NM-29

Soil and Drainage Characterization Report

Date 6/28/2013

Souder, Miller & Associates • 2101 San Juan Boulevard • Farmington, NM 87401-2247
(505) 325-7535 • fax (505) 326-0045

OIL CONS. DIV DIST. 3
JUL 21 2013

June 28, 2013

#5122412

Mr. Jim Griswold
Senior Hydrologist
EMNRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

(505) 476-3465
jim.griswold@state.nm.us

RE: SOIL AND DRAINAGE CHARACTERIZATION REPORT, FORMER SOUTHWEST WATER DISPOSAL FACILITY, BLANCO AREA, SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Griswold:

Enclosed please find the Soil and Drainage Characterization Report for the Former Southwest Water Disposal (SWWD) facility located approximately 2.0 miles north of Blanco, NM. This report for the SWWD facility is submitted pursuant to the State of New Mexico General Services Department Purchasing Division price agreement #10-805-00-07208 and ***Purchase Order (PO) #52100-0000039950*** issued by the New Mexico Oil Conservation Division (NMOCD). All work was completed in accordance with the Souder, Miller & Associates (SMA) workplan dated May 1, 2013 and approved by NMOCD.

SMA appreciates the opportunity to provide environmental consulting services to NMOCD. If you have any questions or comments concerning the report, please feel free to call either of us at 505-325-7535 or via e-mail at cindy.gray@soudermiller.com or reid.allan@soudermiller.com.

Sincerely,

SOUDER, MILLER & ASSOCIATES

District Copy
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Has NOT been processed.

Cynthia A. Gray, CHMM
Senior Scientist

Reid S. Allan, P.G.
Vice President/Principal Scientist

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SOIL AND DRAINAGE CHARACTERIZATION
FORMER SOUTHWEST WATER DISPOSAL FACILITY

NEAR BLANCO, NEW MEXICO
SE/SW & SW/SE SECTION 32-
TOWNSHIP 30 NORTH-RANGE 9 WEST
SAN JUAN COUNTY, NEW MEXICO

Prepared by:
Souder, Miller & Associates
2101 San Juan Blvd.
Farmington, NM 87401-2247
505-325-7535

Prepared for:
NMOCD
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, NM 87505

June 28, 2013

Soil and Drainage Characterization Report
Former Southwest Water Disposal Facility
Near Blanco, San Juan County, New Mexico

Table of Contents

Soil and Drainage Characterization Report
Former Southwest Water Disposal Facility
Near Blanco, San Juan County, New Mexico

1.0 Executive Summary

Souder, Miller & Associates (SMA), in accordance with the State of New Mexico General Services Department Purchasing Division Price Agreement #10-805-00-07208AG and Purchase Order (PO) # 52100-0000039950 issued by the New Mexico Oil Conservation Division (NMOCD), has completed the Soil and Drainage Characterization at the Former Southwest Water Disposal (SWWD) facility, near Blanco, San Juan County, New Mexico (SE/SW & SW/SE Section 32-T30N-R9W). The Former SWWD facility is located approximately 2.0 miles north of Blanco, NM and is accessed from County Road 4599. The site is private land, currently owned by Constar Construction who acquired the property after the facility closure. SMA obtained appropriate site access from Constar prior to field activities.

Under the scope of the current workplan, SMA performed a topographic survey of the site to characterize stormwater pathways and potential pathways on the site. Note, downgradient of the site is a regional arroyo that drains to the San Juan River, approximately 3/4 mile to the east. To determine the horizontal extent and concentration of contaminants of concern, surface samples were collected for laboratory analysis at multiple points, both upgradient and downgradient of the site. To determine the vertical extent and concentration levels of contaminants of concern, test pits were excavated to approximately fifteen feet below ground surface on the former pond area. Stormwater control structures were also repaired as an interim measure to prevent continued off site migration of contaminants.

2.0 Background

The site formerly operated as a produced water disposal facility with an active evaporation system. After abandonment of the site, the facility was closed in 2001 by NMOCD through offsite disposal of remaining liquids, solidification of residual liquids, and backfilling of the pond area. Above ground storage tanks were also removed at this time. Stormwater controls were constructed and the site was seeded and mulched. One subsequent stormwater control maintenance event was conduct sometime after closure.

After closure of the facility approximately 12 years ago, no investigation of the SWWD facility was conducted to evaluate the horizontal and vertical extent of salts and metals in the area of the former pond. At the time of closure, stormwater controls were put in place but have not been consistently maintained. Revegetation efforts have met with little success, leaving the surface without effective stabilization, allowing significant erosion to occur along collection points.

3.0 Sampling Activities

On May 20, 2013, SMA conducted a site assessment and inspected the existing stormwater control features and vegetation at the site. Surface soil samples were collected from each outfall from the small drainages that pass through the site into the regional arroyo, as well as upstream and downstream within the regional arroyo. Four soil samples were collected from each of the corners of the former pond area. One sample was collected at the borrow pit, the source of the pond backfill material during closure in 2001. One additional background sample was collected outside of the pond area, in what appeared to be native, undisturbed soil. See Figure 1 for sample locations.

On May 23, 2013, SMA and Brandon Powell of NMOCD were on site to observe test pit excavation. Industrial Mechanical Incorporated (IMI) excavated five test pits within the pond area to approximately fifteen feet below ground surface. See Figure 1 for test pit locations. The pits allowed visual observation of the stratification of the pond area. Three soil samples were collected from each pit, at five foot intervals, for a total depth of fifteen feet for each pit.

Each of the samples collected during both events were submitted to Hall Environmental Analysis Laboratory in Albuquerque, NM. Samples were collected in the appropriate, clean, laboratory provided container and analyzed for the following:

1. Method 6010 RCRA 8 metals
2. EPA Method 6010 cations
3. EPA Method 300.0 anions
4. Method 6010B Sodium Absorption Ratio
5. Resistivity by Bur. Of Soils Method
6. Method 2320B Alkalinity (bicarbonates)

4.0 Discussion of Analytical Results

Laboratory analytical results are summarized in Table 1 and a copy of the laboratory report is included in Appendix A. Laboratory results indicate high cation and anion concentrations, particularly in the samples collected from the former pond area and the borrow pit. High cation and anion levels typically create soil conditions that are undesirable for plant growth, especially in an arid environment. The concentrations alter the pH levels, change the anion and cation exchange rates, and change the water absorption rate of vegetation.

The four surface samples collected across the former pond area exceeded standards for fluoride, nitrate, mercury, barium, chromium and lead, according to New Mexico Water Quality Control Commission (NMWQCC) Standards for groundwater

(20.6.2.3103 NMAC), the applicable regulations for closure of surface waste management facilities (19.15.36 NMAC), The borrow pit surface samples exceeded NMWQCC standards for fluoride, barium, chromium and lead. Please note all samples, including the background sample, either exceeded the standards mentioned, or had a laboratory detection limits in excess of the standard for arsenic, barium, chromium and lead concentrations.

Laboratory results for the test pits exceeded NMWQCC standards for mercury in "pothole 3" at 5 and 15 feet below ground surface (bgs), and "pothole 5" at 15 feet bgs. Fluoride, arsenic, barium, chromium and lead concentrations exceeded the standard, or had a laboratory detection limit in excess of the standard, in all samples collected. Cation and anion concentrations were elevated similarly to those in the surface samples in the former pond area at all depths of the test pits.

In addition, SMA has provided a "rule of 20" application to the potentially hazardous waste constituents in Table 1. In general, the "rule of 20" can be used to determine whether a toxicity characteristic leaching procedure (TCLP) test is needed prior to disposal. None of the constituents approached the regulatory levels set by the United States Environmental Protection Agency (USEPA) for toxicity characteristics.

5.0 Engineering Stormwater and Erosion Evaluation

The intent of the engineering evaluation was to review the condition of the closed evaporation pond site, related damage to the stormwater BMP's, and to provide recommendations that will provide temporary stabilization to prohibit stormwater migration of salts and other contaminants towards the San Juan River. A complete engineering evaluation and design can be implemented under a separate work plan.

On June 7, 2013, the SMA Senior Engineer completed a site visit to review existing drainage patterns, runoff conditions, identify drainage conditions that are currently working (as well as drainage conditions that are not working), and to recommend procedures to slow the movement of stormwater, thus reducing erosion. The combination of topographical information gathered by SMA surveyors, local soil data from Natural Resources Conservation Services (NRCS), and the Simplified Peak Flow runoff volume method was used to determine key hydrological factors relating to the site watershed (direct runoff, peak discharge, and total runoff volume). The site was divided into three (3) drainage basins. Based on these calculations, found in Appendix B, the depth of each basin was estimated to hold the estimated 100-year, 24-hour storm runoff recurrence event and multiplied using a factor of safety of 2.0. This information was provided to SMA's Field Technician for use in construction of the basin areas and berms.

Based on visual observation of existing site conditions combined with the laboratory

results of the soil samples, SMA has concluded that the site is unfavorable for natural vegetation growth. Since the closure twelve years ago, very little vegetation has established across the majority of the pond area. Only areas that are collection points for ponding of stormwater have developed marginal vegetative cover. Vegetation is one of the primary BMP's that can be used to prevent erosion of soils from slopes, channels and sites such as this one.

Implementation (and subsequent maintenance) of soil erosion controls should prove to be effective in promoting vegetation growth. In addition, it will aid in slowing the overland flow of stormwater runoff, a problem that had contributed greatly to the migration of salts and contaminants into the wash. In order to prevent failure of these controls (as was the case with the previously established BMP's), proper and regular maintenance of the site stormwater controls is highly recommended.

6.0 Stormwater and Erosion BMP Stabilization

Based on recommendations by SMA's Engineering Staff, the existing structures were modified to function on an interim basis. The rip-rap structure located in the run-on diversion channel, on the northwest side of the pond area, had approximately two and half feet of erosion below the structure. During the test pit excavation, a backhoe was used to augment the structure and allow it to sit on the surface of the channel bed. On June 20, 2013, a motor-grader employed by La Plata Construction, was used to re-contour the existing earthen berms and channels at the site. The channel responsible for diverting run-on around the site was graded to encourage sheet flow drainage and to prevent pooling. Stormwater pooling had been the cause for failure of the existing stormwater controls in this area. Stormwater controls on the backfilled pond area with significant washout were filled and contoured to improve and control surface water drainage on an interim basis. The toe of each berm was increased in size to minimize failure and to increase infiltration. The height of the berms was also increased to improve holding capacity. The goal of these two approaches to berm improvement is to prevent breakthrough and to improve subsurface infiltration and natural evaporation. Photos of the stormwater and erosion stabilization can be found in the attached Appendix C - Photograph Gallery. Figure 2 - Surface Grading, details the site activities.

The above described and implemented improvements are interim measureS only to reduce erosion from the site. There are other areas (i.e. borrow area), channels, and stormwater run-off adjacent to the actual site that will require additional engineering review and evaluation to recommend BMP's that will stabilize this facility.

7.0 Recommendations

Field observations of site conditions, condition of existing erosion controls, and results

of the soil sampling and analysis program indicate that the site is unfavorable for natural vegetation growth. Since closure 12 years ago, very little vegetation has established across the pond area. Only areas that are collection points for ponding of stormwater have developed substantial vegetative cover. SMA recommends further evaluation of the chemistry of the soils as determined by laboratory analysis to specify a soil amendment which will encourage vegetative growth. The soil amendment should be applied on the areas of little vegetation. The amendment should be scarified or disced into the uppermost soil horizon.

Additionally, SMA recommends additional design and implementation of soil erosion controls both on the pond area and on areas upgradient of the pond that contribute significant run-on to the site. The erosion control plan will divert stormwater run-on around the site to prevent surface erosion of the pond area and ultimately minimize the transport of contaminants off site. SMA recommends an Operation and Maintenance (O&M) Manual for planning, implementation, and regular maintenance of soil erosion controls of the site. A groundwater investigation may also be warranted under this program. However, additional information on depth to groundwater and localized aquifer characteristics will need to be assessed to determine the necessity of a groundwater investigation.

SITE FIGURES

LEGEND

- EXISTING INTERMEDIATE CONTOUR
- EXISTING INDEX CONTOUR
- OPH-4 SW CORNER — POTHOLE LOCATION
- OUTFALL #4 ⊗ — SURFACE SAMPLE APPROXIMATE LOCATION

SCALE: 1" = 100'
EXISTING CONTOUR INTERVAL = 1'

200 100 0 200 400

S89°39'35"E
1310.37'

S89°47'15"E
1316.47'

N0°20'36"E
1316.19'

S0°07'55"W
1316.46'

S0°02'08"E
1313.80'

S89°38'54"E
1315.24'

N89°54'12"W
1320.31'

5775 5770 5765 5760 5755 5750 5745 5740 5735 5730 5725 5720 5715 5710 5705 5700 5695 5690 5685 5680

BORROW

BACKGROUND

UPSTREAM

DOWNSTREAM

OUTFALL #1
OUTFALL #2
OUTFALL #3
OUTFALL #4

OPH-1
OPH-2
OPH-3
OPH-4
OPH-5

NW CORNER
NE CORNER
SW CORNER
SE CORNER

EXISTING CONTOURS AND SAMPLING LOCATIONS
SOUTHWEST DISPOSAL SITE
BLANCO, NEW MEXICO

FIGURE 1

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD, FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Grand Junction - Cortez, CO Monticello, UT

REVISIONS

BY	DATE	DESCR.
BY	DATE	DESCR.
BY	DATE	DESCR.

DRAWN GJF
CHECKED SC
APPROVED RSA

P:\5-NMOCD - SW WATER DISPOSAL (5122412)\CAD\DWG\CIVIL\51422412 BOREHOLE LOCATIONS.DWG

LEGEND

- EXISTING INTERMEDIATE CONTOUR
- EXISTING INDEX CONTOUR
- GRADING INTERMEDIATE CONTOUR
- GRADING INDEX CONTOUR

SCALE: 1" = 100'
EXISTING CONTOUR INTERVAL = 1'
GRADING CONTOUR INTERVAL = 1'

100 50 0 100 200

5735 5730 5725 5720 5715 5710 5705 5700 5695 5690 5685 5680

AREA OF 2013 GRADING

AREA OF 2013 GRADING

AREA OF 2013 GRADING

S0°07'55"W 1316.46'

S89°38'54"E 1315.24'

JUNE 2013 SURFACE GRADING
SOUTHWEST DISPOSAL SITE
BLANCO, NEW MEXICO

FIGURE 2

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD.
FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Grand Junction - Cortez, CO Monticello, UT

DRAWN GJF
CHECKED SC
APPROVED BSA

REVISIONS
BY DATE DESCR.
BY DATE DESCR.
BY DATE DESCR.

