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CITY OF SUNNYVALE

SUNNYVALE WATER POLLUTION CONTROL PLANT

TECHNICAL MEMORANDUM SITE INVESTIGATION ANALYSIS

> FINAL April 2014



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TECHNICAL MEMORANDUM SITE INVESTIGATION ANALYSIS

1.0 INTRODUCTION

The City of Sunnyvale's (City) overall goal for its Master Plan is to provide a long-term plan for the renovation of the existing Water Pollution Control Plant (WPCP). The renovated WPCP will allow the City to cost-effectively meet all regulatory and permit requirements through best practices, sustainability, and being good stewards of the land and public trust. The renovated facilities at the WPCP will address expected and new challenges by being reliable, flexible, and adaptable. This includes an understanding of potential hazardous site conditions with respect to soil or groundwater contamination at the WPCP which could impact future construction activities.

This Technical Memorandum was prepared to document soil and groundwater sampling conducted at the WPCP (Figure 1). This sampling was conducted to evaluate chemical concentrations in soil and groundwater to identify potential hazards to worker health from exposure to chemicals in soil.

2.0 FIELD INVESTIGATIONS

This section documents activities conducted in advance of the field activities and methods used to collect soil and groundwater samples at the WPCP.

2.1 Prefield Activities

Prior to performing drilling activities, a site walk was performed with the City to discuss potential soil boring locations. The potential soil boring locations were then cleared by an underground utility locator. A Site-Specific Health and Safety Plan was prepared, which described site-specific hazards and included driving directions to the nearest emergency room. Santa Clara Valley Water District (Water District) soil boring permits were not required as the Water District does not issue permits for soil borings shallower than 45 feet below ground surface (bgs).

2.2 Field Activities

On October 24 and 25, 2013, 13 soil borings were advanced at the locations depicted on Figure 2. The borings were continuously logged by HDR's field geologist using the Unified Soil Classification System (USCS). The field geologist observed significant changes in material penetrated, changes in drilling conditions, lithologic changes, the relative moisture content of soils, and water-producing zones. This record was used to prepare the detailed boring logs included in Appendix A.

Pitcher Drilling Company (Pitcher) advanced 11 soil borings to a maximum depth of 7 feet bgs and two soil borings to 20 feet bgs. To minimize damage to buried utilities, a hand

auger was used to advance the soil boring from ground surface to approximately 5 feet bgs. After hand augering to 5 feet bgs, a hydraulic drill rig was used to advance a Macrocore drive rod and acetate liner to the desired depth.

Soil samples were collected from 3 feet and 7 feet bgs and submitted for laboratory analysis. Soil samples collected from 3 feet bgs were collected from the hand auger barrel and packed into an acetate liner. Samples collected from 7 feet bgs were collected by cutting the acetate Macrocore liner at the intended depth. The ends of the acetate liner were capped with Teflon sheets and plastic end caps. The soil samples were labeled with the sample identification, the date, and time the sample was collected. The samples were placed in an ice chest cooled with ice and delivered to Alpha Analytical in Sparks, Nevada under chain of custody control.

Groundwater samples were collected from boring B2 at 20 feet bgs and from boring B10 at 5 feet bgs. Boring B5 was advanced to 20 feet bgs in an attempt to collect a groundwater sample; however groundwater was not encountered in this boring.

After reaching groundwater, the Macrocore drive rod was removed from the boring and a new ³/₄-inch diameter temporary well screen and casing were inserted in the boring. A clean stainless steel bailer was lowered through the temporary well casing to remove an aliquot of groundwater. The groundwater was decanted from the bailer into laboratory-supplied containers. The containers were labeled with the sample identification, sample date, and the time the sample was collected. The samples were placed in an ice chest cooled with ice and delivered to Alpha Analytical, Inc. in Sparks, Nevada under chain of custody control.

2.2.1 Field Quality Assurance

Disposable equipment such as tubing, well screening, and acetate Macrocore liners were used where possible. The use of disposable equipment, replaced in between sample locations, reduces the potential for cross contamination. All non-disposable field equipment was cleaned and decontaminated prior to being introduced into the sampling environment. Decontamination was accomplished by washing equipment with a non-phosphate detergent and then rinsing twice with tap water.

2.3 Laboratory Analysis

On October 26, 2013, soil and groundwater samples were submitted to Alpha Analytical, Inc. for the following analyses:

Soil samples collected from 3 feet bgs were analyzed for the following:

- Arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury (Resource Conservation and Recovery Act [RCRA] 8) by Environmental Protection Agency (EPA) Method 6020/200.8, and
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270.

Soil samples collected from 7 feet bgs were analyzed for the following:

• Arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury by EPA Method 6020/200.8.

Soil samples collected from 3 feet bgs were analyzed at California Laboratory Services (CLS), in Rancho Cordova, California, for chlorinated pesticides/polychlorinated biphenyls (PCBs) by EPA Method 8081/8082.

Groundwater samples were analyzed by Alpha Analytical Inc. for the following:

- Total nitrogen by EPA Method 300.0/351,
- Total arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury by EPA Method 6020/200.8, and
- Total dissolved solids by EPA Method 160.1.

The soil analytical results are presented on Table 1 and the groundwater analytical results are presented on Table 2. The detailed laboratory analytical reports are presented in Appendix B.

2.4 Investigation-Derived Waste Disposal

Decontamination water was contained in five gallon buckets and disposed of offsite by Pitcher. Soil generated during the drilling activities was spread on the ground surface adjacent to each soil boring.

2.5 Soil Boring Survey

The location of the soil borings were surveyed to submeter accuracy with a global position system (GPS) system receiver. The coordinates of the soil boring locations are provided on the soil boring logs in Appendix A.

2.6 Deviations from the Sampling and Analysis Plan

The Sampling and Analysis Plan for Site Characterization (HDR, 2013) proposed collection of three groundwater samples from three borings advanced to 20 feet bgs. Groundwater was encountered at 3.5 feet bgs in boring B10, therefore this boring was not advanced to the proposed depth. Boring B5 was advanced to 20 feet bgs; however groundwater was not encountered and a groundwater sample was not collected.

3.0 RESULTS

Lithology was generally inconsistent throughout the WPCP, which is to be expected since the WPCP was constructed on fill soil and graded during construction. In general, shallow soils consist primarily of medium plasticity clays, silty gravel or sandy silt to approximately 4 feet bgs.

Silty gravel was encountered to a depth of 12 feet bgs in boring B5. Borings B2, advanced to 21 feet bgs, consisted of clay with trace sand and gravel from 3.5 feet bgs to 21 feet bgs. Boring B5 consisted of interbedded lenses of silt and clay from 12 feet bgs to 20 feet bgs. Groundwater was encountered in borings B2, B9, B10, and B11. The depth to groundwater ranged from 3 feet bgs in boring B10 to 20 feet bgs in boring B2. A more detailed geotechnical investigation is being developed as part of a separate site background technical memorandum.

3.1 Soil Analytical Results

SVOCs and pesticides were not detected in soil samples above laboratory reporting limits. Metals detected in soil included arsenic, barium, cadmium, chromium, lead, and mercury. Aroclor 1260, a PCB constituent, was only detected in the sample collected from 3 feet bgs in boring B6. Arsenic was detected at 10 milligrams per kilogram (mg/Kg) in boring B1 and 28 mg/kg in boring B4. Arsenic was detected in these two samples at equal to or greater than the 10 mg/Kg San Francisco Bay Regional Water Quality Control Board (Water Board) Environmental Screening Level (ESL) for construction/trench workers. All other detected analytes were less than their respective ESL. The Water Board states that "ESLs are considered to be conservative. Under most circumstances, and within the limitations described, the presence of a chemical in soil, soil gas or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant, long-term (chronic) threat to human health and the environment." The Water Board further states that "the presence of a chemical at concentrations in excess of an ESL does not necessarily indicate adverse effects on human health or the environment, rather that additional evaluation is warranted." Further information regarding use/applicability and ESL concentrations can be viewed on the Water Board website (Water Board, 2013)

To evaluate whether soil contains constituents at concentrations sufficient to be classified as a California hazardous waste, the laboratory analytical results were compared to the Total Threshold Limit Concentrations (TTLC) listed in Title 22, Chapter 11, Article 3 of the California Code of Regulations (CCR) and included in Appendix C for reference. The TTLC analysis determines the total concentration of each target analyte in a sample, and is generally performed first. When any target analyte exceeds the TTLC limits the waste is classified as hazardous, and further testing is not required. If the TTLC concentration is 10 times or greater than the Soluble Threshold Limit Concentration (STLC) listed in Title 22, Chapter 11, Article 3 of the CCR , than STLC analysis is performed to simulate conditions that may be present at a landfill. If an analyte is detected at a concentration greater than the TTLC or the STLC limits, the waste is considered hazardous by California standards.

All analytes were detected at concentrations less than their TTLCs. Barium, chromium, and lead were detected in soil samples at ten times the STLC limit; therefore, STLC analyses was performed on barium, chromium, and lead. STLC analysis did not yield barium, chromium, or lead at concentrations greater than their STLC limits; therefore, the soil is not hazardous. The

soil sample analytical results are presented in Table 1, the laboratory analytical results are included in Appendix B and the TTLC/STLC limits are presented in Appendix C.

3.2 Groundwater Analytical Results

Groundwater samples collected from borings B2 and B10 yielded nitrate, total dissolved solids, and total metals (arsenic, cadmium, chromium, barium, selenium, silver, lead, and mercury) above laboratory reporting limits. ESLs have not been established to protect construction/trench workers from exposure to chemicals in groundwater. Therefore the groundwater analytical results were compared to the Maximum Concentration Allowable table presented in Section 12.12.120 of Ordinance No. 2896-09 of the Sunnyvale Municipal Code. This ordinance was established to ensure that water discharged to the publically owned treatment works (POTW) does not interfere with POTW operation or pass through the POTW with inadequate treatment. As presented on Table 2, barium was the only analyte which exceeded the Maximum Concentration Allowable.

3.3 Laboratory Quality Control

Samples were transferred to Alpha Analytical, Inc. under chain of custody control. Alpha Analytical, Inc. and the subcontracted laboratory CLS performed the requested analysis within appropriate sample holding times. Laboratory quality control (QC) includes blank analyses, laboratory control sample (LCS), laboratory control sample duplicate (LCSD), matrix spike (MS), and matrix spike duplicate (MSD). In general, the laboratory QC was within the laboratory-established method control limits; however, the laboratory qualified the results with the following:

- The chromium recoveries in the soil MS and MSD of 196 percent and 131 percent were greater than the laboratory-established control limits of 75 to 125 percent recovery. However, the LCS recovery was acceptable. The MS/MSD results suggest a possible matrix effect, such as non-homogeneous contamination of the sample. As the sample result is well below the ESLs and TTLCs, the result is considered usable for the project goals.
- The barium recovery in the soil MS of 68 percent was less than the laboratory-established control limits of 75 to 125 percent. However, the LCS recovery was acceptable. The MS result suggests a possible matrix effect, such as non-homogeneous contamination of the sample. As the sample result is well below the ESLs and TTLCs, the result is considered usable for the project goals.
- The heptachlor recovery in the soil MS of 167 percent was greater than the laboratoryestablished control limits of 36 to 155 percent, and the RPD of 58 percent was greather than the control limit of 35 percent. The recovery in the MSD was within control limits, and the recoveries in the LCS and LCSD were within control limits. The MS/MSD results suggest a possible matrix effect, such as non-homogeneous contamination of the sample.

As the non-detect sample result reporting limit of 0.050 mg/Kg is well below the ESL of 3.6 mg/Kg, the result is considered usable for the project goals.

Despite these qualifications, the data set is considered usable and reliable for this project.

3.4 Waste Profiling for Disposal

It is likely that improvements to the WPCP will generate soil that must be disposed offsite. The Newby Island Landfill and the Altamont Landfill were contacted regarding acceptance of excess soil generated from the WPCP improvements. Based on the analyses conducted, the soil meets the acceptance criteria for Newby Island Landfill and the Altamont Landfill (Appendix C); however, Altamont Landfill stated that the following additional analyses are required to profile the waste for disposal:

- California Accreditation Manual 17 metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc) with STLC analysis as needed,
- Total petroleum hydrocarbons (TPH) as gasoline, TPH as diesel, TPH as oil, and
- Volatile organic compounds.

Because there is no large-scale storage of petroleum products at the site and no reason to suspect that the soil is adversely impacted with metals, the WPCP may be able to substitute it's site-specific knowledge for the Altamont Landfill's request for additional analyses. This would be accomplished by completing the landfill's waste profile form prior to disposal of soils at the Altamont Landfill.

3.5 Construction Worker Exposure Assessment

Constituents in soil can pose a health risk to construction/trench workers via direct contact (ingestion, inhalation, dermal contact). To evaluate whether constituents detected in soil at the WPCP presents an unacceptable health risk, the following was performed:

3.5.1 Use of ESLs to Identify Whether an Unacceptable Risk Exists

Soil sample analytical results were directly compared to the Water Board ESLs for construction/trench worker. Arsenic in boring B1 and boring B4 meet or exceeded the 10 mg/Kg ESL. All other analytes were detected at concentrations less than their ESL. Therefore, based on this screening level assessment, arsenic may present an unacceptable health risk to construction/trench worker; however, the Water Board states "The presence of chemicals at concentrations above the ESLs does not necessarily indicate that a significant risk exists at the site. It does generally indicate that additional evaluation of potential environmental concerns is warranted."

3.5.2 Calculating the Site Specific Health Risk

To further evaluate whether chemicals in soil pose an unacceptable construction/trench worker health risk, the United States Environmental Protection Agency's (US EPA) ProUCL software was used to calculate the upper 95 percent confidence level of the mean which determined a site-wide exposure point concentration for arsenic (6.41 mg/Kg), barium (404 mg/Kg), chromium (67.3 mg/Kg), and lead (24.4 mg/Kg) (Appendix D). The exposure point concentrations represent a conservative estimate of the chemical concentration that the construction/trench worker would be exposed to while performing improvements to the WPCP. The ProUCL calculated exposure point concentrations are less that their respective construction/trench worker ESL; therefore, constituents in soil do not pose an unacceptable health risk.

To calculate the excess cancer risk, non cancer risk, and to estimate whether multiple constituents detected in soil will have an adverse cumulative effect on a construction/trench worker, the exposure point concentrations were input into the US EPA's online Regional Screening Level (RSL) calculator. The RSL calculator estimated an excess cancer risk for a construction/trench worker of 2.66x10⁻⁷ and a noncancer risk of 0.01 (Appendix D). These values are less than the US EPA's ceiling cancer risk of one in one million and target hazard quotient of 1.0; therefore, the cumulative effect from exposure to constituents detected in soil does not pose an unacceptable health risk to construction/trench workers.

4.0 CONCLUSIONS

The results from this site investigation indicate the following:

- Based on the field testing performed, analytes were detected at concentrations less than the TTLC and STLC limits established in Title 22, Chapter 11, Article 3 of the California Code of Regulations; therefore, soil at the WPCP is classified as nonhazardous by State standards,
- 2. With the limitations described above, the soil at the WPCP meets the acceptance criteria for Newby Island Landfill and the Altamont Landfill,
- 3. Soil at the WPCP does not pose an unacceptable risk to construction/trench workers, and
- 4. Analytes detected in groundwater included total nitrogen, total dissolved solids, arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury.

5.0 REFERENCES

California Code of Regulations (CCR), Title 22, Chapter 11, Article 3.

HDR, 2013 Sampling and Analysis Plan, September.

- San Francisco Bay Regional Water Quality Control Board (Water Board) 2013, Environmental Screening Levels, <u>http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/esl.shtml</u>, December.
- United States Environmental Protection Agency, Regional Screening Levels (RSL) for Chemical Concentrations at Superfund Sites, RSL Calculator, <u>http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search</u>.
- United States Environmental Protection Agency, ProUCL Software version 5.0.00, http://www.epa.gov/osp/hstl/tsc/software.htm.

Table 1. Soil Analytical Results

Sunnyvale Water Pollution Control Plant

1444 Borregas Avenue, Sunnyvale, California

								т	otal Con	centrat	ions				Soluble	e Concentr	ations
						-		~			6	Aroclor					
			Unito	Ag	As	ва	Ca	Cr ///a	Hg	PD	Se	1260	Pesticides	SVOCs	ва		PD
		FPA	Method			SI	N6020/9	W602	0A			8082A	<u>με/ Νε</u> 8081Α	SW8270C	SW6	020/ SW60)20A
Boring	Sample ID	Sample	Depth				10020/0					0002/1	0001/(51102700	5110	520, 51100	20/1
Location	Sample ID	Date	(fbgs)														
B 1	B01-03-SO-10242013	10/24/2013	3	<1.0	4.2	320	<1.0	60	<0.20	6.5	<2.0	<20	ND	ND	NA	NA	NA
DI	B01-07-SO-10242013	10/24/2013	7	<1.0	10	310	<1.0	65	<0.20	9	<2.0	NA	NA	NA	NA	NA	NA
20	B02-03-SO-10252013	10/25/2013	3	<1.0	4.6	420	<1.0	57	<0.20	5.2	<2.0	<20	ND	ND	NA	NA	NA
BZ	B02-07-SO-10252013	10/25/2013	7	<1.0	3.5	150	<1.0	57	<0.20	5	<2.0	NA	NA	NA	NA	NA	NA
D 2	B03-03-SO-10242013	10/24/2013	3	<1.0	5.1	97	<1.0	32	<0.20	4.1	<2.0	<20	ND	ND	NA	NA	NA
В3	B03-07-SO-10242013	10/24/2013	7	<1.0	2.6	120	<1.0	52	<0.20	14	<2.0	NA	NA	NA	NA	0.67	NA
D /	B04-03-SO-10242013	10/24/2013	3	1.3	28	390	<1.0	60	<0.20	170	<2.0	<20	ND	ND	NA	NA	0.17
В4	B04-07-SO-10242013	10/24/2013	7	<1.0	<1.0	22	<1.0	5.7	<0.20	1.2	<2.0	NA	NA	NA	NA	NA	NA
DE	B05-03-SO-10252013	10/25/2013	3	<1.0	3.7	110	<1.0	120	<0.20	4.9	<2.0	<20	ND	ND	NA	0.13	NA
63	B05-07-SO-10252013	10/25/2013	7	<1.0	2.2	150	<1.0	72	<0.20	3.3	<2.0	NA	NA	NA	NA	NA	NA
DC	B06-03-SO-10242013	10/24/2013	3	<1.0	7.8	210	<1.0	74	<0.20	21	<2.0	28	ND	ND	NA	NA	NA
БО	B06-07-SO-10242013	10/24/2013	7	<1.0	4.6	130	<1.0	85	<0.20	15	<2.0	NA	NA	NA	NA	0.17	NA
D 7	B07-03-SO-10242013	10/24/2013	3	<1.0	3.5	140	<1.0	62	<0.20	9.2	<2.0	<20	ND	ND	NA	<0.10	NA
D/	B07-07-SO-10242013	10/24/2013	7	<1.0	<1.0	9.9	<1.0	4	<0.20	<1.0	<2.0	NA	NA	NA	NA	NA	NA
по	B08-03-SO-10242013	10/24/2013	3	<1.0	4	150	<1.0	73	<0.20	14	<2.0	<20	ND	ND	NA	NA	NA
DO	B08-07-SO-10242013	10/24/2013	7	<1.0	<1.0	32	<1.0	59	<0.20	<1.0	<2.0	NA	NA	NA	NA	NA	NA
DO	B09-03-SO-10242013	10/24/2013	3	<1.0	1.8	120	<1.0	54	<0.20	4.9	<2.0	<20	ND	ND	NA	NA	NA
ВЭ	B09-07-SO-10242013	10/24/2013	7	<1.0	3.7	130	<1.0	64	<0.20	6	<2.0	NA	NA	NA	NA	NA	NA

Table 1. Soil Analytical Results (Continued)

Sunnyvale Water Pollution Control Plant

1444 Borregas Avenue, Sunnyvale, California

								То	tal Con	entrati	ions				Soluble	e Concenti	rations
											·	Aroclor					
				Ag	As	Ва	Cd	Cr	Hg	Pb	Se	1260	Pesticides	SVOCs	Ва	Cr	Pb
	Unit						mg	;/Kg					μg/Kg			mg/L	
		EP	A Method			SV	N6020/	SW6020)A			8082A	8081A	SW8270C	SW6	020/ SW60)20A
Boring		Sample	Depth		_												
Location	Sample ID	Date	(fbgs)														
P10	B10-03-SO-10252013	10/25/2013	3	<1.0	3.4	140	<1.0	68	<0.20	6.3	<2.0	<20	ND	ND	NA	NA	NA
BIO	B10-07-SO-10252013	10/25/2013	7	<1.0	4	150	<1.0	62	<0.20	5.8	<2.0	NA	NA	NA	NA	NA	NA
544	B11-03-SO-10242013	10/24/2013	3	<1.0	5.6	420	<1.0	78	<0.20	8.5	<2.0	<20	ND	ND	NA	0.16	NA
B11	B11-07-SO-10242013	10/24/2013	7	<1.0	4.2	120	<1.0	62	<0.20	6.2	<2.0	NA	NA	NA	NA	NA	NA
543	B12-03-SO-10242013	10/24/2013	3	<1.0	4.3	160	<1.0	60	<0.20	9.2	<2.0	<20	ND	ND	NA	NA	NA
B12	B12-07-SO-10242013	10/24/2013	7	<1.0	3.8	85	<1.0	41	<0.20	4.2	<2.0	NA	NA	NA	NA	NA	NA
D12	B13-03-SO-10242013	10/24/2013	3	<1.0	2.2	1,900	<1.0	67	0.27	8.6	<2.0	<20	ND	ND	9.7	NA	NA
R13	B13-07-SO-10242013	10/24/2013	7	<1.0	3.7	1,100	<1.0	61	0.36	7.4	2.3	NA	NA	NA	8.5	NA	NA
	V	Vater Board E	SL (mg/Kg)	1,500	10	61,000	110	NE	27	320	1,500	6,700	varies	varies	NA	NA	NA
		TTI	C (mg/Kg)	500	500	10,000	100	500	20	1000	100	0.050	varies	varies	NA	NA	NA
		S	TLC (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	5	5
Notes:												•					
Ag: Silver	Cr: Chrom	ium		Pb: Lead	ł					<: ar	nalyte no	t detected	greater than	۱			
As: Arseni	c Hg: Mercu	ıry		STLC: So	Juble T	hreshold I	Limit Cor	ncentrati	on.	NE: no	ot establi	ished					
Ba: Barium	n mg/Kg: mi	illigrams per kild	ogram	Se: Seler	nium					ND: n	ot detect	ed, reporti	ing limit varie	ed.			
Cd: Cadmi	um mg/L: mill	igrams per liter		µg/Kg: n	nicrogr	ams per ki	llogram			NA: no	ot applica	able					
TTLC: Calif	ornia Total Threshold Lim	it Concentratio	n. California	Code of	Regula	itions, Title	e 22, Ch	apter 11,	, Article 3								
Water Boa	rd ESL: December 2013 S	an Francisco Ba	y Regional V	Vater Qu	ality Cc	ontrol Boar	rd Enviro	onmenta	l Screenii	ng Level	for const	truction/tr	ench worker	exposure sc	enario		
Bold value	s indicate analyte was det	ected above Wa	ater Board E	SL													
Depth: fee	et below ground surface sa	ample was colle	cted														

Table 2. Groundwater Analytical Results

Sunnyvale Water Pollution Control Plant 1444 Borregas Avenue, Sunnyvale, California

			Total N	TDS	Ag	As	Ва	Cd	Cr	Hg	Pb	Se
Units			mg/L	mg/L		mg/L						
		EPA Method	Calculation	ation SM2540C SW6020/SW6020A								
Sample ID		Sample Date										
B02-20-GW-10252	2013	10/24/2013	4	20,000	0.011	0.10	8.6	0.038	1.2	0.0032	0.17	0.031
B10-05-GW-10252013 10/24/2		10/24/2013	14	35,000	0.026	0.21	5.5	0.022	1.7	0.0035	0.42	0.044
		Discharge Limitation	NE	NE	0.2	0.3	1	0.1	1.7	0.01	0.5	1
Notes:												
Ag: Silver	mg/L: milli	grams per liter	Discharge Lin	nitation: Maxi	mum Conc	entration A	llowable	as presented	in Sectio	n 12.12.120	of City of S	Sunnyvale
As: Arsenic	N: Nitroge	n	Ordinance No	o. 2896-09 of t	he Sunnyva	ale Municip	al Code					
Ba: Barium	Ba: Barium NE: Not established		Bold values indicate exceedence of Discharge Limitation									
Cd: Cadmium	Cd: Cadmium Pb: Lead											
Cr: Chromium Se: Selenium												
Hg: Mercury	TDS: Total	Dissolved Solids										



Figure 1 LOCATION MAP SUNNYVALE WATER POLLUTION CONTROL PLANT 1444 BORREGAS AVE, SUNNYVALE CA.



Figure 2 BORING LOCATION MAP SUNNYVALE WATER POLLUTION CONTROL PLANT 1444 BORREGAS AVE, SUNNYVALE CA.

APPENDIX A

Boring Logs

HDR	Project Name: Sunnyvale W Project Number: 028-213932- Location: Sunnyvale, C	/PCP 021 CA	Boring Log Boring ID:B1 Page 1 of 1
Drilling Company: Pitcher Drill Rig Type: Power Probe Drilling Method: Direct Push Drilled By: Will Stewart	Date Started: Date Completed: Boring Diameter: Logged By:	10/24/13 Tota 10/24/13 Nor 2" Eas Jacob Ruffing	Il Depth: 7' thing: 4141844.02m ting: 586940.57m
Sample logo	ription		
2 CL: silty	elly sandy silt, very dark grayish browr	n (10YR3/2), fine gravel and san	d grains, dry
GM: sar GM: sar GM: sar Sand an Sand an Sand an Sand an Sand an	dy silty gravel, dark grayish brown (10 I gravel, dry	YR 4/2), fine to coarse sand and	l gravel, subrounded to angular
4 SW: sa	d, light olive brown (2.5Y 5/3), fine to n	nedium grain, well graded, subro	bunded, dry
6	ey silt with trace gravel, firm, fine grain	gravel, dry	
No wate	encountered		

HDR	Project Name: Sunnyvale WPCP Project Number: 028-213932-021 Location: Sunnyvale, CA	Boring Log Boring ID:B2 Page 1 of 1
Drilling Company: Pitcher Drill Rig Type: Power Pro Drilling Method: Direct Pus Drilled By: Will Stewa	Date Started:10/25/13obeDate Completed:10/25/13ohBoring Diameter:2"artLogged By:Jacob Ruffing	Total Depth: 21' Northing: 4141832.33m Easting: 586982.47m



CL: clay with trace sand and gravel, brown (10YR 4/3), firm, low to medium plasticity, dry

CL: sandy clay, black (10YR 2/1), fine to coarse grained subrounded sand, soft, very low plasticity, dry

CL: clay with trace sand, black, hard to very hard, low plasticity, moist

soft, wet

 \bigtriangledown

20







HDR	Project Name: Sunnyvale WPCP Project Number: 028-213932-021 Location: Sunnyvale, CA	Boring Log Boring ID:B6 Page 1 of 1
Drilling Company:PitcherDrill Rig Type:Power ProbeDrilling Method:Direct PushDrilled By:Will Stewart	Date Started:10/24/13Date Completed:10/24/13Boring Diameter:2"Logged By:Jacob Ruffing	Total Depth: 7' Northing: 4141848.42m Easting: 587123.65m
Descript	ion	
GM: silty san	xountered), gravel up to 2", dry

HDR	Project Name:Sunnyvale WPCPProject Number:028-213932-021Location:Sunnyvale, CA	Boring Log Boring ID:B7 Page 1 of 1
Drilling Company:PitcherDrill Rig Type:Power ProbeDrilling Method:Direct PushDrilled By:Will Stewart	Date Started:10/24/13Date Completed:10/24/13Boring Diameter:2"Logged By:Jacob Ruffing	Total Depth: 7' Northing: 4141803.96m Easting: 587102.72m





H	R	Project Name: S Project Number: 0 Location: S	Sunnyvale \)28-213932 Sunnyvale,	WPCP 2-021 CA	Bori n Boring Page 1 c	n g Log ID:B8 f 1	
Drilling Company: Drill Rig Type: Drilling Method: Drilled By:	Pitcher Power Probe Direct Push Will Stewart	Date St Date Co Boring I Logged	arted:)mpleted: Diameter: By:	10/24/13 10/24/13 2" Jacob Ruffing	Total Depth: Northing: Easting:	7' 4141821.17 587170.41m	



Sample



HDR	Project Name:Sunnyvale WPCPProject Number:028-213932-021Location:Sunnyvale, CA	Boring Log Boring ID:B9 Page 1 of 1
Drilling Company:PitcherDrill Rig Type:Power ProbeDrilling Method:Direct PushDrilled By:Will Stewart	Date Started:10/24/13Date Completed:10/24/13Boring Diameter:2"Logged By:Jacob Ruffing	Total Depth: 7' Northing: 4141784.38m Easting: 587196.23m







HDR	Project Name:Sunnyvale WPCPProject Number:028-213932-021Location:Sunnyvale, CA	Boring Log Boring ID:B11 Page 1 of 1
Drilling Company:PitcherDrill Rig Type:Power ProbeDrilling Method:Direct PushDrilled By:Will Stewart	Date Started:10/24/13Date Completed:10/24/13Boring Diameter:2"Logged By:Jacob Ruffing	Total Depth: 9' Northing: 4141768.96m Easting: 587260.72m



Asphalt

CL: clay with trace sand, greenish gray (gley1 5/10Y), medium plasticity, fine to medium grain	sand, brown
mottling	

first encountered water

CL: sandy silty clay, dark greenish gray (gley1 4/10Y), very soft to firm, low to medium plasticity, fine to coarse grain sand, wet

SC: clayey sand interfingers, 3" - 6" thick

HDR	Project Name: Sunnyvale WPCP Project Number: 028-213932-021 Location: Sunnyvale, CA	Boring Log Boring ID:B12 Page 1 of 1
Drilling Company:PitcherDrill Rig Type:Power ProbeDrilling Method:Direct PushDrilled By:Will Stewart	Date Started:10/24/13Date Completed:10/24/13Boring Diameter:2"Logged By:Jacob Ruffing	Total Depth: 9' Northing: 4141740.66m Easting: 587270.73m



	Asphalt
	CL: silty clay with trace gravel and sand, dark greenish gray (gley1 4/10Y), firm, fine subangular sand and gravel, gravel up to 0.25"
7 -	first encountered water
	SC: clayey sand
	CL: sandy clay with trace gravel, dark greenish gray (gley1 4/10Y), soft to firm, low plasticity, wet
	CL: clay, dark greenish gray (gley1 4/10Y) with brown mottling, firm, medium plasticity, moist

HDR	Project Name: Sunnyvale WPCP Project Number: 028-213932-021 Location: Sunnyvale, CA	Boring Log Boring ID:B13 Page 1 of 1
Drilling Company:PitcherDrill Rig Type:Power ProbeDrilling Method:Direct PushDrilled By:Will Stewart	Date Started:10/24/13Date Completed:10/24/13Boring Diameter:2"Logged By:Jacob Ruffing	Total Depth: 7' Northing: 4141769.77m Easting: 586989.89m



no water encountered
APPENDIX B

Laboratory Analytical Reports



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630

Clayton Mokri Attn: Phone: (916) 817-4762 (916) 817-4747 Fax: Date Received : 10/26/13

Job: 028-213932-021/Sunnyvale

	Total Nitrogen Total by Calculation			
Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: B02-20-GW-10252013 Lab ID : HDR13102820-05A Total Nitrogen as N Date Sampled 10/25/13 10:50	4.0	1.0 mg/L	10/31/13	10/31/13
Client ID: B10-05-GW-10252013 Lab ID : HDR13102820-22A Total Nitrogen as N Date Sampled 10/25/13 09:30	14	1.0 mg/L	10/31/13	10/31/13



Roger Scholl

Kandy Saulur

lter Aline

Roger L. Scholl, Ph.D., Laboratory Director · · Randy Gardner, Laboratory Manager · · Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.





Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR, In	.c.
2365 Iro	n Point Road
Folsom,	CA 95630
Job:	028-213932-021/Sunnyvale

Alpha Analytical Number: HDR13102820-01A Client I.D. Number: B01-03-SO-10242013
 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

Sampled: 10/24/13 09:50 Received: 10/26/13 Extracted: 10/28/13 16:19 Analyzed: 11/01/13

Semivolatile Organics by GC/MS EPA Method SW8270C

Compound		Concentration	Reporting	Limit		Compound	Concentration	Reporting Limit	
1	Phenol	ND	660	µg/Kg	36	Hexachlorobenzene	ND	660	µg/Kg
2	2-Chlorophenol	ND	660	µg/Kg	37	Pentachlorophenol	ND	3,300	µg/Kg
3	Bis(2-chloroethyl)ether	ND	660	µg/Kg	38	Phenanthrene	ND	660	µg/Kg
4	1,3-Dichlorobenzene	ND	1,300	µg/Kg	39	Anthracene	ND	660	µg/Kg
5	1,4-Dichlorobenzene	ND	1,300	µg/Kg	40	Di-n-butyl phthalate	ND	3,300	µg/Kg
6	1,2-Dichlorobenzene	ND	1,300	µg/Kg	41	Fluoranthene	ND	660	µg/Kg
7	Bis(2-chloroisopropyl)ether	ND	660	µg/Kg	42	Pyrene	ND	660	µg/Kg
8	N-Nitrosodi-n-propylamine	ND	660	µg/Kg	43	Butyl benzyl phthalate	ND	1,300	µg/Kg
9	Hexachloroethane	ND	1,300	µg/Kg	44	Benzo(a)anthracene	ND	660	µg/Kg
10	Nitrobenzene	ND	660	µg/Kg	45	3,3'-Dichlorobenzidine	ND	1,300	µg/Kg
11	Isophorone	ND	660	µg/Kg	46	Chrysene	ND	660	µg/Kg
12	2-Nitrophenol	ND	660	µg/Kg	47	Bis(2-ethylhexyl)phthalate	ND	3,300	µg/Kg
13	2,4-Dimethylphenol	ND	660	µg/Kg	48	Di-n-octyl phthalate	ND	3,300	µg/Kg
14	Bis(2-chloroethoxy)methane	ND	660	µg/Kg	49	Benzo(b)fluoranthene	ND	660	µg/Kg
15	2,4-Dichlorophenol	ND	660	µg/Kg	50	Benzo(k)fluoranthene	ND	660	µg/Kg
16	1,2,4-Trichlorobenzene	ND	660	µg/Kg	51	Benzo(a)pyrene	ND	660	µg/Kg
17	Naphthalene	ND	660	µg/Kg	52	Indeno(1,2,3-cd)pyrene	ND	660	µg/Kg
18	Hexachlorobutadiene	ND	1,300	µg/Kg	53	Dibenz(a,h)anthracene	ND	660	µg/Kg
19	4-Chloro-3-methylphenol	ND	1,300	µg/Kg	54	Benzo(g,h,i)perylene	ND	660	µg/Kg
20	Hexachlorocyclopentadiene	ND	6,600	µg/Kg	55	Surr: 2-Fluorophenol	88	(60-143)	%REC
21	2,4,6-Trichlorophenol	ND	660	µg/Kg	56	Surr: Phenol-d5	86	(56-148)	%REC
22	2-Chloronaphthalene	ND	660	µg/Kg	57	Surr: Nitrobenzene-d5	76	(48-131)	%REC
23	Dimethyl phthalate	ND	660	µg/Kg	58	Surr: 2-Fluorobiphenyl	118	(53-130)	%REC
24	Acenaphthylene	ND	660	µg/Kg	59	Surr: 2,4,6-Tribromophenol	78	(44-154)	%REC
25	2,6-Dinitrotoluene	ND	660	µg/Kg	60	Surr: 4-Terphenyl-d14	61	(42-145)	%REC
26	Acenaphthene	ND	660	µg/Kg					
27	2,4-Dinitrophenol	ND	6,600	µg/Kg					
28	4-Nitrophenol	ND	3,300	µg/Kg					
29	2,4-Dinitrotoluene	ND	660	µg/Kg					
30	Diethyl phthalate	ND	660	µg/Kg					
31	Fluorene	ND	660	µg/Kg					
32	4-Chlorophenyl phenyl ether	ND	660	µg/Kg					
33	4,6-Dinitro-2-methylphenol	ND	6,600	µg/Kg					
34	N-Nitmsodiphenvlamine		099	ualka					

35 4-Bromophenyl phenyl ether

Sample results were calculated on a wet weight basis. ND = Not Detected

DoD ELAP

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

660

µg/Kg

11/4/13

Report Date

Page 1 of 1



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR,	lnc.
2365 I	ron Point Road
Folson	n, CA 95630
Job:	028-213932-021/Sunnyvale

 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

Alpha Analytical Number: HDR13102820-08A Client I.D. Number: B04-03-SO-10242013

Sampled:	10/24/13	10:10
Received:	10/26/13	
Extracted:	10/28/13	16:19

Analyzed: 11/01/13

Semivolatile Organics by GC/MS EPA Method SW8270C

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li
1	Phenol	ND ND	660	ua/Ka	36	Hexachiorobenzene	ND	660
2	2-Chlorophenol	ND	660	ua/Ka	37	Pentachlorophenol	ND	3,300
3	Bis(2-chloroethyl)ether	ND	660	ua/Ka	38	Phenanthrene	ND	660
4	1,3-Dichlorobenzene	ND	1.300	ua/Ko	39	Anthracene	ND	660
5	1,4-Dichlorobenzene	ND	1,300	ua/Ka	40	Di-n-butyl phthalate	ND	3,300
6	1,2-Dichlorobenzene	ND	1.300	ua/Ka	41	Fluoranthene	ND	660
7	Bis(2-chloroisopropyl)ether	ND	660	ua/Ka	42	Pyrene	ND	660
8	N-Nitrosodi-n-propylamine	ND	660	ua/Ka	43	Butyl benzyl phthalate	ND	1,300
9	Hexachloroethane	ND	1.300	ua/Ka	44	Benzo(a)anthracene	ND	660
10	Nitrobenzene	ND	660	µg/Kg	45	3,3'-Dichlorobenzidine	ND	1,300
11	Isophorone	ND	660	µg/Kg	46	Chrysene	ND	660
12	2-Nitrophenol	ND	660	ua/Ka	47	Bis(2-ethylhexyl)phthalate	ND	3,300
13	2,4-Dimethylphenol	ND	660	ua/Ka	48	Di-n-octvl phthalate	ND	3,300
14	Bis(2-chloroethoxy)methane	ND	660	µq/Kq	49	Benzo(b)fluoranthene	ND	660
15	2,4-Dichlorophenol	ND	660	ua/Ka	50	Benzo(k)fluoranthene	ND	660
16	1,2,4-Trichlorobenzene	ND	660	ua/Ka	51	Benzo(a)pyrene	ND	660
17	Naphthalene	ND	660	ua/Ka	52	Indeno(1,2,3-cd)pyrene	ND	660
18	4-Chloro-3-methylphenol	ND	1,300	µa/Ka	53	Dibenz(a,h)anthracene	ND	660
19	Hexachlorobutadiene	ND	1,300	µa/Ka	54	Benzo(g,h,i)perylene	ND	660
20	Hexachlorocyclopentadiene	ND	6,600	µg/Kg	55	Surr: 2-Fluorophenol	86	(60-143)
21	2,4,6-Trichlorophenol	ND	660	µg/Kg	56	Surr: Phenol-d5	77	(56-148)
22	2-Chloronaphthalene	ND	660	ug/Kg	57	Surr: Nitrobenzene-d5	78	(48-131)
23	Dimethyl phthalate	ND	660	µg/Kg	58	Surr: 2-Fluorobiphenyl	106	(53-130)
24	Acenaphthylene	ND	660	µg/Kg	59	Surr: 2,4,6-Tribromophenol	99	(44-154)
25	2,6-Dinitrotoluene	ND	660	µa/Ka	60	Surr: 4-Terphenyl-d14	63	(42-145)
26	Acenaphthene	ND	660	µg/Kg				
27	2,4-Dinitrophenol	ND	6,600	µg/Kg				
28	4-Nitrophenol	ND	3,300	µg/Kg				
29	2,4-Dinitrotoluene	ND	660	µg/Kg				
30	Diethyl phthalate	ND	660	µg/Kg				
31	Fluorene	ND	660	µg/Kg				
32	4-Chlorophenyl phenyl ether	ND	660	µg/Kg				
33	4,6-Dinitro-2-methylphenol	ND	6,600	µg/Kg				
34	N-Nitrosodiphenylamine	ND	660	µg/Kg				
35	4-Bromophenyl phenyl ether	ND	660	µg/Kg				

Sample results were calculated on a wet weight basis. ND = Not Detected

DoD ELAP

Rogen Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

11/4/13

Limit

µg/Kg

µg/Kg

µg/Kg

µg/Kg µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

µg/Kg

%REC

%REC

%REC %REC

%REC

%REC

Report Date

Page 1 of 1



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR, lı	nc.
2365 Iro	on Point Road
Folsom,	CA 95630
Job:	028-213932-021/Sunnyvale

 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

Alpha Analytical Number: HDR13102820-14A Client I.D. Number: B07-03-SO-10242013 Sampled: 10/24/13 13:40 Received: 10/26/13

Extracted: 10/28/13 16:19 Analyzed: 11/01/13

Semivolatile Organics by GC/MS EPA Method SW8270C

Compound		Concentration	ation Reporting Limit			Compound	Concentration	Reporting Limit	
1	Phenol	ND	660	µg/Kg	36	Hexachlorobenzene	ND	660	µg/Kg
2	2-Chlorophenol	ND	660	µg/Kg	37	Pentachlorophenol	ND	3,300	µg/Kg
3	Bis(2-chloroethyl)ether	ND	660	µg/Kg	38	Phenanthrene	ND	660	µg/Kg
4	1,3-Dichlorobenzene	ND	1,300	µg/Kg	39	Anthracene	ND	660	µg/Kg
5	1,4-Dichlorobenzene	ND	1,300	µg/Kg	40	Di-n-butyl phthalate	ND	3,300	µg/Kg
6	1,2-Dichlorobenzene	ND	1.300	ua/Ka	41	Fluoranthene	ND	660	µg/Kg
7	Bis(2-chloroisopropyl)ether	ND	660	ua/Ka	42	Pvrene	ND	660	µg/Kg
8	N-Nitrosodi-n-propylamine	ND	660	ua/Ka	43	Butvi benzvi phthalate	ND	1,300	µg/Kg
9	Hexachloroethane	ND	1.300	ua/Ka	44	Benzo(a)anthracene	ND	660	µg/Kg
10	Nitrobenzene	ND	660	ug/Kg	45	3.3'-Dichlorobenzidine	ND	1,300	µg/Kg
11	Isophorone	ND	660	µg/Kg	46	Chrvsene	ND	660	µg/Kg
12	2-Nitrophenol	ND	660	µa/Ka	47	Bis(2-ethylhexyl)phthalate	ND	3,300	µg/Kg
13	2,4-Dimethylphenol	ND	660	ua/Ka	48	Di-n-octvl phthalate	ND	3,300	µg/Kg
14	Bis(2-chloroethoxy)methane	ND	660	ua/Ka	49	Benzo(b)fluoranthene	ND	660	µq/Kq
15	2,4-Dichlorophenol	ND	660	ua/Ka	50	Benzo(k)fluoranthene	ND	660	µg/Kg
16	1,2,4-Trichlorobenzene	ND	660	uo/Ka	51	Benzo(a)pyrene	ND	660	µq/Kq
17	Naphthalene	ND	660	ua/Ka	52	Indeno(1,2,3-cd)pyrene	ND	660	µg/Kg
18	Hexachlorobutadiene	ND	1.300	ua/Ka	53	Dibenz(a,h)anthracene	ND	660	µg/Kg
19	4-Chloro-3-methylphenol	ND	1.300	ua/Ka	54	Benzo(a,h,i)perviene	ND	660	µg/Kg
20	Hexachlorocyclopentadiene	ND	6.600	ua/Ka	55	Surr: 2-Fluorophenol	92	(60-143)	%REC
21	2,4,6-Trichlorophenol	ND	660	ua/Ka	56	Surr: Phenol-d5	82	(56-148)	%REC
22	2-Chloronaphthalene	ND	660	ua/Ka	57	Surr: Nitrobenzene-d5	71	(48-131)	%REC
23	Dimethyl phthalate	ND	660	ua/Ka	58	Surr: 2-Fluorobiphenvi	120	(53-130)	%REC
24	Acenaphthylene	ND	660	ua/Ka	59	Surr: 2.4.6-Tribromophenol	75	(44-154)	%REC
25	2,6-Dinitrotoluene	ND	660	µg/Kg	60	Surr: 4-Terphenyl-d14	61	(42-145)	%REC
26	Acenaphthene	• ND	660	µg/Kg			•		
27	2,4-Dinitrophenol	ND	6,600	ua/Ka					
28	4-Nitrophenol	ND	3.300	ua/Ka					
29	2,4-Dinitrotoluene	ND	660	µa/Ka					
30	Diethyl phthalate	ND	660	ua/Ka					
31	Fluorene	ND	660	ua/Ka					
32	4-Chlorophenyl phenyl ether	ND	660	µg/Kg					
33	4.6-Dinitro-2-methylphenol	ND	6,600	µg/Kg					
34	N-Nitrosodlphenylamine	ND	660	µg/Kg					
35	4-Bromophenyl phenyl ether	ND	660	µg/Kg					

Sample results were calculated on a wet weight basis. ND = Not Detected

DoD ELAP

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

11/4/13

Report Date Page 1 of 1



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ANALYTICAL REPORT

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630 Job: 028-213932-021/Sunnyvale

 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

Alpha Analytical Number: HDR13102820-18A Client I.D. Number: B09-03-SO-10242013 Sampled: 10/24/13 15:00 Received: 10/26/13 Extracted: 10/28/13 16:19 Analyzed: 11/01/13

Semivolatile Organics by GC/MS EPA Method SW8270C

Compound		Concentration	Reporting	Limit		Compound	Concentration	Reporting Limit	
1	Phenoi	ND	660	µg/Kg	36	Hexachlorobenzene	ND	660	μg/Kg
2	2-Chlorophenol	ND	660	µg/Kg	37	Pentachlorophenol	ND	3,300	µg/Kg
3	Bis(2-chloroethyl)ether	ND	660	µg/Kg	38	Phenanthrene	ND	660	µg/Kg
4	1,3-Dichlorobenzene	ND	1,300	µg/Kg	39	Anthracene	ND	660	µg/Kg
5	1,4-Dichlorobenzene	ND	1,300	ua/Ka	40	Di-n-butyl phthalate	ND	3,300	µg/Kg
6	1,2-Dichlorobenzene	ND	1.300	ua/Ka	41	Fluoranthene	ND	660	µg/Kg
7	Bis(2-chloroisopropyl)ether	ND	660	µg/Kg	42	Pvrene	ND	660	µg/Kg
8	N-Nitrosodi-n-propylamine	ND	660	µg/Kg	43	Butyl benzyl phthalate	ND	1,300	µg/Kg
9	Hexachloroethane	ND	1,300	µg/Kg	44	Benzo(a)anthracene	ND	660	µg/Kg
10	Nitrobenzene	ND	660	µg/Kg	45	3,3'-Dichlorobenzidine	ND	1,300	µg/Kg
11	Isophorone	ND	660	µg/Kg	46	Chrysene	ND	660	µg/Kg
12	2-Nitrophenol	ND	660	µa/Ka	47	Bis(2-ethylhexyl)phthalate	ND	3,300	µg/Kg
13	2,4-Dimethylphenol	ND	660	µg/Kg	48	Di-n-octyl phthalate	ND	3,300	µg/Kg
14	Bis(2-chloroethoxy)methane	ND	660	ug/Kg	49	Benzo(b)fluoranthene	ND	660	µg/Kg
15	2,4-Dichlorophenol	ND	660	ua/Ka	50	Benzo(k)fluoranthene	ND	660	µg/Kg
16	1,2,4-Trichlorobenzene	ND	660	ua/Ka	51	Benzo(a)pyrene	ND	660	µg/Kg
17	Naphthalene	ND	660	ua/Ka	52	Indeno(1.2.3-cd)pyrene	ND	660	µg/Kg
18	Hexachlorobutadiene	ND	1.300	ua/Ka	53	Dibenz(a,h)anthracene	ND	660	µg/Kg
19	4-Chloro-3-methylphenol	ND	1,300	ua/Ka	54	Benzo(a.h.i)perviene	ND	660	µg/Kg
20	Hexachlorocyclopentadiene	ND	6.600	ua/Ka	55	Surr: 2-Fluorophenol	90	(60-143)	%REC
21	2,4,6-Trichlorophenol	ND	660	ua/Ka	56	Surr: Phenol-d5	80	(56-148)	%REC
22	2-Chloronaphthalene	ND	660	ua/Ka	57	Surr: Nitrobenzene-d5	72	(48-131)	%REC
23	Dimethyl phthalate	ND	660	ua/Ka	58	Surr: 2-Fluorobiphenvl	122	(53-130)	%REC
24	Acenaphthylene	ND	660	ua/Ka	59	Surr: 2.4.6-Tribromophenol	73	(44-154)	%REC
25	2,6-Dinitrotoluene	ND	660	ua/Ka	60	Surr: 4-Terphenvl-d14	60	(42-145)	%REC
26	Acenaphthene	ND	660	ua/Ka			•		
27	2,4-Dinitrophenol	ND	6.600	uo/Ka					
28	4-Nitrophenol	ND	3,300	uo/Ka					
29	2,4-Dinitrotoluene	ND	660	ua/Ka					
30	Diethyl ohthalate	ND	660	ua/Ka					
31	Fluorene	ND	660	uo/Ka					
32	4-Chlorophenyl phenyl ether	ND	660	ua/Ka					
33	4.6-Dinitro-2-methylphenol	ND	6.600	ua/Ka					
34	N-Nitrosodiphenylamine	ND	660	µa/Ka					

Sample results were calculated on a wet weight basis. ND = Not Detected

DoD ELAP

35 4-Bromophenyl phenyl ether

Roger Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

660

µg/Kg

11/4/13

Report Date

Page 1 of 1



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR, I	nc.
2365 Ir	on Point Road
Folsom	, CA 95630
Job:	028-213932-021/Sunnyvale

Alpha Analytical Number: HDR13102820-25A Client I.D. Number: B12-03-SO-10242013
 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

Sampled: 10/24/13 16:20 Received: 10/26/13 Extracted: 10/28/13 16:19 Analyzed: 11/04/13

Semivolatile Organics by GC/MS EPA Method SW8270C

Compound		Concentration	Reporting Limit		Compound		Concentration	Reporting Limit	
1	Phenol	ND	660	ua/Ka	36	Hexachlorobenzene	ND	660	µg/Kg
2	2-Chlorophenol	ND	660	ug/Kg	37	Pentachlorophenol	ND	3,300	µg/Kg
3	Bis(2-chloroethyl)ether	ND	660	ua/Ka	38	Phenanthrene	ND	660	µg/Kg
4	1,3-Dichlorobenzene	ND	1,300	ua/Ka	39	Anthracene	ND	660	µg/Kg
5	1,4-Dichlorobenzene	ND	1,300	ua/Ka	40	Di-n-butyl phthalate	ND	3,300	µg/Kg
6	1,2-Dichlorobenzene	ND	1,300	µa/Ka	41	Fluoranthene	ND	660	µg/Kg
7	Bis(2-chloroisopropyl)ether	ND	660	ua/Ka	42	Pyrene	ND	660	µg/Kg
8	N-Nitrosodi-n-propylamine	ND	660	ua/Ka	43	Butvi benzvi phthalate	ND	1,300	µg/Kg
9	Hexachloroethane	ND	1,300	µa/Ka	44	Benzo(a)anthracene	ND	660	µg/Kg
10	Nitrobenzene	ND	660	µa/Ka	45	3,3'-Dichlorobenzidine	ND	1,300	µg/Kg
11	Isophorone	ND	660	ua/Ka	46	Chrysene	ND	660	µg/Kg
12	2-Nitrophenol	ND	660	μα/Κα	47	Bis(2-ethylhexyl)phthalate	ND	3,300	µg/Kg
13	2,4-Dimethylphenol	ND	660	ua/Ka	48	Di-n-octvl phthalate	ND	3,300	µg/Kg
14	Bis(2-chloroethoxy)methane	ND	660	ua/Ka	49	Benzo(b)fluoranthene	ND	660	µg/Kg
15	2,4-Dichlorophenol	ND	660	μα/Κα	50	Benzo(k)fluoranthene	ND	660	µg/Kg
16	1,2,4-Trichlorobenzene	ND	660	ua/Ka	51	Benzo(a)pyrene	ND	660	µg/Kg
17	Naphthalene	ND	660	ua/Ka	52	Indeno(1,2,3-cd)pyrene	ND	660	µg/Kg
18	Hexachlorobutadiene	ND	1.300	ua/Ka	53	Dibenz(a,h)anthracene	ND	660	µg/Kg
19	4-Chloro-3-methylphenol	ND	1.300	ua/Ka	54	Benzo(a,h,i)perviene	ND	660	µg/Kg
20	Hexachlorocyclopentadiene	ND	6.600	ua/Ka	55	Surr: 2-Fluorophenol	85	(60-143)	%REC
21	2,4,6-Trichlorophenol	ND	660	ua/Ka	56	Surr: Phenol-d5	74	(56-148)	%REC
22	2-Chloronaphthalene	ND	660	ua/Ka	57	Surr: Nitrobenzene-d5	83	(48-131)	%REC
23	Dimethyl phthalate	ND	660	ua/Ka	58	Surr: 2-Fluorobiphenyl	107	(53-130)	%REC
24	Acenaphthylene	ND	660	ua/Ka	59	Surr: 2.4.6-Tribromophenol	111	(44-154)	%REC
25	2,6-Dinitrotoluene	ND	660	ug/Kg	60	Surr: 4-Terphenyl-d14	67	(42-145)	%REC
26	Acenaphthene	ND	660	ug/Kg			•		
27	2,4-Dinitrophenol	ND	6.600	ua/Ka					
28	4-Nitrophenol	ND	3,300	µg/Kg					
29	2,4-Dinitrotoluene	ND	660	ua/Ka					
30	Diethyl phthalate	ND	660	ua/Ka					
31	Fluorene	ND	660	µg/Kg					
32	4-Chlorophenyl phenyl ether	ND	660	µa/Ka					
33	4,6-Dinitro-2-methylphenol	ND	6,600	ug/Kg					
34	N-Nitrosodiphenylamine	ND	660	ua/Ka					

Sample results were calculated on a wet weight basis. ND = Not Detected

4-Bromophenyl phenyl ether

DOD ELAP

35

Rogen Scholl

ND

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660

µg/Kg

11/4/13

Report Date

Page 1 of 1



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630 Job: 028-213932-021/Sunnyvale

Alpha Analytical Number: HDR13102820-27A Client I.D. Number: B13-03-SO-10242013
 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

Sampled: 10/24/13 12:45 Received: 10/26/13 Extracted: 10/28/13 16:19 Analyzed: 11/04/13

Semivolatile Organics by GC/MS EPA Method SW8270C

	Compound	Concentration	Reporting	Limit		Compound	Concentration	Reporting Li	mit
1	Phenol	ND	660	µa/Ka	36	Hexachlorobenzene	ND	660	µg/Kg
2	2-Chlorophenol	ND	660	µg/Kg	37	Pentachlorophenol	ND	3,300	µg/Kg
3	Bis(2-chloroethyl)ether	ND	660	µg/Kg	38	Phenanthrene	ND	660	µg/Kg
4	1,3-Dichlorobenzene	ND	1,300	µg/Kg	39	Anthracene	ND	660	µg/Kg
5	1,4-Dichlorobenzene	ND	1,300	µg/Kg	40	Di-n-butyl phthalate	ND	3,300	µg/Kg
6	1,2-Dichlorobenzene	ND	1,300	µg/Kg	41	Fluoranthene	ND	660	µg/Kg
7	Bis(2-chloroisopropyl)ether	ND	660	µg/Kg	42	Pyrene	ND	660	µg/Kg
8	N-Nitrosodi-n-propylamine	ND	660	µg/Kg	43	Butyl benzyl phthalate	ND	1,300	µg/Kg
9	Hexachioroethane	ND	1,300	µg/Kg	44	Benzo(a)anthracene	ND	660	µg/Kg
10	Nitrobenzene	ND	660	µg/Kg	45	3,3'-Dichlorobenzidine	ND	1,300	µg/Kg
11	Isophorane	ND	660	µg/Kg	46	Chrysene	ND	. 660	µg/Kg
12	2-Nitrophenol	ND	660	µg/Kg	47	Bis(2-ethylhexyl)phthalate	ND	3,300	µg/Kg
13	2,4-Dimethylphenol	ND	660	µg/Kg	48	Di-n-octyl phthalate	ND	3,300	µg/Kg
14	Bis(2-chloroethoxy)methane	ND	660	µg/Kg	49	Benzo(b)fluoranthene	ND	660	µg/Kg
15	2,4-Dichlorophenol	ND	660	µg/Kg	50	Benzo(k)fluoranthene	ND	660	µg/Kg
16	1,2,4-Trichlorobenzene	ND	660	µg/Kg	51	Benzo(a)pyrene	ND	660	µg/Kg
17	Naphthalene	ND	660	µg/Kg	52	Indeno(1,2,3-cd)pyrene	ND	660	µg/Kg
18	Hexachlorobutadiene	ND	1,300	ug/Kg	53	Dibenz(a,h)anthracene	ND	660	µg/Kg
19	4-Chloro-3-methylphenol	ND	1,300	µg/Kg	54	Benzo(g,h,i)perylene	ND	660	µg/Kg
20	Hexachlorocyclopentadiene	ND	6,600	µg/Kg	55	Surr: 2-Fluorophenol	94	(60-143)	%REC
21	2,4,6-Trichlorophenol	ND	660	µg/Kg	56	Surr: Phenol-d5	87	(56-148)	%REC
22	2-Chloronaphthalene	ND	660	µg/Kg	57	Surr: Nitrobenzene-d5	86	(48-131)	%REC
23	Dimethyl phthalate	ND	660	µg/Kg	58	Surr: 2-Fluorobiphenyl	113	(53-130)	%REC
24	Acenaphthylene	ND	660	µg/Kg	59	Surr: 2,4,6-Tribromophenal	107	(44-154)	%REC
25	2,6-Dinitrotoluene	ND	660	µg/Kg	60	Surr: 4-Terphenyl-d14	60	(42-145)	%REC
26	Acenaphthene	ND	660	µg/Kg					
27	2,4-Dinitrophenol	ND	6,600	µg/Kg					
28	4-Nitrophenol	ND	3,300	µg/Kg					
29	2,4-Dinitrotoluene	ND	660	ua/Ka					
30	Diethyl phthalate	ND	660	µg/Kg					
31	Fluorene	ND	660	µg/Kg					
32	4-Chlorophenyl phenyl ether	ND	660	µg/Kg					
33	4,6-Dinitro-2-methylphenol	ND	6,600	µg/Kg					
34	N-Nitrosodiphenvlamine	ND	660	ua/Ka					

35 4-Bromophenyl phenyl ether

Sample results were calculated on a wet weight basis. ND = Not Detected

DoD ELAP

Rogen Scholl

ND

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

660

µg/Kg

11/4/13

Report Date

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255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630

 Attn:
 Clayton Mokri

 Phone:
 (916) 817-4762

 Fax:
 (916) 817-4747

 Date Received : 10/26/13

Job: 028-213932-021/Sunnyvale

Metals by ICPMS EPA Method SW6020 / SW6020A										
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed					
Client ID: B02-20-GW-102520	13									
Lab ID : HDR13102820-05A	Chromium (Cr)	1.2	0.010 mg/L	11/01/13	11/01/13					
Date Sampled 10/25/13 10:50	Arsenic (As)	0.10	0.0050 mg/L	11/01/13	11/01/13					
	Selenium (Se)	0.031	0.0050 mg/L	11/01/13	11/01/13					
	Silver (Ag)	0.011	0.0050 mg/L	11/01/13	11/01/13					
	Cadmium (Cd)	0.038	0.0020 mg/L	11/01/13	11/01/13					
	Barium (Ba)	8.6	0.0050 mg/L	11/01/13	11/01/13					
	Mercury (Hg)	0.0032	0.0010 mg/L	11/01/13	11/01/13					
	Lead (Pb)	0.17	0.0050 mg/L	11/01/13	11/01/13					
Client ID: B10-05-GW-102520	13									
Lab ID : HDR13102820-22A	Chromium (Cr)	1.7	0.010 mg/L	11/01/13	11/01/13					
Date Sampled 10/25/13 09:30	Arsenic (As)	0.21	0.0050 mg/L	11/01/13	11/01/13					
r	Selenium (Se)	0.044	0.0050 mg/L	11/01/13	11/01/13					
	Silver (Ag)	0.026	0.0050 mg/L	11/01/13	11/01/13					
	Cadmium (Cd)	0.022	0.0020 mg/L	11/01/13	11/01/13					
	Barium (Ba)	5.5	0.0050 mg/L	11/01/13	11/01/13					
	Mercury (Hg)	0.0035	0.0010 mg/L	11/01/13	11/01/13					
	Lead (Pb)	0.42	0.0050 mg/L	11/01/13	11/01/13					



Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director . . Randy Gardner, Laboratory Manager . . Waker Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

11/2

Report Date



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ANALYTICAL REPORT

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630

Attn:Clayton MokriPhone:(916) 817-4762Fax:(916) 817-4747Date Received : 10/26/13

Job: 028-213932-021/Sunnyvale

Metals by ICPMS EPA Method SW6020 / SW6020A									
	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed				
Client ID: B01-03-SO-1024201	3								
Lab ID : HDR13102820-01A	Chromium (Cr)	60	1.0 mg/Kg	10/29/13	10/29/13				
Date Sampled 10/24/13 09:50	Arsenic (As)	4.2	1.0 mg/Kg	10/29/13	10/29/13				
	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13				
	Silver (Ag)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Barium (Ba)	320	1.0 mg/Kg	10/29/13	10/29/13				
	Mercury (Hg)	ND	0.20 mg/Kg	10/29/13	10/29/13				
	Lead (Pb)	6.5	1.0 mg/Kg	10/29/13	10/29/13				
Client ID: B01-07-SO-1024201	3								
Lab ID : HDR13102820-02A	Chromium (Cr)	65	1.0 mg/Kg	10/29/13	10/29/13				
Date Sampled 10/24/13 09:55	Arsenic (As)	10	1.0 mg/Kg	10/29/13	10/29/13				
	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13				
	Silver (Ag)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Barium (Ba)	310	1.0 mg/Kg	10/29/13	10/29/13				
	Mercury (Hg)	ND	0.20 mg/Kg	10/29/13	10/29/13				
	Lead (Pb)	9.0	1.0 mg/Kg	10/29/13	10/29/13				
Client ID: B02-03-SO-1025201	3								
Lab ID : HDR13102820-03A	Chromium (Cr)	57	1.0 mg/Kg	10/29/13	10/29/13				
Date Sampled 10/25/13 10:00	Arsenic (As)	4.6	1.0 mg/Kg	10/29/13	10/29/13				
	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13				
	Silver (Ag)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Barium (Ba)	420	1.0 mg/Kg	10/29/13	10/29/13				
	Mercury (Hg)	ND	0.20 mg/Kg	10/29/13	10/29/13				
	Lead (Pb)	5.2	1.0 mg/Kg	10/29/13	10/29/13				
Client ID: B02-07-SO-1025201	3								
Lab ID : HDR13102820-04A	Chromium (Cr)	57	1.0 mg/Kg	10/29/13	10/29/13				
Date Sampled 10/25/13 10:15	Arsenic (As)	3.5	1.0 mg/Kg	10/29/13	10/29/13				
-	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13				
	Silver (Ag)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13				
	Barium (Ba)	150	1.0 mg/Kg	10/29/13	10/29/13				
	Mercury (Hg)	ND	0.20 mg/Kg	10/29/13	10/29/13				
	Lead (Pb)	5.0	1.0 mg/Kg	10/29/13	10/29/13				



