



Project No. S9525-01-44B
June 27, 2013

Mr. Richard Stewart, PG
California Department of Transportation - District 6
Hazardous Waste Branch
855 M Street, Suite 200
Fresno, California 93721

Subject: SURFACE WATER SAMPLING REPORT
CALTRANS MODESTO SOIL STOCKPILES
STANISLAUS COUNTY, CALIFORNIA
CONTRACT NO. 06A1580, TASK ORDER NO. 44, EA NO. 10-0X2700

Dear Mr. Stewart:

In accordance with California Department of Transportation (Caltrans) Contract No. 06A1580, Task Order (TO) No. 44, Geocon performed surface water sampling activities at the Caltrans Modesto Soil Stockpiles (Site) located southerly of the intersection of State Route (SR) 99 and Kansas Avenue in Stanislaus County, California. The approximate site location is depicted on the attached Vicinity Map, Figure 1. The approximate site boundaries, Stockpiles 1 through 3, and surface water sampling locations are shown on the Site Plan, Figure 2.

The surface water sampling was performed in general accordance with protocols approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) as established in the *Final Surface Water Sampling and Analysis Plan (SAP)*, prepared by Shaw Environmental, Inc. and dated January 2006 and our *Addendum to Surface Water Sampling and Analysis Plan*, dated February 20, 2013. The scope of services included surface water sampling, analysis of the water samples by a California-certified laboratory, and preparation of this summary report detailing the sampling activities.

BACKGROUND

Project Description and History

Stockpiles 1 through 3 were generated during construction of SR 99 through Modesto around 1961 when Caltrans excavated soil from property purchased from Food Machinery and Chemical Corporation (FMC) that contained an evaporation pond. The stockpiles were placed in their present location in anticipation of construction of the State Route 132 West Freeway/Expressway project.

During the 1930s, Barium Products Ltd. occupied property at 1200 Barium Road (now Graphics Drive) in Modesto just east of SR 99 between Woodland and Kansas Avenues. Barium Products Ltd. was a chemical manufacturing company processing a variety of ores and minerals including barite (barium sulfate) and celestite (strontium sulfate). Materials produced included barium and strontium compounds; these were used in greases, lubricating oil and pigment blanks. Sodium sulfide generated as a by-product of barite processing was sold as a caustic and used as a reagent in the mining industry.

In 1943, Barium Products Ltd. was purchased by Westvaco Chlorine Products Corporation which subsequently merged with FMC in 1948. From the 1950s to the 1970s, a liquid residue from the processing operations was discharged to unlined evaporation ponds along the western portion of the FMC Site. The approximate boundaries of the former evaporation/disposal ponds are shown on Figure 2.

In 1961, a 4.3-acre parcel at the southwestern corner of the FMC site was purchased by the State of California for highway right-of-way needed to construct SR 99. An aerial photograph from 1957 shows that a portion of the southernmost pond on the FMC property was within the area purchased for right-of-way.

Soil in and around the pond was excavated during construction of SR 99 and stockpiled within the current Caltrans right-of-way at the location of the future State Route 132 West Freeway/Expressway project. Three distinct stockpiles are present at the Site:

- Stockpile 1, located south of Kansas Avenue and west of North Emerald Avenue,
- Stockpile 2, located south of Kansas Avenue, between North Emerald Avenue and SR 99, and
- Stockpile 3, located south of Kansas Avenue and east of SR 99.

Previous Surface Water Sampling Activities

Shaw completed a surface water sampling event at the soil stockpiles in March 2006 in general accordance with their January 2006 SAP. They collected seven runoff samples from constructed impoundments during a qualifying rain event (visible runoff and 72 hours of prior dry weather). Shaw did not observe runoff migrating away from the Caltrans right-of-way. The samples were analyzed for dissolved metals, polycyclic aromatic hydrocarbons (PAHs), nitrate, sulfate and sulfide.

With the sole exception of an elevated barium concentration reported for the sample collected from the northwestern side of Stockpile 3 (sample SW03), the surface water samples did not contain elevated metals concentrations. Barium was reported at a concentration of 2,000 micrograms per liter ($\mu\text{g}/\text{l}$) in sample SW03. Barium in the remaining six samples ranged from 16 to 190 $\mu\text{g}/\text{l}$. Shaw concluded that the elevated barium reported for sample SW03 was isolated and that runoff in the area was confined to Caltrans right-of-way.

SURFACE WATER SAMPLING ACTIVITIES

This section describes the field activities performed for the April 2013 surface water sampling event. It was raining at the time of sample collection.

