily, intermediate and final cover.

3. Date Facility Last Surveyed: June 11, 2010

4. Date Facility Opened: January 1, 1998

5a. Airspace Constructed (cubic yards): 1,996,665

5b. Future Airspace not yet constructed (cubic yards): 2,092,335

6. Airspace Used (cubic yards): 1,356,682

7. Total Tons Disposed in Airspace Used (tons): 568,967

8. If the facility recycles or recovers from the incoming waste stream, indicate type and tonnage of material which did not go into the landfill.

Material	Tons	Material	Tons	Material	Tons
Paper	154.7	Wood	36,981.58	Computer Equipment	4
Cardboard	2,341.5	Glass	0	Televisions	0
Aluminum Cans	0	PETE (#1) Plastic	0	Concrete/rubble/asphalt	20,977.47
Steel Cans	0	HDPE (#2) Plastic	0	Contaminated Soils (for ADC)	0
Other Metal	1,737.6	Other Plastic		Other textiles	13.2
Other Compost Materials	1,550.84	Other mixed plastics	278.8	Other	
				Total	64,039.69

9. Indicate the quantity of unprocessed material from recycling and recovery operations stockpiled on-site as of June 30, 2010 (tons) 0

10. Total waste landfilled at this facility <u>during the period of July 1, 2009, through June 30, 2010</u>. Indicate **tonnage** received by COUNTY of waste origin. If waste was received from a transfer station, indicate the COUNTY LOCATION OF THE TRANSFER STATION. Do not include waste diverted for recycling, reuse, mulching, or composting. Please list ALL counties from which you received waste.

Received from	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Total**
Onslow	4,281.06	4,211.32	4,089.13	5,038.64	4,095.39	3,684.45	3,560.42	4,208.63	5,094.03	3,676.32	3,127.20	3,205.32	48,271.91

Grand Total 48,271.91

11. Did your facility stop receiving waste during this past Fiscal Year? ☐ Yes ☒ No
If so, please report the date this occurred: _____

12. Are there SWANA or other certified operator(s) at this facility? ☒ Yes ☐ No
If yes, indicate the following:

Name: Joseph E. Powers	Certification type and expiration date: Certified Subtitle D Landfill Manager State of North C
Name: Dina Gwynn-Denton	Certification type and expiration date: Certified Landfill Operations Specialist 04/14/2012
Name: Edward Webb	Certification type and expiration date: Certified Landfill Operations Specialist 12/04/2012
Name: Rickey Zickafoose	Certification type and expiration date: Certified Landfill Operations Specialist 12/04/2012
Name: Terry Sloan	Certification type and expiration date: Certified Landfill Operations Specialist 02/28/2012

13. Comments, suggestions or notes:

Please refer to the attached complete listing of SWANA certified operator(s).

REMINDER: According to (G.S. 130A-309.09D(b)), this report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

Your Regional Environmental Senior Specialist:

Ray Williams
127 Cardinal Drive Ext.
Wilmington, NC 28405
phone: 910.796.7342 email: ray.williams@ncdenr.gov

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: John R. Townson Date: 7/29/10

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

NC DENR
Division of Waste Management - Solid Waste Section

Risk Assessment Form

Facility Name: CAMP LEJEUNE MSW LANDFILL Permit: 6708-MSWLF-1997

Address: Building 982 Piney Green Rd

City: Camp Lejeune State: North Carolina Zip: 28542

Person completing Assessment: Charity Rychak Date: July 26, 2010

Phone Number: (910) 451-9386 Fax: (910) 451-5997 Email: charity.rychak@usmc.mil

Instructions: Please indicate either *Yes or No* for each Receptor and Post Closure Maintenance question. Then please determine the distance or distances for each Receptor from the *Edge of Waste* (using range finders and/or GIS maps) and type that information into the form. Please attach additional information including GIS maps, lists of potable well locations, etc.

Receptors

1. Are there Residential Dwellings Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

2. Are there Potable Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

3. Are there Community/Municipal Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

4. Are there Surface Water Bodies Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many? 3

   What are the three closest distances from the *Edge of Waste*? 160 Feet 220 Feet 320 Feet

   Please list the names of the water bodies: Stormwater / Leachate Ponds

5. Is Public Water Available Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many of the Residential Dwellings noted above are connected? N/A

Corrective Measures

6. Is there an active methane extraction system (blower, flare, etc.)? ☐ Yes ☒ No

7. Is there a passive methane extraction system (trench, vents in cap, flare, etc.)? ☒ Yes ☐ No

8. Is there groundwater remediation taking place on site? ☐ Yes ☒ No

   If Yes, what is the specific remedial technology used? _____

Comments

CAMP LEJEUNE LANDFILL CERTIFICATIONS

North Carolina General Assembly
NCGS CHAPTER 130 A
Training of operators of solid waste managemant facilities

Regulation: 130A-309.25 Paragraph C

Title	Name	SWANA Certifications	Expiration
Landfill Manager	Joseph E. Powers	Certified Subtitle D Landfill Manager State of N. Carolina	4/15/2012
		Certified Recycling Manager State of N. Carolina	9/22/2012
		Certified Construction and Demolition Manager State of N. Carolina	8/9/2012
		Ceftified Transfer Station Operations Specialist	2/27/2012
Quality Control Coordinator	Dina Gwynn-Denton	Certified Landfill Operations Specialist	4/14/2012
		Ceftified Transfer Station Operations Specialist	2/27/2012

Motor Vehicle Operator/Safety Officer	Edward Webb	Certified Landfill Operations Specialist	12/4/2012
Engineering Equipment Operator	Rickey Zickafoose	Certified Landfill Operations Specialist	12/4/2012
Engineering Equipment Operator	Terry Sloan	Certified Landfill Operations Specialist	2/28/2012
		Ceftified Transfer Station Operations Specialist	2/27/2012
Engineering Equipment Operator	Johnny Cole	Certified Landfill Operations Specialist	4/14/2012
Scale House Operator	Mark Thompson	Certified Landfill Operations Specialist	12/4/2012
Motor Vehicle Operator	Roger Hopkins	Certified Landfill Operations Specialist	12/4/2012
Motor Vehicle Operator	David Register	Certified Landfill Operations Specialist	12/4/2012
Landfill Office Assistant	Brad Hardiman	Certified Landfill Operations Specialist	12/4/2012
Motor Vehicle Operator	Rick Hunter	Certified Landfill Operations Specialist	2/28/2012

SHIPPING CONTAINER TALLY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

OMB No. 0704-0246
OMB approval expires Apr 30, 2009

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION. RETURN COMPLETED FORM TO THE ADDRESS IN ITEM 2.

1. FROM: *(Include ZIP Code)*
(M67001) MR. BOB LOWDER
I&E/EMD/EQB, MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE NC 28542-0004

POC;
MR. BOB LOWDER
910-451-9607

2. TO: *(Include ZIP Code)*
MR.RAY WILLIAMS
NCDENR DWM
127 CARDINAL DRIVE EXTENSION
WILMINGTON NC 28405-3845

POC:
MR. RAY WILLIAMS
910-796-7215

3. SHIP TO - MARK FOR
MR.RAY WILLIAMS
NCDENR DWM
127 CARDINAL DRIVE EXTENSION
WILMINGTON NC 28405-3845

4. SHEET NO.	4. NO. OF SHEETS	5. REQUISITION DATE	6. REQUISITION NUMBER
		07292010	0670012100001

7. DATE MATERIAL REQUIRED (YYYYMMDD)	8. PRIORITY
20100730	01

9. AUTHORITY OR PURPOSE
MR. BRYNN T. ASHTON

10. SIGNATURE
Brynn T. Ashton

11a. VOUCHER NUMBER & DATE *(YYYYMMDD)*

12. DATE SHIPPED *(YYYYMMDD)*

b.

13. MODE OF SHIPMENT

14. BILL OF LADING NUMBER

15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.

4. APPROPRIATIONS DATA
TAC: MCC1

D102 CG

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CONTAINER (f)	CONTAINER NOS. (g)	UNIT PRICE (h)	AMOUNT TOTAL COST (i)
	REPORTS							
	PERMIT NUMBER 6710 SWCF CTS 844							0.00
	PERMIT NUMBER 67-08 MSWLF CTS 127							0.00
	PERMIT NUMBER 6711 TPF CTS 892							0.00
								0.00
								0.00

16. TRANSPORTATION VIA AMC OR MSC CHARGEABLE TO

17. SPECIAL HANDLING

18. RECAPITULATION OF SHIPMENT

ISSUED BY	TOTAL CONTAINERS	TYPE CONTAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
CHECKED BY					
PACKED BY					
			TOTAL		

19. RECEIPT

CONTAINERS RECEIVED EXCEPT AS NOTED	DATE (YYYYMMDD)	BY	SHEET TOTAL 0.00
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE (YYYYMMDD)	BY	GRAND TOTAL
POSTED	DATE (YYYYMMDD)	BY	20. RECEIVER'S VOUCHER NO.

DD FORM 1149, JUL 2006 PREVIOUS EDITION IS OBSOLETE.

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Adobe Designer 8.0

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
JUL 21 2011

Mr. Ray Williams
North Carolina Department of
Environment and Natural Resources
Division of Waste Management
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Dear Mr. Williams:

Enclosure (1) is the Annual Report for Marine Corps Base, Camp Lejeune's Municipal Solid Waste Landfill Facility, Permit Number 67-08, for the reporting period July 1, 2010 through June 30, 2011. Enclosure (2) is a list of certified operators for the facility as requested by item 10 of the report.

If you have questions or concerns regarding this report, please contact Ms. Jenni Provost, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at (910) 451-9017.

Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosure: 1. Municipal Solid Waste Landfill Facility Annual Report for Permit Number 67-08
2. Camp Lejeune Landfill Certifications

Copy to: (w/encl)
Onslow County Manager (Mr. Hudson)
PWD/SWS (Mr. Powers)

5090.17
BEMD
JUL 2 1 2011

Blind copy to: (w/encl)
EMD/ECB (Ms. Raper)

MSW

State of North Carolina
Department of Environment and Natural Resources
Division of Waste Management

MUNICIPAL SOLID WASTE LANDFILL
Facility Annual Report
For the period of **July 1, 2010-June 30, 2011**

According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2011 and a copy of this report must be sent to the County Manager of each county from which waste was received. If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist.

Facility Name: MCB Camp Lejeune MSW Landfill Permit: 6708-MSWLF-1997 ID: P0702

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Piney Green Road	Street 1: Marine Corps Base
Street 2:	Street 2: PSC Box 20004
City: Camp Lejeune County: Onslow	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542

Primary Facility Contact Person	Billing Contact Person
Name: John R. Townson	Name: John R. Townson
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-5003 Fax: (910) 451-1143
Email: john.townson@usmc.mil	Email: john.townson@usmc.mil

1. Tipping Fee: $26.33 per Ton (Attach a schedule of tipping fees if appropriate.)

2. Does the tip fee above include the $2.00 Solid Waste Tax? ☐ Yes ☒ No

3. What other activities occur at this facility? (check all that apply)

☒ Recycling/Reuse Collection ☒ Scrap Tire Collection ☐ White Goods Collection ☐ Household Hazardous Waste Collection

If you checked Recycling/Reuse Collection, please indicate the materials accepted: (check all that apply)

☒ Paper	☒ Wood	☒ Concrete/rubble/asphalt	☐ Gypsum/drywall
☒ Cardboard	☒ Glass	☒ Aluminum Cans	☒ Steel Cans
☒ PETE (#1) Plastic	☒ HDPE (#2) Plastic	☒ Computer Equipment	☒ Televisions
☐ Fluorescent lightbulbs	☐ Used oil/oil filters	☒ Other Metal	☒ Other Plastic

☒ Other (specify) Textiles

Airspace (Capacity): Questions in this section relate to all cells/units of the lined facility operated under the current 4-digit permit number regardless of whether the cells/units are closed or are not contiguous at the time of this report. Tonnage questions must be based on scale records and cover the period between the opening date and the date of the last survey unless another time period is approved. Airspace measurements include daily, intermediate and final cover.

4. Date Facility Last Surveyed: 06/11/2011

5. Airspace Used (cubic yards): 1,444,795

6. Total Tons Disposed in Airspace Used (tons): 609,541.25

7. How is your leachate transported to the waste water treatment plant? ☒ Sewer Connection ☐ Pump Truck

8. Did your facility stop receiving waste during this past Fiscal Year? ☐ Yes ☒ No

If so, please report the date this occurred:

Enclosure (1)

9. Total waste landfilled at this facility during the period of July 1, 2010, through June 30, 2011. Indicate **tonnage** received by COUNTY of waste origin. If waste was received from a transfer station, indicate the COUNTY LOCATION OF THE TRANSFER STATION. Do not include waste diverted for recycling, reuse, mulching, or composting. Please indicate COUNTY and STATE, if received from another state.

