

INFORMATION HANDOUT

PERMITS

1. Biological Opinion
United States Fish and Wildlife Service
dated December 9, 2010

2. 2081 Incidental Take Permit
Fish & Game

MATERIAL INFORMATION

1. Preliminary Site Investigation Report
February 2011



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
81420-2010-F-0477-2

DEC 09 2010

Mr. Zachary K. Parker
California Department Transportation
2015 East Shields Avenue, Suite 100
Fresno, California 93726

Subject: Biological Opinion for the Sonoma Interstate 101 Rock Slope Protection Installation Project, near Cotati, Sonoma County, California (Caltrans EA 4S640) on the Endangered Sonoma County Distinct Population Segment of the California Tiger Salamander and Conference Report on Proposed Critical Habitat for the Sonoma County Distinct Population Segment of the California Tiger Salamander

Dear Mr. Parker:

This is in response to your June 2, 2010, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Sonoma Interstate 101 Rock Slope Protection Installation Project located near Cotati, Sonoma County, California. Your request for formal consultation was received in our office via an electronic mail (email) message on June 4, 2010, and additional information needed to complete consultation was received on July 19, 2010. California Department of Transportation (Caltrans) requested formal consultation on the proposed critical habitat for the Sonoma County distinct population segment (DPS) of the California tiger salamander (*Ambystoma californiense*) on June 24, 2010.

This document represents the Service's biological opinion on effects of the action on the endangered Sonoma County DPS of the California tiger salamander and a conference report on the effects to DPS's proposed critical habitat. This biological opinion is issued pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The proposed Sonoma Interstate 101 Rock Slope Protection Installation Project is not likely to adversely affect the threatened California red-legged frog (*Rana draytonii*) due to an apparent lack of occupied or potential habitat for this listed species in the action area. Critical habitat has been designated for the California red-legged frog however none is located in the action area. Based on the absence of associated seasonal wetland habitat, the action is not likely to have

adverse effects to the endangered Sebastopol meadowfoam (*Limnanthes vinculans*), Sonoma sunshine (*Blennosperma bakeri*), or Burke's goldfields (*Lasthenia burkei*).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act for environmental review, agency consultation and other actions pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding within the State of California (http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf) and are exercising this authority as the federal nexus for section 7 consultation on this project.

This biological opinion is based on: (1) the June 2, 2010, request for formal consultation; (2) the June 2010, biological assessment (Caltrans 2010); (3) additional information provided to the Service by Caltrans on March 3, 2010, and July 19, 2010; (4) Caltrans' November 3, 2010, comments regarding the October 22, 2010, draft biological opinion; and (4) other information available to the Service.

Consultation History

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| February 18, 2010 | Caltrans requested technical assistance on the project. The Service advised Caltrans to use the Santa Rosa Plain Conservation Strategy as guidance in their assessment. |
| March 3, 2010 | Caltrans provided revised project description information via an email message. |
| March 11, 2010 | Caltrans provided representative photographs of the action area. |
| June 4, 2010 | The Service received a letter from Caltrans, dated June 2, 2010, requesting the initiation of formal consultation on the Sonoma County DPS of the California tiger salamander via an attachment to an email message. |
| June 22, 2010 | The Service received a copy of Caltrans' June 2010 Biological Assessment for the Sonoma Interstate 101 Rock Slope Protection Installation Project. |
| June 24, 2010 | The Service discussed its review of the June 2010 Biological Assessment with Caltrans via a telephone conference. During the telephone call, Caltrans requested the issuance of a draft biological opinion and conference report. The Service described additional information needed to complete its assessment of the project's effects. The Service provided a |

summary of the requested information via an email message following the telephone conference.

- July 19, 2010 Caltrans provided the additional information requested on June 24, 2010, to the Service via an email message.
- October 22, 2010 The Service issued a draft biological opinion (Service File #81420-2010-F-0477-1).
- November 3, 2010 The Service received Caltrans' comments and requested revisions to the October 22, 2010, draft biological opinion.

BIOLOGICAL OPINION

Description of Proposed Action

The following project description was provided by Caltrans with minor modifications for reasons of clarity and accuracy provided by the Service.

Caltrans proposes to address the unstable slope of a road cut adjacent to southbound Interstate 101 by armoring the identified problem areas with large rock material, a measure known as "rock slope protection." Stabilization will occur in two rectangular areas (Area 1 and Area 2) separated by approximately 430 feet. The project is located near the Town of Cotati in Sonoma County, within the Interstate 101 right-of-way between road postmile 11.6 and 11.9. This stabilization and safety project will also include the restoration of an existing stormwater runoff ditch, or "v-ditch" located near the middle of the slope and immediately uphill of the proposed rock slope protection areas. The existing ditch is deteriorated and will be restored to improve the redirection of stormwater away from the unstable slope.

The proposed project will result in direct effects to approximately 0.24 acre of habitat for the California tiger salamander (0.16 acre in Area 1 and 0.08 acre in Area 2). Restoration of the v-ditch will be limited to the footprint of the existing ditch.

Slope stabilization will consist of excavating a combined 1780 cubic yards of material from Area 1 and Area 2. Following excavation, both Areas will be lined with rock slope protection fabric prior to being filled with rock slope protection. V-ditch restoration will include the reconstruction of a 30 foot section of the existing asphalt concrete v-ditch immediately uphill and bridging the gap between Areas 1 and 2.

Construction staging and access will be conducted from the existing paved road shoulder of eastbound Interstate 101. The only wheeled or tracked equipment directly accessing the slope will be skip loaders and mini-track front loaders. Equipment access will not require the establishment of new or modification of existing roads or paths. The v-ditch restoration will be

completed by hand and will not involve the use of wheeled, tracked, or heavy equipment. Temporary k-rail will be used to provide a barrier between this staging and access area and the active eastbound Interstate 101.

The required construction activities and associated equipment are included in the following Table 1.

Table 1. Expected Equipment and Associated Construction Activity

Equipment	Construction Activity
Backhoe	Soil manipulation and drainage work
Bulldozer/loader	Earthwork construction including clearing and grubbing
Dump truck	Asphalt-concrete/till material removal from work site.
Excavator with a bucket	Soil manipulation
Flat-bed truck	Drainage work
Front-end loader	Dirt or gravel manipulation
Truck with seed sprayer	Landscaping
Water truck	Earthwork and drainage work
Haul truck	k-rail delivery, earthwork construction, and clearing and grubbing
PCC Pump truck	V-ditch construction
Ready-mix truck	Concrete delivery

Project construction is likely to break ground in summer or early fall of 2011 and activities are expected to be completed in 25 working days. Construction may involve night work if needed, primarily to avoid unloading and loading activities during periods of peak travel on eastbound Interstate 101.

Proposed Conservation Measures

Caltrans proposes to avoid, minimize, and compensate for potential effects to the California tiger salamander and its proposed critical habitat through the following measures:

1. Caltrans will compensate for the loss of 0.24 acre of California tiger salamander habitat with the acquisition and preservation of 0.24 acre of habitat for the Sonoma County DPS of the California tiger salamander. Compensation will be achieved by purchase of credits at a conservation bank approved by the Service and the California Department of Fish and Game to sell California tiger salamander credits in Sonoma County.

Caltrans will provide a Funding Assurance Letter stating that sufficient funds for habitat compensation have been budgeted in the Sonoma Interstate 101 Rock Slope Protection Installation Project Expenditure Authorization. The Funding Assurance Letter will be

signed by the District Deputy Director of Project Management and the District Deputy Director of Environmental Planning and Engineering and approved by the California Department of Fish and Game's Office of the General Counsel. The Funding Assurance Letter will provide evidence that Caltrans has allocated sufficient funding to purchase habitat conservation credits for the Sonoma County DPS of the California Tiger Salamander.

Conservation credits will be purchased and documentation, including the Agreement for Sale of Conservation Credits, Bill of Sale, Payment Receipt and Updated Credit Ledger will be provided to the Service and the California Department of Fish and Game within one year following the start of construction.

The calculations used to determine the values in the following Table 2 are as defined by the interim guidance for the Conservation Strategy (Conservation Strategy Team 2006). Adjustments to areas of effects and corresponding compensations will be based upon the final design of the project within the action area prior to construction with written concurrence from the Service.

Table 2. Compensation for loss of California tiger salamander habitat based on Conservation Strategy ratios.

Designation	Affected Area (acres)	Compensation (acres)
Within 500 feet of a known breeding site at 3:1	0	0
Beyond 2200 feet of a known breeding site but within 500 feet of an individual California tiger salamander at 2:1	0	0
Greater than 500 feet but less than 2200 feet of a known California tiger salamander breeding site at 2:1	0	0
Greater than 2200 feet but within 1.3 miles of a known California tiger salamander breeding site at 1:1	0.24	0.24
Areas defined in the Conservation Strategy as "Potential for Presence of CTS" or "Potential for Presence of CTS and Listed Plants" at 0.2:1	0	0
Total for California Tiger Salamander	0.24	0.24

2. The Resident Engineer or their designee will be responsible for implementing the conservation measures and Terms and Conditions of this biological opinion and will be the point of contact for the project. The Resident Engineer or their designee will maintain a copy of this biological opinion onsite whenever construction is taking place. Their name and telephone number will be provided to the Service at least 30 calendar days prior to groundbreaking at the project. Prior to ground breaking, the Resident Engineer will

- submit a letter to the Service verifying that they possess a copy of this biological opinion and have read the Terms and Conditions.
3. At least 30 calendar days prior to initiating construction activities, the project proponents will submit the names and qualifications of the proposed biological monitor(s) for Service approval.
 4. Prior to approval, the proposed biological monitor(s) will submit a letter to the Service verifying that they possess a copy of this biological opinion and understand its Terms and Conditions. The biologist(s) will keep a copy of this biological opinion in their possession when onsite.
 5. No more than thirty (30) calendar days prior to any ground disturbance, pre-construction surveys will be conducted by the Service-approved biologist(s) for the California tiger salamander. These surveys will include 100 percent coverage of the project limits and accessible adjacent areas. The biologist(s) will investigate all potential California tiger salamander cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, and debris. Vacant entrances and other refuge features will be collapsed or removed following investigation.
 6. A Service-approved biologist(s) will be onsite during construction for the California tiger salamander:
 - a. During initial ground disturbing activities anywhere within the action area;
 - b. Any day when there is a 70 percent or greater chance of rain;
 - c. A twenty-four (24)- hour period when rain (0.25 inches or more) has fallen; and
 - d. The day following a rainfall of 0.25 inches or more (in the event California tiger salamanders moved on the intervening night).
 7. On days where a monitor is used as outlined above, the Service-approved biologist(s) monitor will check for animals under any equipment such as vehicles and materials before the start of work each morning. The Service-approved biologist(s) will check all excavated steep-walled holes or trenches greater than one foot deep for California tiger salamanders.
 8. A Service-approved biologist(s) will perform a clearance survey immediately prior to the initial ground disturbance. Safety permitting, the Service-approved biologist(s) will investigate areas of disturbed soil for signs of listed species within 30 minutes following the initial disturbance of that given area.

9. Permanent and temporary disturbances and other types of project-related disturbance to potential habitat for the California tiger salamander will be minimized to the maximum extent practicable by Caltrans. These areas also will be included in pre-construction surveys.
10. A Worker Environmental Awareness Training Program will be provided for all construction personnel prior to their involvement in work activities. The program will focus on the conservation measures that are relevant to employee's personal responsibility. Distributed materials will include wallet-sized cards with a clear photograph of the California tiger salamander, compliance reminders, and relevant contact information. Documentation of the training, including attendee sign-in sheets, will be submitted to the Service with the annual compliance report described in Conservation Measure 30. An outline of the program will be submitted to the Coast-Bay Branch Chief in the Sacramento Fish and Wildlife Office within 20 working days prior to the initial onset of construction activities. As needed, training will be conducted in Spanish for Spanish language speakers. Documentation of the training will be kept on file and available on request.
11. Only Service-approved biologist(s) will implement the monitoring duties outlined in this biological opinion including delivery of the Worker Environmental Awareness Training Program.
12. The limits of the construction zones will be delineated with high visibility temporary fencing at least four feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside the described action area. The fencing will be removed only after all construction equipment is removed from the site. No project activities will occur outside the delineated project construction area.
13. A Service-approved biologist(s), Environmental Construction Liason, and/or Caltrans District Stormwater Coordinator, will inspect the project site within one week prior to a forecasted rain event to ensure that the adequate stormwater best management practices (BMPs) are properly installed. The monitor(s) will also inspect the site during and/or within two calendar days following the onset of the rain event to ensure that the stormwater BMPs are adequate in minimizing harm to California tiger salamanders and their habitat.
14. Construction will be conducted between April 15 and October 15, depending on the level of rainfall and/or site conditions.
15. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site because California tiger salamander may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified

- hydroseeding compounds. This measure will be implemented through contractors and subcontractors as part of the Caltrans standard BMPs.
16. If requested, before, during, or upon completion of ground breaking and construction activities, Caltrans will allow access by Service and California Department of Fish and Game personnel to the action area to inspect project effects to California tiger salamanders and their habitat. Caltrans requests that all agency representatives contact the Resident Engineer prior to accessing the work site and review and sign the Safe Work Code of Practices, prior to accessing the work site for the first time.
 17. To prevent inadvertent entrapment of California tiger salamander during construction, steep-walled holes or trenches more than two feet deep will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional four-foot high vertical barrier, independent of exclusionary fences, may be used to further prevent the inadvertent entrapment of California tiger salamander. One or more dirt or wooden plank escape ramps will be installed if it is not feasible to cover an excavation or provide the fences. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the Service-approved biologist will immediately provide escape ramps or other appropriate structures to allow the animal to escape, or the Service will be contacted by telephone for guidance. The Coast-Bay Branch Chief in the Sacramento Fish and Wildlife Office will be notified of the incident by telephone at (916) 414-6600 within one working day.
 18. Materials left onsite overnight will be inspected, because California tiger salamanders are attracted to cavity-like structures such as pipes and may seek refuge under construction equipment or debris. Salamanders may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, construction equipment or construction debris left overnight within the action area will be inspected prior to the beginning of each day's activities.
 19. The Resident Engineer will halt work and immediately contact the Service-approved biologist(s) and the Service in the event that a California tiger salamander gains access to a construction zone. The Resident Engineer will suspend construction activities within a 100-foot radius of the identified animal that could reasonably result in a take until the animal leaves the site voluntarily or is removed by the biologist(s). Information regarding California tiger salamander handling, transport, and release are included in Term and Condition 2b.
 20. To eliminate an attraction to predators of the California tiger salamander, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the action area. This measure will be implemented through contractors and subcontractors as part of the Caltrans standard BMPs.

21. To prevent harassment, injury or mortality of a California tiger salamander or destruction of their refuge areas, no pets will be permitted in the action area. This measure will be implemented through contractors and subcontractors as part of the Caltrans standard BMPs.
22. To avoid injury or death of a California tiger salamander, no firearms will be allowed in the action area except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials. This measure will be implemented through contractors and subcontractors as part of the Caltrans standard BMPs.
23. Rodenticides and herbicides will be used in the action area in such a manner to prevent primary or secondary poisoning of a California tiger salamander. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other appropriate State and Federal regulations, as well as additional project-related restrictions deemed necessary by the Service or the California Department of Fish and Game. This measure will be implemented through contractors and subcontractors as part of the Caltrans standard BMPs and Stormwater Pollution Prevention Plan (SWPPP).
24. Dedicated fueling and refueling practices will be designated as part of the approved SWPPP. Dedicated fueling areas will be protected from stormwater run-on and run-off and will be located at least 50 feet from down-slope drainage facilities and water courses. Fueling must be performed on level-grade areas. On-site fueling will only be used where it is impractical to send vehicles and equipment off-site for fueling. When fueling must occur on-site, the contractor will designate an area to be used subject to the approval of the Caltrans Resident Engineer. Drip pans or absorbent pads will be used during on-site vehicle and equipment fueling. This measure will be implemented through contractors and subcontractors as part of the Caltrans standard BMPs and SWPPP.
25. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in section 7-1.01G of the Caltrans' Standard Specifications. Caltrans' erosion control BMPs will be used to minimize any wind or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge Elimination System Statewide Stormwater Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans facilities.
26. The Caltrans Construction Site BMPs Manual is comprehensive and includes protective measures and guidance to prevent and minimize pollutant discharges and can be found at the following website location:
<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>. Protective measures will be included in the contract, including, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning are allowed into the storm drain or water courses.
 - b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
 - c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.
 - d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
 - e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydro-mulching will be applied to all unfinished disturbed and graded areas.
 - f. Restoration of work areas where temporary disturbance has removed the pre-existing vegetation and re-seeding with a native seed mix.
 - g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate on sloped areas.
 - h. A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base will be removed; topography blended with the surrounding area; and topsoil will be salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species.
27. Hazardous materials such as fuels, oils, solvents will be stored in sealable containers in a designated location that is at least 200 feet from aquatic habitats. All fueling and maintenance of vehicles and other equipment and laydown areas/storage yards will occur at least 200 feet from any aquatic habitat unless separated by a topographic or drainage barrier, or unless the site is an already existing fueling or equipment area (such as an existing gas station). Staging areas may occur closer to the project activities when required.
28. Caltrans will provide the Service with adequate annual written reports that describe the progress of implementation of all of the Terms and Conditions of this biological opinion. The first report will be submitted by December 31, the first year of groundbreaking, and annually thereafter on December 31 until all of the terms and conditions are completed, as stated in writing by the Service. The reports will be addressed to the Coast-Bay Branch Chief and the Division Chief of the Endangered Species Program in the Sacramento Fish

and Wildlife Office.

29. Caltrans will submit a post-construction compliance report prepared by the Service-approved biologist(s) to the Sacramento Fish and Wildlife Office within sixty calendar days of the completion of construction. This report will detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on the California tiger salamander, if any; and (v) other pertinent information. The reports will be addressed to the Coast-Bay Branch Chief in the Sacramento Fish and Wildlife Office.
30. Caltrans will report to the Service any information about take or suspected take of listed species not authorized in this biological opinion. Caltrans will notify the Service and the California Department of Fish and Game via telephone within 24 hours of receiving such information. Notification will include the date, time, location of the incident or of the finding of a dead or injured animal, and photographs of the specific animal. The individual animal will be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen. The Service contacts are the Coast-Bay Branch Chief in the Sacramento Fish and Wildlife Office at (916) 414-6600, and the Service's Law Enforcement Division at (916) 414-6660.

Analytical Framework for the Jeopardy Determination

The following analysis relies on four components to support the jeopardy determination for the Sonoma County DPS of the California tiger salamander: (1) the *Status of the Species*, which evaluates the species' range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the role of the action area in the species' survival and recovery; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with the implementing regulations for section 7 and Service policy, the jeopardy determination is made in the following manner: the effects of the proposed Federal action are evaluated in the context of the aggregate effects of all factors that have contributed to the species' current status and, for non-Federal activities in the action area, those actions likely to affect the species in the future, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The following analysis places an emphasis on using the range-wide survival and recovery needs of the species and the role of the action area in providing for those needs as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Analytical Framework for the Adverse Modification Determination

In accordance with policy and regulation, the adverse modification analysis in this conference report relies on four components: (1) the Status of Proposed Critical Habitat for the Species, which evaluates the range-wide condition of designated critical habitat for the California tiger salamander in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the Environmental Baseline for Proposed Critical Habitat, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the Effects of the Proposed Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how that will influence the recovery role of affected critical habitat units; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the California tiger salamander proposed critical habitat are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable of providing habitat) to serve its intended recovery role for the California tiger salamander.

The analysis in this conference report places an emphasis on using the intended range-wide recovery function of the California tiger salamander's critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the proposed action, the action area includes all lands associated with the 0.24-acre project footprint and roads (except for County roads, and State and Federal highways) and other areas accessed by project vehicles.

Status of the Sonoma County DPS of the California Tiger Salamander

Historically, California tiger salamanders inhabited low elevation grassland and oak savanna plant communities of the Central Valley, and adjacent foothills, and the inner Coast Ranges in California (Jennings and Hayes 1994; Storer 1925; Shaffer *et al.* 1993). The species has been recorded from near sea level to approximately 3,700 feet in the Coast Ranges and up to approximately 1,600 feet in the Sierra Nevada foothills (Shaffer *et al.* 2004). Along the Coast Ranges, the species once occurred from the Santa Rosa area of Sonoma County south to the vicinity of Buellton in Santa Barbara County. In the Central Valley and surrounding foothills, the species once occurred from northern Yolo County southward to northwestern Kern County and northern Tulare County. Three distinct California tiger salamander populations are recognized and correspond to the Santa Maria area within Santa Barbara County, the Santa Rosa Plain in Sonoma County, and vernal pool/grassland habitats throughout the Central Valley.

The distribution of the California tiger salamander has been divided into three DPSs defined as the Sonoma County DPS, Santa Barbara DPS, and the Central DPS. The Sonoma County DPS of the California tiger salamander was emergency listed as endangered on July 22, 2002 (67 FR 47726); formally listed as endangered on March 19, 2003 (68 FR 13497); downgraded to threatened on August 4, 2004 (69 FR 47212); and then restored to endangered on August 19, 2005 (REF).

The Sonoma County DPS is widely separated geographically from the closest Central DPS populations, which are located in Contra Costa, Yolo, and Solano counties. This portion of the Central DPS is separated from the Sonoma County population by the Coast Range, Napa River, and the Carquinez Straits, at a minimum distance of approximately 45 miles. There are no known records of the California tiger salamander in the intervening areas (D. Warenycia, California Department of Fish and Game, personal communication with the Service, 2002). We have no evidence of natural interchange of individuals between the Sonoma County population and other California tiger salamander populations.

The Sonoma County DPS inhabits low-elevation (below 500 feet) vernal pools and seasonal ponds, associated grassland, and oak savannah plant communities. A record of a specimen from the vicinity of Petaluma from the mid-1800s (Borland 1856, as cited in Storer 1925) suggests that the historic range of the DPS also may have included the Petaluma River watershed.

Although genetically and geographically distinct, the three DPSs share the following life history information.

The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches (Petranka 1998). California tiger salamanders exhibit sexual dimorphism with males typically larger than females. Adults exhibit white or yellowish markings against an overall black body. As adults, California tiger salamanders tend to have creamy yellow to white spotting on the sides with much less on the

dorsal surface of the animal, whereas other tiger salamander species have brighter yellow spotting that is heaviest on the top of the animals. California tiger salamander larvae have yellowish gray bodies, broad fat heads, large feathery external gills, and broad dorsal fins extending well up their back and range in length from approximately 0.45 to 0.56 inches (Petranka 1998).

The California tiger salamander has an obligate biphasic life cycle (Shaffer *et al.* 2004). Although larval California tiger salamanders develop in vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders that spend most of their post-metamorphic lives in widely dispersed underground retreats (Shaffer *et al.* 2004; Trenham *et al.* 2001). Subadult and adult California tiger salamanders spend the dry summer and fall months of the year in the burrows of small mammals, such as California ground squirrels (*Spermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) (Storer 1925; Loredo and Van Vuren 1996; Petranka 1998; Trenham 1998a). Dave Cook (Sonoma County Water Agency, personal communication with the Service, 2001) has found that pocket gopher burrows are most often used by California tiger salamanders in Sonoma County. The burrows provide protection from the sun and wind that can cause desiccation (drying out) of amphibian skin. Camel crickets (*Ceuthophilus* spp. and *Pristoceuthophilus* spp.) and other invertebrates within these burrows are likely prey for California tiger salamander. California tiger salamanders are also known to take refuge in logs, debris piles, and cracks in the ground (Holland *et al.* 1990). Not much is known about California tiger salamander feeding behavior but it is likely that they forage opportunistically in upland habitat in addition to documented feeding while in burrows and in breeding ponds (personal communication with Peter Trenham, April 7, 2010).