Client ID: B03-03-SO-1024201	3				
Lab ID : HDR13102820-06A	Chromium (Cr)	32	1.0 mg/Kg	10/29/13	10/29/13
Date Sampled 10/24/13 08:37	Arsenic (As)	5.1	1.0 mg/Kg	10/29/13	10/29/13
·	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13
	Silver (Ag)	ND	1.0 mg/Kg	10/29/13	10/29/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13
	Barium (Ba)	97	1.0 mg/Kg	10/29/13	10/29/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/29/13	10/29/13
	Lead (Pb)	4.1	1.0 mg/Kg	10/29/13	10/29/13
Client ID: B03-07-SO-1024201	3				
Lab ID : HDR13102820-07A	Chromium (Cr)	52	1.0 mg/Kg	10/29/13	10/29/13
Date Sampled 10/24/13 08:53	Arsenic (As)	26	l 0 mg/Kg	10/29/13	10/29/13
Date Sampled 10/24/15 08.55	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13
	Silver (Ag)	ND	1.0 mg/Kg	10/29/13	10/29/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13
	Danium (Cd)	ND 139	1.0 mg/Kg	10/20/13	10/29/13
	Banum (Ba)	120	0.20 mg/Kg	10/20/13	10/20/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/20/13	10/20/13
	Lead (Pb)	14	1.0 mg/Kg	10/29/13	10/29/13
Client ID: B04-03-SO-1024201	3				
Lab ID : HDR13102820-08A	Chromium (Cr)	60	1.0 mg/Kg	10/29/13	10/29/13
Date Sampled 10/24/13 10:10	Arsenic (As)	28	1.0 mg/Kg	10/29/13	10/29/13
	Selenium (Se)	ND	2.0 mg/Kg	10/29/13	10/29/13
	Silver (Ag)	1.3	1.0 mg/Kg	10/29/13	10/29/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/29/13	10/29/13
	Barium (Ba)	390	1.0 mg/Kg	10/29/13	10/29/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/29/13	10/29/13
	Lead (Pb)	170	1.0 mg/Kg	10/29/13	10/29/13
Client ID: B04-07-SO-1024201	3				
Lab ID : HDR13102820-09A	Chromium (Cr)	5.7	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 10:25	Arsenic (As)	ND	L0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/15 10:25	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	32	10 mg/Kg	10/31/13	10/31/13
	Mercum (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	L and (Ph)	12	1.0 mg/Kg	10/31/13	10/31/13
	Leau (FU)	1.2	1.0 mg/ kg	10151115	10.01.00
Client ID: B05-03-SO-1025201	13				10/21/12
Lab ID : HDR13102820-10A	Chromium (Cr)	120	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/25/13 07:45	Arsenic (As)	3.7	1.0 mg/Kg	10/31/13	10/31/13
	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	110	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	4.9	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B05-07-SO-1025201	13				
Lab ID : HDR13102820-11A	Chromium (Cr)	72	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/25/13 08:20	Arsenic (As)	2.2	1.0 mg/Kg	10/31/13	10/31/13
	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	150	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hø)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Ph)	1 2	1.0 mg/Kg	10/31/13	10/31/13
	~~~~~ (+ ~)	w.w			



Client ID: B06-03-SO-10242013

## Alpha Analytical, Inc.

Lab ID : HDR13102820-12A	Chromium (Cr)	74	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 10:55	Arsenic (As)	7.8	1.0 mg/Kg	10/31/13	10/31/13
-	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	210	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	21	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B06-07-SO-1074701	1				
Lab ID + HDR13102820 134	Chromium (Ca)	05	$1.0 m \sigma/V \sigma$	10/21/12	10/21/12
Data Somelad 10/24/12 11/20	Amonio (Ag)	85	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 11:20	Selenium (Se)	4.0 ND	1.0  mg/Kg	10/31/13	10/31/13
	Selemum (Se)	ND	1.0  mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0  mg/Kg	10/31/13	10/31/13
	Barium (Ba)	130	1.0  mg/Kg	10/31/13	10/31/13
	Mercury (He)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	15	1.0 mg/Kg	10/31/13	10/31/13
		19			
Chent ID: B07-03-SO-1024201	3				
Lab ID : HDR13102820-14A	Chromium (Cr)	62	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 13:40	Arsenic (As)	3.5	1.0 mg/Kg	10/31/13	10/31/13
	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	140	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	9.2	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B07-07-SO-1024201	3				
Lab ID: HDR13102820-15A	Chromium (Cr)	4.0	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 13:45	Arsenic (As)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	9.9	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	ND	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B08-03-SO-1024201	3				
Lab ID : HDR13102820-16A	Chromium (Cr)	73	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 14:05	Arsenic (As)	40	1.0 mg/Kg	10/31/13	10/31/13
Duce Sumplea 16/2 / 15 14.05	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	150	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	14	1.0 mg/Kg	10/31/13	10/31/13
Client ID: D09 07 SO 1024201	0				
Lat ID. 1000-07-50-1024201	a Characteria (C. )	<b>5</b> 0	10	10/21/12	10/21/12
Lau ID . HDK13102820-1/A	Americ (Ac)	39	I.U mg/Kg	10/31/13	10/21/12
Date Sampled 10/24/13 14:15	Aisenic (As)	ND	1.0 mg/Kg	10/31/13	10/21/12
	Scientum (Se)	NU	2.0 mg/Kg	10/31/13	10/21/12
	Silver (Ag) Cadmium (Cd)	NU	LO mg/Kg	10/31/13	10/31/13
	Caumum (C0) Barium (Ba)		1.0 mg/Kg	10/31/13	10/31/13
	Dariuni (Da) Maraum (Ha)	32 ND	1.0 mg/Kg 0.20 mg/Kg	10/31/13	10/31/13
	Mercury (rig)		0.20 mg/Kg	10/31/13	10/31/13
	Lead (PD)	NU	LU mg/Kg	10/31/13	10/31/13



Client ID: B09-03-SO-10242013

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#### Lab ID : HDR13102820-18A Chromium (Cr) 10/31/13 54 1.0 mg/Kg 10/31/13 Date Sampled 10/24/13 15:00 Arsenic (As) 10/31/13 1.8 1.0 mg/Kg 10/31/13 Selenium (Se) ND 2.0 mg/Kg 10/31/13 10/31/13 Silver (Ag) ND 1.0 mg/Kg 10/31/13 10/31/13 Cadmium (Cd) 10/31/13 ND 1.0 mg/Kg 10/31/13 Barium (Ba) 120 1.0 mg/Kg 10/31/13 10/31/13 Mercury (Hg) ND 10/31/13 10/31/13 0.20 mg/Kg Lead (Pb) 10/31/13 10/31/13 1.0 mg/Kg 4.9 Client ID: B09-07-SO-10242013 Lab ID: HDR13102820-19A Chromium (Cr) 10/31/13 10/31/13 64 1.0 mg/Kg Arsenic (As) Date Sampled 10/24/13 15:10 3.7 1.0 mg/Kg 10/31/13 10/31/13 Selenium (Se) ND 2.0 mg/Kg 10/31/13 10/31/13 Silver (Ag) 1.0 mg/Kg 10/31/13 10/31/13 ND Cadmium (Cd) ND 1.0 mg/Kg 10/31/13 10/31/13 Barium (Ba) 130 1.0 mg/Kg 10/31/13 10/31/13 Mercury (Hg) ND 0.20 mg/Kg 10/31/13 10/31/13 Lead (Pb) 6.0 1.0 mg/Kg 10/31/13 10/31/13 Client ID: B10-03-SO-10252013 Lab ID : HDR13102820-20A Chromium (Cr) 10/31/13 68 1.0 mg/Kg 10/31/13 Date Sampled 10/25/13 09:20 Arsenic (As) 1.0 mg/Kg 10/31/13 10/31/13 3.4 Selenium (Se) 10/31/13 10/31/13 ND 2.0 mg/Kg Silver (Ag) ND 1.0 mg/Kg 10/31/13 10/31/13 Cadmium (Cd) ND 10/31/13 10/31/13 1.0 mg/Kg Barium (Ba) 10/31/13 1.0 mg/Kg 10/31/13 140 Mercury (Hg) 10/31/13 ND 0.20 mg/Kg 10/31/13 Lead (Pb) 1.0 mg/Kg 10/31/13 10/31/13 6.3 Client ID: B10-07-SO-10252013 Lab ID : HDR13102820-21A Chromium (Cr) 62 1.0 mg/Kg 10/31/13 10/31/13 Arsenic (As) Date Sampled 10/25/13 09:35 10/31/13 10/31/13 4.0 1.0 mg/Kg 10/31/13 Sclenium (Se) ND 2.0 mg/Kg 10/31/13 Silver (Ag) ND 1.0 mg/Kg 10/31/13 10/31/13 Cadmium (Cd) ND 10/31/13 10/31/13 1.0 mg/Kg Barium (Ba) 10/31/13 10/31/13 150 1.0 mg/Kg Mercury (Hg) 10/31/13 10/31/13 ND 0.20 mg/Kg Lead (Pb) 1.0 mg/Kg 10/31/13 10/31/13 5.8 Client ID: B11-03-SO-10242013 Lab ID: HDR13102820-23A Chromium (Cr) 10/31/13 10/31/13 78 1.0 mg/Kg Date Sampled 10/24/13 15:40 Arsenic (As) 1.0 mg/Kg 10/31/13 10/31/13 5.6 Selenium (Se) ND 2.0 mg/Kg 10/31/13 10/31/13 Silver (Ag) 1.0 mg/Kg 10/31/13 10/31/13 ND Cadmium (Cd) ND 1.0 mg/Kg 10/31/13 10/31/13 Barium (Ba) 420 1.0 mg/Kg 10/31/13 10/31/13 Mercury (Hg) 10/31/13 10/31/13 ND 0.20 mg/Kg Lead (Pb) 10/31/13 8.5 1.0 mg/Kg 10/31/13 Client ID: B11-07-SO-10242013 Lab ID: HDR13102820-24A Chromium (Cr) 10/31/13 10/31/13 62 1.0 mg/Kg Arsenic (As) 10/31/13 10/31/13 Date Sampled 10/24/13 15:45 1.0 mg/Kg 4.2 Selenium (Se) 10/31/13 10/31/13 ND 2.0 mg/Kg 10/31/13 Silver (Ag) ND 1.0 mg/Kg 10/31/13 Cadmium (Cd) ND 1.0 mg/Kg 10/31/13 10/31/13 Barium (Ba) 120 1.0 mg/Kg 10/31/13 10/31/13 Mercury (Hg) ND 0.20 mg/Kg 10/31/13 10/31/13 Lead (Pb) 1.0 mg/Kg 10/31/13 10/31/13 6.2



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Client ID: B12-03-SO-1024201	3				
Lab ID : HDR13102820-25A	Chromium (Cr)	60	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 16:20	Arsenic (As)	4.3	1.0 mg/Kg	10/31/13	10/31/13
•	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	160	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	9.2	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B12-07-SO-1024201	3				
Lab ID : HDR13102820-26A	Chromium (Cr)	41	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 16:30	Arsenic (As)	3.8	1.0 mg/Kg	10/31/13	10/31/13
-	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	85	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	ND	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	4.2	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B13-03-SO-1024201	3				
Lab ID : HDR13102820-27A	Chromium (Cr)	67	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 12:45	Arsenic (As)	2.2	1.0 mg/Kg	10/31/13	10/31/13
-	Selenium (Se)	ND	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	1,900	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	0.27	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	8.6	1.0 mg/Kg	10/31/13	10/31/13
Client ID: B13-07-SO-1024201	3				
Lab ID : HDR13102820-28A	Chromium (Cr)	61	1.0 mg/Kg	10/31/13	10/31/13
Date Sampled 10/24/13 13:00	Arsenic (As)	3.7	1.0 mg/Kg	10/31/13	10/31/13
-	Selenium (Se)	2.3	2.0 mg/Kg	10/31/13	10/31/13
	Silver (Ag)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Cadmium (Cd)	ND	1.0 mg/Kg	10/31/13	10/31/13
	Barium (Ba)	1,100	1.0 mg/Kg	10/31/13	10/31/13
	Mercury (Hg)	0.36	0.20 mg/Kg	10/31/13	10/31/13
	Lead (Pb)	7.4	1.0 mg/Kg	10/31/13	10/31/13

Sample results were calculated on a wet weight basis. ND = Not Detected



Roger Scholl

Kandy Saular

Walter Alin Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer



4/13 **Report Date** 

Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way. Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.



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### ANALYTICAL REPORT

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630 Attn:Clayton MokriPhone:(916) 817-4762Fax:(916) 817-4747Date Received : 10/26/13

#### Job: 028-213932-021/Sunnyvale

STLC Metals by ICPMS	
CAL WET / EPA Method SW6020 / SW6020A	

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: B03-07-SO-10242013				
Lab ID : HDR13102820-07A Chromium (Cr)	0.67	0.10 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 08:53				
Client ID: B04-03-SO-10242013				
Lab ID : HDR13102820-08A Lead (Pb)	0.17	0.10 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 10:10				
Client ID: <b>B05-03-SO-10252013</b>				
Lab ID : HDR13102820-10A Chromium (Cr)	0.13	0.10 mg/L	12/11/13	12/11/13
Date Sampled 10/25/13 07:45				
Client ID: B06-07-SO-10242013				
Lab ID : HDR13102820-13A Chromium (Cr)	0.17	0.10 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 11:20				
Client ID: B07-03-SO-10242013				
Lab ID : HDR13102820-14A Chromium (Cr)	ND	0.10 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 13:40				
Client ID: B11-03-SO-10242013				
Lab ID : HDR13102820-23A Chromium (Cr)	0.16	0.10 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 15:40				
Client ID: B13-03-SO-10242013				
Lab ID : HDR13102820-27A Barium (Ba)	9.7	1.0 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 12:45				
Client ID: B13-07-SO-10242013				
Lab ID : HDR13102820-28A Barium (Ba)	8.5	1.0 mg/L	12/11/13	12/11/13
Date Sampled 10/24/13 13:00				

ND = Not Detected

DoD ELAP

Roger Scholl

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Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.



V
12/13/13
Domont Date

**Report Date** 



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### **ANALYTICAL REPORT**

HDR, Inc. 2365 Iron Point Road Folsom, CA 95630 Attn:Clayton MokriPhone:(916) 817-4762Fax:(916) 817-4747Date Received : 10/26/13

Job: 028-213932-021/Sunnyvale

Total Dissolved Solids (TDS) SM2540C										
Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed						
Client ID: <b>B02-20-GW-10252013</b> Lab ID : HDR13102820-05A Solids, Total Dissolved (TDS) Date Sampled 10/25/13 10:50	20,000	100 mg/L	11/01/13	11/01/13						
Client ID: <b>B10-05-GW-10252013</b> Lab ID : HDR13102820-22A Solids, Total Dissolved (TDS) Date Sampled 10/25/13 09:30	35,000	200 mg/L	11/01/13	11/01/13						

DoD ELAP

Roger Scholl

Kandy Soulmer

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Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise. Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

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Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

**Report Date** 



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<b>Date:</b> 01-Nov-13		QC Summary Report							Work Orde 13102820	er: )	
Method Blan File ID: 27 Sample ID: Analyte	k MB-31872	Units : <b>mg/L</b> Result	Type: M PQL	IBLK T B Run ID: IC SpkVal	est Code: E atch ID: 318 _1_131025/ SpkRefVal	PA Met 72 4 %REC	hod 300.0	Analy Prep I UCL(ME)	sis Date: Date: RPDRefV	10/25/2013 13:54 10/25/2013 13:00 al %RPD(Limit)	Qual
Nitrite (NO2) - N Nitrate (NO3) - I	l N	ND ND	0.25 0.25	5							
Laboratory F File ID: 29 Sample ID: Analyte	Fortified Blank LFB-31872	Units : <b>mg/L</b> Result	Type: L PQL	FB T B Run ID: IC SpkVal	est Code: <b>E</b> atch ID: <b>318</b> _1_ <b>131025</b> / SpkRefVal	PA Met 72 4 %REC	hod 300.0	Analy Prep I UCL(ME)	sis Date: Date: RPDRefV	10/25/2013 14:31 10/25/2013 13:00 al %RPD(Limit)	Qual
Nitrite (NO2) - N Nitrate (NO3) - I	J N	5.49 5.5	0.25 0.25	5 5		110 110	90 90	110 110			
Sample Matr File ID: 31 Sample ID: Analyte	ix Spike 13102430-02ALFM	Units : <b>mg/L</b> Result	Type: L PQL	FM T B Run ID: IC SpkVal	est Code: E atch ID: 318 _1_131025/ SpkRefVal	PA Met 72 4 %REC	hod 300.0	Analy: Prep I UCL(ME)	sis Date: Date: RPDRefV	10/25/2013 15:08 10/25/2013 13:00 (al %RPD(Limit)	Qual
Nitrite (NO2) - N Nitrate (NO3) - I	l N	28.6 33.9	0.63 0.63	25	0 7.042	114 108	80 80	120 120	2		
Sample Matr File ID: 32 Sample ID:	ix Spike Duplicate 13102430-02ALFMD	Units : mg/L	Type: L	FMD T B Run ID: IC	est Code: E atch ID: 318 _1_131025/	PA Met 72 A	hod 300.0	Analy Prep I	sis Date: Date:	10/25/2013 15:27 10/25/2013 13:00	
Nitrite (NO2) - N Nitrate (NO3) - I	I N	28.5 34	0.63 0.63	5рк Val 25 25	орккетvа 0 7.042	^{-%} REC 114 108	80 80	120 120	28.61 33.92	0.3(15) 0.4(15)	

#### Comments:



Date: 04-Nov-13	(	QC S	umma	ary Report			Work Orde 13102820	er: )
Method Blank File ID: 13103129.D		Туре М	IBLK	Test Code: EPA Me Batch ID: 31881	ethod SW82	270C Analysis Date	: 11/01/2013 02:32	
Sample ID: MBLK-31881	Linits : ua/K	•	Run ID:	MSD 16 1310284		Pren Date	10/28/2013 16:19	
Analyte	Result		Sok)	/al_SokReft/al_%RF(		UCL(ME) RPDRe	N/al %RPD/Limit)	Qual
Phonol	ND	FUL						
2-Chlorophenol		000	) \					
Bis(2-chloroethyl)ether	ND	660	, )					
1,3-Dichlorobenzene	ND	1300	Ś					
1,4-Dichlorobenzene	ND	1300	)					
1,2-Dichlorobenzene	ND	1300	)					
Bis(2-chloroisopropyl)ether	ND	660	)					
N-Nitrosodi-n-propylamine	ND	660	)					
Nitrobenzene		1300	,					
Isophorone	ND	660	, )					
2-Nitrophenol	ND	660	, )					
2,4-Dimethylphenol	ND	660	)					
Bis(2-chloroethoxy)methane	ND	660	)					
2,4-Dichlorophenol	ND	660	)					
1,2,4-Trichlorobenzene	ND	660	)					
A Chlere 2 methylehenel	ND	660	)					
4-Chiloto-3-methyphenol Hexachlorobutadiene		1300	)					
Hexachlorocyclopentadiene		6600	, 1					
2.4.6-Trichiorophenol	ND	660	, 1					
2-Chloronaphthalene	ND	660	, )					
Dimethyl phthalate	ND	660	)					
Acenaphthylene	ND	660	)					
2,6-Dinitrotoluene	ND	660	)					
Acenaphthene	ND	660	)					
2,4-Dinitrophenol	NU	6600	1					
2 4-Dinitrotoluene		3300	) )					
Diethyl phthalate	ND	660	, 1					
Fluorene	ND	660	, )					
4-Chlorophenyl phenyl ether	ND	660	5					
4,6-Dinitro-2-methylphenol	ND	6600	)					
N-Nitrosodiphenylamine	ND	660	)					
4-Bromophenyl phenyl ether	ND	660	)					
Hexachlorobenzene	ND	660	)					
Pentachiorophenoi	ND	3300	}					
Anthracene		000	) \					
Di-n-butyl phthalate	ND	3300	, )					
Fluoranthene	ND	660	Ś					
Pyrene	ND	660	5	•				
Butyl benzyl phthalate	ND	1300	)					
Benzo(a)anthracene	ND	660	)					
3,3'-Dichlorobenzidine	ND	1300	)					
Chrysene Big(2, othylhoug/)abthalata	ND	660	3					
Bis(2-etnyinexyi)phthalate	ND	3300	)					
Benzo(b)fluoranthene		3300	י ר					
Benzo(k)fluoranthene	ND	660	, ,					
Benzo(a)pyrene	ND	660	5					
Indeno(1,2,3-cd)pyrene	ND	660	2					
Dibenz(a,h)anthracene	ND	660	3					
Benzo(g,h,i)perylene	ND	660	כ					
Surr: 2-Fluorophenol	11700		125	00 93	60	143		
Surr: Phenol-d5	10100		125	00 81	56	148		
Sur: 2-Elucrobiohond	4470		62	50 72	48	131		
Surr: 2.4.6-Tribromonhenol	/ 340		125	11/ 00 05	55 44	154		
Surr: 4-Terphenvl-d14	4580		62	50 73	42	145		
			02			· · · •		



Date: 04-Nov-13		QC Su	mmar	y Repor	t				Work Orde 13102820	er: . )
Laboratory Control Spike		Type LC	S Te	est Code: El	PA Met	hod SW8	270C			
File ID: 13103130.D			Ba	atch ID: 318	B1		Analys	is Date:	11/01/2013 02:57	
Sample ID: LCS-31881	Units : µg/K	ig l	Run ID: M	SD_16_1310	028A		Prep D	ate:	10/28/2013 16:19	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefV	al %RPD(Limit)	Qual
Phenol	3850	660	6250		62	45	130	••••		
2-Chlorophenol	4380	660	6250		70	66	130			
1,4-Dichlorobenzene	4170	1300	6250		67	59	130			
N-Nitrosodi-n-propylamine	3490	660	6250		56	52	136			
1,2,4-Trichlorobenzene	3960	660	6250		63	46	130			
4-Chloro-3-methylphenol	4000	1300	6250		64	49	130			
Acenaphthene	4140	660	6250		66	57	130			
2 4-Dinitrotoluone	10500	3300	25000		42	13	142			
Pentachlorophenol	13600	3300	25000		50 54	24	130			
Pvrene	4060	660	6250		65	38	141			
Surr: 2-Fluorophenol	11300	000	12500		90	60	143			
Surr: Phenol-d5	10200		12500		81	56	148			
Surr: Nitrobenzene-d5	4260		6250		68	48	131			
Surr: 2-Fluorobiphenyl	6730		6250		108	53	130			
Surr: 2,4,6-Tribromophenol	12900		12500		103	44	154			
Surr: 4- I erphenyl-d14	4250		6250		68	42	145			
Sample Matrix Spike		Type M	S Te	est Code: El	PA Met	hod SW8	270C			
File ID: 13103139.D			Ba	atch ID: 318	81		Analys	is Date:	11/01/2013 06:44	
Sample ID: 13102820-01AMS	Units : µg/K	(g I	Run ID: M	SD_16_1310	028A		Prep D	)ate:	10/28/2013 16:19	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefV	al %RPD(Limit)	Qual
Phenol	3930	660	6250	0	63	28	132			
2-Chlorophenol	4470	660	6250	0	72	32	143			
1,4-Dichlorobenzene	4270	1300	6250	0	68	40	130			
N-Nitrosodi-n-propylamine	3780	660	6250	0	61	43	145			
1,2,4-Trichlorobenzene	3760	660	6250	0	60	28	136			
4-Chloro-3-methylphenol	3620	1300	6250	0	58	15	144			
Acenaphthene 4 Nitraphonal	4160	660	6250	0	67	27	140			
2 4-Dinitrotoluene	10000	3300	20000	0	4Z 54		142			
Pentachlorophenol	13400	3300	25000	0	54	5	140			
Pyrene	4550	660	6250	ő	73	29	145			
Surr: 2-Fluorophenol	11200	000	12500	· ·	90	60	143			
Surr: Phenol-d5	10200		12500		82	56	148			
Surr: Nitrobenzene-d5	3980		6250		64	48	131			
Surr: 2-Fluorobiphenyl	6700		6250		107	53	130			
Surr: 2,4,6-Tribromophenol	12800		12500		102	44	154			
Surr: 4-Terphenyl-d14	4230		6250		68	42	145			
Sample Matrix Spike Duplicate		Туре М	SD T	est Code: E	PA Met	hod SW8	270C			
File ID: 13103140.D			Ba	atch ID: 318	81		Analys	iis Date:	11/01/2013 07:09	
Sample ID: 13102820-01AMSD	Units : µg/K	(g	Run ID: M	SD_16_131	028A		Prep D	Date:	10/28/2013 16:19	<b>.</b> .
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME	) UCL(ME)	RPDRefV	al %RPD(Limit)	Qual
Phenol	4080	660	6250	0	65	28	132	3935	3.7(27)	
2-Chlorophenol	4630	660	6250	0	74	32	143	4473	3.4(26)	
1,4-Dichlorobenzene	4200	1300	6250	0	67	40	130	4269	1.8(20)	
N-Nitrosodi-n-propylamine	3820	660	6250	0	61	43	145	3781	1.1(21)	
1,2,4- I richlorobenzene	3770	660	6250	0	60	28	136	3756	0.4(31)	
4-Chloro-3-methylphenol	3750	1300	6250	0	60	15	144	3024	3.4(40)	
	4000 7000	000	0250	0	00 24	21 5	140	10500	) <u>30 4(41)</u>	
2 4-Dinitrotoluene	7000	3300	20000	U ^	50	22	151	3405	9.1(39)	
Pentachlorophenol	12200	3300	25000	0	49	5	140	13400	) 9.3(30)	
Pyrene	4320	660	6250	0	69	29	145	4553	5.4(29)	
Surr: 2-Fluorophenol	11900	500	12500	Ū	95	60	143			
Surr: Phenol-d5	10800		12500		86	56	148			
Surr: Nitrobenzene-d5	4090		6250		65	48	131			
Surr: 2-Fluorobiphenyl	6560		6250		105	53	130			
Surr: 2,4,6-Tribromophenol	11900		12500		96	44	154			
Surr: 4-Terphenyl-d14	4250		6250		68	42	145			



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### QC Summary Report

Work Order: 13102820

#### Date: 04-Nov-13 Comments:



<b>Date:</b> 04-Nov-13	(	QC SI	ummar	y Repor	t				Work Orde 13102820	er: )
Method Blank File ID: 065_		Туре N	IBLK Te Ba	est Code: El atch ID: 319	PA Met 10	hod SW6(	020 / SW60 Analys	20A is Date:	11/01/2013 14:25	
Sample ID: MB-31910	Units : mg/L		Run ID: IC	P/MS_1311	01B		Prep D	ate:	11/01/2013 10:23	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) F	RPDRefV	al %RPD(Limit)	Qual
Chromium (Cr)	ND	0.01								
Arsenic (As)	ND	0.005	i							
Selenium (Se)	ND	0.005	i							
Silver (Ag)	ND	0.005								
Cadmium (Cd) Barium (Ba)	ND	0.002								
Mercury (Ho)		0.005	I							
Lead (Pb)	ND	0.001	i							
Laboratory Control Spike		Type L	cs Te	est Code: El	PA Met	hod SW6	20 / SW60	20A		
File ID: 068_			Ba	atch ID: 319	10		Analys	is Date:	11/01/2013 14:35	
Sample ID: LCS-31910	Units : mg/L		Run ID: IC	P/MS 1311	01B		Prep D	ate:	11/01/2013 10:23	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefv	/al %RPD(Limit)	Qual
Chromium (Cr)	0.263	0.01	0.25		105	80	120			
Arsenic (As)	0.263	0.005	0.25		105	80	120			
Selenium (Se)	0.261	0.005	0.25		104	80	120			
Silver (Ag)	0.273	0.005	0.25		109	80	120			
Cadmium (Cd)	0.259	0.002	2 0.25		104	80	120			
Barium (Ba)	2.58	0.005	2.5		103	80	120			
Mercury (Hg) Lead (Pb)	0.0044	0.001	0.005		88	80	120			
	0.202	0.005	0.25		105	- 00	120			
Sample Matrix Spike		Туре М	IS TO	est Code: El	PA Met	hod SW6	020 / SW60	20A		
File ID: 069_			Ba	atch ID: 319	10		Analys	is Date:	11/01/2013 14:38	
Sample ID: 13103020-01AMS	Units : mg/L		Run ID: IC	P/MS_1311	01B		Prep D	Date:	11/01/2013 10:23	_
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	0.266	0.01	0.25	0	107	75	125			
Arsenic (As)	0.266	0.005	5 0.25	0	106	75	125			
Selenium (Se)	0.261	0.005	5 0.25	0	104	75	125			
Silver (Ag) Cadmium (Cd)	0.277	0.005	0.25	0	111	75	125			
Barium (Ba)	0.200	0.002	2 0.25	0 0906	107	75	125			
Mercury (Ha)	0.0045	0.000	0.005	0.0000	90	75	125			
Lead (Pb)	0.266	0.005	5 0.25	ŏ	106	75	125			
Sample Matrix Spike Duplicate		Туре М	ISD T	est Code: El	PA Met	hod SW6	020 / SW60	20A		
File ID: 070_			8	atch ID: 319	10		Analys	sis Date:	11/01/2013 14:41	
Sample ID: 13103020-01AMSD	Units : mg/L		Run ID: IC	P/MS_1311	01B		Prep D	)ate:	11/01/2013 10:23	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	0.271	0.01	0.25	0	109	75	125	0.266	3 1.9(20)	
Arsenic (As)	0.272	0.005	5 0.25	0	109	75	125	0.266	2 2.1(20)	
Selenium (Se)	0.263	0.005	0.25	0	105	75	125	0.261	0.9(20)	
Silver (Ag) Codmium (Cd)	0.278	0.005	0.25	0	111	75	125	0.276	b U.5(2U)	
Caumium (Cu) Barium (Ba)	0.268	0.002	2 0.25	0 0000	107	/5 75	125	0.208	4 U.3(∠U) ≥ 2,7/20\	
Mercury (Ha)	2.75	0.000	2.5 0.005	0.000.0	07	75	125	0 004	5 0.0(20)	
Lead (Pb)	0.269	0.005	5 0.25	0	108	75	125	0.265	7 1.3(20)	



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### QC Summary Report

Work Order: 13102820

#### Date: 04-Nov-13

Comments:



Method Blank         Type: MBLK         Test Code: EPA Method SW6020 / SW6020A           File ID:         050	ork Order: 13102820
Chromium (Cr)         ND         1           Arsenic (As)         ND         1           Arsenic (As)         ND         1           Stiver (Aa)         ND         1           Gadmium (Cd)         ND         1           Barium (Ba)         ND         1           Mercury (Hd)         ND         1           Laboratory Control Spike         Type: LCS         Test Code:: EPA Method SW6020 / SW6020A           File ID:         052_         Batch ID: 31885         Analysis Date:: 10/28/2013           Analyte         Result         PQL         SpKVal SpRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(LC           Chromium (Cr)         26         1         25         104         80         120           Arsenic (As)         25.1         1         25         104         80         120           Silver (Aa)         25.5         1         25         100         80         120           Gadmium (Cd)         24.7         1         25         103         80         120           Gadmium (Cd)         24.3         1         250         97         80         120           Sample ID:         13102820-01AMS         Units :: mg/Kg         Run ID:	3 16:37  3 09:39 (Limit) Qual
Laboratory Control Spike         Type: LCS         Test Code: EPA Method SW6020 / SW6020A           File ID:         052_         Batch ID: 31885         Analysis Date: 10/29/2013           Analyte         Result         PQL         SpkVal         SpkVal <td></td>	
File ID:       U52_       Batch ID:       LCS-31885       Analysis Date:       10/20/2013         Sample ID:       LCS-31885       Units : mg/Kg       Run ID:       ICP/MS_131029B       Prep Date:       10/20/2013         Analyte       Result       POL       SpkKal SpkRefVal %REC       LCL(ME)       UCL(ME) RPDRefVal %RPD(L)         Chromium (Cr)       26       1       25       104       80       120         Selenium (Se)       25.1       2       25       100       80       120         Sadardin (Cd)       24.7       1       25       99       80       120         Gadmium (Cd)       24.3       1       250       97       80       120         Sample ID:       13102820-01AMS       Units : mg/Kg       Test Code: EPA Method SW6020 / SW6020A       Easter 10/29/2013         Sample ID:       13102820-01AMS       Units : mg/Kg       Run ID: ICP/MS_131029B       Prep Date:       10/29/2013         Analyte       PQL       SpkVal SpkRefVal %REC       LCL(ME) WCL(ME) RPDRefVal %RPD(L)       MCl/MB) RPDRefVal %RPD(L)         Chromium (Cr)       109       125       60.05       196       75       125         Selenium (Se)       24.7       25       0       10/275	
Christ Inging         Control Information         POL         SpkVal         SpkRefval %REC LCL(ME)         UCL(ME) RPDRefval %RPD(Li           Chromium (Cr)         26         1         25         104         80         120           Arsenic (As)         25.1         1         25         104         80         120           Selenium (Se)         25.1         2         25         100         80         120           Selenium (Cd)         24.7         1         25         99         80         120           Barlum (Ba)         24.3         1         250         97         80         120           Barlum (Ba)         24.3         1         250         97         80         120           Sample Matrix Spike         Type: MS         Test Code:         EPA Method SW6020 / SW6020A         File ID:         054	13 10:43
Chromium (Cr)         26         1         25         104         80         120           Arsenic (As)         25.1         1         25         101         80         120           Selenium (Se)         25.1         2         25         100         80         120           Cadmium (Cd)         24.7         1         25         99         80         120           Barium (Ba)         24.3         1         250         97         80         120           Mercury (Hq)         0.514         0.2         0.5         103         80         120           Sample Matrix Spike         Type: MS         Test Code:         EPA Method SW6020 / SW6020A         EPA           File ID:         054_         Sample ID:         13102820-01AMS         Units : mg/Kg         Run ID: ICP/MS_131029B         Prep Date:         10/29/2013           Analyte         Result         POL         SpkVal         SpkRefvlai %REC         LCL(ME) RPDRefVal %RPD(L           Chromium (Cr)         109         1         25         60.05         196         75         125           Selenium (Se)         24.7         2         25         0         102         75         125      <	(Limit) Qual