Received from	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	3,805.78	3,240.59	2,732.96	3,220.58	3,278.56	2,961.48	2,765.46	3,118.23	3,503.32	2,884.48	2,902.86	3,014.32	37,428.62

Grand Total 37,428.62

10. Are there SWANA or other certified operator(s) at this facility? ☒ Yes ☐ No
If yes, indicate the following:

Name: See Attachment Certification type and expiration date: _____

Name: _____ Certification type and expiration date: _____

Name: _____ Certification type and expiration date: _____

Name: _____ Certification type and expiration date: _____

Name: _____ Certification type and expiration date: _____

11. Comments, suggestions or notes:

REMINDER: According to (G.S. 130A-309.09D(b)), this report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

Please return your completed report to:

Ray Williams
127 Cardinal Drive Ext.
Wilmington, NC 28405
phone: 910.796.7342 email: Ray.Williams@ncdenr.gov

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: John R. Townson Date: 7/21/11

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

NC DENR
Division of Waste Management - Solid Waste Section

Risk Assessment Form

Facility Name: MCB Camp Lejeune MSW Landfill Permit: 6708-MSWLF-1997

Address: Piney Green Road

City: Camp Lejeune State: North Carolina Zip: 28542

Person completing Assessment: Jenni Provost Date: Jul 6, 2011

Phone Number: (910) 451-9017 Fax: (910) 451-5997 Email: jenni.provost@usmc.mil

Instructions: Please indicate either *Yes or No* for each Receptor and Post Closure Maintenance question. Then please determine the distance or distances for each Receptor from the *Edge of Waste* (using range finders and/or GIS maps) and type that information into the form. Please attach additional information including GIS maps, lists of potable well locations, etc.

Receptors

1. Are there Residential Dwellings Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

2. Are there Potable Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

3. Are there Community/Municipal Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

4. Are there Surface Water Bodies Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many? 3

   What are the three closest distances from the *Edge of Waste*? 160 Feet 220 Feet 320 Feet

   Please list the names of the water bodies: Stormwater / Leachate Ponds

5. Is Public Water Available Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many of the Residential Dwellings noted above are connected? N/A

Corrective Measures

6. Is there an active methane extraction system (blower, flare, etc.)? ☐ Yes ☒ No

7. Is there a passive methane extraction system (trench, vents in cap, flare, etc.)? ☒ Yes ☐ No

8. Is there groundwater remediation taking place on site? ☐ Yes ☒ No

   If Yes, what is the specific remedial technology used? _____

Comments

CAMP LEJEUNE LANDFILL CERTIFICATIONS

North Carolina General Assembly
NCGS CHAPTER 130 A
Training of operators of solid waste managemant facilities

Regulation: 130A-309.25 Paragraph C

Title	Name	SWANA Certifications	Expiration
Landfill Manager	Joseph E. Powers	Certified Subtitle D Landfill Manager State of N. Carolina	4/15/2015
		Certified Recycling Manager State of N. Carolina	9/22/2012
		Certified Construction and Demolition Manager State of N. Carolina	8/9/2014
		Ceftified Transfer Station Operations Specialist	4/14/2012
Quality Control Coordinator	Dina Gwynn-Denton	Certified Landfill Operations Specialist	4/14/2012
		Ceftified Transfer Station Operations Specialist	2/27/2012
Motor Vehicle Operator/Safety Officer	Edward Webb	Certified Landfill Operations Specialist	12/4/2012
Engineering Equipment Operator	Rickey Zickafoose	Certified Landfill Operations Specialist	12/4/2012
Engineering Equipment Operator	Terry Sloan	Certified Landfill Operations Specialist	2/27/2012
		Ceftified Transfer Station Operations Specialist	2/27/2012
Engineering Equipment Operator	Johnny Cole	Certified Landfill Operations Specialist	4/14/2012

Enclosure (2)

Scale House Operator	Mark Thompson	Certified Landfill Operations Specialist	12/4/2012
Motor Vehicle Operator	Roger Hopkins	Certified Landfill Operations Specialist	12/4/2012
Motor Vehicle Operator	David Register	Certified Landfill Operations Specialist	12/4/2012
Landfill Office Assistant	Brad Hardiman	Certified Landfill Operations Specialist	12/4/2012
Motor Vehicle Operator	Rick Hunter	Certified Landfill Operations Specialist	4/14/2012

Treatment and Processing Facility Annual Reports
Submitted to NCDENR DWM 2008-2011

This page intentionally left blank.

TREATMENT AND PROCESSING

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

TREATMENT AND PROCESSING FACILITY

Facility Annual Report

For the period of JULY 1, 2007-JUNE 30, 2008

Facility Name: Camp Lejeune Marine Corps Base Permit: 6711 ID: P1000

Address: Marine Corps Base; PSC Box 20004

City: Camp Lejeune State: North Carolina Zip: 28542-0004

Contact: John R. Townson

Phone Number: (910) 451-5003 Fax: (910) 451-1143 Email: john.townson@usmc.mil

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G. S. 130A-309.09D(b)) completed forms must be returned byAugust 1, 2008 and a copy of this report must be sent to the County Manager of each county from which waste was received.

1.Tipping Fee: $ 0.00 /Ton (Attach a schedule of tipping fees if appropriate.)

2. Please report the longitude and latitude of your facility.

Longitude: 18.286974 E Latitude: 38.40793 N

Indicate method of collection: GPS

3. Please provide the Emergency 911 Address of the facility:

Street 1: Building 1002 Piney Green Rd

Street 2:

City: Camp Lejeune State: North Carolina Zip: 28542

4. Indicate types of waste accepted at this facility for treatment and/or processing. (Check all that apply)

- ☐ Industrial process waste
- ☒ Construction and demolition waste
- ☒ Land clearing and inert debris waste
- ☒ Other waste (describe) Scrap Wood/Pallets

5. Indicate other types of activities occurring at this facility. (Check all that apply)

- ☐ Yard waste composting or mulching
- ☐ Recycled material collection
- ☐ Used oil collection
- ☐ Other activities (specify)

6. Indicate type and tonnage of material processed for recycling:

Material	Tons	Material	Tons	Material	Tons
Newspaper		Other Paper		Aluminum Cans	
Cardboard		PETE(#1) Plastic		Steel Cans	
Magazines		HDPE(#2) Plastic		Other Metal	
Office Paper		Other Plastic		Wood	7,206.8
Mixed Paper		Glass		Other Materials	12,964.42

Total: 20,171.22

7. Total waste received at this facility during the period of July 1, 2007, through June 30, 2008. Indicate tonnage received by COUNTY of waste origin.

Add Row

Tons From \Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
MCB Camp Lejeune	1,366.17	1,440.26	854.26	1,167.99	1,116.77	1,145.22	5,453.43	3,297.14	2,000.96	1,206.80	1,858.85	1,539.05	22,446.90

Grand Total 22,446.90

8. Indicate the destination and tonnage of waste material received and NOT processed for recycling.

NAME and LOCATION (city, state) of LANDFILL	Facility Type	Tons
N/A	MSW Landfill	0
N/A	C&D Landfill	0
N/A	LCID Landfill	0
	TOTAL	0.00

9. Indicate the quantity of unprocessed material stockpiled on-site as of June 30, 2008. 13,443.94 Tons

*****According to (G.S. 130A-309.09D(b))**
This report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: _____

Name: John R. Townson

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

NC DENR
Division of Waste Management - Solid Waste Section

Risk Assessment Form

Facility Name: Camp Lejeune Marine Corps Base Permit: 6711

Address: Marine Corps Base; PSC Box 20004

City: Camp Lejeune State: North Carolina Zip: 28542-0004

Person completing Assessment: Andrew Smith Date: Jul 9, 2008

Phone Number: (910) 451-9017 Fax: (910) 451-5997 Email: stephen.a.smith2@usmc.mil

Instructions:	Please indicate either *Yes or No* for each Receptor and Post Closure Maintenance question. Then please determine the distance or distances for each Receptor from the *Edge of Waste* (using range finders and/or GIS maps) and type that information into the form. Please attach additional information including GIS maps, lists of potable well locations, etc.

Receptors

1. Are there Residential Dwellings Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

2. Are there Potable Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

3. Are there Community/Municipal Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

4. Are there Surface Water Bodies Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many? 1

   What are the three closest distances from the *Edge of Waste*? 630 Feet _____ Feet _____ Feet

   Please list the names of the water bodies: Bearhead Creek

5. Is Public Water Available Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many of the Residential Dwellings noted above are connected? 0

Corrective Measures

6. Is there an active methane extraction system (blower, flare, etc.)? ☐ Yes ☒ No

7. Is there a passive methane extraction system (trench, vents in cap, flare, etc.)? ☐ Yes ☒ No

8. Is there groundwater remediation taking place on site? ☐ Yes ☒ No

   If Yes, what is the specific remedial technology used? _____

Comments

TREATMENT AND PROCESSING

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

TREATMENT AND PROCESSING FACILITY

Facility Annual Report

For the period of JULY 1, 2008-JUNE 30, 2009

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2009 and a copy of this report must be sent to the County Manager of each county from which waste was received.

Facility Name: Marine Corps Base Camp Lejeune T&P Facility Permit: 6711 ID: P1000

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Building 982 Piney Green Rd	Street 1: Marine Corps Base; PSC Box 20004
Street 2:	Street 2:
City: Camp Lejeune	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542-0004

Facility Contact: Primary	Facility Contact: Secondary
Name: John R. Townson	Name: Joe Powers
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-4998 Fax: (910) 451-9935
Email: john.townson@usmc.mil	Email: joseph.powers@usmc.mil

1. Tipping Fee: $0.00 per Ton (Attach a schedule of tipping fees if appropriate.)

2. If you transfer waste out of state does the tip fee above include the $2.00 Solid Waste Tax? ☐ Yes ☐ No

3. Indicate primary types of processing. (Check all that apply)

- ☐ Solidification and transfer
- ☐ Medical waste treatment and transfer
- ☒ Construction and Demolition
- ☐ Metals
- ☒ Landclearing and inert debris
- ☐ Other industrial
- ☒ Other (describe) Scrap Wood/Pallets

4. Indicate other types of activities occurring at this facility. (Check all that apply)

- ☐ Yard waste composting or mulching
- ☐ Recycled material collection
- ☐ Used oil collection
- ☐ Other activities (specify)

5. Indicate type and tonnage of material separated from received waste (recycling/recovery) which did not go into the landfill.

Material	Tons	Material	Tons	Material	Tons
Paper		Wood	20,000.26	Computer Equipment	
Cardboard		Glass		Televisions	
Aluminum Cans		PETE (#1) Plastic		Concrete/rubble/asphalt	8,958.6
Steel Cans		HDPE (#2) Plastic		Contaminated Soils (for ADC)	
Other Metal		Other Plastic		Other	
Other		Other		Other	
				Total	28,958.86

6. Total waste received at this facility during the period of July 1, 2008 through June 30, 2009. Indicate tonnage received by COUNTY of waste origin. If waste was received from a transfer station,treatment and processing, or mixed waste processing facility indicate the COUNTY LOCATION OF THE FACILITY. DO NOT include waste diverted for recycling, reuse, mulching, or composting. Please list ALL counties from which you received waste.

Add Row

Tons From \Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	2,289.36	3,331.39	2,469.48	4,477.26	4,912.51	2,028.61	1,549.75	2,426.95	3,423.47	2,149.63	1,834.15	3,937.98	34,830.54

Grand Total 34,830.54

7. Indicate the facility(s) that received your facility's non-recycled waste material:

NAME, PERMIT #, and LOCATION (city, state) of FACILITY	Facility Type	Tons
N/A		0
TOTAL		0.00

8. Indicate the type and quantity of unprocessed material stockpiled on-site as of June 30, 2009. Concrete 8900 T; Wood/Tree Debris 500 T

*****According to (G.S. 130A-309.09D(b)) This report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.**

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: Jul 27, 2009

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE, NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
JUL 29 2010

Mr. Ray Williams
North Carolina Department of Environment
and Natural Resources
Division of Waste Management
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Dear Mr. Williams:

Enclosed is the Treatment and Processing Facility, Permit Number 6711, Annual Report, for reporting period July 1, 2009 through June 30, 2010 for Marine Corps Base, Camp Lejeune.

If you have any questions or concerns regarding this report, please contact Ms. Charity Rychak, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at 910) 451-9386.

Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosure: 1. Annual Report for Permit Number 6711 Treatment and Processing Facility

Copy to: (w/encl)
Onslow County Manager (Mr. Hudson)

Blind copy to: (w/encl)
PWD/SWS (Mr. Powers)
EMD/ECB (Ms. Raper)

TREATMENT AND PROCESSING

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

TREATMENT AND PROCESSING FACILITY

Facility Annual Report

For the period of JULY 1, 2009-JUNE 30, 2010

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2010 and a copy of this report must be sent to the County Manager of each county from which waste was received.