Tiger salamanders are members of the Family Ambystomatidae (mole salamanders); although members of this family are known as "burrowing salamanders," California tiger salamanders are not known to create their own burrows in the wild, perhaps due to the hardness of soils in the California ecosystems in which they are found. Because they live underground in the burrows of mammals, they are rarely encountered in the uplands by humans even where they are abundant. Recent surveys performed within the East Bay Regional Parks District have demonstrated that California tiger salamanders may utilize less than 50 percent of suitable breeding habitat during any given year. This data indicates that even in ponds where the species appears to have been extirpated, regular breeding activities may still occur (Bobzien and DiDonato 2007). Burrows may be active (in use by small mammals) or inactive (small mammals are absent), but because burrows tend to be short lived without continued small mammal activity, they typically collapse within approximately 18 months if not maintained (Loredo *et al.* 1996). An active population of burrowing mammals is necessary to sustain sufficient underground refugia for the species. California tiger salamanders also may utilize leaf litter or desiccation cracks in the soil.

The upland burrows inhabited by California tiger salamanders have often been referred to as "aestivation" sites, which implies a state of inactivity, however, recent studies show that the animals move, feed, and remain active in their burrows (Trenham 2001; Van Hattem 2004). Researchers have long inferred that they are feeding while underground because the animals

arrive at breeding ponds in good condition and are heavier when entering a pond than when leaving. Thus, upland habitat is a more accurate description of the terrestrial areas used by California tiger salamanders.

Once fall or winter rains begin, California tiger salamanders emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds (Stebbins 1985, 1989; Shaffer *et al.* 1993). Adult California tiger salamanders mate in the breeding ponds, after which the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Historically, California tiger salamanders utilized vernal pools, but the animals also currently breed in livestock ponds. Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). In ponds with no or limited vegetation, they may be attached to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). California tiger salamander populations at eastern San Francisco Bay locations may have higher reproductive success in ponds with limited to no emergent vegetation, potentially due to a reduced number of aquatic predators that rely on more highly shaded areas (Bobzien and DiDonato 2007). After breeding, adults leave the pool and return to the small mammal burrows (Loredo *et al.* 1996; Trenham 1998a), although they may continue to emerge nightly for approximately the next two weeks to feed (Shaffer *et al.* 1993). Adults are unable to breed or the breeding effort fails in drought years when seasonal pools fail to provide adequate inundation (Barry and Shaffer 1994).

California tiger salamander eggs hatch in two to four weeks (Storer 1925; Shaffer and Trenham 2004). The larvae are aquatic with yellowish gray coloration and have broad flat heads, possess large, feathery external gills, and broad dorsal fins that extend well onto their back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for approximately the first six weeks, after which they switch to larger prey (J. Anderson 1968). Larger larvae are known to consume tadpoles of Pacific tree frogs (*Pseudacris regilla*) and California red-legged frogs (J. Anderson 1968; P. Anderson 1968). The larvae are among the top aquatic predators in their seasonal pool ecosystems. Larval California tiger salamanders often rest on the bottom in shallow water. They may also be found at varying depths in deep water pools. Young California tiger salamanders are typically wary and will often escape into vegetation on the bottom of the pool when approached by potential predators (Storer 1925).

The larval stage of the California tiger salamander usually last three to six months, as most seasonal ponds and pools dry up during the summer (Petranka 1998). The peak emergence of these metamorphs is typically between mid-June to mid-July (Loredo and Van Vuren 1996; Trenham *et al.* 2000) but in some areas as early as late February or early March. Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Individuals collected near Stockton in the Central Valley during April varied from 1.88 to 2.32 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer the ponding duration, the larger the larvae and metamorphosed juveniles are able to

grow, and the more likely they are to survive and reproduce (Pechmann *et al.* 1989; Semlitsch *et al.* 1988; Morey 1998; Trenham 1998b). The larvae will perish if a site dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Pechmann *et al.* (1989) found a strong positive correlation with ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 pools sampled supported larval California tiger salamanders, and five of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only six (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998). In the late spring or early summer, before the ponds dry completely, metamorphosed juveniles leave ponds and enter upland habitat. This emigration occurs in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo *et al.* 1996). Unlike during their winter migration, the wet conditions when adult California tiger salamanders typically move do not generally occur during the months when their breeding ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under these conditions, they may move only short distances to find temporary upland sites for the dry summer months, waiting until the next winter's rains to move further into suitable upland refugia. Once juvenile California tiger salamanders leave their birth ponds for upland refugia, they typically do not return to ponds to breed for an average of four to five years (Trenham *et al.* 2000). However, the minimum age at sexual maturity has been observed to be two years for males and two to three years for females (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Individuals remain active in the uplands, coming to the surface during rainfall events to disperse or forage (Trenham *et al.* 2000).

Lifetime reproductive success for California tiger salamanders is low. Trenham *et al.* (2000) found the average female bred 1.4 times and produced 8.5 young that survived to metamorphosis per reproductive effort. This resulted in roughly 11 metamorphic offspring over the lifetime of a female. Data suggest that the two reasons for the low reproductive success are that most individuals require two years to become sexually mature, but some individuals may be slower to mature (Shaffer *et al.* 1993); and some animals do not breed until they are four to six years old. While individuals may survive for more than ten years, many breed only once, and in some populations, less than five percent of marked juveniles survive to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well as from anthropogenic factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) inter-pond dispersal. Breeding migration is the movement of California tiger salamanders to and from a pond and the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. During a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/ birth pond to breed, while

20 percent dispersed to other ponds (Trenham *et al.* 2001). Following breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before breeding again (Trenham *et al.* 2000).

California tiger salamanders are known to travel long distances from breeding sites into upland habitats. Maximum distances moved are generally difficult to establish for any species, but California tiger salamanders in Santa Barbara County have been recorded to disperse 1.3 miles from breeding ponds (Sweet 1998). California tiger salamanders are known to travel between breeding ponds; one study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at ponds approximately 1,900 and 2,200 feet away (Trenham *et al.* 2001). In addition to traveling long distances during migration to or from ponds, California tiger salamanders may reside in burrows or other cover sites that are far from ponds. At one site in Contra Costa County, hundreds of California tiger salamanders have been captured three years in a row in upland habitat approximately 0.75 miles from the nearest breeding pond (Orloff 2003).

Although the observations above indicate that California tiger salamanders have the capacity for long distance movements, typically they stay closer to breeding ponds. Evidence suggests that subadult California tiger salamanders disperse further into upland habitats than adults. A trapping study conducted in Solano County during winter of 2002/2003 found that subadults used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More subadults were captured at distances of 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Large numbers, approximately 20 percent of total captures, were found 1,312 feet from a breeding pond. Fitting a distribution curve to the data revealed that 95 percent of subadult at their study site could be found within 2,067 feet of the pond, with the remaining five percent being found at even greater distances. Results from the 2003 to 2004 trapping efforts detected subadult California tiger salamanders at even further distances, with a large proportion of the total California tiger salamanders caught at 2,297 feet from the breeding pond (Service 2004a). Most subadults captured, even those at 2,100 feet, were still moving away from ponds (Service 2004a). This data suggests that many California tiger salamanders travel long distances while still in the juvenile/subadult stage. Post-breeding movements away from breeding ponds by adults appear to be much shorter. During post-breeding emigration, radio-tracked adult California tiger salamanders were located in burrows 62 to 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders having depleted physical reserves post-breeding, or also due to the drier weather conditions that can occur during the period when adults leave the ponds.

Although the distances that California tiger salamanders may move likely depend on life stage, the location of available refugia and breeding ponds, presence of natural and constructed barriers, habitat continuity, climate conditions, individual propensities, and other factors, movements and dispersal corridors likely are critical to California tiger salamander population dynamics, particularly because the animals likely currently persist as metapopulations¹ with disjunct

¹ A metapopulation consists of a group of spatially separated populations of the same species which interact at some level.

population centers.

California tiger salamanders are also known to use several successive burrows at increasing distances from an associated breeding pond. Although previously cited studies provide information regarding linear movement from breeding ponds, upland habitat features appear to have some influence on movement. Trenham (2001) found that radio-tracked adults favored grasslands with scattered large oaks, over more densely wooded areas. The same study showed no indication that certain habitats type are favored as terrestrial travel corridors over others (Trenham 2001). In addition, at two ponds completely encircled by drift fences and pitfall traps, captures of arriving adults and dispersing new metamorphs were distributed roughly evenly around the ponds. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

With continued habitat loss, degradation, modification, and fragmentation, the California tiger salamander is still encountered in areas where their archetypical habitat is no longer found. It is not uncommon to find California tiger salamanders breeding in stock ponds or taking refuge under structural foundations. A large adult female California tiger salamander was recently found in the Caltrans right-of-way during construction of a State Route 680 project (Caltrans EA 04-253751) in Alameda County (Derek Jansen, URS, personal communication on May 5, 2009). The California tiger salamander emerged from a burrow at the base of an overpass. The burrow was located in a disturbed area composed of fill material and separated from the nearest potential breeding pond, approximately 500 feet away, by a fenced storage area, four paved roads, road curbs, and a drainage ditch. These features were older than the salamander. This observation is also contrary to distribution provided in the Service's listing document which states that the listed salamander generally does not occur west of State Route 680 in Alameda and Contra Costa Counties (Service 2004a). California tiger salamanders have the potential to persist in disturbed areas as long as it provides at least one or more of their life history requirements. Our understanding of current distribution is incomplete.

Documented and/or potential predators on California tiger salamanders include coyotes (*Canis latrans*), raccoons, striped skunks, opossums (*Didelphis virginiana*), egrets (*Egretta* spp.), great blue herons (*Ardea herodias*), crows (*Corvus brachyrhynchos*), ravens (*Corvus corax*), garter snakes (*Thamnophis* spp.), bullfrogs (*Rana catesbeiana*), California red-legged frogs, mosquito fish, and crayfish (*Procrampus* spp.). In addition, predacious aquatic hexapods (arthropods) have also been shown to have a significant negative association with California tiger salamanders (Bobzien and DiDonato 2007). Domestic dogs (*Canis lupus familiaris*) have been observed eating California tiger salamanders at Lake Lagunitas at Stanford University (Sean Barry, ENTRIX, personal communication on July 2004).

Diseases may pose a significant threat though the specific effects of disease on the California tiger salamander are not known. Pathogens, fungi, water mold, bacteria, and viruses have been known to adversely affect other tiger salamander species and/or other amphibians. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Pathogen outbreaks have

not been documented in the California tiger salamander, but chytrid fungus infections (chytridiomycosis) have been detected in California tiger salamander (Padgett-Flohr and Longcore 2005). Chytridiomycosis and ranaviruses are a potential threat to the California tiger salamander because these diseases have been found to adversely affect other amphibians, including tiger salamanders (Davidson *et al.* 2003; Lips *et al.* 2003). A deformity-causing infection, possibly caused by a parasite in the presence of other factors, has affected pond-breeding amphibians at known California tiger salamander breeding sites. This same infection has become widespread among amphibian populations in Minnesota and poses the threat of becoming widespread in California. Non-native species, such as bullfrogs and non-native tiger salamanders, are located within the range of the California tiger salamander and have been identified as potential carriers of these diseases. Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (i.e. contaminated boots or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in California tiger salamanders being more susceptible to the effects of disease. Disease will likely become a growing threat because of the relatively small and fragmented remaining California tiger salamander breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes that have occurred both inside and outside the species' range.

California tiger salamanders are imperiled throughout their range by a variety of human activities (Service 2004). Current factors associated with declining populations of the salamander include continued degradation and loss of habitat due to agriculture and urbanization, hybridization with non-native eastern tiger salamanders (*Ambystoma tigrinum*) (Fitzpatrick and Shaffer 2004; Riley *et al.* 2003), and introduced predators. Hybridization with non-native eastern tiger salamanders has not yet been identified within the Sonoma County population. Fragmentation of existing habitat and agricultural activities that degrade and/or eliminate breeding pools may represent the most significant current threats to the California tiger salamander, although populations are likely threatened by more than one factor. Isolation and fragmentation of habitats within many watersheds have precluded dispersal between sub-populations and jeopardized the viability of metapopulations (broadly defined as multiple subpopulations that occasionally exchange individuals through dispersal, and are capable of colonizing or "rescuing" extinct habitat patches). Other threats are predation and competition from introduced exotic species; disease; various chemical contaminants; road-crossing mortality; and certain unrestrictive mosquito and rodent control operations.

Recovery Actions Associated with the Sonoma County DPS of the California Tiger Salamander

The Santa Rosa Plain Conservation Strategy has been developed and finalized (Conservation Strategy Team 2005) by a team of representatives from the Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, California Department of Fish and Game, Sonoma County and local Cities, North Coast Regional Water Quality Control Board, local

governmental agencies, the Laguna de Santa Rosa Foundation, environmental community, and the private landowner community (Conservation Team).

The purpose of the Conservation Strategy is threefold: (1) to establish a long-term conservation program sufficient to compensate potential adverse effects of future development on the Santa Rosa Plain, and to conserve and contribute to the recovery of the California tiger salamander and the conservation of its sensitive habitat; (2) to accomplish the preceding in a fashion that protects stakeholders' (both public and private) land use interests, and (3) to support issuance of an authorization for incidental take of California tiger salamanders that may occur in the course of carrying out a broad range of activities on the Santa Rosa Plain. The Conservation Strategy is posted on the Service's Sacramento office website:

(www.fws.gov/sacramento/es/santa_rosa_conservation.html).

Environmental Baseline for the Sonoma County DPS of the California Tiger Salamander

The proposed Sonoma Interstate 101 Rock Slope Protection Installation Project is located within the range of the California tiger salamander in Sonoma County as defined in the Conservation Strategy (Conservation Strategy Team 2005). No protocol level surveys for California tiger salamanders have been conducted in the action area. However, the action area includes approximately 0.24 acre of potential California tiger salamander dispersal and upland habitat. Suitable aquatic breeding habitat for the California tiger salamander does not occur in the action area, but the action area is within 1.3 miles of known breeding ponds. Due to the location of the action area relative to these breeding ponds, the species' biology and ecology, and the presence of suitable habitat in the action area the Service has determined that it reasonable to conclude that the California tiger salamander inhabits the action area.

Status of Proposed Critical Habitat for the California Tiger Salamander

On August 18, 2009, the Service proposed to designate approximately 74,223 acres of critical habitat for the California tiger salamander in Sonoma County, California (74 FR 41662).

Within areas essential for the conservation and recovery of the California tiger salamander in Sonoma County, the Service has determined the following PCEs:

1. PCE 1: standing bodies of fresh water (including natural and manmade (e.g., stock) ponds, vernal pools and other ephemeral or permanent water bodies that typically support inundation during winter/early spring and hold water for a minimum of 12 consecutive weeks in a year of average rainfall);
2. PCE 2: upland habitats adjacent to and accessible from breeding ponds that contain small mammal burrows or other underground refugia that California tiger salamanders depend upon for food, shelter, and protection from the elements and predation; and
3. PCE 3: accessible upland dispersal habitat between occupied locations that allow for

movement between such sites.

Environmental Baseline for Proposed Critical Habitat

The proposed action is within the California tiger salamander proposed critical habitat unit SON-1 (Sonoma County). This proposed unit contains features that are essential for the conservation of the California tiger salamander in Sonoma County and includes aquatic habitat, upland non-breeding habitat with underground refugia, and dispersal habitat connecting occupied California tiger salamander locations.

The approximately 0.24-acre action area is primarily dominated by non-native grassland. The action area contains upland habitat accessible from breeding ponds and contains small mammal burrows or other underground refugia upon which California tiger salamanders depend for food, shelter, and protection from the elements and predation (PCEs 2 and 3). Unstable conditions that have resulted in erosion issues as well as routine Caltrans right-of-way maintenance, such as vegetation control, are likely factors that have affected the proposed critical habitat in the action area. No aquatic breeding habitat (PCE 1) occurs within the action area.

Effects of the Proposed Action on the California Tiger Salamander

The following effects analysis for the Sonoma County DPS of the California tiger salamander is based on the interim guidelines for the Conservation Strategy (Conservation Strategy Team 2006). The interim guidelines do not differentiate between temporary and permanent effects.

The proposed project could have direct effects to California tiger salamanders through direct mortality, injury, or harassment of individual subadults and adults. As defined in the Conservation Strategy, effects analysis for the California tiger salamander are primarily based on the location of the action area relative to a known individual salamander observation and breeding pond locations. Implementation of the proposed action would result in the loss of 0.24 acre of upland habitat between 2,200 feet and 1.3 miles of a known California tiger salamander breeding site.

Effective implementation of Conservation Measures likely will minimize effects to the California tiger salamander but incidental take may still occur due to construction activities and habitat loss. Therefore, construction activities have the potential to result in a variety of adverse effects that would result in take of the California tiger salamander. Unless identified by the biological monitor or site personnel, and rescued by the biological monitor, individuals exposed during excavations likely will be crushed and killed or injured by construction-related activities. Even with biological monitoring, overall awareness, and proper escape ramps, California tiger salamanders could fall into the trenches, pits, or other excavations, and then risk being directly killed or be unable to escape and be killed due to desiccation, entombment, or starvation. Proper trash disposal is often difficult to enforce on a large construction site and is a common non-compliance issue. Edible trash left during or after construction activities could attract predators,

such as raccoons, crows, and ravens, to the sites, which could subsequently prey on the listed amphibian. Caltrans commitment to not using erosion control devices with mono-filament (Conservation Measure 16) should be effective in avoiding the associated risk of entrapment that can result in death by predation, starvation, or desiccation (Stuart *et al.* 2001).

Caltrans often performs night work to avoid times of peak traffic, complete continuous activities, avoid extreme weather, and/or complete emergency work. Night work has a greater potential of adversely affecting nocturnal species such as the California tiger salamander. Wise and Buchanan (2006) reviewed the adverse effects that may result from night time illumination on salamander species. Artificial lighting used during night time construction may increase predation of California tiger salamanders if it occurs during periods of fall, winter, or spring rains, because the amphibians will lose the cover of darkness for movement. Nocturnal foraging by salamander species may be affected by artificial lighting. In their study of the red-backed salamander (*Plethodon cinereus*), Wise and Buchanan (2006) observed that salamanders were less likely to emerge to forage within one to two hours following sunset in areas that were illuminated. During such foraging bouts, visual information was used for locating prey. Greater light levels delay emergence, resulting in less foraging time, but could have increased the ability of the salamanders to capture prey; however, they also could make the amphibians more vulnerable to predation. Many salamanders, such as the California tiger salamander, are terrestrial as adults but migrate to ponds to breed and lay eggs. The orientation of some of these terrestrial species away from and toward these ponds is influenced by the spectral characteristics of light (Wise and Buchanan 2006). Artificial lights that emit unusual spectra may disrupt these migration patterns.

The proposed conservation measures are likely to minimize the take of California tiger salamanders that could result from the proposed construction activities. Biological monitoring, worker education, the implementation of proper erosion control BMPs, contaminate control, pre-construction surveys, and proper limited localized relocation of California tiger salamanders in immediate harm should reduce the death and injury to individual California tiger salamanders. In addition, the purchase of California tiger salamander credits at a conservation bank will minimize the effects of habitat loss (0.24 acres) on the California tiger salamander. This land will be protected and managed for the conservation of the species in perpetuity. The protected land will provide habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the project. These lands will help maintain the geographic distribution of the species and will contribute to the recovery of the species by increasing the amount of habitat that is secure from development threats and the other factors that threaten the species that can be addressed by habitat protection and management.

Effects of the Proposed Action on Proposed Critical Habitat for the Sonoma County DPS of California Tiger Salamander

Implementation of the proposed action would result in the loss of 0.24 acre of California tiger salamander proposed critical habitat. No aquatic breeding habitat (PCE 1) would be affected by

the proposed action. The loss would be limited to upland habitat that contains refugia and supports dispersal (PCEs 2 and 3). This level and location of habitat loss is not expected to appreciably diminish the value of the critical habitat proposed for the California tiger salamander, or prevent proposed critical habitat from sustaining its role in the conservation and recovery of the species.

Cumulative Effects on the Sonoma County DPS of the California Tiger Salamander and its Proposed Critical Habitat

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The Service is not aware of any cumulative effects to the California tiger salamander that are reasonably certain to occur within the action area.

Conclusion

After reviewing the current status of the California tiger salamander in Sonoma County, the environmental baseline for the species, and the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the proposed Sonoma Interstate 101 Rock Slope Protection Installation Project is not likely to jeopardize the continued existence of the California tiger salamander in Sonoma County. We based this determination on: (1) habitat losses would be small and limited to upland habitat for the California tiger salamander; (2) no California tiger salamander breeding ponds would be directly lost or temporarily affected; (3) numerous conservation measures would be implemented to minimize the adverse effects on individual California tiger salamanders; and (4) the adverse effects of the proposed action would be offset by the acquisition of 0.24 acre of occupied California tiger salamander habitat at an approved conservation bank within the range of the Sonoma County DPS. This habitat will be protected and managed for the benefit of the California tiger salamander Sonoma County DPS in perpetuity.

Proposed critical habitat for the California tiger salamander occurs in the action area. The Service has determined that the proposed action is not likely to result in the destruction or adverse modification of proposed critical habitat for the California tiger salamander. We base this conclusion on a minimal area (0.24 acre) of proposed critical habitat would be lost and 0.24 acre of occupied proposed critical habitat would be preserved and managed in perpetuity at an approved conservation bank within the range of the Sonoma County DPS. Therefore, proposed critical habitat for the California tiger salamander is anticipated to remain functional and retain the ability for the PCEs to continue to function to serve the intended conservation role for the California tiger salamander.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation, pursuant to section 4(d) of the Act, prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The following measures are non-discretionary, and must be implemented by Caltrans so they become binding conditions of project authorization for the exemption under 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity that is covered by this incidental take statement. If Caltrans (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of 7(o)(2) may lapse.

Amount or Extent of Take

The Service anticipates that incidental take of the California tiger salamander will be difficult to detect because when California tiger salamanders are not in their breeding ponds, they inhabit underground refugia; they may be difficult to locate due to their cryptic appearance and behavior; the juvenile and adult animals may be located a long distance from the breeding ponds; above-ground movement occurs during a limited activity period typically coinciding with rainy nights in the fall, winter, or spring; and the finding of an injured or dead individual is unlikely because of their relatively small body size and rapid carcass deterioration. Project monitoring suggests that California tiger salamanders are difficult to find during preconstruction clearance surveys that include excavation of potential upland California tiger salamander refugia in close proximity to breeding ponds and other aquatic habitat. Due to the difficulty in quantifying the number of California tiger salamanders that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the mortality or injury of one (1) adult or subadult, and the harm, harassment, and capture of all of the California tiger salamanders inhabiting or utilizing the 0.24 acre of habitat that encompasses the entire action area during project construction. The incidental take is expected to be in the form of harm, harassment, capture, injury, and mortality to adult California tiger salamanders from habitat loss/degradation, construction-related disturbance, and capture and relocation. Incidental take is not issued for activities associated with future roadway, vegetation, or other maintenance or modification

activities within the Caltrans right-of-way.

Upon implementation of the following reasonable and prudent measures incidental take associated with the proposed action described above for the California tiger salamander will become exempt from the prohibitions described under section 9 of the Act.

Effect of the Take

The Service has determined that the level of anticipated take is not likely to result in jeopardy to the California tiger salamander or adverse modification or destruction of its proposed critical habitat.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the effect of the proposed action on the California tiger salamander and its proposed critical habitat. Caltrans will be responsible for the implementation and compliance with these measures:

1. Caltrans will implement the conservation measures in the project description as described in this biological opinion.
2. Caltrans will implement additional actions to minimize adverse effects to the California tiger salamander.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans shall ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. The following Terms and Conditions implement Reasonable and Prudent Measure one (1):
 - a. Caltrans shall minimize the potential for harm, harassment, or killing of the California tiger salamander resulting from project related activities by implementation of the conservation measures as described in the Project Description of this biological opinion.
 - b. This biological opinion was based on project design plans that were 35 percent complete. Caltrans shall provide the completed design and project description for review a minimum of ninety calendar days prior to construction. Caltrans shall reinitiate consultation if the final plans result in a larger action area and/or effects to listed species not adequately considered in this biological opinion.