P:\5-NMOCD - SW WATER DISPOSAL (5122412)\CAD\DWG\CIVIL\51422412 GRADING.DWG

TABLE 1

Laboratory Results Summary

Table 1: Summary of Surface Soil Analytical Results
Southwest Water Disposal Facility
San Juan County, New Mexico

		Method 300.0: Anions							Method 7471		Method 6010B: Soil Metals												
Sample Name	Date	Fluoride (mg/kg)	Chloride (mg/kg)	Nitrite (mg/kg)	Bromide (mg/kg)	Nitrate (mg/kg)	Phosphorus (mg/kg)	Sulfate (mg/kg)	Mercury (mg/kg)		Arsenic (mg/kg)		Barium (mg/kg)		Calcium (mg/kg)	Chromium (mg/kg)		Lead (mg/kg)		Magnesium (mg/kg)	Potassium (mg/kg)	Sodium (mg/kg)	Resistivity (ohms*cm)	Sodium Adsorption Ratio
20.6.2.3103 NMAC standard		**1.6**				**10**			**0.002**	**0.2 (TCLP limit)**	**0.1**	**5.0 (TCLP limit)**	**1.0**	**100 (TCLP limit)**		**0.05**	**5.0 (TCLP limit)**	**0.05**	**5.0 (TCLP limit)**					
Upstream	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	<7.5	<0.033	<0.0017	**<2.5**	<0.125	**53**	2.7	100	**2.5**	0.13	**2.3**	0.12	770	680	60	18100	0.85
Outfall #1	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	<7.5	<0.033	<0.0017	**<2.5**	<0.125	**120**	6.0	1400	**2.2**	0.11	**2.1**	0.11	840	660	300	5680	1.9
Outfall #2	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	8.0	<0.033	<0.0017	**<2.5**	<0.125	**49**	2.5	950	**2.1**	0.11	**1.8**	0.09	700	630	230	6370	2.3
Outfall #3	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	<7.5	<0.033	<0.0017	**<2.5**	<0.125	**48**	2.4	1700	**2.5**	0.13	**2.4**	0.12	920	800	230	5840	1.9
Outfall #4	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	12	<0.033	<0.0017	**3.1**	0.155	**96**	4.8	960	**2.3**	0.12	**2.4**	0.12	820	670	270	5610	2.4
Downstream	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	<7.5	<0.033	<0.0017	**<2.5**	<0.125	**32**	1.6	640	**1.8**	0.09	**1.8**	0.09	600	520	200	8750	3.0
SE Corner	5/20/2013	**5.1**	2000	<1.5	6.7	**18**	<7.5	2300	**0.40**	0.02	**<5.0**	<0.25	**820**	41.0	5100	**6.1**	0.31	**3.8**	0.19	2800	2000	7500	138	710
NE Corner	5/20/2013	**4.9**	1000	<1.5	4.0	**11**	<7.5	710	**0.69**	0.03	**<5.0**	<0.25	**1300**	65.0	5700	**6.5**	0.33	**4.8**	0.24	2900	2100	5200	224	330
NW Corner	5/20/2013	**3.4**	1200	<1.5	4.1	**23**	<7.5	1100	**0.19**	0.01	**<13**	<0.65	**460**	23.0	3500	**5.9**	0.30	**3.7**	0.19	2500	2000	4900	186	810
SW Corner	5/20/2013	**7.5**	1400	<1.5	5.2	**35**	<7.5	2600	**0.83**	0.04	**<5.0**	<0.25	**1300**	65.0	7900	**7.4**	0.37	**5.5**	0.28	3900	2700	9300	142	810
Borrow	5/20/2013	**4.2**	11	<1.5	<1.5	1.9	<7.5	410	<0.033	<0.0017	**<12**	<0.6	**96**	4.8	2800	**6.9**	0.35	**2.1**	0.11	2800	2100	1200	407	6.4
Background	5/20/2013	<1.5	<7.5	<1.5	<1.5	<1.5	<7.5	<7.5	<0.033	<0.0017	**6.9**	0.345	**160**	8.0	1800	**4.2**	0.21	**4.6**	0.23	1600	1200	990	3360	1.7
Pothole 1 @5'	5/23/2013	**5.8**	930	<1.5	3.4	5.4	<30	1700	<0.16	<0.008	**<5.0**	<0.25	**210**	10.5	3500	**5.1**	0.26	**2.1**	0.11	2100	1300	3800	259	59
Pothole 1 @ 10'	5/23/2013	**3.7**	2300	<6.0	9.3	0.52	<1.5	1600	<0.033	<0.0017	**<5.0**	<0.25	**230**	11.5	3400	**4.9**	0.25	**2.8**	0.14	2100	1700	5800	160	460
Pothole 1 @ 15'	5/23/2013	**2.8**	930	<6.0	3.3	0.33	<30	2200	<0.033	<0.0017	**<5.0**	<0.25	**160**	8.0	2000	**5.1**	0.26	**4.0**	0.20	2000	1200	2500	278	55
Pothole 2 @ 5'	5/23/2013	**4.2**	100	<0.30	4.4	3.5	<30	2800	<0.033	<0.0017	**<5.0**	<0.25	**150**	7.5	2800	**5.9**	0.30	**2.4**	0.12	2600	1800	4100	239	72
Pothole 2 @ 10'	5/23/2013	**5.9**	2400	<1.5	8.5	<1.5	<7.5	1300	0.038	0.0019	**<5.0**	<0.25	**270**	13.5	3200	**5.2**	0.26	**2.9**	0.15	2100	1600	6000	166	760
Pothole 2 @ 15'	5/23/2013	**5.3**	2100	<1.5	7.1	<1.5	<7.5	430	<0.033	<0.0017	**<5.0**	<0.25	**210**	10.5	3400	**6.6**	0.33	**2.9**	0.15	3200	2300	7100	190	280
Pothole 3 @ 5'	5/23/2013	**7.0**	100	<1.5	3.9	<1.5	<7.5	100	**0.065**	0.0033	**<5.0**	<0.25	**260**	13.0	3200	**6.0**	0.30	**2.8**	0.14	2300	1600	3900	248	110
Pothole 3 @ 10'	5/23/2013	**6.6**	2000	<1.5	7.8	2.0	<7.5	1100	<0.033	<0.0017	**<5.0**	<0.25	**180**	9.0	2900	**5.8**	0.29	**2.2**	0.11	2400	1800	6000	168	450
Pothole 3 @ 15'	5/23/2013	**4.2**	1300	<1.5	5.4	<1.5	<7.5	560	**0.037**	0.0019	**<12**	<0.6	**220**	11.0	3300	**7.3**	0.37	**2.7**	0.14	3200	2600	7100	224	160
Pothole 4 @ 5'	5/23/2013	**5.5**	600	<1.5	2.1	4.5	<7.5	1800	<0.033	<0.0017	**<5.0**	<0.25	**120**	6.0	3200	**6.2**	0.31	**2.7**	0.14	2400	1600	2900	339	45
Pothole 4 @ 10'	5/23/2013	**4.9**	970	<1.5	3.2	4.1	<7.5	890	<0.033	<0.0017	**<12**	<0.6	**180**	9.0	2900	**5.8**	0.29	**2.1**	0.11	2300	1600	4000	279	130
Pothole 4 @ 15'	5/23/2013	**2.9**	190	<0.30	0.74	0.82	<30	1200	<0.033	<0.0017	**<5.0**	<0.25	**61**	3.1	2300	**4.2**	0.21	**2.4**	0.12	1500	1100	1300	547	54
Pothole 5 @ 5'	5/23/2013	**6.7**	840	<1.5	3.1	4.1	<7.5	1000	<0.033	<0.0017	**<5.0**	<0.25	**160**	8.0	3000	**6.0**	0.30	**2.3**	0.12	2300	1500	3100	310	62
Pothole 5 @ 10'	5/23/2013	**4.6**	1600	<1.5	6.1	3.6	<7.5	850	<0.033	<0.0017	**<5.0**	<0.25	**140**	7.0	5400	**7.7**	0.39	**2.7**	0.14	3700	2600	7600	204	230
Pothole 5 @ 15'	5/23/2013	**4.0**	1100	<1.5	4.5	<1.5	<7.5	480	**0.043**	0.0022	**<12**	<0.6	**170**	8.5	5200	**9.5**	0.48	**3.0**	0.15	4200	3000	8000	222	200

Indicates samples either exceeded standard or laboratory detection limts are above standards

Indicates "Rule of 20" applied to laboratory results.

APPENDIX A

Laboratory Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 06, 2013

Cindy Gray
Souder, Miller and Associates
2101 San Juan Boulevard
Farmington, NM 87401
TEL: (505) 325-5667
FAX (505) 327-1496

RE: SW Disposal

OrderNo.: 1305837

Dear Cindy Gray:

Hall Environmental Analysis Laboratory received 12 sample(s) on 5/21/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1305837**
Date Reported: **6/6/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-001 **Matrix:** SOIL

Client Sample ID: Upstream
Collection Date: 5/20/2013 10:26:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
Chloride	ND	7.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
Bromide	ND	1.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
Sulfate	ND	7.5		mg/Kg	5	5/24/2013 12:11:55 PM	7602
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:03:54 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Barium	53	0.50		mg/Kg	5	5/31/2013 3:53:14 PM	7618
Cadmium	ND	0.10		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Calcium	1100	25		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Chromium	2.5	0.30		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Lead	2.3	0.25		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Magnesium	770	25		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Potassium	680	50		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Selenium	ND	2.5		mg/Kg	1	5/30/2013 8:30:27 AM	7618
Silver	ND	0.25		mg/Kg	1	5/29/2013 8:39:31 AM	7618
Sodium	60	25		mg/Kg	1	5/29/2013 8:39:31 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	0.85	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	18100	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1305837**
Date Reported: **6/6/2013**

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-002 **Matrix:** SOIL

Client Sample ID: Outfall #1
Collection Date: 5/20/2013 10:37:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
Chloride	ND	7.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
Bromide	ND	1.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
Sulfate	ND	7.5		mg/Kg	5	5/24/2013 12:49:08 PM	7602
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:05:45 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Barium	120	0.50		mg/Kg	5	5/30/2013 8:51:05 AM	7618
Cadmium	ND	0.10		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Calcium	1400	25		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Chromium	2.2	0.30		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Lead	2.1	0.25		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Magnesium	840	25		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Potassium	660	50		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Selenium	ND	2.5		mg/Kg	1	5/30/2013 8:48:04 AM	7618
Silver	ND	0.25		mg/Kg	1	5/29/2013 8:54:51 AM	7618
Sodium	300	25		mg/Kg	1	5/29/2013 8:54:51 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	1.9	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	5680	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-003 **Matrix:** SOIL

Client Sample ID: Outfall #2
Collection Date: 5/20/2013 10:51:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
Chloride	ND	7.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
Bromide	ND	1.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
Sulfate	8.0	7.5		mg/Kg	5	5/24/2013 1:13:58 PM	7602
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:07:30 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Barium	49	0.10		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Cadmium	ND	0.10		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Calcium	950	25		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Chromium	2.1	0.30		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Lead	1.8	0.25		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Magnesium	700	25		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Potassium	630	50		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Selenium	ND	2.5		mg/Kg	1	5/30/2013 8:53:53 AM	7618
Silver	ND	0.25		mg/Kg	1	5/29/2013 9:01:30 AM	7618
Sodium	230	25		mg/Kg	1	5/29/2013 9:01:30 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	2.3	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	6370	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Client Sample ID: Outfall #3
Project: SW Disposal
Collection Date: 5/20/2013 10:57:00 AM
Lab ID: 1305837-004 **Matrix:** SOIL **Received Date:** 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
Chloride	ND	7.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
Bromide	ND	1.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
Sulfate	ND	7.5		mg/Kg	5	5/24/2013 2:03:38 PM	7602
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:09:17 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/29/2013 9:20:14 AM	7618
Barium	48	0.10		mg/Kg	1	5/29/2013 9:20:14 AM	7618
Cadmium	ND	0.10		mg/Kg	1	5/29/2013 9:20:14 AM	7618
Calcium	1700	50		mg/Kg	2	5/29/2013 9:22:45 AM	7618
Chromium	2.5	0.30		mg/Kg	1	5/29/2013 9:20:14 AM	7618
Lead	2.4	0.25		mg/Kg	1	5/29/2013 9:20:14 AM	7618
Magnesium	920	50		mg/Kg	2	5/29/2013 9:22:45 AM	7618
Potassium	800	100		mg/Kg	2	5/29/2013 9:22:45 AM	7618
Selenium	ND	2.5		mg/Kg	1	5/30/2013 8:56:46 AM	7618
Silver	ND	0.25		mg/Kg	1	5/29/2013 9:20:14 AM	7618
Sodium	230	50		mg/Kg	2	5/29/2013 9:22:45 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	1.9	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	5840	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-005 **Matrix:** SOIL

Client Sample ID: Outfall #4
Collection Date: 5/20/2013 11:12:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
Chloride	ND	7.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
Bromide	ND	1.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
Sulfate	12	7.5		mg/Kg	5	5/24/2013 2:28:28 PM	7602
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:11:04 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	3.1	2.5		mg/Kg	1	5/29/2013 9:25:15 AM	7618
Barium	96	0.20		mg/Kg	2	5/29/2013 9:27:44 AM	7618
Cadmium	ND	0.10		mg/Kg	1	5/29/2013 9:25:15 AM	7618
Calcium	960	50		mg/Kg	2	5/29/2013 9:27:44 AM	7618
Chromium	2.3	0.30		mg/Kg	1	5/29/2013 9:25:15 AM	7618
Lead	2.4	0.25		mg/Kg	1	5/29/2013 9:25:15 AM	7618
Magnesium	820	50		mg/Kg	2	5/29/2013 9:27:44 AM	7618
Potassium	670	100		mg/Kg	2	5/29/2013 9:27:44 AM	7618
Selenium	ND	2.5		mg/Kg	1	5/30/2013 9:11:33 AM	7618
Silver	ND	0.25		mg/Kg	1	5/29/2013 9:25:15 AM	7618
Sodium	270	50		mg/Kg	2	5/29/2013 9:27:44 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	2.4	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	5610	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-006 **Matrix:** SOIL

Client Sample ID: Downstream
Collection Date: 5/20/2013 11:16:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
Chloride	ND	7.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
Bromide	ND	1.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
Sulfate	ND	7.5		mg/Kg	5	5/24/2013 2:53:18 PM	7602
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:12:51 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Barium	32	0.10		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Cadmium	ND	0.10		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Calcium	640	25		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Chromium	1.8	0.30		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Lead	1.8	0.25		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Magnesium	600	25		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Potassium	520	50		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Selenium	ND	2.5		mg/Kg	1	5/30/2013 9:14:40 AM	7618
Silver	ND	0.25		mg/Kg	1	5/29/2013 9:30:14 AM	7618
Sodium	200	25		mg/Kg	1	5/29/2013 9:30:14 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	3.0	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	8750	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-007 **Matrix:** SOIL