Facility Name: Marine Corps Base Camp Lejeune T&P Facility Permit: 6711-TP- ID: P1000

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Building 982 Piney Green Rd	Street 1: Marine Corps Base; PSC Box 20004
Street 2:	Street 2:
City: Camp Lejeune County: Onslow	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542-0004

Primary Facility Contact Person	Billing Contact Person
Name: John R. Townson	Name: John R. Townson
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-5003 Fax: (910) 451-1143
Email: john.townson@usmc.mil	Email: john.townson@usmc.mil

1. Did your facility stop receiving waste during this past Fiscal Year? ☐ Yes ☒ No
   If so, please report the date this occurred:

2. Tipping Fee: $0.00 per Ton (Attach a schedule of tipping fees if appropriate.)

3. Indicate primary types of processing. (Check all that apply)
   - ☐ Solidification and transfer
   - ☐ Medical waste treatment and transfer
   - ☒ Construction and Demolition
   - ☐ Metals
   - ☒ Landclearing and inert debris
   - ☐ Other industrial
   - ☒ Other (describe) Scrap Wood / Pallets

4. Indicate other types of activities occurring at this facility. (Check all that apply)
   - ☐ Yard waste composting or mulching
   - ☐ Recycled material collection
   - ☐ Used oil collection
   - ☐ Other activities (specify)

5. Indicate type and tonnage of material separated from received waste (recycling/recovery) which was sent to a facility NOT for disposal.

Material	Tons	Material	Tons	Material	Tons
Paper		Wood	36,981.58	Computer Equipment	
Cardboard		Glass		Televisions	
Aluminum Cans		PETE (#1) Plastic		Concrete/rubble/asphalt	20,977.47
Steel Cans		HDPE (#2) Plastic		Other	
Other Metal		Other Plastic		Other	
Other		Other		Other	
				Total	57,959.05

Enclosure

6. Indicate the type and quantity of material from recycling or recovery operations stockpiled on-site as of June 30, 2010 (e.g. Wood-3 tons, Metal-5 tons, Cardboard-2 tons, etc.).

Scrap Lumber and Tree Debris - 18,500 tons
Concrete - 4,500 tons

7. Total waste received at this facility during the period of July 1, 2009 through June 30, 2010. Indicate **tonnage** received by COUNTY of waste origin. If waste was received from a transfer station,treatment and processing, or mixed waste processing facility indicate the COUNTY LOCATION OF THE FACILITY. DO NOT include waste diverted for recycling, reuse, mulching, or composting. Please list ALL counties from which you received waste.

Received from	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
MCB CL	3,507.03	19,571.54	3,087.58	3,726.37	3,113.78	1,872.89	2,122.08	4,333.85	4,988.28	2,944.84	3,874.47	4,816.34	57,959.05

Grand Total 57,959.05

8. Indicate the facility(s) that received your facility's non-recycled waste material:

NAME, PERMIT #, and LOCATION (city, state) of FACILITY	Facility Type	Tons
N/A		0
TOTAL		0.00

REMINDER: According to (G.S. 130A-309.09D(b)), this report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

Your Regional Environmental Senior Specialist:

Ray Williams
127 Cardinal Drive Ext.
Wilmington, NC 28405
phone: 910.796.7342 email: ray.williams@ncdenr.gov

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: J. R. Townson Date: 7/29/10

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
JUL 13 2011

Mr. Ray Williams
North Carolina Department
of Environment and Natural Resources
Division of Waste Management
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Dear Mr. Williams:

Enclosed is Marine Corps Base, Camp Lejeune's Treatment and Processing Facility, Permit Number 6711, Annual Report for reporting period July 1, 2010 through June 30, 2011.

If you have any questions or concerns regarding this report, please contact Ms. Jenni Provost, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at (910) 451-9017.

Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosure: 1. Annual Report for Permit Number 6711 Treatment and Processing Facility

Copy to: (w/encl)
Onslow County Manager (Mr. Hudson)
PWD/SWS (Mr. Powers)

Blind copy to: (w/encl)
EMD/ECB (Ms. Raper)

TREAT & PROCESS

State of North Carolina
Department of Environment and Natural Resources
Division of Waste Management

TREATMENT & PROCESSING FACILITY
Facility Annual Report
For the period of **July 1, 2010-June 30, 2011**

According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2011 and a copy of this report must be sent to the County Manager of each county from which waste was received. If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist.

Facility Name: MCB Camp Lejeune Treatment & Processing Facility Permit: 6711-TP- ID: P1000

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Piney Green Road	Street 1: Marine Corps Base
Street 2:	Street 2: PSC Box 20004
City: Camp Lejeune County: Onslow	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542

Primary Facility Contact Person	Billing Contact Person
Name: John R. Townson	Name: John R. Townson
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-5003 Fax: (910) 451-1143
Email: john.townson@usmc.mil	Email: john.townson@usmc.mil

1. Tipping Fee: $0.00 per Ton (Attach a schedule of tipping fees if appropriate.)

2. Did your facility stop receiving waste during this past Fiscal Year? ☐ Yes ☒ No
   If so, please report the date this occurred:

3. Indicate types of waste processed at this facility. (Check all that apply)
   - ☐ Medical Waste
   - ☐ Industrial Waste
   - ☒ Construction and Demolition Waste
   - ☐ Asphalt/Shingles
   - ☐ Household Hazardous Waste
   - ☒ Landclearing and inert debris (LCID)
   - ☐ Yard Waste
   - ☒ Concrete/rubble
   - ☐ Gypsum/drywall
   - ☒ Other (describe) Scrap Wood/Pallets

4. Indicate types of processes occurring at this facility. (Check all that apply)
   - ☒ Grinding, composting or mulching
   - ☐ Medical Waste treatment
   - ☐ Incineration
   - ☒ Collection (indicate materials collected, check all that apply)
     - ☐ Paper
     - ☒ Wood
     - ☐ White Goods
     - ☐ Scrap Tires
     - ☐ Cardboard
     - ☐ Glass
     - ☐ Aluminum Cans
     - ☐ Steel Cans
     - ☐ PETE (#1) Plastic
     - ☐ HDPE (#2) Plastic
     - ☐ Computer Equipment
     - ☐ Televisions
     - ☐ Fluorescent lightbulbs
     - ☐ Used oil/oil filters
     - ☐ Other Metal
     - ☐ Other Plastic
   - ☒ Other activities (specify) Concrete/Rubble Crushing

5. Indicate the type and quantity of material from recycling or recovery operations stockpiled on-site as of June 30, 2011 (e.g. Wood-3 tons, Metal-5 tons, Cardboard-2 tons, etc.).

Scrap Wood - 13,062 tons
Tree Debris - 17,717 tons
Concrete - 9,885 tons

6. Total waste received at this facility during the period of July 1, 2010 through June 30, 2011. Indicate **tonnage** received by COUNTY of waste origin. If waste was received from a transfer station,treatment and processing, or mixed waste processing facility indicate the COUNTY LOCATION OF THE FACILITY. DO NOT include waste diverted for recycling, reuse, mulching, or composting. Please list ALL counties from which you received waste. Please indicate COUNTY and STATE, if received from another state.

Received from	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	4,741.24	3,459.99	2,897.05	3,832.54	4,562.13	4,026.62	2,465.81	3,630.72	4,874.52	5,772.65	4,794.12	3,360.81	48,418.2

Grand Total 48,418.2

7. Indicate the facility(s) that received your facility's non-recycled waste material:

NAME, PERMIT #, and LOCATION (city, state) of FACILITY	Facility Type	Tons
N/A		
	TOTAL	

REMINDER: According to (G.S. 130A-309.09D(b)), this report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

Please return your completed report to:

Ray Williams
127 Cardinal Drive Ext.
Wilmington, NC 28405
phone: 910.796.7342 email: Ray.Williams@ncdenr.gov

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: J. R. Townson Date: 7/12/11

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

This page intentionally left blank.

Solid Waste Compost Facility Annual Reports
Submitted to NCDENR DWM 2008-2011

This page intentionally left blank.

COMPOST

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

SOLID WASTE COMPOST FACILITY

Facility Annual Report

For the period of JULY 1, 2007-JUNE 30, 2008

Facility Name: Camp Lejeune Compost Facility Permit: 6710 ID: P0999

Address: Marine Corps Base; PSC Box 20004

City: Camp Lejeune State: North Carolina Zip: 28542-0004

Contact: John R. Townson

Phone Number: (910) 451-5003 Fax: (910) 451-1143 Email: john.townson@usmc.mil

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G. S. 130A-309.09D(b)) completed forms must be returned byAugust 1, 2008 and a copy of this report must be sent to the County Manager of each county from which waste was received.

1.Tipping Fee: $ 0.00 /Ton (Attach a schedule of tipping fees if appropriate.)

2. Please report the longitude and latitude of your facility.

Longitude: 18.286973 E Latitude: 38.40793 N

Indicate method of collection: GPS

3. Please provide the Emergency 911 Address of the facility:

Street 1: Building 1002 Piney Green Rd

Street 2:

City: Camp Lejeune State: North Carolina Zip: 28542

4. Please attach results of monthly temperature monitoring for the period of July 1, 2007 thru June 30, 2008.

5. What type and quantity of waste was composted by your facility?

Materials COMPOSTED	Tons
Yard Waste	741.53
Wood Chips	6.45
Horse Droppings	159.28
TOTAL	907.26

6. What type and quantity of compost was produced by your facility?

Type of Compost PRODUCED by Product Classification	Tons
N/A	0
TOTAL	0.00

7. What type and quantity of compost was removed or disposed by your facility?

Type of Compost REMOVED or DISPOSED by Product Classification	Tons
N/A	0
TOTAL	0.00

8. How was the final product ultimately used? If the final product had multiple uses, please indicate approximate percentages of each.

N/A No compost was distributed by facility; Awaiting sampling analysis for product classification of stockpiled compost

9. Indicate waste received at this compost facility during the period of July 1, 2007, through June 30, 2008. Indicate tonnage received by COUNTY of waste origin.

Add Row

Tons From \Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
MCB Camp Lejeune	24.89	61.27	30.26	39.20	31.85	111.76	178.23	144.48	52.53	58.17	106.15	68.47	907.26

Grand Total 907.26

*****According to (G.S. 130A-309.09D(b))**
This report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: _____

Name: John R. Townson

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

NC DENR
Division of Waste Management - Solid Waste Section

Risk Assessment Form

Facility Name: Camp Lejeune Compost Facility Permit: 6710

Address: Marine Corps Base; PSC Box 20004

City: Camp Lejeune State: North Carolina Zip: 28542-0004

Person completing Assessment: Andrew Smith Date: Jul 9, 2008

Phone Number: (910) 451-9017 Fax: (910) 451-5997 Email: stephen.a.smith2@usmc.mil

Instructions:	Please indicate either *Yes or No* for each Receptor and Post Closure Maintenance question. Then please determine the distance or distances for each Receptor from the *Edge of Waste* (using range finders and/or GIS maps) and type that information into the form. Please attach additional information including GIS maps, lists of potable well locations, etc.

Receptors

1. Are there Residential Dwellings Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

2. Are there Potable Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

3. Are there Community/Municipal Wells Within 1,500 feet of the Edge of Waste? ☐ Yes ☒ No

   If Yes, how many? _____

   What are the three closest distances from the *Edge of Waste*? _____ Feet _____ Feet _____ Feet

4. Are there Surface Water Bodies Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many? 1

   What are the three closest distances from the *Edge of Waste*? 1,425 Feet _____ Feet _____ Feet

   Please list the names of the water bodies: Bearhead Creek

5. Is Public Water Available Within 1,500 feet of the Edge of Waste? ☒ Yes ☐ No

   If Yes, how many of the Residential Dwellings noted above are connected? 0

Corrective Measures

6. Is there an active methane extraction system (blower, flare, etc.)? ☐ Yes ☒ No

7. Is there a passive methane extraction system (trench, vents in cap, flare, etc.)? ☐ Yes ☒ No

8. Is there groundwater remediation taking place on site? ☐ Yes ☒ No

   If Yes, what is the specific remedial technology used? _____

Comments

COMPOST

State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

SOLID WASTE COMPOST FACILITY

Facility Annual Report

For the period of JULY 1, 2008-JUNE 30, 2009

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2009 and a copy of this report must be sent to the County Manager of each county from which waste was received.