Sample Matrix Spike         Type: MS         Test Code: EPA Method SW6020 / SW6020A           File ID:         054_         Batch ID: 31885         Analysis Date: 10/29/2013           Sample ID:         13102820-01AMS         Units : mg/Kg         Run ID: ICP/MS_131029B         Prep Date: 10/29/2013           Analyte         Result         PQL         SpkVal         SpkVal         SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(L           Chromium (Cr)         109         1         25         60.05         196         75         125           Arsenic (As)         28.4         1         25         0         99         75         125           Selenium (Se)         24.7         2         25         0         99         75         125           Sarry (Ag)         25.9         1         25         0         102         75         125           Gadmium (Cd)         25.4         1         25         0         102         75         125           Barium (Ba)         485         1         250         315.2         68         75         125           Lead (Pb)         32.1         1         25         6.45         102         75         125           Sample Matr	<u></u>
File ID:       054_       Batch ID: 31885       Analysis Date:       10/29/2013         Sample ID:       13102820-01AMS       Units : mg/Kg       Run ID: ICP/MS_131029B       Prep Date:       10/29/2013         Analyte       Result       PQL       SpkVal       SpkRefVal %REC       LCL(ME)       UCL(ME) RPDRefVal %RPD(L         Chromium (Cr)       109       1       25       60.05       196       75       125         Arsenic (As)       28.4       1       25       0       99       75       125         Selenium (Se)       24.7       2       25       0       99       75       125         Cadmium (Cd)       25.4       1       25       0       104       75       125         Barium (Ba)       485       1       250       0       102       75       125         Lead (Pb)       32.1       1       25       64.5       102       75       125         Sample Matrix Spike Duplicate       Type: MSD       Test Code: EPA Method SW6020 / SW6020A       File ID:       055_       Sample Matrix Spike Duplicate       Nalysis Date:       10/29/2013         Analyte       Result       PQL       SpkVal       SpkVel SpkRefVal       %REC	
Sample ID:         13102820-01AMS         Units : mg/Kg         Run ID: ICP/MS_131029B         Prep Date:         10/29/2013           Analyte         Result         PQL         SpkVal         SpkRefVal %REC         LCL(ME)         UCL(ME)         RPDRefVal %RPD(L           Chromium (Cr)         109         1         25         60.05         196         75         125           Arsenic (As)         28.4         1         25         4.179         97         75         125           Selenium (Se)         24.7         2         25         0         99         75         125           Silver (Ag)         25.9         1         25         0         104         75         125           Cadmium (Cd)         25.4         1         25         0         102         75         125           Barium (Ba)         485         1         250         315.2         68         75         125           Lead (Pb)         32.1         1         25         0         118         75         125           Sample Matrix Spike Duplicate         Type: MSD         Test Code: EPA Method SW6020 / SW6020A         Prep Date:         10/29/2013           Sample ID:         13102820-01AM	13 16:49
Analyte         PQL         SpkVal         SpkVal         SpkRerVal         %REC         LCL(ME)         UCL(ME)         RPDRerVal         %RPD(E           Chromium (Cr)         109         1         25         60.05         196         75         125           Arsenic (As)         28.4         1         25         4.179         97         75         125           Selenium (Se)         24.7         2         25         0         99         75         125           Salver (Ag)         25.9         1         25         0         104         75         125           Cadmium (Cd)         25.4         1         25         0         102         75         125           Barium (Ba)         485         1         250         315.2         68         75         125           Lead (Pb)         32.1         1         25         6.45         102         75         125           Sample Matrix Spike Duplicate         Type: MSD         Test Code: EPA Method SW6020 / SW6020A         File ID:         055_         Analysis Date:         10/29/2013           Sample ID:         13102820-01AMSD         Units : mg/Kg         Result         PQL         SpkVal         <	13 09:39
Chromium (Cr)       109       1       25       60.05       196       75       125         Arsenic (As)       28.4       1       25       4.179       97       75       125         Selenium (Se)       24.7       2       25       0       99       75       125         Silver (Ag)       25.9       1       25       0       104       75       125         Cadmium (Cd)       25.4       1       25       0       102       75       125         Barium (Ba)       485       1       250       315.2       68       75       125         Mercury (Hg)       0.588       0.2       0.5       0       118       75       125         Lead (Pb)       32.1       1       25       6.45       102       75       125         Sample Matrix Spike Duplicate       Type: MSD       Test Code: EPA Method SW6020 / SW6020A       File ID: 055_       Sample Kg       Run ID: ICP/MS_131029B       Prep Date:       10/29/2013         Analyte       Result       PQL       SpkVal       SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal %RPD(L         Chromium (Cr)       92.9       1       25       60.05       131       75       125 <td></td>	
Sample Matrix Spike Duplicate         Type: MSD         Test Code: EPA Method SW6020 / SW6020A           File ID:         055_         Batch ID: 31885         Analysis Date:         10/29/2013           Sample ID:         13102820-01AMSD         Units : mg/Kg         Run ID: ICP/MS_131029B         Prep Date:         10/29/2013           Analyte         Result         PQL         SpkVal         SpkRefVal         %REC         LCL(ME)         UCL(ME)         RPDRefVal         %RPD(L           Chromium (Cr)         92.9         1         25         60.05         131         75         125         109         16.0(2           Arsenic (As)         29         1         25         4.179         99         75         125         28.44         2.0(2           Selenium (Se)         25.3         2         25         0         101         75         125         24.74         2.0(2	M1
File ID:       055_       Batch ID: 31885       Analysis Date:       10/29/2013         Sample ID:       13102820-01AMSD       Units : mg/Kg       Run ID: ICP/MS_131029B       Prep Date:       10/29/2013         Analyte       Result       PQL       SpkVal       SpkRefVal       %REC       LCL(ME)       UCL(ME)       RPDRefVal       %RPD(L         Chromium (Cr)       92.9       1       25       60.05       131       75       125       109       16.0(2         Arsenic (As)       29       1       25       4.179       99       75       125       28.44       2.0(2         Selenium (Se)       25.3       2       25       0       101       75       125       24.74       2.0(2	
Sample ID:         13102820-01AMSD         Onits : mg/kg         Run ID: ICP/MS_131029B         Prep Date:         10/28/2013           Analyte         Result         PQL         SpkVal         SpkRefVal %REC         LCL(ME)         UCL(ME)         RPDRefVal %RPD(L           Chromium (Cr)         92.9         1         25         60.05         131         75         125         109         16.0(2           Arsenic (As)         29         1         25         4.179         99         75         125         28.44         2.0(2           Selenium (Se)         25.3         2         25         0         101         75         125         24.74         2.0(2	13 16:52
Chromium (Cr)         92.9         1         25         60.05         131         75         125         109         16.0(2           Arsenic (As)         29         1         25         4.179         99         75         125         28.44         2.0(2           Selenium (Se)         25.3         2         25         0         101         75         125         24.74         2.0(2	)(Limit) Qual
Arsenic (As)291254.179997512528.442.0(2Selenium (Se)25.322501017512524.742.0(2	0(20) M1
Silver (Ag)         25.6         1         25         0         102         75         125         25.92         1.32           Cadmium (Cd)         25.1         1         25         0         100         75         125         25.41         1.42           Barium (Ba)         587         1         250         315.2         109         75         125         485.3         19.02           Mercury (Hg)         0.563         0.2         0.5         0         113         75         125         0.588         4.30	)(20) )(20) 3(20) 4(20) 0(20) 3(20) 3(20)



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### QC Summary Report

Work Order: 13102820

#### 01-Nov-13 Comments:

Date:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.



Date: 01-Nov-13		QC Su	mmary	Report	t				Work Orde 13102820	er: )
Method Blank File ID: 014	······································	Туре: МЕ	BLK Te Ba	est Code: EP	'A Meti 9	nod SW60	20 / SW60 Analys	20A sis Date:	10/31/2013 16:40	
Sample ID: MB-31899	Units · ma/	Ka F	Run ID: ICI	P/MS 13103	14		Preo D	)ate:	10/31/2013 09:56	
Analyte	Result	PQL	SpkVai	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	ND	1								
Arsenic (As)	ND	1								
Selenium (Se)	ND	2								
Silver (Ag)	ND	1								
Cadmium (Cd)	ND	1								
Barium (Ba)	ND	1								
Mercury (Hg)	ND	0.2								
Lead (Pb)	ND	1								
Laboratory Control Spike		Type: LC	: <b>S</b> Te	est Code: EF	PA Meti	hod SW60	20 / SW60	20A		
File ID: 016_			Ba	itch ID: 3189	9		Analys	sis Date:	10/31/2013 16:47	
Sample ID: LCS-31899	Units : mg/	Kg F	Run ID: IC	P/MS_13103	31A		Prep [	Date:	10/31/2013 09:56	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr)	26.1	1	25		104	80	120			
Arsenic (As)	26.3	1	25		105	80	120			
Selenium (Se)	26	2	25		104	80	120			
Silver (Ag)	26.6	1	25		107	80	120			
Cadmium (Cd)	25.8	1	25		103	80	120			
Barium (Ba)	253	1	250		101	80	120			
Mercury (Hg)	0.399	0.2	0.5		80	80	120			
Lead (Pb)	26.9		25		107	80	120			
Sample Matrix Spike		Type: MS	5 Te	est Code: EF	PA Met	hod SW60	20 / SW60	20A		
File ID: 018_			Ba	atch ID: 3189	99		Analys	sis Date:	10/31/2013 16:53	
Sample ID: 13102820-09AMS	Units : mg/	Kg l	Run ID: IC	P/MS_1310	31A		Prep	Date:	10/31/2013 09:56	<b>•</b> •
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Chromium (Cr)	32.5	1	25	5.744	107	75	125			
Arsenic (As)	27.4	1	25	0	110	75	125			
Selenium (Se)	27.8	2	25	0	111	/5	120			
Silver (Ag) Codmium (Cd)	21.Z	1	25	0	109	75	120			
Cadmum (Cd)	20.7	1	20	21.80	107	75	125			
Mercupy (Hg)	0.448	0.2	200	21.09	00	75	125			
Lead (Pb)	27.7	1	25	1.185	106	75	125			
Sample Matrix Snike Dunlicate		Type: M	SD TO	est Code: El	PA Met	hod SW60	20 / SW60	20A		
File ID: 019			Ba	atch ID: 318	99		Analy	sis Date:	10/31/2013 16:56	
	Units : mg/	Kg	Run ID: IC	P/MS_1310	31A		Prep I	Date:	10/31/2013 09:56	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qua
Chromium (Cr)	32.2	1	25	5.744	106	75	125	32.4	5 0.7(20)	
Arsenic (As)	27.3	1	25	0	109	75	125	27.4	4 0.6(20)	
Selenium (Se)	26.6	2	25	0	107	75	125	27.8	3 4.4(20)	
Silver (Ag)	27.2	1	25	0	109	75	125	27.2	3 0.1(20)	
Cadmium (Cd)	26	1	25	0	104	75	125	26.6	8 2.6(20)	
Barium (Ba)	275	1	250	21.89	101	75	125	276.	4 0.4(20)	
Mercury (Hg)	0.43	0.2	0.5	0	86	75	125	0.44	8 4.1(20)	
Lead (Pb)	27.6	1	25	1.185	106	75	125	27.7	5 0.5(20)	



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### QC Summary Report

Work Order: 13102820

#### 01-Nov-13 Comments:

Date:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

 $\pmb{\ell}_{2,2}$ 



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Date: 13-Dec-13	(	QC Summary Report							Work Orde 13102820	er:
Method Blank File ID: 018_		Type M	I <b>BLK</b> To Ba	est Code: CA atch ID: 3214	AL WET	Г / ЕРА <b>М</b>	ethod SW Analy	6020 / SV sis Date:	V6020A 12/11/2013 15:29	
Sample ID: MB-32148	Units : mg/L	-	Run ID: IC	P/MS_1312	11C		Prep I	Date:	12/11/2013 09:04	_
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr) Barium (Ba) Lead (Pb)	ND ND ND	0.1 1 0.1								
Laboratory Control Spike	-	Type L	CS T	est Code: C.	AL WE	F / EPA M	ethod SW	6020 / SV	V6020A	
File ID: 020_			Ba	atch ID: 3214	48S		Analy	sis Date:	12/11/2013 15:35	
Sample ID: LCS-32148	Units : mg/L	-	Run ID: IC	P/MS_1312	11C		Prep I	Date:	12/11/2013 09:04	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr) Barium (Ba)	0.276 2.63	0.01 0.005	0.25 2.5		111 105	80 80	120 120			
Lead (Pb)	0.274	0.005	0.25		110	80	120			
Sample Matrix Spike		Туре М	IS To	est Code: C	AL WE1	ľ / EPA M	ethod SW	6020 / SV	V6020A	
File ID: 022_			Ba	atch ID: 3214	48S		Analy	sis Date:	12/11/2013 15:42	
Sample ID: 13120922-01AMS	Units : mg/L	-	Run ID: IC	P/MS_1312	11C		Prep I	Date:	12/11/2013 09:04	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	/al %RPD(Limit)	Qual
Chromium (Cr) Barium (Ba) Lead (Pb)	0.266 2.66 0.298	0.01 0.005 0.005	0.25 2.5 0.25	0 0.1178 0.0335	106 102 106	75 75 75	125 125 125		-	
Sample Matrix Spike Duplica	te	Type N	ISD T	est Code: C	AL WE	r / EPA M	ethod SW	6020 / SV	V6020A	
File ID: 023_		••	B	atch ID: 321	48S		Analy	sis Date:	12/11/2013 15:45	
Sample ID: 13120922-01AMS	Units : mg/L		Run ID: IC	P/MS 1312	11C		Prep	Date:	12/11/2013 09:04	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Chromium (Cr) Barium (Ba) Lead (Pb)	0.273 2.76 0.307	0.01 0.005 0.005	0.25 2.5 0.25	0 0.1178 0.0335	109 106 109	75 75 75	125 125 125	0.265 2.66 0.297	5 2.8(20) 3.6(20) 8 2.9(20)	

**Comments:** 



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Date: 01-Nov-13		Ç	QC Summary Report								er: )
Method Bland File ID:	k		Type: N	IBLK T B	est Code: <b>S</b> atch ID: <b>W1</b>	M4500- 028TK	NORGC / :	SM4500NI Analy	H <b>3D</b> sis Date:	10/28/2013 10:42	
Sample ID:	MBLK-W1028TK	Units : mg/L		Run ID: W	ETLAB_13	1028C		Prep	Date:	10/28/2013 10:42	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Nitrogen, Kjelda	hl, Total	ND	0.25	i							
Laboratory C	Control Spike		Type: L	CS T	est Code: S	M4500-	NORGC /	SM4500N	H3D		
File ID:				В	atch ID: W1	028TK		Analy	sis Date:	10/28/2013 10:57	
Sample ID:	LCS-W1028TK	Units : mg/L		Run ID: W	ETLAB_13	1028C		Prep	Date:	10/28/2013 10:57	
Analyte		Result	PQL	SpkVal	SpkRefVa	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Nitrogen, Kjelda	hl, Total	5.81	0.25	i 5		116	68	130			
Sample Matri	ix Spike		Type: N	1 <b>S</b> T	est Code: S	M4500-	NORGC /	SM4500N	H3D		
File ID:				B	atch ID: W1	028TK		Analy	sis Date:	10/28/2013 11:06	
Sample ID:	13102102-01AMS	Units : mg/L		Run ID: W	/ETLAB_13	1028C		Prep	Date:	10/28/2013 11:06	
Analyte		Result	PQL	SpkVal	SpkRefVa	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Nitrogen, Kjelda	hl, Total	5.02	0.25	5 5	0.413	92	32	147			
Sample Matri	ix Spike Duplicate		Type: N	ISD T	est Code: S	M4500-	NORGC /	SM4500N	H3D		
File ID:				E	Batch ID: W1	028TK		Analy	sis Date:	10/28/2013 11:12	
Sample ID:	13102102-01AMSD	Units : mg/L		Run ID: W	ETLAB_13	1028C		Prep	Date:	10/28/2013 11:12	
Analyte		Result	PQL	SpkVal	SpkRefVa	I %REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Nitrogen, Kjelda	hl, Total	6.14	0.25	5 5	0.413	115	32	147	5.02	20.1(30)	

#### **Comments:**



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Date: 04-Nov-13	QC Summary Report								
Method Blank File ID: Sample ID: MBLK-W1030DS Analyte	Units : <b>mg/L</b> Result	Type M	IBLK T B Run ID: W SpkVal	est Code: SM2540C atch ID: W1030DS /ETLAB_131030D SpkRefVal %REC	LCL(ME)	Analysis Date: Prep Date: UCL(ME) RPDRefV	11/01/2013 00:00 11/01/2013 00:00 /al %RPD(Limit)	Qual	
Solids, Total Dissolved (TDS)	ND	10				<u> </u>			
Laboratory Control Spike File ID: Sample ID: LCS-W1030DS Analyte	Units : mg/L Result	Type L	CS T B Run ID: W SnkVal	est Code: SM2540C atch ID: W1030DS /ETLAB_131030D SpkRetVal %REC	1 CL (ME)	Analysis Date: Prep Date: UCL(ME) RPDRef\	11/01/2013 00:00 11/01/2013 00:00 /al_%RPD(Limit)	Qual	
Solids, Total Dissolved (TDS)	107	10	100	107	73	130			

**Comments:** 

## **C**ALIFORNIA **L**ABORATORY **S**ERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

November 12, 2013

CLS Work Order #: CWK0135 COC #:

Reyna Vallejo Alpha Analytical, Inc.-Sparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431

Project Name: HDR13102820

Enclosed are the results of analyses for samples received by the laboratory on 11/05/13 07:50. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

Alpha Ana 255 Glendale Av Suite 21 Sparks, Nevada Phone: (775) 3 Fax: (775) 3	<b>lytical, Inc.</b> venue 89431-5778 55-1044 55-0406		SUE *Please re *Also H Atte	<b>CHAIN-OF</b> Work Orde ference the Work Ord please include the da Please send the report ntion To Reyna Valle	CUSTOD r: HDR13102 der number on all tes of analysis and to Alpha Analytic jo (reyna@alpha-a	Page 2 Report Due By : 5:00 PM On : 05-Nov- Required QC: Final Pat MPLK LOS MSMSD With Surre			
CLS Labs 3249 Fitzgeral	d Rd.		TEL: FAX:	(916) 638-7301 (916) 638-4510			Sampled I	by : J. Ruffing	
Rancho Cordo	va, CA 95742		Acct #:					28-Oct-13	
Alpha's Sample ID	Client's Sample ID	Matrix	Collection Date	Type ( #) of Bottles Preserved Other	EPA Method SW8081A	Requested Tests EPA Method SW8082		Sample Comments	
HDR13102820-20A	B10-03-SO-10252013	Soit	10/25/13 09:20	40ZG-U (1)	8081 : SUB	8082 : SUB			
HDR13102820-23A	B11-03-SO-10242013	Soil	10/24/13 15:40	40ZG-U (1)	8081 : SUB	8082 : SUB			
HDR13102820-25A	B12-03-SO-10242013	Soil	10/24/13 16:20	40ZG-U (1)	8081 : SUB	8082 : SUB		•	
HDR13102820-27A	B13-03-SO-10242013	Soil	10/24/13 12:45	40ZG-U (1)	8081 : SUB	8082 : SUB			

**Comments:** 

<b>F</b>	Date/Time		 Date/Time
Relinquished by: Kullunay	10/28/131600	Received by:	 
Relinquished by:		Received by:	 

### CLS LABS SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # CW KON OUS Problem discovered by: Sephemie C Date: 11 1512 Nature of problem Lightor Sample HDRB102820-06A, OBA Labels for and I don't know wich Label goes to wich Sample. Client contacted? Yes X No Spoke With: Reyner Vallero-By whom: Stephennie C. Date: 1151B Time: 5:30 HRS **Client instructions: Resolution of problem:** I called The Client and we confirmed The identity of the Samps by Philocol Appearance ellana\SampleException.Doc

# CWKOBS

Page 1 of 2

### Report Due By : 5:00 PM On : 05-Nov-13

Required QC: Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Sampled by : J. Ruffing

28-Oct-13

### SUB CHAIN-OF-CUSTODY RECORD Work Order : HDR13102820 *Please reference the Work Order number on all reports and invoices. *Also please include the dates of analysis and detection limits. Please send the report to Alpha Analytical (Sparks). Attention To Reyna Vallejo (reyna@alpha-analytical.com). TEL: (916) 638-7301

FAX: (916) 638-4510

Acct #:

Rancho Cordova, CA 95742

Alpha Analytical, Inc.

Sparks, Nevada 89431-5778

Phone: (775) 355-1044

Fax: (775) 355-0406

3249 Fitzgerald Rd.

255 Glendale Avenue

Suite 21

Subcontractor:

CLS Labs

			Requested Tests				
Alpha's Sample ID	Client's Sample ID	Matrix	Collection Date	Type ( #) of Bottles Preserved Other	EPA Method SW8081A	EPA Method SW8082	Sample Comments
HDR13102820-01A	B01-03-SO-10242013	Soil	10/24/13 09:50	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-03A	B02-03-SO-10252013	Soil	10/25/13 10:00	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-06A	B03-03-SO-10242013	Soil	10/24/13 08:37	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-08A	B04-03-SO-10242013	Soil	10/24/13 10:10	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-10A	B05-03-SO-10252013	Soil	10/25/13 07:45	40ZG-U (1)	8081 : SUB	8082 : SUB	£1
HDR13102820-12A	B06-03-SO-10242013	Soil	10/24/13 10:55	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-14A	B07-03-SO-10242013	Soil	10/24/13 13:40	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-16A	B08-03-SO-10242013	Soil	10/24/13 14:05	40ZG-U (1)	8081 : SUB	8082 : SUB	
HDR13102820-18A	B09-03-SO-10242013	Soil	10/24/13 15:00	40ZG-U (1)	8081 : SUB	8082 : SUB	

**Comments:** 

	Date/Time	00	Date/Time
Relinquished by: Killing	10/28/13 1600	Received by:	-19513-1751
Relinquished by:		Received by:	

# **C**ALIFORNIA **L**ABORATORY **S**ERVICES

Page 4 of 24

11/12/13 15:54 Alpha Analytical, Inc.-Sparks Project: HDR13102820 255 Glendale Ave.; Suite 21 Project Number: HDR1310282-CLS Work Order #: CWK0135 Sparks, NV 89431 COC #: Project Manager: Reyna Vallejo

#### **Organochlorine Pesticides by EPA Method 8081A**

Analyta	<b>i</b> t	Reporting	Their	Niladian	Datel	D	د		N-4
Anaryte	Kesult	Limit	Units 1	mution	Batch	Prepared	Analyzed	Method	INOTES
HDR13102820-01A (B01-03-SO-10242013) (CV	WK0135-01) Soil	Sampled: 1	0/24/13 09:	50 Reci	eived: 11/05/	13 07:50			
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20		Ħ			r.		
beta-BHC	ND	100		h	n		H		
delta-BHC	ND	100		*		n	н		
gamma-BHC (Lindane)	ND	100	"	ir.	•		14	v	
Chlordane-technical	ND	200		*	"	"	•	•	
4,4´-DDD	ND	150	н	Ħ	u.				
4,4´-DDE	ND	150	11	н		н	"		
4,4'-DDT	ND	150		μ			в		
Dieldrin	ND	10		۳		H	"	D	
Endosulfan I	ND	150	u	۳		н			
Endosulfan II	ND	150	*	*	"	н	"	•	
Endosulfan sulfate	ND	150		Ħ	n		*		
Endrin	ND	150		н	W	۲	Ħ	*	
Endrin aldehyde	ND	150	u	Ħ	"	۲	10	e	
Heptachlor	ND	50	ų		"	v	*	ч	
Heptachlor epoxide	ND	20	"	٣			n	e	
Methoxychlor	ND	150		N	"	17	19	a	
Mirex	ND	100	н	н		P			
Toxaphene	ND	200	11	•1	P	Ħ	11	<b>n</b>	
Surrogate: Tetrachloro-meta-xylene		94 %	46-1	39	н	ŧ	"	п	
Surrogate: Decachlorobiphenyl		89 %	52-1	41	п	n	"	n	
HDR13102820-03A (B02-03-SO-10252013) (CV	WK0135-02) Soil	Sampled: 1	0/25/13 10:	00 Rec	eived: 11/05/	13 07:50			
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20		H.			8	•	
beta-BHC	ND	100	"		"			*	
delta-BHC	ND	100			a	P			
gamma-BHC (Lindane)	ND	100	11	и	"			*	
Chlordane-technical	ND	200	*	н	п		"		

CA DOHS ELAP Accreditation/Registration Number 1233

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916-638-7301

## $C_{\text{ALIFORNIA}} L_{\text{ABORATORY}} S_{\text{ERVICES}}$

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11/12/13 15:54

Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:
--------------------------------------------------------------------------------	---------------------------------------------------------------------------------------	-------------------------------------

#### **Organochlorine Pesticides by EPA Method 8081A**

Analyta	Rowit	Reporting	Unite D	1	Datab	Deserved	Anahurad	Mathad	Notec
	result	Limit	Units Dif	uuon	Baicn	гтерагеа	Analyzed	Method	Notes
HDR15102820-03A (B02-03-SO-10252013) (	CWK0135-02) Soil	Sampled: 1	10/25/13 10:0	0 Rece	eived: 11/05/1	3 07:50			
4,4′-DDD	ND	150	µg/kg	10	CW07385	"	11/08/13	EPA 8081A	
4,4'-DDE	ND	150	"		-	"		n	
4,4'-DDT	ND	150	ч			u	н		
Dieldrin	ND	10	ч	R		n	11	•	
Endosulfan I	ND	150	u	11	9		н	-	
Endosulfan II	ND	150	n	н		"	۳	-	
Endosulfan sulfate	ND	150	Ħ	"	w	v	"	•	
Endrin	ND	150	Ħ	H	-			•	
Endrin aldehyde	ND	150	"	n				*	
Heptachlor	ND	50	"		*	"	*		
Heptachlor epoxide	ND	20	"		-	n	*	*	
Methoxychlor	ND	150	*		*	۳	*	-	
Mirex	ND	100	"	**		n			
Toxaphene	ND	200	1	"		1	9	#	
Surrogate: Tetrachloro-meta-xylene		108 %	46-13	9	н	"	"	"	
Surrogate: Decachlorobiphenyl		107 %	52-14	1	п	-	"	"	
HDR13102820-06A (B03-03-SO-10242013) (	CWK0135-03) Soil	Sampled: 1	10/24/13 08:3	7 Rece	eived: 11/05/1	3 07:50			
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20					н	4	
beta-BHC	ND	100	"		*		н	11	
delta-BHC	ND	100	H	"			н		
gamma-BHC (Lindane)	ND	100	H		w	•	n		
Chlordane-technical	ND	200			18	-	n	ч	

4,4'-DDD ND 150 H H M • • 4,4'-DDE n 11 150 ND • 11 4,4'-DDT n ND 150 0 11 a н Dieldrin 4 ND 10 n . . Endosulfan I n 150 ND Endosulfan II ND Ħ 150

CA DOHS ELAP Accreditation/Registration Number 1233
Page	6	of	24
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Page 6 of 24		11/12/13 15:54
Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

#### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units D	lution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-06A (B03-03-SO-10242013)	(CWK0135-03) Soil	Sampled: 1	0/24/13 08:3	7 Rece	vived: 11/05/	13 07:50			
Endosulfan sulfate	ND	150	µg/kg	10	CW07385	11	11/08/13	EPA 8081A	
Endrin	ND	150			н	н	H	+	
Endrin aldehyde	ND	150	**	Ħ		•	4	P	
Heptachlor	ND	50	11	*			м	•	
Heptachlor epoxide	ND	20	u	*	"		-		
Methoxychlor	ND	150		н					
Mirex	ND	100	a	۳		4	#	н	
Toxaphene	ND	200		P	<b>"</b>	W		8	
Surrogate: Tetrachloro-meta-xylene		95 %	46-13	9	"		"	"	
Surrogate: Decachlorobiphenyl		117 %	52-14	1	"		"	"	

#### HDR13102820-08A (B04-03-SO-10242013) (CWK0135-04) Soil Sampled: 10/24/13 10:10 Received: 11/05/13 07:50

Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20	n	R	"	*	n		
beta-BHC	ND	100	н		"	-			
delta-BHC	ND	100	**	ti		-	"	N	
gamma-BHC (Lindane)	ND	100					н	"	
Chlordane-technical	ND	200	n				n	"	
4,4´-DDD	ND	150				11	n	н	
4,4'-DDE	ND	150	"	۳			"	н	
4,4´-DDT	ND	150	14			"	"	н	
Dieldrin	ND	10			а	u	"		
Endosulfan I	ND	150	н		"			*1	
Endosulfan II	ND	150	н		۳	н	•		
Endosulfan sulfate	ND	150		9	41		"		
Endrin	ND	150	"	"		Ħ			
Endrin aldehyde	ND	150				n	*		
Heptachlor	ND	50	D.					н	
Heptachlor epoxide	ND	20	v	"		*		н	
Methoxychlor	ND	150		"				11	

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Alpha Analytical, IncSparks	Project: HDR13102820	
255 Glendale Ave.; Suite 21	Project Number: HDR1310282-	CLS Work Order #: CWK0135
Sparks, NV 89431	Project Manager: Reyna Vallejo	COC #:

#### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units I	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-08A (B04-03-SO-10242013)	(CWK0135-04) Soil	Sampled: 1	10/24/13 10:	10 Rece	ived: 11/05/1	3 07:50			
Mirex	ND	100	μg/kg	10	CW07385	*******	11/08/13	EPA 8081A	
Toxaphene	ND	200	*	*		π		н	
Surrogate: Tetrachloro-meta-xylene		63 %	46-1	39		17	n	"	
Surrogate: Decachlorobiphenyl		96 %	52-1	41	"	Ħ	"	"	
HDR13102820-10A (B05-03-SO-10252013)	(CWK0135-05) Soil	Sampled: 1	10/25/13 07:	45 Rece	vived: 11/05/1	3 07:50			
Aldrin	ND	10	μg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20	-		и		"		
beta-BHC	ND	100		U		н	н	P	
delta-BHC	ND	100	"	Ħ	"	n	"	u.	
gamma-BHC (Lindane)	ND	100	*	a	n		"		
Chlordane-technical	ND	200		n	н	н	н	*	
4,4'-DDD	ND	150	•	0	'n		"		
4,4´-DDE	ND	150		u	"	n	н	H	
4,4′-DDT	ND	150			n	"	ч	*	
Dieldrin	ND	10		0	п	н	м		
Endosulfan I	ND	150				n	n		
Endosulfan II	ND	150			n	н	"		
Endosulfan sulfate	ND	150			n	n		"	
Endrin	ND	150	11	u	н	н	м		
Endrin aldehyde	ND	150		n	n	n			
Heptachlor	ND	50		"		н	*	"	
Heptachlor epoxide	ND	20	9	"	п	n	*		
Methoxychlor	ND	150	n	11	87	n		u	
Mirex	ND	100		"	a de la companya de la company	н	**		
Toxaphene	ND	200	*	"		H	*	0	
Surrogate: Tetrachloro-meta-xylene		82 %	46-1	39	н		"	"	
Surrogate: Decachlorobiphenyl		109 %	52-1	41			"	"	

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: Project Number: Project Manager:	HDR13102820 HDR1310282- Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-12A (B06-03-SO-1024013) (	(CWK0135-06) Soil	Sampled: 10	)/24/13 10:	55 Receiv	ved: 11/05/1	3 07:50			-
Aldrin	ND	10	μg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20	110110		1	# 17 OU 13			
beta-BHC	ND	100				*	-	n	
delta-BHC	ND	100	н	u	n	н	-	**	
gamma-BHC (Lindane)	ND	100	н	*	n	п	"	*	
Chlordane-technical	ND	200	"		н	и	в		
4,4'-DDD	ND	150	"		n	u			
4,4′-DDE	ND	150			*	-	н		
4,4'-DDT	ND	150	"			-	11		
Dieldrin	ND	10	n			"	17	-	
Endosulfan I	ND	150	п	н		p			
Endosulfan II	ND	150	n	,,		n	*		
Endosulfan sulfate	ND	150	n	*		в	*	**	
Endrin	ND	150	•		"	"	п		
Endrin aldehyde	ND	150	-	u	н		"	P	
Heptachlor	ND	50		и	14	n	W	"	