- c. Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of this biological opinion in the solicitation for bid information. In addition, Caltrans shall educate and inform contractors involved in the project as to the requirements of the biological opinion.
 - d. Caltrans shall include a copy of this biological opinion within its solicitations for design and construction of the proposed project making the primary contractor responsible for implementing all requirements and obligations included within the biological opinion, and to educate and inform all other contractors involved in the project as to the requirements of the biological opinion. A copy of the solicitations containing the biological opinion also shall be provided to Coast-Bay Branch Chief at the Sacramento Fish and Wildlife Office upon request.
 - e. Caltrans shall require all contractors to comply with the Act in the performance of the action and shall perform the action as outlined in the Project Description of this Biological Opinion as provided by Caltrans in the June 2010 Biological Assessment, and all other supporting documentation submitted to the Service in support of the action. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of project footprint identified in this Biological Opinion, including vehicle parking, staging, laydown areas, and access roads.
2. The following Terms and Conditions implement Reasonable and Prudent Measure two (2):
- a. The Service-approved biologist(s) shall be given the authority to communicate – verbally or by telephone, email message or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site. The Service-approved biologist(s) shall have oversight over implementation of all the Terms and Conditions in this biological opinion, and shall have the direct authority to stop project activities if any of the requirements associated with these Terms and Conditions are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone within 24 hours. The Service contact is Division Chief of the Endangered Species Program in the Sacramento Fish and Wildlife Office at (916) 414-6600.
 - b. Each California tiger salamander encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the animal to a nearby location if it is in danger.

These two options are further described below.

- 1) When a California tiger salamander is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize the effects to the individual.

Contact the Service once the site is secure. The contacts are Ryan Olah (ryan_olah@fws.gov) or John Cleckler (john_cleckler@fws.gov). They can be reached at (916) 414-6600. If you get voicemail message for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. The issue of contacting people on the weekend or after office hours is addressed later. The Service should be contacted prior to the project start-up to confirm these contacts are still relevant.

The first priority is to avoid contact with the California tiger salamander and allow it to move out of the action area and danger on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction activities. This guidance only applies to situations where a California tiger salamander is encountered on the move during conditions that make their upland travel feasible (which is usually during the wet season and outside the typical work window). This does not apply to California tiger salamanders that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the California tiger salamander should they move outside the construction footprint.

Avoidance is the preferred option if the California tiger salamander is not moving or is within some sort of burrow or other refugia. The area should be well marked for avoidance by construction and a Service-approved biological monitor should be assigned to the area when work is taking place nearby.

The above options are not always feasible and sometimes capture and moving the animal is the only option to prevent its death or injury.

- 2) If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the animal should not be moved outside of the area it would have traveled on its own. Under no circumstances should an animal be

relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture California tiger salamanders. Nets or bare hands may be used to capture California tiger salamanders. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within two hours before and during periods when they are capturing and relocating California tiger salamanders. To avoid transferring disease or pathogens between sites during the course of surveys or handling of the animals, Service-approved biologists must use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the Declining Amphibian Population Task Force's Code which can be found in their entirety at: <http://www.open.ac.uk/daptf/>

- i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or a salamander. Cleaned items should be rinsed with clean water before leaving each site.
- ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.
- iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.
- iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, individual California tiger salamanders shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic

container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

Reporting Requirements

Injured California tiger salamanders must be cared for by a licensed veterinarian or other qualified person such as the Service-approved biologist; dead individuals must be placed in a sealed plastic bag with the date, time, location of discovery, and the name of the person who found the animal; the carcass should be kept in a freezer; and held in a secure location. The Service and the California Department of Fish and Game must be notified within one working day of the discovery of death or injury to a California tiger salamander that occurs due to project related activities or is observed at the project site. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal clearly indicated on a USGS 7.5 minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. The Service contacts are the Division Chief of the Endangered Species Program in the Sacramento Fish and Wildlife Office at (916) 414-6600, and the Resident Agent-in-Charge of the Service's Law Enforcement Division at 916/414-6660. The California Department of Fish and Game contact is Mr. Scott Wilson at telephone (707) 944-5563. Sightings of any listed or sensitive animal species should be reported to the CNDDDB.

Sightings of any listed or sensitive species should be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location where the individuals were observed should also be provided to the Service.

Caltrans shall submit post-construction compliance reports prepared by a project biologist to the Sacramento Fish and Wildlife Office within sixty calendar days of the date of the completion of construction activity. These reports shall adequately describe (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on the California tiger salamander, if any; (v) occurrences of incidental take of any listed species, if any; (vi) documentation of employee environmental education; and (vii) other pertinent information.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations. We make the following conservation recommendations:

1. Implement invasive plant control in areas of potential listed plant habitat in ways that would not harm native vegetation.
2. Encourage or require the use of appropriate California native species in re-vegetation and habitat enhancement efforts associated with projects authorized by Caltrans.
3. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California tiger salamander. Such banking systems also could possibly be utilized for other required conservation (i.e., seasonal wetlands, etc.) where appropriate.
4. Facilitate educational programs geared toward the importance and conservation of seasonal wetlands.
5. Assist the Service in implementing the Conservation Strategy and recovery actions being developed for the California tiger salamander.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed and/or proposed species or their habitats, the Service requests notification of the implementation of these recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the proposed Sonoma Interstate 101 Rock Slope Protection Installation Project in Sonoma County, California. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, including work outside of the project footprint analyzed in this opinion and including vehicle parking, staging, lay down areas, and access roads; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion including use of vehicle parking, staging, lay down areas, and access roads; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

This also concludes the conference report for effects of the implementation of the proposed Sonoma Interstate 101 Rock Slope Protection Installation Project in Santa Rosa, Sonoma County,

California, on the proposed critical habitat for the California tiger salamander. You may ask the Service to confirm the conference report as a biological opinion issued through formal consultation if critical habitat is designated. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the proposed action as planned or in the information used during the conference, the Service will confirm the conference report as the biological opinion on the proposed action and no further section 7 consultation will be necessary.

Please contact Ryan Olah (ryan_olah@fws.gov) or John Cleckler (john_cleckler@fws.gov) at the letterhead address or at (916) 414-6600, if you have any questions regarding this biological opinion/conference report on the proposed Sonoma Interstate 101 Rock Slope Protection Installation Project.

Sincerely,


F Susan K. Moore
Field Supervisor

cc:

Scott Wilson, Liam Davis, Melissa Escaron, Patrick Moeszinger, California Department of Fish and Game, Yountville, California
James Richards and John Yeakel, Caltrans, Oakland, California
Frank Meraz, Caltrans, Fresno, California

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IN LITT. CITATIONS

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California Department of Fish and Game
Bay-Delta Region
7329 SILVERADO TRAIL
NAPA, CA 94558

California Endangered Species Act
Incidental Take Permit No. 2081-2011-018-03

SONOMA INTERSTATE 101 ROCK SLOPE PROTECTION INSTALLATION

Authority: This California Endangered Species Act (CESA) Incidental Take Permit (ITP) is issued by the Department of Fish and Game (DFG) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. CESA prohibits the take¹ of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species.² DFG, however, may authorize the take of any such species by permit if the conditions set forth in Fish and Game Code section 2081, subdivisions (b) and (c) are met. (See also Cal. Code Regs., tit. 14, § 783.4).

Permittee: California Department of Transportation
Principal Officer: Zachary Parker, Chief, Central Region Biology Branch
Contact Person: Frank Meraz, (559) 243-8294
Mailing Address: 2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

Effective Date and Expiration Date of this ITP:

This ITP shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of this ITP and returned to DFG's Habitat Conservation Planning Branch at the address listed in the Notices section of this ITP. Unless renewed by DFG, this ITP's authorization to take the Covered Species shall expire on **December 31, 2013**.

Notwithstanding the expiration date on the take authorization provided by this ITP, Permittee's obligations pursuant to this ITP do not end until DFG accepts as complete the Permittee's Final Mitigation Report required by Condition 6.7 of this ITP.

¹ Pursuant to Fish and Game Code section 86, "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

² "Candidate species" are species of wildlife that have not yet been placed on the list of endangered species or the list of threatened species, but which are under formal consideration for listing pursuant to Fish and Game Code section 2074.2.

Project Location:

The Sonoma Interstate 101 Rock Slope Protection Installation (Project) is located on the west side of southbound State Route (SR) 101 between post miles 11.6 and 11.9 near the Town of Cotati in Sonoma County (See Figure 1). The north end of the Project is immediately adjacent to where the Sierra Avenue on-ramp merges with SR 101 South (at approximately 38.31751, -122.71458) while the south end of the Project is located approximately 430 feet from the north end. The Project site is bounded by SR 101 to the east and grasslands to the west.

Project Description:

The Project includes the repair of a rock and mud slide in two areas of a cut slope along southbound SR 101 near Cotati over a 0.24-acre area. The Project will armor the problem areas with large rock material, a measure known as rock slope protection. Prior to installing the rock slope protection, the slopes will be stabilized by excavating a combined 1,780 cubic yards of material from both areas. Following excavation, both areas will be lined with rock slope protection fabric and then filled with rock slope protection. The Project will also include the repair of an existing storm water runoff ditch, or v-ditch, located near the middle of the slope. The existing v-ditch was damaged during the last slip event and will be restored to improve the redirection of storm water away from the unstable slope.

Covered Species Subject to Take Authorization Provided by this ITP:

This ITP covers the following species:

Name	CESA Status ³
1. California tiger salamander (<i>Ambystoma californiense</i>)	Threatened ⁴

This species and only this species is hereinafter referred to as "Covered Species."

Impacts of the Taking on Covered Species:

Project activities and their resulting impacts are expected to result in the incidental take of individuals of the Covered Species. The activities described above that are expected to result in incidental take of individuals of the Covered Species include excavation of soil and the installation of rock slope protection fabric and rock slope protection (Covered Activities). Incidental take of individuals of the Covered Species may occur from the Covered Activities in the form of mortality ("kill") from crushing and/or entombing of individuals. Incidental take of individuals of the Covered Species may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so of the Covered Species from the biologists attempts to capture and translocate California tiger salamander as authorized by the Conditions of Approval of this ITP. Take could

³ Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. All other species are "unlisted."

⁴ See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(3)(G).

occur in all places where Covered Activities may take place (Project Area). The Project will also cause the permanent loss of 0.24 acres of habitat for the Covered Species. Impacts of the proposed taking also include adverse impacts to the Covered Species related to temporal losses, increased habitat fragmentation and edge effects, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include: stress resulting from capture and relocation, and long-term effects include the permanent loss of upland habitat for aestivation.

Incidental Take Authorization of Covered Species:

This ITP authorizes incidental take of the Covered Species and only the Covered Species. With respect to incidental take of the Covered Species, DFG authorizes the Permittee, its employees, contractors, and agents to take Covered Species incidentally in carrying out the Covered Activities, subject to the limitations described in this section and the Conditions of Approval identified below. This ITP does not authorize take of Covered Species from activities outside the scope of the Covered Activities, take of Covered Species outside of the Project Area, take of Covered Species resulting from violation of this ITP, or intentional take of Covered Species except for capture and relocation of Covered Species as authorized by this ITP.

Conditions of Approval:

Unless specified otherwise, the following measures shall pertain to all Covered Activities within the Project Area including areas used for vehicular ingress and egress, staging and parking. DFG's issuance of this ITP and Permittee's authorization to take the Covered Species are subject to Permittee's compliance with and implementation of the following Conditions of Approval:

1. **Legal Compliance:** Permittee shall comply with all applicable state, federal, and local laws in existence on the effective date of this ITP or adopted thereafter.
2. **CEQA Compliance:** Permittee shall implement and adhere to the mitigation measures related to the Covered Species in the Biological Resources section of the Mitigated Negative Declaration (SCH Number: 2010112061) adopted by the lead agency, California Department of Transportation, for the Project pursuant to the California Environmental Quality Act (CEQA) on December 24, 2010.
3. **ESA Compliance:** Permittee shall implement and adhere to the terms and conditions related to the Covered Species in the Sonoma Interstate 101 Rock Slope Protection Installation Project, near Cotati, Sonoma County, California Biological Opinion (81420-2010-F-0477-2) for the Project pursuant to the Federal Endangered Species Act (ESA), unless those terms and conditions are less protective of the Covered Species or conflict with the conditions of this ITP.
4. **ITP Time Frame Compliance:** Permittee shall fully implement and adhere to the conditions of this ITP within the time frames set forth below and as set forth in the Mitigation Monitoring and Reporting Program (MMRP), which is included as Attachment 1 to this ITP.

5. General Provisions:

- 5.1. Designated Representative. Before starting Covered Activities, Permittee shall designate a representative (Designated Representative) responsible for communications with DFG and overseeing compliance with this ITP. Permittee shall notify DFG in writing before starting Covered Activities of the Designated Representative's name, business address, and contact information, and shall notify DFG in writing if a substitute Designated Representative is selected or identified at any time during the term of this ITP.
- 5.2. Designated Biologist. Permittee shall submit to DFG in writing the name, qualifications, business address, and contact information of a biological monitor (Designated Biologist) at least 30 days before starting Covered Activities. Permittee shall ensure that the Designated Biologist is knowledgeable and experienced in the biology, natural history, collecting and handling of the Covered Species. The Designated Biologist shall be responsible for monitoring Covered Activities to help minimize and fully mitigate or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain DFG approval of the Designated Biologist in writing before starting Covered Activities, and shall also obtain approval in advance in writing if the Designated Biologist must be changed.
- 5.3. Designated Biologist Authority. To ensure compliance with the Conditions of Approval of this ITP, the Designated Biologist shall have authority to immediately stop any activity that is not in compliance with this ITP, and/or to order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species, or a species not covered by this ITP.
- 5.4. Education Program. Permittee shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any work. The program shall consist of a presentation from the Designated Biologist that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status pursuant to CESA including legal protection, recovery efforts, penalties for violations and Project-specific protective measures described in this ITP. Permittee shall provide interpretation for non-English speaking workers, and the same instruction shall be provided for any new workers before their performing work in the Project Area. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry in the Project Area. Upon completion of the program, employees shall sign a form stating they attended the program and understand all protection measures.
- 5.5. Construction Monitoring Notebook. The Designated Biologist shall maintain a construction-monitoring notebook on-site throughout the construction period which shall include a copy of this ITP with attachments and a list of signatures of all personnel who

have successfully completed the education program. Permittee shall ensure a copy of the construction-monitoring notebook is available for review at the Project site upon request by DFG.

- 5.6. Trash Abatement. Permittee shall initiate a trash abatement program before starting Covered Activities and shall continue the program for the duration of the Project. Permittee shall ensure that trash and food items are contained in closed (animal-proof) containers and removed regularly (once a day) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.
- 5.7. Erosion Control Materials. Permittee shall prohibit use of erosion control materials potentially harmful to Covered Species and other species, such as mono-filament netting (erosion control matting) or similar material, in potential Covered Species' habitat.
- 5.8. Delineation of Project Boundaries. Before starting Covered Activities, Permittee shall clearly delineate the boundaries of the Project Area with highly visible fencing. Permittee shall restrict all Covered Activities to within the fenced areas. Permittee shall maintain all fencing until the completion of Covered Activities in that area.
- 5.9. Delineation of Habitat. Permittee shall clearly delineate habitat of the Covered Species within the Project Area with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance of Covered Species habitat.
- 5.10. Project Access. Project-related personnel shall access the Project Area using existing routes and shall not cross Covered Species' habitat outside of or en route to the Project Area. Permittee shall restrict Project-related vehicle traffic to established roads, staging, and parking areas. If Permittee determines construction of routes for travel are necessary outside of the Project Area, the Designated Representative shall contact DFG for written approval before carrying out such an activity. DFG may require an amendment to this ITP if additional take of Covered Species may result from Project modification.
- 5.11. Staging Areas. Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the existing paved road shoulder of south bound SR 101. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project Area unless specifically provided for as described in Condition 5.11 of this ITP.
- 5.12. Hazardous Waste. Permittee shall immediately stop and following pertinent state and federal statutes and regulations arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so. Permittee shall exclude the storage and handling of hazardous materials from the Project Area and shall properly contain and dispose of any unused or leftover hazardous products off-site.

5.13. DFG Access. Permittee shall provide DFG staff with reasonable access to the Project and shall otherwise fully cooperate with DFG efforts to verify compliance with or effectiveness of mitigation measures set forth in this ITP.

5.14. Refuse Removal. Upon completion of Covered Activities, Permittee shall remove from the Project Area and properly dispose of all excavated soil and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

6. Monitoring, Notification and Reporting Provisions:

6.1. Notification Before Commencement. The Designated Representative shall notify DFG 14 calendar days before starting Covered Activities and shall document compliance with all pre-Project Conditions of Approval before starting Covered Activities.

6.2. Notification of Non-compliance. The Designated Representative shall immediately notify DFG in writing if it determines that the Permittee is not in compliance with any Condition of Approval of this ITP, including but not limited to any actual or anticipated failure to implement measures within the time periods indicated in this ITP and/or the MMRP. The Designated Representative shall report any non-compliance with this ITP to DFG within 24 hours.

6.3. Compliance Monitoring. The Designated Biologist shall be on-site daily when Covered Activities occur. The Designated Biologist shall conduct compliance inspections to (1) minimize incidental take of the Covered Species; (2) prevent unlawful take of species; (3) check for compliance with all measures of this ITP; (4) check all exclusion zones; and (5) ensure that signs, stakes, and fencing are intact, and that Covered Activities are only occurring in the Project Area. The Designated Representative or Designated Biologist shall prepare daily written observation and inspection records summarizing: oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities required by this ITP. The Designated Biologist shall conduct compliance inspections a minimum of once per week during periods of inactivity and after excavation and grading are completed.

6.4. Quarterly Compliance Report. The Designated Representative or Designated Biologist shall compile the observation and inspection records identified in Condition 6.3 into a Quarterly Compliance Report and submit it to DFG along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Quarterly Compliance Reports shall be submitted to DFG's Regional Office at the office listed in the Notices section of this ITP and via e-mail to DFG's Regional Representative. At the time of this ITP's approval, the DFG Regional Representative is Stephanie Buss (sbuss@dfg.ca.gov). DFG may at any time increase the timing and number of

compliance inspections and reports required under this provision depending upon the results of previous compliance inspections. If DFG determines the reporting schedule must be changed, DFG will notify Permittee in writing of the new reporting schedule.

- 6.5. Annual Status Report. Permittee shall provide DFG with an Annual Status Report (ASR) no later than December 31 of every year beginning with issuance of this ITP and continuing until DFG accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: (1) a summary of all Quarterly Compliance Reports for that year identified in Condition 6.4; (2) a general description of the status of the Project Area and Covered Activities, including actual or projected completion dates, if known; (3) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; (4) an assessment of the effectiveness of each completed or partially completed mitigation measure in avoiding, minimizing and mitigating Project impacts; (5) all available information about Project-related incidental take of the Covered Species; and (6) information about other Project impacts on the Covered Species.
- 6.6. CNDDDB Observations. The Designated Biologist shall submit all observations of Covered Species to DFG's California Natural Diversity Database (CNDDDB) within 60 calendar days of the observation and the Designated Biologist shall include copies of the submitted forms with the next Quarterly Compliance Report or ASR, whichever is submitted first relative to the observation.
- 6.7. Final Mitigation Report. No later than 45 days after completion of all mitigation measures, Permittee shall provide DFG with a Final Mitigation Report. The Designated Biologist shall prepare the Final Mitigation Report which shall include, at a minimum: (1) a summary of all Quarterly Compliance Reports and all ASRs; (2) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; (3) all available information about Project-related incidental take of the Covered Species; (4) information about other Project impacts on the Covered Species; (5) beginning and ending dates of Covered Activities; (6) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing and fully mitigating Project impacts of the taking on Covered Species; (7) recommendations on how mitigation measures might be changed to more effectively minimize take and mitigate the impacts of future projects on the Covered Species; and (8) any other pertinent information.
- 6.8. Notification of Take or Injury. Permittee shall immediately notify the Designated Biologist if a Covered Species is killed or taken by a Project-related activity, or if a Covered Species is otherwise found dead or injured within the vicinity of the Project. The Designated Biologist or Designated Representative shall provide initial notification to DFG by calling the Regional Office at (707) 944-5500. The initial notification to DFG shall include information regarding the location, species, number of animals taken or injured and the ITP Number. Following initial notification, Permittee shall send DFG a written report within 2 calendar days. The report shall include the date and time of the

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finding or incident, location of the animal or carcass, and if possible provide a photograph, explanation as to cause of take or injury, and any other pertinent information.

7. Take Minimization Measures:

The following requirements are intended to ensure the minimization of incidental take of Covered Species in the Project Area during Covered Activities. Permittee shall implement and adhere to the following conditions to minimize take of Covered Species:

- 7.1. Pre-construction Survey. Prior to the start of Covered Activities, the Designated Biologist shall perform a pre-construction survey within the boundaries of the Project Area.
- 7.2. Wildlife Check. Before the start of work each morning, the Designated Biologist shall check for wildlife under any equipment such as vehicles and stored pipes. The Designated Biologist shall check all excavated steep-walled holes or trenches greater than one-foot deep for any wildlife. Wildlife shall be removed by the Designated Biologist and translocated to a safe location (see condition 7.8).
- 7.3. Equipment Maintenance. Permittee shall maintain all equipment such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents.
- 7.4. Grading and Clearing. Permittee shall ensure that excavation, grading and clearing is only conducted between April 15 and October 15, of any given year, depending on the level of rainfall and/or site conditions.
- 7.5. Re-vegetation. Permittee shall re-vegetate Project Areas temporarily disturbed by Covered Activities with plants approved by DFG.
- 7.6. Covered Species Injury. If a Covered Species is injured as a result of Project-related activities, the Designated Biologist shall immediately take it to a DFG-approved wildlife rehabilitation, veterinary facility, or other qualified individual. Permittee shall identify the facility before starting Covered Activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. The Permittee shall notify DFG of the injury to the Covered Species immediately by telephone and e-mail followed by a written incident report. Notification shall include the date, time, location and circumstances of the incident and the name of the facility where the animal was taken.
- 7.7. Covered Species Construction Monitoring. The Designated Biologist shall complete walking surveys following earth moving equipment to look for the Covered Species during initial ground-disturbing activities. If the Covered Species is discovered then the Designated Biologist shall relocated the animal (see condition 7.8).

- 7.8. Covered Species Relocation. The Designated Biologist shall relocate Covered Species found within the Project Area to appropriate habitat (e.g., the opening of a ground burrow outside of the construction area within 300 feet of the Project Area) approved by the U.S. Fish and Wildlife Service and DFG and monitor the Covered Species until it is determined that the Covered Species is not imperiled by predators or other dangers. The captured Covered Species shall not be relocated to another property without the owner's written permission.
- 7.9. Covered Species Handling. The Designated Biologist shall limit the duration of handling and captivity. While in captivity, the Covered Species shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting shall not contain any standing water.
- 7.10. Trench Escape. To prevent inadvertent entrapment of wildlife during construction and periods of inactivity, the Designated Biologist and/or construction manager shall ensure all excavated trenches and holes are provided with one or more escape ramps constructed of earth fill or wooden planks and are inspected by the Designated Biologist prior to sunrise each morning. Before such trenches or holes are filled, they will be thoroughly inspected for trapped animals by the Designated Biologist and/or construction manager. If at any time a trapped animal is discovered, the Designated Biologist shall move the animal to a safe nearby location as described in Condition 7.8.
- 7.11. Temporary Barrier. Before beginning Covered Activities, Permittee shall construct a temporary barrier along the limits of disturbance. The barrier will consist of silt fencing buried a minimum of six inches below grade. The Designated Biologist shall inspect the area prior to installation of the barrier. The barrier shall be designed to prevent the Covered Species from entering the construction site. The barrier shall remain in place until all Covered Activities have been completed. The Designated Biologist shall inspect the barrier daily and the Permittee shall maintain and repair it as necessary to ensure that it is functional.

8. Habitat Management Land Acquisition:

DFG has determined that permanent protection and perpetual management of compensatory habitat is necessary and required pursuant to CESA to fully mitigate Project-related impacts of the taking on the Covered Species that will result with implementation of the Covered Activities. This determination is based on factors including an assessment of the importance of the habitat in the Project Area, the extent to which the Covered Activities will impact the habitat, and DFG's estimate of the acreage required to provide for adequate compensation.

To meet this requirement, the Permittee shall purchase 0.24 acres of Covered Species credits from a DFG-approved mitigation or conservation bank (Condition 8.1). Permanent protection and perpetual management of compensatory habitat must be complete before starting Covered Activities.

8.1. Covered Species Credits. Prior to initiating Covered Activities the Permittee shall purchase 0.24 acres of Covered Species credits from a DFG-approved mitigation or conservation bank located within the Santa Rosa Plain and in the proper service area for the impacts associated with the proposed project.