Client Sample ID: SE Corner
Collection Date: 5/20/2013 11:22:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	5.1	1.5		mg/Kg	5	5/23/2013 5:19:40 PM	7593
Chloride	2000	75		mg/Kg	50	5/24/2013 3:30:32 PM	7593
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/23/2013 5:19:40 PM	7593
Bromide	6.7	1.5		mg/Kg	5	5/23/2013 5:19:40 PM	7593
Nitrogen, Nitrate (As N)	18	1.5		mg/Kg	5	5/23/2013 5:19:40 PM	7593
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/23/2013 5:19:40 PM	7593
Sulfate	2300	30		mg/Kg	20	5/23/2013 5:32:05 PM	7593
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	0.40	0.16		mg/kg	5	5/29/2013 11:47:28 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	5/29/2013 9:37:55 AM	7618
Barium	820	2.0		mg/Kg	20	5/30/2013 9:25:13 AM	7618
Cadmium	ND	0.20		mg/Kg	2	5/29/2013 9:37:55 AM	7618
Calcium	5100	50		mg/Kg	2	5/30/2013 9:19:09 AM	7618
Chromium	6.1	0.60		mg/Kg	2	5/29/2013 9:37:55 AM	7618
Lead	3.8	0.50		mg/Kg	2	5/29/2013 9:37:55 AM	7618
Magnesium	2800	50		mg/Kg	2	5/30/2013 9:19:09 AM	7618
Potassium	2000	100		mg/Kg	2	5/30/2013 9:19:09 AM	7618
Selenium	ND	5.0		mg/Kg	2	5/30/2013 9:19:09 AM	7618
Silver	ND	0.50		mg/Kg	2	5/29/2013 9:37:55 AM	7618
Sodium	7500	50		mg/Kg	2	5/30/2013 9:19:09 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	710	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	138	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-008 **Matrix:** SOIL

Client Sample ID: NE Corner
Collection Date: 5/20/2013 11:28:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.9	1.5		mg/Kg	5	5/23/2013 5:44:30 PM	7593
Chloride	1000	30		mg/Kg	20	5/23/2013 5:56:55 PM	7593
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/23/2013 5:44:30 PM	7593
Bromide	4.0	1.5		mg/Kg	5	5/23/2013 5:44:30 PM	7593
Nitrogen, Nitrate (As N)	11	1.5		mg/Kg	5	5/23/2013 5:44:30 PM	7593
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/23/2013 5:44:30 PM	7593
Sulfate	710	7.5		mg/Kg	5	5/23/2013 5:44:30 PM	7593
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	0.69	0.16		mg/kg	5	5/29/2013 11:49:15 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	5/29/2013 9:43:17 AM	7618
Barium	1300	5.0		mg/Kg	50	5/30/2013 9:35:23 AM	7618
Cadmium	ND	0.20		mg/Kg	2	5/29/2013 9:43:17 AM	7618
Calcium	5700	50		mg/Kg	2	5/30/2013 9:27:58 AM	7618
Chromium	6.5	0.60		mg/Kg	2	5/29/2013 9:43:17 AM	7618
Lead	4.8	0.50		mg/Kg	2	5/29/2013 9:43:17 AM	7618
Magnesium	2900	50		mg/Kg	2	5/30/2013 9:27:58 AM	7618
Potassium	2100	100		mg/Kg	2	5/30/2013 9:27:58 AM	7618
Selenium	ND	5.0		mg/Kg	2	5/30/2013 9:27:58 AM	7618
Silver	ND	0.50		mg/Kg	2	5/29/2013 9:43:17 AM	7618
Sodium	5200	50		mg/Kg	2	5/30/2013 9:27:58 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	330	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	224	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-009 **Matrix:** SOIL

Client Sample ID: NW Corner
Collection Date: 5/20/2013 11:33:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **JRR**
Fluoride	3.4	1.5		mg/Kg	5	5/23/2013 6:34:10 PM	7593
Chloride	1200	75		mg/Kg	50	5/24/2013 3:42:57 PM	7593
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/23/2013 6:34:10 PM	7593
Bromide	4.1	1.5		mg/Kg	5	5/23/2013 6:34:10 PM	7593
Nitrogen, Nitrate (As N)	23	1.5		mg/Kg	5	5/23/2013 6:34:10 PM	7593
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/23/2013 6:34:10 PM	7593
Sulfate	1100	30		mg/Kg	20	5/23/2013 6:46:35 PM	7593
EPA METHOD 7471: MERCURY							Analyst: **IDC**
Mercury	0.19	0.033		mg/kg	1	5/29/2013 11:22:13 AM	7635
EPA METHOD 6010B: SOIL METALS							Analyst: **ELS**
Arsenic	ND	13		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Barium	460	1.0		mg/Kg	10	5/30/2013 9:41:14 AM	7618
Cadmium	ND	0.50		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Calcium	3500	130		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Chromium	5.9	1.5		mg/Kg	5	5/31/2013 4:04:28 PM	7618
Lead	3.7	1.3		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Magnesium	2500	130		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Potassium	2000	250		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Selenium	ND	13		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Silver	ND	1.3		mg/Kg	5	5/30/2013 9:38:08 AM	7618
Sodium	4900	130		mg/Kg	5	5/30/2013 9:38:08 AM	7618
SAR SOLUBLE CATIONS							Analyst: **JLF**
Sodium Adsorption Ratio	810	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY							Analyst: **JML**
Resistivity	186	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1305837**
Date Reported: **6/6/2013**

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-010 **Matrix:** SOIL

Client Sample ID: SW Corner
Collection Date: 5/20/2013 11:38:00 AM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	7.5	1.5		mg/Kg	5	5/23/2013 6:59:00 PM	7593
Chloride	1400	75		mg/Kg	50	5/24/2013 3:55:22 PM	7593
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/23/2013 6:59:00 PM	7593
Bromide	5.2	1.5		mg/Kg	5	5/23/2013 6:59:00 PM	7593
Nitrogen, Nitrate (As N)	35	1.5		mg/Kg	5	5/23/2013 6:59:00 PM	7593
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/23/2013 6:59:00 PM	7593
Sulfate	2600	30		mg/Kg	20	5/23/2013 7:11:24 PM	7593
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	0.83	0.16		mg/kg	5	5/29/2013 11:51:05 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	5/29/2013 10:04:03 AM	7618
Barium	1300	5.0		mg/Kg	50	5/31/2013 4:10:11 PM	7618
Cadmium	ND	0.20		mg/Kg	2	5/29/2013 10:04:03 AM	7618
Calcium	7900	1200		mg/Kg	50	5/31/2013 4:10:11 PM	7618
Chromium	7.4	0.60		mg/Kg	2	5/29/2013 10:04:03 AM	7618
Lead	5.5	0.50		mg/Kg	2	5/29/2013 10:04:03 AM	7618
Magnesium	3900	1200		mg/Kg	50	5/31/2013 4:10:11 PM	7618
Potassium	2700	2500		mg/Kg	50	5/31/2013 4:10:11 PM	7618
Selenium	ND	5.0		mg/Kg	2	5/31/2013 4:07:21 PM	7618
Silver	ND	0.50		mg/Kg	2	5/29/2013 10:04:03 AM	7618
Sodium	9300	1200		mg/Kg	50	5/31/2013 4:10:11 PM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	810	0			1	5/28/2013 2:49:00 PM	7596
RESISTIVITY						Analyst: **JML**	
Resistivity	142	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-011 **Matrix:** SOIL

Client Sample ID: Borrow
Collection Date: 5/20/2013 12:05:00 PM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.2	1.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
Chloride	11	7.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
Bromide	ND	1.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
Nitrogen, Nitrate (As N)	1.9	1.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
Sulfate	410	7.5		mg/Kg	5	5/23/2013 7:23:49 PM	7593
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:25:58 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**	
Arsenic	ND	12		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Barium	96	0.50		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Cadmium	ND	0.50		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Calcium	2800	120		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Chromium	6.9	1.5		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Lead	2.1	1.2		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Magnesium	2800	120		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Potassium	2100	250		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Selenium	ND	12		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Silver	ND	1.2		mg/Kg	5	5/31/2013 4:12:56 PM	7618
Sodium	1200	120		mg/Kg	5	5/31/2013 4:12:56 PM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	6.4	0			1	5/28/2013 2:49:00 PM	7595
RESISTIVITY						Analyst: **JML**	
Resistivity	407	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1305837**
Date Reported: **6/6/2013**

CLIENT: Souder, Miller and Associates
Project: SW Disposal
Lab ID: 1305837-012 **Matrix:** SOIL

Client Sample ID: Background
Collection Date: 5/20/2013 12:14:00 PM
Received Date: 5/21/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	1.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
Chloride	ND	7.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
Bromide	ND	1.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
Sulfate	ND	7.5		mg/Kg	5	5/23/2013 7:48:39 PM	7593
EPA METHOD 7471: MERCURY						Analyst: **IDC**	
Mercury	ND	0.033		mg/kg	1	5/29/2013 11:31:30 AM	7635
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	6.9	5.0		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Barium	160	0.50		mg/Kg	5	5/31/2013 4:20:23 PM	7618
Cadmium	ND	0.20		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Calcium	1800	50		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Chromium	4.2	0.60		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Lead	4.6	0.50		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Magnesium	1600	50		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Potassium	1200	100		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Selenium	ND	5.0		mg/Kg	2	5/31/2013 4:15:49 PM	7618
Silver	ND	0.50		mg/Kg	2	5/29/2013 10:14:25 AM	7618
Sodium	990	50		mg/Kg	2	5/29/2013 10:14:25 AM	7618
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Sodium Adsorption Ratio	1.7	0			1	5/28/2013 2:49:00 PM	7595
RESISTIVITY						Analyst: **JML**	
Resistivity	3360	1.00		Ohms * cm	1	5/22/2013 6:55:00 PM	7575

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 06/03/13

Lab ID: B13051862-001
Client Sample ID 1305837-001B, Upstream
Collection Date: 05/20/13 10:26
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	16	mg/kg	D	4		ASA10-3	05/29/13 13:37 / hmb

Lab ID: B13051862-002
Client Sample ID 1305837-002B, Outfall #1
Collection Date: 05/20/13 10:37
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	84	mg/kg	D	4		ASA10-3	05/29/13 13:47 / hmb

Lab ID: B13051862-003
Client Sample ID 1305837-003B, Outfall #2
Collection Date: 05/20/13 10:51
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	162	mg/kg	D	4		ASA10-3	05/29/13 13:53 / hmb

Lab ID: B13051862-004
Client Sample ID 1305837-004B, Outfall #3
Collection Date: 05/20/13 10:57
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	86	mg/kg	D	4		ASA10-3	05/29/13 13:59 / hmb

Lab ID: B13051862-005
Client Sample ID 1305837-005B, Outfall #4
Collection Date: 05/20/13 11:12
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	136	mg/kg	D	4		ASA10-3	05/29/13 14:05 / hmb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 06/03/13

Lab ID: B13051862-006
Client Sample ID 1305837-006B, Downstream
Collection Date: 05/20/13 11:16
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	57	mg/kg	D	4		ASA10-3	05/29/13 14:10 / hmb

Lab ID: B13051862-007
Client Sample ID 1305837-007B, SE Corner
Collection Date: 05/20/13 11:22
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	4900	mg/kg	D	4		ASA10-3	05/29/13 14:25 / hmb

Lab ID: B13051862-008
Client Sample ID 1305837-008B, NE Corner
Collection Date: 05/20/13 11:28
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	1550	mg/kg	D	4		ASA10-3	05/31/13 13:14 / hmb

Lab ID: B13051862-009
Client Sample ID 1305837-009B, NW Corner
Collection Date: 05/20/13 11:33
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	1860	mg/kg	D	4		ASA10-3	05/29/13 14:34 / hmb

Lab ID: B13051862-010
Client Sample ID 1305837-010B, SW Corner
Collection Date: 05/20/13 11:38
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	3890	mg/kg	D	4		ASA10-3	05/29/13 14:46 / hmb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 06/03/13

Lab ID: B13051862-011
Client Sample ID 1305837-011B, Borrow
Collection Date: 05/20/13 12:05
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	297	mg/kg	D	4		ASA10-3	05/29/13 14:53 / hmb

Lab ID: B13051862-012
Client Sample ID 1305837-012B, Background
Collection Date: 05/20/13 12:14
DateReceived: 05/22/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	91	mg/kg	D	4		ASA10-3	05/29/13 15:06 / hmb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/03/13
Work Order: B13051862

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3										Batch: 71610
Sample ID: LCS-71610	Laboratory Control Sample					Run: MAN-TECH_130529A				05/29/13 13:33
Total Alkalinity		121	mg/kg	4.0	84	50	150			
Sample ID: B13051862-011ADUP	Sample Duplicate					Run: MAN-TECH_130529A				05/29/13 15:00
Total Alkalinity		305	mg/kg	4.0				2.6	30	
Sample ID: B13051862-001ADUP	Sample Duplicate					Run: MAN-TECH_130529A				05/29/13 13:41
Total Alkalinity		16.1	mg/kg	4.0				1.9	30	8.03

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305837**

06-Jun-13

Client: Souder, Miller and Associates

Project: SW Disposal

Sample ID **MB-7602**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **7602**	RunNo: **10891**
Prep Date: **5/24/2013**	Analysis Date: **5/24/2013**	SeqNo: **307751** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-7602**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **7602**	RunNo: **10891**
Prep Date: **5/24/2013**	Analysis Date: **5/24/2013**	SeqNo: **307752** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	98.9	90	110			
Chloride	14	1.5	15.00	0	93.5	90	110			
Nitrogen, Nitrite (As N)	2.8	0.30	3.000	0	93.2	90	110			
Bromide	7.2	0.30	7.500	0	95.8	90	110			
Nitrogen, Nitrate (As N)	7.4	0.30	7.500	0	98.1	90	110			
Phosphorus, Orthophosphate (As P	15	1.5	15.00	0	97.1	90	110			
Sulfate	28	1.5	30.00	0	94.9	90	110			

Sample ID **1305837-001AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Upstream**	Batch ID: **7602**	RunNo: **10891**
Prep Date: **5/24/2013**	Analysis Date: **5/24/2013**	SeqNo: **307755** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	1.5	1.500	0.6225	57.3	18.1	130			
Chloride	14	7.5	15.00	0	91.6	64.4	117			
Nitrogen, Nitrite (As N)	2.8	1.5	3.000	0	92.8	77.5	108			
Bromide	6.9	1.5	7.500	0	91.9	84.2	103			
Nitrogen, Nitrate (As N)	7.2	1.5	7.500	0.5505	88.1	80.1	108			
Phosphorus, Orthophosphate (As P	11	7.5	15.00	0	75.3	23	120			
Sulfate	29	7.5	30.00	0	96.4	20.8	141			

Sample ID **1305837-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Upstream**	Batch ID: **7602**	RunNo: **10891**
Prep Date: **5/24/2013**	Analysis Date: **5/24/2013**	SeqNo: **307756** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	1.5	1.500	0.6225	54.4	18.1	130	0	20	
Chloride	14	7.5	15.00	0	92.7	64.4	117	1.22	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305837**

06-Jun-13

Client: Souder, Miller and Associates

Project: SW Disposal

Sample ID **1305837-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Upstream**	Batch ID: **7602**	RunNo: **10891**
Prep Date: **5/24/2013**	Analysis Date: **5/24/2013**	SeqNo: **307756** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	2.9	1.5	3.000	0	95.6	77.5	108	2.97	20	
Bromide	7.0	1.5	7.500	0	93.7	84.2	103	1.88	20	
Nitrogen, Nitrate (As N)	7.2	1.5	7.500	0.5505	89.2	80.1	108	1.15	20	
Phosphorus, Orthophosphate (As P	12	7.5	15.00	0	77.2	23	120	2.52	20	
Sulfate	29	7.5	30.00	0	98.1	20.8	141	1.79	24.9	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305837**