Field Activities

On April 4, 2013, Geocon collected three samples of surface water beyond the right-of-way boundary occupied by the stockpiles, one onsite surface water sample near Stockpile 3, and two samples of surface water from offsite background locations. The approximate sampling locations are depicted on Figure 2. Photos of the sample locations are attached.

We collected samples PL1 and PL2 from puddles of rain water located on the west and east sides of Emerald Avenue, respectively, between Stockpiles 1 and 2 (Photos 1 and 2). Puddles of rain water pool along the shoulders of Emerald Avenue.

We collected sample PL3 from ponded rain water on the south side of Stockpile 2 outside a chain-link fence gate (Photo 3).

We collected sample PL4 from an onsite basin adjacent and south of Stockpile 3 (Photo 4). Water flows into the basin from storm drains located along Emerald Avenue and Kansas Avenue to the north of the stockpiles, and from storm drain inlets along SR 99.

We collected two background samples from locations north and south of Stockpiles 1 and 2. We collected sample BG1 from water flowing into a drop inlet located to the south of Stockpile 2 on Loletta Avenue (Photo 5), and sample BG2 from water flowing into a drop inlet on Emerald Avenue to the north of Stockpiles 1 and 2 (Photo 6).

We collected the samples from the puddles into disposable bailers using a suction pump, and subsequently transferred them into laboratory-provided containers. We field filtered samples to be analyzed for dissolved metals by passing the sample through a 0.45-micron filter. We capped, labeled, chilled and transported the samples to Advanced Technology Laboratories (ATL) utilizing chain-of-custody procedures. During the sampling activities, we monitored the samples for pH, electrical conductivity, temperature, turbidity and oxygen-reduction potential (ORP). The measured field parameters are presented on Table 1.

We followed Quality Assurance/Quality Control (QA/QC) procedures during the field sampling activities including the use of disposable bailers, decontamination of the sample pump by washing in an Alconox™ solution followed by fresh and distilled water rinses, and providing chain-of-custody documentation for each water sample transferred to the laboratory.

Laboratory Analyses

We delivered six surface water samples to ATL for the following analyses under chain-of-custody protocol:

- Title 22 dissolved metals, following the United States Environmental Protection Agency (EPA) Test Method 6020/7470;
- Nitrate as nitrogen and sulfate by EPA Test Method 300.0;
- Sulfide by Standard Method (SM) 4500; and
- Total suspended solids (TSS) by SM 2540D.

Surface water analytical results for this monitoring event are summarized on Tables 2 and 3. The laboratory report and chain-of-custody documentation are in Appendix A.

Analytical Results

Dissolved Metals

Analytical results for dissolved metals are summarized on Table 2.

Antimony, barium, chromium, copper, molybdenum, nickel, vanadium and strontium were reported for each of the four surface water samples. Zinc was reported for three of the four samples, and arsenic, cobalt, lead and manganese were reported for two of the four surface water samples. Beryllium, cadmium, selenium, silver, thallium and mercury were not reported at concentrations equal to or greater than their respective practical quantitation limits (PQLs) for each of the samples.

The analytical results for samples PL1 and PL2 are similar to the concentrations reported for background samples BG1 and BG2. Results for samples PL3 and PL4 are generally higher than samples BG1 and BG2.

General Minerals

To further characterize the geochemistry of the water, general minerals analyses were conducted. The analytical results for general minerals are summarized on Table 3.

Nitrate as nitrogen and sulfate concentrations for samples PL1 and PL2 are similar to the concentrations reported for samples BG1 and BG2. Concentrations reported for samples PL3 and PL4 are an order of magnitude higher than the background concentrations.

Sulfide concentrations for each of the surface water samples are similar to background concentrations reported for samples BG1 and BG2. TSS concentrations for samples PL1, PL3, and PL4 are similar to background concentrations. TSS in sample PL2 is higher than background.

Laboratory QA/QC

Geocon reviewed the analytical laboratory QA/QC provided with the laboratory report. These data show that the method blank surrogate recoveries are acceptable and that concentrations of selected analytes were not reported at concentrations equal to or greater than their respective PQLs for each method blank for each analysis. Appropriate recoveries were noted for each laboratory control sample for each analysis. Several matrix spike/matrix spike duplicate (MS/MSD) analytes had recoveries or relative percent differences outside of laboratory control limits; however, the sample results were validated by the laboratory control samples. No qualification of the data is necessary, and the data are considered of sufficient quality for the purposes of this report.

SURFACE WATER MANAGEMENT

Since the analytical results for samples PL1 and PL2 are similar to the concentrations reported for background samples BG1 and BG2, it appears that current surface water management practices are effective. Surface water originating from the western slope of Stockpile 2 will continue to be managed by maintaining the stockpile's vegetative cover and straw wattles which have been placed to intercept and redirect surface water slope flow to areas within the right-of-way.