8.2. Bill of Sale. The Permittee shall provide a copy of the Bill of Sale for the purchase of Covered Species credits prior to initiating Covered Activities.

Amendment:

This ITP may be amended as provided by California Code of Regulations, Title 14, section 783.6, subdivision (c), and other applicable regulations and law. This ITP may also be amended without the concurrence of the Permittee as required by law, including if DFG determines that continued implementation of the Project under existing ITP conditions would jeopardize the continued existence of the Covered Species or that Project changes or changed biological conditions necessitate an ITP amendment to ensure that impacts to the Covered Species are minimized and fully mitigated.

Stop-Work Order:

DFG may issue Permittee a written stop-work order to suspend any activity covered by this ITP for an initial period of up to 25 days to prevent or remedy a violation of any ITP condition(s) (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. DFG may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. DFG may commence the formal suspension process pursuant to California Code of Regulations, Title 14, section 783.7 within five working days of issuing a stop-work order. Neither the Designated Biologist nor DFG shall be liable for any costs incurred in complying with stop-work orders.

Compliance with Other Laws:

This ITP contains DFG's requirements for the Project pursuant to CESA. This ITP does not necessarily create an entitlement to proceed with the Project. Permittee is responsible for complying with all other applicable State, federal, and local laws.

Notices:

The Permittee shall deliver a fully executed duplicate original ITP by registered first class mail or overnight delivery to the following address:

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Habitat Conservation Planning Branch
California Department of Fish and Game
Attention: CESA Permitting Program
1416 Ninth Street, Suite 1260
Sacramento, CA 95814

Written notices, reports and other communications relating to this ITP shall be delivered to DFG by registered first class mail at the following addresses, or at addresses DFG may subsequently provide the Permittee. Notices, reports, and other communications shall reference the Project name, Permittee, and ITP Number (2081-2011-018-03) in a cover letter and on any other associated documents.

Original cover with attachment(s) to:

Carl Wilcox, Regional Manager
California Department of Fish and Game
7329 Silverado Trail
Napa, CA 94558
Telephone (707) 944-5500
Fax (707) 944-5563

Copy of cover without attachment(s) to:

Office of the General Counsel
California Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

And:

Habitat Conservation Planning Branch
California Department of Fish and Game
1416 Ninth Street, Suite 1260
Sacramento, CA 95814

Unless Permittee is notified otherwise, DFG's Regional Representative for purposes of addressing issues that arise during implementation of this ITP is:

Stephanie Buss, Environmental Scientist
7329 Silverado Trail
Napa, CA 94558
Telephone (707) 944-5500
Fax (707) 944-5563

Compliance with CEQA:

DFG's issuance of this ITP is subject to CEQA. DFG is a responsible agency pursuant to CEQA with respect to this ITP because of prior environmental review of the Project by the lead agency, California Department of Transportation. (See generally Pub. Resources Code, §§ 21067,

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21069). The lead agency's prior environmental review of the Project is set forth in the Sierra Avenue Rock Slope Protection Initial Study with Mitigated Negative Declaration, (State Clearinghouse #2010112061) dated December 2010 that the California Department of Transportation adopted for the Sonoma Interstate 101 Rock Slope Protection Installation Project on December 24, 2010. At the time the lead agency adopted the Mitigated Negative Declaration and approved the Project it also adopted all mitigation measures described in the Mitigated Negative Declaration as conditions of Project approval.

In fulfilling its obligations as a responsible agency, DFG's obligations pursuant to CEQA are more limited than those of the lead agency. DFG, in particular, is responsible for considering only the effects of those Project activities that it is required by law to carry out or approve, and mitigating or avoiding only the direct or indirect environmental effects of those parts of the Project that it decides to carry out, finance, or approve [Pub. Resources Code, § 21002.1, subd. (d); CEQA Guidelines, §§ 15041, subd. (b), 15096, subds. (f)-(g)].⁵ Accordingly, because DFG's exercise of discretion is limited to issuance of this ITP, DFG is responsible for considering only the environmental effects that fall within its permitting authority pursuant to CESA.

This ITP, along with DFG's CEQA findings for this ITP and Project, which are available as a separate document, provide evidence of DFG's consideration of the lead agency's Mitigated Negative Declaration for the Project and the environmental effects related to issuance of this ITP [CEQA Guidelines, § 15096, subd. (f)]. DFG finds that issuance of this ITP will not result in any previously undisclosed potentially significant effects on the environment or a substantial increase in the severity of any potentially significant environmental effects previously disclosed by the lead agency. Furthermore, to the extent the potential for such effects exists, DFG finds adherence to and implementation of the Conditions of Project Approval adopted by the lead agency, as well as adherence to and implementation of the Conditions of Approval imposed by DFG through the issuance of this ITP, will avoid or reduce to below a level of significance any such potential effects. DFG consequently finds that issuance of this ITP will not result in any significant, adverse impacts on the environment.

Findings Pursuant to CESA:

These findings are intended to document DFG's compliance with the specific findings requirements set forth in CESA and related regulations. [Fish and Game Code § 2081, subs. (b)-(c); Cal. Code Regs., tit. 14, §§ 783.4, subds. (a)-(b), 783.5, subd. (c)(2)].

DFG finds based on substantial evidence in the ITP application and the Sierra Avenue Rock Slope Protection Initial Study with Mitigated Negative Declaration that issuance of this ITP complies and is consistent with the criteria governing the issuance of ITPs pursuant to CESA:

- (1) Take of Covered Species as defined in this ITP will be incidental to the otherwise lawful activities covered under this ITP;

⁵ The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

- (2) Impacts of the taking on Covered Species will be minimized and fully mitigated through the implementation of measures required by this ITP and as described in the MMRP. Measures include: (1) permanent habitat protection through the purchase of credits from a DFG-approved mitigation or conservation bank; (2) establishment of avoidance zones; (3) worker education; and (4) Quarterly Compliance Reports. DFG evaluated factors including an assessment of the importance of the habitat in the Project Area, the extent to which the Covered Activities will impact the habitat, and DFG's estimate of the acreage required to provide for adequate compensation. Based on this evaluation, DFG determined that the purchase of 0.24 acres of Covered Species habitat which is higher quality than the habitat being destroyed by the Project, along with the minimization, monitoring, and reporting of this ITP minimizes and fully mitigates the impacts of the taking caused by the Project;
- (3) The take avoidance and mitigation measures required pursuant to the conditions of this ITP and its attachments are roughly proportional in extent to the impacts of the taking authorized by this ITP;
- (4) The measures required by this ITP maintain Permittee's objectives to the greatest extent possible;
- (5) All required measures are capable of successful implementation;
- (6) This ITP is consistent with any regulations adopted pursuant to Fish and Game Code sections 2112 and 2114;
- (7) Permittee has ensured adequate funding to implement the measures required by this ITP as well as for monitoring compliance with, and the effectiveness of, those measures for the Project; and
- (8) Issuance of this ITP will not jeopardize the continued existence of the Covered Species based on the best scientific and other information reasonably available, and this finding includes consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (1) known population trends; (2) known threats to the species; and (3) reasonably foreseeable impacts on the species from other related projects and activities. Moreover, DFG's finding is based, in part, on DFG's express authority to amend the terms and conditions of this ITP without concurrence of the Permittee as necessary to avoid jeopardy and as required by law.

Attachments:

FIGURE 1	Location Map
FIGURE 2	Map of Project
ATTACHMENT 1	Mitigation Monitoring and Reporting Program

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on 6/24/11.

Scott Wilson FOR
Carl Wilcox, Regional Manager
BAY DELTA REGION

ACKNOWLEDGMENT

The undersigned: (1) warrants that he or she is acting as a duly authorized representative of the Permittee, (2) acknowledges receipt of this ITP, and (3) agrees on behalf of the Permittee to comply with all terms and conditions of this ITP.

By: Zachary Parker Date: 6/28/11

Printed Name: ZACHARY PARKER Title: CRIBIOLOGY BRANCH CHIEF

PRELIMINARY SITE INVESTIGATION REPORT



PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
111 GRAND AVENUE, MS8C
OAKLAND, CA 94612

PREPARED BY:
GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CA 94550

GEOCON PROJECT NO. E8560-06-06
CALTRANS EA 04-4S6401



FEBRUARY 2011

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- C. Metals Statistical Analysis

REPORT LIMITATIONS

This report has been prepared exclusively for the State of California Department of Transportation (Caltrans) District 4. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

GEOCON CONSULTANTS, INC.


Lauren Vigliotti, PG
Project Geologist




Richard Day, CEG, CHG
Regional Manager

CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4 OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:

Recommended By:

Approved By:

William Whiteley, PE
Task Order Manager

Ray Boyer, PE
District Branch Chief

Allen Baradar, PE, REA
District Office Chief

PROJECT TEAM

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Richard Day, CEG, CHG Lauren Vigliotti, PG 925.371.5900 925.371.5915 fax livermore@geoconinc.com	Geocon Consultants, Inc. 6671 Brisa Street Livermore, CA 94550 (<i>Caltrans Consultant</i>)	Project Management Sample Collection Field QA/QC Investigation Report
Doug Krause, CIH 530.758.6397 530.758.6506 fax dskrause@pacbell.net	Krause & Associates 216 F. Street Suite 162 Davis, CA 95616 (<i>Geocon Subconsultant</i>)	Health and Safety
Diane Galvan 562.989.4045 562.989.4040 fax diane@atlglobal.com	Advanced Technology Laboratories 1510 E. 33 rd Street Signal Hill, CA 90807 (<i>Geocon Subcontractor</i>)	Soil Sample Analysis
Dan Kocher 510.895.3675 510.895.3680 milpitaslab@emsl.com	EMSL Analytical Inc. 2235 Polvorosa Avenue, Suite 230 San Leandro, CA 94577 (<i>Geocon Subcontractor</i>)	Asbestos Analysis

PRELIMINARY SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Preliminary Site Investigation Report for the United States Route 101 (US-101) Storm Damage Repair project was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A3578 and Task Order No. 6 (TO-06), EA 04-4S6401.

1.1 Project Description and Proposed Improvements

The project location consists of Caltrans right-of-way (ROW) along portions of the southbound shoulder of US-101, extending from Post Mile (PM) 11.6 to 11.8. The proposed construction repairs are located at approximate Stations 253+00 and 259+00, and extent laterally approximately 40 feet from edge of pavement. The site investigation was conducted prior to installing rock slope protection with topsoil to repair damage and improve roadway safety. The project location is depicted on the attached Vicinity Map, Figure 1.

1.2 General Objectives

The purpose of the site investigation was to evaluate concentrations of California Assessment Manual (CAM) 17 metals, including aeriually deposited lead (ADL), total petroleum hydrocarbons (TPH), and naturally occurring asbestos (NOA) in soil at the project location. Groundwater is not expected to be encountered during the proposed construction activities; therefore, no groundwater samples were collected.

ADL may be present at the project location primarily due to historic leaded fuel emissions from automobile exhausts. Lead poses risks related to inhalation, ingestion, and dermal contact with the material. NOA may be in soil within the project limits. If not managed, disturbance of NOA during construction activities may potentially pose an inhalation risk to the health of construction personnel.

The information obtained from this investigation will be used by Caltrans to evaluate soil disposal costs and identify health and safety concerns.

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as California hazardous for handling and disposal purposes are contained in the CCR, Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as Resource, Conservation, and Recovery Act (RCRA) hazardous are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

2.2 DTSC Variance

The DTSC issued a statewide Variance effective July 1, 2009, regarding the management of ADL-impacted soils within Caltrans right-of-way. Under the Variance, soil that is classified as a non-RCRA hazardous waste, based primarily on ADL content, may be suitable for reuse within Caltrans right-of-way. ADL soil that is classified as a RCRA hazardous waste is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste (Caltrans Type Z-3).

ADL soil reused under the Variance must always be at least five feet above the highest groundwater elevation and, depending on lead concentrations, must be covered with at least one foot of non-hazardous soil or a pavement structure. The ADL soil may not be placed in areas where it might contact groundwater or surface water (such as streams and rivers), and must be buried in locations that are protected from erosion that may result from storm water run-on and run-off.

Review of the statewide Variance indicates the following conditions regarding the reuse and management of ADL-impacted soil as fill material for construction and maintenance operations. If ADL soil meets the Variance criteria but is not intended to be reused within Caltrans right-of-way, then the excavated soil must be disposed of as a California hazardous waste (Caltrans Type Z-2). A copy of the Variance is presented as Appendix A.

Caltrans Type Y-1: ADL soil exhibiting a total lead concentration less than or equal to 1,411 milligrams per kilogram (mg/kg), a DI-WET (WET using deionized water as extractant) lead concentration less than or equal to 1.5 milligrams per liter (mg/l), and a pH value greater than or equal to 5.5 may be reused within the same Caltrans corridor and must be covered with at least one foot of non-hazardous soil.

Caltrans Type Y-2: ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration less than or equal to 1.5 mg/l, and a pH value greater than 5 and less than 5.5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration greater than 1.5 mg/l and less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration greater than 1,411 mg/kg and less than or equal to 3,397 mg/kg, a DI-WET lead concentration less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

Caltrans Type Z-2: ADL soil exhibiting a total lead concentration greater than 3,397 mg/kg, a DI-WET lead concentration greater than 150 mg/l, or a pH value less than or equal to 5 is not eligible for reuse under the Variance and must be disposed of as a California hazardous waste.

Caltrans Type Z-3: ADL soil exhibiting a TCLP lead concentration greater than or equal to 5 mg/l is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste.

2.3 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Interim Final* (May 2008), which presents Environmental Screening Levels (ESLs) for soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. The ESLs are conservative values for more than 100 commonly detected contaminants, which may be used to compare with environmental data collected at a site. ESLs are strictly risk assessment tools and “not regulatory clean up standards.” The presence of a chemical at concentrations in excess of an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring; this simply indicates that a potential for adverse risk may exist and that additional evaluation is or “may be” warranted (SFRWQCB, 2008).

The most conservative ESL table was used for this characterization: Table A – Shallow Soil (≤ 3 meters below ground surface; bgs) – Groundwater is a Current or Potential Source of Drinking Water. The respective ESLs are listed at the end of Tables 3 and 4 for comparative purposes.

2.4 Naturally Occurring Asbestos

As defined in current California Air Resources Board (CARB) rules, serpentine material refers to any material that contains at least 10% serpentine, and asbestos-containing serpentine refers to serpentine materials with an asbestos content greater than 5% as determined by CARB Test Method 435 (CARB 435). The use of serpentine material for road surfacing is prohibited in California by Title 17 of the California Code of Regulations (CCR) Section 93106, Asbestos Airborne Toxic Control Measure (ATCM) for Surfacing Application (ATCM 93106), unless the material has been tested and determined to have an asbestos content of less than 0.25%. Materials found to contain asbestos of 0.25% or more are considered to be designated waste if transported offsite, requiring disposal at a landfill facility designated to accept asbestos waste. Alternatively, asbestos-containing materials may be reused onsite if buried beneath a minimum 6 inches of soil.

The CARB specifies mitigation practices for construction, grading, quarrying, and surface mining operations that contain natural occurrences of asbestos outlined in Title 17, Section 93105, Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (ATCM 93105). Based on Part (e) Subpart (2) of ATCM 93105 an asbestos dust mitigation plan is required and must be implemented for a project if NOA is disturbed after the start of construction. Additionally, ATCM 93105 specifies that the air pollution control district (APCD) must be notified and an asbestos dust mitigation plan submitted to the APCD. The ATCM states that air monitoring may be required on the property. NOA potentially poses a health hazard when it becomes an airborne particulate.

The construction/maintenance activities mentioned above could disturb NOA-laden debris and soil, thereby potentially creating an airborne hazard. Mitigation practices can reduce the risk of exposure to airborne NOA containing dust. Dust suppression practices include wetting the materials being disturbed and wearing approved respirators with high-efficiency particulate air (HEPA) filters during construction activities.

3.0 SCOPE OF SERVICES

The scope of services requested by Caltrans under TO-06, EA 04-4S6401 included the following:

3.1 Pre-field Activities

- Prepared a site-specific *Health and Safety Plan* to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.

- Prepared a Workplan for the investigation activities dated January 5, 2011, which was approved by Caltrans.
- Provided a minimum of 48-hours notice to the local public utilities via Underground Service Alert prior to job site mobilization.
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Retained the services of EMSL, a Caltrans-approved and California-certified analytical laboratory, to perform the asbestos analysis of soil samples.

3.2 Field Activities

The field investigation was performed on January 11, 2011, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced 8 soil borings along the southbound shoulder of US-101 at the project location using hand-auger techniques. The borings were advanced to a maximum depth of 3 feet.
- Collected 24 soil samples for selected analysis of CAM 17 metals, total lead, TPH, NOA, and pH.
- Transported samples to California-certified environmental laboratories for analysis under standard chain-of-custody (COC) documentation.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from eight boring locations identified by the Caltrans TO Manager. Geocon recorded the boring locations using Differential Global Positioning System (DGPS) equipment. Boring coordinates are presented on Table 1 and boring locations are shown on the Site Plan, Figure 2.

The soil samples for analysis of total lead, CAM 17 metals and TPH were collected in new stainless steel tubes sealed with Teflon tape and plastic end-caps. Soil samples for total lead and NOA analyses were collected into new resealable plastic bags. Sample containers were labeled and transported to Caltrans-approved, certified environmental laboratories using standard COC documentation. Soil borings were backfilled to surface with soil cuttings.

Geocon provided QA/QC procedures during the field activities. These procedures included washing the sampling equipment with a Liqui-Nox® solution followed by a double rinse with deionized water. Decontamination water was disposed of to the ground surface within Caltrans right-of-way in a manner not to create runoff, away from drain inlets or potential water bodies.

4.2 Laboratory Analyses

Laboratory analyses for total lead and CAM17 metals were performed under an expedited 48-hour turnaround-time (TAT), and the other analyses were performed under a standard seven-day TAT. Samples submitted for CAM17 metals, total lead, TPH, and pH were analyzed by ATL; samples submitted for NOA were analyzed by EMSL. The laboratory reports and COC documentation are included in Appendix A.

The soil samples were analyzed as follows:

- 16 samples for total lead using Environmental Protection Agency (EPA) Test Method 6010 ICAP
- 8 samples for CAM 17 metals according to Title 22 CCR, EPA Test Methods 6010 ICAP and 7471A
- 3 samples with total lead concentrations greater than 50 mg/kg (i.e. greater than ten times the STLC of 5.0 mg/l) were further analyzed for WET lead
- 2 samples with total lead concentrations greater than 100 mg/kg and WET lead concentrations greater than 5.0 mg/l were further analyzed for TCLP and DI-WET lead.
- 6 samples with total chromium concentrations greater than 50 mg/kg (i.e. greater than ten times the STLC of 5.0 mg/l for hexavalent chromium) were further analyzed for WET chromium
- 8 samples for TPH as gasoline (TPHg) using EPA Method 8015B
- 8 samples for TPH as diesel (TPHd) using EPA Method 8015B
- 8 soil samples for NOA using the CARB Test Method 435
- 8 soil samples for pH using EPA Method 9045

4.3 Laboratory QA/QC

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix; whichever was more frequent, with spike made at ten times the detection limit or at the analyte level.

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for accuracy and completeness.

5.0 INVESTIGATIVE RESULTS

5.1 Subsurface Conditions

Observations during field activities indicated that surface soil at the project location generally consists of brown, gravelly sand and silt. Groundwater was not encountered during the advancement of the soil borings.

5.2 Laboratory Analytical Results

The analytical results are summarized in Tables 2 through 5 and are summarized below:

- The following metals were not detected above their respective laboratory reporting limits in the samples: antimony, beryllium, cadmium, mercury, molybdenum, selenium, silver, and thallium.
- Total lead was reported at concentrations ranging from less than the laboratory reporting limit of 5.0 milligrams per kilogram (mg/kg) to 310 mg/kg, with three samples equal to or exceeding 50 mg/kg (i.e., ten times the STLC of 5.0 mg/l).
- WET lead was reported in the three samples analyzed at concentrations between 2.2 and 21 mg/l.
- TCLP and DI-WET lead were not detected above the laboratory reporting limits of 0.25 mg/l in the two samples analyzed.
- Total chromium was reported at concentrations ranging from 25 to 79 mg/kg, with six samples exceeding ten times the STLC of 5.0 mg/l for hexavalent chromium.
- WET chromium was not detected above the laboratory reporting limit of 1.0 mg/l.
- Remaining CAM 17 metals were reported in the samples at concentrations below ten times their respective STLCs.
- TPHg and TPHd were not detected above the laboratory reporting limits of 1.0 mg/kg in the samples.
- NOA was not detected above the 0.25% target analytical sensitivity level in the samples.
- pH values ranged from 6.7 to 8.1

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks. The relative percent differences (RPDs) for a matrix spike duplicate and two duplicates were outside recovery criteria. The surrogate recovery was biased high for one sample, possible due to matrix interferences. However, the analytical batch was validated by the Laboratory Control Spike. One sample required dilution due to internal standard failure. Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

5.4 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and WET lead concentrations exists that would allow the prediction of WET lead concentrations based on calculated UCLs. Per Caltrans, the lead data for the project location were treated as a single sample population for statistical evaluation, which consisted of borings 10-01 to 10-08.

5.4.1 Calculating the UCLs for the Arithmetic Mean

The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs therefore account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease, and the UCLs move closer to the true mean.

Non-parametric bootstrap techniques used to calculate the UCLs are discussed in the previously referenced EPA document and in *An Introduction to the Bootstrap*. For those samples in which total lead was not detected, a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap test results are included in Appendix C. The following tables present the calculated UCLs and statistics for the data set.

Site Borings - 10-01 to 10-08

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0.5 to 1.0	119.4	131.4	75.5	8.9	310
1.0 to 1.5	7.5	7.8	6.3	2.5	11
2.5 to 3.0	11.8	12.7	9.1	2.5	19

5.4.2 Correlation of Total and WET Lead

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET lead concentrations based on the UCLs calculated above in Section 5.4.1.

To estimate the degree of interrelation between total and corresponding WET lead values (x and y , respectively), the *correlation coefficient* [r] is used. The correlation coefficient is a ratio that ranges from +1 to -1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of -1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the three (x , y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]). The resulting *coefficient of determination* (r^2) equaled 0.938, which yields a corresponding *correlation coefficient* (r) of 0.969.

For the *correlation coefficient* that indicates a linear relationship between total and WET lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0631(x)$, where x represents total lead concentrations and y represents predicted WET lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the UCLs calculated in for samples collected from the Site (see Section 5.4.1). Regression analysis results and a scatter plot depicting the (x , y) data points along with the regression line are included in Appendix C. The predicted WET lead concentrations are summarized in Table 6.

6.0 CONCLUSIONS

Waste classifications are evaluated based on the 90% UCL of the lead content for the relevant excavation depths; this has historically been considered sufficient to satisfy a good faith effort by the EPA as discussed in SW-846. Risk assessment characterization is based on the 95% UCL of the lead content in the waste for the relevant depths; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment. Per Caltrans, the 90% UCLs are to be used to evaluate onsite reuse and the 95% UCLs are to be used to evaluate offsite disposal.

6.1 Lead Results

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs and predicted WET lead concentrations for data collected at the Site. Weighted averages are calculated by using the total lead concentration for each 0.5-foot depth interval as the value for the underlying 0.5-foot depth interval (unless a sample was collected from the underlying depth interval). The total and WET lead calculations are summarized below and in Table 6.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1.0 ft	119	7.5	131	Hazardous
<i>Underlying soil (1.0 to 3.0 ft)</i>	8.6	0.5	9.1	<i>Non-Hazardous</i>
0 to 2.5 ft	52	3.3	57	Non-Hazardous
<i>Underlying Soil (2.5 to 3.0 ft)</i>	12	0.7	13	<i>Non-Hazardous</i>
0 to 3.0 ft	46	2.9	50	Non-Hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the data presented in the above table, soil excavated from the surface to a depth of 1.0 foot would be classified as California hazardous waste since the predicted WET lead concentration is greater than the STLC of 5.0 mg/l. Based on the TCLP results, soil would not be classified as RCRA hazardous waste. Based on the DI-WET results, soil may be reused onsite in accordance with the DTSC Variance by placing it beneath one foot of clean fill and/or pavement. Underlying soil below a depth of 1.0 foot would be classified as non-hazardous and may be reused onsite. If excavations are 2.0 feet or greater and managed as a whole, soil would be classified as non-hazardous.