06-Jun-13

Client: Souder, Miller and Associates

Project: SW Disposal

Sample ID	**MB-7635**	SampType: **MBLK**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **7635**			RunNo: **10928**					
Prep Date:	**5/28/2013**	Analysis Date: **5/29/2013**			SeqNo: **309005**		Units: **mg/kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-7635**	SampType: **LCS**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **7635**			RunNo: **10928**					
Prep Date:	**5/28/2013**	Analysis Date: **5/29/2013**			SeqNo: **309006**		Units: **mg/kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	104	80	120			

Sample ID	**1305837-011AMS**	SampType: **ms**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**Borrow**	Batch ID: **7635**			RunNo: **10928**					
Prep Date:	**5/28/2013**	Analysis Date: **5/29/2013**			SeqNo: **309020**		Units: **mg/kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1658	0.002587	100	75	125			

Sample ID	**1305837-011AMSD**	SampType: **msd**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**Borrow**	Batch ID: **7635**			RunNo: **10928**					
Prep Date:	**5/28/2013**	Analysis Date: **5/29/2013**			SeqNo: **309021**		Units: **mg/kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1649	0.002587	102	75	125	1.34	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305837**

06-Jun-13

Client: Souder, Miller and Associates
Project: SW Disposal

Sample ID **LCS-7618**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **7618**	RunNo: **10919**
Prep Date: **5/28/2013**	Analysis Date: **5/29/2013**	SeqNo: **308671** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	99.7	80	120			
Barium	24	0.10	25.00	0	95.2	80	120			
Cadmium	23	0.10	25.00	0	93.8	80	120			
Calcium	2700	25	2500	0	108	80	120			
Chromium	24	0.30	25.00	0	95.6	80	120			
Lead	23	0.25	25.00	0	93.9	80	120			
Magnesium	2600	25	2500	0	102	80	120			
Potassium	2500	50	2500	0	99.2	80	120			
Selenium	22	2.5	25.00	0	87.3	80	120			
Silver	5.0	0.25	5.000	0	99.2	80	120			
Sodium	2500	25	2500	0	98.4	80	120			

Sample ID **MB-7618**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **7618**	RunNo: **10919**
Prep Date: **5/28/2013**	Analysis Date: **5/29/2013**	SeqNo: **308678** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Calcium	ND	25								
Chromium	ND	0.30								
Lead	ND	0.25								
Magnesium	ND	25								
Potassium	ND	50								
Selenium	ND	2.5								
Silver	ND	0.25								
Sodium	ND	25								

Sample ID **1305837-001AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **Upstream**	Batch ID: **7618**	RunNo: **10919**
Prep Date: **5/28/2013**	Analysis Date: **5/29/2013**	SeqNo: **308696** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	24.24	1.143	102	75	125			
Cadmium	22	0.10	24.24	0	92.5	75	125			
Calcium	3600	25	2424	1096	102	75	125			
Chromium	26	0.30	24.24	2.503	98.0	75	125			
Lead	24	0.25	24.24	2.276	89.7	75	125			
Magnesium	3300	25	2424	765.6	105	75	125			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305837**

06-Jun-13

Client: Souder, Miller and Associates

Project: SW Disposal

Sample ID	1305837-001AMS	SampType:	MS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	Upstream	Batch ID:	7618	RunNo:	10919					
Prep Date:	5/28/2013	Analysis Date:	5/29/2013	SeqNo:	308696	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	3300	50	2424	679.0	107	75	125			
Silver	4.6	0.25	4.849	0	95.2	75	125			
Sodium	2400	25	2424	60.25	96.6	75	125			

Sample ID	1305837-001AMSD	SampType:	MSD	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	Upstream	Batch ID:	7618	RunNo:	10919					
Prep Date:	5/28/2013	Analysis Date:	5/29/2013	SeqNo:	308697	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	24.66	1.143	98.4	75	125	1.36	20	
Cadmium	22	0.10	24.66	0	89.5	75	125	1.62	20	
Calcium	3400	25	2466	1096	95.2	75	125	3.63	20	
Chromium	26	0.30	24.66	2.503	94.5	75	125	1.83	20	
Lead	24	0.25	24.66	2.276	86.5	75	125	1.72	20	
Magnesium	3200	25	2466	765.6	99.1	75	125	3.34	20	
Potassium	3300	50	2466	679.0	105	75	125	0.108	20	
Silver	4.6	0.25	4.932	0	92.9	75	125	0.776	20	
Sodium	2300	25	2466	60.25	89.5	75	125	5.82	20	

Sample ID	1305837-001AMS	SampType:	MS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	Upstream	Batch ID:	7618	RunNo:	10981					
Prep Date:	5/28/2013	Analysis Date:	5/30/2013	SeqNo:	310474	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	19	2.5	24.24	0	78.1	75	125			

Sample ID	1305837-001AMSD	SampType:	MSD	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	Upstream	Batch ID:	7618	RunNo:	10981					
Prep Date:	5/28/2013	Analysis Date:	5/30/2013	SeqNo:	310475	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	19	2.5	24.66	0	77.5	75	125	1.01	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305837**

06-Jun-13

Client: Souder, Miller and Associates

Project: SW Disposal

Sample ID	**1305837-001ADUP**	SampType:	**DUP**	TestCode:	**Resistivity**				
Client ID:	**Upstream**	Batch ID:	**7575**	RunNo:	**10849**				
Prep Date:	**5/22/2013**	Analysis Date:	**5/22/2013**	SeqNo:	**306354**	Units:	**Ohms * cm**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Resistivity	17700	1.00						2.46	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-FARM **Work Order Number:** 1305837 **RcptNo:** 1

Received by/date: CM 05/21/13

Logged By: Anne Thorne 5/21/2013 10:00:00 AM Anne Thorne

Completed By: Anne Thorne 5/21/2013 Anne Thorne

Reviewed By: TO 05/21/2013

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Chain-of-Custody Record

Client: SMA - Farmington

Mailing Address: 2101 San Juan Blvd

Phone #: 505-325-7535

email or Fax#: steven.mostal@sandermiller.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: SW Disposal

Project #: 5122412

Project Manager: Cindy Gray

Sampler: Steve Mostal / Shawna Chubbuck

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1305837
5/20/13	1026	soil	upstream	3x8oz	none	-001
	1037		outfall #1			-002
	1051		outfall #2			-003
	1057		outfall #3			-004
	1112		outfall #4			-005
	1116		Downstream			-006
	1122		SE corner			-007
	1128		NE corner			-008
	1133		NW corner			-009
	1138		SW corner			-010
	1205		Borrow			-011
↓	1214	↓	Background	↓	↓	-012

Analysis Request columns: BTEX + MTBE + TMB's (8021); BTEX + MTBE + TPH (Gas only); TPH Method 8015B (Gas/Diesel); TPH (Method 418.1); EDB (Method 504.1); 8310 (PNA or PAH); RCRA 8 Metals (6010) + stations; Anions (F, Cl, NO_3, NO_2, PO_4, SO_4); 8081 Pesticides / 8082 PCB's; 8260B (VOA); 8270 (Semi-VOA); 6010B SAR; Resistivity; 2320 Alkalinity (Bicarbs); 300.0 anions; Air Bubbles (Y or N)

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/20/13	1640			5/20/13	1640
Date:	Time:	Relinquished by:	Received by:	Date	Time
5/20/13	1740			05/21/13	1000

Remarks: Please email Report to
Shawna.Chubbuck@Sandermiller.com
cindy.gray@ " "
denny.faust@ " "
per SC all anions / A+ 05/21/13

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 17, 2013

Cindy Gray

2101 San Juan Boulevard
Farmington, NM 87401
TEL:
FAX

RE: Southwest Water Disposal OrderNo.: 1305997

Dear Cindy Gray:

Hall Environmental Analysis Laboratory received 15 sample(s) on 5/24/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1305997**
Date Reported: **6/17/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-1@5'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 10:05:00 AM
Lab ID: 1305997-001 **Matrix:** SOIL
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	5.8	1.5		mg/Kg	5	5/30/2013 11:00:22 AM	7656
Chloride	930	30		mg/Kg	20	5/30/2013 11:12:46 AM	7656
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/30/2013 11:00:22 AM	7656
Bromide	3.4	1.5		mg/Kg	5	5/30/2013 11:00:22 AM	7656
Nitrogen, Nitrate (As N)	5.4	1.5		mg/Kg	5	5/30/2013 11:00:22 AM	7656
Phosphorus, Orthophosphate (As P)	ND	30		mg/Kg	20	5/30/2013 11:12:46 AM	7656
Sulfate	1700	30		mg/Kg	20	5/30/2013 11:12:46 AM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.16		mg/Kg	5	6/7/2013 9:19:55 AM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/7/2013 7:39:51 AM	7673
Barium	210	0.50		mg/Kg	5	6/5/2013 12:07:49 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 9:13:06 AM	7673
Calcium	3500	250		mg/Kg	10	6/5/2013 12:28:08 PM	7673
Chromium	5.1	0.60		mg/Kg	2	6/4/2013 9:13:06 AM	7673
Lead	2.1	0.50		mg/Kg	2	6/4/2013 9:13:06 AM	7673
Magnesium	2100	50		mg/Kg	2	6/4/2013 9:13:06 AM	7673
Potassium	1300	100		mg/Kg	2	6/4/2013 9:13:06 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/7/2013 7:39:51 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 9:13:06 AM	7673
Sodium	3800	50		mg/Kg	2	6/7/2013 7:39:51 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	450	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	110	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	5300	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	59	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	259	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Project: Southwest Water Disposal
Lab ID: 1305997-002 **Matrix:** SOIL

Client Sample ID: P-1@10'
Collection Date: 5/23/2013 10:09:00 AM
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	3.7	0.30		mg/Kg	1	5/30/2013 11:25:11 AM	7656
Chloride	2300	150		mg/Kg	100	6/3/2013 4:15:33 PM	7656
Nitrogen, Nitrite (As N)	ND	6.0		mg/Kg	20	5/30/2013 11:37:36 AM	7656
Bromide	9.3	0.30		mg/Kg	1	5/30/2013 11:25:11 AM	7656
Nitrogen, Nitrate (As N)	0.52	0.30		mg/Kg	1	5/30/2013 11:25:11 AM	7656
Phosphorus, Orthophosphate (As P)	ND	1.5		mg/Kg	1	5/30/2013 11:25:11 AM	7656
Sulfate	1600	30		mg/Kg	20	5/30/2013 11:37:36 AM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:25:22 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/7/2013 7:50:20 AM	7673
Barium	230	0.50		mg/Kg	5	6/5/2013 12:33:16 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Calcium	3400	50		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Chromium	4.9	0.60		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Lead	2.8	0.50		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Magnesium	2100	50		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Potassium	1700	100		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/7/2013 7:50:20 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 9:23:36 AM	7673
Sodium	5800	50		mg/Kg	2	6/4/2013 9:23:36 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	4.6	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	20	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	10000	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	460	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	160	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1305997**
Date Reported: **6/17/2013**

CLIENT:
Client Sample ID: P-1@15'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 10:21:00 AM
Lab ID: 1305997-003 **Matrix:** SOIL **Received Date:** 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	2.8	0.30		mg/Kg	1	5/30/2013 11:50:02 AM	7656
Chloride	930	30		mg/Kg	20	5/30/2013 12:02:27 PM	7656
Nitrogen, Nitrite (As N)	ND	6.0		mg/Kg	20	5/30/2013 12:02:27 PM	7656
Bromide	3.3	0.30		mg/Kg	1	5/30/2013 11:50:02 AM	7656
Nitrogen, Nitrate (As N)	0.33	0.30		mg/Kg	1	5/30/2013 11:50:02 AM	7656
Phosphorus, Orthophosphate (As P)	ND	30		mg/Kg	20	5/30/2013 12:02:27 PM	7656
Sulfate	2200	30		mg/Kg	20	5/30/2013 12:02:27 PM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:27:11 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Barium	160	0.50		mg/Kg	5	6/5/2013 12:35:52 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Calcium	2000	50		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Chromium	5.1	0.60		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Lead	4.0	0.50		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Magnesium	2000	50		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Potassium	1200	100		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 9:39:16 AM	7673
Sodium	2500	50		mg/Kg	2	6/4/2013 9:39:16 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	440	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	140	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	5200	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	55	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	278	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-2@5'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 10:33:00 AM
Lab ID: 1305997-004 **Matrix:** SOIL **Received Date:** 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.2	0.30		mg/Kg	1	5/30/2013 12:14:52 PM	7656
Chloride	1100	75		mg/Kg	50	6/3/2013 4:27:58 PM	7656
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	5/30/2013 12:14:52 PM	7656
Bromide	4.4	0.30		mg/Kg	1	5/30/2013 12:14:52 PM	7656
Nitrogen, Nitrate (As N)	3.5	0.30		mg/Kg	1	5/30/2013 12:14:52 PM	7656
Phosphorus, Orthophosphate (As P)	ND	30		mg/Kg	20	5/30/2013 12:27:16 PM	7656
Sulfate	2800	30		mg/Kg	20	5/30/2013 12:27:16 PM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:28:59 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 9:44:30 AM	7673
Barium	150	0.50		mg/Kg	5	6/7/2013 7:52:55 AM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 9:44:30 AM	7673
Calcium	2800	130		mg/Kg	5	6/7/2013 7:52:55 AM	7673
Chromium	5.9	0.60		mg/Kg	2	6/4/2013 9:44:30 AM	7673
Lead	2.4	0.50		mg/Kg	2	6/4/2013 9:44:30 AM	7673
Magnesium	2600	130		mg/Kg	5	6/7/2013 7:52:55 AM	7673
Potassium	1800	250		mg/Kg	5	6/7/2013 7:52:55 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 9:44:30 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 9:44:30 AM	7673
Sodium	4100	130		mg/Kg	5	6/7/2013 7:52:55 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	470	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	150	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	7000	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	72	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	239	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Project: Southwest Water Disposal
Lab ID: 1305997-005 **Matrix:** SOIL