To intercept runoff (if any) from the access ramp located on the south side of Stockpile 2 (north end of Bennett Avenue), Caltrans will place a berm at the base of the ramp prior to the beginning of the 2013 rainy season (October). The berm will be constructed to minimize offsite migration of surface water by redirecting the flow to areas within the right-of-way.

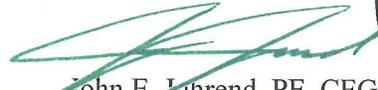
We appreciate the opportunity to provide our services on this project. Please contact us if you have any questions concerning the contents of this Report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.



Rebecca L. Silva
Project Manager



John E. Juhrend, PE, CEG
Principal/Senior Engineer



- (1) Addressee
- (1) Caltrans, Sam Haack
- (1) DTSC, Randy Adams
- (1) CVRWQCB, Steve Meeks

Attachments: Figure 1, Vicinity Map
Figure 2, Site Plan

Photographs (1 through 6)

Table 1, Summary of Stormwater Field Parameters

Table 2, Summary of Stormwater Analytical Results – Title 22 Metals (dissolved)

Table 3, Summary of Stormwater Analytical Results – General Minerals

Appendix A, Laboratory Report and Chain-of-custody Documentation



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PHONE 916.852.9118 - FAX 916.852.9132

Caltrans Modesto Soil Stockpiles

Stanislaus County,
California

VICINITY MAP

GEOCON Proj. No. S9525-01-44B

Task Order No. 44

June 2013

Figure 1



LEGEND:

- State Right-of-Way Boundary
- Approximate Surface Water Sample Location
- ⊕ Approximate Surface Water Sample Location (Background)



0 300
Scale in Feet



Caltrans Modesto Soil Stockpiles

Stanislaus County, California		SITE PLAN
GEOCON Proj. No. S9525-01-44B		
Task Order No. 44	June 2013	Figure 2



Photo No. 1 Sample PL1 on west side of Emerald Avenue



Photo No. 2 Sample PL2 on east side of Emerald Avenue

PHOTOS NO. 1 & 2



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Photo No. 3 Sample PL3 south of Stockpile 2



Photo No. 4 Sample PL4 south of Stockpile 3

PHOTOS NO. 3 & 4



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GEOCON Proj. No. S9525-01-44B	Stanislaus County, California
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Photo No. 5 Background sample BG1 on Loletta Avenue



Photo No. 6 Background sample BG2 on Emerald Avenue

PHOTOS NO. 5 & 6



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Caltrans Modesto Soil Stockpiles	
GEOCON Proj. No. S9525-01-44B	Stanislaus County, California
Task Order No. 44	June 2013

TABLE 1
SUMMARY OF STORMWATER FIELD PARAMETERS
CALTRANS MODESTO SOIL STOCKPILES
STANISLAUS COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DATE	pH	CONDUCTIVITY	TEMPERATURE	TURBIDITY	ORP
			$\mu\text{mhos/cm}$	$^{\circ}\text{C}$	ntu	millivolts
PL1	4/4/2013	8.93	88	14.9	47	3
PL2	4/4/2013	9.00	54	15.1	208	28
PL3	4/4/2013	7.91	167	16	54	68
PL4	4/4/2013	11.08	315	16.3	98	58
BG1	4/4/2013	8.46	42	16.4	57	37
BG2	4/4/2013	9.88	83	18.4	102	67

Notes:

 $\mu\text{mhos/cm}$ = Micromhos per centimeter $^{\circ}\text{C}$ = Degress Celsius

ntu = Nephelometric turbidity unit

ORP = Oxygen-Reduction Potential

TABLE 2
 SUMMARY OF STORMWATER ANALYTICAL RESULTS - TITLE 22 METALS (DISSOLVED)
 CALTRANS MODESTO SOIL STOCKPILES
 STANISLAUS COUNTY, CALIFORNIA

