NM1 - ___9___

TREATMENT ZONE CLOSURE REQUEST AND DENIAL

Dec. 24, 2020

Jones, Brad A., EMNRD

From: Jones, Brad A., EMNRD

Sent: Thursday, December 24, 2020 10:55 AM

To: Shacie Murray

Cc: Ryan Merrion; Ryan Davis; 'Philana Thompson'

Subject: RE: [EXT] URGENT Permit NM1-9-0 request for closure of Treatment Zone **Attachments:** 2020 1224 Agua Moss NM1-009 TZ Closure Request Denial signed.pdf

Ms. Murray,

Please see the attached OCD response to Agua Moss request and demonstration for closure of the treatment zone for the entire landfarm under permit NM-1-009.. If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Brad A. Jones

Brad A. Jones ● Environmental Scientist Specialist - Advanced Environmental Bureau
EMNRD - Oil Conservation Division
1220 S. Saint Francis Drive | Santa Fe, New Mexico 87505
(505) 469-7486 | brad.a.jones@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Philana Thompson <pthompson@merrion.bz>

Sent: Monday, June 1, 2020 9:26 AM

To: Jones, Brad A., EMNRD <brad.a.jones@state.nm.us>

Cc: Ryan Merrion <ryan@merrion.bz>; Ryan Davis <RDavis@merrion.bz>; Shacie Murray <shacie@merrion.bz>

Subject: [EXT] URGENT Permit NM1-9-0 request for closure of Treatment Zone

Brad,

Attached is the request for closure of the treatment zone for permit NM1-9-0. A physical copy was sent in the mail May 29th, 2020 via - Certified Mail # 70160910000123658537.

Thank you,

Philana

Philana Thompson HSE & Regulatory Compliance Merrion Oil & Gas Corp cell 505-486-1171

State of New Mexico Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary Adrienne Sandoval
Director, Oil Conservation Division



Todd E. Leahy, JD, PhD Deputy Secretary

December 24, 2020

Ms. Shacie Murray Agua Moss, LLC PO Box 600 Farmington, New Mexico 87499

RE: Treatment Zone Closure Request

Agua Moss Surface Waste Management Facility, Permit NM1-009 Location: Section 2, Township 29 North, Range 12 West, NMPM San Juan County, New Mexico

Ms. Murray,

The Oil Conservation Division (OCD) has completed its review of Agua Moss, LLC's (Agua Moss) request, emailed to OCD on June 1, 2020 and dated May 29, 2020 for closure of the treatment zone for the entire landfarm under permit NM-1-009.

The OCD has determined the treatment zone assessment is incomplete and hereby denies Agua Moss request to approve the closure of the treatment zone in Landfarm Cells #1, #2 North, and #2 South for the following reason:

Pursuant to 19.15.36.15.F(5) NMAC, the concentration of constituents listed in Subsections A and B of 20.6.2.3103 NMAC shall be determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division. If the concentration of those constituents exceed the PQL or background concentration, the operator shall either perform a site specific risk assessment using EPA approved methods and shall propose closure standards based upon individual site conditions that protect *fresh* water, public health and the environment, which shall be subject to division approval or remove pursuant to Paragraph (2) of Subsection G of 19.15.36.15 NMAC. The May 29, 2020 Agua Moss cover letter states "All of the evaluated constituent results and lab detection limits are below the NMED Soil Screening Level and therefore determined not to be a risk to human health or the environment." The assessment from Rule Engineering LLC, dated May 22, 2020, confirms this by stating in their assessment that "To evaluate the risk of these constituents to human health and the environment, the concentrations are compared to the New Mexico Environment Department Soil Screening Levels (NMED .SSLs) for residential soils per the New Mexico Environment Department Risk Assessment Guidance: for Site Investigations and Remediation." OCD was unable to locate any risk assessment to propose closure standards based upon individual site conditions that protect *fresh water*, as required of 19.15.36.15.F(5) NMAC and the approved Closure/Post-Closure Care Plan.

Section 4.4 of the New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation, Volume I states "NMED believes that a DAF of 20 for a 0.5 acre source area_is protective of groundwater in New Mexico. If the default DAF is not representative of conditions at a specific site, then it is appropriate to calculate a site-specific DAF based upon available site data."

Permit NM1-009 December 24, 2020 Page 2 of 2

Section 4.7 further clarifies "Larger source sizes result in lower DAFs. The default DAF used to develop SL-SSLs for a 0.5 acre source may not be protective of groundwater at sites larger than 0.5 acre." Due to the landfarm cells exceeding the 0.5-acre size consideration, OCD would be open to consider the use one of the two approaches, if applicable, recognized in Section 4.7 of the risk assessment guidance, as identified below:

- As the size of the source area increases, the assumptions underlying the generic model are less applicable. One of the conservative assumptions in the generic SSL approach is the uniform distribution of contaminants throughout the vadose zone. There are few sites that have relatively uniform soil contamination (both laterally and vertically) of a single constituent in an area of greater than 0.5 acres (22,000 ft²). Soil contamination at large facilities (such as federal facilities) are usually concentrated in discrete portions of the site. Contamination at large sites is commonly the result of multiple sources. It is advisable to attempt to subdivide the facility by source and contaminant type and then apply generic SSLs to those smaller source areas.
- o If this approach is impractical, calculation of site-specific DAFs is recommended. Most of the parameters required for these calculations are available from routine environmental site investigations or can be reasonably estimated from general geologic and hydrologic studies.

Complete the risk assessment and propose closure standards based upon individual site conditions that protect *fresh water*, as required of 19.15.36.15.F(5) NMAC. Provide a written justification for the use of the Soil Screening Levels for Residential Land Uses and the use of the cancer or non-cancer limits. Limit the discussion of the compliance of 19.15.36.15.F(5) NMAC to the constituents listed in Subsections A and B of 20.6.2.3103 NMAC determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division. This would include the following: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, selenium, silver, thallium, uranium, and zinc all by EPA Method 6010B, along with mercury by EPA Method 7471.

If there are any questions regarding this matter, please do not hesitate to contact me by email at brad.a.jones@state.nm.us.

Respectfully,

Brad A. Jones

Environmental Specialist

Jones, Brad A., EMNRD

From: Philana Thompson <pthompson@merrion.bz>

Sent: Monday, June 1, 2020 9:26 AM

To: Jones, Brad A., EMNRD

Cc: Ryan Merrion; Ryan Davis; Shacie Murray

Subject: [EXT] URGENT Permit NM1-9-0 request for closure of Treatment Zone

Attachments: 2020-05-29 NM19 - Treatment Zone Closure Packet.pdf

Brad,

Attached is the request for closure of the treatment zone for permit NM1-9-0. A physical copy was sent in the mail May 29th, 2020 via - Certified Mail # 70160910000123658537.

Thank you,

Philana

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Philana Thompson HSE & Regulatory Compliance Merrion Oil & Gas Corp cell 505-486-1171



May 29, 2020

Oil Conservation Division New Mexico Energy, Minerals and Natural Resources Department Attn: Brad Jones 1220 S. St. Francis Drive Santa Fe, NM 87505

Re:

Permit NM1-9-0, Treatment Zone Closure Request

Mr. Jones,

Agua Moss is requesting closure of the treatment zone for the entire landfarm under permit NM1-9-0. The two required sampling events per the closure plan and rule 19.15.36.15.F NMAC were acquired in September 2019 and March 2020. Details of the sampling events and complete analytical results can be found in the attached report.

Analytical results of the sampling events show that most of the constituents are below closure performance standards, PQL, or background concentrations. For the constituents that are not comparable to or exceed background, Agua Moss requests that the following alternative evaluation method be accepted as a means to determine the sampling results risk to human health and the environment. To evaluate the risk of arsenic, chromium, cyanide, fluoride, mercury, nitrogen, copper, iron, manganese, phenols, and zinc the results are compared to the New Mexico Environment Department Soil Screening Level per the New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation, Volume I Soil Screening Guidance for Human Health Risk Assessments, February 2019 (Revision 2, 6/19/19). All of the evaluated constituent results and lab detection limits are below the NMED Soil Screening Level and therefore determined not to be a risk to human health or the environment.

Sulfate has a background concentration reported in units that are not comparable to current reporting methods, however no NMED Soil Screening Level is provided for sulfates. As the present pH values are above 7.0, it does not appear that sulfate concentrations are enough to create acidic conditions and therefore do not pose a risk to human health or the environment.

Analytical results report pH ranging from 7.80 to 8.55 standard units (su), which exceed the approved facility background of 7.735 su. A review of the National Resources Conservation Service (NRCS) Web

Soil Survey for the facility and surrounding area shows that an estimated pH range for the soils potentially present at the facility is 7.4 to 9.0 su, which is within the samples concentration range and therefore not a risk to human health or the environment. The NRCS Web Soil Survey Map and Chemical Soil Properties Report are included as an attachment.

Total dissolved solids (TDS) are a part of the sampling requirements in Subsections A and B of 20.6.2.3103 NMAC. The samples were not analyzed for TDS as it is a parameter for aqueous samples, not soil samples.

Agua Moss is requesting closure of the treatment zone soils based on the results of the two sampling events and acceptance of the alternate evaluation method for certain constituents as explained above and in the attached report. Thank you for your time. If you have any questions or concerns please contact me at shacie@merrion.bz.

Sincerely,

Agua Moss

Shacie Murray

Engineer

shacie@merrion.bz

Attachments:

Treatment Zone Closure Sampling Results, Rule Engineering, May 22, 2020 NRCS Web Soil Survey Soil Map NRCS Web Soil Survey Chemical Soil Properties Report

Attachment 1

Treatment Zone Closure Sampling Results, Rule Engineering, May 22, 2020

May 22, 2020

Ms. Shacie Murray Agua Moss LLC P.O. Box 600 Farmington, New Mexico 87499

Re: Agua Moss Surface Waste Management Facility (NM1-9-0)
Treatment Zone Closure Sampling Results

Dear Ms. Murray:

This report summarizes the sample collection and laboratory analysis of the treatment zone closure samples collected at the Agua Moss Surface Waste Management Facility, hereinafter the "Facility". The samples were collected per 19.15.36.15(F) New Mexico Administrative Code (NMAC) and the Facility Closure Plan: Permit NM1-9-0 dated June 1, 2015, which was approved by the New Mexico Oil Conservation Division (NMOCD) with amendments on July 1, 2015.

Field Activities

Per the approved closure plan, two sampling events were performed six months apart: one on September 20, 2019, and the second on March 6, 2020. During each sampling event, one composite sample consisting of four discrete samples was collected from each of the three designated areas (Cell #1, Cell #2 North, and Cell #2 South).

Soil samples were collected from the treatment zone utilizing a shovel at a depth of approximately 0.5 feet below the surface.

Sample locations for the September 2019 sample event are illustrated on Figure 1 and for the March 2020 sample event on Figure 2.

Soil Sampling

Rule collected four discrete soil samples from the treatment zone approximately 0.5 feet below ground surface in each of the designated areas. Discrete samples from each designated area were combined into one composite for the area, resulting in a total of three composite soil samples per sampling event (Cell #1 Treatment Comp, Cell #2 North Treatment Comp, and Cell #2 South Treatment Comp).

Soil samples collected for laboratory analysis were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The samples were analyzed for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes

Ms. Shacie Murray
Agua Moss Surface Waste Management Facility
(NM-1-9-0) Treatment Zone Closure Sampling Results
May 22, 2020
Page 2 of 3

(BTEX), chlorides, and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC. Note that samples were not analyzed for total dissolved solids as it is a parameter for aqueous samples, not soil samples.

Laboratory Analytical Results

Laboratory analytical results are summarized in Table 1 and the analytical laboratory reports are included in the attachments.

Background concentrations from the approved closure plan are provided in Table 1 along with the laboratory analytical results. Comparison of results to background concentrations is not possible for some constituents including fluoride, chloride, nitrite, nitrate, sulfate, cyanide, and iron which were originally analyzed and reported by volume. Currently utilized laboratory methods analyze and report concentrations by weight. Additionally, current laboratory methods provide the total concentration of constituents present in the soil via acid digestion in contrast to previously utilized laboratory methods which appear to have reported the concentration of constituents soluble in a distilled water dilution of the soil. Comparison of uranium concentrations is similarly not possible as the background concentration is reported in picocuries per gram rather than milligrams per kilogram.

QA/QC Considerations

The laboratory reports show an "S" qualifier for TPH as diesel range organics (DRO) and motor oil range organics (MRO) for samples Cell #2 North Comp (9/20/19), Cell #2 North Comp (3/6/20), and Cell #2 South Comp (9/20/19). The "S" qualifier indicates the percent recovery of the surrogate was outside the specified range due to dilution or matrix interference. An "S" qualifier is also shown for cyanide for samples Cell #2 North Comp (9/20/19) and (3/6/20). A "J3" qualifier is shown for pentachlorophenol on sample Cell #2 South Comp (9/20/19).

Evaluation

Laboratory analytical results confirm that concentrations of benzene, total BTEX, TPH, and chloride are below the treatment cell closure performance standards per 19.15.36.15(F) NMAC. Concentrations of constituents listed in Subsections A and B of 20.6.2.3103 NMAC are below the PQL or applicable background concentrations for all constituents except chromium, total mercury, copper, manganese, phenols, zinc, and pH. Constituents that are not comparable to background concentrations reported in units not compatible with current analytical methods but have concentrations above the PQL include arsenic, fluoride, nitrate, iron, and sulfate.

To evaluate the risk of these constituents to human health and the environment, the concentrations are compared to the New Mexico Environment Department Soil Screening Levels (NMED SSLs) for residential soils per the New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation, Volume I Soil Screening Guidance for Human Health Risk



Ms. Shacie Murray Agua Moss Surface Waste Management Facility (NM-1-9-0) Treatment Zone Closure Sampling Results May 22, 2020 Page 3 of 3

Assessments, February 2019 (Revision 2, 6/19/19). Laboratory results for these constituents are below the NMED SSLs for confirmation samples, however, NMED SSLs are not available for sulfates and pH.

A review of the National Resources Conservation Service (NRCS) Web Soil Survey for the Facility and surrounding area shows that an estimated pH range for the soils potentially present at the site is 7.4 to 9.0 standard units (su). Laboratory results for pH of the closure samples range from 7.80 to 8.55 su, which is within the NRCS range for the site. Additionally, as pH values are above 7.0, it does not appear that sulfate concentrations are sufficient to create acidic soil conditions.

In conclusion, laboratory results for treatment zone closure samples demonstrate compliance with the treatment zone closure performance standards for Cell #1, Cell #2 North, and Cell #2 South.

Closure and Limitations

This report is prepared for the exclusive use of Agua Moss LLC and is subject to the terms, conditions, and limitations stated in Rule's report and Service Agreement with Agua Moss LLC. All work has been performed in accordance with generally accepted professional environmental consulting practices. No other warranty is expressed or implied.

Rule Engineering appreciates the opportunity to provide services to Agua Moss LLC. If you have any questions, please contact me at (505) 325-1055.

Sincerely,

Rule Engineering, LLC

Heather M. Woods, P.G. Area Manager/Geologist

Attachments:

Table 1. Summary of Laboratory Analytical Results Figure 1. Sample Location Map: September 20, 2019

Figure 2. Sample Location Map: March 6, 2020

Laboratory Analytical Reports (Hall: 1909B72 and 2003373)

Table 1. Summary of Laboratory Analytical Results

Collection Date	9/20/2019	Treatment of Court of S/6/2020	Treatment of Court of	Hodri Treat	North Treat.	South Treat &	South Treat	. acmity	NMED SSL for	Treatment
Sample Depth (feet bgs)	0.5	0.5	0.5	0.5	0.5	0.5	Units	Background Concentration	Residential Soils	Cell Closure Concentration
TPH (GRO)	<4.9	<4.9	<4.9	<5.0	<4.8	<5.0	mg/kg	0.2 mg/kg		500 mg/kg
TPH (DRO)	95	92	240 S	340 S	270 S	120	mg/kg	0.1 mg/kg	e for the same	(GRO/DRO) / 2,500 mg/kg
TPH (MRO)	820	350	1,400 S	2,000 S	2,000 S	820	mg/kg			(total)
Benzene	<0.024	<0.025	<0.025	<0.025	<0.024	<0.025	mg/kg	0.01 mg/kg	17.8 mg/kg	0.2 mg/kg
Toluene	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.01 mg/kg	5,230 mg/kg	benzene /
Ethylbenzene Xvlenes (total)	<0.049 <0.098	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.01 mg/kg	75.1 mg/kg	50 mg/kg total BTEX
Chloride	11	<0.099 <15	<0.098 230	<0.099 320	<0.096 290	<0.10 300	mg/kg mg/kg	0.01* mg/kg 39.15 mg/L	871 mg/kg 12,000,000 mg/kg	500 mg/kg
Antimony	<5.0	<5.0	<5.0	<4.9	<5.0	<4.9	myrky	39.13 mg/L	31.3 mg/kg	300 mg/kg
Arsenic	<5.0	<5.0	<5.0	5.1	<5.0	<4.9	mg/kg	3.905 mg/L	7.07 mg/kg	- /
Barium	1,500	1,500	1,700	3,000	1,600	2,700	mg/kg	274.5 mg/kg	15,600 mg/kg	Maria Salah
Beryllium	0.64	0.67	0.59	0.70	0.59	0.66		Charles and	156 mg/kg	
Cadmium	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	mg/kg	0.575 mg/kg	70.5 mg/kg	
Chromium	9.0	9.9	8.5	11	9.6	9.2	mg/kg	8.94 mg/kg	96.6 mg/kg	
Cyanide	<0.250	<0.250	<0.250	<0.250 S	<0.250	<0.250 S		0.003 mg/L	11.2 mg/kg	100000
Fluoride	6.8	9.2	4.7	4.0	8.0	6.5	mg/kg	1.0075 mg/L	4,690 mg/kg	
Lead Total Mercury	0.63	12	8.2	12	12	6.6	mg/kg	17.05 mg/kg	400 mg/kg	
Nitrogen, Nitrate (as N)	32	9.6	1.1	1.1 3.8	0.55 4.1	0.43	mg/kg mg/kg	0.315 mg/kg 22.3 mg/L	23.8 mg/kg 125,000 mg/kg	24.75
Nitrogen, Nitrite (as N)	<1.5	<3.0	<1.5	<1.5	<1.5	<1.5	mg/kg	0.01 mg/L	7,820 mg/kg	100000000000000000000000000000000000000
Selenium	<5.0	<5.0	<5.0	<4.9	<5.0	<4.9	mg/kg	0.595 mg/kg	391 mg/kg	100 - 10-00
Silver	<0.50	<0.50	<0.50	<0.49	<0.50	<0.049	mg/kg	0.2525 mg/kg	391 mg/kg	
Thallium	<5.0	<2.00	<5.0	<2.00	<5.0	<2.00		(Page 17.50)	78.2 mg/kg	
Uranium	<10	<9.9	<9.9	<9.9	<10	<9.9	mg/kg	1.919 pCi/g	234 mg/kg	
Radium-228	1.712	1.05	1.387	1.26	1.041	0.881	pCi/g	2.004 pCi/g		
Radium-226	2.538	1.49	3.388	1.97	2.732	1.21	pCi/g	3.5395 pCi/g		
Polychlorinated biphenyls		10/1.765			2000			STATE STATE	AND THE PROPERTY.	32.00
Aroclor 1016	<0.048	<0.025	<0.046	<0.024	<0.046	<0.024	mg/kg	0.0188 mg/kg	3.98 mg/kg	
Aroclor 1221	<0.048	<0.025	<0.046	<0.024	<0.046	<0.024	mg/kg	0.0188 mg/kg 0.0188 mg/kg	1.81 mg/kg	
Aroclor 1232 Aroclor 1242	<0.048	<0.025 <0.025	<0.046 <0.046	<0.024 <0.024	<0.046 <0.046	<0.024	mg/kg mg/kg	0.0188 mg/kg	1.86 mg/kg 2.43 mg/kg	Sec.
Aroclor 1248	<0.048	<0.025	<0.046	<0.024	<0.046	<0.024	mg/kg	0.0188 mg/kg	2.43 mg/kg	
Aroclor 1254	<0.048	<0.025	<0.046	<0.024	<0.046	<0.024	mg/kg	0.0188 mg/kg	1.14 mg/kg	Part of the
Aroclor 1260	<0.048	<0.025	< 0.046	<0.024	< 0.046	<0.024	mg/kg	0.0188 mg/kg	2.43 mg/kg	
Carbon Tetrachloride	<0.049	< 0.049	< 0.049	< 0.050	<0.048	< 0.050	mg/kg	0.0055 mg/kg	10.7 mg/kg	de la constant
1,2-dichloroethane (EDC)	<0.049	< 0.049	<0.049	< 0.050	<0.048	< 0.050	mg/kg	0.0055 mg/kg	8.32 mg/kg	4
1,1-dichloroethylene (1,1-DCE)	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.0055 mg/kg	440 mg/kg	2 125 1
tetrachloroethylene (PCE)	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	-	111 mg/kg	
trichloroethylene (TCE)	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.0077	6.77 mg/kg	
methylene chloride Chloroform	<0.15	<0.15	<0.15	<0.15 <0.050	<0.14	<0.15	mg/kg mg/kg	0.0277 mg/kg 0.0277 mg/kg	409 mg/kg 5.90 mg/kg	
1,1-dichloroethane	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.0055 mg/kg	78.6 mg/kg	-
ethylene dibromide (EDB)	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.0055 mg/kg	0.672 mg/kg	E SERVICE CON
1,1,1-trichloroethane	<0.049	< 0.049	< 0.049	<0.050	<0.048	<0.050	mg/kg	0.0055 mg/kg	14,400 mg/kg	1
1,1,2-trichloroethane	<0.049	< 0.049	< 0.049	< 0.050	<0.048	<0.050	mg/kg	0.0055 mg/kg	2.61 mg/kg	-Bee 90 44
1,1,2,2-tetrachloroethane	<0.049	< 0.049	< 0.049	< 0.050	<0.048	< 0.050	mg/kg	0.0055 mg/kg	7.98 mg/kg	
vinyl chloride	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg		0.742 mg/kg	
PAHs										
Naphthalene	<0.098	<0.099	<0.098	<0.099	<0.096	<0.10	mg/kg	0.0366 mg/kg	49.7 mg/kg	CARLON COMMISSION
1-Methylnaphthalene 2-Methylnaphthalene	<0.20 <0.20	<0.20	<0.20 <0.20	<0.20 <0.20	<0.19 <0.19	<0.20	mg/kg	0.0554 mg/kg 0.0554 mg/kg	172 mg/kg 232 mg/kg	
benzo-a-pyrene	<0.096	<0.010	<0.085	<0.0096	<0.088	<0.0096	mg/kg mg/kg	0.0366 mg/kg	1.12 mg/kg	
cis-1,2-dichloroethene	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	0.0300 mg/kg	156 mg/kg	18.00 VW
trans-1,2-dichloroethene	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg		295 mg/kg	
1,2-dichloropropane (PDC)	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg		17.8 mg/kg	
styrene	<0.049	< 0.049	<0.049	< 0.050	<0.048	< 0.050	mg/kg		7,260 mg/kg	
1,2-dichlorobenzene	<0.049	< 0.049	<0.049	< 0.050	<0.048	<0.050	mg/kg		2,150 mg/kg	
1,4-dichlorobenzene	<0.049	< 0.049	<0.049	<0.050	<0.048	<0.050	mg/kg		1,290 mg/kg	
1,2,4-trichlorobenzene	<0.049	<0.049	<0.049	<0.050	<0.048	<0.050	mg/kg	27 34 34 34 48	82.9 mg/kg	
pentachlorophenol	<0.666	<1.67	<0.666	<3.33	<0.666 J3	<3.33	mg/kg	and the same	9.85 mg/kg	
atrazine Copper	<0.666	<1.67	<0.666	<3.33	<0.666	<3.33	mg/kg	10.24	23.2 mg/kg	
Iron	15 15,000	16	12	21,000	18	11 14,000	mg/kg	10.34 mg/kg 0.01 mg/L	3,130 mg/kg 54,800 mg/kg	TELEVISION OF THE PERSON OF TH
Manganese	290	280	230	320	300	240	mg/kg mg/kg	258 mg/kg	10,500 mg/kg	
Phenois	1.26	<1.67	0.698	<3.33	0.974	<3.33	mg/kg	0.3685 mg/kg	18,500 mg/kg	and the case of
Sulfate	130	100	710	1,400	550	500	mg/kg	140.8 mg/L		100
Zinc	54	46	42	64	77	40	mg/kg	38.4 mg/kg	23,500 mg/kg	
pH	8.31	8.55	8.16	7.80	8.42	8.12	su	7.735 su	17224/701 J.M.	THE SECOND
Methyl tertiary-butyl ether (MTBE)	<0.049	< 0.049	< 0.049	< 0.050	<0.048	< 0.050	mg/kg	CONTRACTOR AND A DESIGNATION OF THE PERSON O	975 mg/kg	100000000000000000000000000000000000000

bgs - below ground surface NMED SSL - New Mexico Environment Department Soil Screening Level

mg/kg - milligrams per kilogram mg/L - milligrams per liter BTEX - benzene, ethylbenzene, toluene, and xylene TPH - total petroleum hydrocarbons

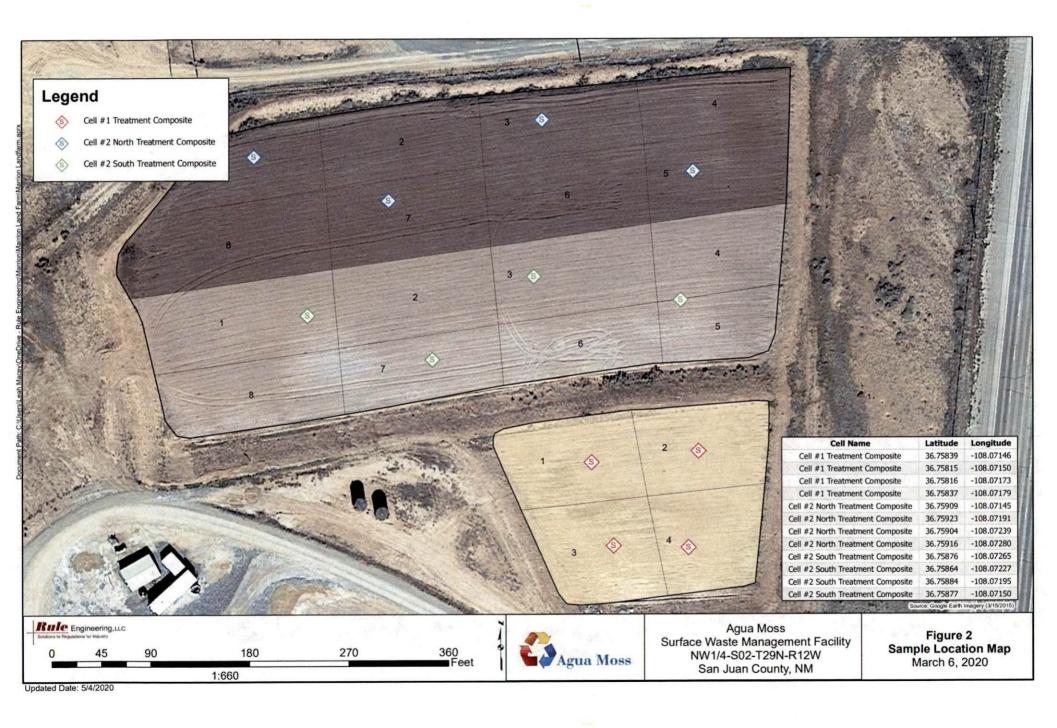
GRO - gasoline range organics DRO - diesel range organics MRO - mineral oil range organics

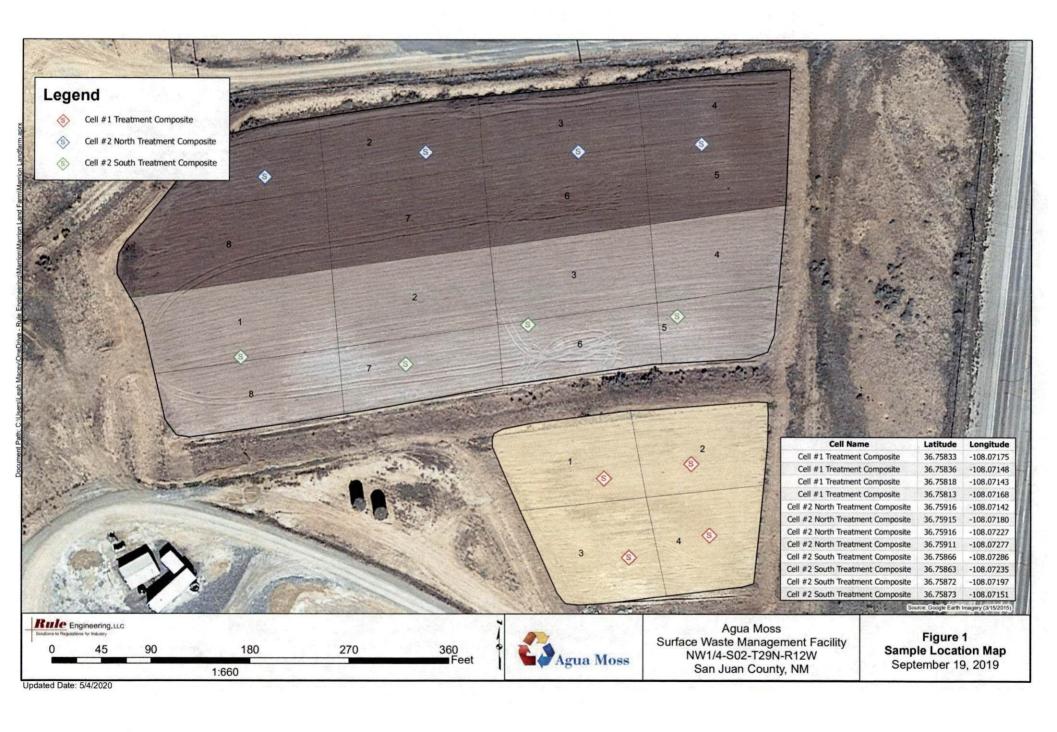
Value exceeds the greater of the facility background concentration or treatment cell closure concentration

<1.0 Value exceeds facility background concentration, but is below the NMED SSL for residential soils

Facility background concentrations noted in red are concentrations by volume inconsistant with current analytical methods which provide concentrations by weight

S - % Recovery outside of range due to dilution or matrix J3 The batch QC was outside the established quality control ra







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

November 06, 2019

Heather Woods Rule Engineering LLC 501 Airport Dr., Ste 205 Farmington, NM 87401 TEL: (505) 325-1055

FAX

RE: Agua Moss Sunco Landfarm

OrderNo.: 1909B72

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 3 sample(s) on 9/21/2019 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 qualifiers 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.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Matrix: SOIL

Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Lab ID: 1909B72-001 Client Sample ID: Cell #1 Treatment Comp

Collection Date: 9/20/2019 2:08:00 PM

Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch			
EPA METHOD 300.0: ANIONS				-		Analyst	MRA			
Fluoride	6.8	1.5		mg/Kg	5	9/27/2019 10:35:05 AM	47714			
Chloride	11	7.5		mg/Kg	5	9/25/2019 4:07:35 PM	47714			
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	9/25/2019 4:07:35 PM	47714			
Nitrogen, Nitrate (As N)	32	1.5		mg/Kg	5	9/25/2019 4:07:35 PM	47714			
Sulfate	130	7.5		mg/Kg	5	9/25/2019 4:07:35 PM	47714			
EPA METHOD 7471: MERCURY						Analyst	rde			
Mercury	0.63	0.16		mg/Kg	5	9/26/2019 3:52:42 PM	47745			
EPA METHOD 6010B: SOIL METALS						Analyst:	ELS			
Antimony	ND	5.0		mg/Kg	2	9/26/2019 8:11:52 AM	47733			
Arsenic	ND	5.0		mg/Kg	2	9/26/2019 8:11:52 AM	47733			
Barium	1500	1.0		mg/Kg	10	9/26/2019 8:30:19 AM	47733			
Beryllium	0.64	0.30		mg/Kg	2	9/26/2019 8:11:52 AM	47733			
Cadmium	ND	0.20		mg/Kg	2	9/26/2019 8:11:52 AM	47733			
Chromium	9.0	0.60	!	mg/Kg	2	9/26/2019 8:11:52 AM	47733			
Copper	15	0.60		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Iron	15000	250		mg/Kg	100	9/26/2019 7;53:48 AM	4773			
Lead	13	0.50		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Manganese	290	0.20		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Selenium	ND	5.0		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Silver	ND	0.50		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Thallium	ND	5.0		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Uranium	ND	10		mg/Kg	2	9/26/2019 8:11:52 AM	4773			
Zinc	54	5.0		mg/Kg	2	9/26/2019 8:11:52 AM	47733			
EPA METHOD 8011/504.1 MODIFIED: E	DB					Analyst:	JME			
1,2-Dibromoethane	ND	0.073		μg/Kg	1	9/24/2019 2:52:21 PM	4767			
EPA METHOD 8082A: PCB'S						Analyst:	TOM			
Aroclor 1016	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	47656			
Arocior 1221	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	47656			
Arocior 1232	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	47656			
Aroclor 1242	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	47656			
Aroclor 1248	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	4765			
Aroclor 1254	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	47656			
Aroclor 1260	ND	0.048		mg/Kg	1	9/30/2019 3:26:00 PM	4765			
Surr: Decachlorobiphenyl	95.2	25.7-135		%Rec	1	9/30/2019 3:26:00 PM	47656			
Surr: Tetrachloro-m-xylene	107	32.3-138		%Rec	1	9/30/2019 3:26:00 PM	47656			
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS					Analyst:	BRM			
Diesel Range Organics (DRO)	95	52		mg/Kg	5	9/26/2019 11:38:46 AM	4765			
Refer to the QC Summary report ar	nd sample login chec	klist for fla	gged Q	C data	and pr	eservation infórmation	1.			
					-					

Qualifiers:

- Value exceeds Maximum Contaminant Level. D
 - Sample Diluted Due to Matrix
- Ħ Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Lab ID: 1909B72-001