Client Sample ID: P-2@10'
Collection Date: 5/23/2013 10:40:00 AM
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	5.9	1.5		mg/Kg	5	5/30/2013 12:39:41 PM	7656
Chloride	2400	75		mg/Kg	50	6/3/2013 4:40:23 PM	7656
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/30/2013 12:39:41 PM	7656
Bromide	8.5	1.5		mg/Kg	5	5/30/2013 12:39:41 PM	7656
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/30/2013 12:39:41 PM	7656
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/30/2013 12:39:41 PM	7656
Sulfate	1300	30		mg/Kg	20	5/30/2013 12:52:05 PM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	0.038	0.033		mg/Kg	1	6/6/2013 3:30:48 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Barium	270	1.0		mg/Kg	10	6/7/2013 11:52:02 AM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Calcium	3200	50		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Chromium	5.2	0.60		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Lead	2.9	0.50		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Magnesium	2100	50		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Potassium	1600	100		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 9:49:43 AM	7673
Sodium	6000	50		mg/Kg	2	6/4/2013 9:49:43 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	2.6	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	13	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	14000	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	760	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	166	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report
Lab Order **1305997**
Date Reported: **6/17/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-2@15'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 10:46:00 AM
Lab ID: 1305997-006 **Matrix:** SOIL
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	5.3	1.5		mg/Kg	5	5/30/2013 1:29:20 PM	7656
Chloride	2100	75		mg/Kg	50	6/3/2013 4:52:48 PM	7656
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/30/2013 1:29:20 PM	7656
Bromide	7.1	1.5		mg/Kg	5	5/30/2013 1:29:20 PM	7656
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/30/2013 1:29:20 PM	7656
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/30/2013 1:29:20 PM	7656
Sulfate	430	7.5		mg/Kg	5	5/30/2013 1:29:20 PM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:32:37 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 9:54:56 AM	7673
Barium	210	0.50		mg/Kg	5	6/5/2013 12:43:22 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 9:54:56 AM	7673
Calcium	3400	120		mg/Kg	5	6/7/2013 8:09:14 AM	7673
Chromium	6.6	0.60		mg/Kg	2	6/4/2013 9:54:56 AM	7673
Lead	2.9	0.50		mg/Kg	2	6/4/2013 9:54:56 AM	7673
Magnesium	3200	120		mg/Kg	5	6/7/2013 8:09:14 AM	7673
Potassium	2300	250		mg/Kg	5	6/7/2013 8:09:14 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 9:54:56 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 9:54:56 AM	7673
Sodium	7100	120		mg/Kg	5	6/7/2013 8:09:14 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	3.3	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	52	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	9500	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	280	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	190	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Project: Southwest Water Disposal
Lab ID: 1305997-007 **Matrix:** SOIL

Client Sample ID: P-3@5'
Collection Date: 5/23/2013 11:02:00 AM
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	7.0	1.5		mg/Kg	5	5/30/2013 1:54:10 PM	7656
Chloride	1100	30		mg/Kg	20	5/30/2013 2:31:24 PM	7656
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/30/2013 1:54:10 PM	7656
Bromide	3.9	1.5		mg/Kg	5	5/30/2013 1:54:10 PM	7656
Nitrogen, Nitrate (As N)	7.8	1.5		mg/Kg	5	5/30/2013 1:54:10 PM	7656
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/30/2013 1:54:10 PM	7656
Sulfate	1100	30		mg/Kg	20	5/30/2013 2:31:24 PM	7656
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	0.065	0.033		mg/Kg	1	6/6/2013 3:38:10 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Barium	260	1.0		mg/Kg	10	6/7/2013 11:54:31 AM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Calcium	3200	50		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Chromium	6.0	0.60		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Lead	2.8	0.50		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Magnesium	2300	50		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Potassium	1600	100		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 10:00:10 AM	7673
Sodium	3900	50		mg/Kg	2	6/4/2013 10:00:10 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	100	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	50	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	5400	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	110	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	248	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-3@10'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 11:07:00 AM
Lab ID: 1305997-008 **Matrix:** SOIL **Received Date:** 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	6.6	1.5		mg/Kg	5	5/29/2013 9:47:49 AM	7648
Chloride	2000	75		mg/Kg	50	5/30/2013 4:23:08 PM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 9:47:49 AM	7648
Bromide	7.8	1.5		mg/Kg	5	5/29/2013 9:47:49 AM	7648
Nitrogen, Nitrate (As N)	2.0	1.5		mg/Kg	5	5/29/2013 9:47:49 AM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 9:47:49 AM	7648
Sulfate	1100	30		mg/Kg	20	5/29/2013 10:00:14 AM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:39:59 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Barium	180	0.50		mg/Kg	5	6/5/2013 12:48:24 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Calcium	2900	50		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Chromium	5.8	0.60		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Lead	2.2	0.50		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Magnesium	2400	50		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Potassium	1800	100		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 10:16:41 AM	7673
Sodium	6000	50		mg/Kg	2	6/4/2013 10:16:41 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	9.6	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	24	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	11000	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	450	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	168	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Project: Southwest Water Disposal
Lab ID: 1305997-009 **Matrix:** SOIL

Client Sample ID: P-3@15'
Collection Date: 5/23/2013 11:17:00 AM
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.2	1.5		mg/Kg	5	5/29/2013 10:12:38 AM	7648
Chloride	1300	75		mg/Kg	50	5/30/2013 4:35:33 PM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 10:12:38 AM	7648
Bromide	5.4	1.5		mg/Kg	5	5/29/2013 10:12:38 AM	7648
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/29/2013 10:12:38 AM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 10:12:38 AM	7648
Sulfate	560	7.5		mg/Kg	5	5/29/2013 10:12:38 AM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	0.037	0.033		mg/Kg	1	6/6/2013 3:41:49 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**	
Arsenic	ND	12		mg/Kg	5	6/7/2013 11:57:01 AM	7673
Barium	220	0.50		mg/Kg	5	6/7/2013 11:57:01 AM	7673
Cadmium	ND	0.50		mg/Kg	5	6/7/2013 8:14:16 AM	7673
Calcium	3300	130		mg/Kg	5	6/7/2013 8:14:16 AM	7673
Chromium	7.3	1.5		mg/Kg	5	6/7/2013 11:57:01 AM	7673
Lead	2.7	1.2		mg/Kg	5	6/7/2013 11:57:01 AM	7673
Magnesium	3200	130		mg/Kg	5	6/7/2013 8:14:16 AM	7673
Potassium	2600	250		mg/Kg	5	6/7/2013 8:14:16 AM	7673
Selenium	ND	13		mg/Kg	5	6/7/2013 8:14:16 AM	7673
Silver	ND	1.3		mg/Kg	5	6/7/2013 8:14:16 AM	7673
Sodium	7100	130		mg/Kg	5	6/7/2013 8:14:16 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	7.8	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	75	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	6700	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	160	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	224	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-4@5'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 11:34:00 AM
Lab ID: 1305997-010 **Matrix:** SOIL **Received Date:** 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	5.5	1.5		mg/Kg	5	5/29/2013 10:37:27 AM	7648
Chloride	600	30		mg/Kg	20	5/29/2013 10:49:52 AM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 10:37:27 AM	7648
Bromide	2.1	1.5		mg/Kg	5	5/29/2013 10:37:27 AM	7648
Nitrogen, Nitrate (As N)	4.5	1.5		mg/Kg	5	5/29/2013 10:37:27 AM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 10:37:27 AM	7648
Sulfate	1800	30		mg/Kg	20	5/29/2013 10:49:52 AM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:43:40 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Barium	120	0.50		mg/Kg	5	6/7/2013 11:59:32 AM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Calcium	3200	50		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Chromium	6.2	0.60		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Lead	2.7	0.50		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Magnesium	2400	50		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Potassium	1600	100		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 10:27:13 AM	7673
Sodium	2900	50		mg/Kg	2	6/4/2013 10:27:13 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	360	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Magnesium	83	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium	3700	1.0		mg/L	1	5/29/2013 12:56:00 PM	7627
Sodium Adsorption Ratio	45	0			1	5/29/2013 12:56:00 PM	7627
RESISTIVITY						Analyst: **JML**	
Resistivity	339	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Project: Southwest Water Disposal
Lab ID: 1305997-011 **Matrix:** SOIL

Client Sample ID: P-4@10'
Collection Date: 5/23/2013 11:39:00 AM
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.9	1.5		mg/Kg	5	5/29/2013 11:02:17 AM	7648
Chloride	970	30		mg/Kg	20	5/29/2013 11:14:42 AM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 11:02:17 AM	7648
Bromide	3.2	1.5		mg/Kg	5	5/29/2013 11:02:17 AM	7648
Nitrogen, Nitrate (As N)	4.1	1.5		mg/Kg	5	5/29/2013 11:02:17 AM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 11:02:17 AM	7648
Sulfate	890	30		mg/Kg	20	5/29/2013 11:14:42 AM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:45:31 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**	
Arsenic	ND	12		mg/Kg	5	6/7/2013 12:02:02 PM	7673
Barium	180	0.50		mg/Kg	5	6/7/2013 12:02:02 PM	7673
Cadmium	ND	0.50		mg/Kg	5	6/7/2013 8:19:17 AM	7673
Calcium	2900	120		mg/Kg	5	6/7/2013 8:19:17 AM	7673
Chromium	5.8	1.5		mg/Kg	5	6/7/2013 12:02:02 PM	7673
Lead	2.1	1.2		mg/Kg	5	6/7/2013 12:02:02 PM	7673
Magnesium	2300	120		mg/Kg	5	6/7/2013 8:19:17 AM	7673
Potassium	1600	250		mg/Kg	5	6/7/2013 8:19:17 AM	7673
Selenium	ND	12		mg/Kg	5	6/7/2013 8:19:17 AM	7673
Silver	ND	1.2		mg/Kg	5	6/7/2013 8:19:17 AM	7673
Sodium	4000	120		mg/Kg	5	6/7/2013 8:19:17 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	24	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Magnesium	38	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium	4500	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium Adsorption Ratio	130	0			1	5/29/2013 12:56:00 PM	7628
RESISTIVITY						Analyst: **JML**	
Resistivity	279	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-4@15'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 11:50:00 AM
Lab ID: 1305997-012 **Matrix:** SOIL
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	2.9	0.30		mg/Kg	1	5/29/2013 11:51:57 AM	7648
Chloride	190	30		mg/Kg	20	5/29/2013 12:04:21 PM	7648
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	5/29/2013 11:51:57 AM	7648
Bromide	0.74	0.30		mg/Kg	1	5/29/2013 11:51:57 AM	7648
Nitrogen, Nitrate (As N)	0.82	0.30		mg/Kg	1	5/29/2013 11:51:57 AM	7648
Phosphorus, Orthophosphate (As P)	ND	30		mg/Kg	20	5/29/2013 12:04:21 PM	7648
Sulfate	1200	30		mg/Kg	20	5/29/2013 12:04:21 PM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:47:23 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Barium	61	0.20		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Calcium	2300	50		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Chromium	4.2	0.60		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Lead	2.4	0.50		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Magnesium	1500	50		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Potassium	1100	100		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 10:37:36 AM	7673
Sodium	1300	50		mg/Kg	2	6/4/2013 10:37:36 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	160	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Magnesium	52	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium	3100	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium Adsorption Ratio	54	0			1	5/29/2013 12:56:00 PM	7628
RESISTIVITY						Analyst: **JML**	
Resistivity	547	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1305997**
Date Reported: **6/17/2013**

CLIENT:
Client Sample ID: P-5@5'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 12:03:00 PM
Lab ID: 1305997-013 **Matrix:** SOIL **Received Date:** 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	6.7	1.5		mg/Kg	5	5/29/2013 12:16:46 PM	7648
Chloride	840	30		mg/Kg	20	5/29/2013 12:29:11 PM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 12:16:46 PM	7648
Bromide	3.1	1.5		mg/Kg	5	5/29/2013 12:16:46 PM	7648
Nitrogen, Nitrate (As N)	4.1	1.5		mg/Kg	5	5/29/2013 12:16:46 PM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 12:16:46 PM	7648
Sulfate	1000	30		mg/Kg	20	5/29/2013 12:29:11 PM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:49:07 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Barium	160	0.50		mg/Kg	5	6/7/2013 12:04:31 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Calcium	3000	50		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Chromium	6.0	0.60		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Lead	2.3	0.50		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Magnesium	2300	50		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Potassium	1500	100		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 10:51:09 AM	7673
Sodium	3100	50		mg/Kg	2	6/4/2013 10:51:09 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	200	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Magnesium	75	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium	4100	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium Adsorption Ratio	62	0			1	5/29/2013 12:56:00 PM	7628
RESISTIVITY						Analyst: **JML**	
Resistivity	310	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT:
Client Sample ID: P-5@10'
Project: Southwest Water Disposal
Collection Date: 5/23/2013 12:07:00 PM
Lab ID: 1305997-014 **Matrix:** SOIL **Received Date:** 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.6	1.5		mg/Kg	5	5/29/2013 12:41:36 PM	7648
Chloride	1600	75		mg/Kg	50	5/30/2013 4:47:58 PM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 12:41:36 PM	7648
Bromide	6.1	1.5		mg/Kg	5	5/29/2013 12:41:36 PM	7648
Nitrogen, Nitrate (As N)	3.6	1.5		mg/Kg	5	5/29/2013 12:41:36 PM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 12:41:36 PM	7648
Sulfate	850	30		mg/Kg	20	5/29/2013 12:54:00 PM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	6/6/2013 3:50:52 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/Kg	2	6/4/2013 10:56:26 AM	7673
Barium	140	0.50		mg/Kg	5	6/7/2013 12:07:01 PM	7673
Cadmium	ND	0.20		mg/Kg	2	6/4/2013 10:56:26 AM	7673
Calcium	5400	130		mg/Kg	5	6/7/2013 8:24:18 AM	7673
Chromium	7.7	0.60		mg/Kg	2	6/4/2013 10:56:26 AM	7673
Lead	2.7	0.50		mg/Kg	2	6/4/2013 10:56:26 AM	7673
Magnesium	3700	130		mg/Kg	5	6/7/2013 8:24:18 AM	7673
Potassium	2600	250		mg/Kg	5	6/7/2013 8:24:18 AM	7673
Selenium	ND	5.0		mg/Kg	2	6/4/2013 10:56:26 AM	7673
Silver	ND	0.50		mg/Kg	2	6/4/2013 10:56:26 AM	7673
Sodium	7600	130		mg/Kg	5	6/7/2013 8:24:18 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	11	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Magnesium	47	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium	8000	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium Adsorption Ratio	230	0			1	5/29/2013 12:56:00 PM	7628
RESISTIVITY						Analyst: **JML**	
Resistivity	204	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1305997**
Date Reported: **6/17/2013**