ANALYTE		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Strontium	Mercury
SAMPLE ID	SAMPLE DATE	Results in micrograms per liter																		
PL1	4/4/2013	1.0	<1.0	12	<0.50	<0.50	0.55	<0.50	8.9	<1.0	<10	2.6	2.5	<0.50	<0.50	<0.50	2.0	<10	44	<0.20
PL2	4/4/2013	1.2	<1.0	39	<0.50	<0.50	2.5	<0.50	12	2.7	22	2.7	2.1	<0.50	<0.50	<0.50	2.7	27	38	<0.20
PL3	4/4/2013	0.55	1.3	110	<0.50	<0.50	1.1	0.68	19	15	46	3.0	4.4	<0.50	<0.50	<0.50	3.3	33	220	<0.20
PL4	4/4/2013	1.2	1.3	45	<0.50	<0.50	7.8	1.2	16	<1.0	<10	3.4	4.8	<0.50	<0.50	<0.50	7.0	11	320	<0.20
BG1	4/4/2013	<0.50	<1.0	11	<0.50	<0.50	0.84	<0.50	5.9	<1.0	12	0.93	2.7	<0.50	<0.50	<0.50	1.9	16	20	<0.20
BG2	4/4/2013	1.2	<1.0	20	<0.50	<0.50	4.8	<0.50	14	1.2	25	3.0	2.6	<0.50	<0.50	<0.50	<1.0	66	24	<0.20

Notes:

< = Less than laboratory reporting limits

TABLE 3
 SUMMARY OF STORMWATER ANALYTICAL RESULTS - GENERAL MINERALS
 CALTRANS MODESTO SOIL STOCKPILES
 STANISLAUS COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DATE	NITROGEN, NITRATE (as N)	SULFATE	SULFIDE	TSS
		Results in milligrams per liter			
PL1	4/4/2013	0.34	2.9	<0.010	44
PL2	4/4/2013	0.26	1.5	<0.020	260
PL3	4/4/2013	2.7	11	0.025	44
PL4	4/4/2013	9.9	7.9	<0.020	92
BG1	4/4/2013	0.35	1.8	0.023	140
BG2	4/4/2013	0.40	2.5	<0.020	96

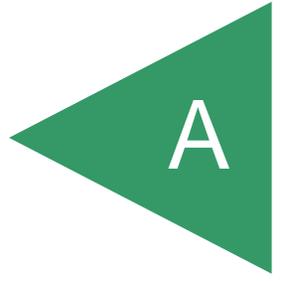
Notes:

< = Less than laboratory reporting limits

TSS = Total Suspended Solids

APPENDIX

A



April 12, 2013

Rebecca Silva
Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Tel: (916) 852-9118
Fax: (916) 852-9132



Re: ATL Work Order Number : 1301003

Client Reference : Modesto Stockpiles Stormwater, S9525-01-44B

Enclosed are the results for sample(s) received on April 05, 2013 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PL1	1301003-01	Water	4/04/13 7:30	4/05/13 8:20
PL2	1301003-02	Water	4/04/13 7:50	4/05/13 8:20
PL3	1301003-03	Water	4/04/13 8:10	4/05/13 8:20
PL4	1301003-04	Water	4/04/13 8:45	4/05/13 8:20
BG1	1301003-05	Water	4/04/13 8:30	4/05/13 8:20
BG2	1301003-06	Water	4/04/13 9:30	4/05/13 8:20



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 Rancho Cordova, CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Client Sample ID PL1

Lab ID: 1301003-01

Anions by Ion Chromatography EPA 300.0

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Nitrate as N	0.34	0.10	NA	1	B3D0139	04/05/2013	04/05/13 14:44	
Sulfate	2.9	1.0	NA	1	B3D0139	04/05/2013	04/05/13 14:44	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	44	40	NA	1	B3D0175	04/10/2013	04/10/13 10:50	

Sulfide, Total by SM 4500-S=D

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Sulfide, Total	ND	0.010	NA	1	B3D0163	04/10/2013	04/10/13 09:49	

Dissolved Metals by ICP-MS EPA 6020

Analyst: SB

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	1.0	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Arsenic	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Barium	12	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Beryllium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Cadmium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Chromium	0.55	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Cobalt	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Copper	8.9	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Lead	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Manganese	ND	10	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Molybdenum	2.6	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Nickel	2.5	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Selenium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Silver	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Thallium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Vanadium	2.0	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Zinc	ND	10	NA	1	B3D0129	04/08/2013	04/08/13 17:39	
Strontium	44	10	NA	1	B3D0129	04/08/2013	04/08/13 17:39	



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Project Number : Modesto Stockpiles Stormwater, S9525-01

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID PL1

Lab ID: 1301003-01

Dissolved Mercury by AA (Cold Vapor) by EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B3D0178	04/11/2013	04/11/13 15:57	



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Rancho Cordova , CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID PL2

Lab ID: 1301003-02

Anions by Ion Chromatography EPA 300.0

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Nitrate as N	0.26	0.10	NA	1	B3D0139	04/05/2013	04/05/13 16:03	
Sulfate	1.5	1.0	NA	1	B3D0139	04/05/2013	04/05/13 16:03	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	260	40	NA	1	B3D0175	04/10/2013	04/10/13 10:52	