Matrix: SOIL

Client Sample ID: Cell #1 Treatment Comp

Collection Date: 9/20/2019 2:08:00 PM

Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual U	nits	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE OI	RGANICS					Analyst:	BRM
Motor Oil Range Organics (MRO)	820	260	m	ng/Kg	5	9/26/2019 11:38:46 AM	47655
Surr: DNOP	107	70-130	%	6Rec	5	9/26/2019 11:38:46 AM	47655
EPA METHOD 8015D: GASOLINE RANGE						Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	m	ng/Kg	1	9/25/2019 1:42:12 AM	47650
Surr: BFB	86.4	77.4-118	%	Rec	1	9/25/2019 1:42:12 AM	47650
EPA METHOD 8310: PAHS						Analyst	: TOM
Naphthalene	.ND	2.4	m	ng/Kg	1	9/30/2019 11:47:16 AM	47657
1-Methylnaphthalene	ND	2.4	m	ng/Kg	1	9/30/2019 11:47:16 AM	47657
2-Methylnaphthalene	ND	2.4	m	ng/Kg	1	9/30/2019 11:47:16 AM	47657
Benzo(a)pyrene	ND	0.096		ng/Kg	1	9/30/2019 11:47:16 AM	47657
Surr: Benzo(e)pyrene	101	26.5-113	%	6Rec	1	9/30/2019 11:47:16 AM	47657
EPA METHOD 8260B: VOLATILES						Analyst	: DJF
Benzenè	ND	0.024	į m	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Toluene	ND	0.049	-	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Ethylbenzene	ND	0.049	m	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Methyl tert-butyl ether (MTBE)	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
1,2,4-Trimethylbenzene	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
1,3,5-Trimethylbenzene	ND	0.049	m	ng/Kg	1	9/25/2019 5:18:16 PM	47650
1,2-Dichloroethane (EDC)	ND	0.049	ir	ng/Kg	1	9/25/2019 5:18:16 PM	47650
1,2-Dibromoethane (EDB)	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Naphthalene	ND	0.098	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
1-Methylnaphthalene	ND	0.20	, m	ng/Kg	1	9/25/2019 5:18:16 PM	47650
2-Methylnaphthalene	ND	0.20	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Acetone	ND	0.73	m	ng/Kg	1.	9/25/2019 5:18:16 PM	47650
Bromobenzene	ND	0.049	m	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Bromodichloromethane	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Bromoform	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Bromomethane	ND	0.15	п	ng/Kg	1	9/25/2019 5:18:16 PM	47650
2-Butanone	ND	0.49	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Carbon disulfide	ND	0.49	п	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Carbon tetrachloride	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Chlorobenzene	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Chloroethane	ND	0.098	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Chloroform	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
Chloromethane	ND	0.15	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
2-Chlorotoluene	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
4-Chlorotoluene	ND	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650
cis-1,2-DCE	ΠD	0.049	n	ng/Kg	1	9/25/2019 5:18:16 PM	47650

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Comp

Collection Date: 9/20/2019 2:08:00 PM

Lab ID: 1909B72-001 Matrix: SOIL Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
cis-1,3-Dichloropropene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,2-Dibromo-3-chloropropane	ND	0.098	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Dibromochloromethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Dibromomethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,2-Dichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,3-Dichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,4-Dichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Dichlorodifluoromethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1-Dichloroethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1-Dichloroethene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,2-Dichloropropane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,3-Dichloropropane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
2,2-Dichloropropane	ND	0.098	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1-Dichloropropene	, ND	0.098	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Hexachlorobutadiene	! ND	0.098	mg/Kģ	1	9/25/2019 5:18:16 PM	47650
2-Hexanone	ND	0.49	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Isopropylbenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
4-Isopropyltoluene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
4-Methyl-2-pentanone	ND	0.49	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Methylene chloride	ND	0.15	mg/Kg	1	9/25/2019 5:18:16 PM	47650
n-Butylbenzene	ND	0.15	mg/Kg	1	9/25/2019 5:18:16 PM	47650
n-Propylbenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
sec-Butylbenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Styrene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
tert-Butylbenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1,1,2-Tetrachloroethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1,2,2-Tetrachloroethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Tetrachioroethene (PCE)	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
trans-1,2-DCE	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
trans-1,3-Dichloropropene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,2,3-Trichlorobenzene	ND	0:098	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,2,4-Trichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1,1-Trichloroethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,1,2-Trichloroethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Trichloroethene (TCE)	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Trichlorofluoromethane	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
1,2,3-Trichloropropane	ND	0.098	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Vinyl chloride	ND	0.049	mg/Kg	1	9/25/2019 5:18:16 PM	47650
Xylenes, Total	ND	0.098	mg/Kg	1	9/25/2019 5:18:16 PM	47650

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report

Lab Order 1909B72

Date Reported: 11/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: Cell #1 Treatment Comp

Agua Moss Sunco Landfarm Project:

Collection Date: 9/20/2019 2:08:00 PM

Lab ID: 1909B72-001

Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES		=			Analysi	: DJF
Surr: Dibromofluoromethane	99.9	70-130	%Rec	1	9/25/2019 5:18:16 PM	47650
Surr: 1,2-Dichloroethane-d4	96.7	70-130	%Rec	1	9/25/2019 5:18:16 PM	47650
Surr: Toluene-d8	101	70-130	%Rec	1	9/25/2019 5:18:16 PM	47650
Surr: 4-Bromofluorobenzene	87.2	70-130	%Rec	1	9/25/2019 5:18:16 PM	47650
SM4500H+B/EPA 9040C					Analys	: JRR
pH	″ 8.31		pH Unit	s 1	10/3/2019 8:43:00 AM	R63389

Matrix: SOIL

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit Practical Quanitative Limit ND
- PQL
- % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Ε
- Value above quantitation range Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC Client Sample ID: Cell #2N Treatment Comp Project: Agua Moss Sunco Landfarm Collection Date: 9/20/2019 2:45:00 PM

Lab ID: 1909B72-002 Matrix: SOIL Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst	: MRA
Fluoride	4.7	1.5		mg/Kg	5	9/27/2019 10;47;29 AM	47714
Chloride	230	7.5		mg/Kg	5	9/25/2019 4:57:13 PM	47714
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	9/25/2019 4:57:13 PM	47714
Nitrogen, Nitrate (As N)	14	1.5		mg/Kg	5	9/25/2019 4:57:13 PM	47714
Sulfate	710	30		mg/Kg	20	9/25/2019 5:09:38 PM	47714
EPA METHOD 7471: MERCURY						Analyst	: rde
Mercury	1.1	0.16		mg/Kg	5	9/26/2019 3:54:41 PM	47745
EPA METHOD 6010B: SOIL METALS			•	-, -		Analyst	: ELS
Antimony	ND	5.0		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Arsenic	ND	5.0		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Barium	1700	0.99		mg/Kg	10	9/26/2019 8:31:54 AM	47733
Beryllium	0.59	0.30		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Cadmium ,	ND	0.20		mg/Kg	2,	9/26/2019 8:18:29 AM	47733
Chromium	8.5	0.60		mg/Kg	2 !	9/26/2019 8:18:29 AM	47733
Copper	12	0.60		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Iron	14000	250		mg/Kg	100	9/26/2019 7:55:22 AM	47733
Lead	8.2	0.50		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Manganese	230	0.20		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Selenium	ND	5.0		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Silver	ND	0.50		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Thallium	ND	5.0		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Uranium	ND	9.9		mg/Kg	2	9/26/2019 8:18:29 AM	47733
Zinc	42	5.0		mg/Kg	2	9/26/2019 8:18:29 AM	47733
EPA METHOD 8011/504.1 MODIFIED: EDB						Analyst	JME
1,2-Dibromoethane	ND	0.063		μg/Kg	1	9/24/2019 3:07:33 PM	47675
EPA METHOD 8082A: PCB'S						Analyst	: TOM
Aroclor 1016	ND	0.046		mg/Kg	1	9/30/2019 3:59:00 PM	47656
Aroclor 1221	ND	0.046		mg/Kg	1 .	9/30/2019 3:59:00 PM	47656
Aroclor 1232	ND	0.046		mg/Kg	1	9/30/2019 3:59:00 PM	47656
Aroclor 1242	ND	0.046		mg/Kg	1	9/30/2019 3:59:00 PM	47656
Arocior 1248	ND	0.046	ı	mg/Kg	1	9/30/2019 3:59:00 PM	47656
Aroclor 1254	ND	0.046	I	mg/Kg	1	9/30/2019 3:59:00 PM	4765 6
Aroclor 1260	ND	0.046	1	mg/Kg	1	9/30/2019 3:59:00 PM	47656
Surr: Decachtorobiphenyl	0.88	25.7-135		%Rec	1	9/30/2019 3:59:00 PM	47656
Surr: Tetrachioro-m-xylene	102	32.3-138		%Rec	1	9/30/2019 3:59:00 PM	47656
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS					Analyst	BRM
Diesel Range Organics (DRO)	240	95		mg/Kg	10	9/25/2019 9:06:00 AM	47676
Refer to the QC Summary report and s	ample login ched	klist for fla	gged Q0	C data a	and p	reservation information	a.

Qualifiers:

- Value exceeds Maximum Contaminant Level
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 9/20/2019 2:45:00 PM

Lab ID: 1909B72-002 Matrix: SOIL Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE OR	RGANICS					Analyst	BRM
Motor Oil Range Organics (MRO)	1400	470		mg/Kg	10	9/25/2019 9:06:00 AM	47676
Surr: DNOP	0	70-130	s	%Rec	10	9/25/2019 9:06:00 AM	47676
EPA METHOD 8015D: GASOLINE RANGE						Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/25/2019 1:01:57 PM	47691
Surr: BFB	95.5	77.4-118	,	%Rec	1	9/25/2019 1:01:57 PM	47691
EPA METHOD 8310: PAHS						Analyst	: TOM
Naphthalene	ND	2.1		mg/Kg	1	9/30/2019 1:03:47 PM	47657
1-Methylnaphthalene	ND	2,1		mg/Kg	1	9/30/2019 1:03:47 PM	47657
2-Methylnaphthalene	ND	2.1		mg/Kg	1	9/30/2019 1:03:47 PM	47657
Benzo(a)pyrene	ND	0.085		mg/Kg	1	9/30/2019 1:03:47 PM	47657
Surr: Benzo(e)pyrene	73.5	26.5-113		%Rec	1	9/30/2019 1:03:47 PM	47657
EPA METHOD 8260B: VOLATILES						Analyst	: DJF
Benzene !	ND	0.025		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Toluene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Ethylbenzene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Naphthalene	ND	0.098		mg/Kg	1	9/25/2019 ⁸ :44:08 PM	47691
1-Methylnaphthalene	ND	0.20		mg/Kg	1	9/25/2019 8:44:08 PM	47691
2-Methylnaphthalene	ND	0.20		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Acetone	ND	0.74		mg/Kg	1	³ 9/25/2019 8:44:08 PM	47691
Bromobenzene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Bromodichloromethane	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Bromoform	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Bromomethane	ND	0.15		mg/Kg	1	9/25/2019 8:44:08 PM	47691
2-Butanone	ND	0.49		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Carbon disulfide	ND	0.49		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Carbon tetrachloride	ND	0.049		mg/Kg	٠1	9/25/2019 8:44:08 PM	47691
Chlorobenzene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Chloroethane	ND	0.098		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Chloroform	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
Chloromethane	ND	0.15		mg/Kg	1	9/25/2019 8:44:08 PM	47691
2-Chlorotoluene	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
4-Chlorotoluène	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691
cis-1,2-DCE	ND	0.049		mg/Kg	1	9/25/2019 8:44:08 PM	47691

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Cell #2N Treatment Comp

CLIENT: Rule Engineering LLC Agua Moss Sunco Landfarm Collection Date: 9/20/2019 2:45:00 PM

Lab ID: 1909B72-002 Matrix: SOIL Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
cis-1,3-Dichloropropene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2-Dibromo-3-chloropropane	ND	0.098	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Dibromochloromethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Dibromomethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2-Dichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,3-Dichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,4-Dichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Dichlorodifluoromethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1-Dichloroethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1-Dichloroethene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2-Dichloropropane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,3-Dichloropropane	. ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
2,2-Dichloropropane	ND	0.098	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1-Dichloropropene	ND	0.098	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Hexachlorobutadiene	ND	0.098	mg/Kg	1	9/25/2019 8;44:08 PM	47691
2-Hexanone	ND	0.49	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Isopropylbenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
4-Isopropyltoluene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
4-Methyl-2-pentanone	ND	0.49	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Methylene chloride	ND	0.15	mg/Kg	1	9/25/2019 8;44:08 PM	47691
n-Butylbenzene	ND	0.15	mg/Kg	1	9/25/2019 8:44:08 PM	47691
n-Propylbenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
sec-Butylbenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Styrene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
tert-Buty/benzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1,1,2-Tetrachloroethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1,2,2-Tetrachioroethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Tetrachloroethene (PCE)	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
trans-1,2-DCE	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
trans-1,3-Dichloropropene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2,3-Trichlorobenzene	ND	0.098	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2,4-Trichlorobenzene	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1,1-Trichloroethane	, ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,1,2-Trichloroethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Trichloroethene (TCE)	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Trichlorofluoromethane	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
1,2,3-Trichloropropane	ND	0.098	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Vinyl chloride	ND	0.049	mg/Kg	1	9/25/2019 8:44:08 PM	47691
Xylenes, Total	ND	0.098	mg/Kg	1	9/25/2019 8:44:08 PM	47691

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

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Analytical Report

Lab Order 1909B72

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC

Client Sample ID: Cell #2N Treatment Comp

Project: Agua Moss Sunco Landfarm Collection Date: 9/20/2019 2:45:00 PM

Lab ID: 1909B72-002 Matrix: SOIL Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	PI Ωι	ual Units	DE	DF Date Analyzed		
	Acsuit		au Ones			Batch	
EPA METHOD 8260B: VOLATILES					Analyst	:: DJF	
Surr: Dibromofluoromethane	101	70-130	%Rec	1	9/25/2019 8:44:08 PM	47691	
Surr: 1,2-Dichloroethane-d4	99.1	70-130	%Rec	1	9/25/2019 8:44:08 PM	47691	
Surr: Toluene-d8	101	70-130	%Rec	1	9/25/2019 8:44:08 PM	47691	
Surr: 4-Bromofluorobenzene	86.6	70-130	%Rec	1	9/25/2019 8:44:08 PM	47691	
SM4500H+B/EPA 9040C					Analys	: JRR	
pΉ	8.16		pH Unit	s 1	·10/3/2019 8:43:00 AM	R633	

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

Qualifiers:

- Value exceeds Maximum Contaminant Level,
- Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC
Project: Agua Moss Sunco Landfarm

Lab ID: 1909B72-003

Matrix: SOIL

Collection Date: 9/20/2019 2:20:00 PM Received Date: 9/21/2019 8:50:00 AM

Client Sample ID: Cell #2S Treatment Comp

<u> </u>									
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch			
EPA METHOD 300.0: ANIONS			•		Analyst	: MRA			
Fluoride	8.0	1.5	mg/Kg	5	9/27/2019 10:59:54 AM	47714			
Chloride	290	7.5	mg/Kg	5	9/25/2019 5:22:03 PM	47714			
Nitrogen, Nitrite (As N)	ND	1.5	mg/Kg	5	9/25/2019 5:22:03 PM	47714			
Nitrogen, Nitrate (As N)	4.1	1.5	mg/Kg	5	9/25/2019 5:22:03 PM	47714			
Sulfate	550	7.5	mg/Kg	5	9/25/2019 5:22:03 PM	47714			
EPA METHOD 7471: MERCURY					Analyst	rde			
Mercury	0.55	0.15	mg/Kg	5	9/26/2019 3:56:41 PM	47745			
EPA METHOD 6010B: SOIL METALS					Analyst	ELS			
Antimony	ND	5.0	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Arsenic	ND	5.0	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Barium	1600	1.0	mg/Kg	10	9/26/2019 8:33:28 AM	47733			
Beryllium	0.59	0.30	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Cadmium	ND	0.20	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Chromium	9.6	0.60	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Copper	18	0.60	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Iron .	17000	250	mg/Kg	100	9/26/2019 7:56:57 AM	47733			
Lead	12	0.50	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Manganese	300	0.20	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Selenium	ND	5.0	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Silver	ND	0.50	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Thallium	ND	5.0	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Uranium	ND	10	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
Zinc	77	5.0	mg/Kg	2	9/26/2019 8:20:05 AM	47733			
EPA METHOD 8011/504.1 MODIFIED:	EDB				Analyst	JME			
1,2-Dibromoethane	ND	0.080	µg/Kg	1	9/24/2019 3:22:41 PM	47675			
EPA METHOD 8082A: PCB'S					Analyst	TOM			
Aroclor 1016	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Aroclor 1221	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Aroclor 1232	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Aroclar 1242	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Aroclor 1248	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Aroclor 1254	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Aroclor 1260	ND	0.046	mg/Kg	1	9/30/2019 5:05:03 PM	47656			
Surr: Decachlorobiphenyl	85.6	25.7-135	%Rec	1	9/30/2019 5:05:03 PM	47656			
Surr: Tetrachloro-m-xylene	97.6	32.3-138	%Rec	1	9/30/2019 5:05:03 PM	47656			
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst	BRM			
Diesel Range Organics (DRO)	270	97	mg/Kg	10	9/25/2019 9:30:20 AM	47676			
Refer to the QC Summary report	and sample login che	cklist for fla	gged QC data	and p	reservation information	ı.			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Lab Order 1909B72

Date Reported: 11/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: Cell #2S Treatment Comp

Project:Agua Moss Sunco LandfarmCollection Date: 9/20/2019 2:20:00 PMLab ID:1909B72-003Matrix: SOILReceived Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICŚ					Analyst	BRM
Motor Oil Range Organics (MRO)	2000	490		mg/Kg	10	9/25/2019 9:30:20 AM	47676
Surr: DNOP	0	70-130	S	%Rec	10	9/25/2019 9:30:20 AM	47676
EPA METHOD 8015D: GASOLINE RANGE						Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/25/2019 1:24:52 PM	47691
Surr: BFB	96.8	77.4-118		%Rec	1	9/25/2019 1:24:52 PM	47691
EPA METHOD 8310: PAHS						Analyst	: TOM
Naphthalene	ND	2.2		mg/Kg	1	9/30/2019 2:20:17 PM	47657
1-Methylnaphthalene	ND	2,2		mg/Kg	1	9/30/2019 2;20;17 PM	47657
2-Methylnaphthalene	ND	2.2		mg/Kg	1	9/30/2019 2:20:17 PM	47657
Benzo(a)pyrene	ND	0.088		mg/Kg	1	9/30/2019 2:20:17 PM	47657
Surr: Benzo(e)pyrene	110	26.5-113		%Rec	1	9/30/2019 2:20:17 PM	47657
EPA METHOD 8260B: VOLATILES						Analyst	: DJF
Benzene !	ND	0.024		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Toluene	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Ethylbenzene	ND	0.048		mg/Kg	1	9/25/2019 9:13;12 PM	47691
Methyl tert-butyl ether (MTBE)	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2,4-Trimethylbenzene	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,3,5-Trimethylbenzene	ND	0.048	•	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2-Dichloroethane (EDC)	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2-Dibromoethane (EDB)	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Naphthalene	ND	0.096		mg/Kg	1	9/25/2019 9:13:12 PM	47691
1-Methylnaphthalene	ND	0.19		mg/Kg	1	9/25/2019 9:13:12 PM	47691
2-Methylnaphthalene	ND	0.19		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Acetone	ND	0.72		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Bromobenzene	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Bromodichloromethane	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Bromoform	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Bromomethane	ND	0.14		mg/Kg	1	9/25/2019 9:13:12 PM	47691
2-Butanone	ND	0.48		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Carbon disulfide	ND	0.48		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Carbon tetrachloride	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Chlorobenzene	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Chloroethane	ND	0.096		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Chloroform	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
Chloromethane	ND	0.14		mg/Kg	1	9/25/2019 9:13:12 PM	47691
2-Chlorotoluene	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
4-Chlorotoluene	ND	0.048		mg/Kg	1	9/25/2019 9:13:12 PM	47691
cis-1,2-DCE	ND	0.048		mg/Kg	1	9/25/2019 9;13:12 PM	47691

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 11/6/2019

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 9/20/2019 2:20:00 PM

Lab ID: 1909B72-003 Matrix: SOIL Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
cis-1,3-Dichloropropene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2-Dibromo-3-chloropropane	ND	0,096	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Dibromochloromethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Dibromomethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2-Dichlorobenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,3-Dichlorobenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,4-Dichlorobenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Dichlorodifluoromethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1-Dichloroethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1-Dichloroethene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2-Dichloropropane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,3-Dichloropropane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
2,2-Dichloropropane	ND	0.096	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1-Dichloropropene	ND	0.096	rng/Kg	1	9/25/2019 9:13:12 PM	47691
Hexachlorobutadiene	ND	0.096	mg/Kg	1	9/25/2019 9:13:12 PM	47691
2-Hexanone	ND	0,48	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Isopropylbenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
4-Isopropyltoluene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
4-Methyl-2-pentanone	ND	0,48	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Methylene chloride	ND	0.14	mg/Kg	1	9/25/2019 9:13:12 PM	47691
n-Butylbenzene	ND	0.14	mg/Kg	1	9/25/2019 9:13:12 PM	47691
n-Propylbenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
sec-Butylbenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Styrene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
tert-Butylbenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1,1,2-Tetrachloroethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1,2,2-Tetrachloroethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Tetrachloroethene (PCE)	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
trans-1,2-DCE	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
trans-1,3-Dichloropropene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2,3-Trichlorobenzene	ND	0.096	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2,4-Trichlorobenzene	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1,1-Trichloroethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,1,2-Trichloroethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Trichloroethene (TCE)	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Trichlorofluoromethane	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
1,2,3-Trichloropropane	ND	0.096	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Vinyl chloride	ND	0.048	mg/Kg	1	9/25/2019 9:13:12 PM	47691
Xylenes, Total	ND	0.096	mg/Kg	1	9/25/2019 9:13:12 PM	47691

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report Lab Order 1909B72

Date Reported: 11/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Agua Moss Sunco Landfarm

Client Sample ID: Cell #2S Treatment Comp

Collection Date: 9/20/2019 2:20:00 PM

Lab ID: 1909B72-003

Project:

Matrix: SOIL

Received Date: 9/21/2019 8:50:00 AM

Analyses	Result	Result RL Qu		DF	Batch	
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Surr: Dibromofluoromethane	98.8	70-130	%Rec	1	9/25/2019 9:13:12 PM	47691
Surr: 1,2-Dichloroethane-d4	96.2	70-130	'%Rec	1	9/25/2019 9:13:12 PM	47691
Surr: Toluene-d8	101	70-130	%Rec	1	9/25/2019 9:13:12 PM	47691
Surr: 4-Bromofluorobenzene	85.3	70-130	%Rec	1	9/25/2019 9:13:12 PM	47691
SM4500H+B/EPA 9040C					Analys	t: JRR
pН	8.42		pH Unit	s 1	10/3/2019 8:43:00 AM	R6338

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
 - S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- I Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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ANALYTICAL REPORT

²Tc

Hall Environmental Analysis Laboratory

Sample Delivery Group:

L1142548

Samples Received:

09/24/2019 -

Project Number:

Description: ,

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Sr Оc

Ss

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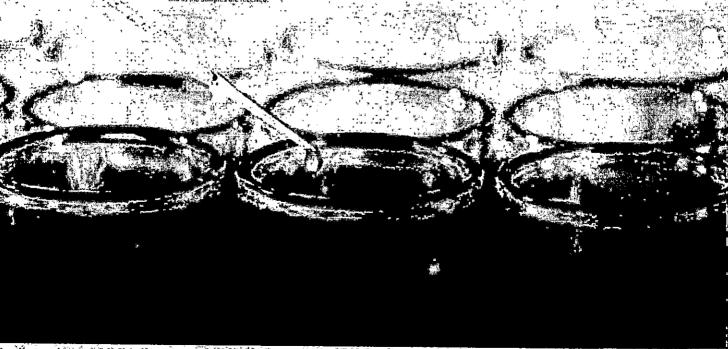
GI

Sc

Entire Report Reviewed By: Hapling & Richards

Daphne Richards Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced; except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-Q067 and ENV-SOP-MTJL-Q068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



, ACCOUNT: Hall Environmental Analysis Laboratory

SDG: L1142548

DATE/TIME: 10/01/19 14:58

	TABLE OF CO	NTENTS	· . · · ·	ल अप्राज्ञकात्वास्थ्यात्वे ०० स्ट	ONE LAB. NATIONWIDE,	\$\$
Cp: Cover Page		··· · · · · · · · · · · · · · · · · ·			1	·
Tc: Table of Contents					· ·2	Ср
Ss: Sample Summary		.; -		, · · · ;	3 :	ÎTC
Cn: Case Narrative			:		4	
Sr: Sample Results			• •		·5	Ss
1909B72-001B CELL #1 TR	EATMENT COMP L1142	2548-01			5	
1909B72-002B CELL #2N	TREATMENT COMP L11	142548-02			7 .	Cn
1909B72-003B CELL #2S	FREATMENT COMP L11	42548-03			9	⁵Sr
Qc: Quality Control Summary	,			11.2	11	
Wet Chemistry by Method	9012B		: .		11	Oc.
Wet Chemistry by Method	9066				12	7 _{Gl}
Semi Volatile Organic Com	pounds (GC/MS) by Met	hod 8270C		• •	.13.	
GI: Glossary of Terms	: .				19 ; '	AI.
Al: Accreditations & Location	s				20	
Sc: Sample Chain of Custody		, ; ;			21	Sc

SAMPLE SUMMARY

ONE LAB, NATIONWIDE.

Mr. Juliet, TN

JNJ

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GI.

1909B72-001B CELL #1 TREATMENT COMP L	1142548-01 Sc	lid -	Collected by	Collected date/time .09120/19 14:08	Réceived da 09/24/19 09	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 90128	WG1354222	1	09/30/19 08:00	10/01/19 12:34	SDL	Mt. Juliet, TA
Wet Chemistry by Method 9065	WG1352321	1	09/26/19 11:00	09/26/19 20:11	JER	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1353119	2	09/27/19 10:41	09/28/19 02:37	LNL	Mt. Juliet, TN
1909B72-002B CELL #2N TREATMENT COMP	L1142548-02	Solid	Collected by	Collected date/lime C9/20/19 14:45	Received da 09/24/19 09:	
Method	Batch	Dilution	Preparation date/time	Analysis date ^r time	Analyst	Location
Wet Chemistry by Method 9012B	WG1354222	1	09/30/19 08:00	10/01/19 12:38	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1352321	1	09/26/19 11:00	09/26/19 20:11	JER	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1353119	2	09/27/19 10:41	09/28/19 02:57	נאנ	Mt. Juliet, TN
1909B72-003B CELL #2S TREATMENT COMP	: L1142548-03	Solid	Collected by	Collected date/time 09/20/19 14:20	Received dai 09/24/(9.0%	
Method	Batch	Dilution	Preparation date/time	Analysis date time	- Analyst	Location
Wet Chemistry by Method 9012B	WG1354222	1	09/30/19 08:00	10/01/19 12:47	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1352321	1	09/26/19 11:00	09/25/19 20:15	JER	Mt. Juliet, TN
Semi Volatila Organic Compounds, (CCNC) N. Maike e paroc	MICHICANO	_				

WG1353119

2

09/27/19 10:41

09/28/19 01:39

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

PAGE:

3 of 22

CASE NARRATIVE

ONE LAB, NATIONWIDE.

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

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Daphne Richards Project Manager

Johne R Richards

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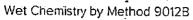
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1909B72-001B CELL #1 TREATMENT COMP Collected date/time: 09/20/19 14:08

. ONE LAB. NATIONWIDE.



	•	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	V	mg/kg		mg/kg		date / time		
Cyanide		ND ·		0.250	1	10/01/2019 12:34	WG1354222	



Ss

Wet Chemistry by Method 9066

	Result	<u>Qualifier</u> RDL	Dilution	Analysis	Batch		·L
Analyte	mg/kg	mg/	9.	date / time			Ī
Total Phenol by 4AAP	1.26	0.67) 1	09/26/2019 20:11	WG1352321		L



Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Acenaphthene	ND		0.0666	2	09/28/2019 02:37	WG1353119	-
Acenaphthylene -	ND		0.0566	2	09/28/2019 02:37,	WG1353119	4. (4.) (2.) (4.) (4.) (4.) (4.) (4.) (4.) (4.) (4.)
Acetophenone	ND		0.666	2	09/28/2019 02:37	WG/353119	
Anthracene	ND		0.0666	2	09/28/2019 02:37	WG1353119-	• • •
Atrazine	ND		0.656	2.	09/28/2019 02:37	WG1353119	
Benzaldehyde	ND .	• •	0.666 1	· , 2	C9/28/2019 02:37	WG1353119 ' `	e se
Benzo(a)anthracene	ND		0.0666	ີ 2	09/28/2019 02:37	WG1353119	kterija je tili og in je
Benzo(b) fluoranthene	ND		0.0666	2	.09/28/2019 02:37	WG1353119	* *
Benzo(k)fluoranthene	ND	. "	0.0666	2	09/28/2019 02:37	WG1353119	• •
Benzo(g,h,i)perylene	ND a	· · ·	0.0666	. 2	09/28/2019 02:37	WG1353119	r.a
Benzo(a)pyrene	ND		0.0666		09/28/2019 02:37	WG1353119	
Biphenyl .	ND **		0.666	. 2	09/28/2019 02:37	WG1353119	
Bis(2-chlorethoxy)methane	ND	•	0.666	2	09/28/2019 02:37	WG1353119	
Bis(2-chlorcethyl)ether	ND		0.666	2` '	09/28/2019 02:37	WG1353119	
Bis(2-chloroisopropyl)ether	ND		0.666	,	09/28/2019 02:37	WG1353119	" plant
4-Bromophenyl-phenylether	ND 3		0.666	, , ,	09/28/2019 02:37	WG1353119	()
Caprolactam	ND		0.666	7	09/28/2019 02:37	WG1353119	· · · ·
Carbazole	ND .	٠	Ŏ.66Ğ	2	09/28/2019 02:37	WG1353119	
4-Chloroaniline	ND	••	0.666	2 .	09/28/2019 02:37		egan e gar di Tito di Tito aare gege
2-Chloronaphthalene	ND THE		0.0666	2	09/28/2019 02:37	WG1353119	r. garv
4-Chlorophenyl-phenylether	ND		0.666	2	09/28/2019 02:37	W61353119	· f is
Chrysene	ND .		0.0666		09/28/2019 02:37	WG1353119 -	
Dibenz(a,h)anthracene	ND .		0.0666	· · ·	09/28/2019 02:37	WG1353119 :	
Dibenzofuran	ND .		0.666	7.2	09/28/2019 02:37	WG1353119	- Jac J
3,3-Dichlorobenzidine	ND		0.666	···			
2,4-Dinitrotoluene	ND -			2	09/28/2019 02:37	WG1353119	
2,6-Dinitrotoluene	ND		0.666	2 .	09/28/2019 02:37	WG1353119	· · · · · · ·
Fluoranthene			0.666	2	09/28/2019 02:37	WG1353119	£ 6
Fluorene	ND		0.0666		09/28/2019 02:37	WG1353119 ·	- 10 1
Hexachlorobenzene : : :	ND.		0.0666	2	09/28/2019 02:37	WG1353119	
	ND -	, - :	0.666	2	09/28/2019 02:37	WG1353119	
Hexachloro-1,3-butadiene Hexachlorocyclopentadiene	ND		0,666	. 2	09/28/2019 02:37	WG1353119	a and
Hexachlorocyclopentatiene	ND, , [], [],		0.666	2	09/28/2019 02:37	WG1353119 : .	197 (\$1.2 ³)
	ND		0.666`	2	09/28/2019 02:37	<u>WG1353119</u>	•
Indeno(1,2,3-cd)pyrene	ND.		0.0666	2	09/28/2019 02:37	WG1353119	
Isophorone	ND		0.666	2	09/28/2019 02:37	WG1353119	
2-Methylnaphthalene	0.139		0.0666	. 2	09/28/2019 02:37	WG1353119	
Nachthalene	ND		0,066,6	2	09/28/2019 02:37	WG1353119	•
2-Nitroaniline	ND		0.656	2	09/28/2019 02:37	WG1353119	
3-Nitroaniline	ND		0.666	2	09/28/2019 02:37	WG1353119	
Nitroaniline	~ND	•	0.666	. 2	09/28/2019 02:37	WG1353119	
Vitrobenzene	ND		0.666	2	09/28/2019 02:37	WG1353119	
n-Nitrosodiphenylamine	ND *		0,666	12 0 + 40 - 4	09/28/2019 02:37	WG1353119	the state of the s
n-Nitrosodi-n-propylamine	ND		0.666	2:	09/28/2019 02:37	WG1353119	
Phenanthrene	ND .	. ;	0.0666,	2	09/28/2019 02:37	WG1353119	المعادات المعادية
Benzylbutyl phthalate	ND		0.666	2	09/28/2019 02:37	WG1353119	

1909872-0018 CELL #1 TREATMENT COMP

ONE LAB. NATIONWIDE:

Collected date/time: 09/20/19 14:08
Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result Qualifie	r RDL	Dilution Analysis	Batch	7. 1 7	Ċр
Analyte	mg/kg	mg/kg	date / time	, .	. ,	
Bis(2-ethylhexyl)phthalate	ND	0.666	2 09/28/2019 02:3	7 WG1353119	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	² Tc
Di-n-butyl phthalate	ND ··	0.666	2 09/28/2019 02:3	7 WG1353119	• •	1 10
Diethyl phthalate	ND	- 0.666	2 - 09/28/2019 02:3	7 WG1353119		
Dimethyl phthalate	ND.	0.666	2 09/28/2019 02:3	7 WG1353119		Ss
Di-n-octyl phthalate	ND	:0.666	2 09/28/2019 02:3	WG1353119 :-	The state of the s	
Pyrene-	ND	0.0666	2 09/28/2019 02:3	7 <u>WGI353119</u>	Light studying 1 for the control of	Cn
1,2,4,5-Tetrachlorobenzene	ND A	0.665	2 09/28/2019 02:3	7 . WG1353119	in the first section of	"
4-Chloro-3-methylphenol	ND	0.666	2 09/28/2019 02:3	7 WGI353114	ton ton .	2 2
2-Chlorophenol	ND.	0.666	09/28/2019 02:3	WG1353119		Sr
2-Methylphenol	ND	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>	and the second s	, 🚐
3&4-Methyl Phenol	ND ,	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>	e e ver i e e e	[®] Qc
2,4-Dichlorophenol	ND	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>	2. 20. 2-	100
2,4-Dimethylphenol	ND ⊕ 1	0.666	2 09/28/2019 02:3	WG1353119	ا و مد مده در الاستان المراجعة المداولة المراجعة المداولة المراجعة المراجع	7
4,6-Dinitro-2-methylphenol	ND	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>		GI
2.4-Dinitrophenol	ND	0.666	2 09/28/2019 02:3	7 WG1353119	The state of the s	
2-Nitrophenol	ND	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>	· · · · · ·	a Ai
* · · · · · · · · · · · · · · · · · · ·	r ND or is se	0.666 ··	09/28/2019 02:3	7 w WG1353119 **		
Pentachlorophenol	ND	0.666	2 09/28/2019 02:3	7 WG1353119		
Phenol	ND / China	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>		Sc
2,4,5-Trichlcrophenol	ND .	0.666	2 09/28/2019 02:3	7 <u>WG1353119</u>		L-:
2.4.6-Trichlorophenol	ND .	0.666	2 09/28/2019 02:3	7. <u>WG1353119</u>	a service and the service of	
(S) 2-Fluorophenol	81.0	12.0-120	09/28/2019 02:3	7 WG1353119	* *	
(S) Phenol-d5	68.7	10.0-120	09/28/2019 02:3	7 WG1353119	And a region of the	
(S) Nitrobenzene-d5	59.2	10.0-122	09/28/2019 02:3	7 WG1353119	-	
(S) 2-Fluorobiphenyl	69.4	15.0-120	.09/28/2019 02:3	7 <u>WG1353119</u>	and the second s	
(S) 2,4,6-Tribromophenol	97.8	10.0-127	09/28/2019 02:3	7 WGI353119		
(S) p-Terphenyl-d14	79.0	10.0-120	09/28/2019 02:3	Z ^c : <u>WG1353119</u>		