CLIENT:
Project: Southwest Water Disposal
Lab ID: 1305997-015 **Matrix:** SOIL

Client Sample ID: P-5@15'
Collection Date: 5/23/2013 12:14:00 PM
Received Date: 5/24/2013 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	4.0	1.5		mg/Kg	5	5/29/2013 1:06:25 PM	7648
Chloride	1100	75		mg/Kg	50	5/30/2013 5:00:23 PM	7648
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	5/29/2013 1:06:25 PM	7648
Bromide	4.5	1.5		mg/Kg	5	5/29/2013 1:06:25 PM	7648
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/29/2013 1:06:25 PM	7648
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	5/29/2013 1:06:25 PM	7648
Sulfate	480	7.5		mg/Kg	5	5/29/2013 1:06:25 PM	7648
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	0.043	0.033		mg/Kg	1	6/6/2013 3:52:39 PM	7786
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**	
Arsenic	ND	12		mg/Kg	5	6/7/2013 12:09:30 PM	7673
Barium	170	0.50		mg/Kg	5	6/7/2013 12:09:30 PM	7673
Cadmium	ND	0.50		mg/Kg	5	6/7/2013 8:26:47 AM	7673
Calcium	5200	120		mg/Kg	5	6/7/2013 8:26:47 AM	7673
Chromium	9.5	1.5		mg/Kg	5	6/7/2013 12:09:30 PM	7673
Lead	3.0	1.2		mg/Kg	5	6/7/2013 12:09:30 PM	7673
Magnesium	4200	120		mg/Kg	5	6/7/2013 8:26:47 AM	7673
Potassium	3000	250		mg/Kg	5	6/7/2013 8:26:47 AM	7673
Selenium	ND	12		mg/Kg	5	6/7/2013 8:26:47 AM	7673
Silver	ND	1.2		mg/Kg	5	6/7/2013 8:26:47 AM	7673
Sodium	8000	120		mg/Kg	5	6/7/2013 8:26:47 AM	7673
SAR SOLUBLE CATIONS						Analyst: **JLF**	
Calcium	11	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Magnesium	39	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium	6100	1.0		mg/L	1	5/29/2013 12:56:00 PM	7628
Sodium Adsorption Ratio	200	0			1	5/29/2013 12:56:00 PM	7628
RESISTIVITY						Analyst: **JML**	
Resistivity	222	1.00		Ohms * cm	1	5/30/2013 5:11:00 PM	7724

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 06/05/13

Lab ID: B13052276-001
Client Sample ID 1305997-001B, P-1@5 Feet
Collection Date: 05/23/13 10:05
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	195	mg/kg	D	4		ASA10-3	06/04/13 20:12 / hmb

Lab ID: B13052276-002
Client Sample ID 1305997-002B, P-1@10 Feet
Collection Date: 05/23/13 10:09
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	1990	mg/kg	D	4		ASA10-3	06/04/13 20:06 / hmb

Lab ID: B13052276-003
Client Sample ID 1305997-003B, P-1@15 Feet
Collection Date: 05/23/13 10:21
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	274	mg/kg	D	4		ASA10-3	06/04/13 19:57 / hmb

Lab ID: B13052276-004
Client Sample ID 1305997-004B, P-2@5 Feet
Collection Date: 05/23/13 10:33
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	143	mg/kg	D	4		ASA10-3	06/04/13 19:44 / hmb

Lab ID: B13052276-005
Client Sample ID 1305997-005B, P-2@10 Feet
Collection Date: 05/23/13 10:40
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	3490	mg/kg	D	4		ASA10-3	06/04/13 19:38 / hmb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 06/05/13

Lab ID: B13052276-006
Client Sample ID 1305997-006B, P-2@15 Feet
Collection Date: 05/23/13 10:46
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	3490	mg/kg	D	4		ASA10-3	06/04/13 19:26 / hmb

Lab ID: B13052276-007
Client Sample ID 1305997-007B, P-3@5 Feet
Collection Date: 05/23/13 11:02
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	241	mg/kg	D	4		ASA10-3	06/04/13 19:14 / hmb

Lab ID: B13052276-008
Client Sample ID 1305997-008B, P-3@10 Feet
Collection Date: 05/23/13 11:07
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	2660	mg/kg	D	4		ASA10-3	06/04/13 19:07 / hmb

Lab ID: B13052276-009
Client Sample ID 1305997-009B, P-3@15 Feet
Collection Date: 05/23/13 11:17
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	1190	mg/kg	D	4		ASA10-3	06/04/13 18:56 / hmb

Lab ID: B13052276-010
Client Sample ID 1305997-010B, P-4@5 Feet
Collection Date: 05/23/13 11:34
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	173	mg/kg	D	4		ASA10-3	06/04/13 18:22 / hmb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 06/05/13

Lab ID: B13052276-011
Client Sample ID 1305997-011B, P-4@10 Feet
Collection Date: 05/23/13 11:39
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	583	mg/kg	D	4		ASA10-3	06/04/13 18:09 / hmb

Lab ID: B13052276-012
Client Sample ID 1305997-012B, P-4@15 Feet
Collection Date: 05/23/13 11:50
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	159	mg/kg	D	4		ASA10-3	06/04/13 18:02 / hmb

Lab ID: B13052276-013
Client Sample ID 1305997-013B, P-5@5 Feet
Collection Date: 05/23/13 12:03
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	229	mg/kg	D	4		ASA10-3	06/04/13 17:56 / hmb

Lab ID: B13052276-014
Client Sample ID 1305997-014B, P-5@10 Feet
Collection Date: 05/23/13 12:07
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	2200	mg/kg	D	4		ASA10-3	06/04/13 17:50 / hmb

Lab ID: B13052276-015
Client Sample ID 1305997-015B, P-5@15 Feet
Collection Date: 05/23/13 12:14
DateReceived: 05/29/13
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Total Alkalinity	2210	mg/kg	D	4		ASA10-3	06/04/13 17:41 / hmb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 06/05/13
Work Order: B13052276

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3										Batch: 71761
Sample ID: LCS-71761		Laboratory Control Sample				Run: MAN-TECH_130604A				06/04/13 17:32
Total Alkalinity		121	mg/kg	4.0	84	50	150			
Sample ID: B13052276-004ADUP		Sample Duplicate				Run: MAN-TECH_130604A				06/04/13 19:50
Total Alkalinity		140	mg/kg	4.0				1.9	30	
Sample ID: B13052276-011ADUP		Sample Duplicate				Run: MAN-TECH_130604A				06/04/13 18:15
Total Alkalinity		565	mg/kg	4.0				3.2	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID **MB-7648**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **7648**	RunNo: **10956**
Prep Date: **5/29/2013**	Analysis Date: **5/29/2013**	SeqNo: **309727** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-7648**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **7648**	RunNo: **10956**
Prep Date: **5/29/2013**	Analysis Date: **5/29/2013**	SeqNo: **309728** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	101	90	110			
Chloride	14	1.5	15.00	0	96.3	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	95.6	90	110			
Bromide	7.4	0.30	7.500	0	98.4	90	110			
Nitrogen, Nitrate (As N)	7.6	0.30	7.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	15	1.5	15.00	0	98.7	90	110			
Sulfate	29	1.5	30.00	0	98.0	90	110			

Sample ID **1305997-015AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **P-5@15'**	Batch ID: **7648**	RunNo: **10956**
Prep Date: **5/29/2013**	Analysis Date: **5/29/2013**	SeqNo: **309746** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	5.0	1.5	1.500	4.043	60.7	18.1	130			
Bromide	11	1.5	7.500	4.492	85.2	84.2	103			
Nitrogen, Nitrate (As N)	7.6	1.5	7.500	1.193	85.0	80.1	108			
Phosphorus, Orthophosphate (As P	8.5	7.5	15.00	0	56.7	23	120			

Sample ID **1305997-015AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **P-5@15'**	Batch ID: **7648**	RunNo: **10956**
Prep Date: **5/29/2013**	Analysis Date: **5/29/2013**	SeqNo: **309747** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	5.6	1.5	1.500	4.043	102	18.1	130	11.6	20	
Bromide	12	1.5	7.500	4.492	94.1	84.2	103	5.94	20	
Nitrogen, Nitrate (As N)	7.7	1.5	7.500	1.193	86.5	80.1	108	1.50	20	
Phosphorus, Orthophosphate (As P	ND	7.5	15.00	0	47.3	23	120	200	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID **MB-7656**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **7656**	RunNo: **10956**
Prep Date: **5/29/2013**	Analysis Date: **5/29/2013**	SeqNo: **309751** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-7656**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **7656**	RunNo: **10956**
Prep Date: **5/29/2013**	Analysis Date: **5/29/2013**	SeqNo: **309752** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	106	90	110			
Chloride	14	1.5	15.00	0	96.3	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	96.0	90	110			
Bromide	7.4	0.30	7.500	0	98.6	90	110			
Nitrogen, Nitrate (As N)	7.6	0.30	7.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	15	1.5	15.00	0	98.9	90	110			
Sulfate	29	1.5	30.00	0	98.3	90	110			

Sample ID **1305997-007AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **P-3@5'**	Batch ID: **7656**	RunNo: **10997**
Prep Date: **5/29/2013**	Analysis Date: **5/30/2013**	SeqNo: **310966** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	9.1	1.5	1.500	6.974	144	18.1	130			S
Nitrogen, Nitrite (As N)	2.4	1.5	3.000	0	79.6	77.5	108			
Bromide	11	1.5	7.500	3.879	94.6	84.2	103			
Nitrogen, Nitrate (As N)	17	1.5	7.500	7.782	122	80.1	108			S
Phosphorus, Orthophosphate (As P	8.9	7.5	15.00	1.406	50.1	23	120			

Sample ID **1305997-007AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **P-3@5'**	Batch ID: **7656**	RunNo: **10997**
Prep Date: **5/29/2013**	Analysis Date: **5/30/2013**	SeqNo: **310967** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	7.7	1.5	1.500	6.974	47.9	18.1	130	17.1	20	
Nitrogen, Nitrite (As N)	2.5	1.5	3.000	0	82.2	77.5	108	3.22	20	
Bromide	11	1.5	7.500	3.879	101	84.2	103	4.14	20	
Nitrogen, Nitrate (As N)	18	1.5	7.500	7.782	134	80.1	108	4.94	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID **1305997-007AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **P-3@5'**	Batch ID: **7656**	RunNo: **10997**
Prep Date: **5/29/2013**	Analysis Date: **5/30/2013**	SeqNo: **310967** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	8.1	7.5	15.00	1.406	44.6	23	120	9.61	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID	MB-7786	SampType:	MBLK		TestCode:	EPA Method 7471: Mercury				
Client ID:	PBS	Batch ID:	7786		RunNo:	11142				
Prep Date:	6/6/2013	Analysis Date:	6/6/2013		SeqNo:	315052	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	LCS-7786	SampType:	LCS		TestCode:	EPA Method 7471: Mercury				
Client ID:	LCSS	Batch ID:	7786		RunNo:	11142				
Prep Date:	6/6/2013	Analysis Date:	6/6/2013		SeqNo:	315053	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	98.9	80	120			

Sample ID	1305997-001AMS	SampType:	MS		TestCode:	EPA Method 7471: Mercury				
Client ID:	P-1@5'	Batch ID:	7786		RunNo:	11149				
Prep Date:	6/6/2013	Analysis Date:	6/7/2013		SeqNo:	315403	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.26	0.16	0.1614	0.03429	138	75	125			S

Sample ID	1305997-001AMSD	SampType:	MSD		TestCode:	EPA Method 7471: Mercury				
Client ID:	P-1@5'	Batch ID:	7786		RunNo:	11149				
Prep Date:	6/6/2013	Analysis Date:	6/7/2013		SeqNo:	315404	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.31	0.16	0.1666	0.03429	165	75	125	18.1	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID	MB-7673	SampType:	MBLK	TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	PBS	Batch ID:	7673	RunNo:	11066				
Prep Date:	5/30/2013	Analysis Date:	6/4/2013	SeqNo:	313058	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10								
Cadmium	ND	0.10								
Calcium	ND	25								
Chromium	ND	0.30								
Lead	ND	0.25								
Magnesium	ND	25								
Potassium	ND	50								
Silver	ND	0.25								
Sodium	ND	25								

Sample ID	LCS-7673	SampType:	LCS	TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	LCSS	Batch ID:	7673	RunNo:	11066				
Prep Date:	5/30/2013	Analysis Date:	6/4/2013	SeqNo:	313059	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	25	0.10	25.00	0	98.2	80	120			
Cadmium	25	0.10	25.00	0	99.3	80	120			
Calcium	2500	25	2500	0	98.3	80	120			
Chromium	25	0.30	25.00	0	98.4	80	120			
Lead	24	0.25	25.00	0	97.0	80	120			
Magnesium	2400	25	2500	0	95.3	80	120			
Potassium	2300	50	2500	0	93.6	80	120			
Silver	5.0	0.25	5.000	0	100	80	120			
Sodium	2300	25	2500	0	91.7	80	120			

Sample ID	1305997-001AMS	SampType:	MS	TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	P-1@5'	Batch ID:	7673	RunNo:	11066				
Prep Date:	5/30/2013	Analysis Date:	6/4/2013	SeqNo:	313064	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	23	0.20	24.40	0	92.4	75	125			
Chromium	28	0.60	24.40	5.062	93.0	75	125			
Lead	22	0.50	24.40	2.135	82.1	75	125			
Magnesium	4400	50	2440	2076	94.6	75	125			
Potassium	3700	100	2440	1280	99.8	75	125			
Silver	4.5	0.50	4.879	0	92.6	75	125			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID **1305997-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **P-1@5'**	Batch ID: **7673**	RunNo: **11066**
Prep Date: **5/30/2013**	Analysis Date: **6/4/2013**	SeqNo: **313065** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	23	0.20	24.27	0	92.8	75	125	0.0644	20	
Chromium	28	0.60	24.27	5.062	94.5	75	125	0.907	20	
Lead	22	0.50	24.27	2.135	81.6	75	125	1.05	20	
Magnesium	4500	50	2427	2076	99.9	75	125	2.63	20	
Potassium	3800	100	2427	1280	103	75	125	1.78	20	
Silver	4.6	0.50	4.853	0	94.1	75	125	1.05	20	

Sample ID **MB-7673**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **7673**	RunNo: **11107**
Prep Date: **5/30/2013**	Analysis Date: **6/5/2013**	SeqNo: **314131** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Selenium	ND	2.5								

Sample ID **LCS-7673**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **7673**	RunNo: **11107**
Prep Date: **5/30/2013**	Analysis Date: **6/5/2013**	SeqNo: **314132** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	28	2.5	25.00	0	112	80	120			
Selenium	25	2.5	25.00	0	100	80	120			

Sample ID **1305997-001AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **P-1@5'**	Batch ID: **7673**	RunNo: **11146**
Prep Date: **5/30/2013**	Analysis Date: **6/7/2013**	SeqNo: **315269** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	28	5.0	24.40	3.162	104	75	125			
Selenium	15	5.0	24.40	0	62.8	75	125			S
Sodium	6400	50	2440	3804	108	75	125			

Sample ID **1305997-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **P-1@5'**	Batch ID: **7673**	RunNo: **11146**
Prep Date: **5/30/2013**	Analysis Date: **6/7/2013**	SeqNo: **315270** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	5.0	24.27	3.162	96.1	75	125	7.08	20	
Selenium	18	5.0	24.27	0	74.0	75	125	15.8	20	S
Sodium	7600	50	2427	3804	154	75	125	15.8	20	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1305997**

17-Jun-13

Client:

Project: Southwest Water Disposal

Sample ID	**1305997-001ADUP**	SampType: **DUP**		TestCode: **Resistivity**					
Client ID:	**P-1@5'**	Batch ID: **7724**		RunNo: **11034**					
Prep Date:	**6/3/2013**	Analysis Date: **5/30/2013**		SeqNo: **312077**		Units: **Ohms * cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Resistivity	256	1.00						1.16	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-FARM | Work Order Number: 1305997 | RcptNo: 1

