Final Environmental Impact Report

Littlerock Reservoir Sediment Removal Project

[SCH No. 2005061171]

Volume 2: Appendices




Prepared for:

Palmdale Water District

March 2017

Littlerock Reservoir Sediment Removal Project

FINAL

Environmental Impact Report

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Volume 2: Appendices

Lead Agencies:

Palmdale Water District

With Technical Assistance by:

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Appendix A

Standard Project Commitments

APPENDIX A – STANDARD PROJECT COMMITMENTS

The following Standard Project Commitments (SPCs) are part of the proposed action. These SPCs will be implemented by Palmdale Water District (PWD) and its contractors during all activities associated with the proposed action.

Air Quality

AQ-1: Limit Engine Idling. Vehicle engine idling shall be limited to the extent feasible, and shall be limited to a maximum duration of 3 minutes per event**.**

Issue Areas Affected: Air Quality, Recreation and Land Use

AQ-2: Fugitive Dust Controls. Fugitive dust controls shall conform with applicable AVAQMD Rule 403 (c) requirements for all phases of the project; a Dust Control Plan (DCP) will be submitted to the APCO for approval if more than 5 acres would be disturbed or if more than 2,500 cubic yards of material will be excavated per day for at least three days (for each phase of the project as applicable); and in addition to the Rule 403 (c) requirements or to specify requirements where that rule provides options, the following specific additional fugitive dust control measures will be used during the main excavation phase of the project:

- Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit unpaved roadways on the site and the sediment disposal area.
- Street sweeping shall be conducted to cleanup any carryout from unpaved areas and reduce paved road silt content.
- Water the disturbed areas of the active construction sites and active unpaved roadways used during construction at least four times per day and more often if uncontrolled fugitive dust is noted.
- Cover all trucks hauling sediment and other loose material, or require at least two feet of freeboard.
- Travel routes shall be developed to minimize both unpaved road travel.
- Sediment excavation will be conducted in areas of the reservoir bed that are near the maintained reservoir water level so that the sediment excavated is naturally wet or excavation will occur in areas that are watered prior to excavation.
- Sediment storage areas will have non-toxic dust suppressants sprayed over their active surface area at the end of each year's excavation period.
- Establish a vegetative ground cover (in compliance with biological resources impact Mitigation Measures) or otherwise create stabilized surfaces on all unpaved areas disturbed by the project, not including areas located within the maximum pool elevation of the Littlerock Reservoir, within 21 days after active construction operations have ceased each year.

The reservoir level will be allowed to rise as fast as nature allows to levels above each year's annual excavation areas.

Issue Areas Affected: Air Quality, Biology, Recreation and Land Use

AQ-3: Off-Road Engine Specifications. All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 3, or higher tier, engine is not available for any off-road engine larger than 50 horsepower, that engine shall be equipped with a Tier

2 engine equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. Equipment properly registered under and in compliance with CARB's Statewide Portable Equipment Registration Program are in compliance with this project commitment.

Issue Areas Affected: Air Quality, Recreation and Land Use

AQ-4: On-Road Engine Specifications. All on-road construction vehicles shall meet all applicable California on-road emission standards. This does not apply to construction worker personal vehicles.

Issue Areas Affected: Air Quality, Recreation and Land Use

AQ-5: Reduce Off-Road Vehicle Speeds. Vehicle speeds shall remain below 15 mph off-pavement to minimize dust and reduce wildlife impacts.

Issue Areas Affected: Air Quality, Biology, Recreation and Land Use

Biological Resources

BIO-1a: Provide Restoration/Compensation for Impacts to Native Vegetation Communities. The PWD shall restore all areas outside the permanent sediment removal area. Prior to disturbance, PWD shall have a qualified biologist document the community type and acreage of vegetation that would be subject to project disturbance. Impacts to all native trees and oaks with would be documented by identifying the species, number, location, and DBH.

The PWD shall prepare a Habitat Restoration and Revegetation Plan for the Project, which includes plans for restoration, enhancement/re-vegetation and/or the acquisition of off-site habitat. The plan shall include at minimum: (a) maps depicting the location of the mitigation site(s) (off site mitigation may be required); (b) locations and details for top soil storage (c) the plant species to be used; (d) seed and cutting collecting guidelines; (e) time of year that the planting would occur and the methodology of the planting; (f) a description of the irrigation methodology for container plants; (g) measures to control exotic vegetation on site; (h) performance standards; (i) a detailed monitoring program; (j) locations and impacts to all native trees, and (k) locations of temporary or permanent gates, barricades, or other means to control unauthorized vehicle access on access to restoration areas.

The PWD would use locally collected seed mix, locally collected cuttings, etc. to revegetate areas disturbed by construction activities. All habitats dominated by non-native species prior to Project disturbance shall be revegetated using appropriate native species. Forest Service approval is required for seeding on NFS land. No commercially purchased seeds, stock, etc. would be accepted without the approval of the Forest Service on NFS lands and must be certified to be free of noxious weeds. The Habitat Restoration and Revegetation Plan shall include a monitoring element. Post seeding and planting, monitoring would be yearly from years one to five and every other year from years six to ten, or until the success criteria are met. If the survival and cover requirements have not been met, PWD is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned.

The replacement ratios for permanent impacts to riparian vegetation are 3:1 and 1.5:1 for juniper woodland. Individual native trees which are to be removed shall be replaced as follows: trees from 1 to 5 inches DBH shall be replaced at 3:1; trees from 5 to 12 inches shall be replaced at 5:1; trees from 12 to 24 inches shall be replaced at 10:1; and trees from 24 to 36 inches shall be replaced at 15:1. All planting locations, procedures, and results shall be evaluated by a qualified biologist and Forest Service botanist (as applicable).

The creation or restoration of habitat shall be monitored annually for years one to five on both Forest Service lands and private lands and bi-annually for years six to ten on Forest Service lands, or until the performance standards are met, after mitigation site construction to assess progress and identify potential problems with the restoration site. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the 10-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance standards after the 10-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the 10-year period until the standards are met or unless otherwise specified by the Forest Service on NFS lands. If a fire occurs in a revegetation area within the 10-year monitoring period, PWD shall be responsible for a one-time replacement.

Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands would include all of the following:

A. Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the Project, taking into consideration soils, vegetation type, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by PWD and Forest Service;

B. To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed;

C. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

D. Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;

E. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

F. Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat;

G. Must provide wildlife movement value equal to that on the project site, based on topography, presence and nature of movement barriers or crossing points, location in relationship to other habitat areas, management feasibility, and other habitat values; and

H. Have water and mineral rights included as part of the acquisition, unless PWD and Forest Service, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.

Issue Areas Affected: Biology, Wildfire Prevention

BIO-1b: Worker Environmental Awareness Program. The PWD shall prepare a Worker Environmental Awareness Program (WEAP) that will be implemented for construction crews by a qualified biologist(s). Training materials and briefings shall include but not be limited to: discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; fire protection measures; sensitivities of working on NFS lands and identification of T&E and Forest Service sensitive species; hazardous substance spill prevention and containment measures; a contact person in the event of the discovery of dead or injured wildlife; and review of mitigation requirements. The WEAP shall include the protocol to be followed when road kill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as the California condor. On NFS lands, road kill shall be reported to the Forest Service or other applicable agency within 24 hours. On non-NFS lands, road kill shall be reported to the appropriate local animal control agency within 24 hours. Training materials and a course outline shall be provided to Forest Service for review and approval at least 30 days prior to the start of construction. Maps showing the location of special-status wildlife, fish, or populations of rare plants, exclusion areas, or other construction limitations (i.e., limited operating periods and arroyo toad exclusion areas) will be provided to the environmental monitors and construction crews prior to ground disturbance. PWD shall provide the Forest Service a list of construction personnel who have completed training prior to the start of construction, and this list shall be updated by PWD as required when new personnel start work. No construction worker may work in the field for more than 5 days without participating in the WEAP.

Issue Areas Affected: Biology

BIO-2: Prepare and Implement a Weed Control Plan. The PWD shall prepare and implement a Weed Control Plan, which shall be part of the Habitat Restoration and Revegetation Plan. The Weed Control Plan, including the control methods to be used, shall be prepared consistent with the FS's *Plan for Invasive Plants, Angeles National Forest and San Gabriel Mountains National Monument Environmental Assessment*. The Weed Control Plan will be implemented during construction of the grade control structure, sediment removal, and operation and maintenance. The Weed Control Plan shall be submitted to the Forest Service for approval of the weed control methods, practices, and timing. The Weed Control Plan shall include the following:

a. A pre-construction weed inventory shall be conducted for all areas subject to ground-disturbing activity. Weed populations that: (1) are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head); and (3) are considered by the FS as species of priority (for NFS lands only) shall be mapped and described according to density and area covered. In areas subject to ground disturbance, weed infestations shall be treated prior to sediment removal activities according to control methods and practices for invasive weed populations designed in consultation with the Forest Service. The Weed Control Plan shall be updated and utilized for eradication and monitoring for annual sediment removal activities.

b. Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods applied with the authorization of the Forest Service, and Fish and Wildlife Service where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), where concurrence has been provided by the Forest Service, and implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 24 hours of a more than 30% anticipated rain event. In riparian areas only water-safe herbicides shall be used. Herbicides shall not be applied according to the prescriptions in the manufacturer label. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the Forest Service. The timing of the weed control treatment shall be determined for each plant species in consultation with the Forest Service (on NFS lands).

c. Surveying and monitoring for weed infestations shall occur annually for years one to five post construction of the grade structure and bi-annually thereafter. For the life of the Project (on NFS lands) the PWD will survey for new invasive weed populations every two years. Treatment of identified weed populations shall occur at a minimum of once annually should they occur in the disturbance area. When no new seedlings or resprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site.

d. All seeds and straw materials shall be weed-free rice straw, and all gravel and fill material, if used, shall be certified weed free. Gravel and fill must be from a quarry approved by a Forest Service botanist. All plant materials used during restoration shall be native, certified weed-free, and approved by the Forest Service. All erosion control material must be biodegradable. Wattles wrapped in "photodegradable" plastic will not be acceptable.

e. Prior to work on NFS lands, all vehicles traveling off road and all ground disturbing equipment shall be washed (including wheels, undercarriages, fuel pans, skid plates and bumpers) before entering Forest Service lands. On non-federal lands vehicles and equipment shall be washed prior to commencing work in off road areas. Vehicles shall be cleaned at existing construction yards or legally operating car washes. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before entering all Project work areas. PWD shall notify NFS at least 2 working days prior to moving each piece of equipment on to NFS land, unless otherwise agreed. Notification will include a Certificate of Cleaning Equipment. Upon request of NFS, arrangements will be made for NFS to inspect each piece of equipment prior to it being placed in service. This requirement for notification does not apply to handheld equipment and tools. All washing on NFS lands shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill, unless otherwise approved by the Forest Service. A Certificate of Cleaning Equipment log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the Forest Service for inspection at any time and shall be submitted to the Forest Service on a monthly basis.

Issue Areas Affected: Biology, Wildfire Prevention

BIO-4: Conduct Pre-Construction Surveys and Monitoring for Breeding Birds. The PWD shall conduct pre-construction surveys for nesting birds prior to any vegetation removal, staging of equipment, sediment removal activities, or other ground disturbance that will occur during the breeding period (from January 15 through August 31 for raptors and humming birds and March 15 through September 1 for other birds). This action will be required for all activities including annual sediment removal. The biologists conducting the surveys shall be Forest Service approved experienced bird surveyors familiar with standard nest-locating techniques. Surveys shall be conducted in all areas within a 500-foot buffer of any area proposed for Project disturbance and no more than 3 days prior to the initiation of any vegetation removal, staging of equipment, sediment removal activities, or other ground-disturbance activities. If breeding birds with active nests are identified, a 300-foot buffer shall be established around the nest site and no construction activities shall be allowed within the buffer until the young have fledged from the nest or the nest fails. The 300-foot buffer may be adjusted after review by a qualified ornithologist based on existing conditions, including ambient noise, topography, and disturbance with concurrence from the Forest Service, as appropriate. A Forest Service approved biological monitor shall be responsible for recording the results of pre-construction surveys and copies of all monitoring reports shall be submitted to the Forest Service at the end of each breeding season.

Issue Areas Affected: Biology

BIO-5: Conduct Preconstruction Surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, Candidate, and Forest Service Sensitive Plants and Avoid Any Located Occurrences of Listed Plants. The PWD shall conduct focused surveys for federal- and state-listed and other special-status plants. All special-status plant species (including listed threatened or endangered species, Forest Service Sensitive, and all CRPR 1A, 1B, 2, 3, and 4 ranked species) subject to project disturbance shall be documented by the pre-construction survey report. Surveys shall be conducted during the appropriate season in all suitable habitat located within the Project disturbance areas and access roads and within 100 feet of disturbance areas and access roads. Surveys shall be conducted by a qualified botanist approved by the Forest Service. The field surveys and reporting must conform to current CDFW botanical field survey protocol (CDFG, 2009) or more recent updates, if available. The reports will describe any conditions that may have prevented target species from being located or identified, even if they are present as dormant seed or below-ground rootstock (e.g., poor rainfall, recent grazing, or wildfire). Prior to any vegetation removal, the PWD shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the Forest Service for review and approval.

If federally or State-listed plants are detected in disturbance areas or within 100-feet of the disturbance areas, the PWD would avoid these populations and notify the Forest Service, USFWS, and CDFW as appropriate.

The PWD shall avoid impacts to any State or federally listed plants. If Project activities result in the loss of more than 10 percent of the known individuals within the Forest Service Sensitive, and/or special-status plant species (List 1.B and List 2 only) occurrence to be impacted, the PWD shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio (habitat preserved: habitat impacted). The compensation lands must be occupied by the impacted Forest Service Sensitive or CRPR 1 or 2 ranked plants or be considered appropriate by the Forest Service to off-set the loss of these plants. Occupied habitat will be calculated on the project site and on the compensation lands as including each special status plant occurrence and a surrounding 100-foot buffer area. Off-site compensation shall be incorporated into SPC BIO-1a (Restoration/Compensation for Impacts to Native Vegetation Communities) for review and approval by the Forest Service, as applicable.

Issue Areas Affected: Biology

BIO-6a: Conduct Surveys and Implement Avoidance Measures. Prior to any project activities at Rocky Point (the proposed grade control location) PWD shall have a FS approved biologist conduct clearance surveys for arroyo toads and implement protective measures to reduce the potential for arroyo toads to be present in the work area. After ensuring egg masses or any other life stage of arroyo toads is not present PWD will place exclusion fencing around the grade control structure work area as the water levels recede. This will require placing fencing and a screened culvert in the channel to prevent animals from moving into the work area.

Issue Areas Affected: Biology

BIO-6b: Conduct Clearance Surveys and Construction Monitoring. After the placement of exclusion fencing PWD will have a FS approved biologist conduct five nights of clearance surveys during suitable weather conditions to relocate toads from the work area. Prior to the onset of construction activities, PWD shall provide all personnel who will be present on work areas within or adjacent to arroyo toad habitat with the following information: (a) a detailed description of the arroyo toad including color photographs; (b) the protection the arroyo toad receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act; (c) the protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the Project; and (d) a point of contact if arroyo toads are observed.

For all areas in which this species has been documented PWD shall develop and implement a monitoring plan that includes the following measures in consultation with the USFWS and Forest Service.

A. PWD shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in occupied arroyo toad habitat and within 300-feet of Rocky Point. The resumes of the proposed biologists will be provided to the Forest Service for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad.

B. All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day. Prior to the onset of any construction activities, PWD shall meet on-site with staff from the Forest Service and the authorized biologist. PWD shall provide information on the general location of construction activities within arroyo toad habitat and the actions taken to reduce impacts to this species.

C. Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat (i.e., above Rocky Point at a pre-selected location in consultation with the USFWS and Forest Service. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.

D. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

E. To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

F. PWD shall restrict work to daylight hours, except during the placement of soil cement, or unless otherwise authorized by the Forest Service in order to avoid nighttime activities when arroyo toads may be present on the access roads. Traffic speed shall be maintained at 15 mph or less in the work area.

G. A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code.

H. No stockpiles of materials will occur in areas occupied by arroyo toads.

I. Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc.) in areas that may contain arroyo toads will be reported to the Forest Service and USFWS within four hours.

Issue Areas Affected: Biology

BIO-6c: Seasonal Surveys During Water Deliveries. PWD shall conduct annual surveys along the upper limit of the Reservoir during the months of March to June if water deliveries would result in a two-inch or greater reduction in water surface elevations in these areas. The authorized biologist would inspect the margin of the reservoir for egg masses or any other life stage of arroyo toads. At the completion of the survey the authorized biologist will prepare a letter report to document the conditions along the upstream margin of the Reservoir. If egg strings are present and the authorized biologist determines the reduction of water surface elevations may result in the loss of the egg strings, PWD will contact the USFWS and Forest Service prior to continued water deliveries.

Issue Areas Affected: Biology

BIO-7: Monitor Construction and Remove Trash and Microtrash. PWD shall retain a qualified biologist with demonstrated knowledge of California condor to monitor all construction and sediment removal activities within the ANF. The resumes of the proposed biologist(s) will be provided to the Forest service for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. If a condor is observed in the Project area the authorized biologist will have the authority to stop all activities within 500 feet of the condor until it leaves the area. All condor sightings in the Project area will be reported to the CDFW, USFWS and Forest. Should condors be found roosting within 0.5 miles of the sediment removal or construction area, no construction activity shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization occurs from the CDFW, USFWS and Forest Service on NFS lands.

Microtrash. Workers will be trained on the issue of microtrash – what it is, its potential effects to California condors, and how to avoid the deposition of microtrash. In addition, daily sweeps of the work area will occur to collect and remove trash in locations with the potential for California condors to occur.

Worker Education. PWD will train all workers on the project concerning the California condor. Information will include: species description with photos and/or drawings indicating how to identify the California condor and how to distinguish condors from turkey vultures and golden eagles; protective status and penalties for violation of the ESA; avoidance measures being implemented on the Project; and contact information for communicating condor sightings.

Reporting. All California condor sightings in the Project area will be reported directly to the CDFW, USFWS, and Forest Service.

Issue Areas Affected: Biology

BIO-8: Conduct Protocol Surveys for Least Bell's Vireo and Avoid Occupied Habitat. If construction or sediment removal activities are scheduled to occur during the breeding season (March 15 through September 15) PWD shall have a qualified ornithologist conduct protocol surveys in suitable habitat within 500 feet of disturbance areas including Cheseboro Road below the dam. In known occupied habitat for listed riparian birds, PWD shall conduct focused surveys of the Project and adjacent areas within 500 feet. The surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season.

If a territory or nest is confirmed in a previously unoccupied area, the CDFW, USFWS and Forest Service shall be notified within 48 hours. In coordination with the CDFW, USFWS, and Forest Service a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be adjusted as determined by a qualified biologist in coordination with the CDFW, USFWS and Forest Service. The biologist shall have the authority to halt the construction or sediment removal activities and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge.

Issue Areas Affected: Biology

BIO-9: Conduct Pre-Construction Surveys for Swainson's Hawks. If ground disturbance occurs at the 47th Street East sediment disposal site during the breeding season PWD shall retain a qualified ornithologist and conduct pre-construction surveys within one-half mile of the sediment disposal site in regions with suitable nesting habitat for Swainson's hawks. The survey periods will follow a specified schedule: Period I occurs from 1 January to 20 March, Period II occurs from 20 March to 5 April, Period III occurs from 5 April to 20 April, Period IV occurs from 21 April to 10 June, and Period V occurs from June 10 to July 30. Surveys are not recommended during Period IV because identification is difficult, as the adults tend to remain within the nest for longer periods of time. No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of Project construction. If a nest site is found, consultation with CDFW shall be required to ensure Project construction will not result in nest disturbance. If present PWD shall implement a 0.25 mile non-disturbance buffer between 1 March and 15 September, or until the nest has been abandoned or the chicks have fledged. These buffer zones may be adjusted as appropriate in consultation with a qualified ornithologist and CDFW.

Issue Areas Affected: Biology

BIO-11: Conduct Focused Surveys for Ringtail and Avoid Denning Areas. If vegetation clearing will occur during the breeding season for ringtail cat (March 1 through June 30), a qualified biologist will conduct focused surveys for potential dens within all areas proposed for clearing and grading including a 200 foot buffer. Any active dens will be avoided, and a 200-foot disturbance-free buffer will be established. This buffer may be adjusted in coordination with the CDFW and the Forest Service, depending on the specific location and current activity occurring in the area. Once the young have left the den or the breeding attempt has failed, normal vegetation clearing and earth moving activities can resume. All activities that involve the ringtail shall be documented and reported to the CDFW and the Forest service within 30 days of the activity.

Issue Areas Affected: Biology

BIO-14: Conduct Surveys for Southwestern Pond Turtle and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing in the Reservoir or below the dam on PWD access road PWD shall retain a qualified biologist to conduct focused surveys for southwestern pond turtle in the Reservoir and Little Rock Creek. The resume of the proposed biologists will be provided to the Forest service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September. The survey schedule may be adjusted in consultation with the Forest Service, as appropriate, to reflect the existing weather or stream conditions.

The qualified biologist shall conduct focused, systematic surveys for southwestern pond turtle nesting sites. The survey area shall include all suitable nesting habitat located within 200 feet of occupied habitat in which Project-related ground disturbance will occur. This area may be adjusted based on the existing topographical features on a case-by-case basis with the approval of the Forest Service. Surveys will entail searching for evidence of pond turtle nesting, including remnant eggshell fragments, which may be found on the ground following nest depredation.

If a southwestern pond turtle nesting area would be adversely impacted by construction activities, PWD shall avoid the nesting area. If avoidance of the nesting area is determined to be infeasible, the authorized biologist shall coordinate with CDFW and Forest Service to identify if it is possible to relocate the pond turtles. Eggs or hatchlings shall not be moved without the written authorization from the CDFW and Forest Service.

A qualified biologist with demonstrated expertise with southwestern pond turtles shall monitor construction activities where pond turtles are present. The authorized biologist will be present during all activities immediately adjacent to, or within, habitat that supports populations of southwestern pond turtles. If the installation of fencing is deemed necessary by the authorized biologist, one clearance survey for southwestern pond turtles shall be conducted at the time of the fence installation. Clearance surveys for southwestern pond turtles shall be conducted by the authorized biologist prior to the initiation of vegetation clearing or construction each day until the top three feet of sediment has been removed from the reservoir.

Issue Areas Affected: Biology

BIO-15: Conduct Surveys for Two-Striped Garter Snakes and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing in the Reservoir or below the dam on PWD access road PWD shall retain a qualified biologist to conduct focused surveys for two-striped garter snakes where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the Forest service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys within one week of vegetation clearing. The survey schedule may be adjusted in consultation with the Forest service to reflect the existing weather or stream conditions. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of the two-striped garter snake. Clearance surveys for garter snakes shall be conducted by the authorized biologist prior to the initiation of construction each day. Any snakes found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.

Issue Areas Affected: Biology

BIO-16: Conduct Surveys for Coast Range Newts and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing in the Reservoir (at Rocky Point only) or below the dam on PWD access road PWD shall retain a qualified biologist to conduct surveys for coast range newts where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the Forest service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys within one week of vegetation clearing. The survey schedule may be adjusted in consultation with the Forest service to reflect the existing weather or stream conditions. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of the coast range newts. Clearance surveys for coast range newts shall be conducted by the authorized biologist prior to the initiation of construction each day in suitable habitat. Any coast range newts found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.

Issue Areas Affected: Biology

BIO-17: Conduct Surveys for Terrestrial Herpetofauna and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing at all Project locations PWD shall retain a qualified biologist to conduct surveys for terrestrial herpetofauna where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the Forest service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of three daytime surveys and one nighttime survey within one week of vegetation clearing. The survey schedule may be adjusted in consultation with the Forest service to reflect the existing weather or stream conditions. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports terrestrial herpetofauna. Clearance surveys for terrestrial herpetofauna shall be conducted by the authorized biologist prior to the initiation of construction each day in suitable habitat. Terrestrial herpetofauna found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.

Issue Areas Affected: Biology

BIO-18: Conduct Protocol Surveys for Burrowing Owls. Concurrent with desert tortoise clearance surveys at the 47th Street East sediment disposal site PWD shall retain a qualified biologist to conduct pre-construction surveys for burrowing owls in accordance with CDFW guidelines (CDFG 2012). Pre-construction surveys for burrowing owls shall occur no more than 15 days prior to initiation of ground disturbance or site mobilization activities. The survey area shall include the 47th Street East sediment disposal site and surrounding 500 foot survey buffer where access is legally available. If an active burrowing owl burrow is detected within 500 feet from the Project Disturbance Area the following avoidance and minimization measures shall be implemented.

Establish Non-Disturbance Buffer. Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August). Owls present on site after 1 February will be assumed to be nesting unless evidence indicates otherwise. The protected buffer will remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently or the nest is no longer active. The non-disturbance buffer and fence line may be reduced by a qualified biologist if project-related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1st through January 31st). Signs shall be posted in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer.

Passive Relocation. During the non-breeding season, the birds may be passively relocated. Relocation of owls during the non-breeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least four nights. These one-way doors will be removed and the burrows hand excavated prior to the initiation of grading. To avoid the potential for owls evicted from a burrow to occupy other burrows within the impact area, one-way doors will be placed in all potentially suitable burrows within the impact area when eviction occurs. Any damaged or collapsed burrows will be replaced with artificial burrows in adjacent habitat at a 2:1 ratio.

Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31st) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance.

Compensation for the Loss of foraging habitat. If present PWD would offset the loss of up to six acres of foraging habitat by the acquisition and preservation of undisturbed areas of the project site mitigation lands outside of the Project site or a combination of both.

Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands will include all of the following:

A. Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the Project, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by PWD and Forest Service (as applicable);

B. To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed;

C. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

D. Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;

E. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

F. Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat;

G. Must provide wildlife movement value equal to that on the project site, based on topography, presence and nature of movement barriers or crossing points, location in relationship to other habitat areas, management feasibility, and other habitat values; and

H. Have water and mineral rights included as part of the acquisition, unless PWD and Forest Service, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.

Issue Areas Affected: Biology

BIO-20: Survey for Maternity Colonies or Hibernaculum for Roosting Bats. Prior to ground disturbance or vegetation clearing at all Project locations PWD shall retain a qualified biologist to conduct surveys for sensitive bats. Surveys shall be conducted no more than 15 days prior to grading near or the removal of trees or other structures. The resume of the proposed biologists will be provided to the Forest service for concurrence prior to conducting the surveys. Surveys shall also be conducted during the maternity season (1 March to 31 July) within 300 feet of project activities. If active maternity roosts or hibernacula are found, the structure, tree or feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the biologist will implement the following actions.

Maternity Roosts. If a maternity roost will be impacted/removed by the Project, and no alternative maternity roost exists in proximity, substitute roosting habitat for the maternity colony shall be provided in an adjacent area free from project impacts. Alternative roost sites will be designed to meet the needs of the specific species and will be constructed/installed in coordination with CDFW and Forest service. By making the roosting habitat available prior to eviction, the colony will have a better chance of finding and using the roost. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW and Forest Service shall be notified of any hibernacula or active nurseries within the construction zone.

Exclusion of bats prior to eviction from roosts. If non-breeding bat hibernacula are found in trees scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal). A concise letter report will be submitted to the Forest service documenting the results of bat surveys and any evictions that were required.

Issue Areas Affected: Biology

BIO-22: Conduct Surveys for American Badger and Desert Kit Fox and Avoid During the Breeding Season. Prior to ground disturbance or vegetation clearing at the 47th Street sediment disposal site and within 200 feet of the Reservoir PWD shall retain a qualified biologist to conduct surveys for American badger and desert kit fox. Surveys shall be conducted no more than 15 days prior to site mobilization, grading near or sediment. The resume of the proposed biologists will be provided to the Forest service for concurrence prior to conducting the surveys. If present, occupied American badger and desert kit fox dens shall be flagged and ground-disturbing activities avoided within 100 feet of the occupied den. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of the CDFW and Forest Service. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction activities.

Inactive Dens. Inactive dens that would be directly impacted by the placement of fill shall be excavated either by hand or mechanized equipment under the direct supervision of the biologist and backfilled to prevent reuse by badgers or kit fox. Potentially and known active dens shall not be disturbed during the whelping/pupping season (February 1 – September 30). A den may be declared "inactive" after three days of monitoring via camera(s) or a tracking medium have shown no kit fox or American badger activity.

Passive Relocation. If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Relocation of badgers shall occur only after consultation with the CDFW and the Forest Service. Kit fox shall be passively hazed only outside the pupping season. A written report documenting any exclusion events shall be provided to the Forest service and CDFW within 30 days of relocation.

Issue Areas Affected: Biology

Cultural Resources

CUL-1: Archaeological Monitoring Outside the Little Rock Creek and Reservoir Bed. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of prehistoric and historical resources that could be encountered within the Project area. A monitor(s) shall be present for all ground disturbing activities that involve excavation of previously undisturbed soil (pre-dam ground surface level) outside of the Little Rock Creek and Reservoir bed. A monitoring program shall be developed and implemented by PWD, in consultation with the Forest Service, to ensure the effectiveness of monitoring. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the principal archaeologist.

A Native American monitor may be required at culturally sensitive locations specified by the Forest Service following government-to-government consultation with Native American tribes. PWD shall retain and schedule any required Native American monitors.

Issue Areas Affected: Cultural Resources

CUL-2: Unidentified Cultural Resource Discovery Procedures. If previously unidentified cultural resources are unearthed during construction activities, construction work in the immediate area of the find shall be halted and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. Once the find has been inspected and a preliminary assessment made, PWD would consult with the Forest Service to make the necessary plans for evaluation and treatment of the find(s).

SPC CUL-1 shall also be implemented for CUL-2.

Issue Areas Affected: Cultural Resources

CUL-3: Unidentified Human Remains Discovery Procedures. PWD shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct Project impacts by Project redesign.

If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the Forest Service authorized officer shall be informed immediately. If the remains are determined to be of Native American origin and are on federal land, then the remains shall be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). If non-Native American human remains are discovered on federal land, then the County coroner would be contacted to determine the appropriate course of action. If the human remains are not on federal land, the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98. PWD shall assist and support the Forest Service, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies and commissions, and consulting parties as requested by the Forest Service. PWD shall comply with and implement all required actions and studies that result from such consultations.

Issue Areas Affected: Cultural Resources

Wildfire Prevention and Suppression

FIRE-1: Curtailment of Activities. All construction activities shall be curtailed in the event of a fire or when fuel and weather conditions get into the “very high” and “extreme” ranges, as determined by the USDA Forest Service through daily Project Activity Level (PAL) designations. The specific Project-related activities to be halted during very high or extreme weather conditions would be at the discretion of the USDA Forest Service.

Issue Areas Affected: Wildfire Prevention

FIRE-2: Preparation of a Fire Plan. PWD, in coordination with their contractor, shall prepare a Fire Plan to be filed with the USDA Forest Service no less than one week prior to the start of construction that includes the following: (1) responsibilities of PWD and the Forest Service in regards to fire prevention and inspection of work areas; (2) personnel in charge of overseeing Fire Plan implementation; (3) staff and equipment that can be used for fighting fire; and (4) emergency measures for construction curtailment.

Issue Areas Affected: Wildfire Prevention

FIRE-3: Spark Arrester Requirements. The exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with spark arresters that have been approved by the USDA Forest Service, as indicated in the most recent publication of the agency's "Spark Arrester Guide."

Issue Areas Affected: Wildfire Prevention

Climate Change

GHG-1: Recycle Construction Wastes. Construction wastes (asphalt, concrete, and other wastes as appropriate) and the removed sediment will used, re-used, or recycled to the extent feasible.

Issue Areas Affected: Greenhouse Gases

Geology and Soils

GEO-1: Geotechnical Investigation. Prior to construction, PWD (using a licensed geologist or engineer) shall perform a design-level geotechnical investigation, which shall include evaluation of soil and slope stability hazards as a result of seismic failure in areas of planned grading and excavation, and provide recommendations for development of grading and excavation plans. Based on the results of the geotechnical investigations, appropriate support and protection measures shall be designed and implemented to maintain the stability of soils and slopes adjacent to work areas during and after construction.

Issue Areas Affected: Geology and Soils

Hydrology

HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels. With the exception of temporary stockpiles at the reservoir during excavation, material excavated from the reservoir bed would not be placed within a watercourse, or in a manner that would divert or obstruct the flow path or floodplain of any watercourse.

Issue Areas Affected: Biology, Geology and Soils, Hydrology, Water Quality

Recreation and Land Use

LAND-1: Obtain Necessary Conditional Use Permits. PWD shall temporarily store or permanently dispose of the excavated sediment from Littlerock Reservoir only at a location that has a Conditional Use Permit (CUP) from the local jurisdiction (i.e., County of Los Angeles or City of Palmdale) for sediment storage or disposal. PWD shall consult with the local jurisdiction to ensure compliance with the requirements of the CUP.

Issue Areas Affected: Recreation and Land Use

LAND-2: Design Grading to Accommodate OHV Access. The sediment removal Excavation Plan shall ensure OHV ingress/egress is available to the Reservoir bottom from the existing boat ramp.

Issue Areas Affected: Recreation and Land Use

LAND-3: Long-Term Recreation Management Plan. PWD and the Forest Service shall prepare a joint Recreation Management Plan for the existing recreation facilities at Littlerock Reservoir, and the continued provision of recreational opportunities. The Plan shall identify: (1) measures for future management of recreation facilities; and (2) long-term strategies for encouraging recreational use of the Reservoir.

Issue Areas Affected: Recreation and Land Use

Noise

NOI-1: Prepare a Construction Noise Complaint and Vibration Plan. Prior to construction, a Construction Noise Complaint and Vibration Plan shall be prepared by PWD. The Plan shall establish a telephone number for use by the public to report any nuisance noise conditions associated with Project activities occurring outside the ANF. PWD shall ensure that:

- A noise and vibration liaison is assigned to respond to all public construction noise complaints, and
- Either (a) the telephone number is staffed by the noise and vibration liaison during construction hours; or (b) the phone number is connected to an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended.

This telephone number shall be posted at entrances to the Reservoir and PWD sediment storage site on 47th Street in a manner visible to passersby. The Plan shall detail how PWD would respond to noise and vibration complaints and document the resolution of those complaints.

Issue Areas Affected: Noise, Recreation and Land Use

NOI-2: PWD Site Buffer Requirements. Project activities within the PWD property located on 47th Street East shall not occur within 500 feet of any residential structure.

Issue Areas Affected: Noise, Recreation and Land Use

Transportation and Traffic

TRA-1: Prepare Traffic Control Plan. A Traffic Control Plan shall be prepared by PWD available for review, inspection, and input by Caltrans, Forest Service, Los Angeles County, and the City of Palmdale. The Plan shall include, but is not limited to:

- The location and need for flagmen and other temporary traffic control devices, including within the ANF, at the PWD sediment staging site, at the intersection of Cheseboro Road and Pearblossom Highway to ensure safe left turn movements onto Pearblossom Highway;
- Travel time restrictions for trucks to avoid traveling along the Cheseboro Road - Pearblossom Highway – Avenue T haul route during the afternoon peak period; i.e., from 4:00 to 6:00 p.m., to the extent feasible, utilizing Cheseboro Road, Barrel Springs Road, 47th Street E, Pearblossom Highway, and Avenue T;
- The need for a fair-share contribution to the funding of future improvements at the intersections of Cheseboro Road/Pearblossom Highway and Pearblossom Highway/Avenue T in the event afternoon peak period restrictions cannot be utilized.
- The need for any oversize vehicle, weight restriction, or encroachment permits;
- Assurance of emergency access to and through the Reservoir and PWD site work areas;
- Procedures for haul trucks to immediately pull into the shoulder when emergency vehicles with sirens on are travelling in their vicinity;
- Designated work area access locations;

- Driveway turning restrictions; and
- Designated parking/staging locations for workers and equipment.

This Plan shall be reviewed and adjusted, as needed, a minimum of every 3-5 years until the Reservoir has been restored to 1992 design storage capacity to ensure effectiveness and address changes in traffic volumes and conditions.

Issue Areas Affected: Transportation, Hazards and Public Safety

TRA-2: Pavement Rehabilitation – Public or National Forest Roadways. PWD and/or its contractor shall conduct annual before-and-after evaluation of pavement conditions along the sediment haul routes, equipment staging areas, and equipment access points to document any damage caused by the haul trucks or other construction activities. The documentation shall include written descriptions and photographs of pre-Project and post-Project pavement conditions. Any pavement or other infrastructure damage caused by the haul trucks or construction equipment shall be repaired/rehabilitated to pre-Project conditions or better. This measure shall be subject to review, approval, and inspection by the Los Angeles County Department of Public Works, the City of Palmdale Department of Public Works, California Department of Water Resources, USFS, and Caltrans, depending on who has jurisdiction over the route.

Issue Areas Affected: Transportation

Water Quality and Resources

WQ-1: Prepare Spill Response Plan. A Spill Response Plan would be prepared prior to the start of construction activities. This plan would describe the required materials and methodology to quickly and effectively contain and remove any spill or accidental release of hazardous materials. Required materials may include protective clothing, absorbent materials, hand tools for minor excavation and soil removal, and appropriate containers for hazardous materials and contaminated soil. The Spill Response Plan would include worker training on proper containment and disposal of hazardous materials. The requirements of the Spill Response Plan would be repeated and described in the SWPPP.

Issue Areas Affected: Biology, Water Quality, Hazards and Public Safety

WQ-2: Prepare a Storm Water Pollution Prevention Plan (SWPPP). A SWPPP shall be developed for the Project in compliance with the federal Clean Water Act, and Notices of Intent shall be filed with the State Water Resources Control Board and the applicable Regional Water Quality Control Board (Lahontan). The SWPPP shall be stored at Project work sites for reference by Project personnel and for inspection review by the Environmental Monitor. The SWPPP shall include Best Management Practices (BMPs) that would be adhered to during Project activities in order to stabilize disturbed areas and reduce the potential for erosion and sedimentation, among other effects. BMPs may include but are not limited to those described below.

- Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) shall be installed before and during clearing and grading activities.
- Mulching, seeding, or other suitable stabilization measures shall be used to protect exposed areas during ground-disturbing activities.
- Measures such as use of regular inspections and oil pans or other comparable devices shall be used to ensure that contaminants are not discharged from the construction sites.
- Silting/sedimentation basin(s) shall be established in appropriate locations to capture eroded soils and other materials, and would be regularly cleared to maintain capacity.
- Straw wattles or other comparably effective devices (as determined by the Civil Engineer, in consultation with the Environmental Monitor) shall be placed on the downslope sides of work areas to direct runoff from the work areas into temporary sedimentation basins.

- All erosion control materials shall be biodegradable and natural fiber.

All BMPs required by the SWPPP shall be checked and maintained regularly and after all large storm events. Proper implementation will be verified regularly by the onsite Environmental Monitor.

Issue Areas Affected: Water Quality, Hazards and Public Safety

Appendix B

Air Quality Calculations

Littlerock Reservoir Sediment Removal Project
Emission Calculation Assumptions

Proposed Project General Assumptions

1) Work occurs as noted in the Construction Schedule, with no work assumed to occur during the wet season.
2) The soil cement batch plant and sand screening plant will be placed on the paved parking area on the west side of the lake adjacent to the boat ramp.
3) The soil cement batch plant and sand screening plants will require 150 hp and 100 hp diesel engine/generators, respectively, to run the various motors associated with the batch plants.
4) Silt content testing of the sediment to be removed ranges from 0.1% to 5% with an average less than 2%. As a worst case assumption 4%, which represents SCAQMD factor for gravel roads, will be used in the emission calculations.
5) Total sediment removal and monthly removal values are provided in the Construction Schedule
6) Emissions for sediment use after delivery to the sediment storage site are not considered part of the project and have not been estimated. However, beneficial use of this sediment would displace other sand/aggregate mining and transportation which could reduce emissions that would otherwise occur.

Offroad Equipment Emission Calculation Assumptions

1) Emission factors are derived from the CARB OFFROAD model, interpolating the horsepower between the two nearest horsepower sized equipment given in that database.
2) Emission factors from 2016 are conservatively assumed to calculate the emissions for all activities, including those starting in 2017 or later.
3) Equipment type, number, and usage estimates are used as estimated in consultation with the project design engineer.

Onroad Equipment Emission Calculations Assumptions

1) Emission factors are derived from the CARB EMFAC2011 database, where the vehicles have been assigned three classes, passenger (i.e. employee vehicles and pickups), delivery (all nonpassenger vehicles smaller than heavy-heavy duty trucks), and heavy-heavy duty trucks.
2) Emission factors from 2016 are conservatively assumed to calculate the emissions for all activities, including those starting in 2017 or later.
3) Trip estimates are based on import/export quantities, equipment and worker trips estimated in consultation with the project design engineer.
4) As a worst case assumption all vehicle trips are assumed to start and end in AVAQMD jurisdiction, even though some worker and materials will likely come from other jursidictions, such as SCAQMD.

Fugitive Dust Emission Calculations Assumptions

1) Unpaved road distances are estimated by assuming travel routes conducted at the site and the sediment storage area.

2) Unpaved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt content is assumed to be 4% on average (Site soil classification test summary actually suggests less but 4% is SCAQMD assumption for gravel roads); 2) average vehicle weight based on VMT estimate for unpaved roads
3) Paved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt loading is assumed to be reduced to 0.02 g/m3 when street sweeper is assumed (downstream excavation and O&M excavation) and 0.06 g/m3 when not (GCS construction); 2) average vehicle weight is calculated based on VMT average basis.
4) Earthmoving emission factors are calculated using the recent version of USEPA AP-42 Section 11.9 for Dozing and Grading, and Section 13.2.4 for soil handling (drop emissions).
5) Due to working with very coarse materials and work areas being in depressions wind erosion potential is considered negligible.

Equipment/Truck Assumptions

1) Sediment truck load volume is assumed to be 12 cubic yards per truckload.
2) Short duration clean, grub, staging and cleanup phases needed, cleanup needed after each season of work.
3) A grader is required for the duration of the primary excavation at the project site and the disposal site to maintain access roads.

Littlerock Reservoir Sediment Removal Project
Project Construction Emission Totals

Average Daily Emissions (lbs/day)

GROUND CONTROL STRUCTURE

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.64	5.46	3.20	0.01	0.21	0.13
Offroad Vehicles/Equipment	9.58	33.64	114.83	0.11	5.42	4.99
Fugitive Dust	---	---	---	---	27.71	6.28
Totals	10.21	39.10	118.03	0.12	33.34	11.41
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

DOWNSTREAM EXCAVATION

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	5.82	28.44	40.26	0.13	2.30	1.68
Offroad Vehicles/Equipment	12.90	25.26	84.77	7.89	10.76	9.90
Fugitive Dust	---	---	---	---	129.26	27.61
Totals	18.72	53.70	125.03	8.02	142.32	39.19
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

DOWNSTREAM EXCAVATION w/Alternate Sediment Storage Site

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	4.19	22.06	28.13	0.09	1.63	1.17
Offroad Vehicles/Equipment	12.90	25.26	84.77	7.89	10.76	9.90
Fugitive Dust	---	---	---	---	106.34	22.11
Totals	17.09	47.32	112.90	7.98	118.73	33.19
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

Alternative 1 Excavation

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.45	13.76	16.04	0.05	0.94	0.67
Offroad Vehicles/Equipment	8.95	15.85	49.78	6.00	7.73	7.11
Fugitive Dust	---	---	---	---	50.65	10.31
Totals	11.40	29.61	65.81	6.06	59.32	18.09
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Alternative 1 Excavation w/Alternative Sediment Storage Site

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	1.82	11.30	11.37	0.04	0.68	0.48
Offroad Vehicles/Equipment	8.95	15.85	49.78	6.00	7.73	7.11
Fugitive Dust	---	---	---	---	42.30	8.31
Totals	10.77	27.15	61.14	6.04	50.71	15.90
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Annual Emissions (tons/year)

GROUND CONTROL STRUCTURE

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.02	0.20	0.12	0.00	0.01	0.00
Offroad Vehicles/Equipment	0.35	1.24	4.25	0.00	0.20	0.18
Fugitive Dust	---	---	---	---	1.03	0.23
Totals	0.38	1.45	4.37	0.00	1.23	0.42
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*Yes*	*No*

DOWNSTREAM EXCAVATION

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.19	0.91	1.29	0.00	0.07	0.05
Offroad Vehicles/Equipment	0.41	0.81	2.71	0.25	0.34	0.32
Fugitive Dust	---	---	---	---	4.14	0.88
Totals	0.60	1.72	4.00	0.26	4.55	1.25
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

DOWNSTREAM EXCAVATION w/Alternate Sediment Storage Site

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.13	0.71	0.90	0.00	0.05	0.04
Offroad Vehicles/Equipment	0.41	0.81	2.71	0.25	0.34	0.32
Fugitive Dust	---	---	---	---	3.40	0.71
Totals	0.55	1.51	3.61	0.26	3.80	1.06
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Alternative 1 Excavation

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.13	0.72	0.84	0.00	0.05	0.04
Offroad Vehicles/Equipment	0.47	0.83	2.61	0.32	0.41	0.37
Fugitive Dust	---	---	---	---	2.66	0.54
Totals	0.60	1.55	3.46	0.32	3.11	0.95
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Alternative 1 Excavation w/Alternative Sediment Storage Site

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.10	0.59	0.60	0.00	0.04	0.02
Offroad Vehicles/Equipment	0.47	0.83	2.61	0.32	0.41	0.37
Fugitive Dust	---	---	---	---	2.22	0.44
Totals	0.57	1.43	3.21	0.32	2.66	0.83
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

ANNUAL MAINTENANCE

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.34	13.15	15.27	0.05	0.89	0.64
Offroad Vehicles/Equipment	8.99	16.18	49.02	5.94	7.65	7.04
Fugitive Dust	---	---	---	---	49.05	10.03
Totals	11.33	29.34	64.29	5.99	57.60	17.71
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

ANNUAL MAINTENANCE w/Alternate Sediment Storage Site

Average Daily (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	1.75	10.86	10.90	0.04	0.65	0.46
Offroad Vehicles/Equipment	8.99	16.18	49.02	5.94	7.65	7.04
Fugitive Dust	---	---	---	---	40.32	7.94
Totals	10.74	27.04	59.92	5.98	48.62	15.44
AVAQMD Significance Thresholds	137	548	137	137	82	82
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

ANNUAL MAINTENANCE

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.05	0.26	0.31	0.00	0.02	0.01
Offroad Vehicles/Equipment	0.18	0.32	0.98	0.12	0.15	0.14
Fugitive Dust	---	---	---	---	0.98	0.20
Totals	0.23	0.59	1.29	0.12	1.15	0.35
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

ANNUAL MAINTENANCE w/Alternate Sediment Storage Site

Annual (Offroad: No Engine Mitigation; Onroad: No Engine Mitigation)

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.03	0.22	0.22	0.00	0.01	0.01
Offroad Vehicles/Equipment	0.18	0.32	0.98	0.12	0.15	0.14
Fugitive Dust	---	---	---	---	0.81	0.16
Totals	0.21	0.54	1.20	0.12	0.97	0.31
AVAQMD Significance Thresholds	25	100	25	25	15	15
Exceeds Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Littlerock Reservoir Sediment Removal Project

Construction Schedule

Grade Control Structure	Employees	July (2016)	Aug (2016)	Sep (2016)	Oct (2016)	Notes
Clear and Grub, Cofferdam	9	10				Schedule for all phases assumes 5 days per week 8 hours per day work schedule
Excavation	12	12	10			
Soil Cement Application	14		12	12		
Filling and Cleanup	12			8	10	
Available Work Days		22	22	20	22	

Vehicle Trips Estimate		July	Aug	Sep	Oct	Trip Dist	Unpaved	Veh. Class	Notes
Construction Employee Trips		234	288	264	120	40	0.00	Passenger	
Equipment Delivery/Misc		39	37	35	27	60	0.00	HHDT	Added one misc trip per day
Cement Delivery Trips			45	45		60	0.00	HHDT	9500 cubic yards soil cement (cement at 20 percent volume and truck load is 25 tons with dry cement at 94 lbs/yd)
Dump Truck Trips - Excavation		2,273	2,290			0.23	0.23	HHDT	50000 cubic yards at 12 yds per trip and 600 feet per trip one way
Dump Truck Trips - Soil cement			396	396		0.23	0.11	HHDT	9500 cubic yards soil cement at 12 yds per trip and 600 feet per trip one way
Dump Truck Trips Filling				1,500	1,875	0.23	0.23	HHDT	40,500 cubic yards at 12 yds per trip and 600 feet per trip one way
Non-sediment waste trips		10	2	2		60	0.13	HHDT	
Fueling		22	22	20	10	30	1.00	Delivery	One per day
Construction Management		22	22	20	10	60	1.00	Passenger	One per day
Crew Truck		44	44	40	20	40	1.00	Delivery	Two per day

Proposed Project

Downstream Excavation	Employees	Sep (2017-2023)	Oct (2017-2023)	Nov (2017-2023)	Notes
Clear and Grub	6	2			Schedule for excavation phase assumes 6 days per week and 11 active hours per day work schedule
Excavation/Removal	30	21	26	13	
Clean up	6			2	
Available Work Days		23	26	23	

	Total	Sep	Oct	Nov	
Excavation by Month	172,800	60,480	74,880	37,440	Cubic yards

Vehicle Trips Estimate		Sep	Oct	Nov	Trip Dist	Unpaved	Veh. Class	Notes
Construction Employee Trips		642	780	402	40	0	Passenger	
Offsite Dump Truck Trips		5,040	6,240	3,120	13.62	0.5	HHDT	Distance to alternate sediment storage site is 9.34 miles with 0.5 miles assumed unpaved
Equipment Delivery		10		10	60	0	HHDT	
Fueling		23	26	15	30	1	Delivery	
Construction Management		23	26	15	60	1	Passenger	
Crew Truck		46	52	26	40	1	Delivery	

Alternative 1		2017-2029					
Downstream Excavation	Employees	July	Aug	Sep	Oct	Nov	Notes
Clear and Grub	6	2					Schedule for excavation phase assumes 5 days per week and 8 active hours per day work schedule
Excavation/Removal	20	19	22	20	21	19	
Clean up	6					2	
Available Work Days		21	22	23	26	21	

	Total	July	Aug	Sep	Oct	Nov	
Excavation by Month	109,080	20,520	23,760	21,600	22,680	20,520	Cubic yards

Vehicle Trips Estimate		July	Aug	Sep	Oct	Nov	Trip Dist	Unpaved	Veh. Class	Notes
Construction Employee Trips		392	440	400	420	392	40	0	Passenger	
Offsite Dump Truck Trips		1,710	1,980	1,800	1,890	1,710	13.62	0.50	HHDT	Distance to alternate sediment storage site is 9.34 miles with 0.5 miles assumed unpaved
Equipment Delivery		10				10	60	0	HHDT	
Fueling		21	22	20	21	21	30	1	Delivery	
Construction Management		21	22	20	21	21	60	1	Passenger	
Crew Truck		42	44	40	42	38	40	1	Delivery	

Annual O&M - 38,000 cy per year

Downstream Excavation	Employees	Sep	Oct	Notes
Clear and Grub	6	2		Schedule for excavation phase assumes 6 days per week and 11 active hours per day work schedule
Excavation/Removal	20	21	15	
Clean up	6		2	
Available Work Days		23	26	

	Total	Sep	Oct
Excavation by Month	38,880	22,680	16,200

Vehicle Trips Estimate		Sep	Oct	Trip Dist	Unpaved	Veh. Class	Notes
Construction Employee Trips		432	312	40	0	Passenger	
Offsite Dump Truck Trips		1,890	1,350	13.62	0.5	HHDT	Distance to alternate sediment storage site is 9.34 miles with 0.5 miles assumed unpaved
Equipment Delivery		10	10	60	0	HHDT	
Fueling		23	17	30	1	Delivery	
Construction Management		23	17	60	1	Passenger	
Crew Truck		46	30	40	1	Delivery	

Appendix C

Biological Resources Information

C.1 Survey Methodologies

APPENDIX C-1 – SURVEY METHODOLOGIES

Botanical Surveys

Focused botanical field surveys were conducted by Aspen periodically from May 2007 to June 2012. The entire Vegetation Study Area was surveyed by walking "meandering transects" (Nelson, 1987) throughout accessible portions of the Vegetation Study Area with particular attention given to areas of suitable habitat for sensitive plant species. All plant species observed were identified in the field or collected for later identification. Plants were identified using keys, descriptions, and illustrations in Hickman (1993), Munz (1974), applicable volumes of the Flora of North America (1993+), and other regional references. In conformance with CDFG (2009), surveys were (a) floristic in nature, (b) consistent with conservation ethics, (c) systematically covered all habitat types on the sites, and (d) well documented, by a Biological Resources Technical Report (Aspen, 2012) and by voucher specimens to be deposited at Rancho Santa Ana Botanic Garden. Surveys were completed during multiple years and at all locations that would be subject to proposed sediment removal activities.

Limitations. Botanical surveys were floristic in nature and conducted during a time of year when a broad assemblage of the flora in the region would be represented. However, some plant species, even under ideal survey conditions, remain inconspicuous or dormant. As a result, it is possible that some species may not have been identified during the survey.

Vegetation Mapping

Vegetation maps were prepared by drawing vegetation boundaries onto high-resolution aerial images in the field, then digitizing these polygons into Geographic Information Systems (GIS). The maps were then ground-truthed in the field to verify vegetation community types. Mapping was done electronically using ArcGIS (Version 10) and a 22-inch diagonal flat screen monitor with aerial photos with an accuracy of one foot. Most boundaries shown on the maps are accurate within approximately three feet; however, boundaries between some vegetation types are less precise due to difficulties in interpreting aerial imagery and accessing stands of vegetation.

Vegetation descriptions and names are based on Sawyer et al. (2009) and have been defined at least to the alliance level, and in some cases to the association level. Some of the vegetation in the Vegetation Study Area does not match the names and descriptions in Sawyer et al. (2009). Therefore, descriptive vegetation community names have been adapted in the same style. In addition, each vegetation type has been referenced to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986) and to applicable sections of *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988), whenever possible.

Limitations. The vegetation composition in the Project Area has varied during the course of the studies. Large aggregations of willow and cottonwood trees present in the Reservoir prior to 2011 have been lost through inundation and now occur in lower densities along the margin of the Reservoir. In addition, vegetation densities in southern California riparian systems vary over time, depending on flood scouring events (Faber et al., 1989; Holland and Keil, 1995). Vegetation communities can also overlap in certain characteristics, and over time, may shift from one community type to another. Note also that all vegetation maps and descriptions are subject to imprecision resulting from several sources, including:

- Vegetation types typically intergrade on the landscape, without precise boundaries. In some cases, vegetation boundaries are distinct, often resulting from events such as wildfire or flood. These boundaries may become much less apparent after years of post-disturbance succession. Therefore, mapped boundaries represent best professional judgment, but should not be interpreted as literal delineations between sharply defined vegetation types.

- Natural vegetation tends to exist in general recognizable types, but also may vary over time and geographic region. Written descriptions cannot reflect all local or regional variation. Many stands of natural vegetation do not fit strictly into any named type. Therefore, a mapped unit is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches written descriptions.
- Vegetation tends to be patchy. Small patches of one named type are often included within larger stands mapped as units of another type. For these surveys, the minimum mapping unit was approximately three feet. Smaller inclusions are described in the text, but are not visible on the maps.
- Photo interpretation of some types may be difficult. Accuracy of a vegetation map will vary depending on the level of ground-truthing efforts.

Wildlife Surveys

Common wildlife. Wildlife species were detected during field surveys (diurnal and nocturnal) by sight, calls, tracks, scat, or other diagnostic clues (e.g., bones, feathers, prey remains). In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. Reconnaissance-level surveys for common wildlife were performed by methodically walking the perimeter of the Reservoir (where accessible), the adjacent foothills, and areas upstream and downstream from the Reservoir. Surveys were conducted at an average pace of approximately one mile per hour and biologists halted approximately every 150 feet to listen for wildlife, or whenever necessary to identify species or record data.

Invertebrates. Biologists searched for terrestrial insects and other invertebrates on flowers and leaves, under loose bark on trees, and under stones and logs on the ground throughout the Study Area. Butterflies and other aerial species were noted when observed. Larger aquatic invertebrates were sampled during aquatic surveys within the Study Area (see methodology below). Randomly selected areas within appropriate microhabitats (e.g., leaf litter, underneath felled logs, etc.) were hand raked or visually inspected to determine the presence or absence of gastropods.

Fish. Surveys were performed by methodically walking active portions of Littlerock Creek from just south of Rocky Point to the upstream extent of the Study Area. All areas where standing or flowing water was present were visually inspected. Visual observations for presence of fish were conducted in portions of the channel where water was relatively shallow (<1 foot) and clear (majority of survey area). Dip nets with 1/8-inch mesh were utilized to probe under and around boulders. In areas with water deeper than one foot, block netting with 1/8-inch mesh was installed along the downstream sections. Using 1/8-inch-mesh netting, biologists then seined each section from the upstream extent of the deeper water downstream towards the block netting, and documented all fish present within the area. Biologists also conducted informal creel census surveys to assess the fish assemblage in the reservoir by interviewing anglers and observing their catch. This yielded useful information on the most common fish caught by shore anglers.

Amphibians. Surveys were performed by methodically walking the western perimeter of the Reservoir (including pooled areas west of the main access road) and within the Littlerock Creek channel upstream of Rocky Point and downstream of the dam. Surveys were also conducted by boat along the eastern shore and within the small tributary drainages that feed the Reservoir from the west. Diurnal and nocturnal surveys were conducted during the time of year and at ambient temperatures when amphibians would be active. Visual observations were made to confirm the presence or absence of tadpoles and adults in ephemeral pools or slow moving areas of the active channel of Littlerock Creek, in the Reservoir, and in storm water basins that border the Reservoir.

Arroyo toad (focused surveys). Arroyo toads are known from Littlerock Creek and designated critical habitat for this species has been identified above Rocky Point. Multiple focused surveys for arroyo toad were performed by methodically walking the western perimeter of the Reservoir (including pooled areas west of the main access road), within the Littlerock Creek channel upstream of Rocky Point and downstream of the dam, the small tributaries that flow into the Reservoir, and within the lower portion of Santiago Creek. Surveys were conducted during the day to search for egg masses, tadpoles or metamorphs, and at night to observe foraging toads and to listen for reproductive calls.

The focus of the arroyo toad surveys was to maintain a baseline of the distribution of animals in the Project Area and to evaluate if this species is moving into the Reservoir or adjacent recreation areas. To date Aspen has not detected this species below Rocky Point however it is likely this species can be periodically found in this area. Protocol surveys for this species were conducted at Rocky Point in 2015.

Reptiles. Surveys for reptiles were performed by methodically walking through the Study Area and visually inspecting microhabitat sites (e.g., basking sites, rock outcrops, leaf litter, woodpiles, etc.). Focused reptile surveys were conducted during daylight hours when ambient temperatures were such that reptiles would be active (i.e., between 75 and 95 degrees Fahrenheit), and at night concurrent with the amphibian surveys. All refugia sites searched were returned to their original state after inspection.

Desert Tortoise (Protocol Surveys). Protocol surveys for this species were conducted at the 47th Street disposal site on April 26, 2014. No sign of this species was detected.

Common birds (focused non-protocol surveys). Surveys for birds were conducted during calm winds between dawn and 11:00 a.m. and at dusk. Bird species were identified by sight and sound. Particular attention was given to the riparian corridor below the dam and the large cottonwood and willow trees that occur along the margin of the Reservoir. The adjacent uplands were also searched.

Bald and golden eagles (focused non-protocol surveys). Focused surveys for bald and golden eagles included an inspection of the Reservoir, adjacent uplands, mountains, and major lakes and reservoirs in the region. This included surveys of Lake Palmdale, Bouquet Reservoir, and Lake Elizabeth. Searches for bald eagle, a species known as an occasional winter visitor at the Reservoir, were also conducted during routine bird and wildlife surveys.

Least Bell's vireo (focused protocol surveys). Focused or protocol surveys for the federally and state-listed endangered least Bell's vireo (*Vireo bellii pusillus*) were conducted annually in the spring and summer from 2010 to 2012. Protocol-level surveys for the least Bell's vireo were conducted in conformance with USFWS Least Bell's Vireo Survey Guidelines (USFWS, 2001). Protocol surveys were conducted no less than ten days apart, between dawn and 11:00 a.m., within all portions of the Study Area containing suitable riparian habitat and within adjacent habitat suitable for foraging. Surveys were conducted by slowly walking along and through riparian habitats within the study area at an average pace of approximately 1.2 miles per hour. While visually searching for and listening for songs, scolds, and calls. Additional, non-protocol surveys included monthly surveys in 2012 to monitor existing bird use downstream of the Reservoir.

Terrestrial mammals. Surveys for terrestrial mammals were conducted in the Study Area within specific areas containing suitable microhabitats. Special attention was given to areas that may be affected by sediment removal activities and in which the vegetation and soil structure was conducive to habitation by small mammals, such as the upland stream terraces and adjacent uplands. Biologists recorded all animal observations and visually searched for animal signs (e.g., scat, footprints, fur, burrows, etc.).

Mohave Ground Squirrel Habitat Assessment. A habitat assessment for this species were conducted at the 47th Street disposal site in April 2015 by Phoenix Biological Consulting. No sign of this species was detected. . The site visit consisted of walking the perimeter of the site boundary and several transects within the site to determine the suitability for MGS habitat. The biologist (Ryan Young) recorded soil texture, dominant shrubs & annuals, habitat types, sign of mammal types present and surrounding habitat. The dominant shrubs consisted of California juniper (*Juniperus californica*), Joshua tree (*Yucca brevifolia*) and Mormon tea (*Ephedra nevadensis*). Small mammal burrows are present but it is assumed that these burrows are from antelope ground squirrels (*Ammospermophilus leucurus*). The results of the site visit and CNDDB analysis suggest that the site is not suitable for MGS. This assertion is based on the following criteria:

- Presence of California ground squirrels (*Spermophilus beecheyi*).
- The site is outside the southern edge of the known range.
- There are no recent MGS records near the project site (Figure A; CNDDB, 2015).
- The dominant plants on site are not considered suitable MGS forage plants (Figure B).
- The site is relatively isolated from potential occupied habitat to the north.

Bats. Monitoring for bat calls was conducted using a SongMeter™ SM2 acoustic monitoring and data logging recorder fitted with an SMX-US omnidirectional microphone sensitive to frequencies over 150 kilohertz. Recorded bat calls were analyzed using Song Scope Bioacoustics Software. To enhance identification accuracy, Song Scope files identified to individual bat species were split into individual electronic wave files, which were scrubbed to separate bat echolocation calls from noise and digitally adjusted for microphone frequency response, in order to confirm the species identification using Sonobat. Bat monitoring was conducted at a single location adjacent to the creek for two 24-hour periods and set to passively record bat calls between 1900 and 0600 hours on 17–18 May and 17–18 June 2012. Bat calls were also actively detected and recorded using a portable Echo Meter EM3 during nocturnal surveys.

Limitations. The focus of wildlife surveys was to determine the presence of special-status wildlife species and the potential for habitat to support these species within the Study Area. It is acknowledged that some wildlife species with a nocturnal pattern of activity or species that are otherwise difficult to detect may not have been identified during the survey.

C.2 Plant Species Observed

APPENDIX C-2 – PLANT SPECIES OBSERVED

Plant Species Observed Within the Vegetation Study Area

	Latin Name	Common Name	Abundance	Voucher
	VASCULAR PLANTS			
	FILICALES	FERN FAMILIES (SEVERAL INCLUDED TOGETHER)		
	Marsilea vestita	Hairy cloverfern	Scarce	4,342
	CUPRESSACEAE	CYPRESS FAMILY		
	Cupressus sp.	Unid. cypress	Uncommon	
	Juniperus californica	California juniper	Common	
	EPHEDRACEAE	EPHEDRA FAMILY		
	Ephedra nevadensis (?)	Desert tea	Uncommon	
	Ephedra viridis	Green ephedra	Occasional	
	PINACEAE	PINE FAMILY		
*	Pinus sp.	Unid. ornamental	Uncommon	
	Pinus monophylla	Pinyon pine	Common	
	ANACARDIACEAE	CASHEW FAMILY		
	Toxicodendron diversilobum	Poison oak	Uncommon	
	APIACEAE	CELERY FAMILY		
*	Conium maculatum	Poison hemlock	Uncommon	
	APOCYNACEAE	DOGBANE FAMILY		
*	Nerium oleander	Ornamental oleander	Uncommon	
	ASCLEPIADACEAE	MILKWEED FAMILY		
	Asclepias fascicularis	Narrow-leaved milkweed	Uncommon	
	ASTERACEAE	ASTER FAMILY		
	Acamptopappus sphaerocephalus	Desert goldenhead	Uncommon	4,757
	Ambrosia acanthicarpa	Annual sandbur	Occasional	
	Artemisia douglasiana	Douglas mugwort	Occasional	
	Artemisia dracunculus	Tarragon	Occasional	
	Artemisia ludoviciana	Western mugwort	Occasional	
	Artemisia tridentata	Great Basin sagebrush	Common	
	Baccharis salicifolia	Mulefat	Occasional	
	Brickellia californica	Calif. brickellbush	Uncommon	
	Calycoseris parryi	Yellow tackstem	Scarce	1,571
*	Centaurea melitensis	Tocalote	Uncommon	
	Chaenactis glabriscula	Yellow pincushion	Uncommon	1,597
	Chaenactis steveioides	Broad-flowered pincushion	Occasional	1,567
*	Chamomilla suaveolens	Pineapple weed	Uncommon	1,580
	(Matricaria matricarioides)			
	Chrysothamnus nauseosus	Common rabbitbrush	Occasional	
	Cirsium occidentale	California thistle	Scarce	4,759

Plant Species Observed Within the Vegetation Study Area

Latin Name		Common Name	Abundance	Voucher
	var. californicum (?)			
*	Cirsium vulgare	Bull thistle	Uncommon	
*	Conyza bonariensis	Flax-leaved horseweed	Uncommon	
	Conyza canadensis	Horseweed	Uncommon	
	Coreopsis bigelovii	Bigelow coreopsis	Uncommon	1,599
	Encelia actoni	Acton brittlebush	Occasional	
	Ericameria cooperi	Cooper goldenbush	Uncommon	1,625
	Ericameria linearifolia	Narrowleaf goldenbush	Uncommon	
	Eriophyllum confertiflorum	Golden yarrow	Uncommon	
	Eriophyllum wallacei	Wallace's woolly daisy	Uncommon	
	Gnaphalium canescens	Perennial cudweed	Uncommon	
*	Gnaphalium luteo-album	Pearly everlasting	Scarce	
	Gnaphalium palustre	Meadow everlasting	Uncommon	1,568B
	Gnaphalium stramenium	Cotton batting	Uncommon	4,782
	Gutierrezia sarothrae	Common matchweed	Occasional	
	Heterotheca grandiflora	Telegraph weed	Uncommon	
	Hymenoclea salsola	Cheesebush	Uncommon	1,646
*	Lactuca serriola	Prickly lettuce	Scarce	
	Lasthenia californica	California goldfields	Uncommon	
	Layia glandulosa	White tidy tips	Uncommon	1,588
	Lepidospartum squamatum	Scalebroom	Occasional	
	Lessingia filaginifolia	Chaparral aster	Occasional	
	(Corethrogyne filaginifolia)			
	Microseris lindleyi (M. linearifolia,	Silver puffs	Uncommon	1,631
	Uropappus lindleyi)			
	Nicolletia occidentalis	Hole-in-the-sand plant	Scarce	4,773
	Rafinesquia californica	Calif. chicory	Uncommon	
	Senecio flaccidus v. douglasii	Sand-wash butterweed	Uncommon	4,766
*	Sonchus asper	Prickly sow-thistle	Occasional	
*	Sonchus oleraceus	Common sow thistle	Uncommon	
	Stephanomeria exigua	Wreath plant	Uncommon	
	Stephanomeria pauciflora	Wire-lettuce	Uncommon	
	Stephanomeria virgata	Wreath plant	Uncommon	
	Stylocline gnaphalioides	Everlasting nest-straw	Scarce	
	Stylocline psilocarphoides	Perk's nest-straw	Scarce	1,618
	Syntrichopappus fremontii	Freemont's syntrchopappus	Uncommon	1,622
**	Syntrichopappus lemmonii	Lemmon's syntrichopappus	Scarce	1,563
	Tetradymia comosa	Hairy horsebrush	Uncommon	
	Tetradymia spinosa (?)	Cottonthorn	Uncommon	1,645
	Xanthium strumarium	Cocklebur	Uncommon	

Plant Species Observed Within the Vegetation Study Area

	Latin Name	Common Name	Abundance	Voucher
	Xylorhiza tortifolia	Mojave aster	Scarce	
	(Machaeranthera tortifolia)			
	BETULACEAE	BIRCH FAMILY		
	Alnus rhombifolia	White alder	Uncommon	
	BORAGINACEAE	BORAGE FAMILY		
	Amsinckia tessellata	Checker fiddleneck	Occasional	
	Cryptantha barbigera	Bearded cryptantha	Uncommon	1,568A
	Cryptantha circumscissa	Cushion cryptantha	Uncommon	1,628
	Cryptantha decipiens	Gravelbar cryptantha	Scarce	1,587B
	Cryptantha muricata	Prickly cryptantha	Occasional	1,587A
	Cryptantha nevadensis var. rigida	Nevada cryptantha	Uncommon	1,644
	Cryptantha oxygona	Sharpnut cryptantha	Uncommon	1,603
	Cryptantha pterocarya	Winged cryptantha	Scarce	1,592
	Heliotropium curassavicum	Salt heliotrope	Occasional	
	Pectocarya linearis	Comb-bur	Uncommon	1,649
	Pectocarya setosa	Comb-bur	Uncommon	
	Plagiobothrys arizonicus	Arizona popcornflower	Uncommon	1,574
	BRASSICACEAE	MUSTARD FAMILY		
	Arabis pulchra	Beautiful rock-cress	Uncommon	
*	Brassica geniculata	Short-pod mustard	Uncommon	
	(Hirschfeldia incana)			
	Descurainia pinnata	Tansy mustard	Scarce	1,569
	Descurainia sophia	Flixweed, tansy mustard	Uncommon	1,593
	Lepidium fremontii	Fremont pepper-grass	Uncommon	
	Rorippa curvisiliqua (?)	Western yellow-cress	Scarce	4,761
	Rorippa nasturtium-aquaticum	Water-cress	Uncommon	
	Rorippa sphaerocarpa (?)	Round fruited yellow-cress	Scarce	4,785
*	Sisymbrium officinale	Hedge mustard	Uncommon	
*	Sisymbrium irio	London rocket	Uncommon	
	Stanleya pinnata	Prince's plume	Uncommon	
	Thysanocarpus lacinatus	Fringe-pod	Uncommon	1,586
	CACTACEAE	CACTUS FAMILY		
*	Opuntia basilaris	Short-jointed beavertail cactus	Scarce	4,775
	var. brachyclada			
	Opuntia basilaris var. basilaris	Common beavertail cactus	Occasional	
	Opuntia echinocarpa	Silver cholla	Uncommon	
	CAMPANULACEAE	BELLFLOWER FAMILY		
	Nemacladus longiflorus	Long flowered thread plant	Scarce	1,623A
	var. breviflorus			
	Nemacladus sigmoideus	Small flowered thread plant	Scarce	1,623B

Plant Species Observed Within the Vegetation Study Area

	Latin Name	Common Name	Abundance	Voucher
	CARYOPHYLLACEAE	CARNATION FAMILY		
	Minuartia douglasii	Douglas sandwort	Scarce	1,564
	CHENOPODIACEAE	GOOSEFOOT FAMILY		
	Atriplex canescens	Four-winged saltbush	Occasional	
*	Chenopodium album (?)	Common goosefoot	Uncommon	
	Chenopodium berlandieri	Pit seed goosefoot	Uncommon	
*	Chenopodium botrys	Jerusalem oak goosefoot	Uncommon	4,333
	Chenopodium californicum	California goosefoot	Uncommon	
*	Chenopodium murale	Nettle-leaved goosefoot	Uncommon	
	Grayia spinosa	Spiny hop-sage	Occasional	1,583
*	Salsola tragus	Russian thistle, tumbleweed	Uncommon	
	CRASSULACEAE	STONECROP FAMILY		
	Dudleya lanceolata	Lance-leaved dudleya	Uncommon	1,590
	CUCURBITACEAE	CUCUMBER FAMILY		
	Marah fabacea	California man-root	Scarce	1,619
	CUSCUTACEAE	DODDER FAMILY		
	Cuscuta sp.	Unid. witch's hair	Uncommon	
	DATISCACEAE	DATISCA FAMILY		
	Datisca glomerata	Durango root	Scarce	4,343
	ERICACEAE	MANZANITA FAMILY		
	Arctostaphylos glauca	Bigberry manzaniga	Uncommon	1,582
	EUPHORBIACEAE	SPURGE FAMILY		
	Chamaesyce albomarginata	Rattlesnake spurge	Occasional	
	(Euphorbia albomarginata)			
	FABACEAE	PEA FAMILY		
*	Albizia julibrissin	Silktree	Uncommon	
	Astragalus didymocarpus	Dwarf locoweed	Scarce	1,626
	Lotus humistriatus	Hill lotus	Scarce	1,632
	Lotus scoparius	Deerweed	Uncommon	
	Lotus strigosus	Strigose lotus	Uncommon	1,620
	Lupinus bicolor	Miniature lupine	Uncommon	
	Lupinus concinnus	Sand lupine	Uncommon	
	Lupinus sparsiflorus	Coulter lupine	Uncommon	1,594
*	Melilotus alba	White sweet-clover	Occasional	
*	Parkinsonia aculeata	Mexican palo verde	Scarce	4,788
*	Robinia pseudoacacia	Black locust	Uncommon	
	Trifolium microcephalum	Maiden clover	Scarce	4,777
	Trifolium willdenovii	Valley clover	Uncommon	4,776
	Trifolium sp.	Unid. clover	Scarce	4,764
	GENTIANACEAE	GENTIAN FAMILY		

Plant Species Observed Within the Vegetation Study Area

Latin Name		Common Name	Abundance	Voucher
	Centaurium exaltatum	Desert centaury	Uncommon	4,338
GERANIACEAE		GERANIUM FAMILY		
*	Erodium cicutarium	Red-stemmed filaree	Uncommon	
HYDROPHYLLACEAE		WATERLEAF FAMILY		
	Emmenanthe penduliflora	Whispering bells	Uncommon	
	Eridictyon trichocalyx	Yerba santa	Occasional	1,610
	Eucrypta chrysanthemifolia	Common eucrypta	Uncommon	
	Nemophila menziesii	Baby blue-eyes	Uncommon	
	Phacelia cryptantha	Limestone phacelia	Uncommon	1,566
	Phacelia distans	Common phacelia	Occasional	
	Phacelia imbricata	Broad-sepaled phacelia	Uncommon	1,589
	Phacelia longipes	Longstalk phacelia	Uncommon	1,595
	Pholistoma membranaceum	White fiesta-flower	Scarce	1,575
	Turricula parryi	Poodle bush	Occasional	4,758
LAMIACEAE		MINT FAMILY		
	Salazaria mexicana	Bladder sage, paper bag bush	Occasional	1,641
	Salvia columbariae	Chia	Occasional	
	Salvia dorrii (S. carnosa)	Blue desert sage	Occasional	1,562
	Stachys albens	White hedge-nettle	Uncommon	4,786
	Stachys ajugoides (incl. S. rigida)	Hedge nettle	Scarce	
LOASACEAE		STICK-LEAF FAMILY		
	Mentzelia veatchiana	Veatch's stick-leaf	Uncommon	1,600
MELIACEAE		MAHOGANY FAMILY		
*	Melia azedarach	China berry	Uncommon	
NYCTAGINACEAE		FOUR O'CLOCK FAMILY		
	Mirabilis laevis	Desert wishbone bush	Uncommon	
OLEACEAE		OLIVE FAMILY		
	Forestiera pubescens	Desert olive	Uncommon	
ONAGRACEAE		EVENING PRIMROSE FAMILY		
	Camissonia boothii	Shredding evening primrose	Uncommon	4,779
	ssp. decorticans			
	Camissonia campestris (?)	Field evening primrose	Uncommon	1,621
	Camissonia pallida	Pale suncup	Scarce	1,647
	Epilobium brachycarpum	Summer cottonweed	Uncommon	
	(E. paniculatum)			
	Epilobium canum	California fuchsia	Uncommon	
	(Zauschnaria californica)			
	Epilobium ciliatum	Willow-herb	Occasional	
	Epilobium densiflorum (?)	Dense-flowere willow-herb	Scarce	4,334
	Oenothera californica	California evening primrose	Uncommon	

Plant Species Observed Within the Vegetation Study Area

Latin Name	Common Name	Abundance	Voucher
OROBANCHACEAE	BROOMRAPE FAMILY		
Orobanche californica ssp. feudgei	California broomrape	Uncommon	1,605
PAPAVERACEAE	POPPY FAMILY		
Eschscholzia californica	Calif. poppy	Uncommon	
Eschscholzia minutiflora	Small-flowered poppy	Scarce	1,624
Platystemon californicus	Cream cups	Scarce	1,635
PLATANACEAE	SYCAMORE FAMILY		
Platanus racemosa	California sycamore	Uncommon	
POLEMONIACEAE	PHLOX FAMILY		
Eriastrum densifolium	Perennial woolly-star	Uncommon	4,767
ssp. densifolium			
Eriastrum sapphirinum	Sapphire woollystar	Uncommon	1,613
Gilia brecciarum	Nevada gilia	Scarce	1,638
Gilia splendens	Splendid gilia	Uncommon	1,596
Gilia sp.	Unid. gilia	Scarce	1,601
Leptodactylon californicum	California prickly-phlox	Scarce	
Linanthus aureus	Golden linanthus	Scarce	1,642
Linanthus bigelovii	Biglow's linanthus	Uncommon	1,636
Linanthus parryae	Parry's linanthus	Uncommon	1,627
Loeseliastrum matthewsii	Desert calico	Scarce	1,648
POLYGONACEAE	BUCKWHEAT FAMILY		
Centrostegia thurberi	Thurber spineflower	Uncommon	1,584
(Chorizanther thurberi)			
Chorizanthe brevicornu	Brittle spine-flower	Uncommon	
Chorizanthe staticoides	Turkish rugging	Occasional	1,617
Chorizanthe watsonii	Watson spineflower	Uncommon	
Chorizanthe xanti var. xanti	Riverside spineflower	Uncommon	1,629
Eriogonum cithariforme var. agninum	Cithara buckwheat	Uncommon	1,570
Eriogonum elongatum	Wand buckwheat	Uncommon	
Eriogonum pusillum	Puny buckwheat	Uncommon	1,581
Eriogonum spp.	2 or more unidentified annuals		
* Polygonum arenastrum	Common knotweed	Occasional	
(P. aviculare)			
Polygonum lapathifolium	Willow smartweed	Occasional	
PORTULACACEAE	PURSLANE FAMILY		
Calyptridium monandrum	Common calyptridium	Uncommon	
Claytonia parviflora	Miner's lettuce	Uncommon	1,606
* Portulaca oleracea	Common purslane	Uncommon	
RANUNCULACEAE	BUTTERCUP FAMILY		
Delphinium parishii	Parish larkspur	Uncommon	1,561

Plant Species Observed Within the Vegetation Study Area

	Latin Name	Common Name	Abundance	Voucher
	ROSACEAE	ROSE FAMILY		
	Purshia glandulosa	Desert bitterbrush	Occasional	
	RUBIACEAE	COFFEE FAMILY		
	Galium angustifolium	Bedstraw	Uncommon	
*	Galium aparine	Goose grass	Uncommon	
	SALICACEAE	WILLOW FAMILY		
	Populus fremontii	Fremont cottonwood	Common	
	Salix exigua	Sandbar willow	Occasional	
	Salix goodingii	Black willow	Occasional	
	Salix laevigata	Red willow	Occasional	
	Salix lasiolepis	Arroyo willow	Occasional	
	SAURACEAE	LIZARD TAIL FAMILY		
	Anemopsis californica	Yerba mansa	Uncommon	
	SCROPHULARIACEAE	SNAPDRAGON FAMILY		
	Castilleja linariifolia	Desert paintbrush	Scarce	
	Castilleja minor ssp. spiralis	Lesser paintbrush	Uncommon	4,336
	Collinsia callosa	Desert collinsia	Scarce	1,565
	Mimulus cardinalis	Scarlet monkeyflower	Occasional	
	Mimulus floribundus	Showy monkeyflower	Uncommon	4,337
	Mimulus guttatus	Seep monkeyflower	Occasional	
*	Mimulus johnstonii	Johnston's monkeyflower	Scarce	1,572
	Mimulus moschatus	Musk monkeyflower	Uncommon	4,335
	Mimulus parishii	Parish's monkey-flower	Scarce	4,770
	Mimulus pilosus	Downy monkey-flower	Uncommon	
	Penstemon centranthifolius	Scarlet bugler	Uncommon	
*	Verbascum virgatum	Wand muellin	Occasional	4,765
	Veronica americana	American brooklime	Scarce	
*	Veronica anagallis-aquatica (?)	Water speedwell	Uncommon	
	SIMAROUBACEAE	QUASSIA FAMILY		
*	Ailanthus altissima	Tree of heaven	Scarce	
	SOLANACEAE	NIGHTSHADE FAMILY		
	Datura wrightii (D. meteloides)	Jimsonweed	Occasional	
	Lycium andersonii	Anderson thornbush	Uncommon	
	Lycium cooperi	Peach desert thorn	Uncommon	
*	Nicotiana glauca	Tree tobacco	Uncommon	
*	Solanum elaeagnifolium	Silver-leaf nightshade	Uncommon	4,789
	TAMARICACEAE	TAMARISK FAMILY		
	Tamarix ramosissima	Mediterranean tamarisk	Occasional	
	URTICACEAE	NETTLE FAMILY		
	Urtica dioica ssp. holosericea	Stinging nettle	Uncommon	

Plant Species Observed Within the Vegetation Study Area

	Latin Name	Common Name	Abundance	Voucher
	VERBENACEAE	VERVAIN FAMILY		
	Verbena bracteata	Bracted verbena	Occasional	4,762
	Verbena lasiostachys	Western verbena	Uncommon	
	VISCACEAE	MISTLETOE FAMILY		
	Phoradendron densum	Leafy juniper mistletoe	Uncommon	
	Phoradendron macrophyllum	Mistletoe (on sycamore or	Uncommon	
	ZYGOPHYLLACEAE	CALTROP FAMILY		
	Larrea tridentata	Creosote bush	Common	
*	Tribulus terrestris	Puncture vine	Uncommon	
	CYPERACEAE	SEDGE FAMILY		
	Carex alma (?)	Sturdy sedge	Uncommon	4,339
	Carex fracta (?)	Fragile-sheathed sedge	Uncommon	4,781
	Carex praegracilis	Clustered field-sedge	Occasional	
	Carex senta (?)	Rough sedge	Uncommon	4,340
*	Cyperus difformis (?)	Variable flatsedge	Scarce	4,769
	Cyperus eragrostis	Tall umbrella sedge	Uncommon	
	Eleocharis parishii	Parish spike-sedge	Uncommon	4,770
	Scirpus microcarpus	Small-fruited bulrush	Uncommon	
	JUNCACEAE	RUSH FAMILY		
	Juncus sp. (1 or more unid. spp.)			4,344
	Juncus arcticus (incl. vars.	Wire-grass	Uncommon	
	balticus and mexicanus)			
	Juncus bufonius	Toad rush	Occasional	
	Juncus macrophyllus	Long-leaved rush	Uncommon	1,585
	Juncus rugulosus	Wrinkled rush	Uncommon	4,345
	Juncus tiehmii	Nevada rush	Uncommon	4,331
	Juncus xiphioides	Iris-leaved rush	Occasional	4,346
	LILIACEAE	LILY FAMILY		
	Allium fimbriatum var. fimbriatum	Fringed onion	Scarce	1639
	Bloomeria crocea	Golden stars	Scarce	
	Calochortus kennedyi	Kennedy's mariposa lily	Scarce	1,643
	Dichelostemma capitata	Wild hyacinth, bluedicks	Uncommon	
	(Brodiaea pulchella)			
	Yucca brevifolia	Joshua tree	Occasional	
	Yucca whipplei	Chaparral yucca	Occasional	
	(Hesperoyucca whipplei)			
	POACEAE	GRASS FAMILY		
	Agrostis exarata	Western bentgrass	Occasional	4,787
*	Agrostis viridis (A. semiverticillata)	Water bentgrass	Uncommon	
*	Avena fatua	Wild oat	Scarce	

Plant Species Observed Within the Vegetation Study Area

	Latin Name	Common Name	Abundance	Voucher
*	Bromus diandrus	Ripgut brome	Occasional	
*	Bromus hordeaceus (B. mollis)	Soft chess	Uncommon	
*	Bromus madritensis	Red brome	Occasional	
	ssp. rubens (B. rubens)			
*	Bromus tectorum	Cheat grass	Occasional	
*	Cynodon dactylon	Bermuda grass	Uncommon	
	Distichlis spicata	Saltgrass	Uncommon	
	Elymus elymoides	Bottlebrush squirreltail	Uncommon	
	(Sitanion hystrix v. hystrix)			
*	Hordeum murinum	Hare barley	Uncommon	
*	Leptochloa uninervia	Sprangletop	Uncommon	4,768
	Melica imperfecta	Common melic	Uncommon	
*	Stipa milaceum (Piptatherum m.)	Smilo grass	Uncommon	
*	Poa annua	Annual bluegrass	Uncommon	
*	Poa pratensis	Kentucky bluegrass	Occasional	
	Poa secunda	Nodding bluegrass	Occasional	
*	Polypogon monspeliensis	Rabbitfoot grass	Occasional	
*	Schismus barbatus	Mediterranean schismus	Occasional	
	Stipa hymenoides (Oryzopsis	Indian ricegrass	Uncommon	
	hymenoides, Achnatherum hymenoides)			
	Stipa speciosa	Desert needlegrass	Uncommon	
	(Achnatherum speciosum)			
	Vulpia microstachys	Annual fescue	Uncommon	1,602
	(Festuca microstachys, F. reflexa, F. pacifica, F. confusa)			
*	Vulpia myuros (Festuca myuros,	Annual fescue	Uncommon	
	F. megalura)			
TYPHACEAE		CATTAIL FAMILY		
	Typha domingensis	Slender cattail	Uncommon	
	Typha latifolia	Broad-leaved cattail	Occasional	
ZANNICHELLIACEAE		HORNED PONDWEED FAMILY		4,341
	Zannichellia palustris	Horned pondweed	Scarce	

Alien species are indicated by asterisk, special status species indicated by two asterisks. This list includes only species observed within the Vegetation Study Area. Others may have been overlooked or unidentifiable due to season. Plants were identified using keys, descriptions, and illustrations in Abrams (1923-1951), Hickman (1993), and Munz (1974). Taxonomy and nomenclature generally follow Hickman. Vouchers, indicated by Justin Wood's collection numbers, will be deposited at Rancho Santa Ana Botanic Garden.

C.3 Weed Descriptions

APPENDIX C-3 – WEED DESCRIPTIONS

Noxious weeds present a severe threat to natural habitats. When noxious weeds become established in an area, they can cause a permanent or long-lasting change in the environment by increasing vegetative cover, thereby creating a dense layer that prevents native vegetation from germinating, and essentially halting normal successional processes that would typically allow an area to recover from disturbance. Weed populations can also alter edaphic and hydrological conditions and structure through nitrogen fixation (as in Spanish broom, *Spartium junceum*) or draining of the water table (as in giant reed [*Arundo donax*]). Monocultures of noxious weeds typically create an unfavorable environment for wildlife. Consequently, mutualistic species necessary for native plant life cycles, such as seed dispersers, fossorial mammals, or pollinators, can be lost from the area. Heavy infestations can also significantly reduce the recreational or aesthetic value of open space. This being said, weed control efforts are costly, labor intensive, often require several years of follow-up monitoring and a combination of control methods to completely eradicate populations, and in many cases pose significant risk to native plants that may occur within the weed control area. Even still, the ecological costs and risks associated with not managing noxious weed populations are so great that these exceed risks posed by most control methods (DiTomaso, 1997).

Weed species occurring in the Study Area and along the haul routes are ranked by three threat levels as defined by Cal-IPC (Cal-IPC, 2012):

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** – These species have substantial and apparent (but generally not severe) ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
- **Evaluated Not Listed** – Sufficient information is lacking to assign a rating or the available information indicates that the species does not have significant impacts at the present time

Species Accounts

High Risk Invasive Plant Species

Tamarisk (Tamarix sp.)

Cal-IPC Pest Rating: High.

Present at the project site: Yes.

This species occurs in a large stand on the east side of the southern extent of the Reservoir. Current levels of this species are low however the salt cedar can quickly colonize open stream terraces after scouring events provided a source population is present.

Description:

Tamarisk is a type of woody shrub or small tree in the tamarisk family (Tamaricaceae) that invades desert washes and arid riparian areas throughout the western U.S. The Tehachapi Mountains are known to support at least four related Eurasian species with the common names Chinese tamarisk (*T. chinensi*), French tamarisk (*T.gallica*), smallflower tamarisk (*T. parviflora*), and saltcedar (*T. ramosissima*). Tamarisk reproduces by seed and by root sprouting or even disconnected stem fragments. Seedlings have very low survivorship because the deep root system that would protect them from desiccation or being washed away in floods is undeveloped (DiTomaso and Healy, 2007). Once this root system forms, however, tamarisk trees are associated with several negative effects, including draining of the water table, loss of diversity, and reduced habitat quality for many bird and wildlife species. Seed germination is not inhibited in saline soils, and the plants can tolerate saline conditions quite well. The plants can extract groundwater efficiently from deep in the soil profile and sequester the resulting salts in their leaf tissues. When these tissues decompose on the soil surface, they increase soil salinity, making the site less suitable for native species. Once established, tamarisk can spread quickly through vegetative means.

Control:

Prevention: Sites with intact native riparian vegetation are resistant to tamarisk invasion because the seedlings are such poor competitors. Minimizing impacts in riparian and desert wash habitats and restoring any necessary impacts with native vegetation will thus reduce the potential for tamarisk invasion into new areas.

Mechanical: Trees cut from the soil surface re-sprout from the root system, so aboveground tree removal should be followed with herbicidal methods as outlined below. Otherwise, the root system will need to be manually removed, which may cause more soil disturbance than necessary and leave the site open to new invasions.

Biocontrol: In 2002, the saltcedar beetle (*Diorhabda elongata*) was released in efforts to control tamarisk, but it is not yet known how effective the species will be in control of these species (DiTomaso and Healy 2007).

Fire Management: Burning is not recommended because plants re-sprout readily following fire.

Herbicide: Cut stumps should be painted with an herbicide preparation specifically approved for use in aquatic and wetland ecosystems in California. Care should be taken to use a strong enough application to kill the root crown bud. Repeat applications are required the following year when seedlings germinate in the spring. Young plants are easily scraped with a Hula Hoe or pulled by hand.

Moderate Risk Invasive Plant Species

Tocalote (Centaurea melitensis)

Cal-IPC Pest Rating: Moderate.

Present at the project site: Yes.

This species occurs in a single location along Cheseboro Road downstream of the dam structure.

Description:

Tocalote, also known as Maltese star-thistle, is an annual plant in the sunflower family (Asteraceae) that is native to southern Europe. It is widely distributed throughout California, with larger, more problematic populations being found in central-western and southwestern regions of the state within grassland and oak woodland communities. Dense infestations of tocalote threaten natural ecosystems by displacing native plants and animals. This species has an earlier phenology (annual timing of life stages) than the closely related, more widespread yellow star-thistle (*C.solstitialis*), and generally flowers from April to June (Bossard et al., 2000). Tocalote also is similar in appearance to yellow star-thistle. As it flowers and senesces earlier in the year than yellow star-thistle, control treatments should be timed appropriately. Otherwise, mechanical and herbicidal control techniques developed and used for yellow star-thistle are also effective for tocalote infestations (DiTomaso and Healy 2007).

Control:

<u>Prevention</u>: When working in areas infested with tocalote, equipment (including undercarriages) should be carefully cleaned before moving to a non-infested area. The collection and export of fill soils, pasture hay, and crops from infested areas should be avoided or minimized to the maximum extent practicable.

<u>Mechanical</u>: Mowing can provide effective treatment of infested areas if mowed at the correct time, which is immediately after the earliest 2 to 5% of plants have begun to produce flower heads, usually in April or early May (DiTomaso and Healy 2007). Mowing too early may cause plants to become bushier and produce more flower heads. Treatments should continue for at least 2 to 3 years, after which spot eradication may be required indefinitely.

<u>Biocontrol:</u> Responsible rangeland management, where range is grazed by sheep, goats, or cattle to a moderate degree can help prevent establishment or spread of populations in grasslands. Infested areas can be treated by high-intensity grazing between the period when the plant bolts (April) to just before the plant produces spiny seed heads in May-June. Biocontrol insects used to control yellow star-thistle may also feed on tocalote flower heads, but are more attracted to, and better at damaging yellow star-thistle.

<u>Fire Management</u>: Prescribed burning of tocalote can reduce populations if timed correctly, but to avoid heavy damage to native vegetation, burns should be timed to occur after other annual plants have dried but before tocalote seeds are produced. Due to its late spring-early summer flowering period, burning may be difficult to implement for tocalote.

<u>Herbicide</u>: Herbicide treatments by foliar spray or wick application are generally used to control or reduce spot infestations, or as follow-up to more intensive mechanical, grazing, or fire management-based treatments.

Shortpod Mustard (*Hirschfeldia incana*)

Cal-IPC Pest Rating: Moderate.

Present at the project site: Yes.

Summer mustard is distributed at several locations along the main access road adjacent to the Reservoir.

Description:

Shortpod mustard (*Hirschfeldia incana*) is an annual or short-lived perennial forb in the mustard family (Brassicaceae) that is native to Eurasia. It matures quickly in the spring and produces a large amount of biomass in infested areas, potentially outcompeting native species through shading or an early reduction in soil moisture. Reproduction occurs by seeds, which are sticky when wet and are thus easily transferred by equipment, vehicles, or people working or traveling through infested areas when moisture is present (Brooks 2004). Similar to other invasive mustard species, shortpod mustard can build up a large, long-lived seed bank at infestation sites. This species often invades areas dominated by exotic annual grasses and can contribute to type conversion of woodlands and scrublands into annual grasslands by adding to the early season fuel load of an area, as this can increase the amount of fuel available for fires. Fire frequency and intensity can increase such that shrub and tree species can no longer establish or survive. While the species is generally considered a successional plant, and thus might be expected to decrease in density or extent with increasing time since disturbance, the typically large seed bank in combination with repeated disturbance in riparian areas or associated with heavy grazing can favor the establishment of long-term infestations (Brooks 2004).

Black mustard (*Brassica nigra*) is very similar in appearance to shortpod mustard, and the two species are often difficult to tell apart in the field. The ecological effects of black mustard invasion are virtually identical to shortpod mustard in how it impacts ecosystems, but black mustard tends to be taller, may regularly produce denser infestations than shortpod mustard, and may be more widespread. It can readily invade chaparral and sensitive coastal sage scrub habitats, contributing to increased fire frequency and intensity leading to type conversion of these habitats into annual grasslands. Deeply buried black mustard seeds may remain viable for as much as 50 years under field conditions (DiTomaso and Healy 2007).

Control:

Prevention: Disturbance and fire favor establishment of these mustard species. Additionally, shortpod mustard may be more likely to invade areas already dominated by annual grasses (Brooks 2004). Therefore, protection and sound management of remaining bunchgrass grasslands and quick eradication of initial infestations in scrub- or woodlands is recommended.

Mechanical: Black and shortpod mustard are best controlled mechanically by hand-pulling of plants each year after they have bolted but before they produce seed. The plants have a fairly weak root system, and as annuals, do not re-sprout from root fragments left in the soil. Over time, this can deplete the seed banks and allow native or grassy vegetation to dominate previously infested areas. Mowing, particularly when timing is poor, can produce plants that branch heavily from the base, and could produce even more seed than undisturbed plants.

Fire Management: Burning is not recommended for shortpod mustard control as it can damage co-occurring native vegetation due to heavy fuel loads, as well as the fact that shortpod and other exotic mustard species appear to be somewhat fire-adapted and can increase in density following fires.

Herbicide: Because early season mustards such as these emerge early in the growing season, often before native vegetation has broken dormancy, it is thought that early post-emergence herbicidal treatments may be effective for members of this group (Bossard et al. 2000), but more research is needed to develop a standardized, optimized methodology for control of these species.

Tree Tobacco (Nicotiana glauca)

Cal-IPC Pest Rating: Moderate.

Present at the project site: Yes.

This species occurs in a single location along Cheseboro Road downstream of the dam structure.

Description:

Tree tobacco is a shrub or tree in the nightshade family (*Solanaceae*), native to South America. Leaves and other structures of this species contain the highly toxic alkaloid anabasine, which can cause fetal deformities or even death in livestock that graze the plants. Tree tobacco occurs on sandy or gravelly soils, usually near streams, lakes, or ditches, although the plants are extremely drought tolerant and can withstand long periods of hot, dry weather (Guertin and Halvorson 2003). Tree tobacco plants are short-lived and the species does not appear to produce dense infestations in California (Cal-IPC, 2012), although the species is spreading throughout lower elevations of Arizona and California. While toxic to livestock, the plant is beneficial for native species such as hummingbirds and hawkmoths. Little is known about specifics of reproduction in this species, and optimal control methods are still being developed.

Control:

Prevention: In Australia, it has been observed that stem densities are significantly reduced in non-grazed plots, possibly due to the competition from native wetland vegetation (Florentine and Westbrooke 2005). As wetland areas are often grazed heavily by livestock in arid areas, protection of native emergent wetland vegetation by excluding livestock from sensitive areas may prevent seedling establishment or spread of existing infestations.

Mechanical: No mechanical methods of control other than hand-pulling are known, although cutting before herbicide application is an accepted control method for many weedy, woody species.

Herbicide: Optimal methods for control are still being developed, but glyphosate applied as foliar spray, drizzle, or as a treatment to cut-stumps all showed high levels of initial success when applied in fall (Oneto et al. 2004), although later regrowth was not assessed and other timing regimes were not compared in the 2004 publication.