Facility Name: MCB, Camp Lejeune Permit: 6710 ID: P0999

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Bldg 12 Post Lane	Street 1: Marine Corps Base
Street 2:	Street 2: PSC Box 20004
City: Camp Lejeune	City: Camp Lejeune
State: North Carolina Zip: 28542-0004	State: North Carolina Zip: 28542-0004

Facility Contact: Primary	Facility Contact: Secondary
Name: John R. Townson	Name: Joe Powers
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-4998 Fax: (910) 451-9935
Email: john.townson@usmc.mil	Email: joseph.powers@usmc.mil

1. Tipping Fee: $0.00 per Ton (Attach a schedule of tipping fees if appropriate.)

2. Please attach results of monthly temperature monitoring for the period of July 1, 2008 thru June 30, 2009.

3. Please attach results of tests (Waste Analysis with metals, foreign matter and pathogens) as required in Table 3 of Rule 15A NCAC 13B .1408 for the period of July 1, 2008 thru June 30, 2009. **Current Rules state that "Compost shall be analyzed at intervals of every 20,000 tons of compost produced or every six months."**

4. What type and quantity of waste was composted by your facility?

Materials COMPOSTED	Tons
Yard Waste	1,146.04
Wood Chips	0
Horse Droppings	268.72
TOTAL	1,414.76

5. What type and quantity of compost was produced by your facility?

Type of Compost PRODUCED by Product Classification	Tons
Grade A	0
Grade B	0
TOTAL	0.00

6. What type and quantity of compost was removed or disposed by your facility?

Type of Compost REMOVED or DISPOSED by Product Classification	Tons
Grade A	0
Grade B	0
TOTAL	0.00

7. How was the final product ultimately used? If the final product had multiple uses, please indicate approximate percentages of each.

N/A. No product has been distributed as no compost was produced from April 2008-January 2009. Windrows were started in January 2009 and were sampled in June 2009. Laboratory data has not been received for this sampling event.

8. Indicate waste received at this compost facility during the period of July 1, 2008, through June 30, 2009. Indicate tonnage received by COUNTY of waste origin.

Add Row

Tons From \Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	112.97	105.14	67.37	70.95	104.53	325.20	146.49	117.24	111.87	101.19	80.71	71.10	1,414.76

Grand Total 1,414.76

*****According to (G.S. 130A-309.09D(b))**

This report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: Jul 27, 2009

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE, NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
JUL 29 2010

Mr. Ray Williams
North Carolina Department of Environment
and Natural Resources
Division of Waste Management
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Dear Mr. Williams:

Enclosed is the Solid Waste Compost Facility, Permit Number 6710, Annual Report for the reporting period July 1, 2009 through June 30, 2010 for Marine Corps Base, Camp Lejeune.

If you have any questions or concerns regarding this report, please contact Ms. Charity Rychak, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at (910) 451-9386.

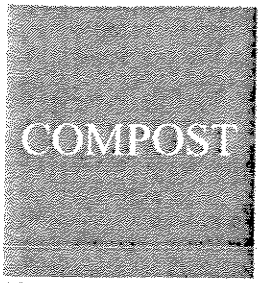
Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosure: 1. Solid Waste Compost Facility Annual Report for Permit Number 6710

Copy to: (w/encl)
Onslow County Manager (Mr. Hudson)

Blind copy to: (w/encl)
PWD/SWS (Mr. Powers)
EMD/ECB (Ms. Raper)



State of North Carolina

Department of Environment and Natural Resources
Division of Waste Management

SOLID WASTE COMPOST FACILITY

Facility Annual Report

For the period of JULY 1, 2009-JUNE 30, 2010

If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist. According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2010 and a copy of this report must be sent to the County Manager of each county from which waste was received.

Facility Name: MCB, Camp Lejeune Permit: 6710-COMPOST-1999 ID: P0999

Facility Website (URL):

Physical Address		Mailing Address	
Street 1: Building 982 Piney Green Rd		Street 1: Marine Corps Base	
Street 2:		Street 2: PSC Box 20004	
City: Camp Lejeune	County: Onslow	City: Camp Lejeune	
State: North Carolina	Zip: 28542-0004	State: North Carolina	Zip: 28542-0004

Primary Facility Contact Person		Billing Contact Person	
Name: John R. Townson		Name: John R. Townson	
Phone: (910) 451-5003	Fax: (910) 451-1143	Phone: (910) 451-5003	Fax: (910) 451-1143
Email: john.townson@usmc.mil		Email: john.townson@usmc.mil	

1. Tipping Fee: $0.00 per Ton (Attach a schedule of tipping fees if appropriate.)

2. Please attach results of monthly temperature monitoring for the period of July 1, 2009 thru June 30, 2010.

3. For Type II, III, and IV facilities, attach results of tests (Waste Analysis with metals, foreign matter and pathogens) as required in Table 3 of Rule 15A NCAC 13B .1408 for the period of July 1, 2009 thru June 30, 2010. **Current Rules state that "Compost shall be analyzed at intervals of every 20,000 tons of compost produced or every six months."**

4. What type and quantity of waste was composted by your facility?

Materials COMPOSTED	Tons
Pinestraw & Leaves	896.04
Horse Droppings	265.52
Leaves, Pinestraw, Grass / Housing	389.28
TOTAL	1,550.84

5. What type and quantity of compost was produced by your facility?

Type of Compost PRODUCED by Product Classification (15A NCAC 13B .1407)	Tons
Grade A	120
Grade B	
TOTAL	120.00

Enclosure

6. What type and quantity of compost was removed or disposed by your facility?

Type of Compost REMOVED or DISPOSED by Product Classification	Tons
Grade A	120
Grade B	
TOTAL	120.00

7. How was the final product ultimately used? If the final product had multiple uses, please indicate approximate percentages of each.
Public Use (100%)

8. Indicate waste received at this compost facility during the period of July 1, 2009, through June 30, 2010. Indicate **tonnage** received by COUNTY of waste origin.

Received from	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	124.44	113.79	142.52	107.21	218.53	110.56	317.97	91.66	69.08	94.07	78.56	82.45	1,550.84

Grand Total 1,550.84

9. Did your facility stop receiving waste during this past Fiscal Year? ☐ Yes ☒ No
If so, please report the date this occurred: _____

REMINDER: According to (G.S. 130A-309.09D(b)), this report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

Your Regional Environmental Senior Specialist:

Ray Williams
127 Cardinal Drive Ext.
Wilmington, NC 28405
phone: 910.796.7342 email: ray.williams@ncdenr.gov

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: John R. Townson Date: 7/29/10

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

COMPOST ANALYSIS RESULTS

ANALYSIS CONDUCTED BY ELS LABORATORY

WINDROW # 1-5

FOREIGN MATTER

SAMPLE DATE/TIME 6-17-09 13:20 COLLECTED BY Walter Baker

DATE OF ANALYSIS 6-20-09

% DRY WEIGHT OF FOREIGN MATTER 6.1

INERTS

SAMPLE DATE/TIME 6-17-09 13:20 COLLECTED BY Walter Baker

DATE OF ANALYSIS 6-20-09

% MANMADE INERTS 0

PATHOGENS

SAMPLE DATE/TIME 6-17-09 13:20 COLLECTED BY Walter Baker

DATE OF ANALYSIS 6-17-09

MPN FECAL COLIFORM/100 ML 65

METALS ANALYSIS

SAMPLE DATE/TIME 6-17-09 13:20 COLLECTED BY Walter Baker

SEE ATTACHED RESULTS

TOTAL NITROGEN

SAMPLE DATE/TIME 6-17-09 13:20 COLLECTED BY Walter Baker

SEE ATTACHED RESULTS

COMPOST ANALYSIS

BALANCE CHECK (WT= 1.0000 g) **PRE:** 1.0000 g **POST:** 1.0000 g

% TOTAL SOLIDS SAMPLE #	DATE/ TIME COLLECTED	DATE ANALYZED/ TECH	TIME/ TEMP IN	TIME/ TEMP OUT	A WT OF DISH (g)	B WT OF DISH + WET SOLIDS (g)	C WT OF DISH + DRY SOLIDS (g)	E SAMPLE WEIGHT [B-A] (g)	F TOTAL SOLIDS WEIGHT [C-A] (g)	% TOTAL SOLIDS (F/E) x 100
1-5	6-17-09 13:20	6-20-09 AyO	0900 103°C	1206 103°C	91.1081	116.1081	102.6101	25.0	11.5020	46.01

FOREIGN MATTER SAMPLE #	DATE/ TIME COLLECTED	DATE ANALYZED/ TECH	TIME/ TEMP IN	TIME/ TEMP OUT	WT OF SAMPLE (g)	WT OF FOREIGN MATTER (g)	% FOREIGN MATTER (DRY)	TYPE OF MATERIALS IDENTIFIED IN FOREIGN MATTER
1-5	6-17-09 13:20	6-20-09 AyO	1230 103°C	1540 103°C	100.0	6.1319	6.1	Wood, concrete

INERTS SAMPLE #	DATE/ TIME COLLECTED	DATE ANALYZED/ TECH	TIME/ TEMP IN	TIME/ TEMP OUT	WT OF SAMPLE (g)	WT OF INERTS (g)	% INERTS (DRY)	TYPE OF MATERIALS IDENTIFIED IN INERTS
1-5	6-17-09 13:20	6-20-09 AyO	1230 103°C	1540 103°C	100.0	0	0	

METALS/TOT N ANALYSIS: **DATE SAMPLE MAILED OUT:** 6-23-09 **TO:** Trident W. Wilmington

COMPOST REGROWTH ANALYSIS

FECAL COLIFORM (MPN)

SAMPLE COLLECTION DATE: 6-17-09 **TIME:** 13:20 **BY:** WB

SAMPLE ANALYSIS DATE: 6-17-09 **TIME:** 15:00 **BY:** AYO

SET 1. 10ML SAMPLE -> DS LTB (10ML)
SET 2. 1 ML SAMPLE -> SS LTB (1 ML)
SET 3. 10ML DILUTION A -> DS LTB (0.10ML)
SET 4. 1 ML DILUTION A -> SS LTB (0.01)

(DILUTION A = 50gms of COMPOST + 450ml PHOSPHATE BUFFERED DILUTION H20/ TAKE 1ml +99ml PHOSPHATE BUFFERED DILUTION H2O = DILUTION A)

	SAMPLE WINDROW #	10 ML	1 ML	0.10 ML	0.01 ML	COMBINATION OF POSITIVES	MPN INDEX	MPN FECAL
LTB	1-5	5/5	1/5	0/5	0/5	5-1-0	30	65
EC		5/5	1/5	0/5	0/5	5-1-0	30	65
		/5	/5	/5	/5			
		/5	/5	/5	/5			

(OBTAINED FROM TABLE 9221.1V OF SM 9221.C)

DATE/TIME IN 35 +/- 0.5 INCUBATOR: 6-17-09 15:00 **TEMP:** 35.0°C

DATE/TIME OUT 35 +/- 0.5 INCUBATOR: 6-18-09 15:05 **TEMP:** 35.1°C

DATE/TIME IN 44 +/- 0.2 INCUBATOR: 6-18-09 15:20 **TEMP:** 44.2°C

DATE/TIME OUT 44 +/- 0.2 INCUBATOR: 6-19-09 15:20 **TEMP:** 44.2°C

POSITIVE/NEGATIVE (+/-) CONTROLS

CONTROL	POSITIVE (+)	NEGATIVE (-)
DS LTB	+	−
SS LTB	+	−
EC BROTH	+	−

TRITEST

Laboratory Report

Lab Location 'R'
NC/WW Cert.#: 067 NC/DW Cert.#: 37731
6701 Conference Dr, Raleigh, NC 27607
Ph: (919) 834-4984 Fax: (919) 834-6497

Lab Location 'C'
NC/WW Cert.#: 103 NC/DW Cert.#: 37733
6300 Ramada Dr, Suite C2, Clemmons, NC 27012
Ph: (336) 766-7846 Fax: (336) 766-2514

Lab Location 'W'
NC/WW Cert.#: 075 NC/DW Cert.#: 37721
6624 Gordon Rd, Unit G, Wilmington, NC 28411
Ph: (910) 763-9793 Fax: (910) 343-9688

Project No.: **CHECK PROJ**
Project ID: **MCB COMPOSITE KIT**

Report Date: **7/22/2009**
Date Received: **6/23/2009**

— Prepared for —

Brian Hass
Commanding General
Attn: AC/S, EMD, ELS
Marine Corps PSC Box 20004
Camp Lejeune, NC 28542-0004

Work Order #: **0906-00646**
Cust. Code: **MCB**
Cust. P.O.#:

No.	Sample ID	Date Sampled	Time Sampled	Matrix	Sample Type	Condition
001	COMPOST	6/17/2009	13:20	Soil	Composite	4 +/- 2 deg C

Test Performed	Method	Results	Analyzed Lab Loc	Date	Time	Qualifier
Chromium	EPA 6020	3.25 mg/kg	R	7/6/09	17:27	
Copper	EPA 6020	13.3 mg/kg	R	7/6/09	17:27	
Lead	EPA 6020	28.8 mg/kg	R	7/6/09	17:27	
Mercury	EPA 7471B	<39.9 ug/kg	R	6/30/09	8:30	
Molybdenum	EPA 6020	0.695 mg/kg	R	7/6/09	17:27	
Nickel	EPA 6020	2.34 mg/kg	R	7/6/09	17:27	
Selenium	EPA 6020	0.241 mg/kg	R	7/6/09	17:27	
Zinc	EPA 6020	105 mg/kg	R	7/6/09	17:27	
Arsenic	EPA 6020	0.748 mg/kg	R	7/6/09	17:27	
Cadmium	EPA 6020	0.305 mg/kg	R	7/6/09	17:27	
Ammonia	EPA 350.1	13.1 mg/kg	R	7/2/09	14:05	
Total Kjeldahl Nitrogen	EPA 351.2	4640 mg/kg	R	7/1/09	16:13	
Nitrate-Nitrite	EPA 353.2	13.4 mg/kg	R	7/2/09	14:18	
Total Nitrogen Calculation	CALC.	4653 mg/kg	R	7/2/09	14:18	
Total Solids/Soils & Sludge	EPA 160.3	456000 mg/kg	R	6/26/09	13:45	E
Percent Dry Weight	SM 2540B	45.6 %	R	6/26/09	13:45	