Received by/date: 05/24/13

Logged By: Lindsay Mangin 5/24/2013 10:00:00 AM

Completed By: Lindsay Mangin 5/24/2013 10:38:59 AM

Reviewed By: MG 05/24/13

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Client:	SMA
Mailing Address:	2101 San Juan Blvd Farmington NM 87401
Phone #:	505-325-7535
email or Fax#:	steven.moskal@souder miller.com
QA/QC Package:	☒ Standard ☐ Level 4 (Full Validation)
Accreditation	☐ NELAP ☐ Other ______
	☐ EDD (Type) ______
Turn-Around Time:	☒ Standard ☐ Rush ______
Project Name:	Southwest Water Disposal
Project #:	5122412
Project Manager:	Cindy Gray / Denny Foust
Sampler:	Steve Moskal
On Ice:	☒ Yes ☐ No
Sample Temperature:	1.0

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1305997	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals 6010 cations	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$) 300.0	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	6010B SAR	Resistivity (Bur of soils)	2320B Alk (bicarbs)			Air Bubbles (Y or N)
5/23/13	1005	soil	P-1 @ 5'	3X8oz	Ice	-001							↓	↓				↓	↓	↓			
↓	1009	↓	P-1 @ 10'	↓	↓	-002							↓	↓				↓	↓	↓			
↓	1021	↓	P-1 @ 15'	↓	↓	-003							↓	↓				↓	↓	↓			
↓	1033	↓	P-2 @ 5'	↓	↓	-004							↓	↓				↓	↓	↓			
↓	1040	↓	P-2 @ 10'	↓	↓	-005							↓	↓				↓	↓	↓			
↓	1046	↓	P-2 @ 15'	↓	↓	-006							↓	↓				↓	↓	↓			
↓	1102	↓	P-3 @ 5'	↓	↓	-007							↓	↓				↓	↓	↓			
↓	1107	↓	P-3 @ 10'	↓	↓	-008							↓	↓				↓	↓	↓			
↓	1117	↓	P-3 @ 15'	↓	↓	-009							↓	↓				↓	↓	↓			
↓	1134	↓	P-4 @ 5'	↓	↓	-010							↓	↓				↓	↓	↓			
↓	1139	↓	P-4 @ 10'	↓	↓	-011							↓	↓				↓	↓	↓			
↓	1150	↓	P-4 @ 15'	↓	↓	-012							↓	↓				↓	↓	↓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/23/13	1707	[signature]	Christine Walters	5/23/13	1707
5/23/13	1737	Christine Walters	[signature]	05/24/13	1000

Remarks: Please email report to:
cindy.gray@soudermiller.com
denny.foust@ "

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

2 of 2

Client: SMA	Turn-Around Time: ☑ Standard ☐ Rush
Mailing Address: 2101 San Juan Blvd Farmington NM 87401	Project Name: Southwest water Disposal
Phone #: 505-325-7535	Project #: 5122412
email or Fax#: steven.mostal@soudermiller.com	Project Manager: Cindy Gray / Denny Foust
QA/QC Package: ☑ Standard ☐ Level 4 (Full Validation)	Sampler: Steve Mostal
Accreditation ☐ NELAP ☐ Other	On Ice: ☑ Yes ☐ No
☐ EDD (Type)	Sample Temperature: 1.0

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1205997	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals (6010+ cations)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	6010B SAR	Resistivity (Bucket of soil)	2320B Alk. (bicarbs)	Air Bubbles (Y or N)
5/23/13	1203	soil	P-5 @ 5'	3x8oz	Ice	-013															
	1207		P-5 @ 10'			-014															
	1214		P-5 @ 15'			-015															

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/23/13	1707		Christy Walker	5/23/13	1707
Date:	Time:	Relinquished by:	Received by:	Date	Time
5/23/13	1737	Christy Walker		05/24/13	1000

Remarks: Please email report:
cindy.gray@soudermiller.com
denny.foust@ "

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX B

Stormwater Calculations

I 5705 / 5696
Length: 205 ft
Slope: 0.043902

Simplified Peak Flow Worksheet

Structure Location: Pool #1

Structure Description: _____

Drainage Area:	**A** = 1.27	acres	
Time of Concentration:	T_c = 0.026	hours	
Weighted Runoff Curve Number:	CN = 98	—	
Unit Peak Discharge (from **Figure 3–18**):	q_u = 4.07	cfs/ac–in	

	25 –year	100 –year
24–hour Rainfall Depth (*APPENDIX E*):	P_{24} = 2.1 in.	P_{24} = 2.53 in.
Direct Runoff (**Figure 3–17**):	Qd = 1.874 in.	Qd = 2.301 in.
Peak Discharge, **Qp = A • Qd • qu**:	Qp = 9.677 cfs	Qp = 11.883 cfs
Runoff Volume, **Qv = A • Qd/12**:	Qv = 0.198 ac–ft	Qv = 0.243 ac–ft
	Depth = 0.312 ft	Depth = 0.383 ft

Transmission Losses, if applicable (computed by methods in SCS NEH 4, Chapter 19, 1983)

Predicted Runoff Volume:	Q_{pv} = _____ ac–ft	Q_{pv} = _____ ac–ft
Predicted peak Discharge:	Q_{pp} = _____ ac–ft	Q_{pp} = _____ ac–ft

Project Location: _____
CN#: _____
Date: _____
Computed by: _____ Checked by: _____

Figure 3–19 Simplified Peak Flow Worksheet

5696
5693
Length: 130ft
Slope: 0.023077

Simplified Peak Flow Worksheet

Structure Location: Pool #2

Structure Description: _____

Drainage Area:	A = 1.59	acres
Time of Concentration:	T_c = 0.024	hours
Weighted Runoff Curve Number:	CN = 98	—
Unit Peak Discharge (from **Figure 3–18**):	q_u = 4.24	cfs/ac–in

	25 -year	100 -year
24–hour Rainfall Depth (*APPENDIX E*):	P_{24} = 2.1 in.	P_{24} = 2.53 in.
Direct Runoff (**Figure 3–17**):	Qd = 1.874 in.	Qd = 2.301 in.
Peak Discharge, **Qp = A • Qd • qu**:	Qp = 12.702 cfs	Qp = 15.387 cfs
Runoff Volume, **Qv = A • Qd/12**:	Qv = 0.248 ac–ft	Qv = 0.305 ac–ft
	Depth= 0.312 ft	Depth= 0.383 ft

Transmission Losses, if applicable (computed by methods in SCS NEH 4, Chapter 19, 1983)

Predicted Runoff Volume:	Q_{pv} = _____ ac–ft	Q_{pv} = _____ ac–ft
Predicted peak Discharge:	Q_{pp} = _____ ac–ft	Q_{pp} = _____ ac–ft

Project Location: _____
CN#: _____
Date: _____
Computed by: _____ Checked by: _____

Figure 3–19 Simplified Peak Flow Worksheet

5693
5691
Length: 137
Slope: 0.014599

Simplified Peak Flow Worksheet

Structure Location: Pool #3

Structure Description: _____

Drainage Area:	A = 1.34	acres	
Time of Concentration:	T_c = 0.030	hours	
Weighted Runoff Curve Number:	CN = 98	—	
Unit Peak Discharge (from **Figure 3–18**):	q_u = 3.89	cfs/ac–in	

Design Frequency Flood	25 –year	100 –year
24–hour Rainfall Depth (***APPENDIX E***):	P_{24} = 2.1 in.	P_{24} = 2.53 in.
Direct Runoff (**Figure 3–17**):	Qd = 1.874 in.	Qd = 2.301 in.
Peak Discharge, **Qp = A • Qd • qu**:	Qp = 9.828 cfs	Qp = 12.068 cfs
Runoff Volume, **Qv = A • Qd/12**:	Qv = 0.209 ac–ft	Qv = 0.257 ac–ft
	Depth = 0.312 ft	Depth = 0.383 ft

Transmission Losses, if applicable (computed by methods in SCS NEH 4, Chapter 19, 1983)

Predicted Runoff Volume:	Q_{pv} = _____ ac–ft	Q_{pv} = _____ ac–ft
Predicted peak Discharge:	Q_{pp} = _____ ac–ft	Q_{pp} = _____ ac–ft

Project Location: _____
CN#: _____
Date: _____
Computed by: _____ Checked by: _____

Figure 3–19
Simplified Peak Flow Worksheet

APPENDIX C

Photograph Gallery

Souder, Miller & Associates • 2101 San Juan Boulevard • Farmington, NM 87401-2247
(505) 325-7535 • fax (505) 326-0045

Photo 1: Rip-rap structure above drainage channel (before).

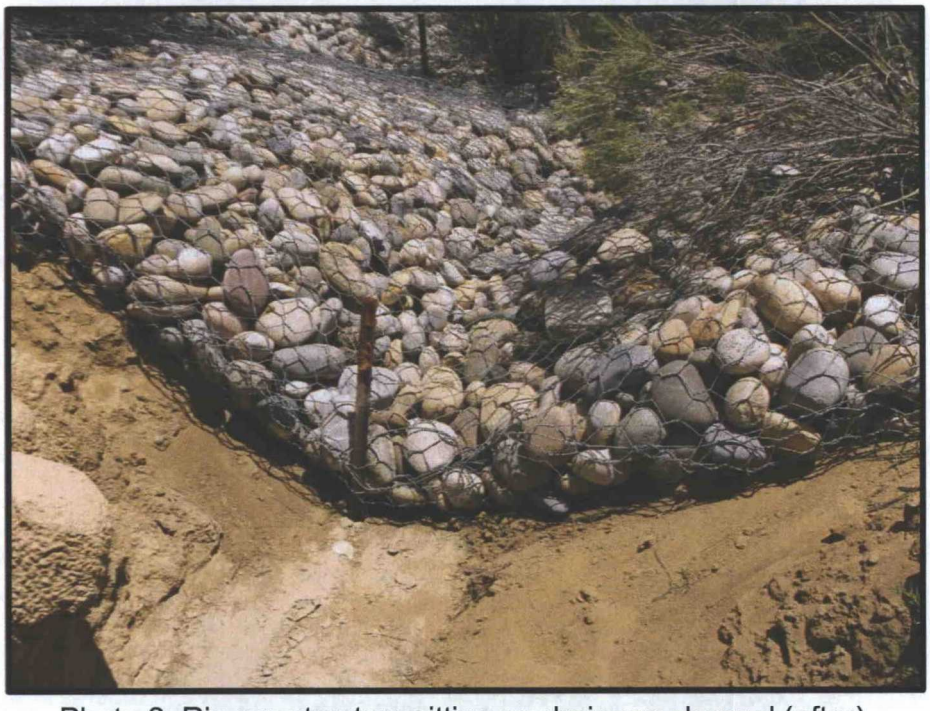


Photo 2: Rip-rap structure sitting on drainage channel (after).

Photo 3: Pothole (Pothole-#3) sampling activity.

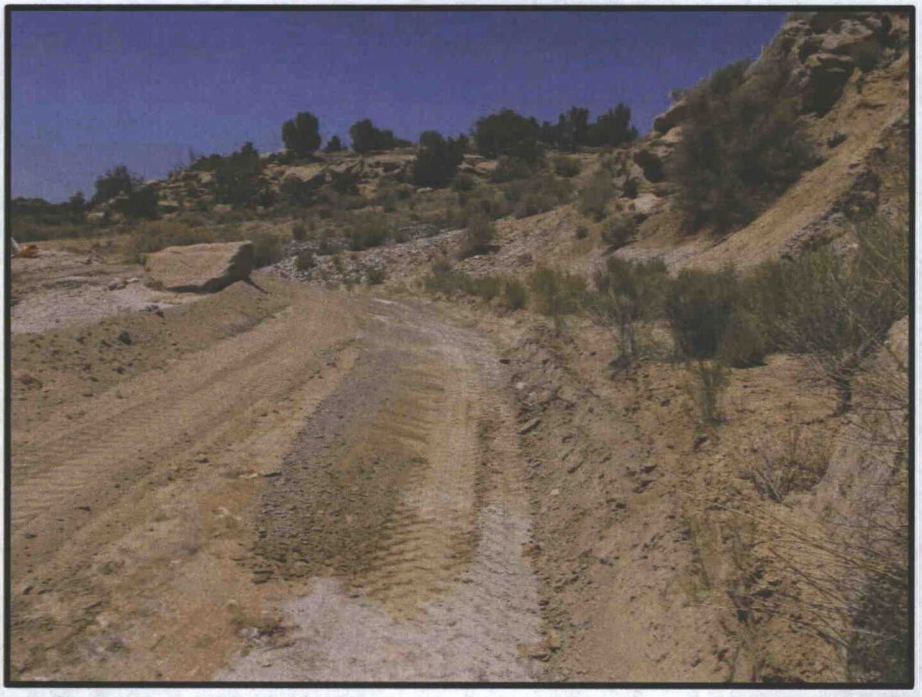


Photo 4: Run-on diversion channel during grading activities, north section.

Photo 5: Lower berm contouring during grading activities, southwest section.

Photo 6: Central retention berm (left), run-on diversion berm (right); looking southwest.

Photo 7: Failure of original stormwater control located in diversion channel west of pond area

Photo 8: Area of significant erosion below former pond area.

APPENDIX D

Property Access Agreements

Souder, Miller & Associates • 2101 San Juan Boulevard • Farmington, NM 87401-2247
(505) 325-7535 • fax (505) 326-0045

CONSENT FOR ACCESS TO PROPERTY FOR PURPOSES OF EVALUATION AND MITIGATION DESIGN REGARDING FORMER SOUTHWEST WATER DISPOSAL FACILITY

Project: Former Southwest Water Disposal Facility Project #5122412

Project Location: SE/4SW/4 and SW/4SE/4, S32, T30N, R9W, NMPM

Date: May 16, 2013

Name of Property Owner: Animas Valley Land & Water Company
OR
Constar Construction

Address of Property Owner: P. O. Box 5520
Farmington, NM 87499

Telephone Number: Office 505-325-2435

Location of the property on which access is sought: Approximately 2 miles north of Blanco, NM, accessed from County Road 4599
San Juan County Assessor Parcel # 2053174198066

I hereby consent to allow the employees and contractors of Souder, Miller & Associates (SMA) to enter and have access to the property located at the above address ("the property") for the following purposes:

1. After access to the property is granted by the current owner, SMA will conduct an area topographic survey to establish the boundaries of the former evaporation pond and appurtenant facilities and to determine the flow direction of runoff and potential receptors. A topographic map with sampling points and laboratory analytical results will be constructed. The survey will be completed by a New Mexico Registered Land Surveyor.

2. The objective of the sampling plan is to determine the vertical and horizontal extents of potential contaminants of concern. To establish background levels, surface samples will be collected in the location of the fill borrow pit used during site closure, and upstream of the outfall into the regional arroyo that receives the runoff from the SWWD facility (2

80

samples total). To estimate the horizontal extent, surface samples will be collected from 0.5-1.0 feet below ground surface at five locations across the former pond area of the closed SWWD facility (5 samples) and at the outfalls of the drainage and natural erosion channels (4 samples) that have developed across the facility since closure. One additional sample will be collected at the surface within the regional arroyo, downstream of the SWWD facility and all related runoff pathways.