Sulfide, Total by SM 4500-S=D

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Sulfide, Total	ND	0.020	NA	2	B3D0163	04/10/2013	04/10/13 09:49	

Dissolved Metals by ICP-MS EPA 6020

Analyst: SB

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	1.2	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Arsenic	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Barium	39	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Beryllium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Cadmium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Chromium	2.5	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Cobalt	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Copper	12	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Lead	2.7	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Manganese	22	10	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Molybdenum	2.7	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Nickel	2.1	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Selenium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Silver	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Thallium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Vanadium	2.7	1.0	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Zinc	27	10	NA	1	B3D0129	04/08/2013	04/08/13 17:48	
Strontium	38	10	NA	1	B3D0129	04/08/2013	04/08/13 17:48	



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3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID PL2

Lab ID: 1301003-02

Dissolved Mercury by AA (Cold Vapor) by EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B3D0178	04/11/2013	04/11/13 16:13	



Certificate of Analysis

Geocon Consultants, Inc.
 3160 Gold Valley Drive, Suite 800
 Rancho Cordova , CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Client Sample ID PL3

Lab ID: 1301003-03

Anions by Ion Chromatography EPA 300.0

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Nitrate as N	2.7	0.10	NA	1	B3D0139	04/05/2013	04/05/13 16:15	
Sulfate	11	1.0	NA	1	B3D0139	04/05/2013	04/05/13 16:15	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	44	40	NA	1	B3D0175	04/10/2013	04/10/13 10:54	

Sulfide, Total by SM 4500-S=D

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Sulfide, Total	0.025	0.020	NA	2	B3D0163	04/10/2013	04/10/13 09:49	

Dissolved Metals by ICP-MS EPA 6020

Analyst: SB

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.55	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Arsenic	1.3	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Barium	110	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Beryllium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Cadmium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Chromium	1.1	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Cobalt	0.68	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Copper	19	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Lead	15	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Manganese	46	10	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Molybdenum	3.0	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Nickel	4.4	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Selenium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Silver	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Thallium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Vanadium	3.3	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Zinc	33	10	NA	1	B3D0129	04/08/2013	04/08/13 18:01	
Strontium	220	10	NA	1	B3D0129	04/08/2013	04/08/13 18:01	



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Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID PL3

Lab ID: 1301003-03

Dissolved Mercury by AA (Cold Vapor) by EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B3D0178	04/11/2013	04/11/13 16:15	



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Rancho Cordova, CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID PL4

Lab ID: 1301003-04

Anions by Ion Chromatography EPA 300.0

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Nitrate as N	9.9	0.50	NA	5	B3D0139	04/05/2013	04/05/13 16:26	D7
Sulfate	7.9	5.0	NA	5	B3D0139	04/05/2013	04/05/13 16:26	D7

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	92	40	NA	1	B3D0175	04/10/2013	04/10/13 10:56	

Sulfide, Total by SM 4500-S=D

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Sulfide, Total	ND	0.020	NA	2	B3D0163	04/10/2013	04/10/13 09:49	

Dissolved Metals by ICP-MS EPA 6020

Analyst: SB

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	1.2	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Arsenic	1.3	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Barium	45	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Beryllium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Cadmium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Chromium	7.8	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Cobalt	1.2	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Copper	16	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Lead	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Manganese	ND	10	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Molybdenum	3.4	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Nickel	4.8	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Selenium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Silver	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Thallium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Vanadium	7.0	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Zinc	11	10	NA	1	B3D0129	04/08/2013	04/08/13 18:06	
Strontium	320	10	NA	1	B3D0129	04/08/2013	04/08/13 18:06	



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Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID PL4

Lab ID: 1301003-04

Dissolved Mercury by AA (Cold Vapor) by EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B3D0178	04/11/2013	04/11/13 16:17	



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Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Client Sample ID BG1
Lab ID: 1301003-05

Anions by Ion Chromatography EPA 300.0

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Nitrate as N	0.35	0.10	NA	1	B3D0139	04/05/2013	04/05/13 16:38	
Sulfate	1.8	1.0	NA	1	B3D0139	04/05/2013	04/05/13 16:38	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	140	40	NA	1	B3D0175	04/10/2013	04/10/13 10:58	

Sulfide, Total by SM 4500-S=D

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Sulfide, Total	0.023	0.020	NA	2	B3D0163	04/10/2013	04/10/13 09:49	