C.4 Wildlife Species Observed

APPENDIX C-4 – WILDLIFE SPECIES OBSERVED IN THE STUDY AREA

Wildlife Observed in the Study Area During 2007 – 2014 Surveys

Common Name	Latin Name
REPTILES	
Southwestern pond turtle	*Actinemys marmorata*
California legless lizard	*Anniella pulchra*
Coastal whiptail	*Aspidoscelis tigris stejnegeri*
Red racer	*Coluber flagellum piceus*
Southern pacific rattlesnake	*Crotalus helleri*
San Diego nightsnake	*Hypsiglena ochrorhyncha klauberi*
California kingsnake	*Lampropeltis getula californiae*
Coast horned lizard	*Phrynosoma blainvillii*
Gopher snake	*Pituophis catenifer*
San Diego gopher snake	*Pituophis catenifer annectens*
Southwestern threadsnake	*Rena humilis humilis*
Long-nosed Snake	*Rhinocheilus lecontei*
Patch-nosed snake	*Salvadora hexalepis*
Western fence lizard	*Sceloporus occidentalis*
Two-striped garter snake	*Thamnophis hammondi*
Red-eared slider	*Trachemys scripta elegans*
California lyresnake	*Trimorphodon lyrophanes*
Western/California side-blotched lizard	*Uta stansburiana elegans*
FISH	
Bluegill	*Lepomis macrochiru*
Largemouth bass	*Micropterus salmoides*
Rainbow Trout	*Oncorhyncus mykiss*
Goldfish	*Carassius auratus auratus*
AMPHIBIANS	
Western/California toad	*Anaxyrus boreas halophilus*
Arroyo toad	*Anaxyrus californicus*
California chorus frog	*Pseudacris cadaverina*
Baja California chorus frog	*Pseudacris hypochondriaca*
Bullfrog*	*Lithobates catesbeiana*
MAMMALS	
Pallid bat	*Antrozous pallidus*
Coyote	*Canis latrans*
Big Brown Bat	*Eptesicus fuscus*
Greater bonneted bat	*Eumops perotis*
Black-tailed jackrabbit	*Lepus californicus*

Wildlife Observed in the Study Area During 2007 – 2014 Surveys

Common Name	Latin Name
Bobcat	*Lynx rufus*
California vole	*Microtus californicus*
California black bear	
Long-tailed weasel	*Mustela frenata*
California myotis	*Myotis californicus*
Western small-footed myotis	*Myotis ciliolabrum*
Yuma myotis	*Myotis yumanensis*
Desert shrew	*Notiosorex crawfordi*
Mule deer	*Odocoileus hemionus*
California ground squirrel	*Otospermophilus beecheyi*
Canyon bat	*Parastrellus hesperus*
Deer mouse	*Peromyscus maniculatus*
Mountain lion	*Puma concolor*
Raccoon	*Procyon lotor*
Desert cottontail	*Sylvilagus audubonii*
Mexican free-tailed bat	*Tadarida brasiliensis*
Botta's pocket gopher	*Thomomys bottae*
Gray fox	*Urocyon cinereoargenteus*
BIRDS	
Sharp-shinned hawk	*Accipiter striatus*
Spotted sandpiper	*Actitis macularia*
White-throated swift	*Aeronautes saxatalis*
Red-winged blackbird	*Agelaius phoeniceus*
So. Cal. rufous-crowned sparrow	*Aimophila ruficeps canescens*
Sage sparrow	*Amphispiza belli*
American wigeon	*Anas americana*
Northern shoveler	*Anas clypeata*
Mallard	*Anas platyrhynchos*
Gadwall	*Anas strepera*
Western scrub-jay	*Aphelocoma californica*
Black-chinned hummingbird	*Archilochus alexandri*
Great blue heron	*Ardea herodias*
Ring-necked duck	*Aythya collaris*
Oak titmouse	*Baeolophus inornatus*
Great horned owl	*Bubo virginianus*
Bufflehead	*Bucephala albeola*
Red-tailed hawk	*Buteo jamaicenis*
Green heron	*Butoroides virescens*
California quail	*Callipepla californica*
Anna’s hummingbird	*Calypte anna*

Wildlife Observed in the Study Area During 2007 – 2014 Surveys

Common Name	Latin Name
Costa’s hummingbird	*Calypte costae*
Cactus wren	*Campylorhynchus brunneicapillus*
Wilson’s warbler	*Cardellina pusilla*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Vaux's swift	*Chaetura vauxi*
Wrentit	*Chamaea fasciata*
Killdeer	*Charidrius vociferus*
Lark sparrow	*Chondestes grammacus*
Lesser nighthawk	*Chordeiles acutipennis*
Western wood-pewee	*Contopus sordidulus*
Common raven	*Corvus corax*
Western flycatcher	*Empidonax difficilis*
Willow flycatcher	*Empidonax traillii*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
Common yellowthroat	*Geothlypis trichas*
Bald eagle	*Haliaeetus leucocephalus*
Barn swallow	*Hirundo rustica*
Bullock’s oriole	*Icterus bullockii*
Song sparrow	*Melospiza melodia*
California towhee	*Melozone crissalis*
Brown-headed cowbird	*Molothrus ater*
Ash-throated flycatcher	*Myiarchus cinerascens*
Black-crowned night-heron	*Nycticorax nycticorax*
Mountain quail	*Oreortyx pictus*
Orange-crowned warbler	*Oreothlypis celata*
Nashville warbler	*Oreothlypis ruficapilla*
Western screech-owl	*Otus kennicottii*
Ruddy duck	*Oxyura jamaicensis*
Lazuli bunting	*Passerina amoena*
Cliff swallow	*Petrochelidon pyrrhonota*
Phainopepla	*Phainopepla nitens*
Black-headed grosbeak	*Pheucticus melanocephalus*
Double-crested cormorant	*Phlacrocorax auritus*
Nuttall’s woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Spotted towhee	*Pipilo maculatus*
Western tanager	*Piranga ludoviciana*

Wildlife Observed in the Study Area During 2007 – 2014 Surveys

Common Name	Latin Name
Summer tanager	*Piranga rubra cooperi*
Eared grebe	*Podiceps nigricollis*
Pied-billed grebe	*Podilymbus podiceps*
Bushtit	*Psaltriparus minimus*
Great-tailed grackle	*Quiscalus mexicanus*
Rock wren	*Salpinctes obsoletus*
Black phoebe	*Sayornis nigricans*
Rufous hummingbird	*Selasphorus rufus*
Yellow-rumped warbler	*Setophaga coronata*
Yellow warbler	*Setophaga petechia*
Lawrence's goldfinch	*Spinus lawrencei*
Lesser goldfinch	*Spinus psaltria*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Caspian tern	*Sterna caspia*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Bewick's wren	*Thryomanes bewickii*
California thrasher	*Toxostoma redivivum*
Solitary sandpiper	*Tringa solitaria*
House wren	*Troglodytes aedon*
Western kingbird	*Tyrranus verticalis*
Barn owl	*Tyto alba*
Least Bell's vireo	*Vireo bellii pusillus*
Warbling vireo	*Vireo gilvus*
Mourning dove	*Zenaida macroura*

C.5 Plant and Wildlife Descriptions

APPENDIX C-5 – PLANT AND WILDLIFE DESCRIPTIONS SPECIES ACCOUNTS

Plants With the Potential to Occur

California androsace (*Androsace elongata* ssp. *acuta*)

Status: California androsace has a CRPR 4.2, and is a U.S. Forest Service Watch List species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species occurs from Oregon, throughout California, and into Baja California at elevations of 492 to 3,936 ft.

Distribution in the Study Area: There are several populations on the foothill desert slopes of the San Gabriel and Liebre Mountains. Suitable habitat is present.

Habitat and Habitat Associations: California androsace occurs in coastal scrub, chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland habitats.

Natural History: California androsace is an annual herb that is highly localized and often overlooked; many occurrences have been extirpated and it is very rare in Southern California. It flowers from March through June.

Threats: California androsace is possibly threatened by grazing, trampling, non-native plants, alteration of fire regimes, and recreational activities. It may also be threatened by wind energy development.

Slender silver moss (*Anomobryum julaceum*)

Status: Slender silver moss has a CRPR 2.2 This species is not federally or State listed as threatened or endangered.

General Distribution: This species occurs infrequently in California, but is abundant in Oregon. It can be found on road cuts at elevations of 300 to 3,000 feet.

Distribution in the Study Area: This species is represented in southern California from a single collection made from the high elevations of the San Gabriel Mountains. Suitable habitat is present in the project area.

Habitat and Habitat Associations: Slender silver moss grows on mesic soils and rocks along creeks in broadleaf and coniferous forests.

Natural History: Slender silver moss is a non-vascular moss.

Threats: This species may be threatened by human activities such as vehicle use, since it is often found along road cuts.

San Gabriel manzanita (*Arctostaphylos gabrielensis*)

Status: San Gabriel manzanita has a CRPR 1B.2, FSS This species is not federally or State listed as threatened or endangered.

General Distribution: This species is endemic to the San Gabriel Mountains near Mill Creek Summit, with an elevation range of 1900 to 5000 feet.

Distribution in the Study Area: This species is known from the upper watershed but the project area is below the elevation range for this species. It has a low potential to disperse into the project area from the upper watershed.

Habitat and Habitat Associations: San Gabriel manzanita is a large perennial evergreen shrub that grows on rocky chaparral habitats.

Natural History: San Gabriel manzanita blooms in March.

Threats: The primary threat to this species is development.

Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*)

Status: Palmer's mariposa lily has a CRPR 1B.2, and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species is endemic to California, and has been found in Kern, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Luis Obispo, and Ventura counties. It occurs at elevations of 3,281-7,841 ft.

Distribution in the Study Area: This species was not observed during recent surveys but is known from the general area.

Habitat and Habitat Associations: Palmer's mariposa lily is found in wet meadows and seeps in lower montane coniferous forest and chaparral habitats.

Natural History: Palmer's mariposa lily is a perennial bulb that blooms from May through July.

Threats: This species is threatened by development, grazing, non-native plants, recreational activities and vehicles (CNPS, 2012).

Plummer's mariposa lily (*Calochortus plummerae*)

Status: Plummers's mariposa lily is a CRPR List 1B.2 species and is considered a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.
General Distribution: Plummer's mariposa lily is known to occur in Riverside, San Bernardino, Orange, Los Angeles, and Ventura counties at elevations between 100 and 1,700 meters AMSL.

Distribution in the Study Area: This species was not documented within the Vegetation Study Area. The project is just outside of the known geographic range for this species but suitable habitat is present within the Vegetation Study Area.
Habitat and Habitat Associations: This bulbiferous herb is typically found in chaparral, coastal scrub, cismontane woodland, lower montane coniferous forest, and grassland, often on granitic and/or rocky soils, and blooms between May and July (CNPS, 2012).

Natural History: Perennial bulbs, including Plummer's mariposa lily, may persist below ground without producing flowers or even leaves during years of poor rainfall or other environmental causes. This species is identified by its (usually) toothed petal margins; petals covered with long yellow hairs inside; and its round, slightly depressed nectar gland at the base of each petal surrounded by hairs but without hairs on the nectary surface itself (Hickman, 1993). Seed dispersal for Calochortus is limited, with no obvious adaptations for wind or animal dispersal; fruits are capsular and borne close to the ground, with relatively heavy, passively dispersed seeds that lack fleshiness, sticktights, or (except in one species) wings (Patterson and Givnish, 2003). Typically, Calochortus flowers are generalists in terms of their pollinators, although bees have been observed to be the primary pollinator in some Calochortus species, such as Lyall's mariposa lily (*C. lyallii*) (Dilley *et al.*, 2000; Miller, 2000).

Threats: In addition to the direct loss of individuals, Plummer's mariposa lily is vulnerable to several effects related to urbanization. Non-native plant species, which compete for light, water, and nutrients, have been found to invade native vegetation communities and become established after repeated burnings, changes in surface and subsurface hydrologic conditions (changes in irrigation and runoff), use of chemical pollutants, clearing of vegetation, trampling, or following periods of drought and overgrazing, all of which are possible side effects of nearby human habitation. The successful invasion of exotic plant species may alter habitats and displace native species over time, leading to extirpation of natives such as the Plummer's mariposa lily.

Alkali mariposa lily (*Calochortus striatus*)

Status: Alkali mariposa lily has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: The geographic range of Alkali mariposa lily includes the southern Sierra Nevada; the western, central and southern Mojave Desert; the north base of the San Bernardino Mountains; the southern San Joaquin Valley; and disjunctly in southern Nevada. It occurs at elevations between 230ft and 5,232 feet.

Distribution in the Study Area: The species is known from alkaline soils in the Mojave Desert. Poor quality habitat was observed at the northern end of the haul roads but it is not expected in the project area.

Habitat and Habitat Associations: Alkali mariposa lily occurs in seasonally moist alkaline areas of arid lands (alkali meadows, ephemeral washes, vernally moist depressions, seeps; Fiedler, 1985) in chaparral, chenopod scrub, and Mojavean desert scrub of southern California and southern Nevada.

Natural History: It is a perennial growing from a bulb; it has two or three slender, grass-like leaves that wither by the time the plant flowers (April through June). The flowers about 20-30 mm long, white to lavender with conspicuous purple veins. In dry years, the bulbs may remain dormant and no plants may be visible above-ground. It is threatened by the lowering of water tables, urbanization, trampling or grazing by cattle, and perhaps competition with native and non-native grasses (Greene and Sanders, no date).

Threats: Alkali mariposa lilies face threats from urbanization, grazing, trampling, road construction, hydrological alterations, and water diversions that result in the lowering of the water table (CNPS, 2012).

Peirson’s morning-glory (*Calystegia peirsonii*)

Status: Peirson’s morning glory has a CRPR 4.2. This species is not federally or State listed as threatened or endangered.

General Distribution: It is a rhizomatous perennial herb occurring in the San Gabriel and Liebre Mountains and the Antelope Valley of Los Angeles County (Allan et al., 1995), from about 100 ft. to 5000 feet elevation.

Distribution in the Study Area: This species was not observed during recent surveys but is known from the general area.

Habitat and Habitat Associations: It is a perennial vine found climbing over shrubs in coastal sage scrub, chaparral, and woodlands, often in the first few years following wildfire. It was known only from a few collections prior to 1970, but it is fairly common in the Newhall-Mint Canyon region (Boyd, 1999).

Natural History: This perennial vine blooms from April to June.

Threats: Primary threats to this species include grazing and development (CNPS, 2012).

Pygmy poppy (*Canbya candida*)

Status: Pygmy poppy has a CRPR 4.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Pygmy poppy is found in the foothills of the south-eastern Sierra Nevada range, the San Gabriel and San Bernardino Mountains, and in the Antelope Valley. It occurs at elevations of 1,968-4,790 feet.

Distribution in the Study Area: Suitable habitat is preset within the Vegetation Study Area and numerous historic records are known from the area.

Habitat and Habitat Associations: Pygmy poppy occurs in Joshua tree woodland, Mojavean desert scrub, or pinyon and juniper woodland habitats with gravelly, granitic, or sandy soils.

Natural History: Pygmy poppy is an annual herb of desert shrublands, only one or a few centimeters wide and tall. It may flower between March and June, depending on rainfall, and may not germinate at all in dry years.

Threats: This species may be threatened by land use changes, vehicles, and invasive non-native plants (CNPS, 2012).

Mt. Gleason Indian paintbrush (*Castilleja gleasonii*)

Status: Mt. Gleason Indian paintbrush has a CRPR 1B.2, is State-listed as Rare, and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Mt. Gleason Indian paintbrush is endemic to the San Gabriel Mountains of Los Angeles County.

Distribution in the Study Area: This species is known from higher elevation of the San Gabriel Mountains but several collections from lower elevations have been made. Suitable habitat is present.

Habitat and Habitat Associations: This species grows in rocky places within lower montane coniferous forest and pinyon and juniper woodland communities at elevations of 3800 to 7,120 feet (CNPS, 2007).

Natural History: Mt. Gleason Indian paintbrush is a perennial hemi-parasitic herb in the figwort family (Scrophulariaceae) that blooms from May to June.

Threats: Threats to this species include recreational activities such as fuel wood harvesting, off-highway vehicle activities, and close proximity to trails and campgrounds (CNPS, 2007).

Mojave Indian paintbrush (*Castilleja plagiotoma*)

Status: Mojave Indian paintbrush has a CRPR 4.3 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Mojave paintbrush is endemic to California, and is found in Kern, Los Angeles, San Bernardino, and San Luis Obispo counties at elevations between 984 and 8,200 feet.

Distribution in the Study Area: This species was not detected during recent surveys but suitable habitat is present within the Vegetation Study Area and it is known from the general vicinity.

Habitat and Habitat Associations: Mojave paintbrush is associated with Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland habitats.

Natural History: Mojave paintbrush is a hemi-parasitic, perennial herb that blooms from April through June.

Threats: Threats to this species include recreational activities and road maintenance (CNPS, 2012).

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)

Status: San Fernando Valley spineflower has a CRPR 1B.1 and is designated a U.S. Forest Service Sensitive species. It is listed as Endangered under the California Endangered Species Act and is a Candidate for federal listing.

General Distribution: It was historically known from the foothills surrounding the San Fernando Valley in Los Angeles County and from one site in Orange County. It had been presumed extinct, but was rediscovered on the Ahmanson Ranch in 1999 (Ventura County) in 1999 (Boyd, 2001). Since then it has been discovered at Newhall Ranch (Los Angeles County; FWS, 2002) and there are historic records from Newhall and Castaic (Boyd, 1999). It occurs at elevations of 490 to 4,000 feet.

Distribution in the Study Area: The project area is outside of the historic range of the species; however, suitable habitat is present.

Habitat and Habitat Associations: This species is found in sandy places, generally in coastal or desert shrublands; historically from San Fernando Valley, adjacent foothills, and coastal Orange County; it is now known only in E Ventura and W Los Angeles Counties; its habitat is open shrubland, generally on mesas or moderate slopes, in fine, silty sedimentary soils. It may also occur on alluvial benches or as occasional waifs in washes.

Natural History: San Fernando Valley spineflower is a low-growing annual species, flowering between April and June. It persists as long as a year after flowering season due to its wiry structure, and can be identified by its characteristic long straight spines even in dried condition.

Threats: This species is seriously threatened by development and non-native plants; most of its historical habitat is heavily urbanized.

California satintail (*Imperata brevifolia*)

Status: California satintail has a CRPR 2.1. This species is not federally or State listed as threatened or endangered.

General Distribution: California satintail occurs throughout the southwest U.S. at elevations below 4,000 feet. In California, it is known from only four extant occurrences, in Ventura, Los Angeles, and San Bernardino counties.

Distribution in the Study Area: Suitable habitat is present within the Vegetation Study Area but it was not detected during recent surveys and is not known from the area.

Habitat and Habitat Associations: Meadows and seeps within chaparral, coastal scrub, and Mojavean desert scrub communities.

Natural History: California satintail is a perennial grass that blooms from September to May.

Threats: Agriculture and development are threats to this species (CNPS, 2012).

Ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*)

Status: Ocellated Humboldt lily has a CRPR of 4.2 and is a U.S. Forest Service Watch List species. This species is not federally or State listed as threatened or endangered.

General Distribution: It grows in shaded riparian woodlands of the Coast Ranges, Peninsular Ranges, and Transverse Ranges, from San Luis Obispo County to San Diego County, and inland to the San Bernardino and San Jacinto Mountains. Its elevation range is from just above sea level to about 6000 feet.

Distribution in the Study Area: This species is known from deep shaded canyons throughout the San Gabriel Mountains but it was not detected during recent surveys and is not known from the area.

Habitat and Habitat Associations: Riparian woodland openings within chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest communities; generally on gravelly soils within gullies.

Natural History: Depending on elevation, it may flower as early as March, but generally flowers in early to mid-summer in montane habitats.

Threats: This species may be threatened by development and horticultural collecting.

Lemon lily (*Lilium parryi*)

Status: Mojave Indian paintbrush has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Lemon lily can be found in suitable habitats with elevations of 4,000 to 9,000 feet.

Distribution in the Study Area: Known from the upper reaches of the drainage but the project area is below the elevation range for this species and the project area lacks suitable habitats.

Habitat and Habitat Associations: Lemon lily can be found in meadows and seeps within lower and upper montane coniferous forests communities.

Natural History: Lemon lily is a perennial bulb that blooms from July to August.

Threats: Threats to this species include horticultural collecting, water diversion, recreational activities, and grazing (CNPS, 2012).

San Gabriel linanthus (*Linanthus concinnus*)

Status: San Gabriel linanthus has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species is endemic to the San Gabriel Mountains of southern California, occuring at elevations of 5,000 to 9,200 feet.

Distribution in the Study Area: Known from higher elevation areas of the San Gabriel Mountains, the project area is well below the elevation range of the species.

Habitat and Habitat Associations: San Gabriel linanthus is associated with dry rocky slopes within chaparral and montane coniferous forest communities.

Natural History: San Gabriel linanthus is an annual herb that blooms from April to July.

Threats: This species is threatened by recreational activities and road maintenance.

Sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*)

Status: Sagebrush loeflingia has a CRPR 2.2. This species is not federally or State listed as threatened or endangered.

General Distribution: Sagebrush loeflingia is widespread at scattered locations in California deserts and more common to the east (Nevada) at elevations of 2,200 to 5,300 feet.

Distribution in the Study Area: The species is known from very few locations in the vicinity of alkali flats to the north of the project area. Poor quality habitat was observed at the northern end of the haul roads but it is not expected in the project area.

Habitat and Habitat Associations: Sagebrush loeflingia is found in sandy soils (dunes) in Great Basin scrub and Sonoran desert scrub.

Natural History: It is an annual herb, flowering in April or May, depending on rainfall. Like most desert annuals, it may not germinate at all during drought years.

Threats: This species may be threatened by grazing and vehicles.

Peirson's lupine (*Lupinus peirsonii*)

Status: Peirson’s lupine has a CRPR 1B.3 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species is known only from the San Gabriel Mountains, at elevations of 3,200 to 8,200 feet.

Distribution in the Study Area: This species is not known from the project vicinity but it is known from the upper reaches of the watershed, could be present within the vegetation study area as a wash-down waif species.

Habitat and Habitat Associations: Peirson's lupine occurs on gravelly or rocky slopes within Joshua tree woodland, lower and upper montane coniferous forest, and pinyon and juniper woodland communities.

Natural History: This species is a perennial herb that blooms from April to May.

Threats: This species may be threatened by development in the San Gabriel Mountains.

Davidson's bush-mallow (*Malacothamnus davidsonii*)

Status: Davidson's bush-mallow has a CRPR 1B.2. This species is not federally or State listed as threatened or endangered.

General Distribution: Its geographic range is the western margin of the San Gabriel Mountains and San Fernando Valley (Allan et al., 1995) and reportedly from the central coast ranges (Monterey and San Luis Obispo Counties; Tibor, 2001); between about 600 and 2,800 feet elevation.

Distribution in the Study Area: There are very few records of this species within the general vicinity of the project area.

Habitat and Habitat Associations: Davidson's bush-mallow occurs in chaparral, coastal sage scrub, cismontane woodland, riparian woodland, and open sandy alluvial benches and washes.

Natural History: Davidson's bush-mallow is a shrub that flowers in summer (June - September) but can be identified without flowers, by characteristics of its stems and leaves.

Threats: In Los Angeles County, this species may be threatened by urbanization (CNPS, 2012).

Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsonii*)

Status: Robbins' nemacladus has a CRPR 1B.2. This species is not federally or State listed as threatened or endangered.

General Distribution: Known occurrences of this species have been recorded as far north as San Benito Canyon, and as far south as the San Gabriel Mountains, at elevations of 875 to 4250 feet.

Distribution in the Study Area: The subspecies is known from a single location in the San Gabriel Mtns, east of the Project Area. No suitable habitat is present.

Habitat and Habitat Associations: This species can be found in openings in chaparral and foothill grasslands.

Natural History: Robbins' nemacladus is an annual herb that blooms from April through June.

Threats: Road maintenance and widening may be a threat to this species (CNPS, 2012).

Woolly mountain-parsley (*Oreonana vestitia*)

Status: Wooly mountain parsley has a CRPR 1B.3 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Wooly mountain-parsley occurs at elevations of 6,500 to 11,500 feet in the San Gabriel and San Bernardino mountains, as well as near Walker Pass.

Distribution in the Study Area: This species is not known from the project vicinity and the project area is well below the elevation range of this species.

Habitat and Habitat Associations: This species grows along ridge tops and on rocky soils such as dry gravel or talus in lower and upper montane coniferous forest and subalpine coniferous forest.

Natural History: Wooly mountain-parsley is a perennial herb that blooms from March to September.

Threats: Threats to this species include foot traffic and recreational activities within its habitat (CNPS, 2012).

Rock Creek broomrape (*Orobanche valida* ssp. *valida*)

Status: Rock Creek broomrape has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: In California, this species has occurs in the San Gabriel and the Topatopa Mountains, at elevations of 4,000 to 7,000 feet.

Distribution in the Study Area: This species is not known from the project vicinity and the project area is below the elevation range of this species.

Habitat and Habitat Associations: Rock Creek broomrape grows on granitic soils within chaparral and pinyon and juniper woodland communities.

Natural History: Rock Creek broomrape is a parasitic, perennial herb that blooms from May through July.

Threats: This species may possibly be threatened by non-native plants and recreational activities (CNPS, 2012).

Mason's neststraw (*Stylocline masonii*)

Status: Mason's neststraw is a federal species of concern and has a CRPR 1B.1.

General Distribution: Mason's neststraw is known only from the southern San Joaquin Valley and adjacent inner coastal ranges (Morefield, 1992) and the desert slopes of the Liebre Mountains in Los Angeles County (Ross and Boyd, 1996), between 300 and 1300 feet in elevation (and rarely to almost 4000 feet).

Distribution in the Study Area: This species is not known from the project vicinity but suitable habitat is present.

Habitat and Habitat Associations: Mason's neststraw occurs in open, dry sandy soils in juniper woodland or saltbush scrub vegetation.

Natural History: Mason's neststraw is a diminutive ephemeral annual herb that flowers between March and May.

Threats: A major threat to Mason's neststraw is disturbances from land use conversion.

Greata's aster (*Symphytotrichum greatae*)

Status: Greata's aster has a CRPR 1B.3. This species is not federally or State listed as threatened or endangered.

General Distribution: Its geographic range is the Liebre and San Gabriel Mountains, between about 1000 and 6600 feet elevation.

Distribution in the Study Area: Greata's aster is known from the upper watershed and although the habitat in the project area is not ideal, it has some potential to occur.

Habitat and Habitat Associations: Greata's aster generally occurs along streams, near springs, or where ground water nears the surface in chaparral, woodlands, and lower montane forests.

Natural History: This species is a tall, perennial herb with daisy-like flowers, which blooms from June through October.

Threats: Greata's aster is threatened by recreational activities, trail maintenance, and non-native plants (CNPS, 2012).

Wildlife With the Potential to Occur

Invertebrates

Trask shoulderband snail (*Helminthoglypta traskii*)

Status: The trask shoulderband snail is considered a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This snail is a southern California endemic, known from Ventura, Los Angeles, Orange, and San Diego Counties (Magney, 2005).

Distribution in the Study Area: Although there are no known records from the Study Area, the Study Area is located within the known geographic distribution for this species. Suitable habitat occurs throughout the Study Area. All areas of suitable habitat should be considered potentially occupied.

Habitat and Habitat Associations: Trask shoulderband snails are terrestrial and occur in a variety of habitats, including coastal sage scrub, chaparral, oak woodland, and riparian woodland.

Natural History: Haplotrema is a genus of predatory, air-breathing terrestrial snails. The shells of these snails vary in size from relatively small to medium and usually consist of a low, flattened spire and very wide umbilicus. The structure of the radula, or teeth, is unusual in this genus. The haplotrematids have fewer cusps than most snails, but they are considerably elongated (hence the name "lancetooth"), suitable for predatory behavior. The known diet of these snails consists entirely of other terrestrial mollusks (Pilsbry, 1946).

Members of the genus Helminthoglypta are air-breathing, terrestrial snails. Shells are relatively medium to large in size, with no apertural teeth, but usually with a reflected apertural lip. These snails possess a single dart apparatus with one stylophore (dart sac) and two mucus glands which are utilized to create love darts. Love darts, shaped in many distinctive ways which vary considerably between species, are hard, sharp, calcareous or chitinous darts that are used as part of the sequence of events during courtship before actual mating takes place.

Threats: There are no identified threats to these species.

San Emigdio blue butterfly (*Plebulina emigdionis*)

Status: The San Emigdio blue butterfly is designated by CDFW as a California Special Animal. This taxa is not federally or State listed as threatened or endangered.

General Distribution: The San Emigdio blue butterfly is restricted to southern California in lower Sonoran and riparian habitats from the Owens Valley south to the Mojave River, and west to northern Ventura and Los Angeles Counties. The primary location where this species has been collected is along the Mojave River near Victorville, but isolated colonies have been reported in Bouquet and Mint canyons near Castaic, in canyons along the north side of the San Gabriel Mountains near the desert's edge, and in arid areas south of Mount Abel near San Emigdio Mesa (Emmel and Emmel, 1973; Murphy, 1990).

Distribution in the Study Area: There are no known recent records for this species in the Study Area. The Study Area is located within the known geographic distribution for this species. Suitable habitat occurs within limited portions of the Study Area.

Habitat and Habitat Associations: This butterfly can be locally abundant in association with its primary host plant, four-wing saltbush (*Atriplex canescens*), but has also been observed in association with quail brush (*A. lentiformis*).

Natural History: Although its primary host plant is widespread throughout the western United States, the distribution of the San Emigdio blue butterfly is much more localized, suggesting that other factors may determine habitat suitability (Murphy, 1990). For example, habitat suitability may, at least in part, be attributed to a suspected symbiotic relationship with at least one ant species, Formica pilicornis (Ballmer and Pratt, 1991). These ants presumably extract droplets containing glucose and amino acids from the nectary glands of San Emigdio blue butterfly larvae and provide the butterfly larvae protection from predators.

San Emigdio blue butterfly adults are active from late April to early September. The species can have up to three broods per year, with the first brood generally occurring in late April to May, the second brood in late June to early July, and the third brood in August to early September (Emmel and Emmel, 1973). Adults are generally observed perching on their host plant or other plants in the immediate vicinity, and nectaring on nearby flowers.

Threats: The San Emigdio blue butterfly has a limited distribution and often occurs in small, isolated colonies. These characteristics make colonies vulnerable to direct and indirect habitat disturbance, given the limited extent of occupied habitat and limited potential for recolonization. Many colonies in the Mojave Desert and Owens Valley are isolated from anthropogenic disturbances, but other colonies found closer to growing urban areas may be situated near major roads, railroad tracks, and other developments, which may contribute to further decline.

Amphibians

Arroyo Toad (*Anaxyrus californicus*)

Status: The arroyo toad is listed as federally endangered by the USFWS and is a CDFW Species of Special Concern. This species is considered a Forest Service Sensitive Species.

General Distribution: The distribution of arroyo toads historically extended from the upper Salinas River system in San Luis Obispo County south into coastal Baja California (Jennings and Hayes, 1994). Adults are primarily nocturnal and usually active between the first major rains in January and February to early August (Cunningham, 1962). After males emerge from stream terrace over-wintering sites, they precede females to breeding pools and call nightly from February or March through July (Holland and Goodman, 1998).

Distribution in the Study Area: Occurrences of this species is well documented within the Study Area. Most recently, arroyo toads were detected south of Rocky Point during focused surveys conducted in 2011. The Study Area is located within the known geographic distribution for this species (CDFG, 2008). Suitable habitat occurs in the southern extent of the Study Area within the confines of Littlerock Creek, areas of Littlerock Creek upstream of the Study Area, and within Santiago Creek. This species has the potential to move into the Reservoir area as the water level recedes. All areas of suitable habitat are considered potentially occupied however this species has not been detected below Rocky Point as of 2014.

Habitat and Habitat Associations: Arroyo toads have one of the most specialized breeding habitat requirements of any amphibian in California. Adults require overflow pools adjacent to the inflow channel of streams that are generally 3rd order or greater and generally free of predators. Normally, shallow pools with sandy or gravely bottoms surrounded by little woody vegetation are preferred. However, Aspen has observed this species breeding in flooded pools and along the margins of the reservoir above Rocky Point. Regular disturbance in the form of flooding is required to maintain areas of sparsely vegetated, sandy stream channels and terraces, which are used by adults and subadults for foraging and burrowing (USFWS, 2001). Outside the breeding season, arroyo toads use a wide range of habitats in both upland (to a distance of at least 3,740 feet from the upland-riparian ecotone) and riparian areas (Holland and Sisk, 2001). Upland habitats used by arroyo toads include coastal sage scrub, chaparral, oak woodland, grassland, riparian, and agricultural habitats (Griffin, 1999; USFWS, 2001).

Natural History: The arroyo toad is a medium-sized toad, and adults range from 2.2 to 2.6 inches in length (USFWS, 1999). Dorsal coloration ranges from cream to light gray to light greenish-gray. Formerly considered a subspecies of the southwestern toad (*B. microscaphus*), the arroyo toad was elevated to full species status by Gergus (1998). Arroyo toads typically begin migrating to breeding sites in February or March, and migrations continue through July (Holland and Goodman, 1998). Males produce a trilling call from suitable breeding sites along the stream to attract females. When a female approaches, the male clasps the female across the abdomen (amplexus). The female arroyo toad then deposits 2,000 to 10,000 eggs in two long strands that are fertilized externally by the amplectic male (Sweet 1991 in Jennings and Hayes, 1994). Larvae require 65 to 85 days to complete metamorphosis (Jennings and Hayes, 1994; Holland and Goodman, 1998), at which time they are approximately 0.5 to 0.9 inches in length (Holland and Goodman, 1998). Even newly metamorphic individuals are able to burrow into loose sand. Juveniles initially remain near the natal pool until reaching a length of about 1.2 inches, when they may begin dispersing into adjacent riparian vegetation and become nocturnal (Jennings and Hayes, 1994; Holland and Goodman, 1998). Sexual maturity is typically attained in 2 years, though males can reach maturity in one year under favorable environmental conditions (Jennings and Hayes, 1994).

Jennings and Hayes (1994) stated that the arroyo toad has been extirpated from 76 percent of its total historic range in the United States (which is limited to California). They cite loss of habitat to agriculture and urbanization, changes to the hydrological regime in streams and rivers within their historic range, and predation from introduced aquatic species as significant factors in the decline of the arroyo toad. Those and other factors, such as human use and disturbance in and near aquatic habitats (e.g., campgrounds, off-road vehicle use), placer mining, and cattle grazing are threats to remaining populations (Jennings and Hayes, 1994). Additionally, fire and drought have produced severe declines in populations that are already stressed (Jennings and Hayes, 1994).

Threats: Major threats to this species include the direct loss of aquatic, riparian, and upland habitat, alteration of natural flow regimes, water pollution, and the introduction of exotic predators. Invasion of exotic plant species can also degrade arroyo toad habitat by altering natural flow regimes (USACE and CDFG, 2010). In the project area threats include non-native fish and illegal OHV activity.

Mountain (foothill) yellow-legged frog (*Rana boylii*)

Status: Mountain yellow-legged frog is a CDFW Species of Special Concern. This species is not federally or State listed as threatened or endangered.

General Distribution: Range includes Pacific drainages from the upper reaches of the Willamette River system, Oregon (west of the Cascades crest), south to the upper San Gabriel River, Los Angeles County, California, including the Coast Ranges and Sierra Nevada foothills in the United States (Stebbins, 2003). The species occurred at least formerly in a disjunct location in northern Baja California. [Natureserve, 2012]

Distribution in the Study Area: Although suitable habitat occurs within portions of the Study Area, it is outside the known range of this subspecies.

Habitat and Habitat Associations: In the mountains of southern California, inhabits rocky streams in narrow canyons and in the chaparral belt from 984 ft. to over 12,000 ft. in elevation. [CaliforniaHerps, 2011]

Natural History: This small frog differs from the related red-legged frog in having yellow on its hind limbs and having no well-developed dorsolateral folds (Natureserve, 2012). Most often found in or close to water and preys on a variety of terrestrial and aquatic invertebrates with mating and egg laying activities taking place from March – May (CaliforniaHerps, 2011).

Threats: Primary threats to this species include predation by non-native amphibians and fish, cattle grazing, off highway vehicle use, excessive flooding and poor water quality.

Western spadefoot (*Spea hammondii*)

Status: The western spadefoot toad is a CDFW Species of Special Concern. This species is not federally or State listed as threatened or endangered.

General Distribution: The western spadefoot toad is endemic to California and northern Baja California. The species ranges from the north end of California's great Central Valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California (Jennings and Hayes, 1994; Stebbins, 2003; all as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area within a 15 mile radius. The Study Area is located just outside the known geographic distribution for this species. Pockets of suitable habitat occur within the Study Area.

Habitat and Habitat Associations: Although the species primarily occurs in lowlands, it also occupies foothill and mountain habitats. Within its range, the western spadefoot toad occurs from sea level to 1,219 meters (4,000 feet) AMSL, but mostly at elevations below 910 meters (3,000 feet) AMSL (Stebbins, 2003; as cited in USACE and CDFG, 2010). Holland and Goodman (1998) report that riparian habitats with suitable water resources may also be used. The species is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas (Holland and Goodman, 1998; as cited in USACE and CDFG, 2010).

Natural History: The western spadefoot toad is almost completely terrestrial, remaining underground eight to 10 months of the year and entering water only to breed (Jennings and Hayes, 1994; Holland and

Goodman, 1998; Storey *et al.*, 1999; all as cited in USACE and CDFG, 2010). The species aestivates in upland habitats near potential breeding sites in burrows approximately one meter in depth (Stebbins, 1972) and adults emerge from underground burrows during relatively warm rainfall events to breed. While adults typically emerge from burrows from January through March, they may also emerge in any month between October and April if rain thresholds are met (Stebbins, 1972; Morey and Guinn, 1992; Jennings and Hayes, 1994; Holland and Goodman, 1998; all as cited in USACE and CDFG, 2010).

Eggs are deposited in irregular small clusters attached to vegetation or debris (Storer, 1925; as cited in USACE and CDFG, 2010) in shallow temporary pools or sometimes ephemeral stream courses (Stebbins, 1985; Jennings and Hayes, 1994; all as cited in USACE and CDFG, 2010) and are usually hatched within six days. Complete metamorphosis can occur rapidly, within as little as three weeks (Holland and Goodman, 1998; as cited in USACE and CDFG, 2010), but may last up to 11 weeks (Burgess, 1950; Feaver, 1971; Jennings and Hayes, 1994; all as cited in USACE and CDFG, 2010).

Western spadefoot toads likely do not move far from their breeding pool during the year (Zeiner *et al.*, 1988; as cited in USACE and CDFG, 2010), and it is likely that their entire post-metamorphic home range is situated around a few pools. However, opportunistic field observations indicate that they readily move up to at least several hundred meters from breeding sites (NatureServe, 2012).

Threats: Loss of aquatic and adjacent upland habitats supporting the life cycle of the western spadefoot toad is a primary threat to this species, but other factors related to urban development probably are contributing to this species' decline.

Coast Range newt (*Taricha torosa torosa*)

Status: The Coast Range newt is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The Coast Range newt occurs along the coast ranges of California, from Mendocino County south to Los Angeles County and disjunctly south to the Cuyumaca Mountains in San Diego County (NatureServe, 2012). This subspecies has also been recorded along the southern Sierra Nevada from Tulare County to Kern County (Kuchta and Tan, 2006).

Distribution in the Study Area: Suitable habitat occurs onsite. Nearest recorded occurrence is approximately 14.5 miles southeast of the Study Area in the west fork of Bear Creek.

Habitat and Habitat Associations: This subspecies breeds in ponds, reservoirs, and streams. Terrestrial adults occupy various adjacent upland habitats, including grasslands, woodlands, and forests (NatureServe, 2012).

Natural History: The Coast Range newt belongs to the genus *Taricha*, whose members are readily distinguishable from all other western salamanders by a distinctive tooth pattern, lack of costal grooves, and rough skin (except in breeding males) (Stebbins, 2003). Migration towards suitable breeding grounds usually occurs at night following the first rains in the fall (CDFG, 2008). Upon arriving at breeding sites, adults become aquatic and may remain at these sites for several weeks. Breeding typically occurs between December and May with optimal peaks between February and April (NatureServe, 2012). Adults migrate back to subterranean refuges during the spring and remain at these aestivation sites through the summer. Larvae normally transform in the summer or fall, or when water dries up, of their first year (CDFG, 2008). Metamorphosed individuals feed on earthworms, snails, slugs, sow bugs, and various other invertebrates. Some adults, especially females may consume conspecific eggs. Larvae eat small aquatic organisms and decomposing organic material (Stebbins, 1951).

Threats: This subspecies has suffered marked population declines likely due to the introduction of exotic predators, including green sunfish (*Lepomis cyanellus*), mosquito fish, and crayfish (*Procambarus* sp.) (Stebbins, 2003).

San Gabriel Mountains slender salamander (*Batrachoseps gabrieli*)

Status: The San Gabriel Mountains slender salamander is a U.S. Forest Service Sensitive Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is known from select localities in the San Gabriel Mountains and the Mt. Baldy area of Los Angeles County and the western end of the San Bernardino Mountains in San Bernardino Co., with an elevation range of 1,200 -5,085 feet (Stebbins, 2003).

Distribution in the Study Area: The San Gabriel slender salamander is not known to occur in Study Area but could potentially utilize Littlerock Creek and adjacent riparian areas. The Study Area is outside of the known range of this species but it is known from the portions of the San Gabriel Mountains to the south of the Study Area.

*Habitat and Habitat Association*s: This species occurs on talus slopes surrounded by a variety of conifer and montane hardwood species, including bigcone spruce, pine, white fir, incense cedar, canyon live oak, black oak, and California laurel (Wake, 1996; Stebbins, 2003).

Natural History: Known to seek cover in cavities below talus rocks and under logs. Because of the need for moisture, near-surface activity is probably limited to a few winter and early spring months (Wake, 1996). Summer and fall drought probably cause individuals to retreat deep into the talus slope (Wake, 1996).

Threats: Habitat degradation is the main threat to this species.

Reptiles

Coastal western whiptail (*Aspidoscelis tigris stejnegeri*)

Regulatory Status: The coastal western whiptail is a CDFW Special Animal.

Range and Distribution: This subspecies is found in coastal southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges. Its range extends north into Ventura County and south to Baja California.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic distribution for this species (CDFG, 2008), and suitable habitat is present. This species was observed within a sandy drainage west of the Reservoir during surveys conducted in 2012.

Habitat Requirements and Natural History: The coastal western whiptail occurs in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, mixed conifer, juniper, chamise-redshank chaparral, mixed chaparral, desert scrub, desert wash, alkali scrub, and annual grasslands. This species is most commonly associated with areas of dense vegetation, but are also found around sandy areas along gravelly arroyos or washes (Stebbins, 2003).

The coastal western whiptail is a subspecies of the western whiptail (*A. tigris*). It is characterized by a jerking gait and nearly constant movement when active. The reproductive season generally occurs between May and August; however, this may vary depending on local conditions. Generally, a single clutch of eggs is laid each year (Pianka, 1970). Coastal western whiptails forage actively, hunting a wide variety of ground-dwelling invertebrates, including grasshoppers, ants, beetles, termites, and spiders (Stebbins, 2003). The diet may change seasonally to reflect prey abundance and availability (Vitt and Ohmart, 1977). This species is generally active in the morning, but may be active throughout the day under cloudy conditions (Vitt and Ohmart, 1977).

Threats: There are no identified threats to this species.

Silvery legless lizard (*Anniella pulchra*)

Regulatory Status: The silvery legless lizard is a CDFW Species of Special Concern and a Forest Service Sensitive Species.

Range and Distribution: The silvery legless lizard occurs from Contra Costa County, California, south through the Coast, Transverse, and Peninsular Ranges; through parts of the San Joaquin Valley; and, along the western edge of the southern Sierra Nevada and western edge of the Mojave Desert (Jennings and Hayes, 1994). Its reported elevation range extends from sea level to approximately 5,700 feet in the Sierra Nevada foothills, but most historic localities along the central and southern California coast are below 3,500 feet (Jennings and Hayes, 1994). This fossorial species is rarely seen and may be more abundant than it appears.

Potential for Occurrence within the Study Area: The Study Area is located within the known geographic range for this species (CDFG, 2008), and suitable habitat is present within limited portions of the Study Area. During surveys conducted in April 2012, one individual was observed, after a light rain, under a woodpile adjacent to the Reservoir.

Habitat Requirements and Natural History: The silvery legless lizard requires sandy or loose loamy soils under sparse vegetation for burrowing and is strongly associated with soils that contain high moisture content. It has been found in beach, chaparral, and pine-oak woodland habitat, and sycamore, cottonwood, or oak riparian habitat on stream terraces. It is most common in coastal dune, valley-foothill, chaparral, and coastal scrub habitats (Zeiner *et al.*, 1988).

The silvery legless lizard is a member of the family Anniellidae, commonly known as North American legless lizards. The silvery, gray, or beige dorsal side of this subspecies is separate from the yellow ventral side by a dark line (Stebbins, 2003). Little is known about specific habitat requirements for courtship and breeding (CDFG, 2008). Breeding occurs in early spring through July. The gestation period lasts for approximately four months (Jennings and Hayes, 1994). Live young are born in September, October, or occasionally as late as November, with litter size ranging from one to four, but two is most common (Stebbins, 1954). Soil moisture is essential for the subspecies; individuals will die if unable to reach a moist substrate (Stephenson and Calcarone, 1999). Silvery legless lizards have a relatively low thermal preference, allowing for active behavior on cool days, early morning, and even at night during warmer periods (Bury and Balgooyen, 1976). This subspecies typically forages at the base of shrubs or other vegetation either on the surface or just below the surface in leaf litter or sandy soils. The diet consists of insect larvae, small adult insects, and spiders (Stebbins, 1954).

Threats: The subspecies has been extirpated from approximately 20 percent of its known historical range (Lind, 1998a). Potential threats to local populations include wildfires that destroy desert shrub habitat.

Southwestern pond turtle (*Actinemys marmorata pallida*)

Status: The southwestern pond turtle is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This subspecies occurs from northwestern Baja California north through western California to the central region of the state, where it intergrades with the northwestern pond turtle (*C. m. marmorata*) (Seeliger, 1945; Bury, 1970).

Distribution in the Study Area: This species was observed within the Study Area (above and below the Reservoir) during surveys conducted in 2012. The Study Area is located within the known geographic distribution for this species.

Habitat and Habitat Associations: Southwestern pond turtles inhabit permanent or nearly permanent bodies of water in a wide variety of habitat types. Suitable basking sites, such as partially submerged logs, vegetation mats, or open mud banks are a required element for this subspecies.

Natural History: The southwestern pond turtle is a subspecies of western pond turtle (*C. marmorata*) which represent the only abundant native turtles in California. This species is thoroughly aquatic and is possesses a low carapace typically olive, brown, or blackish in color (Stebbins, 2003). The subspecies usually lays a clutch of 3 to 14 eggs between April and August as females may move overland up to over 300 feet to find suitable nesting sites. Nests have been observed in many soil types from sandy to very hard and soils must be at least four inches deep for nesting (CDFG, 2008). Most activity is diurnal, but some crepuscular and nocturnal behavior has been observed (CDFG, 2008). Southwestern pond turtles feed on aquatic plants, insects, worms, fish, amphibian eggs and larvae, crayfish, and carrion (Stebbins, 2003).

Threats: Western pond turtles are estimated to be in decline across 75-80 percent of their range (Stebbins, 2003). The primary reason for this decline has been attributed to loss of suitable habitat associated with urbanization, agricultural activities, and flood control and water diversion projects (Jennings *et al.*, 1992).

Coast (San Diego) horned lizard (*Phrynosoma coronatum* [*blainvillii* population])

Status: The coast (San Diego) horned lizard is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The coast (San Diego) horned lizard's historic range extended from the Transverse Ranges in Kern, Los Angeles, Santa Barbara, and Ventura Counties south through the Peninsular Ranges of southern California and into Baja California, Mexico as far south as San Vicente; however, the current range is much more fragmented (Jennings and Hayes, 1994).

Distribution in the Study Area: This species was documented within a sandy drainage, adjacent to the main access road through the Reservoir, during surveys conducted in 2012. The Study Area is located within the known geographic distribution for this species; suitable habitat occurs in portions of the Study Area.

Habitat and Habitat Associations: The coast (San Diego) horned lizard occurs in a wide variety of habitats throughout its range, though is found primarily in chaparral and mixed chaparral-coastal sage scrub, to stands of pure coastal sage scrub. It is also known to occur in riparian habitats, washes, and most desert habitats. They are occasionally locally abundant in conifer-hardwood and conifer forests.

This species is most common in open, sandy areas where abundant populations of native ant species (e.g., *Pogonomyrmex* and *Messer* spp.) are present.

Natural History: The coast (San Diego) horned lizard is a flat bodied lizard with a wide, oval-shaped body and scattered enlarged pointed scales on the upper body and tail. Coast (San Diego) horned lizards are oviparous and lay one clutch of 6-17 (average 11-12) eggs per year from May through early July (Jennings and Hayes, 1994). Incubation occurs for two months and hatchlings first appear in late July and early August. It is surface active primarily from April to July. This species spends a considerable amount of time basking, either with the body buried and head exposed, or with the entire body oriented to maximize exposure to the sun. Although little is known about longevity in the wild, adults are thought to live for at least eight years (Jennings and Hayes, 1994). They primarily eat native harvester ants (*Pogonmyrmex* spp.) and do not appear to eat invasive Argentine ants that have replaced native ants in much of central and southern California. This species is an opportunistic feeder, and while harvester ants can comprise upwards of 90% of their diet, they will feed on other insect species when those species are abundant (Jennings and Hayes, 1994). Defense tactics used by this species include remaining motionless to utilize its cryptic appearance, only running for the nearest cover when disturbed or touched. Captured lizards puff up with air to appear larger, and if roughly handled, will squirt blood from a sinus in each eyelid (Jennings and Hayes, 1994).

Threats: Though once common throughout much of coastal and cismontane southern California, coast (San Diego) horned lizards have disappeared from much of their former range. Their population decline is mainly attributed to habitat loss due to urbanization and agricultural conversion. The introduction of non-native Argentine ants (*Iridomyrmex humilis*), which are inedible to horned lizards and tend to displace native carpenter and harvester ants, is another factor in their decline.

Two-striped garter snake (*Thamnophis hammondii*)

Regulatory Status: The two-striped garter snake is a CDFW Species of Special Concern and Forest Service Sensitive Species.

Range and Distribution: This species occurs along a continuous range from northern Monterey County south through the South Coast and Peninsular Ranges to Baja California. Isolated populations also occur through southern Baja California, Catalina Island, and desert regions along the Mojave and Whitewater Rivers in San Bernardino and Riverside Counties, respectively (Jennings and Hayes, 1994). This species typically occurs at elevations ranging between sea level and approximately 8,000 feet (Jennings and Hayes, 1994).

Habitat Requirements and Natural History: This species is primarily associated with aquatic habitats that border riparian vegetation and provide nearby basking sites (Jennings and Hayes, 1994). These areas typically include perennial and intermittent streams and ponds in a variety of vegetation communities, including chaparral, oak woodland, and forest habitats (Jennings and Hayes, 1994). During the winter, two-striped garter snakes will seek refuge in upland areas, such as adjacent grassland and coastal sage scrub (Rossman et al., 1996).

After several taxonomic revisions, the two-striped garter snake has been recognized as a separate species where it had previously been considered a subspecies of the western aquatic garter snake (*T. couchii*) (Rossman and Stewart, 1987). This species is usually morphologically distinguished by the lack of a mid-dorsal stripe. The two-striped garter snake breeds from late March to early April and young are typically born between late July and August; however, young have been observed as late as November (Rossman et al., 1996; Jennings and Hayes, 1994). It hibernates during the winter months, but may be active above ground on warm winter days (Jennings and Hayes, 1994). The mainly aquatic diet of this species consists primarily of fish, fish eggs, and tadpoles and metamorphs of toads and frogs. It will also consume worms and newt larvae (Jennings and Hayes, 1994).

Threats: Lind (1998b) noted that quantity and quality of habitat for the two-striped garter snake is declining throughout much of its range. More than 40 percent of its historic range has been lost (Jennings and Hayes, 1994). Primary factors for the decline of this species in southern California include habitat conversion and degradation resulting from urbanization, construction of reservoirs, and cement-lining of stream channels.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic distribution for this species, and suitable habitat is present. Two-striped garter snake was documented within aquatic habitat upstream and downstream from the Reservoir during surveys conducted in 2012.

Coastal rosy boa (*Charina trivirgata roseofusca*)

Status: The rosy boa is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The rosy boa in California ranges from Los Angeles, eastern Kern, and southern Inyo counties, and south through San Bernardino, Riverside, Orange, and Diego counties (Spiteri, 1988; Stebbins, 2003; Zeiner *et al.,* 1988). The species occurs at elevations from sea level to 5,000 feet AMSL in the Peninsular and Transverse mountain ranges. Within its range in southern California, the rosy boa is absent only from the southeastern corner of California around the Salton Sea and the western and southern portions of Imperial County (Zeiner *et al.,* 1988).

Distribution in the Study Area: Suitable habitat is present within the Study Area outside the perimeter of the Reservoir. This species was reported approximately 6 miles west of the Study Area in June 2009 along a transmission line corridor.

Habitat and Habitat Associations: The rosy boa inhabits rocky shrubland and desert habitats and is attracted to oases and streams but does not require permanent water (Stebbins, 2003). In coastal areas, the rosy boa occurs in rocky chaparral-covered hillsides and canyons, while in the desert it occurs on scrub flats with good cover (Zeiner *et al.,* 1988).

Natural History: Rosy boas are primarily nocturnal but may be active at dusk and rarely in the daytime (Stebbins, 2003). Rosy boas are active between April and September (Holland and Goodman, 1998). The rosy boa may aestivate in the hottest months and hibernate in the coolest months of the year, remaining inactive in burrows or under surface debris (NatureServe, 2012). There is little information on the foraging habits or prey species for the rosy boa. Holland and Goodman (1998) and Stebbins (2003) indicate that this species preys upon small mammals (including pocket mice (*Chaetodipus* and *Perognathus* spp.) and young woodrats), reptiles, amphibians, and birds.

Threats: This species may be threatened with local extirpation in coastal regions of southern California resulting from development-related habitat fragmentation and isolation of populations. The species is noted to search black top roads for prey (Stebbins, 2003), making it vulnerable to road mortality. Other potential threats related to urban development include the use of rodenticides near open space, which could result in fewer mammal burrows that provide refugia and a reduced prey base, collecting of snakes (the rosy boa is popular in the pet trade (NatureServe, 2012)), and habitat degradation (*e.g*., trampling of vegetation and introduction of exotic species).

San Bernardino ringneck snake (*Diadophis punctatus modestus*)

Status: The San Bernardino ringneck snake is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The ringneck snake is widespread in California and is absent only from large portions of the Central Valley, high mountains, desert, and areas east of the Sierra–Cascade crest (Zeiner *et al.,* 1988). Currently there are six recognized subspecies in California occurring at elevations ranging from sea level to 2,150 meters (7,050 feet) AMSL (Zeiner *et al.,* 1988). The San Bernardino ringneck snake subspecies is found along the southern California coast from the Santa Barbara area south to northern San Diego County, and inland into the San Bernardino Mountains.

Distribution in the Study Area: Suitable habit occurs within the Study Area, and this species was detected during surveys.

Habitat and Habitat Associations: The ringneck snake is found in moist habitats, including woodlands, hardwood and conifer forest, grassland, sage scrub, chaparral, croplands/hedgerows, and gardens (NatureServe, 2012; Stebbins, 2003).

Natural History: A fair amount of information is available for the full species ringneck snake (*Diadophis punctatus*), while less information is available for the subspecies San Bernardino ringneck snake (*D. p. modestus*). Therefore, much of this discussion is based on the life history of the full species ringneck snake, with expected similarities occurring in behaviors and habitat associations with the San Bernardino ringneck snake subspecies.

During the day in the spring and summer, ringneck snakes are typically found under surface objects (Holland and Goodman, 1998; Zeiner *et al.,* 1988), with crepuscular (dawn and dusk) and some nocturnal activity observed during the summer (Holland and Goodman, 1998; Zeiner *et al.,* 1988). Ringneck snakes may aestivate during the heat of summer and are generally inactive and hibernate during the winter (NatureServe, 2012).

Threats: Habitat degradation is the main threat to San Bernardino ringneck snakes.

Desert Tortoise (*Gopherus agassizii*)

Status: The desert tortoise is a state and federally listed threatened species.

General Distribution: The Mojave desert tortoise occurs throughout most of the Mojave and Colorado Deserts in southern California, southern Nevada, and the southwestern tip of Utah from below sea-level to an elevation of 7,300ft (USFWS, 2011).

Distribution near Project site: While no nearby desert tortoise records were found during the literature review, tortoises may occur at low density in the desert habitats surrounding the City of Palmdale. This species is not expected to occur at the Reservoir or the 47th Street East sediment disposal site.

Habitat and Habitat Associations: Desert tortoise habitats include many landforms and vegetation types of the Mojave and Sonoran deserts, except the most precipitous slopes. Friable soils, such as sand and fine gravel, are important for burrow excavation and nesting, and the availability of suitable soils is a limiting factor to desert tortoise distribution.

Natural History: Desert tortoises spend much of their lives in burrows. Tortoises are long-lived and grow slowly. They require 13 to 20 years to reach sexual maturity. Their reproductive rates are low, though their reproductive lifespan is long. Mating may occur during spring and fall.

Identified Threats: Threats to the desert tortoise include degradation and loss of habitat (including through the spread of nonnative, invasive plants), disease, raven predation on juvenile tortoises, collection for the pet trade, and direct mortality and crushing of burrows by off-highway vehicles.

San Bernardino mountain kingsnake (*Lampropeltis zonata parvirubra*)

Status: The San Bernardino mountain kingsnake is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The San Bernardino mountain kingsnake is only known to occur within the San Bernardino Mountains and San Jacinto Mountains bioregions above 4,500 feet (Fisher and Case, 1997).

Distribution in the Study Area: While suitable habitat occurs within the Study Area it is outside of the known geographic distribution for this species.

Habitat and Habitat Associations: San Bernardino mountain kingsnakes are restricted to rock outcrops, talus, and steep shady canyons within coniferous and mixed coniferous, hardwood, or riparian woodlands and other edge habitats when associated with coniferous habitat.

Natural History: This species is normally diurnally and crepuscularly active from mid-March to mid-October at lower elevations with a reduced period at higher elevations (Newton and Smith 1975; Zeiner et al. 1988; Holland and Goodman, 1998). Their diet is known to include lizards, lizard eggs, smaller snakes, nestling birds and eggs, and small mammals.

Threats: Poaching is a major threat to this species. Firewood harvesting is another threat, as collection of fallen wood removes the ground debris that is a limiting habitat requirement for this species.

Birds

Swainson’s hawk (*Buteo swainsoni*)

Status: The Swainson’s hawk is state listed as threatened.

General Distribution: Swainson's hawk inhabits grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season, and winters in grassland and agricultural regions from Central Mexico to southern South America (Zeiner et al., 1990). The North American breeding range extends north from California to British Columbia east of the Sierra Nevada and Cascade Ranges, east to Saskatchewan, and south to northern Mexico. In California, the nesting range is primarily restricted to portions of the Sacramento and San Joaquin valleys, northeast California, and the Western Mojave, including the Antelope Valley (Bloom, 1980).

Distribution near the Project site: Swainson’s hawk was reported in the CNDDB 8 miles north of the Project site. This species is a known nester in the Antelope Valley.

Habitat and Habitat Associations: Swainson’s hawk breeds primarily in arid interior valleys and high desert with scattered large trees or riparian woodland corridors surrounded by open fields, desert scrub, or agricultural land. It prefers large, flat, open, undeveloped landscapes that include suitable grassland or agricultural foraging habitat and sparsely distributed trees for nesting. In some areas of the Antelope Valley, urban nest sites have been recorded.

Natural History: Nesting Swainson hawk pairs in California are highly traditional in their use of nesting territories and nesting trees. One to four eggs are usually laid in early to mid-April, and incubation continues for 34-35 days until mid-May when young begin to hatch. The brooding period typically continues through early to mid-July. Swainson's hawks feed primarily on small rodents and typically forage in large fields that support low vegetative cover (to provide access to the ground) and provide the highest densities of prey (Bechard et al., 1990). In agricultural regions, these habitats include fields of hay and grain crops; certain row crops, such as tomatoes and sugar beets; and lightly grazed pasturelands.

Identified Threats: Swainson hawk declines have been attributed to loss of suitable breeding habitat. These birds are also threatened by ingesting pesticide-covered insects.

Occurrence probability near the Project site: This species is known to nest in the Western Antelope Valley. In the region it nests in rural areas adjacent to crops and in Joshua tree woodland. This species has not been document to nest in dense urban areas. While the Project is located within the Swainson hawk's known range, no suitable breeding and limited foraging habitat is located at the 47th Street East sediment disposal site.

Cooper's hawk (*Accipiter cooperii*)

Regulatory Status: Cooper's hawk is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008.

Range and Distribution: Cooper's hawk is widespread, occurring throughout much of the United States, southern Canada, and northern Mexico.

Habitat Requirements and Natural History: Cooper's hawk breeds in small and large deciduous, conifer, and mixed woodlands. It also nests in pine plantations and suburban and urban environments (Curtis et al., 2006). In California, this species nests predominately in oaks and pines. It utilizes a variety of habitat types with vegetative cover and often hunts on the edges of wooded areas (Palmer, 1988).

One of three accipiter species in California, the Cooper's hawk is a medium-sized bird adapted to woodlands. This species shows a high degree of sexual dimorphism, with females generally up to one-third larger than males. Eastern and western individuals also differ in size. It generally starts breeding at two years of age and lays one clutch of 3 to 6 eggs from early April to late May (Rosenfield and Bielefeldt, 1993). This species feeds primarily on birds (70 to 80 percent of the diet) (Zeiner et al., 1990a).

Threats: Habitat destruction (including logging and development), pesticide contamination, and shooting have been identified as the primary threats to the Cooper's hawk. In California, breeding populations have increased and expanded into urban areas, and populations are considered stable (Shuford and Gardali, 2008).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for this species and suitable foraging and nesting habitat occurs within portions of the Study Area. A review of online eBird data reports observations of this species at the Reservoir.

Sharp-shinned hawk (*Accipiter striatus*)

Regulatory Status: The sharp-shinned hawk is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008.

Range and Distribution: This species breeds from central and western Alaska and the greater portion of Canada south to central and south-central California, central Arizona, New Mexico, Texas, northern parts of the Gulf states, and into Mexico (AOU, 1998). Wintering grounds extend from the southern portions of Canada south throughout the United States and Mexico into Central America. In

California, the sharp-shinned hawk breeds throughout the state, including the northern half of the state, and, to a lesser extent, the mountains of southern California (Small, 1994).

Habitat Requirements and Natural History: In California, this species typically nests in coniferous forests, often within riparian areas or on north-facing slopes (Stephenson and Calcarone, 1999). Where conifers are scarce, cottonwoods, poplars, and other tall riparian trees may be used for nest sites (Bent, 1937). Foraging habitat during the breeding season is essentially the same as that chosen for nesting. During the winter, however, males tend to hunt most frequently among hedgerows, field edges and other ecotonal habitats, while females typically hunt in extensive stands of forest or riparian areas (Meyer, 1987).

This species is a small hawk with a pronounced size difference among males and females. Although the sexes are alike in color and pattern, the male is often substantially smaller than the female. This size difference is more evident in this species than most other hawks. The sharp-shinned hawk, which is presumed to be serially monogamous, breeds from April through August with peak breeding activity occurring between late May and July. During this period, the male exhibits undulating courtship flights teamed with high bouts of soaring and calling. Once nesting begins, the male brings food to the female and nestlings until they fledge after roughly 60 days. Fledging is timed to coincide with fledging of prey birds, providing a food supply for young, inexperienced hunters (CDFG, 2008). Although small birds comprise the primary source of food, sharp-shinned hawks also take small mammals, reptiles, amphibians, and insects.

Threats: The primary threat to this species is the loss of suitable habitat as a result of large stand-replacing wildfires.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic year-round range for this species (CDFG, 2008). Suitable nesting habitat occurs within limited portions of the Study Area; suitable foraging habitat occurs throughout the Study Area. Sharp-shinned hawk was observed in the Study Area during surveys conducted in 2010.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

Regulatory Status: The southern California rufous-crowned sparrow is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008.

Range and Distribution: The rufous-crowned sparrow is a year-round resident throughout its range. Historically, four of the subspecies of rufous-crowned sparrow bred in coastal California from Mendocino County south through northwestern Baja California Norte (Thorngate and Parsons, 2005). Southern California rufous-crowned sparrow ranges from San Luis Obispo County south to San Diego County (Garrett and Dunn, 1981). This subspecies is increasingly restricted due to urbanization and agricultural development in Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties (Collins, 1999).

Habitat Requirements and Natural History: The southern California rufous-crowned sparrow typically breeds in sparsely vegetated scrubland on hillsides and canyons between 200 and 4.600 feet elevation. This subspecies is often found in coastal sage scrub dominated by California sagebrush, but will also utilize coastal bluff scrub, low-growing serpentine chaparral, and the edges of tall chaparral habitats (Thorngate and Parsons, 2005). It thrives in recently burned habitats, and can be found utilizing these open areas for years (Thorngate and Parsons, 2005).

Natural History: The southern California rufous-crowned sparrow is one of five subspecies of rufous-crowned sparrow that occur in the United States. Twelve additional subspecies occur in Mexico (Collins, 1999). This species nests on the ground and has a typical clutch size of three to four eggs (Thorngate and Parsons, 2005). Nests are well hidden at the base of bushes, grass tussocks, or overhanging rock concealed by vegetation or rock (Thorngate and Parsons, 2005). This species forages at or near the ground in areas of dense grass or herbaceous cover, and is rarely observed foraging in the open. It gleans insects from low shrubs, grasses, and herbaceous vegetation (Thorngate and Parsons, 2005).

Threats: This subspecies is extremely sensitive to edge effects and appears to avoid small fragments of habitat in favor of large tracts away from edges (Thorngate and Parsons, 2005). It is threatened by urbanization and agricultural conversion of habitat (Thorngate and Parsons, 2005).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic year-round range for southern California rufous-crowned sparrow. Suitable breeding and foraging habitat occurs throughout the Study Area. It was observed within the Study Area during surveys conducted in 2012 and was documented breeding within areas upstream and downstream from the Reservoir.

Great blue heron (*Ardea herodias*)

Regulatory Status: The great blue heron is a CDFW Special Animal.

Range and Distribution: This species is fairly common year-round throughout most of California. Few rookeries are found in southern California, but many are scattered throughout northern California. Knowledge of specific rookery locations is incomplete (Mallette, 1972; Belluomini, 1978; Garrett and Dunn, 1981).

Habitat Requirements and Natural History: The great blue heron is most commonly found in or near shallow estuaries and fresh or saline emergent wetlands. However, it can also occur along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills.

This species is the largest and most widespread heron in North America. It is a large, grayish bird with a long “S”-shaped neck, long legs, and a long, thick bill. It is typically distinguishable by a white crown stripe surrounded by a black plume, extending from behind the eye to the back of the neck. It usually arrives at breeding grounds in February and courtship and nest building begin shortly thereafter. Breeding territories are small, usually including only the nest site and immediately surrounding areas (Cottrille and Cottrille, 1958; Mock, 1976). Secluded groves of tall trees near shallow water are preferred for nesting sites. Feeding areas can occur as far as ten miles away and may be defended vigorously, especially during the non-breeding season (Palmer, 1962; Krebs, 1974; Kushlan, 1976). Although this species will occasionally eat small rodents, amphibians, reptiles, insects, and birds, 75 percent of its diet is fish (Cogswell, 1977). When hunting, the great blue heron stands motionless, or walks slowly, in shallow water, or less commonly, in open fields, and grasps prey with its bill, rarely impaling the intended target. This species typically roosts in secluded, tall trees.

Threats: This species is sensitive to human disturbance near nests, and probably to pesticides and herbicides in nesting and foraging areas (Jackman and Scott, 1975).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic year-round range for this great blue heron (CDFG, 2008). Suitable rookery habitat occurs within portions of the Study Area and suitable foraging habitat occurs throughout the Study Area. This species was documented within and downstream from the Reservoir during surveys conducted in 2012.

Costa's hummingbird (*Calypte costae*)

Regulatory Status: The Costa's hummingbird is a CDFW Special Animal. This taxon is not federally or state listed as threatened or endangered.

Range and Distribution: This species breeds in central California, southern Nevada, and southwestern Utah south to Santa Barbara Island, Baja California, and offshore islands, southern Arizona, west-central Mexico, and southwestern New Mexico. Wintering populations occur in southern California and southwestern Arizona south to Sinaloa, Mexico (Terres, 1980; AOU, 1998). Costa's hummingbird occurs as a permanent resident in Ventura County (CDFG, 2008).

Habitat Requirements and Natural History: Costa's hummingbird occurs in more arid habitats than other hummingbirds of California, including desert wash, desert riparian edges, coastal scrub, desert scrub, low-elevation chaparral, and palm oases. This species most commonly occurs along canyons and washes when nesting (NatureServe, 2011).

Costa's hummingbird is the second smallest bird in North America, displaying an iridescent violet crown and gorget down the side of the neck and greenish sides and flanks. This species breeds from March through May in the deserts, and from April through July along the coast (CDFG, 2008). As is usual in hummingbirds, all nesting activities are performed by the female. Nests are located in a wide variety of trees, cacti, shrubs, woody forbs, and sometimes vines, often in proximity to conspecific nests (Bent, 1940). Costa's hummingbird feeds on the flower nectar of various herbaceous and woody plants; however, small insects and spiders are also consumed. During the winter, non-native flowering shrubs may become an important food source (Garrett and Dunn, 1981).

Threats: No persistent threats have been identified for this species.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Costa's hummingbird and suitable breeding and foraging habitat occurs throughout the Study Area. This species was observed within the Study Area during surveys conducted in 2012 and breeding individuals were confirmed within areas downstream of the Reservoir. All areas of suitable habitat should be considered potentially occupied.

Lawrence's goldfinch (*Carduelis lawrencei*)

Regulatory Status: Lawrence's goldfinch is a CDFW Special Animal and a USFWS Bird of Conservation Concern. This taxon is not federally or state listed as threatened or endangered.

Range and Distribution: Lawrence's goldfinch breeds from the western foothills of the Sierra Nevada and the Coast Ranges in Shasta County south to northern Baja California. The wintering range for this species extends from the coastal slope of the Coast Ranges in southern California to northern Baja California, and from the Lower Colorado River Valley in Needles, California, and east to southern Texas, and south to Sonora, Mexico.

Habitat Requirements and Natural History: This species breeds in a variety of habitats throughout its range in southern California, including mixed conifer-oak forest, blue oak savannah, pinyon-juniper woodland, chaparral, riparian woodland, and desert oases (Garrett and Dunn, 1981; Lehman, 1994; Roberson and Tenney, 1993; Unitt, 1984). However, it prefers xeric open oak woodland bordering chaparral in the upper foothills. Arid, open woodlands with adjacent bushy areas, such as chaparral or tall weedy fields, characterize typical nesting habitat. This species is often found nesting in proximity to foraging habitat and open water (Davis, 1999).

This small, conspicuous songbird reaches a height of four to five inches and possesses distinctly bright yellow coloration on its breast and wing bars; however, females are much less distinct. The breeding season for this species begins as early as late May and can last into September, with peak activity occurring between late April and August. Nests are typically constructed on the outer branches of trees, particularly oaks (Grinnell and Miller, 1944). Both parents continue to provision the young for five to seven days after fledging, at which time the young join the parents on foraging bouts. Lawrence's goldfinch feeds primarily on seeds of native plant species, particularly fiddleneck (*Amsinckia* spp.) during the spring months, and chamise (*Adenostoma fasciculatum*), mistletoe (*Phoradendron* spp.), coffee berry (*Rhamnus californica*), and annual grasses during other seasons (Davis, 1999). Lawrence's goldfinch often forms large flocks, particularly in winter. However, both males and females of this species will rigorously defend territories from conspecific intruders during the breeding season.

Threats: Recent survey data (1980 to 2000) indicates that there has been a substantial, but not significant, decline in populations of this species across its range. Populations in Arizona and California have been reported as significantly declining (Sauer et al., 1996). However, this species seems to be well adapted to a wide range of woodland habitats and may even thrive, to some extent, from non-intensive human disturbance that increases annual plant populations.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Lawrence's goldfinch and suitable foraging habitat occurs throughout the Study Area. Suitable breeding habitat is present within portions of the Study Area. This species was observed at the Reservoir and within the southern extent of the Study Area in 2012. All areas of suitable habitat should be considered potentially occupied.

Vaux's swift (*Chaetura vauxi vauxi*)

Regulatory Status: Vaux's swift is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

Range and Distribution: This species breeds from southwestern Canada through the western United States to Mexico, Central America, and northern Venezuela. (Cornell, 2012)

Habitat Requirements and Natural History: Hollow trees are this species' favored nesting and roosting sites (Cornell, 2012). Vaux's swift is the smallest swift in North America. This species constructs a nest of woven twigs held together by its own saliva (Cornell, 2012). Like most swifts, this species is predominantly insectivorous and makes up to 50 trips a day for food when feeding young.

Threats: The primary threat to Vaux's swift is habitat loss.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Vaux's swift and suitable foraging habitat occurs throughout the Study Area. Suitable breeding habitat is also present within the Study Area. This species was observed within the Study area during surveys conducted in 2012. All areas of suitable habitat should be considered potentially occupied.

Yellow warbler (*Dendroica petechia brewsteri*)

Regulatory Status: The yellow warbler is a CDFW Species of Special Concern. This taxon is not federally or state listed as threatened or endangered.

Range and Distribution: The breeding range for the yellow warbler includes the Pacific coast from the northern limits of the boreal forests in Alaska and Canada south to the southern United States and northern Baja California. The winter range extends from the coasts of northern Mexico to northern South America (Lowther et al., 1999). Although this species is primarily a summer resident in southern California, some small winter populations remain in the lowlands (Garrett and Dunn, 1981).

Habitat Requirements and Natural History: In southern California, this species breeds in riparian woodlands situated within lowlands and canyons (Garrett and Dunn, 1981; Lehman, 1994; Roberson and Tenney, 1993; Unitt, 1984). Suitable habitat typically consists of riparian forests containing sycamores, cottonwoods, willows, and alders (Stephenson and Calcarone, 1999).

There is a considerable morphological variation within the *D. petechia* species. Of the three recognized groups of subspecies, only the “yellow” group breeds in North America. The “yellow” group is further divided into nine subspecies, which are distinguished by slight differences in plumage color and patterns of breast streaking in males (Lowther et al., 1999). The yellow warbler migrates annually between breeding grounds in North America and wintering grounds in the neotropics, and is highly territorial on both breeding and wintering grounds (Lowther et al., 1999). During migration, yellow warblers form flocks and will often join with flocks of other species, including warblers, vireos, and flycatchers. The primary diet of the yellow warbler consists of arthropods, such as bees, wasps, caterpillars, flies, beetles, and true bugs, which are usually gleaned from leaf surfaces. However, this subspecies will occasionally sally to capture prey in flight. Males typically forage higher in trees than females (Lowther et al., 1999).

Threats: Nest parasitism by brown-headed cowbird (*Malothrus ater*) has been implicated as a major cause in population declines of yellow warblers in southern California (Garrett and Dunn, 1981; Stephenson and Calcarone, 1999; Unitt, 1984).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for the yellow warbler and suitable breeding and foraging habitat occurs throughout the Study Area. This species was observed within the Study Area during surveys conducted in 2012 and breeding individuals were confirmed within areas upstream and downstream of the Reservoir. All areas of suitable habitat should be considered potentially occupied.

Bald Eagle (*Haliaeetus leucocephalus*)

Regulatory Status: The bald eagle is state listed as endangered and designated as a Forest Service Sensitive Species.

Range and Distribution: The bald eagle occurs throughout most of North America. Historically, it bred throughout the mountains of coastal California. Currently, breeding populations exist on the Los Padres and San Bernardino National Forests. This species has also been documented in Ventura County at Casitas Lake. The bald eagle has not nested within or adjacent to the Angeles National Forest in Los Angeles County for at least 30 years. However, a bald eagle was sighted in a riparian area on the Tejon Ranch on August 24, 1994 (Bautista and Brown, personal observation.). This species is occasionally seen on or near the Santa Clara/Mojave Rivers Ranger District during the winter, but apparently none are resident birds. The bald eagle is a fairly common winter migrant at a few inland waters in southern California (Zeiner et al., 1990a). The largest wintering population of bald eagles in southern California is at Big Bear Lake in the San Bernardino Mountains. The bald eagle has been successfully reintroduced as a breeding species on Santa Catalina Island after becoming extirpated from the Channel Islands in the 1950s.

Habitat Requirements and Natural History: This species requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches (Zeiner et al., 1990a). Perches must be high in large, stoutly limbed trees, on snags or broken-topped trees, or on rocks near water (Zeiner et al., 1990a). The bald eagle is primarily a fish eater; however, it will opportunistically utilize avian and mammalian prey and carrion if readily available, especially in the nonbreeding season (Evans, 1982; Zeiner et al., 1990a). It swoops from hunting perches, or soaring flight, to pluck fish from the water (Evans 1982; Zeiner et al., 1990a). This species roosts communally in winter in dense, sheltered, remote conifer stands (Zeiner et al., 1990a).

The bald eagle is monogamous and first breeds at four to five years of age (Zeiner et al., 1990a). Courtship flights consist of the pair soaring together for long periods at great heights, occasionally locking talons and somersaulting downward several hundred feet (Evans, 1982). Breeding season is February through July, but may start as early as November (Zeiner et al., 1990a). Nests are located 50 to 200 feet above ground, usually below tree crown (Zeiner et al., 1990a), and typically near a permanent water source (Zeiner et al., 1990a). Where suitable nest trees are scarce, nests are placed on ridges, cliffs, and on sea stacks (Evans, 1982). In southern California, nesting most often occurs in large trees near water, but occasionally nests are on cliffs or the ground. Eagle nests are characteristically large, ranging from a minimum of three feet in width and depth to 16 feet deep and 10 feet across; size and shape are determined partly by the supporting branches (Evans, 1982). Clutch size is one to three eggs and incubation usually lasts 34 to 36 days (Evans, 1982; Zeiner et al., 1990a). The semi-altricial young hatch asynchronously (Zeiner et al., 1990a). Fledging occurs at ten to 12 weeks (Evans, 1982).

Occasionally raccoons, bobcats, crows, and, sometimes gulls, prey on eggs and small young, forcing the adults away from the nest (Evans, 1982). Organochlorine (DDE) interferes with normal calcium metabolism, resulting in thin-shelled eggs, which cannot withstand normal incubation (Evans, 1982). Dieldrin, PCBs, and mercury have been linked to embryonic and early chick mortality (Evans, 1982). High concentrations of dieldrin and DDT are known to result in mortality of bald eagles (Evans, 1982).

Bald eagles are considered long-lived, with the oldest wild bird reported near Haines, Alaska at 28 years old (Schempf, 1997). In captivity, bald eagles may live 40 years or more (USFWS, 1999).

Threats: Illegal shooting remains the greatest single known cause of bald eagle mortality (Evans, 1982). Roughly half of all recorded bald eagle deaths are a direct result of shooting (Evans, 1982). Other causes of mortality include impact injuries (usually a result of collision with a power line or transmission tower), electrocution, trapping injuries (eagles caught in "sight bait" sets for fur bearers), automobile or train accidents, and poisoning from contaminated coyotes or other carcasses (Evans, 1982). Territories have been abandoned after disturbance from logging, recreational developments, and other human activities near nests (Zeiner et al., 1990a).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for bald eagle and suitable foraging habitat occurs throughout the Study Area. This species was observed at Littlerock Reservoir in 2007 (L. Welch, District Biologist, personal communication), and within the Reservoir and the southern extent of the Study Area during surveys conducted in 2012.

Summer Tanager (*Piranga rubra*)

Regulatory Status: Summer tanager is a CDFW Species of Special Concern.

Range and Distribution: The summer tanager is found in the eastern and southwestern United States, Central America, and South America, and regularly occurs north of Mexico. It primarily breeds in the eastern United States from New Jersey south to Florida, west to southern Illinois, and south to Texas. It also breeds in portions of New Mexico, Arizona, California, and Baja California. It winters in Central Mexico, south through Central America, and as far south as Bolivia and Brazil.

Habitat Requirements and Natural History: Western populations of summer tanagers occupy riparian woodlands dominated by willows (*Salix* spp.) and cottonwoods (*Populus* spp.) at lower elevations (Robinson, 1996; Rosenberg et al., 1982, 1991), and mesquite (*Prosopis* spp.) and tamarisk (*Tamarix* spp.) habitats at higher elevations (Robinson, 1996). During the winter, this species occurs in open and second-growth habitats within its range, typically below 3,900 feet elevation (Robinson, 1996).

*M*ales begin to arrive at the breeding grounds in April, slightly before the females. Nests are constructed on a large, horizontal limb of a tree, usually cottonwood or willow, within riparian vegetation approximately 10 to 20 feet above the ground (Zeiner et al., 1990a). The nest is constructed in an open-cup shape from dried herbaceous vegetation, and is usually placed among or under leaves (Robinson, 1996).

The summer tanager commonly feeds on bees and wasps, often foraging for larvae from hives and nests (Robinson, 1996). It also feeds on other insects, spiders, and small fruits and berries. It captures flying insects during short sallies from a perch and gleans insects and fruits from leaf and bark surfaces of trees and shrubs (Robinson, 1996).

Threats: There is little specific threat information for the summer tanager. Robinson (1996) describes habitat destruction as the largest effect of human activities on the summer tanager. In the southwest, particularly in southern California and the Colorado River valley, populations of summer tanagers have declined due the loss of riparian willow and cottonwood forest habitat. Nest parasitism by brown-headed cowbirds may also be a factor contributing to declining populations.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for summer tanager and suitable foraging habitat occurs throughout the Study Area. Suitable breeding habitat is also present within the Study Area. This species was observed downstream of the Reservoir during surveys conducted in 2012.

Least Bell's vireo (*Vireo bellii pusillus*)

Status: The least Bell's vireo was listed as federally endangered by the USFWS on May 2, 1986 (51 FR 16474-16482). Critical habitat was designated on February 2, 1994 (59 FR 4845-4867). This taxon is listed as State endangered and considered a USFWS Bird of Conservation Concern.

General Distribution: The least Bell's vireo was historically widespread in riparian woodlands of the Central Valley and low-elevation riverine valleys of California and northern Baja California. However, over 95 percent of historic riparian habitat has been lost throughout its former range, which may have accounted for 60 to 80 percent of the original population throughout the state of California (USFWS, 1986). The current breeding distribution for this subspecies in California is restricted to Kern, San Diego, San Bernardino, Riverside, Ventura, Los Angeles, Santa Barbara, and Imperial Counties.

Distribution in the Study Area: This species was observed within the Study Area during surveys conducted from 2010 – 2012 and breeding individuals were confirmed below the Reservoir. The Study Area is located within the known geographic range for this species and suitable breeding and foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: During the breeding season, least Bell's vireo is a low-elevation riparian obligate that inhabits dense, willow-dominated habitats with lush understory vegetation and in the immediate vicinity of water. Most areas that support viable populations are in early stages of succession where most woody vegetation is between five and ten years old (Franzeb, 1989; Gray and Greaves, 1984).

Natural History: The least Bell's vireo is one of four recognized subspecies of Bell's vireo (*V. bellii*) and is the western-most occurring subspecies, breeding entirely within California and northern Baja California. This subspecies is a small vireo with a short, straight bill and plumage varying from drab gray to green above and white to yellow below. The breeding season for least Bell's vireo begins with males arriving at breeding sites to establish territories, typically by late March. Females settle on male territories within two days of arriving to breeding sites and courtship begins immediately, lasting for 1-2 days before a nest site is selected and both birds construct the nest. Both sexes brood and feed the young. After the breeding season is complete, the least Bell's vireo leaves its breeding range to winter in Baja California. This subspecies typically forages in riparian habitat, feeding primarily on small insects and spiders (Chapin, 1925). Feeding will also occasionally occur in oak woodlands and adjacent chaparral habitats (Salata, 1983).

Threats: The primary threats that have been identified for this subspecies include the loss of lowland riparian habitat and nest parasitism by the brown-headed cowbird (USFWS, 1998). Surveys conducted in 2012 detected brown headed cowbirds at Littlerock creek.

Tricolored blackbird (*Agelaius tricolor*)

Status: The tricolored blackbird is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is primarily a permanent resident across its range in California and occurs throughout the Central Valley and in coastal districts from Sonoma County south to Baja California.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding and foraging habitat occurs, depending on water levels, within the upper extents of the Reservoir (changes year to year). Nearest recorded occurrence is approximately seven miles northwest of the Study Area in Lake Palmdale.

Habitat and Habitat Associations: The tricolored blackbird breeds near fresh water, preferably in emergent wetland with tall dense cattails (*Typha* spp.) or tules, but also in thickets of willows, blackberry, wild rose, and tall herbs (CDFG, 2008). This species forages primarily in grassland and cropland habitats.

Natural History: The tricolored blackbird is distinguishable from similar species by dark red shoulder patches with broad white tips bordering the distal side. This highly gregarious species is highly colonial and nesting areas must be large enough to support a minimum colony of roughly fifty pairs (Grinnell and Miller, 1944). Tricolored blackbirds are polygynous and during the breeding season, which typically occurs from mid-April into late July, each male may claim several mates nesting in his small territory. Foraging generally occurs in the vicinity of colony sites; however, some breeding individuals have been documented leaving nest sites as far as four miles to feed (Orians, 1961).

Threats: Some of the threats that have been identified for this species include loss of habitat due to draining of freshwater marshes and cowbird parasitism.

Bell's sage sparrow (*Amphispiza belli bellie*)

Status: Bell's sage sparrow is a CDFW Watch List species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: Five subspecies of sage sparrow are recognized, two of which are migratory (County of Riverside, 2008). The subspecies Bell's sage sparrow (formerly known as Bell's sparrow), *A. b. belli*, occurs as a non-migratory resident on the western slope of the central Sierra Nevada Range and in the coastal ranges of California southward from Marin County and Trinity County, extending into north-central Baja California (County of Riverside, 2008).

Distribution in the Study Area: There are no known records for this species in the Study Area; suitable habitat is present within the Study Area outside of the Reservoir footprint. Nearest recorded occurrence, from 2005, is approximately 13 miles northwest of the Study Area.

Habitat and Habitat Associations: Bell's sage sparrow is uncommon to fairly common in dry chaparral and coastal sage scrub along the coastal lowlands, inland valleys, and lower foothills of the mountains within its range. The Bell's sage sparrow often occupies chamise chaparral in the northern part of its range (Gaines, 1988; Unitt, 1984) and in coastal San Diego County (Bolger *et al.,* 1997). At higher elevations in southern California, Bell's sage sparrow often occurs in big sagebrush (County of Riverside, 2008).

Natural History: Sage sparrows primarily forage on the ground, usually near or under the edges of shrubs (Zeiner *et al.,* 1990a; County of Riverside, 2008). During the breeding season, the species consumes adult and larval insects, spiders, seeds, small fruits, and succulent vegetation (County of Riverside, 2008). Bell's sage sparrow usually nests in sagebrush or chaparral, and may have two broods per nesting season (Ehrlich *et al.,* 1988). In Riverside County, nests of Bell's sage sparrow have been found in brittlebush, black sage, California buckwheat, California sagebrush, and bush mallow. In other locations, chamise, white sage, cholla, ceanothus, and willows have been used by the species (County of Riverside, 2008). Sage sparrows also nest occasionally in bunchgrass or on the ground under shrubs (County of Riverside, 2008).

Threats: The largest threat to the sage sparrow is the loss and fragmentation of appropriate shrub habitat. Like other species, it has lost suitable habitat to urbanization and agricultural conversion, especially in southern California (County of Riverside, 2008). This species is also vulnerable to brown-headed cowbird nest parasitism (County of Riverside, 2008), which is increased near habitat edges. Grazing may result in habitat degradation and reduction of populations, such as on San Clemente Island where removal of grazing animals resulted in the recovery of native vegetation and sage sparrow populations (County of Riverside, 2008). Proximity to humans also increases the possibility of predation by domestic cats.

Golden eagle (*Aquila chrysaetos*)

Status: The golden eagle is on CDFW Watch List and a California Fully Protected species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: In North America, this species breeds locally from northern Alaska eastward to Labrador and southward to northern Baja California and northern Mexico. The species winters from southern Alaska and southern Canada southward through the breeding range. The golden eagle ranges from sea level up to 11,500 feet AMSL (Grinnell and Miller, 1944).

Distribution in the Study Area: There are no known records for this species within the Study Area; limited suitable nesting habitat for this species occurs within the Study Area but does occur on portions of the ANF. Suitable foraging habitat is present within Study Area.

Habitat and Habitat Associations: The golden eagle requires rolling foothills, mountain terrain, and wide arid plateaus deeply cut by streams and canyons, open mountain slopes and cliffs, and rock outcrops (Zeiner *et al.,* 1990a).

Natural History: The golden eagle requires rolling foothills, mountain terrain, and wide arid plateaus deeply cut by streams and canyons, open mountain slopes and cliffs, and rock outcrops (Zeiner *et al.,* 1990a). Nest construction in southern California occurs in fall and continues through winter (Dixon, 1937). This species nests on cliffs with canyons and escarpments and in large trees (generally occurring in open habitats) and is primarily restricted to rugged, mountainous country (Garrett and Dunn, 1981; Johnsgard, 1990). It is common for the golden eagle to use alternate nest sites, and old nests are reused. The nests are large platforms composed of sticks, twigs, and greenery that are often three meters (10 feet) across and one meter (three feet) high (Zeiner *et al.,* 1990a).

Threats: A major threat to this species is human disturbance in the form of habitat loss as well as human development and activity adjacent to golden eagle habitat. Accidental deaths attributed to increased development include collisions with vehicles, power lines, and other structures; electrocution; hunting; and poisoning (Franson *et al.,* 1995). Golden eagles avoid developed areas; the golden eagle population in California has undergone a decline within the past century due to a decrease in open habitats (Grinnell and Miller, 1944). If nests are disturbed by humans, abandonment of these nests in early incubation will typically occur (Thelander, 1974); thereby threatening the species' reproductive success.

Short-eared owl (*Asio flammeus*)

Status: The short-eared owl is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is a widespread winter migrant in California, primarily occurring in the Central Valley, the western Sierra Nevada foothills, and along the coastline. Short-eared owls very irregularly breed along the southern California coast (Garrett and Dunn, 1981).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; suitable habitat is not present within the Study Area. Limited suitable habitat may be present along the proposed haul routes.

Habitat and Habitat Associations: The short-eared owl is usually found in open areas with few trees, including annual grasslands, prairies, dunes, meadows, agricultural fields, and emergent wetlands. Tall grasses, brush, ditches, and wetlands are used for resting and roosting cover (Grinnell and Miller, 1944).

Natural History: This species is a big-headed, short-necked owl with tawny to buff-brown plumage and whitish belly. Short-eared owls typically breed from early March through July (Bent, 1938; as cited in USACE and CDFG, 2010). Courtship activities consist of aerial displays and hooting (Pitelka *et al.*, 1955; as cited in USACE and CDFG, 2010). Clutches usually consist of 5-7 eggs, however, may be higher during periods of high prey abundance. Females incubate the eggs and care for the semialtrical young while males bring food to females at the nest. This species is primarily a crepuscular hunter and the great majority of their diet consists of small mammals (Holt and Leasure, 1993; Clark, 1975).

Threats: Numbers of this species have declined over much of its range due to the destruction and fragmentation of grassland habitats, grazing, and increased levels of predation (Remsen, 1978; Holt and Leasure, 1993).

Long-eared owl (*Asio otus*)

Status: The long-eared owl has been designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The long-eared owl (*Asio otus*) occurs in North America, Europe, Asia, and northern Africa between elevations from near sea level to over 2,000 meters (6,560 feet) AMSL (Zeiner *et al.,* 1990a). In North America, this species breeds from British Columbia east across Canada and the United States and south to southern California, southern Arizona, and northern Mexico. It also winters in most of its breeding range, except in the northernmost areas. The long-eared owl's wintering range extends from southern Canada and northern New England to the Gulf states and to the Jalisco, Michoacan, Guerrero, and Oaxaca states in Mexico (Marks *et al.,* 1994).

Distribution in the Study Area: Suitable habit occurs within the Study Area; however, there are no known reports of this species within or adjacent to the Study Area. This species is known to occur on portions of the ANF to the southwest of the Study Area

Habitat and Habitat Associations: The long-eared owl primarily uses riparian habitat for roosting and nesting, but can also use live oak thickets and other dense stands of trees (Zeiner *et al.,* 1990a). It appears to be more associated with forest edge habitat than with open habitat or forest habitat (Holt, 1997). The long-eared owl usually does not hunt in the woodlands where it nests, but in open space areas such as fields, rangelands, and clearings. At higher elevations, the species is found in conifer stands that are usually adjacent to more open grasslands and shrublands (Marks *et al.,* 1994). In California, long-eared owls also nest in dense or brushy vegetation amid open habitat (Bloom, 1994). Long-eared owls have also been known to nest in caves, cracks in rock canyons, and in artificial wicker basket nests (Marks *et al.* 1994; Garner and Milne, 1997).

Natural History: The long-eared owl eats mostly voles and other rodents, though it also occasionally eats birds and other vertebrates (Armstrong, 1958). It typically begins hunting before sunset, especially during the nesting season and while feeding its young (Bayldon, 1978). The long-eared owl uses abandoned crow, magpie, hawk, heron, and squirrel nests in a variety of trees with dense canopy (Call, 1978; Marks, 1986). The nest is usually three to 15 meters (9.8 to 49.2 feet) above the ground; rarely is the nest on the ground or in a tree cavity (Karalus and Eckert, 1974). Breeding season extends from early March to late July (Call, 1978).

Threats: Resident populations of the long-eared owl in California have been declining since the 1940s, especially in southern California (Grinnell and Miller 1944; Remsen 1978; Bloom, 1994). Habitat destruction, including grasslands used for foraging, fragmentation of riparian nesting habitat and live oak groves, and proximity to urban development are cited as major factors in the decline of populations in California (Marks *et al.* 1994; Bloom 1994; Remsen, 1978). Nesting long-eared owls appear to be particularly sensitive to human activity. Human disturbance usually flushes females from active nests, and while females usually return within 10 minutes of the disturbance, eggs and hatchlings are vulnerable to predation while the nest is exposed (Marks, 1986). Other urban-related factors that could affect long-eared owls are nighttime lighting, which may disrupt activity patterns and expose nests to nocturnal predators; use of pesticides, which may cause secondary poisoning and reduction or loss of prey; and predation and harassment by pet, stray, and feral cats and dogs.

Burrowing owl (*Athene cunicularia*)

Status: The burrowing owl is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The burrowing owl breeds from southern interior British Columbia, southern Alberta, southern Saskatchewan, and southern Manitoba, south through eastern Washington, central Oregon, and California to Baja California, east to western Minnesota, northwestern Iowa, eastern Nebraska, central Kansas, Oklahoma, eastern Texas, and Louisiana, the southern portion of Florida, and south to central Mexico. The species is also locally distributed throughout suitable habitat in Central and South America to Tierra del Fuego, and in Cuba, Hispaniola, the northern Lesser Antilles, Bahama Islands, and in the Pacific Ocean off the west coast of Mexico (County of Riverside, 2008; as cited in USACE and CDFG, 2010). The western subspecies, western burrowing owl, occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama (County of Riverside, 2008; as cited in USACE and CDFG, 2010). The winter range of the western burrowing owl is much the same as the breeding range, except that most individuals apparently vacate the northern areas of the Great Plains and the Great Basin (County of Riverside, 2008; as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area; nearest CNDDB record for this species occurs approximately 10 miles to the northwest. While suitable habitat for this species does not occur within the Study Area it does occur along portions of the proposed haul routes and at the sediment disposal site.

Habitat and Habitat Associations: In California, western burrowing owls are yearlong residents of flat, open, dry grassland and desert habitats at lower elevations (Bates, 2006; as cited in USACE and CDFG, 2010). They typically inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation and also may occur in areas that include trees and shrubs if the cover is less than 30% (Bates, 2006; as cited in USACE and CDFG, 2010); however, they prefer treeless grasslands. Although western burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been observed in fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside, 2008; as cited in USACE and CDFG, 2010). The availability of numerous small mammal burrows, such as those of California ground squirrel (*Spermophilus beecheyi*), is a major factor in determining whether an area with apparently suitable habitat supports western burrowing owls (Coulombe, 1971; as cited in USACE and CDFG, 2010).

Natural History: The majority of western burrowing owls that breed in Canada and the northern United States are believed to migrate south during September and October and north during March and April, and into the first week of May. These individuals winter within the breeding habitat of more southern-located populations. Thus, winter observations may include both the migrant individuals as well as the resident population (County of Riverside, 2008; as cited in USACE and CDFG, 2010). Western burrowing owls occurring in Florida are predominantly non-migratory, as are populations in southern California (Thomsen, 1971; as cited in USACE and CDFG, 2010). Western burrowing owls in northern California are believed to migrate (Coulombe, 1971; as cited in USACE and CDFG, 2010). In many parts of the United States, the western burrowing owl's breeding range has been reduced and it has been extirpated from certain areas, including western Minnesota, eastern North Dakota, Nebraska, and Oklahoma (Bates 2006; as cited in USACE and CDFG, 2010).

Western burrowing owls are opportunistic feeders, primarily feeding on arthropods, small mammals, and birds, and often need short grass, mowed pastures, or overgrazed pastures for foraging (County of

Riverside, 2008; as cited in USACE and CDFG, 2010). Western burrowing owls are primarily crepuscular in their foraging habits but hunting has been observed throughout the day (Thomsen 1971; Marti 1974; all as cited in USACE and CDFG, 2010). Insects are often taken during daylight, whereas small mammals are taken more often after dark (County of Riverside, 2008; as cited in USACE and CDFG, 2010).

Threats: Factors related to declines in western burrowing owl populations include the loss of natural habitat due to urban development and agriculture; other habitat destruction; predators, including domestic dogs; collisions with vehicles; and pesticides/poisoning of ground squirrels (Grinnell and Miller 1944; Zarn 1974; Remsen 1978; as cited in USACE and CDFG, 2010). A ranking of the most important threats to the species included loss of habitat, reduced burrow availability due to rodent control, and pesticides (James and Espie 1997; as cited in USACE and CDFG, 2010).

Ferruginous hawk (*Buteo regalis*)

Status: The California horned lark is designated a CDFW Watch List species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The ferruginous hawk (*Buteo regalis*) occurs throughout western North America from southernmost Canada between the Great Plains and Rocky Mountains, south to northern Arizona and New Mexico. This species breeds from southeast Alberta and extreme southwest Manitoba south to the northwest corner of Texas, west to the Great Basin, Columbia River Basin regions of eastern Oregon and southeast Washington. It was more recently discovered breeding in California (Small, 1994). The ferruginous hawk most commonly winters from southern California, Colorado, Arizona, and New Mexico to northern Texas. Northern populations are completely migratory, while birds from southern breeding locations appear to migrate short distances or to be sedentary (Bechard and Schmutz, 1995). The ferruginous hawk is an uncommon winter resident and migrant at lower elevations and open grasslands in the Modoc Plateau, Central Valley, and Coast Ranges of California (Polite and Pratt, 1999).

Distribution in the Study Area: There are no known records for this species in the Study Area; nearest CNDDB record for this species occurs approximately 10 miles to the northwest. This species is a known winter resident in the Antelope Valley. Limited foraging habitat is present within the Study Area.

Habitat and Habitat Associations: The ferruginous hawk forages in open grasslands, agriculture (primarily grazing lands), sagebrush flats, desert scrub, and fringes of pinyon–juniper habitats (Polite and Pratt, 1999). Birds seem to show a strong preference for elevated nest sites (boulders, creek banks, knolls, low cliffs, buttes, trees, large shrubs, utility structures, and haystacks), but will nest on nearly level ground when elevated sites are absent and when located far from human activities (Bechard and Schmutz, 1995). Their winter range consists of open terrain from grassland to desert.

Natural History: Nest-building generally occurs in March in southern to mid-latitudes and birds occur on breeding areas from late February through early October (NatureServe, 2012). In California, it has been reported that this species prefers native grassland and shrubland habitats over cropland, and areas with no perches for their nest sites (Janes, 1985). Clutch size for this species is usually two to four with an incubation period of about 32 to 33 days. Young fledge in 35 to 50 days (Natureserve, 2012).

Threats: The major threat to this species is the loss of breeding and wintering habitat. Local declines of ferruginous hawk have been noted (*e.g.*, Woffinden and Murphy, 1989); but a widespread decline was not evident as of the early 1990s (57 FR 37507–37513; Olendorff, 1993). Olendorff (1993) attributed population declines to the effects of cultivation, grazing, poisoning, and controlling small mammals, mining, and fire in nesting habitats, with cultivation being the most serious source of impact. Impacts from collisions with stationary or moving structures or objects, pesticides and other contaminants, and shooting and trapping are not considered significant for this species.

Northern harrier (*Circus cyaneus*)

Status: The northern harrier is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The northern harrier is found throughout the northern hemisphere. In North America, this species breeds from Alaska and the southern Canadian provinces south to Baja California, New Mexico, Texas, Kansas, and North Carolina (Limas, 2001).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding and foraging habitat occurs within the Study Area.

Habitat and Habitat Associations: Northern harriers use a wide variety of open habitats in California, including deserts, coastal sand dunes, pasturelands, croplands, dry plains, grasslands, estuaries, flood plains, and marshes (MacWhirter and Bildstein, 1996; as cited in USACE and CDFG, 2010). The species can also forage over coastal sage scrub or other open scrub communities.

Natural History: The northern harrier's owl-like facial disk and white rump patch, which is prominent in flight, distinguish this species from all other North American falconiformes (Alsop III, 2001). Many California populations, including those in Ventura County, are residents, and many migrating harriers winter in California (CPIF, 2000). The breeding season for this species typically occurs between mid-March to early April. During this period, males, and occasionally females, exhibit uniquely characteristic courtship flights consisting of a series of nose dives (Bent, 1937). The northern harrier is predominately monogamous, but polygyny occurs when prey abundance is high. Nests are built on the ground. Clutch size averages five, and incubation lasts 30-32 days with nestlings fledging at 30-35 days. Hatching occurs from April through June (CPIF, 2000). This bird relies on hearing as well as sight while hunting and primarily feeds on small mammals, but will also take reptiles, amphibians, birds, and invertebrates.

Threats: The primary threat to northern harriers is habitat loss through development and agricultural conversion (CPIF, 2000).

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Status: The western yellow-billed cuckoo is state listed as endangered and is listed as a federal candidate for listing.