909B72-002B CELL #2N TRE allected date/time: 09/20/19			SAN	1PLE	KE:	SULTS - 02	2		ONE LAB. N	IATIONWIDE.
Vet Chemistry by Meth	-			3.	E1146		P	ีน หาุ้		i i i
	Result	Qualifier	RDL		Dilution	Analysis	Batch		- ·	
nalyte	mg/kg		mg/kg	· · · · · · · · · · · · · · · · · · ·	-	date / time				
yanide	ND		0.250	•	1	10/01/2019 12:38	WG1354222			
Vet Chemistry by Metho	od 9066									!
	Result	Qualifier	RDL	•	Difution	Analysis	Batch			
nalyte	mg/kg		mg/kg		•	date / time				Ì
otal Phenol by 4AAP	0.698		0.670	į	<u> </u>	09/26/2019 20:11	WG1352321		 	
emi Volatile Organic C	ompounds	: IGC/MS	hy M	ethod	ደንፖስ	Γ				
	Result	Qualifier	RDL		Dilution	Analysis	Batch			
alyte	mg/kg		mg/kg	•		date / time	Daten			
enaphthene	ND		0.0666				- Higgs and			
enaphthylene.	ND .				<u>.</u>	09/28/2019 02:57	WG1353119			1 .
etophenone	ND		0.0666		<u> </u>	09/28/2019 02:57	WG1353119	A BONE Per A		
thracene			0.566	7	<u>!</u>	09/28/2019 02:57	WG1353119	,		
-	ND		0.0666	.3	<u>.</u> .	09/28/2019 02:57	WG1353119:		•	, -
razine	ND	•	0.565	2	?	09/28/2019 02:57	WG1353119		•	ľ
nzaldehyde	ND		0.666	2	:	09/28/2019 02:57	WG1353119	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		1
nzo(a)anthracene	NĎ		0.0666	2	!	09/28/2019 02:57	WG1353119			· · · · · · · · · · · · · · · · · · ·
nzo(b)fluoranthene ·	ND	•	0.0666	2		09/28/2019 02:57	WG1353119		• •	~1
nzo(k)fluoranthene	ND		0.0666	2		09/28/2019 02:57	WC1353119		, ,	L
nzo(g.h.i)perylene	ND .	,	0.0666			09/28/2019 02:57	WG1353119	1 4 - 4	. 1	العيد المحاف والها
nzo[a]pyréne	ND	•	0.0666	. , -		09/28/2019 02:57	WG1353119		:	·4 [4
menyl	ND		0.666	. 2		09/28/2019 02:57				
(2-chlorethoxy)methane	ND	* -	0.666	-			WG1353119		÷	
(2-chloroethyl)ether .				2		09/28/2019 02:57	WG1353119			
(2-chloroisopropyl)ether	ND .		0.666	, 2		09/28/2019 02:57	WG1353119	* 4: **		* * * * * * * * * * * * * * * * * * *
	ND		0.666	. 2		09/28/2019 02:57	WG1353119			
Iromophenyl-phenylether	ND *	•	0.666	. 2	•	09/28/2019 02:57	WG1353119	; •	· · · · · ·	
prolactam	ND		0.666	2		09/28/2019 02:57	WG1353119			
bazole	ND	-4 -	0.666	., 2	•	09/28/2019 02:57	WG1353119	,		•
hloroaniline	ND		0.666	2		09/28/2019 02:57	WG1353119	* *!		•
hloronaphthalene	ND.		0.0666	; · · · · · 2		09/28/2019 02:57	WG1353119	.		`., <u>;</u>
hlorophenyl-phenylether	ND		0.666	2		09/28/2019 02:57	WG1353119	•		•
ysene	ND ~	· · · · · · · · · · · · · · · · · · ·	0.0666	2		09/28/2019 02:57	· WG1353119 -			
enz(a,h)anthracene	ND	•	0.0666	2	•	09/28/2019 02:57	WGI353119		• •	÷ -
enzofuran	ND 11		0.666	**** 2		09/28/2019 02:57				
Dichlorobenzidine	ND		0.656				WG1353119	2		;
-Dinitrotoluene	ND .	: '		2		09/28/2019 02:57	WG1353119			
Dinitrotolyene		:	0,665	2		09/28/2019 02:57	WG1353119			
	ND		0.666	2		09/28/2019 02:57	WG1353119	. v -		
oranthene -	ND		0.0666].; . 2 .		09/28/2019 02:57	WG1353119	· . da j		
orene	ND		0.0666	2		09/28/2019 02:57	WG1353119			*
achlorobenzene	ND :		0.666	Ž	. ;	09/28/2019 02:57	WG1353119		4 4	•
achloro-1,3-butadiene	ND		0.666	, 2		09/28/2019 02:57	WG1353119			
achlorocyclopentadiene	ND - 1		0.666,	2		09/28/2019 02:57	WG1353119	20, 1		, e <u>é</u>
achloroethane	ND .		0.666	2		09/28/2019 02:57	WG1353119	* - *** •		
no[1,2,3-cd)pyrene	ND	, i **.	0.0666	2		09/28/2019 02:57	WG1353119		-	-
horone	ND	•	0.666	2		09/28/2019 02:57	WG1353119		. 1.4	•
ethylnaphthalene	0.194		0.0666	. 2		09/28/2019 02:57		:		
hthalene	ND		0.0666	2		**	WG1353119	· : \$1.,		
troanitine	ND	عار والم				09/28/2019 02:57	WG1353119			
troanitine	ND	* •	0.666	2		09/28/2019 02:57	WG1353119			
troaniline.			0.666	. 2		09/28/2019 02:57	WG1353119			
•	ND		0.666	∴2		09/28/2019 02.57.	.WG1353119			:
	ND		0,666	2	1	09/28/2019 02:57	WG1353119			•
trosodiphenylamine	ŃD :	٠.,	0.666	2.		09/28/2019 02:57	WG1353119			
	ND		0.666	2`	i	09/28/2019 02:57	WG1353119			
	0.0680		0.0666	2		09/28/2019 02:57	WG1353119	· .		-
rylbutyl phtholate	ND:		0.666	2		59/28/2019 02:57	WG1353119	• *		:
			0.000							

1909872-0028 CELL #2N TREATMENT COMP

1909B72-002B CELL #2N TREATMENT COMP SAMPLE RESULTS - 02
Collected date/time: 09/20/19 14:45
Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result Qualifier	RDL	Dilution	Analysis	<u>Batch</u>		Ċр
Analyte -	mg/kg	mg/kg	•	date / time			لــــا
Bis(2-ethylnexyl)phthalate	ND, 🗼	0.666	,2	09/28/2019 02:57:	WG1353119		² Tc
Di-n-butyl phthalate	ND	0.666	2	09/28/2019 02:57	WG1353119		ić
Diethyl phthalate	ND 5	0.666	2 - "	- 09/28/2019 02:57	WG1353119	the second se	
Dimethyl phthalate	NO	0.666	2	09/28/2019 02:57	WG1353119	, *	'Ss
Di-n-octyl phthalate	ND	0.666	2	09/28/2019 02:57	WG1353119	The same that the same of the same	
Pyrene	ND	0.0666	.2	09/28/2019 02:57	WG1353119 .	The second secon	-0-
1,2,4,5-Tetrachlorobenzene	ND : 1, 1, 1	0.666	3	09/28/2019 02:57	WG1353119	en e	Cn
4-Chloro-3-methylphenol	ND	0.666	2	09/28/2019 02:57	WG1353119	i i e e e e e e e e e e e e e e e e e e	2
2-Chlorophenol	ND	0.666	2	09/28/2019 02:57	WG1353119		i'Sr
2-Methylphenol:	ND	0.666	2	09/28/2019 02:57	WG1353119		<u> </u>
384 Methyl Phenol	NĎ	0.666	2	09/28/2019 02:57	WG1353119 -		500
2,4-Dichforophenol	ND	0.666	2	09/28/2019 02:57	WG1353119	Fig. 12 Cartes	Qc
2,4-Dimethylphenol	า ที่ก็ ' ' ' ' - ' ' ' ู้ "	0.666	Ž	09/28/2019 02:57	WG1353119	The property of the second of	
4.6-Dinitro-2-methylphenol	NO	0.666	2	09/28/2019 02:57	WG1353119	- 1969 to	GI
2,4-Dinitrophenol	ND **	0.666` " "	2	09/28/2019 02:57	WG1353119		۔ ا
2-Nitrophenol	ND	0.666	2	09/28/2019 02:57	WG1353119	r= - 4	[·
4-Nitrophenol	ND - Santa	0.666	ž	09/28/2019 02:57	WG1353119	and the grant of the same of the	Al
Pentachlorophenol	ND	0.666	2	09/28/2019 02:57	WG1353119	4 3 ·	
Phenol	ND	0.666	2	09/28/2019 02:57	WG1353119	and the same and	sc
2.4,5-Trichlcrophenol	ND	0.666	2	09/28/2019 02:57	WG1353119	2.34	لـــــا
2,4,6-Trichlerophenol	, ND	0.666	2 -	09/28/2019 02:57	WG1353119	क्षा की कर ही राज के का एक मुख्या कर के मुख्या कर के मुख्या के स्थाप के स्थाप के स्थाप के स्थाप के स्थाप के स्	
(S) 2-Fluotophenol	76.7.	12.0-120		09/25/2019 02:57	WG1353119		
(S) Phenol-d5	64.3	10.0-120		09/28/2019 02:57	WG1353119	A STATE OF THE STA	
(S) Nitrobenzene-d5	54.7	10.0-122	•••	09/28/2019 02:57	WG1353119		• •
(S) 2-Fluorobiphenyl	67.1	15.0-120	. ,	09/28/2019 02:57	WG1353119		
(S) 2,4,6-Tribromophenol	94.6	10.0-127		09/28/2019 02:57	WG1353119	The control of the co	
(S) p-Terphenyl-dl4	81.1	10.0-120		09/28/2019 02:57	WG1353119	The grant of the first of the f	•

ONE LAB: NATIONWIDE.

1909B72-003B CELL #25 TRE		P	SAMPI	E RF	SULTS	03	4	r + m + 6	ONE LAB. NATIONWIDE.	. 5
Collected date/time: 09/20/19	14:20			L1142		, o			, ,	4.
Wet Chemistry by Meth	od 9012B									
	Result	. Qualifier	RDL	Dilution	Алаlysis		Batch			$ \epsilon $
Analyte	mg/kg		mg/kg		date / time		<u></u>			<u> </u>
Cyanide	ND		0.250	1	10/01/2019 12:47	- 	WG1354222	4	- 1 57 - TO - T	² Ta
Wat Chamista hukkati	~4 0000								•	<u> </u>
Wet Chemistry by Meti-										S
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time		<u>Batch</u>			F
Total Phenol by 4AAP	0.974	·	0.670	1	09/26/2019 20:15		WG1352321			C
_										Ē.
Semi Volatile Organic (Compound:	s (GC/MS) by Metho	od 8270	C , , ,					ĨŞĩ
	Result	Qualifier	RDL	Dilution	Analysis		Batch	-		
Analyte	mg/kg		mg/kg	· · · · · · · · · · · · · · · · · · ·	date / time					ľQ
Accomplished	ND		0.0666	2	09/28/2019 01:39		WG1353119		4	<u></u>
Acenaphthylene Acetopherone	ND		0.0666	2	09/28/2019 01:39		WG1353119		: : : : : : : : : : : : : : : : : :	G
Actiophenone Anthracene	ND ND	, ,	0.666	2	09/28/2019 01:39		WG1353119			ئــا
Atrazine	ND .	1 .	, 0.0666 0.666	2 2	09/28/2019 01:39	•	WG1353119	;	. :	Al
Benzaldehyde :	" ND."; + *		0.666	. 2	09/28/2019 01:39		WG1353119 WG1353119	and the second of the second o		Al
Benzo(a)anthracene	ND	•	0.0666	2	09/28/2019 01:39	;·	WG1353119 WG1353119		1	<u> </u>
Benzo(b)fluoranthene	NĎ	a ji	0.0666	` <mark>2</mark> ·	09/28/2019 01:39	*	WG1353119	٠,,	÷ · · · ·	S
lenzo(k)flucranthene	ND	,	0.0666	2	09/28/2019 01:39		WG1353119	*		L_
Benzo(g.h.i)perylene	ND		0.0666	· 2 · ·	09/28/2019 01:39		WG1353119		and the second	
Benzo(a)pyrene	ND		0.0665	. 2	09/28/2019 01:39	•	WG1353119	1.7-	. :	
liphenyl	ND		0.666	2.	09/28/2019 01:39		WG1353119	× 1 = 1,		
3is(2-chlorethoxy)methane	ND ,		0.666	2	09/28/2019 01:39		WG1353119			
Bis(2-chloroethyljether	ND	• • • •	0.665	2*.	09/28/2019 01:39	, .	WG1353119			
Bis(2-chloroisopropyl;ether	ND		0.666	2	09/28/2019 01:39		WG1353f19		· ·	
l-Bromophenyl-phenylether	ָר ייֹב לא י		0.666	· 2	09/28/2019 01:39		WG1353119	· · · · ·		
Caprolactam	ND		0.666	2	09/28/2019 01:39		WG1353119		••	
Carbazole	ND		0.656	2.	09/28/2019 01:39		WG1353119	* * * * * *		
I-Chloroaniline	ND .		0.666	2	09/28/2019 01:39		WG1353119	; ,		
2-Chloronaphthalene	ND "		0.0666	2	09/28/2019 01:39		WG1353119	, <u></u> .	;	
I-Chlorophenyl-phenylether	ND	,	0,666	2	09/28/2019 01:39		WG1353119			
Chrysene	ND '		0.0666	2.	09/28/2019 01:39		WG1353119	•	*	
Dibenz(a,h)anthracene Dibenzofuran	ND		0.0666	2	09/28/2019 01:39		WG1353119			
	ND :		0.666	_	09/28/2019 01:39		WG1353119	. 14 - 1 -		
3.3-Dichlorobenzidine	ND		0.665	2	09/28/2019 01:39		WG1353119			
2,4-Dinitrotoluene 2,6-Dinitrotoluene	ND ND	· · ·	0.666	2	09/28/2019 01:39	,	WG1353119			
luoranthène . * *	ND		0.666	2	09/28/2019 01:39		WG1353119			
luorene	ND.		0.0666	2	09/28/2019 01:39	×.	WG1353119			
lexachlorobenzene	ND ND		0.0666	2	09/28/2019 01:39		WG1353119			
lexachtoro-1,3-butadiene	ND ND		0,666	2	09/28/2019 01:39	•	WG1353119		12	
lexachlororyclópentadiene .	NĐ NĐ	ız	0,666	2	09/28/2019 01:39		WG1353119			
lexachloroethane	ND ND.	<u>16</u>	0.666 0.666	2 2	09/28/2019 01:39 09/28/2019 01:39	.,	WG1353119	- • ' j' (• *	
ideno(1,2,3-cd)pyrene	ND.		0.0666		09/28/2019 01:39		WG1353119 WG1353119			
ophorone	ND		0.666	2	09/28/2019 01:39	•			*	
-Methylnaphthalene	0.127		0.0666		09/28/2019 01:39		WG1353119 WG1353119	. ;		
aphthalene	ND		0.0666	2	09/28/2019 01:39	,	WG1353119		, :	
-Nitroaniline	ND	** *	0.666	2	09/28/2019 01:39		WG1353119 WG1353119		- · · -	
-Nitroaniline	ND .	* * 4	0.666	2	09/28/2019 01:39	*	WG1353119	•	. ' '	
Nitroanilina	ND		0.666	2	09/28/2019 01:39		WG1353119	No. 1	•	
itrobe nzéné	ND		0.666	2	09/28/2019 01:39		WG1353119	,		
-Nitrosodiphenylamine	ND	4	0.666		09/28/2019 01:39	_	WG1353119	4.		
-Nitrosodi-n-propylamine	ND	•	0.666		09/28/2019 01:39		WG1353119			
henanthrene .	ND		0.0666		09/28/2019 01:39		WG1353119	Se.		
enzylbutyl phthalate	ND		0.666	_	09/28/2010 01:30		WC1353H5	³⁶ ⋅		

Benzylbutyl phthalate

0.666

WG1353119

09/28/2019 01:39

ND

1909B72-003B CELL #25 TREATMENT COMP

ONE LAB. NATIONWIDE.

1909872-0038 CELL #25 TREATMENT COMP SAMPLE RESULTS - 03
Collected date/time: 09/20/19/14:20
Semi Volatile Organic Compounds (GC/MS) by Method 8270C.

· · · · ·	Result Qualifier	RDL Dilution	Analysis	Batch	Cp
Analyte	mg/kg	mg/kg	date / time		
Bis(2-ethylhexyl)phthalate	ND	0.656 2	09/28/2019 01:39	WG1353119	TC.
Di-n-butyl phthalate	ND	0.666 2	09/28/2019 01:39	WG1353119	· · · · · · · · · · · · · · · · · · ·
Diethyl phthalate:	ND	0.666 2	*09/28/2019 01:39 ·	WG1353119	
Dimethyl phthalate	ND	0.666 2	09/28/2019 01:39	WG1353119	'Ss
Di-n-octyl phthalate	ND	0.666	09/28/2019 01:39	<u>WG1353119</u>	
Pyrene	ND	0.0666 2	09/28/2019 01:39	WG1353119	
1,2,4,5-Tetrachlorobenzene	ND:	0.666 2	09/28/2019 01:39	*WG1353119*	Ch
4-Chloro-3-methylohenol	ND	0.666 2	09/28/2019 01:39	WG1353119	
2-Chlorophenot	ND	0.666 2	09/28/2019 01:39	WG1353119	, 🦂 Sr.
2-Methylphenol	ND	0.666 2	09/28/2019.01.39	WGI353119	1 1121
3&4-Methyl Phenol	ND /	0,666 2	09/28/2019 01:39	WG1353119	, ¹³ 2-
2,4-Dichlorophenol	ND	0.666 2	09/28/2019 01:39	V/G1353119	· · · · · · · · · · · · · · · · · · ·
2,4-Dimethylphenol	ND "	0.666	09/28/2019 01:39	WG1353119	
4.6-Dinitro-2-methylphenol	ND <u>J6</u>	0.666 2	09/28/2019 01:39	WG1353119	or the state of t
2,4-Dinitrophenol	ND <u>J6</u>	0.666 2111	09/28/2019 01:39	WG1353119	194 × 2 × 1 × 1
2-Nitrophenol	ND	0.666 2	09/28/2019 01:39	WG1353119	24
4-Nitrophenol	ND	0.666 2	09/28/2019 01:39	WG1353119 '	Al ر ۱۳۰۰ م
Pentachtorophenol	ND <u>J3</u>	0.666 2	09/28/2019 01:39	W61353119	,
Phenol	ND **	0.666 2	09/28/2019 01:39	WG1353119	Service Servic
2.4.5-Trichlerophenol	ND	0.666 2	09/28/2019 01:39	WG1353119	
2,4,6-Trichlorophenol	, NĎ.	0.666 2	09/28/2019 01:39	WG1353119	in the second of
(S) 2-Fluorophenol	66.8	12.0-120	09/28/2019 01:39	WG1353119	•
(S) Phenol-d5	.59.9 · · · · ·	10.0-120	09/28/2019 01:39	WG1353119.	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
(S) Nitrobenzene-d5	50.3	10.0-122	09/28/2019 01:39	WG1353119	· The state of the
(S) 2-Fluorobiphenyl	62.7	15.0-120	. 09/28/2019 01:39	WG1353119	
(S) 2,4,6-Tribromophenol	86.9	10.0-127	09/28/2019 01:39	WG1353119	
(S) p-Terphenyl-d14	76.4	10.0-120	09/28/2019 01:39	WG1353119	

WG13542	222 by Method 9012B -		····	· · · · · · · · · · · · · · · · · · ·	QUALIT		NTROL S	JUMMA	ίŘΥ			ONEI	LAB. NATIONWIDE.	₩
				÷	;	L11425	2548-01.02.03					* ·		
Method Blank (MB) R3456389-1				<u> </u>										Cp
(MD) K3430305-1	MB Result	MB Qualifier	MB MDL	. MB RDL		,			•					
Analyte	mg/kg		mg/kg	mg/kg										Tc
Cyanide	U		0.0390	0,250			-							- 🔛
L1142548-01 (Original Sample	(OS) • 'Dup	olicate (f	DUP)										Ss
	10/01/19 12:34 - (DUP) F			•		+								- [₹] Cn
	Original Result				DUP Qualifier	DUP RPD	•		• •			•		· [
Analyte	mg/kg	mg/kg	Pilation	%	DOF Granter	Limits	•		•	•				⁵Sr
Cyanide	ND	0.000	1	0.000		% 20								. [
			•			20				-		•		⁶ Q€
L1142548-02 (Original Sample	· (OS) • Dur	olicate (ומוטא			•		•					
	10/01/19 12:38 • (DUP)				, , ,									_ GI
	Original Result				.DUP Qualifier	DUP RPD			•					
Analyte	_		Dilugos		DUP Quanter	Limits			•					. Al
Cyanide	mg/kg ND	mg/kg 0.000	1	0.000		% 20								
Laboratory Co (LCS) R3456389-2		<u> </u>			<u> </u>		···	<u> </u>						•
Analyte	Spike Amount mg/kg	LCS Résult- mg/kg	LCS Rec. %	Rec. Limits	ts <u>LCS Quali</u> ·	<u>fier</u>				-			-	•
Cyanide	2.50	2.43	97,0	50.0-150		****								•
,	•	5 1,	-				•	•					÷	
	Original Sample ((MSD)		ī					
(OS) L1143457-01 10	0/01/19 12:41 • (MS) R34													
Analyte		Original Result				MSD Ro	ec. Dilution	Rec. Limits	MS Qualifier	MSD Qualifier		RPD Limits		
Cyanide	mg/kg 1,67	mg/kg ND	mg/kg 1.55	mg/kg 1.57	% 80.8	82.4		% 75:0-125			%	% '		e mi
-,	****	,	1.00	l. er	00.0	02.4	,	/5.0-125			1.67	20		:
L1140691:01 O.	et-ta-l Camania #	CC Manufi	C-95-	* 400			3.EE.							
	riginal Sample (C						,MSD)							
(OS) L1143681-01 TO	0/01/19 13:01 - (MS) R34						. Bylat							
Analyte	Spike Amount mg/kg	Oriģirial Result mg/kg	t MS Result mg/kg	t MSD Result mg/kg	dt MS Rec.	MSD Re	ec. Dijution	Rec. Limits	MS Qualifier			RPD Limits	•	
Cyanide	· 1.67	0.381	0.496	4.35	6.92	238	1	75:0-125	<u>16:</u>	·····	% 159	% 20		•
•							•	70.0 120	 -	<u> </u>	105	20		

WG135232				:	QUALIT		ROL S	UMMAI	RY.			ONE LAB. NATIO	NWIDE.
Method Blank (N				·				•	•		•		ار
(MB) R3455057-1 09/2	26/19 20:05			'		· · · · · -		-,·					Cp
• •	MB Result	MB Qualifier	MB MDL	MB RDL									
Analyte	mg/kg		mg/kg	mg/kg						•			²⊤c
Total Phenol by 4/\AP	ป		0.220	0.670		, ,							
	-											•	3 Ss.
L1142051-02 Orig	ninal Samble	(OS) • Dur	dicate (Di	JP\						•		·	
(OS) L1142051-02 09/2	• •	· · ·		<u> </u>	•		:						[tcn]
	Original Resul	t DUP Result	Dilution .		DUP Qualifier	DUP RPD						•	<u> </u>
**	(dry)	(dry)			DOP Qualifier	Limits	•			•	•		⁵ Si
Analyte	mg/kg	mg/kg:		ž		<u>%</u>							
Total Phenol by 4AAP	ND	1:21	1 1	25	<u>P1</u>	20						٠.	6
•		•	,'									ļ.	"Qĉ
Laboratory Cont	rol Sample (L	.CS)										_	GI
(LCS) R3455057-2 · 09.	/26/19 20:06	-					-			_	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	<u> </u>
	Spike Amount	LCS Result	LCS Rec.	Rec. Limit	ts <u>LCS Qua</u>	lifier						**	3
Analyte	mg/kg	mg/kg	%	%						•			Al
.Total Phenol by 4AAP	8.33	8.38	101	90.0-110	· · · · · · · · · · · · · · · · · · ·				•		 		,
												,	Sc
L1142548-02 Ori	oinal Sample	(OS) • Mat	riy Snika	(MS) - Ma	atriv Solka	Duplicate (N	4SD)				۳.		.
(OS) L1142548-02 09/2							130)			•		<u>: :</u>	
(03) 51142340-02 03/2		Original Resul				'MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg		. %	, %		%.	ius addinici	ingo desinei	%.	%:	•
Total Phenol by 4AAP	16.7	0.698		17.0	98.6	.97.3	. 1	90.0-110			1.21	20	·
•											-		
				-									
				•								• •	
													·•
•												•	•

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Hall Environmental Analysis Laboratory

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

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10/01/19 14:58



Method Blank (MR)

(MB) R3455468-2 09/2					
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/kg		mg/kg	mg/kg	
Acenaphthene	U	_	0:00642	0.0333	
Acenaphthylene	· υ, -	• •	0,00671	0.0333	
Acetophenone	U		0.0752	0.333	and the second of the second o
Anthracene	U .	1	0.00632	0.0333	·•
Atrazine	U		0.0938	0.333	
Benzaldehyde	ָט יַ <u>.</u>	· . · .	0.0532	0.333	
Benzo(a)anthracene	U		0.00428	0.0333	
Benzo(b)fluoranthene	U.		0.00695	0.0333	
Benzo(k)fluoranthene	U		0.00582	0.0333	
Benzo(g,h,l)perylene	Ú.		0.00721	0.0333	
Benzo(a)pyrene	U		0.00548	0.0333	
Biphenyl	U	:	0.00588	0.333	AND THE RESIDENCE OF THE PARTY
Bis(2-chlorethoxy)methane	Ų		0,00770	0,333	
Bis(2-chloroethyllether	. U		0,00896	0.333	
Bis[2-chloroisopropyl]ether	U		0.00760	0.333	
-Bromophenyl-phonylether	U . '	•	0.0114	0.333	and the contract of the contra
aprolactam	u 		0.104	0,333	
arbazole	υ΄		0.00524	0.333	
-Chloroaniline	Ú 		0.0352	0,333	
-Chloronaphthalene	U		0.00639	0.0333	
-Chlorophenyl-phenylether	U		0.00627	0.333	•••••
hrysene.	U		0,00555	0,0333	
ibenz(a,h)anthracene	U	_	0.00821	0.0333	
ibenzoluran	T- U.	•	- 0,00518	0.333	The state of the s
,3-Dichlorobenzidine	U	_	0.0794	0.333	* ** ** ** ** ** ** ** ** ** ** ** ** *
4-Dinitrotoluene	U ·	7	0.00607	0.333 '	
.6-Dinitrotoluene Iuoranthene	U		0.00737	0.333	
•	U.	~	0.00496	0.0333	in Maria Maria and Araba and A
luorene losseblasebassass	IJ	*	0.00682	0.0333	
lexachlorobenzene lexachloro-1,3-butadiene	U	1.14	0.00856	0.333	
	U		0.0100	0.333	
exachlorocyclopentadiene	<u>"</u> "		0,0587	0.333	
exachloroethane			0.0134	0.333	
deno(1,2,3-cd)pyrene		-	0.00772	0.0333	
Ophorone Mattuilmantulmine	U or		0,00522	0.333	
Methýlnaphthalene sphthalene	Ú)		0.00861	0.0333	
Nitroaniline	U		0:00889	0.0333	
Nitroaniline	U	•	0.00755	0,333	
Nitroantine Nitroantline	U		0.00850	0.333	
-viroanilius	, U ; <u>;</u> ;		0.00639	_ 0.333	

QUALITY CONTROL SUMMARY

Semi Volatile Organic Compounds: (GC/MS) by Method-8270C

Method Blank (MB)

Metrico Didrik (IVID)	*****	<u> </u>			** **		<u></u>			3		1	. :	٠		Cp
(MB) R3455468-2 09/27/1			ː**.											· <u>`</u> .		1
	MB Result	MB Qualifier	MB MDL	MB RDI	•								• •			2
Analyte	mg/kg		mg/kg	mg/kg										·		To
Nitrobenzene	U		0.00695	0.333	,								,			L
n-Nitrosodiphenylamine	U	,	0.0900	0:333						7	<u>. 1</u>	<u> </u>			* * *	³Ss
n-Nitrosodi-n-propylamine	U		0.00906	0,333							·, -		7 '			
Phenanthrene	υ . ͺ ͺ		0.00528	0.0333				:. }·		Y. 4	<u>,</u>	ž	4			
Benzylbulyl phthalate	U		0.0103	0.333		•		,				11112				Cr
Bis(2-ethylhexyl)phthalate	U	187	0.0120	0.333	واد مقاد به اداد مواد بمورد	Territory of the second		المرجدة	· · · · · · · · · · · · · · · · · · ·	F g		248A, F.				ـــــــا .
Di-n-butyl phthalate .	U		0.0109	0.333							- · · · · · ·			***		Sr
Dicthyl phthalate	·U		0.00691	0.333		-					` • •	· · · · · · · · · · · · · · · · · · ·	488		and the second s	
Dimethyl phthalale	'U		0.00540				-	1. 1 -	- 1.			'			· · · · · ·	6
DI-n-octyl phthalate	Ü	,	0.00907	0.333	-3					المراجعة المارا	ggi	m.j.		ery we		Ö
Pyrene	:Ù		0.0123	0.0333				•								2 Sept 2 Sept
4-Chloro-3-methylphenol : ;	U _ ; ;		0.00477	0.333			أو الأناث		. ".				<u>'</u>			7GI
2-Chlorophenol	U	18: 5:	0.00831	0.333	<u></u>	•					•	·				1.0
2-Methylphenol	U''' gg	t armiský	0.00986	ূ 0,333		ergager.	. Yasiri.			~_15=2*=1		The first				3
384-Méthyl Phenol	U		0.00783	0.333			-					-				.Al
2,4-Dichlorophenol	U,	Later to La	0.00746	0.333			• .	4	4' _1	ال مي ا	1 :	# :[- ;			
2,4-Dimethylphenol	U		0.0471	0.333												°Sc
4,6-Dinitro-2-methylphenol	" Ü. i	: :	0.124	0.333	* 1 * * * * * * * * * * * * * * * * * *			1 ; ;		****	; ,,	 				L
2.4-Dinitrophenol	U		0.0980	0.333			_									
· •	· o · · · ·	_ 15	_0.0130	0.333			• • • • •			·						
4-Nitrophenol	U ni siste t		0.0525	0.333												
Pentachlorophenol	, U .		0.0480				137			1.19		3				•
Phenol	U		0.00695	0.333	- 4	** *:	- 4	•								•
1.2.4.5-Tetrachlorobenzene			0.0762		îga îga	· · · · · · · · · · · · · · · · · · ·	*. 17°	٠, ٧,	T	gart in girigen ka	, c. (1977)		,		officiality of the second of	
2.4.5-Trichlorophenol	. U:		0.0104	0.333			_								.4	
	Ų		0,00779	0.333			-		in .	F			公司	1.4.		
(S) Nitrobenzene-d5	55.3	• •		10.0-122			_	*.*	-							
(S) 2-Fluorobiphenyl	65.2	\mathcal{F}_{Ω}	,9 <u>.</u> 2.	15.0-12Q			, i	, i.e.,			. 1		erferir			
(S) p-Terphenyl-d14	70.3			10.0-120						,						
(S) Phenol-d5	65.2	i įM.	; [4],	10.0-120			irst. T	ి ప్రే	. 1	Astr. 1		14.	f rai			-
(S) 2-Fluorophenal	76.1	4		12.0-120				,				4				
(S) 2.4,6-Tribromophenol	71.0	. Lile		: 10.0-127	÷.		, ,		-,, .			ا آران غاد دار		,,	5	

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

L1142548-01,02,03

Laboratory Control Sample (LCS)

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

(LCS) R3455468-1 09/27/19						, ¢t
Amplica	Spike Amount		LCS Rec.	Rec. Limits	LCS Qualifier	3
	mg/kg	mg/kg	2	%		Tc
	0.665	0.455	68.3	38,0-120		\sqsubseteq
		0.484	72.7	40.0-120	okazon ola 12. okazon kisko okazon 17. okazo	³Ss
•	0.666	0.436	65.5	29.0-120		
	0.666	0.489	73.4	42.0-120		. 4 _
	0.666	0.506	76.0	43,0-120	ية مي و د المراجعة ا	Cn
	0.666	0.327	49.1	10.0-160	ရှိသည်။ မြောင်းသည်။ ကိုးရုံးသည် မြောင့်သည်။ မြောင့်ရေး မြောင့်ရေးမြောင်းများ	
		0.511	76.4 76.7	44.0-120 43.0-120		Sr
~	0.666	0.499	74.9	44.0-120		
1 1	·0,666	0.499 0.519	77.9	44.0-120		⁶ Qē
	0,666	0.523	78.5	45.0-120		, (~) (e
	0.666		78.5 70.9 ±	45.0-120 39.0-120		-
· •	0.666	0.360	70.9 . 54.1 .	20.0-120		⁷ GI
		0.455	68.3	16.0-120	and the second of the contract	
	0.666	0.413	62.0	23.0-120	the control of the co	аДÍ
	0.666	0.540	81.1.	40.0-120		AI
•	0.666	0.513	77,0	38.0-120		9
	4	0.494	74.2	48.0-120		"\$c
		0.258	38.7	18.0-120	the first than the second of the first than the second of the second of the second of the second of the second	
2-Chloronaphtháléne		0.485	72.8 [:]	35.0-120	the second secon	
	,, ,	0.510	76.6	40.0-120		
	0.666	0.496	74.5	43.0-120		
Dibenz(a.h)anthracene	0.666	0.520	78.1	44.0-120		
Dibenzoluran :	0.666	0.481	72.2	44.0-120	ing the state of t	
	1.33	0.920	69.2	28.0-120	ي وي الله منت الله الله الله الله الله الله الله الل	
	0,666	0.549	82.4	45,0-120		
		0.540	81.1	42.0-120		
		0.504	75.7	44.0-120		
		0.483	72.5	41.0-120		-
		0.526	79.0	39.0-120	And the second of the second o	
		0.403	60.5	15.0-120		
	A F	0.513	77.0	15.0-120		
		0.417	62.6	17.0-120		
		0.516	77.5	45.0-120		
		0.354	53.2	23.0-120		
•		0.359	53.9	34,0-120		
		0.364	54.7	18.0-120		
			80.8	46.0-120		
L.		0.492	73.9	36,0-120		
4-Nitroaniline	0.666	0.474	71.2	36.0-120		