Dissolved Metals by ICP-MS EPA 6020

Analyst: SB

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Arsenic	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Barium	11	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Beryllium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Cadmium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Chromium	0.84	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Cobalt	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Copper	5.9	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Lead	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Manganese	12	10	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Molybdenum	0.93	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Nickel	2.7	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Selenium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Silver	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Thallium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Vanadium	1.9	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Zinc	16	10	NA	1	B3D0129	04/08/2013	04/08/13 18:10	
Strontium	20	10	NA	1	B3D0129	04/08/2013	04/08/13 18:10	



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Rancho Cordova, CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID BG1

Lab ID: 1301003-05

Dissolved Mercury by AA (Cold Vapor) by EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B3D0178	04/11/2013	04/11/13 16:19	



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Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Client Sample ID BG2
Lab ID: 1301003-06

Anions by Ion Chromatography EPA 300.0

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Nitrate as N	0.40	0.10	NA	1	B3D0139	04/05/2013	04/05/13 16:49	
Sulfate	2.5	1.0	NA	1	B3D0139	04/05/2013	04/05/13 16:49	

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D

Analyst: AG

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Residue, Suspended	96	40	NA	1	B3D0175	04/10/2013	04/10/13 11:00	

Sulfide, Total by SM 4500-S=D

Analyst: LA

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Sulfide, Total	ND	0.020	NA	2	B3D0163	04/10/2013	04/10/13 09:49	

Dissolved Metals by ICP-MS EPA 6020

Analyst: SB

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	1.2	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Arsenic	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Barium	20	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Beryllium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Cadmium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Chromium	4.8	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Cobalt	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Copper	14	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Lead	1.2	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Manganese	25	10	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Molybdenum	3.0	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Nickel	2.6	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Selenium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Silver	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Thallium	ND	0.50	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Vanadium	ND	1.0	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Zinc	66	10	NA	1	B3D0129	04/08/2013	04/08/13 18:24	
Strontium	24	10	NA	1	B3D0129	04/08/2013	04/08/13 18:24	



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Project Number : Modesto Stockpiles Stormwater, S9525-0

Report To : Rebecca Silva

Reported : 04/12/2013

Client Sample ID BG2

Lab ID: 1301003-06

Dissolved Mercury by AA (Cold Vapor) by EPA 7470

Analyst: VV

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	NA	1	B3D0178	04/11/2013	04/11/13 16:22	



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Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

QUALITY CONTROL SECTION

Anions by Ion Chromatography EPA 300.0 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3D0139 - No_Prep_IC_1									
Blank (B3D0139-BLK1)				Prepared: 4/5/2013 Analyzed: 4/5/2013					
Nitrate as N	ND	0.10			NR				
Sulfate	ND	1.0			NR				
LCS (B3D0139-BS1)				Prepared: 4/5/2013 Analyzed: 4/5/2013					
Nitrate as N	0.988200	0.10	1.00000		98.8	90 - 110			
Sulfate	2.03960	1.0	2.00000		102	90 - 110			
Duplicate (B3D0139-DUP1)				Source: 1301003-01		Prepared: 4/5/2013 Analyzed: 4/5/2013			
Nitrate as N	0.349000	0.10		0.336600	NR		3.62	20	
Sulfate	2.82660	1.0		2.88680	NR		2.11	20	
Matrix Spike (B3D0139-MS1)				Source: 1301003-01		Prepared: 4/5/2013 Analyzed: 4/5/2013			
Nitrate as N	2.90800	0.10	2.50000	0.336600	103	80 - 120			
Sulfate	8.10530	1.0	5.00000	2.88680	104	80 - 120			
Matrix Spike Dup (B3D0139-MSD1)				Source: 1301003-01		Prepared: 4/5/2013 Analyzed: 4/5/2013			
Nitrate as N	2.89070	0.10	2.50000	0.336600	102	80 - 120	0.597	20	
Sulfate	8.14720	1.0	5.00000	2.88680	105	80 - 120	0.516	20	



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Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Total Suspended Solids (Residue, Non-Filtrable) by SM 2540D - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B3D0175 - No_Prep_WC_1

Blank (B3D0175-BLK1)

Prepared: 4/10/2013 Analyzed: 4/10/2013

Residue, Suspended

ND 10

NR

LCS (B3D0175-BS1)

Prepared: 4/10/2013 Analyzed: 4/10/2013

Residue, Suspended

92.0000 10 96.6000

95.2 80 - 120

Duplicate (B3D0175-DUP1)

Source: 1301013-01

Prepared: 4/10/2013 Analyzed: 4/10/2013

Residue, Suspended

38.0000 5.0

37.0000 NR 2.67 10



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Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Dissolved Metals by ICP-MS EPA 6020 - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	Limits	RPD	RPD Limit	Notes
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Batch B3D0129 - EPA 3010A MS

Blank (B3D0129-BLK1)