General Distribution: The yellow-billed cuckoo occurs as a breeding bird in temperate North America, south to Mexico, and the Greater Antilles. It possibly breeds in Central America and northwestern South America, although its breeding range may be confused by reports of non-breeding adult vagrants outside of known breeding areas during the breeding season. The northern limit of its distribution extends west from southern Maine through southern New Hampshire, Vermont, northern and central New York, extreme southwestern Quebec, southern Ontario, the Upper Peninsula of Michigan, northern Minnesota, and possibly into southeastern North Dakota and northeastern and western South Dakota (Hughes 1999; as cited in USACE and CDFG, 2010). Its breeding range extends southward along the Atlantic Coast to southern Florida, and west to the extreme eastern portion of Wyoming, the eastern plains of Colorado, and throughout Texas (Hughes 1999; as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area; there are no CNDDB records for this species within a 15 mile radius of the Study Area; the Study Area is located within the known geographic distribution for this species; extremely limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: Breeding habitat for the western yellow-billed cuckoo primarily consists of large blocks of riparian habitat, particularly cottonwood–willow riparian woodlands (66 FR 38611–38626; as cited in USACE and CDFG, 2010). Laymon and Halterman (1989; as cited in USACE and CDFG, 2010) proposed that the suitable habitat for the western yellow-billed cuckoo for California be defined as habitat classified as willow–cottonwood with a patch size greater than 80 hectares (198 acres) and width greater than 600 meters (1,270 feet). It prefers dense riparian thickets with dense low-level foliage near slow-moving water sources.

Natural History: The western yellow-billed cuckoo's range is considered to be where it formerly bred from southwestern British Columbia, western Washington, northern Utah, central Colorado, and western Texas south and west to southern Baja California, Sinaloa, and Chihuahua in Mexico (Hughes, 1999; as cited in USACE and CDFG, 2010). In California, the western yellow-billed cuckoo's breeding distribution is now thought to be restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado river valleys (Laymon and Halterman, 1987; as cited in USACE and CDFG, 2010). Nests are constructed in willows on horizontal branches in trees, shrubs, and vines, but cottonwoods (Populus spp.) are used extensively for foraging and humid lowland forests are used during migration (Hughes, 1999; as cited in USACE and CDFG, 2010).

The western yellow-billed cuckoo is a long-distance migrant, though details of its migration patterns are not well known (Hughes, 1999; as cited in USACE and CDFG, 2010). It is a relatively late spring migrant, arriving on the breeding grounds starting mid- to late May (Franzreb and Laymon, 1993; as cited in USACE and CDFG, 2010). The migratory route of western yellow-billed cuckoos is not well known because few specimens collected on wintering grounds have been ascribed to the western or eastern subspecies. The western yellow-billed cuckoo likely moves down the Pacific Slope of Mexico and Central America to northwestern South America (Hughes, 1999; as cited in USACE and CDFG, 2010).

Yellow-billed cuckoos generally forage for caterpillars and other large insects by gleaning (Hughes 1999; as cited in USACE and CDFG, 2010). They occasionally prey on small lizards, frogs, eggs, and young birds as well (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010). Foraging occurs extensively in cottonwood riparian habitat (Hughes, 1999).

Threats: The western yellow-billed cuckoo is sensitive to habitat fragmentation and degradation of riparian woodlands due to agricultural and residential development (Hughes, 1999; as cited in USACE and CDFG, 2010), and major declines among western populations reflect local extinctions and low colonization rates (Laymon and Halterman, 1989; as cited in USACE and CDFG, 2010).

White-tailed kite (*Elanus leucurus*)

Status: The white-tailed kite is a CDFW Fully Protected Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The white-tailed kite is a permanent resident in California, southern Texas, Washington, Oregon, and Florida. It also occurs as a resident from Mexico into parts of South America (Dunk, 1995). In California, this species inhabits coastal and valley lowlands and is typically found in agricultural areas. It has increased population numbers and range in recent decades (Zeiner *et al.*, 1990a).

Distribution in the Project Areas: There are no known records for this species in the Study Area or surrounding areas. The Study Area is located within the known geographic distribution for this species; limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: The white-tailed kite inhabits savanna, open woodlands, marshes, desert grasslands, partially cleared lands, and cultivated fields (Dunk, 1995). This species roosts in trees with dense canopies as well as saltgrass and Bermuda grass (Zeiner *et al.*, 1990a).

Natural History: The white-tailed kite is a medium-sized, long-winged raptor with red eyes. This monogamous species breeds from February to October, with peak activity occurring between May and August. Incubation is solely performed by the female; however, during incubation and the nestling period, the male feeds the female and provides her with food to feed the young (CDFG, 2008). The white-tailed kite is the only North American kite that hovers while hunting, usually less than thirty meters above the ground before descending vertically upon prey (Alsop III, 2001; Zeiner *et al.*, 1990a). This species primarily feeds on voles and other small mammals but will also take birds, insects, reptiles, and amphibians. Although white-tailed kites are non-migratory, individuals may become nomadic in response to prey availability (Zeiner *et al.*, 1990a).

Threats: While the white-tailed kite is reported to have increased in numbers and range over the past several decades, it is still vulnerable to habitat loss due to development.

Willow flycatcher (*Empidonax traillii*), including Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Status: The willow flycatcher is state-listed endangered at the species level, and the southwestern willow flycatcher subspecies is federally and state listed as endangered.

General Distribution: The southwestern willow flycatcher has a known United States breeding range in six states: Arizona, New Mexico, California, southwestern Colorado, extreme southern portions of Nevada and Utah, and, possibly, western Texas. In California, its breeding range extends from the Mexican border north and inland to the City of Independence in the Owens Valley east of the Sierra Nevada, to the South Fork Kern River in the San Joaquin Valley and coastally to the Santa Ynez River in Santa Barbara County (Craig and Williams 1998; as cited in USACE and CDFG, 2010). The southwestern willow flycatcher was formerly a common summer resident throughout California, but has been extirpated from most of its historic breeding range in California.

Distribution in the Study Area: Five willow flycatchers of unknown subspecies were identified below the Littlerock Dam and in Littlerock Creek during Project surveys in May 2012. No breeding activity was documented, and the individuals were determined to be migrants. The Study Area is located within the known geographic distribution for the southwestern willow flycatcher but is well south of the breeding range for other willow flycatcher subspecies. Suitable breeding habitat for southwestern willow flycatcher is not present within the Study Area as this species prefers riparian areas of greater density than are present. Suitable foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: The southwestern willow flycatcher is a riparian-obligate species restricted to complex streamside vegetation. Four general habitat types are used by the southwestern willow flycatcher at its breeding sites: monotypic high-elevation willow; exotic monotypes (e.g., dense stands of tamarisk (Tamarix spp.) or Russian olive (Elaeagnus angustifolius)), especially in the desert southwest; native broadleaf-dominated riparian forest; and mixed native/exotic forests (Sogge *et al.*, 1997; as cited in USACE and CDFG, 2010). Of these, native broadleaf-dominated and mixed native/exotic are the primary habitats used by southwestern willow flycatcher in California. The native broadleaf-dominated habitat is composed of a single species, such as Goodding's or other willow (Salix spp.) species,, or a mixture of broadleaf trees and shrubs, including cottonwood (Populus spp.), willow, box elder (Acer negundo), ash (Fraxinus spp.), and alder (Alnus spp.). Stands are usually three to 15 meters (10 to 50 feet) in height and are characterized by trees of different size classes, yielding multiple layers of canopy (Sogge *et al.*, 1997; as cited in USACE and CDFG, 2010).

Natural History: Willow flycatchers are late spring migrants and have a breeding season of three months or less (Sedgwick 2000; as cited in USACE and CDFG, 2010). The earliest spring arrival of the willow flycatcher in southern California is typically between late April and early May. When a willow flycatcher is observed in southern California after about June 22, or if nesting activity is observed, it can be concluded that the individual is E. t. extimus (southwestern willow flycatcher). By this date, most migrant willow flycatchers have passed through southern California; however, migrant willow flycatchers may again be observed—virtually always away from the coast—in late July as they pass through the region heading south to their wintering area (Sogge *et al.* 1997; as cited in USACE and CDFG, 2010).

Breeding territory sizes of the southwestern willow flycatcher vary greatly in relation to population density, habitat quality, and nesting stage (USFWS 2002c; as cited in USACE and CDFG, 2010). The observed range of territory sizes is 0.1 to 2.30 hectares (0.26 to 5.70 acres), with most in the range of 0.2 to 0.5 hectares (0.5 to 1.2 acres) (USFWS 2002c; as cited in USACE and CDFG, 2010). Clutches of two to four eggs are laid in the third week in June, with fledglings first appearing in mid-July (Sanders and Flett 1989; as cited in USACE and CDFG, 2010). Fledglings stay close to the nest and to each other for three to five days after leaving the nest and stay in the area for a minimum of 14 to 15 days (Sogge *et al.* 1997; as cited in USACE and CDFG, 2010).

Threats: The decline of southwestern willow flycatchers is primarily due to loss, fragmentation, and degradation of suitable riparian habitat resulting from urbanization, recreation, water diversion and impoundments, channelization, invasive plant species, overgrazing by livestock, and conversion of riparian habitat to agricultural land (USFWS, 2002; Sedgwick, 2000; all as cited in USACE and CDFG, 2010). Channelization, bank stabilization, levees, and other flow control structures, surface water diversions, and groundwater pumping for agricultural, industrial, and municipal uses are major factors in the deterioration of suitable southwestern willow flycatcher habitat.

California horned lark (*Eremophila alpestris actia*)

Status: The California horned lark is designated a CDFW Watch List species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: Horned larks (*Eremophila alpestris*) have a holarctic distribution, ranging from the Arctic south to central Asia and Mexico. There are numerous regional subspecies representing the superspecies across this holarctic range, including the California horned lark (*Eremophila alpestris* ssp. *actia*). Horned larks are common and abundant residents in a variety of open habitats, usually where trees and shrubs are absent and can be found from sea level to elevations of 4,000 meters (13,123 feet) AMSL (Beason, 1995). In general, the northernmost populations of horned lark are migratory, moving south during the winter into remaining areas of the breeding range. There are also southward movements into areas south of the breeding range, particularly in the southeastern United States (Beason, 1995). The California horned lark breeds and resides in the coastal region of California from Sonoma County southeast to the United States–Mexico border, including most of the San Joaquin Valley, and eastward to the foothills of the Sierra Nevada (Grinnell and Miller, 1944; AOU, 1998).

Distribution in the Study Area: There are no known records for this species in the Study Area; there are no CNDDB records for this species within a 15 mile radius of the Study Area. Limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: It is found in grasslands along the coast and deserts near sea level and alpine dwarf-shrub habitat above the tree line. It is less common in mountain regions, on the north coast, and in coniferous or chaparral habitats (McCaskie *et al.,* 1979). The California horned lark uses predominantly agriculture, grassland, and disturbed areas for foraging, as well as sparse shrub and scrub habitats (Garrett and Dunn, 1981). In winter, flocks frequent roadsides, feedlots, and fields where manure from feedlots is spread.

Natural History: California horned larks breed from March through July, with a peak in activity in May and they frequently raise two broods in a season (Zeiner *et al.,* 1990a).

Threats: In addition to direct loss of habitat and fragmentation, California horned larks are vulnerable to several effects related to agriculture and urbanization. Increased use of pesticides, specifically Carbofuran and Fenthion, have been shown to poison and kill horned larks (Beason, 1995). The demonstrated deleterious effects of these pesticides illustrate that horned larks may be vulnerable to certain chemicals because of their ground-foraging habits and seasonally varying diet. Pesticides may also cause a decline in prey abundance. Mowing of grasslands occupied by nesting horned larks substantially increased nest failures (Kershner and Bollinger, 1996). Horned lark nests can also be parasitized by brown-headed cowbirds, especially after the first brood when there are multiple broods in a single season (Beason, 1995). Other development- and human-related impacts expected to affect this species include construction-related dust; noise and ground vibration; nighttime lighting, which may induce physiological stress and increase predation by nocturnal predators; and increased predation by pet, stray, and feral cats and dogs. Areas of increased moisture may attract Argentine ants that prey on nestlings.

Merlin (*Falco columbarius*)

Status: The merlin is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008. This taxon is not federally or State listed as threatened or endangered.

General Distribution: In North America, this species breeds from the northward tree limit in Alaska and Canada southward to southern Alaska, Oregon, Idaho, South Dakota, the northern Great Lakes region, New York, Maine, and Nova Scotia. Breeding does not occur in California; however, this species does occur in most of the western half of the state below roughly 4000 feet through the winter season (September to May) (CDFG, 2008).

Distribution in the Study Area: There are no known records for this species in the Study Area or surrounding areas; this species is a winter resident that does not breed in California; the Study Area is located within the known geographic winter distribution for this species; suitable foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: The merlin occurs in a wide variety of habitats, including marshes, deserts, seacoasts, open woodlands, fields, and communities in early successional stages (Garrett and Dunn, 1981).

Natural History: The merlin is a small, averaging twelve inches in length, member of the falcon family (Falconidae) with a long tail and long, pointed wings. This species winters in California from September to May and wanders, but does not apparently defend, foraging territories throughout the winter range

(Becker and Sieg, 1987; Warkentin and Oliphant, 1990; Sodhi and Oliphant, 1992). Merlins primarily prey on small birds, which are captured on the ground or in the air, after direct pursuit (CDFG, 2008). Small mammals and insects are also consumed, the latter of which may be taken while young merlins are developing their predatory skills.

Threats: There are no persistent threats identified for this species; however, because merlins feed primarily on birds, numbers have been likely reduced due to pesticide use.

Prairie Falcon (*Falco mexicanus*)

Status: The prairie falcon is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008, and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is an uncommon permanent resident that occurs throughout California with the exception of the humid northwest coastal belt (Small, 1994).

Distribution in the Study Area: There are no known records for this species in the Study Area. The CNDDB reports one historic occurrence approximately 10 miles to the west of the Study Area. Marginal (at best) nesting habitat occurs within the Study Area; suitable foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: The prairie falcon occurs in a wide variety of habitats from annual grasslands to alpine meadows, but is most commonly associated with perennial grasslands, savannahs, rangelands, some agricultural fields, and desert scrub areas (CDFG, 2008). This species usually nests on sheltered cliff ledges overlooking open areas.

Natural History: This species is a medium-sized falcon with a dark brown cap and cheek and distinct dark mustache markings. Prairie falcons breed in mid-April on cliff edges or rock outcrops in open areas. The male rarely takes an active role in the incubation process; however, may provide food to the female during this time (Stephenson and Calcarone, 1999). Hatchlings are tended by both adults until fledging at roughly forty days (Baicich and Harrison, 1997). Prairie falcons prey primarily on small passerine birds; however, lizards, ground squirrels, and other small mammals are also consumed (Steenhof, 1998). This species utilizes two hunting strategies, including flushing a prey item while flying along a concealed route until the last moment and patrolling along long distances close to the ground until surprising and attacking a prey item (Dunne *et al.*, 1988).

Threats: The loss of suitable foraging habitat to human development, particularly in coastal California, has been identified as a primary threat to this species.

American peregrine falcon (*Falco peregrinus anatum*)

Status: The peregrine falcon is a California Fully Protected species.

General Distribution: The peregrine falcon has a worldwide distribution that is more extensive than that of any other bird. In North America, the peregrine falcon breeds from Alaska to Labrador, southward to Baja California and other parts of northern Mexico, and east across central Arizona through Alabama. Its distribution is patchy in North America, and populations in the eastern United States are still chiefly in urban areas (AOU, 1998; White *et al.*, 2002; as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding habitat does not occur within but may be present in areas adjacent to the Study Area; foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: Peregrine falcons in general use a large variety of open habitats for foraging, including tundra, marshes, seacoasts, savannahs, grasslands, meadows, open woodlands, and agricultural areas. Sites are often located near rivers or lakes (AOU, 1998; Brown, 1999; Snyder, 1991; all as cited in USACE and CDFG, 2010). Riparian areas, as well as coastal and inland wetlands, are also important habitats year-round for this species. The species breeds mostly in woodland, forest, and coastal habitats (Zeiner et al,. 1990a; Brown, 1999; all as cited in USACE and CDFG, 2010).

Natural History: In California, the American peregrine falcon is an uncommon breeder or winter migrant throughout much of the state. It is absent from desert areas (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010). Active nests have been documented along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. As a transient species, the American peregrine falcon may occur almost anywhere that suitable habitat is present (Garrett and Dunn, 1981; as cited in USACE and CDFG, 2010).

The diet of the American peregrine falcon primarily consists of birds that, while most are pigeon-sized, can be as small as hummingbirds or as large as small geese (White *et al.*, 2002; as cited in USACE and CDFG, 2010). Other prey species include jays, flickers, meadowlarks, starlings, woodpeckers, shorebirds, and other readily available birds. The American peregrine falcon may feed on large numbers of rodents when present (Brown, 1999; as cited in USACE and CDFG, 2010).

Breeding requires cliffs or suitable surrogates that are close to preferred foraging areas. Nests are typically located in cliffs between 50 and 200 meters (164 to 656 feet) tall that are prominent in the landscape. American peregrine falcons have also been known to nest in trees and on small outcrops. Tall buildings, bridges, or other tall man-made structures are also suitable for nesting (White *et al.*, 2002; as cited in USACE and CDFG, 2010). The nest site usually provides a panoramic view of open country and often overlooks water. It is always associated with an abundance of avian prey, even in an urban setting. A cliff or building nest site may be used for many years (Brown, 1999; as cited in USACE and CDFG, 2010). The nest site itself usually consists of a rounded depression or scrape with accumulated debris that is occasionally lined with grass (Call, 1978; as cited in USACE and CDFG, 2010). Higher-quality nest sites confer greater protection from the elements and have greater breeding success (Olsen and Olsen, 1989; as cited in USACE and CDFG, 2010).

Threats: There are no persistent threats identified for this species.

California condor (*Gymnogyps californianus*)

Status: The California condor is listed as both state and federally endangered and is a California Fully Protected species.

General Distribution: The southern California population of the California condor is largely confined to the semi-arid, rugged mountain ranges surrounding the southern San Joaquin Valley, including the Coast Ranges from Santa Clara County south to Los Angeles County, the Transverse Ranges, Tehachapi Mountains, and southern Sierra Nevada (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010). The California condor has also historically occurred in northern Baja California, Mexico; northern California; Oregon; Washington; and south British Columbia, Canada in the early nineteenth century (Harris, 1941; Koford, 1953; Wilbur, 1978; Kiff, 2000; Snyder and Snyder, 2000; all as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area although they have been observed flying over the San Gabriel Mountains. Suitable breeding habitat is not present within the Study Area but the animal may periodically forage in the region.

Habitat and Habitat Associations: California condors require vast expanses of open savannah, grasslands, and foothill chaparral, with cliffs, large trees, and snags for roosting and nesting (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010).

Natural History: Prior to all California condors being removed from the wild for captive breeding in the late 1980s, nonbreeding California condors often moved north to Kern and Tulare counties in April and returned south in September to winter in the Tehachapi Mountains, Mount Pinos, and Ventura and Santa Barbara counties (Zeiner et al,. 1990a; as cited in USACE and CDFG, 2010). Since that time, California condors have been reintroduced into suitable habitat in eastern Ventura County as well as in the Ventana Wilderness area along the coast south of San Francisco.

The California condor requires an adequate food supply, open habitat in which food can readily be found and accessed, and reliable air movements that allow extended soaring flight (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010). Most foraging has been documented in grasslands and oak woodlands, where individuals can easily launch into flight from nearly any location by running downhill, and where winds deflected by topographic relief usually provide the uplift necessary for extended flight (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010). Most California condors forage within 50 to 70 kilometers (31 to 43 miles) of nesting areas, with core foraging areas ranging around 2,500 to 2,800 square kilometers (1,553 to 1,740 miles). This wide-ranging foraging area appears to be an adaptation to unpredictable food supplies.

The California condor primarily feeds on mammalian carrion, although remains of reptiles and birds have been occasionally found within nests (Collins *et al.*, 2000; as cited in USACE and CDFG, 2010). California condors are scavengers of fresh medium- to large-sized carcasses, such as sheep, cattle, deer, and elk (Koford, 1953; Snyder and Snyder, 2000; Collins *et al.*, 2000; all as cited in USACE and CDFG, 2010). California condors are not known to feed on vehicle-killed animals, but in recent years, hunter-shot mule deer, shot or poisoned coyotes, and ground squirrels were consumed when available (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010).

California condors typically breed annually but frequently breed less often. Observations of new pair formations have been observed in late fall and early winter (Snyder and Schmitt 2002; as cited in USACE and CDFG, 2010). Once pairs have been formed, the California condors stay together year round for multiple years. California condors lay only one egg; this can occur from the last week of January through the first week of April, with an incubation period averaging 57 days. The hatching of the eggs ranges between the last week of March and the first week of June. The chicks are tended by both parents until the chicks are fledged, which occurs five and a half to six months after hatching. The chicks are fully dependent on their parents for approximately another six months, ending roughly a year after hatching, from early March to mid-May (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010).

Threats: Major threats to this species include lead poisoning, collisions, poisoning due to ingestion of antifreeze, drowning and shooting. An increase in power lines and utility poles, which can result in collisions and electrocution; microtrash (e.g., bottle caps, pull tabs, broken glass, cigarette butts, small plastic items, lead bullets, and shell casings, which condors can ingest); long-term habitat degradation; and contaminants other than lead and antifreeze also have the potential to affect individuals.

Yellow-breasted chat (*Icteria virens*)

Status: The yellow-breasted chat is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: Although this species is a widespread summer resident in eastern North America, its distribution is much more fragmented in the west. In California, yellow-breasted chat primarily occurs in the northern portion of the state and is considered scarce in the central and southern portions.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: In southern California, this species utilize dense riparian thickets and brushy tangles near watercourses for breeding (Garrett and Dunn, 1981). Similar habitat is used during migration (Dunn and Garrett, 1997).

Natural History: The yellow-breasted chat is the largest member of the warbler family (Parulidae). Its yellow throat and breast, olive underparts and white spectacles distinguish this species from other similar birds. The yellow-breasted chat breeds in April or May through August. Females initiate nest construction, which begins shortly after pair formation, above ground in dense shrubs along a river or stream. Both parents tend to nestlings until they fledge at roughly nine days (Stephenson and Calcarone, 1999). This species feeds primarily on insects and spiders that are gleaned from the foliage of low trees and shrubs; however, berries and other fruits are also consumed (CDFG, 2008).

Threats: The loss and degradation of riparian habitat have resulted in a marked decline of breeding populations of yellow-breasted chat in California. Nest parasitism by brown-headed cowbird (*Molothrus ater*) has also contributed to declines (Gaines, 1974; Remsen, 1978).

Loggerhead shrike (*Lanius ludovicianus*)

Status: The loggerhead shrike is a CDFW Species of Special Concern and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The breeding range of the loggerhead shrike includes Alberta, Saskatchewan, and Manitoba in Canada; the majority of the United States except the Pacific Northwest; and Mexico (Yosef, 1996). This species is a common resident and winter visitor in lowlands and foothills throughout California.

Distribution in the Study Area: Although not documented within the Study Area an occurrence of this species is reported from the CNDDB approximately 2.5 miles east of the Study Area. Suitable foraging and breeding habitat occurs within the Study Area.

Habitat and Habitat Associations: The loggerhead shrike prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species most often occurs in open-canopied valley foothill hardwood forests, valley-foothill hardwood-conifer forests, valley foothill riparian, pinyon-juniper woodlands, desert riparian, and Joshua tree habitats.

Natural History: The loggerhead shrike is a large-headed bird with a hooked beak and whitish underparts. The breeding season for this species generally begins in late January or early February, earlier than those of other sympatric passerine species, and lasts through July (Stephenson and Calcarone, 1999). Nests are typically constructed in well-concealed microsites in densely foliaged trees or shrubs (Miller, 1931; Bent, 1950). Females typically feed nestlings until fledging occurs at 16 to 20 days; however, males will feed nestlings if females are absent from the nest for extended periods of time (Stephenson and Calcarone, 1999). This species preys primarily on large insects, but will also take small birds, mammals, amphibians, reptiles, fish, carrion, and various invertebrates. Loggerhead shrikes often impale their prey on barbed wire or other sharp objects.

Threats to Species: Breeding Bird Survey data indicate that loggerhead shrike populations are declining in most states (Sauer *et al.*, 1996). Threats include habitat loss and degradation, shooting, and pesticide and other toxic contamination.

Long-billed curlew (*Numenius americanus*)

Status: The long-billed curlew is a CDFW Watch List Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The breeding range of this migratory species extends from eastern New Mexico and the Texas panhandle, north through western Kansas, central Nebraska, central South Dakota, and western North Dakota and west to portions of Montana and southern Alberta, Saskatchewan, Manitoba, and British Columbia. In the Great Basin the curlew ranges from Utah west to California and north into eastern Washington and British Columbia. Winter distribution is scattered across the southern United States. Long-billed curlews winter from California, into western Nevada, Arizona, eastern New Mexico, western and southern Texas, and coastal Louisiana south to Baja, California, and Guatemala. Wintering curlews are found in small numbers along the Atlantic coast from South Carolina to Florida as well. [NRCS, 2010]

Distribution in the Study Area: There are no known recent records for this species in the Study Area; there are a variety of eBird records for this species approximately 20 miles to the north within the Lancaster Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: Generally nest in short grasses including grass prairies or agricultural fields and move to denser grasslands after young have fledged. Long-billed curlews winter at the coast and in Mexico.

Natural History: The long-billed curlew is the largest nesting or regularly-occurring sandpiper in North America. The bird usually feeds in flocks. Using its long bill, it probes the mud near its habitat, foraging for suitable food. The usual food consists of crabs and various other small invertebrates. The species also feeds on grasshoppers, beetles and other insects. This bird has occasionally been known to eat the eggs of other birds. The long-billed curlew is a precocial bird, and the chicks leave the nest soon after hatching. Both parents look after the young.

Threats: Development and urbanization along the coastal habitats threaten this species.

Osprey (*Pandion haliaetus*)

Status: The osprey is a CDFW Watch List Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The osprey is one of only two wild bird species with a worldwide distribution (the other is peregrine falcon). In California, this species typically breeds in the northern part of the state from the Cascade Range south to Lake Tahoe and along the coast to Marin County (Stephenson and Calcarone, 1999). Osprey is an uncommon visitor along the coast of southern California (Zeiner *et al.*, 1990a).

Although this species is almost entirely migratory across its range, some areas of southern California, including Ventura County, support year-round residents (Ferguson-Lees and Christie, 2001).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; there are a variety of eBird records for this species approximately 20 miles to the north within the Lancaster Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: This species most commonly occurs along rivers, lakes, reservoirs, and sea coasts, often crossing land between bodies of water (AOU, 1998). Nests are typically found in tree snags, on cliffs, and among various manmade structures, usually near or above water.

Natural History: The osprey is easily distinguished by its unmarked white belly, wing shape, and flight style. This species typically breeds between late March and early June as the male arrives to breeding sites first followed by the female a few days later (Johnsgard, 1990). Nests consist of a massive accumulation of sticks and other debris and may be added to and used in successive years (Stephenson and Calcarone, 1999). A single brood of three eggs is incubated by both sexes. Ospreys hunt by initially scanning water surfaces from an elevated perch, often followed by a period of hovering, and then diving from heights of roughly 16-23 feet above the water (Stephenson and Calcarone, 1999). Prey consists almost entirely of salt or freshwater surface feeding fish; however, reptiles, sick or injured birds, crustaceans, or small mammals are sometimes taken (Ferguson-Lees and Christie, 2001).

Threats: Threats that have been identified for this species include disturbance from recreation and other activities near nests, development near lakes and rivers, and removal of suitable nesting sites.

Vermilion flycatcher (*Pyrocephalus rubinus*)

Status: The vermilion flycatcher is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: In California, the vermilion flycatcher was formerly considered a more common and widespread breeder along the lower Colorado River, Imperial Valley, Coachella Valley, upper Mojave River drainage, and San Diego County (Grinnell and Miller 1944; Garrett and Dunn, 1981); but its breeding range has declined throughout this area (Wolf and Jones, 2000). Currently, in California, there are some isolated breeding populations in the lowlands in the south central and southeast portions of the state, including San Bernardino, Riverside, San Diego, Santa Barbara, Ventura, and Kern counties (Wolf and Jones, 2000). Zeiner *et al.* (1990a) state that there are sporadic breeding populations in desert oases west and north of the Morongo Valley and Mojave Narrows in San Bernardino County. It has been recorded in summer along the Santa Clara River near Castaic and at Frazier Park, Kern County; however, there has been no evidence of breeding, and these observations are likely vagrants (Garrett and Dunn, 1981).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; there is a 2010 eBird record for this species approximately 7 miles to the northwest at Lake Palmdale. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: This species is found in riparian thickets near open, mesic habitats. It breeds in cottonwood, willow, mesquite, oak, sycamore, and other vegetation in desert riparian communities that are located adjacent to irrigated fields, irrigated ditches, or pastures (Zeiner *et al.* 1990a; Wolf and Jones, 2000).

Natural History: Although the vermilion flycatcher is largely a resident species, where it does show migratory movements, the male arrives to the breeding locations in February or March and females arrive afterwards, typically in March or April, depending on location (Wolf and Jones, 2000). Males play a large role in determining the nest site, which is built in a horizontal fork or branch under a canopy in an area free of leaves, about eight to 20 feet above ground (Wolf and Jones, 2000; Tinkham, 1949). The nest is a shallow open cup, loosely constructed out of small twigs, forbs, rootlets, grasses, fibers, or other similar materials and is lined with feathers and hair (Wolf and Jones, 2000).

Threats: This species primarily is threatened by the degradation and loss of habitat. The abundance and distribution of this species has been drastically reduced over the last 50 years in the lower Colorado River Valley. Water management, such as groundwater pumping and damming, can reduce and degrade riparian habitat and remove vegetation, such as cottonwoods and willows, that is critical to its breeding. Urbanization and human development have also degraded or reduced vermilion flycatcher habitat. Like other riparian bird species, however, several other potential human- or development-related factors may affect the vermilion flycatcher. Construction-related impacts include dust; noise and ground vibration; diminished water quality and altered hydrology; increased human activity in close proximity to foraging areas; and lighting, which may alter foraging behavior, induce physiological stress, and increase predation risk. Long-term effects related to development include increased human activity; noise; lighting; diminished water quality and altered hydrology; predation and harassment by pet, stray, and feral cats and dogs and other mesopredators; and pesticides, which may reduce insect prey or cause secondary poisoning.

Bank swallow (*Riparia riparia*)

Status: The bank swallow is state listed as threatened.

General Distribution: A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. A spring and fall migrant in the interior, less common on coast; an uncommon and very local summer resident. Casual in southern California in winter; a few winter records along central coast to San Mateo Co. (McCaskie *et al.*, 1988).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; There are numerous eBird records for this species approximately 20 miles to the northwest near the City of Lancaster. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: This swallow requires fine-textured or sandy banks or cliffs to dig horizontal nesting tunnels/burrows (CDFG, 1999).

Natural History: Predominantly a colonial breeder; colonies range in size of 10 to 1,500 nesting pairs in California, although most colonies have 100-200 nesting pairs. Forages by hawking insects during long, gliding flights. Feeds predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland. Feeds on a wide variety of aerial and terrestrial soft-bodied insects including flies, bees, and beetles. Uses holes dug in cliffs and river banks for cover. Will also roost on logs, shoreline vegetation, and telephone wires. [CDFG, 1999].

Threats: Channelization and stabilization of banks of nesting rivers, and other destruction and disturbance of nesting areas, are major factors causing the marked decline in numbers in recent decades (CDFG, 1999)

Allen's hummingbird (*Selasphorus sasin*)

Status: The Allen's hummingbird is a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is a permanent resident in Ventura County. It also occurs as a common summer resident and migrant along much of the California coast.

Distribution in the Study Area: There are no known recent records for this species in the Study Area. There are several eBird records for this species approximately 5 miles to the northwest and 10 miles to the east. Suitable habitat occurs throughout the Study Area.

Habitat and Habitat Associations: Breeding for this species most commonly occurs in coastal scrub, valley and foothill hardwood forests, valley and foothill riparian forests, and urban habitats. Allen's hummingbird also occurs in a variety of woodland and scrub habitats as a migrant (CDFG, 2008).

Natural History: This species is a small hummingbird with a green back and crown and distinctive rufous markings on the flanks and tail. The Allen's hummingbird often attaches its nest to more than one lateral support on eucalyptus, juniper, willow, other trees, vines, shrubs, or ferns (CDFG, 2008). Breeding occurs from mid-February through early August with peak activity occurring in April. Large mating territories are rigorously defended as are smaller feeding territories (Legg and Pitelka, 1956). The primary diet of this species consists of nectar taken from a variety of herbaceous and woody flowering plants; however, small insects and spiders may also be consumed (CDFG, 2008).

Threats: No persistent threats have been identified for this species.

Le Conte's thrasher (*Toxostoma lecontei*)

Status: The Le Conte's thrasher is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The Le Conte's thrasher is found throughout the Southwestern United States and Northwestern Mexico.

Distribution in the Study Area: There are no known records for this species in the Study Area. The CNDDB reports occurrences of this species approximately 5 miles northeast of the Study Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: Sparse desert scrub such as creosote bush, Joshua tree, and saltbush scrubs, or sandy-soiled cholla-dominated vegetation. Nests in dense, spiny shrubs or densely branched cactus in desert wash habitat.

Natural History: The Le Conte's thrasher forages on the ground for insects and spiders, as well as some seeds and berries.

Threats: In some parts of its range, the Le Conte's Thrasher has lost extensive habitat to development. Irrigated lawns, groves, and fields are not compatible with its need for desert vegetation.

Gray vireo (*Vireo vicinior*)

Status: The gray vireo is a Forest Service Sensitive Species, a CDFW Species of Special Concern, and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The gray vireo is rare west of the Colorado River and more common to the east. In California, this species is a summer resident at disjunct locations in the mountains of the eastern Mojave Desert, in the Transverse Ranges (San Gabriel, San Bernardino, and Little San Bernardino mountains), and in the Peninsular ranges (Unitt, 2008).

Distribution in the Study Area: There are no known records for this species in the Study Area. Disjunct localities occur both to the east and to the west. Suitable breeding and foraging habitat occurs in chaparral surrounding the Study Area on NFS lands. Depending on water levels and vegetation density, it could forage within the upper extents of the Reservoir (changes year to year). Nearest recorded occurrence is approximately eight miles east of the Study Area in the Valyermo area (Garrett, 1999).

Habitat and Habitat Associations: The gray vireo requires habitats with dense shrub cover between one and five feet from the ground. In the Transvers Ranges, it has been recorded in mixed chaparral and juniper woodlands (Unitt, 2008).

Natural History: The gray vireo is a summer visitor in most of its California range, typically occurring March to August or September. While data on breeding season is limited in California, available data suggest it extends at least from late April through July. Gray vireos feed mainly on insects, and its winter diet may also include some vegetation including the fruit of the elephant tree. (Unitt, 2008)

Threats: Some of the threats that have been identified for this species include loss or degradation of habitat from improper fire management and cowbird parasitism.

Mammals

Mohave ground squirrel (*Xerospermophilus mohavensis*)

Status: The Mohave ground squirrel is state listed as threatened.

General Distribution: Mohave ground squirrel has one of the smallest geographic ranges of the 28 ground squirrel species in North America (Hall, 1981). It occurs in the western Mojave Desert in portions of Inyo, Kern, San Bernardino, and Los Angeles counties.

Distribution near Project site: There have been no recent Mojave ground squirrel sightings near the Project site in over 20 years however it is possible remnant populations of this species still remain. This species is well known from core populations on Edwards Air Force base located north of the project site.

Habitat and Habitat Associations: The Mohave ground squirrel is found in many desert vegetation and soil types, mainly on deep, sandy to gravelly soils on flat to moderately sloping terrain (Best, 1995; MGSWG, 2011). Soil characteristics are particularly important because Mohave ground squirrels construct burrows to provide shelter, temperature regulation, and protection from predators (USFWS, 2010).

Natural History: Mohave ground squirrels are small brown squirrels around 1 ¼ to 1 ½ inches tall and approximately 8-9 inches in length. They feed on a variety of shrub and annual plant species, but the most common food plants include winterfat (*Krascheninnikovia lanata*), spiny hopsage (*Grayia spinosa*) and several saltbush (*Atriplex spp*.) species (Stewart, 2005).

Identified Threats: The decline of Mohave ground squirrels have been attributed to habitat loss from human development.

Occurrence probability at Project site: The Mohave ground squirrel is not expected to occur on the project site and has limited potential to occur at the sediment disposal site.

Nelson's bighorn sheep (*Ovis canadensis nelsoni*)

Regulatory Status: The Nelson's (San Gabriel Mountains) bighorn sheep is a Forest Service Sensitive Species and a California Fully Protected Species.

Range and Distribution: Historically, bighorn sheep were distributed from Baja California to Texas in the south and to the Canadian Rockies in the north, with the eastern boundary reaching western Nebraska and the western boundary in California extending from Mount Shasta in the north to the crest of the central and southern Sierra Nevada to the Transverse Ranges and the east side of the Peninsular Ranges in the south (Cowan, 1940). Traditional taxonomy dating back more than half a century (Cowan, 1940) broke bighorn sheep from the southwestern desert region into four subspecies, one of which, the Nelson bighorn, included bighorn from the Transverse Ranges through most of the desert mountain ranges of California, and adjacent Nevada and northern Arizona to Utah (Shackleton, 1985). Recent research (Ramey, 1993, 1995; Wehausen and Ramey, 1993) has found a lack of support for Cowan's (1940) desert subspecies and instead has found previously unrecognized north-south variation of the Nelson Bighorn (Wehausen and Ramey, 1993, 1999).

Habitat Requirements and Natural History: Basic to the biology of bighorn sheep is agility on steep rocky terrain, an adaptation used to escape predators. Consequently, within the desert, preferred habitat of bighorn is primarily on or near mountainous terrain above the desert floor. Also fundamental to the biology of bighorn sheep is the use of eyesight as the primary sense for detecting predators at sufficient distances to assure adequate time to reach safe terrain (Bleich et al., 1990b). Thus, preferred habitat of bighorn sheep is visually open, as well as steep and rocky. Because of scant rainfall and hot summer temperatures that limit most vegetation to low stature, most Mojave Desert mountain ranges satisfy these habitat requirements well. Surface water is another element of desert bighorn habitat considered important to population health (Turner and Weaver, 1980).

Bighorn sheep have a large rumen, relative to body size (Krausman et al., 1993), which allows digestion of grasses, even in a dry state (Hanly, 1982). This gives them flexibility to select diets that optimize nutrient content from available forage. Consequently, bighorn sheep feed on a large variety of plant species and diet composition varies seasonally and among locations. The nutritional quality of their diet depends on growth activity of forage species and varies greatly among seasons, years, and locations (Wehausen and Hansen, 1988; Wehausen, 1992a), and is influenced greatly by precipitation and temperature (Wehausen, 1992b). While diet quality in the Mojave Desert varies greatly among years, it is most predictably high in late winter and spring (Wehausen, 1992a), and this period coincides with the peak of lambing. Desert bighorn have a long lambing season that can begin in December and end in June in the Mojave Desert, and a small percentage of births commonly occur in summer as well (Thompson and Turner, 1982; Bunnell, 1982; Wehausen, 1991). The gestation period for bighorn sheep is about 174 days (Hass, 1995).

Threats: Potential threats must be approached from the standpoint of individual populations and metapopulations (BLM, no date A). Actions that impair the ability of bighorn sheep to move between mountain ranges (e.g. fencing along highways or other boundaries, canals, and high densities of human habitation) will limit the potential for natural colonization and gene exchange, both of which are key to metapopulation viability (BLM, no date A). Cattle grazing also poses a threat to this species, by creating competition for and reducing the availability of surface water sources for the bighorn sheep.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for this species and suitable habitat occurs within portions of the Study Area. Nelson's bighorn sheep have been observed at the Reservoir by Forest Service staff (Chris Huntley, personal communication, 10 September 2012). This species appears to be a periodic visitor to the Reservoir.

Ringtail (*Bassariscus astutus*)

Status: The ringtail is a CDFW Fully Protected Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is widely distributed throughout California with the exceptions of the northeastern deserts and the Central Valley.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species and it is known to occur within sections of the San Gabriel Mountains. Suitable habitat is present within portions of the Study Area.

Habitat and Habitat Associations: Ringtails occur in a variety of habitats, including chaparral, coastal sage scrub, riparian scrub, oak woodlands, and riparian woodlands. This species prefers habitats in proximity to permanent water.

Natural History: Some authors consider ringtails a subfamily of the family Procyonidae, which includes the raccoons and coatis (Burt and Grossenheider, 1954). Ringtails are long, slender animals with large ears and eyes, semi-retractile claws, and distinct black and white bands on a bushy tail. This species nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests and breeding typically occurs between February and May (NatureServe, 2012). Ringtails are opportunistic feeders, but primarily prey on rodents, rabbits, birds, bird eggs, reptiles, and invertebrates (Zeiner *et al.*, 1990b).

Threats: While no persistent threats have been identified for this species, the degradation of preferred riparian habitats has been suggested as a potential threat (Stephenson and Calcarone, 1999).

Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)

Status: The pallid San Diego pocket mouse is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The pallid San Diego pocket mouse occurs mainly in arid coastal and desert border areas in San Diego Co., in Riverside Co. southwest of Palm Springs, in San Bernardino Co. from Cactus Flat in the San Bernardino Mts. to Oro Grande and east to Twenty-nine Palms. Elevational range from sea level to 4500 feet (Santa Rosa Mts., Riverside Co.) and 6000 feet (Cactus Flat, north slope San Bernardino Mts.) (Zeiner, et al., 1990b).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species. Nearest CNDDB for this record is approximately 7 miles to the southeast of the Study Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The pallid San Diego pocket mouse prefers to inhabit desert wash, desert scrub, desert succulent scrub and/or pinyon-juniper woodland.

Natural History: This is a nocturnal species that is active year-round, although surface activity may be reduced during cold periods (Zeiner, et al., 1990b). The primary diet consists of seeds of forbs, grasses and shrubs, which are transported in cheek pouches. Predators include foxes, coyotes, badgers, owls and snakes.

Threats: A potential threat to this species is urban expansion and development.

Pallid bat (*Antrozous pallidus*)

Regulatory Status: The pallid bat is a CDFW Species of Special Concern and a Forest Service Sensitive Species.

Range and Distribution: Pallid bats have a broad geographic range, extending from southern British Columbia to central Mexico and from California east to the Midwestern United States (Harvey et al., 1999). This species occurs most commonly below elevations of roughly 6,000 feet (Stephenson and Calcarone, 1999). Pallid bats are year-round residents in California (Philpott, 1997).

Habitat Requirements and Natural History: The pallid bat occurs in a variety of habitats, including grasslands, shrublands, woodlands, scattered desert scrub, agricultural fields, and mixed conifer forests (Barbour and Davis, 1969; Hermanson and O'Shea, 1983; Orr, 1954; Philpott, 1997). It appears to prefer edges and open areas without trees (SNFPA, 2001). Roosting sites include rock crevices, mines, caves, tree hollows, buildings, bridges, and culverts (Hermanson and O'Shea, 1983; Tactarian, 2001).

The pallid bat is a large, light-colored bat with prominent ears. It is a social species, communicating through a variety of vocalizations to indicate territorial boundaries, direct individuals to roosting sites, and facilitate mother-infant relations (Nagorsen and Brigham, 1993). Pallid bat maternity colonies form in early April and may contain from 12 to 100 individuals (Zeiner et al., 1990b). The diet primarily consists of large arthropods, including scorpions, crickets, moths, and praying mantids, which are gleaned from the ground or the surfaces of vegetation (Hermanson and O'Shea, 1983). Emergence from roosting sites typically begins 30 to 60 minutes after sunset, but can vary seasonally (Hermanson and O'Shea, 1983; Zeiner et al., 1990b). Foraging is usually concentrated into two periods, with the first activity peak occurring 90 to 190 minutes after sunset, and the second occurring just prior to dawn (Hermanson and O'Shea, 1983; Zeiner et al., 1990b). Nagorsen and Brigham (1993) report that the pallid bat will travel up to 2.5 miles between day roosts and foraging areas. Between activity periods, it may remain torpid for up to five hours (O'Shea and Vaughn, 1977). This species is known to hibernate, but will periodically rouse to forage for food and water (Philpott, 1997).

Threats: Some of the threats that have been associated to the decline of this species in southern California include the destruction of buildings that provide suitable roosting and maternal colony sites, eradication of roosting colonies due to public health concerns, and urban expansion (Brown-Berry, 2002). As bat species often exhibit high site fidelity to maternity roosts and are highly sensitive to disturbance at these sites, local extirpations may be attributed to roost disturbance (Hermanson and O'Shea, 1983; Orr, 1954; O'Shea and Vaughn, 1977; Philpott, 1997).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for pallid bat (CDFG, 2008). Roosting habitat is present including old water tunnels and suitable foraging habitat occurs throughout the Study Area. This species was detected downstream of the dam during surveys conducted in May 2012.

Townsend's big-eared bat (*Corynorhinus townsendii*)

Status: The Townsend's big-eared bat is designated by CDFW as a California Species of Special Concern, and is a U.S. Forest Service Sensitive species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The Townsend's big-eared bat ranges throughout the western United States, British Columbia, Canada, and Mexico (Kunz and Martin, 1982). In the United States, it occurs in a continuous distribution in all the western states and east into western South Dakota, northwestern

Nebraska, southwestern Kansas, western Oklahoma, and western Texas (Kunz and Martin, 1982). It also is known from isolated gypsum caves in northeast Texas, Oklahoma, and Kansas and from limestone areas in Arkansas, Missouri, Oklahoma, Kentucky, Virginia, and West Virginia (Kunz and Martin, 1982). These relict populations are thought to reflect post-Pleistocene climates (Kunz and Martin, 1982). In California, the CNDDB (CDFG, 2007A) contains 212 records for this species, of which 52 are from four counties in southern California: San Bernardino (33 records), San Diego (10 records), Riverside (five records) and Imperial (four records). There are no records for Los Angeles, Orange, or Ventura counties.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species. Roosting and foraging habitat occur within portions of the Study Area.

Habitat and Habitat Associations: The big-eared bat is primarily associated with mesic habitats characterized by coniferous and deciduous forests, although it also occurs in xeric areas (Kunz and Martin, 1982). In California, this species was historically associated with limestone caves and lava tubes located in coastal lowlands, agricultural valleys, and hillsides with mixed vegetation; it occurs in all parts of California, with the exception of alpine and subalpine areas of the Sierra Nevada (Zeiner et al., 1990b). The species also occurs in man-made structures and tunnels (Kunz and Martin, 1982); and it has been suggested that the big-eared bat has become more common in the western United States due to the availability of man-made structures (Kunz and Martin, 1982).

Natural History: Big-eared bats are relatively sedentary and are not known to disperse or migrate large distances.

Maternity roosts are established in the warm parts of caves, mines, and buildings, with one or more clusters of females numbering up to about 100 individuals. Summer roosts of males are solitary. Young are born from late spring to early summer and are fully weaned by 42 days of age. First flight occurs by about 18 to 21 days. Big-eared bats take a variety of prey on the wing from the edge of forested habitats but also glean prey from vegetation to forage, including small moths, beetles, flies, lacewings, wasps, bees, and ants.

Threats: Big-eared bats are very sensitive to human disturbances and a single disturbance of a maternity roost or hibernation site may cause abandonment (Zeiner et al., 1990b). All known limestone cave sites in California, for example, have been abandoned (Zeiner et al., 1990b). Other plausible threats to big-eared bats resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development also include human and pet, stray, and feral animals' disturbances of roost sites, roost site and foraging habitat degradation, such as trampling and invasive species, and pesticides that may cause secondary poisoning and affect prey abundance.

Spotted bat (*Euderma maculatum*)

Status: The spotted bat is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The spotted bat has been found at a small number of localities, mostly in the foothills, mountains and desert regions of southern California. [CDFG, 2000]

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: Habitats occupied include arid deserts, grasslands and mixed conifer forests. Elevational range extends from below sea level in California to above 3000 m (10000 ft) in New Mexico. [CDFG, 2000]

Natural History: This bat prefers to roost in rock crevices but is occasionally found in caves and buildings; cliffs provide optimal roosting habitat. Moths are the principal food source of this species (CDFG, 2000). This species feeds in flight, over water, and near the ground, using echolocation to find prey and prefers sites with adequate roosting habitat, such as cliffs.

Threats: Threats to the spotted bat may include loss of habitat to development and the use of insecticides.

Western mastiff bat (*Eumops perotis californicus*)

Status: The western mastiff bat is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The western mastiff bat occurs in two populations; one from the southwestern United States to central Mexico and the other from the northern and central portions of South America (Harvey *et al.*, 1999). The western or California mastiff bat subspecies primarily occurs from low to mid elevations in southern and central California southeast to Texas and south to central Mexico (Best *et al.*, 1996).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The western mastiff bat utilizes a variety of habitat types including desert scrub, chaparral, mixed conifer forest, giant sequoia forests, and montane meadows (Philpott, 1997). In southern California this bat typically roosts in semiarid areas with low-growing chaparral that does not obstruct cliffs or rock outcrops (Best *et al.*, 1996). Because of its large wingspan, this bat requires roosts that have at least 2 m of free space to drop from to initiate flight. These bats utilize natural crevices in granitic and sandstone cliffs as well as crevices in buildings for roosting (Best *et al.*, 1996; NatureServe, 2012).

Natural History: The western mastiff bat is the largest bat in the United States with a total length of 15.7 to 18.5 cm (NatureServe, 2012). This bat breeds in early spring with most births likely occurring from June through July, and females usually give birth to one offspring (NatureServe, 2012). Colonies typically consist of less than 100 individuals (NatureServe, 2012). Western mastiff bats are primarily insectivorous, and the diet contains a high proportion of moths (Philpott, 1997). Predators include peregrine falcon, American kestrel, red-tailed hawk, and barn owl (Best *et al.*, 1996).

Threats: Threats to the western mastiff bat include loss of habitat to development and the use of insecticides (Williams, 1986). In the southwest, loss of large open ponds used for drinking water threaten this subspecies, and activities that disturb or destroy cliff habitat (such as water impoundments, highway construction, and quarry operations) pose a threat as well (Texas Parks and Wildlife, 2009).

Western red bat (*Lasiurus blossevillii*)

Status: The Western red bat is designated by CDFW as a California Species of Special Concern, and is a U.S. Forest Service Sensitive species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The western red bat (*Lasiurus blossevillii*) occurs in California from Shasta County and Mendocino County in the north, and through the central coastal region and the Central Valley west of the Sierra Nevada/Cascade ranges to coastal southern California (Cryan, 2003; Zeiner *et al.,* 1990b), east into Arizona and New Mexico, and south into Baja California and mainland Mexico to South America (Cryan, 2003). The species inhabits California year-round but makes seasonal movements within the state and, possibly, to Arizona and New Mexico (Cryan, 2003).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area

Habitat and Habitat Associations: Red bats (*Lasiurus* spp.) typically roost in trees, occasionally in shrubs, and even on the ground (Shump and Shump, 1982). They are usually solitary, but different bats may use different roosts on different days, and they occasionally form nursery colonies. Day roosts are commonly located in edge habitats adjacent to streams, open fields, and urban areas (Shump and Shump, 1982).

Natural History: Red bats take a variety of prey, including moths, crickets, flies, true bugs, beetles, and cicadas (Shump and Shump, 1982). They generally forage in grasslands, shrublands, open woodlands, and croplands, but they also take advantage of congregations of insects attracted to streetlights and building floodlights. Births occur in about mid-June and young develop rapidly, with flight occurring by 21 to 42 days of age (Shump and Shump, 1982).

Threats: Like other bats, western red bats probably are generally vulnerable to human activity and related impacts. Unlike many other bat species, due to their use of day roosts in trees, shrubs, and sometimes on the ground, western red bats are especially vulnerable to predation by domestic cats, as well as opossums, great horned owls, kestrels, and roadrunners. Other plausible threats to western red bats resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development, in addition to pet, stray, and feral animals, include human disturbances of roost sites, roost site and foraging habitat degradation, such as trampling and invasive species, and pesticides that may cause secondary poisoning and affect prey abundance.

Hoary bat (*Lasiurus cinereus*)

Status: The hoary bat is a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is the most widespread North American bat and occurs throughout California, although distribution is patchy in the southeastern deserts.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The hoary bat occurs in a wide variety of environments, but prefers open habitats or habitat mosaics with access to trees for cover. Open areas or habitat edges are also preferred for foraging.

Natural History: This species is distinguishable by its size and color, exhibiting distinct white markings on hair tips over most of the body (Burt and Grossenheider, 1954). Hoary bats breed in autumn and young are typically born between mid-May and early June (Zeiner *et al.*, 1990b). Females bear young while roosting in trees and may leave the young at the roosting site while foraging (Zeiner *et al.*, 1990b). Typically a solitary species, hoary bats are known to forage with many other bat species (CDFG, 2008). The primary diet of hoary bats consists of moths that are taken in flight; however, other flying insects are also consumed (Black, 1974, Whitaker *et al.*, 1977, 1981). There is a relatively high incidence of rabies in this species (Shump and Shump, 1982). No important predators are known, but owls likely prey on hoary bats (Zeiner *et al.*, 1990b).

Threats: No persistent threats have been identified for this species.

California leaf-nosed bat (*Macrotus californicus*)

Status: California leaf-nosed bat is listed as a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species has a limited distribution which extends from northwestern Mexico (Sonora and Sinaloa) and Baja California into Arizona, southern Nevada, and southern California (CDFG, 1998).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located outside the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The California leaf-nosed bat appears to be confined to lowland Sonoran Desert habitat below 900 m. This species also appears to be totally dependent on either caves or mines for roosting. Although it has occasionally been found night roosting in buildings or bridges, its maternity, mating, and overwintering sites are all in mines or caves. [CDFG, 1998]

Natural History: This bat is colonial, forming large seasonal aggregations. Females congregate in the spring and summer in maternity colonies of typically 100 to 200 bats (Barbour and Davis, 1969; Vaughan, 1959), although colonies of only 6-20 bats are also found. Within the larger colonies, clusters of five to 25 females will be associated with a single “harem” male that defends the cluster against intruding males (Brown and Berry, 1991). Large male roosts may also form. Each female bears a single young between mid-May and early July. Maternity colonies disband once the young are independent in late summer. In September and October, males aggregate in “display” roosts, which may be separate from the maternity sites, where they are visited by females for mating (Pierson, 1998). Although pregnancy is initiated immediately, embryos undergo several months of “delayed development,” remaining at a very early embryonic stage until development resumes in March (Bradshaw, 1962). The total gestation period is almost nine months. This species also forms larger, mixed sex aggregations of up to 2,000 bats in winter. Unlike vespertilionids, phyllostomids do not hibernate. *M. californicus* has a narrow thermal-neutral zone, and appears incapable of entering torpor (Pierson, 1998). [CDFG, 1998]

Threats: Potential threats to this species include renewed mining, abandoned mine closures, disturbance from the public, urban expansion, loss of foraging habitat, landfills and military activities.

Western small-footed myotis (*Myotis ciliolabrum*)

Regulatory Status: Western small-footed myotis is a CDFW Special Animal.

Range and Distribution: The western small-footed myotis is widespread throughout western North America, from western Canada south through the western United States to northern Baja California and central Mexico (Hall, 1981; as cited in USACE and CDFG, 2010). In the United States, the species occurs in all states west of, and including, North Dakota to the north and Texas to the south. The species is absent from the coastal regions of Washington, Oregon, and California south to about Ventura County (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010).

Habitat Requirements and Natural History: The western small-footed myotis occurs in a wide variety of arid upland habitats at elevations ranging from sea level to 8,800 feet (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Habitats used by this species include riparian areas, woodlands, and brushy uplands (Holloway and Barclay, 2001; Zeiner et al., 1990b; all as cited in USACE and CDFG, 2010). Western small-footed myotis day roosts include rock crevices, caves, tunnels and mines, and, sometimes buildings and abandoned swallow nests (Holloway and Barclay, 2001; as cited in USACE and CDFG, 2010). They also use day roosts as nocturnal roosts (i.e., they may return to the day roost during the night) or may use buildings and concrete underpasses strictly as nocturnal roosts (Holloway and Barclay, 2001; as cited in USACE and CDFG, 2010).

In California, this species occurs in coastal southern California, the foothills of the Sierra Nevada, and the Great Basin Desert, and is absent from the higher elevations in the mountains and from the lower elevations in the Mojave and Colorado deserts (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010).

Western small-footed myotis forage for moths, true flies, gnats, midges, mosquitoes, true bugs, and beetles, often along the margins of trees and over water (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Females establish maternity roosts, which may be solitary or colonial (with up to 20 individuals), where young are born and raised (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Males appear to establish solitary roosts during the breeding season (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Births generally occur in May and June, with a peak in late May (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010), and first flight by young occurs by about one month of age (Wilson and Ruff, 1999; as cited in USACE and CDFG, 2010).

Threats: No documented threats to western small-footed myotis colonies have been reported in the scientific literature, but, like most bats, this species is likely to be very sensitive to human disturbance. Because it may roost in abandoned buildings and under bridges, it is vulnerable to vandalism, extermination, or inadvertent disturbance of roost sites.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for western small-footed myotis (CDFG, 2008). Roosting habitat including old tunnels is present and suitable foraging habitat occurs throughout the Study Area. This species was detected while actively monitoring just upstream of the dam structure in July 2012.

Fringed myotis (*Myotis thysanodes*)

Status: The fringed myotis is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The fringed myotis is widespread throughout the western United States, southern British Columbia, Canada, Mexico, and Central America (O'Farrell and Studier, 1980).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The fringed myotis typically occurs in a wide variety of desert, grass, and woodland habitats at middle elevations of 1,200 to 2,850 meters AMSL (3,937 to 9,350 feet) but is known from lower elevations along the west coast and may occur in pine–fir associations at higher elevations (O'Farrell and Studier, 1980). Individuals observed in desert/steppe habitats were within a one-hour flight of forest and riparian habitats (O'Farrell and Studier, 1980).

Natural History: During their most active season (April through September), fringed myotis leave their roosts at sundown and forage for small beetles, which comprise about 73% of their diet, in the vegetation canopy (O'Farrell and Studier, 1980). They return to the roost by daylight. Females establish maternity colonies in late April in caves, tunnels, mines, and buildings where young are born and raised. Males establish solitary roost areas during the breeding season. Females leave by late September and probably migrate or disperse to winter hibernacula (Wilson and Ruff, 1999). Young are born in late June to early July (O'Farrell and Studier, 1980). Young develop rapidly, with flight occurring by 16 days of age, and are fully developed by 20 to 21 days.

Threats: The fringed myotis is sensitive to disturbance of roost sites by humans, potentially resulting in abandonment (O'Farrell and Studier 1980; Wilson and Ruff, 1999). Such disturbances could also disrupt the interaction of females and young, such as females failing to retrieve young that have fallen from the neonate cluster, which can result in mortality of the young. Other plausible threats to fringed myotis resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development also include pet, stray, and feral animals' disturbances of roost sites; roost site and foraging habitat degradation, such as trampling and invasive species; and pesticides that may cause secondary poisoning and affect prey abundance.

Long-legged myotis (*Myotis volans*)

Status: The long-legged myotis is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The long-legged myotis (*Myotis volans*) is widespread throughout western North America, from extreme southeastern Alaska and western Canada (British Columbia and Alberta) south into Baja California and central Mexico (Hall, 1981). In California, it occurs throughout the state except for the Central Valley, eastern Lassen and Modoc counties, and the non-mountainous regions of the Mojave and Colorado deserts (Zeiner *et al*., 1990b).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The long-legged myotis is a yearlong resident of California and primarily occurs in coniferous forests, but it also uses riparian and oak woodland habitats for roosting and foraging (Warner and Czaplewski 1984; Wilson and Ruff 1999; Zeiner *et al*., 1990b). Day roosts during warmer months typically are in hollow trees and under the bark of exfoliating trees (Zeiner *et al*., 1990b) but also include abandoned buildings, cracks in the ground, and crevices in canyons and cliff faces (Warner and Czaplewski, 1984). Johnson *et al.* (2007) found that the long-legged myotis in a forested region of north-central Idaho used snags for roosts located mid-slope. This species uses caves and tunnels as winter hibernation areas, indicating local seasonal migrations. In addition to using forests and woodlands, the long-legged myotis also forages in coastal scrub, chaparral, and desert habitat (Zeiner *et al.,* 1990b). Johnson *et al.* (2007) suggest that habitat selection is a function of preferred prey availability. Long-legged myotis occur at elevations ranging from 60 to 3,770 meters (197 to 12,370 feet) but are most commonly found at 2,000 to 3,000 meters (6,560 to 9,840 feet).

Natural History: Long-legged myotis appear to be opportunistic feeders, foraging both within and above the forest canopy and congregating with other bat species at areas of high insect concentrations (Zeiner *et al.,* 1990b). They may be moth specialists, but they also feed on a variety of insects, including true flies, gnats, midges, mosquitoes, termites, true bugs, leafhoppers, ants, bees, wasps, lacewings, and beetles. They are active throughout the night, with a peak of foraging activity three to four hours after dark (Warner and Czaplewski, 1984). Large maternity colonies of several hundred individuals are formed in day roosts (Zeiner *et al.,* 1990b). Timing of births is variable and occurs from May to August, possibly in relation to climate (Czaplewski, 1984). Young have been observed flying by mid-July (Zeiner *et al.,* 1990b).

Threats: No documented threats to long-legged myotis colonies have been reported in the scientific literature, but, like most bats, this species is likely very sensitive to human disturbance and because it may also roost in abandoned buildings, it is vulnerable to vandalism, extermination, or inadvertent disturbance of roost sites.

Yuma myotis (*Myotis yumanensis*)

Regulatory Status: The Yuma myotis is a CDFW Special Animal.

Range and Distribution: The Yuma myotis is widespread throughout western North America from British Columbia, Canada, south through the western United States to Baja California and central Mexico (Hall, 1981). In the United States, the species occurs in all of Washington and Oregon, most of California, western Idaho and Montana, the extreme western portion of Nevada, the southeastern half of Utah, all of Arizona and New Mexico, and western Texas. It occurs throughout California, except for the most arid parts of the Mojave and Colorado deserts (Zeiner et al., 1990b).

Habitat Requirements and Natural History: Although the Yuma myotis occurs in a wide variety of life zones at elevations ranging from sea level to 10,820 feet, its actual distribution is closely associated with access to water (Zeiner et al., 1990b). Forests and woodlands are primary habitats, and foraging usually occurs within open, uncluttered habitats. Foraging flights are low over water sources such as ponds, streams, and stock ponds (Brigham et al., 1992; Zeiner et al., 1990b). Yuma myotis day roosts include rock crevices, caves, mines, buildings, abandoned swallow nests, and large, live trees (Evelyn et al., 2004; Zeiner et al., 1990b).

Females establish colonial maternity roosts with up to several thousand individuals, and this is where young are born and raised (Zeiner et al., 1990b). Males appear to establish solitary roosts during the breeding season or roost with other bat species (Wilson and Ruff, 1999; Zeiner et al., 1990b). Births are variable, but generally occur in late May to mid-June, with a peak in early June in California (NatureServe, 2007; Zeiner et al., 1990b). Time of first flight is unknown. The Yuma myotis typically forages over water sources for moths, true flies, gnats, midges, mosquitoes, termites, true bugs, caddis flies, ants, bees, and wasps (Brigham et al., 1992).

Threats: No documented threats to Yuma myotis colonies have been reported in the scientific literature, but, like most bats, this species is likely to be very sensitive to human disturbance. Because it may roost in large trees, abandoned buildings, and under bridges, it is vulnerable to vandalism, extermination, or inadvertent disturbance of roost sites. Other plausible threats to Yuma myotis resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development include disturbance of roost sites by humans and domestic animals; degradation of foraging habitat and roost sites; and introduction of pesticides that may cause secondary poisoning and affect prey abundance.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Yuma myotis (CDFG, 2008). Roosting habitat including old tunnels is present and suitable foraging habitat occurs throughout the Study Area. This species was detected downstream of the dam structure during surveys conducted in May and July 2012.

Southern grasshopper mouse (*Onychomys torridus ramona*)

Status: The southern grasshopper mouse is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The southern grasshopper mouse (*Onychomys torridus*) occurs throughout desert habitats in the southwestern United States and much of Mexico, including western Nevada; the southern portions of California, Arizona, and New Mexico; northern Baja California; western Texas; and south to central Mexico (Hall, 1981). The subspecies *O. t. ramona*, which is a California Species of Special Concern (CSC), is restricted to coastal southern California.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; Suitable habitat occurs within limited portions of the Study Area.

Habitat and Habitat Associations: The southern grasshopper mouse is found rangewide in low arid scrub and semi-scrub vegetation (Frank and Heske, 1992; McCarty, 1975), and the subspecies *O. t. ramona* (which is the subspecies designated as a California Species of Special Concern) occurs in grasslands and sparse coastal scrub habitats. Specific habitat requirements of the southern grasshopper mouse generally are unknown, but Stapp (1997) found that the southern grasshopper mouse uses open expanses and microhabitats dominated by gopher mounds and burrows, possibly because of greater prey availability (*e.g.*, arthropods using burrows for refuge), greater mobility in open expanses, and dust bathing sites in these microhabitats.

Natural History: The southern grasshopper mouse's diet consists mainly of arthropods (*e.g*., crustaceans, insects, centipedes, millipedes, and arachnids), but may also include other insects and small rodents (Baily and Sperry 1929; Horner *et al.* 1965; McCarty 1975; Stapp, 1997). The southern grasshopper mouse is primarily nocturnal and appears to be active on the surface all year round (Baily and Sperry 1929; Frank and Heske 1992; McCarty, 1975). Because of its high population turnover, relatively early age of sexual maturity, and senescence after the first year, the southern grasshopper mouse probably is subject to "boom and bust" population cycles and is perhaps at high risk of local extirpation under poor conditions.

Threats: There are no identified threats to the southern grasshopper mouse other than loss and fragmentation of grassland and sparse sage scrub habitats in coastal southern California, which probably are the greatest threats to local southern grasshopper mouse populations.

Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*)

Status: The Tehachapi pocket mouse is designated by CDFW as a California Species of Special Concern, and is a U.S. Forest Service Sensitive species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: P. a. inexpectatus occupies the Tehachapi Mountains from Tehachapi Pass southwest towards Gorman, as far west as Cuddy Valley near Mount Pinos, and east along the lower slopes of the San Gabriel Mountains to Elizabeth Lake (Williams et al., 1993).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located outside the known geographic range for this species. This species is however known to occur on the east slopes of the San Gabriel Mountains. Suitable habitat is present within the Study Area.

Habitat and Habitat Associations: The Tehachapi pocket mouse typically occupies native and non-native grasslands, Joshua tree woodland, pinyon-juniper woodland, yellow pine woodland, and oak savannah (Williams et al., 1993). It has also been captured in open pine forests at higher elevations (Huey, 1926), in chaparral and coastal sage communities at lower elevations (Best, 1994), and on rangeland and fallow grain fields (Sulentich, 1983). It constructs burrows in loose, sandy soils (Zeiner et al., 1990b).

Natural History: Little information is available concerning the ecology of the Tehachapi pocket mouse. Other members of the species group are nocturnal granivores, foraging primarily on seeds of grasses, forbs and annuals, but also on leafy plant material and insects (Verts and Kirkland, 1988). Most other members of the genus exhibit seasonal hibernation (Verts and Kirkland, 1988), and it is expected that P. a. inexpectatus does as well.

Threats: Livestock grazing is the predominate land-use throughout much of its range. It is unclear how grazing and its subsequent effects on plant diversity and abundance affect the Tehachapi pocket mouse. Many areas within the range of the Tehachapi pocket mouse are used for wind-generated electricity production or have the potential to support wind farms. Such areas are typically crossed by a network of roads, which could lead to increased erosion in steeper terrain. Mineral extraction is another potential threat to the Tehachapi pocket mouse. In general, surface disturbing activities such as mineral extraction are incompatible with persistence of the native small mammal assemblage. Conversion of native habitats to urban use has occurred in the Elizabeth Lake area. If the subspecies persists in small, scattered populations, it is highly vulnerable to local extirpation resulting from natural or human-related events. [BLM, No Date B]

American badger (*Taxidea taxus*)

Status: The American badger is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The vast geographic range of the American badger extends as far north as Alberta, Canada and as far south as central Mexico (Hall, 1981). This species occurs in suitable habitat throughout California with the exceptions of the humid coastal forests of Del Norte and Humboldt Counties in the northwest part of the state (Williams, 1986). The elevation range for this species occurs between below sea level at Death Valley to as high as the Arctic-Alpine Life Zone (Long, 1973).

Distribution in the Study Area: There are no known records for this species in the Study Area; the Study Area is located within the known geographic distribution for this species; suitable habitat occurs within portions of the Study Area.

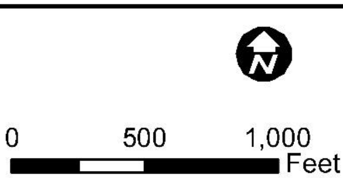
Habitat and Habitat Associations: American badgers exploit a wide variety of open, arid habitats, but are most commonly found in grasslands, savannas, mountain meadows, and open areas of desert scrub (Stephenson and Calcarone, 1999). Basic requirements that have been identified for this species appear to be sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground (Williams, 1986).

Natural History: American badgers are most often solitary animals that are primarily nocturnal, but have been reported occasionally foraging and dispersing during the daytime (Lindzey, 1978; Messick and Hornocker, 1981). This species is active year-round except at higher elevations and latitudes, where winter torpidity is common. During winter, individuals at lower elevations will exhibit reduced surface activity and may remain in a single burrow for days or even weeks (Long, 1973; Messick and Hornocker, 1981). This species is an opportunistic predator feeding on such prey resources as mice, chipmunks, ground squirrels, gophers, rabbits, and kangaroo rats. Reptiles, insects, birds, eggs, and carrion are also consumed (Williams, 1986; Zeiner *et al.*, 1990b). American badgers mate in the summer and early autumn with young born in March and early April (Long, 1973).

Threats: This species has experienced large population declines in many areas of southern California and has been steadily decreasing throughout the state over the last century (Williams, 1986). The major cause of mortality to adult badgers is vehicular accidents. Other common threats include habitat conversion to urban and agricultural uses, farming operations, shooting and trapping, poisoning, and reduction of prey base as a result of rodent control activities (Williams, 1986).

Appendix D

Sediment and Fish Test Results



Reservoir Sediment Test Locations

Littlerock Reservoir Sediment Removal Project

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

October 08, 2014

Brady Daniels
Aspen Environmental Group
5020 Chesebro Road
Suite 200
Agoura Hills, CA 91301-

Project Name: Little Rock 1116.02
Physis Project ID: 1407007-001

Dear Brady,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 8/15/2014. A total of 15 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Percent Solids by SM 2540 B
Percent Lipids by Gravimetric
Elements
Trace Mercury by EPA 245.7
Organics
Organochlorine Pesticides & PCB Congeners by EPA 8270D

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,

Misty Mercier
Extension 202
714-335-5918 cell
mistymercier@physislabs.com

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

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QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

BLANK SPIKES: BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

MATRIX SPIKES: MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

CERTIFIED REFERENCE MATERIALS: CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

LABORATORY CONTROL MATERIAL: LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

LABORATORY CONTROL SPIKES: LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

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the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

SAMPLE STORAGE/RETENTION: In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

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PHYSIS QUALIFIER CODES

CODE	DEFINITION
*	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified recovery and/or RPD acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore MS recovery and/or RPD acceptance limits do not apply
SL	analyte results for R1 and/or R2 were lower than 10 times the MDL, therefore RPD acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore MS recovery and/or RPD were outside the specified acceptance limits
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

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ANALYTICAL REPORT

PHYSIS ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature
1904 E. Wright Circle, Anaheim CA 92806 main: (714) 602-5320 fax: (714) 602-5321 www.physislabs.com info@physislabs.com CA ELAP #2769

Sample ID: 29128-R1 **L.R. Rocky Pt. Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

(PCB030)	NA	90			% Recovery
(PCB112)	NA	85			% Recovery
(PCB198)	NA	101			% Recovery
(TCMX)	NA	85			% Recovery
2,4'-DDD	NA	ND	1	5	ng/dry g
2,4'-DDE	NA	ND	1	5	ng/dry g
2,4'-DDT	NA	ND	1	5	ng/dry g
4,4'-DDD	NA	ND	1	5	ng/dry g
4,4'-DDE	NA	ND	1	5	ng/dry g
4,4'-DDT	NA	ND	1	5	ng/dry g
Aldrin	NA	ND	1	5	ng/dry g
BHC-alpha	NA	ND	1	5	ng/dry g
BHC-beta	NA	ND	1	5	ng/dry g
BHC-delta	NA	ND	1	5	ng/dry g
BHC-gamma	NA	ND	1	5	ng/dry g
Chlordane-alpha	NA	ND	1	5	ng/dry g
Chlordane-gamma	NA	ND	1	5	ng/dry g
cis-Nonachlor	NA	ND	1	5	ng/dry g
Dieldrin	NA	ND	1	5	ng/dry g
Endosulfan sulfate	NA	ND	1	5	ng/dry g
Endosulfan-I	NA	ND	1	5	ng/dry g
Endosulfan-II	NA	ND	1	5	ng/dry g
Endrin	NA	ND	1	5	ng/dry g
Endrin aldehyde	NA	ND	1	5	ng/dry g
Endrin ketone	NA	ND	1	5	ng/dry g
Heptachlor	NA	ND	1	5	ng/dry g
Heptachlor epoxide	NA	ND	1	5	ng/dry g
Hexachlorobenzene	NA	ND	1	5	ng/dry g
Methoxychlor	NA	ND	1	5	ng/dry g
Mirex	NA	ND	1	5	ng/dry g

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29129-R1 **L.R. Rocky Pt. Depth 1'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	87			% Recovery	
(PCB112)	NA	81			% Recovery	
(PCB198)	NA	94			% Recovery	
(TCMX)	NA	76			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29130-R1 **Boat Ramp Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	78			% Recovery	
(PCB112)	NA	78			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	75			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29131-R1 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	85			% Recovery	
(PCB112)	NA	78			% Recovery	
(PCB198)	NA	97			% Recovery	
(TCMX)	NA	80			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29132-R1 **Fishermans Pt Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	95			% Recovery	
(PCB112)	NA	82			% Recovery	
(PCB198)	NA	97			% Recovery	
(TCMX)	NA	87			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29133-R1 **Fishermans Pt Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	92			% Recovery	
(PCB112)	NA	84			% Recovery	
(PCB198)	NA	102			% Recovery	
(TCMX)	NA	84			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29134-R1 **Little Rock Drainage Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	92			% Recovery	
(PCB112)	NA	90			% Recovery	
(PCB198)	NA	107			% Recovery	
(TCMX)	NA	85			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29135-R1 **LR & Santiago Above Depth 1'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	92			% Recovery	
(PCB112)	NA	81			% Recovery	
(PCB198)	NA	99			% Recovery	
(TCMX)	NA	84			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29136-R1 **Waters Edge Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	81			% Recovery	
(PCB112)	NA	77			% Recovery	
(PCB198)	NA	96			% Recovery	
(TCMX)	NA	80			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29137-R1 **Waters Edge Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

(PCB030)	NA	92	% Recovery
(PCB112)	NA	80	% Recovery
(PCB198)	NA	99	% Recovery

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(TCMX)	NA	86			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	
trans-Nonachlor	NA	ND	1	5	ng/dry g	

Sample ID: 29138-R1 **Below Dam Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	90			% Recovery	
(PCB112)	NA	75			% Recovery	
(PCB198)	NA	84			% Recovery	
(TCMX)	NA	89			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/dry g	
2,4'-DDE	NA	ND	1	5	ng/dry g	
2,4'-DDT	NA	ND	1	5	ng/dry g	
4,4'-DDD	NA	ND	1	5	ng/dry g	
4,4'-DDE	NA	ND	1	5	ng/dry g	
4,4'-DDT	NA	ND	1	5	ng/dry g	
Aldrin	NA	ND	1	5	ng/dry g	
BHC-alpha	NA	ND	1	5	ng/dry g	
BHC-beta	NA	ND	1	5	ng/dry g	
BHC-delta	NA	ND	1	5	ng/dry g	
BHC-gamma	NA	ND	1	5	ng/dry g	
Chlordane-alpha	NA	ND	1	5	ng/dry g	
Chlordane-gamma	NA	ND	1	5	ng/dry g	
cis-Nonachlor	NA	ND	1	5	ng/dry g	
Dieldrin	NA	ND	1	5	ng/dry g	
Endosulfan sulfate	NA	ND	1	5	ng/dry g	
Endosulfan-I	NA	ND	1	5	ng/dry g	
Endosulfan-II	NA	ND	1	5	ng/dry g	
Endrin	NA	ND	1	5	ng/dry g	
Endrin aldehyde	NA	ND	1	5	ng/dry g	
Endrin ketone	NA	ND	1	5	ng/dry g	
Heptachlor	NA	ND	1	5	ng/dry g	
Heptachlor epoxide	NA	ND	1	5	ng/dry g	
Hexachlorobenzene	NA	ND	1	5	ng/dry g	
Methoxychlor	NA	ND	1	5	ng/dry g	
Mirex	NA	ND	1	5	ng/dry g	
Oxychlordane	NA	ND	1	5	ng/dry g	
Perthane	NA	ND	5	10	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
trans-Nonachlor	NA	ND	1	5	ng/dry g	

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Conventionals — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 29128-R1	**L.R. Rocky Pt. Surface** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	99.8	0.1	0.1	% Dry Weight	
Sample ID: 29129-R1	**L.R. Rocky Pt. Depth 1'** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	99.8	0.1	0.1	% Dry Weight	
Sample ID: 29130-R1	**Boat Ramp Surface** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	70.1	0.1	0.1	% Dry Weight	
Sample ID: 29131-R1	**Boat Ramp Depth 2'** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	62.4	0.1	0.1	% Dry Weight	
Sample ID: 29132-R1	**Fishermans Pt Surface** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	96.3	0.1	0.1	% Dry Weight	
Sample ID: 29133-R1	**Fishermans Pt Depth 2'** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	98	0.1	0.1	% Dry Weight	
Sample ID: 29134-R1	**Little Rock Drainage Surface** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	99.9	0.1	0.1	% Dry Weight	
Sample ID: 29135-R1	**LR & Santiago Above Depth 1'** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	99.8	0.1	0.1	% Dry Weight	
Sample ID: 29136-R1	**Waters Edge Surface** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	57.5	0.1	0.1	% Dry Weight	

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Conventionals

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 29137-R1	**Waters Edge Depth 2'** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	91.1	0.1	0.1	% Dry Weight	
Sample ID: 29138-R1	**Below Dam Surface** Method: SM 2540 B	**Matrix: Sediment** Batch ID: C-22028		**Sampled: 04-Aug-14** Prepared: 16-Sep-14		**Received: 15-Aug-14** Analyzed: 16-Sep-14
Percent Solids	NA	99.1	0.1	0.1	% Dry Weight	

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Elements ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 29128-R1	**L.R. Rocky Pt. Surface** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0036	0.00001	0.00002	µg/dry g	
Sample ID: 29129-R1	**L.R. Rocky Pt. Depth 1'** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0034	0.00001	0.00002	µg/dry g	
Sample ID: 29130-R1	**Boat Ramp Surface** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0154	0.00001	0.00002	µg/dry g	
Sample ID: 29131-R1	**Boat Ramp Depth 2'** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0195	0.00001	0.00002	µg/dry g	
Sample ID: 29132-R1	**Fishermans Pt Surface** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0066	0.00001	0.00002	µg/dry g	
Sample ID: 29133-R1	**Fishermans Pt Depth 2'** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0071	0.00001	0.00002	µg/dry g	
Sample ID: 29134-R1	**Little Rock Drainage Surface** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0032	0.00001	0.00002	µg/dry g	
Sample ID: 29135-R1	**LR & Santiago Above Depth 1'** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0064	0.00001	0.00002	µg/dry g	
Sample ID: 29136-R1	**Waters Edge Surface** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0213	0.00001	0.00002	µg/dry g	

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Elements ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 29137-R1	**Waters Edge Depth 2'** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.0059	0.00001	0.00002	µg/dry g	
Sample ID: 29138-R1	**Below Dam Surface** Method: EPA 245.7	**Matrix: Sediment** Batch ID: E-6082		**Sampled: 04-Aug-14** Prepared: 15-Sep-14		**Received: 15-Aug-14** Analyzed: 17-Sep-14
Mercury (Hg)	NA	0.011	0.00001	0.00002	µg/dry g	

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PCB Congeners ANALYTICAL REPORT

Sample ID: 29128-R1 **L.R. Rocky Pt. Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	

PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29129-R1 **L.R. Rocky Pt. Depth 1'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29130-R1 **Boat Ramp Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	1.1	1	5	ng/dry g	J
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29131-R1 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	1.9	1	5	ng/dry g	J
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29132-R1 **Fishermans Pt Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29133-R1 **Fishermans Pt Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29134-R1 **Little Rock Drainage Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29135-R1 **LR & Santiago Above Depth 1'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29136-R1 **Waters Edge Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	1.5	1	5	ng/dry g	J
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29137-R1 **Waters Edge Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

Sample ID: 29138-R1 **Below Dam Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 01-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/dry g	
PCB008	NA	ND	1	5	ng/dry g	
PCB018	NA	ND	1	5	ng/dry g	
PCB028	NA	ND	1	5	ng/dry g	
PCB031	NA	ND	1	5	ng/dry g	
PCB033	NA	ND	1	5	ng/dry g	
PCB037	NA	ND	1	5	ng/dry g	
PCB044	NA	ND	1	5	ng/dry g	
PCB049	NA	ND	1	5	ng/dry g	
PCB052	NA	ND	1	5	ng/dry g	
PCB056(060)	NA	ND	1	5	ng/dry g	
PCB066	NA	ND	1	5	ng/dry g	
PCB070	NA	ND	1	5	ng/dry g	
PCB074	NA	ND	1	5	ng/dry g	
PCB077	NA	ND	1	5	ng/dry g	
PCB081	NA	ND	1	5	ng/dry g	
PCB087	NA	ND	1	5	ng/dry g	
PCB095	NA	ND	1	5	ng/dry g	
PCB097	NA	ND	1	5	ng/dry g	
PCB099	NA	ND	1	5	ng/dry g	
PCB101	NA	ND	1	5	ng/dry g	
PCB105	NA	ND	1	5	ng/dry g	
PCB110	NA	ND	1	5	ng/dry g	
PCB114	NA	ND	1	5	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB118	NA	ND	1	5	ng/dry g	
PCB119	NA	ND	1	5	ng/dry g	
PCB123	NA	ND	1	5	ng/dry g	
PCB126	NA	ND	1	5	ng/dry g	
PCB128	NA	ND	1	5	ng/dry g	
PCB138	NA	ND	1	5	ng/dry g	
PCB141	NA	ND	1	5	ng/dry g	
PCB149	NA	ND	1	5	ng/dry g	
PCB151	NA	ND	1	5	ng/dry g	
PCB153	NA	ND	1	5	ng/dry g	
PCB156	NA	ND	1	5	ng/dry g	
PCB157	NA	ND	1	5	ng/dry g	
PCB158	NA	ND	1	5	ng/dry g	
PCB167	NA	ND	1	5	ng/dry g	
PCB168+132	NA	ND	1	5	ng/dry g	
PCB169	NA	ND	1	5	ng/dry g	
PCB170	NA	ND	1	5	ng/dry g	
PCB174	NA	ND	1	5	ng/dry g	
PCB177	NA	ND	1	5	ng/dry g	
PCB180	NA	ND	1	5	ng/dry g	
PCB183	NA	ND	1	5	ng/dry g	
PCB187	NA	ND	1	5	ng/dry g	
PCB189	NA	ND	1	5	ng/dry g	
PCB194	NA	ND	1	5	ng/dry g	
PCB195	NA	ND	1	5	ng/dry g	
PCB199(200)	NA	ND	1	5	ng/dry g	
PCB201	NA	ND	1	5	ng/dry g	
PCB206	NA	ND	1	5	ng/dry g	
PCB209	NA	ND	1	5	ng/dry g	

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Chlorinated Pesticides ANALYTICAL REPORT

Sample ID: 29121-R1 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	112			% Recovery	
(PCB112)	NA	120			% Recovery	
(PCB198)	NA	94			% Recovery	
(TCMX)	NA	127			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/wet g	
2,4'-DDE	NA	ND	1	5	ng/wet g	
2,4'-DDT	NA	42.5	1	5	ng/wet g	
4,4'-DDD	NA	10.4	1	5	ng/wet g	
4,4'-DDE	NA	14.4	1	5	ng/wet g	
4,4'-DDT	NA	14	1	5	ng/wet g	
Aldrin	NA	ND	1	5	ng/wet g	
BHC-alpha	NA	ND	1	5	ng/wet g	
BHC-beta	NA	ND	1	5	ng/wet g	
BHC-delta	NA	ND	1	5	ng/wet g	
BHC-gamma	NA	ND	1	5	ng/wet g	
Chlordane-alpha	NA	1.9	1	5	ng/wet g	J
Chlordane-gamma	NA	1.2	1	5	ng/wet g	J
cis-Nonachlor	NA	1.1	1	5	ng/wet g	J
Dieldrin	NA	ND	1	5	ng/wet g	
Endosulfan sulfate	NA	ND	1	5	ng/wet g	
Endosulfan-I	NA	ND	1	5	ng/wet g	
Endosulfan-II	NA	ND	1	5	ng/wet g	
Endrin	NA	ND	1	5	ng/wet g	
Endrin aldehyde	NA	ND	1	5	ng/wet g	
Endrin ketone	NA	ND	1	5	ng/wet g	
Heptachlor	NA	ND	1	5	ng/wet g	
Heptachlor epoxide	NA	ND	1	5	ng/wet g	
Hexachlorobenzene	NA	ND	1	5	ng/wet g	
Methoxychlor	NA	ND	1	5	ng/wet g	
Mirex	NA	ND	1	5	ng/wet g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Oxychlordane	NA	ND	1	5	ng/wet g	
Perthane	NA	ND	5	10	ng/wet g	
trans-Nonachlor	NA	4.4	1	5	ng/wet g	J

Sample ID: 29122-R1 **Bass 2 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	110			% Recovery	
(PCB112)	NA	112			% Recovery	
(PCB198)	NA	127			% Recovery	
(TCMX)	NA	127			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/wet g	
2,4'-DDE	NA	ND	1	5	ng/wet g	
2,4'-DDT	NA	40.2	1	5	ng/wet g	
4,4'-DDD	NA	11.8	1	5	ng/wet g	
4,4'-DDE	NA	13.5	1	5	ng/wet g	
4,4'-DDT	NA	15.4	1	5	ng/wet g	
Aldrin	NA	ND	1	5	ng/wet g	
BHC-alpha	NA	ND	1	5	ng/wet g	
BHC-beta	NA	ND	1	5	ng/wet g	
BHC-delta	NA	ND	1	5	ng/wet g	
BHC-gamma	NA	ND	1	5	ng/wet g	
Chlordane-alpha	NA	4.2	1	5	ng/wet g	J
Chlordane-gamma	NA	1.5	1	5	ng/wet g	J
cis-Nonachlor	NA	1.4	1	5	ng/wet g	J
Dieldrin	NA	ND	1	5	ng/wet g	
Endosulfan sulfate	NA	ND	1	5	ng/wet g	
Endosulfan-I	NA	ND	1	5	ng/wet g	
Endosulfan-II	NA	ND	1	5	ng/wet g	
Endrin	NA	ND	1	5	ng/wet g	
Endrin aldehyde	NA	ND	1	5	ng/wet g	
Endrin ketone	NA	ND	1	5	ng/wet g	
Heptachlor	NA	ND	1	5	ng/wet g	
Heptachlor epoxide	NA	ND	1	5	ng/wet g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	1	5	ng/wet g	
Methoxychlor	NA	ND	1	5	ng/wet g	
Mirex	NA	ND	1	5	ng/wet g	
Oxychlordane	NA	ND	1	5	ng/wet g	
Perthane	NA	ND	5	10	ng/wet g	
trans-Nonachlor	NA	4.1	1	5	ng/wet g	J

Sample ID: 29123-R1 **goldfish whole fish** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	55			% Recovery	
(PCB112)	NA	88			% Recovery	
(PCB198)	NA	126			% Recovery	
(TCMX)	NA	54			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/wet g	
2,4'-DDE	NA	ND	1	5	ng/wet g	
2,4'-DDT	NA	146.2	1	5	ng/wet g	
4,4'-DDD	NA	33.4	1	5	ng/wet g	
4,4'-DDE	NA	54.7	1	5	ng/wet g	
4,4'-DDT	NA	230.9	1	5	ng/wet g	
Aldrin	NA	ND	1	5	ng/wet g	
BHC-alpha	NA	ND	1	5	ng/wet g	
BHC-beta	NA	ND	1	5	ng/wet g	
BHC-delta	NA	ND	1	5	ng/wet g	
BHC-gamma	NA	ND	1	5	ng/wet g	
Chlordane-alpha	NA	11.4	1	5	ng/wet g	
Chlordane-gamma	NA	6.2	1	5	ng/wet g	
cis-Nonachlor	NA	4.4	1	5	ng/wet g	J
Dieldrin	NA	ND	1	5	ng/wet g	
Endosulfan sulfate	NA	ND	1	5	ng/wet g	
Endosulfan-I	NA	ND	1	5	ng/wet g	
Endosulfan-II	NA	ND	1	5	ng/wet g	
Endrin	NA	ND	1	5	ng/wet g	
Endrin aldehyde	NA	ND	1	5	ng/wet g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endrin ketone	NA	ND	1	5	ng/wet g	
Heptachlor	NA	ND	1	5	ng/wet g	
Heptachlor epoxide	NA	ND	1	5	ng/wet g	
Hexachlorobenzene	NA	2.5	1	5	ng/wet g	J
Methoxychlor	NA	ND	1	5	ng/wet g	
Mirex	NA	ND	1	5	ng/wet g	
Oxychlordane	NA	ND	1	5	ng/wet g	
Perthane	NA	ND	5	10	ng/wet g	
trans-Nonachlor	NA	17	1	5	ng/wet g	

Sample ID: 29124-R1 **white catfish whole fish whole fish** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(PCB030)	NA	109			% Recovery	
(PCB112)	NA	115			% Recovery	
(PCB198)	NA	95			% Recovery	
(TCMX)	NA	126			% Recovery	
2,4'-DDD	NA	ND	1	5	ng/wet g	
2,4'-DDE	NA	ND	1	5	ng/wet g	
2,4'-DDT	NA	27.2	1	5	ng/wet g	
4,4'-DDD	NA	10.1	1	5	ng/wet g	
4,4'-DDE	NA	18.5	1	5	ng/wet g	
4,4'-DDT	NA	16.8	1	5	ng/wet g	
Aldrin	NA	ND	1	5	ng/wet g	
BHC-alpha	NA	ND	1	5	ng/wet g	
BHC-beta	NA	ND	1	5	ng/wet g	
BHC-delta	NA	ND	1	5	ng/wet g	
BHC-gamma	NA	ND	1	5	ng/wet g	
Chlordane-alpha	NA	3.1	1	5	ng/wet g	J
Chlordane-gamma	NA	2.2	1	5	ng/wet g	J
cis-Nonachlor	NA	2.2	1	5	ng/wet g	J
Dieldrin	NA	ND	1	5	ng/wet g	
Endosulfan sulfate	NA	ND	1	5	ng/wet g	
Endosulfan-I	NA	ND	1	5	ng/wet g	

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Chlorinated Pesticides ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan-II	NA	ND	1	5	ng/wet g	
Endrin	NA	ND	1	5	ng/wet g	
Endrin aldehyde	NA	ND	1	5	ng/wet g	
Endrin ketone	NA	ND	1	5	ng/wet g	
Heptachlor	NA	ND	1	5	ng/wet g	
Heptachlor epoxide	NA	ND	1	5	ng/wet g	
Hexachlorobenzene	NA	ND	1	5	ng/wet g	
Methoxychlor	NA	ND	1	5	ng/wet g	
Mirex	NA	ND	1	5	ng/wet g	
Oxychlordane	NA	ND	1	5	ng/wet g	
Perthane	NA	ND	5	10	ng/wet g	
trans-Nonachlor	NA	4.1	1	5	ng/wet g	J

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Conventionals — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 29121-R1	**Bass 1 whole bass**	**Matrix: Tissue**		**Sampled: 04-Aug-14 15:30**		**Received: 15-Aug-14**
	Method: SM 2540 B	Batch ID: C-22032		Prepared: 29-Sep-14		Analyzed: 29-Sep-14
Percent Solids	NA	30.8	0.1	0.1	% Dry Weight	
	Method: Gravimetric	Batch ID: C-22033		Prepared: 30-Sep-14		Analyzed: 30-Sep-14
Percent Lipids	NA	10	0.01	0.05	% Wet Weight	
Sample ID: 29122-R1	**Bass 2 whole bass**	**Matrix: Tissue**		**Sampled: 04-Aug-14 15:30**		**Received: 15-Aug-14**
	Method: SM 2540 B	Batch ID: C-22032		Prepared: 29-Sep-14		Analyzed: 29-Sep-14
Percent Solids	NA	32	0.1	0.1	% Dry Weight	
	Method: Gravimetric	Batch ID: C-22033		Prepared: 30-Sep-14		Analyzed: 30-Sep-14
Percent Lipids	NA	13.7	0.01	0.05	% Wet Weight	
Sample ID: 29123-R1	**goldfish whole fish**	**Matrix: Tissue**		**Sampled: 04-Aug-14 15:30**		**Received: 15-Aug-14**
	Method: SM 2540 B	Batch ID: C-22032		Prepared: 29-Sep-14		Analyzed: 29-Sep-14
Percent Solids	NA	44.3	0.1	0.1	% Dry Weight	
	Method: Gravimetric	Batch ID: C-22033		Prepared: 30-Sep-14		Analyzed: 30-Sep-14
Percent Lipids	NA	27.5	0.01	0.05	% Wet Weight	
Sample ID: 29124-R1	**white catfish whole fish whole fish**	**Matrix: Tissue**		**Sampled: 04-Aug-14 15:30**		**Received: 15-Aug-14**
	Method: SM 2540 B	Batch ID: C-22032		Prepared: 29-Sep-14		Analyzed: 29-Sep-14
Percent Solids	NA	23.1	0.1	0.1	% Dry Weight	
	Method: Gravimetric	Batch ID: C-22033		Prepared: 30-Sep-14		Analyzed: 30-Sep-14
Percent Lipids	NA	4.99	0.01	0.05	% Wet Weight	

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Elements — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 29121-R1	**Bass 1 whole bass** Method: EPA 245.7	**Matrix: Tissue** Batch ID: E-6088		**Sampled: 04-Aug-14 15:30** Prepared: 07-Oct-14		**Received: 15-Aug-14** Analyzed: 08-Oct-14
Mercury (Hg)	NA	0.5348	0.00001	0.00002	µg/wet g	
Sample ID: 29122-R1	**Bass 2 whole bass** Method: EPA 245.7	**Matrix: Tissue** Batch ID: E-6088		**Sampled: 04-Aug-14 15:30** Prepared: 07-Oct-14		**Received: 15-Aug-14** Analyzed: 08-Oct-14
Mercury (Hg)	NA	0.6601	0.00001	0.00002	µg/wet g	
Sample ID: 29123-R1	**goldfish whole fish** Method: EPA 245.7	**Matrix: Tissue** Batch ID: E-6088		**Sampled: 04-Aug-14 15:30** Prepared: 07-Oct-14		**Received: 15-Aug-14** Analyzed: 08-Oct-14
Mercury (Hg)	NA	0.3644	0.00001	0.00002	µg/wet g	
Sample ID: 29124-R1	**white catfish whole fish whole fish** Method: EPA 245.7	**Matrix: Tissue** Batch ID: E-6088		**Sampled: 04-Aug-14 15:30** Prepared: 07-Oct-14		**Received: 15-Aug-14** Analyzed: 08-Oct-14
Mercury (Hg)	NA	0.4033	0.00001	0.00002	µg/wet g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE

Sample ID: 29121-R1 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/wet g	
PCB008	NA	ND	1	5	ng/wet g	
PCB018	NA	ND	1	5	ng/wet g	
PCB028	NA	1.1	1	5	ng/wet g	J
PCB031	NA	ND	1	5	ng/wet g	
PCB033	NA	ND	1	5	ng/wet g	
PCB037	NA	ND	1	5	ng/wet g	
PCB044	NA	ND	1	5	ng/wet g	
PCB049	NA	ND	1	5	ng/wet g	
PCB052	NA	ND	1	5	ng/wet g	
PCB056(060)	NA	ND	1	5	ng/wet g	
PCB066	NA	ND	1	5	ng/wet g	
PCB070	NA	4.5	1	5	ng/wet g	J
PCB074	NA	1.2	1	5	ng/wet g	J
PCB077	NA	ND	1	5	ng/wet g	
PCB081	NA	ND	1	5	ng/wet g	
PCB087	NA	ND	1	5	ng/wet g	
PCB095	NA	1.3	1	5	ng/wet g	J
PCB097	NA	ND	1	5	ng/wet g	
PCB099	NA	ND	1	5	ng/wet g	
PCB101	NA	1.8	1	5	ng/wet g	J
PCB105	NA	ND	1	5	ng/wet g	
PCB110	NA	1.3	1	5	ng/wet g	J
PCB114	NA	1.5	1	5	ng/wet g	J
PCB118	NA	1	1	5	ng/wet g	J
PCB119	NA	ND	1	5	ng/wet g	
PCB123	NA	ND	1	5	ng/wet g	
PCB126	NA	ND	1	5	ng/wet g	
PCB128	NA	ND	1	5	ng/wet g	
PCB138	NA	5.1	1	5	ng/wet g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB141	NA	ND	1	5	ng/wet g	
PCB149	NA	1.3	1	5	ng/wet g	J
PCB151	NA	ND	1	5	ng/wet g	
PCB153	NA	4.6	1	5	ng/wet g	J
PCB156	NA	ND	1	5	ng/wet g	
PCB157	NA	ND	1	5	ng/wet g	
PCB158	NA	ND	1	5	ng/wet g	
PCB167	NA	ND	1	5	ng/wet g	
PCB168+132	NA	ND	1	5	ng/wet g	
PCB169	NA	ND	1	5	ng/wet g	
PCB170	NA	2.8	1	5	ng/wet g	J
PCB174	NA	ND	1	5	ng/wet g	
PCB177	NA	ND	1	5	ng/wet g	
PCB180	NA	2.9	1	5	ng/wet g	J
PCB183	NA	ND	1	5	ng/wet g	
PCB187	NA	2	1	5	ng/wet g	J
PCB189	NA	ND	1	5	ng/wet g	
PCB194	NA	ND	1	5	ng/wet g	
PCB195	NA	ND	1	5	ng/wet g	
PCB199(200)	NA	ND	1	5	ng/wet g	
PCB201	NA	ND	1	5	ng/wet g	
PCB206	NA	ND	1	5	ng/wet g	
PCB209	NA	ND	1	5	ng/wet g	

Sample ID: 29122-R1 **Bass 2 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/wet g	
PCB008	NA	ND	1	5	ng/wet g	
PCB018	NA	ND	1	5	ng/wet g	
PCB028	NA	ND	1	5	ng/wet g	
PCB031	NA	ND	1	5	ng/wet g	
PCB033	NA	ND	1	5	ng/wet g	
PCB037	NA	ND	1	5	ng/wet g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB044	NA	ND	1	5	ng/wet g	
PCB049	NA	ND	1	5	ng/wet g	
PCB052	NA	1.7	1	5	ng/wet g	J
PCB056(060)	NA	ND	1	5	ng/wet g	
PCB066	NA	ND	1	5	ng/wet g	
PCB070	NA	ND	1	5	ng/wet g	
PCB074	NA	ND	1	5	ng/wet g	
PCB077	NA	ND	1	5	ng/wet g	
PCB081	NA	ND	1	5	ng/wet g	
PCB087	NA	ND	1	5	ng/wet g	
PCB095	NA	1	1	5	ng/wet g	J
PCB097	NA	ND	1	5	ng/wet g	
PCB099	NA	ND	1	5	ng/wet g	
PCB101	NA	1.4	1	5	ng/wet g	J
PCB105	NA	ND	1	5	ng/wet g	
PCB110	NA	1.1	1	5	ng/wet g	J
PCB114	NA	1.3	1	5	ng/wet g	J
PCB118	NA	ND	1	5	ng/wet g	
PCB119	NA	ND	1	5	ng/wet g	
PCB123	NA	ND	1	5	ng/wet g	
PCB126	NA	ND	1	5	ng/wet g	
PCB128	NA	ND	1	5	ng/wet g	
PCB138	NA	4.2	1	5	ng/wet g	J
PCB141	NA	ND	1	5	ng/wet g	
PCB149	NA	ND	1	5	ng/wet g	
PCB151	NA	ND	1	5	ng/wet g	
PCB153	NA	4.8	1	5	ng/wet g	J
PCB156	NA	ND	1	5	ng/wet g	
PCB157	NA	ND	1	5	ng/wet g	
PCB158	NA	ND	1	5	ng/wet g	
PCB167	NA	ND	1	5	ng/wet g	
PCB168+132	NA	ND	1	5	ng/wet g	

PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB169	NA	ND	1	5	ng/wet g	
PCB170	NA	ND	1	5	ng/wet g	
PCB174	NA	ND	1	5	ng/wet g	
PCB177	NA	1.5	1	5	ng/wet g	J
PCB180	NA	4.5	1	5	ng/wet g	J
PCB183	NA	1.8	1	5	ng/wet g	J
PCB187	NA	1.9	1	5	ng/wet g	J
PCB189	NA	ND	1	5	ng/wet g	
PCB194	NA	ND	1	5	ng/wet g	
PCB195	NA	ND	1	5	ng/wet g	
PCB199(200)	NA	ND	1	5	ng/wet g	
PCB201	NA	ND	1	5	ng/wet g	
PCB206	NA	ND	1	5	ng/wet g	
PCB209	NA	ND	1	5	ng/wet g	

Sample ID: 29123-R1 **goldfish whole fish** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/wet g	
PCB008	NA	ND	1	5	ng/wet g	
PCB018	NA	ND	1	5	ng/wet g	
PCB028	NA	3.7	1	5	ng/wet g	J
PCB031	NA	ND	1	5	ng/wet g	
PCB033	NA	ND	1	5	ng/wet g	
PCB037	NA	ND	1	5	ng/wet g	
PCB044	NA	ND	1	5	ng/wet g	
PCB049	NA	ND	1	5	ng/wet g	
PCB052	NA	1.6	1	5	ng/wet g	J
PCB056(060)	NA	ND	1	5	ng/wet g	
PCB066	NA	ND	1	5	ng/wet g	
PCB070	NA	ND	1	5	ng/wet g	
PCB074	NA	ND	1	5	ng/wet g	
PCB077	NA	ND	1	5	ng/wet g	
PCB081	NA	ND	1	5	ng/wet g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB087	NA	ND	1	5	ng/wet g	
PCB095	NA	2.8	1	5	ng/wet g	J
PCB097	NA	ND	1	5	ng/wet g	
PCB099	NA	ND	1	5	ng/wet g	
PCB101	NA	2.2	1	5	ng/wet g	J
PCB105	NA	ND	1	5	ng/wet g	
PCB110	NA	2	1	5	ng/wet g	J
PCB114	NA	ND	1	5	ng/wet g	
PCB118	NA	12.4	1	5	ng/wet g	
PCB119	NA	ND	1	5	ng/wet g	
PCB123	NA	ND	1	5	ng/wet g	
PCB126	NA	ND	1	5	ng/wet g	
PCB128	NA	ND	1	5	ng/wet g	
PCB138	NA	32.9	1	5	ng/wet g	
PCB141	NA	4.4	1	5	ng/wet g	J
PCB149	NA	3.7	1	5	ng/wet g	J
PCB151	NA	ND	1	5	ng/wet g	
PCB153	NA	34.1	1	5	ng/wet g	
PCB156	NA	ND	1	5	ng/wet g	
PCB157	NA	ND	1	5	ng/wet g	
PCB158	NA	7.3	1	5	ng/wet g	
PCB167	NA	ND	1	5	ng/wet g	
PCB168+132	NA	5.6	1	5	ng/wet g	
PCB169	NA	ND	1	5	ng/wet g	
PCB170	NA	ND	1	5	ng/wet g	
PCB174	NA	ND	1	5	ng/wet g	
PCB177	NA	9.9	1	5	ng/wet g	
PCB180	NA	14.8	1	5	ng/wet g	
PCB183	NA	11.5	1	5	ng/wet g	
PCB187	NA	18.1	1	5	ng/wet g	
PCB189	NA	ND	1	5	ng/wet g	
PCB194	NA	ND	1	5	ng/wet g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB195	NA	ND	1	5	ng/wet g	
PCB199(200)	NA	ND	1	5	ng/wet g	
PCB201	NA	ND	1	5	ng/wet g	
PCB206	NA	ND	1	5	ng/wet g	
PCB209	NA	ND	1	5	ng/wet g	

Sample ID: 29124-R1 **white catfish whole fish whole fish** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	1	5	ng/wet g	
PCB008	NA	ND	1	5	ng/wet g	
PCB018	NA	ND	1	5	ng/wet g	
PCB028	NA	1.8	1	5	ng/wet g	J
PCB031	NA	ND	1	5	ng/wet g	
PCB033	NA	ND	1	5	ng/wet g	
PCB037	NA	ND	1	5	ng/wet g	
PCB044	NA	ND	1	5	ng/wet g	
PCB049	NA	ND	1	5	ng/wet g	
PCB052	NA	ND	1	5	ng/wet g	
PCB056(060)	NA	ND	1	5	ng/wet g	
PCB066	NA	ND	1	5	ng/wet g	
PCB070	NA	ND	1	5	ng/wet g	
PCB074	NA	ND	1	5	ng/wet g	
PCB077	NA	ND	1	5	ng/wet g	
PCB081	NA	ND	1	5	ng/wet g	
PCB087	NA	ND	1	5	ng/wet g	
PCB095	NA	ND	1	5	ng/wet g	
PCB097	NA	ND	1	5	ng/wet g	
PCB099	NA	ND	1	5	ng/wet g	
PCB101	NA	1.4	1	5	ng/wet g	J
PCB105	NA	ND	1	5	ng/wet g	
PCB110	NA	ND	1	5	ng/wet g	
PCB114	NA	2.6	1	5	ng/wet g	J
PCB118	NA	1.3	1	5	ng/wet g	J

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB119	NA	ND	1	5	ng/wet g	
PCB123	NA	ND	1	5	ng/wet g	
PCB126	NA	ND	1	5	ng/wet g	
PCB128	NA	ND	1	5	ng/wet g	
PCB138	NA	4.8	1	5	ng/wet g	J
PCB141	NA	1.1	1	5	ng/wet g	J
PCB149	NA	1.1	1	5	ng/wet g	J
PCB151	NA	ND	1	5	ng/wet g	
PCB153	NA	4.6	1	5	ng/wet g	J
PCB156	NA	ND	1	5	ng/wet g	
PCB157	NA	ND	1	5	ng/wet g	
PCB158	NA	1.3	1	5	ng/wet g	J
PCB167	NA	ND	1	5	ng/wet g	
PCB168+132	NA	ND	1	5	ng/wet g	
PCB169	NA	ND	1	5	ng/wet g	
PCB170	NA	ND	1	5	ng/wet g	
PCB174	NA	1.5	1	5	ng/wet g	J
PCB177	NA	2.2	1	5	ng/wet g	J
PCB180	NA	4.3	1	5	ng/wet g	J
PCB183	NA	1	1	5	ng/wet g	J
PCB187	NA	2.7	1	5	ng/wet g	J
PCB189	NA	ND	1	5	ng/wet g	
PCB194	NA	ND	1	5	ng/wet g	
PCB195	NA	ND	1	5	ng/wet g	
PCB199(200)	NA	ND	1	5	ng/wet g	
PCB201	NA	ND	1	5	ng/wet g	
PCB206	NA	ND	1	5	ng/wet g	
PCB209	NA	ND	1	5	ng/wet g	

QUALITY CONTROL REPORT

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Conventionals QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Percent Lipids		**Method: Gravimetric**				**Fraction: NA**		**Prepared: 30-Sep-14**			**Analyzed: 30-Sep-14**		
29118-B1	QAQC Procedural Blank	C-22033	ND	0.01	0.05	% Wet Weight							
29121-R2	Bass 1	C-22033	12.4	0.01	0.05	% Wet Weight					21	30	PASS
Percent Solids		**Method: SM 2540 B**				**Fraction: NA**		**Prepared: 16-Sep-14**			**Analyzed: 16-Sep-14**		
29125-B1	QAQC Procedural Blank	C-22028	ND	0.1	0.1	% Dry Weight							
29128-R2	L.R. Rocky Pt.	C-22028	99.8	0.1	0.1	% Dry Weight					0	30	PASS
29118-B1	QAQC Procedural Blank	C-22032	ND	0.1	0.1	% Dry Weight							
29124-R2	white catfish whole fish	C-22032	23	0.1	0.1	% Dry Weight					0	30	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

Sample ID: 29118-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
(PCB030)	NA	76			% Recovery	100		76	50 - 150% PASS			
(PCB112)	NA	74			% Recovery	100		74	50 - 150% PASS			
(PCB198)	NA	115			% Recovery	100		115	30 - 130% PASS			
(TCMX)	NA	73			% Recovery	100		73	50 - 150% PASS			
2,4'-DDD	NA	ND	1	5	ng/wet g							
2,4'-DDE	NA	ND	1	5	ng/wet g							
2,4'-DDT	NA	ND	1	5	ng/wet g							
4,4'-DDD	NA	ND	1	5	ng/wet g							
4,4'-DDE	NA	ND	1	5	ng/wet g							
4,4'-DDT	NA	ND	1	5	ng/wet g							
Aldrin	NA	ND	1	5	ng/wet g							
BHC-alpha	NA	ND	1	5	ng/wet g							
BHC-beta	NA	ND	1	5	ng/wet g							
BHC-delta	NA	ND	1	5	ng/wet g							
BHC-gamma	NA	ND	1	5	ng/wet g							
Chlordane-alpha	NA	ND	1	5	ng/wet g							
Chlordane-gamma	NA	ND	1	5	ng/wet g							
cis-Nonachlor	NA	ND	1	5	ng/wet g							
Dieldrin	NA	ND	1	5	ng/wet g							
Endosulfan sulfate	NA	ND	1	5	ng/wet g							
Endosulfan-I	NA	ND	1	5	ng/wet g							
Endosulfan-II	NA	ND	1	5	ng/wet g							
Endrin	NA	ND	1	5	ng/wet g							
Endrin aldehyde	NA	ND	1	5	ng/wet g							
Endrin ketone	NA	ND	1	5	ng/wet g							
Heptachlor	NA	ND	1	5	ng/wet g							
Heptachlor epoxide	NA	ND	1	5	ng/wet g							
Hexachlorobenzene	NA	ND	1	5	ng/wet g							
Methoxychlor	NA	ND	1	5	ng/wet g							

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Mirex	NA	ND	1	5	ng/wet g								
Oxychlordane	NA	ND	1	5	ng/wet g								
Perthane	NA	ND	5	10	ng/wet g								
trans-Nonachlor	NA	ND	1	5	ng/wet g								

Sample ID: 29118-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(PCB030)	NA	74			% Recovery	100	0	74	50 - 150%	PASS			
(PCB112)	NA	77			% Recovery	100	0	77	50 - 150%	PASS			
(PCB198)	NA	122			% Recovery	100	0	122	30 - 130%	PASS			
(TCMX)	NA	73			% Recovery	100	0	73	50 - 150%	PASS			
2,4'-DDD	NA	357.4	1	5	ng/wet g	500	0	71	50 - 150%	PASS			
2,4'-DDE	NA	372.7	1	5	ng/wet g	500	0	75	50 - 150%	PASS			
2,4'-DDT	NA	375.3	1	5	ng/wet g	500	0	75	50 - 150%	PASS			
4,4'-DDD	NA	449.7	1	5	ng/wet g	500	0	90	50 - 150%	PASS			
4,4'-DDE	NA	389.3	1	5	ng/wet g	500	0	78	50 - 150%	PASS			
4,4'-DDT	NA	395	1	5	ng/wet g	500	0	79	50 - 150%	PASS			
Aldrin	NA	410.6	1	5	ng/wet g	500	0	82	50 - 150%	PASS			
BHC-alpha	NA	370.5	1	5	ng/wet g	500	0	74	50 - 150%	PASS			
BHC-beta	NA	473.2	1	5	ng/wet g	500	0	95	50 - 150%	PASS			
BHC-delta	NA	427.9	1	5	ng/wet g	500	0	86	50 - 150%	PASS			
BHC-gamma	NA	300.1	1	5	ng/wet g	500	0	60	50 - 150%	PASS			
Chlordane-alpha	NA	377.5	1	5	ng/wet g	500	0	75	50 - 150%	PASS			
Chlordane-gamma	NA	346.6	1	5	ng/wet g	500	0	69	50 - 150%	PASS			
cis-Nonachlor	NA	456.9	1	5	ng/wet g	500	0	91	50 - 150%	PASS			
Dieldrin	NA	417.2	1	5	ng/wet g	500	0	83	50 - 150%	PASS			
Endosulfan sulfate	NA	482.2	1	5	ng/wet g	500	0	96	50 - 150%	PASS			
Endosulfan-I	NA	382.9	1	5	ng/wet g	500	0	77	50 - 150%	PASS			
Endosulfan-II	NA	531.9	1	5	ng/wet g	500	0	106	50 - 150%	PASS			
Endrin	NA	452.8	1	5	ng/wet g	500	0	91	25 - 125%	PASS			
Endrin aldehyde	NA	269	1	5	ng/wet g	500	0	54	0 - 125%	PASS			
Endrin ketone	NA	493.5	1	5	ng/wet g	500	0	99	25 - 125%	PASS			

Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Heptachlor	NA	536.7	1	5	ng/wet g	500	0	107	50 - 150%	PASS				
Heptachlor epoxide	NA	508.2	1	5	ng/wet g	500	0	102	50 - 150%	PASS				
Hexachlorobenzene	NA	383.3	1	5	ng/wet g	500	0	77	50 - 150%	PASS				
Methoxychlor	NA	548.5	1	5	ng/wet g	500	0	110	50 - 150%	PASS				
Mirex	NA	558.1	1	5	ng/wet g	500	0	112	50 - 150%	PASS				
Oxychlordane	NA	432.2	1	5	ng/wet g	500	0	86	50 - 150%	PASS				
Perthane	NA	355.2	5	10	ng/wet g	500	0	71	50 - 150%	PASS				
trans-Nonachlor	NA	353.8	1	5	ng/wet g	500	0	71	50 - 150%	PASS				

Sample ID: 29118-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	74			% Recovery	100	0	74	50 - 150%	PASS	0	30	PASS	
(PCB112)	NA	71			% Recovery	100	0	71	50 - 150%	PASS	8	30	PASS	
(PCB198)	NA	121			% Recovery	100	0	121	30 - 130%	PASS	1	30	PASS	
(TCMX)	NA	74			% Recovery	100	0	74	50 - 150%	PASS	1	30	PASS	
2,4'-DDD	NA	330.2	1	5	ng/wet g	500	0	66	50 - 150%	PASS	7	30	PASS	
2,4'-DDE	NA	337.8	1	5	ng/wet g	500	0	68	50 - 150%	PASS	10	30	PASS	
2,4'-DDT	NA	356.8	1	5	ng/wet g	500	0	71	50 - 150%	PASS	5	30	PASS	
4,4'-DDD	NA	415.2	1	5	ng/wet g	500	0	83	50 - 150%	PASS	8	30	PASS	
4,4'-DDE	NA	365.5	1	5	ng/wet g	500	0	73	50 - 150%	PASS	7	30	PASS	
4,4'-DDT	NA	501.6	1	5	ng/wet g	500	0	100	50 - 150%	PASS	23	30	PASS	
Aldrin	NA	428.5	1	5	ng/wet g	500	0	86	50 - 150%	PASS	5	30	PASS	
BHC-alpha	NA	385.7	1	5	ng/wet g	500	0	77	50 - 150%	PASS	4	30	PASS	
BHC-beta	NA	494.6	1	5	ng/wet g	500	0	99	50 - 150%	PASS	4	30	PASS	
BHC-delta	NA	445.5	1	5	ng/wet g	500	0	89	50 - 150%	PASS	3	30	PASS	
BHC-gamma	NA	331.8	1	5	ng/wet g	500	0	66	50 - 150%	PASS	10	30	PASS	
Chlordane-alpha	NA	345.7	1	5	ng/wet g	500	0	69	50 - 150%	PASS	10	30	PASS	
Chlordane-gamma	NA	317.4	1	5	ng/wet g	500	0	63	50 - 150%	PASS	9	30	PASS	
cis-Nonachlor	NA	461.3	1	5	ng/wet g	500	0	92	50 - 150%	PASS	1	30	PASS	
Dieldrin	NA	378.4	1	5	ng/wet g	500	0	76	50 - 150%	PASS	9	30	PASS	
Endosulfan sulfate	NA	483.5	1	5	ng/wet g	500	0	97	50 - 150%	PASS	1	30	PASS	
Endosulfan-I	NA	416.7	1	5	ng/wet g	500	0	83	50 - 150%	PASS	8	30	PASS	

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Endosulfan-II	NA	548.9	1	5	ng/wet g	500	0	110	50 - 150%	PASS	4	30	PASS	
Endrin	NA	451	1	5	ng/wet g	500	0	90	25 - 125%	PASS	1	30	PASS	
Endrin aldehyde	NA	344.6	1	5	ng/wet g	500	0	69	0 - 125%	PASS	24	30	PASS	
Endrin ketone	NA	548.4	1	5	ng/wet g	500	0	110	25 - 125%	PASS	11	30	PASS	
Heptachlor	NA	592.1	1	5	ng/wet g	500	0	118	50 - 150%	PASS	10	30	PASS	
Heptachlor epoxide	NA	488.8	1	5	ng/wet g	500	0	98	50 - 150%	PASS	4	30	PASS	
Hexachlorobenzene	NA	403.2	1	5	ng/wet g	500	0	81	50 - 150%	PASS	5	30	PASS	
Methoxychlor	NA	683.1	1	5	ng/wet g	500	0	137	50 - 150%	PASS	22	30	PASS	
Mirex	NA	616	1	5	ng/wet g	500	0	123	50 - 150%	PASS	9	30	PASS	
Oxychlordane	NA	456.2	1	5	ng/wet g	500	0	91	50 - 150%	PASS	6	30	PASS	
Perthane	NA	335.9	5	10	ng/wet g	500	0	67	50 - 150%	PASS	6	30	PASS	
trans-Nonachlor	NA	332.5	1	5	ng/wet g	500	0	67	50 - 150%	PASS	7	30	PASS	

Sample ID: 29121-MS1 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	112			% Recovery	100	0	112	50 - 150%	PASS				
(PCB112)	NA	126			% Recovery	100	0	126	50 - 150%	PASS				
(PCB198)	NA	130			% Recovery	100	0	130	30 - 130%	PASS				
(TCMX)	NA	117			% Recovery	100	0	117	50 - 150%	PASS				
2,4'-DDD	NA	116.7	1	5	ng/wet g	96.6	0	121	50 - 150%	PASS				
2,4'-DDE	NA	108.5	1	5	ng/wet g	96.6	0	112	50 - 150%	PASS				
2,4'-DDT	NA	169.2	1	5	ng/wet g	96.6	35	139	50 - 150%	PASS				
4,4'-DDD	NA	122.6	1	5	ng/wet g	96.6	8.8	118	50 - 150%	PASS				
4,4'-DDE	NA	135.2	1	5	ng/wet g	96.6	15.4	124	50 - 150%	PASS				
4,4'-DDT	NA	178.5	1	5	ng/wet g	96.6	11.2	173	50 - 150%	FAIL				M
Aldrin	NA	100	1	5	ng/wet g	96.6	0	104	50 - 150%	PASS				
BHC-alpha	NA	115.3	1	5	ng/wet g	96.6	0	119	50 - 150%	PASS				
BHC-beta	NA	121.4	1	5	ng/wet g	96.6	0	126	50 - 150%	PASS				
BHC-delta	NA	97.7	1	5	ng/wet g	96.6	0	101	50 - 150%	PASS				
BHC-gamma	NA	101.2	1	5	ng/wet g	96.6	0	105	50 - 150%	PASS				
Chlordane-alpha	NA	124.6	1	5	ng/wet g	96.6	1.9	127	50 - 150%	PASS				
Chlordane-gamma	NA	125.8	1	5	ng/wet g	96.6	0.6	130	50 - 150%	PASS				

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
cis-Nonachlor	NA	137.2	1	5	ng/wet g	96.6	1.1	141	50 - 150%	PASS				
Dieldrin	NA	98	1	5	ng/wet g	96.6	0	101	50 - 150%	PASS				
Endosulfan sulfate	NA	140.4	1	5	ng/wet g	96.6	0	145	50 - 150%	PASS				
Endosulfan-I	NA	127.9	1	5	ng/wet g	96.6	0	132	50 - 150%	PASS				
Endosulfan-II	NA	213.7	1	5	ng/wet g	96.6	0	221	50 - 150%	FAIL				M
Endrin	NA	103.6	1	5	ng/wet g	96.6	0	107	25 - 125%	PASS				
Endrin aldehyde	NA	103.7	1	5	ng/wet g	96.6	0	107	0 - 125%	PASS				
Endrin ketone	NA	132	1	5	ng/wet g	96.6	0	115	25 - 125%	PASS				
Heptachlor	NA	158.4	1	5	ng/wet g	96.6	0	164	50 - 150%	FAIL				M
Heptachlor epoxide	NA	124.9	1	5	ng/wet g	96.6	0	129	50 - 150%	PASS				
Hexachlorobenzene	NA	112	1	5	ng/wet g	96.6	0.5	115	50 - 150%	PASS				
Methoxychlor	NA	236.4	1	5	ng/wet g	96.6	0	245	50 - 150%	FAIL				M
Mirex	NA	160.5	1	5	ng/wet g	96.6	0	166	50 - 150%	FAIL				M
Oxychlordane	NA	120	1	5	ng/wet g	96.6	0	124	50 - 150%	PASS				
Perthane	NA	117.9	5	10	ng/wet g	96.6	0	122	50 - 150%	PASS				
trans-Nonachlor	NA	129.6	1	5	ng/wet g	96.6	5	129	50 - 150%	PASS				

Sample ID: 29121-MS2 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	113			% Recovery	100	0	113	50 - 150%	PASS	1	30	PASS	
(PCB112)	NA	107			% Recovery	100	0	107	50 - 150%	PASS	16	30	PASS	
(PCB198)	NA	107			% Recovery	100	0	107	30 - 130%	PASS	19	30	PASS	
(TCMX)	NA	131			% Recovery	100	0	131	50 - 150%	PASS	11	30	PASS	
2,4'-DDD	NA	100.9	1	5	ng/wet g	99.6	0	101	50 - 150%	PASS	18	30	PASS	
2,4'-DDE	NA	110.6	1	5	ng/wet g	99.6	0	111	50 - 150%	PASS	1	30	PASS	
2,4'-DDT	NA	80.2	1	5	ng/wet g	99.6	35	45	50 - 150%	FAIL	102	30	FAIL	M
4,4'-DDD	NA	61.3	1	5	ng/wet g	99.6	8.8	53	50 - 150%	PASS	76	30	FAIL	M
4,4'-DDE	NA	109.5	1	5	ng/wet g	99.6	15.4	94	50 - 150%	PASS	28	30	PASS	
4,4'-DDT	NA	120	1	5	ng/wet g	99.6	11.2	109	50 - 150%	PASS	45	30	FAIL	M
Aldrin	NA	102.9	1	5	ng/wet g	99.6	0	103	50 - 150%	PASS	1	30	PASS	
BHC-alpha	NA	109.5	1	5	ng/wet g	99.6	0	110	50 - 150%	PASS	8	30	PASS	
BHC-beta	NA	76.7	1	5	ng/wet g	99.6	0	77	50 - 150%	PASS	48	30	FAIL	M

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
BHC-delta	NA	79.6	1	5	ng/wet g	99.6	0	80	50 - 150%	PASS	23	30	PASS	
BHC-gamma	NA	74.2	1	5	ng/wet g	99.6	0	74	50 - 150%	PASS	35	30	FAIL	M
Chlordane-alpha	NA	100.8	1	5	ng/wet g	99.6	1.9	99	50 - 150%	PASS	25	30	PASS	
Chlordane-gamma	NA	89.4	1	5	ng/wet g	99.6	0.6	89	50 - 150%	PASS	37	30	FAIL	M
cis-Nonachlor	NA	93.2	1	5	ng/wet g	99.6	1.1	92	50 - 150%	PASS	42	30	FAIL	M
Dieldrin	NA	73.3	1	5	ng/wet g	99.6	0	74	50 - 150%	PASS	31	30	FAIL	M
Endosulfan sulfate	NA	106.4	1	5	ng/wet g	99.6	0	107	50 - 150%	PASS	30	30	PASS	
Endosulfan-I	NA	72.2	1	5	ng/wet g	99.6	0	72	50 - 150%	PASS	59	30	FAIL	M
Endosulfan-II	NA	125.8	1	5	ng/wet g	99.6	0	126	50 - 150%	PASS	55	30	FAIL	M
Endrin	NA	84.1	1	5	ng/wet g	99.6	0	84	25 - 125%	PASS	24	30	PASS	
Endrin aldehyde	NA	78.1	1	5	ng/wet g	99.6	0	78	0 - 125%	PASS	31	30	FAIL	M
Endrin ketone	NA	72.6	1	5	ng/wet g	99.6	0	52	25 - 125%	PASS	75	30	FAIL	M
Heptachlor	NA	84.5	1	5	ng/wet g	99.6	0	85	50 - 150%	PASS	63	30	FAIL	M
Heptachlor epoxide	NA	100.9	1	5	ng/wet g	99.6	0	101	50 - 150%	PASS	24	30	PASS	
Hexachlorobenzene	NA	117.5	1	5	ng/wet g	99.6	0.5	117	50 - 150%	PASS	2	30	PASS	
Methoxychlor	NA	118.1	1	5	ng/wet g	99.6	0	119	50 - 150%	PASS	69	30	FAIL	M
Mirex	NA	108	1	5	ng/wet g	99.6	0	108	50 - 150%	PASS	42	30	FAIL	M
Oxychlordane	NA	75.5	1	5	ng/wet g	99.6	0	76	50 - 150%	PASS	48	30	FAIL	M
Perthane	NA	97.9	5	10	ng/wet g	99.6	0	98	50 - 150%	PASS	22	30	PASS	
trans-Nonachlor	NA	99.5	1	5	ng/wet g	99.6	5	95	50 - 150%	PASS	30	30	PASS	

Sample ID: 29121-R2 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	91			% Recovery	100		91	50 - 150%	PASS	21	30	PASS	
(PCB112)	NA	95			% Recovery	100		95	50 - 150%	PASS	23	30	PASS	
(PCB198)	NA	98			% Recovery	100		98	30 - 130%	PASS	4	30	PASS	
(TCMX)	NA	103			% Recovery	100		103	50 - 150%	PASS	21	30	PASS	
2,4'-DDD	NA	ND	1	5	ng/wet g						0	30	PASS	
2,4'-DDE	NA	ND	1	5	ng/wet g						0	30	PASS	
2,4'-DDT	NA	27.4	1	5	ng/wet g						43	30	FAIL	NH
4,4'-DDD	NA	7.3	1	5	ng/wet g						35	30	FAIL	SL
4,4'-DDE	NA	16.5	1	5	ng/wet g						14	30	PASS	

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
4,4'-DDT	NA	8.4	1	5	ng/wet g						50	30	FAIL	SL
Aldrin	NA	ND	1	5	ng/wet g						0	30	PASS	
BHC-alpha	NA	ND	1	5	ng/wet g						0	30	PASS	
BHC-beta	NA	ND	1	5	ng/wet g						0	30	PASS	
BHC-delta	NA	ND	1	5	ng/wet g						0	30	PASS	
BHC-gamma	NA	ND	1	5	ng/wet g						0	30	PASS	
Chlordane-alpha	NA	1.9	1	5	ng/wet g						0	30	PASS	J
Chlordane-gamma	NA	ND	1	5	ng/wet g						18	30	PASS	
cis-Nonachlor	NA	1.2	1	5	ng/wet g						9	30	PASS	J
Dieldrin	NA	ND	1	5	ng/wet g						0	30	PASS	
Endosulfan sulfate	NA	ND	1	5	ng/wet g						0	30	PASS	
Endosulfan-I	NA	ND	1	5	ng/wet g						0	30	PASS	
Endosulfan-II	NA	ND	1	5	ng/wet g						0	30	PASS	
Endrin	NA	ND	1	5	ng/wet g						0	30	PASS	
Endrin aldehyde	NA	ND	1	5	ng/wet g						0	30	PASS	
Endrin ketone	NA	ND	1	5	ng/wet g						0	30	PASS	
Heptachlor	NA	ND	1	5	ng/wet g						0	30	PASS	
Heptachlor epoxide	NA	ND	1	5	ng/wet g						0	30	PASS	
Hexachlorobenzene	NA	1.1	1	5	ng/wet g						10	30	PASS	J
Methoxychlor	NA	ND	1	5	ng/wet g						0	30	PASS	
Mirex	NA	ND	1	5	ng/wet g						0	30	PASS	
Oxychlordane	NA	ND	1	5	ng/wet g						0	30	PASS	
Perthane	NA	ND	5	10	ng/wet g						0	30	PASS	
trans-Nonachlor	NA	5.7	1	5	ng/wet g						26	30	PASS	
Sample ID: 29125-B1	**QAQC Procedural Blank** Method: EPA 8270D				**Matrix: DI Water** Batch ID: O-6090			**Sampled:** Prepared: 12-Sep-14			**Received:** Analyzed: 30-Sep-14			
(PCB030)	NA	74			% Recovery	100		74	50 - 150%	PASS				
(PCB112)	NA	73			% Recovery	100		73	50 - 150%	PASS				
(PCB198)	NA	84			% Recovery	100		84	50 - 150%	PASS				
(TCMX)	NA	61			% Recovery	100		61	50 - 150%	PASS				
2,4'-DDD	NA	ND	1	5	ng/dry g									

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
2,4'-DDE	NA	ND	1	5	ng/dry g							
2,4'-DDT	NA	ND	1	5	ng/dry g							
4,4'-DDD	NA	ND	1	5	ng/dry g							
4,4'-DDE	NA	ND	1	5	ng/dry g							
4,4'-DDT	NA	ND	1	5	ng/dry g							
Aldrin	NA	ND	1	5	ng/dry g							
BHC-alpha	NA	ND	1	5	ng/dry g							
BHC-beta	NA	ND	1	5	ng/dry g							
BHC-delta	NA	ND	1	5	ng/dry g							
BHC-gamma	NA	ND	1	5	ng/dry g							
Chlordane-alpha	NA	ND	1	5	ng/dry g							
Chlordane-gamma	NA	ND	1	5	ng/dry g							
cis-Nonachlor	NA	ND	1	5	ng/dry g							
Dieldrin	NA	ND	1	5	ng/dry g							
Endosulfan sulfate	NA	ND	1	5	ng/dry g							
Endosulfan-I	NA	ND	1	5	ng/dry g							
Endosulfan-II	NA	ND	1	5	ng/dry g							
Endrin	NA	ND	1	5	ng/dry g							
Endrin aldehyde	NA	ND	1	5	ng/dry g							
Endrin ketone	NA	ND	1	5	ng/dry g							
Heptachlor	NA	ND	1	5	ng/dry g							
Heptachlor epoxide	NA	ND	1	5	ng/dry g							
Hexachlorobenzene	NA	ND	1	5	ng/dry g							
Methoxychlor	NA	ND	1	5	ng/dry g							
Mirex	NA	ND	1	5	ng/dry g							
Oxychlordane	NA	ND	1	5	ng/dry g							
Perthane	NA	ND	5	10	ng/dry g							
trans-Nonachlor	NA	ND	1	5	ng/dry g							

Sample ID: 29125-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

(PCB030)	NA	90			% Recovery	100	0	90	50 - 150% PASS			

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(PCB112)	NA	82			% Recovery	100	0	82	50 - 150%	PASS			
(PCB198)	NA	100			% Recovery	100	0	100	50 - 150%	PASS			
(TCMX)	NA	89			% Recovery	100	0	89	50 - 150%	PASS			
2,4'-DDD	NA	389.4	1	5	ng/dry g	500	0	78	50 - 150%	PASS			
2,4'-DDE	NA	393.4	1	5	ng/dry g	500	0	79	50 - 150%	PASS			
2,4'-DDT	NA	358	1	5	ng/dry g	500	0	72	50 - 150%	PASS			
4,4'-DDD	NA	409	1	5	ng/dry g	500	0	82	50 - 150%	PASS			
4,4'-DDE	NA	458.1	1	5	ng/dry g	500	0	92	50 - 150%	PASS			
4,4'-DDT	NA	406.3	1	5	ng/dry g	500	0	81	50 - 150%	PASS			
Aldrin	NA	510.9	1	5	ng/dry g	500	0	102	50 - 150%	PASS			
BHC-alpha	NA	430.6	1	5	ng/dry g	500	0	86	50 - 150%	PASS			
BHC-beta	NA	500.6	1	5	ng/dry g	500	0	100	50 - 150%	PASS			
BHC-delta	NA	398.5	1	5	ng/dry g	500	0	80	50 - 150%	PASS			
BHC-gamma	NA	472	1	5	ng/dry g	500	0	94	50 - 150%	PASS			
Chlordane-alpha	NA	441.2	1	5	ng/dry g	500	0	88	50 - 150%	PASS			
Chlordane-gamma	NA	444.1	1	5	ng/dry g	500	0	89	50 - 150%	PASS			
cis-Nonachlor	NA	502.6	1	5	ng/dry g	500	0	101	50 - 150%	PASS			
Dieldrin	NA	442.7	1	5	ng/dry g	500	0	89	50 - 150%	PASS			
Endosulfan sulfate	NA	409.7	1	5	ng/dry g	500	0	82	50 - 150%	PASS			
Endosulfan-I	NA	337.6	1	5	ng/dry g	500	0	68	50 - 150%	PASS			
Endosulfan-II	NA	342.7	1	5	ng/dry g	500	0	69	50 - 150%	PASS			
Endrin	NA	431.9	1	5	ng/dry g	500	0	86	25 - 125%	PASS			
Endrin aldehyde	NA	64.8	1	5	ng/dry g	500	0	13	0 - 125%	PASS			
Endrin ketone	NA	430.8	1	5	ng/dry g	500	0	86	25 - 125%	PASS			
Heptachlor	NA	417.8	1	5	ng/dry g	500	0	84	50 - 150%	PASS			
Heptachlor epoxide	NA	519	1	5	ng/dry g	500	0	104	50 - 150%	PASS			
Hexachlorobenzene	NA	1492.8	1	5	ng/dry g	1500	0	100	50 - 150%	PASS			
Methoxychlor	NA	432.7	1	5	ng/dry g	500	0	87	50 - 150%	PASS			
Mirex	NA	418.2	1	5	ng/dry g	500	0	84	50 - 150%	PASS			
Oxychlordane	NA	451.4	1	5	ng/dry g	500	0	90	50 - 150%	PASS			
Perthane	NA	403.6	5	10	ng/dry g	500	0	81	50 - 150%	PASS			

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
trans-Nonachlor	NA	498.7	1	5	ng/dry g	500	0	100	50 - 150%	PASS				

Sample ID: 29125-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	96			% Recovery	100	0	96	50 - 150%	PASS	6	30	PASS	
(PCB112)	NA	88			% Recovery	100	0	88	50 - 150%	PASS	7	30	PASS	
(PCB198)	NA	112			% Recovery	100	0	112	50 - 150%	PASS	11	30	PASS	
(TCMX)	NA	94			% Recovery	100	0	94	50 - 150%	PASS	5	30	PASS	
2,4'-DDD	NA	392.9	1	5	ng/dry g	500	0	79	50 - 150%	PASS	1	30	PASS	
2,4'-DDE	NA	400.9	1	5	ng/dry g	500	0	80	50 - 150%	PASS	1	30	PASS	
2,4'-DDT	NA	355.8	1	5	ng/dry g	500	0	71	50 - 150%	PASS	1	30	PASS	
4,4'-DDD	NA	407.3	1	5	ng/dry g	500	0	81	50 - 150%	PASS	1	30	PASS	
4,4'-DDE	NA	470.2	1	5	ng/dry g	500	0	94	50 - 150%	PASS	2	30	PASS	
4,4'-DDT	NA	386.6	1	5	ng/dry g	500	0	77	50 - 150%	PASS	5	30	PASS	
Aldrin	NA	523.5	1	5	ng/dry g	500	0	105	50 - 150%	PASS	3	30	PASS	
BHC-alpha	NA	421.2	1	5	ng/dry g	500	0	84	50 - 150%	PASS	2	30	PASS	
BHC-beta	NA	471.2	1	5	ng/dry g	500	0	94	50 - 150%	PASS	6	30	PASS	
BHC-delta	NA	407.5	1	5	ng/dry g	500	0	81	50 - 150%	PASS	2	30	PASS	
BHC-gamma	NA	474.4	1	5	ng/dry g	500	0	95	50 - 150%	PASS	1	30	PASS	
Chlordane-alpha	NA	438.4	1	5	ng/dry g	500	0	88	50 - 150%	PASS	0	30	PASS	
Chlordane-gamma	NA	463.3	1	5	ng/dry g	500	0	93	50 - 150%	PASS	4	30	PASS	
cis-Nonachlor	NA	487.2	1	5	ng/dry g	500	0	97	50 - 150%	PASS	4	30	PASS	
Dieldrin	NA	423.7	1	5	ng/dry g	500	0	85	50 - 150%	PASS	5	30	PASS	
Endosulfan sulfate	NA	412.5	1	5	ng/dry g	500	0	82	50 - 150%	PASS	0	30	PASS	
Endosulfan-I	NA	343.4	1	5	ng/dry g	500	0	69	50 - 150%	PASS	1	30	PASS	
Endosulfan-II	NA	395.3	1	5	ng/dry g	500	0	79	50 - 150%	PASS	14	30	PASS	
Endrin	NA	429.6	1	5	ng/dry g	500	0	86	25 - 125%	PASS	0	30	PASS	
Endrin aldehyde	NA	52.5	1	5	ng/dry g	500	0	10	0 - 125%	PASS	26	30	PASS	
Endrin ketone	NA	435	1	5	ng/dry g	500	0	87	25 - 125%	PASS	1	30	PASS	
Heptachlor	NA	406.1	1	5	ng/dry g	500	0	81	50 - 150%	PASS	4	30	PASS	
Heptachlor epoxide	NA	510.3	1	5	ng/dry g	500	0	102	50 - 150%	PASS	2	30	PASS	
Hexachlorobenzene	NA	1503.1	1	5	ng/dry g	1500	0	100	50 - 150%	PASS	0	30	PASS	

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	LIMITS		PRECISION %	LIMITS		QA CODE
Methoxychlor	NA	414.9	1	5	ng/dry g	500	0	83	50 - 150%	PASS	5	30	PASS	
Mirex	NA	433.5	1	5	ng/dry g	500	0	87	50 - 150%	PASS	4	30	PASS	
Oxychlordane	NA	442.1	1	5	ng/dry g	500	0	88	50 - 150%	PASS	2	30	PASS	
Perthane	NA	398.8	5	10	ng/dry g	500	0	80	50 - 150%	PASS	1	30	PASS	
trans-Nonachlor	NA	481.1	1	5	ng/dry g	500	0	96	50 - 150%	PASS	4	30	PASS	

Sample ID: 29131-MS1 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	LIMITS		PRECISION %	LIMITS		QA CODE
(PCB030)	NA	87			% Recovery	100	0	87	50 - 150%	PASS				
(PCB112)	NA	81			% Recovery	100	0	81	50 - 150%	PASS				
(PCB198)	NA	96			% Recovery	100	0	96	50 - 150%	PASS				
(TCMX)	NA	80			% Recovery	100	0	80	50 - 150%	PASS				
2,4'-DDD	NA	48.1	1	5	ng/dry g	61.1	0	79	50 - 150%	PASS				
2,4'-DDE	NA	48	1	5	ng/dry g	61.1	0	79	50 - 150%	PASS				
2,4'-DDT	NA	23.9	1	5	ng/dry g	61.1	0	39	50 - 150%	FAIL				M
4,4'-DDD	NA	48.9	1	5	ng/dry g	61.1	0	80	50 - 150%	PASS				
4,4'-DDE	NA	50.5	1	5	ng/dry g	61.1	0	83	50 - 150%	PASS				
4,4'-DDT	NA	22.1	1	5	ng/dry g	61.1	0	36	50 - 150%	FAIL				M
Aldrin	NA	42.8	1	5	ng/dry g	61.1	0	70	50 - 150%	PASS				
BHC-alpha	NA	48.3	1	5	ng/dry g	61.1	0	79	50 - 150%	PASS				
BHC-beta	NA	50.4	1	5	ng/dry g	61.1	0	82	50 - 150%	PASS				
BHC-delta	NA	47.1	1	5	ng/dry g	61.1	0	77	50 - 150%	PASS				
BHC-gamma	NA	50.1	1	5	ng/dry g	61.1	0	82	50 - 150%	PASS				
Chlordane-alpha	NA	52.3	1	5	ng/dry g	61.1	0	86	50 - 150%	PASS				
Chlordane-gamma	NA	51.1	1	5	ng/dry g	61.1	0	84	50 - 150%	PASS				
cis-Nonachlor	NA	56.9	1	5	ng/dry g	61.1	0	93	50 - 150%	PASS				
Dieldrin	NA	35.4	1	5	ng/dry g	61.1	0	58	50 - 150%	PASS				
Endosulfan sulfate	NA	50.1	1	5	ng/dry g	61.1	0	82	50 - 150%	PASS				
Endosulfan-I	NA	31	1	5	ng/dry g	61.1	0	51	50 - 150%	PASS				
Endosulfan-II	NA	43.2	1	5	ng/dry g	61.1	0	71	50 - 150%	PASS				
Endrin	NA	35.3	1	5	ng/dry g	61.1	0	58	25 - 125%	PASS				
Endrin aldehyde	NA	12.8	1	5	ng/dry g	61.1	0	21	0 - 125%	PASS				

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Endrin ketone	NA	39.3	1	5	ng/dry g	61.1	0	64	25 - 125%	PASS				
Heptachlor	NA	41.4	1	5	ng/dry g	61.1	0	68	50 - 150%	PASS				
Heptachlor epoxide	NA	63.5	1	5	ng/dry g	61.1	0	104	50 - 150%	PASS				
Hexachlorobenzene	NA	52.2	1	5	ng/dry g	61.1	0	85	50 - 150%	PASS				
Methoxychlor	NA	28.2	1	5	ng/dry g	61.1	0	46	50 - 150%	FAIL				M
Mirex	NA	40.5	1	5	ng/dry g	61.1	0	66	50 - 150%	PASS				
Oxychlordane	NA	51.8	1	5	ng/dry g	61.1	0	85	50 - 150%	PASS				
Perthane	NA	52	5	10	ng/dry g	61.1	0	85	50 - 150%	PASS				
trans-Nonachlor	NA	58.2	1	5	ng/dry g	61.1	0	95	50 - 150%	PASS				

Sample ID: 29131-MS2 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	93			% Recovery	100	0	93	50 - 150%	PASS	7	30	PASS	
(PCB112)	NA	80			% Recovery	100	0	80	50 - 150%	PASS	1	30	PASS	
(PCB198)	NA	92			% Recovery	100	0	92	50 - 150%	PASS	4	30	PASS	
(TCMX)	NA	87			% Recovery	100	0	87	50 - 150%	PASS	8	30	PASS	
2,4'-DDD	NA	26.9	1	5	ng/dry g	34.4	0	78	50 - 150%	PASS	1	30	PASS	
2,4'-DDE	NA	26.4	1	5	ng/dry g	34.4	0	77	50 - 150%	PASS	3	30	PASS	
2,4'-DDT	NA	17.4	1	5	ng/dry g	34.4	0	51	50 - 150%	PASS	27	30	PASS	
4,4'-DDD	NA	28.4	1	5	ng/dry g	34.4	0	83	50 - 150%	PASS	4	30	PASS	
4,4'-DDE	NA	27.4	1	5	ng/dry g	34.4	0	80	50 - 150%	PASS	4	30	PASS	
4,4'-DDT	NA	16.9	1	5	ng/dry g	34.4	0	49	50 - 150%	FAIL	31	30	FAIL	M
Aldrin	NA	24	1	5	ng/dry g	34.4	0	70	50 - 150%	PASS	0	30	PASS	
BHC-alpha	NA	28.9	1	5	ng/dry g	34.4	0	84	50 - 150%	PASS	6	30	PASS	
BHC-beta	NA	26.2	1	5	ng/dry g	34.4	0	76	50 - 150%	PASS	8	30	PASS	
BHC-delta	NA	27.4	1	5	ng/dry g	34.4	0	80	50 - 150%	PASS	4	30	PASS	
BHC-gamma	NA	29.8	1	5	ng/dry g	34.4	0	87	50 - 150%	PASS	6	30	PASS	
Chlordane-alpha	NA	29.7	1	5	ng/dry g	34.4	0	86	50 - 150%	PASS	0	30	PASS	
Chlordane-gamma	NA	29.9	1	5	ng/dry g	34.4	0	87	50 - 150%	PASS	4	30	PASS	
cis-Nonachlor	NA	31.5	1	5	ng/dry g	34.4	0	92	50 - 150%	PASS	1	30	PASS	
Dieldrin	NA	19.5	1	5	ng/dry g	34.4	0	57	50 - 150%	PASS	2	30	PASS	
Endosulfan sulfate	NA	24.7	1	5	ng/dry g	34.4	0	72	50 - 150%	PASS	13	30	PASS	

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Endosulfan-I	NA	21.1	1	5	ng/dry g	34.4	0	61	50 - 150%	PASS	18	30	PASS	
Endosulfan-II	NA	27.6	1	5	ng/dry g	34.4	0	80	50 - 150%	PASS	12	30	PASS	
Endrin	NA	27.1	1	5	ng/dry g	34.4	0	79	25 - 125%	PASS	31	30	FAIL	R
Endrin aldehyde	NA	7.4	1	5	ng/dry g	34.4	0	22	0 - 125%	PASS	5	30	PASS	
Endrin ketone	NA	26.9	1	5	ng/dry g	34.4	0	78	25 - 125%	PASS	20	30	PASS	
Heptachlor	NA	23.8	1	5	ng/dry g	34.4	0	69	50 - 150%	PASS	1	30	PASS	
Heptachlor epoxide	NA	37.7	1	5	ng/dry g	34.4	0	110	50 - 150%	PASS	6	30	PASS	
Hexachlorobenzene	NA	32.2	1	5	ng/dry g	34.4	0	94	50 - 150%	PASS	10	30	PASS	
Methoxychlor	NA	20.8	1	5	ng/dry g	34.4	0	60	50 - 150%	PASS	26	30	PASS	
Mirex	NA	20.9	1	5	ng/dry g	34.4	0	61	50 - 150%	PASS	8	30	PASS	
Oxychlordane	NA	30.9	1	5	ng/dry g	34.4	0	90	50 - 150%	PASS	6	30	PASS	
Perthane	NA	29.3	5	10	ng/dry g	34.4	0	85	50 - 150%	PASS	0	30	PASS	
trans-Nonachlor	NA	33.3	1	5	ng/dry g	34.4	0	97	50 - 150%	PASS	2	30	PASS	

Sample ID: 29131-R2 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB030)	NA	90			% Recovery	100		90	50 - 150%	PASS	6	30	PASS	
(PCB112)	NA	81			% Recovery	100		81	50 - 150%	PASS	4	30	PASS	
(PCB198)	NA	91			% Recovery	100		91	50 - 150%	PASS	6	30	PASS	
(TCMX)	NA	87			% Recovery	100		87	50 - 150%	PASS	8	30	PASS	
2,4'-DDD	NA	ND	1	5	ng/dry g						0	30	PASS	
2,4'-DDE	NA	ND	1	5	ng/dry g						0	30	PASS	
2,4'-DDT	NA	ND	1	5	ng/dry g						0	30	PASS	
4,4'-DDD	NA	ND	1	5	ng/dry g						0	30	PASS	
4,4'-DDE	NA	ND	1	5	ng/dry g						0	30	PASS	
4,4'-DDT	NA	ND	1	5	ng/dry g						0	30	PASS	
Aldrin	NA	ND	1	5	ng/dry g						0	30	PASS	
BHC-alpha	NA	ND	1	5	ng/dry g						0	30	PASS	
BHC-beta	NA	ND	1	5	ng/dry g						0	30	PASS	
BHC-delta	NA	ND	1	5	ng/dry g						0	30	PASS	
BHC-gamma	NA	ND	1	5	ng/dry g						0	30	PASS	
Chlordane-alpha	NA	ND	1	5	ng/dry g						0	30	PASS	

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Chlordane-gamma	NA	ND	1	5	ng/dry g					0	30	PASS
cis-Nonachlor	NA	ND	1	5	ng/dry g					0	30	PASS
Dieldrin	NA	ND	1	5	ng/dry g					0	30	PASS
Endosulfan sulfate	NA	ND	1	5	ng/dry g					0	30	PASS
Endosulfan-I	NA	ND	1	5	ng/dry g					0	30	PASS
Endosulfan-II	NA	ND	1	5	ng/dry g					0	30	PASS
Endrin	NA	ND	1	5	ng/dry g					0	30	PASS
Endrin aldehyde	NA	ND	1	5	ng/dry g					0	30	PASS
Endrin ketone	NA	ND	1	5	ng/dry g					0	30	PASS
Heptachlor	NA	ND	1	5	ng/dry g					0	30	PASS
Heptachlor epoxide	NA	ND	1	5	ng/dry g					0	30	PASS
Hexachlorobenzene	NA	ND	1	5	ng/dry g					0	30	PASS
Methoxychlor	NA	ND	1	5	ng/dry g					0	30	PASS
Mirex	NA	ND	1	5	ng/dry g					0	30	PASS
Oxychlordane	NA	ND	1	5	ng/dry g					0	30	PASS
Perthane	NA	ND	5	10	ng/dry g					0	30	PASS
trans-Nonachlor	NA	ND	1	5	ng/dry g					0	30	PASS

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Elements QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Sample ID: 29118-B1 QAQC Procedural Blank; Method: EPA 245.7; Matrix: DI Water; Batch ID: E-6088; Sampled: ; Prepared: 07-Oct-14; Received: ; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	ND	0.00001	0.00002	µg/wet g									
Sample ID: 29118-BS1 QAQC Procedural Blank; Method: EPA 245.7; Matrix: DI Water; Batch ID: E-6088; Sampled: ; Prepared: 07-Oct-14; Received: ; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	1.04	0.00001	0.00002	µg/wet g	1	0	104	75 - 125%	PASS				
Sample ID: 29118-BS2 QAQC Procedural Blank; Method: EPA 245.7; Matrix: DI Water; Batch ID: E-6088; Sampled: ; Prepared: 07-Oct-14; Received: ; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	1.05	0.00001	0.00002	µg/wet g	1	0	105	75 - 125%	PASS	1	30	PASS	
Sample ID: 29119-CRM1 QAQC CRM - DOLT-2; Method: EPA 245.7; Matrix: Tissue; Batch ID: E-6088; Sampled: ; Prepared: 07-Oct-14; Received: ; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	2.1458	0.00001	0.00002	µg/dry g	2.14		100	80 - 120%	PASS				
Sample ID: 29121-MS1 Bass 1 whole bass; Method: EPA 245.7; Matrix: Tissue; Batch ID: E-6088; Sampled: 04-Aug-14 15:30; Prepared: 07-Oct-14; Received: 15-Aug-14; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	0.7215	0.00001	0.00002	µg/wet g	0.1625	0.5466	108	75 - 125%	PASS				
Sample ID: 29121-MS2 Bass 1 whole bass; Method: EPA 245.7; Matrix: Tissue; Batch ID: E-6088; Sampled: 04-Aug-14 15:30; Prepared: 07-Oct-14; Received: 15-Aug-14; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	0.72312	0.00001	0.00002	µg/wet g	0.1625	0.5466	109	75 - 125%	PASS	1	30	PASS	
Sample ID: 29121-R2 Bass 1 whole bass; Method: EPA 245.7; Matrix: Tissue; Batch ID: E-6088; Sampled: 04-Aug-14 15:30; Prepared: 07-Oct-14; Received: 15-Aug-14; Analyzed: 08-Oct-14														
Mercury (Hg)	NA	0.5584	0.00001	0.00002	µg/wet g						4	30	PASS	
Sample ID: 29125-B1 QAQC Procedural Blank; Method: EPA 245.7; Matrix: DI Water; Batch ID: E-6082; Sampled: ; Prepared: 15-Sep-14; Received: ; Analyzed: 17-Sep-14														
Mercury (Hg)	NA	ND	0.00001	0.00002	µg/dry g									
Sample ID: 29125-BS1 QAQC Procedural Blank; Method: EPA 245.7; Matrix: DI Water; Batch ID: E-6082; Sampled: ; Prepared: 15-Sep-14; Received: ; Analyzed: 17-Sep-14														

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Mercury (Hg)	NA	1.03	0.00001	0.00002	µg/dry g	1	0	103	80 - 120%	PASS				

Sample ID: 29125-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 245.7 Batch ID: E-6082 Prepared: 15-Sep-14 Analyzed: 17-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Mercury (Hg)	NA	0.997	0.00001	0.00002	µg/dry g	1	0	100	80 - 120%	PASS	3	30	PASS	

Sample ID: 29127-CRM1 **QAQC CRM - ERA 540** **Matrix: Sediment** **Sampled:** **Received:**
Method: EPA 245.7 Batch ID: E-6082 Prepared: 15-Sep-14 Analyzed: 17-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Mercury (Hg)	NA	9.4464	0.00001	0.00002	µg/dry g	9.25		102	80 - 120%	PASS				

Sample ID: 29128-MS1 **L.R. Rocky Pt. Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 245.7 Batch ID: E-6082 Prepared: 15-Sep-14 Analyzed: 17-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Mercury (Hg)	NA	0.05861	0.00001	0.00002	µg/dry g	0.05233	0.00345	105	80 - 120%	PASS				

Sample ID: 29128-MS2 **L.R. Rocky Pt. Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 245.7 Batch ID: E-6082 Prepared: 15-Sep-14 Analyzed: 17-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Mercury (Hg)	NA	0.05809	0.00001	0.00002	µg/dry g	0.05233	0.00345	104	80 - 120%	PASS	1	30	PASS	

Sample ID: 29128-R2 **L.R. Rocky Pt. Surface** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 245.7 Batch ID: E-6082 Prepared: 15-Sep-14 Analyzed: 17-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Mercury (Hg)	NA	0.0033	0.00001	0.00002	µg/dry g						9	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

Sample ID: 29118-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB003	NA	ND	1	5	ng/wet g							
PCB008	NA	ND	1	5	ng/wet g							
PCB018	NA	ND	1	5	ng/wet g							
PCB028	NA	ND	1	5	ng/wet g							
PCB031	NA	ND	1	5	ng/wet g							
PCB033	NA	ND	1	5	ng/wet g							
PCB037	NA	ND	1	5	ng/wet g							
PCB044	NA	ND	1	5	ng/wet g							
PCB049	NA	ND	1	5	ng/wet g							
PCB052	NA	ND	1	5	ng/wet g							
PCB056(060)	NA	ND	1	5	ng/wet g							
PCB066	NA	ND	1	5	ng/wet g							
PCB070	NA	ND	1	5	ng/wet g							
PCB074	NA	ND	1	5	ng/wet g							
PCB077	NA	ND	1	5	ng/wet g							
PCB081	NA	ND	1	5	ng/wet g							
PCB087	NA	ND	1	5	ng/wet g							
PCB095	NA	ND	1	5	ng/wet g							
PCB097	NA	ND	1	5	ng/wet g							
PCB099	NA	ND	1	5	ng/wet g							
PCB101	NA	ND	1	5	ng/wet g							
PCB105	NA	ND	1	5	ng/wet g							
PCB110	NA	ND	1	5	ng/wet g							
PCB114	NA	ND	1	5	ng/wet g							
PCB118	NA	ND	1	5	ng/wet g							
PCB119	NA	ND	1	5	ng/wet g							
PCB123	NA	ND	1	5	ng/wet g							
PCB126	NA	ND	1	5	ng/wet g							
PCB128	NA	ND	1	5	ng/wet g							

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB138	NA	ND	1	5	ng/wet g							
PCB141	NA	ND	1	5	ng/wet g							
PCB149	NA	ND	1	5	ng/wet g							
PCB151	NA	ND	1	5	ng/wet g							
PCB153	NA	ND	1	5	ng/wet g							
PCB156	NA	ND	1	5	ng/wet g							
PCB157	NA	ND	1	5	ng/wet g							
PCB158	NA	ND	1	5	ng/wet g							
PCB167	NA	ND	1	5	ng/wet g							
PCB168+132	NA	ND	1	5	ng/wet g							
PCB169	NA	ND	1	5	ng/wet g							
PCB170	NA	ND	1	5	ng/wet g							
PCB174	NA	ND	1	5	ng/wet g							
PCB177	NA	ND	1	5	ng/wet g							
PCB180	NA	ND	1	5	ng/wet g							
PCB183	NA	ND	1	5	ng/wet g							
PCB187	NA	ND	1	5	ng/wet g							
PCB189	NA	ND	1	5	ng/wet g							
PCB194	NA	ND	1	5	ng/wet g							
PCB195	NA	ND	1	5	ng/wet g							
PCB199(200)	NA	ND	1	5	ng/wet g							
PCB201	NA	ND	1	5	ng/wet g							
PCB206	NA	ND	1	5	ng/wet g							
PCB209	NA	ND	1	5	ng/wet g							

Sample ID: 29118-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB003	NA	47.4	1	5	ng/wet g	100	0	47	50 - 150% FAIL			R
PCB008	NA	53.4	1	5	ng/wet g	100	0	53	50 - 150% PASS			
PCB018	NA	74.6	1	5	ng/wet g	100	0	75	50 - 150% PASS			
PCB028	NA	55.4	1	5	ng/wet g	100	0	55	50 - 150% PASS			
PCB031	NA	66.4	1	5	ng/wet g	100	0	66	50 - 150% PASS			

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB033	NA	64.1	1	5	ng/wet g	100	0	64	50 - 150%	PASS			
PCB037	NA	69.8	1	5	ng/wet g	100	0	70	50 - 150%	PASS			
PCB044	NA	63.6	1	5	ng/wet g	100	0	64	50 - 150%	PASS			
PCB049	NA	61	1	5	ng/wet g	100	0	61	50 - 150%	PASS			
PCB052	NA	62.8	1	5	ng/wet g	100	0	63	50 - 150%	PASS			
PCB056(060)	NA	79.2	1	5	ng/wet g	100	0	79	50 - 150%	PASS			
PCB066	NA	72.8	1	5	ng/wet g	100	0	73	50 - 150%	PASS			
PCB070	NA	72.1	1	5	ng/wet g	100	0	72	50 - 150%	PASS			
PCB074	NA	72.6	1	5	ng/wet g	100	0	73	50 - 150%	PASS			
PCB077	NA	79.9	1	5	ng/wet g	100	0	80	50 - 150%	PASS			
PCB081	NA	79.4	1	5	ng/wet g	100	0	79	50 - 150%	PASS			
PCB087	NA	75.7	1	5	ng/wet g	100	0	76	50 - 150%	PASS			
PCB095	NA	74.1	1	5	ng/wet g	100	0	74	50 - 150%	PASS			
PCB097	NA	81.4	1	5	ng/wet g	100	0	81	50 - 150%	PASS			
PCB099	NA	80	1	5	ng/wet g	100	0	80	50 - 150%	PASS			
PCB101	NA	75.6	1	5	ng/wet g	100	0	76	50 - 150%	PASS			
PCB105	NA	63.5	1	5	ng/wet g	100	0	63	50 - 150%	PASS			
PCB110	NA	77.3	1	5	ng/wet g	100	0	77	50 - 150%	PASS			
PCB114	NA	87.8	1	5	ng/wet g	100	0	88	50 - 150%	PASS			
PCB118	NA	86.9	1	5	ng/wet g	100	0	87	50 - 150%	PASS			
PCB119	NA	87.1	1	5	ng/wet g	100	0	87	50 - 150%	PASS			
PCB123	NA	84.9	1	5	ng/wet g	100	0	85	50 - 150%	PASS			
PCB126	NA	85.6	1	5	ng/wet g	100	0	86	50 - 150%	PASS			
PCB128	NA	90.6	1	5	ng/wet g	100	0	91	50 - 150%	PASS			
PCB138	NA	70.9	1	5	ng/wet g	100	0	71	50 - 150%	PASS			
PCB141	NA	69.4	1	5	ng/wet g	100	0	69	50 - 150%	PASS			
PCB149	NA	75.6	1	5	ng/wet g	100	0	76	50 - 150%	PASS			
PCB151	NA	80.7	1	5	ng/wet g	100	0	81	50 - 150%	PASS			
PCB153	NA	81.2	1	5	ng/wet g	100	0	81	50 - 150%	PASS			
PCB156	NA	86.3	1	5	ng/wet g	100	0	86	50 - 150%	PASS			
PCB157	NA	87.7	1	5	ng/wet g	100	0	88	50 - 150%	PASS			

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB158	NA	73.1	1	5	ng/wet g	100	0	73	50 - 150%	PASS				
PCB167	NA	79.9	1	5	ng/wet g	100	0	80	50 - 150%	PASS				
PCB168+132	NA	143.8	1	5	ng/wet g	200	0	72	50 - 150%	PASS				
PCB169	NA	117.2	1	5	ng/wet g	100	0	117	50 - 150%	PASS				
PCB170	NA	103.2	1	5	ng/wet g	100	0	103	50 - 150%	PASS				
PCB174	NA	71.6	1	5	ng/wet g	100	0	72	50 - 150%	PASS				
PCB177	NA	83.6	1	5	ng/wet g	100	0	84	50 - 150%	PASS				
PCB180	NA	92	1	5	ng/wet g	100	0	92	50 - 150%	PASS				
PCB183	NA	74.1	1	5	ng/wet g	100	0	74	50 - 150%	PASS				
PCB187	NA	73.1	1	5	ng/wet g	100	0	73	50 - 150%	PASS				
PCB189	NA	124.9	1	5	ng/wet g	100	0	125	50 - 150%	PASS				
PCB194	NA	148.3	1	5	ng/wet g	100	0	148	50 - 150%	PASS				
PCB195	NA	129.4	1	5	ng/wet g	100	0	129	50 - 150%	PASS				
PCB199(200)	NA	78.1	1	5	ng/wet g	100	0	78	50 - 150%	PASS				
PCB201	NA	119.6	1	5	ng/wet g	100	0	120	50 - 150%	PASS				
PCB206	NA	99.2	1	5	ng/wet g	100	0	99	50 - 150%	PASS				
PCB209	NA	125.5	1	5	ng/wet g	100	0	125	50 - 150%	PASS				

Sample ID: 29118-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB003	NA	60.8	1	5	ng/wet g	100	0	61	50 - 150%	PASS	26	30	PASS	
PCB008	NA	71.3	1	5	ng/wet g	100	0	71	50 - 150%	PASS	29	30	PASS	
PCB018	NA	74.2	1	5	ng/wet g	100	0	74	50 - 150%	PASS	1	30	PASS	
PCB028	NA	72.8	1	5	ng/wet g	100	0	73	50 - 150%	PASS	28	30	PASS	
PCB031	NA	87.5	1	5	ng/wet g	100	0	88	50 - 150%	PASS	29	30	PASS	
PCB033	NA	87.3	1	5	ng/wet g	100	0	87	50 - 150%	PASS	30	30	PASS	
PCB037	NA	92.5	1	5	ng/wet g	100	0	93	50 - 150%	PASS	27	30	PASS	
PCB044	NA	86.2	1	5	ng/wet g	100	0	86	50 - 150%	PASS	29	30	PASS	
PCB049	NA	81.5	1	5	ng/wet g	100	0	81	50 - 150%	PASS	29	30	PASS	
PCB052	NA	83.5	1	5	ng/wet g	100	0	83	50 - 150%	PASS	29	30	PASS	
PCB056(060)	NA	106.6	1	5	ng/wet g	100	0	107	50 - 150%	PASS	30	30	PASS	
PCB066	NA	96.8	1	5	ng/wet g	100	0	97	50 - 150%	PASS	28	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB070	NA	96.2	1	5	ng/wet g	100	0	96	50 - 150%	PASS	29	30	PASS	
PCB074	NA	90	1	5	ng/wet g	100	0	90	50 - 150%	PASS	21	30	PASS	
PCB077	NA	107.3	1	5	ng/wet g	100	0	107	50 - 150%	PASS	29	30	PASS	
PCB081	NA	104	1	5	ng/wet g	100	0	104	50 - 150%	PASS	27	30	PASS	
PCB087	NA	102.2	1	5	ng/wet g	100	0	102	50 - 150%	PASS	29	30	PASS	
PCB095	NA	97	1	5	ng/wet g	100	0	97	50 - 150%	PASS	27	30	PASS	
PCB097	NA	106.2	1	5	ng/wet g	100	0	106	50 - 150%	PASS	27	30	PASS	
PCB099	NA	102.3	1	5	ng/wet g	100	0	102	50 - 150%	PASS	24	30	PASS	
PCB101	NA	100.1	1	5	ng/wet g	100	0	100	50 - 150%	PASS	27	30	PASS	
PCB105	NA	81.8	1	5	ng/wet g	100	0	82	50 - 150%	PASS	25	30	PASS	
PCB110	NA	104.2	1	5	ng/wet g	100	0	104	50 - 150%	PASS	30	30	PASS	
PCB114	NA	116.4	1	5	ng/wet g	100	0	116	50 - 150%	PASS	27	30	PASS	
PCB118	NA	115.8	1	5	ng/wet g	100	0	116	50 - 150%	PASS	29	30	PASS	
PCB119	NA	115	1	5	ng/wet g	100	0	115	50 - 150%	PASS	28	30	PASS	
PCB123	NA	111.5	1	5	ng/wet g	100	0	112	50 - 150%	PASS	27	30	PASS	
PCB126	NA	110.6	1	5	ng/wet g	100	0	111	50 - 150%	PASS	25	30	PASS	
PCB128	NA	115.5	1	5	ng/wet g	100	0	115	50 - 150%	PASS	24	30	PASS	
PCB138	NA	90	1	5	ng/wet g	100	0	90	50 - 150%	PASS	24	30	PASS	
PCB141	NA	90.1	1	5	ng/wet g	100	0	90	50 - 150%	PASS	26	30	PASS	
PCB149	NA	103	1	5	ng/wet g	100	0	103	50 - 150%	PASS	30	30	PASS	
PCB151	NA	102.5	1	5	ng/wet g	100	0	102	50 - 150%	PASS	23	30	PASS	
PCB153	NA	107.4	1	5	ng/wet g	100	0	107	50 - 150%	PASS	28	30	PASS	
PCB156	NA	112.3	1	5	ng/wet g	100	0	112	50 - 150%	PASS	26	30	PASS	
PCB157	NA	117.2	1	5	ng/wet g	100	0	117	50 - 150%	PASS	28	30	PASS	
PCB158	NA	90.3	1	5	ng/wet g	100	0	90	50 - 150%	PASS	21	30	PASS	
PCB167	NA	99.8	1	5	ng/wet g	100	0	100	50 - 150%	PASS	22	30	PASS	
PCB168+132	NA	167.7	1	5	ng/wet g	200	0	84	50 - 150%	PASS	15	30	PASS	
PCB169	NA	135.3	1	5	ng/wet g	100	0	135	50 - 150%	PASS	14	30	PASS	
PCB170	NA	109	1	5	ng/wet g	100	0	109	50 - 150%	PASS	6	30	PASS	
PCB174	NA	90.6	1	5	ng/wet g	100	0	91	50 - 150%	PASS	23	30	PASS	
PCB177	NA	107.6	1	5	ng/wet g	100	0	108	50 - 150%	PASS	25	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB180	NA	118.5	1	5	ng/wet g	100	0	118	50 - 150%	PASS	25	30	PASS	
PCB183	NA	94.6	1	5	ng/wet g	100	0	95	50 - 150%	PASS	25	30	PASS	
PCB187	NA	91.7	1	5	ng/wet g	100	0	92	50 - 150%	PASS	23	30	PASS	
PCB189	NA	139.8	1	5	ng/wet g	100	0	140	50 - 150%	PASS	11	30	PASS	
PCB194	NA	172.1	1	5	ng/wet g	100	0	172	50 - 150%	FAIL	15	30	PASS	R
PCB195	NA	148.3	1	5	ng/wet g	100	0	148	50 - 150%	PASS	14	30	PASS	
PCB199(200)	NA	104.6	1	5	ng/wet g	100	0	105	50 - 150%	PASS	30	30	PASS	
PCB201	NA	125.5	1	5	ng/wet g	100	0	125	50 - 150%	PASS	5	30	PASS	
PCB206	NA	114.8	1	5	ng/wet g	100	0	115	50 - 150%	PASS	15	30	PASS	
PCB209	NA	125.9	1	5	ng/wet g	100	0	126	50 - 150%	PASS	0	30	PASS	

Sample ID: 29121-MS1 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 06-Oct-14

PCB003	NA	20	1	5	ng/wet g	19.3	0	104	50 - 150%	PASS				
PCB008	NA	21.3	1	5	ng/wet g	19.3	0	110	50 - 150%	PASS				
PCB018	NA	21.9	1	5	ng/wet g	19.3	0	113	50 - 150%	PASS				
PCB028	NA	21.9	1	5	ng/wet g	19.3	0.5	111	50 - 150%	PASS				
PCB031	NA	25.4	1	5	ng/wet g	19.3	0	132	50 - 150%	PASS				
PCB033	NA	21.5	1	5	ng/wet g	19.3	0	111	50 - 150%	PASS				
PCB037	NA	18.4	1	5	ng/wet g	19.3	0	95	50 - 150%	PASS				
PCB044	NA	18.3	1	5	ng/wet g	19.3	0	95	50 - 150%	PASS				
PCB049	NA	20	1	5	ng/wet g	19.3	0	104	50 - 150%	PASS				
PCB052	NA	20.6	1	5	ng/wet g	19.3	0	107	50 - 150%	PASS				
PCB056(060)	NA	20.8	1	5	ng/wet g	19.3	0	108	50 - 150%	PASS				
PCB066	NA	21.4	1	5	ng/wet g	19.3	0	111	50 - 150%	PASS				
PCB070	NA	24	1	5	ng/wet g	19.3	4.8	99	50 - 150%	PASS				
PCB074	NA	20.4	1	5	ng/wet g	19.3	1.5	98	50 - 150%	PASS				
PCB077	NA	32.6	1	5	ng/wet g	19.3	0	169	50 - 150%	FAIL				M
PCB081	NA	21.4	1	5	ng/wet g	19.3	0	111	50 - 150%	PASS				
PCB087	NA	21.9	1	5	ng/wet g	19.3	0	113	50 - 150%	PASS				
PCB095	NA	23	1	5	ng/wet g	19.3	1.3	112	50 - 150%	PASS				
PCB097	NA	21.5	1	5	ng/wet g	19.3	0	111	50 - 150%	PASS				

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB099	NA	21.7	1	5	ng/wet g	19.3	0	112	50 - 150%	PASS			
PCB101	NA	23	1	5	ng/wet g	19.3	1.7	110	50 - 150%	PASS			
PCB105	NA	21	1	5	ng/wet g	19.3	0	109	50 - 150%	PASS			
PCB110	NA	22.7	1	5	ng/wet g	19.3	1.4	110	50 - 150%	PASS			
PCB114	NA	21.2	1	5	ng/wet g	19.3	1.3	103	50 - 150%	PASS			
PCB118	NA	22.3	1	5	ng/wet g	19.3	1.5	108	50 - 150%	PASS			
PCB119	NA	24.8	1	5	ng/wet g	19.3	0	128	50 - 150%	PASS			
PCB123	NA	21.9	1	5	ng/wet g	19.3	0	113	50 - 150%	PASS			
PCB126	NA	23.7	1	5	ng/wet g	19.3	0	123	50 - 150%	PASS			
PCB128	NA	27.2	1	5	ng/wet g	19.3	0	141	50 - 150%	PASS			
PCB138	NA	25.6	1	5	ng/wet g	19.3	4.8	108	50 - 150%	PASS			
PCB141	NA	24.4	1	5	ng/wet g	19.3	0	126	50 - 150%	PASS			
PCB149	NA	22.2	1	5	ng/wet g	19.3	1.2	109	50 - 150%	PASS			
PCB151	NA	23	1	5	ng/wet g	19.3	0	119	50 - 150%	PASS			
PCB153	NA	33.7	1	5	ng/wet g	19.3	5.4	147	50 - 150%	PASS			
PCB156	NA	22.3	1	5	ng/wet g	19.3	0	116	50 - 150%	PASS			
PCB157	NA	24.8	1	5	ng/wet g	19.3	0	128	50 - 150%	PASS			
PCB158	NA	23.9	1	5	ng/wet g	19.3	0	124	50 - 150%	PASS			
PCB167	NA	21	1	5	ng/wet g	19.3	0	109	50 - 150%	PASS			
PCB168+132	NA	47.6	1	5	ng/wet g	38.6	0	123	50 - 150%	PASS			
PCB169	NA	26.5	1	5	ng/wet g	19.3	0	137	50 - 150%	PASS			
PCB170	NA	24.7	1	5	ng/wet g	19.3	1.4	121	50 - 150%	PASS			
PCB174	NA	21.3	1	5	ng/wet g	19.3	0	110	50 - 150%	PASS			
PCB177	NA	24.6	1	5	ng/wet g	19.3	0	127	50 - 150%	PASS			
PCB180	NA	24.9	1	5	ng/wet g	19.3	3.2	112	50 - 150%	PASS			
PCB183	NA	22.4	1	5	ng/wet g	19.3	0	116	50 - 150%	PASS			
PCB187	NA	24.2	1	5	ng/wet g	19.3	2	115	50 - 150%	PASS			
PCB189	NA	23.7	1	5	ng/wet g	19.3	0	123	50 - 150%	PASS			
PCB194	NA	25.3	1	5	ng/wet g	19.3	0	131	50 - 150%	PASS			
PCB195	NA	29.9	1	5	ng/wet g	19.3	0	155	50 - 150%	FAIL			M
PCB199(200)	NA	22.3	1	5	ng/wet g	19.3	0	116	50 - 150%	PASS			

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB201	NA	24.1	1	5	ng/wet g	19.3	0	125	50 - 150%	PASS				
PCB206	NA	20	1	5	ng/wet g	19.3	0	104	50 - 150%	PASS				
PCB209	NA	16.9	1	5	ng/wet g	19.3	0	88	50 - 150%	PASS				

Sample ID: 29121-MS2 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB003	NA	30	1	5	ng/wet g	19.9	0	151	50 - 150%	FAIL	37	30	FAIL	M
PCB008	NA	26.4	1	5	ng/wet g	19.9	0	133	50 - 150%	PASS	19	30	PASS	
PCB018	NA	23.2	1	5	ng/wet g	19.9	0	117	50 - 150%	PASS	3	30	PASS	
PCB028	NA	32.4	1	5	ng/wet g	19.9	0.5	160	50 - 150%	FAIL	36	30	FAIL	M
PCB031	NA	21.4	1	5	ng/wet g	19.9	0	108	50 - 150%	PASS	20	30	PASS	
PCB033	NA	21.4	1	5	ng/wet g	19.9	0	108	50 - 150%	PASS	3	30	PASS	
PCB037	NA	26.2	1	5	ng/wet g	19.9	0	132	50 - 150%	PASS	33	30	FAIL	M
PCB044	NA	19.1	1	5	ng/wet g	19.9	0	96	50 - 150%	PASS	1	30	PASS	
PCB049	NA	21.8	1	5	ng/wet g	19.9	0	110	50 - 150%	PASS	6	30	PASS	
PCB052	NA	22.8	1	5	ng/wet g	19.9	0	115	50 - 150%	PASS	7	30	PASS	
PCB056(060)	NA	21.2	1	5	ng/wet g	19.9	0	107	50 - 150%	PASS	1	30	PASS	
PCB066	NA	23.2	1	5	ng/wet g	19.9	0	117	50 - 150%	PASS	5	30	PASS	
PCB070	NA	14.7	1	5	ng/wet g	19.9	4.8	50	50 - 150%	PASS	66	30	FAIL	M
PCB074	NA	23.5	1	5	ng/wet g	19.9	1.5	111	50 - 150%	PASS	12	30	PASS	
PCB077	NA	26.8	1	5	ng/wet g	19.9	0	135	50 - 150%	PASS	22	30	PASS	
PCB081	NA	17.6	1	5	ng/wet g	19.9	0	88	50 - 150%	PASS	23	30	PASS	
PCB087	NA	24.3	1	5	ng/wet g	19.9	0	122	50 - 150%	PASS	8	30	PASS	
PCB095	NA	26.9	1	5	ng/wet g	19.9	1.3	129	50 - 150%	PASS	14	30	PASS	
PCB097	NA	24.3	1	5	ng/wet g	19.9	0	122	50 - 150%	PASS	9	30	PASS	
PCB099	NA	24.2	1	5	ng/wet g	19.9	0	122	50 - 150%	PASS	9	30	PASS	
PCB101	NA	24.6	1	5	ng/wet g	19.9	1.7	115	50 - 150%	PASS	4	30	PASS	
PCB105	NA	20	1	5	ng/wet g	19.9	0	101	50 - 150%	PASS	8	30	PASS	
PCB110	NA	25.4	1	5	ng/wet g	19.9	1.4	121	50 - 150%	PASS	10	30	PASS	
PCB114	NA	22.9	1	5	ng/wet g	19.9	1.3	109	50 - 150%	PASS	6	30	PASS	
PCB118	NA	24.1	1	5	ng/wet g	19.9	1.5	114	50 - 150%	PASS	5	30	PASS	
PCB119	NA	22.4	1	5	ng/wet g	19.9	0	113	50 - 150%	PASS	12	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	LIMITS		PRECISION %	LIMITS		QA CODE
PCB123	NA	22.4	1	5	ng/wet g	19.9	0	113	50 - 150%	PASS	0	30	PASS	
PCB126	NA	22.6	1	5	ng/wet g	19.9	0	114	50 - 150%	PASS	8	30	PASS	
PCB128	NA	27.9	1	5	ng/wet g	19.9	0	140	50 - 150%	PASS	1	30	PASS	
PCB138	NA	25.5	1	5	ng/wet g	19.9	4.8	104	50 - 150%	PASS	4	30	PASS	
PCB141	NA	23.7	1	5	ng/wet g	19.9	0	119	50 - 150%	PASS	6	30	PASS	
PCB149	NA	23.1	1	5	ng/wet g	19.9	1.2	110	50 - 150%	PASS	1	30	PASS	
PCB151	NA	26.4	1	5	ng/wet g	19.9	0	133	50 - 150%	PASS	11	30	PASS	
PCB153	NA	32	1	5	ng/wet g	19.9	5.4	134	50 - 150%	PASS	9	30	PASS	
PCB156	NA	23.5	1	5	ng/wet g	19.9	0	118	50 - 150%	PASS	2	30	PASS	
PCB157	NA	24	1	5	ng/wet g	19.9	0	121	50 - 150%	PASS	6	30	PASS	
PCB158	NA	27.2	1	5	ng/wet g	19.9	0	137	50 - 150%	PASS	10	30	PASS	
PCB167	NA	25.3	1	5	ng/wet g	19.9	0	127	50 - 150%	PASS	15	30	PASS	
PCB168+132	NA	54.3	1	5	ng/wet g	39.8	0	136	50 - 150%	PASS	10	30	PASS	
PCB169	NA	25.8	1	5	ng/wet g	19.9	0	130	50 - 150%	PASS	5	30	PASS	
PCB170	NA	24.8	1	5	ng/wet g	19.9	1.4	118	50 - 150%	PASS	3	30	PASS	
PCB174	NA	23.6	1	5	ng/wet g	19.9	0	119	50 - 150%	PASS	8	30	PASS	
PCB177	NA	24.6	1	5	ng/wet g	19.9	0	124	50 - 150%	PASS	2	30	PASS	
PCB180	NA	25.9	1	5	ng/wet g	19.9	3.2	114	50 - 150%	PASS	2	30	PASS	
PCB183	NA	23.6	1	5	ng/wet g	19.9	0	119	50 - 150%	PASS	3	30	PASS	
PCB187	NA	23.7	1	5	ng/wet g	19.9	2	109	50 - 150%	PASS	5	30	PASS	
PCB189	NA	27.7	1	5	ng/wet g	19.9	0	139	50 - 150%	PASS	12	30	PASS	
PCB194	NA	21.3	1	5	ng/wet g	19.9	0	107	50 - 150%	PASS	20	30	PASS	
PCB195	NA	26.2	1	5	ng/wet g	19.9	0	132	50 - 150%	PASS	16	30	PASS	
PCB199(200)	NA	22.9	1	5	ng/wet g	19.9	0	115	50 - 150%	PASS	1	30	PASS	
PCB201	NA	24.7	1	5	ng/wet g	19.9	0	124	50 - 150%	PASS	1	30	PASS	
PCB206	NA	20.5	1	5	ng/wet g	19.9	0	103	50 - 150%	PASS	1	30	PASS	
PCB209	NA	23.5	1	5	ng/wet g	19.9	0	118	50 - 150%	PASS	29	30	PASS	

Sample ID: 29121-R2 **Bass 1 whole bass** **Matrix: Tissue** **Sampled: 04-Aug-14 15:30** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6100 Prepared: 29-Sep-14 Analyzed: 07-Oct-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	LIMITS		PRECISION %	LIMITS		QA CODE
PCB003	NA	ND	1	5	ng/wet g						0	30	PASS	
PCB008	NA	ND	1	5	ng/wet g						0	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB018	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB028	NA	ND	1	5	ng/wet g					10	30	PASS	
PCB031	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB033	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB037	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB044	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB049	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB052	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB056(060)	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB066	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB070	NA	5	1	5	ng/wet g					11	30	PASS	
PCB074	NA	1.8	1	5	ng/wet g					40	30	FAIL	J,SL
PCB077	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB081	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB087	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB095	NA	1.3	1	5	ng/wet g					0	30	PASS	J
PCB097	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB099	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB101	NA	1.6	1	5	ng/wet g					12	30	PASS	J
PCB105	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB110	NA	1.6	1	5	ng/wet g					21	30	PASS	J
PCB114	NA	1	1	5	ng/wet g					40	30	FAIL	J,SL
PCB118	NA	2	1	5	ng/wet g					67	30	FAIL	J,SL
PCB119	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB123	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB126	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB128	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB138	NA	4.4	1	5	ng/wet g					15	30	PASS	J
PCB141	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB149	NA	1.1	1	5	ng/wet g					17	30	PASS	J
PCB151	NA	ND	1	5	ng/wet g					0	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB153	NA	6.2	1	5	ng/wet g					30	30	PASS	
PCB156	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB157	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB158	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB167	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB168+132	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB169	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB170	NA	ND	1	5	ng/wet g					95	30	FAIL	SL
PCB174	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB177	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB180	NA	3.5	1	5	ng/wet g					19	30	PASS	J
PCB183	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB187	NA	2	1	5	ng/wet g					0	30	PASS	J
PCB189	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB194	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB195	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB199(200)	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB201	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB206	NA	ND	1	5	ng/wet g					0	30	PASS	
PCB209	NA	ND	1	5	ng/wet g					0	30	PASS	

Sample ID: 29125-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS
PCB003	NA	ND	1	5	ng/dry g
PCB008	NA	ND	1	5	ng/dry g
PCB018	NA	ND	1	5	ng/dry g
PCB028	NA	ND	1	5	ng/dry g
PCB031	NA	ND	1	5	ng/dry g
PCB033	NA	ND	1	5	ng/dry g
PCB037	NA	ND	1	5	ng/dry g
PCB044	NA	ND	1	5	ng/dry g
PCB049	NA	ND	1	5	ng/dry g

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB052	NA	ND	1	5	ng/dry g							
PCB056(060)	NA	ND	1	5	ng/dry g							
PCB066	NA	ND	1	5	ng/dry g							
PCB070	NA	ND	1	5	ng/dry g							
PCB074	NA	ND	1	5	ng/dry g							
PCB077	NA	ND	1	5	ng/dry g							
PCB081	NA	ND	1	5	ng/dry g							
PCB087	NA	ND	1	5	ng/dry g							
PCB095	NA	ND	1	5	ng/dry g							
PCB097	NA	ND	1	5	ng/dry g							
PCB099	NA	ND	1	5	ng/dry g							
PCB101	NA	ND	1	5	ng/dry g							
PCB105	NA	ND	1	5	ng/dry g							
PCB110	NA	ND	1	5	ng/dry g							
PCB114	NA	ND	1	5	ng/dry g							
PCB118	NA	ND	1	5	ng/dry g							
PCB119	NA	ND	1	5	ng/dry g							
PCB123	NA	ND	1	5	ng/dry g							
PCB126	NA	ND	1	5	ng/dry g							
PCB128	NA	ND	1	5	ng/dry g							
PCB138	NA	ND	1	5	ng/dry g							
PCB141	NA	ND	1	5	ng/dry g							
PCB149	NA	ND	1	5	ng/dry g							
PCB151	NA	ND	1	5	ng/dry g							
PCB153	NA	ND	1	5	ng/dry g							
PCB156	NA	ND	1	5	ng/dry g							
PCB157	NA	ND	1	5	ng/dry g							
PCB158	NA	ND	1	5	ng/dry g							
PCB167	NA	ND	1	5	ng/dry g							
PCB168+132	NA	ND	1	5	ng/dry g							
PCB169	NA	ND	1	5	ng/dry g							

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB170	NA	ND	1	5	ng/dry g							
PCB174	NA	ND	1	5	ng/dry g							
PCB177	NA	ND	1	5	ng/dry g							
PCB180	NA	ND	1	5	ng/dry g							
PCB183	NA	ND	1	5	ng/dry g							
PCB187	NA	ND	1	5	ng/dry g							
PCB189	NA	ND	1	5	ng/dry g							
PCB194	NA	ND	1	5	ng/dry g							
PCB195	NA	ND	1	5	ng/dry g							
PCB199(200)	NA	ND	1	5	ng/dry g							
PCB201	NA	ND	1	5	ng/dry g							
PCB206	NA	ND	1	5	ng/dry g							
PCB209	NA	ND	1	5	ng/dry g							

Sample ID: 29125-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB003	NA	88.9	1	5	ng/dry g	100	0	89	50 - 150%	PASS			
PCB008	NA	88.4	1	5	ng/dry g	100	0	88	50 - 150%	PASS			
PCB018	NA	89.4	1	5	ng/dry g	100	0	89	50 - 150%	PASS			
PCB028	NA	105.5	1	5	ng/dry g	100	0	105	50 - 150%	PASS			
PCB031	NA	58	1	5	ng/dry g	100	0	58	50 - 150%	PASS			
PCB033	NA	91.7	1	5	ng/dry g	100	0	92	50 - 150%	PASS			
PCB037	NA	98.3	1	5	ng/dry g	100	0	98	50 - 150%	PASS			
PCB044	NA	93.1	1	5	ng/dry g	100	0	93	50 - 150%	PASS			
PCB049	NA	93.7	1	5	ng/dry g	100	0	94	50 - 150%	PASS			
PCB052	NA	95.5	1	5	ng/dry g	100	0	95	50 - 150%	PASS			
PCB056(060)	NA	105.6	1	5	ng/dry g	100	0	106	50 - 150%	PASS			
PCB066	NA	97.1	1	5	ng/dry g	100	0	97	50 - 150%	PASS			
PCB070	NA	100.1	1	5	ng/dry g	100	0	100	50 - 150%	PASS			
PCB074	NA	102.4	1	5	ng/dry g	100	0	102	50 - 150%	PASS			
PCB077	NA	99.4	1	5	ng/dry g	100	0	99	50 - 150%	PASS			
PCB081	NA	104.3	1	5	ng/dry g	100	0	104	50 - 150%	PASS			

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB087	NA	101.9	1	5	ng/dry g	100	0	102	50 - 150%	PASS			
PCB095	NA	94.6	1	5	ng/dry g	100	0	95	50 - 150%	PASS			
PCB097	NA	100	1	5	ng/dry g	100	0	100	50 - 150%	PASS			
PCB099	NA	94.6	1	5	ng/dry g	100	0	95	50 - 150%	PASS			
PCB101	NA	95.3	1	5	ng/dry g	100	0	95	50 - 150%	PASS			
PCB105	NA	94.8	1	5	ng/dry g	100	0	95	50 - 150%	PASS			
PCB110	NA	102.2	1	5	ng/dry g	100	0	102	50 - 150%	PASS			
PCB114	NA	98.4	1	5	ng/dry g	100	0	98	50 - 150%	PASS			
PCB118	NA	105.3	1	5	ng/dry g	100	0	105	50 - 150%	PASS			
PCB119	NA	106.2	1	5	ng/dry g	100	0	106	50 - 150%	PASS			
PCB123	NA	102.3	1	5	ng/dry g	100	0	102	50 - 150%	PASS			
PCB126	NA	98.6	1	5	ng/dry g	100	0	99	50 - 150%	PASS			
PCB128	NA	95.4	1	5	ng/dry g	100	0	95	50 - 150%	PASS			
PCB138	NA	90.3	1	5	ng/dry g	100	0	90	50 - 150%	PASS			
PCB141	NA	96.8	1	5	ng/dry g	100	0	97	50 - 150%	PASS			
PCB149	NA	101	1	5	ng/dry g	100	0	101	50 - 150%	PASS			
PCB151	NA	102.7	1	5	ng/dry g	100	0	103	50 - 150%	PASS			
PCB153	NA	108.8	1	5	ng/dry g	100	0	109	50 - 150%	PASS			
PCB156	NA	106.9	1	5	ng/dry g	100	0	107	50 - 150%	PASS			
PCB157	NA	95.7	1	5	ng/dry g	100	0	96	50 - 150%	PASS			
PCB158	NA	99.7	1	5	ng/dry g	100	0	100	50 - 150%	PASS			
PCB167	NA	99.8	1	5	ng/dry g	100	0	100	50 - 150%	PASS			
PCB168+132	NA	180.7	1	5	ng/dry g	200	0	90	50 - 150%	PASS			
PCB169	NA	112.7	1	5	ng/dry g	100	0	113	50 - 150%	PASS			
PCB170	NA	105.6	1	5	ng/dry g	100	0	106	50 - 150%	PASS			
PCB174	NA	99.7	1	5	ng/dry g	100	0	100	50 - 150%	PASS			
PCB177	NA	100.8	1	5	ng/dry g	100	0	101	50 - 150%	PASS			
PCB180	NA	107.7	1	5	ng/dry g	100	0	108	50 - 150%	PASS			
PCB183	NA	84.9	1	5	ng/dry g	100	0	85	50 - 150%	PASS			
PCB187	NA	91.6	1	5	ng/dry g	100	0	92	50 - 150%	PASS			
PCB189	NA	113.6	1	5	ng/dry g	100	0	114	50 - 150%	PASS			

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB194	NA	117.1	1	5	ng/dry g	100	0	117	50 - 150%	PASS				
PCB195	NA	118.9	1	5	ng/dry g	100	0	119	50 - 150%	PASS				
PCB199(200)	NA	88.2	1	5	ng/dry g	100	0	88	50 - 150%	PASS				
PCB201	NA	103.3	1	5	ng/dry g	100	0	103	50 - 150%	PASS				
PCB206	NA	111.2	1	5	ng/dry g	100	0	111	50 - 150%	PASS				
PCB209	NA	105.6	1	5	ng/dry g	100	0	106	50 - 150%	PASS				

Sample ID: 29125-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB003	NA	86.8	1	5	ng/dry g	100	0	87	50 - 150%	PASS	2	30	PASS	
PCB008	NA	88.7	1	5	ng/dry g	100	0	89	50 - 150%	PASS	1	30	PASS	
PCB018	NA	96	1	5	ng/dry g	100	0	96	50 - 150%	PASS	8	30	PASS	
PCB028	NA	97.5	1	5	ng/dry g	100	0	98	50 - 150%	PASS	7	30	PASS	
PCB031	NA	88.9	1	5	ng/dry g	100	0	89	50 - 150%	PASS	42	30	FAIL	R
PCB033	NA	91.5	1	5	ng/dry g	100	0	92	50 - 150%	PASS	0	30	PASS	
PCB037	NA	96.2	1	5	ng/dry g	100	0	96	50 - 150%	PASS	2	30	PASS	
PCB044	NA	95.1	1	5	ng/dry g	100	0	95	50 - 150%	PASS	2	30	PASS	
PCB049	NA	95.5	1	5	ng/dry g	100	0	95	50 - 150%	PASS	2	30	PASS	
PCB052	NA	94.4	1	5	ng/dry g	100	0	94	50 - 150%	PASS	2	30	PASS	
PCB056(060)	NA	108.8	1	5	ng/dry g	100	0	109	50 - 150%	PASS	3	30	PASS	
PCB066	NA	97.3	1	5	ng/dry g	100	0	97	50 - 150%	PASS	0	30	PASS	
PCB070	NA	97.8	1	5	ng/dry g	100	0	98	50 - 150%	PASS	2	30	PASS	
PCB074	NA	104.2	1	5	ng/dry g	100	0	104	50 - 150%	PASS	2	30	PASS	
PCB077	NA	100.9	1	5	ng/dry g	100	0	101	50 - 150%	PASS	2	30	PASS	
PCB081	NA	101.2	1	5	ng/dry g	100	0	101	50 - 150%	PASS	3	30	PASS	
PCB087	NA	102.9	1	5	ng/dry g	100	0	103	50 - 150%	PASS	1	30	PASS	
PCB095	NA	99.2	1	5	ng/dry g	100	0	99	50 - 150%	PASS	4	30	PASS	
PCB097	NA	100.3	1	5	ng/dry g	100	0	100	50 - 150%	PASS	0	30	PASS	
PCB099	NA	97.1	1	5	ng/dry g	100	0	97	50 - 150%	PASS	2	30	PASS	
PCB101	NA	94	1	5	ng/dry g	100	0	94	50 - 150%	PASS	1	30	PASS	
PCB105	NA	92.2	1	5	ng/dry g	100	0	92	50 - 150%	PASS	3	30	PASS	
PCB110	NA	100.6	1	5	ng/dry g	100	0	101	50 - 150%	PASS	1	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB114	NA	100.7	1	5	ng/dry g	100	0	101	50 - 150%	PASS	3	30	PASS	
PCB118	NA	99.9	1	5	ng/dry g	100	0	100	50 - 150%	PASS	5	30	PASS	
PCB119	NA	102.7	1	5	ng/dry g	100	0	103	50 - 150%	PASS	3	30	PASS	
PCB123	NA	101.4	1	5	ng/dry g	100	0	101	50 - 150%	PASS	1	30	PASS	
PCB126	NA	94	1	5	ng/dry g	100	0	94	50 - 150%	PASS	5	30	PASS	
PCB128	NA	96.5	1	5	ng/dry g	100	0	96	50 - 150%	PASS	1	30	PASS	
PCB138	NA	94.1	1	5	ng/dry g	100	0	94	50 - 150%	PASS	4	30	PASS	
PCB141	NA	96.1	1	5	ng/dry g	100	0	96	50 - 150%	PASS	1	30	PASS	
PCB149	NA	96.9	1	5	ng/dry g	100	0	97	50 - 150%	PASS	4	30	PASS	
PCB151	NA	99.5	1	5	ng/dry g	100	0	100	50 - 150%	PASS	3	30	PASS	
PCB153	NA	101.8	1	5	ng/dry g	100	0	102	50 - 150%	PASS	7	30	PASS	
PCB156	NA	102.8	1	5	ng/dry g	100	0	103	50 - 150%	PASS	4	30	PASS	
PCB157	NA	97.8	1	5	ng/dry g	100	0	98	50 - 150%	PASS	2	30	PASS	
PCB158	NA	95.7	1	5	ng/dry g	100	0	96	50 - 150%	PASS	4	30	PASS	
PCB167	NA	99.3	1	5	ng/dry g	100	0	99	50 - 150%	PASS	1	30	PASS	
PCB168+132	NA	183.6	1	5	ng/dry g	200	0	92	50 - 150%	PASS	2	30	PASS	
PCB169	NA	115.2	1	5	ng/dry g	100	0	115	50 - 150%	PASS	2	30	PASS	
PCB170	NA	105.5	1	5	ng/dry g	100	0	105	50 - 150%	PASS	1	30	PASS	
PCB174	NA	99.7	1	5	ng/dry g	100	0	100	50 - 150%	PASS	0	30	PASS	
PCB177	NA	99.6	1	5	ng/dry g	100	0	100	50 - 150%	PASS	1	30	PASS	
PCB180	NA	101.7	1	5	ng/dry g	100	0	102	50 - 150%	PASS	6	30	PASS	
PCB183	NA	84.5	1	5	ng/dry g	100	0	85	50 - 150%	PASS	1	30	PASS	
PCB187	NA	90.7	1	5	ng/dry g	100	0	91	50 - 150%	PASS	1	30	PASS	
PCB189	NA	111.9	1	5	ng/dry g	100	0	112	50 - 150%	PASS	2	30	PASS	
PCB194	NA	103.8	1	5	ng/dry g	100	0	104	50 - 150%	PASS	12	30	PASS	
PCB195	NA	106	1	5	ng/dry g	100	0	106	50 - 150%	PASS	12	30	PASS	
PCB199(200)	NA	83.9	1	5	ng/dry g	100	0	84	50 - 150%	PASS	5	30	PASS	
PCB201	NA	98.3	1	5	ng/dry g	100	0	98	50 - 150%	PASS	5	30	PASS	
PCB206	NA	118.1	1	5	ng/dry g	100	0	118	50 - 150%	PASS	6	30	PASS	
PCB209	NA	108.9	1	5	ng/dry g	100	0	109	50 - 150%	PASS	3	30	PASS	

Sample ID: 29131-MS1 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**

PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270D					Batch ID: O-6090		Prepared: 12-Sep-14			Analyzed: 30-Sep-14		
PCB003	NA	10.4	1	5	ng/dry g	12.2	0	85	50 - 150%	PASS			
PCB008	NA	10.1	1	5	ng/dry g	12.2	0	83	50 - 150%	PASS			
PCB018	NA	11	1	5	ng/dry g	12.2	0	90	50 - 150%	PASS			
PCB028	NA	12.3	1	5	ng/dry g	12.2	0	101	50 - 150%	PASS			
PCB031	NA	8.8	1	5	ng/dry g	12.2	0	72	50 - 150%	PASS			
PCB033	NA	11.7	1	5	ng/dry g	12.2	0	96	50 - 150%	PASS			
PCB037	NA	11.2	1	5	ng/dry g	12.2	0	92	50 - 150%	PASS			
PCB044	NA	11.3	1	5	ng/dry g	12.2	0	93	50 - 150%	PASS			
PCB049	NA	11.5	1	5	ng/dry g	12.2	0	94	50 - 150%	PASS			
PCB052	NA	11	1	5	ng/dry g	12.2	0	90	50 - 150%	PASS			
PCB056(060)	NA	11.6	1	5	ng/dry g	12.2	0	95	50 - 150%	PASS			
PCB066	NA	11.6	1	5	ng/dry g	12.2	0	95	50 - 150%	PASS			
PCB070	NA	12.2	1	5	ng/dry g	12.2	0	100	50 - 150%	PASS			
PCB074	NA	11.6	1	5	ng/dry g	12.2	0	95	50 - 150%	PASS			
PCB077	NA	12.1	1	5	ng/dry g	12.2	0	99	50 - 150%	PASS			
PCB081	NA	11.9	1	5	ng/dry g	12.2	0	98	50 - 150%	PASS			
PCB087	NA	11.9	1	5	ng/dry g	12.2	0	98	50 - 150%	PASS			
PCB095	NA	12.5	1	5	ng/dry g	12.2	0	102	50 - 150%	PASS			
PCB097	NA	12.9	1	5	ng/dry g	12.2	0	106	50 - 150%	PASS			
PCB099	NA	12.3	1	5	ng/dry g	12.2	0	101	50 - 150%	PASS			
PCB101	NA	12.7	1	5	ng/dry g	12.2	0	104	50 - 150%	PASS			
PCB105	NA	12.7	1	5	ng/dry g	12.2	0	104	50 - 150%	PASS			
PCB110	NA	12.6	1	5	ng/dry g	12.2	0	103	50 - 150%	PASS			
PCB114	NA	11.1	1	5	ng/dry g	12.2	0	91	50 - 150%	PASS			
PCB118	NA	12.9	1	5	ng/dry g	12.2	0	106	50 - 150%	PASS			
PCB119	NA	13.1	1	5	ng/dry g	12.2	0	107	50 - 150%	PASS			
PCB123	NA	12.1	1	5	ng/dry g	12.2	0	99	50 - 150%	PASS			
PCB126	NA	10.1	1	5	ng/dry g	12.2	0	83	50 - 150%	PASS			
PCB128	NA	9.3	1	5	ng/dry g	12.2	0	76	50 - 150%	PASS			
PCB138	NA	9.5	1	5	ng/dry g	12.2	2	61	50 - 150%	PASS			

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB141	NA	10.8	1	5	ng/dry g	12.2	0	89	50 - 150%	PASS				
PCB149	NA	13.3	1	5	ng/dry g	12.2	0.5	105	50 - 150%	PASS				
PCB151	NA	12.6	1	5	ng/dry g	12.2	0	103	50 - 150%	PASS				
PCB153	NA	12.5	1	5	ng/dry g	12.2	0	102	50 - 150%	PASS				
PCB156	NA	10.3	1	5	ng/dry g	12.2	0	84	50 - 150%	PASS				
PCB157	NA	9.8	1	5	ng/dry g	12.2	0	80	50 - 150%	PASS				
PCB158	NA	9.8	1	5	ng/dry g	12.2	0	80	50 - 150%	PASS				
PCB167	NA	10.3	1	5	ng/dry g	12.2	0	84	50 - 150%	PASS				
PCB168+132	NA	21.5	1	5	ng/dry g	24.4	0	88	50 - 150%	PASS				
PCB169	NA	10.3	1	5	ng/dry g	12.2	0	84	50 - 150%	PASS				
PCB170	NA	12.3	1	5	ng/dry g	12.2	0.5	97	50 - 150%	PASS				
PCB174	NA	12	1	5	ng/dry g	12.2	0	98	50 - 150%	PASS				
PCB177	NA	11.9	1	5	ng/dry g	12.2	0	98	50 - 150%	PASS				
PCB180	NA	12.4	1	5	ng/dry g	12.2	0.8	95	50 - 150%	PASS				
PCB183	NA	10.2	1	5	ng/dry g	12.2	0	84	50 - 150%	PASS				
PCB187	NA	12	1	5	ng/dry g	12.2	0	98	50 - 150%	PASS				
PCB189	NA	12.6	1	5	ng/dry g	12.2	0	103	50 - 150%	PASS				
PCB194	NA	13.2	1	5	ng/dry g	12.2	0	108	50 - 150%	PASS				
PCB195	NA	12.5	1	5	ng/dry g	12.2	0	102	50 - 150%	PASS				
PCB199(200)	NA	10.2	1	5	ng/dry g	12.2	0	84	50 - 150%	PASS				
PCB201	NA	12.6	1	5	ng/dry g	12.2	0	103	50 - 150%	PASS				
PCB206	NA	13.2	1	5	ng/dry g	12.2	0	108	50 - 150%	PASS				
PCB209	NA	13	1	5	ng/dry g	12.2	0	107	50 - 150%	PASS				

Sample ID: 29131-MS2 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB003	NA	10.4	1	5	ng/dry g	11.5	0	90	50 - 150%	PASS	6	30	PASS	
PCB008	NA	10.2	1	5	ng/dry g	11.5	0	89	50 - 150%	PASS	7	30	PASS	
PCB018	NA	10.9	1	5	ng/dry g	11.5	0	95	50 - 150%	PASS	5	30	PASS	
PCB028	NA	7.7	1	5	ng/dry g	11.5	0	67	50 - 150%	PASS	40	30	FAIL	R
PCB031	NA	7.1	1	5	ng/dry g	11.5	0	62	50 - 150%	PASS	15	30	PASS	
PCB033	NA	11.3	1	5	ng/dry g	11.5	0	98	50 - 150%	PASS	2	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB037	NA	13.2	1	5	ng/dry g	11.5	0	115	50 - 150%	PASS	22	30	PASS	
PCB044	NA	10.5	1	5	ng/dry g	11.5	0	91	50 - 150%	PASS	2	30	PASS	
PCB049	NA	11.4	1	5	ng/dry g	11.5	0	99	50 - 150%	PASS	5	30	PASS	
PCB052	NA	10.7	1	5	ng/dry g	11.5	0	93	50 - 150%	PASS	3	30	PASS	
PCB056(060)	NA	10.7	1	5	ng/dry g	11.5	0	93	50 - 150%	PASS	2	30	PASS	
PCB066	NA	11.3	1	5	ng/dry g	11.5	0	98	50 - 150%	PASS	3	30	PASS	
PCB070	NA	11.2	1	5	ng/dry g	11.5	0	97	50 - 150%	PASS	3	30	PASS	
PCB074	NA	11.8	1	5	ng/dry g	11.5	0	103	50 - 150%	PASS	8	30	PASS	
PCB077	NA	11	1	5	ng/dry g	11.5	0	96	50 - 150%	PASS	3	30	PASS	
PCB081	NA	11	1	5	ng/dry g	11.5	0	96	50 - 150%	PASS	2	30	PASS	
PCB087	NA	11.5	1	5	ng/dry g	11.5	0	100	50 - 150%	PASS	2	30	PASS	
PCB095	NA	12.3	1	5	ng/dry g	11.5	0	107	50 - 150%	PASS	5	30	PASS	
PCB097	NA	12.2	1	5	ng/dry g	11.5	0	106	50 - 150%	PASS	0	30	PASS	
PCB099	NA	11.6	1	5	ng/dry g	11.5	0	101	50 - 150%	PASS	0	30	PASS	
PCB101	NA	11.9	1	5	ng/dry g	11.5	0	103	50 - 150%	PASS	1	30	PASS	
PCB105	NA	10.5	1	5	ng/dry g	11.5	0	91	50 - 150%	PASS	13	30	PASS	
PCB110	NA	11.5	1	5	ng/dry g	11.5	0	100	50 - 150%	PASS	3	30	PASS	
PCB114	NA	11.1	1	5	ng/dry g	11.5	0	97	50 - 150%	PASS	6	30	PASS	
PCB118	NA	11.9	1	5	ng/dry g	11.5	0	103	50 - 150%	PASS	3	30	PASS	
PCB119	NA	12.4	1	5	ng/dry g	11.5	0	108	50 - 150%	PASS	1	30	PASS	
PCB123	NA	11.8	1	5	ng/dry g	11.5	0	103	50 - 150%	PASS	4	30	PASS	
PCB126	NA	10.2	1	5	ng/dry g	11.5	0	89	50 - 150%	PASS	7	30	PASS	
PCB128	NA	10	1	5	ng/dry g	11.5	0	87	50 - 150%	PASS	13	30	PASS	
PCB138	NA	10.1	1	5	ng/dry g	11.5	2	70	50 - 150%	PASS	14	30	PASS	
PCB141	NA	10.2	1	5	ng/dry g	11.5	0	89	50 - 150%	PASS	0	30	PASS	
PCB149	NA	12.6	1	5	ng/dry g	11.5	0.5	105	50 - 150%	PASS	0	30	PASS	
PCB151	NA	12.7	1	5	ng/dry g	11.5	0	110	50 - 150%	PASS	7	30	PASS	
PCB153	NA	12.5	1	5	ng/dry g	11.5	0	109	50 - 150%	PASS	7	30	PASS	
PCB156	NA	10.8	1	5	ng/dry g	11.5	0	94	50 - 150%	PASS	11	30	PASS	
PCB157	NA	11.6	1	5	ng/dry g	11.5	0	101	50 - 150%	PASS	23	30	PASS	
PCB158	NA	12.2	1	5	ng/dry g	11.5	0	106	50 - 150%	PASS	28	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB167	NA	11	1	5	ng/dry g	11.5	0	96	50 - 150%	PASS	13	30	PASS	
PCB168+132	NA	19.4	1	5	ng/dry g	23	0	84	50 - 150%	PASS	5	30	PASS	
PCB169	NA	9	1	5	ng/dry g	11.5	0	78	50 - 150%	PASS	7	30	PASS	
PCB170	NA	10.6	1	5	ng/dry g	11.5	0.5	88	50 - 150%	PASS	10	30	PASS	
PCB174	NA	11.1	1	5	ng/dry g	11.5	0	97	50 - 150%	PASS	1	30	PASS	
PCB177	NA	11.5	1	5	ng/dry g	11.5	0	100	50 - 150%	PASS	2	30	PASS	
PCB180	NA	12.4	1	5	ng/dry g	11.5	0.8	101	50 - 150%	PASS	6	30	PASS	
PCB183	NA	9.4	1	5	ng/dry g	11.5	0	82	50 - 150%	PASS	2	30	PASS	
PCB187	NA	10.4	1	5	ng/dry g	11.5	0	90	50 - 150%	PASS	9	30	PASS	
PCB189	NA	11.5	1	5	ng/dry g	11.5	0	100	50 - 150%	PASS	3	30	PASS	
PCB194	NA	12.8	1	5	ng/dry g	11.5	0	111	50 - 150%	PASS	3	30	PASS	
PCB195	NA	11.7	1	5	ng/dry g	11.5	0	102	50 - 150%	PASS	0	30	PASS	
PCB199(200)	NA	9.3	1	5	ng/dry g	11.5	0	81	50 - 150%	PASS	4	30	PASS	
PCB201	NA	11.5	1	5	ng/dry g	11.5	0	100	50 - 150%	PASS	3	30	PASS	
PCB206	NA	14.3	1	5	ng/dry g	11.5	0	124	50 - 150%	PASS	14	30	PASS	
PCB209	NA	11.5	1	5	ng/dry g	11.5	0	100	50 - 150%	PASS	7	30	PASS	

Sample ID: 29131-R2 **Boat Ramp Depth 2'** **Matrix: Sediment** **Sampled: 04-Aug-14** **Received: 15-Aug-14**
Method: EPA 8270D Batch ID: O-6090 Prepared: 12-Sep-14 Analyzed: 30-Sep-14

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB003	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB008	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB018	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB028	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB031	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB033	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB037	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB044	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB049	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB052	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB056(060)	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB066	NA	ND	1	5	ng/dry g						0	30	PASS	
PCB070	NA	ND	1	5	ng/dry g						0	30	PASS	

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB074	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB077	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB081	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB087	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB095	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB097	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB099	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB101	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB105	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB110	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB114	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB118	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB119	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB123	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB126	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB128	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB138	NA	2.2	1	5	ng/dry g					15	30	PASS	J
PCB141	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB149	NA	1	1	5	ng/dry g					0	30	PASS	J
PCB151	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB153	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB156	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB157	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB158	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB167	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB168+132	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB169	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB170	NA	1.1	1	5	ng/dry g					10	30	PASS	J
PCB174	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB177	NA	ND	1	5	ng/dry g					0	30	PASS	
PCB180	NA	1.6	1	5	ng/dry g					46	30	FAIL	J,SL

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PCB Congeners QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB183	NA	ND	1	5	ng/dry g					0	30	PASS
PCB187	NA	ND	1	5	ng/dry g					0	30	PASS
PCB189	NA	ND	1	5	ng/dry g					0	30	PASS
PCB194	NA	ND	1	5	ng/dry g					0	30	PASS
PCB195	NA	ND	1	5	ng/dry g					0	30	PASS
PCB199(200)	NA	ND	1	5	ng/dry g					0	30	PASS
PCB201	NA	ND	1	5	ng/dry g					0	30	PASS
PCB206	NA	ND	1	5	ng/dry g					0	30	PASS
PCB209	NA	ND	1	5	ng/dry g					0	30	PASS

CHAIN OF CUSTODY

Rich Hanken

From:	Brady Daniels <BDaniels@aspeneg.com>
Sent:	Wednesday, August 27, 2014 8:55 AM
To:	Rich Hanken
Subject:	RE: Aspen - Fish & Soil?