QUALITY CONTROL SUMMARY

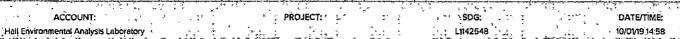
ONE LAB. NATIONWIDE

Semi Volatile Organic Compounds: (GC/MS) by Method 8270C

L1142548-01.02.03

Laboratory Control Sample (LCS)

(LCS) R3455468-1 09/27/19 2			· · · · · · · · · · · · · · · · · · ·			•	<u> </u>	,		: .		· · · · · · · · · · · · · · · · · · ·	Cp
	•	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	-	•			•			2
Analyte m	1g/kg	.mg/kg	75	ኤ.					<u>.</u>				Tc
	.666	0.365	54.8	17.0-120	•4					·.			· L
n-Nitrosodiphenylamine 0	,666	0,494	74.2	40.0-120	1.50	•	1.1.7				130	parties and established the second se	³Ss:
	666	0.412	61.9	26.0-120	4						** ***	n 1541	35
Phenanthrene 0	666	0.479	71.9	42.0-120								* * * * * * * * * * * * * * * * * * * *	13
Benzylbutyl phthalate 0	.666	0.500	75.1	40.0-120			-	•		~,4	- 150000	respectation of the	Cn
	.666 : jiji	0.481	-72.2 👙 🚞	41.0-120			A Transport	The Mills was proportion of the Control of the Cont		1977	مانياد ومعهد برا الأماني والأماني	The second of the second	:
	.666	0.494		43.0-120				×271 3 4. 128		And Andrew St.	1 m mm - 102 m 1 mm -	the second of the second of	Sr
Diethyl phthalate 0	.666	0.482	72.4	43.0-120		, it is			· j · · · · · · · · · · · · · · · · · ·	·** ‡ · · · ·	\`_^```\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	·라, i	31.7
,Dimethyl phthalate 0	.666	0.491	73.7	43.0-120				•		· · · · ·	and the second second	مستمدد سارك	6
Di-n-octyl phthalate 0	.666	0.509	76.4	40.0-120	ing ing	. r- · ·		- <u> </u>	angar r	Ting."		1. per 1.	ိုဝင်
Pyrene 0.	:666	0.496	74:5	41.0-120	••	•	22 2.	~ ;					5 7.00mm
4-Chloro-3-methylphenol : 0	.666	0.420	63.1	28.0-120	;	4	ំ អាក្	1.1.4	, , , , ,			7.15	7GI
		0.488	73.3	28.0-120	•		-		7 70"		1 4 22 2501		: - '
	.666	0.508	76.3	35.0-120	g Gran r engr:	ر المراجع المر ولا المراجع ا	్. మా కారులకుడ్డు	ا به الله الله الله الله الله الله الله		1 7 m 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Beginner	ر جا الله الله الله الله الله الله الله ا	-: a
•		0.542	81,4	42.0-120	·		7.						, Al
2,4-Dichlorophenol 0	.666	0.442	66.4	25.0-120		ر برد در مین مرا در مین						ទៅ។ ១៩៦	<u> </u>
		0.395	59.3	15.0-120						. ,			°Sc
	.666	0.524	78.7	16.0-120 .	1 :		* \$, :					The state of the s	J.
		0.471	70.7	10.0-120									
2-Nitrophenol 0.	.666	0.439	65.9	20.0 120	- 17 M	7.4			. 7:11	Target Service	1 4 1 2 2	المحادث المحادث المراجعة المحادث المحا المحادث المحادث المحاد	,-
		0.454	68.2	27,0-120			_						
		0.570	85.6	29.0-120	in the second second			ئى ئىڭ ئى ئى	:67				
_		0.464	69.7	28.0-120				•			7	· · · · · · · · · · · · · · · · · · ·	
A Company of the Comp		0.475		30.0-120 1			و والعالم الم					A Property of the Control of the Con	
		0.614	92.2	38.0-120						• '	., ,	e i me e	
	666	0.565	84.8	37.0-120	. /								-
. (S) Nitrobenzene-d5			58.9	10.0-122									
(S) 2-Fluorobiphenyl		situt.		15.0-120		al in	<i>:</i>				and the list	itera i jari da	
(S) p-Terphenyl-d14			73.3	10.0-120		-							
(S) Phenol-d5	· **			10.0-120	1	1. March		. <u></u>	_ ^	- 14	ا هن هن هن ا د الحراث في شواعد المناس	() () () () () () () () () ()	٠.
(S) 2-Fluorophenal			81.7	12.0-120									
(S) 2.4.6-Tribromophenol			883	10.0-127								Salar Salar	
					•					•		- ,	



WG1353119
Semi votatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY ONE LAB. NATIONWIDE. ** COMBOUNDS: IGC/MS): BY Method: 8270C C11/42548-01.02.03 QUALITY CONTROL SUMMARY

L1142548-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

֡										770	-			3000	
000		Į	Į,	DATE/TIME:	• •	SDG:		•	BBO JECT:				: :	ACCOUNT.	
			440		المسترقية المسترسين	13.0-120		.02.0		0.710				0.000	A CAMPINA CONTRACTOR OF THE PARTY OF THE PAR
·	4		A 1	 	t the party of	15 O 130	:	620	Дол	0 413	0.205)	5	0.686	4-Nimaniline
	1.	3.	17.5		•	11:0-120	, i	73.9	62.0	0.492	0.413		Š	0.666	3-Nitroaniline
	•	30	4.68			24.0-120	۷,	75.2	78.8	0.501	0.525		S	0,666	2-Nitroaniline
•		ಜ್ಞ	1.22			10.0-120	2	61.0	61.7	0,406	0.411		8	0.666	Naphthalene
		37	2.99		;	10.0-120	~ }	50.3	52.4	0.462	0.476		0.127	0.666	2-Methylnaphthalene
		34	6.40			13.0-120	2	50.0	53.3	0:333	0,365	0	8	0.666	sophorone
	•	;32	0.408	2	-	10.0-120	2	73.7	73.4	0.491	0.489		8	0,666	ndeno(1,2,3-cd)pyrene
	•	40	10.7			10,0-120	2	50.6	56.3	0.337	0.375	, 6	8	0,666	lexachloroethane
ŧ		40	0.000	<u>Г</u> Б	16	.10.0-120	٠,	₹ 0,000 ₹	0.000	ND NO	ND .			0.666	нехаслюгосусторелтация
			0.233		•	10.0-120	· ' ~	64.4	· 64.3	0.429	0.428	: :	8	0.666	lexachicro-1,3-butadiene
	***	28	7 19		;;;;	27.0-120	Ň	:77.9	72.5	0,519	0.483	3 + 1		0.666	fexachlorobenzene
		30	1.79		•	25.0-120	2	67.7	66.5	0.451	0.443		8	0,666	luorene
		;32	3.47	÷	-	18.0-126	2	74.9	72.4	0,499	0.482		N	0.666	luoranthene
		요	2.52	•		25.0-120	2	70.7	72.5	0,471	0.483		··S	0,666	2,6-Dinitrololuene
	- ` - ,	 अ	1.95	•		30.0-120	~	<u>, 2</u>	68.8	0.467	0.458	 	· S	0.666	.4-Dinitrotoluene
		. 34	7.03			10.0-120	2	49.8	46,5	0.663	0,618	,	B	1.33	,3-Dicitiorobenzidine
		0E.	0.663	•	·	24.0-120	Ż	67.7	58.2	0.451	0.454		: N	0.666	Dibenzoluran
		32	2.54			10.0-120	ż	87.7	89.9	0.584	0.599		8	0.666	Dibenz(a,h)anthracene
	,,,	, 29	4.37	. ,	÷ ;	21.0-120	.2	70.3	67.3	0.468	0.448	ت	8	0.665	hrysene
	•	29	0.627			24.0-120	2	71.6	72.1	0,477	0.480		S	0.666	l-Chlorophenyl-phenylether
		32 .	2.02		•	20,0-120	'ک	66.4	67.7	0.442	0.451		8	0.666	-Chloronaphthalene
	,	36	1.10			10.0-120	~>	41	40.7	0:274	0.271		B	0.666	-Chloroaniline
	•	. :24	2.16			31.0-120	2	70.4	68.9	0.469	0.459 ;		N N	0.656	arbazole
		31	0.206			11.0-141	2	72.7	77.8	0.484	0.485	٠	ND	0,666	aprolactam
•	- :	. 30	1.01	;	· · · · · · · · · · · · · · · · · · ·	27.0-120	2 :	7.88	9,08	0.591	0.597		Š	0.665	-Bromophenyl-phenylether
			5.67		:	10.0-120	∾'	<u>54.</u>	57.2	0.360	0.381	_	R	0.666	3is(2-chloroisopropyl)ether
		₽.	0.000	* - * - * -	# 1 * «	10.0-120	2	59.3	59.3	0.395	0.395		N	0.666	is(2-chloroethylether
,		32	3.40			0.07720	2	52.1	53.9	0.347	0.359	c	N	0.666	3is(2-chlorethoxy)methane
		33 :	4.76	41		15.0-120	ژخ	67.7	: 71.0	0.451	0.473	_	N	0,666	liphenyt .
		30	5.41	•		24,0-120	2	74.2	70.3	0.494	0.468	_	ä	0.666	3enzo(a)pyrene
٠.	: .:	33	1.74		. '.	10.0-120	2	69.5	68.3	0,463	0,455	•	Š	0,666	3enzo(g,h,i)perylene
•		38 [°]	3.26			23.0-120	2	65.6	63.5	0.437	0,423	~	N	0.666	denzo(k)Iluoranthene
	•	Θ	4.42			19.0-122	٠.	69.5	66.5	0.463	0.443		Ð	0.666	Senzo(b)fluoranthene
	•	29	4.62	ī	•	25.0-120	2	73.1	69.8	0.487	0.465		8	0.666	denzo(a)anthracene
•	k	40.	20.1	ys En Big	**************************************	10,0-160	۲,	65.9	80.6	0.439	0.537	· ;	8	0.666	Benzaldehyde
		28	5.76			20.0-131	2	72.4	68.3	0.482	0.455	_	S	0.666	Atrazine
		29	3.04	s :		22.0-120	.2	70.1	68,0	0.467	0.453		ND.	0.666	Anthracene:
		37	6.84		•	10.0-120	2	57.2	613	0.381	0.408		8	0.666	Acetophenone
 . ^.		33	2.94	: : :		25.0-120 :	2	65.5	67.4	0.436	0.449		S	0.666	Acenaphthylene
		32	0.000	,		18.0-120	2	64.1	64.1	0.427	0,427	_	, B	0.666	Acenaphthene
		:	54	•		22		36	è₹	mg/kg.	mg/kg.		mg/kg	mg/kg	Analyte
	nits	· RPD Limits	RPD	MSD Qualifier	MS Qualifier	Rec. Limits	Dilution	MSD Rec.	MS Rec.	MSD Result	MS Result	Original Result MS Result		Spike Amount	

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE

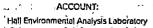
VIDE.

Semi Volatile Organic Compounds: (GC/MS) by Method 8270C

£1142548-01.02.03

L1142548-03 Original Sample (OS) - Matrix Spike (MS) - Matrix Spike Duplicate (MSD)

(OS) L1142548-03 09/28/1	_								•			7		Çp
	Spike Amount	Original Result		MSD Result	MS Rec.	MSD Rec.	Dilution;	Rec. Limits	MS Qualifier	MSD Qualifier	. RPD	RPD Limits		-
Analyte	mg/kġ	.mg/kg	mg/kg	mg/kg	·%	%		%		•	Х	% ,		Tc
Nitrobenzene	0.666	ND	0.376	0.351	56.5	52.7	2 .	10.0-120	, .		6.88	36		
n-Nitrosodiphenylamine	0.666	ND	0.489	0.492	73.4	73.9	2 - ,	17.0-120	1.1		0,612	29	*1*	³Ss
n-Nitrosodi-n-propylamine	0.666	ND	0.358	0,345	53.8	51,8	2	10,0-120	,		3,70	37		35
Phenanthrene	0.666	ND	0.480	0.499	72.1	74.9	[~] 2	17.0-120		-	3.88	31	ر ف	_
Benzyibutyl phthalate	0.666	ND	0.452	0.496	67.9	74,5	2	23.0-120	ENT OF THE		9.28	30	managed of the state of the	'∣"Cn
Bis(2-ethylhexyl)phthalate	0.666	ND	0.455	0.455	68.3	68.3	‰2	17.0-126			0.000	30	,	ļ
Di-n-butyl phthalate	0.656	ND	0.485	0.498	72.8	74.8	2	30.0-120	*** **) ** * ×	2,64	29	en e	⁵ Sr
Diethyl phthalate	0.666	ND:	0.430	0.436	64.6	65.5	2	26.0-120	•		1.39	28	* 4	1 21
Dimethyl phthalate	0.666	ND	0.436	0.430	65.5	64.6	2	25,0-120			1.39	29	- • -	·
Di-n-octyl phthalate	0.665	ND-	0.496	∙0.511	74.5	76.7	2	21,0-123 : : **	*****		2.98	n 329 - 2022-27	*	ି ପ୍ରତ
Pyrene	0.666	ND "	0.418	0.456	62.8	68.5	2	16.0-121	₩ -		8,70 .	32	** **	**************************************
4-Chloro-3-methylphenol:	0.666	ND - 31 :	0.422	.0.434	63.4	65.2	.5	15.0-120		, n -	2.80	30 :	4 4	7 (1)
2-Chlorophenol	0.656 .	ND .	0.460	0.425	69.1 .	63.8	2	15,0-120	•	-	7.91	37	5°-	[G]
2-Methylphenol	0.666	ND TITE	0.565	0.471	84.8	70.7	[‡] 2	11.0-120	The state of the s	and the same of th	18,1	40	ماي خانه مايت مشكري	_
3&4-Methyl Phenol	0.666	ND	0.502	0.468	75.4	70.3	Ž	12.0-123	;* `		7.01	38	×	AL.
2.4-Dichlorophenol	0,666	ND .	0.461	0.464	69.2	69.7	- 2	20.0-120 :		1 . 17 :	0.649	;31 · · · · · ·		<u> </u>
2.4-Dimethylphenol	0,666	ND	0.402	0.387	60.4	58.1	2	10.0-120	•		3.80	33		°Sc
4,6-Dinitro-2-methylphenol	0.665	'ND'	ND:	ND :	0.000	0.000 :	2 .	10.0-120	<u>J6</u>	J6 *:::	0.000	: 39		30
2.4-Dinitrophenol	0,666	ND	ND	ND	0.000	0.000	2	10,0-121	J6	<u>36</u>	0.000	40	***,***	<u> </u>
2-Nitrophenol	0.666	ND	0.465	0.447	69.8	67.1	2	12.0-120	 		3.95	39	- 12 m	
4-Nitrophenol	0.666 .	ND	0.463	0.481	69.5	72.2	2	10.0-137		•	3.81	32	· · · -	
Pentachlorophenol	0.666 👫 🚶	ND 4 [] [0.383	0.533	57.5	80.0	.2 -	10,0-160	i and also	<u>13</u>	32.8	31		•
Phenol	0.666	ND	0.425	0.390	63.8	-58,6	2	12.0-120		73	8.59	38		٠
1,2,4,5-Tetrachlorobenzene:	0.666	ND .	0.494	0.511	74.2	76.7	2	14.0-120	feet rolls	* * * * * * * * * * * * * * * * * * * *	3.38	36	35.	
•	0.666	ND	0.584	0.582	87.7	87.4	⁵ 2·	20.0-120	- ,		0.343	30	* " :	
2.4.6-Trichlorophenol	0,666	ND -	0.524	0.537 `	78.7	80.6	2	19.0-120 7	* ₁ 4	ا سین"س	2.45	is i 32] : isit ™	13; ·	
(S) Nitrobenzene-d5				ŕ	55.6	54.7-	- + 5	10.0-122					· · ·	
(S) 2-Fluorobiphenyl	Η,	W.	· ,	*: .	68.2	64.9		15.0-120	Z	# A . A .	<i>#</i> •*		£., ,	
(S) p-Terphenyl-d14					70.9	85.6	. "	10.0-120	• , , ,			• • • • •	•	
(S) Phenol-d5	fwa. :	er er		7	65.5	60.1		10.0-120		Nation :	- Arre i e		.d	
(S) 2-Fluorophenol			* * *		77.1	70.3	•	12.0-120	-	* * *				
(S) 2,4,6-Tribromophenol	7.5	15		*	89.7	95.4	,- ·	10.0-127	A. Fage	1	- 122		الماطي جاست	





GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Tc

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.



Ss

Cn

Sr

Qc

Sc

Cp

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte -	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.

• •		
		If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the
Dilution		standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the
Director		laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the
		result reported has already been corrected for this factor.
	-	المنتقل المنتقل المنتقلة في المن المنتقلة المنتق
		These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal
Limits		for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or

These are the target % recovery ranges or ?	% difference value that the lab	oratory has historically determined :	as normal
for the method and analyte being reported.	Successful QC Sample analys	is will target all analytes recovered	or
duplicated within these ranges.			
non- Signatura	•		

Original Sample	sample. The Original Sample may not be included within the reported SDG.
Ouglifion	This column provides a letter and/or number designation that corresponds to additional information concerning the result

potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable. The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was

no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.

Uncertainty (Radiochemistry)		. Confidence level of 2 sigma.	Cr + + + + + + + + + + + + + + + + + + +	
Case Narrative (C	n)			n of any non-conformances to prote

observed either at sample receipt by the laboratory from the field or during the analytical process, if present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.

This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.

This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the enalysis reported.

This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis. Sample Summary (Ss)

Qualifier 1	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
73	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low:
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



Result

Quality Control

Sample Chain of Custody (Sc)

Sample Results (Sr)

Summary (Qc)

Ĉр

Tc

Ss

Cn

Sr

Qc

GI

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conductive to accelerated productivity, decreasing turn-around lime, and preventing cross contamination, thus protecting sample integrity. Our capacity and prompt service allows us to be YOUR LAB OF CHOICE.

**Not all certifications held by the laboratory are applicable to the results reported in the attached report.

**Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama .	40660	•	Nebraska	NE-0S-15-05
Alaska	17-026		Nevada	TN-03-2002-34
Arizona	AZ0612		New Hampsnire	2975
Arkansas	'88-0469		New Jersey-NELAP	TN002
California	2932		New Mexico *	n/a
Colorado	TN00003		New York	11742 ,
Connecticut	PH-0197		North Carolina	Env375
Florida	. : E87487		North Carolina	DW21704
Georgia	NELAP,	~,	North Carolina ?	. 41
Georgia :	923		North Dakota -	R-140
Idaho	TN00003		Ohio-VAP	CL0069
Illinois	200008		Okłahoma	9915
Indiana.	C-TN-01		Oregon	TN200002
lowâ	364		Penasylvania	68-02979
Kansas	E-1D277		Rhode Island	LA000355 ,
Kentucky 15	90010		South Carolina	84004
Kentucky ²	, 16	,	South Dakota	n/a
Louisiana	A)30792		Tennessee 14	2006
Louisiana!	LA180010	····	Texas	T104704245-18-15
Maine :	TN0002		Texas 5	LAB0152
Maryland	324		Utah	TN00003
Massachusetts	- M-TN003		Vermont	VT2006
Michigan	9958		Virginia	. : 450132 .
Minnesota	, 047-999-395		.Washington	C847
Mississippi	TN00003		West Virginia	233
Missouri	340		Wisconsin	9980939910
Montana	CERTOOB6		Wyoming	AZLA
		··		

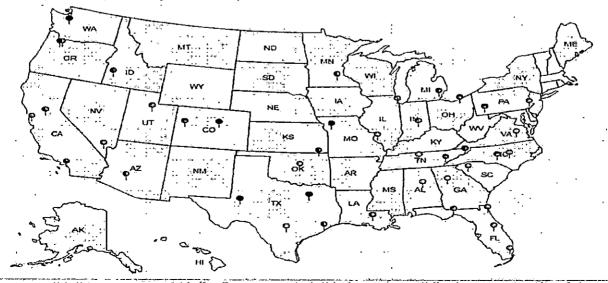
Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA-LAP,LLC EMLAP.	100789
A2LA - ISO 17025 5	1461.02	DOD	1461.01
Canada	. 1461,01	USDA	P330-15-00234
EPA-Crypto	TN00003		

Drinking Water Underground Storage Tanks Aquatic Toxicity Chemical Microbiological Midd Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



ACCOUNT:

SDG:

DATE/TIME: -

PAGE:

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10/01/19 14:58

Hall Environmental Analysis Laboratory

20.of 22

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

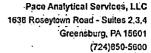
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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-1107
Website: www.hallenvironmental.com

SUB CONTRATOR ESC PACE COMPANY ESC PA	en were	PHONE	(800) 767-5859 FAX: (615) 758-5859
SUB CONTRATOR ESC PACE ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	(800)-767-3635
CITY, STATE 21P. Mt. Juliet, TN 37122			the contract of the contract of the contract of the
	BOTTLE MATRIX	COLLECTION	ANALYTICAL COMMENTS
TTEM: SAMPLE CLIENT SAMPLE ID 1. 1909B72-001B Cell #1 Treatment Comp		9/20/2019 2:08:00 PM	1 8270: Atrazine and Pentachlorophenol, Total CN, Phenols by 9065,
2. 1909B72-002B Cell #2N Treatment Comp	0-00-4-45	1	1 8270: Atrazine and Pentachlorophenol, Total CN, Phenois by 9065, 7
3 1909B72-003B Cell #2S Treatment Comp	4OZGU Soft	9/20/2019 2:20:00 PM	1 8270: Atrazine and Pentachlorophenol, Total CN, Phenols by 9065, 3

Please include the LAB ID and	is. the CLIENT S	SAMPLE ID o	n all final reports. Please e-mail resu	• • • • • • • • • • • • • • • • • • • •	illenvironmen	ital.com. I	Please return all coolers and blue ic	e. Thank you.	- - **,
Reignushed By:	Data: 9/13/2019	Time: , 3:16 PM	Received by: CM	5724/19			REPORT TRA	NSMITTAL DESIRED:	ONLINE
Relinquished By:	Date:	Time:	Received By:	Date:	Time:		FOR L/ Temp of simpley 0.9±0-0.9 &	AB USE ONLY C Attempt to Cool ?	
TAT: Siand		RUSII	Next BD [] 2nd BD []		D []		Congressia		

Pace Analytical National Center for Testing & Innovation Cooler Receipt Form 614-2548 Client: WALL ENVANIM Cooler Received/Opened On:9129/19 Temperature: Received By: Cole Medley Signature: NP Receipt Check List. COC Seal Present / Intact? ... COG-Signed!//Accurate? Bottles arrive intact? Correct bottles used? Sufficient volume sent? f[Applicable] VOA Zero headspace? Preservation Correct // Checked?





November 05, 2019

Ms. Anne Thorne Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

RE: Project: 1909B72

Pace Project No.: 30327365

Dear Ms. Thorne:

Enclosed are the analytical results for sample(s) received by the laboratory on October 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely.

Jacquelyn Collins

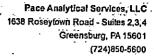
jacquelyn.collins@pacelabs.com

(724)850-5612 Project Manager

Enclosures

cc: Ms. Jackie Ball, Hall Environmental Analysis Laboratory Felicia Candelario, Hall Environmental Analysis Laboratory Michelle Garcia, Hall Environmental Analysis Laboratory







CERTIFICATIONS

Project: Pace Project No .:

1909872 30327365

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358:

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14:

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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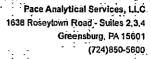
SAMPLE SUMMARY

Project: 1909B72
Pace Project No.: 30327365

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30327365001	1909B72-001C Cell #1 Treatment	Solid	09/20/19 14:08	. 10/02/19 09:30
30327365002	1909B72-002C Cell #2N Treatmen	Solid	09/20/19 14:45	10/02/19 09:30
30327365003	1909B72-003C Cell #2S Treatmen	Solid	09/20/19 14:20	10/02/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1909B72
Pace Project No.: 30327365

Lab ID	Sample ID		Method	Analysts	Analytes Reported	Laboratory
30327365001	1909B72-001C Cell #1 Treatment	*	EPA 901.1	, MAH	,2	PASI-PA
30327365002	1909B72-002C Cell #2N Treatmen	r	EPA 901.1	· :MAH	2	PASI-PA
30327365003	1909B72-003C Cell #2S Treatmen	. :,	EPA 901.1	MAH.	2	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

1909B72

Pace Project No.:

30327365

Method:

EPA 901.1

Client:

Description: 901.1 Gamma Spec INGROWTH Hall Environmental Analysis Laboratory

Date:

November 05, 2019

General Information:

3 samples were analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1909B72
Pace Project No.: 30327365

Sample: 1909B72-001C Cell #1 Lab ID: 30327365001 Collected: 09/20/19 14:08 Received: 10/02/19 09:30 Matrix: Soli

PWS: Site ID:

Results reported on a "dry-weight" basis

Parameters. Method CAS No. Act ± Unc (MDC) Carr Trac Units Analyzed Qual Radium-226 EPA 901.1 2.538 ± 0.450 (0.345) pCi/g 11/05/19 11:05 - 13982-63-3 C:NA T:NA Radium-228 EPA 901.1 1.712 ± 0.501 pCi/g 11/05/19 11:05 15262-20-1 C:NA T:NA

Sample Type:

Sample: 1909B72-002C Cell #2N :Lab ID: 30327365002 Collected: 09/20/19 14:45 Received: 10/02/19 09:30 Matrix: Solid Treatmen

PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters Method Act ± Unc (MDC) Carr Trac Units CAS No. Analyzed Qual Radium-226 EPA 901.1 3.388 ± 0.665 (0.282) pCi/g 11/05/19 10:10 13982-63-3 C:NA T:NA Radium-228 EPA 901.1 1.387 ± 0.415 (0.407) pCi/g 11/05/19 10:10 15262-20-1 C:NA T:NA

Sample: 1909B72-003C Cell #2S Lab ID: 30327365003 Collected: 09/20/19 14:20 Received: 10/02/19 09:30 Matrix: Solid

Treatmen
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual 2.732 ± 0.603 (0.349) C:NA T:NA EPA 901.1 Radium-226 pCi/g 11/05/19 10:27 13982-63-3 EPA 901.1 1.041 ± 0.609 (0.783) Radium-228 pCi/q 11/05/19 10:27 15262-20-1 C:NA T:NA

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project:

1909B72

Pace Project No.:

30327365

QC Batch:

368817

Analysis Method:

EPA 901.1

QC Batch Method:

EPA 901.1

Analysis Description:

901,1 Gamma Spec Ingrowth

Associated Lab Samples:

30327365001

Matrix: Solid

METHOD BLANK: 1789509; Associated Lab Samples:

30327365001

Parameter

Act ± Unc (MDC) Carr Trac 0.002 ± 0.225 (0.262) C:NAT:NA

Units pCi/g pCi/g

11/05/19 13:47 Ra 11/05/19 13:47

Qualifiers

Analyzed

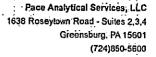
Radium-226 Radium-228

0,136 ± 0.267 (0.323) C:NAT:NA

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY .

Project:

QC Batch:

1909B72

Pace Project No.:

30327365

368061

Analysis Method:

EPA 901.1

QC Batch Method:

EPA 901.1 Associated Lab Samples: 30327365002, 30327365003. Analysis Description:

901.1 Gamma Spec Ingrowth

METHOD BLANK: 1786118

Matrix: Solid

Associated Lab Samples:

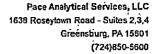
30327365002, 30327365003

			•				• •	
Pa	rameter	Act :	± Unc (MDC) Carr Trac	: .	Units	Analyzed	Qualifiers	
Radium-226 Radium-228			(0.147) C:NA T:NA (0.167) C:NA T:NA	7.15	pCi/g	11/05/19 10:44	Ra	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1909B72 Pace Project No.: 30327365

DEFINITIONS

OF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobertzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

Date: 11/05/2019 04:59 PM

Ra

The reported Ra-226 results were determined by hermetically sealing the dried, processed sample in an appropriatesized can. Each sample was stored for a minimum of 21 days to ensure that equilibrium between Ra-226 and daughters Bi-214 and Pb-214 was achieved. Reported Ra-226 results were inferred from gamma peaks attributable to Bi-214 and Pb-214.



CHAIN OF CUSTODY RECORD | PAGE: 1

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

SUB CO	ec.	Analytical-PA COMPANY:	Pace A	nalytical Se	rvices, Ir	ic. PHONE:	(724) 8	50-5600	FAX:	(724) 850-5601	1.4.
MUDICE	1638 1	Roseytown Rd Ste 2,3,4	•			ACCOUNT #:			EMAJL:		1 11 1
CITY, S	TATE, ZIP: Green	sburg, PA 15601	- , 	•	_ :						
ГГЕМ		CLIENT SAMPLE ID		BOTTLE	MATRIX	COLLECTION	# CONTAINERS	A	NALYTICAL	COMMENTS	
1	1909872-001C	Cell #1 Treatment Comp		40ZGU	Soil	9/20/2019 2:08:00 PM	1 RADIUM				
2	1909B72-002C	Cell #2N Treatment Comp	-	40ZGU	Soil [:] ···	9/20/2019 2:45:00 PM	1 RADIUM	226/228			(60)
3 :	1909872-003C	Cell #2S Treatment Comp		402GU	Soil.	9/20/2019 2:20:00 PM	1 RADIUM		 		<u>U7</u> U3

WO#:30327365

	TO STOR THE CLIEN	I SAMPLE ID	on all final reports. Please	e-mail:rest	ilts to lab@h	allenvironmental.	com. Please return all cool	rs and blue ice. Thank you.	 -	
Z) 1	<u> </u>	·		<u></u>	3				r, ·	• • •
linquished by:	Date; 073/20	Time: 19 3:50 PM	Received By Euro	Jr.	Dia: 7-19	Time 30.		REPORT TRANSMITTAL DESIRED		
linquished By:	Date:	Times	Received By:	-01-	Date:	Time:	☐ HARDCOPY (extra	cost)		
linquished By:	Daje:	Time;	Received By:	· · · · · · · · · · · · · · · · · · ·	- Date: -	Time:	, .	FOR LAB USE ONLY		
			· · · · · · · · · · · · · · · · · · ·	················	<u> </u>	 ,	Temp of samples	Attempt to Cool	?	
TAT:	Standard 🔽	RUSH	Next BD	2nd BD : []	:3rd Bi	• 🗀		•	1	
	. ~1		*				Comments:		1:	

Pittsburgh Lab Sample Cond	ition l	Jpoi	n Re	ceipt			
Pace Analytical Client Name:	_1-	[a]	10	∩V.	Project##	30327	365
Courier: Fed Ex UPS USPS Clien Tracking #: 77 44 3 92 913 Custody Seal on Cooler/Box Present: Eyes	3	- ,			-	Label	
Thermometer Used NA	n Type		Sears : We	intact: Ives	<u>□</u> mo	,	
Cooler Temperature Observed Temp Temp should be above freezing to 6°C		· c	Corr	pH paper Lot#	°C Final Ter	-	1
Comments:	Yes	T No	N/A	1	contents: E	als of person examining	
Chain of Custody Present:	1:53	1 140	INA			· .	
Chain of Custody Filled Out:			+	1.			1
Chain of Custody Relinquished:		 	+-	3.		• •	
Sampler Name & Signature on COC:			┼	1.		· · · · · · · · · · · · · · · · · · ·	
Sample Labels match COC:			,	4.			
-Includes date/time/ID Matrix:	5	<u></u>	*	" .	•	•	
Samples Arrived within Hold Time:		7	1	6.	 		 -
Short Hold Time Analysis (<72hr remaining):	 -		•	7.	1 - 1	· · · · · · · · · · · · · · · · · · ·	1
Rush Turn Around Time Requested:	 		†	8.	- 		1
Sufficient Volume:	 _		1	9.			1
Correct Containers Used;	十一			10.			1
-Pace Containers Used:			-	io.	;		
Containers Intact:	+	-	╁╌╌	11,			
Orthophosphate field filtered	-	-		12.	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
Hex Cr Aqueous sample field filtered	 -	 		13.	·	1.11	
Organic Samples checked for dechlorination:	1	 		14.	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
Filtered volume received for Dissolved tests	1			15.			
All containers have been checked for preservation.	1		جزر ا	16,			
exceptions: VOA_coliform, TOC, O&G, Phenolics, Non-equeous maldx	Radon,	•	1 <i>/</i> -	,:e0,	• •		
All containers meet method preservation requirements.				Initial when ET	Date/time of preservation		
<u>.</u>				Lot# of added preservative		•	
Headspace in VOA VIals (>6mm):				17.		· · · · · · · · · · · · · · · · · · ·	
Trip Blank Present				18.			
Trip Blank Custody Seals Present		_	•				•
Rad Samples Screened < 0.5 mreminr				Initial when FT	Jan 10-7.	-19	•
Client Notification/ Resolution:	<u>.1 / -1</u>				Date: 10- L	· · · · · · · · · · · · · · · · · · ·	. •
Person-Gontacted:	-		Da(e/	īme:	Gontacted	B <u>y:</u>	
Comments/ Resolution:	· ·			···	<u> </u>		
					 	,	
				-		 	•
	<u> </u>						
A check in this box indicates that addi	tional i	nfom	nafion	has been stored	In ereports.		

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, cut of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Hall Environmental Analysis Laboratory, Inc.