Prepared: 4/8/2013 Analyzed: 4/8/2013

Antimony	ND	0.50		NR
Arsenic	ND	1.0		NR
Barium	ND	1.0		NR
Beryllium	ND	0.50		NR
Cadmium	ND	0.50		NR
Chromium	ND	0.50		NR
Cobalt	ND	0.50		NR
Copper	ND	1.0		NR
Lead	ND	1.0		NR
Manganese	ND	10		NR
Molybdenum	ND	0.50		NR
Nickel	ND	1.0		NR
Selenium	ND	0.50		NR
Silver	ND	0.50		NR
Thallium	ND	0.50		NR
Vanadium	ND	1.0		NR
Zinc	ND	10		NR
Strontium	ND	10		NR

LCS (B3D0129-BS1)

Prepared: 4/8/2013 Analyzed: 4/8/2013

Antimony	10.1034	0.50	10.0000	101	85 - 115
Arsenic	9.40226	1.0	10.0000	94.0	85 - 115
Barium	9.52329	1.0	10.0000	95.2	85 - 115
Beryllium	9.56783	0.50	10.0000	95.7	85 - 115
Cadmium	9.68964	0.50	10.0000	96.9	85 - 115
Chromium	9.74674	0.50	10.0000	97.5	85 - 115
Cobalt	9.60452	0.50	10.0000	96.0	85 - 115
Copper	9.58072	1.0	10.0000	95.8	85 - 115
Lead	9.83699	1.0	10.0000	98.4	85 - 115
Manganese	93.5124	10	100.000	93.5	85 - 115
Molybdenum	9.81849	0.50	10.0000	98.2	85 - 115
Nickel	9.46567	1.0	10.0000	94.7	85 - 115
Selenium	9.57371	0.50	10.0000	95.7	85 - 115
Silver	9.73712	0.50	10.0000	97.4	85 - 115
Thallium	9.50858	0.50	10.0000	95.1	85 - 115
Vanadium	8.86283	1.0	10.0000	88.6	85 - 115
Zinc	95.6827	10	100.000	95.7	85 - 115
Strontium	93.4690	10		NR	85 - 115

Duplicate (B3D0129-DUP1)

Source: 1301003-01

Prepared: 4/8/2013 Analyzed: 4/8/2013

Antimony	0.976174	0.50	1.03254	NR	5.61	20	
Arsenic	0.266011	1.0	0.411724	NR	43.0	20	R



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Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Dissolved Metals by ICP-MS EPA 6020 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B3D0129 - EPA 3010A MS (continued)

Duplicate (B3D0129-DUP1) - Continued

Source: 1301003-01

Prepared: 4/8/2013 Analyzed: 4/8/2013

Barium	12.2955	1.0		12.3976	NR		0.827	20	
Beryllium	ND	0.50		ND	NR			20	
Cadmium	0.019309	0.50		0.019665	NR		1.83	20	
Chromium	0.643188	0.50		0.550092	NR		15.6	20	
Cobalt	0.169251	0.50		0.169702	NR		0.266	20	
Copper	9.03414	1.0		8.93640	NR		1.09	20	
Lead	ND	1.0		ND	NR			20	
Manganese	6.82763	10		6.93392	NR		1.54	20	
Molybdenum	2.69290	0.50		2.62956	NR		2.38	20	
Nickel	2.55981	1.0		2.54017	NR		0.770	20	
Selenium	ND	0.50		ND	NR			20	
Silver	ND	0.50		ND	NR			20	
Thallium	0.01881	0.50		0.081418	NR		125	20	R
Vanadium	1.77574	1.0		1.95647	NR		9.68	20	
Zinc	6.50452	10		5.00496	NR		26.1	20	R
Strontium	44.1114	10		43.9142	NR		0.448	20	

Matrix Spike (B3D0129-MS1)