Rich, I approve the methods proposed for testing if the eleven soil samples.

Thank you
Brady Daniels

Sent from my Android phone using TouchDown (www.nitrodesk.com)

-----Original Message-----
From: Rich Hanken [RichHanken@physislabs.com]
Received: Tuesday, 26 Aug 2014, 1:58PM
To: Brady Daniels [BDaniels@aspeneg.com]
CC: Misty Mercier [MistyMercier@physislabs.com]
Subject: RE: Aspen - Fish & Soil?

Brady,

Thank you.

Since you said you will be remotely for the next several weeks I threw together a COC for those 11 soil/sediment samples, since we are still missing that COC.

I attached the COC and will you be able to review it (this is an excel version just in case you want to make any changes) and either sign it and sent it back to us or if that isn't possible maybe you can just review it and then send back an e-mail Ok'ing the 11 samples being done for:

- Percent Solids
- Mercury
- PCBs
- OCPs

Of course let me know if there is someone else who can speak for you while you are away, if that is easier for you.

Please let me know if you have any questions.

Thank you,

Rich

Richard G. Hanken
Business Manager - Project Integrator
(714) 602-5320 ext. 212
Richhanken@physislabs.com

From: Brady Daniels [mailto:BDaniels@aspeneg.com]
Sent: Tuesday, August 26, 2014 9:21 AM
To: Rich Hanken
Subject: RE: Aspen - Fish & Soil?

Rich,

I'm working remotely for the next several weeks.

You are correct on the catfish, and all sampling methods for the fish and soil.

Billing address is the agoura hills office.
I will get contact for our accounting representative to you today.

Thank you

Sent from my Android phone using TouchDown (www.nitrodesk.com)

-----Original Message-----
From: Rich Hanken [RichHanken@physislabs.com]
Received: Tuesday, 26 Aug 2014, 9:57AM
To: Brady Daniels [BDaniels@aspeneg.com]
CC: Misty Mercier [MistyMercier@physislabs.com]
Subject: RE: Aspen - Fish & Soil?

Hi Brady,

We are still waiting to resolve a few questions (below in the e-mail).

Please answer the below questions as soon as possible and let us know if you have any questions.

Thank you,

Rich

Richard G. Hanken
Business Manager - Project Integrator
(714) 602-5320 ext. 212
Richhanken@physislabs.com

From: Rich Hanken
Sent: Wednesday, August 20, 2014 9:13 AM
To: 'Brady Daniels'
Cc: MistyMercier@Physislabs.com; project managers
Subject: Aspen - Fish & Soil?

Hello Brady,

I just wanted to remind you that we haven't received the second COC for the soil samples yet. Can you scan it and send it our way?

I also have a few quick questions.

1. The fish COC says "one whole bass sample, one bass skinless fillet, one gold fish skinless fillet, and one bass skinless fillet". – the last skinless bass is the 3rd bass so it is really the skinless white catfish, right?
2. There are no analyses on the COC for the Fish so can I go off the analyses that you were talking with Misty about?
   a. Mercury
   b. Organochlorine Pesticides (includes those legacy pesticides like the DDTs).
   c. PCB Congeners
3. Do you want anything else analyzed?
4. Are these analyses the same for the soil samples?
5. Can you give me the billing information (which is - who will be billed, their address, e-mail and phone number, etc..)

Please let me know if you have any questions.

Thanks,

Rich

Richard G. Hanken
Business Manager - Project Integrator
(714) 602-5320 ext. 212
Richhanken@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

1904 E. Wright Circle
Anaheim, CA 92806
(714) 602-5320 main
(714) 602-5321 fax
www.physislabs.com

CHAIN of CUSTODY

COMPANY NAME	Aspen Enviornmental Group
EMAIL	Bdaniels@aspeneg.com
PROJECT NAME / NUMBER	Little Rock 1116.02
COC PAGE	2 of 2
PROJECT MANAGER	Negar Vahidi
FAX	
PO #	
PHYSIS SOS #	
TYPE OF ICE USED	☑ WET ☐ BLUE ☐ DRY
COMPANY ADDRESS	5020 Chesebro Road, Suite 200 Agoura Hills, CA 91301
PHONE	818-338-6625 office 805-878-5958 cell
SAMPLED BY	Brady Daniels, Justin Wood
SHIPPED VIA	☑ FEDEX ☐ UPS ☐ USPS ☐ Client ☐ Physis ☐ other
TURNAROUND TIME	☑ STANDARD (15-20 business days) ☐ RUSH business days
REPORT FORMAT	☐ I ☐ SWAMP EDD ☐ other
SPECIAL INSTRUCTIONS	PHYSIS PDF/EDD

PHYSIS MATRIX CODES

SW = seawater FW = freshwater RW = rainwater

WW = wastewater DW = drinking water

S = sediment T = tissue E = extract O = other (specify)

REQUESTED ANALYSES

PLEASE SEE PHYSIS SOS

	SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE date	SAMPLE time	physis matrix code	# of bottles	Percent Solids	PCB Congeners	Organochlorine Pesticides	Mercury
1	L.R. Rocky Pt.	Surface	8/4/14		S	1	x	x	x	x
2	L.R. Rocky Pt.	Depth 1'	8/4/14		S	1	x	x	x	x
3	Boat Ramp	Surface	8/4/14		S	1	x	x	x	x
4	Boat Ramp	Depth 2'	8/4/14		S	1	x	x	x	x
5	Fishermans Pt	Surface	8/4/14		S	1	x	x	x	x
6	Fishermans Pt.	Depth 2'	8/4/14		S	1	x	x	x	x
7	Little Rock Drainage	Surface	8/4/14		S	1	x	x	x	x
8	LR & Santiago Above	Depth 1'	8/4/14		S	1	x	x	x	x
9	Waters Edge	Surface	8/5/14		S	1	x	x	x	x
10	Waters Edge	Depth 2'	8/5/14		S	1	x	x	x	x
11	Below Dam	Surface	8/5/14		S	1	x	x	x	x

RELINQUISHED BY

print	signature	company	date & time

RECEIVED BY

print	signature	company	date & time

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.

CHAIN of CUSTODY

COMPANY NAME: Aspen Environmental Group	EMAIL: Bdaniels@aspeneg.com	PROJECT NAME / NUMBER: Little Rock 1116.02	COC PAGE: 1 of
PROJECT MANAGER: Negar Vahidi	FAX:	PO #: / PHYSIS SOS #:	TYPE OF ICE USED: ☑ WET ☑ BLUE ☐ DRY
COMPANY ADDRESS: 5020 Chesebro Road, Suite 200 Agoura Hills, CA 91301	PHONE: 818 338-6625 office; 805-878-5958 cell	SAMPLED BY: Brady Daniels, Justin Wood	SHIPPED VIA: ☑ FEDEX ☐ UPS ☐ USPS ☐ Client ☐ Physis ☐ other

TURNAROUND TIME: ☑ STANDARD (15-20 business days) ☐ RUSH business days

REPORT FORMAT: ☐ PHYSIS PDF/EDD ☐ SWAMP EDD ☐ other

SPECIAL INSTRUCTIONS:
All of the fish are currently frozen whole fish. We would like one whole bass sample, one bass skinless fillet, one gold fish skinless fillet, and one bass skinless fillet.

PHYSIS MATRIX CODES:
SW = seawater **FW** = freshwater **RW** = rainwater
WW = wastewater **DW** = drinking water
S = sediment **T** = tissue **E** = extract **O** = other (specify)

REQUESTED ANALYSES
PLEASE SEE PHYSIS SOS

	SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE date	SAMPLE time	physis matrix code	# of bottles
1	Bass 1	whole bass	8/4/14	15:30	FW	fish
2	Bass 2	whole bass	8/4/14	15:30	FW	
3	goldfish	whole fish	8/4/14	15:30	FW	
4	white catfish whole fish	whole fish	8/4/14	15:30	FW	
5						
6						
7						
8						
9						
10						

RELINQUISHED BY print	signature	company	date & time	RECEIVED BY print	signature	company	date & time
Brady Daniels	[signature]	Aspen	8-14-14	Richard Hanker	[signature]	Physis	8/15/14 930

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.

PHYSIS PROJECT ID
1407007-001

SAMPLE RECEIPT SUMMARY

CLIENT: Aspen
Date Received: Aug 15, 2014
Received By: RGH
Inspected By: RGH

COURIER

☐ PHYSIS ☐ CLIENT ☑ FEDEX ☐ UPS
start ____ end ____ ☐ OTHER: ____

COOLER

☑ COOLER ☐ BOX total # 2
☐ OTHER: ____

TEMPERATURE

1.5 °C
☐ WET ICE ☑ BLUE ICE
☐ DRY ICE ☐ NONE

SAMPLE INTEGRITY UPON RECEIPT

1. COC(s) included and completely filled out.................... YES
2. All sample containers arrived intact.................... YES
3. All samples listed on COC(s) are present.................... YES
4. Information on containers consistent with information on COC(s).................... YES
5. Correct containers and volume for all analyses indicated.................... YES
6. All samples received within method holding time.................... YES
7. Correct preservation used for all analyses indicated.................... YES
8. Name of sampler included on COC(s).................... YES

NOTES

Reset Form

1904 E. Wright Circle, Anaheim CA 92806
(714) 602-5320 main / (714) 602-5321 fax

Print Form

APPENDIX D - SUMMARY OF ANALYTICAL REPORT FOR LITTLEROCK RESERVOIR SAMPLES

Both sediments and fish tissue from Littlerock Reservoir were sampled on August 4, 2014. Fifteen samples, including 11 sediment samples and 4 fish tissue samples, were collected and analyzed for the presence of mercury, chlorinated pesticides, and PCB congeners. The sampling results contained in the analytical report are summarized below. Where appropriate, these results are analyzed in relation to their potential impact on the affected environment.

Sediment

For chlorinated pesticides (including DDT), no analyte was detected at or above the method detection limit (MDL). For PCB congeners, one analyte (PCB138) was detected in three of the 11 samples. However, the amount of PCB138 that was detected is extremely small. The three sample results range from 1.1 to 1.9 parts per billion (ppb). The MDL for this analyte is 1.0 ppb, and the reporting limit (RL) is 5.0 ppb. Because the three positive results for PCB138 in sediment all fall below the RL, the values reported are estimates. All 11 sediment samples tested positive for the presence of mercury. Mercury was analyzed as total mercury (Hg), and the element was not speciated in this analysis. Therefore, it is unknown what percentage of this mercury is organic mercury versus methylmercury. The sample results range from 0.0032 to 0.0213 parts per million (ppm). The Agency for Toxic Substances and Disease Registry reports that normal levels of mercury in soil range from 0.02 to 0.625 ppm (ATSDR, 1999). All but one of the sediment sample results fall below the lower value of this range, and the one result that falls within this range lies at the extreme lower end of the range. A recent peer-reviewed synthesis study defined a critical upper limit for mercury in soils below which 95% of the 52 species sampled (including plants, animals, and microbes) would be unharmed by chronic exposure. This limit was found to be 0.13 ppm (Tipping et al, 2010). All 11 sediment sampling results are roughly an order of magnitude below this critical upper limit.

Fish Tissue

For chlorinated pesticides, all four fish tissue samples tested positive for several analytes, including: 2,4'-DDT; 4,4'-DDD; 4,4'-DDE; Chlordane-alpha; Chlordane-gamma; cis-Nonachlor; and trans-Nonachlor. In addition to the analytes listed above, the goldfish tested positive for Hexachlorobenzene. With the exception of the goldfish, only the results for DDT, DDD, and DDE exceed the reporting limit. The highest reported values were found in the goldfish, which contained 146.2 ppb of 2,4'-DDT and 230.9 ppb of 4,4'-DDT. All four fish tissue samples tested positive for PCB congeners. However, with the exception of several positive analytes in the goldfish and one analyte (PCB138) in one of the bass, all results fell below the reporting limit. PCB138 in one of the bass was just barely above the reporting limit (5.1 ppb for a RL of 5.0 ppb). The highest level of pollutant in the goldfish was 32.9 ppb for PCB138. All four fish tissue samples tested positive for mercury. The results range from 0.3644 to 0.6601 ppm. The highest values were found in the bass. The EPA and FDA require that fish sold across state lines contain less than 1.0 ppm of mercury (ATSDR, 1999). All four samples fall below this level. The USEPA Office of Environmental Health Hazard Assessment has recently provided Advisory Tissue Levels for contaminants in fish intended for human consumption. These levels are expressed in parts per billion, and are listed in the table below. In order to allow for direct comparison, the sampling results for mercury are provided here in ppb, and range from 364.4 to 660.1. The level of mercury detected in both bass samples exceeds the "No Consumption" limit for children and women of child-bearing age (OEHHA, 2009).

Advisory Tissue Levels (ATLs) for PCBs, DDTs, and Methylmercury Based on Cancer or Non-Cancer Risk Using an 8-Ounce Serving Size (Prior to Cooking) (ppb, wet weight)				
Contaminant	Three 8-ounce Servings* a Week	Two 8-ounce Servings* a Week	One 8-ounce Servings* a Week	No Consumption
DDTs	≤520	>520-1,000	>1,000-2,100	>2,100
Methylmercury (Women aged 18-45 years and children aged 1-17 years)	≤70	>70-150	>150-440	>440
Methylmercury (Women over 45-years and men)	≤220	>220-440	>440-1,310	>1,310
PCBs	≤21	>21-42	>42-120	>120

*Serving sizes are based on an average 160 pound person. Individuals weighing less than 160 pounds should eat proportionately smaller amounts (for example, individuals weighing 80 pounds should eat one 4-ounce serving a week when the table recommends eating one 8-ounce serving a week).

Conclusions

The sampling results show that the sediment in Littlerock Reservoir is mostly free of contaminants, and that in cases where a contaminant was detected, the level of contamination is extremely low. Compared to the sediment, the fish tissue samples show a larger number of contaminants and at higher levels. The pathway for contamination of these fish remains unknown.

ATSDR (Agency for Toxic Substances and Disease Registry). 1999. Toxicological profile for Mercury. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

OEHHA (Office of Environmental Health Hazard Assessment, USEPA). 2009. Health Advisory and Safe Eating Guidelines for Fish from Coastal Areas of Southern California: Ventura Harbor to San Mateo Point. [online]: http://oehha.ca.gov/fish/so_cal/pdf_zip/SoCalAdvisoryl61809.pdf. Accessed 9 October 2014.

Tipping, E, et al, Critical Limits for Hg(II) in soils, derived from chronic toxicity data, Environmental Pollution (2010), doi:10.1016/j.envpol.2010.03.027

Appendix E

Scoping Summary Report

Aspen Environmental Group

PROJECT MEMORANDUM

5020 Chesebro Road, Suite 200, Agoura Hills, CA 91301-2285
Tel. 818-597-3407, Fax 818-597-8001, www.aspeneg.com

Date: April 23, 2014

To: **Matt Knudson**, Assistant General Manager
Palmdale Water District

From: **Sandra Alarcón-Lopez**, Public Involvement Specialist
Aspen Environmental Group

Subject: Littlerock Sediment Removal Project EIR/EIS Scoping Process

The Littlerock Sediment Removal Project (LRSP) EIR/EIS Scoping process commenced on March 7, 2014 and ended on April 15, 2014. The purpose of this memorandum is to summarize the activities related to the scoping process conducted for the Littlerock Sediment Removal Project EIR/EIS. All activities are listed with associated dates of distribution/filing/publication, as applicable. In addition, all documents prepared as part of the scoping process are attached to this memorandum.

PROJECT MAILING LIST

The project mailing list was formulated using the lists of names and addresses provided by the Palmdale Water District and the USDA, Forest Service, Angeles National Forest (Forest Service).

At the start of scoping, the mailing list included over 1,000 entries. The mailing list was updated to include addresses obtained at the public scoping meeting and to remove or correct contact names/addresses based on the mailing of the Notice of Preparation.

NOTICE OF PREPARATION

<u>Notice of Preparation/Notice of Intent</u>

- Palmdale Water District (PWD) published the CEQA Notice of Preparation (NOP) on March 7, 2014 (SCH#:2005061171).
- 15 Copies of the NOP were sent to the State Clearinghouse via overnight mail commencing the CEQA 30-day public scoping period (March 7 through April 15).
- The NOP was distributed via certified mail to a total of 18 addresses consisting of State and county agencies on March 10, 2014.

<u>Notice of Intent</u>

- The USDA, Forest Service published the Notice of Intent (NOI) in the Federal Register on March 19, 2014, commencing the NEPA public scoping comment period.

NOTICES

<u>Public Scoping Meeting Notice</u>

- The NOP was mailed to 1,004 interest groups and property owners on March 10, 2014 to announce the public scoping meeting and to provide background information regarding the project.

<u>Newspaper Advertisements</u>

A newspaper advertisement (Attachment 1) was published in the following newspapers:

- Acton Agua Dulce News – Monday, March 10

- Antelope Valley Press – Wednesday, March 12
- LA Daily News – Wednesday, March 12
- Antelope Valley Journal – Friday, March 14
- Country Journal – Saturday, March 15

PUBLIC SCOPING MEETING

A public scoping meeting was conducted on March 25, 2014 at 7:00 p.m. The meeting was held at the PWD's Boardroom. A number of informational materials were made available to meeting attendees, including:

- Meeting Sign-in Sheet
- NOP with Meeting Notice (seven-page mailer) in both English and Spanish
- Four Poster Boards (Littlerock sediment removal area, CEQA-NEPA process, Project Overview and Grade Control Structure, and Public Involvement During Scoping)
- Meeting Agenda
- Scoping Comment Form

Representatives of the PWD and the USDA, Forest Service attended the meeting. No members of the public attended the meeting despite the direct mail notice to over 1,000 property owners, interest groups, and organizations, and publication of a newspaper notice in five different newspapers on varying dates. However, a representative of a local newspaper attended the meeting and as a result two articles were published in the Antelope Valley Press regarding the project.[1]

SCOPING RELATED MATERIALS

The following scoping-related documents and materials are provided in Attachment 1 to this memorandum for your records:

- NOP
- NOI (Federal Register)
- Newspaper Advertisements (proof of publication)
- Meeting Agenda
- Meeting Sign-In Sheet
- Poster Boards
- Scoping Comment Form

SUMMARY OF PUBLIC COMMENTS RECEIVED

The information below summarizes the written scoping comments received for the LSRP. Attachment 2 includes a copy of these comment letters for your records.

<u>Comment Letter Received Prior to Public Scoping Period</u>

Littlerock Lake Resort, Richard A. Cooper, Proprietor

- Mr. Cooper purchased the business at Littlerock Dam seven plus years ago and cannot complete a USDA Forest Service request for his company's business plan due to the projected sediment removal project and related Littlerock Dam closure. He is requesting continuing information on the status of the project.

---

[1] Alisha Semchuck. 2014. *"Officials air plan to dredge dam sediment."* Antelope Valley Press. Thursday, March 27, 2014. Valley Press staff and wire services. 2014. "Feds ponder changing arroyo toad protection." Antelope Valley Press. Thursday, March 27, 2014.

<u>Comment Letters Received During Public Scoping Period</u>

Department of the Army Los Angeles District, U.S. Army Corps of Engineers – Sherry Bellini, Regulatory Assistant

- Commenter noted that the activity may require a USACE permit and provided the link (http://www.usace.army.mil/Portals/2/docs/civilworks/permitapplication.pdf) to access the permit application on the USACE website.

Native American Heritage Commission – Dave Singleton, Program Analyst

- Commenter requests that any archaeological activity be coordinated with the NAHC if possible.
- Commenter suggests submitting the report to the planning department with site forms, site significance and mitigation measures.
- Information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum not available to the public.
- The letter includes a contact list of appropriate Native American Contacts for consultation.
- The commenter suggests that lead agencies consider avoidance of sacred sites and if not possible include mitigation and monitoring plans pursuant to California Public Resources Code Section 21083.2 in consultation with affiliated Native Americans. This should also include a provision for discovery of Native American human remains in the mitigation plan.

Transportation and Infrastructure Committee, Subcommittee on Water Resources and the Environment – David L. Wenger, Senior Staff

- Commenter would like additional information on the project. The Committee is working in a cooperative effort with other federal, county and city entities to create additional water storage space in Southern California.

California Regional Water Quality Control Board, Lahontan Region – Thomas Suk, Senior Environment Scientist

- Commenter provided the March 24, 2014 California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) fish consumption advisory and safe eating guidelines for Littlerock reservoir. A link was also provided for advisories and supporting documents at: http://www.oehha.ca.gov/fish/so cal/Littlerock.html.

California Department of Fish and Wildlife, South Coast Region – Betty J. Courtney, Environmental Program Manager

- Commenter requests that EIR/EIS include information regarding sensitive plants, fish and wildlife.
- Commenter includes specific comments on addressing the Least Bells' Vireo and provides general comments on the type of information to be considered in the project description and alternatives as well as the impact assessment.
- The commenter requests a thorough, recent floristic assessment and an inventory of rare, threatened and endangered and other sensitive species on site and within the area of potential effect.
- Commenter requests measures for avoiding impacts to nesting birds and requests restoration and re-vegetation plans as well as other measures and requirements.

California Regional Water Quality Control Board, Lahontan Region – Jan M. Zimmerman, PG Engineering Geologist

- The EIR/EIS:
  – Must evaluate known elevated concentrations of mercury and polychlorinated biphenyls at reservoir;
  – Should consider eco-friendly alternatives to stabilize the banks and channel at Littlerock Creek;

- Should provide a detailed account of the baseline conditions that will be established by the project; and
- Should include a discussion of the proposed long-term maintenance plan to maintain the established baseline conditions.

Los Angeles County Department of Public Works - Andrew Ngumba, Traffic and Lighting Division and Juan Sarda, Land Development Division

- The County requests a traffic impact analysis with Traffic Index calculations for their review and approval.

City of Palmdale – Chuck Heffernan, Director of Development Services

- Commenter requests a traffic impact study to address the impacts of additional trips from this project on the City street network.
- The City will require a temporary use permit for stockpiling.
- Commenter indicates that Alternative 1, Long Term Closure of the Reservoir, in the NOP does not specify where the sediment will be transported. The method of sediment disposal must be included as part of Alternative 1.
- Commenter notes under Alternative 2, regarding disposal of sediment within existing mining operations, that those operations require a Conditional Use Permit from the City. In addition, the Office of Mine and Reclamation must be notified of any major modification to the approved Reclamation Plan(s). If slurry pipelines are utilized, an encroachment permit will also be required.
- To ensure project success, commenter requests that the City be allowed to work closely with the lead agencies on this project.

Fernandeno Tataviam Band of Mission Indians Tribal Historic & Cultural Preservation – Caitlin B. Gulley, Tribal Historic and Cultural Preservation

- Commenter requests inclusion as a consultant if the project is within traditional Tataviam tribal lands.

Soboba Band of Luiseno Indians – Joseph Ontiveros, Director of Cultural Resources

- Commenter has no specific concerns at this time; deferring to other tribes located closer to the project area. However, he would like an opportunity to participate in any tribal consultation process.

R. Indigenous Consultants Tribal Monitoring LLC, Randy Guzman-Folkes

- Commenter would like an opportunity to participate in any tribal consultation process.

Residents of 43rd Street East- Crystal Chavez, Arturo Castaneda, Louise Williams, Cathy Hunt, Ann Salaun Rondou and Ruth E. Ybarra

- These property owners are worried about a potential health risk from Valley Fever. They cite concerns over the potential release of *Coccidioidomycosis* spores from the dried removed sediment being released into the air from dust events. They would like additional information and are asking if another deposit site is available that is not located near populated residential areas.

Attachment 1
Scoping-Related Materials

1. NOP – March 7, 2014

2. Notice of Intent and Federal Filing – March 19, 2014

3. Newspaper Advertisements

   - Acton Agua Dulce News - March 10, 2014
   - Antelope Valley Press - March 12, 2014
   - LA Daily News - March 12, 2014
   - Antelope Valley Journal - March 14, 2014
   - Country Journal - March 15, 2014

4. Meeting Agenda - March 25, 2014

5. Meeting Sign-in Sheet - March 25, 2014

6. Comment Form

Notice of Preparation

Of a Joint Environmental Impact Report/Environmental Impact Statement

And

Notice of Public Scoping Meeting/Request for Comments

On the Preparation of an Environmental Impact Report/Environmental Impact Statement

For the

Littlerock Reservoir Sediment Removal Project

March 7, 2014

TO: All Interested Parties

Si usted necesita una copia de este documento en español u otra información por favor envíe un mensaje electrónico a salopez@aspeneg.com.

Subject

The Palmdale Water District (District) and the United States Forest Service, Angeles National Forest (ANF) will direct the preparation of a joint Environmental Impact Report (EIR) and an Environmental Impact Statement (EIS) referred to as an EIR/EIS for the Littlerock Reservoir Sediment Removal Project proposed by the District. Aspen Environmental Group (Aspen), a third-party contractor, under the direction of the District, as the lead agency under California law, and the U.S. Forest Service, ANF, as the federal lead agency will prepare a Draft and Final EIR/EIS to comply with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Summary of the Proposed Project

The Littlerock Dam and Reservoir (Reservoir) are located on Littlerock Creek below the confluence of Santiago Canyon on National Forest System lands (managed by the Angeles National Forest). The Reservoir is owned by the District, serving as a flood control facility and storage of water for agricultural and municipal water supply. Please refer to Figure 1 for a map of the proposed project area. The Reservoir:

- Serves as source of water supply storage;
- Is a recreational use area;
- Provides debris control; and
- Provides flood protection for downstream areas.

Littlerock Creek, which supplies water to the Reservoir, is a perennial stream supported by annual rainfall and snowmelt from the nearby slope of Mount Williamson. Inflow to Littlerock Reservoir is seasonal and varies widely from year to year depending on stream flows and snow melt from the Angeles National Forest.

During seasonal inflow of stormwater and snowmelt, sediment has been accumulating within the Reservoir. The Reservoir has a 1992 water storage capacity of 3,500 acre-feet. This capacity has been substantially reduced over time by the deposition of sediment behind the Dam. Current calculations conducted by the District indicate that Reservoir water storage has been reduced to 2,584 acre-feet due to annual sediment accumulation. The District is authorized to divert 5,500 acre-feet of water annually from the Reservoir.

Proposed Project Description

The proposed project would:

- Construct a grade control structure to prevent sediment loss and head cutting of the stream channel upstream of Rocky Point to preserve critical habitat and prevent impacts to the federally endangered arroyo toad;
- Remove excess reservoir sediment that has accumulated over time and to restore the Reservoir to 1992 design water storage and flood control capacity; and
- Maintain 1992 design capacity of the Reservoir.

Grade Control Structure

A grade control structure would be constructed at an area known as Rocky Point to prevent continued upstream head cutting and preserve critical habitat for the arroyo toad. The structure would be buried, with the top flush with, or slightly below, the existing channel surface. This mostly subterranean soil cement structure would span approximately 260 feet of channel (bank to bank) just downstream of Rocky Point. The maximum depth of the structure would be approximately 80 feet underground. The subterranean portion of the structure would extend downstream approximately 200 feet (in a downward stair-step design). Because the grade control structure would be constructed below grade, only the top or upper lip of the structure at the greatest point upstream would be visible when the Reservoir water level is lowered.

Sediment Removal

Upon completion of the grade control structure, the District would remove approximately 1,000,000 cubic yards of sediment, and then remove annual accumulations of sediment to restore and maintain the Reservoir to its 1992 design capacity. Temporary annual closure of the Reservoir for sediment removal activities would occur after Labor Day (with the Reservoir lowered to dead pool level) until seasonal water refill of the Reservoir suspends removal efforts (estimated between mid- November and January). The Reservoir would be closed to the public during this period. Excavation would occur just upstream of Littlerock Dam and extend approximately 3,700 feet upstream. The District's contractor would load sediment on a truck and transport it offsite to District-owned properties or locations accepting sediment for placement and spreading (disposal). These properties would be located within, or in close proximity to, the city of Palmdale. The District would seek reuse of the sediment on an annual basis prior to permanent disposal.

Annual Construction and Restoration Activities

All grade control structure construction and annual sediment removal activities would utilize Best Management Practices (BMPs) and be conducted with all required permits and approvals. Annual restoration efforts would begin immediately following the cessation of sediment removal activities and would be completed prior to opening the Reservoir to public access. Disturbed areas outside the excavated portion of the reservoir bed would be returned to pre-construction conditions or better. Native, locally collected seed mixtures and container plant material would be planted in areas that previously contained vegetation disturbed during construction of the grade control structure and sediment removal activities. At the completion of annual sediment removal activities, the District's contractor would remove all debris and repair to pre-construction conditions or better any damage to existing paved parking areas, access roads, and travel paths demonstrable to sediment removal activities.

Possible Alternatives

The District and the Forest Service have identified preliminary alternatives for consideration in the scoping process. The alternatives currently under consideration are:

- **No Project Alternative:** Under the No Project Alternative, sediment removal would not occur and sediment would continue to accumulate upstream of Littlerock Dam. In addition, no grade control structure would be built. Because no project activities would occur, the Reservoir capacity would be reduced by approximately 44 acre-feet annually. In the long term, Littlerock Reservoir would fill with sediment, entirely eliminating its flood control and water storage capacity.
- **Alternative 1 – Long-Term Closure of the Reservoir:** Under this alternative, the Reservoir would be closed year-round to the public until the District excavates and removes sediment to the maximum extent feasible to achieve 1992 design storage capacity. Once Reservoir capacity has been restored, the Reservoir would open for public use, but would be closed annually after Labor Day until seasonal water refill of the Reservoir occurs (estimated between mid- November and January) to accommodate annual sediment removal necessary to maintain Reservoir storage capacity.
- **Alternative 2 – Slurry Excavation:** Under this alternative, a slurry line would be constructed to transport dredged sediment to an off-site disposal location. Under this alternative, it is assumed transported sediment would be disposed at exhausted quarry pits within Palmdale along Avenue T, approximately 6-miles northeast of the Reservoir. This alternative would require a slurry pipeline and water return pipeline (each approximately 6-10 miles long) be constructed between the Reservoir and quarries. Preliminary analysis has indicated that sediment stockpile and processing, and water collection/pumping facilities would also be required at the quarry site(s). The feasibility of long-term agreements with quarry operators and storage capacities of the quarries to accommodate this alternative is unknown at this time.

Because of the potential significant impacts on the environment, an initial study was not prepared and the District and ANF will prepare an EIR/EIS. Note that this Notice of Preparation (NOP), and all future project-related documents are available for review at the following locations:

Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550
(661) 947-4111
Hours: 8 a.m. to 5 pm.
(Monday through Friday)

USFS, Angeles National Forest Santa Clara/Mojave Rivers Ranger District
33708 Crown Valley Road
Acton, CA 93510
(661) 296-2808
Hours: 8 a.m. to 4:30 pm.
(Monday through Friday)

Angeles National Forest Supervisor's Office
701 N Santa Anita Ave.
Arcadia, CA 91006
(626) 574-1613
Hours: 8 a.m. to 4:30 pm.
(Monday through Friday)

The EIR/EIS Process

As indicated in the project description, the proposed project is located on land administered by the ANF. Thus, the District would require a special use authorization from the ANF. In order to consider issuance of this permit, and based on the proposed project's potential impacts, ANF will prepare an EIS pursuant to NEPA requirements. CEQA requires District to take into account the environmental impacts that could result from the proposed project, necessitating preparation of an EIR. Based on these requirements, a joint EIR/EIS will be prepared under the direction of both agencies to satisfy the permitting and decision-making requirements of each agency prior to project approval. CEQA and NEPA also require that the EIR/EIS development process include public notice of the proposed project and address concerns that the public may have about the proposed project.

The analysis of the proposed project will result in the publication of a Draft EIR/EIS and a Final EIR/EIS. A minimum of 45 days (as required by federal NEPA regulations) will be allocated for the review and comment period of the Draft EIR/EIS. A notice of availability of the Draft EIR/EIS will be sent to the State Clearinghouse by the District and to the Federal Register by the ANF. The District and ANF will consider all comments on the Draft EIR/EIS and revise the document, as necessary, before issuing a Final EIR/EIS. The Final EIR/EIS will include responses to the comments received on the Draft EIR/EIS.

Proposed Scope of the EIR/EIS

The EIR/EIS will present the analysis of the environmental impacts of the proposed project and comparative environmental effects of the alternatives, and will identify mitigation measures for potentially significant impacts.

The EIR/EIS will address all issue areas for which potential significant impacts are anticipated. These issue areas include:

- **Air Quality.** Construction and operation emissions and effects, including the effects of on-site exhaust emissions from heavy-duty diesel and gasoline-powered construction equipment and the fugitive particulate matter from soil disturbing operations and sediment removal activities.

- **Biological Resources**. Effects on native habitat that supports sensitive species including the federally endangered arroyo toad (*Bufo californicus*) and the Forest Service Sensitive and State Species of Special Concern two-striped garter snake (*Thamnophis hammondii*); impacts to vegetation and wildlife habitat; impacts to riparian habitat above and below the reservoir, including Mojave riparian forest and southern sycamore alder riparian woodland, due to construction activities; and effects of noise and disturbance on nesting and foraging wildlife species.

- **Cultural Resources**. Sediment removal and construction activities effects on recorded cultural resources sites and unknown sites that may exist in the area of the proposed project and alternatives.

- **Land Use and Public Recreation.** Construction and operational effects on adjacent land uses and recreational resources of the Littlerock Recreation Area; potential preclusion of onsite uses; and access disruptions.

- **Traffic**. Effects of heavy-duty truck traffic from construction and sediment removal activities on travel and traffic lanes, driveways, access points, service vehicles, and recreational resources.

- **Water Resources.** Impacts to reservoir and production water quality; erosion and sedimentation; hydrological impacts; storm water runoff and flooding; impacts timing and duration; and cumulative effects of the proposed project with other related projects in the area.

Project Scoping Process and Scoping Meeting

The EIR/EIS on the proposed Littlerock Reservoir Sediment Removal Project will focus on significant environmental effects. The process of determining the focus and content of the EIR/EIS is known as scoping. Scoping helps to identify the range of actions, alternatives, environmental effects, and mitigation measures to be analyzed in depth, and eliminates from detailed study those issues that are not pertinent to the final decision on the proposed project. Scoping is also an effective way to bring together and address the concerns of the public, affected agencies, and other interested parties. Significant issues may be identified through public and agency comments.

Scoping, however, is not conducted to resolve differences concerning the merits of the project or to anticipate the ultimate decision on the proposal. Rather, the purpose of scoping is to help ensure that a comprehensive and focused EIR/EIS will be prepared that provides a firm basis for the decision-making process. Members of the public, affected federal, State, and local agencies, interest groups, and other interested parties may participate in the scoping process for this project by providing written comments or recommendations concerning the issues to be analyzed in the EIR/EIS. Written comments can be submitted at the scheduled scoping meeting at:

Palmdale Water District
March 25, 2014, 7:00 p.m.
Board Room
2029 East Avenue Q
Palmdale, CA 93550
(661) 947-4111

Attendees requiring language interpretation services at the scoping meetings must send an email message to salopez@aspeneg.com by March 18, 2014. The meeting location is wheelchair accessible.

Written comments are requested by **April 15, 2014**, and can be sent to:

Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, CA 91301

To submit comments on the scope of the project or potential environmental impacts, or to request a copy of the Draft or Final EIR/EIS, or to be added to the project mailing list, please write to the Forest Service/Palmdale Water District c/o Aspen Environmental Group.

By Electronic Mail: E-mail communications are welcome and will be accepted as official comments; however, please remember to include your name and return address in the email message. Email messages should be sent to: LSRP@aspeneg.com.

Agency Comments

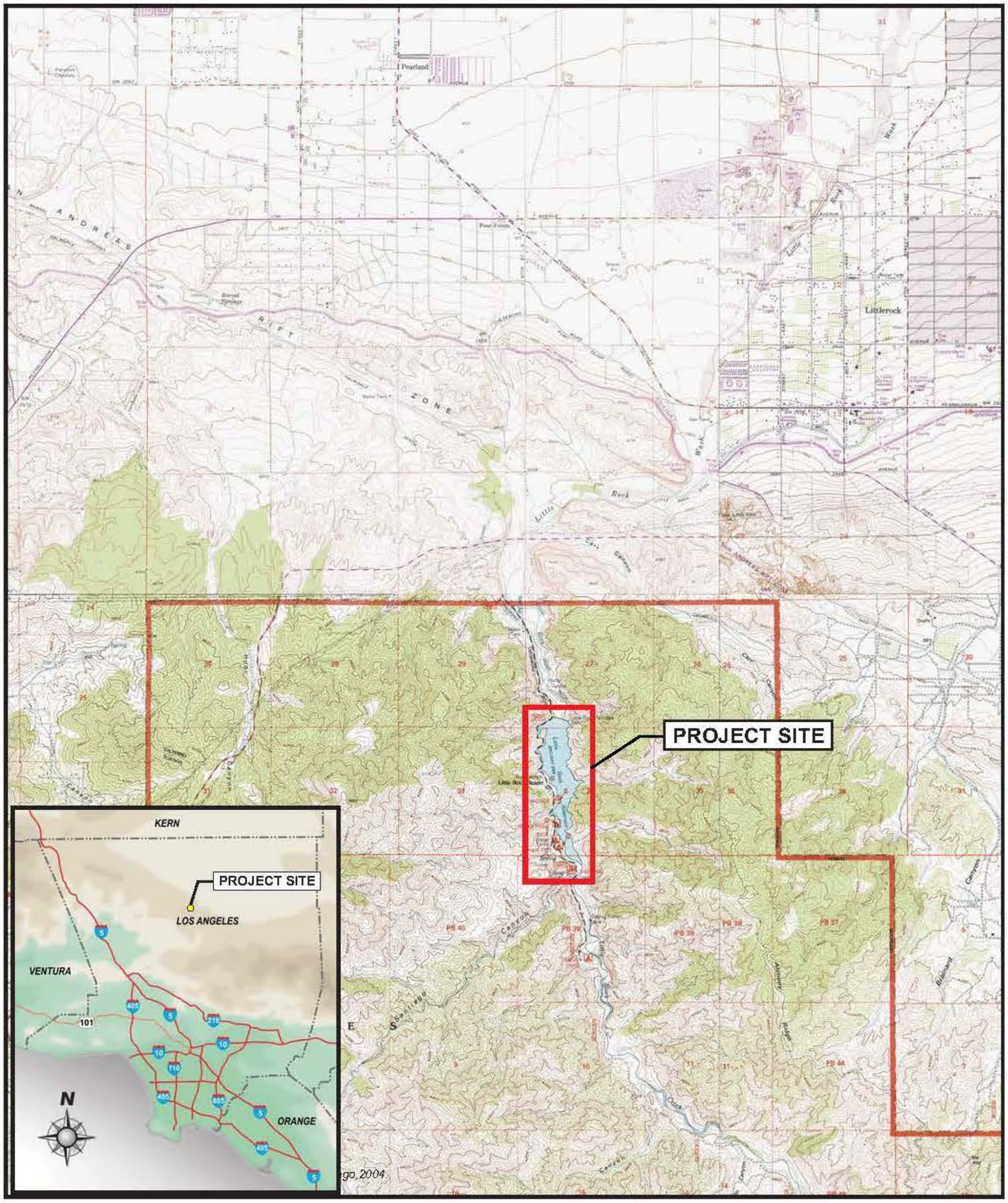
This NOP has been sent to State responsible and trustee agencies, cooperating federal agencies, and the State Clearinghouse. We need to know the views of your agency as to the scope and content of the environmental information to be included in the EIR/EIS, which reflects your agency's statutory responsibilities in connection with the proposed project. Once again, responses should identify the issues to be considered in the Draft EIR/EIS, including significant environmental issues, alternatives, mitigation measures, and whether the responding agency will be an official cooperating agency under NEPA or a responsible or State trustee agency under CEQA. Comments are requested by April 15, 2014. Please submit written comments to the address above.

For additional information related to the proposed project on National Forest System land, contact:

Lorraine Gerchas
Project Manager
Forest Service, Angeles National Forest
701 North Santa Anita Avenue,
Arcadia CA, 91006
(626) 574-5281
lmgerchas@fs.fed.us

For additional information related to the project on non-NFS lands, contact:

Mr. Matt Knudson
Assistant General Manager
Palmdale Water District, 2029 East Avenue Q
Palmdale, CA 93550
(661) 456-1018
mknudson@palmdalewater.org



Aspen Environmental Group

Project Location

Littlerock Reservoir

Figure 1

Board in accordance with USDA policies. To ensure that the recommendations of the Board have been taken into account the needs of diverse groups, served by the Black Hills National Forest, membership shall include, to the extent practicable, individuals with demonstrated ability to represent the needs of men and women of all racial and ethnic groups, and persons with disabilities.

Dated: March 11, 2014.

Gregory Parham,

Assistant Secretary for Administration.

[FR Doc. 2014–06070 Filed 3–18–14; 8:45 am]

BILLING CODE 3411–15–P

DEPARTMENT OF AGRICULTURE

Forest Service

Angeles National Forest, California, Littlerock Reservoir Sediment Removal Project

AGENCY: Forest Service, (USDA).

ACTION: Notice of intent to prepare an Environmental Impact Statement.

SUMMARY: The USDA Forest Service (Forest Service) and the Palmdale Water District (District) will prepare a joint Environmental Impact Statement and Environmental Impact Report (EIS/EIR) for sediment removal and construction of a grade control structure at Littlerock Reservoir, in Los Angeles County, California. The District has submitted an application to the Forest Service for a special use authorization for the project. The Forest Service is the lead Federal agency for the preparation of this EIS/EIR in compliance with the National Environmental Policy Act (NEPA), and the District is the lead State of California agency for the preparation of the EIS/EIR in compliance with the California Environmental Quality Act (CEQA).

The Littlerock Dam and Reservoir are located on Littlerock Creek, on National Forest System (NFS) lands managed by the Angeles National Forest. The project is approximately 10 miles southwest of the city of Palmdale, California. The Dam and Reservoir are operated and maintained by the District, pursuant to a Forest Service special use permit. The facilities serve both flood control and municipal water storage purposes. The Reservoir also provides recreational opportunities for boating, fishing, swimming, picnicking, and off-highway vehicle riding.

The proposed action would construct a grade control structure midway between the dam and the southern end of the Reservoir; remove sediment from the Reservoir to restore original capacity; and maintain capacity by conducting annual sediment removal through the life of the authorization, until 2037.

The Forest Service and the District invite written comments on the scope of this proposed project. In addition, the lead agencies give notice of this analysis so that interested and affected individuals are aware of how they may participate and contribute to the final decision.

DATES: Comments concerning the scope of the analysis are requested by April 15, 2014. One public information and scoping meeting will be held at the Palmdale Water District, March 25, 2014, 7:00 p.m., 2029 East Avenue Q, Palmdale, CA 93550, (661) 947–4111. The Draft EIS/EIR is expected in September 2014 and the Final EIS/EIR is expected March 2015.

ADDRESSES: To submit comments on the scope of the project or potential environmental impacts, or to request a copy of the Draft or Final EIS/EIR, or to be added to the project mailing list, please write to the Forest Service/Palmdale Water District c/o Aspen Environmental Group, 5020 Chesebro Road, Suite 200, Agoura Hills, CA 91301. Email communications should be sent to *LSRP@aspeneg.com,* and should include name and return address. Information about the project and the environmental review process will be posted on the Internet at: *http://www.palmdalewater.org/LSR.aspx.*

FOR FURTHER INFORMATION CONTACT: For additional information related to the proposed project on NFS lands, contact Lorraine Gerchas, Project Manager, Forest Service, Angeles National Forest at 701 North Santa Anita Avenue, Arcadia, CA 91006; *lmgerchas@fs.fed.us,* 626–574–5281. For additional information related to the project on non-NFS lands, contact Mr. Matt Knudson, Assistant General Manager, Palmdale Water District, 2029 East Avenue Q, Palmdale, CA 93550, *mknudson@palmdalewater.org,* (661) 456–1018.

SUPPLEMENTARY INFORMATION:

Purpose and Need

The purpose of the project is to restore the Reservoir to 1992 water storage and flood control capacity, and maintain that capacity through annual sediment removal. The purpose of the grade control structure is to allow for sediment removal and maintenance of reservoir capacity, while preserving habitat for the arroyo toad (*Anaxyrus californicus*). The Forest Service also has a need to respond to the District's application for a special use authorization.

Proposed Action

The first component of the proposed project is construction of a grade control structure, to maintain the elevation of the reservoir bed by limiting upstream erosion. The grade control structure would be buried, with the top flush with, or slightly below, the existing reservoir bed. This mostly subterranean soil cement structure would span approximately 260 feet of channel (bank to bank) just downstream of Rocky Point. The maximum depth of the structure would be approximately 80 feet underground. The subterranean portion would extend downstream approximately 200 feet (in a downward stair-step design). Only the upper lip of the structure would be visible when the Reservoir level is lowered.

Upon completion of the grade control structure, the District would remove approximately 1,000,000 cubic yards (CY) of sediment to restore the 1992 capacity of the Reservoir. This initial removal of sediment would occur over approximately 10–15 years, between September and January each year. The final component is to remove annual accumulations of approximately 54,000 CY of sediment to maintain the capacity. Temporary annual closure of the Reservoir to public access would occur after Labor Day until seasonal water refill suspends removal efforts (estimated between mid-November and January). Excavation would occur just upstream of Littlerock Dam and extend approximately 3,700 feet upstream. The District's contractor would load sediment on a truck and transport it offsite to District-owned properties or locations accepting sediment for placement and spreading. These properties would be located within, or in close proximity to, the city of Palmdale. The District would seek reuse of the sediment on an annual basis prior to permanent disposal.

Annual restoration efforts would begin immediately following completion of sediment removal activities and would be completed prior to opening the Reservoir to public access. Disturbed areas outside the excavated portion of the Reservoir bed would be returned to pre-construction conditions or better. Native, locally collected plant material would be planted in areas where native vegetation was disturbed. At the completion of annual sediment removal activities, the District's contractor would remove all debris and repair project caused damage to existing parking areas, access roads, and travel paths.

Possible Alternatives

The Forest Service and the District have identified the following potential alternative to the proposed action:

No Action Alternative: Project activities would not occur and sediment would continue to accumulate upstream of Littlerock Dam. Reservoir capacity would be reduced by approximately 44 acre-feet annually. In the long term, Littlerock Reservoir would fill with sediment, eliminating its flood control and water storage capacity.

Alternative 1: Long-Term Closure of the Reservoir: The Reservoir would be closed to the public for 3–4 years while sediment is removed to achieve 1992 capacity. Capacity for water storage and flood control would be achieved more quickly, but would result in a longer term public closure. Once Reservoir capacity has been restored, maintenance activities, construction of the grade control structure, and short-term, seasonal closures would be the same as the Proposed Action.

Alternative 2: Slurry Excavation: Slurry and water return pipelines (each approximately 6–10 miles long) between the Reservoir and disposal quarries would be constructed to transport sediment off-site. Sediment would be disposed at exhausted quarry pits within Palmdale along Avenue T, approximately 6-miles northeast of the Reservoir. Sediment stockpile and processing, and water collection and pumping facilities would be required at the quarry site(s). The feasibility of long-term agreements with quarry operators and storage capacities of the quarries is unknown at this time. Maintenance of reservoir capacity and construction of the grade control structure would be the same as the Proposed Action.

Responsible Official

The Forest Service Responsible Official for the preparation of the EIS/EIR is Thomas A. Contreras, Forest Supervisor, Angeles National Forest, 701 N. Santa Anita Avenue, Arcadia, CA 91006.

Nature of Decision To Be Made

The Responsible Official will decide whether to permit the proposed activities on NFS lands, or an alternative to the proposed project. If approved, the Forest Supervisor will also decide what mitigation measures and monitoring will be required. The Forest Supervisor has authority to approve only the portions of the project on NFS lands.

Preliminary Issues

The EIS/EIR will present analyze the environmental impacts of the proposed project and the alternatives, and will identify mitigation measures to lessen environmental impacts. The EIS/EIR will focus on issues for which potentially significant impacts are identified, including: air quality; biological resources; cultural resources; geology and soils; hazardous materials; land use and public recreation; traffic; and water resources.

Permits or Licenses Required

The Forest Supervisor, Angeles National Forest, would issue a Special Use Authorization for the proposed action or an alternative. Additional permits that may be required include: a Permit to Operate issued by the Antelope Valley Air Quality Management District, a National Pollutant Discharge Elimination System General Construction Permit issued by the Lahontan Regional Water Quality Control Board, a Section 404 Permit and Section 401 Certification (per the Clean Water Act) issued by the U.S. Army Corps of Engineers, Section 2081 Incidental Take Permit issued by the California Department of Fish and Wildlife, and a Streambed Alteration Agreement (Section 1602 and 1605 permits of the California Fish and Game Code) issued by the California Department of Fish and Wildlife. Local traffic control and encroachment permits may be required from the Los Angeles County Department of Public Works or the California Department of Transportation.

Comment Requested

This notice initiates the scoping process which guides the development of the EIS/EIR. The Forest Service and the District are seeking public and agency comment on the proposed project to identify major issues to be analyzed in depth and assistance in identifying potential alternatives to be evaluated.

The proposed project implements the 2006 Angeles National Forest Land Management Plan, and is subject to project level, pre-decisional administrative review pursuant to 36 CFR 218, Subparts A and B. Comments received on this notice or in subsequent environmental reviews, including names and addresses of those who comment, will be considered as part of the public record on this proposed project, and will be available for public inspection. Comments submitted anonymously will be accepted and considered; however, those who submit anonymous comments will not have standing to object to the subsequent decision. Additionally, pursuant to 7 CFR 1.27(d), any person may request the agency to withhold a submission from the public record by showing how the Freedom of Information Act (FOIA) permits such confidentiality. Persons requesting such confidentiality should be aware that, under the FOIA, confidentiality may be granted in only very limited circumstances, such as to protect trade secrets. The Forest Service will inform the requester of the agency's decision regarding the request for confidentiality. Where the request is denied, the agency will return the submission and notify the requester that the comments may be resubmitted, without names and addresses, within a specified number of days.

Early Notice of Importance of Public Participation in Subsequent Environmental Review: A Draft EIS/EIR will be prepared for comment. The comment period on the draft EIS/EIR will be 45 days from the date the Environmental Protection Agency publishes the notice of availability in the **Federal Register**.

The Forest Service believes, at this early stage, it is important to give reviewers notice of several court rulings related to public participation in the environmental review process. First, reviewers of the Draft EIS/EIR must structure their participation in the environmental review of the proposal so that it is meaningful and alerts an agency to the reviewer's position and contentions. *Vermont Yankee Nuclear Power Corp.* v. *NRDC,* 435 U.S. 519, 553 (1978). Also, environmental objections that could be raised at the Draft EIS/EIR stage but that are not raised until after completion of the Final EIS/EIR may be waived or dismissed by the courts. *City of Angoon* v. *Hodel,* 803 F.2d 1016, 1022 (9th Cir. 1986) and *Wisconsin Heritages, Inc.* v. *Harris,* 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Because of these court rulings, it is very important that those interested in this proposed action participate by the close of the 45-day EIS/EIR comment period so that substantive comments and objections are made available to the Forest Service at a time when it can meaningfully consider them and respond to them in the Final EIS/EIRS.

To assist the Forest Service in identifying issues and concerns on the proposed action, comments should be as specific as possible. Comments may also address the adequacy of the Draft EIS/EIR or the merits of the alternatives discussed in the statement. Reviewers may wish to refer to the Council on Environmental Quality Regulations for implementing the procedural provisions of NEPA (40 CFR 1503.3) in addressing these points.

Authority: 40 CFR 1501.7 and 1508.22; Forest Service Handbook 1909.15, Section 22.

Dated: March 12, 2014.

Thomas A. Contreras,

Forest Supervisor.

[FR Doc. 2014–06011 Filed 3–18–14; 8:45 am]

BILLING CODE 3410–11–P

DEPARTMENT OF AGRICULTURE

Forest Service

Notice of Public Meeting

AGENCY: Forest Service, USDA.

ACTION: Notice of public meeting.

SUMMARY: The Department of Agriculture, Forest Service will hold a workshop entitled ''Cellulose Nanomaterial—A Path Towards Commercialization'' on May 20–21, 2014 in collaboration with and co-sponsored by the National Nanotechnology Initiative (NNI). The workshop is intended to bring together executives and experts from the federal government, academia, and private sector to identify critical information gaps that need to be filled and technical barriers that need to be overcome to enable the commercialization of cellulose nanomaterials. Workshop presenters and participants will identify pathways for the commercialization of cellulosic nanomaterials and the workshop will facilitate communication across multiple industry sectors; between users and cellulose nanomaterials producers; and among government, academia and industry to determine common challenges. An important goal of the workshop is to identify the critical information gaps and technical barriers in the commercialization of cellulose nanomaterials from the perspective of nanocellulose user communities. The outcomes of the workshop are expected to be used to guide federal government and private sector investments in nanocellulose research and development. The workshop also supports the announcement last December by USDA Secretary Thomas Vilsack regarding the formation of a public private-partnership to rapidly advance the commercialization of cellulose nanomaterials. The USDA announcement can be found at: *http://www.usda.gov/wps/portal/usda/usdahome?contentid=2013%2F12%2F0235.xml.*

This workshop also supports the goals of the NNI Sustainable Nanomanufacturing Signature Initiative.

DATES: The Workshop will be held Tuesday, May 20, 2014 from 8:00 a.m. until 5:00 p.m. and on Wednesday, May 21, 2014 from 8:00 a.m. until 5:00 p.m.

ADDRESSES: The workshop will be held at the USDA Conference & Training Center, Patriots Plaza III, 355 E Street SW., Washington, DC 20024.

FOR FURTHER INFORMATION CONTACT: For information regarding this Notice, please contact Cheryl David-Fordyce at National Nanotechnology Coordination Office, by telephone 703–292–2424 or email *cdavid@nnco.nano.gov.* Additional information about the meeting, including the agenda, is posted at *http://www.nano.gov/NCworkshop.*

Registration: Registration opens on March 17, 2014 at *http://www.nano.gov/NCworkshop.* Due to space limitations, pre-registration for the workshop is required. Written notices of participation by email should be sent to *cdavid@nnco.nano.gov* or mailed to Cheryl David-Fordyce, 4201 Wilson Blvd., Stafford II, Suite 405, Arlington, VA 22230. Please provide your full name, title, affiliation and email or mailing address when registering. Registration is on a first-come, first-served basis until capacity is reached. Written or electronic comments should be submitted by email to *cdavid@nnco.nano.gov* until close of business April 30, 2014.

Meeting Accomodations: Individuals requiring special accommodation to access this public meeting should contact Cheryl David-Fordyce 703–292–2424 at least ten business days prior to the meeting so that appropriate arrangements can be made.

Dated: March 6, 2014.

Theodore H. Wegner,

Assistant Director.

[FR Doc. 2014–05352 Filed 3–18–14; 8:45 am]

BILLING CODE 3411–15–P

DEPARTMENT OF AGRICULTURE

Grain Inspection, Packers and Stockyards Administration

Opportunity for Designation in Unassigned Areas of Southeast Texas

AGENCY: Grain Inspection, Packers and Stockyards Administration, USDA.

ACTION: Notice.

SUMMARY: The Grain Inspection, Packers and Stockyards Administration (GIPSA) is asking persons or governmental agencies interested in providing official services in unassigned areas of Southeast Texas to submit an application for designation.

DATES: Applications and comments must be received by April 18, 2014.

ADDRESSES: Submit applications and comments concerning this Notice using any of the following methods:

- *Applying for Designation on the Internet:* Use FGISonline (*https://fgis.gipsa.usda.gov/default_home_FGIS.aspx*) and then click on the Delegations/Designations and Export Registrations (DDR) link. You will need to obtain an FGISonline customer number and USDA eAuthentication username and password prior to applying.
- *Submit Comments Using the Internet:* Go to Regulations.gov (*http://www.regulations.gov*). Instructions for submitting and reading comments are detailed on the site.
- *Mail, Courier or Hand Delivery:* Dexter Thomas, Acting Chief of Staff, USDA, GIPSA, OA, Room 2055–S, 1400 Independence Avenue SW., Washington, DC 20250.
- *Fax:* Dexter Thomas, 202–205–9237.
- *Email: R.Dexter.Thomas@usda.gov.*

Read Applications and Comments: All applications and comments will be available for public inspection at the office above during regular business hours (7 CFR 1.27(c)).

FOR FURTHER INFORMATION CONTACT: Dexter Thomas, 202–720–6529 or *R.Dexter.Thomas@usda.gov.*

SUPPLEMENTARY INFORMATION: GIPSA previously announced an opportunity for designation in unassigned areas of Southeast Texas in the **Federal Register** on September 27, 2013 (78 FR 59647). Applications were due by October 28, 2013. GIPSA received seven comments, representing five grain companies and two trade associations. All commenters supported Gulf Country Grain Inspection Service, Inc. (Gulf Country) designation for the geographical area announced in the **Federal Register** on September 27, 2013. Five commenters specifically recommended that Gulf Country's designation be expanded to include the Rio Grande Valley geographical area in South Texas. Two of those five commenters stated that Gulf Country could provide an equal or greater level of service at a better cost than GIPSA. Accordingly, GIPSA is announcing the opportunity for designation for unassigned areas of Southeast Texas including additional geographical area in South Texas.

Section 79(f) of the United States Grain Standards Act (USGSA) authorizes the Secretary to designate a qualified applicant to provide official services in a specified area after determining that the applicant is better

Acton Agua Dulce News
Legal Desk
P.O. Box 57
Acton, CA 93510
(661) 269-1169

PROOF OF PUBLICATION

STATE OF CALIFORNIA } } SS
COUNTY OF LOS ANGELES }

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the assistant principal clerk of the printer of the Acton Agua Dulce News, (Acton Agua Dulce Weekly News) a newspaper of general circulation, printed and published weekly in the Community of Acton, county of Los Angeles, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under date of February 8, 1989, Case Number 9391; that the notice, of which the annexed is a printed copy has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

3/10/2014

in the year 2014

I certify (or declare) under penalty of perjury that the foregoing is true and correct

M. Gayle Joyce

M. Gayle Joyce
Supervisor

NOTICE OF PUBLIC MEETING AND NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (EIR/EIS) for the LITTLEROCK RESERVOIR SEDIMENT REMOVAL

The Palmdale Water District (District) and the United States Forest Service, Angeles National Forest (ANF) are preparing an EIR/EIS for the District's proposed Littlerock Reservoir Sediment Removal Project. The District (as a lead agency under the California Environmental Quality Act) and the Forest Service (as the lead agency under the National Environmental Policy Act) will be holding a Public Scoping Meeting to obtain input from agencies and the public on the scope and content of the EIR/EIS. The meeting will be held at the following location:

Date/Time	Tuesday, March 25, 2014, 7:00 p.m.
Location	Palmdale Water District, Board Room 2029 East Avenue Q Palmdale, CA 93550 Phone: (661) 947-4111

The meeting location is wheelchair accessible. However, if other accommodations or language interpretation is necessary, please email salopez@aspeneg.com by March 18, 2014.

Background

The Littlerock Dam and Reservoir are located on Littlerock Creek below the confluence of Santiago Canyon in the ANF. The Reservoir has a 1992 water storage capacity of 3,500 acre-feet. This capacity has been substantially reduced over time by the deposition of sediment behind the Dam. The District proposes to construct a grade control structure at an area known as Rocky Point to prevent continued upstream head cutting and preserve critical habitat for the arroyo toad. Upon completion of the grade control structure, the District would remove approximately 1,000,000 cubic yards of sediment to restore the Reservoir to its 1992 design capacity, and then remove annual accumulations of sediment to maintain capacity.

Project Information

Information regarding the proposed project and the environmental review process, Project documents, contact and mailing information can be found at:

Palmdale Water District	USFS, Angeles National Forest Santa Clara/Mojave Rivers Ranger District	Angeles National Forest Supervisor's Office
2029 East Avenue Q Palmdale, CA 93550 (661) 947-4111 Hours: 8 a.m. to 5 pm. (Monday through Friday)	33708 Crown Valley Road Acton, CA 93510 (661) 296-2808 Hours: 8 a.m. to 4:30 pm. (Monday through Friday)	701 N Santa Anita Ave. Arcadia, CA 91006 (626) 574-1613 Hours: 8 a.m. to 4:30 pm. (Monday through Friday)

The EIR/EIS public scoping period ends on April 15, 2014. During this period, comments on the scope and content of the document may be provided at the public meeting noted above, or mailed to: Forest Service/Palmdale Water District c/o Aspen Environmental Group, 5020 Chesebro Road, Suite 200, Agoura Hills, CA 91301.Comments may also be sent via e-mail to LSRP@aspeneg.com. Written comments are requested by April 15, 2014. For more information regarding the Project, the environmental review process, or to provide comments on the project, please email LSRP@aspeneg.com.

AFFIDAVIT OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA } ss

County of Los Angeles

NOTICE OF PUBLIC MEETING AND
NOTICE OF PREPARATION
EIR/EIS

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the **Antelope Valley Press**, a newspaper of general circulation, printed and published **daily** in the **City of Palmdale**, County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under date of October 24, 1931, Case Number 328601; Modified Case Number 657770 April 11, 1956; also operating as the Ledger-Gazette, adjudicated a legal newspaper June 15, 1927, by Superior Court decree No. 224545; also operating as the Desert Mailer News, formerly known as the South Antelope Valley Foothill News, adjudicated a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California on May 29, 1967, Case Number NOC564 and adjudicated a newspaper of general circulation for the **City of Lancaster,** State of California on January 26, 1990, Case Number NOC10714, Modified October 22, 1990; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

March 12, 2014

I certify (or declare) under penalty of perjury that the fore-going is true and correct.

Signature

Dated: March 12, 2014

Executed at Palmdale, California

The space above for filing stamp only

NOTICE OF PUBLIC MEETING AND NOTICE OF PREPARATION
DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT (EIR/EIS) for the LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT

The Palmdale Water District (District) and the United States Forest Service, Angeles National Forest are preparing an EIR/EIS for the District's proposed Littlerock Reservoir Sediment Removal Project. The District (as a lead agency under the California Environmental Quality Act) and the Forest Service (as the lead agency under the National Environmental Policy Act) will be holding a Public Scoping Meeting to obtain input from agencies and the public on the scope and content of the EIR/EIS. The meeting will be held at the following location:

Date/Time: Tuesday, March 25, 2014, 7:00 p.m.
Location: Palmdale Water District, Board Room
2029 East Avenue Q
Palmdale, CA 93550
Phone: (661) 947-4111

If language interpretation is necessary, please email salopez@aspeneg.com by March 18, 2014.

Background. The Reservoir water storage capacity has been substantially reduced over time by the deposition of sediment behind the Dam. The District proposes to construct a grade control structure to prevent continued upstream head cutting and preserve critical habitat for the arroyo toad. Upon completion of this structure, the District would remove approximately 1,000,000 cubic yards of sediment to restore the Reservoir to its 1992 design capacity, and would then remove sediment on an annual basis to maintain capacity.
Information. Project-related documents can be found at the repositories noted below or you may visit the project website at http://www.palmdalewater.org/LSR.aspx.

Palmdale Water District
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(661) 947-4111
Hours: 8 a.m. to 5 pm.
(Monday through Friday)

USFS, Angeles National Forest
Santa Clara/Mojave
Rivers Ranger District
33708 Crown Valley Road
Acton, CA 93510 (661) 296-2808
Hours: 8 a.m. to 4:30 pm.
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Angeles National Forest
Supervisor's Office
701 N Santa Anita Ave.
Arcadia, CA 91006
(626) 574-1613
Hours: 8 a.m. to 4:30 pm.
(Monday through Friday)

The EIR/EIS public scoping period ends on April 15, 2014. During this period, comments on the scope and content of the document may be provided at the public meeting noted above, or mailed to: Forest Service/Palmdale Water District, c/o Aspen Environmental Group, 5020 Chesebro Road, Suite 200, Agoura Hills, CA 91301.Comments may also be sent via e-mail to LSRP@aspeneg.com. Written comments are requested by April 15, 2014.

PROOF OF PUBLICATION AFFIDAVIT
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
County of Los Angeles,

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the

Daily News

a newspaper of general circulation published 7 times weekly in the County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under the date of May 26, 1983, Case Number Adjudication #C349217; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil) has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, towit: March 12,

all in the year 20 14

I certify (or declare) under penalty of perjury that the forgoing is true and correct.

Dated at Woodland Hills,

California, this 12th **day of** March**, 20** 14

Tim Coulter

Signature

Proof of Publication of

Notice of Public Meeting and Notice of Preparation Draft (EIR/EIS)

NOTICE OF PUBLIC MEETING AND NOTICE OF PREPARATION DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (EIR/EIS) FOR THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT

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If language interpretation is necessary, please email salopez@aspeneg.com by March 18, 2014.

Background: The Reservoir water storage capacity has been substantially reduced over time by the deposition of se the Dam. The District proposes to construct a grade control structure to prevent continued upstream head cutting critical habitat for the arroyo toad. Upon completion of this structure, the District would remove approximately 1,0 yards of sediment to restore the Reservoir to its 1992 design capacity, and would then remove sediment on an to maintain capacity.

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Hours: 8 a.m. to 5 pm.
(Monday through Friday)

USFS, Angeles National Forest Santa Clara/ Mojave Rivers Ranger District
33708 Crown Valley Road
Acton, CA 93510
(661) 296-2808
Hours: 8 a.m. to 4:30 pm.
(Monday through Friday)

Angeles Nation Supervisor's
701 N Santa A
Arcadia, CA
(626) 574-
Hours: 8 a.m. to
(Monday throu

The EIR/EIS public scoping period ends on April 15, 2014. During this period, comments on the scope and c document may be provided at the public meeting noted above, or mailed to: Forest Service/Palmdale Water Distr Environmental Group, 5020 Chesebro Road, Suite 200, Agoura Hills, CA 91301. Comments may also be sent LSRP@aspeneg.com. Written comments are requested by April 15, 2014.

ANTELOPE VALLEY JOURNAL

3166 E PALMDALE BLVD STE 107, PALMDALE, CA 93550
Telephone (661) 947-5009 / Fax (661) 947-5208

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This space for filing stamp only

MELISSA JORDAN
ASPEN ENVIRONMENTAL GROUP
5020 CHESEBRO RD #200
AGOURA HILLS, CA - 91301

CNS#: 2598181

PROOF OF PUBLICATION

(2015.5 C.C.P.)

State of California)
County of LOS ANGELES) ss

Notice Type: GPN - GOVT PUBLIC NOTICE

Ad Description:

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (EIR/EIS) for the LITTLEROCK RESERVOIR SEDIMENT

I am a citizen of the United States and a resident of the State of California; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer and publisher of the ANTELOPE VALLEY JOURNAL, a newspaper published in the English language in the city of PALMDALE, and adjudged a newspaper of general circulation as defined by the laws of the State of California by the Superior Court of the County of LOS ANGELES, State of California, under date of 08/31/2000, Case No. MS002880. That the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

03/14/2014

Executed on: 03/14/2014
At PALMDALE, California

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

Notice of Public Meeting and Notice of Preparation

Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Littlerock Reservoir Sediment Removal Project

The Palmdale Water District (District) and the United States Forest Service, Angeles National For[est] preparing an EIR/EIS for the District's proposed Littlerock Reservoir Sediment Removal Project. The (as a lead agency under the California Environmental Quality Act) and the Forest Service (as the lead under the National Environmental Policy Act) will be holding a Public Scoping Meeting to obtain inp[ut from] agencies and the public on the scope and content of the EIR/EIS. The meeting will be held at the fo[llowing] location:

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CNS#

* A 0 0 0 0 0 3 3 6 4 8 1 5 *

CONCEPTS

By JOHN VAN HUIZUM

Conscience or Greed?

An analysis is a breaking up of a whole into its parts to find out their true nature, a detailed examination. For example, a doctor wants to have as many details as possible about a patient's condition in order to come to a conclusion about his over-all health. A financial analyst does the same with businesses, and in that process, can use a program like Excel to measure the health of individual enterprises for investment purposes. Another title for financial analyst is stock broker, a person who is in the business of buying and selling stock. The trick is knowing when to buy and when to sell.

The more inside information a broker has about various companies, the better he can present an attractive stock deal for a client. The broker will benefit from both, because he or she charges a commission, so the broker does not have to take any risk with his or her own money.

The greater the amount of money involved in a trade, the greater the commission to the middle-man, so investment brokers love a big deal, in the same way as a real estate broker loves to earn a commission on an expensive property.

Clients may be big, medium or small investors, but it is in the broker's financial interest to please his big investor-clients the most.

When deal makers make a killing on a certain stock by selling it, they make even more when they can find a buyer for that same stock among their existing customers. If they can convince a company or individual to sell a stock because the prospects are poor, what should they tell a new buyer of that stock, the truth or a falsehood?

This advice now becomes a matter of conscience: does the broker care or not care about the "sucker" buyer? Does he let greed override his conscience or should he tell the (small) buyer the truth?

If you want to get a glimpse into the treacherous world of rich people – also known as Wall Street – you will get it by reading the book called *New Money* by Kevin Roose. If I could, I would make it required reading for every curious grown-up.

John van Huizum is a retired businessman and a resident of Agua Dulce. He appreciates disagreement with his views for learning purposes. Feel free to call him at (661) 361-9862 (cell) or email at johnvanhuizum@gmail.com. John is selling a CD of about 1,000 published articles plus 1,500 unpublished for $10.00 plus $2.00 shipping. Please call him if interested.

Notice of Public Meeting and Notice of Preparation of a Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Littlerock Reservoir Sediment Removal

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LOCATION: Palmdale Water District, Board Room 2029 East Avenue Q Palmdale, CA 93550 Phone: (661) 947-4111

The meeting location is wheelchair accessible. However, if other accommodations or language interpretation is necessary, please email salopez@aspeneg.com by March 18, 2014.

Background

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PUBLIC SCOPING MEETING

Littlerock Reservoir Sediment Removal Project

Tuesday, March 25, 2014
7:00 p.m.

Palmdale Water District, Board Room
2029 East Avenue Q, Palmdale, CA 93550

Agenda

- Short Presentation
  - Purpose of Scoping
  - Overview of the Proposed Project
  - Possible Alternatives
  - PWD and Forest Service Processes
  - The Environmental Review Process
  - Environmental Issue Areas
  - Public Comments
- Project Stations – where EIR/EIS staff are available to answer your questions about the project and upcoming environmental review

Sign-In Sheet – March 25, 2014

Scoping Meeting for Littlerock Sediment Removal Project-

Please print or write legibly. Thank you.

Name	VINCENT DINO	**Organization**	P. W. D.
Address	37646 GRANT CT PALMDALE		
Email	VJdino@YAHOO.COM	**Phone**	661 435 1991
Name	Robert Alvarado	**Organization**	PWD
Address	2029 E. AVE. Q Palmdale CA 93550		
Email	Robertealvarado@aol.com	**Phone**	661 406-8801
Name	Jackie Owens	**Organization**	Congressman McKeon's Office
Address	1008 W. Ave M-14 Palmdale		
Email	Jacqueline.Owens@mail.house.gov	**Phone**	
Name	Joe Estes	**Organization**	PWD Director
Address	36055 43RD St. East Palmdale CA 93552		
Email	JEstesPWD@Gmail.com	**Phone**	818-795-7416
Name	Alisha Semchuck	**Organization**	The Antelope Valley Press
Address	—		
Email	asemchuck@avpress.com	**City**	
Name		**Organization**	
Address			
Email		**Phone**	
Name		**Organization**	
Address			
Email		**Phone**	
Name		**Organization**	
Address			
Email		**Phone**	
Name		**Organization**	
Address			
Email		**Phone**	

** Your name, address, and comments become public information and may be released to interested parties if requested.*

PALMDALE WATER DISTRICT
USDA FOREST SERVICE

Scoping Comments

Proposed Littlerock Reservoir Sediment Removal Project

Name*: ____________________

Affiliation (*if any*):* ____________________

Address:* ____________________

City, State, Zip Code:* ____________________

Telephone Number:* ____________________

Email:* ____________________

Comment:* ____________________

**Please print or write legibly. Your name, address, and comments become public information and may be released to interested parties if requested. Thank you for your comments.*

Please either deposit this sheet at the sign-in table before you leave today, or fold, stamp, and mail. Insert additional sheets if needed. Comments must be postmarked by April 15, 2014. Comments may also be e-mailed to: LSRP@aspeneg.com.

Tuesday March 25, 2014

Place
Postage
Here

Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, CA 91301

ATTACHMENT 2
Scoping Comment Letters

AGENCIES

1. Department of the Army Los Angeles District, U.S Army Corp of Engineers
   Sherry Bellini, Regulatory Assistant

2. Native American Heritage Commission – Dave Singleton, Program Analyst

3. Transportation and Infrastructure Committee, Subcommittee on Water Resources and the Environment – David L. Wenger, Senior Staff

4. California Regional Water Quality Control Board, Lahontan Region
   Thomas J. Suk, Senior Environmental Scientist

5. Department of Fish and Wildlife, South Coast Region
   Betty J. Courtney, Environmental Program Manager I

6. California Regional Water Quality Control Board, Lahontan Region
   Jan M. Zimmerman, PG Engineering Geologist

7. Los Angeles County Department of Public Works – Andrew Ngumba, Traffic and Lighting Division and Juan Sarda, Land Development Division

8. City of Palmdale – Chuck Heffernan, Director of Development Services

TRIBAL GROUPS

1. Fernandeno Tataviam Band of Mission Indians Tribal Historic & Cultural Preservation – Caitlin B. Gulley, Tribal Historic and Cultural Preservation

2. Soboba Band of Luiseno Indians – Joseph Ontiveros, Director of Cultural Resources

3. R. Indigenous Consultants – Randy Guzman-Folkes, Proprietor

PUBLIC

1. Littlerock Lake Resort – Richard A. Cooper, Proprietor

2. Residents of 43rd Street East – Chrystal Chavez, Arturo Castaneda, Louise Williams, Cathy Hunt, Ann Salaun Rondou, and Ruth E. Ybarra, Property Owners

-----Original Message-----
From: Bellini, Sherry A SPL
Sent: Monday, March 17, 2014 10:13 AM
To: 'lmgerchas@fs.fed.us'; 'mknudson@palmdalewater.org'
Subject: Permit information for the Littlerock Reservoir Sediment Removal Project (SPL-2014-00194) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Dear Ms. Gerchas and Mr. Knudson:

It has come to our attention that you are evaluating the Littlerock Reservoir Sediment Removal Project. This activity may require a U.S. Army Corps of Engineers permit.

A Corps of Engineers permit is required for:

a) structures or work in or affecting "navigable waters of the United States" pursuant to Section 10 of the Rivers and Harbors Act of 1899.
Examples include, but are not limited to,

1. constructing a pier, revetment, bulkhead, jetty, aid to navigation, artificial reef or island, and any structures to be placed under or over a navigable water;

2. dredging, dredge disposal, filling and excavation;

b) the discharge of dredged or fill material into, including any redeposit of dredged material other than incidental fallback within, "waters of the United States" and adjacent wetlands pursuant to Section 404 of the Clean Water Act of 1972. Examples include, but are not limited to,

1. creating fills for residential or commercial development, placing bank protection, temporary or permanent stockpiling of excavated material, building road crossings, backfilling for utility line crossings and constructing outfall structures, dams, levees, groins, weirs, or other structures;

2. mechanized landclearing, grading which involves filling low areas or land leveling, ditching, channelizing and other excavation activities that would have the effect of destroying or degrading waters of the United States;

3. allowing runoff or overflow from a contained land or water disposal area to re-enter a water of the United States;

4. placing pilings when such placement has or would have the effect of a discharge of fill material;

c) the transportation of dredged or fill material by vessel or other vehicle for the purpose of dumping the material into ocean waters pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972;

d) any combination of the above.

An application for a Department of the Army permit is available on our website:
http://www.usace.army.mil/Portals/2/docs/civilworks/permitapplication.pdf .

If you have any questions, please contact me (contact information below). Please refer to this letter and SPL-2012-00194 in your reply.

sincerely,

Sherry Bellini
Regulatory Assistant

Department of the Army
Los Angeles District,
U.S. Army Corps of Engineers
915 Wilshire Blvd, Suite 930
ATTN: Regulatory Division, CESPL-RG
Los Angeles, California 90017-3409

213-452-3897
213-452-4196 fax
http://www.spl.usace.army.mil/Missions/Regulatory.aspx

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3715
Fax (916) 373-5471
Web Site www.nahc.ca.gov
Ds_nahc@pacbell.net
e-mail: ds_nahc@pacbell.net

March 19, 2014

Mr. Matt Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Sent by U.S. Mail
No. of Pages: 3

RE: SCH#2005061171; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the **"Littlerock Reservoir Sediment Removal Project;"** located in the southern Antelope Valley, in northeastern Los Angeles County, California

Dear Mr. Knudson

The Native American Heritage Commission (NAHC) has reviewed the above-referenced environmental document.

The California Environmental Quality Act (CEQA) states that any project which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064.5(b).. To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, pursuant to California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Also, California Public Resources Code Section 21083.2 require documentation and analysis of archaeological items that meet the standard in Section 15064.5 (a)(b)(f).

If there is federal jurisdiction of this project due to funding or regulatory provisions; then the following may apply: the National Environmental Policy Act (NEPA 42 U.S.C 4321-43351) and Section 106 of the National Historic Preservation Act (16 U.S.C 470 *et seq.*) and 36 CFR Part 800.14(b) require consultation with culturally affiliated Native American tribes to determine if the proposed project may have an adverse impact on cultural resources

We suggest that this (additional archaeological activity) be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. Any information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant to California Government Code Section 6254.10.

A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources.

California Government Code Section 65040.12(e) defines "environmental justice" to provide "fair treatment of People...with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies." (The California Code is consistent with the Federal Executive Order 12898 regarding 'environmental justice.' Also, applicable to state agencies is Executive Order B-10-11 requires consultation with Native American tribes their elected officials and other representatives of tribal governments to provide meaningful input into the development of legislation, regulations, rules, and policies on matters that may affect tribal communities.

Lead agencies should consider first, avoidance for sacred and/or historical sites, pursuant to CEQA Guidelines 15370(a). Then if the project goes ahead then, lead agencies include in their mitigation and monitoring plan provisions for the analysis and disposition of recovered artifacts, pursuant to California Public Resources Code Section 21083.2 in consultation with culturally affiliated Native Americans.

Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Dave Singleton
Program Analyst

CC: State Clearinghouse

Attachment: Native American Contacts list

Native American Contacts
Los Angeles County California
March 19, 2014

Beverly Salazar Folkes
1931 Shadybrook Drive
Thousand Oaks, CA 91362
folkes9@msn.com
805 492-7255
(805) 558-1154 - cell
folkes9@msn.com
Chumash
Tataviam
Ferrnandeño

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838
Newhall , CA 91322
tsen2u@hotmail.com
(661) 753-9833 Office
(760) 885-0955 Cell
(760) 949-1604 Fax
Fernandeño
Tataviam
Serrano
Vanyume
Kitanemuk

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This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list s only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH#2005071171; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Littlerock Reservoir Sediment Removal Project; located in the southern Antelope Valley; northeastern Los Angeles County, California.

Melissa Jordan

From: Negar Vahidi
Sent: Friday, March 21, 2014 11:31 AM
To: LSRP
Subject: FW: Littlerock Reservoir Sediment Removal Project

From: Gerchas, Lorraine M -FS [mailto:lmgerchas@fs.fed.us]
Sent: Thursday, March 20, 2014 10:40 AM
To: Blount, Wilburn M -FS; Negar Vahidi; Sandra Alarcon-Lopez; Scott Debauche; Seastrand, Justin -FS
Cc: Gerchas, Lorraine M -FS; Matthew Knudson (mknudson@palmdalewater.org)
Subject: FW: Littlerock Reservoir Sediment Removal Project

FYI

From: Wegner, David [mailto:David.Wegner@mail.house.gov]
Sent: Thursday, March 20, 2014 9:24 AM
To: Gerchas, Lorraine M -FS; 'mknudson@palmdalewater.org'
Subject: Littlerock Reservoir Sediment Removal Project

Lorraine and Matt – we have an interest in getting some additional information on the proposed project to remove sediment from Littlerock Reservoir, CA. We are working with several federal, county and city entities to create additional water storage space throughout Southern California. Might you be able to provide some additional information on this project. Also, are there a lot of these potential reservoirs in SOCAL that are facing the same issue? Thanks. Dave

David L. Wegner
Senior Staff
Transportation and Infrastructure Committee
Subcommittee on Water Resources and the Environment
B-375 Rayburn House Office Building
Washington, DC
202-226-0206

Melissa Jordan

From: Suk, Thomas@Waterboards <thomas.suk@waterboards.ca.gov>
Sent: Monday, March 24, 2014 11:52 AM
To: Bob Blount; Peter Johnston; Lorraine Gerchas; LSRP
Subject: FW: New Fish Advisory For Little Rock Reservoir: Women of Childbearing Age and Children Should Avoid Bass, Catfish, and Carp; Eat Other Species Only in Moderation

Hello ~

FYI, OEHHA's fish consumption advisories ("Safe Eating Guidelines") for Little Rock Reservoir were released today (March 24). The advisories and supporting documents are located at: http://www.oehha.ca.gov/fish/so_cal/LittleRock.html

See the press release from OEHHA, appended below, for more information. You may contact me (or OEHHA) with any questions about this study.

~tom

****
Thomas J. Suk, Senior Environmental Scientist
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150
phone: (530) 542-5419
fax: (530) 544-2271
e-mail: thomas.suk@waterboards.ca.gov
to view our monitoring webpage, click here

From: ExternalAffairs, OEHHA@OEHHA
Sent: Monday, March 24, 2014 11:01 AM
To: ExternalAffairs, OEHHA@OEHHA
Subject: New Fish Advisory For Little Rock Reservoir: Women of Childbearing Age and Children Should Avoid Bass, Catfish, and Carp; Eat Other Species Only in Moderation

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) today released a new fish consumption advisory and safe eating guidelines for fish from Los Angeles County's Little Rock Reservoir.

Our press release is embedded below. Here are links to the release, health advisory, safe eating advice, and a fact sheet:

- **Press Release:** New Fish Advisory For Little Rock Reservoir: Women of Childbearing Age and Children Should Avoid Bass, Catfish, and Carp; Eat Other Species Only in Moderation (PDF)
- Health Advisory and Guidelines for Eating Fish from Little Rock Reservoir (Los Angeles County) (PDF)
- Safe eating advice for Little Rock Reservoir (PDF)
- Fact sheet for Little Rock Reservoir (PDF)

George V. Alexeeff, Ph.D., D.A.B.T., Director
Headquarters • 1001 I Street • Sacramento, California 95814
Mailing Address: P.O. Box 4010 • Sacramento, California 95812-4010
Oakland Office • Mailing Address: 1515 Clay Street, 16th Floor • Oakland, California 94612

Matthew Rodriquez
Secretary for
Environmental Protection

Wat

New Fish Advisory For Little Rock Reservoir: Women of Childbearing Age and Children Should Avoid Bass, Catfish, and Carp; Eat Other Species Only in Moderation

March 24, 2014
FOR IMMEDIATE RELEASE

Julian Leichty (OEHHA) 916-323-2395
Doug Smith (Lahontan) 775-762-4344

SACRAMENTO – A new state fish advisory for fish from Los Angeles County's Little Rock Reservoir recommends that all women of childbearing age and children should avoid eating largemouth bass, catfish, and carp.

Women of childbearing age and children should also limit consumption of bluegill, green sunfish, crappie, and rainbow trout to one serving a week. Women over 45 and men 18 and older can eat three servings a week of rainbow trout or two servings a week of bluegill, green sunfish, or crappie. Alternately, this group can eat one serving a week of largemouth bass, catfish, or carp.

The recommendations for each of the fish species are based on levels of methylmercury and polychlorinated biphenyls (PCBs). The advisory and eating guidelines were developed by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) using comprehensive data from sampling funded and conducted by the Lahontan Regional Water Quality Control Board.

"Eating fish provides many health benefits," said OEHHA Director Dr. George Alexeeff. "They are an excellent source of protein and can help reduce the risk of heart disease. These guidelines help anglers and their families balance these health benefits against the risks from exposure to contaminants in fish at Little Rock Reservoir."

Contamination from mercury and PCBs builds up in fish tissues, but not in water from the reservoir. Drinking water from the reservoir consistently meets or exceeds drinking water standards for both mercury and PCBs.

Methylmercury can harm the brain and nervous system, especially in fetuses and children as they grow. PCBs can affect the nervous system, and can cause cancer and other health effects.

Eating fish in amounts slightly greater than the advisory's recommendations is not likely to cause a health problem if it is done only occasionally, such as eating fish caught during an annual vacation.

The health advisory and guidelines for Little Rock Reservoir – as well as advisories and eating guidelines for other fish species and California bodies of water – are available at http://www.oehha.ca.gov/fish.html. A graphic with pictures of the fish species and the consumption advice is also available.

OEHHA is the primary state entity for the assessment of risks posed by chemical contaminants in the environment. Its mission is to protect and enhance public health and the environment by scientific evaluation of risks posed by hazardous substances.

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

April 7, 2014

Mr. Matt Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550
mknudson@palmdalewater.org

Subject: Comments on the Notice of Preparation of a Draft Environmental Impact Report/Environmental Impact Statement for Littlerock Reservoir Sediment Removal Project, Los Angeles County, SCH#2005061171

Dear Mr. Knudson:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Notice of Preparation (NOP) for the Littlerock Reservoir Sediment Removal Project (project) draft Environmental Impact Report/Environmental Impact Statement (DEIR/DEIS). The Palmdale Water District (District) is the lead agency for the EIR under the California Environmental Quality Act (CEQA) and the U.S. Forest Service (Service) is the lead agency for the EIS under the National Environmental Policy Act (NEPA). The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project, CEQA] Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq.*

The project area is located in Littlerock Creek below the confluence of Santiago Canyon on Angeles National Forest managed lands in the Antelope Valley side of the San Gabriel Mountains. The reservoir is owned by the Palmdale Water District (District) serving as the flood control facility and storage of water for agricultural and municipal water supply.

- The Project as proposed would include the construction of a grade control structures to prevent sediment loss and head cutting of the stream channel upstream to preserve critical habitat for and prevent impacts to the federally endangered arroyo toad (*Bufo Californicus*); remove excess reservoir sediment that has accumulated over time to restore Reservoir Capacity to 1992 levels; and maintain 1992 design capacity of the Reservoir.

To enable the Department to adequately review and comment on the proposed project, from the standpoint of the protection of plants, fish and wildlife, we recommend the following information be included in the final DEIR/DEIS:

Specific Comments

1. 1. Least Bell's Vireo (*Vireo bellii pusillus*) - The EIR should pay particular attention to adverse Project impacts to and avoidance measures for least Bell's Vireo which the Department understands has been observed near the Project site below the reservoir and dam.

2. 2. Project Alternatives - Project alternatives described in the NOP may result in the disposal of sediment into mine pit depressions and other habitats. The DEIR should identify sediment disposal locations and evaluate impacts to biological resource as part of the Project as a whole. Any sediment disposal proposed for the purposes of filling depressions or mining pits should carefully evaluate presence of wetland habitat which often exists in mining pits that have exposed ground water or collected surface water. These areas should be avoided for sediment disposal as well as any other areas supporting special status species or habitats.

General Comments

To enable the Department to adequately review and comment on the proposed Project from the standpoint of the protection of plants, fish and wildlife, we recommend the following information be included in the DEIR:

3. Project Description Alternatives.

   a) Project Description. A complete discussion of the purpose and need for, and description of, the proposed Project.

   b) Plan Alternatives. A range of feasible alternatives to the Project to ensure that alternatives to the proposed Project are fully considered and evaluated; the alternatives should avoid or otherwise minimize impacts to sensitive biological resources. Specific alternative locations should be evaluated in areas with lower resource sensitivity where appropriate.

4. Resources Assessment. The NOP characterizes the project and surrounding land use as open space public land and flood control reservoir facilities with associated riparian habitats:

   a) Regional Setting. Per CEQA Guidelines, section 15125(c), information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis should be placed on resources that are rare or unique to the region.

   b) Sensitive Plants. A thorough, recent floristic-based assessment of special status plants and natural communities, following the Department's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (see http://www.dfg.ca.gov/habcon/plant/). The Department recommends that floristic, alliance- and/or association-based mapping and vegetation impact assessments be conducted within the Project area. The Manual of California Vegetation, second edition, should also be used to inform this mapping and assessment (Sawyer et al. 2008). Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts off site. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

c) Sensitive Wildlife Species. An inventory of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect. Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines, § 15380). This should include sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

d) California Natural Diversity Database. A current inventory of the biological resources associated with each habitat type on site and within the area of potential effect. The Department's California Natural Diversity Data Base in Sacramento should be contacted at www.wildlife.ca.gov/biogeodata/ to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code. The Department recommends a 9 quad search around the project vicinity to identify potential sensitive species within the Project area.

5. Impact analysis. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR.

a) Impacts to Streams and Riparian Habitat. The Department has responsibility for streams and riparian habitats. It is the policy of the Department to strongly discourage disturbance to wetlands or conversion of wetlands to uplands. All wetlands and watercourses, whether intermittent episodic or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

(i) Lake and Streambed Alteration Agreement. The Department also has regulatory authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed. For any such activities, the project applicant (or "entity") must provide written notification to the Department pursuant to section 1600 et seq. of the Fish and Game Code. Based on this notification and other information, the Department determines whether a Lake and Streambed Alteration Agreement (LSA) with the applicant is required prior to conducting the proposed activities. The Department's issuance of a LSA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a Responsible Agency. The Department as a Responsible Agency under CEQA may consider the local jurisdiction's (lead agency) Environmental Impact Report for the project. To minimize additional requirements by the Department pursuant to section 1600 *et* *seq.* and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA.[1]

(b) CESA-listed Species. The Department considers adverse impacts to a species protected by CESA, for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any endangered, threatened, or candidate species that results from the project is prohibited, except as authorized by State law (Fish and Game Code, §§ 2080, 2085.) Consequently, any Project -related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, the Department recommends that the project proponent seek appropriate take authorization under CESA prior to implementing the project. Appropriate authorization from the Department may include an incidental take permit (ITP) or a consistency determination in certain circumstances, among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b),(c)). Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of an ITP unless the project CEQA document addresses all project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

c) Direct Impacts. A discussion of potential adverse impacts from sediment-removal activities, staging areas, lighting, noise, human activity, exotic species, and drainage should also be included. The latter subject should address. Mitigation measures proposed to alleviate such impacts should be included.

d) Indirect Impacts. Discussions regarding indirect Project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands should be evaluated in the DEIR. Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR.