Heptachlor epoxide	ND	20	n	"	p.	м	π	*	
Methoxychlor	ND	150		"		-		*	
Mirex	ND	100			H			н	
Toxaphene	ND	200		u		н	<b>R</b>		
Surrogate: Tetrachloro-meta-xylene		108 %	46-	139	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ia	"	,,	
Surrogate: Decachlorobiphenyl		130 %	52-1	141	"		n	"	
HDR13102820-14A (B07-03-SO-1024013) (	CWK0135-07) Soil	Sampled: 10	/24/13 13:4	40 Receiv	red: 11/05/13	07:50			
Aldrin	ND	10	uø/ko	10	CW07284	11/04/12	11/08/12	FPA 2021A	·
lpha-BHC	ND	20	r6/ 75			11/00/13		14 A 6001A #	
peta-BHC	ND	100	н .			n	ŧ		
lelta-BHC	ND	100		**	"	н	**		
gamma-BHC (Lindane)	ND	100			н	н			
Chlordane-technical	ND	200	*				_	_	

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200

ND

Chlordane-technical

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

#### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-14A (B07-03-SO-1024013) (0	CWK0135-07) Soil	Sampled: 10	/24/13 13	:40 Recei	ved: 11/05/13	07:50			
4,4'-DDD	ND	150	µg/kg	10	CW07385	11	11/08/13	EPA 8081A	
4,4´-DDE	ND	150	**	"		*	-	н	
4,4´-DDT	ND	150		۳	"		•	17	
Dieldrin	ND	10	*	"					
Endosulfan I	ND	150		u	"	*			
Endosulfan II	ND	150		n	"	H.		*	
Endosulfan sulfate	ND	150		н		**		"	
Endrin	ND	150	-	n				۰.	
Endrin aldehyde	ND	150		n				**	
Heptachlor	ND	50	"	"	"	e		**	
Heptachlor epoxide	ND	20		н	"	н		11	
Methoxychlor	ND	150		"	"			*	
Mirex	ND	100			•		-	e	
Toxaphene	ND	200	10	Ħ	#				
Surrogate: Tetrachloro-meta-xylene		74 %	46	-139	"			"	
Surrogate: Decachlorobiphenyl		104 %	52	-141	"	H ·	n	"	
HDR13102820-16A (B08-03-SO-1024013) (0	CWK0135-08) Soil	Sampled: 10	)/24/13 14	:05 Receiv	ved: 11/05/13	07:50			
Aldrin	ND	10	μg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20		*	W		11	*	
beta-BHC	ND	100		11	*	4	11	17	

alpha-BHC	ND	20	*	*		*	11		
beta-BHC	ND	100	•	*	*	"	"	57	
delta-BHC	ND	100	-		π	e	*	"	
gamma-BHC (Lindane)	ND	100			p				
Chlordane-technical	ND	200		н	ц			"	
4,4´-DDD	ND	150		*	"	*	"	۳	
4,4'-DDE	ND	150	-	*	"	*		н	
4,4´-DDT	ND	150	۳		"	54	м	н	
Dieldrin	ND	10		*	n	14	-	"	
Endosulfan I	ND	150		"	н			"	
Endosulfan II	ND	150			n	"	e	"	

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11/12/13 15:54 Project: HDR13102820 Alpha Analytical, Inc.-Sparks 255 Glendale Ave.; Suite 21 Project Number: HDR1310282-CLS Work Order #: CWK0135 Sparks, NV 89431 COC #: Project Manager: Reyna Vallejo

#### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units I	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-16A (B08-03-SO-1024013) (	CWK0135-08) Soil	Sampled: 10	/24/13 14:0	5 Receiv	ved: 11/05/1	3 07:50			
Endosulfan sulfate	ND	150	µg/kg	10	CW07385	N	11/08/13	EPA 8081A	
Endrin	ND	150	н		н	Π	"	17	
Endrin aldehyde	ND	150	D		11	и	9		
Heptachlor	ND	50	n		"	n	"	*1	
Heptachlor epoxide	ND	20	n		"	n	u	*	
Methoxychlor	ND	150	н	11	"	н		**	
Mirex	ND	100	n		н		۳	19	
Toxaphene	ND	200	"		n	н		*	
Surrogate: Tetrachloro-meta-xylene		111%	46-1	39	"	H	n	~	
Surrogate: Decachlorobiphenyl		109 %	52-1	41	"	Ħ	n	"	

HDR13102820-18A (B09-03-SO-1024013) (CWK0135-09) Soil Sampled: 10/24/13 15:00 Received: 11/05/13 07:50

Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20		н		н	*	*	
beta-BHC	ND	100	•	ŧ	"			Ħ	
delta-BHC	ND	100		ч	"			17	
gamma-BHC (Lindane)	ND	100		"	н			**	
Chlordane-technical	ND	200		u	n		11	17	
4,4'-DDD	ND	150		н	"		11	19	
4,4'-DDE	ND	150		۳	"		18	19	
4,4'-DDT	ND	150		н	"		w	H	
Dieldrin	ND	10		н	۳		11		
Endosulfan I	ND	150		"	"		11	и	
Endosulfan II	ND	150	-	н	"		11	If	
Endosulfan sulfate	ND	150		"	н	"	18	14	
Endrin	ND	150		н	"		"	14	
Endrin aldehyde	ND	150		"	н	N			
Heptachlor	ND	50	-	**	"		18	и	
Heptachlor epoxide	ND	20		"	и	*	14	и	
Methoxychlor	ND	150		*	н		Ħ	n	

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Alpha Analytical, IncSparks	Project:	HDR13102820	
255 Glendale Ave.; Suite 21	Project Number:	HDR1310282-	CLS Work Order #: CWK0135
Sparks, NV 89431	Project Manager:	Reyna Vallejo	COC #:

#### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-18A (B09-03-SO-1024013) (	CWK0135-09) Soil	Sampled: 10	/24/13 15:	00 Recei	ved: 11/05/1	3 07:50		<u></u>	
Mirex	ND	100	µg/kg	10	CW07385		11/08/13	EPA 8081A	
Toxaphene	ND	200	N	"		b)	n	"	
Surrogate: Tetrachloro-meta-xylene		114 %	46-	139	"	8	"	"	
Surrogate: Decachlorobiphenyl		107 %	52-	141	"	"	"	"	
HDR13102820-20A (B10-03-SO-1025013) (	CWK0135-10) Soil	Sampled: 10	)/25/13 09:	20 Recei	ved: 11/05/1	3 07:50			
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20	"	-	n	"	U	*	
beta-BHC	ND	100	"	-	"	"			
delta-BHC	ND	100	н		Ħ	'n	-	•	
gamma-BHC (Lindane)	ND	100	н	u	n	"	•		
Chlordane-technical	ND	200	n		"	"	*	18	
4,4´-DDD	ND	150	н		n	"	-		
4,4´-DDE	ND	150	n	11	"	Ħ	*	**	
4,4´-DDT	ND	150	н	н	н			19	
Dieldrin	ND	10	•			*	F	H	
Endosulfan I	ND	150		u	"	*	-	Ħ	
Endosulfan II	ND	150	*	н		*		u	
Endosulfan sulfate	ND	150	**	n	"	**			
Endrin	ND	150		(1		*	•	n	
Endrin aldehyde	ND	150	"	Π			19	<del>1</del> 4	
Heptachlor	ND	50		H	۳			"	
Heptachlor epoxide	ND	20	v	n	н		**	**	
Methoxychlor	ND	150	*	11	n		"	**	
Mirex	ND	100	7	**	"		10	17	
Toxaphene	ND	200	9	"	11	n 	11	**	
Surrogate: Tetrachloro-meta-xylene		128 %	46-	139	n	*	"	п	
Surrogate: Decachlorobiphenyl		121 %	52-	.]4]	n	и	"	"	

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Alpha Analytical, IncSparks	Project:	HDR13102820	
255 Glendale Ave.; Suite 21	Project Number:	HDR1310282-	CLS Work Order #: CWK0135
Sparks, NV 89431	Project Manager:	Reyna Vallejo	COC #:

### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-23A (B11-03-SO-1024013) (	CWK0135-11) Soil	Sampled: 10	)/24/13 1	5:40 Receiv	ved: 11/05/1	3 07:50			
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20	н	"		•		-	
beta-BHC	ND	100	н	н	*				
delta-BHC	ND	100	н	п	9	v		*	
gamma-BHC (Lindane)	ND	100	н	н	u	0r	н	a	
Chlordane-technical	ND	200	"				"	•	
4,4´-DDD	ND	150	"	"			"		
4,4´-DDE	ND	150	"	в				•	
4,4'-DDT	ND	150	"	"		P	۲	•	
Dieldrin	ND	10	11	"		и	n	•	
Endosulfan I	ND	150	"	-	"		"	•	
Endosulfan II	ND	150	"	۲		п	*		
Endosulfan sulfate	ND	150	"	**		н	N	"	
Endrin	ND	150	11	*	U	м	н	"	
Endrin aldehyde	ND	150		'n	ħ	n	**	P	
Heptachlor	ND	50			"	н	"	P	
Heptachlor epoxide	ND	20		н		n	*	v	
Methoxychlor	ND	150		н	н	"	н		
Mirex	ND	100	"	м	۳	и	Ħ	P	
Toxaphene	ND	200	"	11	"		11	*	
Surrogate: Tetrachloro-meta-xylene		124 %	40	5-139	"	"	"	Ħ	
Surrogate: Decachlorobiphenyl		109 %	52	2-141	"	п	"	#	
HDR13102820-25A (B12-03-SO-1024013) (	CWK0135-12) Soil	Sampled: 10	/24/13 10	5:20 Receiv	ved: 11/05/1	3 07:50			
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20		14		"	11	n	
beta-BHC	ND	100	н	*	٣	n	u	n	
delta-BHC	ND	100	•	"	H	*	n		
gamma-BHC (Lindane)	ND	100		*	*	n	ч		
Chlordane-technical	ND	200		11		•		n	

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Alpha Analytical, IncSparks	Project:	HDR13102820	
255 Glendale Ave.; Suite 21	Project Number:	HDR1310282-	CLS Work Order #: CWK0135
Sparks, NV 89431	Project Manager:	Reyna Vallejo	COC #:

#### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-25A (B12-03-SO-1024013) (	CWK0135-12) Soil	Sampled: 10	/24/13 16	:20 Recei	ved: 11/05/13	07:50			
4,4'-DDD	ND	150	µg/kg	10	CW07385	57	11/08/13	EPA 8081A	
4,4'-DDE	ND	150		H	"		н		
4,4´-DDT	ND	150		R	н	*		н	
Dieldrin	ND	10		14	n	*	8	n	
Endosulfan I	ND	150			в	*	н	H	
Endosulfan II	ND	150	-		n	b	н	1)	
Endosulfan sulfate	ND	150			"		н	15	
Endrin	ND	150	۳	۳	н	н		n	
Endrin aldehyde	ND	150			н	и	R	"	
Heptachlor	ND	50	•	н	n	n	н	P	
Heptachlor epoxide	ND	20			n	и	н		
Methoxychlor	ND	150		4	н	н	n	n	
Mirex	ND	100		н	н		N	n	
Toxaphene	ND	200		u	н	n	м	IJ	
Surrogate: Tetrachloro-meta-xylene		110 %	46	5-139	"		n	п	
Surrogate: Decachlorobiphenyl		107 %	52	2-141	"	n	"	"	
HDR13102820-27A (B13-03-SO-1024013) (	CWK0135-13) Soil	Sampled: 10	/24/13 12	:45 Recei	ved: 11/05/13	6 07:50			_
Aldrin	ND	10	µg/kg	10	CW07385	11/06/13	11/08/13	EPA 8081A	
alpha-BHC	ND	20				н	м	II.	
beta-BHC	ND	100		Ħ	8	н		υ	

		20							
beta-BHC	ND	100	11	Ħ	в	п	•		
delta-BHC	ND	100	19	н -	в	n	•	•	
gamma-BHC (Lindane)	ND	100	•	"	н	n	*	"	
Chlordane-technical	ND	200	•	м	n	и	"	W	
4,4'-DDD	ND	150			в	н	"	"	
4,4'-DDE	ND	150		64		м	•		
<b>4,4'-DD</b> T	ND	150	17	м	n		π	•	
Dieldrin	ND	10	u	"	H	n	"	"	
Endosulfan I	ND	150	"	u	D.	n	*		
Endosulfan II	ND	150	u			H	10		

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Project: HDR13102820

Alpha Analytical, IncSparks	Project: HDR13102820	
255 Glendale Ave.; Suite 21	Project Number: HDR1310282-	CLS Work Order #: CWK0135
Sparks, NV 89431	Project Manager: Reyna Vallejo	COC #:

### Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-27A (B13-03-SO-1024013) (	CWK0135-13) Soil	Sampled: 10	/24/13 12:	45 Receiv	ved: 11/05/1	3 07:50			
Endosulfan sulfate	ND	150	µg/kg	10	CW07385	1)	11/08/13	EPA 8081A	
Endrin	ND	150	11	н		"		· •	
Endrin aldehyde	ND	150	и	*		"		"	
Heptachlor	ND	50	a	11		в	н		
Heptachlor epoxide	ND	20	ч	۳		D			
Methoxychlor	ND	150	н	Ħ		"	H		
Mirex	ND	100	н	19		ĸ	۲		
Toxaphene	ND	200	n	n			H	#	
Surrogate: Tetrachloro-meta-xylene		113 %	46-	139	"	9	"		
Surrogate: Decachlorobiphenyl		101 %	52-	141	"		n	n	

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

### Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilut	ion	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-01A (B01-03-SO-10242013)	(CWK0135-01) Soil	Sampled: 1	0/24/13 0	9:50	Rece	ived: 11/05/1				
Aroclor 1016	ND	20	µg/kg		1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20			e		и		н	
Aroclor 1232	ND	20	۳		ч		*		н	
Aroclor 1242	ND	20								
Aroclor 1248	ND	20			н		*	•		
Aroclor 1254	ND	20			n	"	19		-	
Aroclor 1260	ND	20			н	"		*	"	
Aroclor 1268	ND	20			н		17	D	N	
Surrogate: Decachlorobiphenyl		86 %	50-	-150		"	в	W	п	
HDR13102820-03A (B02-03-SO-10252013)	(CWK0135-02) Soil	Sampled: 1	0/25/13 1	0:00	Rece	ived: 11/05/1	13 07:50			
Aroclor 1016	ND	20	μg/kg		1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20			۹	*		ч	"	
Aroclor 1232	ND	20				71	и		*	
Aroclor 1242	ND	20	"		"	+1				
Aroclor 1248	ND	20			Ħ	*			"	
Aroclor 1254	ND	20	*		н	"				
Aroclor 1260	ND	20			м	*	17		*	
Aroclor 1268	ND	20	=		Ħ	Π	14	"	м	
Surrogate: Decachlorobiphenyl		78 %	50-	-150		"	Ħ	u		
HDR13102820-06A (B03-03-SO-10242013)	(CWK0135-03) Soil	Sampled: 1	10/24/13 0	8:37	Rece	ived: 11/05/1	13 07:50			
Aroclor 1016	ND	20	μg/kg		1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20			Ħ	<b>**</b>			"	
Aroclor 1232	ND	20			н	*	-	"	"	
Aroclor 1242	ND	20	-		**	P	"	"	"	
Aroclor 1248	ND	20			54	87	11	14	۳	
Aroclor 1254	ND	20	-		Ħ	n	n	11	n	

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ND

Aroclor 1260

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431		Project Project	Project: Number: Manager:	HDR HDR13 Reyna	13102820 310282- Vallejo		CLS Work Orde COC #:	r #: CWK0135	
	Polychlorin	ated Bip	henyls b	y EP	A Method 8	3082A			
Analyte	Result	Reporting Limit	Units	Dilutio	n Batch	Prepared	Analyzed	Method	Notes
HDR13102820-06A (B03-03-SO-1024201	3) (CWK0135-03) Soil	Sampled: 1	0/24/13 08	3:37 R	eceived: 11/05/	3 07:50			
Aroclor 1268	ND	20	µg/kg		CW07331	H.	11/07/13	EPA 8082A	
Surrogate: Decachlorobiphenyl		51%	50-	150	"	"	"	#	
HDR13102820-08A (B04-03-SO-1024201	3) (CWK0135-04) Soil	Sampled: 1	10/24/13 10	):10 R	eceived: 11/05/	13 07:50			
Aroclor 1016	ND	20	μg/kg	i	1 CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20	۳		u <b>v</b>	н	я	n	
Aroclor 1232	ND	20	11		n 19-	n		P	
Aroclor 1242	ND	20	8	,	к в	н	"	"	
Aroclor 1248	ND	20	14		n <b>v</b>	"		"	
Aroclor 1254	ND	20	11		n 17	"			
Aroclor 1260	ND	20	u		n <b>b</b>	"	H	0	
Aroclor 1268	ND	20	11	,	r 19	11	14		
Surrogate: Decachlorobiphenyl		50 %	50-	150	Ħ		"	"	
HDR13102820-10A (B05-03-SO-1025201	3) (CWK0135-05) Soil	Sampled: 1	10/25/13 07	7:45 R	eceived: 11/05/	13 07:50		÷	
Aroclor 1016	ND	20	μg/kg		1 CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20			" "		20		
Aroclor 1232	ND	20			n <b>n</b>		94		
Aroclor 1242	ND	20	*			-			
Aroclor 1248	ND	20	н		n <del>4</del>	-	"	-	
Aroclor 1254	ND	20	n		n P				
Aroclor 1260	ND	20	н			*	μ		
Aroclor 1268	ND	20	R	I		-	H	#	<b>.</b>
Surrogate: Decachlorobiphenyl		68 %	50-	150	u	•	"	"	

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

### Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-12A (B06-03-SO-1024013	i) (CWK0135-06) Soil	Sampled: 10	/24/13 10:	55 Recei	ved: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Arocior 1221	ND	20	**	*	"	11		ч	
Aroclor 1232	ND	20	"	-	и	"		н	
Aroclor 1242	ND	20		-	н	u		*	
Aroclor 1248	ND	20	n	-	ч	"			
Aroclor 1254	ND	20	11		и	"	-	n	
Aroclor 1260	28	20	*		11	u	,	-	
Aroclor 1268	ND	20	n	•	n	H		**	
Surrogate: Decachlorobiphenyl		55 %	50-1	150	"	n		"	
HDR13102820-14A (B07-03-SO-1024013	) (CWK0135-07) Soil	Sampled: 10	) <b>/24</b> /13 13:4	10 Recei	ived: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20	n		*	11	*	**	
Aroclor 1232	ND	20	۹۲	Ħ	11	*	•	Ħ	
Aroclor 1242	ND	20	n			*		n	
Aroclor 1248	ND	20	87	n		*			
Aroclor 1254	ND	20		н		"	-	-	
Aroclor 1260	ND	20	*	н		**		Ħ	
Aroclor 1268	ND	20	**	**	14	#		Ħ	
Surrogate: Decachlorobiphenyl		77 %	50	150	**	Ħ	"	"	
HDR13102820-16A (B08-03-SO-1024013	) (CWK0135-08) Soil	Sampled: 10	)/24/13 14:(	)5 Recei	ived: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20	w	"		۳	-	10	
Aroclor 1232	ND	20		"	*		π	19	
Aroclor 1242	ND	20		*1	Ħ			14	
Aroclor 1248	ND	20		H	11		11	"	

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Aroclor 1254

Aroclor 1260

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431		Project Project 3	Project: Number: Manager:	HDR13 HDR1310 Reyna Va	102820 1282- Ilejo	C (	<b>LS Work Orde</b> COC #:	er #: CWK0135	
	Polychlori	nated Bipl	henyls	by EPA	Method 8	3082A			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-16A (B08-03-SO-1024013	) (CWK0135-08) Soil	Sampled: 10	)/24/13 14	1:05 Recei	ved: 11/05/1	3 07:50			
Aroclor 1268	ND	20	µg/kg	1	CW07331		11/07/13	EPA 8082A	
Surrogate: Decachlorobiphenyl		59 %	50	0-150	n	a	"	N	
HDR13102820-18A (B09-03-SO-1024013	) (CWK0135-09) Soil	Sampled: 10	)/24/13 15	5:00 Recei	ved: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20	п		"	*	-	10	
Aroclor 1232	ND	20		н		-	-	-	
Aroclor 1242	ND	20			и	Ħ	•	"	
Aroclor 1248	ND	20	P		н	Ħ		**	
Aroclor 1254	ND	20			"	H		*	
Aroclor 1260	ND	20	н		"	"	•		
Aroclor 1268	ND	20	n	"	*	Π		H.	
Surrogate: Decachlorobiphenyl		52 %	5(	0-150	Π	•	n	"	
HDR13102820-20A (B10-03-SO-1025013	) (CWK0135-10) Soil	Sampled: 10	)/25/13 09	9:20 Recei	ved: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20		н		Ħ	-		
Aroclor 1232	ND	20	н	n	"	*	-	7	
Aroclor 1242	ND	20		"	•				
Aroclor 1248	ND	20			в	*		14	
Aroclor 1254	ND	20		"	n	n		"	
Aroclor 1260	ND	20		н		*	-		
Aroclor 1268	ND	20	v	H	H	н	17	π	
Surrogate: Decachlorobiphenyl		60 %	51	0-150	"		π	и	

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Aroclor 1248

Aroclor 1254

Aroclor 1260

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: Project Number: Project Manager:	HDR13102820 HDR1310282- Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

#### Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units I	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-23A (B11-03-SO-1024013)	(CWK0135-11) Soil	Sampled: 10	)/24/13 15:4	0 Recei	ved: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	l	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20	н		н	"		н	
Aroclor 1232	ND	20	"			*	0	R	
Aroclor 1242	ND	20	۳				-	=	
Aroclor 1248	ND	20	*	*	н			"	
Aroclor 1254	ND	20	"		"	"		н	
Aroclor 1260	ND	20	H.		u				
Aroclor 1268	ND	20	"		n	н	te	+	
Surrogate: Decachlorobiphenyl		77 %	50-1	50	11	n	"	"	
HDR13102820-25A (B12-03-SO-1024013)	(CWK0135-12) Soil	Sampled: 10	)/24/13 16:2	0 Recei	ved: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20	*		и	u		n	
Aroclor 1232	ND	20	н		a	"		#	
Aroclor 1242	ND	20			"	u	-	<del>11</del>	
Aroclor 1248	ND	20	n		"			"	
Aroclor 1254	ND	20		•	u		e	**	
Aroclor 1260	ND	20	"		н	"		м	
Aroclor 1268	ND	20	P	-	η	۳		n 	
Surrogate: Decachlorobiphenyl		68 %	50-1	50	и	11	"	"	
HDR13102820-27A (B13-03-SO-1024013)	(CWK0135-13) Soil	Sampled: 10	)/24/13 12:4	5 Recei	ved: 11/05/1	3 07:50			
Aroclor 1016	ND	20	µg/kg	1	CW07331	11/05/13	11/07/13	EPA 8082A	
Aroclor 1221	ND	20			u	W			
Aroclor 1232	ND	20	H	*	и		U.	н	
Aroclor 1242	ND	20	۳	-	н	ч		R	

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Alpha Analytical, IncSparks	Project: HDR13102820	
255 Glendale Ave.; Suite 21	Project Number: HDR1310282-	CLS Work Order #: CWK0135
Sparks, NV 89431	Project Manager: Reyna Vallejo	COC #:

#### Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HDR13102820-27A (B13-03-SO-1024013)	(CWK0135-13) Soil	Sampled: 10	/24/13 12	:45 Recei	ved: 11/05/1	3 07:50			
Aroclor 1268	ND	20	µg/kg	1	CW07331	*	11/07/13	EPA 8082A	
Surrogate: Decachlorobiphenyl		77 %	50	-150	"		"	"	

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

#### Organochlorine Pesticides by EPA Method 8081A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CW07385 - EPA method 3545										
Blank (CW07385-BLK1)				Prenared 1	1/06/13 Ar	alyzed: 11	/08/13			
Aldrin	ND	1.0	µg/kg						•	
alpha-BHC	ND	2.0	"							
beta-BHC	ND	10	14							
delta-BHC	ND	10	11							
gamma-BHC (Lindane)	ND	10	14							
Chlordane-technical	ND	20	14							
4,4´-DDD	ND	15								
4,4'-DDE	ND	15	и							
4,4´-DDT	ND	15								
Dieldrin	ND	1.0								
Endosulfan I	ND	15	н							
Endosulfan II	ND	15								
Endosulfan sulfate	ND	15	н							
Endrin	ND	15								
Endrin aldehyde	ND	15	м							
Heptachlor	ND	5.0	۳							
Heptachlor epoxide	ND	2.0	"							
Methoxychlor	ND	15	Ħ							
Mirex	ND	10								
Toxaphene	ND	20	н							
Surrogate: Tetrachloro-meta-xylene	14.0		"	16.7		84	46-139			
Surrogate: Decachlorobiphenyl	16.7		"	16.7		100	52-141			
LCS (CW07385-BS1)				Prepared: 1	1/06/13 Ar	nałyzed: 11	/08/13			
Aldrin	27.7	1,0	µg/kg	33,3		83	47-132			
gamma-BHC (Lindane)	28.2	10	1	33.3		85	56-133			
4,4'-DDT	31,3	15	"	33.3		94	46-137			
Dieldrin	28.7	1.0	"	33.3		86	44-143			
Endrin	28.9	15		33.3		87	30-147			
Heptachlor	28.3	5.0	н	33,3		85	33-148			
Surrogate: Tetrachloro-meta-xylene	14.2			16.7		85	46-139			

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Alpha Analytical, IncSparks 255 Glendale Ave., Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:
Organoch	lorine Pesticides by EPA Method 8081A -	Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch CW07385 - EPA method 3545										
LCS (CW07385-BS1)				Prepared:	11/06/13 A	nalyzed: 11	/08/13			
Surrogate: Decachlorobiphenyl	16.1		µg∕kg	16.7		96	52-141		· · · · · · ·	
LCS Dup (CW07385-BSD1)				Prepared:	11/06/13 A	nalyzed: 11	/08/13			
Aldrin	26,4	1.0	µg/kg	33.3		79	47-132	5	30	
gamma-BHC (Lindane)	27,0	10		33.3		81	56-133	4	30	
4,4´-DDT	31.1	15	"	33.3		93	46-137	0.7	30	
Dieldrin	27.4	1.0	n	33.3		82	44-143	5	30	
Endrin	27.2	15	n	33.3		82	30-147	6	30	
Heptachior	26.5	5.0	n	33.3		79	33-148	7	30	
Surrogate: Tetrachloro-meta-xylene	13.7		"	16.7		82	46-139			
Surrogate: Decachlorobiphenyl	16.2		n	16.7		97	52-141			
Matrix Spike (CW07385-MS1)	Sor	irce: CWK013	5-01	Prepared:	11/06/13 A	nalyzed: 11	/08/13			
Aldrin	27.3	10	µg/kg	33,3	ND	82	47-138			
gamma-BHC (Lindane)	28.6	100	(1	33.3	ND	86	38-144			
4,4'-DDT	34.4	150		33.3	ND	103	41-157			
Dieldrin	30.1	10	"	33.3	ND	90	46-155			
Endrin	28.8	150		33.3	ND	86	34-149			
Heptachlor	55.7	50	и	33.3	ND	167	36-155			QC-2H
Surrogate: Tetrachloro-meta-xylene	16.4		н	16.7		98	46-139			
Surrogate: Decachlorobiphenyl	15.3		"	16.7		92	52-141			
Matrix Spike Dup (CW07385-MSD1)	Sou	irce: CWK013	5-01	Prepared:	11/06/13 A	nalyzed: 11	/08/13			
Aldrin	27.2	10	µg/kg	33.3	ND	82	47-138	0.4	35	
gamma-BHC (Lindane)	28,3	100		33.3	ND	85	38-144	1	35	
4,4´-DDT	34.8	150	4	33.3	ND	104	41-157	1	35	
Dieldrin	30.2	10	14	33.3	ND	90	46-155	0.1	35	
Endrin	28,2	150		33.3	ND	84	34-149	2	35	
Heptachlor	30.8	50	"	33.3	ND	92	36-155	58	35	QC-2H
Surrogate: Tetrachloro-meta-xylene	16.4		"	16.7		99	46-139			
Surrogate: Decachlorobiphenyl	16.4		n	16.7		<b>9</b> 8	52-141			

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Alpha Analytical, IncSparks 255 Glendale Ave.; Suite 21 Sparks, NV 89431	Project: HDR13102820 Project Number: HDR1310282- Project Manager: Reyna Vallejo	CLS Work Order #: CWK0135 COC #:

#### Polychlorinated Biphenyls by EPA Method 8082A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CW07331 - LUFT-DHS GCNV										
Blank (CW07331-BLK1)				Prepared 8	k Analyzed:	11/05/13				
Aroclor 1016	ND	20	μg/kg	•						
Aroclor 1221	ND	20								
Aroclor 1232	ND	20	н							
Aroclor 1242	ND	20	P							
Araclar 1248	ND	20	n							
Aroclor 1254	ND	20	H							
Araclar 1260	ND	20	٣							
Aroclor 1268	ND	20								
Surrogate: Decachlorobiphenyl	7.43		"	8.33	·	89	50-150			
LCS (CW07331-BS1)				Prepared &	z Analyzed:	11/05/13				
Aroclor 1260	79.4	20	µg/kg	83.3		95	29-131			
Surrogate: Decachlorobiphenyl	7.80		"	8.33		94	50-150			
LCS Dup (CW07331-BSD1)				Prepared 8	k Analyzed:	11/05/13				
Aroclor 1260	78.6	20	µg/kg	83.3		94	29-131	1	30	
Surrogate: Decachlorobiphenyl	7.67		"	8.33		92	50-150			<del>.</del> .
Matrix Spike (CW07331-MS1)	Sou	irce: CWK012	2-02	Prepared 8	k Analyzed:	11/05/13				
Aroclor 1260	60.8	20	μg/kg	83.3	ND	73	29-131			
Surrogate: Decachlorobiphenyl	3.57		"	8.33		43	50-150			QS-4
Matrix Spike Dup (CW07331-MSD1)	Sou	irce: CWK012	2-02	Prepared 8	k Analyzed:	11/05/13				
Aroclor 1260	63,6	20	µg/kg	83.3	ND	76	29-131	5	30	
Surrogate: Decachlorobiphenyl	3.85		"	8.33		46	50-150			OS-4

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Alpha Ana 255 Glend Sparks, N	alytical, IncSparks lale Ave.; Suite 21 V 89431	Project: Project Number: Project Manager:	HDR13102820 HDR1310282- Reyna Vallejo	CLS Work Order #: CWK0135 COC #:	
		Notes and Defin	itions		
DET	Analyte DETECTED				
ND	Analyte NOT DETECTED at or above the reporting limit (or a	method detection limit	when specified)		
NR	Not Reported				
dry	Sample results reported on a dry weight basis				

RPD Relative Percent Difference

Billing Information : HDR, Inc.			СН	[AIN	I-OF	<b>-C</b> 1	USTC	DY I	REC	ORD		/ CA	AIVIE N	=NL)	Page:	1 of \$6
9563 S. Kingston	i Ct.			255 Gle	Alp mdale Av	ha A		cal, In	<b>C.</b>	'8	W	orkO	v rder :	HDRO	C <b>13102</b> 8	320
Englewood, CO 8	30112			TEL: (775) 355-1044 FAX: (775) 355-0406							Repo	rt Due	By: 5	5:00 PM	<b>On</b> : 04	4-Nov-13
Client:			Report Atte	ention	Pho	ne Nu	mber	EMail A	ddress	· · · · ·	 /	1.00.0	and an	ant a	11.0.12	-13-13
HDR, Inc.			Clayton Mc	okri	(91)	5) 817-4	762 x	clayton.m	okri@hdrin	c.com		fri e		en a		
2365 Iron Point F	Road						· · · · ·				ED	D Requ	ired : No	•		
Suite 300 Folsom CA 9563	30											Sample	d by : J. I	Ruffing		
PO :												Cooler	Temp	Samples	Received	Date Printed
Client's COC # : not	ne	Job :	028-213932	2-021/Su	innyvale							0	°C	26 <b>-0</b>	ct-13	06-Dec-13
QC Level: S3	= Final Rpt, MBLK, LC	CS, MS/	MSD With S	urrogate	es			· · · ·								
	<u> </u>							· ·		Reques	ted Tests					
Alpha	Client		Collection	No. o	f Bottles		300_0_W	8081_S	8082_S	BNA_S	METALS_A N Q	NETALS_S	METALS_S	N_TKN_W		
Sample ID	Sample ID	Matr	ix Date	Alpha	SUD										Sampl	e Remarks
HDR13102820-01A	B01-03-SO-10242013	so	10/24/13 09:50	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se	1			
HDR13102820-02A	B01-07-SO-10242013	so	10/24/13 09:55	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Sc				
HDR13102820-03A	B02-03-SO-10252013	SO	10/25/13 10:00	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr. Pb, Hg, Ag, Se				
HDR13102820-04A	B02-07-SO-10252013	SO	10/25/13 10:15	1	1	5	1					As, Ba, Cd, Cr, Pb, Hg, Ag, Sc				
HDR13102820-05A	B02-20-GW-10252013	AQ	10/25/13 10:50	3	0	5	N-Total =(NO2+NO3 +TKN)				As, Ba, Cd, Cr, Pb, Hg, Ag, Se			N-Total =(NO2+NO3 +TKN)		
HDR13102820-06A	B03-03-SO-10242013	so	10/24/13 08:37	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-07A	B03-07-SO-10242013	SO	10/24/13 08:53	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se	STLC Cr			
HDR13102820-08A	B04-03-SO-10242013	SO	10/24/13 10:10	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se	STLC Pb			

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Comments:

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A,08A,14A,18A,25A & 27A,KM Amended 12/6/13_13:10 to add STLC Cr to 07A,10A,13A,14A,23A; STLC Pb to 08A & STLC Ba to 27A, 28A on standard TAT, per email from Clayton. Due 12/13/13,KM

	Signature	Print Name	Сотралу	Date/Time
Logged in by:	K. uman	Knyman	Alpha Analytical, Inc.	12/6/13 1310
		/		

													AN	IEN	DEL	生し
Billing Information : HDR, Inc. 9563 S. Kingstor	ı Ct.		CH		N-OF	-C	USTC	)DY ] cal In	RECO	ORD	]	CA			Page:	2 of <b>\$ (</b> p
Englewood, CO 8	80112			255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406						78	WorkOrder : HDRC13102820 Report Due By : 5:00 PM On : 04-Nov-1					820 4-Nov-13
Client:			Report Atte	ntion	Pho	ne Nu	mber	EMail A	ddress		J					
HDR, Inc. 2365 Iron Point F Suite 200	Road		Clayton Mo	okri	(916	5) 817-4	4762 x	clayton.n	nokri@hdrir	nc.com		EDD Requ	ired : No	)		
Folsom, CA 9563	30											Sample	d by : J. I	Ruffing		
PO:		loh -	020 242022	1 001/0								Cooler	<u>remp</u>	Samples 26-0	Received	Date Printed
QC Level : S3	= Final Rot MBLK I (		MSD With S	urrogate	anii yvaie					· · · · · · ·		· · · · · ·				00 Dtt 15
							1			Request	ted Tes	ts		•,	T	·····
Alpha Sample ID	Client Sample ID	Matr	Collection ix Date	No. o Alpha	f Bottles Sub	ТАТ	300_0_W	8081_S	8082_S	BNA_S	METALS Q	S_A METALS_S O	METALS_S TLC	N_TKN_W	Samp	le Remarks
HDR13102820-09A	B04-07-SO-10242013	SO	10/24/13 10:25	1	1	5	Ι				Γ	As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-10A	B05-03-SO-10252013	SO	10/25/13 07:45	1	1	5		8081 : SUB	8082 : SUB		Ι	As, Ba, Cd. Cr, Pb, Hg, Ag, Se	STLC Cr	1		
HDR13102820-11A	B05-07-SO-10252013	so	10/25/13 08:20	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-12A	B06-03-SO-10242013	SO	10/24/13 10:55	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Sc		ł		
HDR13102820-13A	B06-07-SO-10242013	so	10/24/13 11:20	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se	STLC Cr			
HDR13102820-144	B07-03-SO-10242013	so	10/24/13 13:40	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se	STLC Cr		Sampling ti is 15:00, log	me on tube label gged in per chain.
HDR13102820-15A	B07-07-SO-10242013	so	10/24/13 13:45	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se		Τ		
HDR13102820-164	B08-03-SO-10242013	so	10/24/13 14:05	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A,08A,14A,18A,25A & 27A.KM Amended 12/6/13 13:10 to add STLC Cr to 07A,10A,13A,14A,23A; STLC Pb to 08A & STLC Ba to 27A, 28A on standard TAT, per email from Clayton. Due 12/13/13.KM

	Signature	Print Name	Company	Date/Time
Logged in by:	K. Uunan	K Moray	Alpha Analytical, Inc.	12/6/13 1310
•				

Billing Information : HDR, Inc. 9563 S. Kingston	Ct.		СН		N-OF	F-Cl	USTC	DDY	REC	ORD	1	CA	AM \	EN	Page:	3 of #(p
Englewood, CO 8	80112			255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406							WorkOrder : HDRC13102820 Report Due By : 5:00 PM On : 04-Nov-13					
Client:			Report Atte	eport Attention Phone Number EMail Address									•			
HDR, Inc. 2365 Iron Point R Suite 300	Road		Clayton Mc	<b>kr</b> i	(916	5) 817-4	762 x	clayton n	nokri@hdrin	nc.com	E	DD Requ	ired : No	)		
Folsom, CA 9563	10											Sample	d by : J. 🛛	Ruffing		
PO : Client's COC # : noi	ne	Job :	028-213932	2-021/Si	Innvvale							<u>Cooler</u> 0	<u>Temp</u> °C	<u>Samples</u> 26-O	<u>Received</u> ct-13	Date Printed 06-Dec-13
QC Level : S3	= Final Rpt, MBLK, LC	S, MS/	MSD With S	urrogate	es											
							[		·	Reques	ted Tests				-	
Alpha Sample ID	Client Sample ID	Matr	Collection ix Date	No. o Alpha	f Bottles Sub	ТАТ	300_0_W	8081_S	8082_S	BNA_S	METALS_A Q	METALS_S O	METALS_S TLC	S N_TKN_W	Samp	le Remarks
HDR13102820-17A	B08-07-SO-10242013	so	10/24/13 14:15	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-18A	B09-03-SO-10242013	so	10/24/13 15:00	1	1.	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-19A	B09-07-SO-10242013	SO	10/24/13 15:10	1	1	5						As, Ba, Cd, Cr. Pb. Hg, Ag, Se				