EM Portal\EMD Official\5090.17\17300-17399\17305\
COMPOST INORGANICS_072209_RESULTS_TRITEST

Reviewed by:

MaryAnne Sims
for Tritest, Inc

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

July 16, 2009 12:03:01PM

Client: Tritest (2860)
6624 Gordon Road, Unit G
Wilmington, NC 28411
Attn: Felicia Justice

Work Order: NSG0026
Project Name: Tritest
Project Nbr: [none]
P/O Nbr:
Date Received: 07/01/09

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
906-01753	NSG0026-01	06/17/09 13:15

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

North Carolina Certification Number: 387

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Ken A. Hayes

Senior Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	Tritest (2860)	Work Order:	NSG0026
	6624 Gordon Road, Unit G	Project Name:	Tritest
	Wilmington, NC 28411	Project Number:	[none]
Attn	Felicia Justice	Received:	07/01/09 09:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NSG0026-01 (906-01753 - Misc. Solid) Sampled: 06/17/09 13:15									
Aldehydes by EPA Method 8315A									
Formaldehyde	1.40		mg/kg wet	0.199	0.996	1	07/13/09 18:21	SW846 8315A	9071422
Surr: Butyraldehyde (34-150%)	*75 %*					*1*	*07/13/09 18:21*	*SW846 8315A*	*9071422*

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client Tritest (2860)
6624 Gordon Road, Unit G
Wilmington, NC 28411
Attn Felicia Justice

Work Order: NSG0026
Project Name: Tritest
Project Number: [none]
Received: 07/01/09 09:00

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
Aldehydes by EPA Method 8315A							
SW846 8315A	9070340	NSG0026-01	5.00	1.00	07/03/09 07:35	DMG	8315 Carbonyls
SW846 8315A	9071422	NSG0026-01RE1	5.02	1.00	07/11/09 06:30	DMG	8315 Carbonyls

Client: Tritest (2860)
6624 Gordon Road, Unit G
Wilmington, NC 28411
Attn: Felicia Justice

Work Order: NSG0026
Project Name: Tritest
Project Number: [none]
Received: 07/01/09 09:00

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Aldehydes by EPA Method 8315A						
9071422-BLK1						
Acetaldehyde	<0.300	U	mg/kg wet	9071422	9071422-BLK1	07/13/09 17:31
Formaldehyde	<0.200	U	mg/kg wet	9071422	9071422-BLK1	07/13/09 17:31
Chloroacetaldehyde	<0.500	U	mg/kg wet	9071422	9071422-BLK1	07/13/09 17:31
Surrogate: Butyraldehyde	66%			9071422	9071422-BLK1	07/13/09 17:31

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: Tritest (2860)
6624 Gordon Road, Unit G
Wilmington, NC 28411
Attn: Felicia Justice

Work Order: NSG0026
Project Name: Tritest
Project Number: [none]
Received: 07/01/09 09:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Aldehydes by EPA Method 8315A								
9071422-BS1								
Acetaldehyde	5.00	3.23		mg/kg wet	65%	25 - 146	9071422	07/13/09 17:38
Formaldehyde	5.00	4.24		mg/kg wet	85%	44 - 150	9071422	07/13/09 17:38
Chloroacetaldehyde	5.00	25.8	L	mg/kg wet	517%	25 - 145	9071422	07/13/09 17:38
Surrogate: Butyraldehyde	10.0	7.27			73%	34 - 150	9071422	07/13/09 17:38

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: Tritest (2860)
6624 Gordon Road, Unit G
Wilmington, NC 28411
Attn: Felicia Justice

Work Order: NSG0026
Project Name: Tritest
Project Number: [none]
Received: 07/01/09 09:00

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Aldehydes by EPA Method 8315A										
9071422-MS1										
Acetaldehyde		3.72		mg/kg wet	4.99	75%	14 - 137	9071422		07/13/09 17:45
Formaldehyde		4.28		mg/kg wet	4.99	86%	21 - 153	9071422		07/13/09 17:45
Chloroacetaldehyde		6.02		mg/kg wet	4.99	121%	10 - 160	9071422		07/13/09 17:45
Surrogate: Butyraldehyde		6.36		mg/kg wet	9.98	64%	34 - 150	9071422		07/13/09 17:45

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	Tritest (2860)	Work Order:	NSG0026
	6624 Gordon Road, Unit G	Project Name:	Tritest
	Wilmington, NC 28411	Project Number:	[none]
Attn	Felicia Justice	Received:	07/01/09 09:00

PROJECT QUALITY CONTROL DATA

Matrix Spike Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Aldehydes by EPA Method 8315A												
9071422-MSD1												
Acetaldehyde		3.84		mg/kg wet	4.96	77%	14 - 137		41	9071422		07/13/09 17:52
Formaldehyde		4.38		mg/kg wet	4.96	88%	21 - 153		39	9071422		07/13/09 17:52
Chloroacetaldehyde		7.25		mg/kg wet	4.96	146%	10 - 160		45	9071422		07/13/09 17:52
Surrogate: Butyraldehyde		6.54		mg/kg wet	9.92	66%	34 - 150			9071422		07/13/09 17:52

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	Tritest (2860)	Work Order:	NSG0026
	6624 Gordon Road, Unit G	Project Name:	Tritest
	Wilmington, NC 28411	Project Number:	[none]
Attn	Felicia Justice	Received:	07/01/09 09:00

CERTIFICATION SUMMARY

TestAmerica Nashville

Method	Matrix	AIHA	Nelac	North Carolina
SW846 8315A	Soil	N/A	X	N/A

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	Tritest (2860)	Work Order:	NSG0026
	6624 Gordon Road, Unit G	Project Name:	Tritest
	Wilmington, NC 28411	Project Number:	[none]
Attn	Felicia Justice	Received:	07/01/09 09:00

DATA QUALIFIERS AND DEFINITIONS

L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
U	Analyte included in the analysis, but not detected
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

906-01753

TRITEST

Chain of Custody

Tritest W.O. # ~~0912-54710~~

☐ 6701 Conference Drive, Raleigh, NC 27607
ph: (919) 834-4984, fax: (919) 834-6497
NCWW Cert#67, NCDW Cert#37731

☒ 6624 Gordon Road, Unit G, Wilmington, NC 28411
ph: (910) 763-9793, fax: (910) 343-9688
NCWW Cert#75, NCDW Cert#37721

☐ 6300 Ramada Dr., Suite C2, Clemmons, NC 27012
ph: (336) 766-7846, fax: (336) 766-2514
NCWW Cert#103, NCDW Cert#37733

Report Results To:

Company: Commanding Officer Attn: AC/S, EMD, ELS

Address: Marine Corps Base PSC Box 20004

Camp Lejeune, NC 28542-0004

Attn: Brian Hass

Phone: (910) 451 - 5977

Fax: (910) 451 - 7195

Sampled by (signature): Alberto Y Okamoto

Bill To:

Commanding Officer

Attn: PWD, Utilities Branch

Bldg 1005 Michael Road

MCB PSC Box 20004

Camp Lejeune, NC 28542-0004

Attn: Jim Sides

Project Reference:

Project Number:

Purchase Order #:

☒ Standard Report Delivery

☐ Rush Report Delivery (w/surcharge)
**Rush projects are subject to prior approval by the laboratory

Requested Due Date:

Sample Description	Composite/Grab	Start Date / Start Time	End Date / End Time	Matrix	Analyses Requested	[illegible]
Wood Chips	G	6.17.09	1315	Wood Chips	Formaldehyde	

Relinquished by (signature)	Received by (signature)	Date	Time
Alberto Y Okamoto	Refrigerator	6.17.09	1335
Refrigerator	Walt Dohn	6-23-09	1050
Walt Dohn	Janet Balson	6-25-09	1220

Receipt Conditions (Lab Use Only)

☐ 4±2°C ☐ Temp: 3.4 °C

Res. Chlorine:

☐ Absent ☐ Present ☐ n/a

Acid preserv. <2?

☐ Yes ☐ No ☐ n/a

Base preserv. >12?

☐ Yes ☐ No ☐ n/a

Began 7-1-09

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 1

Feedstock Materials	Amount	Feedstock Materials	Amount
Compost			
Manure	15 Bucketfuls		18 tons
Green Yardwaste	25 "		17.5 tons
Wood chips	15 "		9.5 "
			40 Tons

Date	Temperatures Lower End <—> Upper End				Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
7-2-09	131	134	132	133	E	M	X
7-5-09	133	135	134	132	E	M	X
7-9-09	135	134	136	138	E	M	X
7-10-09	138	151	154	155	E	D	X
7-13-09	142	153	151	151	E	M	X
7-16-09	145	154	152	153	E	M	
7-20-09	139	139	143	149	E	M	X
7-23-09	142	139	145	150	E	M	
7-27-09	141	143	145	148	E	M	X
7-30-09	143	144	146	149	E	M	
8-3-09	145	147	148	151	E	M	X
8-6-09	144	145	147	150	E	M	
8-10-09	143	146	146	149	E	M	X
8-13-09	145	147	147	149	E	M	
8-17-09	146	146	148	151	E	M	X
8-20-09	145	144	147	148	E	M	
8-24-09	143	141	145	146	E	M	X
8-27-09	142	141	144	144	E	M	
9-1	140	139	149	142	E	M	X
9-4	139	139	140	140	E	M	
9-8	135	137	139	138	E	M	X
9-11	135	136	137	135	E	M	
9-14	134	135	136	134	E	M	X
9-17	134	134	135	133	E	M	
9-21	133	133	134	132	E	M	X
9-25	132	131	132	132	E	M	
9-28	131	130	132	130	E	M	X
10-1	130	130	129	128	E	M	
10-5	129	128	128	126	E	M	X
10-8	127	127	128	127	E	M	
10-13	127	126	127	126	E	M	

Placed in stockpile 10-15-09

Began 7-7-09

Solid Waste Compost Facility – Daily Monitoring Log   Windrow # 2

Feedstock Materials	Amount	Feedstock Materials	Amount
Compost			
Manure	15 Buckets		13 tons
Green Yardwaste	35		17.5
Wood chips	15		9.5
			40 tons

Date	Temperatures Lower End <—> Upper End				Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
7-8-09	124	126	125	123	E	M	X
7-10-09	131	135	135	138	E	D	X
7-13	136	138	139	135	M	M	X
7-16	133	139	141	140	E	M	X
7-20	148	149	150	147	E	M	X
7-23	145	147	149	148	E	M	
7-27	144	148	148	149	E	M	X
7-30	145	149	148	148	E	M	
8-3	146	148	147	149	E	M	X
8-6	147	148	149	151	E	M	
8-10	145	146	149	150	E	M	X
8-13	146	145	147	149	E	M	
8-17	145	147	146	148	E	M	X
8-20	147	146	145	147	E	M	
8-24	145	145	144	145	E	M	X
8-27	144	145	143	145	E	M	
9-1	142	140	141	142	E	M	X
9-4	139	139	139	140	E	M	
9-8	138	137	136	137	E	M	X
9-11	134	136	133	137	E	M	
9-14	133	134	130	134	E	M	X
9-17	133	132	131	131	E	M	
9-21	130	130	131	129	E	M	X
9-25	131	130	129	130	E	M	
9-28	129	129	129	130	E	M	X
10-1	127	129	130	129	E	M	
10-5	128	128	127	128	E	M	X
10-8	128	127	127	128	E	M	
10-13	128	128	126	129	E	M	

Placed in stock pile 10-15-09

Began 8-6-09

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 3

Feedstock Materials	Amount	Feedstock Materials	Amount
Compost			
Manure	15 buckets		13 tons
Green Yardwaste	35		17.5
Wood chips	15		9.5
			40 tons

Date	Temperatures Lower End <—> Upper End				Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
8-7-09	138	141	142	139	E	M	
8-10-09	140	140	143	141	E	M	X
8-13	142	141	144	142	E	M	
8-17	144	146	143	144	E	M	X
8-20	143	144	142	143	E	M	
8-24	144	147	145	144	E	M	X
8-27	144	145	143	143	E	M	
9-1	143	144	145	144	E	M	X
9-4	142	143	144	141	E	M	
9-8	143	144	143	142	E	M	X
9-11	142	143	144	143	E	M	
9-14	143	142	143	144	E	M	X
9-17	144	143	145	146	E	M	
9-20	145	146	144	147	E	M	X
9-24	144	145	143	145	E	M	
9-28	142	143	142	144	E	M	X
10-1	135	136	137	130	E	M	
10-5	131	130	131	129	E	M	X
10-8	129	131	130	131	E	M	
10-13	127	126	128	128	E	M	X
10-15	128	128	130	130	E	M	
10-19	130	131	129	132	E	M	X
10-22	132	132	133	131	E	M	
10-27	132	133	132	131	E	M	X
10-30	131	132	131	131	E	M	
11-3	133	132	132	131	E	M	X
11-6	132	131	132	132	E	M	
11-10	131	130	131	131	E	M	X
11-14	130	129	128	129	E	M	

Placed in stock pile 11-15-09

SHIPPING CONTAINER TALLY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

OMB No. 0704-0246
OMB approval expires Apr 30, 2009

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION. RETURN COMPLETED FORM TO THE ADDRESS IN ITEM 2.