₩O#: 〔

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: MB-47714	-47714 SampType: mblk				tCode: E					
Client ID: PBS	Batc	1D: 47	714	,F	RunNo: 6					
Prep Date: 9/25/2019	Analysis [)ate: 9/	25/2019 .		SeqNo: 2	157006	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5		-				_		
Nitrogen, Nitrite (As N)	ND	0.30						•		
Nitrogen, Nitrate (As N)	ND	0.30	•							•
Sulfate	ND	² 1.5		•		٠.				
Sample ID: LCS-47714	Sampl	ype: Ics	3	Tes	tCode: E	PA Method	300.0; Anion	s		
A	·									

Sample ID. LCS-47714	D. LC3-47714 Samp type: ICS					resicode: EPA Method 300.0; Anions						
Client ID: LCSS	lient ID: LCSS Batch ID: 47714				RunNo: 6	3185						
Prep Date: 9/25/2019	Analysis D)ate: 9/	25/2019	S	SeqNo: 2	157008	Units: mg/K	(g		•		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Chloride	14	1.5	15.00	0	96.1	90	110					
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	97.7	90	110					
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0	99.8	90	110					
Sulfate ,	29	1.5	30.00	`o	97.3	90	ı 110					

Sample ID: MB-47714	mple ID: MB-47714 SampType: mblk Tes					TestCode: EPA Method 300.0: Anions							
Client ID: PBS	ent ID: PBS Batch ID: 47714 RunNo: 6326				3261								
Prep Date: 9/25/2019	Analysis Date: 9/27/2019			SeqNo: 2159905			Units: mg/K	(g					
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											
Nitrogen, Nitrate (As N)	ND	0.30											
Sulfate	ND	1.5											

Sample ID: LCS-47714	SampT	ype: lcs	i	Tes	tCode: El	PA Method	1 300.0: Anions						
Client ID: LCSS	Batch	1D: 477	714	F	RunNo: 63261				•				
Prep Date: 9/25/2019	Analysis D	ate: 9/	27/2019	5	SeqNo: 2	159906	Units: mg/H	g į					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Fluoride	1.6	0.30	1,500	0	107	90	110		4				
Chloride	14	1.5	15.00	0	95.1	- 90.	110						
Nitrogen, Nitrite (As N)	3.0	0.30	3.000	0	99.5	90	110						
Nitrogen, Nitrate (As N)	7.4	0.30	7.500	0	99.2	90	110						
Sulfate	30	1.5	30.00	-0	99.0	. 90	110						

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 13 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Result

Sample ID: MB-47675

SampType: MBLK

TestCode: EPA Method 8011/504.1 Modified: EDB

Client ID: PBS

Batch ID: 47675

RunNo: 63161

Prep Date: 9/24/2019

Analysis Date: 9/24/2019

PQL

SeqNo: 2154641

Units: µg/Kg

HighLimit

RPDLimit %RPD

Qual

1,2-Dibromoethane

Analyte

ND 0.10

Sample ID: LCS-47675

SampType: LCS

TestCode: EPA Method 8011/504.1 Modified: EDB

Client ID: LCSS

Batch ID: 47675

RunNo: 63161

Prep Date: 9/24/2019

Analysis Date: 9/24/2019

SeqNo: 2154642

Units: µg/Kg

Qual

Analyte

PQL

SPK value SPK Ref Val %REC 1.000

SPK value SPK Ref Val %REC LowLimit

%RPD

1,2-Dibromoethane

1.1 0.10

111

70

LowLimit

HighLimit 130

RPDLimit

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Holding times for preparation or analysis exceeded

н Not Detected at the Reporting Limit Analyte detected in the associated Method Blank

Value above quantitation range Analyte detected below quantitation limits

Sample pH Not In Range

Reporting Limit

Page 14 of 26

ND

Practical Quanitative Limit POL % Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project: Agua M	loss Sunco I	andfari	m			-			•	
Sample ID: LCS-47655	SampT	ype: LC	s	Tės	tCode: El	PA Method	8015M/D: DI	eșel Rang	e Organics	l _t
Client ID: LCSS	Batch	ID: 470	655	, E	RunNo: 6	3141	•	-		
Prep Date: 9/23/2019	Analysis D	ate: 9/	24/2019	. \$	SeqNo: 2	154378	Units: mg/l	K g		
Analyte :	Result	PQĽ	SPK value	SPK Ref Val	%REC .	. LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	63.9	124	_		
Surr: DNOP	5.2		5,000		104	70	130		·,	•
Sample ID: MB-47655	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8015M/D: DI	esel Rang	e Organics	
Client ID: PBS	Batch	ID: 47	655	F	RunNo: 6	3141	,			
Prep Date: 9/23/2019	Analysis D	ate: 9/	24/2019	. 8	SeqNo: 2	154379	Units: mg/l	(g	•	
Analyte	· Result	PQL	SPK value	SPK Ref Val	. %REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10					<i>,</i>	,		• •
Motor Oil Range Organics (MRO)	ND	50	•			•	,	•		
Surr: DNOP '	- 11		10.00		106	70	130	, , ,	-	
Sample ID: LCS-47676	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	-4
Client ID: LCSS	Batch	ID: 47	676	į F	ในกู้No: 6	3182				į.
Prep Date: 9/24/2019	Analysis D	ate: 9/	25/2019		SeqNo: 2	155730	·Units: mg/i	K g	-	·
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	.0	105	63.9	124			
Surr: DNOP	4.5		5.000		89,6	70	130	· · ·		
Sample ID: MB-47676	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client-ID: PBS	Batch	iD: 470	676	F	RunNo: 6	3182			•	
Prep Date: 9/24/2019	Analysis D	ate: 9 <i>i</i> .	25/2019	, 8	SeqNo: 2	155731	Units: mg/l	Kg		
Analyte	Resuit	PQL	SPK value	SPK Ref Val	%REC	LowLimit	. HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		96.8	70	130			

Qualifiers:

- Value exceeds Maximum Contaminant Level,
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B. Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 15 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:	
Drainata	

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID:	
C	
ı Samnle III'	MH-47650
I Combio ib.	

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS

Batch ID: 47650

RunNo: 63162

Units: mg/Kg

Prep Date: 9/23/2019 Analyte

Analysis Date: * 9/24/2019 PQL

SeqNo: 2154661

%RPD

Gasoline Range Organics (GRO)

ND 5.0 SPK value SPK Ref Val %REC LowLimit

HighLimit '

RPDLimit

910

Result

90.8

118

Qual

Surr: BFB

1000

Sample ID: LCS-47650

SampType: LCS Batch ID: 47650 TestCode: EPA Method 8015D: Gasoline Range RunNo: 63162

Client ID: LCSS Prep Date: 9/23/2019

Analysis Date: 9/24/2019

SeqNo: 2154662

120

118

Qual

Analyte

Gasoline Range Organics (GRO)

PQL Result

27

1000

SPK value SPK Ref Val

%REC LowLimit

Units: mg/Kg HighLimit

Surr: BFB

5.0 25.00

n 108 1000 104

80 77.4

77.4

%RPD **RPDLimit**

Sample ID: MB-47691

Client ID: PBS

SampType: MBLK. Batch ID: 47691

Analysis Date: '9/25/2019

TestCode: EPA Method 8015D: Gasoline Range

Analyte

Result ND PQL

1000

SPK value SPK Ref Val

5.0

SPK value SPK Ref Val %REC LowLimit

RunNo: 63199

SeqNo: 2156070

Units: mg/Kg ! HighLimit

118

%RPD

RPDLimit Qual

Gasoline Range Organics (GRO) Surr: BFB

Prep Date: 9/24/2019

960

77.4 TestCode: EPA Method 8015D; Gasoline Range

Client ID: LCSS

Sample ID: LCS-47691

SampType: LCS

RunNo: 63199

95.9

Prep Date: 9/24/2019

Batch ID: 47691 Analysis Date: 9/25/2019

PQL

SeqNo: 2156071

Units: mg/Kg

HighLimit

%RPD

RPDLimit Qual

Analyte Gasoline Range Organics (GRO) Sum: BFB

27 1100

Result

25.00 5.0 1000

%REC LowLimit 108 111

80 77.4 120 118

Qualifiers:

н

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix
- ND Not Detected at the Reporting Limit Practical Quantitative Limit POL
- % Recovery outside of range due to dilution or matrix

Holding times for preparation or analysis exceeded

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Sample pH Not in Range Reporting Limit
- Analyte detected below quantitation lin

Page 16 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: MB-47656	SampT	ype: ME	SLK -	Tes	TestCode: EPA Method 8082A: PCB's						
Client ID: PBS	Batcl	ı ID: 476	656	, F	Run No: 6 :	3314					
Prep Date: 9/23/2019	Analysis E)ate: 9/	30/2019	8	SeqNo: 2	160689	Units: ; mg/K	g.			
Analyte	Result ·	PQL	SPK value	SPK Ref Val	%REC	LowLimit	- HighLimit	%RPD	RPDLimit	Qual	
Arodor 1016	ND	0.025			:		-	.•			
Arocior 1221	ND	0.025									
Arodor 1232	ND	0.025									
Arodor 1242	ND	0.025									
Arodor 1248	ND	0.025		-							
Arador 1254	ND	0.025									
Arodor 1260	ND	0.025									
Surr: Decachlorobiphenyl	0.032		0.06250		50.8	25.7	135				
Surr: Tetrachioro-m-xylene	0.032		0.06250	•	50.8	32.3	138				
Sample ID: LCS-47656	Sampi	SampType: LCS			tCode: El	PA Method	8082A: PCB':	S			
Client ID: LCSS	Batch ID: 47656			F	RunNo: 63314						
Prep Date: 9/23/2019	Analysis [Date: 9/	30/2019	•	SeqNo: 2	160690	Units: mg/K	g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Quai	
Arodor 1016	0.10	0,025	0,1250	0	83.7	32	156				
Aroclor 1260	0.081	0.025	0.1250	0	64.7	32.2	111	_			
Surr: Decachlorobiphenyl	0.037	•	0.06250		59.2	25.7	135	•			
Surr: Tetrachloro-m-xylene	0.037		0.06250		59.6	32.3	138				
Sample ID: MB-47656	Samp	Гуре: МЕ	BLK	Tes	tCode: Ei	PA Method	8082A: PCB'	s			
Client ID: PBS	Batc	h ID: 47	656	F	RunNo: 6	3314		,			
Prep Date: 9/23/2019	Analysis [Date: 9/	30/2019		SeqNo: 2	160772	Units: mg/K	g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arodor 1016	ND	0.025							-		
Arodor 1221	ND	0.025									
Arador 1232	ND	0.025									
Arodor 1242	ND	0.025						-			

Qualifiers:

Arodor 1248

Aroclor 1254

Arodor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachioro-m-xylene

ND

ND

ND

0.030

0.030

0.025 0.025

0.025

0.06250

0.06250

48.4

47.2

25.7

32,3

135

138

RL Reporting Limit

Page 17 of 26

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

B Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: mb-47650	Samp	Гуре: MBLK	TestCode:	TestCode: EPA Method 8260B: Volatiles							
Client ID: PBS	Batc	h ID: 47650	RunNo:	63200							
Prep Date: 9/23/2019	Analysis [Date: 9/25/2019	SeqNo:	2156134	Units: mg/F	(g					
Analyte	Result	PQL SPK value	e SPK Ref Val %RE	C LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Benzene	ND	0.025	-								
Toluene	ND	0.050				3					
Ethylbenzene	ND	0.050									
Methyl tert-butyl ether (MTBE)	ND	0.050									
1,2,4-Trimethylbenzene	ND	0.050									
1,3,5-Trimethylbenzene	ND	0.050									
1,2-Dichloroethane (EDC)	ND	0.050									
1,2-Dibromoethane (EDB)	ND	0.050									
Naphthalene	ND	0.10									
1-Methylnaphthalene	ND	0.20	•								
2-Methylnaphthalene	ND	0.20									
Acetone	ND	0.75									
Bromoberizene	ND	0.050									
Bromodichloromethane	ND	0.050									
Bromoform	ND	0.050									
Bromomethane	ND	0.15									
2-Butanone	ND	0.50									
Carbon disulfide	ND	0.50									
Carbon tetrachloride	ND	0.050									
Chlorobenzene	ND	0.050									
Chloroethane	ND	0.10									
Chloroform	ND	0.050									
Chloromethane	ND	0.15									
2-Chlorotoluene	ND	0.050									
4-Chlorotoluene	ND	0.050									
cis-1,2-DCE	ND	0.050									
cis-1,3-Dichloropropene	ND	0.050									
1,2-Dibromo-3-chloropropane	ND	0.10									
Dibromochloromethane	ND	0.050									
Dibromomethane	ND	0.050									
1,2-Dichlorobenzene	ND	0.050									
1,3-Dichlorobenzene	ND	0.050									
1,4-Dichlorobenzene	ND	0.050						•			
Dichlorodifluoromethane	ND	0.050									
1,1-Dichloroethane	ND	0.050				•					
1,1-Dichloroethene	ND	0.050									
1,2-Dichloropropane	ND	0.050									
1,3-Dichloropropane	ND	0.050									
2,2-Dichloropropane	ND	0.10									
=ja zionoropropatio	ND	0.10									

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 18 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: mb-47650	SampT	Гуре: MBL	K	Tes	Code: EF	PA Method	8260B: Volat	illes		
Client ID: PBS	Batcl	h ID: 4765	0	• Б	lunNo: 6	3200				•
Prep Date: 9/23/2019	Analysis D	Date: 9/25	/2019	S	eqNo: 2	156134	Units: mg/K	(g		
Analyte	Result	PQL 8	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50					•			-
isopropyibenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050				•				
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050					•			
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10						•		
Vinyl chloride	ND	0.050						,	•	
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		99.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.2	70	130			
Surr: Toluene-d8	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		84.4	70	130			

Sample ID: Ics-47650	SampT	Type: LC	S	Ťes	tCode: El	PA Method	8260B: Volati	les		
Client ID: LCSS	Batcl	h ID: 470	550	F	lunNo: 6	320 0				
Prep Date: 9/23/2019	Analysis D	Date: 9/:	25/2019	8	SeqNo: 2	156140	Units: mg/K	3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit 1	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	112	68	135			
Toluene	0.97	0.050	1.000	0	96.9	70	130			
Chlorobenzene	0.95	0.050	1.000	0	95.5	70	130			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: Ics-47650	Samp	Гуре: LC	s	Tes	tCode: El	PA Method	8260B: Vola	tiles		
Client ID: LCSS	Batc	h ID: 47	650	F	RunNo: 6	3200				
Prep Date: 9/23/2019	Analysis [Date: 9/	25/2019	s	SeqNo: 2	156140	Units: mg/l	K g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Quai
1,1-Dichloroethene	0.89	0.050	1.000	0	88.9	51.1	139			
Trichlorcethene (TCE)	0.90	0.050	1.000	0	90.1	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.5	70	130			
Surr: Toluene-d8	0.49		0.5000		98.7	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.1	70	130			
Sample ID: mb-47691	 Samp1	Гуре: МЁ	BLK	Tes	tCode: El	PA Method	8260B: Vola	tiles		
Client ID: PBS	Batc	h ID: 47	691	F	RunNo: 6	3200				
Prep Date: 9/24/2019	Analysis D	Date: 9/	26/2019	S	SeqNo: 2	156152	Units: mg/F	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050			•					
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75						-		
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								

Qualifiers:

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

cis-1,3-Dichloropropene

cis-1,2-DCE

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

ND

ND

ND

ND

ND

0.15

0.050

0.050

0.050

0.050

- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: mb-47691	SampT	ype: MBL	K	Test	Code: El	A Method	8260B: Voiat	tiles		
Client ID: PBS	Batcl	h ID: 4769	1	R	lunNo: 6	3200				•
Prep Date: 9/24/2019		Date: 9/26		S	eqNo: 2	156152	Units: mg/K	Σg ⋅		
Analyte J	Result		SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	0.10		1						
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichiorobenzene	ND	0.050			-		٠			
1,3-Dichlorobenzene	ND	. 0.050					-			
1,4-Dichlorobenzene	ND	0.050								
Dichloredifluoromethane (ND	0.050							•	
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050		Ť					÷ 4	
1,2-Dichloropropane	ND	0.050						•		
1,3-Dichloropropane	ND .	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10				-				
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050	•							
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								ζ.
n-Propylbenzene	ND	0.050				•				•
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050							ts.	
Trichloroethene (TCE)	ND	0.050	,							
Trichlorofluoromethane	ND	0.050	•							
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.49	0,10	0.5000		97.6	. 70	130			
our, Dipromondoromentane	0.49		0.5000		<i>31</i> ,0	70	130			

Qualifiers:

- Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix
- D
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range
- Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: mb-47691 Client ID: PBS

SampType: MBLK

TestCode: EPA Method 8260B: Volatiles

Batch ID: 47691

RunNo: 63200

Prep Date: 9/24/2019

Analysis Date: 9/26/2019

Units: mg/Kg

%RPD

Analyte

SeqNo: 2156152

. 130

130

130

HighLimit

RPDLimit Qual

Result SPK value SPK Ref Val %REC LowLimit Surr: 1,2-Dichloroethane-d4 0.49 0.5000 97.8 70 Surr: Toluene-d8 0.50 0.5000 100 70 Surr: 4-Bromofluorobenzene - 0.46 0.5000 91.1 70

Sample ID: Ics-47691 Client ID: LCSS

SampType: LCS Batch ID: 47691

TestCode: EPA Method 8260B: Volatiles

RunNo: 63200

				•						
Prep Date: 9/24/2019	Analysis [Date: 9/	26/2019	5	SeqNo: 2	156153	Units: mg/F	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	111	68	135			
Toluene	0.95	0.050	1.000	0	95.0	70	130			
Chlorobenzene	0.95	0.050	1.000	0	95.2	70	130			
1,1-Dichlomethene	0.88	0.050	1.000	0	87.6	51.1	139			
Trichloroethene (TCE)	0.87	0.050	1.000	0	86.8	70	130			
Surr: Dibromofluoromethane	0.48		0.5000)	96.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		96.8	70	130			
Surr: Toluene-d8	0.48		0.5000		96.8	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		87,2	70	130			

Qualifiers:

Value exceeds Maximum Contaminant Level,

Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

Practical Quanitative Limit % Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Surr: Benzo(e)pyrene

Agua Moss Sunco Landfarm

0.32

Sample ID: MB-47657	SampT	ype: ME	BLK	Tes	Code: El	PA Method	8310: PAHs		· = -	
Client ID: PBS	Batcl	n ID: 47	657	F	RunNo: 6	3201	-			
Prep Date: 9/23/2019	Analysis D)ate: 9/	26/2019	\$	eqNo: 2	158021	Units: ⋅mg/K	g		•
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighL <u>imit</u>	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	· ND	0.25					•			
2-Methylnaphthalene	ND	0.25					•			
Benzo(a)pyrene	ND	0.010								

63.4

26.5

113

0.5000

Sample ID: LCS-47657	Sample ID: LCS-47657 SampType: LCS					TestCode: EPA Method 8310: PAHs								
Client ID: LCSS	Batcl	h ID: 470	657	F										
Prep Date: 9/23/2019	Analysis Date: 9/26/2019			SeqNo: 2158022			Units: mg/k	۲g						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Naphthalene	1.2	0.25	2.000	0	62.1	27.2	80.9							
1-Methylnaphthalene	1.4	0.25	2.000	.0	71.3	28.9	83.4							
2-Methylnaphthalene	1.3	0:25	2.000	0	66.9	28.7	83.5		*					
Benzo(a)pyrene	ND	0.010	0.01250	0	60.0	14.4	105		•					
Surr: Benzó(e)pyrene	0,40		0.5000		80.6	26.5	113							

Sample ID: MB-47657	Samp1	ype: ME	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBS	Batci	n ID: 47	657	F	RunNo: 6	3201				
Prep Date: 9/23/2019	Analysis [)ate: 9/	26/2019		SeqNo: 2	159460	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25					<u> </u>			
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25						•		
Benzo(a)pyrene	ND	0.010				•	•			
Surr: Benzo(e)pyrene	0.33		0.5000		66.4	26.5	113			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 23 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Result

Sample ID: MB-47745

SampType: MBLK

TestCode: EPA Method 7471: Mercury

Client ID: PBS

Batch ID: 47745

RunNo: 63223

Prep Date: 9/26/2019

Analysis Date: 9/26/2019

PQL

SeqNo: 2157391

Units: mg/Kg

HighLimit

%RPD **RPDLimit**

Qual

Analyte Mercury

ND 0.033

Sample ID: LCS-47745

SampType: LCS

TestCode: EPA Method 7471: Mercury

Client ID: LCSS

Batch ID: 47745

RunNo: 63223

Prep Date: 9/26/2019

Analysis Date: 9/26/2019

SPK value SPK Ref Val %REC LowLimit

Units: mg/Kg

SeqNo: 2157392

120

Analyte Mercury

Result 0.17

PQL

SPK value SPK Ref Val %REC LowLimit 0.1667

102

HighLimit

%RPD **RPDLimit**

Qual

Sample ID: LLLCS-47745

Client ID: BatchQC

Prep Date: 9/26/2019

SampType: LCSLL Batch ID: 47745

0.033

TestCode: EPA Method 7471: Mercury

RunNo: 63223 SeqNo: 2157393

Units: mg/Kg

Analyte

Analysis Date: 9/26/2019 Result PQL.

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD **RPDLimit**

Qual

Mercury

ND 0.033 0.006660

0

117

Qualifiers:

- Sample Diluted Due to Matrix
- Not Detected at the Reporting Limit
- Value exceeds Maximum Contaminant Level,
- Н Holding times for preparation or analysis exceeded
- Practical Quanitative Limit % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range

Page 24 of 26 Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#:

1909B72

06-Nov-19

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: LCS-47733	Sampl	ype: LC	S	Tes	tCode: El	PA Method	6010B; Soll	Metals		
Client ID: LCSS	Batc	1 ID: 47	733	F	RunNo: 6	3215	e.			
Prep Date: 9/25/2019	Analysis [)ate: 9/	26/2019	\$	SeqNo: 2	157189	Units: mg/K	(g	1	•
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	25	2.5	25.00	0	101	80	120			
Arsenic	26	2.5	25.00	0	104	80	120			
Barium	25	0.10	25.00	0	100	80	120			
Beryllium	27	0.15	25.00	0	108	80	120			
Cadmium	26	0.10	25.00	0	105	80	120			
Chromium	25	0.30	25.00	0	101	80-	120			
Copper	27	0.30	25.00	0	106	80	120	•		
Iron	27	2.5	25.00	0	107	80	120			
Lead	25	0.25	25.00	0	101	80	120			
Manganese	25	0.10	25.00	0	102	80	120			
Selenium	27	2.5	25.00	0	108	80	120			
Silver	5.2	0.25	5.000	0	104	80	120			
Thallium	25	2.5	25.00	0	98.1	80	120			
Uranium	24	- 5.0	25.00	0	96.0	80	~ 120			
Zinc	26	2.5	25.00	0	104	80	120		•	
Sample ID: MB-47733	Samp	ype: ME	BLK	Tes	tCode: E	PA Method	6010B: Soil	Metals		_
Client ID: PBS	Batc	h ID: 47	733	F	RunNo: 6	3215				
Prep Date: 9/25/2019	Analysis I	Date: 9/	26/2019	\$	SeqNo: 2	157191 ^	Units: mg/h	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	· %RPD	RPDLimit	Qual
Antimony	ND	2.5		-		- ,				

Prep Date: 9/25/2019	Analysis D)ate: 9/	26/2019	8	SeqNo: 2	157191	Units: mg/H	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5	•							
Arsenic	ND	2.5						-		
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	ND	0.10								i
Chromium	ND	0:30								
Copper	ND	0.30								
Iron •	ND	2.5								
Lead	ND	0.25							,	
Manganese	ND	0.10							,	
Selenium	ND	2.5								
Silver	ND	0.25								
Thallium	ND	2.5								
Uranium	ND	5.0								
Zinc	ND	2.5								

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 25 of 26

OC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

06-Nov-19

1909B72

WO#:

Agua Moss Sunco Landfarm Rule Engineering LLC Project: Client:

Quai တ တ RPDLimit %RPD TestCode: EPA Method 6010B: Soil Metals Units: mg/Kg HighLimit %REC LowLimit SeqNo: 2157203 RunNo: 63215 106 91.0 96.4 84.5 95.8 94.2 65.3 29.4 122 116 102 77.3 SPK value SPK Ref Val 0 0.6378 0 8.995 15.09 12.82 290.3 0 0 54.22 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 4.955 24.77 24.77 24.77 Analysis Date: 9/26/2019 Batch ID: 47733 SampType: MS 5.0 5.0 0.30 0.20 0.59 0.59 0.50 0.20 5.0 9.9 5.0 5.0 젙 0.50 Result 25 3.8 Cell #1 Treatment C Sample ID: 1909B72-001AMS 9/25/2019 Prep Date: Client ID: Мапдапеѕе Analyte Chromium Antimony Beryllium Selenium Cadmium Thallium Uranium Arsenic Соррег Silver Lead Zinc

Sample ID: 1909B7	1909B72-001AMSD	SampT	SampType: MSD	0	Test	Code: EF	A Method (TestCode: EPA Method 6010B: Soil Metals	Metals		
Client ID: Cell #1	Cell #1 Treatment C	Batch ID:	ID: 47733	33		RunNo: 63215	3215				
Prep Date: 9/25/20	019	Analysis Date:		9/26/2019	Ø	SeqNo: 2157204	157204	Units: mg/Kg	œ,		
Analyte	•	Result	ם	SPK value	SPK Ref Val	%REC	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		6.4	5.0	24.96	0	25.5	75	125	0.994	20	S
Arsenic		26	5.0	24.96	0	106	75	125	0.505	20	
Beryllium		52	0.30	24.96	0.6378	97.4	75	125	2.28	20	
Cadmium		23	0.20	24.96	0	92.0	75	125	1.87	20	
Chromium		33	0.60	24.96	8.995	95.5	75	125	1.52	20	
Copper		40	0.60	24.96	15.09	98.0	75	125	1.44	20	
Lead	•	8	0.50	24.96	12.82	85.7	75	125	1.31	20	
Manganese		320	0.20	24.96	290.3	100	75	125	1.21	20	
Selenium		56	5.0	24.96	0	105	75	125	3.63	20	
Silver		3.9	0.50	4.992	0	77.1	75	125	0.497	20	
Thallium		17	5.0	24.96	0	68.0	75	125	4.84	20	ဟ
Uranium		19	9	24.96	0	40.1	75	125	31.5	20	RS
Zinc		8	5.0	24.96	54.22	102	75	125	5.83	20	

Qualifiers:

Value exceeds Maximum Contaminant Level.
Sample Diluted Due to Matrix
Holding times for properation or analysis exceeded
Not Detected at the Responing Limit
Practical Quantiative Limit
% Recovery outside of range due to dilution or matrix O 보면 같 s

Analyte detected in the associated Method Blank Value above quantitation range Analyte detected below quantitation limits Sample pH Not In Range Reporting Limit



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

Sample Log-In Check List

Client Name: RULE ENGINEERING LL	Work Order Number:	1909B72		RcptNo:	ï
Received By: Yazmine Garduno	9/21/2019 8:50:00 AM	:	nfamon lafaturi		1
Completed By: Yazmine Garduno	9/21/2019 12:47:08 PM	1	Apprintable		•
Reviewed By: Y G 1/23/11					:
Chain of Custody	•	40.00			, .
1. Is Chain of Custody complete?	1	Yes' 🗹	Ņö 🔲	Not Present	· ·
2. How was the sample delivered?	,	Courier			
Log In 3. Was an attempt made to cool the samples?		Yes 🗹		NA 🗀	
4. Were all samples received at a temperature of	f >0° C to 6.0°C	Yes 🗹	No 🗆	NA 🖸	+ -
5. Sample(s) in proper container(s)?		Yes 🔽	No 🗆	•	
16. Sufficient sample volume for indicated test(s)?7. Are samples (except VOA and ONG) properly8. Was preservative added to bottles?	preserved?	Yes! ☑ Yes ☑ Yes ☐	No □ No □ No ☑	, NA □	
9. VOA vials have zero headspace?	•	Yes 🗌	No □	No VOA Vials	1 1
10. Were any sample containers received broken		Yes 🗆	No 🗹	#:of preserved	~·.·
11 Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	Ño □	bottles checked for pH:	>12 unless noted)
12. Are matrices correctly identified on Chain of C	ustody?	Yes 🗹	No □ .	Adjusted?	
13. Is it clear what analyses were requested? 14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes ☑ Yes ☑ ૅ	No 🗆	Checked by: D	ed 9/23/19
Special Handling (if applicable)	•				•
15. Was client notified of all discrepancies with the	is order?	Yes . \square	· No □	NĀ 🗹	: .
Person Notified:	Date				
By Whom:	Via∷ □] eMail 🔲	Phone Fax	☐ In Person	
Regarding: Client Instructions:	*				
16. Additional remarks:		يوللانوا فا			·
17. Cooler Information	al Intact Seal Ño Se	eal Date	Signed By		

C	hain	-of-Cເ	ustody	Record	Turn-Around	Time:] ,	=					- 	<i></i>	خ						
Client:	Rule	Engin	leering] DØ∫Standard	□ Rush	ı <u>.</u>	, 						L E Ly	-		•				-		
·—			ر		Project Nam	9:	_		5					haller							,		*
Mailing	Address		Aurocat i	Dr. 51-205	Aaiia Ma	ss Suna	Landa	m		49	01 H			- A	-				109		• •		
Far	minah	on All	u 8740	o)	Project #:		<u> </u>		1						-	-			•				
	. (1	716-						k."		,					lysis							x D	
				neering com	Project Mana	ager:		-		Ly)	30)		: .		04)				,				. 1
	Package:			9	_			, :	(8021)	io_se	/MRO)		: ;	<u>(S)</u>	S	SB's		5 t	.				
☑ Stan		<u> </u>	□ Level 4	(Full Validation)	H. Woo			, r <u>, , , , , , , , , , , , , , , , , , , </u>	∵ ഗ	(<u>Ö</u>	잂			SIMS)	2.PE	12 P(- 1	451				· · · · ·
Accredi	, .	 □ Othe	er		Sampler: H	Woorks VYes ः			T MB.	直	. C	3.1)	504.1)	8270	12	808					ş.	<	ĵ.
	(Type)		ai	* *		perature:			<u>ф</u>	Li.	GR(1418	ū	5 K	2 0	les /	_	δ	ंग्र		• .		٦.
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Date:	Time	Matrix	Sample	e Request ID	Container	Preservative	HEA	Ľ Ňo.	∄ + '	 	801	(Me	\$.	8) s	us (f	Pe	B ((Se		1			qqn
:		ļ. :			Type and #	Туре	1000A	372	BTEX	BTEX * MTBE * TPH (Gas only)	TEH 8015B (GRO / DRO	ТРН (Method 418.1)	EDB (Method	PAH'S	Anions (FC) NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	See		; E		Air Bubbles (Y or N)
9/20/19	1406	Soil.	C011#1	Treatment Comp	(3)402 Gias	Non	-00	•	X	. 1	Х				٦.				تخ				
9/20/19	1445	501	Collitan	Treatment Com	(3)4,2010	Non	-00		7		×	:			×				\prec				
9/20/19	1420	Soil	Calditas	Treatment Comp	(3) Laz Chre	Asn	-200	- 	79	,,	*		;		×		,		~	-	·		
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Date:	Time:	Relinquish	ed by:	1 mars 1	Received by:		Date	Time		ĽΜ	rs ç	rev j	nch	٠	• .	. ,·		. :					* * * * * * * * * * * * * * * * * * * *
1/20/19	1837	11/1	11/0	\mathcal{A}	MW (JUNIU	4/12/114	\$50	<u> </u>	- 1				* * #		, ji	_	•					. •
ti	necessary,	samples sub	mitted to Hall En	vironmental may be subc	ontracted to other a	ccredited laboratori	es. This serves	as notice of thi	s possi	ibility.	Any st	ib-cont	acted (lata will	be clea	rly not	ated or	i the ar	nalytic	al repo	ert		



CHAIN OF CUSTODY RECORD P

AGE:	OF	1

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

ric

SUB CO	NTRATOR: ESC I	ACE COMPANY	ESC PA	CE	-	PHONE:	(800) 767-5859	FAX	(615) 758-5859	•:
ADDRE	^{SS:} 12065	Lebanon Rd	;			ACCOUNT#;	- 	· ·· EMAIL:		:
CITY, S	rate zip: Mt. Ju	iliet, TN 37122								•
ITEM	SAMPLE	CLIENT SAMPLE ID		BOTTLE TYPE	MATRIX	COLLECTION	# CONTAINE	ANALYTICAL	COMMENTS	
		Cell #1 Treatment Comp		40ZGU		9/20/2019 2:08:00 PM	1 8270: Atrazine and		al CN, Phenois by 9065, Ra 2	26/228
2	1909B72-002B	Cell #2N Treatment Comp		40ZGU	Soil	9/20/2019 2:45:00 PM	1 8270: Atrazine and	Pentachlorophenol, Tota	al CN, Phenois by 9065, Ra 2	26/228
3	1909872-0038	Cell #25 Treatment Comp	,	40ZGU	Soil	9/20/2019 2;20:00 PM	1 8270: Atrazine and	l Pentachlorophenol, Tot	al CN, Phenols by 9065, Ra 2	26/228

<u> </u>	<u>.</u>		•			tan kanala k
elinquished By:	Date: 9/23/2019	Time: 11:01 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED:
linquished By:	Date:	Time:	Received By:	Date:	Time:	☐ HARDCOPY (extra cost). ☐ FAX: ☐ EMAIL ☐ ONLINE.
linquished By:	Date;	Time:	Received By:	Date:	Tirge:	FOR LAB USE ONLY
medianis of			, , , , , , , , , , , , , , , , , , ,			Temp of samples C Attempt to Cool ?
TAT:	landard 🗍	RUSH	Next BD. 2nd BD		red □	

A.	Human Health S	Standardš `
	(1)	Numerical Stand

)	Nume	erical Standards
	—(a) ~	Antimony (Sb) (CAS 7440-36-0)0.006 mg/1
	(b) -	- Arsenic (As) (CAS 7440-38-2) 0.01 mg/l
	(c) _, -	→ Barium (Ba) (CAS 7440-39-3)
	∃(d) -	— Beryllium (be) (CAS 7440-41-7)
	(e)	— Cadmium (Cd) (CAS 7440-43-9)
	(1)	— Chromium (Cr) (CAS 7440-47-3)0.05 mg/l
	(g)	Cyanide (CN) (CAS 57-12-5)
	— (h) —	Cyanide (CN) (CAS 57-12-5)0.2 mg/l Fluoride (F) (CAS 16984-48-8)
	(i) ~	- Lead (Pb) (CAS 7439-92-1)
	(j) ~	Total Mercury (Hg) (CAS 7439-97-6)
	— (K) 🕾	\sim Nitrate (NO ₃ as N) (CAS 14797-55-8)
•	~ (I) ゞ	- Nitrite (NO ₂ as N) (CAS 10102-44-0)
	(m)	Selenium (Se) (CAS 7782-49-2)
	(n)	~ Silver (Ag) (CAS 7440-224)
	(0)	
	(p) .	Uranium (U) (CAS 7440-61-1)0.03 mg/l
	(q) _	Radioactivity: Combined Radium-226 (CAS 13982-63-3) and
	. " 1	Radium-228 (CAS 15262-20-1)
	(r)	Benzene (CAS 71-43-2):
	- (s) -	- Polychlorinated hinhenyls (PCB's) (CAS 1336-36-3) n nons mali
	(t)	Toluene (CAS 108-88-3)
	(u)	Carbon Tetrachloride (CAS 56-23-5). 0.005 mg/l
	(Ÿ)	1,2-dichloroethane (EDC) (CAS 107-06-2)
	(w)	1,1-diction of the first of the
	(x)	tetrachloroethylene (PCE) (CAS 127-18-4)
	(y)	trichloroethylene (TCE) (CAS 79-01-6)
	(z)	cthylbenzene (CAS 100-41-4)
	(aa)	total xylenes (CAS 1330-20-7)
	(bb)	methylene chloride (CAS 75-09-2)
	, (cc)	chloroform (CAS 67-66-3)
	(qq)	1,1-dichloroethane (CAS 75-34-3)
	→ (ee) -	ethylene dibromide (EDR) (CAS 106-03-4)
	(II)	1.1.1-trichloroethane (CAS 71-55-6)
	(gg)	
	(hh)	1,1,2,2-tetrachioroethane (CAS 79-34-5)
	(ii)	VIRYI CHIONGE (CAS 75-011-4)
-	~~(jj) ~ P	Aris: total naphthalene (CAS 91-20-3) plus monomethylpaphthalenes 0.03 mg/l
-	→ (KK)—	benzo-a-pyrene (CAS 50-32-8)
	(11)	cis-1,2-dichloroethene (CAS 156-59-2)
	(mm)	trans-1,2-dichloroethene (CAS 156-60-5)
	(un)	1,2-dichloropropane (PDC) (CAS 78-87-5)
	(00)	styrene (CAS 100-42-5)
	(pp)	1,2-dichlorobenzene (CAS 95-50-1)
	(qq)	1.4-dichloropenzene (CAS 106-46-7)
	(rr)	1,2,4-trichlorobenzene (CAS 120-82-1)
	(ss)	penachiorophenoi (CAS 87-86-5)
	(ti)	atrazine (CAS 1912-24-9)
	១ដោយវា	rds for Toxic Pollutants. A toxic pollutant shall not be present at a concentration of

credible scientific data and other evidence appropriate under the Water Quality Act, currently available to the public, to have potential for causing one or more of the following effects upon exposure, ingestion, or assimilation either directly from the environment or indirectly by ingestion through food chains: (1) unreasonably threatens to injure human health, or the health of animals or plants which are commonly hatched, bred, cultivated or protected for use by man for food or economic benefit; as used in this definition injuries to health include death, histopathologic change, clinical symptoms of disease, behavioral abnormalities, genetic mutation, physiological malfunctions or physical deformations in such organisms or their offspring; or (2) creates a lifetime risk of more than one cancer per 100,000 exposed persons.