(e) Cumulative Impacts. A cumulative effects analysis should be developed as described under CEQA Guidelines, section 15130.

6. Mitigation for the Plan-related Biological Impacts. To avoid, minimize or mitigate impacts to sensitive species within the Project area, the following measures should be considered for inclusion into the DEIR.

(a) Avoid Impacts to Rare Natural Communities. The DEIR should include measures to

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[1] A notification package for a LSA may be obtained by accessing the Department's web site at www.wildlife.ca.gov/habcon/1600.

fully avoid and otherwise protect Rare Natural Communities from project-related impacts. The Department considers these communities as threatened habitats having both regional and local significance.

(b) Restoration and Protection of Land for Sensitive Species. The DEIR should include mitigation measures for adverse Project -related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

(c) Long Term Management of Protected Lands. For proposed preservation and/or restoration, the DEIR should include measures to perpetually protect the targeted habitat values from direct and indirect negative impacts. The objective should be to offset the Plan-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include, but is not limited to, restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, and increased human intrusion.

(d) Nesting Birds. The Department recommends that measures be taken to avoid impacts to nesting birds during the implementation of the Project. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Title 50, § 10.13, Code of Federal Regulations). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). Proposed activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season which generally runs from February 1-September 1 (as early as January 1 for some raptors) to avoid take of birds or their eggs. If avoidance of the avian breeding season is not feasible, the Department recommends surveys by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). Project personnel, including all contractors working on site, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

(e) Habitat Restoration Plans. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Scott Harris at (626) 797-3170, scott.p.harris@wildlife.ca.gov.

Sincerely,

Betty J. Courtney

Betty J. Courtney
Environmental Program Manager I
South Coast Region

References

Keeler Wolf, T. and J. Evens. 2006. Vegetation classification of the Santa Monica Mountains National Recreation Area and environs in Ventura and Los Angeles counties, California. Unpublished Report to the National Park Service. California Department of Fish and Game and California Native Plant Society, Sacramento CA.

ec: Ms. Erinn Wilson, CDFW, Los Alamitos
Mr. Scott Harris, CDFW, Pasadena
Ms. Sarah Rains, CDFW, Newbury Park
Scott Morgan, CDFW, State Clearinghouse

April 11, 2014

File: Environmental Doc Review
Los Angeles County

Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, CA 91301
Email: LSRP@aspeneg.com

COMMENTS ON THE PROJECT SCOPING LETTER FOR THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT, PALMDALE WATER DISTRICT AND UNITED STATES FOREST SERVICE, LOS ANGELES COUNTY, STATE CLEARINGHOUSE NO. 2005061171

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received the Project Scoping Letter for the above-referenced project (Project) on March 12, 2014. The scoping letter was prepared in order to solicit input on Project alternatives and the potential impacts that should be considered in the environmental review. The Palmdale Water District is the lead agency under the California Environmental Quality Act (CEQA) and the United Stated Forest Service is the lead agency under the National Environmental Protection Act (NEPA). The lead agencies will prepare a joint Environmental Impact Report (EIR) and Environmental Impact Statement (EIS) for the Project. Water Board staff, acting as a responsible agency, is providing these comments to specify the scope and content of the environmental information germane to our statutory responsibilities pursuant to CEQA Guidelines, California Code of Regulations (CCR), title 14, section 15096. Based on our review of the materials provided, we have determined the following: (1) the EIR/EIS must evaluate the known elevated concentrations of mercury and polychlorinated biphenyls at Littlerock Reservoir; (2) more eco-friendly alternatives to stabilize the banks and channel of Littlerock Creek should be considered in the environmental review; (3) the EIR/EIS should provide a detailed account of the baseline conditions that will be established by the Project; and 4) the EIR/EIS should include a discussion of the proposed long-term maintenance plan to maintain the established baseline conditions.

WATER BOARD'S AUTHORITY

All groundwater and surface waters are considered waters of the State. Surface waters include streams, lakes, ponds, and wetlands, and may be ephemeral, intermittent, or perennial. All waters of the State are protected under California law. State law assigns responsibility for protection of water quality in the Lahontan Region to the Lahontan Water Board. Some waters of the State are also waters of the U.S. The Federal Clean

Water Act (CWA) provides additional protection for those waters of the State that are also waters of the U.S.

The *Water Quality Control Plan for the Lahontan Region* (Basin Plan) contains policies that the Water Board uses with other laws and regulations to protect the quality of waters of the State within the Lahontan Region. The Basin Plan sets forth water quality standards for surface water and groundwater of the Region, which include designated beneficial uses as well as narrative and numerical objectives which must be maintained or attained to protect those uses. The Basin Plan can be accessed via the Water Board's web site at http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml.

MERCURY AND POLYCHLORINATED BIPHENYLS

Elevated concentrations of mercury (Hg) and polychlorinated biphenyls (PCBs) are known at Littlerock Reservoir. In 2007-2008, the State Water Resources Control Board's (State Water Board) Surface Water Ambient Monitoring Program (SWAMP) conducted a statewide survey of fish tissue from lakes and reservoirs, including Littlerock Reservoir. That screening-level survey detected elevated concentrations of Hg and PCBs in the fillet tissue of fish collected from Littlerock Reservoir. The study report, published in 2010, is available at http://www.swrcb.ca.gov/water_issues/programs/swamp/lakes_study.shtml.

The Lahontan Region's SWAMP program followed up on the 2007-08 screening study by collecting additional fish from Littlerock Reservoir in 2013. That follow-up study also documented elevated levels of Hg and PCBs in fish collected from Littlerock Reservoir. Those data are available at http://www.waterboards.ca.gov/lahontan/water_issues/programs/swamp/index.shtml#ftinfo.

Based on the data from the two studies referenced above, the California Office of Environmental Health Hazard Assessment (OEHHA) issued a fish consumption advisory for Littlerock Reservoir on March 24, 2014. The advisory and supporting documents are available at http://www.oehha.ca.gov/fish/so_cal/LittleRock.html.

In response to the results of the two fish studies, and the consumption advisory issued by OEHHA, the Lahontan Regional Water Board will (in the months ahead) consider recommending (to the State Water Board and U.S. Environmental Protection Agency) that Littlerock Reservoir be placed on the Clean Water Act Section 303(d) list of impaired water bodies for Hg and PCBs.

The source(s) of Hg and PCBs at Littlerock Reservoir are not known at this time. Potential sources may include, but are not limited to, terrestrial (land-based) sources (e.g., erosion of soils naturally high in Hg, discharges from current and/or historic mining sites, unauthorized dumping) and atmospheric sources.

SPECIFIC ISSUES TO BE CONSIDERED IN THE EIR/EIS

The following issues should be considered in preparation of the EIR/EIS.

1. The EIR/EIS should evaluate the known Hg and PCB concentrations found at Littlerock Reservoir, determine (to the extent possible) the source(s) of Hg and PCBs, and consider and disclose how each of the Project alternatives may either exacerbate or ameliorate the levels of Hg and PCBs in surface waters, sediments, and fish tissue. The EIR/EIS also should identify a project design and define mitigation measures to ensure that the concentrations of Hg and PCBs in surface waters, sediments, and fish tissue are not increased by the Project, and are decreased to the extent feasible.

   One resource we recommend you consider is the State Water Board's website for its "Statewide Mercury Program" which includes a proposed Statewide Mercury Control Program for Reservoirs and proposed statewide mercury water quality objectives. The website contains state-of-the-art resources and links to numerous information sources: http://www.swrcb.ca.gov/water_issues/programs/mercury/. For example, the Mercury Control Program website lists potential control measures for Hg that should be evaluated and considered in the EIR/EIS, including, but not limited to:

   a. *Reductions in concentrations of inorganic mercury* – Reducing concentrations of inorganic mercury in reservoir sediment is one way to limit methylmercury production and its subsequent bioaccumulation in fish. Potential source controls include remediation of historic gold and mercury mines upstream of reservoirs, and stabilization of soils that are naturally high in mercury.

   b. *Changes in reservoir management* – Depending on the local characteristics, reservoirs can create a habitat and an environment that can increase the exposure risk to fish consumers. Chemical properties such as oxygen and nutrient levels, and physical properties such as water level fluctuations, can affect methylmercury production.

   c. *Changes to management of fish species* – Which fish species are present and how they are managed is an important factor in determining the severity of the problem in a given reservoir, and changes to current practices could be an important tool in addressing mercury impairments. Stocking reservoirs with less predatory fish might limit methylmercury bioaccumulation.

2. Prior to any dredging or sediment disturbing activities in Littlerock Creek and Littlerock Reservoir, the soils must be sampled and characterized so that proper handling and disposal methods can be adequately evaluated. We recommend that the soils be analyzed for heavy metals (Title 22, CCR), PCBs, volatile organic compounds, and total petroleum hydrocarbons (gas and diesel ranges).

3. The EIR/EIS should evaluate a suite of alternatives to stabilize Littlerock Creek upstream of the dam. Stream channel stabilization practices, including various types of revetments, grade control structures, and flow restrictors, have been effective in controlling sediment production caused by hydromodification activities. Bioengineering techniques reduce flow velocities and scour by increasing sediment deposition. Bioengineering includes planting vegetation that forms dense mats of flexible stems such as willow to protect or rehabilitate eroded streambanks. Structural practices, both direct and indirect, protect or rehabilitate eroded streambanks and are usually implemented in combination to provide stability to the stream system. Indirect methods include grade control structures or hydraulic barriers installed across streams to stabilize the channel and control upstream degradation.

   Vegetative methods should be used in conjunction with or over structural methods because vegetation is relatively easy to establish and maintain, is visually attractive, and is the only streambank stabilization method that can repair itself when damaged. Other advantages to using vegetative erosion control over structural control include increased pollutant attenuation and nutrient uptake capacity, habitat for fish and wildlife, and added cultural resources. Additionally, hardening the banks of streams and rivers with shoreline stabilization protection such as stone riprap revetments can accelerate the movement of surface water and pollutants from upstream, thus degrading water quality in depositional areas downstream.

4. It appears that sediment management will be the key to maintaining long term storage capacity and recreational uses of Littlerock Reservoir. We recommend that the Project proponent evaluate the feasibility of constructing an inline debris/sediment basin to capture sediment upstream of the reservoir. Regular maintenance of the basin will ensure performance to the design standard, minimize sediment influx into the reservoir, and reduce the footprint of disturbance for routine maintenance activities. Construction of an inline basin would minimize impacts to Littlerock Creek in the short-term and long-term and should be considered as a Project alternative in the EIR/EIS.

5. The Scoping Letter identified 1992 as the baseline lake conditions to be attained by the Project. The EIR/EIS needs to specifically define those baseline conditions. If one of the baseline conditions is the 1992 bathymetry of the lake, then a 1992 map of the topographic contours of the lake below the ordinary high water line will need to be provided in the EIR/EIS. If one of the baseline conditions is the 1992 contour and surface area of the lake's shoreline, then aerial photographs clearly depicting those shoreline conditions need to be included in the EIR/EIS. The EIR/EIS must include rationale that clearly justifies and defines the baseline conditions to be established by the Project.

6. The EIR/EIS should include a discussion of the proposed long-term maintenance plan that will be implemented to maintain the established baseline conditions. Specific routine and non-routine activities should be identified, such as dredging

and recontouring, and the thresholds that will trigger when maintenance activities are warranted.

GENERAL INFORMATION TO BE INCLUDED IN THE EIR/EIS

7. The EIR/EIS should identify the water quality standards that could potentially be violated by Project alternatives and use these standards when evaluating thresholds of significance for impacts. Water quality objectives and standards, both numerical and narrative, for **all** waters of the State within the Lahontan Region, including surface waters and groundwater, are outlined in Chapter 3 of the Basin Plan. Water quality objectives and standards are intended to protect the public health and welfare, and to maintain or enhance water quality in relation to the existing and/or potential beneficial uses of the water.

8. The Project area is located within the Rock Creek Hydrologic Area of the Antelope Hydrologic Unit 626.00 and overlies the Antelope Valley Groundwater Basin No. 6-44. The beneficial uses of these water resources are listed in Chapter 2 of the Basin Plan. We request that the EIR/EIS identify and list the beneficial uses of the water resources within the Project area, and include an analysis of the potential impacts to water quality and hydrology with respect to those beneficial uses.

9. All surface waters are waters of the State. Some waters of the State are "isolated" from waters of the U.S. Determinations of the jurisdictional extent of the waters of the U.S. are made by the United States Army Corps of Engineers (USACE) on a project-by-project basis. We request that the Project proponent prepare a Jurisdictional Delineation Report that describes the water resources on the Project sites and outlines the methodology used to define the extent of surface water features. A copy of the Jurisdictional Delineation Report must be submitted to the USACE for verification.

10. The Water Board requires that impacts to water resources be avoided where feasible and minimized to the extent practical. Compensatory mitigation will be required for all unavoidable permanent impacts to surface water resources. Water Board staff coordinate all mitigation requirements with staff from other federal and state regulatory agencies, including the USACE and the California Department of Fish and Wildlife. In determining appropriate mitigation ratios for impacts to waters of the State, Water Board staff considers Basin Plan requirements (minimum 1.5:1 mitigation ratio for impacts to wetlands) and utilizes *12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios*, published December 2012 by the USACE, South Pacific Division.

11. Obtaining a permit and conducting monitoring does not constitute adequate mitigation. Development and implementation of acceptable mitigation is required. The environmental document must specifically describe the BMPs and other measures used to mitigate Project impacts.

PERMITTING REQUIREMENTS

A number of activities associated with the Project have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Board or Lahontan Water Board. The required permits may include:

12. Streambed and lakebed alteration and/or discharge of fill material to a surface water may require a CWA, section 401 water quality certification for impacts to federal waters (waters of the U.S.), or dredge and fill waste discharge requirements for impacts to non-federal waters, both issued by the Lahontan Water Board;

13. Land disturbance of more than 1 acre may require a CWA, section 402(p) storm water permit, including a National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit, Water Quality Order (WQO) 2009-0009-DWQ, obtained from the State Water Board, or individual storm water permit obtained from the Lahontan Water Board; and

14. Water diversion and/or dewatering activities may be subject to discharge and monitoring requirements under either NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2008-0023, or General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality, WQO-2003-0003, both issued by the Lahontan Water Board.

Please be advised of the permits that may be required for the proposed Project, as outlined above. Should Project implementation result in activities that will trigger these permitting actions, the Project proponent must consult with Water Board staff well in advance of Project construction. Information regarding these permits, including application forms, can be downloaded from our web site at http://www.waterboards.ca.gov/lahontan/.

Thank you for the opportunity to provide comment for the EIR/EIS preparation. If you have any questions regarding this letter, please contact me at (760) 241-7376 (jan.zimmerman@waterboards.ca.gov) or Patrice Copeland, Senior Engineering Geologist, at (760) 241-7404 (patrice.copeland@waterboards.ca.gov).

Jan M. Zimmerman, PG
Engineering Geologist

cc: State Clearinghouse (SCH 2005061171)
(via email, state.clearinghouse@opr.ca.gov)
California Department of Fish and Wildlife, South Coast Region
(via email, AskR5@wildlife.ca.gov)
Daniel Swenson, US Army Corps of Engineers, Los Angeles District
(via email, Daniel.P.Swenson@usace.army.mil)

R:\RB6\RB6V\Shared\Units\PATRICE'S UNIT\Jan\CEQA Review\LittleRockSedMgt_Scoping.docx

April 15, 2014

Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Cheseboro Road, Suite 200
Agoura Hills, CA 91301

NOTICE OF PREPARATION (NOP)
FOR AN ENVIRONMENTAL IMPACT REPORT (EIR)/ENVIRONMENTAL IMPACT STATEMENT (EIS)
LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT
FOREST SERVICE/PALMDALE WATER DISTRICT

Thank you for the opportunity to review the NOP EIR/EIS for the Littlerock Reservoir Sediment Removal Project. The proposed project intends to:

- Construct a grade control structure to prevent sediment loss and head cutting of the stream channel upstream of Rocky Point to preserve critical habitat and prevent impacts to the federally endangered arroyo toad;

- Remove excess reservoir sediment that has accumulated over time and to restore the Reservoir to 1992 design water storage and flood control capacity; and

- Maintain 1992 design capacity of the Reservoir.

The following are County of Los Angeles, Public Works' comments and are for your consideration and relate to the environmental document only:

<u>Transportation and Traffic Section</u>

Public Works generally agrees with the findings of the NOP EIR/EIS related to the potentially significant impact the project is expected to have to County intersections in the area. Consequently, the project is required to submit a traffic impact analysis to Public Works for review and approval. The traffic impact analysis shall also include Traffic Index calculations for all proposed haul routes.

If you have any questions regarding the Transportation and Traffic comments, please contact Mr. Andrew Ngumba of Traffic and Lighting Division at (626) 300-4851 or angumba@dpw.lacounty.gov.

If you have any other questions or require additional information, please contact Juan Sarda of Land Development Division at (626) 458-4921 or jsarda@dpw.lacounty.gov.

JS:
P:\ldpub\SUBPCHECK\Plan Checking Files\Zoning Permits\NonCounty Projects\Littlerock Reservoir Sediment Removal\2014-03-24 Submittal\2014-4-15, LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT , NOP EIR-EIS, DPW COMMENTS.docx

PALMDALE
a place to call home

38300 Sierra Highway

Palmdale, CA 93550-4798

Tel: 661/267-5100

Fax: 661/267-5122

TDD: 661/267-5167

April 16, 2014

Mr. Matt Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Re: Response to the Notice of Preparation for the Littlerock Reservoir Sediment Removal Project

Dear Mr. Knudson:

Thank you for the opportunity to provide you with written comments on the proposed Notice of Preparation for the Littlerock Sediment removal Project. In the proposed project description there are three components of the proposed project, the construction of a Grade Control Structure, Sedimentation Removal, and Annual Construction and Restoration activities. The City of Palmdale will comment on the sediment removal portion of the project.

The proposed transportation of the 1,000,000 cubic yards of sediment has the potential for severe wear and tear of City streets. A traffic impact study will be required to address the impacts of the additional trips from this project on the City street network. The study will need to address the level of service of those intersections along each proposed delivery route and mitigate impacts as necessary. It should also address and mitigate any impacts on the structural sections of the existing roads on the proposed delivery routes.

The project description indicated that the sediment will be transported off-site to properties owned by the Palmdale Water District or locations accepting sediment for placement and spreading. A Temporary Use Permit for Stockpiling will be required for this activity. No undisturbed land can be used to store/stockpile of sediment, additionally any stockpiling cannot exceed three (3) feet in height of material.

Alternative 1; Long Term Closure of the Reservoir, on the NOP does not specify where the sediment will be transported in order to maintain Reservoir storage capacity. The method of disposal of sediment must be discussed as part of Alternative 1.

Regarding the disposal of sediment within existing mining operations proposed under Alternative 2, the City wishes to note that the existing mining operations are operating under a Conditional Use Permit. Any disposal or infill of any material within the open pits will require that the selected mining operation, or operations, submit for a major modification to their CUP or that a new Conditional Use Permit application be submitted. Additionally, the Office of Mine and Reclamation will be notified of the major modification to the approved Reclamation Plan(s). Alternative 2 also identifies the potential to require slurry pipelines to transport the sediment to the selected quarry pit or pits. The City would like to comment that an encroachment permit will also be required for any work to be done in the public right of way

The City of Palmdale wishes to work closely with you to ensure that all environmental concerns and procedures are addressed in order to have a successful project. If you have any questions, please contact me at (661) 267-5200.

Sincerely,

Chuck Heffernan
Director of Development Services

cc: Susan Koleda, Acting Planning Manager
Bill Padilla, City Engineer

Larry J. Ortega Sr.
Tribal President

Fernandeño Tataviam Band of Mission Indians
Tribal Historic & Cultural Preservation

Tribal Historic & Cultural Preservation Committee
Steve Ortega
Chairman
Berta Pleitez

March 11, 2014

Beth Bagwell
Cultural Resources
Aspen Environmental Group
5020 Cheseboro Road, Suite 200
Agoura Hills, CA 91301

Re: Littlerock Reservoir Sediment Removal Project

Dear Beth Bagwell,

The Fernandeño Tataviam Band of Mission Indians thanks you for the request of consultation for your proposed project. Your project has been identified as breaking ground in traditional Tataviam tribal lands and may disturb culturally sensitive deposits.

In accordance with the National Historic Preservation Act of 1966, consultation with the tribe is legally mandated. Failure to comply with the minimum consultation requirement will result in the notification of such to applicable lead agencies. Moreover, it is required that federal agencies consult with tribal authorities before permitting archaeological excavations on tribal lands (16 U.S.C. §§ 470aa–470mm). Additionally, it is necessary to protect and preserve the access to all, if any, sites the tribe believes sacred (42 U.S.C. § 1996). As expressed in 14. Cal.Code Regs §15064.5, if significant Native American artifacts that meet the definition of a "historical resource" are found, work shall not resume until the archaeologist has recovered them for the tribal monitor.

The California Environmental Quality Act, Public Resources Code, §21000, et seq. ("CEQA"), provides that when studies indicate the existence of, or probable likelihood of, Native American human remains within the area of a proposed project, the lead agency is to work with the Native Americans identified by the Native American Heritage Commission ("NAHC") and, subsequently, consult with and request comments from the NAHC when Native American resources are affected by the project.

Please contact our offices so we can begin consultation. The Tataviam charge standard fees to fund the necessary and extensive research required to fulfill your needs. Attached is information regarding our consultation rates.

Regular updates in regards to your project would be greatly appreciated. We are looking forward to working with you on this matter to the satisfaction of all those involved

1019 Second Street, Suite 1 | San Fernando | California, 91340 | (818) 837-0794 | Fax (818) 837-0796

Sincerely,

Caitlin B. Gulley
Tribal Historic and Cultural Preservation
cgulley@tataviam-nsn.us

Enclosures

TRIBAL CULTURAL RESOURCES SERVICES

The Fernandeño Tataviam Band of Mission Indians (Tribe) has the necessary qualifications, experience and abilities to provide Native Monitoring for scared lands and burial sites to the Client. Also the Tribe is prepared to work with the Client to provide any and all documentation needed to facilitate permit process. The Tribe is agreeable to provide Native Monitoring and Consulting on the terms and conditions as set out in this Agreement.

SUMMARY OF GENERAL TERMS & CONDITIONS

1. Native Monitoring and Consulting
The Tribe would provide the services consisting of Tribal Consulting and Monitoring (the "Services"), and the Tribe would also provide the services if agree upon duration the solid disturbance of the project.

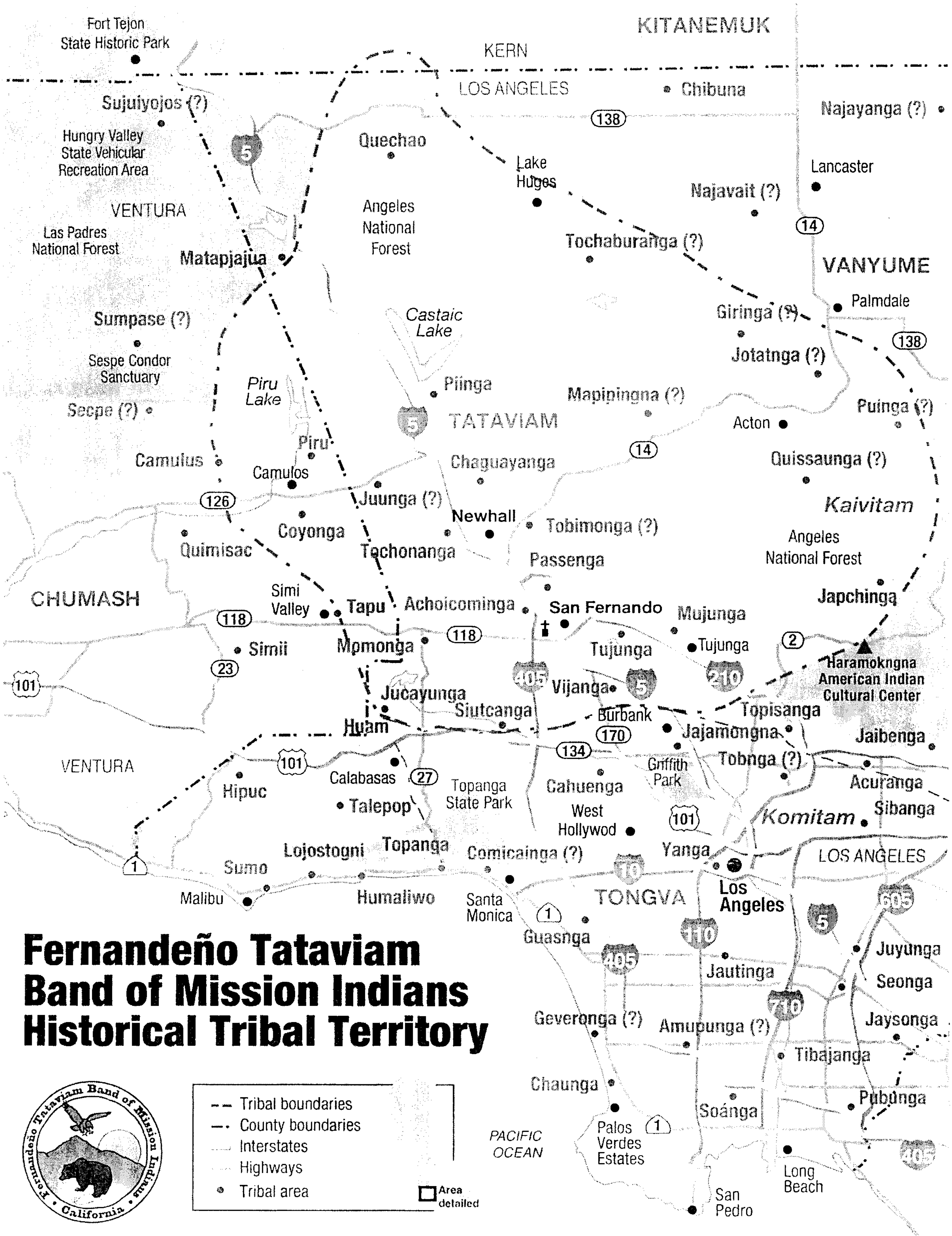
2. Compensation
For the Services provided by the Tribe will pay to the Tribe in accordance to the Fee Structure. Compensation will be set upon terms agree by both interested parties as the Services are render.

3. Fee Structure
Time spent on the project by professional, monitor, and clerical personnel will be billed hourly. The following ranges of hourly rates for various categories of personnel are currently in effect:

Hourly Rate	Category
$75	Consultation
$55	Monitoring
$35	Clerical

Hourly rates will be adjusted semi-annually to reflect changes in the cost-of-living index as published. If overtime for nonprofessional personnel is required, the premium differential figured at time and one-half of their regular hourly rates are charged at direct cost to the project. Unless otherwise stated, any cost estimate presented in a proposal is for budgetary purposes only, and is not a fixed price.

4. Capacity/Independent Contractor
It is expressly agreed that the Tribe would be acting as an independent contractor and not as an employee in providing the Services hereunder.


Fernandeño Tataviam
Band of Mission Indians
Historical Tribal Territory
KITANEMUK
KERN
LOS ANGELES
Fort Tejon State Historic Park
Sujuiyojos (?)
Hungry Valley State Vehicular Recreation Area
VENTURA
Las Padres National Forest
Matapjajua
Sumpase (?)
Sespe Condor Sanctuary
Secpe (?)
Camulus
Piru Lake
Piru
Camulos
Quechao
Angeles National Forest
Castaic Lake
Piinga
TATAVIAM
Chibuna
Najayanga (?)
Lake Hughes
Lancaster
Najavait (?)
Tochaburanga (?)
VANYUME
Palmdale
Giringa (?)
Jotatnga (?)
Mapipingna (?)
Acton
Puinga (?)
Quissaunga (?)
Kaivitam
Angeles National Forest
Chaguayanga
Juunga (?)
Newhall
Tobimonga (?)
Coyonga
Quimisac
Tochonanga
Passenga
CHUMASH
Simi Valley
Tapu
Achoicominga
San Fernando
Mujunga
Japchinga
Simii
Momonga
Tujunga
Tujunga
Haramokngna American Indian Cultural Center
Jucayunga
Siutcanga
Vijanga
Burbank
Topisanga
Huam
Jajamongna
Jaibenga
VENTURA
Hipuc
Calabasas
Topanga State Park
Cahuenga
Griffith Park
Tobnga (?)
Acuranga
Talepop
West Hollywod
Komitam
Sibanga
Lojostogni
Topanga
Comicainga (?)
Yanga
LOS ANGELES
Sumo
Malibu
Humaliwo
Santa Monica
TONGVA
Los Angeles
Guasnga
Juyunga
Jautinga
Seonga
Geveronga (?)
Amupunga (?)
Jaysonga
Tibajanga
Chaunga
Pubunga
Soánga
PACIFIC OCEAN
Palos Verdes Estates
Long Beach
San Pedro
5
138
14
126
118
23
101
27
405
170
134
210
2
1
10
110
710
605
Tribal boundaries
County boundaries
Interstates
Highways
Tribal area
Area detailed
Fernandeño Tataviam Band of Mission Indians
California

SOBOBA BAND OF LUISEÑO INDIANS
EST. JUNE 19, 1883

March 12, 2014

Forest Service/PALMDALE Water District
c/o Aspen Environmental Group
5020 Chesbro Road, Ste. 200
Agoura Hills, CA 91301

Re: Notice of Preparation Littlerock Reservoir Sediment Removal Project

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation within the Angeles National Forest. We also appreciate you giving us the opportunity to participate in the tribal consultation process. At this time the Soboba Band of Luiseño Indians does not have any specific concerns and wishes to defer to other tribes who are closer to the project area. Please contact Anthony Morales, Chief and Tribal Chairman for the Gabrielino Tongva Band of San Gabriel Mission Indians and John Valenzuela of the San Fernando Band of Mission Indians for further information.

Sincerely,

Joseph Ontiveros
Director of Cultural Resources
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

R Indigenous Consultants
Tribal Monitoring LLC
4676 Walnut Avenue
Simi Valley, CA 93063
Cell (805) 905-1675
ndnrandy@gmail.com
R-indigenousconsultantstribalmonitoring.com

April 1, 2014

Hello, my name is Randy Guzman-Folkes and I am from the Tataviam Band of Mission Indians, Venturano Chumash, and Shone-Paiute. My company is R. Indigenous Consultants Tribal Monitoring LLC. I take pride in providing Native American Monitoring services that protect our sacred sites, cultural resources and ancestors during grading, excavation, and site development.

R. Indigenous Consultants Tribal Monitoring LLC/Randy Guzman-Folkes is listed on the Native American Heritage Commission's Native Monitoring list. The NAHC understands the important relationship between California Indian Communities and the land, which is an Asset for cultural resources. The State and Federal Government has enacted laws that set out to preserve and safeguard theses sites and resources.

As a Native Monitor, I work in consultation with archeologists, geologists, paleontologist, and city planners. We work together to review documents such as Environmental Impact Reports, grading plans, California Environmental Quality Reports, site surveys and National Forestry Reports. However, these documents are not enough to identify sacred sites or areas of concern to tribes. Often these documents do not contain tribal input, cultural knowledge, or accurate historic background. This is why the

Federal, State, and local governments have laws in place that call for consultation and monitoring of development projects.

My family has been recognized by both the State of California and the NAHC as a, Most Likely Descendant (MLD). This means that should any development impact a cultural site or sensitive area, R. Indigenous Consultants Tribal Monitoring can provide an MLD to facilitate the correct handling of the site, artifact or culturally sensitive materials. R. Indigenous Consultants has been in the field of Native American Monitoring for over 30 years. We are eager to work with your company and to educate you about the laws that pertain to the protection and preservation of sacred sites and cultural resources.

We would be honored to work with you on your current or upcoming projects.

In Good Spirit,

Randy Guzman-Folkes

RICHARD A. COOPER, PROPRIETOR
LITTLEROCK LAKE RESORT
32700 CHESEBORO ROAD **TELE: (661) 285-5278**
PALMDALE, CA 93552 **FAX: (661) 944-0270**

January 30, 2014

Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

RECEIVED
FEB 03 2014

RE: Pending Construction Project at Littlerock Dam

To Whom It May Concern:

I purchased the business at Littlerock Dam seven and one half years ago at which time I was asked by the U.S.D.A. Forest Service to submit my business plan for this facility. I have not been able to fully comply with their request due to your projected construction project and related closure.

After seven and one half years I believe you should be able to give me more definitive answers as to when this closure should and will take placed. I have not been able to plan for or implement any promotions for improving my business or making any long distance plans for future projects due to the unavailability of any definitive answers as to when your project will commence!

I expect to be brought up to date and kept informed as to the status of this project. You are directly affecting my ability to operate a viable business and plan for my future and the future of my business. Send all correspondence to the above address, Fax number and e-mail me at patstax2@yahoo.com.

Your immediate attention to this matter will be appreciated.

Sincerely,

LITTLEROCK LAKE RESORT

Richard A. Cooper
Owner/Operator

March 31, 2014

Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Cheseboro Road, Suite 200
Agoura Hills, CA 91301

REGARDING: DREDGING SEDIMENT FROM LITTLEROCK RESERVOIR

Dear Sir:

We read with interest the information related to dredging sediment from Littlerock Reservoir. According to the article in the Antelope Valley Press, March 27, 2014, page A3, current plans include depositing the dredged sediment at local sites. All of the sites listed: (a) 47th Street East south of Pearblossom Highway and north of Barrel Spring Road; (b) land in the vicinity where Cheseboro Road meets Mount Emma Road; and (c) quarries around East Avenue T and Pearblossom Highway all present major dust events for residents when the sediment dries.

If the prevailing winds blow from the southwest or the Santa Ana winds blow from the northeast, residents in the surrounding areas will be subject to major dust events and the inevitable spores of Coccidioidomycosis (San Joaquin Valley Fever). As you know, Valley Fever is well documented in the Antelope Valley with an increase in cases reported with the development of solar farms. It is also well documented that the spores are found in lake sediment.

Many thousands of people in all directions from the proposed sediment deposit sites will be put at risk for serious and sometimes fatal illnesses related not only to Valley Fever but the hazard of dust inhalation.

We understand the need to dredge the reservoir but what other deposit sites are available, in unpopulated areas, in view of the health risks associated with such deposits in residential communities?

We plan to attend the next public meeting and will be alerting neighbors to the health risks associated with the proposed sediment deposit sites.

Sincerely, concerned residents of 43rd Street East, Palmdale

Crystal Chavez

Ms. Crystal Chavez
36050 43rd Street East
Palmdale, CA 93552

See attached

Letter to Forest Service/Palmdale Water District

Name *(Print)*: ARTURO CASTANEDA

Address: 36043 E. 43RD ST

PALMDALE CA 93552

Signature: Arturo Castaneda

Name *(Print)*: Louise Williams

Address: 36028 43rd St

Palmdale Ca 93552

Signature: Louise Williams

Name *(Print)*: Cathy Hunt

Address: 36038 43rd St East

Palmdale Ca 93552

Signature: Cathy Hunt

Name *(Print)*: Ann Salaun Rondeu

Address: 36060 43rd St E

Palmdale CA 93552

Signature: Ann S Rondeau

Letter to Forest Service/Palmdale Water District

Name *(Print)*: RUTH E. YBARRA

Address: 36033 43RD St. E.

Palmdale, Ca. 93552

Signature: Ruth E. Ybarra

Name *(Print)*: ______

Address: ______

______

Signature: ______

Name *(Print)*: ______

Address: ______

______

Signature: ______

Name *(Print)*: ______

Address: ______

______

Signature: ______

Appendix F

Army Corps of Engineers

404(b)(1) Evaluation Summary

APPENDIX F – Army Corps of Engineers, 404(b)(1) Evaluation Summary

1.0 Introduction

This document identifies the information in the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Littlerock Reservoir Sediment Removal Project that is applicable to Section 404 of the Clean Water Act (CWA). This summary has been prepared to facilitate and support the permit application required by the U.S. Army Corps of Engineers (Corps) to evaluate the Project under Section 404(b)(1).

As described in the EIS/EIR Section B, the Palmdale Water District (PWD) is seeking authorization to: (1) construct a subterranean grade control structure within the Littlerock Reservoir at Rocky Point; (2) restore the Reservoir to 1992 water storage and flood control capacity through an initial removal of approximately 1,165,000 cubic yards of sediment; and (3) maintain Reservoir capacity through ongoing annual removal of newly accumulated sediment.

The Project would be primarily located within the Littlerock Reservoir, which is a man-made feature formed by the impoundment of water by the Littlerock Dam. The Reservoir is located within the boundaries of the Santa Clara Mojave Rivers Ranger District of the Angeles National Forest, approximately 10 miles southeast of the City of Palmdale and four miles south of the community of Littlerock in northern Los Angeles County. Sediment that is excavated from the Reservoir would be used to backfill exhausted mining pits located at existing quarries within the City of Palmdale or temporarily stored at a 21-acre site owned by PWD in unincorporated Los Angeles County for recycled uses.

1.1 Regulatory Setting

Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g. certain farming and forestry activities) (USEPA, 2015).

Proposed activities are regulated through a permit review process, with an individual permit required for potentially significant impacts. The Corps, per the environmental criteria set forth in the CWA Section 404(b)(1) Guidelines, reviews individual permits. These guidelines are the substantive criteria developed by the U.S. Environmental Protection Agency (EPA) and used by the Corps to evaluate proposed discharges into waters of the United States (USEPA, 2015).

The Corps may not issue a permit under Section 404 if the proposal does not meet the 404(b)(1) Guidelines, and a permit may only be issued for the least environmentally damaging practicable alternative (LEDPA), as determined by the Corps. The Corps considers practicability, which includes cost, existing technology, and logistics [40 C.F.R. 230.10(a) and 230.3(q)]. The primary component of the Corps' permit review process is the alternatives analysis. Per 40 C.F.R. 230.10(a), no discharge from a project shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact to the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences (USEPA, 1990).

A 1990 Memorandum of Agreement (MOA) between the EPA and the U.S. Department of the Army provides guidance on the type and level of "appropriate and practicable" mitigation, which demonstrates compliance with the Section 404(b)(1) Guidelines (USEPA, 1990). In determining measures to offset unavoidable impacts, mitigation should be "appropriate" to the scope and degree of those impacts and "practicable" in terms of cost, existing technology, and logistics in light of overall project purposes (USEPA, 1990). When evaluating a project, the Corps will consider whether the project provides appropriate and practicable compensatory mitigation, as well as the extent to which the project avoids or minimizes impacts.

1.2 Project Purpose (Section 1.4 of the EA 404(b)(1) Guidelines Evaluation)

1.2.1 Basic Project Purpose

The basic purpose for the Project is to restore PWD's water storage and flood control capacity at Littlerock Reservoir. This Reservoir is a critical part of the potable water system operated by PWD to provide service to customers in the City of Palmdale and the surrounding unincorporated communities. The Reservoir also provides debris control and flood protection for downstream areas (USFS, 1997).

1.2.2 Overall Project Purpose

The overall purpose for the Project is two-fold: (1) to restore Littlerock Reservoir to its 1992 water storage and flood control capacity, and maintain that capacity through annual sediment removal; and (2) to preserve habitat for the arroyo toad (*Anaxyrus californicus*) through construction of a grade control structure that would prevent sediment loss and headcutting of the stream channel upstream of Rocky Point.

1.2.3 Water Dependency Determination

The Project is water dependent. This Project would address ongoing siltation and sedimentation at Littlerock Reservoir through an initial removal of 1,165,000 cubic yards of accumulative sediment, which has decreased annual water storage of the Reservoir by approximately 500 acre-feet. Upon initial sediment removal, the Project includes ongoing annual removal of new sediment inflow to maintain the Reservoir's design capacity.

1.2.4 Project Purpose and Need under NEPA

Littlerock Dam and Reservoir are operated and maintained by PWD, pursuant to a USDA Forest Service (USFS) special use permit. The purpose and need for the USFS, as the NEPA Lead Agency, is to respond to an application from PWD for a special use authorization to construct the proposed grade control structure and to remove sediment from the Reservoir.

1.3 Proposed Project Description (Section 1.5 of the EA 404(b)(1) Guidelines Evaluation)

The proposed Project would consist of the following three components to restore and preserve the capacity of Littlerock Reservoir: (1) construction of a subterranean grade control structure, (2) initial removal of approximately 1,165,000 cubic yards of sediment (requiring approximately 7 to 12 years of removal during the fall-early winter), and (3) ongoing annual sediment removal (up to approximately 38,000 cubic yards per year during the fall-early winter). Annual site restorations would begin immediately following the cessation of annual construction activities concurrent with appropriate planting conditions and permit requirements.

Grade Control Structure. Before sediment removal can occur, a grade control structure would be constructed within the Reservoir at an area known as Rocky Point. Construction of the grade control structure is necessary to ensure that sediment removal will not result in degradation to designated critical habitat for the arroyo toad located immediately upstream of Rocky Point by inducing head-cutting (lowering) of the channel bed upstream of the structure. The proposed grade control structure and construction would include the following:

- A permanent structure of soil cement at Rocky Point and extending from bank to bank. The structure would prevent head cutting (erosion) upstream of Rocky Point, preserving arroyo toad habitat.
- Constructed mostly below grade, with only the top or upper lip of the structure and some adjacent bank protection visible in the stream surface and adjacent banks after completion.
- Temporary ground disturbance of approximately 3.5 acres. Permanent disturbance after construction would consist of the crest of the grade control structure that remains visible above grade (approximately 8 feet by 200 feet), plus bank protection adjacent to the structure. Total area of visible (above ground) soil cement bank protection after construction, including the grade control structure crest, is approximately 0.34 acres.
- Construction duration of 20 weeks to begin in July and extend through the fall.
- Construction equipment would be operated up to 12 hours per day, 6 days a week, with night construction possibly required for a maximum of 14 nights.
- Workforce ranging in size from 9 to 14 persons.
- Maximum of 30 daily worker vehicle trips and 6 daily truck delivery trips.

Initial Annual Sediment Removal. Upon completion of the grade control structure, PWD would remove approximately 1,165,000 cubic yards of sediment from the Reservoir bottom, restoring the Reservoir to 1992 design capacity. Sediment would be removed annually during a temporary closure of the Reservoir starting in 2017 after Labor Day until seasonal water refill of the Reservoir suspends removal efforts (estimated between mid-November and January). The Reservoir would be closed to the public during this period. Annual sediment removal activities restoring the Reservoir capacity would include the following:

- Excavation of approximately 1,165,000 cubic yards of accumulated sediment to restore Littlerock Reservoir to 3,500 acre-feet (af) of water storage capacity.
- Temporary annual closure of the Reservoir starting after Labor Day until seasonal water refill of the Reservoir suspends removal efforts (estimated between mid-November and January).
- Sediment removal activities would occur during daylight hours up to 12 hours per day Monday through Saturday (no work on Sundays or federal holidays).
- Maximum annual disturbance of approximately 30 acres within the Reservoir bed.
- Equipment staging within paved parking areas along Reservoir.
- Maximum of 480 (240 round trip) dump truck trips per day. Requires the use of 16 dump trucks.
- Sediment storage and disposal at one of two locations: (1) exhausted mining pits within Littlerock, with more than 1,200,000 cubic yards of capacity for long-term disposal; and (2) PWD-owned property on 47th Street East, with up to 10,000 cubic yards of capacity for short-term storage (allowing for recycled use of sediment material).
- Annual restoration of disturbed areas.
- Minimum duration of approximately 7 years, up to 12 years, to restore 1992 design capacity.

Ongoing Annual Sediment Removal. Current estimates indicate Reservoir capacity is reduced by siltation at an average annual rate of approximately 38,000 cubic yards of sediment per year, amounting to a loss of approximately 23 af of water capacity annually. Therefore, upon restoring the Reservoir to 1992 capacity, an average of 38,000 cubic yards of sediment would be removed from the Reservoir annually. The actual amount of sediment removed from the Reservoir would be based on the expected amount of sediment deposition that occurred during each year's winter storms. Operation and maintenance sediment removal would include the following activities:

- Approximately 38,000 cubic yards of sediment removed from the Reservoir annually (actual amount removed would be based on the expected amount of sediment deposition carried into the Reservoir during each year's winter storms).
- Would occur sometime after Labor Day and be finished prior to mid-November of each year.
- Sediment removal activities would occur during daylight hours up to 12 hours per day Monday through Saturday (no work on Sundays or federal holidays).
- Maximum annual disturbance of approximately 15 acres within the Reservoir bed.
- Maximum of 180 (90 round trip) dump truck trips per day. Requires the use of 6 dump trucks.

2.0 Alternatives (Section 4.0 of the EA 404(b)(1) Guidelines Evaluation)

Under the Section 404(b)(1) Guidelines, the Corps must consider a number of factors when making its permit decisions, including whether there are practicable alternatives to the proposed discharge. An alternative is "practicable" if "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes." 40 C.F.R. 230.10(a)(2).

In addition to the 404(b)(1) alternatives analysis, the Corps is required to analyze alternatives pursuant to NEPA. Under NEPA, the range of alternatives is governed by the rule of reason, which provides that a decision document must consider a reasonable range of alternatives as defined by the specific facts and circumstances of the proposed action. Alternatives must be feasible and consistent with the statement of purpose and need. If alternatives have been eliminated from detailed study, the decision must briefly discuss the reasons for their elimination. For this Project, the alternatives considered but eliminated from full analysis are summarized in the EIS/EIR Section B.4.6. Under NEPA, feasible alternatives selected for detailed study in the EIS/EIR must be addressed at the same level of detail as the proposed Project, thus sharply defining the issues and providing a clear basis for choice by the decision maker and the public (40 C.F.R. 1502.14.) The "No Action" alternative (i.e., no activity requiring a Corps permit) must also be included among the alternatives analyzed.

Two alternatives were fully analyzed in the EIS/EIR: (1) Reduced Sediment Removal Intensity Alternative, and (2) No Action/No Project Alternative. The following is a summary of the alternative descriptions that are included in the EIS/EIR Section B.4.5.

Reduced Sediment Removal Intensity Alternative (Alternative 1)

Under Alternative 1, construction of the grade control structure would be identical to that of the proposed Project. Once restored to design storage capacity, ongoing sediment removal to maintain Reservoir capacity would be identical to that of the proposed Project. Therefore, this alternative only differs from the proposed Project during the initial (restorative) sediment removal. Alternative 1 seeks to reduce certain environmental impacts (primarily air quality and traffic) by:

- Starting the initial sediment removal period on July 1 (annually), instead of after Labor Day.
- Sediment removal activities would occur 5 days per week, instead of 6 (with the proposed Project).
- Restoring the Reservoir to 1992 design water storage and flood control capacity within a minimum of 13 years, instead of 6 (with the proposed Project).
- Reducing the number of daily haul trips and equipment used during initial sediment removal.

Site preparation, disturbance area, construction staging/access, and annual restoration activities would be the same under Alternative 1 as that described for the proposed Project during initial/restoration sediment removal. However, the amount of equipment used, weekly construction scheduling, and construction workforce would be reduced when compared to the proposed Project. While these reductions would reduce air quality emissions and the number of daily truck trips, it would double the number of years needed to restore the Reservoir to 1992 capacity. Therefore, this alternative seeks to reduce the intensity of construction activities of the proposed Project.

No Action/No Project Alternative

Under the No Action/No Project Alternative, sediment removal activities would not occur and sediment would continue to accumulate upstream of Littlerock Dam at the annual average rate of 38,000 cubic yards per year, reducing the capacity of the Reservoir by approximately 23.6 acre-feet annually. Should the Reservoir be filled with sediment to the Dam spillway, sediment accumulated behind the Dam would be approximately 7.4 million cubic yards. As Reservoir capacity is lost each year, PWD would be forced to acquire additional water from other sources to supply communities within PWD’s service territory.

Continued sediment deposition could compromise the long-term integrity of the Dam. In this event, the California Department of Water Resources Division of Safety of Dams could require the Dam to be breached. In addition, as the Reservoir would no longer function as a viable water storage facility, it would not be in compliance with the USFS Special Use Permit under which it currently operates. Subsequently, the Dam would be demolished per the conditions identified in the USFS's Special Use Permit. Demolition of the Dam would result in the elimination of the potential for water impoundment at the Reservoir and permanent loss of this potable water source. While 7.4 million cubic yards of sediment would accumulate within the Reservoir, demolition of the Dam is estimated to only require the removal of approximately 2.8 million cubic yards of sediment and dam concrete. Such a scenario would result in a project similar to, but larger, than the proposed Project and restore Little Rock Creek stream flow through the existing Reservoir.

Either scenario potentially occurring under the No Action/No Project Alternative would eliminate any downstream flood-control benefit the dam currently provides. It would result in 23 acre-feet per year of sediment, which is currently held by the Dam, being transported naturally by flows into the downstream bed of Little Rock Creek, with potential associated reductions in flood conveyance capacity of the creek and in-stream structures such as road crossings and alteration of the in-stream habitat. The existing Reservoir area would also become similar to upstream conditions under this alternative. Riparian vegetation would be expected to recruit along the margins of the active channel and may eventually develop into a mature riparian community. Other areas of the Reservoir likely would be similar to alluvial fan communities and consist of a mosaic of upland and various riparian vegetation depending on the scour regime associated with the creek. Should this occur, the Reservoir area may develop characteristics that would support habitat for the arroyo toad and other riparian and floodplain associated species.

2.1 Practicability of Alternatives

Per 40 C.F.R. 230.10(a)(2), an alternative is "practicable" if "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose." Consistent with the 404(b)(1) Guidelines for alternatives analysis, the following criteria are used in the discussion below to assess the practicability of the Project alternatives: (1) Overall Project Purpose and NEPA Purpose and Need; (2) Cost; (3) Technology; (4) Logistics; and (5) Environmental.

2.1.1 Overall Project Purpose and NEPA Purpose and Need Criteria

To be practicable, an alternative must meet the overall project purpose to restore Littlerock Reservoir to its 1992 water storage and flood control capacity and maintain that capacity through annual sediment removal, and to preserve habitat for the arroyo toad through construction of a grade control structure.

- **Reduced Sediment Removal Intensity Alternative (Alternative 1).** This alternative would meet the overall Project purpose. Alternative 1 would restore the Reservoir to its 1992 water storage and flood control capacity in approximately 13 years (compared with 7 to 12 years under the proposed Project), and annual sediment removal activities, as well as construction of the grade control structure, would be identical to the proposed Project.
- **No Action/No Project Alternative.** This alternative would not improve the water storage or flood control capacity of Littlerock Reservoir, and consequently would not meet the overall Project purpose and need. The No Action/No Project Alternative is required for an EIS under NEPA (40 CFR Section 1502.14[d]) and for an EIR under CEQA (Title 14 CCR Section 15126.6[e]).

2.1.2 Cost Criteria

Cost practicability for the alternatives is based on the construction costs for Reservoir excavation and the grade control structure. A 2015 probable cost estimate that was prepared for this Project included a 25 percent contingency for both the reservoir excavation and grade control cost estimates due to the preliminary nature of the plans (NHC, 2015). Cost of the grade control structure construction, including contingency, was estimated at approximately $4.2 million (NHC, 2015). The initial sediment excavation (restoring the Reservoir to design capacity), including contingency, was estimated at approximately $18.8 million (NHC, 2015). Reservoir excavation costs would be sensitive to fluctuating transportation costs for excavated material. Grade control structure costs would be sensitive to fluctuating roller compacted concrete prices.

The Project's cost estimate for initial excavation was based on the amount of excess sediment in the Reservoir in October 2013. As sediment is continually delivered to the Reservoir by natural inflow, the cost of initial excavation will be increased by an amount roughly equivalent to $800,000 per year for each year that elapses between 2013 and the year the initial excavation is completed (NHC, 2015). This also represents the annual ongoing cost for maintaining design capacity (after the 1992 design capacity has been restored).

- **Reduced Sediment Removal Intensity Alternative (Alternative 1).** Alternative 1 would involve a reduction in the amount of equipment that is required, the weekly construction scheduling, and the construction workforce compared with the proposed Project. Although the annual cost of initial excavation may be less than the Project, costs would occur over a longer period (i.e., 13 years) under Alternative 1. As construction of the grade control structure and ongoing annual sediment removal activities following initial restoration of the Reservoir would be identical to the proposed Project, the cost of these components would also be identical. Overall costs of Alternative 1 would be similar to the proposed Project.

- **No Action/No Project Alternative.** No immediate construction costs would be incurred with implementation of this alternative. However, the No Action/No Project Alternative may contribute to the need for future demolition of the Dam and removal of approximately 2.8 million cubic yards of sediment and dam concrete. Given the larger scale of such a project, this alternative would likely incur greater construction and excavation cost in the future.

2.1.3 Technology Criteria

The technology criterion applicable to the alternatives considers the following methods used for sediment excavation and construction of the grade control structure.

Grade Control. The grade control structure is proposed to be constructed of roller compacted concrete. The structure includes bank protection upstream and downstream of the grade control sill. Excavation for the structure is up to 60 feet below the existing ground and has been assumed to be open cut at a 2:1 slope with minimal shoring on the upstream and downstream sides in the reservoir and creek bed. Control of water has been assumed to involve a series of dewatering wells upstream and downstream of the structure with disposal in the reservoir (i.e., assuming that reservoir excavation is not occurring simultaneously). In addition to the dewatering wells, a low temporary berm is assumed to be constructed upstream of the structure to contain incidental runoff from upstream. A total of approximately 6,250 cubic yards of concrete is estimated for construction of the grade control sill and stepped face of the structure, and approximately 3,000 cubic yards are required for the roller compacted concrete bank protection and side slopes. Temporary excavation and backfill is required for installation of the structure and finished grading will include tie-ins to the existing slopes upstream and downstream of the structure. These slopes are assumed to be treated with simple erosion control methods involving biodegradable wattles and seeding (NHC, 2015).

Excavation. The excavation is a trapezoidal section with 4:1 side slopes and flat bottom. The proposed bottom of the excavation plan generally follows a slope of approximately 1.48 percent up the length of the Reservoir, from an elevation just above that of the existing outlet at the upstream Dam face. The bottom of the excavation plan daylights at Rocky Point, where a grade control is proposed to minimize potential disturbance to biologically sensitive areas upstream (NHC, 2015). Approximate types and numbers of equipment to be utilized include: 2 D9 Bulldozers; 1 Grader; 1 Sweeper; 1 Front End Loader (6 yard capacity); 1 Excavator; 16 Dump Trucks (12 yard capacity); 1 Water Truck (4,600 gallon capacity); 1 Fuel Truck; 1 Maintenance Truck; Brush chipper/shredders and chain saws.

- **Reduced Sediment Removal Intensity Alternative (Alternative 1).** Although this alternative would schedule initial sediment removal activities over a longer period, the same types of excavation equipment would be identical to the proposed Project. The schedule and equipment for construction of the grade control structure would also be identical to the proposed Project.
- **No Action/No Project Alternative.** As this alternative would not involve any immediate construction activities, the technology criterion is not applicable.

2.1.4 Logistics Criteria

In order to be practicable, an alternative must satisfy industry and regulatory design standards that are required for safety or are driven by design efficiencies having to do with cost controls or best engineering practices. PWD has developed Standard Project Commitments (SPCs) as part of its Project activities, some of which are highlighted in Table 5-1. See Appendix A in the EIS/EIR for a full list of the Project's SPCs. Adherence to all identified SPCs is considered part of the proposed Project, and the SPCs include the commitments PWD will incorporate during all proposed Project activities, if selected by the lead agencies in their respective decision documents. The EIS/EIR also includes several mitigation measures proposed to reduce or avoid specific impacts not covered by SPCs.

PWD and its contractors will follow approved SPCs and mitigation measures at all times during Project activities. The Project SPCs were developed to proactively protect sensitive resources at the Reservoir, reduce environmental impacts associated with Project activities, and to ensure safety during Project construction. SPCs can also evolve to become better as improvements are discovered. A number of the SPCs have been developed to specifically protect natural resources (plants, fish and wildlife, and for cultural resources). SPCs include, among other things, pre-construction flagging of sensitive resource areas and the need for other restrictions. In making final decisions on the Project, the lead agencies are allowed to weigh the feasibility and need for these SPC's, and may not make all of them applicable to the Project. If any of the SPC's are not selected, the rationale for excluding them shall be provided in the decision document, along with a determination that the impacts of the Project are still within the scope of those described in the EIS/EIR. For specific impacts that would not be sufficiently reduced or avoided by SPCs, mitigation measures have been proposed within the relevant issue area analyses for the EIS/EIR. The lead agencies will determine which measures are to be adopted as part of their decision on the Project.

All Project personnel would be subject to an annual training that covers applicable SPCs, mitigation measures, environmental laws and regulations, and applicable agency requirements, with adherence to be included as part of PWD's written contract with any contractor selected to conduct proposed Project activities. Prior to conducting Project activities, PWD personnel would review approved SPCs and mitigation measures with the selected contractor to ensure the intent and background of each procedure is clearly understood. In addition, PWD and USFS personnel (or representatives) would monitor the contractor during activities and conduct follow-up inspections of the job site at periodic intervals after the work had been completed.

- **Reduced Sediment Removal Intensity Alternative (Alternative 1).** This alternative would incorporate the same SPCs and mitigation measures as the proposed Project (see Table 5-1 below, and EIS/EIR Appendix A). The logistics for construction and implementation of Alternative 1 are identical to the proposed Project.
- **No Action/No Project Alternative.** As this alternative would not involve any immediate construction activities, proposed Project SPCs and mitigation measures are not applicable. The logistics criteria would not apply to the No Action/No Project alternative.

2.1.5 Environmental Criteria

To meet the Environmental Criteria, the alternatives must have similar or fewer impacts to aquatic resources as compared to the proposed Project, and they must not create other significant adverse environmental consequences such as impacts to federally listed as threatened or endangered species, impacts to vegetative communities, or impacts to historic properties.

- **Reduced Sediment Removal Intensity Alternative (Alternative 1).** This alternative was developed to reduce the severity of impacts associated with air quality, traffic, and noise as compared to the proposed Project. Alternative 1 would also reduce the risk of road kill as a result of fewer daily truck trips. While Alternative 1's extended construction schedule would increase the likelihood of disturbing nesting birds, impacts would remain less than significant. Draining the Reservoir earlier in the season may also have greater impacts to arroyo toads than under the proposed Project, although there would be no substantial change in the significance of these impacts. Regarding the Projects effects on cultural resources, impacts from Alternative 1 would be identical to the proposed Project.

- **No Action/No Project Alternative.** By not removing sediment as proposed, the No Action/No Project Alternative would avoid impacts to wildlife species, vegetative communities, or historic properties. However, this alternative may require eventual removal of sediment and demolition of the Dam, which would involve an intensive construction effort that would create greater impacts to biological resources above and below the Dam than from the proposed Project or Alternative 1. In the event that removal of sediment and demolition of the Dam were to occur, impacts to cultural resources would likely be similar to the proposed Project if standard mitigation measures are implemented to avoid and/or minimize adverse effects on these resources.

2.2 Practicability Analysis Findings and Conclusions

2.2.1 Reduced Sediment Removal Intensity Alternative (Alternative 1)

Alternative 1 is a practicable alternative to the proposed Project. It meets the Project's overall purpose and need. The estimated costs of this alternative would be similar to the proposed Project, while the logistics for construction and implementation are identical. Both Alternative 1 and the proposed Project would incorporate the same SPCs to proactively protect sensitive resources at the Reservoir, reduce environmental impacts associated with Project activities, and to ensure safety during Project construction. Further, Alternative 1 would reduce the severity of the proposed Project's impacts associated with air quality, traffic, and noise, while not creating new significant impacts that would require further mitigation.

2.2.2 No Action/No Project Alternative

The No Action/No Project Alternative is not a practicable alternative to the proposed Project. It would not meet the overall purpose and need to improve the water storage or flood control capacity of Littlerock Reservoir. If eventual removal of the Dam and accumulated sediment is required as a future outcome of this alternative, such a project would likely incur greater construction and excavation costs than the proposed Project, as well as create greater impacts to biological resources above and below the Dam.

3.0 Existing Conditions (Section 1.8 of the EA 404(b)(1) Guidelines Evaluation)

The Project area includes the Littlerock Reservoir where sediment would be removed and the grade control structure installed at Rocky Point; staging areas located within or immediately adjacent to the Reservoir; and sediment disposal areas located off National Forest System (NFS) lands. Sediment disposal/storage areas are located up to six miles north of the Reservoir and include disturbed quarries and semi natural lands.

The majority of the Project is located within the Antelope Valley Watershed, which is a large (3,387-square-mile) closed basin in the western Mojave Desert. All water that enters the watershed either infiltrates into the underlying groundwater basin, or flows toward three playa lakes located near the center of the watershed (i.e., Rosamond Lake, Rogers Dry Lake, and Buckhorn Dry Lake).

Little Rock Creek is a major intermittent drainage that transports water from the San Gabriel Mountains to the playas. During periods of normal rainfall, the creek readily overtops the dam and flows for several miles into the Antelope Valley. Little Rock Creek is home to several sensitive biological resources including the arroyo toad, two-striped garter snake, southwestern pond turtle, and a variety of rare birds including least Bell's vireo and bald eagle.

The proposed 47th Street East sediment storage site is located in the lower foothills of the San Gabriel Mountains immediately below the California Aqueduct. This site is bisected by a series of ephemeral drainages that carry surface water off the site. As a result of the dry climate in the Project area, the existing ephemeral streams typically flow only during periods of heavy rainfall.

A preliminary jurisdictional delineation of State and or federal waters/wetlands was conducted at the Reservoir, at Little Rock Creek below the dam, and at 47th Street East sediment storage site. Based on this survey the preliminary jurisdictional determination and delineation of waters report identified 92.306 Federal non-wetland waters and 97.428 acres of State jurisdictional waters. Federal wetland waters do not occur in the Reservoir or in Little Rock Creek. Littlerock Reservoir, Little Rock Creek, and the ephemeral drainages on the 47th Street East sediment disposal site would be considered "waters of the United States" and would be subject to the jurisdiction of the Corps, the California Department of Fish and Wildlife, and the Lahontan Regional Water Quality Control Board (LRWQCB).

The following summaries highlight additional site conditions that may be applicable to the Corps' review and decision-making process. A full discussion of the Project's site conditions, per resource area, can be found in the EIS/EIR, and their locations within the document are identified in Table 3-1, below.

Air Quality. The Project is located within the Mojave Desert Air Basin, under the jurisdiction of the Antelope Valley Air Quality Management District. The Project area is in nonattainment of the State and federal ozone standards and the State PM10 standard. The Project area is designated as attainment and/or unclassified for all other criteria pollutant standards. The Project area's attainment status is significantly influenced by pollutant transport from both the south (South Coast Air Basin, i.e. Los Angeles area) and the west (San Joaquin Valley Air Basin).

Biological Resources. There are currently 87 special-status wildlife taxa documented within the general region of the Study Area, with 20 of these taxa observed within or adjacent to the Project area. Two federally listed species are confirmed as occurring in the Project area: arroyo toad and least Bell' vireo. Arroyo toad is present in Little Rock Creek above Rocky Point and least Bell's vireos were documented below the dam downstream of the existing PWD access road. Approximately 24 special-status plant taxa have the potential to occur in the Project area. Native fish were not detected during the surveys. Bluegill (*Lepomis macrochirus*) and largemouth bass (*Micropterus salmoides*) were the most common non-native species detected and were found to occur in the Reservoir and portions of Little Rock creek above Rocky Point.

Cultural Resources. The Littlerock Reservoir contains no previously recorded cultural resources, and no cultural resources were identified within the Project's Area of Potential Effect (APE) during a pedestrian survey. The 47th Street East Property contains one previously recorded cultural resource (P-19-002475/ CA-LAN-2475H). Documented in 1996, P-19-002475 consists of a historic-era metal can scatter dating to the late 1930s and early 1940s. In addition to rusted metal cans, it also contained fragments of bottle glass, chinaware sherds, iron pipe, metal scrap, barrel hoops, nails, and spent ammunition cartridges. During the pedestrian survey of the Project APE, no evidence of this site was observed. The area where the site was located appears to have been graded in recent years. This resource is no longer extant.

Noise. Ambient noise at Littlerock Reservoir is primarily created by birds chirping, wind noise, and periodic noise from recreationists and concessionaire activities. At residential receptor locations, the dominant noise source along the haul truck transportation routes and PWD disposal property is roadway traffic. In general, the proposed truck route areas are predominantly open space or rural residential lands where existing noise levels are generally low.

Traffic. There are four key intersections in the Project area that could potentially be affected by Project construction. Based on the existing peak hour traffic volumes, the turning movement counts, and the existing number of lanes at each intersection, the Level of Service (LOS) has been determined at each intersection. All key intersections within the Project area currently operate at LOS B (i.e., acceptable conditions) or better during the peak periods.

Water Quality. The Project area lies within the South Lahontan Hydrologic Region, one of the State's ten hydrologic regions established by the California Department of Water Resources for management purposes. The Project is subject to the water quality standards of the Water Quality Control Plan for the Lahontan Region (Basin Plan) as well as USFS water quality management objectives and strategies. The South Lahontan Hydrologic Basin Planning Area is further divided into Hydrologic Units (HU) and Hydrologic Areas (HA). The Project area lies within the Antelope HU. Littlerock Reservoir and all of the upstream contributing area, as well as both potential disposal sites, fall within the Rock Creek HA, while Little Rock Wash (downstream of the reservoir and dam) traverses both the Rock Creek HA and the Lancaster HA (LRWQCB, 1995). No Total Maximum Daily Loads (TMDLs) have been developed within the Project area. However, Littlerock Reservoir does not meet water quality standards for the Municipal and Domestic Supply beneficial use, and a TMDL is required but not yet complete. The reservoir is currently listed as impaired by metals (manganese), although the source is unknown. In addition, the RWQCB is considering listing Littlerock Reservoir as impaired by mercury and polychlorinated biphenyls (PCBs) (LRWQCB, 2014).

Table 3-1. Location of Issue Area Discussions in EIS/EIR

Issue Area	Applicable EIS/EIR Section	
	Affected Environment	Impact Assessment
Biological Resources	Section C.3.1	Section C.3.5
Essential Fish Habitat	Section C.3.1	Section C.3.5
Cultural Resources	Section C.4.1	Section C.4.5
Air Quality	Section C.2.1	Section C.2.5
Noise	Section C.8.1	Section C.8.5
Traffic	Section C.10.1	Section C.10.5
Water Quality	Section C.12.1	Section C.12.5

Source: Littlerock Reservoir Sediment Removal Project EIS/EIR (May 2016)

4.0 Environmental Consequences (Section 5.0 of the EA 404(b)(1) Guidelines Evaluation)

4.1 Impacts to Physical/Chemical Characteristics

Direct and indirect Impacts to the physical and chemical characteristics of the Project area would occur from implementation of the proposed Project and Alternative 1. No change to the Project area would immediately occur under Alternative 2; however, impacts would be substantial above and below the Dam if future Dam removal and sediment excavation is required. The following discussion highlights some of the Project impacts to the surrounding physical and chemical characteristics, while Table 4-1 identifies the locations within the EIS/EIR that analyze these Project impacts in detail.

Direct impacts to State and federal waters would include the removal of native riparian vegetation, alter Little Rock Creek flows within the boundary of Littlerock Reservoir, and possibly induce local erosion when inflow occurs when the reservoir is empty or filling. Indirect impacts could include alterations to the existing topographical and hydrological conditions. Operational impacts to wetland habitats would be similar to direct and indirect impacts and would primarily occur as a result of annual sediment removal activities or repairs to PWD access road below the dam.

Ground-disturbing activities in Project area could contribute to direct loss of a candidate, sensitive, or special-status species or to a loss of habitat. Direct, indirect, and operational impacts to special-status plant species may occur in a variety of ways, including the direct removal of plants during the construction of the grade control structure, during sediment removal, or from road maintenance activities north of the dam.

Construction of the grade control structure would result in soil disturbance. Restoration of the Reservoir storage capacity could also induce local erosion when the reservoir is empty or filling, due to steepening of the bed slope downstream of the grade control structure. However, this erosion would be confined to the reservoir bottom and sides below the water surface. No Project-related erosion would be expected at the disposal sites, and sedimentation from any temporary sediment stockpiles would be minor due to Project SPCs and compliance with existing regulations.

The Project would have a substantial beneficial impact on the surrounding watershed. By restoring the Reservoir to its 1992 design capacity, the Project would increase the Reservoir's volume to detain floods by 463 acre-feet (15 percent increase in volume). The Project would also improve the Reservoir's ability to provide debris control as well as continue to serve as a water resource for the surrounding communities.

Table 4-1. Impact Analyses for Physical/Chemical Characteristics in EIS/EIR

Issue Area	Applicable EIS/EIR Section		
	Proposed Project	Alternative 1	Alternative 2
Substrate	Section C.5.5.1	Section C.5.5.2	Section C.5.5.3
Current patterns and water circulation (and fluctuation)	Section C.7.5.1	Section C.7.5.2	Section C.7.5.3
Suspended particulates/turbidity	Section C.5.5.1 Section C.12.5.1	Section C.5.5.2 Section C.12.5.2	Section C.5.5.3 Section C.12.5.3
Normal water level fluctuations	Section C.7.5.1	Section C.7.5.2	Section C.7.5.3
Flood hazards and floodplain values	Section C.7.5.1	Section C.7.5.2	Section C.7.5.3
Storm, wave and erosion buffers	Section C.5.5.1 Section C.7.5.1 Section C.12.5.1	Section C.5.5.2 Section C.7.5.2 Section C.12.5.2	Section C.5.5.3 Section C.7.5.3 Section C.12.5.3
Erosion and accretion patterns	Section C.5.5.1 Section C.7.5.1 Section C.12.5.1	Section C.5.5.2 Section C.7.5.2 Section C.12.5.2	Section C.5.5.3 Section C.7.5.3 Section C.12.5.3
Water quality (salinity)	Section C.12.5.1	Section C.12.5.2	Section C.12.5.3
Aquifer recharge	Section C.7.5.1	Section C.7.5.2	Section C.7.5.3
Baseflow	Section C.7.5.1	Section C.7.5.2	Section C.7.5.3
Mixing zone/current velocity	Section C.7.5.1 Section C.12.5.1	Section C.7.5.2 Section C.12.5.2	Section C.7.5.3 Section C.12.5.3

Source: Littlerock Reservoir Sediment Removal Project EIS/EIR (May 2016)

4.2 Impacts to Biological Characteristics

Direct and indirect impacts to the biological characteristics of the Project area would occur from implementation of the proposed Project and Alternative 1. No change to the Project area would immediately occur under Alternative 2; however, impacts would be substantial above and below the Dam if future Dam removal and sediment excavation is required. The following discussion highlights some of the Project impacts to the surrounding biological resources, while Table 4-2 identifies the locations within the EIS/EIR that analyze these Project impacts in detail.

Implementation of the Project would affect biological resources through the removal of vegetation, altered soil conditions, loss of native seed banks, and temporary changes in the topography of the drainage. The vast majority of sediment removal activities would occur in unvegetated sandy wash. Most of the vegetation at the Reservoir is limited to scattered elements along the margin of the Reservoir and within a few well defined communities. These areas abut recreation facilities and are routinely subject to disturbance from anglers, recreationists, and off-highway vehicle use. Although the Project would remove riparian habitat, the functional value of the community in the Reservoir has been adversely affected or lost through mortality or previous disturbance and/or removal.

Habitat in the Project area has the potential to support a variety of State and federally listed wildlife species. Construction activities would disturb wildlife by limiting the ability for some species to forage at the Reservoir for several months at a time. However, access to surface water is generally present above and below the dam and work would not be conducted at night when many species are foraging. Indirect effects to aquatic species may be caused by the diversion or modification of water flows at the grade control structure, increased downstream sediment transport, or the establishment of noxious weeds. Human activities can indirectly affect wildlife by increased noise or by attracting predators such as the common raven, kit fox, and coyote from trash and litter. Operational impacts to wildlife are similar to sediment removal activities and include crushing by vehicles, trampling, increased sedimentation, dust, and the spread of exotic weeds.

The Littlerock Reservoir does not support any species of native fish. The Project would remove all non-native fish in order to improve habitat conditions for arroyo toad and other native species.

Table 4-2. Impact Analyses for Biological Characteristics in EIS/EIR

Issue Area	Applicable EIS/EIR Section		
	Proposed Project	Alternative 1	Alternative 2
Special aquatic species	Section C.3.5.1	Section C.3.5.1	Section C.3.5.3
Fish, crustaceans, mollusks, and other aquatic organisms	Section C.3.5.1	Section C.3.5.1	Section C.3.5.3
Wildlife values	Section C.3.5.1	Section C.3.5.1	Section C.3.5.3
Threatened and endangered species	Section C.3.5.1	Section C.3.5.1	Section C.3.5.3
Biological availability of possible contaminants in dredged or fill materials	Section C.3.5.1 Section C.12.5.1	Section C.3.5.1 Section C.12.5.2	Section C.3.5.3 Section C.12.5.3

Source: Littlerock Reservoir Sediment Removal Project EIS/EIR (May 2016)

4.3 Impacts to Human Use Characteristics

Direct and indirect impacts to human use characteristics of the Project area would occur from implementation of the proposed Project and Alternative 1. No change to the Project area would immediately occur under Alternative 2; however, impacts would be substantial above and below the Dam if future Dam removal and sediment excavation is required. The following discussion highlights some of the Project impacts to human uses, per issue area, while Table 4-3 identifies the locations within the EIS/EIR that analyze these Project impacts in detail.

Water Supply. The Project would increase the storage capacity of Littlerock Reservoir by 463 acre-feet. However, water diverted to Palmdale Lake would not be available for Antelope Valley Groundwater Basin recharge in Little Rock Creek downstream of the dam. While the loss of this recharge could have an adverse effect on local groundwater levels and supplies, the Project-related reduction in Little Rock Creek water available to groundwater recharge would be minor, with little or no overall effect on aquifer volume or groundwater levels due to good recovery of the local groundwater subbasin in wet years, and the compensating effect of reduced groundwater pumping as surface water sources increase. Without implementation of the Project, PWD would need to rely more heavily on additional local groundwater pumping and water from the State Water Project.

Aesthetics. Because the Reservoir would be closed to the public during the proposed activity periods, visual impacts within the ANF would be limited to times when Project activities are completed. No visual change from Project activities would be visible when the Reservoir is full. Additionally, sediment disposal within quarry disposal locations would not be visible to the public. This is because the quarry properties are large disturbed areas, setback from public viewsheds. The grade control structure bank protection would introduce a new industrial character to views from Rocky Point, and the temporary sediment storage and activities within the PWD site would expand the existing disturbed and un-vegetated portion of the site north along 47th Street. However, these changes would not significantly alter the existing visual landscape of the sites, as the overall composition of viewsheds at these locations would be largely unaltered.

Noise. Noise impacts during annual sediment removal/disposal activities would be a function of the construction equipment, the equipment location, and the timing and duration of the noise-generating activities. The use of mobile construction equipment during annual sediment removal would not exceed 75 dBA Lmax at any residential receptors. Temporary noise generated by on-site construction equipment within the Reservoir or quarry disposal locations would not impact any sensitive receptors.

Traffic/Transportation Patterns. Initial sediment removal (to restore the Reservoir design capacity) would result in a significant impact at the intersection of Cheseboro Road and Pearblossom Highway during the afternoon peak hours. The presence of large trucks along the haul routes could also result in impacts relative to overall normal traffic flow.

Safety. Any potential impacts to water quality or public health due to hazardous materials from Project activities would be minor. Discharge of pollutants to receiving waters would be related to the spill or accidental release of hazardous materials, and the potential for hazardous materials to enter any waterbody would be small due to the generally dry conditions of the Project area during the proposed work schedule. The potential for the public or construction workers to be exposed to hazardous materials also would be small due to the generally uninhabited character of the Project area and the lack of substantial known contaminants in the reservoir sediment.

Recreation. After the initial construction and excavation activities proposed throughout the summer and fall of the Project's first year (2017), the proposed Project would not preclude recreational use of the Reservoir during the peak summer months until after Labor Day, assuming that the Reservoir is opened for public use during the life of the Project. The schedule for ongoing annual excavation and sediment removal would minimize the impacts to recreationists by avoiding closure of the Reservoir during the peak recreational period. The Project does not involve any alterations to the recreational opportunities offered at the Reservoir, nor does it propose any change in the management of the Reservoir.

Property Ownership. The Reservoir is located on NFS lands and is characterized as a non-recreation special-use. Although the Reservoir is managed by PWD, its operations are subject to a special-use authorization that is administered by the USFS. The Project would store excavated sediment at two sites: (1) a 21-acre undeveloped site that is owned by PWD and is located in unincorporated Los Angeles County; and (2) privately operated sand and gravel pits that are located in the City of Palmdale. The Project is subject to the discretionary review and approval of the USFS, and PWD is coordinating with the County of Los Angeles and the City of Palmdale to meet their permitting and zoning requirements.

Land Use. The Project requires numerous dump truck trips (maximum of 480 per day) during the first seven years of sediment removal, followed by the truck trips during operation and maintenance of the Reservoir. These sediment removal activities would create nuisance impacts to nearby residences. Residents along the truck routes or disposal sites would be disturbed by the increased truck traffic along roadways, as well as by the noise and emissions from the trucks.

Historic Properties. While no known resources are within the Project APE, five cultural resources are documented within a quarter mile of the Littlerock Reservoir, and the area is considered sensitive for prehistoric and historical cultural resources. Due to various surface conditions or changes over time, not all cultural resources are expressed on the surface. Any project with ground disturbing components has the potential to directly impact unanticipated cultural resources. The only potential for direct impacts to cultural resources during the construction phase of the Project is from unanticipated or inadvertent cultural resource discoveries.

Parks, National and Historical Monuments, and Similar Areas. Littlerock Reservoir is located within the Santa Clara/Mojave Rivers Ranger District of the ANF. The portion of the Project area that is located on NFS lands would also be within the newly designated San Gabriel Mountains National Monument. A new management plan will be developed to establish goals and policies for the NFS lands within the San Gabriel Mountains National Monument. The management plan for the monument would be incorporated as an amendment to the existing USDA Forest Service Land Management Plan, and would not affect existing permitted and authorized special uses within the ANF such as Littlerock Reservoir.

Air Quality. The Project would have to comply with all rules and regulations applicable at the time of the Project's construction and operation and would implement the air quality project commitments (see Appendix A of the EIS/EIR) that would reduce air pollutant emissions during Project construction and operation. All of the average daily and annual construction emissions are estimated to be below the AVAQMD emissions thresholds, except for average daily PM10 emissions during the excavation phase. All operation air pollutant emissions impacts are well below AVAQMD emissions thresholds. Toxic air pollutant emissions are located far from sensitive receptors or spread out over a large area and so Project emissions of toxic air pollutants would not create substantial concentrations at sensitive receptor locations.

Global Climate Change. GHG emissions for the Project are estimated to be well below AVAQMD GHG emissions thresholds. The Project would conform to GHG emissions reductions policies, goals, and regulations.

Table 4-3. Impact Analyses for Human Use Characteristics in EIS/EIR

Issue Area	Applicable EIS/EIR Section		
	Proposed Project	Alternative 1	Alternative 2
Water supply and conservation	Section C.7.5.1	Section C.7.5.2	Section C.7.5.3
Aesthetics	Section C.11.5.1	Section C.11.5.2	Section C.11.5.3
Traffic/transportation patterns	Section C.10.5.1	Section C.10.5.2	Section C.10.5.3
Noise	Section C.8.5.1	Section C.8.5.2	Section C.8.5.3
Safety	Section C.6.5.1	Section C.6.5.2	Section C.6.5.3
Recreation	Section C.9.5.1	Section C.9.5.2	Section C.9.5.3
Recreational/ commercial fisheries	Not relevant to this EIS/EIR		
Navigation	Not relevant to this EIS/EIR		
Energy needs	Section E.1.2	Section E.1.2	Section E.1.2
Mineral needs	Not relevant to this EIS/EIR		
Economics	Not relevant to this EIS/EIR		
Food & fiber production	Not relevant to this EIS/EIR		
Farmland	Not relevant to this EIS/EIR		
Property Ownership	Section C.9.5.1	Section C.9.5.2	Section C.9.5.3
Land Use	Section C.9.5.1	Section C.9.5.2	Section C.9.5.3
Historic properties	Section C.4.5.1	Section C.4.5.2	Section C.4.5.3
Parks, national and historical monuments, and similar areas	Section C.9.5.1	Section C.9.5.2	Section C.9.5.3
Air quality	Section C.2.5.1	Section C.2.5.2	Section C.2.5.3
Global climate change	Section C.2.5.1	Section C.2.5.2	Section C.2.5.3

Source: Littlerock Reservoir Sediment Removal Project EIS/EIR (May 2016)

4.4 Cumulative Impacts (Section 6.0 of the EA 404(b)(1) Guidelines Evaluation)

The cumulative analysis for the proposed Project is fully discussed in the EIS/EIR Section D. Section D includes a list of cumulative projects (see EIS/EIR Section D, Table D-1 and Figure D-1) that have been completed, are in the process of construction, or are currently under review within a geographic area sufficiently large enough to provide a reasonable basis for evaluating cumulative impacts. These cumulative projects are under the jurisdiction of one of several jurisdictions: USFS, PWD, California Department of Transportation, County of Los Angeles, and the City of Palmdale. A summary of the cumulative impacts of the Project per resource area is provided below. Please refer to the EIS/EIR Section D for the fully discussion of the Project's cumulative effects.

Air Quality and Climate Change. Due to the physical separation of other cumulative projects from the main emissions source area for the Project, the incremental effect of the Project's air pollutant emissions when combined with the construction and/or operation emissions from other projects would be considered less than significant. Given that the air toxic emissions impacts from the Project would be very low at any one given sensitive receptor location, they would not be of a magnitude to contribute a significant incremental effect to cumulative health impacts. The Project's contribution to cumulative air quality impacts would not be cumulatively considerable.

Biological Resources. The Project's contribution to biological resource impacts in combination with past and reasonably foreseeable projects would be cumulatively considerable. Each of the cumulative impact discussions for Impact BIO-1 through Impact BIO-26 (see EIS/EIR Section D.4.2.2) describes the SPCs that would be implemented to minimize the incremental adverse effect of the Project. With incorporation of the identified SPCs, the Project's contribution to cumulative impacts to biological resources would be reduced to a level that is less than significant.

Cultural Resources. With regard to previously undetected cultural resources, the Project would not contribute an incremental impact within the region that would be cumulatively considerable. However, the Project would have the potential to combine with impacts from past, present, or future projects to result in a cumulative impact to human remains.

Geology and Soils. As no structures would be built under the Project, no cumulative impact for exposure of structures to geologic hazards would occur. SPCs would ensure that unstable slope conditions would not be produced under the Project. Conformance with existing laws, including the Clean Water Act, would ensure that no off-site erosion would occur under the Project. Other projects, both within the Project area and downstream of the Project area, would include soil-disturbing activities; however, soil disturbance under the Project would contribute an incremental cumulative effect that was negligible.

Hazards and Public Safety. Although other projects in the area of potential cumulative effects could result in accidental spills of hazardous waste that could contaminate water resources or expose the public to hazardous materials, the Project would result in negligible impacts with respect to releases of hazardous waste. Similarly, the Project impacts related to risk to public health (such as Valley Fever or unsafe highway conditions) are negligible. The sediment in Littlerock Reservoir is not known to harbor the fungus associated with Valley Fever, and fugitive dust would be minimized in conformance with existing air quality regulations. These impacts would not combine with adverse effects from similar projects to form a cumulative impact.

Hydrology. Given the Project's negligible effect on groundwater levels and flow patterns, and the use of best management practices to minimize effects on erosion and siltation, the Project would not contribute an incremental impact on hydrology and groundwater that would be cumulatively considerable.

Noise. While periodic activities at the PWD site could combine with identified cumulative projects (only if activities overlap), any increase in ambient daytime noise levels are considered negligible. With the inclusion of the SPCs described above, the Project's incremental contribution to a cumulative noise impact would be less than significant.

Recreation and Land Use. If the construction and maintenance phases of the Project were to occur concurrently with the construction of other development projects, the incremental disturbance effect of the Project to adjacent land uses would be cumulatively considerable. Adverse cumulative impacts resulting from the Project would be reduced through the Project's air quality and noise SPCs (see Table 5-1 below, and EIS/EIR Appendix A). However, given the proximity of existing residences to the truck routes and sediment storage/disposal sites, and the proximity of other proposed development to these same land uses, the Project's contribution to a cumulative land use disturbance would be significant and unavoidable.

Transportation and Traffic. During the initial sediment removal phase, the Project would contribute an incremental effect to traffic impacts that, when combined with the potential traffic impacts of other projects, would be cumulatively considerable. With regard to a the Project's incremental effect on emergency vehicle access and roadway damage, the implementation of traffic mitigation measures and SPCs (see Table 5-1 below, and EIS/EIR Appendix A) would reduce the Project's cumulative contribution to a less than significant level.

Visual Resources. Given that Project activities at the PWD site would not result in permanent impacts to the visual landscape, the Project would not contribute an incremental effect to an overall cumulative impact on visual resources.

Water Quality and Resources. It is possible that other projects within the area of potential cumulative effect could violate water quality standards or waste discharge requirements, or contaminate groundwater through the introduction or mobilization of pollutants. Examples of projects that could result in these potential impacts include active mining operations and new highway construction. However, the incremental effects associated with the Project for water quality degradation are negligible.

Wildfire Prevention and Suppression. In order to avoid adverse impacts, the Project would implement SPCs to prevent wildfire ignition and to immediately respond to a wildfire (see EIS/EIR Appendix A). The incremental impact of the Project on wildfire prevention and suppression would be mitigable to a level that is less than significant.

5.0 Evaluation of Compliance with 404(b)(1) Guidelines *(Section 7.0 of the EA 404(b)(1) Guidelines Evaluation)*

Table 5-1 incorporates the checklist information relevant to Section 7.1 of the Environmental Assessment 404(b)(1) Guidelines Evaluation. The information summarized in Table 5-1 includes the impacts identified for specific resource areas, SPCs that have been incorporated into the Project, and the residual effects following implementation of SPCs (mitigated).

Table 5-1. Factual Determinations of Compliance with Section 404(b)(1)

Summary of Impacts	Mitigation or SPC	Effects following mitigation
Physical substrate		
▪ Proposed Project and Alternative 1 ▪ Construction of grade control would result in soil disturbance. Excavation and grading would destabilize natural or constructed slopes.	▪ SPC GEO-1: Geotechnical Investigation	Less than significant
▪ Alternative 2 ▪ If future activities require Dam removal, substantial downstream erosion and sedimentation would result.	None	Significant and unavoidable
Water circulation, fluctuation, and salinity		
▪ Proposed Project and Alternative 1 ▪ Sediment excavation and construction of grade control would alter Little Rock Creek flows within the boundary of the Reservoir. ▪ Any stockpiled sediment at the PWD disposal site would divert flow in the ephemeral watercourse.	▪ SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels	Less than significant
▪ Alternative 2 ▪ Future loss of the Reservoir's water storage capacity would increase the flood hazard downstream of the Dam.	None	Significant and unavoidable
Suspended particulate/turbidity		

Table 5-1. Factual Determinations of Compliance with Section 404(b)(1)		
Summary of Impacts	Mitigation or SPC	Effects following mitigation
▪ Proposed Project and Alternative 1 ▪ Construction of grade control would create soil disturbance within the reservoir. ▪ Stockpiled sediment at the PWD disposal site could be eroded by stormwater runoff.	▪ SPC GEO-1: Geotechnical Investigation ▪ SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels	Less than significant
▪ Alternative 2 ▪ If future activities require Dam removal, substantial downstream erosion and sedimentation would result.	None	Significant and unavoidable
Contaminant availability		
▪ Proposed Project and Alternative 1 ▪ No impacts to water quality, as sediment in Reservoir is mostly free of contaminants and the level of contamination for any detected contaminants being extremely low. ▪ Project could result in accidental release of hazardous materials or discharge of contaminated water associated with dewatering activities.	▪ SPC WQ-1: Prepare Spill Response Plan ▪ SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels	Less than significant
▪ Alternative 2 ▪ Future activities that require sediment excavation and Dam removal may create substantial impacts to water quality.	Mitigation similar to measures recommended for the proposed Project would be required to reduce impacts.	Dependent on the adequacy of mitigation.
Aquatic ecosystem and organism		

Table 5-1. Factual Determinations of Compliance with Section 404(b)(1)

Summary of Impacts	Mitigation or SPC	Effects following mitigation
▪ Proposed Project and Alternative 1 ▪ Construction may impact State and federal waters through removal of riparian vegetation, discharge of fill, degradation of water quality, and increased erosion and sediment transport. ▪ Ground-disturbing activities in Project area could contribute to direct loss of a candidate, sensitive, or special-status species or to a loss of habitat.	▪ SPC BIO-1a: Provide Restoration/Compensation for Impacts to Native Vegetation Communities ▪ SPC BIO1b: Worker Environmental Awareness Program ▪ SPC BIO-2: Prepare and Implement a Weed Control Plan ▪ SPC BIO-5: Conduct Preconstruction Surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and Avoid Any Located Occurrences of Listed Plants ▪ SPC BIO-6a: Conduct Surveys and Implement Avoidance Measures ▪ SPC BIO-6b: Conduct Clearance Surveys and Construction Monitoring ▪ SPC BIO-6c: Seasonal Surveys During Water Deliveries ▪ SPC BIO-14: Conduct Surveys for Southwestern Pond Turtle and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC BIO-15: Conduct Surveys for Two-Striped Garter Snakes and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC BIO-16: Conduct Surveys for Coast Range Newts and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC BIO-17: Conduct Surveys for Terrestrial Herpetofauna and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC AQ-2: Fugitive Dust Controls ▪ SPC AQ-5: Reduce Off-Road Vehicle Speeds ▪ SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels ▪ SPC WQ-1: Prepare Spill Response Plan	Less than significant
▪ Alternative 2 ▪ If future activities require sediment excavation and Dam removal, substantial impacts to aquatic ecosystems and organisms would result.	Mitigation similar to measures recommended for the proposed Project would be required to reduce impacts.	Dependent on the adequacy of mitigation.
Proposed disposal site		
▪ Proposed Project and Alternative 1 ▪ Sediment storage at PWD property may affect an onsite ephemeral stream.	▪ SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels	Less than significant

Table 5-1. Factual Determinations of Compliance with Section 404(b)(1)

Summary of Impacts	Mitigation or SPC	Effects following mitigation
▪ Alternative 2 ▪ Disposal sites for future sediment excavation/Dam removal would impact onsite ecosystems.	Mitigation similar to measures recommended for the proposed Project would be required to reduce impacts.	Dependent on the location of sites and the adequacy of mitigation.
Cumulative effects on the aquatic ecosystem		
▪ Proposed Project and Alternative 1 ▪ Past actions such as the construction of Littlerock Dam and natural events including droughts and fire have resulted in considerable cumulative effects to candidate, sensitive, or special-status species in the region.	▪ SPC BIO-1a: Provide Restoration/Compensation for Impacts to Native Vegetation Communities ▪ SPC BIO1b: Worker Environmental Awareness Program ▪ SPC BIO-2: Prepare and Implement a Weed Control Plan ▪ SPC BIO-5: Conduct Preconstruction Surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and Avoid Any Located Occurrences of Listed Plants ▪ SPC BIO-6a: Conduct Surveys and Implement Avoidance Measures ▪ SPC BIO-6b: Conduct Clearance Surveys and Construction Monitoring ▪ SPC BIO-6c: Seasonal Surveys During Water Deliveries ▪ SPC BIO-14: Conduct Surveys for Southwestern Pond Turtle and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC BIO-15: Conduct Surveys for Two-Striped Garter Snakes and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC BIO-16: Conduct Surveys for Coast Range Newts and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC BIO-17: Conduct Surveys for Terrestrial Herpetofauna and Implement Monitoring, Avoidance, and Minimization Measures ▪ SPC AQ-2: Fugitive Dust Controls ▪ SPC AQ-5: Reduce Off-Road Vehicle Speeds ▪ SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels ▪ SPC WQ-1: Prepare Spill Response Plan	Less than significant
▪ Alternative 2 ▪ If the Dam must be removed, cumulative biological resource impacts would be greater and encompass a wider area than the Project.	Mitigation similar to measures recommended for the proposed Project would be required to reduce impacts.	Dependent on the adequacy of mitigation.

Table 5-1. Factual Determinations of Compliance with Section 404(b)(1)

Summary of Impacts	Mitigation or SPC	Effects following mitigation
Secondary effects on the aquatic ecosystem		
▪ Proposed Project and Alternative 1 ▪ Construction would not substantially interfere with the movement of any native resident migratory fish, reptile, or amphibian species. ▪ Removal of non-native fish from Reservoir would improve habitat for arroyo toad and other native species.	None	Beneficial impact
▪ Alternative 2 ▪ Riparian vegetation would likely recruit along the margins of the active channel and may eventually develop into a mature riparian community. Project area may develop characteristics that would support habitat for arroyo toad and other species associated with riparian vegetation and floodplains. ▪ Expanded construction activities from future removal of Dam would impact sensitive species above and below the Dam.	Mitigation similar to measures recommended for the proposed Project would be required to reduce impacts from future Dam removal.	Short-term beneficial impacts; Long-term significant impacts

Source: Littlerock Reservoir Sediment Removal Project EIS/EIR (May 2016)

6.0 Findings of Compliance with the Restrictions on Discharge

The EIS/EIR identified and evaluated the Littlerock Reservoir Sediment Removal Project, which included the proposed Project as well as two alternatives to the proposed Project. The Reduced Sediment Removal Intensity Alternative would reduce the intensity of construction activities through an extended construction schedule, while the No Action/No Project Alternative would allow for continued sediment accumulation upstream of Littlerock Dam with no sediment removal. Based on information presented in Sections 4.0 and 5.0 of this 404(b)(1) Evaluation Summary, the Reduced Sediment Removal Intensity Alternative (Alternative 1) has been identified as the LEDPA. Factors supporting this determination include:

- Alternative 1 would reduce daily PM10 emissions during excavation and construction;
- Alternative 1 would reduce the number of daily truck trips on roadways;
- Alternative 1 meets the Project's overall purpose and need and would incorporate the same Project SPCs to proactively protect sensitive resources at the Reservoir, reduce environmental impacts associated with Project activities, and to ensure safety during Project construction; and
- Alternative 1 would not create new significant impacts that would require further mitigation.

7.0 References

LRWQCB (Lahontan Regional Water Quality Control Board). 2014. Clean Water Act Sections 305(b) and 303(d) Integrated Report for the Lahontan Region – Public Review Draft. [online]: http://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/303d_305b/. Accessed October 3, 2014.

_____. 1995. Water Quality Control Plan for the Lahontan Region – North and South Basins (as amended). [online]: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml. Accessed October 3, 2014.

NHC (Northwest Hydraulic Consultant). 2015. Basis of Design Report: Littlerock Reservoir Excavation Plan. Draft Report. July 21.

USEPA (United States Environmental Protection Agency). 2015. Section 404 Permitting. Updated June 17. [online]: http://water.epa.gov/lawsregs/guidance/cwa/dredgdis/. Accessed August 5.

_____. 1990. Memorandum of Agreement Between the Department of the Army and The Environmental Protection Agency. February 6. [online]: http://water.epa.gov/lawsregs/guidance/wetlands/mitigate.cfm. Accessed August 13, 2015.

USFS (United States Department of Agriculture, Forest Service). 1997. Special-Use Permit Exhibit "I": Operation and Maintenance Plan for Littlerock Dam and Reservoir. November 5.

Appendix G

Draft EIS/EIR Comments and Responses

APPENDIX G – DRAFT EIS/EIR COMMENTS AND RESPONSES

1.0 Comments Received on the Draft EIS/EIR

Table G-1 lists the persons, agencies, and organizations that provided comments on the Draft EIS/EIR during the public review period, which began on May 6, 2016. The comments are grouped into sets and each comment set has been assigned a designation (A, B, or C) that indicates whether the comments are from public agencies or elected officials, groups or organizations, or individuals. A public workshop for the Draft EIS/EIR was held on May 19, 2016. Distribution and public review of the Draft EIS/EIR is described in Section F.4 (Distribution of the EIS/EIR) of this document.

Table G-1. Comments Received on the Draft EIS/EIR- postmarked through June 30, 2016

Comment Set	Agency/Affiliation	Name/Title of Commenter	Date of Comment
A.1	California Department of Fish and Wildlife	Betty J. Courtney, Environmental Program Manager I South Coast Region	June 20, 2016
A.2	Department of Water Resources	Mary Guerin, Chief Recreation and Environmental Studies Section Southern Regional Office	June 20, 2016
A.3	Lahontan Regional Water Quality Control Board	Jan M. Zimmerman, PG, Engineering Geologist	June 20, 2016
A.4	City of Palmdale	Rob Bruce, Planning Manager	June 20, 2016
A.5	U.S. Department of the Interior	Patricia Sanderson Port Regional Environmental Officer	June 30, 2016
A.6	U.S. Environmental Protection Agency	Kathleen Martyn Goforth, Manager Environmental Review Section	June 30, 2016
B.1	San Manuel Band of Mission Indians	Daniel McCarthy, MS, RPA Director, Cultural Resources Management Department	May 5, 2016
B.2	Center for Biological Diversity	Ileene Anderson, Senior Scientist/ Desert Director; Lisa T. Belenky, Senior Attorney	June 29, 2016
C.1	Not Applicable	Star Moffatt	May 6, 2016

2.0 Responses to Individual Comments

The following pages present the written comments received on the Draft EIS/EIR during the public review period. Each of the comment documents has been given a number designation and the comments in each document have been individually numbered. All responses to comments are included at the end of the final comment letter (i.e., after Comment Letter C.1). Reponses are numbered in a sequence that corresponds to the applicable comment number. Some of the responses to comments indicate revisions that have been made to the EIS/EIR text or figures to address a particular comment or provide further clarification. Where revisions to the language of the EIS/EIR have been made, the response to comment identifies the revised text in strike-through for deletions and underline for additions.

Comment Set A.1 – California Department of Fish and Wildlife

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

June 20, 2016

United States Department of Agriculture Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Chesbro Road, Suite 200
Agoura Hills, CA 91301

Dear Aspen Environmental Services:

Littlerock Reservoir Sediment Removal Project (Project)
DRAFT JOINT ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL IMPACT STATEMENT (DRAFT EIR/EIS)
SCH# 2005061171

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of an EIR/EIS (Environmental Document) from the United States Department of Agriculture Forest Service (USFS)/Palmdale Water District (PWD) for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1] The Department submitted comments in a letter dated April 7, 2014 in response to the Notice of Preparation of the Draft EIR/EIS for the proposed Project and conducted a pre-consultation meeting and site visit with PWD and Aspen Environmental Group on March 4, 2015.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise A.1-1
regulatory authority as provided by the Fish and Game Code. As proposed, for example, the

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Conserving California's Wildlife Since 1870

Comment Set A.1 – California Department of Fish and Wildlife (cont.)

Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.) or state-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish and Game Code §1900 et seq.), related authorization as provided by the Fish and Game Code will be required. A.1-1 cont.

PROJECT DESCRIPTION SUMMARY

Proponent: Palmdale Water District (PWD)

Objective: The Project would restore the Littlerock Creek (Creek) Reservoir (Reservoir) to 1992 water storage and flood control capacity by the excavation of approximately 1,165,000 cubic yards of accumulated sediment to restore Littlerock Reservoir to 3,500 acre feet of water storage capacity and would maintain that capacity through annual sediment removal. Up to 10,000 cubic yards of sediment that is excavated from the Reservoir would be trucked off site downstream of the Reservoir using existing public haul roads and temporarily stockpiled for eventual recycling at a 21-acre site on 47th Street East owned by PWD. Excavated sediment that exceeds the 10,000 cubic yard stockpiled capacity would be disposed of at existing quarries within the City of Palmdale. The Project includes the annual removal of approximately 38,000 cubic yards starting after Labor Day and continuing until seasonal precipitation begins filling up the Reservoir usually by mid-November to January. To provide access to the full excavation area, PWD would first divert water for beneficial use from the Reservoir lowering to a dead pool level (resulting in a pool between the furthest downstream excavation area and the Littlerock Creek Dam (Dam). As surface flows from rainfall begin to refill the Reservoir, a coffer dam and/or temporary pipeline may be required to pass low stream flows around the work area as sediment removal moves upstream later in the fall within the excavation area.

The Project also proposes to excavate sediment from the reservoir and construct a mostly subterranean grade control structure to prevent Project related sediment loss and headcutting where critical habitat for the federally endangered arroyo toad (*Anaxyrus californicus*) has been identified upstream of the Reservoir. The proposed grade control structure would be located at Rocky Point, where the Creek is confined between a steep natural slope to the east and a reinforced man-made slope on the west. This location supports a picnic area and is often used for fishing or water play. The total disturbance during construction would be approximately 3.5 acres for the grade control structure and would extend approximately 175 feet into designated critical habitat for the arroyo toad. A majority of this construction disturbance occurs in an area that may be underwater in any given year as the reservoir fills. Construction of the grade control structure may require diversion of subsurface and surface flows around the construction area in the reservoir bed at Rocky Point.