1. FROM: *(Include ZIP Code)*
(M67001) MR. BOB LOWDER
I&E/EMD/EQB, MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE NC 28542-0004

POC;
MR. BOB LOWDER
910-451-9607

2. TO: *(Include ZIP Code)*
MR.RAY WILLIAMS
NCDENR DWM
127 CARDINAL DRIVE EXTENSION
WILMINGTON NC 28405-3845

POC:
MR. RAY WILLIAMS
910-796-7215

3. SHIP TO - MARK FOR
MR.RAY WILLIAMS
NCDENR DWM
127 CARDINAL DRIVE EXTENSION
WILMINGTON NC 28405-3845

SHEET NO.	NO. OF SHEETS	5. REQUISITION DATE	6. REQUISITION NUMBER
		07292010	0670012100001

7. DATE MATERIAL REQUIRED *(YYYYMMDD)*	8. PRIORITY
20100730	01

9. AUTHORITY OR PURPOSE
MR. BRYNN T. ASHTON

10. SIGNATURE Brynn T. Ashton

11a. VOUCHER NUMBER & DATE *(YYYYMMDD)*

12. DATE SHIPPED *(YYYYMMDD)*

b.

13. MODE OF SHIPMENT

14. BILL OF LADING NUMBER

15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.

4. APPROPRIATIONS DATA
TAC: MCC1

D102

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CON-TAINER (f)	CON-TAINER NOS. (g)	UNIT PRICE (h)	AMOUNT TOTAL COST (i)
	REPORTS							
	PERMIT NUMBER 6710 SWCF CTS 844							0.00
	PERMIT NUMBER 67-08 MSWLF CTS 127							0.00
	PERMIT NUMBER 6711 TPF CTS 892							0.00
								0.00
								0.00

16. TRANSPORTATION VIA AMC OR MSC CHARGEABLE TO

17. SPECIAL HANDLING

18. RECAPITULATION OF SHIPMENT

ISSUED BY	TOTAL CON-TAINERS	TYPE CON-TAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
CHECKED BY					
PACKED BY					
			TOTAL		

19. RECEIPT

CONTAINERS RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	SHEET TOTAL 0.00
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	GRAND TOTAL
POSTED	DATE *(YYYYMMDD)*	BY	20. RECEIVER'S VOUCHER NO.

DD FORM 1149, JUL 2006

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PREVIOUS EDITION IS OBSOLETE.

Adobe Designer 8.0

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
JUL 14 2011

Mr. Ray Williams
North Carolina Department of
Environment and Natural Resources
Division of Waste Management
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Dear Mr. Williams:

Marine Corps Base, Camp Lejeune is providing the Annual Report for the Solid Waste Compost Facility, Permit Number 6710, for the reporting period July 1, 2010 through June 30, 2011 in enclosure (1). The monthly temperature and waste analysis results for windrows dated November 2, 2010 are in enclosure (2), and monthly temperature results for windrows dated April 18, 2011 are in enclosure (3).

If you have any questions or concerns regarding this report, please contact Ms. Jenni Provost, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at (910) 451-9017.

Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosures: 1. Solid Waste Compost Facility Annual Report for Permit Number 6710
2. Monthly Temperature Monitoring and Analysis Results dated November 2, 2010
3. Monthly Temperature Monitoring dated April 18, 2011

Copy to: (w/encl)
Onslow County Manager (Mr. Hudson)
PWD/SWS (Mr. Powers)

5090.17
BEMD

Blind copy to: (w/encl)
EMD/ECB (Ms. Raper)

Compost	State of North Carolina Department of Environment and Natural Resources Division of Waste Management	**COMPOST** Facility Annual Report For the period of **July 1, 2010-June 30, 2011**

According to (G.S. 130A-309.09D(b)) completed forms must be returned by August 1, 2011 and a copy of this report must be sent to the County Manager of each county from which waste was received. If you have questions or require assistance in completing this report, contact your Regional Environmental Senior Specialist.

Facility Name: MCB Camp Lejeune Yard Waste Compost Facility Permit: 6710-COMPOST-1999 ID: P0999

Facility Website (URL):

Physical Address	Mailing Address
Street 1: Piney Green Road	Street 1: Marine Corps Base
Street 2:	Street 2: PSC Box 20004
City: Camp Lejeune County: Onslow	City: Camp Lejeune
State: North Carolina Zip: 28542	State: North Carolina Zip: 28542

Primary Facility Contact Person	Billing Contact Person
Name: John R. Townson	Name: John R. Townson
Phone: (910) 451-5003 Fax: (910) 451-1143	Phone: (910) 451-5003 Fax: (910) 451-1143
Email: john.townson@usmc.mil	Email: john.townson@usmc.mil

1. Tipping Fee: $0.00 per Ton (Attach a schedule of tipping fees if appropriate.)

2. Please attach results of monthly temperature monitoring for the period of July 1, 2010 thru June 30, 2011.

3. For Type II, III, and IV facilities, attach results of tests (Waste Analysis with metals, foreign matter and pathogens) as required in Table 3 of Rule 15A NCAC 13B .1408 for the period of July 1, 2010 thru June 30, 2011. **Current Rules state that "Compost shall be analyzed at intervals of every 20,000 tons of compost produced or every six months."**

4. What type and quantity of waste was composted by your facility?

Materials COMPOSTED	Check X if Received	Tons RECEIVED	Tons COMPOSTED	Unusable Tons DISPOSED
Yard Waste	☒	1,182.57	951.25	0
Clean Wood	☐			
Sawdust	☐			
Wooden Pallets	☐			
Food Waste	☐			
Animal Waste	☒	241	298.25	0
Sludge and Biosolids	☐			
Grease Trap Waste	☐			
Animal Mortalities	☐			
Sheetrock	☐			
Commingled (Describe)	☐			
Other (Describe)	☐			
Other (Describe)	☐			
Other (Describe)	☐			
TOTAL		1,423.57	1,249.5	0

Enclosure (1)

5. What type and quantity of compost was produced and removed from your facility?

Type	Tons CREATED	Tons USED On Site	Tons SOLD to Public	Tons GIVEN to Public	Tons STOCKPILED	Tons DISPOSED	Other
Mulch	0	0	0	0	0	0	
Grade A Compost	0	0	0	0	0	0	
Grade B Compost	1,249.5	0	0	0	325.25	924.25	
Other							
Other							
TOTAL	1,249.5	0	0	0	325.25	924.25	

6. Indicate waste received at this compost facility during the period of July 1, 2010, through June 30, 2011. Indicate tonnage received by COUNTY of waste origin. Please indicate COUNTY and STATE if received from another state.

Received from	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
Onslow	100.72	108.22	72.90	95.33	116.30	200.20	328.76	124.67	46.03	112.22	64.49	53.73	1,423.57

Grand Total 1,423.57

7. Did your facility stop receiving waste during this past Fiscal Year? ☐ Yes ☒ No

If so, please report the date this occurred: _____

REMINDER: According to (G.S. 130A-309.09D(b)), this report must be sent to the Regional Environmental Senior Specialist for your area and a copy of this report must be sent to the County Manager of each county from which waste was received.

Please send your completed report to:

Ray Williams
127 Cardinal Drive Ext.
Wilmington, NC 28405
phone: 910.796.7342 email: Ray.Williams@ncdenr.gov

CERTIFICATION: I certify that the information provided is an accurate representation of the activity at this facility.

Signature: _____ Date: 7/21/4

Name: John R. Townson Title: Director, Environmental Management Division

Phone Number: (910) 451-5003 Email: john.townson@usmc.mil

Solid Waste Compost Facility 2 Nov 2010

Date: 10/30/10 & 11/2/10 windrows constructed

Materials: Yardwaste and Horse Manure

Tons per windrow

Windrow #1 = Yardwaste 148.85 Horse manure 36.00 Total = 184.85 tons

Windrow #2 = Yardwaste 148.85 Horse manure 36.00 Total = 184.85 tons

Windrow #3 = Yardwaste 148.85 Horse manure 36.00 Total = 184.85 tons

Windrow #4 = Yardwaste 148.85 Horse manure 36.00 Total = 184.85 tons

Windrow #5 = Yardwaste 148.85 Horse manure 36.00 Total = 184.85 tons

Total tons processed as Class B compost and used at the landfill for daily/intermediate cover 924.25 tons.

Windrow daily monitoring log attached with temps.

Analytical Results attached.

All 5 windrows stockpiled on 1/7/11.

Results: Windrows # 1-4 did meet time and temp but did not pass the analytical results for manmade inerts therefore they are Class B compost and will be used for landfill daily/intermediate cover.

Windrow # 5 did not meet time and temp therefore it is Class B compost and will be used for landfill daily/intermediate cover.

Enclosure (2)

Began Tue 11-2-10 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 1

Feedstock Materials	Amount	Feedstock Materials Tons Per Buckets	Amount
Compost			
Manure	18 Buckets	2.25	36 Tons
Green Yardwaste	65 Buckets	2.29	148.85 Tons
Wood chips			
		Total	184.85 Tons

Date	Temperatures Lower End <---> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
11-2-10	140, 138, 138, 141	E	M	X
11-3	136, 138, 132, 132	E	M	
11-4	154 149 155 157	E	M	
11-5	154, 154, 159, 156	E	M	X
11-6	147, 150, 157, 155	E	M	
11-8	148, 181, 185, 149	E	M	X
11-9	131, 139 136 135	E	M	
11-10	130 149 144 145	E	M	X
11-12	140 149 152 153	E	M	X
11-13	135 137 131 132	E	M	
11-15	138 147 152 147	E	M	
11-16	139 144 181 147	E	M	X
11-17	141, 147 182 150	E	M	
11-19	145 144 153 154	E	M	
11-22	148, 146 147 148	E	M	
11-24	148 147 147 147	E	M	
11-27	147 146 144 147	E	M	X
11-29	147 145 144 148	E	M	
12-1	153 141 139 145	E	M	
12-3	155 144 138 148	E	M	X
12-6	150 148 140 144	E	M	
12-8	140 141 140 138	E	M	
12-10	135 133 136 133	E	M	
12-14	130 130 130 133	E	M	X
12-16	129 127 131 135	E	M	
12-21	128 131 133 127	E	M	
12-27	130 128 130 130	E	M	
12-30	125 125 131 126	E	M	
1-3	122 120 124 121	E	M	

1.5 IN RAIN THUR. PM FRI. AM.

28 DAY'S

THANK PM

Stockpiled 1/17/2011

Began Tue
11-2-10 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log

Windrow # 2

Feedstock Materials	Amount	Feedstock Materials Tons Per Bucket	Amount Tons
Compost			
Manure	16 Buckets	2.25	36
Green Yardwaste	65 Buckets	2.29	148.85
Wood chips			
		Total	184.85 Tons

Date	Temperatures Lower End <---> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
11-2-10	118, 113, 111, 114	E	M	X
11-3	139, 144, 140, 139	E	M	
11-4	151, 143, 149, 149	E	M	
11-5	135, 153, 153, 150	E	M	X
11-6	148, 147, 143, 146	E	M	
11-8	149, 150, 148, 147	E	M	X
11-9	130, 131, 130, 132	E	M	
11-10	138 149 142 150	E	M	X
11-12	137 141 148 148	E	M	X
11-13	137 140 138 132	E	M	
11-15	141 149 141 150	E	M	
11-16	145 148 144 150	E	M	X
11-17	154 148 152 155	E	M	
11-19	148 141 145 148	E	M	
11-22	144 147 138 150	E	M	X
11-24	145 135 148	E	M	
11-27	148 135 133 148	E	M	
11-29	150 126 142 145	E	M	
12-1	154 138 134 144	E	M	
12-3	155 140 134 148	E	M	X
12-6	140 144 138 140	E	M	
12-8	143 135 130 140	E	M	
12-10	140 130 130 136	E	M	
12-14	143 117 110 130	E	M	X
12-16	135 119 115 125	E	M	
12-21	136 121 114 133	E	M	
12-27	130 115 120 125	E	M	
12-30	133 112 110 124	E	M	
1-3	125 115 113 118	E	M	