6.1 Other CAM 17 Metals

The CAM 17 metals concentrations, other than lead, in site soil were compared to ESLs (Table A, SFRWQCB, May 2008). Arsenic and vanadium were reported at concentrations greater than their respective ESL values in the soil samples collected at the site. Arsenic was detected in the samples at concentrations ranging from less than the laboratory reporting limit of 1.0 to mg/kg to 8.4 mg/kg, exceeding the residential land use ESL of 0.39 mg/kg and the commercial/industrial land use ESL of 1.6 mg/kg for shallow soil (≤ 3 meters; SFRWQCB, Table A). Vanadium was reported in the soil samples at concentrations between 29 mg/kg and 42 mg/kg, exceeding the residential land use ESL of 16 mg/kg for shallow soil.

Upper one-sided 95% UCLs were calculated for the full set of arsenic and vanadium concentrations. Non-parametric bootstrap techniques were used to calculate the UCLs. For those samples in which arsenic was not detected, a value equal to one-half of the detection limit was used in the UCL calculation. The UCLs were compared with the residential and commercial/industrial land use ESLs and with published background levels typically present in California soils as presented in *Background Concentrations of Trace and Major Elements in California Soils* (Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996). The bootstrap results are included in Appendix B. The calculated standard bootstrap UCLs, ESLs and published background concentrations are summarized in the table below:

Metal	95% UCL	RESIDENTIAL ESL	COMMERCIAL/ INDUSTRIAL ESL	PUBLISHED BACKGROUND MEAN ¹	PUBLISHED BACKGROUND RANGE ¹
Arsenic	4.288	0.39	1.6	3.5	0.6 to 11.0
Vanadium	34.42	16	200	112	39 to 288

Concentrations reported in milligrams per kilogram (mg/kg)

¹ Kearney Foundation of Soil Science, March 1996

The 95% UCL value for arsenic in the soil samples collected at the Site is greater than the residential and commercial/industrial land use ESLs and within the published background range. The SFRWQCB *November 2007 Update to Environmental Screening Levels (ESLs) Technical Document* states that ambient background concentrations of arsenic typically exceed risk-based screening levels. In such instances, it may be more appropriate to compare site data to regionally specific established background levels.

The 95% UCL value for vanadium in the soil samples collected at the site is greater than the residential land use ESL. However, the 95% UCL for vanadium is less than the commercial/industrial land use ESL and the published background range.

Based on the reported arsenic and vanadium results, there may be restrictions on reuse and/or disposal options for excavated soil.

6.2 Total Petroleum Hydrocarbons

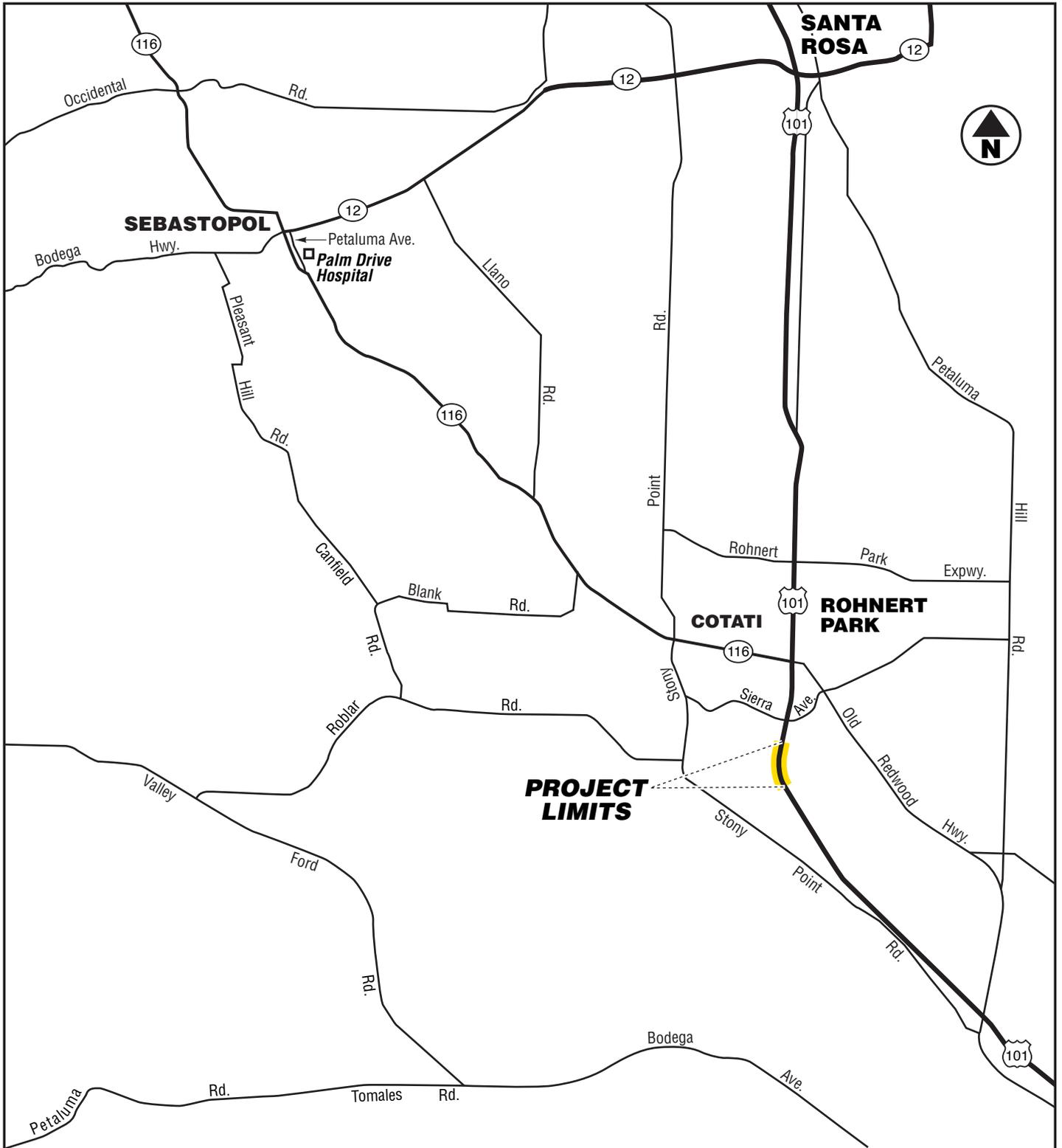
TPHg and TPHd were not detected above their respective laboratory reporting limits; therefore, there should be no restrictions on reuse options for excavated soil based on TPHg and TPHd content.

6.3 Naturally Occurring Asbestos

NOA was not detected above the target analytical sensitivity of 0.25%; therefore, there should be no restrictions on handling of excavated soil based on NOA content.

6.4 Worker Protection

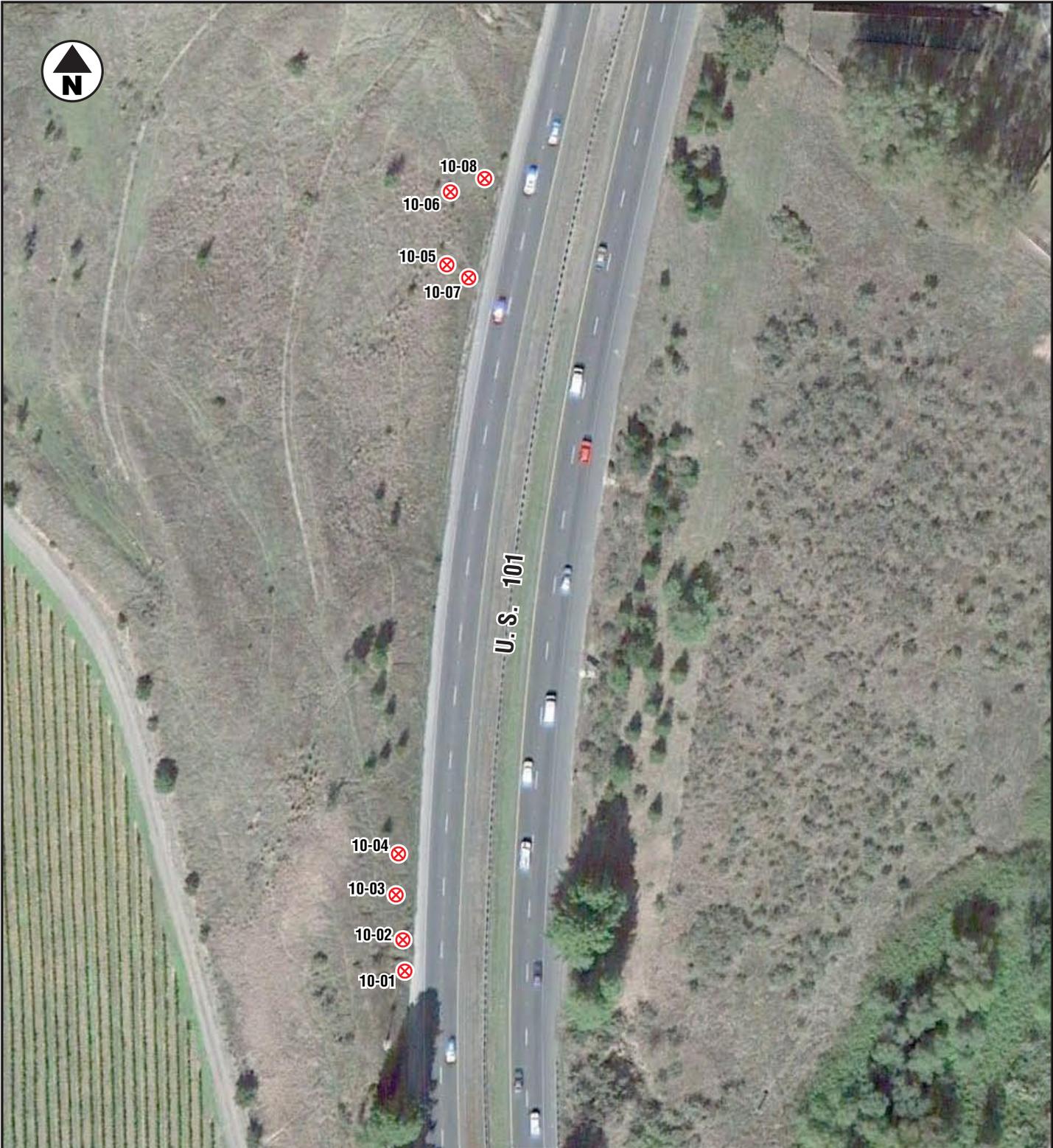
The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals in soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of metals in soil.



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US 101 Storm Damage Repairs		
Cotati, Sonoma County, California		VICINITY MAP
GEOCON Proj. No. E8560-06-06		
Task Order No. 06, EA 04-4S6401	February 2011	Figure 1



LEGEND:

10-01 ⊗ Approximate Boring Location



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US 101 Storm Damage Repairs		
Cotati, Sonoma County, California		SITE PLAN
GEOCON Proj. No. E8560-06-06		
Task Order No. 06, EA 04-4S6401	February 2011	Figure 2

TABLE 1
Boring Coordinates
US-101 Storm Damage Repair Project
Cotati, Sonoma County, California

Boring	Northing	Easting
10-01	1,877,236.127	6,356,423.274
10-02	1,877,259.176	6,356,422.324
10-03	1,877,292.935	6,356,417.857
10-04	1,877,323.610	6,356,421.109
10-05	1,877,744.909	6,356,462.872
10-06	1,877,797.460	6,356,465.741
10-07	1,877,736.244	6,356,477.991
10-08	1,877,808.371	6,356,489.433

Notes: Coordinates are shown in feet (NAD 83, Zone 2)

TABLE 2
Summary of Lead, Chromium and pH Results
US-101 Storm Damage Repair Project
Cotati, Sonoma County, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	Total Chromium (mg/kg)	WET Chromium (mg/l)	pH
10-01-.5	0.5	50	2.2	---	---	54	<1.0	---
10-01-1.5	1.5	11	---	---	---	---	---	---
10-01-3	3.0	12	---	---	---	---	---	7.4
10-02-.5	0.5	310	21	<0.25	<0.25	55	<1.0	---
10-02-1.5	1.5	7.6	---	---	---	---	---	---
10-02-3	3.0	5.8	---	---	---	---	---	8.1
10-03-.5	0.5	33	---	---	---	57	<1.0	---
10-03-1.5	1.5	6.3	---	---	---	---	---	---
10-03-3	3.0	18	---	---	---	---	---	7.5
10-04-.5	0.5	44	---	---	---	79	<1.0	---
10-04-1.5	1.5	6.2	---	---	---	---	---	---
10-04-3	3.0	<5.0	---	---	---	---	---	7.2
10-05-.5	0.5	15	---	---	---	52	<1.0	---
10-05-1.5	1.5	5.4	---	---	---	---	---	---
10-05-3	3.0	6.6	---	---	---	---	---	6.9
10-06-.5	0.5	8.9	---	---	---	50	<1.0	---
10-06-1.5	1.5	<5.0	---	---	---	---	---	---
10-06-3	3.0	<5.0	---	---	---	---	---	7.0
10-07-.5	0.5	130	5.1	<0.25	<0.25	41		---
10-07-1.5	1.5	<5.0	---	---	---	---	---	---
10-07-3	3.0	6.2	---	---	---	---	---	6.7
10-08-.5	0.5	13	---	---	---	25		---
10-08-1.5	1.5	8.6	---	---	---	---	---	---
10-08-3	3.0	19	---	---	---	---	---	7.3

Notes:

mg/kg = Milligrams per kilogram

mg/l = Milligrams per liter

< = Not detected above the stated laboratory reporting limit

--- = Not analyzed

WET = Waste Extraction Test using citric acid as the extraction fluid

DI-WET = WET using deionized water as the extraction fluid.

TCLP = Toxicity Characteristic Leaching Procedure

TABLE 3
Summary of CAM17 Metals Results
US-101 Storm Damage Repair Project
Cotati, Sonoma County, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
10-01-.5	0.5	<2.0	<1.0	68	<1.0	<1.0	54	14	23	50	<0.10	<1.0	96	<1.0	<1.0	<1.0	31	67
10-02-.5	0.5	<2.0	8.4	91	<1.0	<1.0	55	14	29	310	<0.10	<1.0	96	1.1	<1.0	<1.0	29	120
10-03-.5	0.5	<2.0	<1.0	62	<1.0	<1.0	57	11	20	33	<0.10	<1.0	78	<1.0	<1.0	<1.0	31	47
10-04-.5	0.5	<2.0	<1.0	65	<1.0	<1.0	79	17	31	44	<0.10	<1.0	130	<1.0	<1.0	<1.0	29	56
10-05-.5	0.5	<2.0	3.3	90	<1.0	<1.0	52	13	22	15	<0.10	<1.0	110	<1.0	<1.0	<1.0	34	50
10-06-.5	0.5	<2.0	4.5	94	<1.0	<1.0	50	12	29	8.9	<0.10	<1.0	97	<1.0	<1.0	<1.0	30	50
10-07-.5	0.5	<2.0	4.2	71	<1.0	<1.0	41	13	26	130	<0.10	<1.0	100	<1.0	<1.0	<1.0	31	66
10-08-.5	0.5	<2.0	3.4	360	<2.0	<1.0	25	12	24	13	<0.10	<1.0	52	<1.0	<1.0	<1.0	42	35
<u>ESLs</u>																		
Residential Land Use		6.3	0.39	750	4.0	1.7	750	40	230	200	1.3	40	150	10	20	1.3	16	600
Comm/Ind Land Use		40	1.6	1500	8.0	7.4	750	80	230	750	10	40	150	10	40	16	200	600
Construction Exposure		310	15	2,600	98	39	1,200,000	94	310,000	750	58	3,900	260	3,900	3,900	62	770	230,000

Notes:

Results are shown in milligrams per kilogram (mg/kg).

Values listed for chromium are for Chromium III, as there is no standard for total chromium.

< = Analyte was not detected above the laboratory reporting limit.

ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, Revised May 2008.

TABLE 4
Summary of Total Petroleum Hydrocarbons Results
US-101 Storm Damage Repair Project
Cotati, Sonoma County, California

Sample ID	Sample Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)
10-01-1.5	1.5	---	<1.0
10-01-3	3.0	<1.0	---
10-02-1.5	1.5	---	<1.0
10-02-3	3.0	<1.0	---
10-03-1.5	1.5	---	<1.0
10-03-3	3.0	<1.0	---
10-04-1.5	1.5	---	<1.0
10-04-3	3.0	<1.0	---
10-05-1.5	1.5	---	<1.0
10-05-3	3.0	<1.0	---
10-06-1.5	1.5	---	<1.0
10-06-3	3.0	<1.0	---
10-07-1.5	1.5	---	<1.0
10-07-3	3.0	<1.0	---
10-08-1.5	1.5	---	<1.0
10-08-3	3.0	<1.0	---
ESLs			
	Residential	83	83
	Commercial/Industrial	83	83
	Construction Exposure	4,200	4,200

Notes:

mg/kg = milligrams per kilogram

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

--- = Not Analyzed

< = Not detected above the stated laboratory reporting limit

ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, May 2008.

TABLE 5
Summary of NOA Results
US-101 Storm Damage Repair Project
Cotati, Sonoma County, California

Sample ID	Sample Depth (feet)	Asbestos Content (% dry weight)
10-01-1.5	1.5	ND
10-02-1.5	1.5	ND
10-03-1.5	1.5	ND
10-04-1.5	1.5	ND
10-05-1.5	1.5	ND
10-06-1.5	1.5	ND
10-07-1.5	1.5	ND
10-08-1.5	1.5	ND

ND = None detected at 0.25% target analytical sensitivity.

TABLE 6
Summary of Lead Statistical Analysis
US-101 Storm Damage Repair Project
Cotati, Sonoma County, California

Site Borings - 10-01 to 10-08

TOTAL LEAD

	UCLs (mg/kg)	
	90% UCL	95% UCL
0 to 0.5 ft	119.4	131.4
1.0 to 1.5 ft	7.5	7.8
2.5 to 3.0 ft	11.8	12.7

EXCAVATION SCENARIOS

Excavation Depth	Weighted Averages		95% UCL Total Lead (mg/kg)
	90% UCL Total Lead (mg/kg)	WET Lead* (mg/l)	
0 to 1.0 ft	119	7.5	131
<i>Underlying Soil (1.0 to 3.0 ft.)</i>	8.6	0.5	9.1
0 to 2.5 ft	52	3.3	57
<i>Underlying Soil (2.5 to 3.0 ft)</i>	12	0.7	13
0 to 3.0 ft	46	2.9	50

Notes:

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

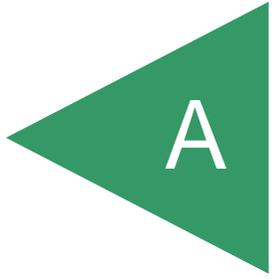
Weighted average values are based upon calculated UCLs for each depth interval.

* = WET lead concentrations are predicted using slope of regression line,
where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: $y = 0.0631 x$

APPENDIX

A





*California Environmental Protection Agency
Department of Toxic Substances Control*

VARIANCE

Applicant Names:

Variance No. V09HQSCD006

State of California
Department of Transportation
(Caltrans)
1120 N Street
Sacramento, California 95814

Effective Date: July 1, 2009

Expiration Date: July 1, 2014

Modification History:

Pursuant to California Health and Safety Code, Section 25143, the Department of Toxic Substances Control hereby issues the attached Variance consisting of 9 pages to the Department of Transportation.

A handwritten signature in cursive script, appearing to read "Beverly Rikala".

Beverly Rikala
Team Leader, Operating Facilities Team
Department of Toxic Substances Control

Date: 6/30/09

VARIANCE

1. INTRODUCTION.

a) Pursuant to Health and Safety Code, section 25143, the California Department of Toxic Substances Control (DTSC) grants this variance to the applicant below for waste considered to be hazardous solely because of its lead concentrations and as further specified herein.

b) DTSC hereby grants this variance only from the requirements specified herein and only in accordance with all terms and conditions specified herein.

2. IDENTIFYING INFORMATION.

APPLICANT/OWNER/OPERATOR

State of California
Department of Transportation, (Caltrans)
All Districts

3. TYPE OF VARIANCE.

Generation, Manifest, Transportation, Storage and Disposal.

4. ISSUANCE AND EXPIRATION DATES.

DATE ISSUED: July 1, 2009 EXPIRATION DATE: July 1, 2014

5. APPLICABLE STATUTES AND REGULATIONS. The hazardous waste that is the subject of this variance is fully regulated under Health and Safety Code, section 25100, et seq. and California Code of Regulations, title 22, division 4.5 except as specifically identified in Section 8 of this variance.

6. DEFINITION. For purposes of this variance, "lead-contaminated soil(s)" shall mean soil that meets the criteria for hazardous waste but contains less than 3397 mg/kg total lead and is hazardous primarily because of aeriially-deposited lead contamination associated with exhaust emissions from the operation of motor vehicles.

7. FINDINGS/DETERMINATIONS. DTSC has determined that the variance applicant meets the requirements set forth in Health and Safety Code, section 25143 for a variance from specific regulatory requirements as outlined in Section 8 of this variance. The specific determinations and findings made by DTSC are as follows:

a) Caltrans intends to excavate, stockpile, transport, bury and cover large volumes of soil associated with highway construction projects. In the more urbanized highway corridors around the State this soil is contaminated with lead, primarily due to historic emissions from automobile exhausts. In situ sampling and laboratory testing has shown that some of the soil contains concentrations of lead in excess of State regulatory thresholds, and thus any generated waste from disturbance of the soil

would be regulated as hazardous waste. Such soil contains a Total Threshold Limit Concentration (TTL) of 1000 milligrams per kilogram (mg/kg) or more lead and/or it meets or exceeds the Soluble Threshold Limit Concentration (STLC) for lead of 5 milligrams per liter (mg/l). A Human Health Risk Assessment prepared for this variance concludes that soil contaminated with elevated concentrations of lead can be managed in a way that presents no significant risk to human health.

b) The lead-contaminated soil will be placed only in Caltrans' right-of-way. Depending on concentration levels, the wastes will be covered with a minimum thickness of one (1) foot of non-hazardous soil or asphalt/concrete cover and will always be at least five (5) feet above the highest groundwater elevation. Caltrans will assure that proper health and safety procedures will be followed for workers, including any persons engaged in maintenance work in areas where the waste has been buried and covered.

c) DTSC finds and requires that the lead-contaminated soil excavated, stockpiled, transported, buried and covered pursuant to this variance is a non-RCRA hazardous waste, and that the waste management activity is insignificant as a potential hazard to human health and safety and the environment, when managed in accordance with the conditions, limitations and other requirements specified in this variance.

8. PROVISIONS WAIVED.

Provided Caltrans meets the terms and conditions of this variance, DTSC waives the hazardous waste management requirements of Health and Safety Code, Chapter 6.5 and California Code of Regulations, title 22 for the lead-contaminated soil that Caltrans reuses in projects that would require Caltrans to obtain a permit for a disposal facility and any other generator requirements that concern the transportation, manifesting, storage and land disposal of hazardous waste.