The Creek flows down from the Angeles National Forest in a northerly direction. North of the Reservoir, water seepage from the Reservoir supports thick stands of riparian vegetation along the active Creek channel and includes relatively undisturbed Southern cottonwood-willow riparian forest and Mojave riparian forest.

The Project supports 97.428 acres of CDFW Jurisdictional Waters including: the 91.9 acres Reservoir, District Access Road, 0.028 acres and 47th Street East Sediment Disposal Area, 1.0 acre.

Comment Set A.1 – California Department of Fish and Wildlife (cont.)

The Project is located within the Antelope Valley Significant Ecological Area. Direct and indirect Project impacts on special status-species or their habitat including but are not limited to: least Bell's vireo *(bellii pusilus) or (*vireo), western pond turtle (Emys marmorata); coast range newt (*Taricha toros);* and western burrowing owl (*Athene cunicularia*) would result from construction activities and would be significant minus proposed avoidance or mitigation measures. The Project is located within the range of Mohave ground squirrel (*Xerospermophilus mohavensis*), and desert tortoise (*Gopherus agassizii*) but are not considered to be present on the Project site.

The Project would also remove all of the non-native fish species introduced to the Reservoir to improve habitat conditions for arroyo toad and other native species given that non-native fish tissue samples from the Reservoir show a large number of contaminants at high levels.

Project alternatives include the Reduced Sediment Removal Intensity Alternative (Alternative 1) and the No Action/No Project Alternative.

Location: The proposed action would be primarily located within the Reservoir which is a man-made water storage and public recreation feature formed by the impoundment of water within the Creek by the Dam. Impounded water in the Reservoir is diverted for beneficial uses and sent to Lake Palmdale in the City of Palmdale via the Palmdale Ditch. The Reservoir is located within the boundaries of the Santa Clara Mojave Rivers Ranger District of the Angeles National Forest, approximately 10 miles southeast of the City of Palmdale and four miles south of the community of Littlerock in northern Los Angeles County. Sediment that is excavated from the Reservoir would be trucked along public haul roads and stored in unincorporated Los Angeles County and at existing quarries within the City of Palmdale.

Timeframe: If approved the Project would be conducted over a 7 to 12 year time period.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist PWD in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

I. Environmental Setting and Related Impact Shortcoming

COMMENT 1:

Issue: Biology Section C.3, Page C.3-49 describes Project impacts to jurisdictional waters regulated by the Department and states, "Activities that result in the diversion or obstruction of the natural flow of a stream; or which substantially change its bed, channel, or bank; or which utilize any materials (including vegetation) from the streambed may require that the Project applicant enter into a Streambed Alteration Agreement with the CDFW." Table C.3-7 states "Littlerock Reservoir, Little Rock Creek, and the ephemeral drainages on the 47th Street East sediment disposal site would be considered "waters of the United States" and would be subject to the jurisdiction of the USACE, the CDFW, and the RWQCB. As required by law PWD would comply with all regulatory requirements."

Comment Set A.1 – California Department of Fish and Wildlife (cont.)

Table C.3-9, Page 3.5-58 titled *Total project disturbances by location* shows that the Project would temporarily impact 65.33 acres and permanently impact 0.33 acres of riparian habitat and that these impacts would only occur within the Reservoir work area.

Page C.3-6 describes riparian habitat below the spillway of the Dam and states, "North of the Dam, the channel supports relatively undisturbed Southern cottonwood-willow riparian forest and Mojave riparian forest."

Hydrology Section C.7, Page C.7-2 states, "When Littlerock Reservoir is full, and inflow exceeds the outflow to Lake Palmdale, the excess water overtops the Dam spillway into Little Rock Creek downstream of the Dam. During wet years most reservoir inflow overtops the Dam spillway and flows in Little Rock Creek toward Rosamond Dry Lake. During the summer, the reservoir is drained for water supply until a minimal recreation pool is reached. The recreation pool is maintained until Labor Day, after which the lake is further drawn down until it is effectively empty at the end of September."

A Google Earth review by the Department showing the proposed sediment disposal site identified as a quarry shows several depressions full of water and supporting vegetation. The Department is concerned that further analysis of the Project's impact to Department jurisdiction over waters of the state within the quarry needs to be addressed in the Final Environmental Document. Episodic drainages, other erosional features and associated lakes may exist or have become established in these disposal areas and may fall under Department jurisdiction. A.1-2

The Department is concerned that further analysis of the Project's effect on water availability to downstream riparian resources in Littlerock Creek Wash during the life of the Project needs to be evaluated in the Final Environmental Document in order to assess impacts, avoidance and mitigation measures. A.1-3

Specific impact: The Project may divert or obstruct the natural flow, or change the bed, channel, or bank (including vegetation associated with the stream or lake) of a river or stream, or use material from a streambed resulting in the reduction of water flows and degradation of riparian habitat and associated biological resources including but not limited to southern cottonwood-willow riparian forest, Mojave riparian forest, least Bell's vireo (vireo) and western pond turtle. A.1-4

Why impact would occur: Project activities such as but not limited to sediment removal and increasing the existing water impoundment capacity of the Reservoir, water diversions and total dewatering of the Reservoir may cause a reduction in frequency, volume and duration of water overtopping the Dam spillway, seepage through the Dam or groundwater availability to downstream riparian habitat. The Project will deposit sediment within quarry locations and bury or otherwise disturb the disposal area using heavy equipment.

Evidence impact would be significant: The Project may have a substantial adverse effect either directly or through habitat modifications, on: any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the Department or United States Fish and Wildlife Service (USFWS); any sensitive natural communities (e.g. riparian habitat, coastal sage scrub, oak woodlands, nonjurisdictional wetlands) identified in local or regional plans, policies, and regulations or by the Department or

Comment Set A.1 – California Department of Fish and Wildlife (cont.)

USFWS; waters of the state regulated by the Department under California Fish and Game Code § 1600, et seq. through direct removal, filling, hydrological interruption, or other means. A.1-4 cont.

Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure 1: Instream flows within the Creek below the Dam should be evaluated by establishing monitoring stations to determine baseline averages necessary to maintain existing riparian habitat below the Dam. The Project should then be evaluated to determine effects on the baseline instream flows at the established monitoring stations. Using this analysis, PWD should develop an adaptive management plan based upon established variables (instream flow, soil moisture, riparian vegetation vigor, etc.) to determine healthy riparian habitat functional standards. Adaptive management measures should be undertaken during the life of the Project to increase Reservoir discharges to downstream reaches below the Dam if Project related riparian function is determined to be falling below acceptable functional standards. This mitigation measure may be a condition of any Lake or Streambed Alteration Agreement between the Department and PWD for the Project. A.1-5

Mitigation Measure 2: Impacts to loss of riparian vegetation should be addressed in a similar manner as described in Standard Project Commitments (SPCs) BIO-1a, (Provide Restoration/Compensation for Impacts to Native Vegetation Communities). This may be a conditioned in any LSA Agreement issued by the Department to PWD for the Project and may include Department approved mitigation ratios for on-site or off-site creation, restoration, enhancement or preservation and protection based upon the final Environmental Document and supporting information provided in the LSA Notification Package submitted to the Department for the Project. A.1-6

COMMENT 2:

Issue: Section C.3, Biological Resources, Table C.3-5, Page C.3-21 describes that the sediment disposal site has been mapped by the Desert Renewable Energy Conservation Plan (DRECP) as suitable habitat for Mohave ground squirrel. However based upon a reconnaissance level survey described in Appendix C-1, the Environmental Document concludes that the 47th street and quarry sediment disposal site do not support habitat for Mohave ground squirrel. Other than explaining that the quarry sites support only nonnative vegetation, the Environmental document does not directly discuss if the quarry disposal sites support MGS habitat however Page C.3-6 states, "Excluding the active quarries, vegetation in the surrounding area is dominated by Joshua tree woodland, creosote bush scrub, brittle bush-ephedra scrub, and ruderal communities". A.1-7

Based on a March 4, 2015 site visit and a Google Earth review, the Department has concluded that the 47th Street sediment disposal site may support habitat for Mohave ground squirrel (MGS) and still maintains some connectivity to larger areas of native habitat. At that time PWD had not identified specific quarry disposal site locations. There is a possibility that the quarry sites may also support suitable habitat for MGS. These sites are within the range of MGS and this species is a generalist feeder so marginal habitat cannot be ruled out especially where adjacent to natural MGS habitat from which MGS can enter onto the quarry sites to feed on existing vegetation at the quarry especially if these sites have been abandoned and have not been in use which would allow for some habitat recovery.

Comment Set A.1 – California Department of Fish and Wildlife (cont.)

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Specific impact: The Project could result in incidental take of MGS including direct mortality or injury from crushing/filling of burrows, increased predation, removal or disturbance of vegetation, increased vibration, increased human presence, and exposure to fugitive dust. Indirect impacts could include lower reproductive success, loss of foraging habitat, habitat avoidance, and lower carrying capacities of remaining suitable habitats. Operational impacts include disturbance on access roads during annual sediment removal activities. A.1-8

Why impact would occur: Impacts to MGS would occur from the use of earthmoving and grading equipment used to clear vegetation from the disposal sites and disposal of sediment upon the disposal site surfaces.

Evidence impact would be significant: The Project could continue to have substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or USFWS.

Recommended Potentially Feasible Mitigation Measure

Mitigation Measure: To mitigate for Project impacts to MGS, focused MGS surveys following the Department's *2003 Trapping and Survey Guidelines* (guidelines) should conducted. Trapping survey guidelines may be found at: https://www.dfg.ca.gov/wildlife/nongame/MGS/). If MGS is observed on site or captured during any of the trapping sessions, the Project proponent shall secure a California Incidental Take Permit (ITP) for MGS before ground/vegetation disturbance activities commence. The ITP will specify avoidance, minimization and mitigation conditions for temporary and/or permanent impacts to MGS including habitat acquisition at a Department approved location and mitigation ratio. A.1-9

If a survey conducted according to the Department's guidelines results in no capture or observation of MGS on the Project site, this is not necessarily evidence that MGS does not exist on the site or that the site is not actual or potential habitat of the species. However, in the circumstance of such a negative result, the Department will stipulate that the project site harbors no Mohave ground squirrels. This stipulation will expire one year from the ending date of the last trapping on the project site conducted according to these guidelines. However, If MGS or other listed species are discovered on the project site, avoiding take of a listed species and or securing authorization for incidental take of a listed species pursuant to Fish and Game Code Section 2081(b) et seq. remains the responsibility of the project proponent.

Alternatively, the Operator may choose to forgo focused MGS presence/absence surveys and assume presence of MGS on site. Under this option the Operator will be issued a California ITP for MGS prior to ground/vegetation disturbance activities. As under the option described above if MGS is detected during focused surveys, the Operator shall mitigate for temporary and/or permanent impacts to MGS habitat as specified in conditions of the ITP through habitat acquisition at a Department approved location and mitigation ratio. Habitat acquisition may take place at the Desert Tortoise Preserve in Kern County and be coordinated with the Desert Tortoise Preserve Committee.

COMMENT 3:
Issue: Section C.3, Biological Resources, Page C.3-31, describes that habitat for desert tortoise is present at the proposed 47th Street East sediment disposal site and along the haul routes.

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Appendix C states, "Protocol surveys for this species were conducted at the 47th Street disposal site on April 26, 2014. No sign of this species was detected." A.1-10

The protocol surveys for desert tortoise on the 47th Street sediment disposal site and haul route are over two years old which makes the survey results unreliable. The Department does not consider survey results over one year old as valid for desert tortoise. A.1-11

The Final Environmental Document should discuss further, habitat suitability of the quarry sediment disposal site for desert tortoise. Other than explaining that the quarry sites support only non-native vegetation, the Environmental document does not directly address specifically if the quarry site or adjacent habitat support desert tortoise habitat. Page C.3-6 states, "Excluding the active quarries, vegetation in the surrounding area is dominated by Joshua tree woodland, creosote bush scrub, brittle bush-ephedra scrub, and ruderal communities". Unless the quarry sites have been fenced off using desert tortoise exclusion fence, there is a possibility that the quarry site may support some desert tortoise habitat. The quarry is within the range of desert tortoise and adjacent to natural desert tortoise habitat from which desert tortoise can enter onto the quarry sites to feed on existing vegetation especially if these sites have been abandoned and have not been in use which would allow for some habitat recovery.

Specific impact: The Project could result in incidental take of desert tortoise including direct mortality or injury from crushing/filling of burrows, removal or disturbance of vegetation, increased human presence, and exposure to fugitive dust. Indirect impacts could include lower reproductive success, loss of foraging habitat, habitat avoidance, and lower carrying capacities of remaining suitable habitats. A.1-12

Why impact would occur: Impacts to desert tortoise would occur from the use of earthmoving and grading equipment used to clear vegetation from the disposal sites and direct disposal of sediment and dust upon the disposal site surfaces and remaining habitat.

Evidence impact would be significant: The Project could continue to have substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or USFWS.

Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure 1: To reduce impacts to less than significant the Project proponent should conduct focused protocol surveys desert tortoise within all areas designated for sediment disposal. The Department recommends the implementation of timely surveys using the current Service protocol "*Preparing for any action that may occur within the range of the Mojave Desert Tortoise*" (See http://www.fws.gov/Ventura/species_information/protocols_guidelines/index.html as results are only valid for one year from the date of survey. A.1-13

If desert tortoise is detected following focused surveys the Department recommends appropriate take authorization under CESA which may include either an Incidental Take Permit (ITP) or a Consistency Determination from the Department prior to implementing the Project because this authorization will be required if tortoise relocation off site or other unavoidable take will be necessary during anytime during the life of the Project. Appropriate authorization from the Department may include an incidental take permit (ITP) or a consistency determination in

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certain circumstances, among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b),(c)). Any incidental take permit issued by the Department for take of this species may condition the acquisition and protection in perpetuity of acceptable replacement mitigation habitat to be managed by a land conservancy approved by the Department. A.1-13 cont.

Mitigation Measure 2: A tortoise proof perimeter fence should be erected around the quarry sediment disposal site to prevent take of any tortoise entering the site during the life of the Project. A.1-14

COMMENT 4: Issue: Section C.3, Table C.3-5 describes Project impacts to tricolored blackbird (*Agelaius tricolor),* a candidate species for listing under CESA, and **states, "**There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding and foraging habitat occurs, depending on water levels, within the upper extents of the Reservoir (changes year to year).

The Department believes that the Project site may support more potential habitat for tricolored black bird within the sediment disposal quarry pit area. These pits may hold water and support emergent aquatic vegetation preferred for nesting by tricolored blackbirds, if not presently then potentially during the life of the Project. The Final Environmental document should describe in more detail the habitat quality in the quarry pits for tricolored blackbird and if that is expected to change over the life of the Project and why. A.1-15

Specific impact: The Project could result in incidental take of tricolored blackbird including direct mortality or injury of eggs or nestlings from crushing, sediment disposal, removal or disturbance of vegetation, increased noise levels, increased human presence, and exposure to fugitive dust. Indirect impacts could include lower reproductive success, loss of foraging and nesting habitat, habitat avoidance, and lower carrying capacities of remaining suitable habitats. A.1-16

Why impact would occur: Impacts to tricolored blackbird would occur from the use of earthmoving and grading equipment used to clear vegetation from the disposal sites and disposal of sediment upon the disposal site surfaces. Sediment disposal and other earth moving changes in topography may alter hydrology and ponding in depressions.

Evidence impact would be significant: The Project could continue to have substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or USFWS.

Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure 1: To fully mitigate for take of tricolored blackbird the quarry gravel pit sediment disposal sites should be evaluated for the presence of water and nesting habitat followed by tricolored black bird surveys during the nesting season during the life of the Project. Areas deemed to support suitable nesting habitat for tricolored black bird should be avoided. A.1-17

***Mitigation Measure 2**:* If occupied nesting habitat for tricolored blackbird cannot be avoided the Department recommends a minimum of 500 feet Project activity buffer from any nest sites. A biological monitor should evaluate this minimum buffer and expand the buffer if necessary based on nesting behavior towards Project activities. The Operator should also employ all the A.1-18

Comment Set A.1 – California Department of Fish and Wildlife (cont.)

SPC mitigation measures described for vireo including: SPC BIO-8 (Conduct Protocol Surveys and Avoid Occupied Habitat) which includes protocol surveys of suitable habitat, avoidance of any active nests, and monitoring of nest buffers. A.1-18 cont.

Mitigation Measure 3: If it is not feasible for the Project to avoid habitat that supports or has supported tricolored blackbird nesting or observe a minimal 500 foot project buffer from tricolored blackbird nests, PWD should secure an ITP from the Department for tricolored blackbird before Project activities commence. The ITP will specify avoidance, minimization and mitigation conditions to fully mitigate for impacts to tricolored blackbird including habitat restoration, creation, or enhancement and protection of tricolored blackbird nesting habitat at a Department approved location and mitigation ratio. A.1-19

COMMENT 5:

Issue: Section C, Biological Resources, Page C.3-89 describes Project impacts to burrowing owl and states: "Burrowing owls, a CDFW Species of Special Concern, are known from the Antelope Valley and may occur at the 47th Street East sediment disposal site. Protocol surveys for this species did not detect signs of this species; however, owls may occupy a suitable site at any time. "Page 3.3-90 states, "To reduce or avoid these adverse effects, PWD would implement SPC BIO-18 (Conduct Protocol Surveys for Burrowing Owls). This SPC includes pre-construction surveys for burrowing owls at the sediment disposal site or any area supporting suitable habitat ..."

The Environmental Document did not mention if a burrowing owl habitat suitability assessment was conducted at the sediment disposal area in the Quarry. The Department recommends that the Final Environmental Document include all sediment disposal areas within the quarry and elsewhere where vegetation is sparse, will be left bare for extended periods of time or where stockpiles of sediment that provides burrowing habitat for fossorial mammals will be kept and left undisturbed for extended periods of time. A.1-20

Specific impact: The Project could result in incidental take of burrowing owl including direct mortality or injury of adults, eggs or nestlings from crushing/filling of burrows, removal or disturbance of vegetation, increased noise levels, increased human presence, and exposure to fugitive dust. Indirect impacts could include lower reproductive success, loss of foraging habitat, habitat avoidance, and lower carrying capacities of remaining suitable habitats due to the colonization of noxious weeds. Operational impacts include disturbance on access roads during annual sediment removal activities. A.1-21

Why impact would occur: Impacts to burrowing owl would occur from the use of earthmoving equipment used to clear vegetation from the disposal sites and disposal of sediment upon the disposal site surfaces.

Evidence impact would be significant: The Project could continue to have substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or USFWS

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Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure 1: To reduce impacts to less than significant the Depart that PWD should conduct a burrowing owl survey prior to any actions that may result in take or otherwise have additional direct or indirect significant effects on burrowing owl on or adjacent to a proposed project site during the life of the Project. Surveys for burrowing owl should conform to the protocol described within Guidelines. The Guidelines are designed to assist in maximizing detection of burrowing owl presence and use of the site by burrowing owl in order to assist in avoiding project related take and on-site habitat loss and degradation. The guidelines also provide mitigation measures that will assist in reducing unavoidable project impacts to burrowing owl to less than significant levels under CEQA. The Guidelines may be downloaded from the Department's *website: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html*. A.1-22

The Guidelines stress that in order to maximize detection of burrowing owl and document their use of the site, surveys must be performed during the winter and breeding seasons. Breeding surveys should consist of four site visits to be conducted on four separate days and should be performed between April 15 and July 15 to maximize detection.

As described in Appendix A of the Guidelines, the current scientific literature supports the conclusion that mitigation for the unavoidable permanent loss of burrowing owl habitat necessitates replacement within equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow.

II. Mitigation Measure or Alternative and Related Impact Shortcoming

COMMENT 1:

Issue: Section C.3, Page C.3-75, Impact BIO-8 describes Project impacts to least Bell's vireo (vireo) and states**,** "Project activities will have no direct effects on nesting least Bell's vireos below the Dam, but foraging birds may avoid areas closest to the road during haul periods. Fugitive dust is not expected since the access road has an asphalt surface. Use, maintenance, and repair of the access road will occur on an as needed basis. Therefore, these activities could occur during the reproductive season. Habitat in immediate proximity of the road is not suitable for nesting least Bell's vireos, but could be used by foraging birds. Access road use, maintenance, and repair could lead to some short-term displacement of foraging birds. No permanent displacement or impacts to reproductive success are expected. SPC mitigation measures for Impact BIO-8 include : SPC BIO-8 (Conduct Protocol Surveys for Least Bell's Vireo and Avoid Occupied Habitat) which includes protocol surveys of suitable habitat, avoidance of any active nests, and monitoring of nest buffers.

The Department is concerned that the Environmental Document take avoidance discussion lacks detail on specific protective minimum buffer distance necessary to avoid incidental take of least Bell's vireo. The Department is also concerned that the Environmental Document needs to further identify Project impacts to instream flow into the riparian habitat supporting vireo below the dam (see comment 1 above). A.1-23

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Specific impact: Aspects of the Project could result in Incidental take of vireo eggs or nestlings. The Project may result in reduction of function and persistence of riparian habitat necessary to support vireo persistence below the Dam. A.1-24

Why impact would occur: Various haul road use, maintenance and repair activities could result in nest abandonment of vireo from noise, vibration, and human presence leading to mortality (take) of eggs or nestlings if Project activities occur too close to active nests. Water diversions and changes in hydrology during the life of the Project following sediment removal and reduction of water overtopping the Dam spillway as the result of increasing Reservoir capacity by the Project.

Evidence impact would be significant: The Project may have a substantial adverse effect either directly or through habitat modifications, on: any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the Department or United States Fish and Wildlife Service (USFWS); any sensitive natural communities (e.g. riparian habitat, coastal sage scrub, oak woodlands, nonjurisdictional wetlands) identified in local or regional plans, policies, and regulations or by the Department or USFWS; waters of the state regulated by the Department under California Fish and Game Code § 1600, et seq. through direct removal, filling, hydrological interruption, or other means.

Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure 1: The Department recommends that Project activities avoid the vireo nesting season to avoid take of vireo. A.1-25

Mitigation Measure 2: If the Project cannot avid the vireo nesting season, the Department recommends a minimum 500 foot buffer between active vireo nests and Project activities. This buffer should be extended by the biological monitor if 500 feet is not observed to avoid adverse behavior to Project activities by vireo. A.1-26

Mitigation Measure 3: If it is not feasible for the Project to avoid the vireo nesting season or observe a minimal 500 foot buffer for vireo nests, PWD should secure an ITP for vireo before Project activities commence. The ITP will specify avoidance, minimization and mitigation conditions for impacts to vireo including habitat enhancement, creation or acquisition at a Department approved location and mitigation ratio. A.1-27

Mitigation Measure 4: Instream flows s within Littlerock Creek Wash below the Reservoir should be evaluated by establishing monitoring stations to determine baseline averages necessary to maintain existing riparian habitat below the Dam for vireo. The Project should then be evaluated to determine effects on the baseline instream flows at the established monitoring stations. Using this analysis, the Project should develop an adaptive management plan based upon established variables (instream flow, soil moisture, riparian vegetation vigor, etc.) to determine healthy riparian habitat functional standards to maintain vireo below the Dam. Adaptive management measures can be undertaken during the life of the Project to increase Reservoir discharges to downstream reaches if Project related riparian function is determined to be falling below acceptable functional standards. A.1-28

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ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp. A.1-29

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.) A.1-30

CONCLUSION

CDFW appreciates the opportunity to comment on the DEIR/DEIS to assist PWD and USFS in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Scott Harris, Environmental Scientist at phone number: (805) 644 -6305 or e-mail scott.p.harris@wildlife.ca.gov.

Sincerely,

Betty J Courtney

Betty J. Courtney
Environmental Program Manager I
South Coast Region

ec: Ms. Betty Courtney, CDFW, Santa Clarita
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Mr. Scott Harris, CDFW, Ventura
Ms. Kelly Schmoker, CDFW, Mission Viejo
Ms. Victoria Chau, Los Alamitos
Mr. Randy Rodriquez, Santa Monica
John Obrien, CDFW, San Diego
Tim Hovey, CDFW, Santa Clarita
Office of Planning and Research, State Clearinghouse, Sacramento

Comment Set A.2 – Department of Water Resources

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **EDMUND G. BROWN JR.**, *Governor*

DEPARTMENT OF WATER RESOURCES
SOUTHERN REGION OFFICE
770 FAIRMONT AVENUE, SUITE 102
GLENDALE, CA 91203-1035

June 20, 2016

Mr. Matt Knudson
Assistant General Manager
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Dear Mr. Knudson:

The California Department of Water Resources (DWR) appreciates the opportunity to comment on the USDA Forest Service's and Palmdale Water District's (PWD) Draft Environmental Impact Statement/Draft Environmental Impact Report (Draft) for the proposed Littlerock Reservoir Sediment Removal Project (Project). DWR administers the Davis-Grunsky Act recreation grant program by which PWD and the Littlerock Creek Irrigation District (LCID) received funds for the restoration and enlargement of Littlerock Dam and the enhancement of recreation facilities and areas about Littlerock Reservoir (Reservoir). DWR, as a Responsible Agency, reviewed the Draft from the perspective of the 1994 Davis-Grunsky contract DGGR-35 (Contract) it has with PWD and LCID that governs the use of grant funds and construction and maintenance of recreation facilities. Seeking a clear and complete understanding of the impacts the proposed Project and its alternatives would have on the operation, maintenance, and availability of Davis-Grunsky recreational facilities at Littlerock Dam and Reservoir, DWR offers the following comments.

The Draft proposes a three-phased Project, conducted over several years, to construct a grade control structure, restore the Reservoir to its 1992 water storage and flood control design capacities, and maintain the Reservoir at the 1992 design specifications. The first Project phase would require less than one year to construct a subterranean grade control structure within the Reservoir. The second Project phase, beginning the second year, would remove sediment from the Reservoir annually beginning after Labor Day and continuing until seasonal waters begin to refill the Reservoir. This phase would require 7 to 12 years to restore the Reservoir to its 1992 design storage and flood control objectives. Thereafter, the third phase continues the annual sediment removal activities indefinitely to maintain the Reservoir at its 1992 designed capacities.

The Draft includes Proposed Project Alternative 1 that differs from the proposed action during the second phase. Alternative 1 seeks to reduce certain environmental impacts (primarily air quality and traffic) by starting the annual sediment removal period on July 1 instead of after Labor Day. It would also conduct sediment removal activities 5 days per week, instead of 6 days as with the proposed action. Alternative 1 would restore the Reservoir to 1992 design water storage and flood control capacities within a minimum of 13 years, instead of 7 to 12 years as with the proposed action.

Comment Set A.2 – Department of Water Resources (cont.)

Mr. Matt Knudson
June 20, 2016
Page 2

Davis-Grunsky Contract Reference
Pages ES-17 and A-3 of the Draft reference a 1998 contract with DWR that includes provisions for a minimum recreation pool and an Article A-26 (Force Majeure). A.2-1

Contract DGGR-35 between DWR, PWD, and LRID includes the provision to maintain a minimum recreation pool and Article A-26 (Force Majeure) and is dated January 17, 1994. DWR requests the correction of the references to this contract.

Minimum Recreation Pool
Section B.2.4.1 of Chapter B of the Draft discusses the minimum pool obligation established by DWR and states it to be at an elevation of 3,231 feet above sea level. The document states that after the Reservoir is restored to design capacities, its topography will be changed and that the volume of water required to reach the minimum pool will be increased. The document estimates that an additional 10 days to 2 weeks would be needed to reach minimum pool elevation after restoration of the Reservoir. A.2-2

The Contract states the minimum recreation pool to be at an elevation of 3228 feet above sea level. DWR requests the Draft include an explanation for the 3-foot increase in the minimum pool above that required by the Contract or correction of the Draft to reflect the accurate level and time to meet that level.

Maximum Duration of Alternative 1, Second Phase
Draft Section B.2.3.1 states that the Project's second phase may take as few as 7 years of annual sediment removal activities in order to achieve the 1992 design capacities for water storage and flood control. However, due to the occurrence of "unknown variables (such as annual dump truck availability, seasonal rainfall during the removal period, sediment recycling/reuse at civil projects more distant than the proposed disposal sites), the Project's second phase may require as many as 12 years of annual sediment removal activities to achieve the 1992 design capacities. Hence, the Draft identifies the duration of the second phase as a range, 7 to 12 years. A.2-3

As we described earlier, Proposed Project Alternative 1 would start annual sediment removal activities on July 1 rather than after Labor Day and conduct these activities 5 days a week rather than 6 days a week. Alternative 1 would require a minimum of 13 years to restore the Reservoir to its 1992 design water storage and flood control capacities. However, the aforementioned unknown variables are as likely to occur for Alternative 1 as they are for the Project; the consequences of unknown variables occurring under Alternative 1 would be similar to the proposed Project, an increase in the duration of the second phase. Therefore, DWR requests that the Draft also state the maximum duration of Alternative 1.

Worst-Case Scenario for Davis-Grunsky Recreation Facilities
The Draft evaluates impacts to certain environmental resources using the worst-case scenario for the second phase of the proposed Project and Alternative 1, 7 years and 13 years respectively. When evaluating impacts to Davis-Grunsky recreation facilities, the Contract term and its remaining duration must be given consideration. The worst-case scenario regarding Davis-Grunsky recreation facilities would be a prolonged second phase rather than the shortest period to achieve Project goals, and since the Alternative 1 maximum duration is not stated, the Draft is insufficient as an informative document. A.2-4

Comment Set A.2 – Department of Water Resources (cont.)

Mr. Matt Knudson
June 20, 2016
Page 3

Recreation and Land Use Chapter
The Project description states construction staging will occur on the paved parking areas and access to the sediment removal area would occur from the existing boat ramp and other existing access points located on the west side of the Reservoir. Figure B-4 provides a conceptual view of the proposed grade-control structure that would be constructed adjacent to picnic facilities at Rocky Point.

The Contract details facilities located and installed to support recreational activities at Littlerock Reservoir. These facilities are: A.2-5
(1) a minimum of 125 paved parking spaces,
(2) a minimum of 20 family and small group picnic sites,
(3) a minimum of seven campsites,
(4) a paved two lane boat launching ramp, and
(5) potable water and sanitary facilities in accordance with requirements of Federal, State or local controlling or regulatory agencies.

Davis-Grunsky contracted facilities have not been adequately addressed in Chapter C.9, of the Draft, Recreation and Land Use. The chapter lacks an inventory or description of Davis-Grunsky recreation facilities at Littlerock Reservoir as well as an evaluation of Project impacts to these facilities. The description of recreational resources must include the Davis-Grunsky facilities listed above along with required components which are described in the DWR publication, Standards for Construction of Onshore Recreation Facilities Under the Davis-Grunsky Act (January 1971). The criteria for recreation facilities requires picnic sites to include tables with shade ramadas or shade trees, stoves, water drinking fountains and nearby sanitary facilities. Also, a campsite must be furnished with a grille, table, tent pad, and parking space.

The impact analyses on recreational facilities must describe the direct and indirect impacts of the Project on Davis-Grunsky facilities. Significant impacts must be mitigated and standard project commitments must include procedures to protect in place and restore, when necessary, the recreation features located between the construction staging area (parking spaces) and the grade-control construction area and sediment removal area. A.2-6

Environmental Resources and Impacts within the Davis-Grunsky Project Boundary
Draft Figures B-2, B-4, C.3-6, C.3-7, C.3-10b, C.3-11b, C.3-13, C.3-16, and C.11-1 depict or map the proposed Project area against Federal, state, and local jurisdictions, resource study areas, surveyed biological resources, and visual resources within Littlerock Reservoir Recreation Area. None of these figures present information in relation to Contract recreation facilities and the Davis-Grunsky Project Boundary which includes "all land from 750 feet downstream of the crest of Littlerock Dam to 500 feet downstream of the Littlerock Creek Gaging Station … plus all areas between these two points below the 3400-foot contour." A.2-7

DWR requests additional information (text, maps and overlays of the Davis Grunsky Project Boundary and facilities with proposed Project areas, biological survey data, and representations of critical habitat) to allow adequate consideration of the proposed Project's use of and impacts to Davis-Grunsky recreational facilities as well as impacts to other environmental resources within the Davis-Grunsky Project Boundary. A map distinguishing Forest Service recreation facilities from Davis-Grunsky Contract facilities would be helpful.

Comment Set A.2 – Department of Water Resources (cont.)

Mr. Matt Knudson
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Page 4

Use of the Contract Force Majeure Clause
DWR would also like to remind you that the Force Majeure clause may not be something you can rely on for the duration of the Project. If conditions no longer warrant reliance on the Force Majeure clause, you will be expected to adhere to the other terms of the Contract. DWR suggests that to have an adequately informational document you address this probable possibility. A.2-8

If you have any additional questions, please contact me by telephone at (818) 549-2331 or by email at mary.guerin@water.ca.gov.

Sincerely,

Mary Guerin

Mary Guerin

Chief, Recreation and Environmental Studies Section
Southern Regional Office
Department of Water Resources

Comment Set A.3 – Lahontan Regional Water Quality Control Board

CALIFORNIA Water Boards

Edmund G. Brown Jr., Governor
Matthew Rodriquez, Secretary for Environmental Protection

Lahontan Regional Water Quality Control Board

June 20, 2016

File: Environmental Doc Review
Los Angeles County

USDA Forest Service/Palmdale Water District
c/o Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, CA 91301
Email: LSRP@aspeneg.com

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT/ ENVIRONMENTAL IMPACT REPORT FOR THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT, U.S. DEPARTMENT OF THE AGRICULTURE FOREST SERVICE AND PALMDALE WATER DISTRICT, LOS ANGELES COUNTY, STATE CLEARINGHOUSE NO. 2005061171

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received the joint Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the above-referenced project (Project) on May 3, 2016. The Palmdale Water District is the lead agency under the California Environmental Quality Act (CEQA) and the U.S. Department of the Agriculture Forest Service (Forest Service) is the lead agency under the National Environmental Protection Act (NEPA). Water Board staff, acting as a responsible agency, is providing these comments to specify the scope and content of the environmental information germane to our statutory responsibilities pursuant to CEQA Guidelines, California Code of Regulations (CCR), title 14, section 15096. Based on our review of the materials provided, we have determined that additional environmental review is warranted to evaluate both direct and indirect potential impacts to (1) hydrology and biology downstream of the Project, and (2) water quality within Littlerock Reservoir itself. Our comments on the proposed Project and Draft EIS/EIR are outlined below.

COMMENTS ON THE PROPOSED PROJECT AND DRAFT EIS/EIR

1. We commend the Palmdale Water District and Forest Service for considering our prior comments on the Notice of Preparation and for evaluating in the Draft EIS/EIR the potential for elevated concentrations of mercury (Hg) and polychlorinated biphenyls (PCBs) to be present in sediments and fish tissue. A.3-1

2. The implementation of a Weed Control Plan and use of aquatic pesticides is briefly discussed in section C.12.4.1 Proposed Action/Project and Appendix C-3 of the Draft EIS/EIR. The Statewide National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Aquatic Pesticides to Waters A.3-2

Comment Set A.3 – Lahontan Regional Water Quality Control Board (cont.)

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of the United States, Water Quality Order (WQO) 2013-0002-DWQ allows and regulates the uses of properly registered and applied aquatic pesticides for algae and aquatic weed control. However, the *Water Quality Control Plan for the Lahontan Region* (Basin Plan) prohibits the discharge of all pesticides to waters of the state unless an exemption to this prohibition has been granted. In order for a discharger to be eligible for enrollment under WQO 2013-0002-DWQ, the discharger must request a prohibition exemption from the Water Board and the Water Board must specifically grant an exemption for the use of algaecides or aquatic herbicides. Please add these requirements to the Regulatory Framework discussion in section C.12 of the EIS/EIR. Consequently, unless an exemption to the pesticide prohibition has been granted by the Water Board, the discharge of pesticides (either direct or indirect) to waters of the state would constitute a violation of the water quality standards outlined in the Basin Plan. This potential water quality impact should be identified and discussed in the EIS/EIR, specifically, section C.12 as it relates to Impact WQ-1. A.3-2 cont.

3. Section C.7.1.2 Surface Hydrology, page C.7-1 – A fairly robust riparian area within Little Rock Creek currently exists downstream of the Littlerock Dam. This area supports a variety of special status species and is identified as critical habitat for the least bell's vireo (see Figure C.3-11b). Under normal conditions, flow over the spillway and seepage from beneath the dam sustains perennial surface flows through this portion of the creek. One element of the Project is to excavate up to 14 feet of sediment from the bed of the reservoir to achieve the 1992 base level condition and storage capacity of 3,500 acre-feet. The increase in storage capacity will result in an increase in the length of time needed to fill the reservoir and, hence, delay the timing and reduce the volume of water overtopping the spillway. While seepage beneath the dam will continue, a delay or reduction in volume of water overtopping the spillway will effectively change the hydrology of Little Rock Creek downstream of the dam and may adversely impact the habitat-related beneficial uses (WILD, RARE) of the creek. These potential impacts were not evaluated in the Draft EIS/EIR. Please revise the EIS/EIR to include an evaluation of all potential direct and indirect hydrology- and biology-related impacts downstream of Littlerock Dam that may result from Project implementation. Adequate mitigation measures must be identified that reduce potential impacts to a less than significant level. A.3-3

4. Section B.2.3.2 Annual Sediment Removal Activities, subsection 'Removal of Invasive Fish Species,' page B-6 – Eradication of all non-native fish species from the reservoir would have multiple benefits including reducing the risk to human health by removing those fish impacted with Hg and PCB, reducing the potential for bioaccumulation of Hg and PCBs higher up in the food chain, and reducing the potential for predation on arroyo toad upstream in the watershed. However, eradication of **all fish** may result in direct or indirect adverse impacts to water quality and biology that were not considered in the Draft EIS/EIR. A.3-4

   a. Eradication of all fish from the reservoir would adversely affect recreational beneficial uses, specifically sportfishing (COMM) and water contact recreation (REC-1). We recognize that the primary purpose of Littlerock Reservoir is to A.3-5

Comment Set A.3 – Lahontan Regional Water Quality Control Board (cont.)

Aspen Environmental - 3 - June 20, 2016

collect and store surface water from Little Rock Creek for municipal drinking water uses and that recreational uses such as boating, swimming, fishing, and hiking are secondary to that primary purpose. Nonetheless, we encourage the Palmdale Water District and the Forest Service to consider, in the future, ways to improve recreational beneficial uses (COMM and REC-1) of the reservoir while still preserving the municipal (MUN) and habitat-related (WILD, RARE) beneficial uses of the lake. A.3-5 cont.

b. Eradication of all fish from the reservoir may result in adverse impacts to the ecosystem of the reservoir that may warrant additional mitigation measures to protect water quality and biological resources. For example, algal blooms may be more frequent and/or more intense and may require herbicidal treatment, and invertebrate organisms commonly preyed upon by fish may become a nuisance and may require aquatic vector control measures. Eradication of the fish will also remove a potential food source for various organisms including birds and mammals within the watershed. These potential impacts were not evaluated in the Draft EIS/EIR. Please revise the EIS/EIR to include an evaluation of all potential direct and indirect hydrology- and biology-related impacts may result from non-native fish eradication practices. Adequate mitigation measures must be identified that reduce potential impacts to a less than significant level. A.3-6

5. Section C.3.2.2 State, bullet labeled 'Porter-Cologne Water Quality Control Act,' page C.3-49 – The last sentence should be changed to read "Wetlands and other surface waters within California that are not considered "waters of the United States," as defined by Section 404 of the Clean Water Act, are addressed under the Porter-Cologne Act." Please make this change to the regulatory framework description for "Porter-Cologne Water Quality Control Act" globally throughout all sections of the EIS/EIR. A.3-7

6. Section C.7.2 Regulatory Framework, page C.7-3 – The Project will alter the hydrology of Little Rock Creek through the discharge of dredge or fill materials as related to the construction of the grade control structure. Such discharges are regulated under the Clean Water Act as well as the Porter-Cologne Water Quality Control Act. Please revise this section to include the regulatory requirements as they pertain to Sections 401 and 404 of the Clean Water Act as well as the Porter-Cologne Water Quality Control Act. The regulatory framework descriptions used should be consistent between all sections of the EIS/EIR (see comment no. 5 above). A.3-8

7. Section C.12.4.1 Proposed Action/Project, subsection 'Impact WQ-2,' page C.12-9 – Improperly constructed or destroyed groundwater wells are a potential pathway for introducing poor quality water and pollutants to groundwater. To protect groundwater quality, the temporary dewatering wells needed for construction of the grade control structure must be constructed and abandoned in accordance with the California Well Standards established by the Department of Water Resources in Bulletins 74-81 and 74-90 combined. If using mud rotary A.3-9

Comment Set A.3 – Lahontan Regional Water Quality Control Board (cont.)

drilling techniques for installation, all cuttings and fluids must be contained and properly disposed of offsite. A.3-9 cont.

8. Section C.3.2.2 State, bullet labeled 'State Regulated Habitats,' page C.3-49, – The last sentence should be changed to read "The Project falls under the jurisdiction of the **Lahontan (Region 6)** RWQCB" (emphasis added). A.3-10

PERMITTING REQUIREMENTS

A number of activities associated with the Project have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Board or Lahontan Water Board. The required permits may include: A.3-11

9. Streambed and lakebed alteration and/or discharge of fill material to a surface water may require a CWA, section 401 water quality certification for impacts to federal waters (waters of the U.S.), or dredge and fill waste discharge requirements for impacts to non-federal waters, both issued by the Lahontan Water Board;

10. Land disturbance of more than 1 acre may require a CWA, section 402(p) storm water permit, including a NPDES General Construction Storm Water Permit, WQO 2009-0009-DWQ, obtained from the State Water Board, or individual storm water permit obtained from the Lahontan Water Board;

11. Water diversion and/or dewatering activities may be subject to discharge and monitoring requirements under either NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2014-0049, or General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality, WQO-2003-0003, both issued by the Lahontan Water Board; and

12. The application of aquatic pesticides may be subject to discharge and monitoring requirements under the Statewide NPDES General Permit for Discharges of Aquatic Pesticides to Waters of the United States, WQO 2013-0002-DWQ. In order to be eligible for enrollment of this WQO in the Lahontan Region, a discharger must request a prohibition exemption from the Lahontan Water Board and the Lahontan Water Board must specifically grant an exemption for the use of algaecides or aquatic herbicides.

Please be advised of the permits that may be required for the proposed Project, as outlined above. Should Project implementation result in activities that will trigger these permitting actions, the Project proponent must consult with Water Board staff well in advance of Project construction. Information regarding these permits, including application forms, can be downloaded from our web site at http://www.waterboards.ca.gov/lahontan/.

Thank you for the opportunity to provide comment on the Draft EIS/EIR. If you have any questions regarding this letter, please contact me at (760) 241-7376

Comment Set A.3 – Lahontan Regional Water Quality Control Board (cont.)

Aspen Environmental - 5 - June 20, 2016

(jan.zimmerman@waterboards.ca.gov) or Patrice Copeland, Senior Engineering Geologist, at (760) 241-7404 (patrice.copeland@waterboards.ca.gov).

Patrice J. Copeland

for: Jan M. Zimmerman, PG
Engineering Geologist

cc: State Clearinghouse, SCH 2005061171 (state.clearinghouse@opr.ca.gov)
Scott Harris, CA Dept. of Fish and Wildlife (Scott.P.Harris@wildlife.ca.gov)
Daniel Swenson, US Army Corps (Daniel.P.Swenson@usace.army.mil)

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Comment Set A.4 – City of Palmdale

PALMDALE
a place to call home

JAMES C. LEDFORD, JR.
Mayor

STEVEN D. HOFBAUER
Mayor Pro Tem

MIKE DISPENZA
Councilmember

ROXANA MARTINEZ
Councilmember

FREDERICK THOMPSON
Councilmember

38300 Sierra Highway

Palmdale, CA 93550-4798

Tel: 661/267-5200

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TDD: 661/267-5167

June 20, 2016

USDA Forest Service/
Palmdale Water District
c/o Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agura Hills, CA 91301

Re: Littlerock Reservoir Sediment Removal Project – Notice of Availability Draft EIS/EIR

Dear Sir/Madam:

The City of Palmdale is in receipt of the Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) for the Littlerock Reservoir Sediment Removal Project. This letter conveys recommendations concerning issues germane to the City in relation to the proposed project.

Air Quality

- All measures specified under AVAQMD Rule 403 – Fugitive Dust, including but not limited to, adding/ensuring freeboard on haul vehicles, covering loose material on haul vehicles, watering, and ceasing all activities during periods of high winds should be employed to mitigate against fugitive dust emissions, in particular, near sensitive receptors along the haul routes and near the sediment storage sites. Chemical stabilizers should only be utilized in accordance with local and regional water quality control specifications and criteria. A.4-1

Auxiliary aids provided for communication accessibility upon 72 hours notice and request.

www.cityofpalmdale.org

Comment Set A.4 – City of Palmdale (cont.)

Ltr. to USDA Forest Service/
Palmdale Water District
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Page 2

- Special Project Commitment AQ-2 shall be revised as follows: A.4-2
  - "Fugitive Dust Controls. Fugitive dust controls shall conform with applicable AVAQMD Rule 403 (c) requirements for all phases of the project; a Dust Control Plan (DCP) will be submitted to the APCO for approval if more than 5 acres would be disturbed or if more than 100 ~~2,500~~ cubic yards of material will be excavated per day ~~for at least three days~~ (for each phase of the project as applicable); and in addition to the Rule 403 (c) requirements or to specify requirements where that rule provides options, the following specific additional fugitive dust control measures will be used during the main excavation phase of the project:"

- The following bullet shall be added to Special Project Commitment AQ-2: A.4-3
  - "All restrictions pertaining to activities conducted during "High Wind Conditions" as stipulated in AVAQMD Rule 403 shall be adhered to. "High Wind Conditions" are defined as instantaneous wind speeds (gusts) which exceed 25 miles per hour."

Biological Resources A.4-4

- The Draft EIS/EIR does not describe how the process of sediment removal will prevent any endangered species from moving from the reservoir to the quarries. The EIS/EIR should address how the process will ensure that the transported soil is free of native endangered species eggs, i.e. arroyo toad.

Geology and Soils A.4-5

- The Draft EIS/EIR does not describe the process for monitoring the transported sediment/soil as it is placed in the quarries and 47th Street East property to ensure that no deleterious materials are contained in the soil that will rot over time causing the soil to subside (i.e. sinkholes). The EIS/EIR should outline the monitoring process.

Comment Set A.4 – City of Palmdale (cont.)

Ltr. to USDA Forest Service/
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Page 3

Hydrology

- The Palmdale Water District (PWD) property on 47th Street East has a municipal drain on the south side of the site that goes under the California Aqueduct and focuses stormwater run-off, which in the event of a storm could take the transported soil off-site and downstream into the City of Palmdale. The EIS/EIR should describe what measures are going to be employed to keep the transported soil on-site. A.4-6

Transportation and Traffic

- The Draft EIS/EIR outlines significant delays associated with the intersection of Cheseboro Road and Pearblossom Highway; however, delay is not the only issue of consideration when increasing the truck volume substantially at this intersection. The study should also address safety concerns caused by trucks and slow moving vehicles turning onto the State Highway at this location. In addition, intersection sight distance should be addressed. A.4-7

- The Draft EIS/EIR indicates that a traffic signal would resolve the delays at the Cheseboro Road/ Pearblossom Highway intersections, but then indicates that this measure is not warranted or feasible. This statement is inconsistent with the delays noted at the intersection and the potential safety concerns noted in the comment above. The intensive sediment removal phase of the work is anticipated to take 7-12 years. Based on the safety and delay concerns, along with the time frame of the project, the City Traffic Division believes a signal at the Cheseboro Road/ Pearblossom Highway intersection is in fact warranted by the project and requests that one be installed as a mitigation measure for the project. A.4-8

- Further to the above, the proposed mitigation measure of directing trucks to a less direct alternate path that takes vehicles approximately three miles out of their way along areas that are not designated truck routes does not seem to be a feasible or enforceable option – particularly over a 7-12 year period. A.4-9

Comment Set A.4 – City of Palmdale (cont.)

Ltr. to USDA Forest Service/
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Page 4

- Providing a flagger to allow left turns from Cheseboro Road to Pearblossom Highway as outlined in TRA-1 is not a realistic measure for a project that will allow trips throughout multiple days over the 7-12 year life of the project. Pearblossom Highway is a State Route at this location with multiple lanes and significant volumes of traffic. A.4-10

- Mitigation Measure SPC TRA 2 for Pavement Rehabilitation does not specify interim effects on the public roadways. In addition to being restored at the end of the project, the roadways should remain in a serviceable condition throughout the life of the project. The requirement should be expanded to maintain a reasonable condition on the roadways throughout the life of the project. A.4-11

The City of Palmdale looks forward to reviewing the Final EIS/EIR. Please feel free to contact me at (661) 267-5200 if you have any further questions regarding the information provided.

Sincerely,

Rob Bruce
Planning Manager

RB:lob

cc: Mark Oyler, Director of Community/Economic Development
Bill Padilla, City Engineer
Mike Behen, Transportation/Special Projects Manager
Brian Kuhn, Senior Civil Engineer
Charlie Love, Supervising Public Works Inspector

Comment Set A.5 – U.S. Department of the Interior

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Pacific Southwest Region
333 Bush Street, Suite 515
San Francisco, CA 94104

IN REPLY REFER TO:
(ER 16/0269)

Filed Electronically

30 June 2016

Justin Seastrand
USDA Forest Service/Palmdale Water District
5020 Chesebro Rd.
Suite 200
Agoura Hills, CA 91301

Subject: Draft Environmental Impact Statement (DEIS), US Forest Service (USFS), **Littlerock Reservoir Sediment Removal Project, CA**

Dear Mr. Justin Seastrand,

The Department of the Interior has received and reviewed the subject document and has no comments to offer. A.5-1

Thank you for the opportunity to review this project.

Sincerely,

Patricia Sanderson Port

Patricia Sanderson Port
Regional Environmental Officer

cc: OEPC - Staff Contact: Lisa Treichel- 202-208-7116; Lisa_Treichel@ios.doi.gov

Comment Set A.6 – U.S. Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 30 2016

Thomas A. Contreras
Forest Supervisor
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Subject: Draft Environmental Impact Statement for the Littlerock Reservoir Sediment Removal Project, Los Angeles County, CA (CEQ #20160101)

Dear Mr. Contreras:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

Palmdale Water District has applied for a special use authorization from the Forest Service to construct a grade control structure and to remove sediment from Littlerock Reservoir for the purpose of restoring the Reservoir to historic water storage and flood control capacity. The Forest Service has not identified a Preferred Alternative in this Draft EIS, but indicated that it is "likely to be the same as the environmentally preferable alternative," identified in the Executive Summary as Alternative 1.

Based on our review of the Draft EIS, we have rated the Action Alternatives as *Lack of Objections (LO)* (See attached "Summary of EPA Rating Definitions"). We note that, compared to the Proposed Action Alternative, Alternative 1 will reduce the intensity of daily construction impacts through extension of the construction schedule, thereby reducing the severity of impacts associated with air quality, traffic, and noise. EPA agrees with this approach and supports Forest Service implementing all feasible measures to reduce impacts as much as possible. We offer the attached Detailed Comments for your consideration in the Final EIS. A.6-1

EPA appreciates the opportunity to review this Draft EIS. When the Final EIS is released for public review, please send one copy to the address above (mail code: ENF-4-2). If you have any questions, please contact me at (415) 972-3521, or contact Stephanie Gordon, the lead reviewer for this project, at 415-972-3098, or gordon.stephanies@epa.gov.

Sincerely,

Connell Dunning
FOR Kathleen Martyn Goforth, Manager
Environmental Review Section

Comment Set A.6 – U.S. Environmental Protection Agency (cont.)

Enclosure: Summary of EPA Rating Definitions

cc via email: Lorraine Gerchas, Forest Service
Daniel Swenson, U.S. Army Corps of Engineers
Jan Zimmerman, Lahontan Regional Water Quality Control Board

Comment Set A.6 – U.S. Environmental Protection Agency (cont.)

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

Comment Set A.6 – U.S. Environmental Protection Agency (cont.)

EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT, LOS ANGELES COUNTY, CA JUNE 30, 2016

Water Supply and Drawdown Effects

Littlerock Reservoir is operated and managed by the Palmdale Water District (PWD) and provides part of the water supply for the PWD and Littlerock Irrigation District (p. C.7-1). Given the status of the Littlerock Reservoir as a drinking water source, as well as increasing concerns with water quality and quantity in California due to climate change, drought and other factors, protecting the reservoir's water quality and supply is a sensible strategy. EPA supports the need to develop well planned solutions for providing adequate local water supplies so long as environmental impacts can be reduced as much as possible. A.6-2

The purpose of the project is to increase the storage capacity of the reservoir, thereby increasing the volume of water diverted from the reservoir. The document states that the annual inflow range is variable, such that the reservoir is not filled one in every six years (p. C.7-2). Although it is understood that the volume of water diverted from the reservoir may vary from year to year, neither the expected increase, nor the Reservoir's contribution to Palmdale's overall total water supply, is quantified in this Draft EIS. A.6-3

Additionally, the Draft EIS is unclear in its explanation of how reservoir drawdown happens year to year. In some instances, it appears that the lake is purposely drained at the end of summer to provide for off highway vehicle use (p. C.3-5). In other places, it appears the Reservoir supports perennial water and year-round fish populations (p. C.3-14).

Recommendations:

Quantify, in the Final EIS, the expected change in reservoir water levels during the course of a year. Identify the reservoir high water mark under the Alternatives as compared to the No Action Alternative. A.6-4

Discuss, in the Final EIS, whether the Forest Service would expect the growth of vegetation or wetlands in the reservoir perimeter area exposed as a result of the reservoir drawdown. Specifically, the Final EIS should identify any reason that wetlands could not form around the perimeter of the reservoir after drawdown. A.6-5

Discuss the potential ramifications of the increased allocations of each Alternative to municipal water supply. Clarify whether reservoir water would still be used for irrigation needs and describe how the additional water will be used. A.6-6

Wetlands

The Draft EIS does not clarify whether dredged material will be placed in the waters of the U.S. (WOUS) on the 47th Street East sediment disposal site (p. C.3-45). If material will be placed in a WOUS, it will need to be tested in accordance with the 404(b)(1) Guidelines. We note that some sediment testing has already been conducted per recommendations from the Lahontan Water Quality Resources Control Board and we appreciate the inclusion of the testing results in Appendix D. However, it is unclear why the tested chemicals were selected and why others such as metals and PAHs (polyaromatic hydrocarbons) were not included. Neither Chapter 3 nor Appendix D shows a map of where the sediment tests were collected. Typically, permitting agencies would review a sampling plan prior to testing; however that doesn't appear to have happened in this case. Therefore, the agencies may require additional testing at the time of permitting. A.6-7

Comment Set A.6 – U.S. Environmental Protection Agency (cont.)

Recommendation:
In the Final EIS, include additional information about the completed sediment testing. Provide the rationale for the list of chemicals tested, describe the sediment sampling methods, and include a map of sample locations. EPA recommends that the Final EIS state that additional testing could be required at the time of permitting. A.6-7 cont.

Climate Change
The Draft EIS provides little detail about how climate change may affect the study area. Since the purpose of the project is to remove sediment from Littlerock Reservoir through annual sediment removal for the purposes of water supply, EPA recommends that the Final EIS include a discussion of the vulnerabilities of the local water supply to drought and other changing conditions in California in the context of climate change (e.g. flashier storms, more variability in precipitation). A.6-8

Recommendations:
In the Final EIS, include a discussion of climate change and its potential effects on the study area, implementation of the action, and impacts of the proposed actions. Of specific interest are potential effects on Littlerock Reservoir water levels, recreational carrying capacity, fire and invasive species management, and the ability to operate consistent with the purpose of Littlerock Reservoir for water supply.

Include, as part of the discussion, a short summary of applicable climate change studies, including their findings on potential environmental and water supply effects and their recommendations for addressing these effects.

Describe any measures that would be undertaken to improve the adaptability and resilience of the proposed project to climate change. A.6-9

Describe how increased variability in precipitation due to climate change may affect the Project's active work season (Labor Day through January) and frequency or ability to overtop the Reservoir. A.6-10

Fish
The Draft EIS states that fish tissues were sampled in August 2014 and they all tested positive for mercury and PCBs (p. C.3-15). The Forest Service proposes to eradicate all fish from the lake by stranding them at the end of summer, but does not state how many fish this may be (as indicated earlier, there may not be many fish due to the yearly reservoir drawdown and recent drought). The Draft EIS does not analyze the potential water quality impacts from fish eradication. For example, herbicidal treatments may be required if there are more frequent algal blooms. A.6-11

Recommendation:
Describe the potential environmental impacts to recreation, water supply, water quality, wetlands, and other species that may occur from removing a population of fish from the reservoir.

Naturally Occurring Asbestos
Asbestos-bearing ultramafic rocks are found in at least 44 of California's 58 counties. Disturbance of rocks and soils that contain naturally occurring asbestos (NOA) can result in the release of asbestos fibers to the air and exposure to the public. Asbestos is a known human carcinogen and represents a

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Comment Set A.6 – U.S. Environmental Protection Agency (cont.)

potential human health risk for those exposed while using roads or trails where it occurs. For information on the occurrence of NOA and health impacts, see EPA's NOA webpage at: http://www.epa.gov/asbestos/pubs/clean.html. The Draft EIS does not indicate whether NOA has been identified in the study area nor does it evaluate potential risks to current and future visitors who may be exposed to NOA on existing and proposed trails and roads through recreational activities. A.6-12

Recommendations:

- Determine whether or not NOA is present on trails or roads within the study area. Assess the potential for exposure to elevated levels of NOA from common recreational (including OHV use) and maintenance lake activities. Provide information in the Final EIS.
- If NOA is found to be present, review the California Air Resources Board regulations and guidance at http://www.arb.ca.gov/toxics/asbestos/asbestos.htm, which address California's Asbestos Airborne Toxic Control Measures for Surfacing Applications that apply to unpaved roads.
- Evaluate existing trails and roads for sediment production and drainage in areas where NOA is likely to be present.
- If appropriate, post signs informing visitors that NOA is present, what the risks are, and how visitors can avoid exposure.

Valley Fever

The Draft EIS states that Coccidioidomycosis, (kok-sid-oy-doh-my-KOH-sis), or Valley Fever, is a fungal infection that is almost always acquired from the environment via the inhalation of fungal spores. It can affect humans, many species of mammals and some reptiles. The fungus, *Coccidioides*, is endemic (native and common) in the soil of the southwestern United States, Mexico, and parts of Central and South America. *Coccidioides* can live for long periods of time in soil under harsh environmental conditions including heat, cold, and drought.[1] *Coccidioides* can be released into the air when soil containing the fungus is disturbed, either by strong winds or activities such as farming or construction. Distribution of the fungus is typically patchy, but in some "hot spots," up to 70% of the human population has been infected.

According to the Centers for Disease Control and Prevention, workers engaged in soil-disturbing activities in endemic areas should be considered at risk for the disease. Occupational groups at risk include farmers, agricultural workers, construction workers and archaeologists. Some groups of people appear to be at increased risk for disseminated disease and can become seriously ill when infected.

Recommendations:

The EPA recommends that the Final EIS assess potential exposures to the fungus, *Coccidioides*, and susceptibilities of workers at the Reservoir site and nearby residents to Valley Fever due to soil-disturbing activities of the project. A.6-13

Since the project area is suspected endemic for Valley Fever, the standard project commitments should include training for constructions workers on the health hazards of Valley Fever, how it is contracted, what symptoms to look for, proper work procedures, how to use personal protective equipment, the need to wash prior to eating, smoking or drinking and at the end of the shift, and the need to inform the supervisor of suspected symptoms of work-related Valley Fever. The training should identify those groups of individuals most at risk and urge individuals to seek A.6-14

[1] Coccidioidomycosis Fact Sheet, California Department of Public Health. Web June 12, 2013, <http://www.cdph.ca.gov/HealthInfo/discond/Pages/Coccidioidomycosis.aspx>

Comment Set A.6 – U.S. Environmental Protection Agency (cont.)

prompt medical treatment if Valley Fever symptoms (flu-like illness with cough, fever, chest pain, headache, muscle aches, and tiredness) develop. A.6-14 cont.

In addition to regulatory required fugitive dust controls committed to in Appendix A, the Applicant should:

- Avoid areas that may harbor the fungus if practicable.
- Restrict high risk workers from contaminated areas if possible.
- Test soils to be disturbed for presence of the cocci fungus, understanding that even in known endemic areas, the distribution of the fungus in the soil is sporadic and very limited.
- Require that grading and construction equipment cabs be enclosed, HEPA ventilated, and air-conditioned.
- Use personal protective equipment in dusty work areas:
    - Disposable clothing.
    - Method to clean work boots at the end of the shift.
    - NIOSH certified N95 respirator, at a minimum or one with a higher protection factor.
- Provide personal hygiene (washing) facilities.
- Require crews to work upwind from excavation sites.
- Pave construction roads.
- Minimize ground disturbance as much as possible. Revegetate temporarily disturbed areas promptly.
- Discourage workers from carrying any fomites home with them. Institute hygiene measures to limit dust transport offsite.
- Consider limiting visitor site access without proper training or personal protective equipment.
- Prohibit work activities when wind speeds exceed 25 mph.
- Consider mitigation measures that would provide advanced notification to sensitive receptors of the potential effects of a *Coccidioides* infection.
- Contact the local or state public health agency to better understand the incidence of Coccidioidomycosis in the project area and surrounding region. Provide local public health officials with a schedule of project activities that disturb soil. Ensure local physicians consider Coccidioidomycosis in diagnoses involving flu or flu-like symptoms.

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Comment Set B.1 – San Manuel Band of Mission Indians

Littlerock Reservoir Sediment Removal Project DEIS/EIR

Daniel McCarthy <DMcCarthy@sanmanuel-nsn.gov>

Thu 5/5/2016 11:58 AM

Draft EIS/EIR

To:LSRP <LSRP@aspeneg.com>;

We received the NOA for the DEIS/EIR for the proposed Littlerock Reservoir Sediment Removal Project. Thank you for notifying the Tribe. The proposed project is located within the Tribe's ancestral territory. I tried to locate the DEIS/EIR document through the Water District's link provided in the notice, but unable to find it. We would like to request a copy of the environmental document for review and comment to be forwarded to our office. B.1-1

Is this project subject to the mandates of AB 52 with regard to tribal consultation? We do not find that we have received an AB 52 notice regarding this project. B.1-2

Thank you,
Leslie Mouriquand MA, RPA
for

Daniel McCarthy, MS, RPA
Director
Cultural Resources Management Department
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346
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Comment Set B.2 – Center for Biological Diversity

CENTER for BIOLOGICAL DIVERSITY Because life is good.

working through science, law and creative media to secure a future for all species, great or small, hovering on the brink of extinction.

VIA ELECTRONIC MAIL

June 29, 2016

USDA Forest Service/ Palmdale Water District
c/o Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, CA 91301
E-mail: LSRP@aspeneg.com

Re: Comments on Draft EIS/EIR for Littlerock Reservoir Sediment Removal Project [SCH No. 2005061171 and EIS No. 20160101]

Dear Forest Service, Palmdale Water District, and Aspen,

These comments are submitted on behalf of the Center for Biological Diversity ("Center") on the Draft EIS/EIR for Littlerock Reservoir Sediment Removal Project. These comments are timely filed by June 30, 2016 – as provided in the Federal Register notice published May 13, 2016. 81 Fed. Reg. 29855 (May 13, 2016)

The Center is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 48,000 members throughout California and the western United States, including in Los Angeles County where the project is located. The Center submitted scoping comments on the initial scoping notice (70 Fed. Reg. 38864 (July 6, 2005)) on August 5, 2005 but unfortunately was not notified of the later scoping or the availability of this EIS/EIR—perhaps because our office moved several times. In any case, the Center is pleased to see significant changes from the initial proposal and that the project appears to have been re-designed to better protect the arroyo toad and its habitat. The Center submits the following comments on the Draft EIS/EIR behalf of our members, staff, and members of the public with an interest in protecting the native species and habitats of the project area.

Biological Assessment Missing

The EIS/EIR (at E-5) acknowledges that the Forest Service must consult with the US Fish and Wildlife Service ("USFWS") regarding this project but the needed Biological Assessment is not included in the EIS/EIR making it difficult for the public to adequately review the proposal without all of the needed information. B.2-1

Comment Set B.2 – Center for Biological Diversity (cont.)

Mitigation Measures Unclearly Defined

We could not find any detailed descriptions of the proposed Mitigation Measures/SPC. All of the proposed mitigation measures are just phrases, with no clarification of the components of the proposed mitigation. B.2-2

Many of the measure are for surveys (example: SPC BIO-6a Conduct Surveys and Implement Avoidance Measures; SPC BIO-6c Seasonal Surveys During Water Deliveries). While we support surveys, they are not mitigation measures. Surveys that are implemented in order to detect species presence need to trigger avoidance and minimization measures. For example SPC BIO-6a states: "Conduct Surveys and Implement Avoidance Measures", yet we could not locate avoidance measures that would be implemented. Many of the proposed "mitigation measures" take this approach of not clearly identifying what the avoidance measures actually are. A second example: "SPC BIO-1a - Provide Restoration/Compensation for Impacts to Native Vegetation Communities". While this "mitigation measure" is applied to numerous species and habitat impacts, the mitigation ratio is unclear and should be clarified based on the type of habitat/community/species being disturbed. It is unclear if the restoration/compensation is proposed onsite or off-site. The lack of clarity fails to allow analysis of the adequacy of the proposed mitigation. B.2-3

In addition some "mitigation measures" rely on plans that are not included even as draft plans. For example, SPC BIO-2 Prepare and Implement a Weed Control Plan; no draft plan is included in the draft EIR/EIS. Herbicides have long been documented to kill amphibians[1] so a mitigation strategy to control exotic weeds may actually pose significant impacts to other vulnerable and rare species within the project area. Absent even a draft plan, it is impossible to evaluate if the proposed mitigation is indeed beneficial or if it would cause additional impacts. B.2-4

The brevity of the description of the mitigation measures makes it impossible to evaluate the effectiveness of the proposed mitigation measures. We request that a supplemental EIR/EIS be produced and circulated for public review and comment that details and clarifies the proposed mitigation measures in order for the public and decision makers to be able to adequately evaluate how the measures offset the impacts. B.2-5

Arroyo Toad

While the arroyo toad was recently proposed for downlisting, the U.S. Fish and Wildlife Service abandoned that effort based on data that indicates ongoing declines of the species.[2] While we appreciate the effort to avoid and preserve the federally designated critical habitat for the arroyo toad *(Anaxyrus californicus)* that exists upstream of the reservoir through the installation of the grade control structure outside of the federally designated critical habitat, we are concerned that the Draft EIS/EIR fails to address other substantive issues regarding the arroyo toad. B.2-6

1 Relyea, R.A. 2005
2 80FR 79805-79816 https://www.gpo.gov/fdsys/pkg/FR-2015-12-23/pdf/2015-32075.pdf

Comment Set B.2 – Center for Biological Diversity (cont.)

We recognize that additional protocol level surveys for arroyo toads were performed at Rocky Point in 2015 (Appendix C at PDF pg. 28) and surveys were also done 16 May 2007, 24 Sep 2007, 5, 14,18 May 2010, 1 - 3 Jun 2011, 12 Jul 2012, 13,21 May 2014 and ongoing May 2015 (draft EIR/EIS at C3.3). The results of the surveys for the actual number of arroyo toad encountered remains unclear therefore no baseline has been established in the project area. B.2-6 cont.

The Appendix does state "Aspen has not detected this species below Rocky Point however it is likely this species can be periodically found in this area." (Appendix C at PDF pg. 28). The Appendix also states that "This species has the potential to move into the Reservoir area as the water level recedes." (Appendix C at PDF pg. 63). Also please refer to page 2 of our scoping comments submitted on August 2, 2005 regarding downstream migration of arroyo toads into the reservoir area as it's drawn down. For the evaluation of impacts, the draft EIS/EIR appears to ignore the migration of arroyo toads downstream as the reservoir recedes. Based on the proposal that the construction would begin in July, and that the reservoir would be drawn down before construction commencement, it is likely that arroyo toads could potentially move into the construction zone. The draft EIR/EIS includes several mitigation measures specific to arroyo toad including: B.2-7

- "SPC BIO-6a (Conduct Surveys and Implement Avoidance Measures), PWD would limit sediment removal activity to seasonally inundated portions of the Reservoir after the water has been lowered in the late summer months. Arroyo toads are not expected to occur in this area or be limited to the upstream margin of the Reservoir. The greatest potential risk to arroyo toads would be the construction of the grade control structure. This area supports suitable habitat as the water levels recedes and is adjacent to occupied habitat. Animals in upstream areas could forage in this area or burrow into soft, moist sands during the day. In accordance with SPC BIO-6a, PWD would conduct pre-construction surveys of the Project area and install toad fencing along the upstream margin of the Reservoir to reduce the potential for toads to enter the proposed work area. PWD would install fencing around the entire work area and would include mesh screens on diversion structures to prevent animals from entering the Reservoir from a culvert." (draft EIR/EIS at pg.C3.17)

While we support avoiding impacts to arroyo toads, the statement that "Arroyo toads are not expected to occur in this area or be limited to the upstream margin of the Reservoir" is not supported by the statements in the draft EIR/EIS included in Appendix C at PDF pg. 28 and 63 as cited above. B.2-8
It is unclear when the toad fencing would be implemented, and its installation immediately prior to construction would do little to protect the toads within the construction zone from impact. B.2-9

- SPC Bio-6b - Conduct Clearance Surveys and Construction Monitoring for arroyo toads in the proposed project area and that "PWD would conduct clearance surveys of the fenced work area prior to excavation, monitor construction, and implement other best management practices such as good housekeeping, inspecting equipment for leaks, and following the fieldwork code of practice developed by the Declining Amphibian Population Taskforce. Clearance surveys would be conducted at night and during daylight periods to increase the potential to locate any toads that may occur within the exclusion area" (draft EIR/EIS at pg.C3.17) B.2-10

Comment Set B.2 – Center for Biological Diversity (cont.)

It is unclear to us from this description as to how clearance surveys would be implemented. Mechanical disturbance of the soils (digging up the arroyo toads) could injure or kill arroyo toads. The mitigation measure is mute as to the disposition of the salvaged toads. We are unaware of any data on successful translocation of adult toads once they have entered aestivation. B.2-10 cont.

- SPC BIO-6c (Seasonal Surveys During Water Deliveries), PWD would conduct annual monitoring and reporting at the Reservoir to reduce the potential stranding of arroyo toads egg strings, larvae, or metamorphs during water deliveries. At the maximum water surface elevation, the edge of the Reservoir merges with sandy terraces above Rocky Point. This interface provides approximately 3,015 feet of shoreline that would be directly affected by water deliveries from the Reservoir. Although the water is deep enough in many areas to support non-native fish, it is possible that arroyo toads may produce egg strings in the shallow margins of the Reservoir. In a study conducted by USGS (2003) at the Sweetwater Reservoir, it was postulated that eggs, larvae and metamorphs would have varying ranges of mortality risk due to their placement (i.e., egg strings in shallow water) or their mobility. Eggs were assumed to be at greatest risk with 80 to 100 percent estimated to be lost as a result of a dam release from being stranded on the shore or in quickly drying pools (ibid). Due to their mobility, larvae are assumed to have a greater chance of surviving a release event with 50 to 100 percent estimated to be lost as a result of a dam release and can possibly swim to safety or track the falling water levels to avoid getting displaced or stranded. Due to their mobility and ability to leave the streambed, metamorphs were assumed to have the greatest chance of surviving a release event with 0 to 50 percent estimated to be lost as a result of a dam release (Ibid). B.2-11

This mitigation measure is unclear as proposed. While we support monitoring and preventing stranding of arroyo toad egg strings, larvae and metamorphs, the measure itself does not lay out a strategy to prevent strandings during water deliveries. Nor does it quantify or analyze the amount of stranding that would be allowed if water deliveries resulted in strandings. Therefore this measure is just a survey, not a mitigation measure.

We request a recirculated draft EIR/EIS that addresses some of the most basic failures in the existing document. B.2-12

Additional Mitigation Measures Required

In order to minimize and mitigate impact to the arroyo toad, the recirculated draft EIR/EIS should include the following mitigation measures:

- Removal of all non-native predatory fish from the reservoir as it is drawn-down. Any future stocking should be limited to native non-predatory fish. B.2-13
- Permanent closure of the reservoir area to off-road vehicles. Due to the documented illegal intrusions into the closed portion of Little Rock Creek from the reservoir area (draft EIR/EIS at pg. C3.5) coupled with the potential for water contamination from off-road vehicle pollution. B.2-14

Center Comments on Draft EIS/EIR for Littlerock Reservoir Sediment Removal Project
June 29, 2016
Page 4 of 6

Comment Set B.2 – Center for Biological Diversity (cont.)

- Monitoring of the grade control structure to determine that it prevents headcutting of Little Rock Creek. Provide an adaptive management strategy to prevent headcutting of Little Rock Creek if the grade control structure fails to achieve this goal. B.2-15

Alternatives

The draft EIR/EIS only provides 3 alternatives, the no-action, the proposed action and Alternative 1 - Reduced Sediment Removal Intensity Alternative are considered in the analysis. No alternatives were considered the further reduced impacts to the arroyo toad or the other rare, threatened and endangered species. B.2-16

The draft EIR/EIS also identifies Alternative 1 as both the "environmentally preferable alternative" under NEPA (draft EIR/EIS pg. C.15-2) and the "CEQA Environmentally Superior Alternative" (draft EIR/EIS pg. C.15-3). Yet, the Executive Summary undercuts this analysis by identifying that Alternative 1 would produce more greenhouse gases over the life of the project (ES-16), and "would result in greater potential for adverse impacts to nesting birds because sediment removal activities would commence during the nesting season. Alternative 1 would also have greater impacts to aquatic species including arroyo toads, southwestern pond turtle, and two-striped garter snake because of the need to drain the Reservoir in June rather than after Labor Day (ES-16). We request that an alternative be developed in the recirculated draft EIR/EIS that would push back the start date past June to further minimize the impacts to these rare species. B.2-17

Conclusion

While this proposed project is an improvement over previous proposals, we believe proposed avoidance, minimization and mitigation measures need to be much more clearly identified in an updated and recirculated draft EIR/EIS and that additional measures need to be included to provide further safeguards for the rare and endangered species that will be affected by this proposed project. Thank you for your consideration of these comments. Please add both of us to the notice list for this project at the addresses found below. B.2-18

Sincerely,

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Comment Set B.2 – Center for Biological Diversity (cont.)

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Reference (attached)

Relyea, R.A. 2005. The Lethal Impacts of Roundup on Aquatic and Terrestrial Amphibians. Ecological Applications 15(4), 2005, pp. 1118–1124
http://www.nrc.gov/docs/ML1434/ML14345A564.pdf

Comment Set B.2 – Center for Biological Diversity (cont.)

Ecological Applications, 15(4), 2005, pp. 1118–1124

THE LETHAL IMPACT OF ROUNDUP ON AQUATIC AND TERRESTRIAL AMPHIBIANS

RICK A. RELYEA[1]

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Abstract. The global decline in amphibian diversity has become an international environmental problem with a multitude of possible causes. There is evidence that pesticides may play a role, yet few pesticides have been tested on amphibians. For example, Roundup is a globally common herbicide that is conventionally thought to be nonlethal to amphibians. However, Roundup has been tested on few amphibian species, with existing tests conducted mostly under laboratory conditions and on larval amphibians. Recent laboratory studies have indicated that Roundup may be highly lethal to North American tadpoles, but we need to determine whether this effect occurs under more natural conditions and in post-metamorphic amphibians. I assembled communities of three species of North American tadpoles in outdoor pond mesocosms that contained different types of soil (which can absorb the pesticide) and applied Roundup as a direct overspray. After three weeks, Roundup killed 96–100% of larval amphibians (regardless of soil presence). I then exposed three species of juvenile (post-metamorphic) anurans to a direct overspray of Roundup in laboratory containers. After one day, Roundup killed 68–86% of juvenile amphibians. These results suggest that Roundup, a compound designed to kill plants, can cause extremely high rates of mortality to amphibians that could lead to population declines.

Key words: amphibian decline; frog; glyphosate; pesticide; pollutants; Roundup; toad; toxicology.

COMMUNICATIONS

INTRODUCTION

Many amphibian species around the world are experiencing population declines (Alford and Richards 1999, Houlihan et al. 2001, Kiesecker et al. 2001). A number of factors may affect amphibian populations, including degraded habitats, depleted ozone, emergent diseases and pathogens, invasive predators and competitors, and the presence of pollutants (Berger et al. 1998, Wake 1998, Alford and Richards 1999, Kiesecker et al. 2001, Davidson et al. 2002, Lips et al. 2003). Pesticides are one type of environmental pollutant that may be an important cause of mortality because some declines are associated with a proximity to pesticides and agricultural areas (Davidson et al. 2002). However, the few pesticides that have been tested on amphibians rarely reduce survival under conditions and concentrations that typically occur in nature (Bridges 1997, Boone and Semlitsch 2001, 2002, but see Relyea and Mills 2001, Relyea 2003, 2004, 2005*b*).

One of the most ubiquitous pesticides used around the world is glyphosate (commercial names: Roundup, Rodeo, Aqua Master; manufactured by Monsanto Company, St. Louis, Missouri, USA). Glyphosate is a broad-spectrum herbicide that inhibits the synthesis of essential amino acids. It is widely used to control undesirable weeds in agriculture (e.g., Roundup-Ready corn and soybeans), forestry, aquatic habitats, and residences. Roundup is the most commonly used formulation, containing both the active ingredient (glyphosate) as well as a surfactant (e.g., POEA; polyethoxylated tallowamine) that allows penetration of plant cuticles. Other formulations, such as Rodeo, do not come with a surfactant, but require that one be added prior to application. The use of glyphosate in the United States has rapidly grown during the past decade, from the 17th most commonly used pesticide in 1987 (3–4 million kg of active ingredient) to the second most commonly used pesticide in 1999 (30–33 million kg of active ingredient) with annual applications on more than eight million ha (Donaldson et al. 2002; National Pesticide Use Database, *available online*).[2] As classified by the USEPA, glyphosate formulations are considered practically nontoxic to birds and mammals, moderately to practically nontoxic to fish and invertebrates, and slightly to moderately toxic to amphibians (Giesy et al. 2000). Thus, the conventional wisdom has been that the application of glyphosate, a chemical designed to kill plants, has minor effects on any animals that might be present.

For larval amphibians, glyphosate has been tested on relatively few species (Mann and Bidwell 1999, Perkins et al. 2000, Lajmanovich 2003) including only four species of tadpoles in North America (Smith 2001, Chen et al. 2004, Edginton et al. 2004, Howe et al. 2004, Thompson et al. 2004, Wojtaszek et al. 2004). Collectively, this represents <0.2% of amphibian spe-

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[2] ⟨www.ncfap.org/database /default.htm⟩

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PLATE 1. An adult wood frog traveling through an agricultural field. Amphibians such as the wood frog experience high rates of death when exposed to the application of Roundup both in the aquatic larval stage and in the adult terrestrial stage. Photo credit: Nancy Schoeppner.

cies in the world. To achieve a general understanding of glyphosate's impacts, we need to expand our information on amphibians both taxonomically and geographically.

When examining the impacts of any pesticide on amphibians, it is important that we make the transition from the foundational laboratory studies to more realistic and natural experimental venues. For other pesticides, this transition has been made by conducting experiments in outdoor aquatic mesocosms (i.e., cattle tank experiments; Boone and Semlitsch 2001, 2002). For glyphosate, most amphibian experiments have been conducted in the laboratory. Only three studies using outdoor mesocosms have been conducted, and they have reached different conclusions, likely due to differences in both experimental venues and glyphosate formulations (Thompson et al. 2004, Wojtaszek et al. 2004, Relyea 2005*a*). When conducting mesocosm experiments, it is important that we include natural components that exist in nature but are missing from laboratory experiments including algae, zooplankton, leaf litter, and soil. The addition of such components can be critical. For example, glyphosate is absorbed by soils and subjected to microbial breakdown. As a result, it is widely accepted that soil rapidly removes the herbicide from aquatic environments and any lethal impacts are restricted to a relatively brief window of time (Giesy et al. 2000, Thompson et al. 2004, Wojtaszek et al. 2004). However, the impact of soil on amphibian survival with glyphosate has never been tested.

When conducting laboratory and mesocosm experiments with pesticides and amphibians, the vast majority of our knowledge comes from experiments on the larval stage (i.e., tadpoles; Mann and Bidwell 1999, Perkins et al. 2000, Boone and Semlitsch 2001, 2002, Relyea 2003, 2004, 2005*a*, *b*). However, many amphibians spent a large fraction of their life in the terrestrial stage. Herbicides such as glyphosate are widely applied to terrestrial environments (primarily for weed control in forestry and agriculture), yet tests of its impact on terrestrial (post-metamorphic) amphibians appear to be restricted to only two Australian species that were exposed to glyphosate dissolved in water (Mann and Bidwell 1999). We need to determine how a direct terrestrial application of glyphosate affects post-metamorphic anurans.

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In this study, I addressed these challenges by investigating the impact of a common commercial form of glyphosate (Roundup "Weed and Grass Killer") on several species of North American anurans in both the aquatic and terrestrial stage. I tested the following hypotheses: (1) adding Roundup to mesocosm communities containing tadpoles will cause tadpole mortality, (2) the addition of soil to these mesocosms will ameliorate the lethal effects of Roundup, and (3) applying Roundup to juvenile anurans will cause juvenile mortality.

METHODS

I conducted separate experiments on aquatic and terrestrial amphibians at the University of Pittsburgh's Pymatuning Laboratory of Ecology, Pennsylvania, USA. In the aquatic experiment, I used outdoor pond mesocosms, which are well-accepted experimental venues for understanding amphibian ecology (Morin 1981, Wilbur and Fauth 1990, Werner and Anholt 1996, Relyea 2002). I used a completely randomized design with a factorial combination of herbicide treatments (Roundup present or absent) and soil treatments (no soil, sand, loam). The six treatments were replicated five times for a total of 30 experimental units. The experimental units were 1200-L cattle watering tanks filled with 1000 L of well water (pH = 8). Each tank received either no soil, 19 L of sand, or 19 L of loam soil. Sand was purchased as bagged sand, whereas the loam was collected from a nearby field; both soil additions were sufficient to cover the bottom of the tanks. Thus, the loam treatment accurately represented the soil present in ponds that form in field depressions where many amphibians deposit their eggs. The loam soil was tested for composition (29.2% sand, 21.4% clay, and 49.4% silt; University of Connecticut Soil Nutrient Analysis Laboratory, Storrs, Connecticut, USA), but it was not tested for the presence of pesticides. However, no pesticides had been applied to this soil for several years. After applying the soil treatments, all tanks received 300 g of deciduous leaves (primarily *Quercus* spp.), 25 g of rabbit chow (for an initial nutrient source), and pond water containing algae and zooplankton. The mesocosms were set up on 1 May 2003.

On 19 May, after a periphyton community was established (the tadpole resource base), I added three species of naturally coexisting tadpoles to each tank: 20 leopard frogs (*Rana pipiens*), 20 American toads (*Bufo americanus*), and 20 gray tree frogs (*Hyla versicolor*). These densities (8 individuals/1 m^2) are well within the range of densities found in natural ponds (R. A. Relyea, *personal observations*). Tadpoles were collected as newly oviposited eggs (8–10 egg masses per species) from nearby ponds and allowed to hatch in outdoor pools containing well water until they were used in the experiment. Tadpoles were early in their development (Gosner stage ~25; Gosner 1960) and initial tadpole mass (mean ± SE) was as follows: leopard frogs = 45 ± 3 mg, toads = 18 ± 2 mg, and gray tree frogs = 7 ± 1 mg. Individuals used in the experiment were haphazardly selected from a mixture of the hatched egg masses. A sample of 20 tadpoles of each species was set aside to assess 24-h survival due to handling. Survival of these samples in 10-L laboratory tubs was high: leopard frogs = 100%, toads = 100%, and gray tree frogs = 85%.

Two days after adding the tadpoles to the experimental tanks, I applied the herbicide treatment using a commercially purchased form of glyphosate (Roundup "Weed and Grass Killer"; 25.2% glyphosate plus the POEA surfactant). This concentration was confirmed by the Mississippi State Chemical Laboratory (Mississippi State, Mississippi, USA) using high-pressure liquid chromatography. I applied the maximum amount likely to occur in natural wetlands by simulating a direct overspray for controlling aquatic weeds or a flooded depression in an agricultural field. I applied herbicide at the manufacturer's recommended rate (as listed on the container; 1.6 mL active ingredient [AI]/m^2). Thus, I added 15 mL of Roundup to each pesticide tank and 15 mL of well water to each control tank. This created a glyphosate concentration of 3.8 mg of AI/L (for consistency, I report all aquatic concentrations as milligrams of active ingredient per liter; mg AI/L). This concentration is similar to the maximum concentration expected for aquatic habitats in nature when spraying for terrestrial or aquatic weeds (3.7 mg AI/L; Giesy et al. 2000), but higher than concentrations that have thus far been observed in nature (up to 2.6 mg AI/L; Newton et al. 1984, Goldsborough and Brown 1989, Feng et al. 1990, Thompson et al. 2004; L. M. Horner, *unpublished manuscript*). Thus, the concentration used represents a worst-case scenario. Importantly, the concentration used is lower than most LC50 estimates for Roundup on tadpoles (the concentration estimated to kill 50% of a population = 3.9–15.5 mg AI/L, Mann and Bidwell 1999; 12.4 mg AI/L, Perkins et al. 2000; 1.7 mg AI/L, Lajmanovich et al. 2003).

The aquatic experiment was terminated on 11 June 2003 (20 d after herbicide application) because the toads in the no-pesticide treatments were approaching metamorphosis. All tanks were drained of their water and the tadpoles were removed, counted, and weighed. The proportion of survivors of each species had heteroscedastic errors (which could not be corrected by transformation), so I first ranked the data and then analyzed the survival data with a multivariate analysis of variance (MANOVA). Significant multivariate effects were followed by univariate ANOVAs; mean comparisons were conducted using Fisher's least significant difference (LSD) test.

The terrestrial experiment was conducted using juvenile frogs and toads in three separate laboratory experiments. In this experiment, the aim was to simulate the impact of amphibians receiving a direct terrestrial overspray in an agricultural field. As a worst-case sce-

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nario, I assumed no interception by vegetation during application (the actual amount of interception by terrestrial vegetation will vary in real-world applications). While most tests of post-metamorphic amphibians immerse the animals in water with different pesticide concentrations, the species used in this study spend very little time near water (except during breeding) and would more likely be directly sprayed on land. Thus, I placed the metamorphs in dry 10-L plastic tubs that were lined with damp paper towels to permit the animals to remain hydrated.

I used post-metamorphic animals that were collected after emergence from natural ponds originally containing dozens of egg masses (wood frogs, *R. sylvatica* (see Plate 1); and Fowler's toads, *Bufo woodhousii fowleri*) or collected after emergence from mesocosms containing tadpoles raised from a mixture of 10 egg masses (gray tree frogs, *H. versicolor*). These species were chosen due to their availability and because we have data on these species (or their close relatives) in previous studies (Relyea 2005*a*, *b*). I separately reared the three species at a density of seven frogs per tub. Initial juvenile mass (means ± SE) was as follows: wood frogs = 338 ± 11 mg, tree frogs = 425 ± 26 mg, and toads = 471 ± 40 mg. There were two treatments (Roundup presence or absence) replicated four times for a total of eight experimental units per species. Based on the same application rate as above (1.6 mg AI/m^2), I sprayed 6.5 mL of Roundup (using a second purchased bottle, concentration = 1.9% glyphosate) into each Roundup-assigned tub (after adding the animals) and 6.5 mL of water to each control tub. After 24 h, I counted the number of survivors in all tubs. Because the data were heteroscedastic (which could not be corrected by transformation), I first ranked the survivorship data and then analyzed each species using analyses of variance (ANOVA).

Results

In the aquatic experiment, there was a significant multivariate effect of Roundup (Wilks' $F_{3,22}$ = 164.2, $P < 0.001$) and soil (Wilks' $F_{6,44}$ = 2.2, $P = 0.046$) on the survival of the tadpole community, but there was no Roundup-by-soil interaction (Wilks' $F_{6,44}$ = 164, $P = 0.108$; Fig. 1). Soil type had no significant impact on the survival of toad tadpoles ($P = 0.925$) and leopard frog tadpoles (univariate $P = 0.093$), but did have a small effect on tree frog tadpoles (univariate $P = 0.023$). Loam soil caused a small reduction in tree frog tadpole survival (8–9% across pesticide treatments) compared to either no soil ($P = 0.007$) or sand ($P = 0.064$). Roundup caused a large reduction in the survival of all three species of tadpoles (univariate tests; $P < 0.001$). Across all soil types, Roundup reduced tree frog tadpole survival from 75% to 2%, toad tadpole survival from 97% to 0%, and leopard frog tadpole survival from 98% to 4%. Across all species,

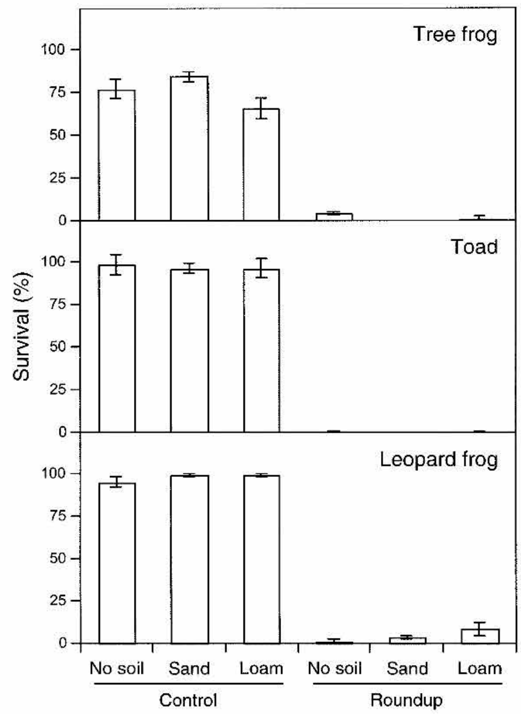

FIG. 1. The survival (mean ± SE) of three species of tadpoles (gray tree frog, *Hyla versicolor*; American toad, *Bufo americanus*; and leopard frog, *Rana pipiens*) reared in pond mesocosms when exposed to the presence or absence of Roundup (3.8 mg AI/L) crossed with three soil treatments (no soil, loam, or sand). The experiment lasted for 20 days.

only 2% of all tadpoles survived the Roundup application after three weeks.

In the terrestrial experiments, all three species suffered substantial mortality when exposed to Roundup (Fig. 2). After 24 hours, the application of Roundup reduced juvenile wood frog survival from 96% to 32% ($P = 0.002$), juvenile tree frog survival from 100% to 18% ($P = 0.001$), and juvenile toad survival from 100% to 14% ($P = 0.001$). Across all species, only 21% of all juvenile amphibians survived the Roundup application after one day.

Discussion

The most striking result from the experiments was that a chemical designed to kill plants killed 98% of all tadpoles within three weeks and 79% of all juveniles within one day. There have been only a few studies of Roundup's effects on tadpole mortality in the laboratory. Mann and Bidwell (1999) examined four species of Australian tadpoles (*Crinia insignifera*, *Heleioporus eyrei*, *Limnodynastes dorsalis*, and *Litoria moorei*) and found $LC50_{48\text{-}h}$ values ranging from 3.9 to 15.5 mg AI/L for Roundup, 108 to 161 mg AI/L for technical grade

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glyphosate acid, and >450 mg AI/L for glyphosate isopropylamine salt (the latter two formulations of glyphosate lack the POEA surfactant). Perkins et al. (2000) examined the African tadpole *Xenopus laevis* and found $LC50_{96\text{-h}}$ values of 12.4 mg AI/L for Roundup, 6.8 mg/L for the POEA surfactant alone, and 9729 mg AI/L for Rodeo (an aquatic formulation of glyphosate that lacks the POEA surfactant). Lajmanovich et al. (2003) tested another formulation of glyphosate (GLYFOS, which also contains the POEA surfactant) on a South American tadpole (*Scinax nasicus*) and found an $LC50_{48\text{-h}}$ of 1.74 mg AI/L. In North America, $LC50_{96\text{-h}}$ values for glyphosate formulations containing POEA range from 1.5 to 9.4 mg AI/l in four species of tadpoles (*Bufo americanus*, *R. sylvatica*, *R. pipiens*, and *R. clamitans*), with lower lethality values found for glyphosate alone (Edginton et al. 2004, Howe et al. 2004). These studies suggest that, under laboratory conditions, ecologically relevant concentrations of Roundup can cause substantial mortality in some species of amphibian larvae and that this death is primarily due to the POEA surfactant.

I have recently completed static renewal studies of Roundup toxicity in the laboratory on six species of amphibians from the Midwestern United States (*Rana sylvatica*, *R. pipiens*, *R. clamitans*, *R. catesbeiana*, *Bufo americanus*, and *Hyla versicolor*). Consistent with recent studies of tadpoles in Canada (Edginton et al. 2004), I found that $LC50_{16\text{-d}}$ values for these six species are relatively low, ranging from 0.6 to 2.5 mg AI/L (Relyea 2005*b*). Based on the LC50 probit analyses from the laboratory experiments, the 3.8 mg AI/L used in the mesocosm experiment predicted 93% mortality of leopard frog tadpoles, 94% mortality of American toads, and 92% mortality of gray tree frogs. These estimates are consistent with the mortality observed in the mesocosm experiment; mortality was 96% for leopard frogs, 100% for American toads, and 98% for gray tree frogs. Thus, under the more natural conditions of aquatic mesocosms, and with only a single application, Roundup can still be highly toxic to a variety of amphibian larvae.

The cause of the high Roundup-associated mortality appears to result from direct toxicity (possibly due to damaged epithelial cells in the gills; Edginton et al. 2004) rather than any indirect effect of Roundup-induced reduction of algal food resources in the mesocosms and subsequent tadpole starvation. Three pieces of evidence support this conclusion. First, I observed numerous dead tadpoles within the first 24 hours, which would not be expected if the cause of death were starvation (Audo et al. 1995; the exact amount of death could not be quantified without destructively sampling the mesocosms). Second, in a separate mesocosm experiment, Roundup actually increased, rather than decreased, periphyton biomass because there were so few tadpoles to consume the algae (Relyea 2005*a*). Third, in a laboratory study in which six species of North American tadpoles were fed ground fish flakes, Roundup still caused rapid death at 1 to 5 mg AI/L (Relyea 2005*b*).

Adding sand or loam soil did not reduce the toxic effects of Roundup. Although previous studies have demonstrated that glyphosate and the POEA surfactant can be absorbed by soil and broken down by soil microbes (Giesy et al. 2000), the current study suggests that the death of amphibians occurred before this breakdown could take place (typical half-life for glyphosate and POEA = 7–70 days depending on site conditions; USEPA 1992, Giesy et al. 2000). This is consistent with other studies of leopard frog tadpoles in Canada in which 2.0 mg AI/L caused 100% mortality under similar pH conditions (pH = 7.5; Chen et al. 2004). Moreover, it is reasonable to assume that these may be conservative estimates of mortality because the tadpoles in the mesocosm experiment were in relatively stress-free environments. In environments containing additional stressors (e.g., predation or competition), some pesticides can become even more lethal (Relyea and Mills 2001, Boone and Semlitsch 2002, Relyea 2003, 2004, 2005*b*). Curiously, however, in mesocosms placed in natural wetlands, 2.0 mg AI/L of the herbicide Vision (glyphosate plus POEA; Monsanto Company, Winnipeg, Manitoba, Canada) caused no significant mortality to larval leopard frogs or green frogs (Wojtaszek et al. 2004). These contradictory results suggest that there may be a number of important differences among experiments that can affect the effect of glyphosate products on amphibians including the formulation applied, the experimental venue used, and the amphibian population that is selected.

Rapid death also occurred in the terrestrial experiments. After only 24 hours, 79% of all juvenile frogs and toads died. There appear to be few studies of gly-

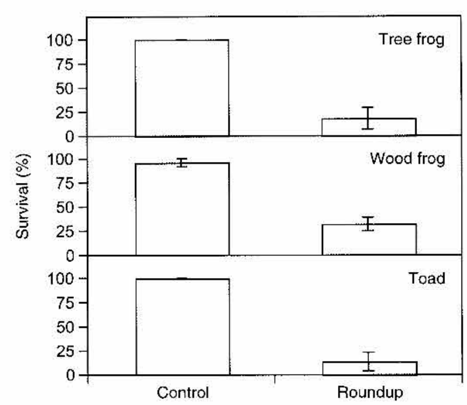

FIG. 2. The survival (mean ± SE) of three species of juvenile frogs and toads (gray tree frog, *Hyla versicolor*; wood frog, *Rana sylvatica*; and Fowler's toad, *Bufo woodhousii fowleri*) after 24 hours of exposure to a direct application of Roundup in laboratory tubs (1.6 mg AI/m²).

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phosate's impact on terrestrial amphibians and all have been conducted by immersing animals in water containing glyphosate. Two Australian species of juvenile and adult frogs (*Crinia insignifera*, and *Litoria moorei*) have $LC50_{48\text{-h}}$ values ranging from 56 to 69 mg AI/L for Roundup (no experiments were conducted on glyphosate alone; Mann and Bidwell 1999). In the current study, I used amphibians that spend their post-metamorphic lives largely away from water and would experience Roundup as direct applications in the terrestrial environment (e.g., agricultural applications). My results suggest that a variety of North American amphibian species (from several families) are quite sensitive to the terrestrial application of Roundup. However, more natural field studies (using varying amounts of interception by vegetation) need to be conducted to better assess glyphosate's impact on juvenile amphibians in nature.

A critical question in interpreting the results of the aquatic and terrestrial experiments is whether the high rates of mortality observed were due to the active ingredient of Roundup (glyphosate) or whether they were due to the added surfactant (POEA). As discussed above, laboratory studies have shown that glyphosate alone has a low toxicity while the POEA surfactant can be highly toxic to a variety of taxa including amphibians (Mann and Bidwell 1999, Giesy et al. 2000, Perkins et al. 2000, Lajmanovich et al. 2003, Tsui and Chu 2003, Edginton et al. 2004, Howe et al. 2004). The current study did not isolate the impacts of glyphosate and the surfactant, so one cannot determine which component of Roundup caused the mortality, but it seems likely that the surfactant was the cause. What is clear is that the combination of ingredients present in the commercially applied form of Roundup "Weed and Grass Killer" can cause high rates of mortality in several species of North American amphibians. It is of interest to note that the manufacturer of Roundup (Monsanto Company) has recently released an additional formulation of glyphosate (Roundup Biactive) that is reported to have a less toxic surfactant (Tsui and Chu 2003). Initial tests on amphibians have supported this claim (Howe et al. 2004) and these new formulations should be the focus of future studies.

Conclusions

Natural communities are increasingly impacted by anthropogenic factors, and pesticides are one of several factors that have the potential to impact amphibian populations. While many pesticides can affect amphibian behavior, growth, and reproduction (Bridges 1997, 1999, Hayes 2002), it is often unclear whether such nonlethal effects will eventually translate into declines in amphibian populations. Further, when pesticides do reduce survival at relevant concentrations, unless the effects are substantial, the mortality may simply be compensatory and not lead to population declines (Boone and Semlitsch 2001, 2002). This appears to be the first study to document how a globally common pesticide can kill nearly every amphibian in an aquatic community (including amphibians from three different families). The elimination of 96–100% of tadpoles in the water, combined with the elimination of 68–86% of juvenile frogs and toads on land, could have a major negative impact on amphibian populations. In short, the current study suggests that applying Roundup formulations containing the POEA surfactant to amphibian habitats has the potential to cause substantial mortality in many amphibian species. However, the actual outcomes will likely be complex, depending on the timing of pesticide application and changes in amphibian sensitivity over ontogeny (e.g., Bridges 2000).

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COMMUNICATIONS

Comment Set C.1 – Star Moffatt

Re: Littlerock Reservoir Sediment Removal Project- NOA and Executive Summary

Star Moffatt <starmoffatt@gmail.com>

Fri 5/6/2016 8:50 AM

To:LSRP <LSRP@aspeneg.com>;

Cc:Matt Knudson PWD <mknudson@palmdalewater.org>; Dennis Lamoreaux <dlamoreaux@palmdalewater.org>; Joel Pirchesky <joel@oneworldblue.com>; JASON ZINK <zinkjason@hotmail.com>;

I acknowledge receipt and thank you!

Question, what is the complete legal name of the Palmdale Water District? C.1-1

Is it Palmdale Water District?

Is it Palmdale Water District Public Facilities Corporation?