37 Days

Stockpiled 1-7-2011

began SAT. 10-30-10 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 3

3
65÷4 = 16.25

Feedstock Materials	Amount	Feedstock Materials	Amount
Compost			
Manure	~~16~~ 30 Buckets	2.25 Tons per Bucket	~~36.~~ Tons ~~67.50~~ Tons
Green Yardwaste	65 Buckets	2.29 per Bucket	148.85 Tons
Wood chips			
		Total	~~184~~ 185 Tons

Temps should be Between 130° - 160°

20 DAYS

Date	Temperatures Lower End <---> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
11-1-10	128, 15 129 127	E	M	
11-2-10	118, 120, 120, 111	E	M	X
11-3	146 150, 143, 150	E	M	
11-4	148, 152, 150, 153	E	M	
11-5	145, 148, 140, 149	E	M	X
11-6	146, 142, 147, 150	E	M	
11-8	148, 143, 150 150	E	M	X
11-9	133, 130 130 133	E	M	
11-10	132 135 142 135	E	M	X
11-12	120 131 135 136	E	M	X
11-13	130 132 133 130	E	M	
11-15	131 130 130 131	E	M	
11-16	131 138 131 132	E	M	X
11-17	134 135 136 138	E	M	
11-19	143 132 135 135	E	M	
11-22	138 132 131 132	E	M	
11-24	139 134 133 135	E	M	
11-27	140 133 132 136	E	M	
11-29	142 134 131 139	E	M	
12-1	144 134 138 149	E	M	
12-3	146 135 139 148	E	M	X
12-6	144 140 140 145	E	M	
12-8	140 140 138 141	E	M	
12-10	138 136 134 137	E	M	
12-14	120 124 129 124	E	M	X
12-16	122 126 125 120	E	M	
12-21	118 120 130 123	E	M	
12-27	115 117 119 124	E	M	
12-30	121 114 126 119	E	M	
1-3	118 120 117 122	E	M	

Stockpiled 1/7/2011

Besar Tue
11-2-10 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 4

Feedstock Materials	Amount	Feedstock Materials TONS Per Buckets	Amount
Compost			TONS
Manure	16 Buckets	2.25	36
Green Yardwaste	65 Buckets	2.29	148.85
Wood chips			
		Total	184.85 Tons

Date	Temperatures Lower End <--> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
11-2-10	112, 113, 108, 112	E	M	X
11-3	146, 150, 138 140	E	M	
11-4	148, 149, 147, 149	E	M	
11-5	141, 149, 134, 143	E	M	X
11-6	142, 145, 146, 148	E	M	
11-8	141 150 147 140	E	M	X
11-9	133, 131, 134 133	E	M	
11-10	140 143 144 136	E	M	X
11-12	133 136 137 143	E	M	X
11-15	131 134 133 135	E	M	
11-15	139 141 143 143	E	M	
11-16	140 141 142 144	E	M	X
11-17	143 144 146 149	E	M	
11-19	141 140 140 144	E	M	
11-22	138 133 138 141	E	M	
11-24	139 134 139 141	E	M	
11-29	140 134 139 144	E	M	
12-1	136 132 140 148	E	M	
12-3	139 134 144 148	E	M	X
12-6	140 138 144 148	E	M	
12-8	140 137 140 142	E	M	
12-10	141 136 133 140	E	M	X
12-14	143 130 131 139	E	M	
12-16	145 133 127 135	E	M	
12-21	140 125 121 130	E	M	
12-27	130 121 115 129	E	M	
12-30	137 124 120 130	E	M	
2011 1-3	135 120 122 124	E	M	

20 Days

Stockpiled 1/7/2011

Began Turn 11-2-10 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 5

Feedstock Materials	Amount Buckets	Feedstock Materials Tons Per Bucket	Amount Tons
Compost			
Manure	~~18~~ 11	2.25	24.75
Green Yardwaste	~~45~~ 45	2.29	103.05
Wood chips			

Date	Temperatures Lower End <---> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
11-2-10	101, 112, 98, 102	E	M	X
11-3	151 150, 135, 146	E	M	
11-4	151, 152, 148 147	E	M	
11-5	135 133, 139 150	E	M	X
11-6	144, 141 135, 142	E	M	
11-8	143 144 141 141	E	M	X
11-9	130 130 132 134	E	M	
11-10	133 131 131 132	E	M	X
11-12	130 133 134 131	E	M	X
11-13	108, 111 112 110	E	M	
11-15	131 139 135 131	E	M	
11-16	135 140 135 131	E	M	X
11-17	147 142 140 134	E	M	
11-19	139 131 132 137	E	M	
11-22	138 125 127 125	E	M	
11-24	138 129 125 118	E	M	
11-27	174 125 125 120	E	M	
11-29	184 118 125 130	E	M	
12-1	146 122 126 135	E	M	
12-3	144 130 128 130	E	M	X
12-6	140 127 130 130	E	M	
12-8	141 120 128 128	E	M	
12-10	130 120 122 123	E	M	
12-14	114 119 113 120	E	M	

10 DAYS

Did Not meet time and Temp.

Stockpiled 1/7/2011

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE NC 28542-0004

IN REPLY REFER TO:
5090.17
BEMD
FEB 0 9 2011

Mr. Michael Scott
North Carolina Department of
Environment and Natural Resources
Division of Waste Management
Composting and Land Application Branch
Suite 150
401 Oberlin Road
Raleigh, North Carolina 27605

Dear Mr. Scott:

Marine Corps Base, Camp Lejeune is submitting the analytical results for the latest composite sample collected for compost characterization from the Compost Facility (Permit #:67-10 YW Type 4) located on Piney Green Road, Camp Lejeune, North Carolina. The composite sample was gathered on November 30, 2010. The sample was analyzed for foreign matter, inerts, pathogens, total metals, and total nitrogen. Based on the data and the percent manmade inerts, the compost is classified as Grade B product and is not suitable for distribution for public use. The Grade B product will be used as a conditioner to landfill cover within the Base Municipal Solid Waste Landfill.

The point of contact is Ms. Jenni Provost, Environmental Quality Branch, Environmental Management Division, Installations and Environment Department, at (910) 451-5068.

Sincerely,

John R. Townson

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding Officer

Enclosure: 1. Compost Analytical Results

Copy to: (w/encl)
I&E/PWD (Mr. Baker)
I&E/PWD/SWS (Mr. Powers)

COMPOST ANALYSIS RESULTS

ANALYSIS CONDUCTED BY ELS LABORATORY

WINDROW # 1-4

SAMPLE DATE 11.30.10 TIME 1340 COLLECTED BY ayo

TOTAL SOLIDS

DATE OF ANALYSIS 12.2.10

% TOTAL SOLIDS 46.53

FOREIGN MATTER

DATE OF ANALYSIS 12.2.10

% DRY WEIGHT OF FOREIGN MATTER 23.35

INERTS

DATE OF ANALYSIS 12.2.10

% MANMADE INERTS 7.79

PATHOGENS

DATE OF ANALYSIS 11.30.2010

MPN FECAL COLIFORM / 100 mL 280

METALS ANALYSIS

SEE ATTACHED RESULTS

TOTAL NITROGEN

SEE ATTACHED RESULTS

Enclosure

COMPOST REGROWTH ANALYSIS

FECAL COLIFORM (MPN)

DATE COLLECTED:	11.30.10	TIME COLLECTED:	1340	COLLECTED BY:	Anjo
RECEIVED BY:	Anjo	DATE:	11.30.10	TIME:	1340
DATE ANALYZED:	11.30.10	TIME:	1405	ANALYST:	Anjo
				METHOD:	MPN-Tube Method

PRESUMPTIVE PHASE

SAMPLE LOCATION	24 HOURS 10 mL	1 mL	0.10 mL	0.010 mL	COMB. OF POSITIVES	MPN/100 mL	MPN/GRAM
COMPOST	4 /5 mL	5 /5 mL	4 /5 mL	3 /5 mL	5-4-3	280	60
DUP	1 /5 mL						

	POSITIVE CONTROL	NEGATIVE CONTROL	BLANK
SS LTB BROTH	POS	NEG	NEG
DS LTB BROTH	POS	NEG	NEG

24 HOURS:

DATE IN INCUBATOR:	11.30.10	TIME IN INCUBATOR:	1415	TEMPERATURE OF INCUBATOR:	44.5
DATE OUT INCUBATOR:	12.1.10	TIME OUT INCUBATOR:	1415	TEMPERATURE OF INCUBATOR:	44.5

46.53 % TOTAL SOLIDS (ATAD SOLIDS ANALYSIS)

CALCULATION:

MPN Fecal Coliform/gram sludge = $\frac{10 \times \text{MPN Index}}{\text{Largest volume x \% dry solids}}$

CONFIRMATION PHASE

SAMPLE LOCATION	AFTER 24 HOURS 10 mL	1 mL	0.10 mL	0.010 mL	COMB. OF POSITIVES	MPN/100 mL	MPN/GRAM
COMPOST	4 /5 mL	5 /5 mL	3 /5 mL	4 /5 mL	5-4-3	280	60
DUP	1 /5 mL						

	POSITIVE CONTROL	NEGATIVE CONTROL	BLANK
SS EC BROTH	POS	NEG	NEG

AFTER 24 HOURS:

DATE IN INCUBATOR:	12.1.2010	TIME IN INCUBATOR:	1425	TEMPERATURE OF INCUBATOR:	44.5
DATE OUT INCUBATOR:	12.2.2010	TIME OUT INCUBATOR:	1425	TEMPERATURE OF INCUBATOR:	44.5

FORM UPDATED: DECEMBER 2010

COMPOS_ ANALYSIS

BALANCE CHECK (WT= 1.0000 g) PRE: 99.96g POST: 99.9996 12.2.10 ajp

% TOTAL SOLIDS SAMPLE #	DATE/ TIME COLLECTED	DATE ANALYZED/ TECH	TIME/ TEMP IN	TIME/ TEMP OUT	A WT OF DISH (g)	B WT OF DISH + WET SOLIDS (g)	C WT OF DISH + DRY SOLIDS (g)	E SAMPLE WEIGHT [B-A] (g)	F TOTAL SOLIDS WEIGHT [C-A] (g)	% TOTAL SOLIDS (F/E) x 100
1-4	11.30.10 1340	12-2-10 ajp	0735 103°C	0935 104°C	135.03	199.35	164.96	64.32	29.93	46.53

FOREIGN MATTER SAMPLE #	DATE/ TIME COLLECTED	DATE ANALYZED/ TECH	TIME/ TEMP IN	TIME/ TEMP OUT	WT OF SAMPLE (g)	WT OF FOREIGN MATTER (g)	% FOREIGN MATTER (DRY)	TYPE OF MATERIALS IDENTIFIED IN FOREIGN MATTER
1-4	11.30.10 1340	~~12-2-10 11-30-10~~ ajp	1500 104°C	12-2-10 0735 103°C	51.6445	12.0582	23.35	sticks, pinecone, woodchips
	—							plastic ziptie, sand

INERTS SAMPLE #	DATE/ TIME COLLECTED	DATE ANALYZED/ TECH	TIME/ TEMP IN	TIME/ TEMP OUT	WT OF SAMPLE (g)	WT OF INERTS (g)	% INERTS (DRY)	TYPE OF MATERIALS IDENTIFIED IN INERTS
1-4	11.30.10 1340	11.30.10 ajp	~~11.30.10~~ 1500 104°C	12-2-10 0735 103°C	51.6445	4.0218	7.79	stick, pinecone, plastic ziptie

METALS/TOT N ANALYSIS: DATE SAMPLE MAILED OUT: 12.1.2010 TO: Enviro Chem

Environmental Chemists, Inc.

envirochem

ANALYTICAL & CONSULTING CHEMISTS

6602 Windmill Way • Wilmington, NC 28405
(910) 392-0223 (Lab) • (910) 392-4424 (Fax)
710 Bowsertown Road • Manteo, NC 27954
(252) 473-5702

NCDENR: DWQ CERTIFICATE #94, DLS CERTIFICATE #37729

Camp Lejeune Marine Corps Base
PSC Box 20004
Camp Lejeune NC 28542-0004
Attention: Brian Hass

Date of Report: Dec 27, 2010
Customer PO #:
Report #: 2010-12018
Report to: Brian Hass
Project ID:

Lab ID	Sample ID: Compost	Collect Date/Time	Matrix	Sampled by
10-30382	Site:	11/30/2010 1:40 PM	Solid/Sludge	