⁽³⁾ Standards for Non-Aqueous Phase Liquids. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

B. Other Standards for Domestic Water Supply

(1)	- Chlorie	de (CD (CAS I	COOT 00 C	***************************************	· · · · · · · · · · · · · · · · · · ·	,
(2)	- Conne		0007-UV-0).	*******************************		
(3)	- Iron (F	(Ca) (Cu3 7	##U-2U-8)			•
. (4)	- Mones	U) (CAS 7439;	09-0)	***************************************	1.0 mg/l	
(5)	The 1	riese (MID) (CA	S 1439-96-	5)	0.2 mg/l	
	Phenoi	S managarita			0.005 mg/l	•
(6)	- Sulfate	(SO4) (CAS I	1808-79-8).	-		
(7)	1 Olai L	issolved Solid	s (TDS) TD	5)	1000,0 mg/l	
(8)	Zinc (Z	(CAS 7440)	66-6)	S	10.0 mg/l	-
(9)	pH	••••••••	••••••		between 6 and 9	•
(10)	Methyl	tertiary-butyl	ther (MTB	E) (CAS 1634-04-4)		
ے جمع محمد ہے۔ اس محمد محمد ہے۔	:.	***				
والمتعاف والمعارض		· · · · · · · · · · · · · · · · · · ·				
Toxic Pollutant data:	4				gra for a	; ,
Total Collectant data.	:		•		. 1	1
		·				
(2) Stoxic pollutar	it" means an	y water contan	ninant or ĉo	nbination of the water contami	inants in the list helow	
	(a)	acrolein (CA	S 107-02-8)	mana ni nie trat delow	And .
	(b)	acrylonitrile	(CAS 107	3-1)		
	(c)	benzene and	alkvlhenze	nes .		•
	5.7		nzene (CA:		. 	
				vlbenzene) (CAS 108-88-3)	·	
-	X 1 20 0		ulhenzene	CAS 100-41-4)		
108-38-3); and p-xylene	(CA) 106-2	, (14) - Ay 12_3\	icues (uime	hyl benzene isomers): o-xylen	ie (CAS 9%47-6); in-xy	lene (CAS)
	100			المراجع والمراجع والم	· /	3.6
	(a)	chlorinated b	rene (einen	lbenzene) (CAS 109-42-5)		•
	(4)					i
<i>'</i> ;	- `	(i) ma	nochiolope	nzene (CAS 108-90-7)		4
	*1,	(0) 1,2	-dichlorob	rizene (ortho-dichlorobenzene)	(CAS 95-50-1)	:
· · · · · · · · · · · · · · · · · · ·		(iff) 1,4	dichlorobe	zene (para-dichlorobenzene) (CAS 106-46-7)	
, . ,'		(iv) 1.2	,4-trichlord	penzene (CAS 120-82-2)	A A	•
		(v) 1,2	,4,5-tetracl	orobenzene (CAS 93-94-3)	HO	٠.
•	•	(vi) per	nachlörobe	zene (CAS 608-93-5)		•
		(vii) hex	achloroben	ene (CAS 11824-1)		
	(e)	chlorinated p	enols			- 5//
		(i) 2,4	-di hloroph	nol (CAS/120-83-2)		###
· · ',		(ii) 2.4	5-triobloro	henol (ZAS 95-95-4)		700
	•	(iii) 2,4,	6-trichleron	enole CAS 88-06-2)		
•		(iv) per	tachloron	erio (CAS 88-06-2) of PCP) (CAS 87-86-5)	·'.	٠.,
	(1)	chloroalkyl e	thers	A CONTRACTOR OF THE PARTY OF TH		
Principal Company	. .			htl) ether (CAS 111-44-4)		-
· ' '.	• •	(ii) bis	(2-chlorois	propy) ether (CAS 108-60-1)		
			chlorometh	ys) ether (CAS 542-88-1)		
•	(g)	1.2-dichloron	tokana (nro	rylene dicaloride, PDC) (CAS	70 0H ES	
•	(h)	dichloroprop	non (CAC	pyrene dichionde, PDC) (CAS	/8-87-3) ·	•
,	(i)	1,4-dioxage (CVC LSS U	12-73-0)		
•	Ö	halogepated	CAS 123-9.	12	• • • • • • • • • • • • • • • • • • • •	
•	G)	ialogetaleu e	dibasas - 41			:
,	-	(i) 1,2	dibromoein	ne (ethylene dibromide, EDB) (CAS 106-93-4)	•
	. :	(ii) 1,1	dichioroeth	ne (1,1-DCA) (CAS \$6-34-3)		
		(fii) 1,2-	dichtoroethi	ne (ethylene dichloride, KDC)	(CAS 107-06-2)	-
	. 8	(iv) 1,1,	1-trichloroe	hane (TCA) (CAS 71-55-6)		
: ·		(y) 1,1,	2-trichloroe	thane (1,1,2-TCA) (CAS 79-00	1- 5)	
•	1	(vi) 1,1,	2,2-tetrachl	roethane (CAS 79-34-5)		
		(vii) hexa	chloroethar	c(CAS 67-72-1)		
<u> </u>	. (k)	halogenated e		•	1	
. 1	r	(i) chlo	rothene (vi	nyl chloride) (CAS 75-01-4)		
		(ii) 1,1-	dichloroeth	ene (1,1-DCE) (CAS 75-35-4)	\ ' '	
	•	(iii) cis-l	2-dichloro	ethene (cis-1,2-DCE) (CAS 15	6-59-2)	
	•	(iv) tran	s-1,2-dichlo	roethene (trans-1,2-DCE) (CA	S 156-60-5)	
		(v) trick	doroethene	(trichlorocthylene, TCE) (CAS	79-01-6)	į
		(vi) tetra	chloroether	ne (perchloroethylene, PCE) (C	AS 127-18-41	•
	(I).	halogenated n	nethanes	((*** ***-10-4)	
	•			nethane (CAS 75-27-4)		
:		., 510	****	mana (chi tri li li li li li li	•	

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

April 15, 2020

Heather Woods Rule Engineering LLC 501 Airport Dr., Ste 205 Farmington, NM 87401 TEL: (505) 325-1055

FAX:

RE: Agua Moss Sunco Landfarm

OrderNo.: 2003373

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/7/2020 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 qualifiers 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.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 4/15/2020

CLIENT: Rule Engineering LLC

2003373-001

Project: Agua Moss Sunco Landfarm

Lab ID:

Client Sample ID: Cell 1 Treatment Comp

Collection Date: 3/6/2020 10:38:00 AM Received Date: 3/7/2020 9:30:00 AM

Analyses Result **RL** Qual Units Batch **DF** Date Analyzed **EPA METHOD 300.0: ANIONS** Analyst: JMT Fluoride 9.2 3.0 mg/Kg 5 3/22/2020 8:50:28 AM 51249 Chloride ND 15 mg/Kg 5 3/22/2020 8:50:28 AM 51249 Nitrogen, Nitrite (As N) ND 3.0 mg/Kg 5 3/22/2020 8:50:28 AM 51249 Nitrogen, Nitrate (As N) 3.0 9.6 mg/Kg 5 3/22/2020 8:50:28 AM 51249 Sulfate 100 15 mg/Kg 5 3/22/2020 8:50:28 AM 51249 **EPA METHOD 7471: MERCURY** Analyst: JLF 0.43 0.16 ma/Ka 3/17/2020 4:21:11 PM 51155 **EPA METHOD 6010B: SOIL METALS** Analyst: rde Antimony ND 5.0 mg/Kg 2 3/17/2020 3:12:41 PM 51057 Arsenic ND 5.0 mg/Kg 2 3/17/2020 5:33:36 PM 51057 Barium 1500 0.99 51057 mg/Kg 10 3/17/2020 3:34:34 PM Beryllium 0.67 0.30 51057 mg/Kg 2 3/17/2020 3:12:41 PM Cadmium .ND _0.20 mg/Kg 2 3/17/2020 3:12:41 PM 51057 9.9 Chromium 0.60 mg/Kg 2 3/17/2020 3:12:41 PM 51057 Copper 16 0.60 mg/Kg 3/17/2020 3:12:41 PM 51057 Iron 14000 250 mg/Kg 100 3/23/2020 11:37:43 AM 51057 Lead 0.50 mg/Kg • 3/23/2020 1:36:49 PM 12 51057 Manganese 280 0.20 mg/Kg 2 3/17/2020 3:12:41 PM 51057 Selenium ND 5.0 mg/Kg 2 3/23/2020 1:36:49 PM 51057 Silver ND 0.50 2 mg/Kg 3/17/2020 3:12:41 PM 51057 ND mg/Kg Uranium 9.9 2 3/17/2020 3:12:41 PM 51057 Zinc 46 5.0 2 mg/Kg 3/17/2020 5:33:36 PM 51057 **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: JMR 'Gasoline Range Organics (GRO) ND 3/12/2020 3:42:20 AM 51006 4.9 mg/Kg 1 Surr: BFB 96.1 70-130 %Rec 1 3/12/2020 3:42:20 AM 51006 **EPA METHOD 8011/504.1 MODIFIED: EDB** Analyst: JME 1,2-Dibromoethane ND 0.10 µg/Kg 3/18/2020 11:40:51 AM 51177 **EPA METHOD 8082A: PCB'S** Analyst: TOM

Matrix: SOIL

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

ND

ND

ND

ND

ND

ND

NΩ

60.8

75.6

0.025

0.025

0.025

0.025

0.025

0.025

0.025

15-129

16.1-131

Qualifiers:

Aroclor 1016

Aroclor 1221

Aroclor 1232

Aroclor 1242

Aroclor 1248

Aroclor 1254

Aroclor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

- Value exceeds Maximum Contaminant Level
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

%Rec

%Rec

1

1

1

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 1 of 27

51020

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51020

51020

51020

51020

51020

3/17/2020 7:32:25 PM

3/17/2020 7:32:25 PM 51020

Date Reported: 4/15/2020

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Lab ID: 2003373-001

Matrix: SOIL

Client Sample ID: Cell 1 Treatment Comp

Collection Date: 3/6/2020 10:38:00 AM

Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst:	BRM
Diesel Range Organics (DRO)	92	50	mg/Kg	5	3/13/2020 5:07:47 PM	51025
Motor Oil Range Organics (MRO)	350	250	mg/Kg	5	3/13/2020 5:07:47 PM	51025
Surr: DNOP	101	55.1-146	%Rec	5	3/13/2020 5:07:47 PM	51025
EPA METHOD 8310: PAHS					Analyst:	TOM
Naphthalene	ND	0.25	mg/Kg	1	3/23/2020 12:02:28 PM	51129
1-Methylnaphthalene	ND	0.25	mg/Kg	1	3/23/2020 12:02:28 PM	51129
2-Methylnaphthalene	0.40	0.25	mg/Kg	1	3/23/2020 12:02:28 PM	51129
Benzo(a)pyrene	ND	0.010	mg/Kg	1	3/23/2020 12:02:28 PM	51129
Surr: Benzo(e)pyrene	78.0	29-98.8	%Rec	1	3/23/2020 12:02:28 PM	51129
EPA METHOD 8260B: VOLATILES					Analyst:	JMR
Benzene	ND	0,025	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Toluene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Ethylbenzene ,	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Methyl tert-butyl ether (MTBE)	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2,4-Trimethylbenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,3,5-Trimethylbenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2-Dichloroethane (EDC)	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2-Dibromoethane (EDB)	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Naphthalene	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1-Methylnaphthalene	ND	0.20	mg/Kg	1	3/12/2020 3:42:20 AM	51006
2-Methylnaphthalene	ND	0.20	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Acetone	ND	0.74	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Bromobenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Bromodichloromethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Bromoform	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Bromomethane	ND	0.15	mg/Kg	1	3/12/2020 3:42:20 AM	51006
2-Butanone	ND	0.49	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Carbon disulfide	ND	0.49	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Carbon tetrachloride	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Chlorobenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Chloroethane	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Chloroform	ND	0.049	mg/Kg	· 1	3/12/2020 3:42:20 AM	51006
Chloromethane	ŇD	0.15	mg/Kg	1	3/12/2020 3:42:20 AM	51006
2-Chlorotoluene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
4-Chlorotoluene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
cis-1,2-DCE	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
cis-1,3-Dichloropropene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2-Dibromo-3-chloropropane	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 3/6/2020 10:38:00 AM

Lab ID: 2003373-001

Matrix: SOIL

Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: JMR
Dibromochloromethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Dibromomethane	ND	0,049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2-Dichlorobenzene	ND	0.049	mg/Kg	1	3/12/2020 3;42:20 AM	51006
1,3-Dichlorobenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,4-Dichlorobenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Dichlorodifluoromethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1-Dichloroethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1-Dichloroethene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2-Dichloropropane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,3-Dichloropropane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
2,2-Dichloropropane	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1-Dichloropropene	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Hexachlorobutadiene	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
2-Hexanone	ND	0.49	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Isopropylbenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
4-Isopropyltoluene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
4-Methyl-2-pentanone	ND	0.49	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Methylene chloride	ND	0.15	mg/Kg	1	3/12/2020 3:42:20 AM	51006
n-Butylbenzene	ND	0.15	mg/Kg	1	3/12/2020 3:42:20 AM	51006
n-Propylbenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
sec-Butylbenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Styrene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
tert-Butylbenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1,1,2-Tetrachloroethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1,2,2-Tetrachloroethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Tetrachloroethene (PCE)	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
trans-1,2-DCE	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
trans-1,3-Dichloropropene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2,3-Trichlorobenzene	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2,4-Trichlorobenzene	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1,1-Trichloroethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,1,2-Trichloroethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Trichloroethene (TCE)	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Trichlorofluoromethane	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
1,2,3-Trichloropropane	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Vinyl chloride	ND	0.049	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Xylenes, Total	ND	0.099	mg/Kg	1	3/12/2020 3:42:20 AM	51006
Surr: Dibromofluoromethane	97.6	70-130	%Rec	1	3/12/2020 3:42:20 AM	51006
Surr: 1,2-Dichloroethane-d4	84.4	70-130	%Rec	1	3/12/2020 3:42:20 AM	51006

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

Qualifiers:

- Value exceeds Maximum Contaminant Level,
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report Lab Order 2003373

Date Reported: 4/15/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC Client Sample ID: Cell 1 Treatment Comp Agua Moss Sunco Landfarm Project: Collection Date: 3/6/2020 10:38:00 AM Lab ID: 2003373-001 Matrix: SOIL Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL Qı	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analy	st: JMR
Surr: Toluene-d8	102	70-130	%Rec	1	3/12/2020 3:42:20 AN	1 51006
Surr: 4-Bromofluorobenzene	94.9	70-130	%Rec	1	3/12/2020 3:42:20 AN	1 51006
SM4500H+B/EPA 9040C					Analy	st: JRR
рН	8.55		pH Unit	s 1	3/19/2020 11:18:00 A	M R67419

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

Qualifiers:

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- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Practical Quanitative Limit PQL
- % Recovery outside of range due to dilution or matrix

- Analyte detected in the associated Method Blank
- Е
- Value above quantitation range Analyte detected below quantitation limits 1
- Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 4/15/2020

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 3/6/2020 10:59:00 AM

Lab ID: 2003373-002

Matrix: SOIL

Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0; ANIONS						Analyst	: JMT
Fluoride	4.0	1.5		mg/Kg	5	3/22/2020 9:02:48 AM	51249
Chloride	320	30		mg/Kg	20	3/22/2020 9:15:09 AM	51249
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	3/22/2020 9:02:48 AM	51249
Nitrogen, Nitrate (As N)	3.8	1.5		mg/Kg	5	3/22/2020 9:02:48 AM	51249
Sulfate	1400	30		mg/Kg	20	3/22/2020 9:15:09 AM	51249
EPA METHOD 7471: MERCURY						Analyst	: JLF
Mercury	1.1	0.16		mg/Kg	5	3/17/2020 4:23:42 PM	51155
EPA METHOD 6010B: SOIL METALS						Analyst	: rde
Antimony	ND	4,9		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Arsenic	5.1	4.9		mg/Kg	2	3/17/2020 5:39:33 PM	51057
Barium	3000	9.9		mg/Kg	100	3/17/2020 3:39:06 PM	51057
Beryllium	0.70	0.30		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Cadmium	ND	0.20		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Chromium	11	0.59		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Copper	21	0,59		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Iron	21000	250		mg/Kg	100	3/23/2020 11:39:30 AM	51057
Lead	12	0.49		mg/Kg	2	3/23/2020 1:41:52 PM	51057
Manganese	320	0.20		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Selenium	ND	4.9		mg/Kg	2	3/23/2020 1:41:52 PM	51057
Silver	ND	0,49		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Uranium	ND	9.9		mg/Kg	2	3/17/2020 3:31:10 PM	51057
Zinc	64	4.9		mg/Kg	2	3/17/2020 5:39:33 PM	51057
EPA METHOD 8015D MOD: GASOLINE RANGE	•					Analyst	: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Surr: BFB	95.0	70-130		%Rec	1	3/12/2020 4:11:08 AM	51006
EPA METHOD 8011/504.1 MODIFIED: EDB						Analyst	: JME
1,2-Dibromoethane	ND	0.088		µg/Kg	1	3/18/2020 11:55:52 AM	51177
EPA METHOD 8082A: PCB'S						Analyst	: TOM
Aroclor 1016	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Arocior 1221	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Arocior 1232	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Aroclor 1242	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Aracior 1248	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Aroclor 1254	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Aroclor 1260	ND	0.024		mg/Kg	1	3/17/2020 8:05:27 PM	51020
Surr: Decachlorobiphenyl	63.2	15-129		%Rec	1	3/17/2020 8:05:27 PM	51020
Surr: Tetrachloro-m-xylene	90.8	16.1-131		%Rec	1	3/17/2020 8:05:27 PM	51020

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Received Date: 3/7/2020 9:30:00 AM

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/15/2020

CLIENT:Rule Engineering LLCClient Sample ID: Ceil 2N Treatment CompProject:Agua Moss Sunco LandfarmCollection Date: 3/6/2020 10:59:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS					Analyst:	BRM
Diesel Range Organics (DRO)	340	95		mg/Kg	10	3/13/2020 5:24:30 AM	51025
Motor Oil Range Organics (MRO)	2000	480		mg/Kg	10	3/13/2020 5:24:30 AM	51025
Surr: DNOP	0	55.1-146	s	%Rec	10	3/13/2020 5:24:30 AM	51025
EPA METHOD 8310: PAHS						Analyst:	TOM
Naphthalene	ND	0.24		mg/Kg	1	3/23/2020 2:55:04 PM	51129
1-Methylnaphthalene	ND	0.24		mg/Kg	1	3/23/2020 2:55:04 PM	51129
2-Methylnaphthalene	0.28	0.24		mg/Kg	1	3/23/2020 2:55:04 PM	51129
Benzo(a)pyrene	ND	0.0096		mg/Kg	1	3/23/2020 2:55:04 PM	51129
Surr: Benzo(e)pyrene	56.9	29-98.8		%Rec	1	3/23/2020 2:55:04 PM	51129
EPA METHOD 8260B: VOLATILES						Analyst:	JMR
Benzene	ND	0.025		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Toluene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Ethylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1.	3/12/2020 4:11:08 AM	51006
Naphthalene	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	51006
1-Methylnaphthalene	ND	0.20		mg/Kg	1	3/12/2020 4:11:08 AM	51006
2-Methylnaphthalene	ND	0.20		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Acetone	ND	0.74		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Bromobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Bromodichloromethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Bromoform	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Bromomethane	ND	0.15		mg/Kg	1	3/12/2020 4:11:08 AM	51006
2-Butanone	ND	0.50		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Carbon disulfide	ND	0.50		mg/Kg	1	3/12/2020 4;11:08 AM	51006
Carbon tetrachloride	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Chlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Chloroethane	ND	0.099		mg/Kg	1	3/12/2020 4;11:08 AM	51006
Chloroform	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
Chloromethane	ND	0.15		mg/Kg	1	3/12/2020 4:11:08 AM	51006
2-Chlorotoluene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
4-Chlorotoluene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
cis-1,2-DCE	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	51006
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	51006

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

Qualifiers:

Lab ID:

2003373-002

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 4/15/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 3/6/2020 10:59:00 AM

Lab ID: 2003373-002 Matrix: SOIL Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Bate
PA METHOD 8260B: VOLATILES				,		Analyst	: JMR
Dibromochloromethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
Dibromomethane -	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
1,1-Dichloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,1-Dichloroethene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
1,2-Dichloropropane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,3-Dichloropropane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	5100
2,2-Dichloropropane	, ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,1-Dichloropropene	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	510
Hexachlorobutadiene	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	510
2-Hexanone	ND	0.50		mg/Kg	1	3/12/2020 4:11:08 AM	510
Isopropylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
4-Isopropyltoluene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	3/12/2020 4:11:08 AM	510
Methylene chloride	ND	0.15		mg/Kg	1	3/12/2020 4:11:08 AM	510
n-Butylbenzene	ND	0.15		mg/Kg	1	3/12/2020 4:11:08 AM	510
n-Propylbenzene	ND	0,050		mg/Kg	1	3/12/2020 4:11:08 AM	510
sec-Butylbenzene	. ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
Styrene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
tert-Butylbenzene	ND	0,050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
Tetrachloroethene (PCE)	ŅD	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
trans-1,2-DCE	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
Trichlorofluoromethane	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
1,2,3-Trichioropropane	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	510
Vinyl chloride	ND	0.050		mg/Kg	1	3/12/2020 4:11:08 AM	510
Xylenes, Total	ND	0.099		mg/Kg	1	3/12/2020 4:11:08 AM	510
Surr: Dibromofluoromethane	98.4	70-130		%Rec	1	3/12/2020 4:11:08 AM	510
Surr: 1,2-Dichloroethane-d4	88.6	70-130		%Rec	1	3/12/2020 4:11:08 AM	5100

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix -
- H Holding times for preparation or analysis exceeded
- D Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report Lab Order 2003373

Date Reported: 4/15/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 3/6/2020 10:59:00 AM

Lab ID: 2003373-002

Matrix: SOIL

Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL Qı	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES	-				Analy	/st: JMR
Surr: Toluene-d8	102	70-130	%Rec	1	3/12/2020 4:11:08 Al	M 51006
Surr: 4-Bromofluorobenzene	91.2	70-130	%Rec	1	3/12/2020 4:11:08 A	M 51006
SM4500H+B/EPA 9040C					Analy	/st: JRR
pH	7.80		pH Uni	ls 1	3/19/2020 11:18:00	AM R67419

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

Qualifiers:

- Value exceeds Maximum Contaminant Level,
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 8 of 27

Analytical Report Lab Order 2003373

Date Reported: 4/15/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Lab ID: 2003373-003

Matrix: SOIL

Collection Date: 3/6/2020 10:52:00 AM

Received Date: 3/7/2020 9:30:00 AM

Client Sample ID: Cell 2S Treatment Comp

Analyses	Result	. RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS		•"	**			Analyst	: JMT
Fluoride	6.5	1.5		mg/Kg	5	3/22/2020 9:27:29 AM	51249
Chloride	300	30		mg/Kg	20	3/22/2020 9:39:50 AM	51249
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	3/22/2020 9:27:29 AM	51249
Nitrogen, Nitrate (As N)	4.4	1.5		mg/Kg	5	3/22/2020 9:27:29 AM	51249
Sulfate	500	30		mg/Kg	-20	3/22/2020 9:39:50 AM	51249
EPA METHOD 7471: MERCURY						Analyst	: JLF
Mercury	0.43	0.17		mg/Kg	5	3/17/2020 4:26:13 PM	51155
EPA METHOD 6010B: SOIL METALS						Analyst	: rde
Antimony	ND	4.9		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Arsenic .	ND	4.9		mg/Kg	2	3/17/2020 5:41:02 PM	51057
Barium	2700	9.9		mg/Kg	100	3/17/2020 3:42:06 PM	51057
Beryllium	0.66	0.30		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Cadmium	ND	0.20		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Chromium	9.2	0.59		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Copper	11	0.59		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Iron	14000	250		mg/Kg	100	3/23/2020 11:41:17 AM	51057
Lead ·	6.6	0.49		mg/Kg	2	3/23/2020 1:43:10 PM	51057
Manganese	240	0.20		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Selenium	ND	4.9		mg/Kg	2	3/23/2020 1:43:10 PM	51057
Silver	ND	0.49		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Uranium	ND	9.9		mg/Kg	2	3/17/2020 3:32:57 PM	51057
Zinc	40	4.9		mg/Kg	2	3/17/2020 5:41:02 PM	51057
EPA METHOD 8015D MOD: GASOLÍNE RANGE						Analyst	JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/12/2020 4:39:50 AM	51006
Surr: BFB	98.0	70-130		%Rec	1	3/12/2020 4:39:50 AM	51006
EPA METHOD 8011/504.1 MODIFIED: EDB						Analyst	JME
1,2-Dibromoethane	ND	0.095		μg/Kg	1	3/18/2020 12:10:53 PM	51177
EPA METHOD 8082A: PCB'S						Analyst	TOM
Aroclor 1016	. ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Aroclor 1221	ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Aroclor 1232	ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Aroclor 1242	ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Aroclor 1248	ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Aroclor 1254	ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Aroclor 1260	ND	0.024		mg/Kg	1	3/17/2020 9:11:28 PM	51020
Surr: Decachlorobiphenyl	85.2	15-129		%Rec	1	3/17/2020 9:11:28 PM	51020
Surr: Tetrachioro-m-xylene	112	16.1-131		%Rec	1	3/17/2020 9:11:28 PM	51020

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 4/15/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: Cell 2S Treatment Comp

Project: Agua Moss Sunco Landfarm

Collection Date: 3/6/2020 10:52:00 AM

Lab ID: 2003373-003 Matrix: SOIL Received Date: 3/7/2020 9:30:00 AM

Diesel Range Organics (DRO)	Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
Motor Oil Range Organics (MRO) 820 240 mg/Kg 5 3/13/2020 5:32:14 PM 51025	EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS					Analyst	BRM
Surr: DNOP 97.9 55.1-148 %Rec 5 31/3/2020 5:32:14 PM 51025	Diesel Range Organics (DRO)	120	49		mg/Kg	5	3/13/2020 5:32:14 PM	51025
Naphthalene	Motor Oil Range Organics (MRO)	820	240		mg/Kg	5	3/13/2020 5:32:14 PM	51025
Naphthalene	Surr: DNOP	97.9	55.1-146		%Rec	5	3/13/2020 5:32:14 PM	51025
1-Methylnaphthalene	EPA METHOD 8310: PAHS						Analyst	TOM
2-Methylnaphthalene	Naphthalene	ND	0.24		mg/Kg	1	3/23/2020 3:46:08 PM	51129
Benzo(a)pyrene ND 0.0096 mg/Kg 1 3/23/2020 3:46:08 PM 51129	1-Methylnaphthalene	ND	0.24		mg/Kg	1	3/23/2020 3:46:08 PM	51129
Benzo(a)pyrene ND 0.0096 mg/Kg 1 3/23/2020 3:46:08 PM 51129	2-Methylnaphthalene	ND	0.24		mg/Kg	1	3/23/2020 3:46:08 PM	51129
Surr: Benzo(e)pyrene 84.7 29-98.8 %Rec 1 3/23/2020 3:46:08 PM 51129	•	ND	0.0096			1	3/23/2020 3;46;08 PM	51129
Benzene ND 0.025 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Toluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Ethylbenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Methyl tert-butyl ether (MTBE) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2,4-Trimethylbenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dichloroethane (EDC) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dibromoethane (EDB) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dibromoethane (EDB) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dibromoethane (EDB) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dibromoethane (EDB) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 <td< td=""><td></td><td>84.7</td><td>29-98.8</td><td></td><td></td><td>1</td><td>3/23/2020 3:46:08 PM</td><td>51129</td></td<>		84.7	29-98.8			1	3/23/2020 3:46:08 PM	51129
Toluene	EPA METHOD 8260B: VOLATILES						Analyst	: JMR
Toluene	Benzene	ND	0.025		ma/Ka	1	3/12/2020 4:39:50 AM	51006
Ethylbenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Methyl tert-butyl ether (MTBE) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2,4-Trimethylbenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,3,5-Trimethylbenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dichloroethane (EDC) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dibromoethane (EDB) ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Naphthalene ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 1-Methylnaphthalene ND 0.20 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Methyinaphthalene ND 0.20 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Brombenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Bro	Toluene		0.050					
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1,3,5-Trimethylbenzene ND 0.050 mg/kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dlohloroethane (EDC) ND 0.050 mg/kg 1 3/12/2020 4:39:50 AM 51006 1,2-Dibromoethane (EDB) ND 0.050 mg/kg 1 3/12/2020 4:39:50 AM 51006 Naphthalene ND 0.10 mg/kg 1 3/12/2020 4:39:50 AM 51006 1-Methylnaphthalene ND 0.20 mg/kg 1 3/12/2020 4:39:50 AM 51006 2-Methylnaphthalene ND 0.20 mg/kg 1 3/12/2020 4:39:50 AM 51006 Acetone ND 0.75 mg/kg 1 3/12/2020 4:39:50 AM 51006 Bromobenzene ND 0.050 mg/kg 1 3/12/2020 4:39:50 AM 51006 Bromodichloromethane ND 0.050 mg/kg 1 3/12/2020 4:39:50 AM 51006 Bromomethane ND 0.15 mg/kg 1 3/12/2020 4:39:50 AM 51006 Carbon tetrachloride								
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Acetone ND 0.75 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Bromobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Bromodichloromethane ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Bromomethane ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Butanone ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon disulfide ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon tetrachloride ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotehane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotoluene ND 0.050		ND	0.20			1	3/12/2020 4:39:50 AM	51006
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Bromodichloromethane ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Bromoform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Bromomethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Butanone ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon disulfide ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon tetrachloride ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorothane ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.05	Bromobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
Bromomethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Butanone ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon disulfide ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon tetrachloride ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotethane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotethane ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotethane ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.	Bromodichloromethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
Bromomethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Butanone ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon disulfide ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon tetrachloride ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotethane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.0	Bromoform	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
2-Butanone ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon disulfide ND 0.50 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Carbon tetrachloride ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotethane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroteme ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Bromomethane	ND	0.15			1	3/12/2020 4:39:50 AM	51006
Carbon tetrachloride ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroethane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloromethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	2-Butanone	ND	0.50		mg/Kg	1		51006
Chlorobenzene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroethane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloromethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Carbon disulfide	ND	0.50		mg/Kg	1	3/12/2020 4:39:50 AM	510 06
Chloroethane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloroform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloromethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Carbon tetrachloride	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
Chloroform ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 Chloromethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Chlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
Chloromethane ND 0.15 mg/Kg 1 3/12/2020 4:39:50 AM 51006 2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Chloroethane	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	51006
2-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Chloroform	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	Chloromethane	ND	0.15		mg/Kg	1	3/12/2020 4:39:50 AM	51006
4-Chlorotoluene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,2-DCE ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006 cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	2-Chlorotoluene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	4-Chlorotoluene	ND	0.050			1	3/12/2020 4:39:50 AM	51006
cis-1,3-Dichloropropene ND 0.050 mg/Kg 1 3/12/2020 4:39:50 AM 51006	cis-1,2-DCE	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
1,2-Dibromo-3-chloropropane ND 0.10 mg/Kg 1 3/12/2020 4:39:50 AM 51006	cis-1,3-Dichloropropene	ND	0.050			1	3/12/2020 4:39:50 AM	51006
	1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	51006

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 4/15/2020

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Collection Date: 3/6/2020 10:52:00 AM

Lab ID: 2003373-003 Matrix: SOIL Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	: JMR
Dibromochloromethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51006
Dibromomethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	51000
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Dichlorodifluoromethane	ŃD	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1-Dichloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1-Dichloroethene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,2-Dichloropropane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,3-Dichloropropane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
2,2-Dichloropropane	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1-Dichloropropene	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Hexachlorobutadiene	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	5100
2-Hexanone	ND	0.50		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Isopropylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
4-Isopropyltoluene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Methylene chloride	ND	0.15		mg/Kg	1	3/12/2020 4:39:50 AM	5100
n-Butylbenzene	ND	0,15		mg/Kg	1	3/12/2020 4:39:50 AM	5100
n-Propylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
sec-Butylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Styrene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
tert-Butylbenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
trans-1,2-DCE	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,2,3-Trichlorobenzene	ND	. 0.10		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Trichlorofluoromethane	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Vinyl chloride	ND	0.050		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Xylenes, Total	ND	0.10		mg/Kg	1	3/12/2020 4:39:50 AM	5100
Surr: Dibromofluoromethane	92.6	70-130		%Rec	1	3/12/2020 4:39:50 AM	5100
Surr: 1,2-Dichloroethane-d4	83.2	70-130		%Rec	1	3/12/2020 4:39:50 AM	5100

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report

Lab Order 2003373

Date Reported: 4/15/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Project: Agua Moss Sunco Landfarm

Lab ID: 2003373-003

Matrix: SOIL

Client Sample ID: Cell 2S Treatment Comp Collection Date: 3/6/2020 10:52:00 AM

Received Date: 3/7/2020 9:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analy	st: JMR
Surr: Toluene-d8	103	70-130	%Rec	1	3/12/2020 4:39:50 AM	A 51006
Surr: 4-Bromofluorobenzene	94.9	70-130	%Rec	1	3/12/2020 4:39:50 AM	A 51006
SM4500H+B/EPA 9040C					Analy	st: JRR
рН	8.12		pH Unit	s 1	3/19/2020 11:18:00 A	M R67419

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

Qualifiers:

- Value exceeds Maximum Contaminant Level,
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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ANALYTICAL REPORT

L1198333

03/11/2020

Hall Environmental Analysis Laboratory

















Report To:

Description:

Sample Delivery Group:

Samples Received: Project Number:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Washne R Richards Daphne Richards

Project Manager Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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2003373-001B CELL 1 TREATMENT COMP L	.1198333-01 So	lid	Collected by	Collected date/time 03/06/20 10:38	Received dat 03/11/20 08:3	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1445013	1	03/17/20 08:25	03/17/20 15:02	JER	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1445014	1	03/17/20 09:14	03/17/20 13:47	SDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1443291	1	03/13/20 09:36	03/14/20 12:36	TRB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1445818	. ⁵ .	03/18/20 07:12	03/18/20 23:26	SHG	Mt. Juliet, TN
2003373-002B CELL 2N TREATMENT COMF	P L1198333-02	Solid	Collected by	Collected date/time 03/06/20 10:59	Received dat 03/11/20 08:3	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1445013	1	03/17/20 08:25	03/17/20 15:04	JER	Mt. Juliet, TN
Net Chemistry by Method 9066	WG1445014	1	03/17/20 09:14	03/17/20 13:47	SDL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1443291	1	03/13/20 09:36	03/14/20 12:38	TRB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1445818	10	03/18/20 07:12	03/18/20 23:49	SHG	Mt. Juliet, TN
2003373-003B CELL 2S TREATMENT COMF	· L1198333-03	Solid	Collected by	Collected date/time 03/06/20 10:52	Received dat 03/11/20 08:2	
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location

WG1445014

WG1443291

WG1445818

date/time

03/17/20 08:25

03/17/20 09:14

03/13/20 09:36

03/18/20 07:12

date/time

03/17/20 15:07

03/17/20 13:49

03/14/20 12:41

03/19/20 00:12

JER

TRB

SHG

SDL !