9. SPECIFIC CONDITIONS, LIMITATIONS AND OTHER REQUIREMENTS.

In order for the provisions discussed in section 8 to be waived, lead-contaminated soil must not exceed the contaminant concentrations discussed below and Caltrans management practices must meet all the following conditions:

a) Caltrans implementation of this variance shall comply with all applicable state laws and regulations for water quality control, water quality control plans, waste discharge requirements (including storm water permits), and others issued by the State Water Resources Control Board (SWRCB) and/or a California Regional Water Quality Control Board (RWQCB). Caltrans shall provide written notification to the appropriate RWQCB at least 30 days prior to advertisement for bids of projects that involve invocation of this variance, or as otherwise negotiated with the SWRCB or appropriate RWQCB.

b) The waivers in this variance shall only be applied to lead-contaminated soil that is not a RCRA hazardous waste and is hazardous primarily because of aerially-

deposited lead contamination associated with exhaust emissions from the operation of motor vehicles. The variance is not applicable to any other hazardous waste.

c) Soil containing 1.5 mg/l extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 1411 mg/kg or less total lead may be used as fill provided that the lead-contaminated soil is placed a minimum of five (5) feet above the maximum historic water table elevation and covered with at least one (1) foot of nonhazardous soil that will be maintained by Caltrans to prevent future erosion.

d) Soil containing 150 mg/L extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 3397 mg/kg or less total lead may be used as fill provided that the lead-contaminated soils are placed a minimum of five (5) feet above the maximum historic water table elevation and protected from infiltration by a pavement structure which will be maintained by Caltrans.

e) Lead-contaminated soil with a pH less than 5.5 but greater than 5.0 shall only be used as fill material under the paved portion of the roadway. Lead-contaminated soil with a pH at or less than 5.0 shall be managed as a hazardous waste.

f) For each project that has the potential to generate waste by disturbing lead-contaminated soil (as defined in 6), Caltrans shall conduct sampling and analysis to adequately characterize the soils containing aerially deposited lead in the areas of planned excavation along the project route. Such sampling and analysis shall include the Toxicity Characteristic Leaching Procedure (TCLP) as prescribed by the United States Environmental Protection Agency to determine whether concentrations of contaminants in soil exceed federal criteria for classification as a hazardous waste.

g) Lead-contaminated soil managed pursuant to this variance shall not be moved outside the designated corridor boundaries (see paragraph t) below. All lead-contaminated soil not buried and covered within the same Caltrans corridor where it originated is not eligible for management under this variance and shall be managed as a hazardous waste.

h) Lead-contaminated soil managed pursuant to this variance shall not be placed in areas where it would become in contact with groundwater or surface water (such as streams and rivers).

i) Lead-contaminated soil managed pursuant to this variance shall be buried and covered only in locations that are protected from erosion that may result from storm water run-on and run-off.

j) The lead-contaminated soil shall be buried and covered in a manner that will prevent accidental or deliberate breach of the asphalt, concrete, and/or cover soil.

k) The presence of lead-contaminated soil shall be incorporated into the projects' as-built drawings. The as-built drawings shall be annotated with the location, representative analytical data, and volume of lead-contaminated soil. The as-built drawings shall also state the depth of the cover. These as-built drawings shall be retained by Caltrans.

l) Caltrans shall ensure that no other hazardous wastes, other than the lead-contaminated hazardous waste soil, are placed in the burial areas.

m) Lead-contaminated soil shall not be buried within ten (10) feet of culverts or locations subject to frequent worker exposure.

n) Excavated lead-contaminated soil not placed into the designated area (fill area, roadbed area) by the end of the working day shall be stockpiled and covered with sheets of polyethylene or at least one foot of non-hazardous soil. The lead-contaminated soil, while stockpiled or under transport, shall be protected from contacting surface water and from being dislodged or transported by wind or storm water. The stockpile covers shall be inspected at least once a week and within 24 hours after rainstorms. If the lead-contaminated soil is stockpiled for more than 4 days from the time of excavation, Caltrans shall restrict public access to the stockpile by using barriers that meet the safety requirements of the construction zone. The lead-contaminated soil shall be stockpiled for no more than 90 days from the time the soil is first excavated. If the contaminated soil is stockpiled beyond the 90 day limit Caltrans shall:

1. notify DTSC in writing of the 90 day exceedance and expected date of removal;
2. perform weekly inspections of the stockpiled material to ensure that there is adequate protection from run-on, runoff, public access, and wind dispersion; and
3. notify DTSC on weekly basis of the stockpile status until the stockpile is removed.

The lead-contaminated soil shall be stockpiled for no more than 180 days from the time the soil is first excavated.

o) Caltrans shall ensure that all stockpiling of lead-contaminated soil remains within the project area of the specified corridor. Stockpiling of lead-contaminated soil within the specified corridor, but outside the project area, is prohibited.

p) Caltrans shall conduct confirmatory sampling of any stockpile area in areas not known or expected to contain lead-contaminated soil after removal of the lead-contaminated soil to ensure that contamination has not been left behind or has not migrated from the stockpiled material to the surrounding soils.

q) Caltrans shall stockpile lead-contaminated soil only on high ground (i.e. no sump areas or low points) so that stockpiled soil will not come in contact with surface

water run-on or run-off.

r) Caltrans shall not stockpile lead-contaminated soil in environmentally and ecologically sensitive areas.

s) Caltrans shall ensure that storm/rain run-off that has come into contact with stockpiled lead-contaminated soil will not flow to storm drains, inlets, or waters of the State.

t) Caltrans may dispose of the lead-contaminated soil only within the operating right-of-way of an existing highway, as defined in Streets and Highways Code, section 23. Caltrans may move lead-contaminated soil from one Caltrans project to another Caltrans project only if the lead-contaminated soil remains within the same designated corridor.

Caltrans shall record any movement of lead-contaminated soil by using a bill of lading. The bill of lading must contain: 1) the US DOT description including shipping name, hazard class and ID number; 2) handling codes; 3) quantity of material; 4) volume of material; 5) date of shipment; 6) origin and destination of shipment; and 7) any specific handling instructions. The bill of lading shall be referenced in and kept on file with the project's as-built drawings. The lead-contaminated soil must be kept covered during transportation.

u) For each specific corridor where this variance is to be implemented, all of the following information shall be submitted in writing to DTSC at least five (5) days before construction of any project begins:

1. plan drawing designating the boundaries of the corridor where lead-contaminated soils will be excavated, stockpiled, buried and covered;
2. a list of the Caltrans projects that the corridor encompasses;
3. a list of Caltrans contractors that will be conducting any phase of work on any project affected by this variance;
4. duration of corridor construction;
5. location where sampling and analytical data used to make lead concentration level determinations are kept (e.g. a particular Caltrans project file);
6. name and phone number (including area code) of project resident engineer and project manager;
7. location where Caltrans and contractor health and safety plan and records are kept;

8. location of project special provisions (including page or section number) for soil excavation, transportation, stockpile, burial and placement of cover material;

9. location of project drawings (including drawing page number) for soil excavation, burial and placement of cover in plan and cross section (for example, "The project plans are located at the resident engineer's office located at 5th and Main Streets, City of Fresno, See pages xxxxx of contract xxx");

10. updated information if a Caltrans project within the corridor is added, changed or deleted; and

11. type of environmental document prepared for each project, date of adoption, document title, Clearing House number and where the document is available for review. A copy of the Caltrans Categorical Exemption, Categorical Exclusion Form, or if filed, the Notice of Exemption for any project shall be submitted to the DTSC Headquarters Project Manager.

v) Changes in location of lead-contaminated soil placement, quantities or protection measures (field changes) shall be noted in the resident engineer's project log within five (5) days of the field change.

w) Caltrans shall ensure that field changes are in compliance with the requirements of this variance.

x) Operational procedures described in the California Environmental Quality Act (CEQA) Special Initial Study shall be followed by Caltrans for activities conducted under this variance.

y) Caltrans shall implement appropriate health and safety procedures to protect its employees and the public, and to prevent or minimize exposure to potentially hazardous wastes. A project-specific health and safety plan must be prepared and implemented. The monitoring and exposure standards shall be based on construction standards for exposure to lead in California Code of Regulations, title 8, section 1532.1.

z) Caltrans shall provide a district Coordinator for this variance. This Coordinator will be the primary point of contact for information flowing to, or received from, DTSC regarding any matter or submission under this variance. Caltrans shall promptly notify DTSC of the name of Coordinator and any change in the Coordinator.

aa) Caltrans shall conduct regular inspections, consistent with Caltrans' Maintenance Division's current Pavement Inspection and Slope Inspection programs, of the locations where lead-contaminated soil has been buried and/or covered pursuant to this variance. If site inspection reveals deterioration of cover so that conditions in the variance are not met, Caltrans shall repair or replace the cover.

bb) Caltrans shall develop and implement a record keeping mechanisms to record and retain permanent records of all locations where lead-contaminated soil has been buried per this variance. The records shall be made available to DTSC.

cc) If areas subject to the terms of this variance are sold, relinquished or abandoned (including roadways), all future property owners shall be notified in writing in advance by Caltrans of the requirements of this variance, and Caltrans shall provide the owner with a copy of the variance. A copy of such a notice shall be sent to DTSC and contain the corridor location and project. Caltrans shall also disclose to DTSC and the new owner the location of areas where lead-contaminated soil has been buried. Future property owners shall be subject to the same requirements as Caltrans.

dd) For the purposes of informing the public about instances where the variance is implemented, Caltrans shall:

1. maintain current fact sheets at all Caltrans resident engineer offices and the Caltrans District office. Caltrans shall make the fact sheets available to anyone expressing an interest in variance-related work.
2. maintain a binder(s) containing copies of all reports submitted to DTSC at the District office. Caltrans shall ensure that the binders are readily accessible to the public.
3. carry out the following actions when it identifies additional projects:
 - (A) notify the public via a display advertisement in a newspaper of general circulation in that area.
 - (B) update and distribute the fact sheet to the mailing list and repository locations.

ee) Lead-contaminated soil may be buried only in areas where access is limited or where lead-contaminated soil is covered and contained by a pavement structure.

ff) Dust containing lead-contaminated soil must be controlled. Water or dust palliative may be applied to control dust. If visible dust migration occurs, all excavation, stockpiling and truck loading and burying must be stopped. The granting of this variance confers no relief on Caltrans from compliance with the laws, regulations and requirements enforced by any local air district or the California Air Resources Board.

gg) Sampling and analysis is required to show the lead-contaminated soil meets the variance criteria. All sampling and analysis must be conducted in accordance with the appropriate methods specified in U.S. EPA SW-846.

hh) DTSC retains the right to require Caltrans or any future owner to remove, and properly dispose of, lead-contaminated soil in the event DTSC determines it is necessary for protection of public health, safety or the environment.

ii) DTSC finds that some projects involving lead-contaminated soil are joint projects between Caltrans and other government entities. In these joint projects, Caltrans may not be the lead agency implementing the project although Caltrans is still involved if the project occurs on its right-of-way.

Caltrans may invoke this variance for joint projects where Caltrans and local government entity are involved provided that 1) the project is within the Caltrans Right-of-Way; 2) Caltrans reviews/ oversees all phases of the project including design, contracting, environmental assessment, construction, operation, and maintenance; and 3) Caltrans oversees the project to verify all variance conditions are complied with. Caltrans will be fully responsible for the variance notification and implementation in these joint projects.

jj) All correspondence shall be directed to the following office:

Hazardous Waste Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Attn: Caltrans Lead Variance Notification Unit

10. DISCLAIMER.

a) The issuance of this variance does not relieve Caltrans of the responsibility for compliance with Health and Safety Code, chapter 6.5, or the regulations adopted thereunder, and any other laws and regulations other than those specifically identified in Section 8 of this variance. Caltrans is subject to all terms and conditions herein. The granting of this variance confers no relief from compliance with any federal, State or local requirements other than those specifically provided herein.

b) The issuance of this variance does not release Caltrans from any liability associated with the handling of hazardous waste, except as specifically provided herein and subject to all terms and conditions of this variance.

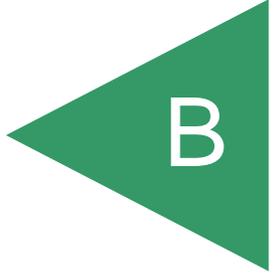
11. VARIANCE MODIFICATION OR REVOCATION. This variance is subject to review at the discretion of DTSC and may be modified or revoked by DTSC upon change of ownership and at any other time pursuant to Health and Safety Code, section 25143.
12. CEQA DETERMINATION. DTSC adopted a Negative Declaration on June 30, 2009.

Approved:

6/30/09
Date

Beverly Rikala
Beverly Rikala
Operating Facilities Team
Department of Toxic Substances Control

APPENDIX



January 25, 2011



Chris Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
Workorder No.: 115792

RE: CT-COTATI STORM DAMAGE, E8560-06-06

Attention: Chris Merritt

Enclosed are the results for sample(s) received on January 13, 2011 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie F. Rodriguez".

Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



CLIENT: Geocon Consultants, Inc.
Project: CT-COTATI STORM DAMAGE, E8560-06-06
Lab Order: 115792

CASE NARRATIVE

Sample Receiving / General Information

No sample received for 10-09-.5,10-09-1.5,10-09-3,10-10-.5,10-10-1.5 and 10-10-3.

Analytical Comments for Method 6010

Dilution was necessary for sample 115792-022A due to internal standard failure.

RPD for Duplicate (DUP) is outside criteria for sample 115792-015A-DUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 8015 (GRO)

RPD for Matrix Spike Duplicate (MSD) is outside criteria for sample 115792-024AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8015 (DRO)

Surrogate recovery biased high for sample 115792-008A, possibly due to matrix interferences.

RPD for Duplicate (DUP) is outside criteria for sample 115792-005ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-01-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP8_110117C	QC Batch: 69749			PrepDate: 1/14/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 01:13 PM
Arsenic	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Barium	68	1.0		mg/Kg	1	1/17/2011 01:13 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Chromium	54	1.0		mg/Kg	1	1/17/2011 01:13 PM
Cobalt	14	1.0		mg/Kg	1	1/17/2011 01:13 PM
Copper	23	2.0		mg/Kg	1	1/17/2011 01:13 PM
Lead	50	1.0		mg/Kg	1	1/17/2011 01:13 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Nickel	96	1.0		mg/Kg	1	1/17/2011 01:13 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 01:13 PM
Vanadium	31	1.0		mg/Kg	1	1/17/2011 01:13 PM
Zinc	67	1.0		mg/Kg	1	1/17/2011 01:13 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110114C	QC Batch: 69753			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/14/2011 05:00 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-01-1.5
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-002A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050M					
RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	11	5.0		mg/Kg	1	1/19/2011 10:54 AM
DIESEL RANGE ORGANICS BY GC/FID						
	EPA 3550B					
RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 01:15 PM
Surr: p-Terphenyl	115	30-128		%REC	1	1/20/2011 01:15 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



Advanced Technology Laboratories

ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-01-3
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-003A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
EPA 3050M			EPA 6010B			
RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	12	5.0		mg/Kg	1	1/19/2011 10:55 AM
GASOLINE RANGE ORGANICS BY GC/FID						
EPA 8015B(M)						
RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 08:24 PM
Surr: Bromofluorobenzene (FID)	102	56-137		%REC	1	1/14/2011 08:24 PM
PH						
EPA 9045C						
RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	7.4	0.10		pH Units	1	1/19/2011

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-02-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP8_110117C	QC Batch: 69749			PrepDate: 1/14/2011		Analyst: JSD
Antimony	ND	2.0		mg/Kg	1	1/17/2011 01:23 PM
Arsenic	8.4	1.0		mg/Kg	1	1/17/2011 01:23 PM
Barium	91	1.0		mg/Kg	1	1/17/2011 01:23 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 01:23 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 01:23 PM
Chromium	55	1.0		mg/Kg	1	1/17/2011 01:23 PM
Cobalt	14	1.0		mg/Kg	1	1/17/2011 01:23 PM
Copper	29	2.0		mg/Kg	1	1/17/2011 01:23 PM
Lead	310	1.0		mg/Kg	1	1/17/2011 01:23 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 01:23 PM
Nickel	96	1.0		mg/Kg	1	1/17/2011 01:23 PM
Selenium	1.1	1.0		mg/Kg	1	1/17/2011 01:23 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 01:23 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 01:23 PM
Vanadium	29	1.0		mg/Kg	1	1/17/2011 01:23 PM
Zinc	120	1.0		mg/Kg	1	1/17/2011 01:23 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110114C	QC Batch: 69753			PrepDate: 1/14/2011		Analyst: VV
Mercury	ND	0.10		mg/Kg	1	1/14/2011 05:02 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-02-1.5
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-005A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050M					
RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	7.6	5.0		mg/Kg	1	1/19/2011 10:55 AM
DIESEL RANGE ORGANICS BY GC/FID						
	EPA 3550B					
RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 12:26 PM
Surr: p-Terphenyl	99.4	30-128		%REC	1	1/20/2011 12:26 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-02-3
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-006A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
EPA 3050M			EPA 6010B			
RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	5.8	5.0		mg/Kg	1	1/19/2011 10:56 AM
GASOLINE RANGE ORGANICS BY GC/FID						
EPA 8015B(M)						
RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 08:38 PM
Surr: Bromofluorobenzene (FID)	106	56-137		%REC	1	1/14/2011 08:38 PM
PH						
EPA 9045C						
RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	8.1	0.10		pH Units	1	1/19/2011

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-03-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP8_110117C	QC Batch: 69749			PrepDate: 1/14/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 01:26 PM
Arsenic	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Barium	62	1.0		mg/Kg	1	1/17/2011 01:26 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Chromium	57	1.0		mg/Kg	1	1/17/2011 01:26 PM
Cobalt	11	1.0		mg/Kg	1	1/17/2011 01:26 PM
Copper	20	2.0		mg/Kg	1	1/17/2011 01:26 PM
Lead	33	1.0		mg/Kg	1	1/17/2011 01:26 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Nickel	78	1.0		mg/Kg	1	1/17/2011 01:26 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 01:26 PM
Vanadium	31	1.0		mg/Kg	1	1/17/2011 01:26 PM
Zinc	47	1.0		mg/Kg	1	1/17/2011 01:26 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110114C	QC Batch: 69753			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/14/2011 05:04 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-03-1.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-008A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050M					
RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	6.3	5.0		mg/Kg	1	1/19/2011 10:57 AM
DIESEL RANGE ORGANICS BY GC/FID						
	EPA 3550B					
RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 03:48 PM
Surr: p-Terphenyl	139	30-128	S	%REC	1	1/20/2011 03:48 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-03-3
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-009A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
EPA 3050M			EPA 6010B			
RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	18	5.0		mg/Kg	1	1/19/2011 10:57 AM
GASOLINE RANGE ORGANICS BY GC/FID						
EPA 8015B(M)						
RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 08:53 PM
Surr: Bromofluorobenzene (FID)	103	56-137		%REC	1	1/14/2011 08:53 PM
PH						
EPA 9045C						
RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	7.5	0.10		pH Units	1	1/19/2011

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-04-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-010A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP8_110117C	QC Batch: 69749			PrepDate: 1/14/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 01:29 PM
Arsenic	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Barium	65	1.0		mg/Kg	1	1/17/2011 01:29 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Chromium	79	1.0		mg/Kg	1	1/17/2011 01:29 PM
Cobalt	17	1.0		mg/Kg	1	1/17/2011 01:29 PM
Copper	31	2.0		mg/Kg	1	1/17/2011 01:29 PM
Lead	44	1.0		mg/Kg	1	1/17/2011 01:29 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Nickel	130	1.0		mg/Kg	1	1/17/2011 01:29 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 01:29 PM
Vanadium	29	1.0		mg/Kg	1	1/17/2011 01:29 PM
Zinc	56	1.0		mg/Kg	1	1/17/2011 01:29 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110114C	QC Batch: 69753			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/14/2011 05:07 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-04-1.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-011A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	6.2	5.0		mg/Kg	1	1/19/2011 10:58 AM

DIESEL RANGE ORGANICS BY GC/FID

EPA 3550B

EPA 8015B(M)

RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 04:34 PM
Surr: p-Terphenyl	109	30-128		%REC	1	1/20/2011 04:34 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-04-3
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-012A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	ND	5.0		mg/Kg	1	1/19/2011 10:59 AM

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)

RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 09:08 PM
Surr: Bromofluorobenzene (FID)	108	56-137		%REC	1	1/14/2011 09:08 PM

PH

EPA 9045C

RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	7.2	0.10		pH Units	1	1/19/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-05-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-013A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP8_110117C	QC Batch: 69749			PrepDate: 1/14/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 01:32 PM
Arsenic	3.3	1.0		mg/Kg	1	1/17/2011 01:32 PM
Barium	90	1.0		mg/Kg	1	1/17/2011 01:32 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 01:32 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 01:32 PM
Chromium	52	1.0		mg/Kg	1	1/17/2011 01:32 PM
Cobalt	13	1.0		mg/Kg	1	1/17/2011 01:32 PM
Copper	22	2.0		mg/Kg	1	1/17/2011 01:32 PM
Lead	15	1.0		mg/Kg	1	1/17/2011 01:32 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 01:32 PM
Nickel	110	1.0		mg/Kg	1	1/17/2011 01:32 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 01:32 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 01:32 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 01:32 PM
Vanadium	34	1.0		mg/Kg	1	1/17/2011 01:32 PM
Zinc	50	1.0		mg/Kg	1	1/17/2011 01:32 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110114C	QC Batch: 69753			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/14/2011 05:09 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-05-1.5
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-014A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050M					
RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	5.4	5.0		mg/Kg	1	1/19/2011 11:01 AM
DIESEL RANGE ORGANICS BY GC/FID						
	EPA 3550B					
RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 12:36 PM
Surr: p-Terphenyl	84.2	30-128		%REC	1	1/20/2011 12:36 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-05-3
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-015A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	6.6	5.0		mg/Kg	1	1/19/2011 11:02 AM

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)

RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 09:22 PM
Surr: Bromofluorobenzene (FID)	107	56-137		%REC	1	1/14/2011 09:22 PM

PH

EPA 9045C

RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	6.9	0.10		pH Units	1	1/19/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-06-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-016A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP10_110117F	QC Batch: 69750			PrepDate: 1/17/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 05:36 PM
Arsenic	4.5	1.0		mg/Kg	1	1/17/2011 05:36 PM
Barium	94	1.0		mg/Kg	1	1/17/2011 05:36 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 05:36 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 05:36 PM
Chromium	50	1.0		mg/Kg	1	1/17/2011 05:36 PM
Cobalt	12	1.0		mg/Kg	1	1/17/2011 05:36 PM
Copper	29	2.0		mg/Kg	1	1/17/2011 05:36 PM
Lead	8.9	1.0		mg/Kg	1	1/17/2011 05:36 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 05:36 PM
Nickel	97	1.0		mg/Kg	1	1/17/2011 05:36 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 05:36 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 05:36 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 05:36 PM
Vanadium	30	1.0		mg/Kg	1	1/17/2011 05:36 PM
Zinc	50	1.0		mg/Kg	1	1/17/2011 05:36 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110114C	QC Batch: 69753			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/14/2011 04:44 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-06-1.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-017A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	ND	5.0		mg/Kg	1	1/19/2011 11:04 AM

DIESEL RANGE ORGANICS BY GC/FID

EPA 3550B

EPA 8015B(M)

RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 12:46 PM
Surr: p-Terphenyl	78.5	30-128		%REC	1	1/20/2011 12:46 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-06-3
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-018A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	ND	5.0		mg/Kg	1	1/19/2011 11:05 AM

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)

RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 09:37 PM
Surr: Bromofluorobenzene (FID)	105	56-137		%REC	1	1/14/2011 09:37 PM

PH

EPA 9045C

RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	7.0	0.10		pH Units	1	1/19/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-07-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-019A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP10_110117F	QC Batch: 69750			PrepDate: 1/17/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 05:44 PM
Arsenic	4.2	1.0		mg/Kg	1	1/17/2011 05:44 PM
Barium	71	1.0		mg/Kg	1	1/17/2011 05:44 PM
Beryllium	ND	1.0		mg/Kg	1	1/17/2011 05:44 PM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 05:44 PM
Chromium	41	1.0		mg/Kg	1	1/17/2011 05:44 PM
Cobalt	13	1.0		mg/Kg	1	1/17/2011 05:44 PM
Copper	26	2.0		mg/Kg	1	1/17/2011 05:44 PM
Lead	130	1.0		mg/Kg	1	1/17/2011 05:44 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 05:44 PM
Nickel	100	1.0		mg/Kg	1	1/17/2011 05:44 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 05:44 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 05:44 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 05:44 PM
Vanadium	31	1.0		mg/Kg	1	1/17/2011 05:44 PM
Zinc	66	1.0		mg/Kg	1	1/17/2011 05:44 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110117B	QC Batch: 69756			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/17/2011 03:10 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-07-1.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-020A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	ND	5.0		mg/Kg	1	1/19/2011 11:06 AM

DIESEL RANGE ORGANICS BY GC/FID

EPA 3550B

EPA 8015B(M)