Test	Method	Results	Date Analyzed
Arsenic	EPA 200.8	0.676 mg/kg	12/15/2010
Cadmium	EPA 200.8	0.319 mg/kg	12/15/2010
Chromium	EPA 200.8	5.36 mg/kg	12/15/2010
Copper	EPA 200.8	15.0 mg/kg	12/15/2010
Lead	EPA 200.8	13.4 mg/kg	12/15/2010
Molybdenum	EPA 200.8	0.439 mg/kg	12/15/2010
Nickel	EPA 200.8	2.44 mg/kg	12/15/2010
Selenium	EPA 200.8	0.267 mg/kg	12/15/2010
Zinc	EPA 200.8	101 mg/kg	12/21/2010
Mercury	EPA 245.1	<0.0045 mg/kg	12/15/2010
Ammonia Nitrogen	EPA 350.1	20.1 mg/kg	12/07/2010
Total Kjeldahl Nitrogen (TKN)	EPA 351.2	717 mg/kg	12/15/2010
Nitrate+Nitrite-Nitrogen	EPA 353.2	3.14 mg/kg	12/03/2010
Total Solids (%)	SM 2540 B	44.2 %	12/02/2010
Total Nitrogen (calc)			
Total Nitrogen	Total Nitrogen	720 mg/kg	12/16/2010

Comment:
Reviewed by: Ray Pate / Rhonda Stalnes

Analytical & Consulting Chemists

ENVIRONMENTAL CHEMISTS, INC

NCDENR: DWQ CERTERICATION # 94 NCDHHS: DLS CERTIFICATION # 37729

6602 Windmill Way Wilmington, NC 28405
OFFICE: 910-392-0223 FAX 910-392-4424

COLLECTION AND CHAIN OF CUSTODY

CLIENT: Commanding Officer
ATTN: AC/S, EMD, ELS
ADDRESS: Marine Corps Base
PSC Box 20004
Camp Lejeune, NC 28542-0004

PROJECT NAME:
CONTACT NAME: Alberta Y. Okamoto
REPORT TO: Brian Hass
COPY TO:

REPORT NO: 10-12018
PO NO:
PHONE/FAX: ~~(910) 451-5977~~ fax: (910) 451-7195
E-MAIL: brian.hass@usmc.mil

Sampled By: Alberta Y Okamoto

SAMPLE TYPE: I = Influent, E = Effluent, W = Well, ST = Stream, SO = Soil, SL = Sludge, Other:

Sample Identification	Collection Date	Collection Time	Collection Temp	Sample Type	Composite or Grab	Container (P or G)	Chlorine mg/L	LAB ID NUMBER	NONE	HCL	H2SO4	HNO3	NAOH	THIO	OTHER	ANALYSIS REQUESTED
Compost	11-30-10	1340		Soil	(C)	P		30382								Cr, Cu, Pb, Mo, Ni, Se, Zn, As,
					G	G										Cd, Hg, TKN, NO2+NO3,
					C	P										Ammonia, Total N calc.,
					G	G										Total Solids
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										

NOTICE - DECHLORINATION: Samples for Ammonia, TKN, Cyanide, Phenol and Bacteria must be dechlorinated (0.2 ppm or less) in the field at the time of collection. See reverse for instructions

Transfer	Relinquished By:	Date/Time	Received By:	Date/Time
1.	Alberta Y Okamoto	11.30.10 1430	Refrigerator	11.30.10 1430
2.	Refrigerator	12.1.10 0830	Alberta Y Okamoto	12.1.10 0830

Temperature when Received: 3.9° Accepted: ✓ Rejected: Resample Requested:

Delivered By: Received By: [signature] Date: 12/1/10 Time: 2:10

Comments: TURNAROUND:

Solid Waste Compost Facility 18 April 2011

Date: 4/18/11 windrows constructed

Materials: Yardwaste and Horse Manure

Tons per windrow

Windrow #1 = Yardwaste 41.40 Horse manure 23.65 Total = 65.05 tons

Windrow #2 = Yardwaste 41.40 Horse manure 23.65 Total = 65.05 tons

Windrow #3 = Yardwaste 41.40 Horse manure 23.65 Total = 65.05 tons

Windrow #4 = Yardwaste 41.40 Horse manure 23.65 Total = 65.05 tons

Windrow #5 = Yardwaste 41.40 Horse manure 23.65 Total = 65.05 tons

Total tons processed as Class B compost and will be used at the landfill for daily/intermediate cover 325.25 tons

Windrow daily monitoring log attached with temps.

No analytical required at this time.

All 5 windrows stockpiled on 6/6/11 after not meeting the required time and temps.

Results: All 5 windrows did not meet time and temp therefore they are Class B compost and will be used for landfill daily/intermediate cover.

Enclosure (3)

Began 4/18/11 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 1

Feedstock Materials	Amount Buckets	Feedstock Materials Tons per Buckets	Amount Tons
Compost			
Manure	11	2.15	23.65
~~Green~~ Yardwaste	45	0.92	41.40
Wood chips			
		Total	65.05 Tons

Date	Temperatures Lower End <----> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
4-18-11		E	M	X
4-19-11	130 132 131 131	"	"	
☆ 4-20-11	122 131 134 117	"	"	
☆ 4-21-11	118 131 136 142	"	D	
4 25 11	135 147 148 127	"	"	X
4 26 11	134 148 145 129	"	D	X
4 28 11	129 132 144 130	E	M	
5 2 11	133 143 147 136	E	M	X
5 6 11	136 147 145 130	E	M	
5 9 11	125 120 119 117	E	M	X
5-10	129 122 120 128	E	M	
5-11	119 129 130 132	E	M	
5-12	125 125 128 127	E	M	
5-13	126 125 125 128	E	M	
5 16	127 120 119 129	E	M	X
5-17	128 122 125 125	E	M	
5-18	115 118 122 123	E	M	
5-19	118 120 120 126	E	M	
5-20	115 121 123 127	E	M	
5 23 11	118 120 120 128	E	M	X
5 24 11	120 128 122 129	E	M	
5 25 11	121 125 123 130	E	M	
5 26 11	121 126 129 128	E	M	
5 27 11	122 127 128 128	E	M	
5 31 11	123 125 130 127	E	M	X
6 1 11	124 122 130 130	E	M	
6 2 11	122 123 129 131	E	M	
6 3 11	125 125 129 130	E	M	

Did NOT meet time and temp.

Stockpiled 6/6/11

Began 4/18/11 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 2

Feedstock Materials	Amount Buckets	Feedstock Materials Ton per Buckets	Amount TON
Compost			
Manure	11	2.15	23.65
Green Yardwaste	45	0.92	41.40
Wood chips			
		Total	65.05 Tons

Date	Temperatures Lower End <---> Upper End				Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
4-18-11					E	M	X
☆ 4-19-11	121	122	118	120	E	M	
4-20-11	135	139	135	133	"	"	
4-21-11	131	135	141	132	"	"	
4 25 11	124	125	132	123	"	"	X
4 26 11	127	127	130	125	DE	D	X
4 28 11	122	132	132	129	E	M	
5 2 11	137	135	138	131	E	M	X
5 6 11	129	137	138	134	E	M	
5 9. 11	130	132	136	129	E	M	X
5. 10. 11	129	126	128	130	E	M	
5. 11. 11	125	128	120	125	E	M	
5. 12. 11	122	125	120	126	E	M	
5. 13. 11	118	120	116	128	E	M	
5. 16. 11	120	123	120	125	E	M	X
5. 17. 11	128	126	124	123	E	M	
5. 18. 11	126	122	125	124	E	M	
5. 19. 11	120	124	122	128	E	M	
5. 20. 11	118	120	122	125	E	M	
5 23 11	120	118	123	120	E	M	X
5 24 11	123	115	124	121	E	M	
5 25 11	128	115	125	122	E	M	
5 26 11	129	112	130	120	E	M	
5 27 11	128	118	131	121	E	M	
5 31 11	128	118	130	118	E	M	X
6 1 11	129	119	128	119	E	M	
6 2 11	129	120	130	120	E	M	
6 3 11	129	121	129	117	E	M	

Did NOT meet time and temp.
Stockpiled 6/6/11

Began 4/18/11 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 3

Feedstock Materials	Amount Buckets	Feedstock Materials Tons per Buckets	Amount Tons
Compost			
Manure	11	2.15	23.65
Green Yardwaste	45	0.92	41.40
Wood chips			
		Total	65.05 Tons

Date	Temperatures Lower End <---> Upper End				Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
~~4-18-11~~					E	M	X
* 4-19-11	115	118	120	117	"	"	
4-20-11	131	131	132	133	"	"	
4-21-11	131	132	134	131	"	"	
4 25 11	115	122	112	110			X
4 26 11	119	124	115	113	E	D	X
4 28 11	138	130	126	122	E	M	
5 2 11	139	132	117	114	E	M	X
5 6 11	138	135	120	118	E	M	
5 9 11	140	130	122	115	E	M	X
5 10 11	133	129	124	118	E	M	
5 11 11	134	125	124	114	E	M	
5 12 11	130	126	125	118	E	M	
5 13 11	128	128	128	112	E	M	
5 16 11	130	125	130	113	E	M	X
5 17 11	125	125	128	115	E	M	
5 18 11	123	122	127	118	E	M	
5 19 11	128	126	125	119	E	M	
5 20 11	130	127	122	120	E	M	
5 23 11	132	130	128	118	E	M	X
5 24 11	130	129	126	121	E	M	
5 25 11	128	125	130	120	E	M	
5 26 11	130	118	131	117	E	M	
5 27 11	129	119	129	115	E	M	
5 31 11	127	120	128	117	E	M	X
6 1 11	128	121	125	112	E	M	
6 2 11	125	120	124	118	E	M	
6 8 11	126	122	128	122	E	M	

Did not meet time and temp.
Stockpiled 6/6/11

Began 4/18/11 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 4

Feedstock Materials	Amount Buckets	Feedstock Materials Tons Per Buckets	Amount Tons
Compost			
Manure	11	2.15	23.65
Green Yardwaste	45	0.92	41.40
Wood chips			
		Total	65.05 Tons

Date	Temperatures Lower End <---> Upper End	Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
4-18-11		E	M	X
4-19-11	115 117 120 118	"	"	
4-20 11	131 133 132 145	"	"	
4-21-11	142 138 133 134			
4 25 11	117 112 110 117			X
4 26 11	119 114 112 119		D	X
4 28 11	123 134 128 133	E	M	
5 2 11	126 127 128 130			X
5 6 11	130 129 132 135	E	M	
5 9 11	125 130 128 130	E	M	X
5 10 11	126 128 130 134	E	M	
5 11 11	129 126 132 138	E	M	
5 12 11	130 129 130 135	E	M	
5 13 11	133 130 131 129	E	M	
5 16 11	128 120 128 128	E	M	X
5 17 11	129 125 125 129	E	M	
5 18 11	131 122 128 130	E	M	
5 19 11	129 118 126 138	E	M	
5 20 11	125 120 130 135	E	M	
5 23 11	126 118 130 130	E	M	X
5 24 11	125 128 130 134	E	M	
5 25 11	120 128 131 130	E	M	
5 26 11	118 129 129 129	E	M	
5 27 11	115 130 128 127	E	M	
5 31 11	116 128 122 130	E	M	X
6 1 11	118 125 125 131	E	M	
6 2 11	119 128 126 130	E	M	
6 3 11	125 127 128 130	E	M	
11				

Did Not meet time and temp.
Stockpiled 6/6/11

Began 4/18/11 (windrow made)

Solid Waste Compost Facility – Daily Monitoring Log Windrow # 5

Feedstock Materials	Amount Buckets	Feedstock Materials Tons per Buckets	Amount Tons
Compost			
Manure	11	2.15	23.65
Green Yardwaste	45	0.92	41.40
Wood chips			
		Total	65.05 tons

Date	Temperatures Lower End <---> Upper End				Odor (E-M-A-R)	Moisture (D-M-W)	Turned (X)
~~4-18-11~~					E	M	X
4-19-11	142	140	138	141	"	"	
4-20-11	135	135	144	142	"	"	
4-21-11	141	143	143	145	"	"	
4-25-11	113	131	126	130	E	M	X
4-26-11	115	130	129	136	E	D	X
4-28-11	131	132	131	136	E	M	
5-2-11	123	130	130	141	E	M	X
5-6-11	129	133	135	150	E	M	
5-9-11	132	135	134	140	E	M	X
5-10-11	130	136	135	138	E	M	
5-11-11	128	139	130	140	E	M	
5-12-11	125	135	128	135	E	M	
5-13-11	126	132	129	134	E	M	
5-16-11	127	130	130	135	E	M	X
5-17-11	130	129	132	138	E	M	
5-18-11	129	125	130	132	E	M	
5-19-11	130	128	130	130	E	M	
5-20-11	125	129	130	131	E	M	
5-23-11	128	128	132	131	E	M	X
5-24-11	125	126	130	130	E	M	
5-25-11	127	128	129	132	E	M	
5-26-11	126	130	130	128	E	M	
5-27-11	130	125	129	130	E	M	
5-31-11	128	126	130	125	E	M	X
6-1-11	125	127	129	128	E	M	
6-2-11	128	123	122	129	E	M	
6-3-11	130	124	123	130	E	M	

Did Not meet time and temp.
Stock piled 6/6/11