HDR13102820-20A	B10-03-SO-10252013	SO	10/25/13 09:20	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-21A	B10-07-SO-10252013	SO	10/25/13 09:35	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-22A	B10-05-GW-10252013	AQ	10/25/13 09:30	3	0	5	N-Total =(NO2+NO3 +TKN)				As, Ba, Cd, Cr. Pb, Hg, Ag, Se			N-Total =(NO2+NO3 +TKN)		
HDR13102820-23A	B11-03-SO-10242013	so	10/24/13 15:40	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se	STLC Cr			
HDR13102820-24A	B11-07-SO-10242013	SO	10/24/13 15:45	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A.08A,14A,18A,25A & 27A.KM Amended 12/6/13 13:10 to add STLC Cr to 07A,10A,13A,14A,23A; STLC Pb to 08A & STLC Ba to 27A, 28A on standard TAT, per email from Clayton. Due 12/13/13.KM

	Signature	Print Name	Company	Date/Time
Logged in by:	Kellinan	K Muray	Alpha Analytical, Inc.	12/6/13 1310
	/	/		

<b>Billing Information :</b> HDR, Inc. 9563 S. Kingston Englewood, CO 8	Silling Information : HDR, Inc. 9563 S. Kingston Ct. Englewood, CO 80112 Slient: HDR, Inc.					<b>F-CU</b> ha A enue, Su ) 355-10	JSTC nalytic ite 21 Space 44 FAX:	<b>DY</b> <b>cal, In</b> rks, Nevada (775) 355-0	<b>REC(</b> c. 1 89431-577 0406	<b>DRD</b> '8	W Rep	CA orkO ort Due	\ \ rder : By : 5	HDRC 5:00 PM	E Page: C131028 On:04	:Z 4 of # (q 320 1-Nov-13
Client:			Report Atte	ntion	Pho	ne Nun	nber	EMail A	ddress							
HDR, Inc.			Clayton Mc	kri	(910	5) 817-4′	762 x	clayton.m	okri@hdrin	ic.com						
2365 Iron Point P	Road		·····		•						E	DD Requ	ired : No	•		
Suite 300												Sample	d by : J. I	Ruffing		
Folsom, CA 9563	Folsom, CA 95630 :											Cooler	Tomn	Semples	Dessived	Data Brintad
PU:	);											Cooler	<u>remp</u>	<u>Samples</u> 26-0	rt-13	Date Finited
Client's COC # : noi	ne	Job :	028-213932	-021/Su	nnyvale							0	-0	20-0-	01-10	00-Dec-15
QC Level: S3	= Final Rpt, MBLK, LC	CS, MS/I	MSD With S	urrogate	s											
										Reques	ted Tests					
Alpha	Client		Collection	No. of	Bottles	i 	300_0_W	8081_S	8082_S	BNA_S	METALS_A	METALS_S	METALS_S	N_TKN_W		
Sample ID	Sample ID	Matri	ix Date	Alpha	Sub	TAT									Sampl	e Remarks
HDR13102820-25A	B12-03-SO-10242013	so	10/24/13 16:20	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd. Cr, Pb. Hg, Ag, Se				
HDR13102820-26A	B12-07-SO-10242013	SO	10/24/13 16:30	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-27A	B13-03-SO-10242013	SO	10/24/13 12: <b>45</b>	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se	STLC Ba			
HDR13102820-28A	B13-07-SO-10242013	SO	10/24/13 13:00	1	1	5						As, Ba, Cd. Cr, Pb. Hg, Ag, Se	STLC Ba			

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A,08A,14A,18A,25A & 27A.KM Amended 12/6/13 13:10 to add STLC Cr to 07A,10A,13A,14A,23A; STLC Pb to 08A & STLC Ba to 27A, 28A on standard TAT, per email from Clayton. Due 12/13/13.KM

	ure	Print Name	Company	Date/Time
Logged in by: K Mun	ray 1	K Murray	Alpha Anaiytical, Inc.	12/6/13 1310

													ÂМ	ENC	EC#	2
Billing Information :			СН	AIN	<b>I-OF</b>	<b>`-C</b> I	USTO	DY	REC	ORD		$\mathbf{C}$	1	CLARCE NO 10, 35 SIGNY	Page:	<b>9α</b> φ
9563 S. Kingstor	Ct										1	Ur	1			
boob of mingotor					Alp	ha A	nalytic	cal, In	c.		l v	VorkO	rder :	HDR	C131028	820
Englewood, CO 8	80112			255 Gle T	ndale Ave EL: (775	enue, Si ) 355-10	ite 21 Spar 044 FAX: (	ks, Nevad: (775) 355-	a 89431-57 0406	78	Re	port Du	e By :	5:00 PM	[ On : 0	4-Nov-13
Client:			Report Atte	ntion	Pho	ne Nu	mber	EMail A	Address							
HDR, Inc.			Clayton Mo	kri	(916	6) 817-4	-762 x	clayton.n	nokri@hdri	nc.com						
2365 Iron Point F	Road		L								I	EDD Req	uired : N	0		
Suite 300												Sampl	ed by • I	Ruffing		
Folsom, CA 9563	30											Sampi		Runnig	<b>_</b>	
PO:												Coole	r lemp	Samples	Received	Date Printed
Client's COC # : no	ne	Job :	028-213932	-021/Su	nnyvale								0°C	26-0	Ct-13	06-Dec-13
QC Level : S3	= Final Rpt, MBLK, L	CS, MS/	MSD With S	urrogate	s											
	<b>A</b> !!									Request	ed Tests	3				
Alpha Sample ID	Client Sample ID	Mate	Collection	No. 01	Bottles	TAT	N_TOTAL_	TDS_W							_	
		watr	IX Date	Albua	500	IAI					l				Samp	e Remarks
HDR13102820-01A	B01-03-SO-10242013	so	10/24/13 09:50	1	1	5										
HDR13102820-02A	B01-07-SO-10242013	so	10/24/13 09:55	1	1	5										
HDR13102820-03A	B02-03-SO-10252013	SO	10/25/13 10:00	1	1	5						1				
HDR13102820-04A	B02-07-SO-10252013	so	10/25/13 10:15	1	1	5										
HDR13102820-05A	B02-20-GW-10252013	AQ	10/25/13 10:50	3	0	5	N-Total =(NO2+NO3 +TKN)	TDS								
HDR13102820-06A	B03-03-SO-10242013	so	10/24/13	1	1	5										
HDR13102820-07A	B03-07-SO-10242013	so	10/24/13	1	1	5						İ	İ	Ì		
HDR13102820-08A	B04-03-SO-10242013	so	10/24/13	1	1	5		· · · · · · · · · · · · · · · · · · ·				İ				
HDR13102820-09A	B04-07-SO-10242013	so	10/24/13	1	1	5						1	İ			
HDR13102820-10A	B05-03-SO-10252013	so	10/25/13	1	1	5						İ		Ī		
Comments:	Security seals intact. Froz 10/28/13 14:15 to analyze to 08A & STLC Ba to 27/	en ice. Sa the follo A, 28A or	aturday deliver wing only for a standard TA	v. Sampl 8270, pe T, per em	les kept co r email : f nail from (	· old and from Cl Clayton	secure until ayton: 01A,0 . Due 12/13/	login on M 8A,14A,18 13.KM	londay. Sai 8A,25A &	nple splits n 27A.KM Ar	nade by la nended 12	ab in order ( 2/6/13 13:1)	0 sub 8081 0 to add S7	/8082 to CLS LC Cr to 07/	5, due 11/5/13 A,10A,13A,14	<u>Amended</u> A,23A; STLC Pb
ſ <u>····</u>		Sig	uature					Pr	uit Name				Comp	any		Jate/ I ime
Logged in by:	Ku	in	nay				K	- M	und	y		Al	pha Analy	tical, Inc.	12/4	13 1310
NOTE: So	mples are discorded 60 -	ave atta	r reculto ere	ronortes		other -	rrangement			doue com-			عمدام ما	or diamage	of of ollows	

Billing Information : HDR, Inc.			СН	AIN	-OF	r-C1	USTO	DY	RECO	RD	(	AM CA	END	E Page:	2_ 6 of 6
9563 S. Kingstor Englewood, CO	80112			255 Gler T	Alp ndale Ave EL: (775	ha A enue, Su ) 355-10	nalytie nite 21 Span 1)44 FAX: (	cal, In ks, Nevad	I <b>C.</b> a 89431-5778 0406		Wo Repor	rkOrder t Due By :	: HDR 5:00 PM	C131028	320 4-Nov-13
Client: HDR, Inc. 2365 Iron Point F Suite 300	Client: HDR, Inc. 2365 Iron Point Road Suite 300 Folsom, CA 95630 20 :			ntion kri	Pho (910	5) 817-4	m <b>ber</b> 762 x	EMail /	Address nokri@hdrinc.	com	EDI	) Required : N	lo . Ruffing		
PO : Client's COC # : no	ne	Job :	028-213932	-021/Su	nnyvale						_	<u>Cooler Temp</u> 0 °C	Samples 26-0	Received Oct-13	Date Printed 06-Dec-13
QC Level : S3	= Final Rpt, MBLK, LC	S, MS/I	MSD With S	urrogate	s										
Aloha	The Client			No. of	Bottlee					Requested	d Tests	r		-	
Sample ID	Sample ID	Matri	ix Date	Alpha	Sub	TAT	W_101AL_	105_1						Sampl	e Remarks
HDR13102820-21A	B10-07-SO-10252013	SO	10/25/13 09:35	1	1	5									
HDR13102820-22A	B10-05-GW-10252013	AQ	10/25/13 09:30	3	0	5	N-Total =(NO2+NO3 +TKN)	TDŞ							
HDR13102820-23A	B11-03-SO-10242013	SO	10/24/13 15:40	1	1	5									
HDR13102820-244	B11-07-SO-10242013	SO	10/24/13 15:45	1	1	5									
HDR13102820-25A	B12-03-SO-10242013	so	10/24/13 16:20	1	1	5									
HDR13102820-26A	B12-07-SO-10242013	SO	10/24/13 16:30	1	1	5									
HDR13102820-27A	B13-03-SO-10242013	SO	10/24/13 12:45	1	1	5									
HDR13102820-28A	B13-07-SO-10242013	SO	10/24/13 13:00	1	1	5									

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A,08A,14A,18A,25A & 27A.KM Amended 12/6/13 13:10 to add STLC Cr to 07A,10A,13A,14A,23A; STLC Pb to 08A & STLC Ba to 27A, 28A on standard TAT, per email from Clayton. Due 12/13/13.KM

	Signature	Print Name	Company	Date/Time
Logged in by:	Kuna	10 K Miray	Alpha Analytical, Inc.	12/6/13 1310
	• -	1 /		

Billing information : HDR, Inc. 9563 S. Kingstor		СН	255 Gle	Alp	<b>'-Cl</b> ha A	USTO	DY ] cal, In	<b>REC</b> ( c. 189431-577	ORD	] w	AN CA	AEN N rder :	IDE hdro	D _{Page:}	1 of <b>≸6</b> 820	
Englewood, CO	80112			Т	EL: (775)	355-10	)44 FAX: (	(775) 355-	0406		] Rep	ort Due	By: 5	:00 PM	<b>On</b> : 04	4-Nov-13
Client: HDR, Inc. 2365 Iron Point F	Road		Report Atte	okri	Pho (916	n <b>e Nur</b> 6) 817-4	<b>nber</b> 762 x	EMail A clayton.n	<b>\ddress</b> nokri@hdrir	ic.com		DD Requ	ired : Ye	s Nr		
Suite 300 Folsom, CA 9563	30											Sample	, 1 by : J. F	Ruffing		
PO : Client's COC # : no	Job :	028-213932	2-021/Su	nnyvale							<u>Cooler</u> 0	<u>remp</u> °C	<u>Samples</u> 26-O	Received ct-13	Date Printed 28-Oct-13	
QC Level : S3	= Final Rpt, MBLK, LC	S, MS/	MSD With S	uπogate	5											
			<b>.</b>							Request	ted Tests	-				
Alpha Sample ID	Client Sample ID	Matr	Collection ix Date	No. of Alpha	f Bottles Sub	TAT	300_0_W	8081_S	8082_S	BNA_S	Q Q	METALS_S	N_TKN_W	N_TOTAL_ W	Samp	e Remarks
HDR13102820-01A	B01-03-SO-10242013	SO	10/24/13 09:50	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-02A	B01-07-SO-10242013	so	10/24/13 09:55	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-03A	B02-03-SO-10252013	so	10/25/13 10:00	1	1	5	Ι	8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-04A	B02-07-SO-10252013	so	10/25/13 10:15	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-054	B02-20-GW-10252013	AQ	10/25/13 10:50	3	0	5	N-Total =(NO2+NO3 +TKN)				As, Ba, Cd, Cr, Pb, Hg, Ag, Se		N-Total ≓(NO2+NO3 +TKN)	N-Total ≃(NO2+NO3 +TKN)		
HDR13102820-06A	B03-03-SO-10242013	so	10/24/13 08:37	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-07A	B03-07-SO-10242013	so	10/24/13 08:53	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-08A	B04-03-SO-10242013	so	10/24/13 10:10	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd. Cr, Pb, Hg, Ag, Se				

### Comments: Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A, 08A, 14A, 18A, 25A & 27A.KM

	Signature	Print Name	Company	Date/Time
Logged in by:	Kuman	K musan	Alpha Analytical, Inc.	10/28/13 1415
	/			

Billing Information :			~~~							~ ~ ~		٨N	/IEN	NDE	D Page:	2 of <b>81 o</b>
HDR, Inc.			CH	AIN	IO-	C	USTC	DY	RECO	JKD		$C\Delta$			. ugo.	
9563 S. Kingston Englewood, CO 8	o Ct. 80112			255 Gle	Alp ndale Av	ha A enue, Si	nalyti 11te 21 Spa	cal, In Irks, Nevada	<b>C.</b> 89431-577	78	W Bon	orkO	N rder :		C13102	820 4-Nov-13
Client			Banant Atta	T	EL: (775	) 355-10	)44 FAX:	(775) 355-4	0406		кср		: Бу.	<b>5.00 I</b> IV		-1107-13
HDR Inc			Report Alle													
2365 Iron Point F Suite 300	Road				(916	5)817-4	702 X	clayton.n	lokn@ndrir	ic.com	E	DD Requ	ired : Ye	es		
Folsom, CA 9563	30											Sample	d by : J.	Ruffing		
PO:												Cooler	Temp	Samples	Received	Date Printed
Client's COC # : no	ne	Job :	028-213932	2-021/Su	Innyvale							0	°C	26-0	Oct-13	28-Oct-13
QC Level: S3	= Final Rpt, MBLK, Lo	CS, MS/	MSD With S	urrogate	es											
·										Requeste	d Tests				T	···
Alpha	oha Client		Collection	No. o	f Bottles	5	300_0_W	8081_S	8082_S	BNA_S	METALS_A	METALS_S	N_TKN_W	N_TOTAL		
Sample ID	Sample ID	Matr	ix Date	Alpha	Sub	TAT					<u> </u>	L			Samp	e Remarks
HDR13102820-09A	B04-07-SO-10242013	so	10/24/13 10:25	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-10A	B05-03-SO-10252013	so	10/25/13 07:45	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-11A	B05-07-SO-10252013	so	10/25/13 08:20	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-12A	B06-03-SO-10242013	so	10/24/13 10:55	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-13A	B06-07-SO-10242013	so	10/24/13 11:20	1	1	5	T	T				As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-14A	B07-03-SO-10242013	SO	10/24/13 13:40	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se			Sampling t is 15:00, lo	ime on tube label gged in per chain.
HDR13102820-15A	B07-07-SO-10242013	so	10/24/13 13:45	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-16A	B08-03-SO-10242013	so	10/24/13 14:05	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

Security seals intact. Frozen ice. Saturday delivery, Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A, 08A, 14A, 18A, 25A & 27A.KM

	Si	ignature		Print Name	[	Company	Date/Time	
Logged in by:	_ K.uu	may	K,	nonay		Alpha Analytical, Inc.	10/28/13 14	ı2
		/		/				

											AMENDEL					
Billing Information : HDR, Inc. 9563 S. Kingstor	n Ct.		СН		N-OF	<b>-C</b> l	UST( nalvti	DDY : cal. In	REC	ORD	, ]	CA	N.		Page:	3 of <b>#(</b>
Englewood, CO	80112			255 Gle	endale Ave TEL: (775	enue, Si ) 355-1(	uite 21 Spa	urks, Nevad (775) 355-	a 89431-57' 0406	78	Rej	VorkO port Due	rder: e By: f	HDR( 5:00 PM	C131028 [ On : 04	32U 4-Nov-13
Client: HDR, Inc. 2365 Iron Point F	Road		Report Atte	o <b>k</b> ri	Pho (916	<b>ne Nu</b> 5) 817-4	<b>mber</b> 762 x	EMail / clayton.n	<b>\ddress</b> nokri@hdrin	nc.com	^E	EDD Requ	ired : Ye	28		
Folsom, CA 956	30											Sample	d by : J. I	Ruffing		
PO : Client's COC # : no	ne	Job :	028-213932	2-021/Su	Innyvale							<u>Cooler</u> 0	<u>Temp</u> ℃	<u>Samples</u> 26-C	Received oct-13	Date Printed 28-Oct-13
QC Level : S3	= Final Rpt, MBLK, LC	S, MS/	MSD With S	urrogate	<del>)</del> \$	-		L 0								
Alpha	nha Client			No	f Dattiaa					Reques	ted Tests	; 	<u> </u>			
Sample ID	Sample ID	Matr	rix Date	Alpha	Sub	TAT	300_0_99	8081_5	8082_5	BNA_S	Q	O O	N_IKN_W	W W	Samp	e Remarks
HDR13102820-17A	B08-07-SO-10242013	so	10/24/13 14:15	1	1	5					Ι	As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-184	B09-03-SO-10242013	so	10/24/13 15:00	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se		T		
HDR13102820-19A	B09-07-SO-10242013	so	10/24/13 15:10	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-20A	B10-03-SO-10252013	so	10/25/13 09:20	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-21A	B10-07-SO-10252013	SO	10/25/13 09:35	1	1	5						As. Ba. Cd, Cr, Pb, Hg. Ag, Se				
HDR13102820-22A	B10-05-GW-10252013	AQ	10/25/13 09:30	3	0	5	N-Total ==(NO2+NO3 +TKN)				As, Ba, Cd, Cr, Pb, Hg, Ag, Se		N-Total =(NO2+NO3 +TKN)	N-Total =(NO2+NO3 +TKN)		
HDR13102820-23A	B11-03-SO-10242013	so	10/24/13 15:40	1	1	5		8081 : SUB	8082 : SUB			As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-24A	B11-07-SO-10242013	so	10/24/13 15:45	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

ARAENDEE

Comments:

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A. 08A. 14A. 18A, 25A & 27A.KM

	Signature	Print Name	Company	Date/Time
Logged in by:	Killinay	KMMM	Alpha Analytical, Inc.	10/28/13 1415
				•

	ing Information .											A	ME	ND		
Billing Information : HDR, Inc.			СН	AIN	<b>I-O</b>	F-CI	USTO	DY ]	RECO	ORD		CA			Page:	4 of <b>\$(</b> 0
9563 S. Kingston Englewood, CO 8	n Ct. 80112			255 Gle	Alp ndale Av EL: (77)	<b>ha</b> A venue, Su 5) 355-10	nalytic	<b>cal, In</b> rks, Nevada	<b>C.</b> 1 89431-577 1406	78	W Rep	orkO ort Due	v rder : e By : 5	HDR( :00 PM	C131028	320 I-Nov-13
Client:		R	eport Atte	ntion	Ph	one Nu	nber	EMail A	ddress				·			
HDR, Inc.			layton Mo	kri	(91	6) 817-4	762 x	clayton.m	okri@hdrin	ic.com						
2365 Iron Point F	Road	-									E	DD Requ	ired : Ye	5		
Folsom, CA 9563	^z olsom, CA 95630											Sample	d by : J. F	Ruffing		
PO:	:											Cooler	Temp	Samples	Received	Date Printed
Client's COC # : no	: ant's COC # : none Job :			-021/Su	nnyvale	!						0	°C	26- <b>O</b>	ct-13	28-Oct-13
QC Level: S3	= Final Rpt, MBLK, LCS	, MS/MS	SD With S	urrogate	s											
Alaba	Olivert									Request	ted Tests					
Sample ID	Sample ID	C. Matrix	Date	No. of Alpha	Sub	TAT	300_0_W	8081_S	8082_S	BNA_S	METALS_A Q	METALS_S	N_TKN_W	N_TOTAL_ W	Sampl	e Remarks
HDR13102820-25A	B12-03-SO-10242013	SO 1	0/24/13 16:20	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-26A	B12-07-SO-10242013	SO   1	0/24/13 16:30	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-27A	B13-03-SO-10242013	SO 1	0/24/13 12:45	1	1	5		8081 : SUB	8082 : SUB	8270		As. Ba. Cd. Cr. Pb. Hg. Ag, Se				
HDR13102820-28A	B13-07-SO-10242013	SO 1	0/24/13 13:00	1	1	5				·		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A, 08A, 14A, 18A, 25A & 27A.KM

	Signature	Print Name	Company	Date/Time
Logged in by:	_Kumay	K Minay	Alpha Analytical, Inc.	10/28/13 1415
	/	/		

												AME	NDE	D	
Billing Information : HDR, Inc. 9563 S. Kingstor	n Ct.		CH	AIN	-OF Alp	F-Cl ha A	USTC .nalyti	DY cal, II	REC	ORD	W	<b>CA</b> orkOrder	: HDRC	Page:	<b>5</b> 5 20
Englewood, CO	80112			255 Gle	ndale Av	enue, Su	uite 21 Spa	rks, Nevad	ia 89431-57	78	Rep	ort Due By :	5:00 PM	On : 04	
Client			Report Atte	ntion	Pho	one Nui	nber	EMail	Address		F	j-			
HDR, Inc. 2365 Iron Point I Suite 200	Road		Clayton Mo	kri	(91	6) 817-4	762 x	clayton.	mokri@hdri	nc.com	El	DD Required : Y	'es		
Folsom, CA 956	30											Sampled by : J.	Ruffing		
PO:												Cooler Temp	Samples F	Received	Date Printed
Client's COC # : no	one .	Job :	028-213932	-021/Su	innyvale							0°C	26-Oc	t-13	28-Oct-13
QC Level : S3	= Final Rpt, MBLK, LC	<u>S, MS/N</u>	MSD With S	urrogate	es										
Aloha	Client		Collection	No. o	f Bottles		TDS W			Requeste	ed Tests				
Sample ID	Sample ID	Matri	ix Date	Alpha	Sub	TAT	,							Sample	Remarks
HDR13102820-01A	B01-03-SO-10242013	so	10/24/13 09:50	1	1	5							ΤΤ		
HDR13102820-02A	B01-07-SO-10242013	so	10/24/13 09:55	1	1	5									
HDR13102820-03A	B02-03-SO-10252013	SO	10/25/13 10:00	1	1	5									
HDR13102820-04A	B02-07-SO-10252013	SO	10/25/13 10:15	1	1	5									
HDR13102820-05A	B02-20-GW-10252013	ÂQ	10/25/13 10:50	3	0	5	TDS								
HDR13102820-06A	B03-03-SO-10242013	SO	10/24/13 08:37	1	1	5									
HDR13102820-07A	B03-07-SO-10242013	SO	10/24/13 08:53	1	1	5									
HDR13102820-08A	B04-03-SO-10242013	SO	10/24/13 10:10	1	1	5									
HDR13102820-09A	B04-07-SO-10242013	SO	10/24/13 10:25	1	1	5									
HDR13102820-10A	B05-03-SO-10252013	SO	10/25/13 07:45	1	1	5									
Comments:	Security seals intact. Frozen 10/28/13 14:15 to analyze 1	n ice, Sa the follo	turday deliver wing only for	y. Samp 8270, pa	les kept c er email :	old and from Cl	secure until ayton: 01A,	login on 1 08A, 14A	Monday, Sar , 18A, 25A	nple splits n & 27A.KM	nade by lat	n order to sub 808	1/8082 to CLS	, due 11/5/13.	Amended
	<b>Г</b>	Sigr	nature					P	rint Name			Comp	any	D	ate/Time
Logged in by	: <u>K</u>	im	nay				K	m	man	1		Alpha Anal	ytical, Inc.		3/13/14/5
NOTE: Sa	imples are discarded 60 da	ays afte	r results are	reporte	d unless	other a	mangemer	nts are ma	ade. Hazar	dous samp	les will be	e returned to client	or disposed c	of at client ex	pense.

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

										AME	NINF		
Billing Information : HDR, Inc.			СН	AIN	<b>I-01</b>	<b>7-C</b> I	USTC	DDY RECO	RD	CA		Page:	6 of 6
9563 S. Kingstor Englewood, CO	n Ct. 80112			255 Gle	Alp ndale Av	ha A enue, Su	nalyti nite 21 Spa	cal, Inc. rks, Nevada 89431-5778		WorkOrder Report Due By	: HDR	C131028	320 4-Nov-13
Client:			Report Atte	ntion	Ph	one Nu	mber	EMail Address		• •			
HDR, Inc. 2365 Iron Point f Suite 300	Road		Clayton Mo	kri	(91	6) 817-4	762 x	clayton.mokri@hdrinc.co	om	EDD Required :	Yes		
Folsom, CA 956	30									Sampled by :	J. Ruffing		
PO :										Cooler Temp	<u>Samples</u>	Received	Date Printed
Client's COC # : no	ne	Job :	028-213932	2-021/Su	innyvale					0 °C	26-C	)ct-13	28-Oct-13
QC Level: S3	= Final Rpt, MBLK, LC	S, MS/N	/ISD With S	urrogate	s								
AL			<u> </u>					Re	equested	Tests			
Alpna Sample ID	Sample ID	Matri	Collection x Date	No. o Alpha	Sub	TAT	TDS_W					Samp	e Remarks
HDR13102820-21A	B10-07-SO-10252013	so	10/25/13 09:35	1	1	5							
HDR13102820-22A	B10-05-GW-10252013	AQ	10/25/13 09:30	3	0	5	TDS						
HDR13102820-23A	B11-03-SO-10242013	so	10/24/13 15:40	1	1	5							
HDR13102820-24A	B11-07-SO-10242013	SO	10/24/13 15:45	1	1	5							
HDR13102820-25A	B12-03-SO-10242013	SO	10/24/13 16:20	1	1	5							
HDR13102820-264	B12-07-SO-10242013	SO	10/24/13 16:30	1	1	5							
HDR13102820-27A	B13-03-SO-10242013	SO	10/24/13 12:45	1	1	5							
HDR13102820-28A	B13-07-SO-10242013	SO	10/24/13 13:00	1	1	5							

Comments: Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. Amended 10/28/13 14:15 to analyze the following only for 8270, per email : from Clayton: 01A, 08A, 14A, 18A, 25A & 27A.KM

	Sign	iature	Print Name	Company	Date/Time
Logged in by:	Kun	may	K Munay	Alpha Analytical, Inc.	10/28/131415
	•		' /		

9563 S. Kingstor Englewood, CO	n Ct. 80112		СН	255 Gle	Alp ndale Av EL: (775	<b>ha</b> A enue, Su () 355-10	nalytic	<b>DY</b> <b>cal, In</b> tks, Nevada	<b>RECC</b> c. 189431-577 0406	<b>ORD</b> 78	W Rep	CA orkO ort Due	rder : e By : 5	HDR( :00 PM	C131028 On: 04	320 I-Nov-13
Client:			Report Atte	ntion	Pho	one Nur	nber	EMall A	ddress		J _					
HDR, Inc.			Clayton Mo	kri	(91	6) 817-4	762 x	clayton.m	okri@hdrin	nc.com						
2365 Iron Point I	Road		<b></b>								E	DD Requ	ired : Ye	8		
Suite 300	20											Sample	d by : J. F	Ruffing		
	30											Cooler	Temp	Samples	Received	Date Printed
°∨. Client's COC # : _ nr	000	loh ·	028-213033	2.021/50	nnwala							0	°C	26-00	ct-13	28-Oct-13
OC Level : S3	= Final Rot MBLK I C	S MS/	MSD With S	urronate	e se								-			
		0, 100/					<u> </u>			Request	ted Tests					
Alpha	Client		Collection	No. o	f Bottles	5	300_0_W	8081_S	8082_S	BNA_S	METALS_A	METALS_S	N_TKN_W	N_TOTAL_		
Sample ID	Sample ID	Matr	ix Date	Alpha	Sub	TAT					Q	0		w	Sampl	e Remarks
HDR13102820-01A	B01-03-SO-10242013	SO	10/24/13	1	1	5	T	8081 : SUB	8082 : SUB	8270		As, Ba, Cd,				
		1	l 09:50	I	I	I	1				1	Cr, Pb, Hg, Ag, Se		1 1		
HDR13102820-02A	B01-07-SO-10242013	so	09:50 10/24/13 09:55	1	1	5	1					Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se				·
HDR13102820-02A HDR13102820-03A	B01-07-SO-10242013 B02-03-SO-10252013	so so	09:50 10/24/13 09:55 10/25/13 10:00	   1   1	1	5		8081 : SUB	8082 : SUB	8270		Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-02A HDR13102820-03A HDR13102820-04A	B01-07-SO-10242013 B02-03-SO-10252013 B02-07-SO-10252013	so so so	09:50 10/24/13 09:55 10/25/13 10:00 10/25/13 10:15	   1   1   1	1 1 1	5		8081 : SUB	8082 : SUB	8270		Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-02A HDR13102820-03A HDR13102820-04A HDR13102820-05A	B01-07-SO-10242013 B02-03-SO-10252013 B02-07-SO-10252013 B02-20-GW-10252013	SO SO SO AQ	09:50 10/24/13 09:55 10/25/13 10:00 10/25/13 10:15 10/25/13 10:50	1 1 1 1 3	1 1 1 1 0	5 5 5 5	N-Total (NO2+NO3 +TKN)	8081 : SUB	8082 : SUB	8270	As, Ba, Cd, Cr, Pb, Hg, Ag, Se	Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se	N-Total =(N02+N03 +TKN)	N-Total =(NO2+NO3 +TKN)		
HDR13102820-02A HDR13102820-03A HDR13102820-04A HDR13102820-05A HDR13102820-06A	B01-07-SO-10242013 B02-03-SO-10252013 B02-07-SO-10252013 B02-20-GW-10252013 B03-03-SO-10242013	SO SO SO AQ SO	09:50 10/24/13 09:55 10/25/13 10:00 10/25/13 10:15 10/25/13 10:50 10/24/13 08:37	1 1 1 3 1	1 1 1 0	5 5 5 5 5 5	N-Total =(NO2+NO3 +TKN)	8081 : SUB 8081 : SUB	8082 : SUB 8082 : SUB 8082 : SUB	8270 8270 8270	As, Ba, Cd, Cr, Pb, Hg, Ag, Se	Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se	N-Total =(N02+N03 +TKN)	N-Total =(NO2+NO3 +TKN)		
HDR13102820-02A HDR13102820-03A HDR13102820-04A HDR13102820-05A HDR13102820-06A HDR13102820-06A	B01-07-SO-10242013 B02-03-SO-10252013 B02-07-SO-10252013 B02-20-GW-10252013 B03-03-SO-10242013 B03-07-SO-10242013	SO   SO   SO   AQ   SO   SO	09:50 10/24/13 09:55 10/25/13 10:00 10/25/13 10:15 10/25/13 10:50 10/24/13 08:37 10/24/13 08:53	1   1   1   3   1   1	1 1 1 0 1 1	5 5 5 5 5 5 5	N-Total =(NO2+NO3 +TKN)	8081 : SUB 8081 : SUB 8081 : SUB	8082 : SUB 8082 : SUB 8082 : SUB	8270 8270 8270	As, Ba, Cd, Cr, Pb, Hg, Ag, Se	Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se As, Ba, Cd, Cr, Pb, Hg, Ag, Se	N-Total =(NO2+NO3 +TKN)	N-Total =(NO2+NO3 +TKN)		

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13.:

	Signature	Print Name	Company	Date/Time
Logged in by:	Kuman	K morray	Alpha Analytical, Inc.	10/28/13 1130
	/			

Billing Information : HDR, Inc.			СН		I-OF	r-CU	JSTO	DY I	RECO	ORD		CA			Page:	2 of 6
9563 S. Kingston (	Ct.				Alp	ha A	nalyti	cal, In	c.		] w	'orkOı	v rder :	HDR	C13102	820
Englewood, CO 80	)112			255 Gle 1	ndale Av TEL: (775	enue, Su ) 355-10	ite 21 Spar )44 FAX:	rks, Nevada (775) 355-(	1 89431-577 )406	'8	Rep	ort Due	By: 5	5:00 PM	[ On : 04	4-Nov-13
Client:			Report Atte	ontion	Pho	ne Nur	nber	EMail A	ddress							
HDR, Inc.			Clayton Mo	ıkri	(910	5) 817-4	762 x	clayton.m	okri@hdrin	ic.com						
2365 Iron Point Ro	bad						. "				EI EI	DD Requ	ired : Ye	s		
Suite 300												Sample	i by · T I	Puffing		
Folsom, CA 95630	)											Sample	1 Oy . J. I	Curring		
PO:												Cooler	Temp	Samples	Received	Date Printed
Client's COC # : none	e	Job :	028-213932	2-021/Su	innyvale							0	°C	26-C	oct-13	28-Oct-13
QC Level: S3	= Final Rpt, MBLK, LC	S, MS/I	MSD With S	urrogate	s											
										Request	ted Tests					
Alpha	Client		Collection	No. o	f Bottles	;	300_0_W	8081_5	8082_S	BNA_S	METALS_A	METALS_S	N_TKN_W	N_TOTAL_		
Sample ID	Sample ID	Matri	ix Date	Alpha	Sub	TAT						Ľ			Samp	le Remarks
HDR13102820-09A	B04-07-SO-10242013	SO	10/24/13 10:25	1	1	5						As. Ba. Cd. Cr. Pb. Hg.				· · · · · · · · · · · · · · · · · · ·
HDR13102820-10A	B05-03-SO-10252013	SO	10/25/13 07:45	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-11A	B05-07-SO-10252013	SO	10/25/13 08:20	1	1	5	T					As, Ba, Cd, Cr, Pb, Hg, Av Se		T		
HDR13102820-12A	B06-03-SO-10242013	SO	10/24/13 10:55	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se		T		
HDR13102820-13A	B06-07-SO-10242013	SO	10/24/13 11:20	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se		Ι		
HDR13102820-14A	B07-03-SO-10242013	SO	10/24/13 13:40	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se			Sampling ti is 15:00, log	me on tube label gged in per chain.
HDR13102820-15A	B07-07-SO-10242013	so	10/24/13 13:45	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-16A	B08-03-SO-10242013	SO	10/24/13 14:05	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

Security seals intact. Frozen ice. Saturday delivery, Samples kept cold and secure until login on Monday, Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13.:

	Signature	Print Name	Company	Date/Time
Logged in by:	Kuman	K Musay	Alpha Analytical, Inc.	10/28/13 1130
	• /	/		

Billing Information : HDR, Inc.		(	СН	AIN	I-OF	C-CI	USTO	DY I	RECO	ORD	)	CA			Page:	3 of <b>60</b>
9563 S. Kingston Ct. Englewood, CO 80112	2			255 Gle т	Alp	ha A enue, Su	nalyti	<b>cal, In</b> rks, Nevada (775) 355-(	<b>C.</b> 89431-577	8	W Rep	orkO ort Due	v rder : By : 5	HDRO :00 PM	C131028 On: 04	320 4-Nov-13
Client:		Repo	ort Atte	ntion	Pho	ne Nur	nber	EMail A	ddress				·			
HDR, Inc. 2365 Iron Point Road		Clay	ton Mo	kri	(916	5) 817-4	762 x	clayton.m	okri@hdrin	c.com	E	DD Requ	ired : Ye	5		
Suite 300 Folsom, CA 95630												Sample	d by : J. H	Ruffing		
PO :												Cooler	Temp	Samples	Received	Date Printed
Client's COC # : none	Job :	028-2	213932	-021/Su	nnyvale							0	°C	26 <b>-</b> 0	ct-13	28-Oct-13
QC Level : S3 =	Final Rpt, MBLK, LCS, M	S/MSD	With S	urrogate	5											
									······	Reques	ted Tests					· · ·
Alpha Clie Sample ID San	nt 1ple ID Ma	Colle trix Da	ection ate	No. o Alpha	f Bottles Sub	TAT	300_0_W	8081_S	8082_S	BNA_S	METALS_A Q	METAL\$_\$ O	N_TKN_W	N_TOTAL_ W	Samp	le Remarks
HDR13102820-17A B08	-07-SO-10242013 SC	) 10/2 14	24/13 1:15	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-18A B09	-03-SO-10242013 SO	D 10/2 15	24/13 5:00	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-19A B09	-07-SO-10242013 SC	) 10/2 15	24/13 5:10	1	1	5					Ι	As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-20A B10	-03-SO-10252013 SC	D 10/2 09	25/13 9:20	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-21A B10	-07-SO-10252013 SC	0 10/2 09	25/13 9:35	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-22A B10	-05-GW-10252013 AC	ຊ 10/2 09	25/13 9:30	3	0	5	N-Total ≃(NO2+NO3 +TKN)				As, Ba, Cd, Cr, Pb, Hg, Ag, Se		N-Total =(NO2+NO3 +TKN)	N-Total ≈(NO2+NO3 +TKN)		
HDR13102820-23A B11	-03-SO-10242013 SC	) 10/2 15	24/13 5:40	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				· · · ·
HDR13102820-24A B11	-07-SO-10242013 SC	) 10/2 15	24/13 5:45	1	1	5						As, Ba, Cd, Cr, Pb, Hg,				

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. :

		Signature	Print Name	Сотрапу	Date/Time
Logged in by:	_Kl	unay	K-nomy	Alpha Analytical, Inc.	10/28/13 1130

Billing Information : HDR, Inc. 9563 S. Kingstor	n Ct.		CH	AIN	-OF	-Cl	USTO	DY ]	RECO	ORD	]	CA			Page:	4 of 6
Englewood, CO	80112			255 Gle T	Alp: ndale Ave EL: (775	nue, Su 355-10	ite 21 Spar 44 FAX:	rks, Nevada (775) 355-(	<b>6.</b> 89431-577 )406	'8	W   Repo	orkO ort Due	rder: By::	HDR( 5:00 PM	C13102 On: 0	820 4-Nov-13