RunID: GC16_110120C	QC Batch: 69856			PrepDate: 1/19/2011		Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 12:55 PM
Surr: p-Terphenyl	87.9	30-128		%REC	1	1/20/2011 12:55 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-07-3
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-021A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050M			EPA 6010B		
RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	6.2	5.0		mg/Kg	1	1/19/2011 11:06 AM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 09:52 PM
Surr: Bromofluorobenzene (FID)	106	56-137		%REC	1	1/14/2011 09:52 PM
PH						
				EPA 9045C		
RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	6.7	0.10		pH Units	1	1/19/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-08-.5
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-022A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS

EPA 3050B

EPA 6010B

RunID: ICP10_110117F	QC Batch: 69750			PrepDate: 1/17/2011	Analyst: JSD	
Antimony	ND	2.0		mg/Kg	1	1/17/2011 05:46 PM
Arsenic	3.4	1.0		mg/Kg	1	1/17/2011 05:46 PM
Barium	360	1.0		mg/Kg	1	1/17/2011 05:46 PM
Beryllium	ND	2.0		mg/Kg	2	1/18/2011 09:58 AM
Cadmium	ND	1.0		mg/Kg	1	1/17/2011 05:46 PM
Chromium	25	1.0		mg/Kg	1	1/17/2011 05:46 PM
Cobalt	12	1.0		mg/Kg	1	1/17/2011 05:46 PM
Copper	24	2.0		mg/Kg	1	1/17/2011 05:46 PM
Lead	13	1.0		mg/Kg	1	1/17/2011 05:46 PM
Molybdenum	ND	1.0		mg/Kg	1	1/17/2011 05:46 PM
Nickel	52	1.0		mg/Kg	1	1/17/2011 05:46 PM
Selenium	ND	1.0		mg/Kg	1	1/17/2011 05:46 PM
Silver	ND	1.0		mg/Kg	1	1/17/2011 05:46 PM
Thallium	ND	1.0		mg/Kg	1	1/17/2011 05:46 PM
Vanadium	42	1.0		mg/Kg	1	1/17/2011 05:46 PM
Zinc	35	1.0		mg/Kg	1	1/17/2011 05:46 PM

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID: AA1_110117B	QC Batch: 69756			PrepDate: 1/14/2011	Analyst: VV	
Mercury	ND	0.10		mg/Kg	1	1/17/2011 03:18 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS
 Print Date: 25-Jan-11

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** 10-08-1.5
Lab Order: 115792 **Collection Date:** 1/11/2011
Project: CT-COTATI STORM DAMAGE, E8560-06- **Matrix:** SOIL
Lab ID: 115792-023A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050M					
RunID: ICP6_110119B	QC Batch: 69831				PrepDate: 1/18/2011	Analyst: JSD
Lead	8.6	5.0		mg/Kg	1	1/19/2011 11:07 AM
DIESEL RANGE ORGANICS BY GC/FID						
	EPA 3550B					
RunID: GC16_110120C	QC Batch: 69856				PrepDate: 1/19/2011	Analyst: CBR
DRO	ND	1.0		mg/Kg	1	1/20/2011 01:34 PM
Surr: p-Terphenyl	106	30-128		%REC	1	1/20/2011 01:34 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 25-Jan-11

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	10-08-3
Lab Order:	115792	Collection Date:	1/11/2011
Project:	CT-COTATI STORM DAMAGE, E8560-06-	Matrix:	SOIL
Lab ID:	115792-024A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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LEAD BY ICP

EPA 3050M

EPA 6010B

RunID: ICP6_110119B	QC Batch: 69831			PrepDate: 1/18/2011		Analyst: JSD
Lead	19	5.0		mg/Kg	1	1/19/2011 11:09 AM

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)

RunID: GC2_110114B	QC Batch: E11VS019			PrepDate:		Analyst: TT
GRO	ND	1.0		mg/Kg	1	1/14/2011 10:06 PM
Surr: Bromofluorobenzene (FID)	106	56-137		%REC	1	1/14/2011 10:06 PM

PH

EPA 9045C

RunID: WETCHEM_110119B	QC Batch: R128956			PrepDate:		Analyst: CBB
pH	7.3	0.10		pH Units	1	1/19/2011

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

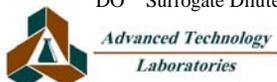
TestCode: 6010_S

Sample ID: MB-69749	SampType: MBLK	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128869						
Client ID: PBS	Batch ID: 69749	TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011	SeqNo: 2088688						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	0.024	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	0.038	1.0									
Thallium	ND	1.0									
Vanadium	0.040	1.0									
Zinc	ND	1.0									

Sample ID: LCS-69749	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128869						
Client ID: LCSS	Batch ID: 69749	TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011	SeqNo: 2088689						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	49.000	2.0	50.00	0	98.0	80	120				
Arsenic	48.071	1.0	50.00	0	96.1	80	120				
Barium	50.575	1.0	50.00	0	101	80	120				
Beryllium	49.650	1.0	50.00	0	99.3	80	120				
Cadmium	48.097	1.0	50.00	0	96.2	80	120				
Chromium	46.200	1.0	50.00	0	92.4	80	120				
Cobalt	49.635	1.0	50.00	0.02422	99.2	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

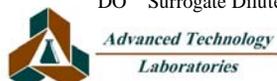
TestCode: 6010_S

Sample ID: LCS-69749	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128869						
Client ID: LCSS	Batch ID: 69749	TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011	SeqNo: 2088689						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	49.727	2.0	50.00	0	99.5	80	120				
Lead	49.854	1.0	50.00	0	99.7	80	120				
Molybdenum	50.810	1.0	50.00	0	102	80	120				
Nickel	48.709	1.0	50.00	0	97.4	80	120				
Selenium	46.005	1.0	50.00	0	92.0	80	120				
Silver	48.246	1.0	50.00	0.03829	96.4	80	120				
Thallium	48.269	1.0	50.00	0	96.5	80	120				
Vanadium	50.584	1.0	50.00	0.04006	101	80	120				
Zinc	48.095	1.0	50.00	0	96.2	80	120				

Sample ID: 115792-013A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128869						
Client ID: 10-05-.5	Batch ID: 69749	TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011	SeqNo: 2088698						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.931	2.0						0.8831	0	20	
Arsenic	2.880	1.0						3.252	12.1	20	
Barium	89.658	1.0						89.52	0.154	20	
Beryllium	ND	1.0						0.06520	0	20	
Cadmium	0.726	1.0						0.6624	0	20	
Chromium	60.604	1.0						52.25	14.8	20	
Cobalt	13.451	1.0						13.46	0.0738	20	
Copper	22.294	2.0						21.71	2.66	20	
Lead	12.705	1.0						14.55	13.6	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	118.308	1.0						108.8	8.42	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	36.401	1.0						33.85	7.26	20	
Zinc	53.921	1.0						50.02	7.50	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

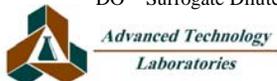
TestCode: 6010_S

Sample ID: 115792-013A-MS		SampType: MS		TestCode: 6010_S		Units: mg/Kg		Prep Date: 1/14/2011		RunNo: 128869	
Client ID: 10-05-.5		Batch ID: 69749		TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011		SeqNo: 2088699			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	84.574	2.0	125.0	0.8831	67.0	32	105				
Arsenic	100.669	1.0	125.0	3.252	77.9	49	106				
Barium	183.926	1.0	125.0	89.52	75.5	31	133				
Beryllium	102.476	1.0	125.0	0.06520	81.9	56	106				
Cadmium	97.727	1.0	125.0	0.6624	77.7	51	103				
Chromium	151.814	1.0	125.0	52.25	79.6	45	114				
Cobalt	111.906	1.0	125.0	13.46	78.8	52	106				
Copper	131.499	2.0	125.0	21.71	87.8	54	125				
Lead	112.034	1.0	125.0	14.55	78.0	34	126				
Molybdenum	99.989	1.0	125.0	0	80.0	54	106				
Nickel	202.102	1.0	125.0	108.8	74.7	45	111				
Selenium	95.730	1.0	125.0	0	76.6	47	104				
Silver	103.768	1.0	125.0	0	83.0	56	112				
Thallium	92.487	1.0	125.0	0	74.0	46	101				
Vanadium	138.152	1.0	125.0	33.85	83.4	54	114				
Zinc	141.620	1.0	125.0	50.02	73.3	28	125				

Sample ID: 115792-013A-MSD		SampType: MSD		TestCode: 6010_S		Units: mg/Kg		Prep Date: 1/14/2011		RunNo: 128869	
Client ID: 10-05-.5		Batch ID: 69749		TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011		SeqNo: 2088700			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	86.300	2.0	125.0	0.8831	68.3	32	105	84.57	2.02	20	
Arsenic	101.786	1.0	125.0	3.252	78.8	49	106	100.7	1.10	20	
Barium	191.459	1.0	125.0	89.52	81.6	31	133	183.9	4.01	20	
Beryllium	104.682	1.0	125.0	0.06520	83.7	56	106	102.5	2.13	20	
Cadmium	99.829	1.0	125.0	0.6624	79.3	51	103	97.73	2.13	20	
Chromium	156.406	1.0	125.0	52.25	83.3	45	114	151.8	2.98	20	
Cobalt	116.131	1.0	125.0	13.46	82.1	52	106	111.9	3.71	20	
Copper	135.287	2.0	125.0	21.71	90.9	54	125	131.5	2.84	20	
Lead	115.236	1.0	125.0	14.55	80.5	34	126	112.0	2.82	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: 115792-013A-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128869						
Client ID: 10-05-.5	Batch ID: 69749	TestNo: EPA 6010B EPA 3050B	Analysis Date: 1/17/2011	SeqNo: 2088700							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	102.464	1.0	125.0	0	82.0	54	106	99.99	2.44	20	
Nickel	208.932	1.0	125.0	108.8	80.1	45	111	202.1	3.32	20	
Selenium	98.362	1.0	125.0	0	78.7	47	104	95.73	2.71	20	
Silver	106.501	1.0	125.0	0	85.2	56	112	103.8	2.60	20	
Thallium	94.370	1.0	125.0	0	75.5	46	101	92.49	2.02	20	
Vanadium	140.529	1.0	125.0	33.85	85.3	54	114	138.2	1.71	20	
Zinc	147.087	1.0	125.0	50.02	77.7	28	125	141.6	3.79	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

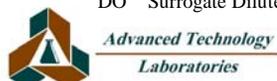
TestCode: 6010_S

Sample ID: MB-69750		SampType: MBLK		TestCode: 6010_S		Units: mg/Kg		Prep Date: 1/17/2011		RunNo: 128895	
Client ID: PBS		Batch ID: 69750		TestNo: EPA 6010B EPA 3050B				Analysis Date: 1/17/2011		SeqNo: 2089150	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.107	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	0.022	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	0.479	2.0									
Lead	0.130	1.0									
Molybdenum	0.100	1.0									
Nickel	0.064	1.0									
Selenium	ND	1.0									
Silver	0.064	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.355	1.0									

Sample ID: LCS-69750		SampType: LCS		TestCode: 6010_S		Units: mg/Kg		Prep Date: 1/17/2011		RunNo: 128895	
Client ID: LCSS		Batch ID: 69750		TestNo: EPA 6010B EPA 3050B				Analysis Date: 1/17/2011		SeqNo: 2089151	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	44.829	2.0	50.00	1.107	87.4	80	120				
Arsenic	44.767	1.0	50.00	0	89.5	80	120				
Barium	47.598	1.0	50.00	0	95.2	80	120				
Beryllium	47.114	1.0	50.00	0	94.2	80	120				
Cadmium	44.576	1.0	50.00	0.02159	89.1	80	120				
Chromium	44.563	1.0	50.00	0	89.1	80	120				
Cobalt	46.188	1.0	50.00	0	92.4	80	120				
Copper	46.655	2.0	50.00	0.4793	92.4	80	120				
Lead	46.759	1.0	50.00	0.1304	93.3	80	120				

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

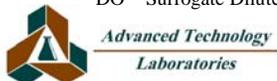
TestCode: 6010_S

Sample ID: LCS-69750	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/17/2011	RunNo: 128895						
Client ID: LCSS	Batch ID: 69750	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 1/17/2011	SeqNo: 2089151						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	49.012	1.0	50.00	0.09997	97.8	80	120				
Nickel	45.334	1.0	50.00	0.06395	90.5	80	120				
Selenium	43.002	1.0	50.00	0	86.0	80	120				
Silver	46.321	1.0	50.00	0.06430	92.5	80	120				
Thallium	44.176	1.0	50.00	0	88.4	80	120				
Vanadium	47.673	1.0	50.00	0	95.3	80	120				
Zinc	44.338	1.0	50.00	0.3546	88.0	80	120				

Sample ID: 115792-016A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/17/2011	RunNo: 128895						
Client ID: 10-06-.5	Batch ID: 69750	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 1/17/2011	SeqNo: 2089155						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Arsenic	4.469	1.0						4.502	0.744	20	
Barium	94.374	1.0						93.94	0.464	20	
Beryllium	0.246	1.0						0.2248	0	20	
Cadmium	0.008	1.0						0.02447	0	20	
Chromium	48.590	1.0						49.57	2.00	20	
Cobalt	12.452	1.0						12.37	0.685	20	
Copper	30.463	2.0						29.30	3.91	20	
Lead	7.461	1.0						8.880	17.4	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	97.030	1.0						97.38	0.358	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	30.273	1.0						30.06	0.696	20	
Zinc	47.504	1.0						49.86	4.83	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

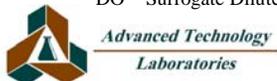
TestCode: 6010_S

Sample ID: 115792-016A-MS		SampType: MS		TestCode: 6010_S		Units: mg/Kg		Prep Date: 1/17/2011		RunNo: 128895	
Client ID: 10-06-.5		Batch ID: 69750		TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011		SeqNo: 2089156			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	76.841	2.0	125.0	0	61.5	32	105				
Arsenic	94.414	1.0	125.0	4.502	71.9	49	106				
Barium	191.768	1.0	125.0	93.94	78.3	31	133				
Beryllium	102.475	1.0	125.0	0.2248	81.8	56	106				
Cadmium	91.065	1.0	125.0	0.02447	72.8	51	103				
Chromium	148.953	1.0	125.0	49.57	79.5	45	114				
Cobalt	106.137	1.0	125.0	12.37	75.0	52	106				
Copper	130.385	2.0	125.0	29.30	80.9	54	125				
Lead	99.260	1.0	125.0	8.880	72.3	34	126				
Molybdenum	95.651	1.0	125.0	0	76.5	54	106				
Nickel	190.071	1.0	125.0	97.38	74.2	45	111				
Selenium	89.322	1.0	125.0	0	71.5	47	104				
Silver	99.799	1.0	125.0	0	79.8	56	112				
Thallium	89.025	1.0	125.0	0	71.2	46	101				
Vanadium	130.295	1.0	125.0	30.06	80.2	54	114				
Zinc	136.195	1.0	125.0	49.86	69.1	28	125				

Sample ID: 115792-016A-MSD		SampType: MSD		TestCode: 6010_S		Units: mg/Kg		Prep Date: 1/17/2011		RunNo: 128895	
Client ID: 10-06-.5		Batch ID: 69750		TestNo: EPA 6010B EPA 3050B		Analysis Date: 1/17/2011		SeqNo: 2089157			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	77.513	2.0	125.0	0	62.0	32	105	76.84	0.871	20	
Arsenic	94.745	1.0	125.0	4.502	72.2	49	106	94.41	0.350	20	
Barium	192.664	1.0	125.0	93.94	79.0	31	133	191.8	0.466	20	
Beryllium	100.669	1.0	125.0	0.2248	80.4	56	106	102.5	1.78	20	
Cadmium	91.327	1.0	125.0	0.02447	73.0	51	103	91.07	0.287	20	
Chromium	149.809	1.0	125.0	49.57	80.2	45	114	149.0	0.573	20	
Cobalt	107.076	1.0	125.0	12.37	75.8	52	106	106.1	0.880	20	
Copper	132.366	2.0	125.0	29.30	82.5	54	125	130.4	1.51	20	
Lead	100.651	1.0	125.0	8.880	73.4	34	126	99.26	1.39	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: 115792-016A-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 1/17/2011	RunNo: 128895						
Client ID: 10-06-.5	Batch ID: 69750	TestNo: EPA 6010B EPA 3050B	Analysis Date: 1/17/2011	SeqNo: 2089157							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	95.605	1.0	125.0	0	76.5	54	106	95.65	0.0476	20	
Nickel	194.736	1.0	125.0	97.38	77.9	45	111	190.1	2.42	20	
Selenium	91.535	1.0	125.0	0	73.2	47	104	89.32	2.45	20	
Silver	99.968	1.0	125.0	0	80.0	56	112	99.80	0.169	20	
Thallium	89.880	1.0	125.0	0	71.9	46	101	89.03	0.956	20	
Vanadium	131.639	1.0	125.0	30.06	81.3	54	114	130.3	1.03	20	
Zinc	139.939	1.0	125.0	49.86	72.1	28	125	136.2	2.71	20	

Qualifiers:

- | | | |
|---|--|--|
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*Advanced Technology
Laboratories*

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: MB-69831A	SampType: MBLK	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: PBS	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089893						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 5.0

Sample ID: LCS-69831	SampType: LCS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: LCSS	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089894						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 201.469 5.0 250.0 0 80.6 80 120

Sample ID: 115792-015A-DUP	SampType: DUP	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: 10-05-3	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089905						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 8.506 5.0 6.560 25.8 20 R

Sample ID: 115792-015A-MS	SampType: MS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: 10-05-3	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089906						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

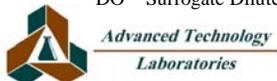
Lead 196.390 5.0 250.0 6.560 75.9 34 126

Sample ID: MB-69831B	SampType: MBLK	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: PBS	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089907						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 5.0

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
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CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

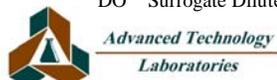
Sample ID: 115822-019A-DUP	SampType: DUP	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: ZZZZZZ	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089918						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	114.401	5.0						101.9	11.5	20	

Sample ID: 115822-019A-MS	SampType: MS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: ZZZZZZ	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089919						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	272.961	5.0	250.0	101.9	68.4	34	126				

Sample ID: 115822-019A-MSD	SampType: MSD	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 1/18/2011	RunNo: 128935						
Client ID: ZZZZZZ	Batch ID: 69831	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 1/19/2011	SeqNo: 2089920						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	276.276	5.0	250.0	101.9	69.7	34	126	273.0	1.21	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
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CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: MB-69753	SampType: MBLK	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128831						
Client ID: PBS	Batch ID: 69753	TestNo: EPA 7471A		Analysis Date: 1/14/2011	SeqNo: 2087900						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: LCS-69753	SampType: LCS	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128831						
Client ID: LCSS	Batch ID: 69753	TestNo: EPA 7471A		Analysis Date: 1/14/2011	SeqNo: 2087901						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.893	0.10	0.8300	0	108	80	120				

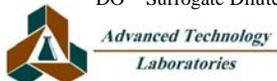
Sample ID: 115792-016A-MS	SampType: MS	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128831						
Client ID: 10-06-.5	Batch ID: 69753	TestNo: EPA 7471A		Analysis Date: 1/14/2011	SeqNo: 2087902						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.024	0.10	0.8300	0.07392	114	70	130				

Sample ID: 115792-016A-MSD	SampType: MSD	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128831						
Client ID: 10-06-.5	Batch ID: 69753	TestNo: EPA 7471A		Analysis Date: 1/14/2011	SeqNo: 2087903						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.026	0.10	0.8300	0.07392	115	70	130	1.024	0.209	20	

Sample ID: 115792-016A-DUP	SampType: DUP	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128831						
Client ID: 10-06-.5	Batch ID: 69753	TestNo: EPA 7471A		Analysis Date: 1/14/2011	SeqNo: 2087905						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.074	0.10						0.07392	0	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: MB-69756	SampType: MBLK	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128873						
Client ID: PBS	Batch ID: 69756	TestNo: EPA 7471A		Analysis Date: 1/17/2011	SeqNo: 2088770						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.10

Sample ID: LCS-69756	SampType: LCS	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128873						
Client ID: LCSS	Batch ID: 69756	TestNo: EPA 7471A		Analysis Date: 1/17/2011	SeqNo: 2088771						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.800 0.10 0.8300 0 96.4 80 120

Sample ID: 115792-019A-MS	SampType: MS	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128873						
Client ID: 10-07-.5	Batch ID: 69756	TestNo: EPA 7471A		Analysis Date: 1/17/2011	SeqNo: 2088772						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.930 0.10 0.8300 0.05716 105 70 130

Sample ID: 115792-019A-MSD	SampType: MSD	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128873						
Client ID: 10-07-.5	Batch ID: 69756	TestNo: EPA 7471A		Analysis Date: 1/17/2011	SeqNo: 2088773						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

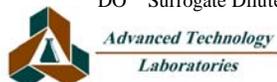
Mercury 0.926 0.10 0.8300 0.05716 105 70 130 0.9301 0.435 20

Sample ID: 115792-019A-DUP	SampType: DUP	TestCode: 7471_S	Units: mg/Kg	Prep Date: 1/14/2011	RunNo: 128873						
Client ID: 10-07-.5	Batch ID: 69756	TestNo: EPA 7471A		Analysis Date: 1/17/2011	SeqNo: 2088775						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.059 0.10 0.05716 0 20

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DSL LL

Sample ID: 115792-005ADUP		SampType: DUP		TestCode: 8015_S_DSL		Units: mg/Kg		Prep Date: 1/19/2011		RunNo: 129036	
Client ID: 10-02-1.5		Batch ID: 69856		TestNo: EPA 8015B(M EPA 3550B)		Analysis Date: 1/20/2011		SeqNo: 2091771			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	2.101	1.0						0	200	20	R
Surr: p-Terphenyl	3.014		2.670		113	30	128		0	0	

Sample ID: 115792-005AMS		SampType: MS		TestCode: 8015_S_DSL		Units: mg/Kg		Prep Date: 1/19/2011		RunNo: 129036	
Client ID: 10-02-1.5		Batch ID: 69856		TestNo: EPA 8015B(M EPA 3550B)		Analysis Date: 1/20/2011		SeqNo: 2091772			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	37.888	1.0	33.00	0	115	25	129				
Surr: p-Terphenyl	3.164		2.670		119	30	128				

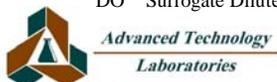
Sample ID: 115792-005AMSD		SampType: MSD		TestCode: 8015_S_DSL		Units: mg/Kg		Prep Date: 1/19/2011		RunNo: 129036	
Client ID: 10-02-1.5		Batch ID: 69856		TestNo: EPA 8015B(M EPA 3550B)		Analysis Date: 1/20/2011		SeqNo: 2091773			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	31.800	1.0	33.00	0	96.4	25	129	37.89	17.5	20	
Surr: p-Terphenyl	2.462		2.670		92.2	30	128		0	0	

Sample ID: LCS-69856		SampType: LCS		TestCode: 8015_S_DSL		Units: mg/Kg		Prep Date: 1/19/2011		RunNo: 129036	
Client ID: LCSS		Batch ID: 69856		TestNo: EPA 8015B(M EPA 3550B)		Analysis Date: 1/20/2011		SeqNo: 2091783			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	34.311	1.0	33.00	0	104	35	118				
Surr: p-Terphenyl	3.068		2.670		115	30	128				

Sample ID: MB-69856		SampType: MBLK		TestCode: 8015_S_DSL		Units: mg/Kg		Prep Date: 1/19/2011		RunNo: 129036	
Client ID: PBS		Batch ID: 69856		TestNo: EPA 8015B(M EPA 3550B)		Analysis Date: 1/20/2011		SeqNo: 2091784			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DSL LL

Sample ID: MB-69856	SampType: MBLK	TestCode: 8015_S_DSL	Units: mg/Kg	Prep Date: 1/19/2011	RunNo: 129036						
Client ID: PBS	Batch ID: 69856	TestNo: EPA 8015B(M EPA 3550B		Analysis Date: 1/20/2011	SeqNo: 2091784						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: p-Terphenyl	2.861		2.670		107	30	128				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



*Advanced Technology
Laboratories*

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: E110114LCS3	SampType: LCS	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: LCSS	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090303							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.574	1.0	5.000	0	111	70	130				
Surr: Bromofluorobenzene (FID)	102.251		100.0		102	56	137				

Sample ID: E110114MB2MS	SampType: MS	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: ZZZZZ	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090304							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.533	1.0	5.000	0	111	40	121				
Surr: Bromofluorobenzene (FID)	107.174		100.0		107	56	137				

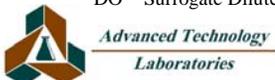
Sample ID: E110114MB2MSD	SampType: MSD	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: ZZZZZ	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090305							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.658	1.0	5.000	0	113	40	121	5.533	2.23	20	
Surr: Bromofluorobenzene (FID)	103.860		100.0		104	56	137		0	0	

Sample ID: E110114MB2	SampType: MBLK	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: PBS	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090306							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	103.258		100.0		103	56	137				

Sample ID: 115792-024ADUP	SampType: DUP	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: 10-08-3	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090315							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

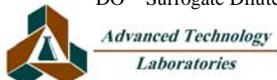
Sample ID: 115792-024ADUP	SampType: DUP	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: 10-08-3	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090315							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	107.381		100.0		107	56	137		0	0	

Sample ID: 115792-024AMS	SampType: MS	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: 10-08-3	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090316							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.350	1.0	5.000	0	87.0	40	121				
Surr: Bromofluorobenzene (FID)	109.297		100.0		109	56	137				

Sample ID: 115792-024AMSD	SampType: MSD	TestCode: 8015_S_GAS	Units: mg/Kg	Prep Date:	RunNo: 128922						
Client ID: 10-08-3	Batch ID: E11VS019	TestNo: EPA 8015B(M)	Analysis Date: 1/14/2011	SeqNo: 2090317							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	3.463	1.0	5.000	0	69.3	40	121	4.350	22.7	20	R
Surr: Bromofluorobenzene (FID)	94.690		100.0		94.7	56	137		0	0	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: 115792-024ADUP	SampType: DUP	TestCode: 9045_S	Units: pH Units	Prep Date:	RunNo: 128956						
Client ID: 10-08-3	Batch ID: R128956	TestNo: EPA 9045C		Analysis Date: 1/19/2011	SeqNo: 2090375						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.320	0.10						7.290	0.411	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



*Advanced Technology
Laboratories*

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
 3275 Walnut Ave., Signal Hill, CA 90755
 Tel: (562) 989-4045 • Fax: (562) 989-4040

P.O.#: _____ Quote #: _____
 Logged By: _____ Date: 1/12/11
 NOTE: Please include your Quote No. to ensure proper pricing of your project.