Mt. Juliet, TN

Mt. Juliet, TN

Mt. Juliet, TN

Mt. Juliet, TN























Wet Chemistry by Method 9012B

Wet Chemistry by Method 9066

Metals (ICP) by Method 6010B

Semi Volatile Organic Compounds (GC/MS) by Method 8270C



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

















Dapline R Richards

Daphne Richards Project Manager

2003373-001B CELL 1 TREATMENT COMP

Collected date/time: 03/06/20 10:38

SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 9012B

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		1 1
Cyanide	Q		0.250	-	03/17/2020 15:02	WG1445013	
Wet Chemistry by Method 9066	9906 poi						
	Result	Oualifier	RDL	Dilution	Dilution Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Total Phenol by 4AAP	Q		0.670	-	03/17/2020 13:47	WG1445014	
Metals (ICP) by Method 6010B	6010B						
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Thallium	Q		2.00	-	03/14/2020 12:36	WG1443291	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	Compound	ds (GC/MS	s) by Meth	10d 8270	U		
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Atrazine	Q.		1.67	S	03/18/2020 23:26	WG1445818	
Pentachlorophenol	Q		1.67	22	03/18/2020 23:26	WG1445818	
Phenol	QN		1.67	S	03/18/2020 23:26	WG1445818	_
(S) 2-Fluorophenol	39.2		12.0-120		03/18/2020 23:26	WG1445818	
(S) Phenol-d5	37.1		10.0-120		03/18/2020 23:26	WG1445818	
(S) Nitrobenzene-d5	38.1		10.0-122		03/18/2020 23:26	WG1445818	
(S) 2-Fluorobiphenyl	35.6		15.0-120		03/18/2020 23:26	WG1445818	
(S) 2,4,6-Tribromophenol	37.5		10.0-127		03/18/2020 23:26	WG1445818	
(S) p-Terphenyl-d14	38.4		10.0-120		03/18/2020 23:26	WG1445818	

Sample Narrative:

L1198333-01 WG1445818: Dilution due to matrix.

PROJECT:

L1198333

SDG:

DATE/TIME: 03/23/20 09:22

SAMPLE RESULTS - 02



Wet Chemistry by Method 9012B

Collected date/time: 03/06/20 10:59

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Cyanide	ND	<u>J6</u>	0.250	1	03/17/2020 15:04	WG1445013



Wet Chemistry by Method 9066

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND		0.670	. 1	03/17/2020 13:47	WG1445014



Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Thallium	ND		2.00	1	03/14/2020 12:38	WG1443291



GI

Cn

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result	Qualifier	RDL	Dilution	Analysis		Batch	
Analyte	mg/kg		mg/kg		date / time			
Atrazine	ND		3.33	10	03/18/2020 23:49	6	WG1445818	
Pentachlorophenol	ND		3.33	10	03/18/2020 23:49	104	WG1445818	
Phenol	ND		3.33	10	03/18/2020 23:49		WG1445818	
(S) 2-Fluorophenol	54.3		12.0-120		03/18/2020 23:49	51.5	WG1445818	
(S) Phenol-d5	51.5		10.0-120		03/18/2020 23:49		WG1445818	
(S) Nitrobenzene-d5	50.3		10.0-122		03/18/2020 23:49		WG1445818	
(S) 2-Fluorobiphenyl	50.9		15.0-120		03/18/2020 23:49	13.	WG1445818	
(S) 2,4,6-Tribromophenol	60.8		10.0-127		03/18/2020 23:49		WG1445818	
(S) p-Terphenyl-d14	64.0		10.0-120		03/18/2020 23:49		WG1445818	



Sample Narrative:

L1198333-02 WG1445818: Dilution due to matrix.

SAMPLE DESILITS 03

Dilution

Dilution

ONE LAB. NATIONWIDE.

Collected date/time: 03/06/20 10:52

Analyte

Cyanide

Analyte

Total Phenol by 4AAP

Wet Chemistry by Method 9012B

Wet Chemistry by Method 9066

Result

mg/kg

Result

mg/kg

ND

ND

Qualifier

Qualifier

RDL

mg/kg

0.250

RDL

mg/kg

0.670

	- 03
L1198333	

Analysis

Analysis

date / time

03/17/2020 13:49

date / time

03/17/2020 15:07

Batch

Batch

WG1445014

WG1445013





















	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Thallium	ND		2.00	1	03/14/2020 12:41	WG1443291





GI





Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		
Atrazine	ND		1.67	5	03/19/2020 00:12	WG1445818	
Pentachlorophenol	ND		1.67	5	03/19/2020 00:12	WG1445818	
Phenol	ND		1.67	5	03/19/2020 00:12	WG1445818	
(S) 2-Fluorophenol	49.8		12.0-120		03/19/2020 00:12	WG1445818	
(S) Phenol-d5	45.6		10.0-120		03/19/2020 00:12	WG1445818	
(S) Nitrobenzene-d5	38.3		10.0-122		03/19/2020 00:12	WG1445818	
(S) 2-Fluorobiphenyl	46.6		15.0-120		03/19/2020 00:12	WG1445818	
(S) 2,4,6-Tribromophenol	55.7		10.0-127		03/19/2020 00:12	WG1445818	
(S) p-Terphenyl-d14	53.7		10.0-120		03/19/2020 00:12	WG1445818	

Sample Narrative:

L1198333-03 WG1445818: Dilution due to matrix.

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 9012B

L1198333-01,02,03

Method Blank (MB)

(MB) R3509481-1 03/17/20	14:45	•		
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg	<u>-</u>	mg/kg	mg/kg
Cyanide	Ü	Company of the Company of the Company	0.0390	0.250





L1197892-08 Original Sample (OS) • Duplicate (DUP)

(05) 11197892-08 03/1//20	i4:51 • (DOP) ا	3509481-3 0	3/1//20 14	:53			
	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	
Analyte	mg/kg	mg/kg		%		%	
Cyanide	ND	0.000	1	0.000	Manager of the State of the Sta	20	•





L1198333-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1198333-01	03/17/20 15:02	(DUP) R3509481-6	03/17/20 15:03

	Original Result	DUP Result	Dilution	DUP RPD	<u>DU</u>	P Qualifier	DUP RPD Limits)
Analyte	mġ/kg	mg/kg		%			%	
Cyanide	ND	0.000	1	0.000		4	20	







Laboratory Control Sample (LCS)

11	CSI	R350948	1-2 A3	/17/20 14	1.46

(,	· · · · · ·				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	•
Cyanide	2.50	2.41	96.3	85.0-115 ⁻	ander militare mail and selections



L1197892-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1197892-09	03/17/20 14:54	(MS) R3509481-4	03/17/20 14:55 • (MSD) R3509481-5	03/17/20 14:58

(05) 11197892-09 03/1/	/20 14:54 • (MS)	R3509481-4 0	3/1//20 14;55 •	(MSD) K3509	481-5 03/1//20	14:58								
	Spike Amount (dry)	Orlginal Resul (dry)	t MS Result (dry)) MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Lin	nits	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			· %	%	4	
Cyanide	2.10	ND	1.56	1.62	74.2	77.2	1	75.0-125	<u>J6</u>	AND THE PROPERTY AND ADMINISTRATION OF THE PROPERTY ADMINISTRATION OF THE PROPERTY AND	3.89	20	magata managatan pendahantan - kimatan dalam	

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

WG1445013 Wet Chemistry by Method 90128

L1198333-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

Ellegge of ellegin		(/					<u> </u>			·			
(OS) L1198333-02 03/17/20	15:04 • (MS) R	3509481-7 03	3/17/20 15:05 •	(MSD) R35094	81-8 03/17/20	15:06				:			
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier .	RPD	RPD Limits	. 5
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	% -	%	-	%		and the second s	%	- %	AND CONTRACTOR OF THE PARTY.
Cyanide	1.67	ND	1,21	1.17	72.7	70.5	.1 -	75.0-125	<u>J6</u>	<u>16</u>	3,01	20	:
<u>-</u>													3



















QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 9066

L1198333-01,02,03

Method Blank (MB)

(MB) R3509429-1 03/1	7/20 13:43	•		
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Total Phonol by AAAD		the transfer to the second	กวาก	0 £70





L1198333-02 Original Sample (OS) - Duplicate (DUP)

(OS) L1198333-02 03	3/17/20	13:47 • (DUP)	R3509429-3	03/17/20 1	3:48			
•		Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	
Analyte		mg/kg	mg/kg		%		%	
Total Phenol by 4AAP		ND	0.000	1	0.000	uga coyenidar samo mji demokin visuomeannen vilaji oli sam e	20	~





Laboratory Control Sample (LCS)

(LCS) R3509429-2 03	/17/20 13:44
---------------------	--------------

(LCS) R3509429-2 03/1/	/20 13:44					
	Spike Amount	LCS Result	LCS Red	c.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%		%	
Total Phenol by 4AAP	8.33	8.68	104	ou make menye gan y	90.0-110	The Control of the Co





L1199034-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1199034-01 03/17/2	0 13:50 • (MS) R	3509429-4 0	3/17/20 13:50 •	(MSD) R35094	429-5 03/17/2	0 13:53	-					-
	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	% .	%		%			%	%
Total Phenol by 4AAP	19.5	U	18.4	17.0	94.5	87.4	1	90.0-110		<u>J6</u>	7.82	20

QUALITY CONTROL SUMMARY L1198333-01,02,03

ONE LAB. NATIONWIDE.

WG1443291 Metals (ICP) by Method 6010B

Method Blank (MB)

(MB) R3508630-1 03/1	4/20 11:29						•		
	MB Result	MB Qualifier	MB MDL	MB RDL	•	•	, ,	•	. [
Analyte	mg/kg	:	mg/kg	mg/kg ^					
Thallium	U		0.650	2.00					
		•							

Laboratory Control Sample (LCS)

(LCS) R3508630-2 03/14	/20 11:31						
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	•	.:
Analyte	mg/kg	mg/kg	, %	%			
Thallium	100	93.0	93.0	80.0-120	4*	and an emphasized for a confidency of the contract and the first contract and produced and the contract and	The same of the same and the same of the s
_		_		_	_	_	_

L1193765-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD) •

(OS) L1193765-06 03/14/20) 11:34 • (MS) R3	3508630-5 03	/14/20 11:42 • (1	MSD) R350863	0-6 03/14/201	11:44		· -			·	,		
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	L	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	% .		
Thallium	100	U	79.8	78.8	79.8	78.8	1	75.0-125 -			1.34	20 -	177	٠
										,			,	-



QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE,

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Method Blank (MB)

(MB) R3510368-2 03/18/	/20 15:06	•			
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/kg		mg/kg	mg/kg	
Atrazine	บ		0.0938	0.333	The second control of
Pentachlorophenol	U		0.0480	0.333	
Phenol	U		0.00695	0.333	
(S) Nitrobenzene-d5	<i>59.2</i>			10.0-122	• • • • • • • • • • • • • • • • • • •
(S) 2-Fluorobiphenyl	66.1			15.0-120	
(S) p-Terphenyl-d14	81.1			10.0-120	
(S) Phenol-d5	69.4			10.0-120	
(S) 2-Fluorophenol	<i>76.3</i>			12.0-120	
(S) 2,4,6-Tribromophenol	<i>74.9</i>			10.0-127	

Laboratory Control Sample (LCS)

(LCS) R3510368-1 03/18/	20 14:43					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	8
Analyte	mg/kg	mg/kg	%	%		F
Atrazine	0.666	0.503	75.5	43.0-120	with a regarding we will be a second of the second state of the se	9_
Pentachlorophenol	0.666	0.509	76.4	29.0-120		95
Phenol	0.666	0.345	51.8	28.0-120	\	
(S) Nitrobenzene-d5	•		41.1	10.0-122	•	
(S) 2-Fluorobiphenyl			53.8	15.0-120		
(S) p-Terphenyl-d14			66.1	10.0-120		
(S) Phenol-d5			50.9	10.0-120	•	
(S) 2-Fluorophenol			51.1	12.0-120 🧢		
(S) 2,4,6-Tribromophenol			68.6	10.0-127		

L1198475-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount (dry)	Original Result (dry)		MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD ·	RPD Limits	
\nalyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%	
Atrazine	0.807	Ü	0.524	0.491	64.9	60.6	1	20.0-131		and the second s	6.55	28	
entachlorophenol	0.807	U	0.543	0.532	67.4	65.8	i	10.0-160			2.06	31	
henol	0.807	U	0.360	0.368	44.7	45.4	1	12.0-120			2.03	38	
(S) Nitrobenzene-d5					34.5	31.9	-	10.0-122					,
(S) 2-Fluorobiphenyl					42.7	38.0		15.0-120					
(S) p-Terphenyl-d14					56.4	52. 9		10.0-120				•	•
(S) Phenol-d5					45.4	44.2		10.0-120					
(S) 2-Fluorophenol				2-	44.7	43.8		12.0-120				• •	

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
Hall Environmental Analysis Laboratory		L1198333	03/23/20 09:22	12 of 18

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

L1198475-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1198475-04 03/18/20	0 17:48 • (MS) R	3510368-3 03	1/18/20 18:11 • (N	ISD) R3510368	3-4 03/18/20 18	3:34		-			<u> </u>	_	
	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	-
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%	, .		%	% -	
(S) 2.4.6-Tribromophenol					56.6	51.5		10 0-127					



















GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Dilution

Limits

Qualifier

Result

Quality Control

Summary (Qc)

Sample Chain of Custody (Sc)

Sample Results (Sr)

J6

Original Sample

Abbreviati	ons and Definitions
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ŃD	Not detected at the Reporting Limit (or MDL where applicable).
RĎL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes

articular compound or analysis performed. Some Analyses and Methods will have multip Analyte reported.

> If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.

These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or

duplicated within these ranges.

The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.

This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.

The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.

Uncertainty Confidence level of 2 sigma. (Radiochemistry)

A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report. Case Narrative (Cn)

> This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.

This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.

This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.

This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and Sample Summary (Ss) times of preparation and/or analysis

Qualifier Description

The sample matrix interfered with the ability to make any accurate determination; spike value is low.





















ACCREDITATIONS & LOCATIONS





TC

Ss

Cn

Sr

Qc

GI

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico 1	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina 3	41
Georgia ¹	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinois	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky 16	90010	South Carolina	84004
Centucky ²	16	South Dakota	n/a
ouisiana	Al30792	Tennessee 14	2006
ouisiana 1	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERTO086	Wyoming	AZLA

Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD PAGE: 1

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

1196333 SUB CONTRATOR PACE TN FAX, PHONE: COMPANY: PACE TN (800) 767-5859 (615) 758-5859° ADDRESS ACCOUNT EMAIL: 12065 Lebanon Rd CITY, STATE, ZIP Mt. Juliet, TN 37122 BOTTLE COLLECTION ANALYTICAL COMMENTS MATRIX TYPE DATE CLIENT SAMPLE ID ITEM: SAMPLE 1 Pentachlorophenol and Abrizine, Phenols by 9065, CN, TI, Ra226/228 Soil 3/6/2020 10:38:00 AM 1 |2003373-001B | Cell 1 Treatment Comp 40ZGU -01 1 Pentachlorophenol and Atrizine, Phenols by 9065, CN, Tl, Ra226/228 Soil 3/6/2020 10:59:00 AM 40ZGU 2 2003373-002B Cell 2N Treatment Comp -02 1 Pentachlorophenol and Atrizine, Phenols by 9065, CN, TI, Ra226/228 3/6/2020 10:52:00 AM 40ZGU Soil 3 |2003373-003B Cell 25 Treatment Comp ~3

A 03/10/20

SPECIAL INSTRUCTIONS / CO	MMENTS; 2	·		*	7.5
		SAMPLE ID on all final reports. Plea MP96 hr .936	se e-mail results to lab@hallenvironmental.	•	1480 E021
Relinquished By	Date: 3/9/2020	Time Received By: 3:41 PM Time Received By	Date. Time:	7	ISMITTAL DESIRED: FAX □ EMAIL □ ONLINE
Relinquished By. Relinquished By	Date:		M3-11-90 8-30	FOR LAI	B USE ONLY C Attempt to Cool?
TAT:	Standard	RUSH Next BD	2nd BD (3rd BD]	Coruments:	Automotion Cool
		:	•		

1198333

			<u> </u>			
Pace Analy	tical Nationa/	l Center for	Testing	& Inno	vation	
	Coole	r Receipt F	orm			
Client: HALLENV	ANM			* ^ :	LHATE	(630)
Cooler Received/Opens	ed On: 3 / []	/ 20	Tempe	erature:	0.6	
Received By: Mi	chael Pappas	4.				
Signature:	umm					
ساخو المهمد و التي عيد با ازيريامين الحال المهمية الداري	ا در است الحراق الله الله الله الله الله الله الله ال	الله المدينة ا المدينة المدينة	and again and a last of the	واره بند بردندرونونونو از	in any and any and any and any	THE MARKET AND THE PARTY OF STREET
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COC Signed / Accuraté?	ما جند آه حديد دايد د	هه به از از چه ه م				
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Correct bottles used?	i di kacamatan kabupatèn kacamatan dan kacamatan dan kacamatan dan kacamatan dan kacamatan dan kacamatan dan k Kacamatan dan kacamatan da		angerte a la caración de la caración			-
Sufficient volume sent?:	Zici ^r a (at. 1 1 _a)	to by the state of	" · , "			7 44°
If Applicable				_ 		
VOA Zero headspace?	1				. ,	
Preservation Correct / Checke	บา					

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			Land C
	017 4 44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0-1-00/44	Franking description of
Login #: L1198333	Client:HALLENVANM	Date:03/11	Evaluated by:Kelsey S.
1. 220			

Non-Conformance (check applicable items)

Sample Integrity	Chain of Custody Clarification	
Parameter(s) past holding time	Login Clarification Needed	If Broken Container:
Temperature not in range	Chain of custody is incomplete	Insufficient packing material around container
Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
pH not in range.	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Courie
x Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
Vials received with headspace.	Trip Blank not received.	If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:
Broken container:	Chain of Custody is missing	Date/Time:
Sufficient sample remains		Temp./Cont. Rec./pH:
	3. 15	Carrier:
		Tracking#

Login Comments: Only received 1 4oz per id

		ì			 <u>-</u>		_
Client informed by:	Call	Email	Х	Voice Mail	Date: 3/12	Time: 1300	
TSR Initials:DR	Client Cont	act: AF				•	•••

रिवेद, व विष्ट्रां सदस्यवितः

Client will send in another jar on Monday. Begin analysis and what on Rad work until new jars are sent in. Then place rad on a separate SDG



ANALYTICAL REPORT

April 15, 2020

Hall Environmental Analysis Laboratory

Sample Delivery Group:

L1200825

Samples Received:

03/19/2020

Project Number:

Description:

Report To:

Ср

Тс

³ S c

⁴Cn

⁵Sr

⁶Qc

7GI

•

⁹Sc

Entire Report Reviewed By:

Donna Eidson

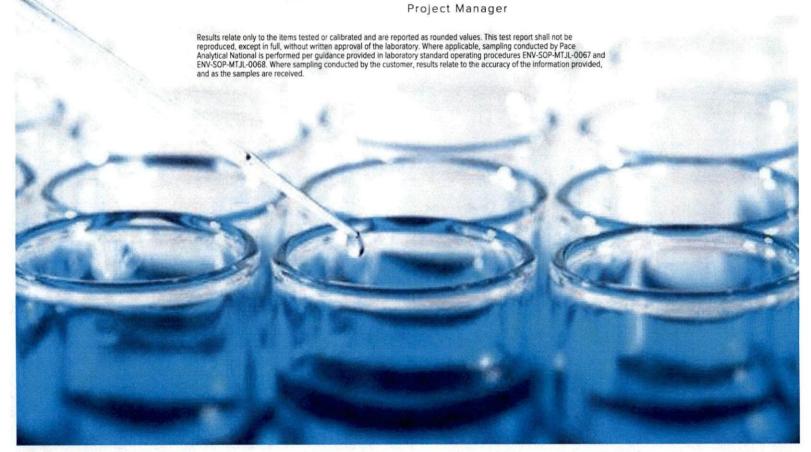


TABLE OF CONTENTS

ONE LAB. NATIONWIDE.

11



Cp: Cover Page	
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Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
2003373-001B CELL 1 TREATMENT COMP L1200825-01	5
2003373-002B CELL 2N TREATMENT COMP L1200825-02	6
2003373-003B CELL 2S TREATMENT COMP L1200825-03	7
Qc: Quality Control Summary	8
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Sc: Sample Chain of Custody	11



















SAMPLE SUMMARY

Collected by

03/23/20 10:43

ONE LAB. NATIONWIDE.

Collected date/time Received date/time

04/13/20 14:56

DME

Mt. Juliet, TN

果

Method		Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
adiochemistry by Method DOE Ga-01-R/901.1 ((21 day)	WG1450684	1,	03/23/20 10:43	04/13/20 11:56	DME	Mt. Juliet, TN
2003373-002B CELL 2N TRE and Chemical Materials	EATMENT COM	P L1200825-02	Solids	Collected by	Collected date/time 03/06/20 10:59	Received dat 03/19/20 08:	,
Method		Batch	Dilution	Preparation date/time	Analysis date/tíme	Analyst	Location
adiochemistry by Method DOE Ga-01-R/901.1 ((21 day)	WG1450684	1	03/23/20 10:43	04/13/20 13:54	DME	Mt. Juliet, TN
		:-		Collected by	Collected date/time	Received dat	e/time
2003373-003B CELL 2S TRE and Chemical Materials	EATMENT COM	P L1200825-03	Solids	,	03/06/20 10:52	03/19/20 08;	30

WG1450684





















Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

CASE NARRATIVE



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson Project Manager



















2003373-001B CELL 1 TREATMENT COMP

SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.

Collected date/time: 03/06/20 10:38

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/g		+/-	pCi/g	date / time		
Actinium-228 (Ra-228)	1.05		0.382	0.623	04/13/2020 11:56	WG1450684	
Bismuth-214 (Ra-226)	1.49		0.313	0.369	04/13/2020 11:56	WG1450684	



















2003373-002B CELL 2N TREATMENT COMP

SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.

Collected date/time: 03/06/20 10:59

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	The state of the s
Analyte	pCi/g	*	+/-	pCi/g	date / time		
Actinium-228 (Ra-228)	1.26		0.362	0.484	04/13/2020 13:54	WG1450684	
Bismuth-214 (Ra-226)	1.97		0.328	0.274	04/13/2020 13:54	WG1450684	



















DATE/TIME: 04/15/20 09:30 2003373-003B CELL 2S TREATMENT COMP

SAMPLE RESULTS - 03

ONE LAB. NATIONWIDE.

Collected date/time: 03/06/20 10:52

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/g		+/-	pCi/g	date / time		
Actinium-228 (Ra-228)	0.881		0.353	0.58	04/13/2020 14:56	WG1450684	
Bismuth-214 (Ra-226)	1.21		0.285	0.357	04/13/2020 14:56	WG1450684	



















WG1450684

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

L1200825-01,02,03

Method Blank (MB)

(MB) R3517425-3 04/09/	20	12:28
------------------------	----	-------

	MB Result	MB Qualifier	MB MDA
Analyte	pCi/g		pCi/g
Actinium-228 (Ra-228)	0.00920		0.264
Bismuth-214 (Ra-226)	0.0178		0.164







L1206257-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1206257-03 04/09/20 09:52 • (DUP) R3517425-4 04/09/20 13:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/g	pCi/g		%			%	
Actinium-228 (Ra-228)	2.86	2.31	1	21.3	0.910		20	3
Americium-241	-0.236	-0.0145	1	0.000	0.799		20	3
Bismuth-214 (Ra-226)	2.10	2.22	1	5.47	0.270		20	3
Cesium-137	-0.0285	-0.0509	1	0.000	0.200		20	3
Cobalt-60	0.0562	-0.0380	1	200	1.17		20	3











Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3517425-1 04/09/20 00:09 • (LCSD) R3517425-2 04/09/20 09:51

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	pCi/g	pCi/g	pCi/g	%	%	%			%	%
Americium-241	47.3	42.4	43.8	89.7	92.6	80.0-120			3.20	20
Cesium-137	72.4	69.8	74.7	96.4	103	80.0-120			6.73	20
Cobalt-60	86.9	80.4	86.1	92.5	99.0	80.0-120			6.79	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this Information provided, and as the samples are received.

Ss

Cn

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD · .	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.

This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.

The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.

Uncertainty (Radiochemistry)

Qualifier

Result

Confidence level of 2 sigma.

Case Narrative (Cn)

A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.

Quality Control Summary (Qc)

This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.

Sample Chain of Custody (Sc)

This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.

Sample Results (Sr) - :

This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.

Sample Summary (Ss)

This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

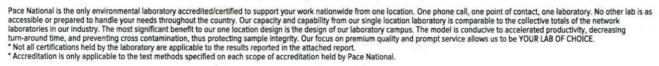
Qualifier

Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico 1	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina 3	41
Georgia ¹	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinois	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
Cansas	E-10277	Rhode Island	LAO00356
Centucky 16	90010	South Carolina	84004
Centucky ²	16	South Dakota	n/a
ouisiana	Al30792	Tennessee 14	2006
ouisiana 1	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA - ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.























CHAIN OF CUSTODY RECORD PAGE: 1 OF: 1

G237

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

		<u> </u>	_		
	PACE-TN COMPANY	PACE TN	PHONE: (800)	767-5859 FAX:	(615)-758-5859
ADDRESS:	12065 Lebanon Rd		ACCOUNT #	EMAIL:	· · · · · · · · · · · · · · · · · · ·
CITY, STATE	Mt. Juliet, TN 37122		i e		,
пем; з	SAMPLE CLIENT SAMPLE ID	BOTTLE TYPE	COLLECTION MATRIX DATE	ANALYTICAL	COMMENTS 1200525
	3373-001B Cell 1 Treatment Comp	40ZGU	Soil 3/6/2020 10:38:00 AM - 1 Penta	chlorophenol and Atrizine, Phenols by	9065, CN, TI, Ra226/228 - c1
	3373-002B Cell 2N Treatment Comp	40ZGU	Soil 3/6/2020 10:59:00 AM 1 Penta	chlorophenol and Atrizine, Phenols by	9065, CN, TI, Ra226/228 01
3 2003	3373-003B Cell 2S Treatment Comp	40ZGU	Soil 3/6/2020 10:52:00 AM 1 Penta	chlorophenol and Atrizine, Phenols by	9065, CN, TI, Ra226/228

Additional Volume for samples received on 3/12/20

SPECIAL INSTRUCTIONS / COMMENT Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you Relinquished By: REPORT TRANSMITTAL DESIRED: 3/17/2020 12:16 PM Relinquished By: HARDCOPY (extra cost) ☐ FAX. ☐ EMAIL CONLINE. Date; Time: Received By Date: Time: Relinquished By: Date: Time: Received By-Date: Time: TAT: Standard 🗀 Nest BD 💆 RUSH 2nd BD 📋 3rd BD' 🧲

Cooler Receipt Form. Cooler Received/Opened On: 3 / 19 / 20 Temperature: 0.6 Received By: Carol Kemp Signature:	Cool	al Center for Testing & In	novation	;
Received By: Carol Kemp Signature: Receipt Check List GOG-Seal-Present / Intact? COC Signed / Accurate? Bottles arrive intact? Correct bottles used? Sufficient volume sent? If Applicable VOA Zoro Legicon 12-0062-5 Temperature:		>r	e .	,
Signature: Receipt Check List GOG-Seal-Present / Intact? COC-Signed / Accurate? Bottles arrive intact? Correct bottles used? Sufficient volume sent? If Applicable VOA Zoroth	Cooler Received/Opened On 25 1		1200825	·
Receipt Check List GOG-Seal-Present / Intact? COC Signed / Accurate? Bottles arrive intact? Correct bottles used? Sufficient volume sent? If Applicable VOA Zeron	Received By: Carol Komp	4 / 20 Temperatur		4.
Receipt Check List GOG-Seal-Present / Intact? COC Signed / Accurate? Bottles arrive intact? Correct bottles used? Sufficient volume sent? If Applicable VOA Zero	Olynature: //	arre Line		
COC Signed / Accurate? Bottles arrive intact? Correct bottles used? Sufficient volume sent? If Applicable	The same of the sa			
Bottles arrive intact? Correct bottles used? Sufficient volume sent? If Applicable VOA Zeco.	Receipt Check List			
Correct bottles used? Sufficient volume sent? If Applicable VOA Zero.	COC Signed / A	NP	Yes	No
Sufficient volume sent? If Applicable VOA Zerot	Bottles and Accurate?			The second second
If Applicable VOA Zero	Lui Wea difilia integra	The second secon	10 / A 1 N	
VOA Zero	correct bottles its day			
Ceservations	Sufficient volume conta			
	Sufficient volume sent?	The state of the s		
reservation Correct // Checked?	Sufficient volume sent? If Applicable VOA Zero			

. :4:

73, 7

2.

. . .

Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 3/22/2020

PQL

0,30

1:5 0.30

0.30

1.5

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Prep Date:

Nitrogen, Nitrite (As N) Nitrogen, Nitrate (As N)

Analyte

Fluoride Chloride

Sulfate

Agua Moss Sunco Landfarm

Result

ND

ND

ND

ND

ND

Project:	Agu	a WOSS Stiffed Landtarini
Sample ID:	MB-51249	SampType: mblk
Client ID:	PBS	Batch ID: 51249

3/20/2020

olk -	Test	Code: El	PA Method	300.0: A nion	s		•	
249	· R	lunNo: 6	7482					
22/2020	S	ieqNo: 2	328900	Units: mg/k	(g			
SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
						•		

Sample ID: LCS-51249		SampT	ype: ics		Tes	tCode: El	PA Method	300.0: Anion	S	,	
Client ID: LCSS		Batch	ID: 512	249	F	RunNo: 6	7482	•	'	=	
Prep Date: 3/20/2020		Analysis D	ate: 3/	22/2020	\$	SeqNo: 2	328901 🕡	Units: mg/K	ίg ͺ		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		1.5	0.30	1.500	0	102	90	· ,110	,	-	
Chloride .		14	1.5	15.00	0	93.7	90	110			
Nitrogen, Nitrite (As N)	ı	2.8	0.30	3.000	0	94.3	. 90	110			
Nitrogen, Nitrate (As N)	•	7.2	0.30	7.500	0	96.5	90	110			•
Sulfate		28	1.5	30.00	o [´]	94.6	90``	110			. '

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: MB-51177

SampType: MBLK

SPK value SPK Ref Val

TestCode: EPA Method 8011/504.1 Modified: EDB

Client ID: PBS Batch ID: 51177

RunNo: 67385

HighLimit %RPD

Prep Date: 3/18/2020

Analysis Date: 3/18/2020

SeqNo: 2323902

Units: µg/Kg

Analyte

%REC LowLimit

RPDLimit

Qual

1.2-Dibromoethane

ND 0.10

Sample ID: LCS-51177

SampType: LCS

TestCode: EPA Method 8011/504.1 Modified: EDB

Client ID: LCSS

Batch ID: 51177

Result

RunNo: 67385

Prep Date: 3/18/2020

Units: µg/Kg

Analysis Date: 3/18/2020

SeqNo: 2323903

RPDLimit

Analyte

Result PQL SPK value SPK Ref Val %REC LowLimit

HighLimit

1,2-Dibromoethane

Client ID: PBS

1,1 0.10

107

%RPD

1.000

130

Qual

Sample ID: MB-51177

SampType: MBLK

TestCode: EPA Method 8011/504.1 Modified: EDB

RunNo: 67385

Prep Date: 3/18/2020

Batch ID: 51177

Analysis Date: 3/18/2020

SeqNo: 2323904

Units: µg/Kg

Analyte

Result

PQL

%RPD

RPDLimit

1,2-Dibromoethane

ND 0.10

SPK value SPK Ref Val %REC LowLimit HighLimit

RPDLimit

Qual

Sample ID: 2003373-003AMS

SampType: MS

TestCode: EPA Method 8011/504.1 Modified: EDB

RunNo: 67385

101

Prep Date: 3/18/2020

Client ID: Cell 2S Treatment C Batch ID: 51177

0.75

Result

0.81

Analysis Date: 3/18/2020

SeqNo: 2323921

Units: µg/Kg

135

Analyte

1,2-Dibromoethane

Result PQL

Analysis Date: 3/18/2020

PQL

0.075

0.074

0.7447

0.7543

SPK value SPK Ref Val

SPK value SPK Ref Val

%REC

LowLimit HighLimit

65

LowLimit

65

%RPD

Qual

Qual

Sample ID: 2003373-003AMSD

SampType: MSD

TestCode: EPA Method 8011/504.1 Modified: EDB

Analyte

Prep Date: 3/18/2020

Client ID: Cell 2S Treatment C Batch-ID: 51177

RunNo: 67385

%REC

107

SeqNo: 2323922

Units: µg/Kg

HighLimit

135

%RPD

6.81

RPDLimit 20

1.2-Dibromoethane

Qualiflers: Value exceeds Maximum Contaminant Level.