Source: 1301003-02

Prepared: 4/8/2013 Analyzed: 4/8/2013

Antimony	10.9433	0.50	10.0000	1.16432	97.8	70 - 130			
Arsenic	10.0922	1.0	10.0000	0.425540	96.7	70 - 130			
Barium	48.2235	1.0	10.0000	38.6478	95.8	70 - 130			
Beryllium	9.22517	0.50	10.0000	ND	92.3	70 - 130			
Cadmium	9.63276	0.50	10.0000	0.061548	95.7	70 - 130			
Chromium	11.7713	0.50	10.0000	2.48906	92.8	70 - 130			
Cobalt	9.83425	0.50	10.0000	0.374944	94.6	70 - 130			
Copper	21.0989	1.0	10.0000	11.7478	93.5	70 - 130			
Lead	12.7360	1.0	10.0000	2.73207	100	70 - 130			
Manganese	114.706	10	100.000	22.2626	92.4	70 - 130			
Molybdenum	12.4857	0.50	10.0000	2.69548	97.9	70 - 130			
Nickel	11.3912	1.0	10.0000	2.11119	92.8	70 - 130			
Selenium	9.25837	0.50	10.0000	ND	92.6	70 - 130			
Silver	9.51619	0.50	10.0000	ND	95.2	70 - 130			
Thallium	9.86661	0.50	10.0000	ND	98.7	70 - 130			
Vanadium	12.3041	1.0	10.0000	2.73971	95.6	70 - 130			
Zinc	123.306	10	100.000	27.4651	95.8	70 - 130			
Strontium	133.103	10	100.000	37.6208	95.5	70 - 130			

Matrix Spike Dup (B3D0129-MSD1)

Source: 1301003-02

Prepared: 4/8/2013 Analyzed: 4/8/2013

Antimony	10.9915	0.50	10.0000	1.16432	98.3	70 - 130	0.440	20	
Arsenic	10.2523	1.0	10.0000	0.425540	98.3	70 - 130	1.57	20	
Barium	48.0926	1.0	10.0000	38.6478	94.4	70 - 130	0.272	20	
Beryllium	9.46582	0.50	10.0000	ND	94.7	70 - 130	2.58	20	



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova , CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-01

Report To : Rebecca Silva

Reported : 04/12/2013

Dissolved Metals by ICP-MS EPA 6020 - Quality Control (cont'd)

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B3D0129 - EPA 3010A MS (continued)

Matrix Spike Dup (B3D0129-MSD1) - Continued

Source: 1301003-02

Prepared: 4/8/2013 Analyzed: 4/8/2013

Cadmium	9.59255	0.50	10.0000	0.061548	95.3	70 - 130	0.418	20	
Chromium	11.9035	0.50	10.0000	2.48906	94.1	70 - 130	1.12	20	
Cobalt	9.96923	0.50	10.0000	0.374944	95.9	70 - 130	1.36	20	
Copper	21.3988	1.0	10.0000	11.7478	96.5	70 - 130	1.41	20	
Lead	12.6035	1.0	10.0000	2.73207	98.7	70 - 130	1.05	20	
Manganese	117.199	10	100.000	22.2626	94.9	70 - 130	2.15	20	
Molybdenum	12.4422	0.50	10.0000	2.69548	97.5	70 - 130	0.349	20	
Nickel	11.5217	1.0	10.0000	2.11119	94.1	70 - 130	1.14	20	
Selenium	9.43619	0.50	10.0000	ND	94.4	70 - 130	1.90	20	
Silver	9.64568	0.50	10.0000	ND	96.5	70 - 130	1.35	20	
Thallium	9.89553	0.50	10.0000	ND	99.0	70 - 130	0.293	20	
Vanadium	12.3481	1.0	10.0000	2.73971	96.1	70 - 130	0.358	20	
Zinc	132.368	10	100.000	27.4651	105	70 - 130	7.09	20	
Strontium	134.590	10	100.000	37.6208	97.0	70 - 130	1.11	20	



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 3160 Gold Valley Drive, Suite 800
 Rancho Cordova , CA 95742

Project Number : Modesto Stockpiles Stormwater, S9525-0
 Report To : Rebecca Silva
 Reported : 04/12/2013

Dissolved Mercury by AA (Cold Vapor) by EPA 7470 - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B3D0178 - EPA 245.1/7470

Blank (B3D0178-BLK1)				Prepared: 4/11/2013 Analyzed: 4/11/2013					
Mercury	ND	0.20			NR				
LCS (B3D0178-BS1)				Prepared: 4/11/2013 Analyzed: 4/11/2013					
Mercury	10.5670	0.20	10.0000		106	80 - 120			
Duplicate (B3D0178-DUP1)				Source: 1301003-01 Prepared: 4/11/2013 Analyzed: 4/11/2013					
Mercury	0.040688	0.20		0.039311	NR		3.44	20	
Matrix Spike (B3D0178-MS1)				Source: 1301003-01 Prepared: 4/11/2013 Analyzed: 4/11/2013					
Mercury	10.3582	0.20	10.0000	0.039311	103	70 - 130			
Matrix Spike Dup (B3D0178-MSD1)				Source: 1301003-01 Prepared: 4/11/2013 Analyzed: 4/11/2013					
Mercury	10.3153	0.20	10.0000	0.039311	103	70 - 130	0.415	20	



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Report To : Rebecca Silva

Reported : 04/12/2013

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
D7	A lesser amount of sample was analyzed due to matrix.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.