3. The vertical extent of impact will be evaluated by potholing the former pond area of the SWWD facility with and extend-a-hoe backhoe. Samples will be collected at five foot intervals to a total depth of fifteen feet in five locations, field selected to minimize disturbance of the sparse existing vegetation. The use of potholing will allow for visual inspection of the stratification of material within the former pond.

4. The samples will be submitted for laboratory analysis.

5. After consultation with NMOCD personnel, SMA will arrange equipment and personnel to repair and stabilize the existing structures to minimize further erosional damage and migration of the contaminants from the former evaporation pond at the SWWD facility.

I understand that SMA is performing this work on behalf of the NMOCD to determine the potential environmental impact. I understand that by granting this consent, I am in no way responsible for the actions or the consequences of the persons conducting these investigations. I have also been told that the Project Manager for this site is Denny Foust or Cindy Gray whom I may contact at 505-325-7535, if I have any questions or concerns about this Consent for Access or any work performed as a result of it.

After all access permission has been acquired, SMA will schedule the field activities associated with the investigations.

In return for this permission, SMA agrees to the following:

A. To notify the Property Owner by telephone 24 hours prior to accessing the property. SMA will extend the same courtesy for subsequent events. A message left on an answering machine shall constitute notification.

B. To exercise reasonable professional care to ensure that the property's landscaping and structures are not damaged during the investigation activities. In the event of any property damaged as a result of SMA or its subcontractor's activities, the damage will be repaired to original condition, as possible, within 30 calendar days after the damage occurred.

C. To ensure all equipment is promptly removed from the property.

Work under this agreement will be completed by July 1, 2013

Property Owner or
Authorized Representative

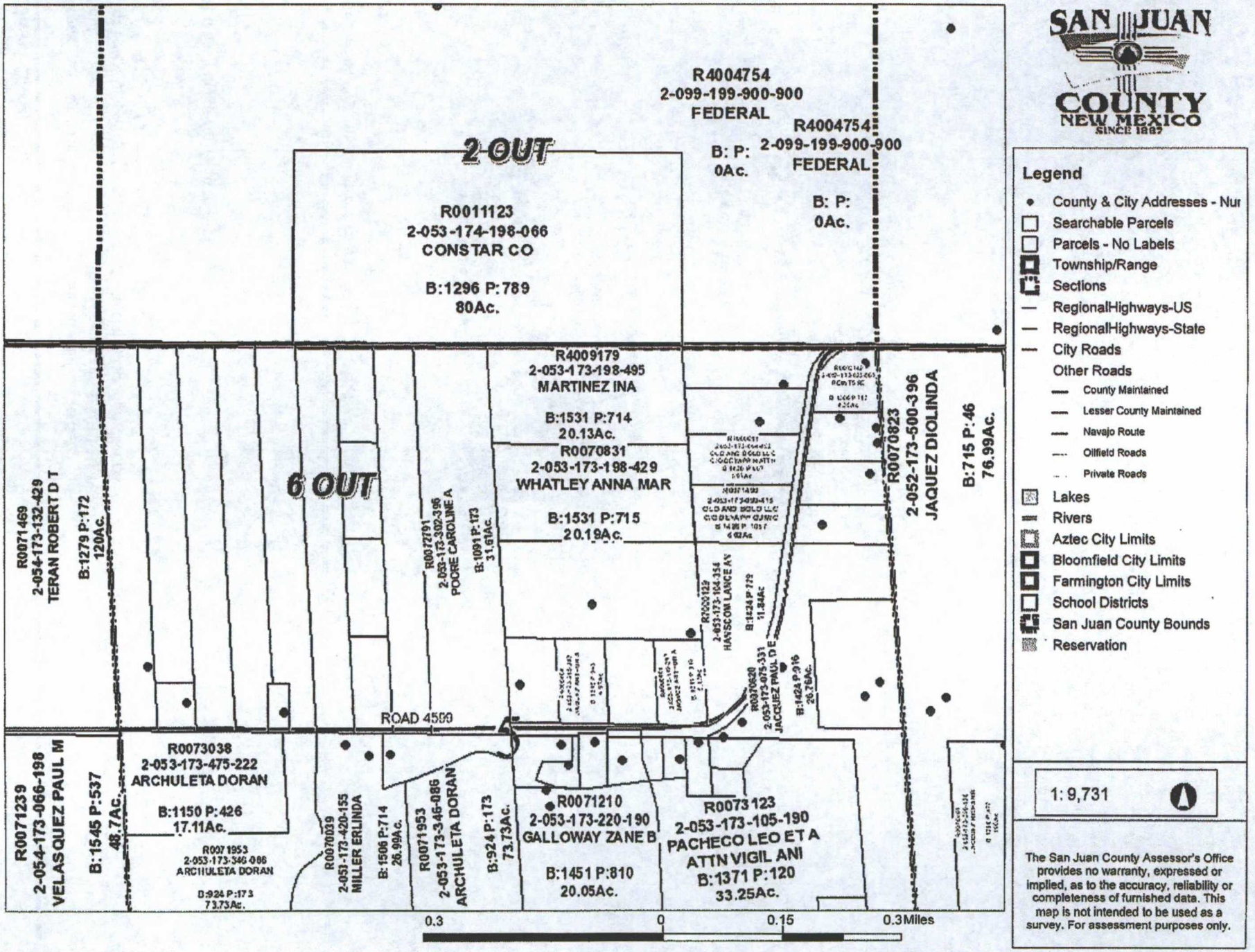
By: Katrina Chiles

Katrina Chiles, Owner Office man.
Printed Name and Title

Souder, Miller and Associates

By:

Reid S. Allan, Vice President
Printed Name and Title



SAN JUAN COUNTY
NEW MEXICO
SINCE 1887

Legend

- County & City Addresses - Nur
- Searchable Parcels
- Parcels - No Labels
- Township/Range
- Sections
- RegionalHighways-US
- RegionalHighways-State
- City Roads
- Other Roads
  - County Maintained
  - Lesser County Maintained
  - Navajo Route
  - Oilfield Roads
  - Private Roads
- Lakes
- Rivers
- Aztec City Limits
- Bloomfield City Limits
- Farmington City Limits
- School Districts
- San Juan County Bounds
- Reservation

1: 9,731

Sheryl Clark

From: Katrina Chiles 5056093948@txt.att.net
Sent: Thursday, May 16, 2013 10:42 AM
To: Fred Whistle (505)609-3950 sheryl.clark@soudermiller.com

You have my permission to sign

Katrina Chiles

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This mobile text message is brought to you by AT&T

Katrina Chiles
Office Manager/Accts Manager/HR
ANIMAS VALLEY Land & Water Co.
kchiles@animasvalleylwc.com (505) 609-3948
31 Rd 3900 · Farmington, NM 87401
(505) 325-2435 · Fax (505) 327-0143
Mail: P.O. Box 5520 Farmington, NM 87499

Fred Whistle
General Manager
ANIMAS VALLEY Land & Water Co.
fwhistle@animasvalleylwc.com
31 Rd 3900 · Farmington, NM 87401
(505) 325-2435 · Fax (505) 327-0143
Mail: P.O. Box 5520 Farmington, NM 87499

Oil and Gas Reclamation Fund
Oil Conservation Division
Energy, Minerals and Natural Resources Department
1220 South St. Francis
Santa Fe, New Mexico 87505

CONSENT TO ENTRY FOR INVESTIGATION, RECLAMATION, & MONITORING

Southwest Water Disposal, PO 52100-000003950 PROJECT

San juan COUNTY (IES)

N 30. 32. 30N, 09W UNIT LETTER, SECTION, TOWNSHIP, RANGE

Pursuant to Chapter 70, Article 2, Section 38 of the Oil and Gas Act, the Director of the Oil Conservation Division (OCD) proposes to utilize the Oil and Gas Reclamation Fund in order to restore and remediate abandoned well sites and associated production facilities to protect public health and the environment.

To achieve this objective, it will be necessary for OCD, its employees, agents, and contractors to enter upon the property described below:

SE/4,SW/4 and SW/4, SE/4 of Section 32-Township 30 North-Range 09 West, San Juan County New mexico

A(n) 100 percent surface, interest in such property is held by Constar CO dba Animas Valley Land & Water (name of interest holder). Such interest was acquired by deed (deed, patent, etc.) as recorded in Book 1296 / page(s) 789, in San Juan County Clerk records.

NOW, THEREFORE, in consideration of the benefits that will accrue to the Interest Holder and to the general public, the Interest Holder does hereby grant to the OCD, its employees, agents, contractors, and subcontractors a right of entry into, over, and upon the property described above, including all necessary and convenient rights of ingress, egress, and regress, with all materials and equipment necessary to conduct the proposed investigation and reclamation activities and to do any and all things necessary and convenient to effectively carry on said activities in a good and workmanlike manner, including but not limited to the temporary storage of equipment and materials, the right to remove or dispose of materials necessary to reclamation, and the construction of temporary roadways on the property. Said right of entry is granted to complete the reclamation activities and to conduct inspections of, and perform maintenance and repairs to, the reclamation activities completed on the property.

The Interest Holder understands and acknowledges that the success of the project cannot be warranted and the proposed work may not accomplish the intended result. The Interest Holder also acknowledges

that the OCD has no responsibility or liability for any oil and gas related damage to the property that occurred prior to or that might occur during or after the reclamation work.
It is understood the work performed in the project area shall be done by contractors for the OCD and the OCD is without authority to assume the risk of injury to persons or damage to persons or property resulting from the action of the contractors, however the OCD shall require contractors performing the work on the property to obtain and keep in force liability insurance in the minimum amount of $1,000,000 per occurrence and $2,000,000 per aggregrate.

Execution of this Consent to Entry does not obligate OCD to perform any part of the contemplated or proposed reclamation work.

Interest Holder agrees that any sale, assignment, mortgage, or other encumbrance or conveyance of this property shall be made subject to this Consent to Entry. Additionally, Interest Holder agrees to provide written notice to the OCD ten (10) days in advance of any such event.

Witness my hand or seal this 16th day of May 2013.

Kim Chiles
Signature of Interest Holder

ACKNOWLEDGEMENT

STATE OF New Mexico)
COUNTY OF San Juan)
The foregoing Consent to Entry was acknowledged before me this 16th day of May, 2013,
by Sheryl A. Clark.

My commission expires:
(Seal)

Sheryl A. Clark
Notary Public

OFFICIAL SEAL
SHERYL A. CLARK
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 3-29-2014

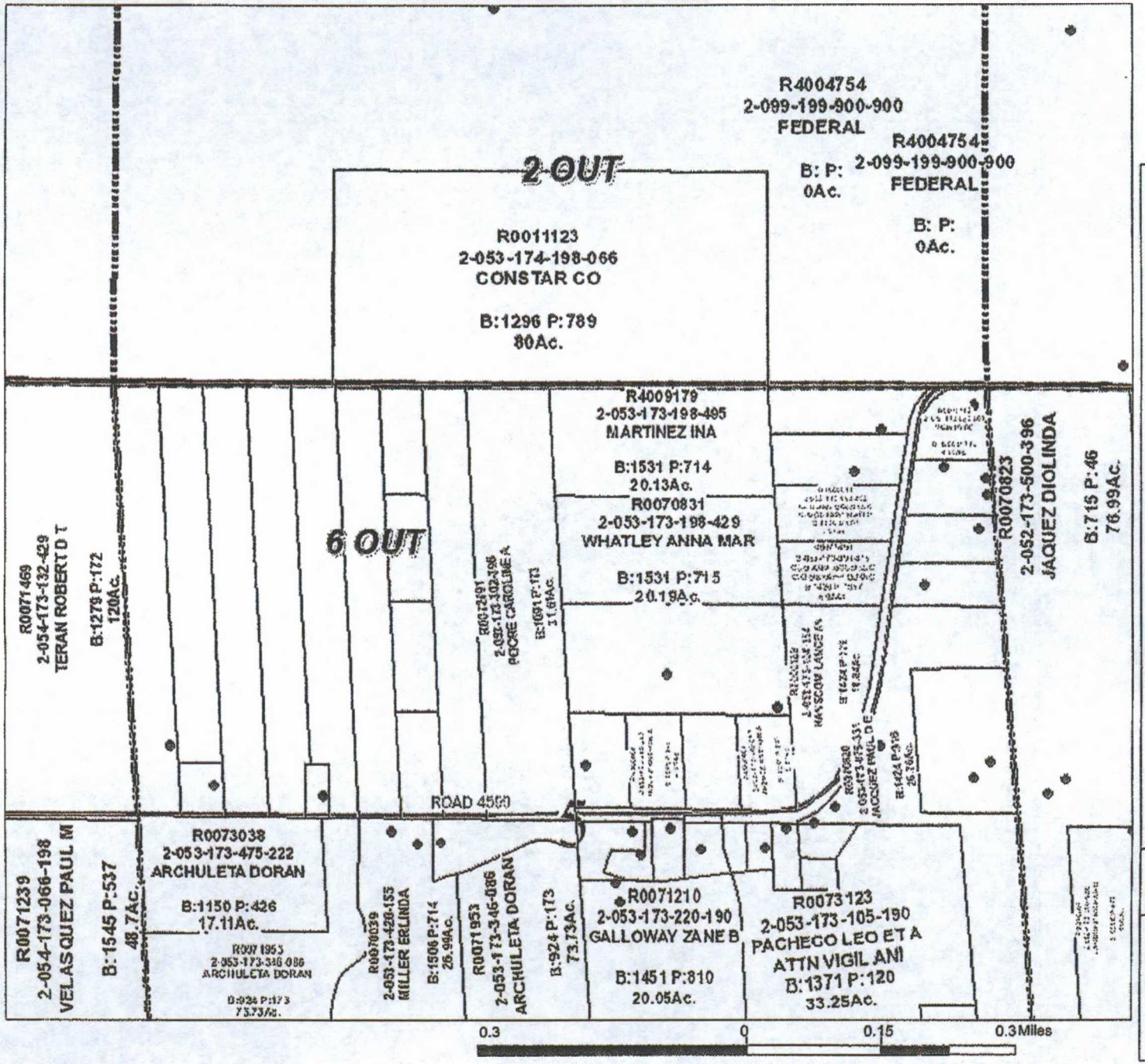
ACKNOWLEDGEMENT FOR CORPORATION

STATE OF _____)
COUNTY OF _____)
The foregoing Consent to Entry was acknowledged before me this _____ day of _____, 20_____,
by_____ (name of Interest Holder) the _____ (title)
of _____ (name of Corporation) a _____ (state) corporation.

My commission expires:
(Seal)

_____
Notary Public

04/2012



SAN JUAN COUNTY NEW MEXICO

Legend

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1: 9,731

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To: Fred Whistle sheryl.clark@soudermiller.com
(505)609-3950

You have my permission to sign

Katrina Chiles

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Katrina Chiles
Office Manager/Accts Manager/HR
ANIMAS VALLEY Land & Water Co.
kchiles@animasvalleylwc.com (505) 609-3948
31 Rd 3900 · Farmington, NM 87401
(505) 325-2435 · Fax (505) 327-0143
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