FOR LABORATORY USE ONLY:
 Method of Transport: Client ATL FedEx OnTrac GSO Other: _____
 Sample Condition Upon Receipt: 1. CHILLED Y N 4. CUSTODY SEAL Y N
 2. HEADSPACE (VOA) Y N 5. # OF SPLS MATCH COC Y N
 3. CONTAINER INTACT Y N 6. PRESERVED Y N

Client: Geocon Consultants, Inc. Address: 6671 Brisa Street City: Livemore State: CA Zip Code: 94550 TEL: (925) 371-5900 FAX: (925) 371-5915

Attn: CHRIS MERRETT, L. VIGUZZI, LIVERMORE Project #: EA560 06-06 Sampler: C. MERRETT (Signature)
 Relinquished by: (Signature and Printed Name) CHRIS MERRETT Received by: (Signature and Printed Name) May [Signature] Date: 1/12/11 Time: 9:44
 Relinquished by: (Signature and Printed Name) CHRIS MERRETT Received by: (Signature and Printed Name) _____ Date: _____ Time: _____
 Relinquished by: (Signature and Printed Name) _____ Received by: (Signature and Printed Name) _____ Date: _____ Time: _____

I hereby authorize ATL to perform the work indicated below:
 Project Mgr /Submitter: CM Date: 1-12-11
 Print Name: CM Signature: _____
 Attn: A/A Send Report To: _____
 Co: _____ City: _____ State: _____ Zip: _____
 Addr: _____
 City: _____ State: _____ Zip: _____

Sample/Records - Archival & Disposal
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
Storage Fees (applies when storage is requested):
 • Sample : \$2.00 / sample / mo (after 45 days)
 • Records : \$1.00 / ATL workorder / mo (after 1 year)

LAB USE ONLY: Batch #:	Lab No.	Sample I.D. / Location	Date	Time	Sample Description	SPECIFY APPROPRIATE MATRIX										CONTAINER(S)		TAT	Type	REMARKS
						8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	8010B (Total Metal)	8015B (GFO) / 8021 (BTEX)	8015B (DRO)	TITLE 22 / CAM 17 (6010 / 7000)	SEDIMENT	SOIL	DRINKING WATER	WASTEWATER			
115792-007		10-01-05	1-11-11	11:00		X	X	X	X	X	X	X	X	X	X	X	X	E	TIMC	
2		10-01-15																		
3		10-01-3																		
4		10-02-15																		
5		10-02-15																		
6		10-02-3																		
7		10-03-15																		
8		10-03-15																		
9		10-03-3																		
10		10-04-15																		

Special Instructions/Comments: _____

Preservatives:
 H=Hcl N=HNO₃ S=H₂SO₄ C=4°C
 Z=Zn(AC)₂ O=NaOH T=Na₂S₂O₃

• TAT starts 8 a.m. following day if samples received after 5 p.m.

TAT: A= Overnight ≤ 24 hrs B= Emergency Next workday
 C= 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays
 Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

February 04, 2011



Chris Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 115792

RE: CT-COTATI STORM DAMAGE, E8560-06-06

Attention: Chris Merritt

Enclosed are the results for sample(s) received on January 13, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,


Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



CLIENT: Geocon Consultants, Inc.
Project: CT-COTATI STORM DAMAGE, E8560-06-06
Lab Order: 115792

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for samples 115792-001A, 115792-004A, 115792-007A, 115792-010A, 115792-013A, 115792-016A and 115792-019A, due to sample matrix.



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 04-Feb-11

CLIENT: Geocon Consultants, Inc.
Project: CT-COTATI STORM DAMAGE, E8560-06-06

Lab Order: 115792

Lab ID: 115792-001 **Collection Date:** 1/11/2011
Client Sample ID: 10-01-.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D	QC Batch: R129598	PrepDate:	Analyst: JSD
Chromium	ND	1.0 mg/L	20 2/4/2011 12:22 PM
Lead	2.2	1.0 mg/L	20 2/4/2011 12:22 PM

Lab ID: 115792-004 **Collection Date:** 1/11/2011
Client Sample ID: 10-02-.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D	QC Batch: R129598	PrepDate:	Analyst: JSD
Chromium	ND	1.0 mg/L	20 2/4/2011 12:25 PM
Lead	21	1.0 mg/L	20 2/4/2011 12:25 PM

Lab ID: 115792-007 **Collection Date:** 1/11/2011
Client Sample ID: 10-03-.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D	QC Batch: R129598	PrepDate:	Analyst: JSD
Chromium	ND	1.0 mg/L	20 2/4/2011 12:29 PM

Lab ID: 115792-010 **Collection Date:** 1/11/2011
Client Sample ID: 10-04-.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D	QC Batch: R129598	PrepDate:	Analyst: JSD
Chromium	ND	1.0 mg/L	20 2/4/2011 12:32 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 04-Feb-11

CLIENT: Geocon Consultants, Inc.
Project: CT-COTATI STORM DAMAGE, E8560-06-06

Lab Order: 115792

Lab ID: 115792-013 **Collection Date:** 1/11/2011
Client Sample ID: 10-05-.5 **Matrix:** SOIL

Analyses **Result** **PQL** **Qual** **Units** **DF** **Date Analyzed**

ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D QC Batch: R129598 PrepDate: Analyst: **JSD**
Chromium ND 1.0 mg/L 20 2/4/2011 12:35 PM

Lab ID: 115792-016 **Collection Date:** 1/11/2011
Client Sample ID: 10-06-.5 **Matrix:** SOIL

Analyses **Result** **PQL** **Qual** **Units** **DF** **Date Analyzed**

ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D QC Batch: R129598 PrepDate: Analyst: **JSD**
Chromium ND 1.0 mg/L 20 2/4/2011 12:39 PM

Lab ID: 115792-019 **Collection Date:** 1/11/2011
Client Sample ID: 10-07-.5 **Matrix:** SOIL

Analyses **Result** **PQL** **Qual** **Units** **DF** **Date Analyzed**

ICP METALS BY STLC

WET/ EPA 6010B

RunID: ICP8_110204D QC Batch: R129598 PrepDate: Analyst: **JSD**
Lead 5.1 1.0 mg/L 20 2/4/2011 12:42 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



*Advanced Technology
Laboratories*

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: MB-70237A ST	SampType: MBLK	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: PBS	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103315						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Lead	ND	1.0									

Sample ID: LCS-70237	SampType: LCS	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: LCSS	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103316						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.905	0.050	1.000	0	90.5	85	115				
Lead	0.993	0.050	1.000	0	99.3	85	115				

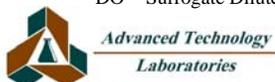
Sample ID: 115975-030A-DUP	SampType: DUP	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: ZZZZZ	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103325						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.052	1.0						0.04398	0	20	
Lead	2.653	1.0						2.944	10.4	20	

Sample ID: 115975-030A-MS	SampType: MS	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: ZZZZZ	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103326						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.324	1.0	2.500	0.04398	91.2	78	115				
Lead	5.170	1.0	2.500	2.944	89.0	80	118				

Sample ID: 115975-030A-MSD	SampType: MSD	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: ZZZZZ	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103327						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

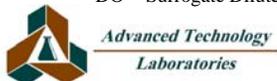
TestCode: 6010_ST

Sample ID: 115975-030A-MSD	SampType: MSD	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: ZZZZZZ	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103327						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.300	1.0	2.500	0.04398	90.2	78	115	2.324	1.03	20	
Lead	5.224	1.0	2.500	2.944	91.2	80	118	5.170	1.04	20	

Sample ID: MB-70237A	SampType: MBLK	TestCode: 6010_ST	Units: mg/L	Prep Date:	RunNo: 129598						
Client ID: PBS	Batch ID: R129598	TestNo: WET/ EPA 60		Analysis Date: 2/4/2011	SeqNo: 2103328						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									
Lead	ND	0.050									

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



Diane Galvan

From: Lauren Vigliotti [vigliotti@geoconinc.com]
Sent: Tuesday, February 01, 2011 12:07 PM
To: Diane Galvan
Subject: WO115792

Hi Diane:

Please analyze the following samples under an expedited TAT.

WET lead:10-01-.5, 10-02-.5, and 10-07-.5

WET chromium:

10-01-.5

10-02-.5

10-03-.5

10-04-.5

10-05-.5

10-06-.5



Lauren Vigliotti, PG | *Project Geologist*

Geocon Consultants, Inc.

6671 Brisa Street, Livermore, California 94550

Tel 925.371.5900 Fax 925.371.5915

www.geoconinc.com

February 10, 2011



Chris Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
Workorder No.: 115792

RE: CT-COTATI STORM DAMAGE, E8560-06-06

Attention: Chris Merritt

Enclosed are the results for sample(s) received on January 13, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie F. Rodriguez".

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-Feb-11

CLIENT: Geocon Consultants, Inc.
Project: CT-COTATI STORM DAMAGE, E8560-06-06

Lab Order: 115792

Lab ID: 115792-004 **Collection Date:** 1/11/2011
Client Sample ID: 10-02-.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

LEAD BY ATOMIC ABSORPTION

WET DI/ EPA 7420

RunID: AA2_110210B	QC Batch: R129816	PrepDate:	Analyst: VV	
Lead	ND	0.25 mg/L	1	2/10/2011 10:23 AM

LEAD BY ATOMIC ABSORPTION (TCLP)

EPA 1311/ 7420

RunID: AA2_110210C	QC Batch: R129817	PrepDate:	Analyst: VV	
Lead	ND	0.25 mg/L	1	2/10/2011 10:20 AM

Lab ID: 115792-019 **Collection Date:** 1/11/2011
Client Sample ID: 10-07-.5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

LEAD BY ATOMIC ABSORPTION

WET DI/ EPA 7420

RunID: AA2_110210B	QC Batch: R129816	PrepDate:	Analyst: VV	
Lead	ND	0.25 mg/L	1	2/10/2011 10:24 AM

LEAD BY ATOMIC ABSORPTION (TCLP)

EPA 1311/ 7420

RunID: AA2_110210C	QC Batch: R129817	PrepDate:	Analyst: VV	
Lead	ND	0.25 mg/L	1	2/10/2011 10:20 AM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_DI_GEOCON

Sample ID: MB-70503A	SampType: MBLK	TestCode: 7420_DI_GE	Units: mg/L	Prep Date:	RunNo: 129816						
Client ID: PBS	Batch ID: R129816	TestNo: WET DI/ EPA		Analysis Date: 2/10/2011	SeqNo: 2107813						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: LCS-70503	SampType: LCS	TestCode: 7420_DI_GE	Units: mg/L	Prep Date:	RunNo: 129816						
Client ID: LCSS	Batch ID: R129816	TestNo: WET DI/ EPA		Analysis Date: 2/10/2011	SeqNo: 2107814						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 4.943 0.25 5.000 0 98.9 80 120

Sample ID: 115975-011A-DUP	SampType: DUP	TestCode: 7420_DI_GE	Units: mg/L	Prep Date:	RunNo: 129816						
Client ID: ZZZZZZ	Batch ID: R129816	TestNo: WET DI/ EPA		Analysis Date: 2/10/2011	SeqNo: 2107820						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 0.454 0.25 0.4641 2.21 20

Sample ID: 115975-011A-MS	SampType: MS	TestCode: 7420_DI_GE	Units: mg/L	Prep Date:	RunNo: 129816						
Client ID: ZZZZZZ	Batch ID: R129816	TestNo: WET DI/ EPA		Analysis Date: 2/10/2011	SeqNo: 2107821						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

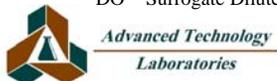
Lead 5.135 0.25 5.000 0.4641 93.4 70 130

Sample ID: 115975-011A-MSD	SampType: MSD	TestCode: 7420_DI_GE	Units: mg/L	Prep Date:	RunNo: 129816						
Client ID: ZZZZZZ	Batch ID: R129816	TestNo: WET DI/ EPA		Analysis Date: 2/10/2011	SeqNo: 2107822						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 5.565 0.25 5.000 0.4641 102 70 130 5.135 8.05 20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: MB-70560	SampType: MBLK	TestCode: 7420_TC	Units: mg/L	Prep Date:	RunNo: 129817						
Client ID: PBS	Batch ID: R129817	TestNo: EPA 1311/ 74		Analysis Date: 2/10/2011	SeqNo: 2107832						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: MB-70529A TCLP	SampType: MBLK	TestCode: 7420_TC	Units: mg/L	Prep Date:	RunNo: 129817						
Client ID: PBS	Batch ID: R129817	TestNo: EPA 1311/ 74		Analysis Date: 2/10/2011	SeqNo: 2107833						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

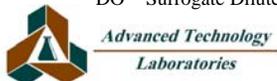
Sample ID: LCS-70560	SampType: LCS	TestCode: 7420_TC	Units: mg/L	Prep Date:	RunNo: 129817						
Client ID: LCSS	Batch ID: R129817	TestNo: EPA 1311/ 74		Analysis Date: 2/10/2011	SeqNo: 2107834						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.026	0.25	1.000	0	103	80	120				

Sample ID: 116035-038A-DUP	SampType: DUP	TestCode: 7420_TC	Units: mg/L	Prep Date:	RunNo: 129817						
Client ID: ZZZZZZ	Batch ID: R129817	TestNo: EPA 1311/ 74		Analysis Date: 2/10/2011	SeqNo: 2107838						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25						0	0	20	

Sample ID: 116035-038A-MS	SampType: MS	TestCode: 7420_TC	Units: mg/L	Prep Date:	RunNo: 129817						
Client ID: ZZZZZZ	Batch ID: R129817	TestNo: EPA 1311/ 74		Analysis Date: 2/10/2011	SeqNo: 2107839						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.580	0.25	2.500	0	103	70	130				

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



CLIENT: Geocon Consultants, Inc.
Work Order: 115792
Project: CT-COTATI STORM DAMAGE, E8560-06-06

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: 116035-038A-MSD	SampType: MSD	TestCode: 7420_TC	Units: mg/L	Prep Date:	RunNo: 129817						
Client ID: ZZZZZZ	Batch ID: R129817	TestNo: EPA 1311/ 74		Analysis Date: 2/10/2011	SeqNo: 2107840						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.597	0.25	2.500	0	104	70	130	2.580	0.676	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



*Advanced Technology
Laboratories*

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

Diane Galvan

From: Lauren Vigliotti [vigliotti@geoconinc.com]
Sent: Monday, February 07, 2011 11:59 AM
To: Diane Galvan; 'Livermore Office (Rick Day)'
Subject: RE: Additional Results/EDD - CT-COTATI STORM DAMAGE (115792)

Hi Diane:

Please further analyze samples 10-02-.5 and 10-07-.5 for TCLP and DI-WET lead, expedited TAT.

Thanks!

-Lauren



Lauren Vigliotti, PG | *Project Geologist*

Geocon Consultants, Inc.

6671 Brisa Street, Livermore, California 94550

Tel 925.371.5900 Fax 925.371.5915

www.geoconinc.com



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: milpitaslab@emsl.com

Attn: **Chris Giuntoli**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Customer ID: GECN21
Customer PO: E8560-06-06
Received: 01/13/11 7:00 AM
EMSL Order: 091100359

Fax: (925) 371-5915 Phone: (925) 371-5900
Project: **E8560-06-06**
Cotati Storm Damage

EMSL Proj: E8560-06-**
Analysis Date: 1/18/2011

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
10-01-1.5 091100359-0001		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-02-1.5 091100359-0002		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-03-1.5 091100359-0003		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-04-1.5 091100359-0004		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-05-1.5 091100359-0005		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-06-1.5 091100359-0006		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-07-1.5 091100359-0007		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
10-08-1.5 091100359-0008		Gray Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected

Initial report from 01/18/2011 10:17:45

Analyst(s)

Nonette Patron (8)



Baojia Ke, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc 2235 Polvorosa Ave , Suite 230, San Leandro CA



EMSL - San Leandro ♦ 2235 Polvorosa Ave, Suite 230, San Leandro, CA 94577

(888) 455-3675 • Phone (510) 895-3675 • Fax (510) 895-3680 • sanleandrolab@emsl.com

EMSL Rep: TERRI LANZING Third Party Billing requires written authorization from third party

Company: GECOM EMSL-Bill to: SAME

Contact: CHRIS GIUNTOLI Contact: CHRIS MERRITT

Address: 6671 BRISA ST Address: _____

City & State: LIVERMORE, CA Zip 94550 City & State: _____ Zip _____

Phone: 925-371-5900 Fax: _____

Email Results GIUNTOLI@GECOMINC.COM Fax results _____

Project Name or Number: COTATE STORM DAMAGE Purchase Order Number: _____

TURNAROUND TIME

3 Hours 6 Hours 24 Hours 48 Hours 72 Hours 5 Days 10 Days

SAMPLE MATRIX

Air Bulk Soil Wipe Micro-Vac Drinking Water Wastewater Chips Other

ASBESTOS ANALYSIS

- PCM - Air**
- NIOSH 7400 (A) Issue 2: August 1994
 - OSHA w/ Time Weighted Average
- TEM AIR**
- AHERA 40 CFR, Part 763 Subpart E
 - NIOSH 7402 Issue 2
 - EPA Level II
- PLM - Bulk**
- EPA 600/R-93/116
 - + Add Gravimetric Reduction (EPA NOB)
 - PLM CARB 435 Level: A (0.25%) B (0.1%)
 - NIOSH 9002
 - EPA Point Count (400 Points)
 - + Add Gravimetric Reduction (EPA NOB)
 - EPA Point Count (1,000 Points)
 - + Add Gravimetric Reduction (EPA NOB)
 - Standard Addition Point Count

SOILS

- PLM CARB 435 Level: A (0.25%) B (0.1%)
- TEM CARB 435 Level: B (0.1%) C (0.01%)
- D (0.001%) E (0.0005%) F (0.0001%)
- EMSL MSD 9000 Method fibers/gram
- Superfund EPA 540-R097-028 (dust generation)
- EPA Protocol Qualitative Quantitative

TEM BULK

- TEM EPA NOB, EPA 600/R-93/116 Section 2.5.5.1 (TEM % by VAE)
- Chatfield SOP-1988-02
- TEM EPA 600/R-93/116 Section 2.5.5.2 (TEM % by Mass)

TEM MICROVAC

- ASTM D 3755 (Quantitative)

TEM WIPE

- ASTM D-6480 (Quantitative)

TEM WATER

- EPA 100.2 (≥ 10 microns)
- Modified EPA 100.2 (≥ 0.5 microns)

OTHER: _____

LEAD ANALYSIS

- Flame Atomic Absorption**
- Wipe, SW846-7420 ASTM non ASTM
 - Soil, SW846-7420
 - Air, NIOSH 7082
 - Chips, SW846-7420 or AOAC 5.009 (974.02)
 - Wastewater, SW 846-7420

- TCLP LEAD SW846-1311/7420

Graphite Furnace Atomic Absorption

- Air, NIOSH 7105
- Wastewater, SW846-7421
- Soil, SW846-7421
- Drinking Water, EPA 239.2

ICP - Inductively Coupled Plasma

- Wipe, SW846-6010 ASTM non ASTM
- Soil, SW846-6010
- Air, NIOSH 7300

MATERIALS ANALYSIS

- Particle Identification
- Full Particle Identification
- Dust Mites and Insect Fragments
- Particle Size & Distribution
- Product Comparison
- Paint Characterization
- Failure Analysis
- Corrosion Analysis
- Glove Box Containment Study
- Petrographic Examination of Concrete
- Portland Cement in Workplace Atmospheres (OSHA ID-143)
- Man Made Vitrous Fibers - MMVF's
- Synthetic Fiber Identification
- Other: _____

MICROBIAL ANALYSIS

Air Samples

- Mold & Fungi by Air O Cell
- Mold & Fungi by Agar Plate count & id
- Bacterial Count and Gram Stain
- Bacterial Count and Identification

Water Samples

- Total Coliforms, Fecal Coliforms
- Escherichia Coli, Fecal Streptococcus
- Legionella
- Salmonella
- Giardia and Cryptosporidium

Wipe and Bulk Samples

- Mold & Fungi - Direct Examination
- Mold & Fungi - (Culture follow up to direct examination if necessary)
- Mold & Fungi - Culture (Count & ID)
- Mold & Fungi - Culture (Count only)
- Bacterial Count & Gram Stain
- Bacterial Count & Identification (3 most prominent types)
- Other: _____

IAQ ANALYSIS

- Nuisance Dust (NIOSH 0500 & 0600)
- Airborne Dust (PM10, TSP)
- Silica Analysis by XRD NIOSH 7500
- HVAC Efficiency
- Carbon Black
- Airborne Oil Mist
- Other: _____

Relinquished: _____
 Received: _____
 Relinquished: _____
 Received: _____

CHRIS MERRITT
Chris Merritt
Chris Merritt

Date: 1/12/11 Time: 1430
 Date: 1/12/11 Time: 1430
 Date: 1/13/11 Time: 0020
 Date: 1/13/11 Time: 7:00 P/M



EMSL - San Leandro ♦ 2235 Polvorosa Ave, Suite 230, San Leandro, CA 94577

091100359

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	VOLUME Air (L) Area (Inches sq.)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

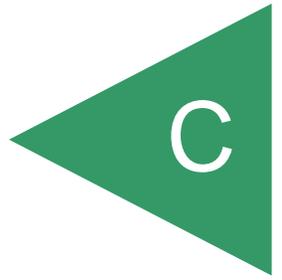
10-01-1.5 SOIL

-02-
-03-
-04-
-05-
-06-
-07-
-08-

Client Sample # (S) 10-01-1.5 - 10-08-1.5 TOTAL SAMPLE # 8

Relinquished: _____ Date: _____ Time: _____
 Received: SC _____ Date: 1/13/11 Time: 7:00 P/M
 Relinquished: _____ Date: _____ Time: _____
 Received: _____ Date: _____ Time: _____

APPENDIX



APPENDIX C - Lead Regression Analysis

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
10-01-.5	0.5	50	2.2	-0.95	0.9079
10-02-.5	0.5	310	21	1.45	2.1099
10-07-.5	0.5	130	5.1	-3.10	9.5934