Client:			Report Atte	ntion	Pho	ne Nur	nber	EMail A	ddress							
HDR, Inc.		ſ	Clayton Mo	kri	(916	) 817-4	762 x	clayton.m	okri@hdrin	c.com						
2365 Iron Point F	Road										EI EI	DD Requ	ired : Ye	es		
Suite 300 Folsom, CA 9563	30											Sample	d by : J.	Ruffing		
PO:												Cooler	Temp	Samples	Received	Date Printed
Client's COC # : no	ne	Job: (	028-213932	-021/Su	nnyvale							0	°C	26-0	ct-13	28-Oct-13
QC Level : S3	= Final Rpt, MBLK, LC	S, MS/N	ASD With S	urrogate	s											
,										Reques	ted Tests					
Alpha	Client		Collection	No. of	Bottles		300_0_W	8081_S	8082_S	BNA_S	METALS_A	METALS_S	N_TKN_W	N_TOTAL_		
Sample ID	Sample ID	Matrix	x Date	Alpha	Sub	TAT					-				Samp	le Remarks
HDR13102820-25A	B12-03-SO-10242013	SO	10/24/13 16:20	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se		1 1		
HDR13102820-26A	B12-07-SO-10242013	so	10/24/13 16:30	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-27A	B13-03-SO-10242013	so	10/24/13 12:45	1	1	5		8081 : SUB	8082 : SUB	8270		As, Ba, Cd, Cr, Pb, Hg, Ag, Se				
HDR13102820-28A	B13-07-SO-10242013	so	10/24/13 13:00	1	1	5						As, Ba, Cd, Cr, Pb, Hg, Ag, Se				

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13.:

	Signature	Print Name	Company	Date/Time
Logged in by:	K. llunar	1 Musau	Alpha Analytical, Inc.	10/28/13/130

Billing Information : HDR, Inc.			CHAIN-OF-CUSTODY RECORD								CA				Page: 50f 6	
9563 S. Kingstor Englewood, CO	Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778								WorkOrder : HDRC13102820 Report Due By : 5:00 PM On : 04-Nov-13							
Ollenti			TEL: (775) 355-104				44 FAX: (775) 355-0406									
							1001 EMail Address				1					
2365 Iron Point Road			Clayton Mokri (916) 817-47				762 X	52 X clayton.mokri@ndrinc.com			FDD Required · Yes					
Suite 300											LDD Roqu					
Folsom, CA 95630											Sampled by : J. Ruffing					
PO:									Cooler Temp Samples Received Date Printer				Date Printed			
Client's COC # : no	ne	Job :	028-213932	-021/Su	innyvale						0	°C	26-0	ct-13	28-Oct-13	
QC Level : S3	= Final Rpt, MBLK, LC	S, MS/	MSD With S	urrogate	s											
							Reque	sted Te	ed Tests							
Alpha	pha Client		Collection	No. o	No. of Bottles		TDS_W									
Sample ID	Sample ID	Matr	ix Date	Alpha	Sub	TAT								Samp	le Remarks	
HDR13102820-01A	B01-03-SO-10242013	SO	10/24/13 09:50	1	1	5										
HDR13102820-02A	B01-07-SO-10242013	SO	10/24/13 09:55	1	1	5										
HDR13102820-03A	B02-03-SO-10252013	SO	10/25/13 10:00	1	1	5										
HDR13102820-04A	B02-07-SO-10252013	SO	10/25/13 10:15	1	1	5		Π								
HDR13102820-05A	B02-20-GW-10252013	AQ	10/25/13 10:50	3	0	5	TDS									
HDR13102820-064	B03-03-SO-10242013	SO	10/24/13 08:37	1	1	5										
HDR13102820-07A	B03-07-SO-10242013	SO	10/24/13 08:53	1	1	5				Ι						
HDR13102820-08A	B04-03-SO-10242013	so	10/24/13 10:10	1	1	5										
HDR13102820-09A	B04-07-SO-10242013	so	10/24/13 10:25	1	1	5										
HDR13102820-10A	B05-03-SO-10252013	SO	10/25/13 07:45	1	1	5										
Comments:	Security seals intact. Froze	n ice. Sa	uturday delive	ry. Samp	les kept c	old and	secure unti	login on Mo	nday. Sample splits	s made t	oy lab in order to	sub 808	1/8082 to CL	S, due 11/5/1	<u>3. :  </u>	
s			nature				Print Name				Сотрапу				Date/Time	
Logged in by: <u>KMM</u>			nay				Knowy				Alpha Analytical, Inc.				8/13 1130	
NOTE: Sa	moles are discarded 60 d	ave afte	r reculte are	reporte	dunlees	othor a	rrangemer	nte ara madu	- Hazardous sar	nnios u	ill be returned	to client	or disposed	of at client e	xpense.	
Billing Information : HDR, Inc. 9563 S. Kingston	• Ct.		СН	255 Gle	N-OF Alp mdale Av	<b>F-Cl</b> ha A	USTC nalyti	DDY cal, Ir	Page: 6 of 6 WorkOrder : HDRC13102820							
--------------------------------------------------------	-----------------------	---------	-------------------	-------------	-------------------------	---------------------	-------------------------	----------------	------------------------------------------	----------	-----------	-----------	-----------	---------	-----------------	--------------
Client:	50112		Banart Atta	- Tation	TEL: (775	) 355-1(	)44 FAX: (775) 355-0406					port Due	By :	5:00 PM	[ <b>On</b> : 0	4-Nov-13
HDR, Inc.			Clayton Mc	kri	(91)	5) 817-4	762 x	clayton 1	nokri@hdrin	c.com						
2365 Iron Point R	Road		Clayton MC		()A	5) 517-	702 X	ciaytoit.i			<b></b> ]	EDD Requi	red : Y	es		
Suite 300												Sampleo	1 bv : J.	Ruffing		
Folsom, CA 9563	80											Cooler	Гетр	Samples	Received	Date Printed
Client's COC #: no	ne	Job :	028-213932	2-021/Si	unnvvale							0	°C	26-C	lct-13	28-Oct-13
QC Level : S3	= Final Rpt, MBLK, LC	CS, MS/	MSD With S	urrogate	es											
							T			Requeste	d Test	5				
Alpha	Client	••	Collection	No. o	f Bottles		TDS_W									
Sample ID	Sample ID	Matr	rix Date	Alpha	Sub	TAT		<u> </u>	1						] Samp	le Remarks
HDR13102820-21A	B10-07-SO-10252013	SO	10/25/13 09:35	1	1	5				Ι						·····
HDR13102820-22A	B10-05-GW-10252013	AQ	10/25/13 09:30	3	0	5	TDS									
HDR13102820-23A	B11-03-SO-10242013	so	10/24/13 15:40	1	1	5										
HDR13102820-24A	B11-07-SO-10242013	SO	10/24/13 15:45	1	1	5										
HDR13102820-25A	B12-03-SO-10242013	so	10/24/13 16:20	1	1	5										
HDR13102820-26A	B12-07-SO-10242013	SO	10/24/13 16:30	1	1	5										
HDR13102820-27A	B13-03-SO-10242013	so	10/24/13 12:45	1	1	5										
HDR13102820-28A	B13-07-SO-10242013	so	10/24/13 13:00	1	1	5										

Comments:

Security seals intact. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Sample splits made by lab in order to sub 8081/8082 to CLS, due 11/5/13. :

		Signature		Print Name		Company	ſ	Date/Time
Logged in by:	K	Munay	, je	- Muran	1	Alpha Analytical, Inc.		10/28/13/130
	/	/			/			•

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing	Information:
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Company:	HDR			. /s ^a /
Attn:	Accounts Payable			(\$1
Address:	9563 S. Kingston Ct. Ste. 200			ii l
City, State, Zip:	Englewood CO 80112			
Phone Number:	303.754.4200	Fax:	303.721.9202	14



### Alpha Analytical, Inc.

Main Laboratory: 255 Glendale Ave, Suite 21 Sparks, NV 89431	Phone:	775-355-1044	
	Fax:	775-355-0406	
Satellite Service Centers:			
Sacramento: 9891 Horn Road, Suite C, Rancho Cordova, CA 95827	Phone:	915-356-9089	
Las Vegas: 6255 McLeod Ave, Suite 24, Las Vegas, NV 89120	Phone:	702-736-7522	
Los Angeles: 1007 E. Dominguez St., Suite O, Carson, CA 90746	Phone:	714-386-2901	Page #1_ of3

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	Consultant/ Client Info: Job and Purchase Order Info:									197 - 18	B	eport A	ttention	Project I	Managei	r:			de la	Q0	Delivera	able info	):	
Company		HOR			Job #		028-213932-021				Name:	•	Clayton Mr	ekri			_		EDD Rec	juired? Y	es / No		EDF Requ	uiredi? Yes / No
Address:		2365 Iron	Point Rd Ste 300	-	.lob Name:	-	Sunnvvale			-	Email Ad	dress:	Clayton Mr	kri@hdrine.c	om									
City State	7in:	Eoleom C	4 95630	-	P.O.#	-				-	Phone #:		916.817.47	62					Global IC	e e				
ony, otato	, <b>L</b> ip.	100000,0		-		-				Cell #:						Data Val	dation Lev	/el:	ш	or	IV			
Samples	Collecte	d from wi	nich State? (circle one) AZ	NV WA	ID OR	DODS	lite Other																Demo	100
	,								1				1	1	Analy	ysis Requ	ested		1	T			Rema	ITKS
									che	rs** (See Key Below	ed Pest (8081)	<b>182</b> )	8270)	metals (6010B) & (200.8)	ogen (300.0/351)	RA Metals 0.8)	(1)							
Time Sampled (HHMM)	Date Sampled (MM/DD)	Matrix* (See Key Below)	Lab ID Number (For Lab Use Only)		Samp	le Descri	ption	TAT	Field Fittere	- # Containe	Chlorinat	PCBs (80	SVOCs (	RCRA 81 Mercury (	Total Nitr	Total RC (6020/20	TDS (160							
0950	14/24		HDK 3/02/320-01	B01	-03	-80	· 10242013	50	No		×	×	×	×										
0955	<u>'%z4</u>	, s	0	B01	-07	-80	- 10242013	-1-						×				1						
1000	1/25	S	02	B02	-03	-50	10252013				×	×	×	×				<u> </u>						
1015		s	DY STREET, DY	602	-07	-50	10252013			<u> </u>	<u> </u>			×		<u> </u>								
1056		AQ	<u> </u>	802	-94	-GW	- 1025213			3					×		<u> </u>			<u> </u>				
0437	14/24	, s	06	B03	-03	-80	-10242013		+		×	×	×	×					+					
0853	$\perp$	s .	07	803	-07	-\$0	10242013							×				1		<u> </u>				
1010		s	03	B04	-03	-SO	10 247013				×	×	×	×										
1025	<u> </u>	s		804	-07	-50	10242013			<u> </u>		<u> </u>		×					_					
0745	10/zs	s	10 1 House and the second second second second second second second second second second second second second s	805	-03	-\$0	0252013			++	<u>×</u>	×	×	×										
08'20	1425	s	10	805	-07	, - <b>SO</b>	· 10257013					<u> </u>		<u> </u>			<u> </u>	1	_					
<u> </u>		<u></u>	a the second second second second second second second second second second second second second second second	<u>805</u>		-011		A	A	Y		1			X	X	×							
ADDITION	ADDITIONAL INSTRUCTIONS:																							
Sampled By: ) K A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamma A gamm							Receive	d by: (Sig		lation):	m)							Date:	-513	3	Time: 13	50		
Relingeist	ed by: (	Signature	Affiliation):	Date:		F	Time:		Receive			iation):	al.	421	•					Date:	28/13	;	Time:	Ð
Relinquist	ed by: (	Signature	Affiliation):	Date:			Time:		Receive	d by: (Sig	nature/Affil	lation):	-7							Date: *	*		Time:	
			* Key: AQ - Aqueou	us V	NA - Wast	te	OT - Other	**: L-I	_iter	V - VOA	\ <u>S-</u> {	Soil Jar	0-0	Orbo	T - Tedla	ar B-	Brass	P - 1	Plastic	OT - 01	ther		<b>.</b>	
NOTE: S this COC.	TE: Samples are discarded 60 days after sample receipt unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with s COC. The liability of the laboratory is limited to the amount paid for the report.																							

Billing In	formation	
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	Billing Information	on:		nalytia
Company:	HDR			- (3 ²
Attn:	Accounts Payable			. <i>1\$1</i> 🖬 `
Address:	9563 S. Kingston Ct. Ste. 20	00		
City, State, Zip:	Englewood, CO 80112			
Phone Number:	303,754.4200	Fax:	303.721.9202	"Buironmental

### Alpha Analytical, Inc.

Main Laboratory: 255 Glendale Ave, Suite 21 Sparks, NV 89431	Phone:	775-355-1044	
	Fax:	775-355-0406	).
Satellite Service Centers:			-
Sacramento: 9891 Horn Road, Suite C, Rancho Cordova, CA 95827	Phone:	916-366-9089	
Las Vegas: 6255 McLeod Ave, Suite 24, Las Vegas, NV 89120	Phone:	702-736-7522	
Los Angeles: 1007 E. Dominguez St., Suite O, Carson, CA 90746	Phone:	714-385-2901	Page #2_ of3
	Main Laboratory: 255 Glendale Ave, Suite 21 Sparks, NV 89431 Satellite Service Centers: Sacramento: 9891 Hom Road, Suite C, Rancho Cordova, CA 95827 Las Vegas: 6255 McLeod Ave, Suite 24, Las Vegas, NV 89120 Los Angeles: 1007 E. Dominguez St., Suite O, Carson, CA 90746	Main Laboratory: 255 Glendale Ave, Suite 21 Sparks, NV 89431 Phone:   Fax: Fax:   Satellite Service Centers: Satellite Service Centers:   Sacramento: 9891 Hom Road, Suite C, Rancho Cordova, CA 95827 Phone:   Las Vegas: 6255 McLeod Ave, Suite 24, Las Vegas, NV 89120 Phone:   Los Angeles: 1007 E. Dominguez St., Suite O, Carson, CA 90746 Phone:	Main Laboratory:   255 Glendale Ave, Suite 21 Sparks, NV 89431   Phone:   775-355-1044     Fax:   775-355-0406     Satellite Service Centers:

Company:	L L		int/ Client Into:				Job #	JOD an	028-213932-021	r Info:		_	Name: Email Add		Clayton Mol	kri@bdriase		•		E	EOD Requ	ired? Ye	fes / No EDF Required? Yes / N/				
City, State, Z	2 Zip: <u>F</u>	oisom, CA	95630				P.O. #:	•	Sunnyvare			_	Phone #:		916.817.470	62				G	Global ID:						
		•		1 47	<b>ക</b>			DOD	Sita Othar				Cell #:				- ·			Data Validation Level:			el:	10	or	W	
samples Co	mected	moin white	Stater (circle o	(ie) AL				000			T				1	i	Anal	/sis Reque	sted	T					Remark	<u>.</u> 5	
Time I Sampled Sa	Date	Matrix* (See Key					6	4- 0		TAT	ield Filtered?	t Containers** (See Key Betow)	Chlorinated Pest (8081)	oCBs (8082)	SVOCs (8270)	<pre>KCRA 8 metals (6010B) &amp; Mercury (200.8)</pre>	Fotal Nitrogen (300.0/351)	rotal RCRA Metals (6020/200.8)	TDS (160.1)							r	
	244	S S			- 17	B06	-03	-60	- 10242413	510	110	<del>*</del>	X	x	×	x				- 1							
117A	1	s	<u>uvriar</u>		1	B06	-07	-80	· 10 247212	1	Ť					x					İ						
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1241		\$		1	15	B07	-07	-80	107 47013							x			,								
13-13 1		s			16	808	-03	-50	10247013				x	x	x	x			!								
14,0		s	1. Hereitere		17	808	-07	-80	10Z42013							x											
STO		s			16	809	-03	-50	10241013				x	x	x	x											
1510	L	s		in and the state	"A	B09	-07	-so	10242013							х											
City K	0/25	s	<b></b>	t de	20	B10	-03	-so	10252013			TI.	×	х	x	х											
550	1	s	L		21	B10	-07	-so	10252013			V				х							<u> </u>				
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Billing Information:							
Company:	HDR						
Attn:	Accounts Payable						
Address:	9563 S. Kingston Ct. Ste. 200						

Fax:

City, State, Zip: Englewood, CO 80112

Phone Number: 303.754.4200

	Analytica
303.721.9202	in the second

### Alpha Analytical, Inc.

Main Laboratory: 255	Glendale Ave, Suite 21 Sparks, NV 89431	Phone:	775-355-1044	
		Fax:	775-355-0406	
Sate	llite Service Centers:			
Sacramento: 9891 Hom	Road, Suite C, Rancho Cordova, CA 95827	Phone:	916-366-9089	
Las Vegas: 6255 Mcl	eod Ave, Suite 24, Las Vegas, NV 89120	Phone:	702-736-7522	
Los Angeles: 1007 E.	Dominguez St., Suite O, Carson, CA 90746	Phone:	714-386-2901	Page #3 of3_

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Address:		2365 Iron	Point Rd Ste	300			Job Name	9:	Sunnyvale			_	Email Add	tress:	Clavton.Mo	kri@hdrinc.c	om									
City, State	, Zip:	Folsom, C	A 95630				P.O. #:					-	Phone #:		916.817.47	62					Giobal ID	κ.				
					~								Cell #:								Data Vali	dation Lev	el:		or	īV
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### **APPENDIX C**

Waste Disposal Criteria



**Waste Management** 4333 E Jefferson Ave. Fresno, CA 93725 (559) 834-9151

February 11, 2014

TO: Sunnyvale Water Pollution Control Plant

FROM: Leslie Fichera

### SUBJECT: Sunnyvale Water Pollution Control Plant – 1444 Borregas Avenue, Sunnyvale, CA

WM PROFILE: 616623CA

I have reviewed the data for the above project for acceptance into Altamont Landfill. Estimated project size is 1,000 yards. The data consists of samples analyzed by Alpha Analytical, Job number 028-213932-021/Sunnyvale on November 14, 2013, and December 13, 2013. Analytical also includes samples analyzed by California Laboratory Services, Work Order # CWK0135 on November 12, 2013.

Based on my review of the analytical provided, all information provided so far indicates the soil can be managed as Non-Hazardous at the Altamont Landfill, however, additional analytical will be required to obtain an approval at Altamont Landfill. Additional analytical requirements include: total CAM17 Metals, STLC as needed, TPH gas, diesel, oil and VOC's.

Prior to receipt of waste a profile signed by the generator will need to be approved by Waste Management, Inc. After profile approval, all loads must be scheduled 24-48 hours in advance. Please contact Waste Management Inc. to schedule the loads. The profile number must be referenced for schedule and delivery.

Sincerely,

Leslie, Fichera,

Leslie Fichera Waste Acceptance Manager Waste Management Inc.

## STLC/TTLC Regulatory Limits

# Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC) Regulatory Limits¹

		TTLC Level
Organic Substances	STLC Level (mg/L)	(mg/Kg - wet weight)
Aldrin	0.14	1.4
Chlrodane	0.25	2.5
DDT, DDE, DDD	0.1	1
2,4-Dichlorophenoxyacetic acid	10	100
Dieldrin	0.8	8
Dioxin (2,3,7,8-TCDD)	0.001	0.01
Endrin	0.02	0.2
Heptachlor	0.47	4.7
Kepone	2.1	21
Lead compounds, organic	-	13
Lindane (gamma-BHC)	0.4	4
Methoxychlor	10	100
Mirex	2.1	21
Pentachlorophenol	1.7	17
PCBs (Polychlorinated Biphenyls)	5.0	50
Toxaphene	0.5	5
Trichloroethylene	204	2040
2,4,-Trichlorophenoxypropionic acid	1.0	10

1 Used for California regulated hazardous waste. Source is California Code of Regulations, Title 22, Chapter 11, Article 3.

mg/L - milligrams per liter

mg/Kg - milligrams per kilogram

## STLC/TTLC Regulatory Limits

Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC) Regulatory Limits¹

		TTLC ³ Level
Inorganic Substances	STLC ² Level (mg/L)	(mg/Kg - wet weight)
Antimony (and/or Sb compounds)	15	500
Arsenic (and/or As compounds)	5	50
Asbestos	-	1%
Barium (and/or Ba compounds)	100	10000 ⁴
Beryllium (and/or Be compounds)	0.75	75
Cadmium (and/or Cd compounds)	1	100
Chromium VI compounds	5	500
Chromium (and/or Cr III compounds)	5 ⁵	2500
Cobalt (and/or Co compounds)	80	8000
Copper (and/or Cu compounds)	25	2500
Fluoride salts	180	18000
Lead (and/or Pb compounds)	5	1000
Mercury (and/or Hg compounds)	0.2	20
Molybdenum (and/or Mo compounds)	350	3500
Nickel (and/or Ni compounds)	20.0	2000
Selenium (and/or Se compounds)	1	100
Silver (and/or Ag compounds)	5	500
Thallium (and/or TI compounds)	7.0	700
Vanadium (and/or V compounds)	24	2400
Zinc (and/or Zn compounds)	250	5000

1 Used for California regulated hazardous waste. Source is California Code of Regulations, Title 22, Chapter 11, Article 3.

2 If a substance is ten times (by rule of thumb) the STLC value found on the TTLC, the Waste Extraction test (WET) should be used. If any substance in the waste equals or exceeds the STLC value, it is considered a hazardous toxic waste.

3 If a substance in a waste equals or exceeds the TTLC level, it is considered a hazardous toxic waste.

4 Excludes barium sulfate.

5 If the soluble chromium as determined by the TCLP is less than 5mg/L, and the soluble chromium as determined by the STLC test equals or exceeds 560mg/L, and the waste is not otherwise identified as a RCRA hazardous waste, then the waste is a non-RCRA hazardous waste.

mg/L - milligrams per liter

mg/Kg - milligrams per kilogram

### **APPENDIX D**

Construction/trench Worker Health Risk Assessment

Normal UCL Statistics 1	or Full Data	Sets			
User Selected Options					
From File WorkSheet_a.wst					
Full Precision OFF					
Confidence Coefficient 95%					
					1
C1		Arsenic	 	 	
Number of Valid Observations	26				
Number of Distinct Observations	18				
Minimum	0.05				
Maximum	28				
Mean	4.675			 	
Geometric Mean	3.042			 	
Median	3.75		 		
SD	5.192				
Variance	26.95				
Std. Error of Mean	1.018				
Coefficient of Variation	1.11			 	
Skewness	3.888				
Shapiro Wilk Test Statistic	0.551			 	
5% Shapiro Wilk Critical Value	0.92			 	
Data not Normal at 5% Significance Level				 	
95% UCL (Assuming Normal Distribution)				 	
Student's-t UCL	6.414				
Data do not follow a Discernable Distribution (0.0	5)				
May want to try Nonparametric UCLs					
C2		Barium			
Number of Valid Observations	26				
Number of Distinct Observations	18				
Minimum	9.9				
Maximum	1900				
Mean	272.5				
Geometric Mean	154.9				
Median	145				
SD	394.9				
Variance	155939				
Std. Error of Mean	77.44				
Coefficient of Variation	1.449				
Skewness	3.372				
1					
Shapiro Wilk Test Statistic	0.546				
5% Shapiro Wilk Critical Value	0.92				
Data not Normal at 5% Significance Level				_	

95% UCL (Assuming Normal Distribution)					
Student's-t UCL	404.8				
Data do not follow a Discernable Distribution (0.05)					
May want to try Nonparametric UCLs					
C3		Chromium			
Number of Valid Observations	26				
Number of Distinct Observations	21				
Minimum	4				
Maximum	120				
Mean	59.8				
Geometric Mean	51.34				
Median	61.5				
SD	22.43				
Variance	502.9				
Std. Error of Mean	4.398				
Coefficient of Variation	0.375				
Skewness	-0.432				
Shapiro Wilk Test Statistic	0.863				
5% Shapiro Wilk Critical Value	0.92				
Data not Normal at 5% Significance Level					
95% UCL (Assuming Normal Distribution)					
Student's-t UCL	67.31				
Data do not follow a Discernable Distribution (0.05	i)				
May want to try Nonparametric UCLs					
C4		Lead	Ľ		
Number of Valid Observations	26	5			
Number of Distinct Observations	21				
Minimum	0.5	5			
Maximum	170	)			
Mean	13.6	3			
Geometric Mean	6.301	I			
Median	6.4	t I			
SD	32.24	ł			
Variance	1039	•			
Std. Error of Mean	6.323	3			
Coefficient of Variation	2.37	1			
Skewness	4.93	3			
Shapiro Wilk Test Statistic	0.319	Э	1		

	- Add				
5% Shapiro Wilk Critical Value	0.92				
Data not Normal at 5% Significance Level					
95% UCL (Assuming Normal Distribution)				 in an an an an an an an an an an an an an	
Student's-t UCL	24.4				
Data do not follow a Discernable Distribution (0.05)			 		
May want to try Nonparametric UCLs				 	

**Site-specific** Construction Worker Equation Inputs for Non-standard Soil

Variable	Value
TR (target cancer risk) unitless	1.0E-6
THQ (target hazard quotient) unitless	1
AT _{cw} (averaging time - construction worker)	365
EF (exposure frequency - construction worker) day/yr	250
ED _{cw} (exposure duration - construction worker) yr	1
ET _{cw} (exposure time - construction worker) hr	8
LT (lifetime) yr	70
BW _{cw} (body weight - construction worker) kg	70
IR cw (soil ingestion rate - construction worker) mg/day	330
$SA_{cw}$ (surface area - construction worker) cm 2 /day	3300
$AF_{cw}$ (skin adherence factor - construction worker) mg/cm ²	0.3
A _{+ill} (areal extent of tilling) acres	1
M (Gravimetric soil moisture content) %	
ρ _{soil} (density) g/cm ³ - chemical-specific	1.68
N _{A-dump} (number of times soil is dumped)	2
$N_{\Delta_{-till}}$ (number of times soil is tilled)	2
s _{till} (soil silt content) %	18
s _{doz} (soil silt content) %	6.9
B ₁ (dozing/grading blade length) m	
N (number of times site was dozed/graded)	
S (dozing speed) kph	
d _{excav} (average depth of excavation site) m	2
$A_{excav}$ (area of excavation site) m ²	1000
$A_{c}$ (areal extent of site soil contamination) m ²	
T (time over which construction occurs) s	7200000
J` _T (g/m ⁻ s)	0.0000039688437
$F(x)$ (function dependant on $U_m/U_t$ derived using Cowherd et al. (1985))	0.194
U _t (equivalent threshold value) m/s	11.32
U _m (mean annual wind speed) m/s	4.69

1

Output generated 10FEB2014:17:13:04

**Site-specific** Construction Worker Equation Inputs for Non-standard Soil

ĺ	Variable	Value
	V (fraction of vegetative cover)	0
	M _{wind} (dust emitted by wind erosion) g	51288.84717
	M _{doz} (dust emitted from dozing operations) g	80.169020872572
	M _{till} (dust emitted from tilling operations) g	5043.3532488378
	M _{grade} (dust emitted from grading operations) g	589.0618944
	M _{excav} (dust emitted from excavation soil dumping) g	819.44679313559
	ΣVKT (sum of fleet vehicle km traveled) km	
	$Q/C_{sa}$ (inverse of the ratio of the geometric mean air concentration to the emission flu	14.31407
	PEF` _{sc} (particulate emission factor) m ³ /kg	19407360.036209
	A (PEF Dispersion Constant)	2.4538
	B (PEF Dispersion Constant)	17.5660
	C (PEF Dispersion Constant)	189.0426
	$A_{surf}$ (areal extent of site) m ²	2023.43
	T (temperature) °C	25
	foc (fraction organic carbon in soil) g/g	0.006
	ρ _b (dry soil bulk density) g/cm ³	1.5
	ρ _s (soil particle density) g/cm ³	2.65
	A (VF Dispersion Constant)	2.4538
	B (VF Dispersion Constant)	17.5660
	C (VF Dispersion Constant)	189.0426
	T (exposure interval) s	31536000
	$Q/C_{sa}$ (inverse of the ratio of the geometric mean air concentration to the emission flu	14.31407
	n (total soil porosity) L pore/L soil	0.43396
	θ _w (water-filled soil porosity) L water/L soil	0.15
	θ _a (air-filled soil porosity) L _{air} /L _{soil}	0.28396

## Site-specific

### Construction Worker Screening Levels (RSL) for Non-standard Soil

ca=Cancer, nc=Noncancer, ca* (Where nc SL < 100 x ca SL),

ca** (Where nc SL < 10 x ca SL), max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat,

Smax=Soil SL exceeds ceiling limit and has been substituted with the max value (see User's Guide),

Ssat=Soil inhalation SL exceeds csat and has been substituted with the csat

Chemical	CAS Number	Mutagen?	VOC?	Ingestion SF (mg/kg-day) ⁻¹	SFO Ref	Inhalation Unit Risk (ug/m ³ ) ⁻¹	IUR Ref	Subchronic RfD (mg/kg-day)	SRfD Ref	Subchronic RfC (mg/m ³ )	SRfC Ref	GIABS	ABS	RBA	Volatilization Factor (m ³ /kg)
Arsenic. Inorganic	7440-38-2	No	No	1.50E+00		4.30E-03		-		_		1	0.03	0.6	-
Barium	7440-39-3	No	No	-		-		2.00E-01	Α	5.00E-03	Н	0.07	-	1	-
Chromium. Total	7440-47-3	No	No	_		-		-		_		0.013	_	1	-
Lead and Compounds	7439-92-1	No	No	-		-		-		-		1	-	1	-
Mercury (elemental)	7439-97-6	No	Yes	-		-		-		3.00E-04	Н	1	-	1	6.68E+03
Selenium	7782-49-2	No	No			-		5.00E-03	Н	-		1	-	1	
Silver	7440-22-4	No	No	-		-		5.00E-03	Н	-		0.04	-	1	-

## Site-specific

Construction Worker Screening Levels (RSL) for Non-standard Soil

ca=Cancer, nc=Noncancer, ca* (Where nc SL < 100 x ca SL),

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Smax=Soil SL exceeds ceiling limit and has been substituted with the max value (see User's Guide),

Ssat=Soil inhalation SL exceeds csat and has been substituted with the csat

Chemical	Soil Saturation Concentration (mg/kg)	Apparent Diffusivity (cm ² /s)	D _{ia} cm ² /s)	D _{iw} cm ² /s)	Henrys Iaw constant	K _d (cm ³ /g)	K _{oc} (cm3/g)
Arsenic, Inorganic	-	-	-	-	-	29	-
Barium	-	-	-	-	-	41	-
Chromium, Total	_	-	-	-	-	1800000	-
Lead and Compounds	-	-	-	-	-	900	-
Mercurv (elemental)	3.13E+00	0.0000146	0.0307	6.3E-6	0.467	52	-
Selenium	-	-	-	-	-	5	-
Silver	-	-	-	-	-	8.3	-

## Site-specific

Construction Worker Screening Levels (RSL) for Non-standard Soil

ca=Cancer, nc=Noncancer, ca* (Where nc SL < 100 x ca SL),

ca** (Where nc SL < 10 x ca SL), max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat,

Smax=Soil SL exceeds ceiling limit and has been substituted with the max value (see User's Guide),

Ssat=Soil inhalation SL exceeds csat and has been substituted with the csat

Chemical	Particulate Emission Factor (m ³ /kg)	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	Screening Level (mg/kg)
Arsenic, Inorganic	1.94E+07	2.41E+01	1.61E+02	1.38E+03	2.06E+01	1.55E+02	1.03E+03	1.28E+03	1.22E+02	2.06E+01 ca**
Barium	1.94E+07	-	-	-	-	6.19E+04	-	4.25E+05	5.41E+04	5.41E+04 nc
Chromium, Total	1.94E+07	-	-	-	_	-	-	-	-	
Lead and Compounds	1.94E+07	-	-	-	-	-	-	-	8.00E+02	8.00E+02 nc
Mercurv (elemental)	1.94E+07	-	-	-	_	-	-	8.77E+00	8.77E+00	8.77E+00 nc
Selenium	1.94E+07	_		_		1.55E+03		1.70E+06	1.55E+03	1.55E+03 nc
Silver	1.94E+07	-	-	-	-	1.55E+03	-	-	1.55E+03	1.55E+03 nc

**Site-specific** Construction Worker Risk for Non-standard Soil

Chemical	Ingestion SF (mg/kg-day) ⁻¹	SFO Ref	Inhalation Unit Risk (ug/m ³ ) ⁻¹	IUR Ref	Subchronic RfD (mg/kg-day)	SRfD Ref	Subchronic RfC (mg/m ³ )	SRfC Ref	Volatilization Factor (m ³ /kg)	Soil Saturation Concentration (mg/kg)	Apparent Diffusivity (cm ² /s)
Arsenic, Inorganic	1.50E+00	1	4.30E-03	1	-		-		-	-	-
Barium	-		-		2.00E-01	А	5.00E-03	Н	-	-	-
Chromium, Total	-		-		-		-		-	-	-
Lead and Compounds	-		-		-		-		-	-	-
Mercury (elemental)	-		-		-		3.00E-04	Н	6.68E+03	3.13E+00	0.0000146
Selenium	-		-		5.00E-03	Н	-		-	-	-
Silver	-		-		5.00E-03	Н	-		-	-	-
*Total Risk	-		-		-		-		-	-	-

**Site-specific** Construction Worker Risk for Non-standard Soil

Chemical	D _{ia} cm ² /s)	D _{iw} cm ² /s)	Henrys Iaw constant	K _d (cm ³ /g)	K _{oc} (cm3/g)	Particulate Emission Factor (m ³ /kg)	Concentration (mg/kg)
Arsenic, Inorganic	-	-	-	29	-	1.94E+07	6.41
Barium	-	-	-	41	-	1.94E+07	404
Chromium, Total	-	-	-	1800000	-	1.94E+07	-
Lead and Compounds	-	-	-	900	-	1.94E+07	-
Mercury (elemental)	0.0307	6.3E-6	0.467	52	-	1.94E+07	0.36
Selenium	-	-	-	5	-	1.94E+07	2.3
Silver	-	-	-	8.3	-	1.94E+07	1.3
*Total Risk	-	-	-	-	-	-	-

**Site-specific** Construction Worker Risk for Non-standard Soil

Chemical	Ingestion Risk	Inhalation Risk	Carcinogenic Risk TP=1 0F-6	Ingestion Risk	Inhalation Risk	Noncarcinogenic Risk HI=1
Chemical				1-21	112-1	10-1
Arsenic, Inorganic	2.66E-07	4.63E-09	3.11E-07	4.14E-02	5.03E-03	5.26E-02
Barium	-	-	-	6.52E-03	9.51E-04	7.47E-03
Chromium, Total	-	-	-	-	-	-
Lead and Compounds	-	-	-	-	-	-
Mercury (elemental)	-	-	-	-	4.10E-02	4.10E-02
Selenium	-	-	-	1.49E-03	1.35E-06	1.49E-03
Silver	-	-	-	8.40E-04	-	8.40E-04
*Total Risk	2.66E-07	4.63E-09	3.11E-07	5.02E-02	4.70E-02	1.03E-01