Again, what is the complete legal name of the Palmdale Water District, thanks.

On Fri, May 6, 2016 at 6:39 AM, LSRP <LSRP@aspeneg.com> wrote:

> Dear Star Moffatt,
>
> Please find attached the Notice of Availability and the Executive Summary for the Littlerock Reservoir Sediment Removal Project Draft EIS/EIR. We kindly request that you confirm receipt of these attachments.
>
> A full copy of the Draft EIS/EIR is available for download at either of the following websites:
>
> **Palmdale Water District:**
>
> http://www.palmdalewater.org/about/new-development-projects/district-projects/

Comment Set C.1 – Star Moffatt (cont.)

U.S. Forest Service:

http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=13657

If you require these files on CD-ROM, please send us your full address along with a note indicating that you would like these electronic materials to be mailed to you.

Regards,

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Responses to Comment Set A.1 – California Department of Fish and Wildlife

A.1-1 Palmdale Water District (PWD) would comply with all regulatory requirements, including obtaining a Lake and Streambed Alteration Agreement or an Incidental Take Permit, as required by the regulatory authorities.

A.1-2 As described in the Draft EIS/EIR sediment would be placed in exhausted mining pits, located within the existing quarries identified on Figure B-1. However, it is uncertain as to the exact location within the quarry the material will be placed. PWD will not place material in any areas supporting State and or federal waters and will coordinate with the quarry owners to ensure material is placed in suitable locations.

A.1-3 Potential impacts to downstream riparian vegetation and State waters were evaluated in the Draft EIS/EIR in Section C.3.4.4 and Section C.7.1.2. Implementation of the Project is not expected to result in the degradation or loss of riparian habitat in downstream areas (see EIS/EIR discussion for Impact BIO-1). On average, the Project will reduce the timing of overflows from the dam from 112 days per year to 108 days per year (4 percent reduction). Very dry years and very wet years will experience little or no Project-induced change. Seepage through the dam will not be affected.

A.1-4 Impacts to riparian resources from water diversions and sediment removal activities were evaluated and disclosed in the Draft EIS/EIR in Section C.3.4.4 and Section C.7.1.2. Impacts to downstream hydrology and vegetation are not expected to occur as a result of Project activities. On average, the Project will reduce the timing of overflows from the dam from 112 days per year to 108 days per year (4 percent reduction). Very dry years and very wet years will experience little or no Project-induced change. Seepage through the dam will not be affected.

A.1-5 During sediment removal activities water entering the reservoir would be diverted around the work area and allowed to flow and seep through the dam as occurs under baseline conditions. The analysis indicates construction of the grade control structure and sediment removal activities are not expected to change baseline conditions below the dam (see EIS/EIR Section C.3.4.4 and Section C.7.1.2). Based on this, PWD does not believe the implementation of a monitoring program for downstream effects is warranted.

A.1-6 Impacts to riparian vegetation have been disclosed in the Draft EIS/EIR and measures have been presented to reduce, avoid, or offset these effects (see EIS/EIR discussion for Impact BIO-1 in Section C.3.4.4). PWD will comply with any reasonable conditions provided by CDFW through the context of a Lake and Streambed Alteration Agreement.

A.1-7 A permitted Mohave ground squirrel biologist conducted a review of the site to determine habitat suitability and potential for occurrence. Based on this review, a determination was made that this species does not occur at the sediment disposal area. This determination is based on the following reasons. First, most of the proposed sediment disposal area is heavily disturbed and subject to routine off highway vehicle use, trash disposal, and other human presence. In addition, the permitted biologist based their determination on a number of factors including the presence of California ground squirrels (*Spermophilus beecheyi*), and the site is outside the southern edge of the known range of the species. The DRECP mapping system is a broad planning tool and is not expected to be used for small scale or local planning projects. In addition, as described in the EIS/EIR Appendix C-1, there are no recent MGS records near the Project site; the dominant plants on site are not considered suitable MGS forage plants and the site is relatively isolated from potential occupied habitat to the north. The MGS analysis can be found in Sections C.3.1.5 and C.3.4.4 of the Draft EIS/EIR.

MGS are also not expected to occur in the active quarry locations. PWD does not propose to disturb native vegetation at the quarry site and would place sediment in previously disturbed areas or locations approved for development under the quarries' existing permits.

A.1-8 Based on the analysis represented in the Draft EIS/EIR, the known distribution of the species in the area, and an assessment of the disposal site, the Project is not expected to result in a take of Mohave ground squirrel or their occupied habitat (Draft EIS/EIR Sections C.3.1.5 and C.3.4.4). However, the language of the Draft EIS/EIR has been revised in Section C.3.4.4 as follows to clarify that protocol surveys were not conducted at the 47th Street sediment disposal site:

> ~~Protocol~~ A habitat assessment~~surveys~~ for Mohave ground squirrel ~~were~~ was conducted at the sediment disposal site and evidence of this species was not observed (see Section C.3.1.5). Based on the known distribution of this species in the region, the habitat conditions at the Project site, and the level of ongoing human use, it was determined that the sediment disposal site does not provide suitable habitat for Mohave ground squirrel.

A.1-9 Based on the analysis represented in the Draft EIS/EIR, the known distribution of the species in the area, and an assessment of the disposal site, the Project is not expected to result in a take of Mohave ground squirrel or their occupied habitat (Draft EIS/EIR Sections C.3.1.5 and C.3.4.4). Because no impacts to Mohave ground squirrel are anticipated, the CDFW requirements are not warranted.

A.1-10 The Draft EIS/EIR concluded there are no known threatened or endangered reptiles at the 47th Street sediment disposal areas or at the proposed quarry location. As described in Section C.3.4.4 although the sediment disposal site supports habitat for this species, the site is subject to routine disturbance, is functionally isolated from known occupied habitat, and is nearly surrounded by urban development. The PWD will undertake additional surveys of the site in the spring of 2017 prior to Project implementation.

A.1-11 As described in Section B.2.3.2 of the Draft EIS/EIR, sediment would be placed in exhausted mining pits within the existing quarries identified on Figure B-1. However, it is uncertain as to the exact location within the quarry the material will be placed. PWD will not place material in any areas supporting State and or federally listed species and will coordinate with the quarry owners to ensure material is placed in previously disturbed areas or locations approved for development under the quarries' existing permits.

A.1-12 Please see Response to Comment A.1-10.

A.1-13 Please see Response to Comment A.1-10. Based on the information assessed in the Draft EIS/EIR, impacts to desert tortoise will not occur and these requirements are not warranted (Section C.3.4.4).

A.1-14 The PWD would transport sediment to a licensed landfill (e.g., quarry) operating in compliance with its required permits and does not have the authority to require the landfill to fence its facility.

A.1-15 PWD will not place material in any areas supporting State and or federal species and will coordinate with the quarry owners to ensure material is placed in previously disturbed areas or locations approved for development under the quarries' existing permits. In addition, it is speculative to evaluate the conditions of the mining pits as conditions may change in these basins from year to year and given that the facility operates in compliance with its existing permits.

A.1-16 Please see Response to Comment A.1-15. PWD does not believe these requirements are warranted.

A.1-17 Please see Response to Comment A.1-15. PWD does not believe these requirements are warranted.

A.1-18 Please see Response to Comment A.1-15. PWD does not believe these requirements are warranted.

A.1-19 Please see Response to Comment A.1-15. PWD does not believe these requirements are warranted.

A.1-20 Protocol surveys for burrowing owls were conducted at the 47th Street disposal site. Please also see Response to Comment A.1-11 regarding the placement of sediment in locations approved for development under the quarries' existing permits.

A.1-21 As described in Section C.3.4.4 of the Draft EIS/EIR, impacts to burrowing owl were evaluated and PWD proposed the implementation of SPC BIO-18 (Conduct Protocol Surveys for Burrowing Owls) to reduce, minimize, or avoid these impacts.

A.1-22 As described in Section C.3.4.4 of the Draft EIS/EIR, impacts to burrowing owl were evaluated and PWD proposed the implementation of SPC BIO-18 (Conduct Protocol Surveys for Burrowing Owls) in any areas supporting suitable habitat where construction or sediment disposal would occur. As avoidance measures were presented in the Draft EIS/EIR, the recommended additional mitigation is not warranted.

A.1-23 As described in Section C.3.4.4 of the Draft EIS/EIR (under Impact BIO-8), impacts to least Bell's vireo are not expected to occur with the implementation of proposed avoidance and minimization measures including SPC AQ-2, SPC AQ-5, SPC BIO-1a, SPC BIO-1b, SPC BIO-2, and SPC BIO-8. These measures include a fugitive dust plan, reduced speed for vehicles, habitat restoration, environmental awareness training, pre-construction surveys, monitoring for breeding birds, avoidance buffers, and protocol level surveys for least Bell's vireos. However, in consideration of the reviewer's comment, the impact analysis section in Section C.3.4.4 (Impact BIO-8) of the Draft EIS/EIR for this species includes the following revisions to provide a more thorough discussion of avoidance language.

> Construction of the grade control structure would be initiated in July toward the end of the breeding season, which would reduce the potential for least Bell's vireo and other breeding neo-tropical migrants to be present in the work areas. Sediment removal activities commence after Labor Day and continue until mid- to late November. However, many birds remain on the nest well into July and nesting periods are affected by a number of factors including weather and access to forage. <u>While least Bell's vireos are known to nest in the riparian corridor north of the dam face, there is no suitable nesting habitat in the area associated with the grade control structure or sediment removal area.</u>

Modification or removal of nesting habitat will not occur as a result of project activity. Project traffic including the haul trucks will utilize Cheseboro Road. Noise from this traffic will not affect reproductive success since the haul activities will start after the nesting season is over. Additionally, topography, vegetation and distance from the road are all factors reducing the amount of sound intrusion that would be expected in the riparian corridor. Foraging birds may avoid the areas closest to the road during the times when trucks are actively hauling. Otherwise, no permanent displacement is anticipated.

Project activities will have no direct effects on nesting least Bell's vireos below the dam, but foraging birds may avoid areas closest to the road during haul periods. Fugitive dust is not expected since the access road has an asphalt surface. Use, maintenance, and repair of the access road will occur on an as-needed basis. Therefore, these activities could occur during the reproductive season. Habitat in immediate proximity of the road is not suitable for nesting least Bell's vireos, but could be used by foraging birds. Access road use, maintenance, and repair could lead to some short-term displacement of foraging birds. No permanent displacement or impacts to reproductive success are expected. The access road that connects Cheseboro Road to the dam face is occasionally damaged during high precipitation events and subsequently requires repairs. These repairs will be scheduled to occur outside the breeding season and will not remove suitable nesting habitat for the least Bell's vireo. Some scattered shrubby vegetation could be impacted during repairs, but this is expected to be minimal and not sufficient to affect the overall suitability of the area for the least Bell's vireo. Measures that focus on the prevention, monitoring and treatment of invasive plants will ensure that the project does not contribute to the introduction or spread of invasive plants into riparian corridor where least Bell's vireos are known to occur.

Construction of the grade control structure or sediment removal activities are not expected to result in any modifications to the riparian habitat located downstream of the dam. Please see Response to Comment A.1-3 above for a discussion of how the Project affects stream hydrology.

A.1-24 As described in the Draft EIS/EIR, while least Bell's vireos are known to nest in the riparian corridor north of the dam face, there is no suitable nesting habitat in the area associated with the grade control structure or sediment removal area. In addition, sediment removal activities are not expected to occur during the breeding season. Please see Response to Comment A.1-23.

A.1-25 Please see Response to Comment A.1-23. The PWD has already proposed the implementation of SPC BIO-8 (Conduct Protocol Surveys for Least Bell's Vireo and Avoid Occupied Habitat) in the Draft EIS/EIR and does not intend to work during the breeding season. As avoidance measures have already been proposed (see Impact BIO-8 in EIS/EIR Section C.3.4.4), the recommended additional mitigation is not warranted.

A.1-26 Please see Response to Comment A.1-25.

A.1-27 Please see Response to Comment A.1-25. The PWD intends to further coordinate with the CDFW on this species and is expected to apply for an incidental take permit.

A.1-28 Please see Response to Comment A.1-3 above for a discussion of how the Project affects stream hydrology. Based on this information PWD does not believe monitoring stations are warranted.

A.1-29 The PWD will provide project related input regarding sensitive species accounts to the California Natural Diversity Database.

A.1-30 Palmdale Water District would comply with all required filing fees, including CEQA document filing fees pursuant to Section 711.4 of the Fish and Game Code.

Responses to Comment Set A.2 – Department of Water Resources

A.2-1 Corrections have been made to the Executive Summary, Purpose and Need (Section A), and the References (Section G) to reflect the correct date for Contract DGGR-35.

A.2-2 Edits have been made to the Project Description (Section B) to refer to the minimum recreation pool elevation stated in the Davis-Grunsky Contract (i.e., 3,228 feet).

A.2-3 Final EIS/EIR Section B.4.5.1 (Reduced Sediment Removal Intensity Alternative [Alternative 1]) has been edited to clarify the expected maximum duration of initial sediment removal to restore the Reservoir to 1992 design capacity would be 20 years (resulting in a range of 13-20 years). Also, this edit regarding the maximum timeframe sediment removal under Alternative 1 has been made elsewhere in the Final EIS/EIR, as applicable.

A.2-4 Please refer to Response to Comment A.2-3 regarding the clarification of the maximum duration of initial sediment removal under Alternative 1. The impact analysis in Section C.9 (Recreation and Land Use) has been revised to reflect the maximum duration for Alternative 1.

A.2-5 Section C.9 (Recreation and Land Use) has been revised to incorporate a detailed summary of Davis-Grunsky contracted facilities, including a map of their location relative to the Reservoir (see Figures C.9-4a through C.9-4d) and a description of the existing conditions of each facility (see Table C.9-1).

A.2-6 Revisions have been made to the impact analysis in Section C.9 (Recreation and Land Use) to address Davis-Grunsky contracted facilities. SPC LAND-3 (Long-Term Recreation Management Plan) has been included to ensure future management of recreation facilities, while SPC TRA-2 (Pavement Rehabilitation – Public or National Forest Roadways) has been modified to include repairs to Davis-Grunsky facilities that are damaged during Project activities. The following additions and revisions to these SPCs include the following:

> **LAND-3: Long-Term Recreation Management Plan.** PWD and the Forest Service shall prepare a joint Recreation Management Plan for the existing recreation facilities at Littlerock Reservoir, and the contin¬ued provision of recreational opportunities. The Plan shall identify: (1) measures for future management of recreation facilities; and (2) long-term strategies for encouraging recreational use of the Reservoir.

> **TRA-2: Pavement Rehabilitation – Public or National Forest Roadways.** PWD and/or its contractor shall conduct annual before-and-after evaluation of pavement conditions along the sediment haul routes, equipment staging areas, and equipment access points to document any damage caused by the haul trucks or other construction activities. The documentation shall include written descriptions and photographs of pre-Project and post-Project pavement conditions. Any pavement or other infrastructure damage caused by the haul trucks or construction equipment shall be repaired/rehabilitated to pre-Project conditions or better. This measure shall be subject to review, approval, and inspection by the Los Angeles County Department of Public Works, the City of Palmdale

Department of Public Works, California Department of Water Resources, USFS, and Caltrans, depending on who has jurisdiction over the route.

A.2-7 The following figures have been modified to include the Davis-Grunsky Area: Figure C.3-3 (Littlerock Reservoir Vegetation), Figure C.3-6 (Arroyo Toad Critical Habitat), Figure C.3-7 (Dead or Removed Cottonwood Tree Locations), Figure C.3-10b (Special-Status Plants Survey Results), Figure C.3-11b (Special-Status Animals Survey Results), Figure C.3-13 (Littlerock Reservoir Sediment Removal Area), and Figure C.3-16 (Arroyo Toad Survey Results). Figures C.9-4a through C.9-4d (Davis-Grunsky Area and Recreational Facilities) also includes the location of specific contracted facilities.

A.2-8 PWD understands that the Force Majeure Clause of the Davis-Grunsky Contract is only applicable under certain conditions, and has only exercised this clause during extreme drought conditions and with prior approval of DWR. In addition, PWD understands that the Reservoir and the surrounding NFS lands have and will continue to provide opportunities for public recreation. Since the implementation of the Dam Rehabilitation Project in the mid-1990s, the reservoir and the surrounding lands have provided many recreation opportunities, and during that time these opportunities have had to be limited for various justifiable reasons including but not limited to implementation of the Force Majeure Clause, and temporary closures of the area as a result of land management decisions by the Forest Service (see EIS/EIR Section C.9.1.1 for a full discussion of recent recreation management decisions at Littlerock Reservoir). Regardless, the PWD and the Forest Service as the CEQA and NEPA lead agencies and the facility owner and land manager, respectively, are coordinating and will continue to coordinate the provision of recreational opportunities. As such, future recreational use of the Reservoir would be supported through implementation of SPC LAND-3 (Long-Term Recreation Management Plan) and SPC TRA-2 (Pavement Rehabilitation – Public or National Forest Roadways). The Long-Term Recreation Management Plan can be shared with DWR, as a CEQA responsible agency, for review as it relates to Davis-Grunsky facilities.

Responses to Comment Set A.3 – Lahontan Regional Water Quality Control Board

A.3-1 Thank you for the comment. As noted, a discussion of mercury and polychlorinated biphenyls in fish tissue and sediment samples can be found in Section C.3.1.5 of the EIS/EIR.

A.3-2 The following text as requested has been added to Section C.12.2:

Water Quality Order (WQO) 2013-0002-DWQ. The Statewide National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Aquatic Pesticides to Waters the United States, Water Quality Order (WQO) 2013-0002-DWQ, allows and regulates the uses of properly registered and applied aquatic pesticides for algae and aquatic weed control. However, the Water Quality Control Plan for the Lahontan Region (Basin Plan) prohibits the discharge of all pesticides to Waters of the State unless an exemption to this prohibition has been granted. In order for a discharger to be eligible for enrollment under WOQO 2013-0002-DWQ, the discharger must request a prohibition exemption from the Water Board, and the Water Board must specifically grant an exemption for the use of algaecides or aquatic herbicides. Unless an exemption to the pesticide prohibition has been granted by the Water Board, the discharge of pesticides (either direct or indirect) to waters of the state would constitute a violation of the water quality standards outlined in the Basin Plan.

A.3-3 Critical habitat for least Bell's vireo is not present in the Project area or below the reservoir. Figure C.3-11b identifies an area where occupied habitat for this species was observed. Potential impacts to downstream riparian vegetation and State waters were evaluated in the Draft EIS/EIR in Section C.3.4.4 and Section C.7.1.2. On average, the Project will reduce the timing of overflows from the dam from 112 days per year to 108 days per year (4 percent reduction). Very dry years and very wet years will experience little or no Project-induced change. Seepage through the dam will not be affected.

A.3-4 As described in Section C.3.4.4, subheading Threatened and Endangered Amphibians, of the EIS/EIR, the removal of non-native fish would reduce the risk of predation to many native aquatic species in Little Rock Creek. Removing non-native fish would allow for the expansion of native frogs, toads, turtles, and native invertebrates. Removing non-native fish would return Little Rock Creek to a more natural condition and would benefit native plants and wildlife. Impact BIO-3 (The Project would cause the loss of foraging habitat for wildlife or result in disturbance to wildlife in adjacent habitat) has also been revised to include this discussion in the context of native wildlife habitat impacts:

> Construction activities associated with the Project would result in disturbance to a variety of wildlife. With the exception of some good quality riparian vegetation the majority of the Reservoir consists of sparsely to unvegetated wash. Construction activities would limit the ability for some species to forage at the Reservoir for several months at a time. However, access to surface water is generally present above and below the dam and work would not be conducted at night when many species are foraging. Similarly, construction activities would stop at the commencement of the rainy season. Nonetheless, the loss of juniper woodland, although subject to disturbance from ongoing anthropogenic disturbance, and the reduction in access to the Reservoir to wildlife over the life of the Project would be considered adverse and remove nesting and foraging habitat for wildlife. Similarly, even disturbed areas may provide access to edge habitats or early successional plant communities which are preferred foraging areas for some wildlife species. <u>In addition, the removal of non-native fish would remove a food source for some species. However many of these fish contain elevated levels of contaminants which expose these animals to health risks. The removal of non-native species would likely result in an increase of native frogs, toads, and other species which would benefit native wildlife over time.</u>

A.3-5 Thank you for your comment. As discussed in Section C.9.4 (Recreation and Land Use), the annual closure of Littlerock Reservoir during the initial sediment removal period would occur after the peak recreation period. There would be no effect on the typical water-based recreation season of 95 days (June until Labor Day). Further, by extending the life of the Reservoir as a functional waterbody, the Project would enhance water-based recreational opportunities offered at the Reservoir. The Reservoir is not currently listed for recreational fish stocking by the California Department of Fish and Wildlife (CDFW). Should the CDFW ever choose to restock the Reservoir with native fish, the removal of non-native fish would also enhance the Reservoir's ability to sustain this population. Refer to response to Comment A.3-6 below for additional information on how the Project would benefit aquatic habitat.

A.3-6 As described in the Response to Comment A.3-4, the removal of non-native fish would reduce the risk of predation to many native aquatic species in Little Rock Creek. Removing non-native fish would allow for the expansion of native frogs, toads, turtles, and native invertebrates, and would reduce exposure to native species from ingesting contaminated fish. Although this would remove a food source, the reduction in non-native fish would likely result in an increase in prey items such as frogs and toads. Language discussing the reduction of non-native fish has been included in the EIS/EIR under Impact BIO-3 (The Project would cause the loss of foraging habitat for wildlife or result in disturbance to wildlife in adjacent habitat) and Section C.3.4.4, subheading Threatened and Endangered Amphibians.

The removal of non-native fish is not expected to result in adverse effects to water quality. Each year the reservoir is largely depleted of water which would limit the establishment of large algal blooms and control insect populations. Similarly, during large winter storms there is substantial overtopping of the reservoir which results in reservoir turnover. The watershed does not support high levels of phosphates or nitrogen which would enhance algal blooms. Nonetheless PWD conducts routine water quality sampling at the reservoir and would detect any changes to water quality.

A.3-7 The requested edit has been made to Final EIS/EIR Section C.3.2.2 (Regulatory Conditions – State) and other locations globally where the Porter-Cologne Water Quality Control Act is defined.

A.3-8 Please refer to Response to Comment A.3-7. The regulatory environment for the Clean Water Act and Porter-Cologne Water Quality Control Act has been made consistent between Final EIS/EIR Sections C.3 (Biological Resources) and C.7 (Hydrology).

A.3-9 A statement to this effect has been placed in Section C.12.2.

A.3-10 The requested correction has been made to Final EIS/EIR Section C.3.2.2 (Regulatory Conditions – State)

A.3-11 Thank you for the comment. As identified within EIS/EIR Appendix A, PWD will obtain all necessary permits applicable to Project activities prior to initiation of those activities. Copies of all permits applicable to activities within National Forest System lands will be provided to the Forest Service. A list of necessary permits for implementation of the proposed action or Alternative 1 is provided in the EIS/EIR Section A.3.3 (Authorizing Actions) and includes all permits identified within this comment.

Responses to Comment Set A.4 – City of Palmdale

A.4-1 The Project is required to comply with all provision of the AVAQMD Fugitive Dust Rule 403. Additionally, as noted in SPC AQ-1 (Limit Engine Idling), only non-toxic dust suppressants would be used, which normally would be water, but if necessary could include other non-toxic dust suppressants such as polymer based suppressants.

A.4-2 The AVAQMD Rule 403 (D)(1) triggers that would require the submission of a Dust Control Plan (DCP) for this Project are as follows:

"…five acres or more of Disturbed Surface Area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of Bulk Materials on at least three days.…"

There is no regulatory trigger for a DCP at 100 cubic yards or more of excavation for any project type within Rule 403. The trigger for a DCP should not be confused with the AVAQMD Rule 403 control measure triggers, where certain dust control measure requirements are triggered with a daily import or export of 100 cubic yards of bulk materials (such as the Track-out Operation controls listed under 403 (C)(3)(b)). The project will comply with all applicable Rule 403 dust control measures.

The requested revision to trigger the DCP at 100 cubic yards or more of excavation per day far exceeds the AVAQMD rule requirement, and given the remote location for this Project, requiring a DCP trigger that is significantly more stringent than the AVAQMD Rule 403 requirements is not justified.

A.4-3 The Project is required to comply with all applicable high wind provisions in AVAQMD Fugitive Dust Rule 403, and that is directly stated in SPC AQ-2…"*Fugitive dust controls shall conform with applicable AVAQMD Rule 403 (C) requirements for all phases of the project*". SPC AQ-2 was not designed to provide a complete and exhaustive list of the potentially applicable Rule 403 requirements, including listing all of the High Wind Conditions requirements listed under Rule 403 (C)(10) through (C)(14)..

A.4-4 Thank you for your comment. As described in Sections B.2.3.2 and C.3.4.4, no endangered species would be expected to occur in the sediment removal areas. Arroyo toads spend the majority of their life cycles well away from aquatic habitat. Under SPC BIO-6a (Conduct Surveys and Implement Avoidance Measures), PWD would limit sediment removal activity to seasonally inundated portions of the Reservoir after the water has been lowered in the late summer months. Arroyo toads are not expected to occur in this area or be limited to the upstream margin of the Reservoir. Further, PWD would conduct pre-construction surveys of the Project area (in accordance with SPC BIO-6a) and install toad fencing along the upstream margin of the Reservoir to reduce the potential for toads to enter the proposed work area. Arroyo toads would not be transported to the quarries during sediment removal.

A.4-5 As discussed in EIS/EIR Section B.2.3.2 (Annual Sediment Removal Activities), sediment removed from the Reservoir consists of a combination of fine sediments, sand, coarse gravels, and cobble. In September of 2014, sediment from the Reservoir was tested to identify any potential contaminants. Sediment samples were taken at eleven (11) different locations within the proposed removal area. Sediment was tested both from the surface and at a depth of 4-6 feet at each of the eleven locations. No sediment tested contained pesticides, polychlorinated biphenyl (PCB) congeners, or mercury levels exceeding method detection limits (MDL) or above levels normal within soils. These results are provided in EIS/EIR Appendix D. As such, sediment proposed for removal is not considered to be deleterious material.

As sediment is deposited into exhausted mining pits, it would be compacted to allow for trucks to continually drive on and continue dumping. Given the type of sediment to be excavated (primarily fine sediments and sand), this sediment would be compacted as it is dumped. Further, this sediment would be disposed of within existing mining quarries where future development on top of a backfilled pit is unlikely, and would require permitting/review if such development were ever proposed. Consequently, the Project is not considered to require monitoring to ensure that deposited sediment could subside. Furthermore, deposited sediment is not expected to degrade over time.

A.4-6 As discussed in EIS/EIR Section B.2.3.2 (Annual Sediment Removal Activities), sediment storage would occur only in depressions located in the northeast portion of the site, ensuring the greatest distance from adjacent residences, ephemeral streams, and the California

Aqueduct. As required in SPC LAND-1, which is fully described in the EIS/EIR Appendix A, PWD will obtain all necessary permits applicable to Project activities prior to initiation of those activities. A list of necessary permits for implementation of the proposed action or Alternative 1 is provided in EIS/EIR Section A.3.3 (Authorizing Actions) and includes Section 401 and 402 Permits from the Lahontan Regional Water Quality Control Board, which regulates drainages within the 47th Street site. PWD will comply with all future permit requirements to ensure that sediment would not enter the municipal drain on the south side of the site.

A.4-7 As identified within EIS/EIR Appendix A, SPC TRA-1, PWD would prepare a Traffic Control Plan for review, inspection, and input by the City of Palmdale, Caltrans, and Los Angeles County. The Plan shall include, but is not limited to, the following items specific to this comment:

- The location and need for flagmen and other temporary traffic control devices, including within the ANF, at the PWD sediment staging site, at the intersection of Cheseboro Road and Pearblossom Highway to ensure safe left turn movements onto Pearblossom Highway;
- Travel time restrictions for trucks to avoid traveling along the Cheseboro Road–Pearblossom Highway–Avenue T haul route during the afternoon peak period; i.e., from 4:00 to 6:00 p.m., to the extent feasible, utilizing Cheseboro Road, Barrel Springs Road, 47th Street E, Pearblossom Highway, and Avenue T;

The need for a fair-share contribution to the funding of future improvements at the intersections of Cheseboro Road/Pearblossom Highway and Pearblossom Highway/Avenue T in the event afternoon peak period restrictions cannot be utilized.

The analysis for the intersection of Cheseboro Road and Pearblossom Highway provided in EIS/EIR Section C.10 (Transportation and Traffic) is based on current traffic volumes on these roadways, traffic volumes observed throughout an average day, and a visual inspection of line-of-sight at this intersection. Caltrans is proposing the construction of a new freeway/expressway named the High Desert Corridor through the City of Palmdale. It is likely this freeway becomes operational during the sediment removal phase, greatly reducing traffic volumes on Pearblossom Highway. Furthermore, other factors may directly affect traffic volumes on Pearblossom Highway throughout the annual sediment removal activities. Therefore, while this comment requests a more detailed analysis be provided, proposed SPC TRA-1 is considered to offer the most fluid method for reducing or avoiding potential traffic impacts at Cheseboro Road and Pearblossom Highway from Project-related trips.

For ongoing effectiveness of the Traffic Control Plan, SPC TRA-1 has been edited to ensure routine coordination and review by the City of Palmdale, Caltrans, and Los Angeles County a minimum of every 3-5 years until the Reservoir has been restored to 1992 design storage capacity.

A.4-8 Please refer to Response to Comment A.4-7, above.

A.4-9 Please refer to Response to Comment A.4-7, above.

A.4-10 Please refer to Response to Comment A.4-7, above.

A.4-11 SPC TRA-2, within Final EIS/EIR Appendix A, has been edited to clarify that before-and-after evaluations and roadway repairs along the haul route would occur annually.

Responses to Comment Set A.5 – U.S. Department of the Interior

A.5-1 Thank you for your comment.

Responses to Comment Set A.6 – U.S. Environmental Protection Agency

A.6-1 Thank you for your comment. It is noted the EPA agrees with the Draft EIS/EIR conclusion that Alternative 1 would reduce the severity of daily construction impacts associated with air quality, traffic, and noise.

A.6-2 Thank you for the comment.

A.6-3 As discussed in EIS/EIR Section B.2.1 (Overview of the Project), the 1992 design capacity of the Reservoir is 3,500 acre-feet (af) of water storage. Currently, the Reservoir storage capacity has been reduced to approximately 3,037 af because of sediment buildup. Therefore, upon restoring the Reservoir to 1992 design capacity, PWD would have an additional 463 af of water available annually (assuming the Reservoir is filled and based on current diminished storage capacity of the Reservoir). It is estimated that there is an annual inflow rate of 38,000 cubic yards of new sediment into the Reservoir (loss of 23 af of water storage annually). As stated in Section C.3.1.5, the expected increase in reservoir water yield from the Project will be variable from year to year depending on rainfall and runoff, and the water delivery needs of the Palmdale Water District, which affects year-round fish populations. Palmdale Water District does not permit drawdown of the Reservoir for the sole purpose of accommodating recreation activities within the Reservoir basin. The text in Section C.3.1.2 has been modified to clarify that the Reservoir is not drained to accommodate OHV use.

A.6-4 As discussed in EIS/EIR Section B.2.1 (Overview of the Project), the proposed action and Alternative 1 would remove over 1,000,000 cubic yards of accumulated sediment from the Reservoir bottom. The removal of this sediment would result in a deepening of the Reservoir, restoring it to 1992 design storage capacity (refer to Response to Comment A.6-3). The removal of this sediment would not change the high water mark of the Reservoir, which is based on the existing dam spillway height (not altered by the proposed action or Alternative 1). There would be variations in intermediate water levels within the reservoir footprint during the course of the year, but this is a condition that currently exists, with regular and substantial seasonal variations due to inflow and withdrawals.

A.6-5 As discussed in EIS/EIR Section B.2.1 (Overview of the Project), annual sediment removal activities would begin either after Labor Day (proposed action) or July (Alternative 1) and cease when annual inflow from rain and snow melt into the Reservoir requires construction to stop (because the Reservoir refill enters the work area). As shown in EIS/EIR, Figure B-2 (Littlerock Reservoir Project Overview Areas), the Reservoir area is a depression between hills immediately to the west and east. The Reservoir is fed by Littlerock Creek, an annual stream, which flows from south to north. As discussed in EIS/EIR Section C.3 (Biological Resources), there has not been any substantial growth of wetland vegetation around the reservoir perimeter during the reservoir drawdowns. Most of the reservoir bed is sandy, with little opportunity for plants to become established between periods of inundation that may last for months. This is a condition that will not be changed by the proposed Project. Therefore, wetlands cannot develop around the perimeter of the Reservoir after drawdown.

As discussed in EIS/EIR Section B.2.5 (Annual Sediment Removal Site Clean-up and Restoration), any disturbances along the shoreline or other areas outside the Reservoir inundation area (sediment stockpiling, construction equipment storage, and staging areas) would be restored. Native seed mixes and live plant material would be planted in areas that contained vegetation disturbed during construction of the grade control structure or sediment removal activities. Reseeding would be focused primarily on disturbed areas outside or adjacent to the Reservoir inundation area. Within the Reservoir inundation area, limited seeding may occur to stabilize soil and control dust as outlined in the Habitat Restoration Plan (see EIS/EIR Appendix A). Therefore, the growth of vegetation in the Reservoir perimeter is not expected as a result of water drawdown.

A.6-6 As discussed in Response to Comment A.6-3, upon restoring the Reservoir to 1992 design capacity, PWD would have an additional 463 af of water available annually (assuming the Reservoir is filled and based on current diminished storage capacity of the Reservoir). This is the same for all alternatives, except the No Project Alternative (which would eventually eliminate the Reservoir as a source of water). Water from the Reservoir is treated at the PWD's water treatment plant for distribution to customers as potable water in the City of Palmdale and the surrounding unincorporated communities. The proposed Project would not change the allocation or use of water provided by PWD, but would increase the amount of water provided to PWD by Littlerock Reservoir that would otherwise need to be obtained from alternate sources (groundwater, State Water Project, etc.).

A.6-7 Draft EIS/EIR Appendix D (Sediment and Fish Test Results) has been updated to show the sediment testing locations. As discussed in Section C.3.4 (Biological Resources), the small ephemeral washes present on the 47th Street East sediment disposal site appear to flow from at least one culvert under the California Aqueduct to off-site areas. PWD would avoid direct impacts to these features to maintain hydrology across the site. The placement of fill at this site would be stored on a maximum of 8 acres (see Figure C.3-15), in an area that would not impact jurisdictional waters. SPC HYDRO-1 (Fill From Reservoir Excavation Will Not Be Placed in Stream Channels) would also ensure that excavated material to be stockpiled on the PWD alternate sediment storage site would not obstruct or divert flow in the ephemeral watercourse (see Appendix A for the full text of Project SPCs).

During Scoping, the Lahontan RWQCB expressed concern regarding the concentrations of mercury and polychlorinated biphenyls within the Reservoir (see Appendix E). In order to determine whether soil excavated from the Reservoir would contain hazardous materials, 11 sediment samples and 4 fish tissue samples, were collected and analyzed for the presence of mercury, chlorinated pesticides, and PCB congeners. As discussed in Section C.6.1 (Hazards and Public Safety) all but one of the sediment sample results fall below the lower value of this range, and the one result that falls within this range lies at the extreme lower end of the range. The sampling results show that the sediment in Littlerock Reservoir is mostly free of contaminants, and that in cases where a contaminant was detected, the level of contamination is extremely low.

The Reservoir serves as a public drinking supply, and the water quality at the Reservoir is tested regularly by the PWD. It is understood that the agencies may require additional testing at the time of permitting.

A.6-8 There are two ways to analyze the effects of climate change, those being (1) the project effects to climate change, and (2) how climate change may affect the proposed project. Section C.2 (Air Quality and Climate Change) of the EIS/EIR addressed the first method, discussing the effects that emission generation of the proposed Littlerock Sediment Removal

Project may have on climate change. In August 2016 (after publication of the Draft EIS/EIR) the U.S. Council on Environmental Quality (CEQ) published the *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Review*. This new guidance includes addressing effects from climate change on a project, which is the second methodology described above. The following information provides this analysis and is considered part of the Final EIS/EIR.

Climate change could affect natural water supply sources throughout California, which has been in a severe drought since 2011. The period between late 2011 and 2014 was the driest in California history since record-keeping began. While the State has conducted climate change analyses pertaining to the water supply within the State Water Project, there are no known definitive studies for the Littlerock Creek watershed to include within the discussion that directly correlate California's current drought with the effects of climate change.

As discussed in EIS/EIR Section A (Purpose and Need), the primary purpose of the proposed Project is to restore the Reservoir to 1992 water storage capacity and maintain that capacity through annual sediment removal. By implementing the Project, PWD can reduce dependency on water provided by the California State Water Project. Restoring the Reservoir to 1992 water storage capacity increases the amount of water that can be captured during seasonal rain events and snow melt within the Angeles National Forest, allowing for the water to be available during dry summer months. Presently, sediment buildup has reduced 13.2 percent of the Reservoir capacity. Restoring and maintaining the Reservoir design storage capacity (Project) increases PWD resiliency to California drought events and the effects of climate change by ensuring the maximum amount of natural water capture and storage within the Reservoir can be achieved.

The Project also includes long-term periodic sediment removal actions to maintain 1992 water storage capacity of the Reservoir. Ongoing sediment removal will adapt to the yearly changes in sedimentation transport rates that may result as an effect of climate change, to maintain the Reservoir capacity and the usefulness of the grade control structure during its assumed Project life.

Therefore, the proposed Project itself is a measure to improve the adaptability and resiliency of Littlerock Creek, Littlerock Reservoir, PWD, and California to the future effects of climate change, as well as maintaining the water levels consistent with the recreational and water supply purposes of the Reservoir.

A.6-9 Please see Response to Comment A.6-8.

A.6-10 As discussed in Response to Comment A.6-8, restoring the Reservoir to design storage capacity ensures the maximum amount of natural water capture and storage during rain events can be achieved within the Reservoir. Restoring and maintaining the Reservoir to design storage capacity, regardless of any specific and unforeseeable changes in annual precipitation event frequency or intensity, would ensure the Reservoir can adjust to changing rain events by capturing and storing the maximum amount of rain water per season by design.

Littlerock Dam is designed to accommodate overtopping events. Future increases or decreases in the frequency or ability of rain events to overtop the Dam, whether attributable to the assumed effects of climate change or not, are entirely unpredictable. However, the Project provides for restoration of the Reservoir's design storage capacity, which would reduce the potential for overtopping events (by allowing for the Reservoir to capture and store more water than under current conditions). When the Reservoir is full, the proposed Project would not affect the ability of the Dam to accommodate overtopping events during major rain events. Therefore, the Project would reduce the annual frequency of rain events to overtop the Dam, but would not affect the ability of the Dam to accommodate rain events that would overtop the Dam when full.

A.6-11 Thank you for your comment. Please see Response to Comment A.3-4 and A.3-6 above. The removal of non-native fish is expected to benefit native species.

A.6-12 As discussed in EIS/EIR Section B.2.3.2 (Annual Sediment Removal Activities), sediment removed from the Reservoir consists of a combination of fine sediments, sand, coarse gravels, and cobble. Therefore, implementation of the proposed action or Alternative 1 is not expected to encounter or disturb asbestos-bearing ultramafic rocks. When the Reservoir is empty (after Labor Day), the Reservoir would be closed to the public so sediment can be removed under the proposed action and under Alternative 1. Sediment removal activities would cease when the Reservoir is refilled. Therefore, public access to the Reservoir under the proposed action or Alternative 1 would only occur when the Reservoir bottom is inaccessible due to the presence of water. As such, no discussion of the proposed action or alternatives disrupting or increasing public exposure to naturally occurring asbestos was found to be warranted.

A.6-13 As discussed in EIS/EIR Section C.6 (Hazards and Public Safety), Impact HAZ-3 (Project activities would increase exposure of the public to Valley Fever), the Project would require a large amount of earthmoving; however, much of this would be the movement of sediments that are often submerged below the surface of the Littlerock Reservoir or saturated with water along the active Littlerock Stream, which due to being submerged or saturated for long periods of time would not be subject to C. immitis fungal growth. While there may be some limited potential for the C. immitis fungus to exist in the Project excavation area and the sediment storage areas, the risk of the Project activities causing Valley Fever infection is considered low due to the characteristics of the sediment being excavated at the Project site, the distance of receptors from the Project excavation site and sediment storage areas, and the implementation of required Antelope Valley Air Quality Management District (AVAQMD) Rule 403 fugitive dust control requirements and additional Project commitments (see EIS/EIR Appendix A) that would substantially reduce fugitive dust emissions.

A.6-14 Please refer to Response to Comment A.6-13.

Responses to Comment Set B.1 – San Manuel Band of Mission Indians

B.1-1 The following response was sent to the San Manuel Band of Mission Indians on May 5, 2016: "Thank you for your email. The Draft EIS/EIR will be available online tomorrow (Friday, May 6), which is the start of the CEQA review period. Beginning tomorrow, you will be able to access the document at either of the following links:

Palmdale Water District:
http://www.palmdalewater.org/about/new-development-projects/districtprojects/; or
U.S. Forest Service:
http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=13657

B.1-2 The following response was sent to the San Manuel Band of Mission Indians on May 5, 2016: "Given that the Notice of Preparation for this Project was issued in March 2014, the Project is not subject to AB52."

Responses to Comment Set B.2 – Center for Biological Diversity

B.2-1 Section C.3 of the Draft EIS/EIR adequately describes impacts to biological resources and provides measures to reduce, minimize, or avoid impacts to sensitive plants and wildlife. The Biological Assessment and subsequent Biological Opinion will be made available in conjunction with publication of the Final EIS/EIR. It should be noted that the Record of Decision for the Project will not be signed until the Forest Service receives the Biological Opinion from the USFWS.

B.2-2 Section C.1.2 (Affected Environment and Environmental Consequences) provides an overview of the impact analysis approach for this EIS/EIR. Section C.3 provides a full description of the affected environment and environmental consequences for biological resources.

The PWD has incorporated measures into the description of its proposed Project to avoid or reduce impacts from Project construction and operation. These measures are referred to as standard project commitments (SPCs) in this EIS/EIR, and are considered in the analysis of impacts and the determinations of impacts. In the assessment of identified impacts, SPCs are considered part of the proposed Project. All measures considered appropriate and feasible for implementation have been incorporated as SPCs for the Project and are summarized in Table ES-2. The SPCs are considered a commitment by the PWD and implementation of each SPC will be monitored by the PWD if the proposed Project or an alternative is approved. The SPCs for this Project are listed in Appendix A (Standard Project Commitments). While the impact analysis in Sections C.2 through C.13 refers to the SPCs that would apply to a particular impact or effect, please refer to Appendix A for the full text of these SPCs.

Any additional mitigation measures that have been recommended to address potentially significant impacts are included in Table ES-2, with a full description of that mitigation measure in the respective impact analysis.

B.2-3 Please refer to Response to Comment B.2-2 regarding the incorporation of SPCs into the proposed Project. The full text of Project SPCs, including replacement ratios described in SPC BIO-1a and avoidance measures described in SPC BIO-6a, can be found in Appendix A of this EIS/EIR. The location of restoration/compensation will be determined once the Project is completed and the vegetation types and number of acres impacted has been calculated.

B.2-4 Please refer to the full text of SPC BIO-2 in Appendix A, which describes the fundamental components of the Weed Control Plan including herbicide application requirements. As stated in the full text of SPC BIO-2, The Weed Control Plan shall be submitted to the Forest Service for approval of the weed control methods, practices, and timing, and shall be consistent with consistent with the Forest Service's *Plan for Invasive Plants, Angeles National Forest and San Gabriel Mountains National Monument Environmental Assessment* (see Appendix A).

B.2-5 Please refer to Response to Comment B.2-2 regarding the full text of proposed mitigation measures in Section C.9.4 and Section C.10.4 of the EIS/EIR, and the full text of Project SPCs in Appendix A. The proposed mitigation measures and Project SPCs were articulated with as much detail as is feasible given the information available in this impact analysis. Please be sure to refer to the full summary text of the Project SPCs in Appendix A, and the additional mitigation measures introduced in Sections C.9.4 and C.10.4. The document fully described the Project SPCs and proposed mitigation measures during the circulation of the Draft EIS/EIR and legal notice comment period.

B.2-6 Section C.3 of the Draft EIS/EIR describes the baseline conditions in the Project area. In addition, while the exact number was not defined, the Draft EIS/EIR stated in Section C.3.4.4 that “Protocol surveys conducted by Aspen at Little Rock Creek and Castaic Creek on the ANF detected little evidence of large-scale breeding and few metamorph toads were identified later in the season. Conversely Aspen noted numerous metamorph toads during surveys at Littlerock in 2010.” However, the following language has been added to Section C.3.4.4 of the Draft EIS/EIR (Impact BIO-6):

> Similarly, the Forest Service conducts routine surveys of this population. In addition, Aspen has conducted numerous diurnal and nocturnal inspections of the Project area for over seven years in coordination with Forest Service and CDFW biologists. <u>Surveys conducted by Aspen detected less than 5 toads between Rocky Point and Santiago Creek and up to several hundred subadult toads north of Santiago Creek depending on the year.</u> This species was not found during surveys of the small side canyons that flow into the Reservoir below Rocky Point or in Little Rock Creek below the dam.

B.2-7 Section C.3.4.4 of the Draft EIS/EIR thoroughly describes the potential for arroyo toads to move into the reservoir as the water level recedes. The EIS/EIR also clearly states that the potential for this to occur is low, based on repeated surveys of the area, and is compounded by the presence of OHV use and human trampling of the creek bed. The proposed action includes SPCs to reduce or minimize the potential for toads to move into the work area prior to construction of the grade control structure. The installation of the blocking fence will occur as the water is receding and will effectively prevent the movement of toads into the construction area. SPC BIO-6a (Conduct Surveys and Implement Avoidance Measures) has been modified as follows to clarify the timing of the blocking fence installation.

> **BIO-6a: Conduct Surveys and Implement Avoidance Measures.** Prior to any project activities at Rocky Point (the proposed grade control location) PWD shall have a FS approved biologist conduct clearance surveys for arroyo toads and implement protective measures to reduce the potential for arroyo toads to be present in the work area. After ensuring egg masses or any other life stage of arroyo toads is not present PWD will place exclusion fencing around the grade control structure work area <u>as the water levels recede</u>. This will require placing fencing and a screened culvert in the channel to prevent animals from moving into the work area.

B.2-8 Please see Response to Comment B.2-7.

B.2-9 The intent of this and other measures for arroyo toads is to place the fencing around the grade control structure as the water levels recede. This would prevent toads from moving into the area prior to the onset of work. SPC BIO-6a (Conduct Surveys and Implement Avoidance Measures) has been revised to include this language (see Response to Comment B.2-7).

B.2-10 Please see Response to Comment B.2-9. The intent of SPC BIO-6a (Conduct Surveys and Implement Avoidance Measures) is not to relocate toads in aestivation but to prevent them from entering the work area during their activity period. As this area will be fenced while the water recedes, arroyo toads would not be expected to be present in the work area.

Consultation with the USFWS will determine what level of take is permitted and under what conditions toads can be handled or moved.

B.2-11 The Draft EIS/EIR adequately assesses impacts to arroyo toads from construction of the grade control structure, sediment removal and the drawdown of the reservoir during these activities. SPC BIO-6c (Seasonal Surveys During Water Deliveries) has been revised as follows to require notification to the Forest Service and USFWS prior to the proposed water delivery if any egg strings or toads may be at risk.

> **BIO-6c: Seasonal Surveys During Water Deliveries.** PWD shall conduct annual surveys along the upper limit of the Reservoir during the months of March to June if water deliveries would result in a two-inch or greater reduction in water surface elevations in these areas. The authorized biologist would inspect the margin of the reservoir for egg masses or any other life stage of arroyo toads. At the completion of the survey the authorized biologist will prepare a letter report to document the conditions along the upstream margin of the Reservoir. If ~~more than one~~ egg strings are~~is~~ present and the authorized biologist determines the reduction of water surface elevations may result in the loss of the egg strings, PWD will contact the USFWS and Forest Service prior to continued water deliveries.

B.2-12 Please refer to Response to Comments B.2-2 and B.2-5. The full text of SPC BIO-6c can be found in Appendix A, which describes the protocol required in the event that arroyo toad egg masses are found within the Reservoir margin. Consultation with the USFWS will determine what level of take is permitted and under what conditions toads, tadpoles or egg strands can be handled or moved. No new information is required that would necessitate recirculation of the EIS/EIR.

B.2-13 Please see the full text for SPC BIO-6b (Conduct Clearance Surveys and Construction Monitoring) in Appendix A, which describes the removal of exotic species, including non-native fish, from the Reservoir as a required component of Project construction.

B.2-14 Any decision regarding OHV use of the Reservoir is outside the scope of this document and decision.

B.2-15 As identified within EIS/EIR Appendix A, SPC BIO-6c (Seasonal Surveys During Water Deliveries), PWD shall conduct annual surveys along the upper limit of the Reservoir during the months of March to June. These surveys will include written and photographic documentation of the reservoir and stream conditions upstream of the reservoir. If upstream headcutting were to occur (due to the grade control structure not being effective), this would be noted and reported during this monitoring. Therefore, monitoring of the grade control structure effectiveness would be conducted as part of BIO-6c.

B.2-16 There are a total of 3 alternatives, including no action, proposed action and Alternative 1. Section A (Purpose and Need for Action) describes the history of the proposed Project, from its initial proposal in 1992 to the currently proposed Project in this EIS/EIR. The Project analyzed in this document includes the construction of a grade control structure that would serve to prevent sediment loss and headcutting of the stream channel upstream of Rocky Point, thereby preserving habitat for the arroyo toad. The proposed action incorporates multiple SPCs designed to reduce or avoid impacts to the species. As designed, the Project would minimize the risk of "take" of the arroyo toad. Alternative 1 would also incorporate this grade control structure to minimize degradation of arroyo toad habitat, but has a modified construction schedule to reduce impacts to air quality, traffic, and noise.

B.2-17 Thank you for your comment. Alternative 1 was developed to reduce daily and annual air pollutant emissions, daily noise, and daily truck trips associated with Project construction. It is noted that Alternative 1 would result in greater potential for adverse impacts to nesting birds and aquatic species, as discussed in Section C.3 (Biological Resources) and summarized in Section ES.3 (Executive Summary). However, Section C.3 concluded that the adverse effects under Alternative 1 would be reduced and/or avoided through the incorporation and implementation of SPCs, and the level of impact severity would be similar to the proposed Project (less than significant). As described in Section C.15 (Conclusion), Alternative 1 was determined to be the environmentally preferable alternative and the environmentally superior alternative given that it would: (1) Reduce daily PM10 emissions during excavation and construction; (2) Reduce the number of daily truck trips on public roadways; and (3) Reduce the frequency of periodic truck trip noise to receptors along the haul routes and allow for a more flexible construction effort (e.g., less rigid schedule, use of smaller haul trucks) to potentially reduce periodic vibration from loaded haul trucks travelling on public roadways.

B.2-18 Thank you for your comment. The provided contact information for Ileene Anderson and Lisa T. Belenky has been added to the Project mailing list. Please refer to Response to Comments B.2-2 and B.2-5 regarding the full text of SPCs and mitigation measures within this EIS/EIR, and the request for document recirculation. As described in Response to Comments A.1-8, A.1-23, B.2-9, and B.2-11, language has been revised in the EIS/EIR where necessary to provide a more thorough discussion of particular impacts.

Responses to Comment Set C.1 – Star Moffatt

C.1-1 The following response was sent to Star Moffatt on May 6, 2016: “The legal name is Palmdale Water District.”

Appendix H

Mitigation Monitoring and Reporting Program

1. Introduction

This document is the Mitigation Monitoring and Reporting Program (MMRP) for the Littlerock Reservoir Sediment Removal Project (proposed Project or Project). An MMRP is required for the proposed Project because the Environmental Impact Report (EIR) has identified significant adverse impacts, and measures have been identified to mitigate those impacts. As stated in CEQA Guidelines Section 15097(a), to ensure that the mitigation measures and project revisions identified in an EIR are implemented, a public agency shall adopt a program for monitoring or reporting on the revisions, and the measures it has imposed to mitigate or avoid significant environmental effects. An MMRP must be approved by the lead agency when it approves a project for which an EIR was certified. The lead agency must also indicate in its Notice of Determination that an MMRP was adopted.

This MMRP for the proposed Project has been prepared pursuant to Section 21081.6 of the California Public Resources Code in order to mitigate or avoid significant effects on the environment. According to CEQA Guidelines Section 15097(c), a public agency may choose whether its MMRP will monitor mitigation, report on mitigation, or both. “Reporting” generally consists of a written compliance review that is presented to the decision-making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. “Monitoring” is generally an ongoing or periodic process of project oversight. There is often no clear distinction between monitoring and reporting and the program best suited to ensuring compliance in any given instance will usually involve elements of both.

2. Mitigation Monitoring and Reporting Program

The proposed Project incorporates mitigation measures and standard project commitments (SPCs) to proactively protect sensitive resources at the Reservoir and reduce environmental impacts associated with Project activities. SPCs are considered part of the proposed project, while mitigation measures are additional actions that have been recommended during the environmental review process to address adverse impacts where feasible. Similar to mitigation, SPCs include mechanisms that would need to be tracked for compliance. As the CEQA lead agency, Palmdale Water District (PWD) will be responsible for monitoring compliance with all mitigation measures and standard project commitments (SPCs) presented within the Final EIS/EIR. The following defines the difference between a proposed mitigation measure and SPCs:

- **Mitigation Measure**: Mitigation measures have been proposed within the EIS/EIR to reduce or avoid a project-related environmental impact identified during the environmental analysis of the project presented in the EIS/EIR. Mitigation measures become adopted as conditions of approval of the Project when the lead agency issues its decision subsequent to certification of the EIR. Once adopted, mitigation measures become part of the project and are legally binding.
- **Standard Project Commitment (SPC)**: SPCs were developed by PWD during Project design, were incorporated into the project description, and are were considered part of the proposed project during the environmental analysis. SPCs were developed as practical considerations to proactively protect sensitive resources and reduce environmental impacts associated with Project activities. SPCs can also evolve to become better as improvements are discovered. While considered part of the Project, SPCs include requirements and activities assumed within the EIS/EIR to reduce or avoid environmental impacts. Therefore, SPCs have are included within this MMRP to ensure their implementation, and the assigned responsibility for compliance monitoring**.**

The components of the MMRP, presented on the following pages, are defined below:

- **Mitigation Measure or SPC**: Each mitigation measures and SPC is taken from EIS/EIR Appendix A, in the same order they appear in the document. They are categorized by environmental resource area (air quality, biology, etc.) based on the primary types of impacts mitigated by the measure. However, mitigation measures and SPCs may reduce or avoid potential impacts to multiple resource areas.
- **Duration**: Identifies at which stage of Project implementation the mitigation or SPC must be completed. For purposes of the Project, the following definitions pertain to activities described within the duration of mitigation and SPCs:
  - ***Construction*** includes constructing the grade control structure and annual sediment removal activities to restore the Reservoir to 1992 design storage capacity. Construction also includes annual restoration activities after each "season" of activity (work would typically occur annually between Labor Day and mid-December). These activities are described in EIS/EIR Sections B.2.2, B.2.3, and B.2.5.
  - ***Operation and Maintenance (O&M)*** includes ongoing annual sediment removal activities to maintain 1992 design storage capacity of the Reservoir. This also includes annual restoration activities after each "season" of activity. These activities are described in EIS/EIR Sections B.2.4 and B.2.5.
- **Frequency**: Identifies how often mitigation or SPC requirements must be completed. This could include implementing the requirements daily throughout construction and/or O&M), to once per "season" of activity.
- **Location**: Identifies the work area location where mitigation or SPC requirements must be completed. The following defines the four work locations associated with the Project:
  - ***Reservoir*** includes the Littlerock Reservoir within the boundaries of the Santa Clara Mojave Rivers Ranger District of the Angeles National Forest (ANF). This area is shown in EIS/EIR Figure B-2.
  - ***Haul Routes*** include roads within the ANF and public roads between the Reservoir and locations where removed sediment would be disposed (exhausted mining pits at existing quarries within Littlerock and PWD-owned property on 47th Street East). Expected haul routes are shown in EIS/EIR Figure B-1.
  - ***Quarries*** includes existing sand and gravel mines located in the community of Littlerock, approximately 6 miles north of the Dam. Currently, six individual quarries operate within this area, which is shown in EIS/EIR Figure B-1. Removed sediment transported to these locations would be permanently stored at these locations for backfilling of exhausted mining pits.
  - ***PWD Property*** includes a 21-acre site owned by PWD located at 35720 East 47th Street in Palmdale, CA. This site is shown in EIS/EIR Figure B-1. Up to 10,000 cubic yards of removed sediment may be temporarily stored at this location for recycled uses.
- **Coordination:** Identifies agencies that must be coordinated with, either directly or through applicable regulations, when developing or implementing the mitigation measure or SPC.
- **Monitoring Responsibility**: Identifies the agency or department with responsibility for implementing and monitoring the requirements of the mitigation measure or SPC.
- **Verification (Date and Initials)**: Provides information about who reviewed the mitigation measure or SPC implementation, and the date the measure or SPC was determined complete. This column would start to be filled in upon start of project implementation. Due to Project activities occurring annually, new verification would occur annually for each new "season" of activity.

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
C.2 Air Quality and Climate Change						
SPC AQ-1: Limit Engine Idling. Vehicle engine idling shall be limited to the extent feasible, and shall be limited to a maximum duration of 3 minutes per event.	Ongoing during construction and O&M activities	Daily	Reservoir, Quarries, PWD Property	Quarry Operators	Palmdale Water District	
SPC AQ-2: Fugitive Dust Controls. Fugitive dust controls shall conform with applicable AVAQMD Rule 403 (c) requirements for all phases of the project; a Dust Control Plan (DCP) will be submitted to the APCO for approval if more than 5 acres would be disturbed or if more than 2,500 cubic yards of material will be excavated per day for at least three days (for each phase of the project as applicable); and in addition to the Rule 403 (c) requirements or to specify requirements where that rule provides options, the following specific additional fugitive dust control measures will be used during the main excavation phase of the project: • Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit unpaved roadways on the site and the sediment disposal area. • Street sweeping shall be conducted to cleanup any carryout from unpaved areas and reduce paved road silt content. • Water the disturbed areas of the active construction sites and active unpaved roadways used during construction at least four times per day and more often if uncontrolled fugitive dust is noted. • Cover all trucks hauling sediment and other loose material, or require at least two feet of freeboard. • Travel routes shall be developed to minimize both unpaved road travel. • Sediment excavation will be conducted in areas of the reservoir bed that are near the maintained reservoir water level so that the sediment excavated is naturally wet or excavation will occur in areas that are watered prior to excavation.	Ongoing during construction and O&M activities	Daily	Reservoir, Quarries, PWD Property	AVAQMD, Quarry Operators	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
• Sediment storage areas will have non-toxic dust suppressants sprayed over their active surface area at the end of each year's excavation period. • Establish a vegetative ground cover (in compliance with biological resources impact Mitigation Measures) or otherwise create stabilized surfaces on all unpaved areas disturbed by the project, not including areas located within the maximum pool elevation of the Littlerock Reservoir, within 21 days after active construction operations have ceased each year. The Reservoir level will be allowed to rise as fast as nature allows to levels above each year's annual excavation areas.						
SPC AQ-3: Off-Road Engine Specifications. All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 3, or higher tier, engine is not available for any off-road engine larger than 50 horsepower, that engine shall be equipped with a Tier 2 engine equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. Equipment properly registered under and in compliance with CARB's Statewide Portable Equipment Registration Program are in compliance with this project commitment.	Ongoing during construction and O&M activities	Daily	Reservoir, Quarries, PWD Property	CARB, Quarry Operators	Palmdale Water District	
SPC AQ-4: On-Road Engine Specifications. All on-road construction vehicles shall meet all applicable California on-road emission standards. This does not apply to construction worker personal vehicles.	Ongoing during construction and O&M activities	Daily	Reservoir, Haul Routes	CARB	Palmdale Water District	
SPC AQ-5: Reduce Off-Road Vehicle Speeds. Vehicle speeds shall remain below 15 mph off-pavement to minimize dust and reduce wildlife impacts.	Ongoing during construction and O&M activities	Daily	Reservoir, Quarries, PWD Property	Quarry Operators	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC GHG-1: Recycle Construction Wastes. Construction wastes (asphalt, concrete, and other wastes as appropriate) and the removed sediment will used, re-used, or recycled to the extent feasible.	Ongoing during construction and O&M activities	Daily	Reservoir, Quarries, PWD Property	Quarry Operators	Palmdale Water District	
C.3 Biological Resources						
SPC BIO-1a: Provide Restoration/Compensation for Impacts to Native Vegetation Communities. The PWD shall restore all areas outside the permanent sediment removal area. Prior to disturbance, PWD shall have a qualified biologist document the community type and acreage of vegetation that would be subject to project disturbance. Impacts to all native trees and oaks with would be documented by identifying the species, number, location, and DBH. The PWD shall prepare a Habitat Restoration and Revegetation Plan for the Project, which includes plans for restoration, enhancement/re-vegetation and/or the acquisition of off-site habitat. The plan shall include at minimum: (a) maps depicting the location of the mitigation site(s) (off site mitigation may be required); (b) locations and details for top soil storage (c) the plant species to be used; (d) seed and cutting collecting guidelines; (e) time of year that the planting would occur and the methodology of the planting; (f) a description of the irrigation methodology for container plants; (g) measures to control exotic vegetation on site; (h) performance standards; (i) a detailed monitoring program; (j) locations and impacts to all native trees, and (k) locations of temporary or permanent gates, barricades, or other means to control unauthorized vehicle access on access to restoration areas. The PWD would use locally collected seed mix, locally collected cuttings, etc. to revegetate areas disturbed by construction activities. All habitats dominated by non-native species prior to Project disturbance shall be revegetated using appropriate native species. Forest Service approval is required for seeding on NFS land. No commercially purchased seeds, stock, etc. would be accepted without the approval of the Forest Service on NFS lands and must be certified to be free of noxious weeds. The Habitat	Prior to and following construction	Plan: Once Revegetation: Once per season of construction Monitor revegetation: Annually	Reservoir, PWD Property	USFS; USFWS and CDFW (regarding compensation lands as applicable)	Palmdale Water District, Forest Service	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
Restoration and Revegetation Plan shall include a monitoring element. Post seeding and planting, monitoring would be yearly from years one to five and every other year from years six to ten, or until the success criteria are met. If the survival and cover requirements have not been met, PWD is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned. The replacement ratios for permanent impacts to riparian vegetation are 3:1 and 1.5:1 for juniper woodland. Individual native trees which are to be removed shall be replaced as follows: trees from 1 to 5 inches DBH shall be replaced at 3:1; trees from 5 to 12 inches shall be replaced at 5:1; trees from 12 to 24 inches shall be replaced at 10:1; and trees from 24 to 36 inches shall be replaced at 15:1. All planting locations, procedures, and results shall be evaluated by a qualified biologist and Forest Service botanist (as applicable). The creation or restoration of habitat shall be monitored annually for years one to five on both Forest Service lands and private lands and bi-annually for years six to ten on Forest Service lands, or until the performance standards are met, after mitigation site construction to assess progress and identify potential problems with the restoration site. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the 10-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance standards after the 10-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the 10-year period until the standards are met or unless otherwise specified by the Forest Service on NFS lands. If a fire occurs in a revegetation area within the 10-year monitoring period, PWD shall be responsible for a one-time replacement. Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands would include all of the following:						

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
A. Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the Project, taking into consideration soils, vegetation type, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by PWD and Forest Service; B. To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed; C. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation; D. Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible; E. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; F. Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; G. Must provide wildlife movement value equal to that on the project site, based on topography, presence and nature of movement barriers or crossing points, location in relationship to other habitat areas, management feasibility, and other habitat values; and H. Have water and mineral rights included as part of the acquisition, unless PWD and Forest Service, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.						

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC BIO-1b: Worker Environmental Awareness Program. The PWD shall prepare a Worker Environmental Awareness Program (WEAP) that will be implemented for construction crews by a qualified biologist(s). Training materials and briefings shall include but not be limited to: discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; fire protection measures; sensitivities of working on NFS lands and identification of T&E and Forest Service sensitive species; hazardous substance spill prevention and containment measures; a contact person in the event of the discovery of dead or injured wildlife; and review of mitigation requirements. The WEAP shall include the protocol to be followed when road kill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as the California condor. On NFS lands, road kill shall be reported to the Forest Service or other applicable agency within 24 hours. On non-NFS lands, road kill shall be reported to the appropriate local animal control agency within 24 hours. Training materials and a course outline shall be provided to Forest Service for review and approval at least 30 days prior to the start of construction. Maps showing the location of special-status wildlife, fish, or populations of rare plants, exclusion areas, or other construction limitations (i.e., limited operating periods and arroyo toad exclusion areas) will be provided to the environmental monitors and construction crews prior to ground disturbance. PWD shall provide the Forest Service a list of construction personnel who have completed training prior to the start of construction, and this list shall be updated by PWD as required when new personnel start work. No construction worker may work in the field for more than 5 days without participating in the WEAP.	Prior to and during construction and O&M activities	Once prior to start of construction and as required when new personnel start work	Reservoir, PWD Property	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC BIO-2: Prepare and Implement a Weed Control Plan. The PWD shall prepare and implement a Weed Control Plan, which shall be part of the Habitat Restoration and Revegetation Plan. The Weed Control Plan, including the control methods to be used, shall be prepared consistent with the FS's Plan for Invasive Plants, Angeles National Forest and San Gabriel Mountains National Monument Environmental Assessment. The Weed Control Plan will be implemented during construction of the grade control structure, sediment removal, and operation and maintenance. The Weed Control Plan shall be submitted to the Forest Service for approval of the weed control methods, practices, and timing. The Weed Control Plan shall include the following: a. A pre-construction weed inventory shall be conducted for all areas subject to ground-disturbing activity. Weed populations that: (1) are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head); and (3) are considered by the FS as species of priority (for NFS lands only) shall be mapped and described according to density and area covered. In areas subject to ground disturbance, weed infestations shall be treated prior to sediment removal activities according to control methods and practices for invasive weed populations designed in consultation with the Forest Service. The Weed Control Plan shall be updated and utilized for eradication and monitoring for annual sediment removal activities. b. Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods applied with the authorization of the Forest Service, and Fish and Wildlife Service where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), where concurrence has been provided by the Forest Service, and implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 24 hours of a more than 30% anticipated rain event. In riparian areas	Prior to and during construction and O&M activities	Plan: Once Weed control: Minimum of once annually Survey and monitoring: Annually years 1-5, every 2 years thereafter Certificate of Cleaning Equipment log: submit to FS monthly	Reservoir, PWD Property	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
only water-safe herbicides shall be used. Herbicides shall not be applied according to the prescriptions in the manufacturer label. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the Forest Service. The timing of the weed control treatment shall be determined for each plant species in consultation with the Forest Service (on NFS lands). c. Surveying and monitoring for weed infestations shall occur annually for years one to five post construction of the grade structure and bi-annually thereafter. For the life of the Project (on NFS lands) the PWD will survey for new invasive weed populations every two years. Treatment of identified weed populations shall occur at a minimum of once annually should they occur in the disturbance area. When no new seedlings or resprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site. d. All seeds and straw materials shall be weed-free rice straw, and all gravel and fill material, if used, shall be certified weed free. Gravel and fill must be from a quarry approved by a Forest Service botanist. All plant materials used during restoration shall be native, certified weed-free, and approved by the Forest Service. All erosion control material must be biodegradable. Wattles wrapped in "photodegradable" plastic will not be acceptable. Prior to work on NFS lands, all vehicles traveling off road and all ground disturbing equipment shall be washed (including wheels, undercarriages, fuel pans, skid plates and bumpers) before entering Forest Service lands. On non-federal lands vehicles and equipment shall be washed prior to commencing work in off road areas. Vehicles shall be cleaned at existing construction yards or legally operating car washes. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before entering all Project work areas. PWD shall notify NFS at least 2 working days prior to moving each piece of equipment on to NFS land, unless otherwise agreed. Notification will include a Certificate of Cleaning Equipment. Upon request of NFS, arrangements will be made for NFS to inspect each piece of equipment						

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
prior to it being placed in service. This requirement for notification does not apply to handheld equipment and tools. All washing on NFS lands shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill, unless otherwise approved by the Forest Service. A Certificate of Cleaning Equipment log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the Forest Service for inspection at any time and shall be submitted to the Forest Service on a monthly basis.						
SPC BIO-4: Conduct Pre-Construction Surveys and Monitoring for Breeding Birds. The PWD shall conduct pre-construction surveys for nesting birds prior to any vegetation removal, staging of equipment, sediment removal activities, or other ground disturbance that will occur during the breeding period (from January 15 through August 31 for raptors and humming birds and March 15 through September 1 for other birds). This action will be required for all activities including annual sediment removal. The biologists conducting the surveys shall be Forest Service approved experienced bird surveyors familiar with standard nest-locating techniques. Surveys shall be conducted in all areas within a 500-foot buffer of any area proposed for Project disturbance and no more than 3 days prior to the initiation of any vegetation removal, staging of equipment, sediment removal activities, or other ground-disturbance activities. If breeding birds with active nests are identified, a 300-foot buffer shall be established around the nest site and no construction activities shall be allowed within the buffer until the young have fledged from the nest or the nest fails. The 300-foot buffer may be adjusted after review by a qualified ornithologist based on existing conditions, including ambient noise, topography, and disturbance with concurrence from the Forest Service, as appropriate. A Forest Service approved biological monitor shall be responsible for recording the results of pre-construction surveys and copies of all monitoring reports shall be submitted to the Forest Service at the end of each breeding season.	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir, PWD Property	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC BIO-5: Conduct Preconstruction Surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, Candidate, and Forest Service Sensitive Plants and Avoid Any Located Occurrences of Listed Plants. The PWD shall conduct focused surveys for federal- and state-listed and other special-status plants. All special-status plant species (including listed threatened or endangered species, Forest Service Sensitive, and all CRPR 1A, 1B, 2, 3, and 4 ranked species) subject to project disturbance shall be documented by the pre-construction survey report. Surveys shall be conducted during the appropriate season in all suitable habitat located within the Project disturbance areas and access roads and within 100 feet of disturbance areas and access roads. Surveys shall be conducted by a qualified botanist approved by the Forest Service. The field surveys and reporting must conform to current CDFW botanical field survey protocol (CDFG, 2009) or more recent updates, if available. The reports will describe any conditions that may have prevented target species from being located or identified, even if they are present as dormant seed or below-ground rootstock (e.g., poor rainfall, recent grazing, or wildfire). Prior to any vegetation removal, the PWD shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the Forest Service for review and approval. If federally or State-listed plants are detected in disturbance areas or within 100-feet of the disturbance areas, the PWD would avoid these populations and notify the Forest Service, USFWS, and CDFW as appropriate. The PWD shall avoid impacts to any State or federally listed plants. If Project activities result in the loss of more than 10 percent of the known individuals within the Forest Service Sensitive, and/or special-status plant species (List 1.B and List 2 only) occurrence to be impacted, the PWD shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio (habitat preserved: habitat impacted). The compensation lands must be occupied by the impacted Forest Service Sensitive or CRPR 1 or 2 ranked plants	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir, PWD Property	USFS, CDFW, USFWS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
or be considered appropriate by the Forest Service to off-set the loss of these plants. Occupied habitat will be calculated on the project site and on the compensation lands as including each special status plant occurrence and a surrounding 100-foot buffer area. Off-site compensation shall be incorporated into SPC BIO-1a (Restoration/Compensation for Impacts to Native Vegetation Communities) for review and approval by the Forest Service, as applicable.						
SPC BIO-6a: Conduct Surveys and Implement Avoidance Measures. Prior to any project activities at Rocky Point (the proposed grade control location) PWD shall have a FS approved biologist conduct clearance surveys for arroyo toads and implement protective measures to reduce the potential for arroyo toads to be present in the work area. After ensuring egg masses or any other life stage of arroyo toads is not present PWD will place exclusion fencing around the grade control structure work area as the water levels recede. This will require placing fencing and a screened culvert in the channel to prevent animals from moving into the work area.	Prior to grade control construction	Once	Reservoir	USFS	Palmdale Water District	
SPC BIO-6b: Conduct Clearance Surveys and Construction Monitoring. After the placement of exclusion fencing PWD will have a FS approved biologist conduct five nights of clearance surveys during suitable weather conditions to relocate toads from the work area. Prior to the onset of construction activities, PWD shall provide all personnel who will be present on work areas within or adjacent to arroyo toad habitat with the following information: (a) a detailed description of the arroyo toad including color photographs; (b) the protection the arroyo toad receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act; (c) the protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the Project; and (d) a point of contact if arroyo toads are observed. For all areas in which this species has been documented PWD shall develop and implement a monitoring plan that includes the	Prior to and during construction	Surveys: Once Monitoring: Daily	Reservoir	USFS, USFWS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
following measures in consultation with the USFWS and Forest Service. A. PWD shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in occupied arroyo toad habitat and within 300-feet of Rocky Point. The resumes of the proposed biologists will be provided to the Forest Service for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad. B. All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day. Prior to the onset of any construction activities, PWD shall meet on-site with staff from the Forest Service and the authorized biologist. PWD shall provide information on the general location of construction activities within arroyo toad habitat and the actions taken to reduce impacts to this species. C. Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat (i.e., above Rocky Point at a pre-selected location in consultation with the USFWS and Forest Service. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area. D. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. E. To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. F. PWD shall restrict work to daylight hours, except during the placement of soil cement, or unless otherwise authorized by the Forest Service in order to avoid nighttime activities when arroyo toads may be present on the access roads. Traffic speed shall be maintained at 15 mph or less in the work area.						

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
G. A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bull-frogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code. H. No stockpiles of materials will occur in areas occupied by arroyo toads. I. Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc.) in areas that may contain arroyo toads will be reported to the Forest Service and USFWS within four hours.						
SPC BIO-6c: Seasonal Surveys During Water Deliveries. PWD shall conduct annual surveys along the upper limit of the Reservoir during the months of March to June if water deliveries would result in a two-inch or greater reduction in water surface elevations in these areas. The authorized biologist would inspect the margin of the reservoir for egg masses or any other life stage of arroyo toads. At the completion of the survey the authorized biologist will prepare a letter report to document the conditions along the upstream margin of the Reservoir. If more than one egg string is present and the authorized biologist determines the reduction of water surface elevations may result in the loss of the egg string PWD will contact the USFWS and Forest Service prior to continued water deliveries.	During construction and O&M activities	Annually	Reservoir	USFS, USFWS	Palmdale Water District	
SPC BIO-7: Monitor Construction and Remove Trash and Microtrash. PWD shall retain a qualified biologist with demonstrated knowledge of California condor to monitor all construction and sediment removal activities within the ANF. The resumes of the proposed biologist(s) will be provided to the Forest service for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. If a condor is observed in the Project area the authorized biologist will have the authority to stop all activities within 500 feet of the condor until it leaves the area. All condor sightings in the Project area will be reported to the CDFW, USFWS and Forest. Should condors be found roosting within	Ongoing during construction and O&M activities	Daily	Reservoir	USFS, CDFW, USFWS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
0.5 miles of the sediment removal or construction area, no construction activity shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization occurs from the CDFW, USFWS and Forest Service on NFS lands. Microtrash. Workers will be trained on the issue of microtrash – what it is, its potential effects to California condors, and how to avoid the deposition of microtrash. In addition, daily sweeps of the work area will occur to collect and remove trash in locations with the potential for California condors to occur. Worker Education. PWD will train all workers on the project concerning the California condor. Information will include: species description with photos and/or drawings indicating how to identify the California condor and how to distinguish condors from turkey vultures and golden eagles; protective status and penalties for violation of the ESA; avoidance measures being implemented on the Project; and contact information for communicating condor sightings. Reporting. All California condor sightings in the Project area will be reported directly to the CDFW, USFWS, and Forest Service.						
SPC BIO-8: Conduct Protocol Surveys for Least Bell's Vireo and Avoid Occupied Habitat. If construction or sediment removal activities are scheduled to occur during the breeding season (March 15 through September 15) PWD shall have a qualified ornithologist conduct protocol surveys in suitable habitat within 500 feet of disturbance areas including Cheseboro Road below the dam. In known occupied habitat for listed riparian birds, PWD shall conduct focused surveys of the Project and adjacent areas within 500 feet. The surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season. If a territory or nest is confirmed in a previously unoccupied area, the CDFW, USFWS and Forest Service shall be notified within 48 hours. In coordination with the CDFW, USFWS, and Forest Service a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may	Ongoing during construction and O&M activities	Surveys: Annually Monitoring: Daily	Reservoir	USFS, CDFW, USFWS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
be adjusted as determined by a qualified biologist in coordination with the CDFW, USFWS and Forest Service. The biologist shall have the authority to halt the construction or sediment removal activities and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge.						
SPC BIO-9: Conduct Pre-Construction Surveys for Swainson's Hawks. If ground disturbance occurs at the 47th Street East sediment disposal site during the breeding season PWD shall retain a qualified ornithologist and conduct pre-construction surveys within one-half mile of the sediment disposal site in regions with suitable nesting habitat for Swainson's hawks. The survey periods will follow a specified schedule: Period I occurs from 1 January to 20 March, Period II occurs from 20 March to 5 April, Period III occurs from 5 April to 20 April, Period IV occurs from 21 April to 10 June, and Period V occurs from June 10 to July 30. Surveys are not recommended during Period IV because identification is difficult, as the adults tend to remain within the nest for longer periods of time. No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of Project construction. If a nest site is found, consultation with CDFW shall be required to ensure Project construction will not result in nest disturbance. If present PWD shall implement a 0.25 mile non-disturbance buffer between 1 March and 15 September, or until the nest has been abandoned or the chicks have fledged. These buffer zones may be adjusted as appropriate in consultation with a qualified ornithologist and CDFW.	Ongoing during construction and O&M activities	Annually	PWD Property	CDFW	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC BIO-11: Conduct Focused Surveys for Ringtail and Avoid Denning Areas. If vegetation clearing will occur during the breeding season for ringtail cat (March 1 through June 30), a qualified biologist will conduct focused surveys for potential dens within all areas proposed for clearing and grading including a 200 foot buffer. Any active dens will be avoided, and a 200-foot disturbance-free buffer will be established. This buffer may be adjusted in coordination with the CDFW and the Forest Service, depending on the specific location and current activity occurring in the area. Once the young have left the den or the breeding attempt has failed, normal vegetation clearing and earth moving activities can resume. All activities that involve the ringtail shall be documented and reported to the CDFW and the Forest Service within 30 days of the activity.	Ongoing during construction and O&M activities	Once per season prior to ground disturbance in each new area	Reservoir, PWD Property	USFS, CDFW	Palmdale Water District	
SPC BIO-14: Conduct Surveys for Southwestern Pond Turtle and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing in the Reservoir or below the dam on PWD access road PWD shall retain a qualified biologist to conduct focused surveys for south-western pond turtle in the Reservoir and Little Rock Creek. The resume of the proposed biologists will be provided to the Forest Service for concurrence prior to conducting the surveys. This biol-ogist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September. The survey schedule may be adjusted in consultation with the Forest Service, as appropriate, to reflect the existing weather or stream conditions. The qualified biologist shall conduct focused, systematic sur-veys for southwestern pond turtle nesting sites. The survey area shall include all suitable nesting habitat located within 200 feet of occupied habitat in which Project-related ground disturbance will occur. This area may be adjusted based on the existing topo-graphical features on a case-by-case basis with the approval of the Forest Service. Surveys will entail searching for evidence of pond turtle nesting, including remnant eggshell fragments, which may be found on the ground following nest depredation.	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir	USFS, CDFW	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
If a southwestern pond turtle nesting area would be adversely impacted by construction activities, PWD shall avoid the nesting area. If avoidance of the nesting area is determined to be infeasible, the authorized biologist shall coordinate with CDFW and Forest Service to identify if it is possible to relocate the pond turtles. Eggs or hatchlings shall not be moved without the written authorization from the CDFW and Forest Service. A qualified biologist with demonstrated expertise with southwestern pond turtles shall monitor construction activities where pond turtles are present. The authorized biologist will be present during all activities immediately adjacent to, or within, habitat that supports populations of southwestern pond turtles. If the installation of fencing is deemed necessary by the authorized biologist, one clearance survey for southwestern pond turtles shall be conducted at the time of the fence installation. Clearance surveys for southwestern pond turtles shall be conducted by the authorized biologist prior to the initiation of vegetation clearing or construction each day until the top three feet of sediment has been removed from the reservoir.						
SPC BIO-15: Conduct Surveys for Two-Striped Garter Snakes and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing in the Reservoir or below the dam on PWD access road PWD shall retain a qualified biologist to conduct focused surveys for two-striped garter snakes where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the Forest Service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys within one week of vegetation clearing. The survey schedule may be adjusted in consultation with the Forest Service to reflect the existing weather or stream conditions. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of the two-striped	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
garter snake. Clearance surveys for garter snakes shall be conducted by the authorized biologist prior to the initiation of construction each day. Any snakes found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.						
SPC BIO-16: Conduct Surveys for Coast Range Newts and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing in the Reservoir (at Rocky Point only) or below the dam on PWD access road PWD shall retain a qualified biologist to conduct surveys for coast range newts where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the Forest Service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys within one week of vegetation clearing. The survey schedule may be adjusted in consultation with the Forest Service to reflect the existing weather or stream conditions. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of the coast range newts. Clearance surveys for coast range newts shall be conducted by the authorized biologist prior to the initiation of construction each day in suitable habitat. Any coast range newts found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir	USFS	Palmdale Water District	
SPC BIO-17: Conduct Surveys for Terrestrial Herpetofauna and Implement Monitoring, Avoidance, and Minimization Measures. Prior to ground disturbance or vegetation clearing at all Project locations PWD shall retain a qualified biologist to conduct surveys for terrestrial herpetofauna where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the Forest Service for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of three daytime surveys and one nighttime survey	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir, PWD Property	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
within one week of vegetation clearing. The survey schedule may be adjusted in consultation with the Forest Service to reflect the existing weather or stream conditions. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports terrestrial herpetofauna. Clearance surveys for terrestrial herpetofauna shall be conducted by the authorized biologist prior to the initiation of construction each day in suitable habitat. Terrestrial herpetofauna found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.						
SPC BIO-18: Conduct Protocol Surveys for Burrowing Owls. Concurrent with desert tortoise clearance surveys at the 47th Street East sediment disposal site PWD shall retain a qualified biologist to conduct pre-construction surveys for burrowing owls in accordance with CDFW guidelines (CDFG 2012). Pre-construction surveys for burrowing owls shall occur no more than 15 days prior to initiation of ground disturbance or site mobilization activities. The survey area shall include the 47th Street East sediment disposal site and surrounding 500 foot survey buffer where access is legally available. If an active burrowing owl burrow is detected within 500 feet from the Project Disturbance Area the following avoidance and minimization measures shall be implemented. Establish Non-Disturbance Buffer. Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August). Owls present on site after 1 February will be assumed to be nesting unless evidence indicates otherwise. The protected buffer will remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently or the nest is no longer active. The non-disturbance buffer and fence line may be reduced by a qualified biologist if project-related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1st through January 31st). Signs shall be posted in	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance Monitoring: Daily	PWD Property	CDFW	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer. Passive Relocation. During the non-breeding season, the birds may be passively relocated. Relocation of owls during the non-breeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least four nights. These one-way doors will be removed and the burrows hand excavated prior to the initiation of grading. To avoid the potential for owls evicted from a burrow to occupy other burrows within the impact area, one-way doors will be placed in all potentially suitable burrows within the impact area when eviction occurs. Any damaged or collapsed burrows will be replaced with artificial burrows in adjacent habitat at a 2:1 ratio. Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance. Compensation for the Loss of foraging habitat. If present PWD would offset the loss of up to six acres of foraging habitat by the acquisition and preservation of undisturbed areas of the project site mitigation lands outside of the Project site or a combination of both. Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands will include all of the following: A. Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the Project, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by PWD and Forest Service (as applicable);						

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
B. To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed; C. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation; D. Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible; E. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; F. Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; G. Must provide wildlife movement value equal to that on the project site, based on topography, presence and nature of movement barriers or crossing points, location in relationship to other habitat areas, management feasibility, and other habitat values; and H. Have water and mineral rights included as part of the acquisition, unless PWD and Forest Service, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.						
SPC BIO-20: Survey for Maternity Colonies or Hibernaculum for Roosting Bats. Prior to ground disturbance or vegetation clearing at all Project locations PWD shall retain a qualified biologist to conduct surveys for sensitive bats. Surveys shall be conducted no more than 15 days prior to grading near or the removal of trees or other structures. The resume of the proposed biologists will be provided to the Forest Service for concurrence prior to conducting the surveys. Surveys shall also be conducted during the maternity season (1 March to 31 July) within 300 feet of project activities. If active maternity roosts or hibernacula are	Ongoing during construction and O&M activities	Once per season prior to ground disturbance in each new area	Reservoir, PWD Property	USFS, CDFW	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
found, the structure, tree or feature occupied by the roost shall be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the biologist will implement the following actions. Maternity Roosts. If a maternity roost will be impacted/removed by the Project, and no alternative maternity roost exists in proximity, substitute roosting habitat for the maternity colony shall be provided in an adjacent area free from project impacts. Alternative roost sites will be designed to meet the needs of the specific species and will be constructed/installed in coordination with CDFW and Forest Service. By making the roosting habitat available prior to eviction, the colony will have a better chance of finding and using the roost. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW and Forest Service shall be notified of any hibernacula or active nurseries within the construction zone. Exclusion of bats prior to eviction from roosts. If non-breeding bat hibernacula are found in trees scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal). A concise letter report will be submitted to the Forest Service documenting the results of bat surveys and any evictions that were required.						

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC BIO-22: Conduct Surveys for American Badger and Desert Kit Fox and Avoid During the Breeding Season. Prior to ground disturbance or vegetation clearing at the 47th Street sediment disposal site and within 200 feet of the Reservoir PWD shall retain a qualified biologist to conduct surveys for American badger and desert kit fox. Surveys shall be conducted no more than 15 days prior to site mobilization, grading near or sediment. The resume of the proposed biologists will be provided to the Forest Service for concurrence prior to conducting the surveys. If present, occupied American badger and desert kit fox dens shall be flagged and ground-disturbing activities avoided within 100 feet of the occupied den. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of the CDFW and Forest Service. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction activities. Inactive Dens. Inactive dens that would be directly impacted by the placement of fill shall be excavated either by hand or mechanized equipment under the direct supervision of the biologist and backfilled to prevent reuse by badgers or kit fox. Potentially and known active dens shall not be disturbed during the whelping/pupping season (February 1 – September 30). A den may be declared "inactive" after three days of monitoring via camera(s) or a tracking medium have shown no kit fox or American badger activity. Passive Relocation. If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Relocation of badgers shall occur only after consultation with the CDFW and the Forest Service. Kit fox shall be passively hazed only outside the pupping season. A written report documenting any exclusion events shall be provided to the Forest Service and CDFW within 30 days of relocation.	Ongoing during construction and O&M activities	Surveys: Once per season prior to ground disturbance in each new area Monitoring: Daily	Reservoir, PWD Property	USFS, CDFW	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
C.4 Cultural Resources						
SPC CUL-1: Archaeological Monitoring Outside the Little Rock Creek and Reservoir Bed. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of prehistoric and historical resources that could be encountered within the Project area. A monitor(s) shall be present for all ground disturbing activities that involve excavation of previously undisturbed soil (pre-dam ground surface level) outside of the Little Rock Creek and Reservoir bed. A monitoring program shall be developed and implemented by PWD, in consultation with the Forest Service, to ensure the effectiveness of monitoring. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the principal archaeologist. A Native American monitor may be required at culturally sensitive locations specified by the Forest Service following government-to-government consultation with Native American tribes. PWD shall retain and schedule any required Native American monitors.	Ongoing during construction and O&M activities	Daily	Reservoir	USFS	Palmdale Water District	
SPC CUL-2: Unidentified Cultural Resource Discovery Procedures. If previously unidentified cultural resources are unearthed during construction activities, construction work in the immediate area of the find shall be halted and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. Once the find has been inspected and a preliminary assessment made, PWD would consult with the Forest Service to make the necessary plans for evaluation and treatment of the find(s). SPC CUL-1 shall also be implemented for CUL-2.	Ongoing during construction and O&M activities	Daily	Reservoir	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC CUL-3: Unidentified Human Remains Discovery Procedures. PWD shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct Project impacts by Project redesign. If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the Forest Service authorized officer shall be informed immediately. If the remains are determined to be of Native American origin and are on federal land, then the remains shall be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). If non-Native American human remains are discovered on federal land, then the County coroner would be contacted to determine the appropriate course of action. If the human remains are not on federal land, the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98. PWD shall assist and support the Forest Service, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies and commissions, and consulting parties as requested by the Forest Service. PWD shall comply with and implement all required actions and studies that result from such consultations.	Ongoing during construction and O&M activities	Daily	Reservoir	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
C.5 Geology and Soils						
SPC GEO-1: Geotechnical Investigation. Prior to construction, PWD (using a licensed geologist or engineer) shall perform a design-level geotechnical investigation, which shall include evaluation of soil and slope stability hazards as a result of seismic failure in areas of planned grading and excavation, and provide recommendations for development of grading and excavation plans. Based on the results of the geotechnical investigations, appropriate support and protection measures shall be designed and implemented to maintain the stability of soils and slopes adjacent to work areas during and after construction.	Prior to construction	Once	Reservoir		Palmdale Water District	
C.7 Hydrology						
SPC HYDRO-1: Fill From Reservoir Excavation Will Not Be Placed in Stream Channels. With the exception of temporary stockpiles at the reservoir during excavation, material excavated from the reservoir bed would not be placed within a watercourse, or in a manner that would divert or obstruct the flow path or floodplain of any watercourse.	Ongoing during construction and O&M activities	Daily	Reservoir, Quarries, PWD Property		Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
C.8 Noise						
SPC NOI-1: Prepare a Construction Noise Complaint and Vibration Plan. Prior to construction, a Construction Noise Complaint and Vibration Plan shall be prepared by PWD. The Plan shall establish a telephone number for use by the public to report any nuisance noise conditions associated with Project activities occurring outside the ANF. PWD shall ensure that: • A noise and vibration liaison is assigned to respond to all public construction noise complaints, and • Either (a) the telephone number is staffed by the noise and vibration liaison during construction hours; or (b) the phone number is connected to an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at entrances to the Reservoir and PWD sediment storage site on 47th Street in a manner visible to passersby. The Plan shall detail how PWD would respond to noise and vibration complaints and document the resolution of those complaints.	Prior to and ongoing during construction and O&M activities	Plan: Once Noise Complaint Response: Daily	Reservoir, Haul Route, PWD Property		Palmdale Water District	
SPC NOI-2: PWD Site Buffer Requirements. Project activities within the PWD property located on 47th Street East shall not occur within 500 feet of any residential structure.	Ongoing during construction and O&M activities	Daily	PWD Property		Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
C.9 Recreation and Land Use						
MM L-1a: Coordinate Project scheduling and maintenance activities with Forest Service Authorized Officer. PWD shall develop the Project construction schedule and coordinate construction with the Forest Service's Authorized Officer. Coordination efforts shall ensure the following occurs unless otherwise approved by the Forest Service's Authorized Officer: • Construction and maintenance activities are scheduled to avoid heavy recreational use periods (including major holidays) as determined by the Forest Service's Authorized Officer; • Staging areas for Project activities are located so as to minimize the need to temporarily close developed recreation facilities; • Timetables for the required period of use will attempt to limit the need for and duration of temporary closures to the greatest extent feasible; and The Forest Service and PWD will meet annually prior to Labor Day to discuss these measures and reach consensus. The Forest Service retains final discretion over any temporary closures.	Prior to and ongoing during construction and O&M activities	Once annually	Reservoir	USFS	Palmdale Water District	
MM L-1b: Provide Compensation to Forest Service for Lost Recreational Opportunity. The recreational impacts of the Project during construction could vary widely in any given year. PWD and the Forest Service agree as part of an annual meeting to assess the likely duration of closures and jointly determine the number of days of lost recreation opportunities directly attributable to the Project during the construction time period. Any areas that remain closed to recreation for other factors not associated with the construction of the Project will not be considered. PWD shall compensate the Forest Service based on long term historical records of revenue generated per day kept prior to start of construction of the Project, and also an agreed upon value of public recreation, as determined by literature or studies. Compensation may be any form allowable under current agreement authorities, including cash, equipment, supplies, or in-kind labor. Contributions may be made to a third party, or applied off-site if agreed to by the parties. The goal is for PWD and the Forest Service to build a partnership that provides and enhances recreation fairly and commensurate with Project impacts.	Prior to and ongoing during construction and O&M activities	Once annually	Reservoir	USFS	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC LAND-1: Obtain Necessary Conditional Use Permits. PWD shall temporarily store or permanently dispose of the excavated sediment from Littlerock Reservoir only at a location that has a Conditional Use Permit (CUP) from the local jurisdiction (i.e., County of Los Angeles or City of Palmdale) for sediment storage or disposal. PWD shall consult with the local jurisdiction to ensure compliance with the requirements of the CUP.	Prior to construction and O&M activities	Once annually	Quarries, PWD Property	City of Palmdale	Palmdale Water District	
SPC LAND-2: Design Grading to Accommodate OHV Access. The sediment removal Excavation Plan shall ensure OHV ingress/egress is available to the Reservoir bottom from the existing boat ramp.	Prior to and ongoing during construction and O&M activities	Once annually	Reservoir	USFS, DWR	Palmdale Water District	
SPC LAND-3: Long-Term Recreation Management Plan. PWD and the Forest Service shall prepare a joint Recreation Management Plan for the existing recreation facilities at Littlerock Reservoir, and the continued provision of recreational opportunities. The Plan shall identify: (1) measures for future management of recreation facilities; and (2) long-term strategies for encouraging recreational use of the Reservoir.	Prior to and ongoing during construction and O&M activities	Once annually	Reservoir	USFS, DWR	Palmdale Water District	
C.10 Transportation and Traffic						
MM T-1: Restrict Haul Truck Movements during PM Peak Period. Implement a haul truck schedule that requires trucks to avoid traveling along the Cheseboro Road – Pearblossom Highway – Avenue T haul route during the afternoon peak period, i.e., from 4:00 to 6:00 p.m., to the extent feasible. The alternative route to be utilized is Cheseboro Road, Barrel Springs Road, 47th Street E, Pearblossom Highway, and Avenue T.	Ongoing during construction and O&M activities	Daily	Haul Routes	Caltrans, Los Angeles County, City of Palmdale	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC TRA-1: Prepare Traffic Control Plan. A Traffic Control Plan shall be prepared by PWD available for review, inspection, and input by Caltrans, Forest Service, Los Angeles County, and the City of Palmdale. The Plan shall include, but is not limited to: • The location and need for flagmen and other temporary traffic control devices, including within the ANF, at the PWD sediment staging site, at the intersection of Cheseboro Road and Pearblossom Highway to ensure safe left turn movements onto Pearblossom Highway; • Travel time restrictions for trucks to avoid traveling along the Cheseboro Road – Pearblossom Highway – Avenue T haul route during the afternoon peak period; i.e., from 4:00 to 6:00 p.m., to the extent feasible, utilizing Cheseboro Road, Barrel Springs Road, 47th Street E, Pearblossom Highway, and Avenue T; • The need for a fair-share contribution to the funding of future improvements at the intersections of Cheseboro Road/Pearblossom Highway and Pearblossom Highway/Avenue T in the event afternoon peak period restrictions cannot be utilized. • The need for any oversize vehicle, weight restriction, or encroachment permits; • Assurance of emergency access to and through the Reservoir and PWD site work areas; • Procedures for haul trucks to immediately pull into the shoulder when emergency vehicles with sirens on are travelling in their vicinity; • Designated work area access locations; • Driveway turning restrictions; and • Designated parking/staging locations for workers and equipment. This Plan shall be reviewed and adjusted, as needed, a minimum of every 3-5 years until the Reservoir has been restored to 1992 design storage capacity to ensure effectiveness and address changes in traffic volumes and conditions.	Prior to construction and O&M activities	Once	Reservoir, Haul Routes	Caltrans, USFS, Los Angeles County, City of Palmdale	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC TRA-2: Pavement Rehabilitation – Public or National Forest Roadways. PWD and/or its contractor shall conduct annual before-and-after evaluation of pavement conditions along the sediment haul routes, equipment staging areas, and equipment access points to document any damage caused by the haul trucks or other construction activities. The documentation shall include written descriptions and photographs of pre-Project and post-Project pavement conditions. Any pavement or other infrastructure damage caused by the haul trucks or construction equipment shall be repaired/rehabilitated to pre-Project conditions or better. This measure shall be subject to review, approval, and inspection by the Los Angeles County Department of Public Works, the City of Palmdale Department of Public Works, California Department of Water Resources, USFS, and Caltrans, depending on who has jurisdiction over the route.	Prior to and ongoing during construction and O&M activities	Once annually	Reservoir, Haul Routes	Caltrans, USFS, DWR, Los Angeles County, City of Palmdale	Palmdale Water District	
C.12 Water Quality and Resources						
SPC WQ-1: Prepare Spill Response Plan. A Spill Response Plan would be prepared prior to the start of construction activities. This plan would describe the required materials and methodology to quickly and effectively contain and remove any spill or accidental release of hazardous materials. Required materials may include protective clothing, absorbent materials, hand tools for minor excavation and soil removal, and appropriate containers for hazardous materials and contaminated soil. The Spill Response Plan would include worker training on proper containment and disposal of hazardous materials. The requirements of the Spill Response Plan would be repeated and described in the SWPPP.	Prior to construction and O&M activities	Once	Reservoir, Quarries, PWD Property	USFS, City of Palmdale	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
SPC WQ-2: Prepare a Storm Water Pollution Prevention Plan (SWPPP). A SWPPP shall be developed for the Project in compliance with the federal Clean Water Act, and Notices of Intent shall be filed with the State Water Resources Control Board and the applicable Regional Water Quality Control Board (Lahontan). The SWPPP shall be stored at Project work sites for reference by Project personnel and for inspection review by the Environmental Monitor. The SWPPP shall include Best Management Practices (BMPs) that would be adhered to during Project activities in order to stabilize disturbed areas and reduce the potential for erosion and sedimentation, among other effects. BMPs may include but are not limited to those described below. • Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) shall be installed before and during clearing and grading activities. • Mulching, seeding, or other suitable stabilization measures shall be used to protect exposed areas during ground-disturbing activities. • Measures such as use of regular inspections and oil pans or other comparable devices shall be used to ensure that contaminants are not discharged from the construction sites. • Silting/sedimentation basin(s) shall be established in appropriate locations to capture eroded soils and other materials, and would be regularly cleared to maintain capacity. • Straw wattles or other comparably effective devices (as determined by the Civil Engineer, in consultation with the Environmental Monitor) shall be placed on the downslope sides of work areas to direct runoff from the work areas into temporary sedimentation basins. • All erosion control materials shall be biodegradable and natural fiber. All BMPs required by the SWPPP shall be checked and maintained regularly and after all large storm events. Proper implementation will be verified regularly by the onsite Environmental Monitor.	Prior to construction and O&M activities	Once	Reservoir, Quarries, PWD Property	USFS, RWQCB (Lohantan), City of Palmdale	Palmdale Water District	

Mitigation Measure	Duration	Frequency	Location	Coordination	Monitoring Responsibility	Verification (Date and Initials)
C.13 Wildfire Prevention and Suppression						
SPC FIRE-1: Curtailment of Activities. All construction activities shall be curtailed in the event of a fire or when fuel and weather conditions get into the "very high" and "extreme" ranges, as determined by the USDA Forest Service through daily Project Activity Level (PAL) designations. The specific Project-related activities to be halted during very high or extreme weather conditions would be at the discretion of the USDA Forest Service.	Ongoing during construction and O&M activities	Daily	Reservoir	USFS	Palmdale Water District	
SPC FIRE-2: Preparation of a Fire Plan. PWD, in coordination with their contractor, shall prepare a Fire Plan to be filed with the USDA Forest Service no less than one week prior to the start of construction that includes the following: (1) responsibilities of PWD and the Forest Service in regards to fire prevention and inspection of work areas; (2) personnel in charge of overseeing Fire Plan implementation; (3) staff and equipment that can be used for fighting fire; and (4) emergency measures for construction curtailment.	Prior to construction and O&M activities	Once	Reservoir	USFS	Palmdale Water District	
SPC FIRE-3: Spark Arrester Requirements. The exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with spark arresters that have been approved by the USDA Forest Service, as indicated in the most recent publication of the agency's "Spark Arrester Guide."	Ongoing during construction and O&M activities	Daily	Reservoir	USFS	Palmdale Water District	