н Holding times for preparation or analysis exceeded

Sample Diluted Due to Matrix

Not Detected at the Reporting Limit Practical Quantitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Sample pH Not in Range Reporting Limit

Analyte detected below quantitation limits

Page 14 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: LCS-51025	Sample ID: LCS-51025 SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch	i ID: 51	025	F	lunNo: 6	7227					
Prep Date: 3/11/2020	Analysis D	ate: 3/	12/2020	S	eqNo: 2	317675	Units: mg/K	ίg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Quai	
Diesel Range Organics (DRO)	55	10	50.00	0	111	70	. 130		=		
Surr: DNOP	5.1		5.000	-	102	55.1	146				

Sample ID: MB-51025	Samp1	ype: ME	BLK	Tes	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batcl	h ID: 51 0	025	RunNo: 67227							
Prep Date: 3/11/2020	Analysis Date: 3/12/2020			SeqNo: 2317677			Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	ND	10			-		• •				
Motor Oil Range Organics (MRO)	ND	50		•							
Sun: DNOP	10		10.00		102	55.1	146				

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J . Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 15 of 27

Hall Environmental Analysis Laboratory, Inc.

ND

ND

ND

ND

ND

ND

0.055

0.056

0.025

0.025

0.025

0.025

0.025

0.025

0.06250

0.06250

WO#:

2003373

15-Apr-20

	ngineering L Moss Sunco I		m							
Sample ID: MB-51020	Sampi	ype: ME	BLK	Tes	tCode: El	PA Method	8082A: PCB'	s		
Client ID: PBS	Batcl	h ID: 51	020	ı	RunNo: 6	7347				
Prep Date: 3/11/2020	Analysis D)ate: 3/	17/2020	;	SeqNo: 2	322913	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arodor 1016	ND	0.025								
Arodor 1221	ND	0.025								
Arodor 1232	ND	0.025								
Arodor 1242	ND	0.025								
Arodor 1248	ND	0.025								
Arodor 1254	ND	0.025								
Arodor 1260	ND	0.025								
Surr: Decachlorobiphenyl	0.054		0.06250		86.8	15	129			
Surr: Tetrachloro-m-xylene	0.055		0.06250		88.4	16.1	131			
Sample ID: LCS-51020	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082A: PCB'	S		
Client ID: LCSS	Batcl	h ID: 51	020	F	RunNo: 6	7347				
Prep Date: 3/11/2020	Analysis D	Date: 3/	17/2020	•	SeqNo: 2	322914	Units: mg/K	g ,		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arodor 1016	0.093	0.025	0.1250	0	74.3	25,1	122			
Arodor 1260	0.097	0.025	0.1250	0	77.9	32.4	92.8			
Sun: Decachlorobiphenyl	0.047		0.06250		74.8	15	129			
Surr. Tetrachloro-m-xylene	0.048		0.06250		76.8	16.1	131			
Sample ID: MB-51020	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8082A: PCB'	s		
Client ID: PBS	Batcl	h ID: 510	020	F	RunNo: 6	7347				
Prep Date: 3/11/2020	Analysis D	Date: 3/	17/2020	\$	SeqNo: 2	322954	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arodor 1016	ND	0.025								

Qualifiers:

Arodor 1221

Arodor 1232

Arodor 1242

Arodor 1248

Arodor 1254

Arodor 1260

Surr. Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

87.6

89.6

15

16.1

129

131

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 16 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: Ics-51006	Sampī	SampType: LCS		Tes	tCode:-El	iles				
Client ID: LCSS	Batcl	Batch ID: 51006		F	RunNo: 6					
Prep Date: 3/10/2020	Analysis D	ate: 3/	11/2020	5	SeqNo: 2	315697	Units: mg/K	(g		
Analyte	Result	PQL '	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	70	130			
Toluene	1.0	0.050	1.000	: 0	103	70	130			
Chlorobenzene	1.0	0.050	1.000	0	105	70	130			
1,1-Dichloroethene	0.78	0.050	1.000	0	78.2	70	130			
Trichloroethene (TCE)	0.91	0.050	1.000	0	90.7	70	130			
Surr; Dibromofluoromethane	0.46		0.5000		92.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.5	70	130			
Surr. Toluene-d8	0.49		0.5000		98.9	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.9	70	130			

Sample ID: mb-51006	SampT	ype: ME	BLK	Tes	tCode: EF	PA Method	8260B: Volat	iles		•
Client ID: PBS	Batcl	1D: 51 0	006	F	RunNo: 6	7211	ē			
Prep Date: 3/10/2020	Analysis D)ate: 3/	11/2020	5	SeqNo: 2	315698	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025				•				
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050				-				•
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50							•	
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10							;	
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 17 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: mb-51006	Sampl	ype: ME	LK	· Test	Code: EF	PA Method	8260B; Volat	iles		
Client ID: PBS	Batcl	h ID: 51 0	006	R	unNo: 6	7211				
Prep Date: 3/10/2020	Analysis D)ate: 3/	11/2020	S	eqNo: 2	315698	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
-Chiorotoluene	ND	0.050				-				
is-1,2-DCE	ND	0.050								
ris-1,3-Dichloropropene	ND	0.050								
,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0:050								
Dibromomethane	ND	0.050								
,2-Dichlorobenzene	ND	0.050								
,3-Dichlorobenzene	ND	0.050								
i,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
,1-Dichloroethane	ND	0.050								
,1-Dichloroethene	ND	0.050								
,2-Dichloropropane	ND	0.050								
,3-Dichloropropane	ND	0.050								
,2-Dichloropropane	ND	0.10								
,1-Dichloropropene	ND	0.10								
lexachtorobutadiene	ND	0.10								
-Hexanone	ND	0.50								
sopropylbenzene	ND	0.050								
-Isopropyltoluene	ND	0.050								
-Methyl-2-pentanone	ND	0.50								
lethylene chloride	ND	0.15								
-Butylbenzene	ND	0.15								
ı-Propylbenzene	ND	0.050								
ec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
ert-Butylbenzene	ND	0.050								
,1,1,2-Tetrachloroethane	ND	0.050								
,1,2,2-Tetrachloroethane	ND	0.050								
Fetrachloroethene (PCE)	ND	0.050				•				
ans-1,2-DCE	ND	0.050								
ans-1,3-Dichloropropene	ND	0.050								
,2,3-Trichlorobenzene	ND	0.10								
,2,4-Trichlorobenzene	ND	0.050								
,1,1-Trichloroethane	ND	0.050								
1,2-Trichloroethane	ND	0.050								
richloroethene (TCE)	ND	0.050								
richlorofluoromethane	ND	0.050								
,2,3-Trichloropropane	ND	0.10								

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: mb-51006	Samp	SampType: MBLK		Tes	tCode: El	PA Method	8260B: Volat	lies		
Client ID: PBS	Batch ID: 51006		F	RunNo: 6	7211			,		
Prep Date: 3/10/2020	Analysis I)ate: 3/	11/2020	5	SeqNo: 2	315698	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vînyl chloride	ND	0.050	:							
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.48		0.5000		96.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.2	70	130 .			
Surr: Toluene-d8	0.50		0.5000		99.4	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.3	. 70	130			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client: Project: Rule Engineering LLC

Agua Moss Sunco Landfarm

Sample ID: MB-51129	Samp1	SampType: MBLK		Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBS	Batc	tch ID: 51129		F	RunNo: 6					
Prep Date: 3/16/2020	Analysis [Date: 3/	23/2020	8	SeqNo: 2	329033	Units: mg/K	Sg ر		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25		-			-			
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Benzo(a)pyrene	ND	0.010				•				
Surr: Benzo(e)pyrene	0.26		0.5000		52.0	29	98.8			

Sample ID: LCS-51129	Samp	SampType: LCS		Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSS	Batc	h ID: 51	129	F	RunNo: 6	7478				
Prep Date: 3/16/2020	Analysis D	Date: 3/	23/2020	8	SeqNo: 2	329034	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.1	0.25	2.000	0	54.1	33	89.2			
1-Methylnaphthalene	1.1	0.25	2.000	0	56.2	35.1	91.5			
2-Methylnaphthalene	1.1	0.25	2.000	0	56.3	34.2	92.1			
Benzo(a)pyrene	ND	0.010	0.01250	0	22.0	15	98.1			
Surr: Benzo(e)pyrene	0.32		0.5000		63.6	29	98.8			

Sample ID: MB-51129	SampT	SampType: MBLK		Tes	tCode: El					
Client ID: PBS	Batc	h ID: 51	129	F	RunNo: 6	7478				
Prep Date: 3/16/2020	Analysis D)ate: 3/	23/2020	8	SeqNo: 2	329035	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Вепzo(а)рутепе	ND	0.010						,		
Surr: Benzo(e)pyrene	0,27		0.5000		53.0	29	98.8			

Sample ID: 2003373-001AM	mple ID: 2003373-001AMSD SampType: MSD				tCode: El	PA Method	8310: PAHs			
Client ID: Cell 1 Treatmen	Co Batch ID: 51129			F	RunNo: 6					
Prep Date: 3/16/2020	Date: 3/16/2020 Analysis Date: 3/23/2020			SeqNo: 2330003 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.0	0.24	1.917	0	53.7	19	86.7		_	
1-Methylnaphthalene	1.1	0.24	1.917	0	57.9	15	96.5			
2-Methylnaphthalene	1.2	0.24	1.917	0	64.9	15.8	97.2			
Вепхо(а)ругеле	0.011	0.0096	0.01198	0	94.0	15	112			
Surr. Benzo(e)pyrene	0.39		0.4792		80.5	29	98.8			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

POL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

, WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: 2003373-001AMS

SampType: MS

TestCode: EPA Method 8310; PAHs

Client ID: Cell 1 Treatment Co

Batch ID: 51129

RunNo: 67508

Prep Date: 3/16/2020 Analysis Date: 3/24/2020			S	SeqNo: 2330793 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.84	0.24	1.955	0	42,9	19	86.7			
1-Methylnaphthalene	1.0	0.24	1.955	0	51.8	15	96.5			
2-Methylnaphthalene	1.1	0.24	1.955	0	58.2	15.8	97.2			
Benzo(a)pyrene	ND	0.0098	0.01222	0	56.0	15	112			
Surr: Benzo(e)pyrene	0.24		0.4888		49.4	29	98.8			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not in Range

Reporting Limit

Page 21 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: MB-51155

SampType: MBLK

TestCode: EPA Method 7471: Mercury

Client ID: PBS

Batch ID: 51155

RunNo: 67360

Prep Date: 3/17/2020 Analysis Date: 3/17/2020

Units: mg/Kg

SeqNo: 2321939

Analyte

Client ID:

Result **PQL**

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD **RPDLimit**

Qual

Mercury

ND 0.033

Sample ID: LLLCS-51155

SampType: LCSLL

TestCode: EPA Method 7471: Mercury

BatchQC

Batch ID: 51155

RunNo: 67360

Prep Date: 3/17/2020

Client ID: LCSS

Analysis Date: 3/17/2020

SeqNo: 2321940

Units: mg/Kg

%REC

LowLimit

Analyte

Result ND

PQL SPK value SPK Ref Val

76.1

HighLimit

Qual

Mercury

0.033

0.006660

70 130 **RPDLimit**

Sample ID: LCS-51155

SampType: LCS

TestCode: EPA Method 7471: Mercury

RunNo: 67360

Units: mg/Kg

Analyte

Prep Date: 3/17/2020

Batch ID: 51155 Analysis Date: 3/17/2020

SeqNo: 2321941

HighLimit

PQL

SPK value SPK Ref Val %REC LowLimit

%RPD

%RPD

Qual

Mercury

Result 0.14 0.033

0.1667

83.0

120

RPDLimit

Qualifiers:

Value exceeds Maximum Contaminant Level, Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

Practical Quanitative Limit POL % Recovery outside of range due to dilution or matrix Analyte detected in the associated Method Blank

Ħ Value above quantitation range

Analyte detected below quantitation limits Sample pH Not In Range

Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Cli	ien	t:	
_			

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Result

Comple	ın.	MB-51057
Sample	ID.	MID-DIUDI

SampType: MBLK

TestCode: EPA Method 6010B: Soil Metals

Client ID: PBS

Batch ID: 51057

RunNo: 67378

Prep Date:

SeqNo: 2323495

Units: mg/Kg

Analyte

3/12/2020

Analysis Date: 3/17/2020 PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

RPDLimit Qual

Arsenic Zinc

ND 2.5 ND 2.5

Sample ID: LCS-51057

SampType: LCS

TestCode: EPA Method 6010B: Soil Metals

LowLimit

.80

80

75

75

75

75

Client ID: LCSS

Sample ID: 2003373-001AMS

Batch ID: 51057

RunNo: 67378

Prep Date: 3/12/2020

Analysis Date: 3/17/2020

2.5

SeqNo: 2323497

Units: mg/Kg

Analyte Arsenic

PQL SPK value SPK Ref Val Result

Result

27

70

25

67

%REC

98.0

90.8

HighLimit

%RPD **RPDLimit** Qual

Zinc

23

25

25.00 25.00 2.5 O:

25.40

25.40

24.95

TestCode: EPA Method 6010B: Soil Metals

120

120

Client ID: Cell 1 Treatment Co Prep Date: 3/12/2020

SampType: MS Batch ID: 51057

RunNo: 67378 SeqNo: 2323499

Units: mg/Kg

Analyte

Analysis Date: 3/17/2020 PQL

45.75

45.75

SPK value SPK Ref Val %REC LowLimit

0,

SPK value SPK Ref Val %REC LowLimit HighLimit

125

125

RPDLimit Qual

Arsenic Zinc

SampType: MSD

TestCode: EPA Method 6010B: Soil Metals

107

97.3

RunNo: 67378

Client ID: Cell 1 Treatment Co

Batch ID: 51057

5.1

5.1

Analyte

Prep Date: 3/12/2020

Sample ID: 2003373-001AMSD

Analysis Date: 3/17/2020

SeqNo: 2323500

Units: ma/Ka

Arsenic

Result

Zinc

PQL 5.0 24.95

5.0

SPK value SPK Ref Val %REC LowLimit 99.4

86.5

- 125

HighLimit %RPD **RPDLimit** 125 9.32

%RPD

%RPD

20 4.55 20

Sample ID: MB-51057

PBS

SampType: MBLK Batch ID: 51057

PQL

.0.25

TestCode: EPA Method 6010B: Soil Metals RunNo: 67378

HighLimit

Analyte

Client ID:

Prep Date: 3/12/2020

Analysis Date: 3/17/2020

Result

SeaNo: 2323615

Units: mg/Kg

RPDLimit Qual

Qual

Antimony Barium Beryllium Cadmium

ND 2.5 0.10 ND ND 0.15

Chromium Copper Manganese

0.10 ND. ND 0.30 ND 0.30 ND 0.10

ND

Silver

Qualifiers: Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit ND

Practical Quantitative Limit % Recovery outside of range due to dilution or matrix Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: MB-51057

SampType: MBLK

TestCode: EPA Method 6010B: Soll Metals

Client ID: PBS

Batch ID: 51057

RunNo: 67378

%RPD

Prep Date: 3/12/2020

Analysis Date: 3/17/2020

SeqNo: 2323615

Units: mg/Kg

HighLimit

RPDLimit Qual

Analyte Uranium

Zinc

Result **PQL** ND 5.0

ND

Sample ID: LCS-51057

SampType: LCS Batch ID: 51057

2.5

TestCode: EPA Method 6010B; Soil Metals

RunNo: 67378

Client ID: LCSS

Prep Date: 3/12/2020	Analysis D	Date: 3/	17/2020	5	SeqNo: 2	323617	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Antimony	25	2.5	25.00	0	99,1	80	120						
Barium	25	0.10	25.00	0	101	80	120						
Beryllium	26	0.15	25.00	0	103	80	120						
Cadmium	25	0.10	25.00	0	101	80	120						
Chromium	25	0.30	25.00	0	102	80	120						
Copper	27	0.30	25.00	0	107	80	120						
Manganese	25	0.10	25.00	0	101	80	120						
Silver	4.9	0.25	5,000	0	98.0	80	120						
Uranium	26	5.0	25.00	0	102	80	120						
Zinc	25	2.5	25.00	0	101	80	120						

SPK value SPK Ref Val %REC LowLimit

Sample ID: 2003373-001AMS

SampType: MS

TestCode: EPA Method 6010B: Soil Metals

Client ID: Cell 1 Treatment Co.

Batch ID: 51057

RunNo: 67378

One it ib. Get a freathfeit Go Batch ib. 3103;													
te: 3/12/2020 Analysis Date: 3/17/2020				SeqNo: 2	323628	Units: mg/Kg							
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
ND	5.1	25.40	0	0	75	125			S				
25	0.30	25.40	0.6684	97.1	75	125							
22	0.20	25.40	0	88.3	75	125							
36	0.61	25.40	9.918	103	75	125							
43	0.61	25.40	15.54	110	75	125							
350	0.20	25.40	285.0	247	75	125			S				
2.6	0.51	5.079	0	51.2	75	125			S				
ND	10	25.40	0	0	75	125			S				
	Result ND 25 22 36 43 350 2.6	Result PQL ND 5.1 25 0.30 22 0.20 36 0.61 43 0.61 350 0.20 2.6 0.51	Result PQL SPK value ND 5.1 25.40 25 0.30 25.40 22 0.20 25.40 36 0.61 25.40 43 0.61 25.40 350 0.20 25.40 2.6 0.51 5.079	Result PQL SPK value SPK Ref Val ND 5.1 25.40 0 25 0.30 25.40 0.6684 22 0.20 25.40 0 36 0.61 25.40 9.918 43 0.61 25.40 15.54 350 0.20 25.40 285.0 2.6 0.51 5.079 0	Result PQL SPK value SPK Ref Val %REC ND 5.1 25.40 0 0 25 0.30 25.40 0.6684 97.1 22 0.20 25.40 0 88.3 36 0.61 25.40 9.918 103 43 0.61 25.40 15.54 110 350 0.20 25.40 285.0 247 2.6 0.51 5.079 0 51.2	Result PQL SPK value SPK Ref Val %REC LowLimit ND 5.1 25.40 0 0 75 25 0.30 25.40 0.6684 97.1 75 22 0.20 25.40 0 88.3 75 36 0.61 25.40 9.918 103 75 43 0.61 25.40 15.54 110 75 350 0.20 25.40 285.0 247 75 2.6 0.51 5.079 0 51.2 75	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit ND 5.1 25.40 0 0 75 125 25 0.30 25.40 0.6684 97.1 75 125 22 0.20 25.40 0 88.3 75 125 36 0.61 25.40 9.918 103 75 125 43 0.61 25.40 15.54 110 75 125 350 0.20 25.40 285.0 247 75 125 2.6 0.51 5.079 0 51.2 75 125	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD ND 5.1 25.40 0 0 75 125 25 0.30 25.40 0.6684 97.1 75 125 22 0.20 25.40 0 88.3 75 125 36 0.61 25.40 9.918 103 75 125 43 0.61 25.40 15.54 110 75 125 350 0.20 25.40 285.0 247 75 125 2.6 0.51 5.079 0 51.2 75 125	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit ND 5.1 25.40 0 0 75 125 25 0.30 25.40 0.6684 97.1 75 125 22 0.20 25.40 0 88.3 75 125 36 0.61 25.40 9.918 103 75 125 43 0.61 25.40 15.54 110 75 125 350 0.20 25.40 285.0 247 75 125 2.6 0.51 5.079 0 51.2 75 125				

Sample ID: 2003373-001AMSD

SampType: MSD

TestCode: EPA Method 6010B: Soil Metals

Client ID: Cell 1 Treatment Co

Batch ID: 51057

RunNo: 67378

Prep Date: 3/12/2020 Analysis Date: 3/17/2020

SeqNo: 2323629

Units: mg/Kg

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Antimony ND 5.0 24.95 0 0 75 125 Beryllium 25 0.30 24.95 0.6684 95.7 75 125 - 3.15

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit

Analyte detected in the associated Method Blank E Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

Reporting Limit

Page 24 of 27

RPDLimit

20

20

0

Qual

s

Practical Quanitative Limit PQL

% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: 2003373-001AMS	D SampType:	MSD	Tes	-					
Client ID: Cell 1 Treatment	Co Batch ID:	F		•					
Prep Date: 3/12/2020	Analysis Date:	3/17/2020	(SeqNo: 2	323629	Units: mg/K	g		
Analyte	Result , PC	L SPK value	SPK Ref Val	%REC	LowLimit ·	HighLimit	%RPD	RPDLimit	Qual
Cadmium	22 0.	20 24,95	0	89.3	75	125	0,660	20	
Chromium	34 0.	60 24.95	9.918	96.0	75	. 125	6.21	20	
Copper	39 0.	60 24.95	15.54 ⁻	92.8	75	125	11.6	20	
Manganese	330 ` 0.	20 24.95	285.0	162	75	125	6.67	20	S
Silver	3.0 0.	50 4.990	0	59.7	75	125	13.7	20	S
Uranium	ND	10 24.95	. 0	. 0	75	125	0	- 20	S

Sample ID: MB-51057	Sample ID: MB-51057 SampType: MBLK					TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Client ID: PBS Batch ID: 51057				lunNo: 6	7499		,						
Prep Date: 3/12/2020	Prep Date: 3/12/2020 Analysis Date: 3/23/2020				eqNo: 2	329481	Units: mg/K	g						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Iron	2.6	2.5		•			•							

Sample ID: LCS-51057	SampT	ype: LC	s	Tes	tCode: El	Vietals	-			
Client ID: LCSS	Batch	ID: 51 (D57	F	RunNo: 6	7499				
Prep Date: 3/12/2020	Analysis D	ate: 3/	23/2020	8	SeqNo: 2	329482	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	29	2.5	25.00	0	115	.80	120			B

Sample ID: MB-51057	Tes	Code: El	PA Method	6010B: Soli l	Metals					
Client ID: PBS	ent ID: PBS Batch ID: 51057					7499				
Prep Date: 3/12/2020	: 3/12/2020 Analysis Date: 3/23/2020			S	eqNo: 2	329542	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
.ead	ND	0.30								
Selenium	ND	25								

Sample ID: LCS-51057	: LCS-51057 SampType: LCS				Code: El	PA Method	6010B: Soll I	Metals		
Client ID: LCSS		ID: 510	057	F	lunNo: 6	7499				
Prep Date: 3/12/2020	Analysis Date: 3/23/2020			S	eqNo: 2	329543	Únits: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	. 25	0.30	25.00	0	100	80	120	-		
Selenium	24	2.5	25.00	0	96.3	80	120			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D. Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range.
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 25 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Agua Moss Sunco Landfarm

Sample ID: 2003373-001AMS

SampType: MS

TestCode: EPA Method 6010B: Soil Metals

LowLimit

75

75

Client ID: Cell 1 Treatment Co

Batch ID: 51057

RunNo: 67499

%REC

82.9

71.7

Prep Date: 3/12/2020

Analysis Date: 3/23/2020

SeqNo: 2329570

Units: mg/Kg

Analyte Lead

Result **PQL** SPK value SPK Ref Val 0.61

5.1

HighLimit

125

125

%RPD

RPDLimit Qual

s

Selenium

Sample ID: 2003373-001AMSD Client ID: Cell 1 Treatment Co SampType: MSD Batch ID: 51057 TestCode: EPA Method 6010B: Soil Metals RunNo: 67499

Prep Date: 3/12/2020

Analysis Date: 3/23/2020

25.40

25.40

SeqNo: 2329571

33

18

Units: mg/Kg

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	33	0,60	24.95	12.41	81.9	75	125	1.84	20	
Selenium	21	5.0	24.95	0	84.1	75	125	14.1	20	

12.41

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit POL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range P

Reporting Limit

Page 26 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#:

2003373

15-Apr-20

Client:

Rule Engineering LLC

Project:

Surr. BFB

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Agua Moss Sunco Landfarm

480

Sample ID: Ics-51006 SampType: LCS TestCode: EPA Method 8015D Mod: Gasoline Range Client ID: LCSS Batch ID: 51006 RunNo: 67211 Prep Date: 3/10/2020 Analysis Date: 3/11/2020 SeqNo: 2315729 Units: mg/Kg Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 22 5.0 25.00 87.8 70 130 Sum: BFB 490 500.0 98.0 70 130

Sample ID: mb-51006	SampT	ype: ME	BLK	Tes	Range						
Client ID: PBS	Batcl	1D: 51	006	F	lunNo: 6	7211					
Prep Date: 3/10/2020	Analysis Date: 3/11/2020			8	ieqNo: 2	315730	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	5.0						•	-		

95.1

70

130

500.0

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

Practical Quanitative Limit PQL

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

Page 27 of 27 Reporting Limit



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: RULE ENGINEERING LL.	Work Order Numbe	r: 2003373		ReptNo	: 1
Received By: Erin Melendrez Completed By: Leah Baca Reviewed By:	3/7/2020 9:30:00 AM 3/9/2020 2:51:59 PM .3/10/20		MM Buen		
Chain of Custody 1. Is Chain of Custody sufficiently complete?	±	Yes 🗹	No 🗀	Not Present	
2. How was the sample delivered?		<u>Courier</u>		;	
Log In. 3. Was an attempt made to cool the samples?	. :	Yes 🗹	√Ño □	nä 🗀	
4. Were all samples received at a temperature	of >0° C to 6.0°C	Yes 🗹	No 🗆	NA 🗆	
5. Sample(s) in proper container(s)?		Yes 🗹	No 🗀		•
6. Sufficient sample volume for indicated test(s)?,	Yes 🗹	No 🗌		,
7. Are samples (except VOA and ONG) proper		Yes 🔽	No 🔲	:	:
8. Was preservative added to bottles?	y prodorted;	Yes 🗌	No 🗹	NA 🗆	
9. Received at least 1 vial with headspace <1/4	" for AQ VOA?	Yes 🗹	No 🔲	NA 🗌	
10. Were any sample containers received broke		Yes 🗆	No ☑ ;	of preserved	DAD 3/10/10
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	I :jb:	ottles checked or pH:	12 unless noted)
12. Are matrices correctly identified on Chain of	Custody?	Yes 🗹	No 🗆 ¦	Adjusted2	•
13. Is it clear what analyses were requested?	•	Yes 🗸	No 🔲		· · · · · · · · · · · · · · · · · · ·
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	No 🗆	Checked by: 1	200 3/10/20
Special Handling (if applicable)					
15. Was client notified of all discrepancies with	his order?	Yes 🗌	No 🗆	NA 🗹	
Person Notified:	Date:			and the second s	
By Whom:	Via:	☐eMail ⊡	Phone Fax	In Person	•
Regarding:	**************************************		Frione Liax L	III reisoii	; }
Client Instructions:	·	~~;			
16. Additional remarks:					•
17. Cooler Information	•			•	
	eal Intact Seal No S	Seal Date	Signed By		

C	hain	-of-Cເ	ustody	Record	Turn-Around Time:				HALL ENVIRONMENTAL															
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💢 Star	dard		□ Level 4	(Full Validation)	Heather	r Woods	=		TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	<u>P</u>		8270SIMS	4	CI) F. Br. NOS. NOS. POL.	: .		Total Coliform (Present/Absent)	ì			.		-
Accred		☐ Az Co	mpliance		Sampler: He	eather hi	oods_	·	▍▓▐		8081 Pesticides/8082	: <u>=</u>	827	ď	ў			ese	Þ					į į
□ ·NEL		□ Other	<u>- </u>	 .		XX Yes		Superior and] : [2	3S/8	EDB (Method 504.1)	Ö	<u>s</u>	` 		8270 (Semi-VOA)	g.	Attachud					
	(Type)				#_of Coolers:	<u>7 </u>	=			읡	ici	ğ	3	eta	得 [7	٧-از	orm.	ta (. [
	ļ.	1			Cooler Temp	(including CF): U	-0-1(CF) 0-1(CF)=	= 4.0°° -11 -50	BTEX/MTBE	15	est	Net	PAHs by 8310 or	RCRA 8 Metal	4	8260 (VOA)	Sen	ij	4	[į
	:	}	-	·	Container	Preservative	HEA	L No.		H H	<u></u>	B (3	꽃	R.	<u>.l</u> .) OE	20 (<u>a</u>	Š		:		[
Date		Matrix	Sample I	Name	Type and #	Type		373	BT	타	8	밃	Δ	8	$\overline{0}$	82(82	ō	Ś					· <u>-</u> -
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	f necessary	samples sub	mitted to Hall En	vironmental may be subc	bcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.																			

A. Human Health Standards

(1)

u Stanuai u	a . ·	
Nume	rical Standards	
(a)	Antimony (Sb) (CAS 7440-36-0)	0.006 mg/1
(b)	Arsenic (As) (CAS 7440-38-2)	0.01 mg/l
(c)	Barium (Ba) (CAS 7440-39-3)	2 mg/l
(d)	Beryllium (be) (CAS 7440-41-7)	0.004 mg/l
(e)	Cadmium (Cd) (CAS 7440-43-9)	0.005 mg/l
(1)	Chromium (Cr) (CAS 7440-47-3)	0.05 mg/l
(g)	Cyanide (CN) (CAS 57-12-5)	0.2 mg/l
(b)	Fluoride (F) (CAS 16984-48-8)	1.6 mg/l
· (i)	Lead (Pb) (CAS 7439-92-1)	0.015 mg/
`(j)	Total Mercury (Hg) (CAS 7439-97-6)	
(k)	Nitrate (NO ₃ as N) (CAS 14797-55-8)	10.0 mg/l
(i)	Nitrite (NO ₂ as N) (CAS 10102-44-0)	1:0 mg/l
(m)	Selenium (Se) (CAS 7782-49-2)	
(n)	Silver (Ag) (CAS 7440-224)	0.05 mg/l
(o)	Thallium (Tl) (CAS 7440-28-0)	0 002 mg/I
(p)	Uranium (U) (CAS 7440-61-1)	0.03 mg/l
(a)	Radioactivity: Combined Radium-226 (CAS 1	3982-63-3) and
`*******************	Radium-228 (CAS 15262-20-1)	5 nCi/l
(r)	Benzene (CAS 71-43-2)	
(s)	Polychlorinated biphenyls (PCB's) (CAS 1336-	36-31 0 0005 mg/l
· (i)	Toluene (CAS 108-88-3)	1 mall
(u)	Carbon Tetrachloride (CAS 56-23-5)	0.005 mod
(v)	1,2-dichloroethane (EDC) (CAS 107-06-2)	
(w)	1,1-dichloroethylene (1,1-DCE) (CAS 75-35-4)	0.007 mg/l
(x)	tetrachloroethylene (PCE) (CAS 127-18-4)	0.005 mg/l
(y)	trichloroethylene (TCE) (CAS 79-01-6)	0.005
(z)	ethylbenzene (CAS 100-41-4).	0.7 mg/l
(2) (aa)	total xylenes (CAS 1330-20-7)	
(bb)	methylene chloride (CAS 75-09-2)	
(cc)	chloroform (CAS 67-66-3)	U.003 mg/l
(dd)	1.1 diebles aben 2.0040 75.04.0	
	1,1-dichloroethane (CAS 75-34-3)	
(ee)	ethylene dibromide (EDB) (CAS 106-93-4)	0.00005 mg/l
(ff)	1,1,1-trichloroethane (CAS 71-55-6)	0.2 mg/l
(gg)	I,1,2-trichloroethane (CAS 79-00-5)	0.005 mg/l
(bh)	1,1,2,2-tetrachloroethane (CAS 79-34-5)	0.01 mg/l
(ii)	vinyl chloride (CAS 75-01-4)AHs: total naphthalene (CAS 91-20-3) plus monor	0.002 mg/l
(jj) P.	Aris: total naphthalene (CAS 91-20-3) plus monor	nethylnaphthalenes 0.03 mg/l
(kk)	benzo-a-pyrene (CAS 50-32-8)	0.0002 mg/l
(11)	cis-1,2-dichloroethene (CAS 156-59-2)	0.07 mg/l
(mm)	trans-1,2-dichloroethene (CAS 156-60-5)	0.1 mg/l
(na)	1,2-dichloropropane (PDC) (CAS 78-87-5)	0.005 mg/l
(00)	styrene (CAS 100-42-5) 1,2-dichlorobenzene (CAS 95-50-1)	0:1 mg/l
(pp)	1,2-dichlorobenzene (CAS 95-50-1)	0.6 mg/l
(qq)	1,4-dichlorobenzene (CAS 106-46-7)	0.075 mg/l
(rr)	1,4-dichlorobenzene (CAS 106-46-7) 1,2,4-trichlorobenzene (CAS 120-82-1)	0.07 mg/l
(ss)	pentachiorophenoi (CAS 87-80-5)	
(tt)	atrazine (CAS 1912-24-9)	0.003 mg/l
Standar	rds for Toxic Pollutants. A toxic pollutant shall r	not be present at a concentration s

Standards for Toxic Pollutants. A toxic pollutant shall not be present at a concentration shown by credible scientific data and other evidence appropriate under the Water Quality Act, currently available to the public, to have potential for causing one or more of the following effects upon exposure, ingestion, or assimilation either directly from the environment or indirectly by ingestion through food chains: (1) unreasonably threatens to injure human health, or the health of animals or plants which are commonly hatched, bred, cultivated or protected for use by man for food or economic benefit; as used in this definition injuries to health include death, histopathologic change, clinical symptoms of disease, behavioral abnormalities, genetic mutation, physiological malfunctions or physical deformations in such organisms or their offspring; or (2) creates a lifetime risk of more than one cancer per 100,000 exposed persons.

⁽³⁾ Standards for Non-Aqueous Phase Liquids. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

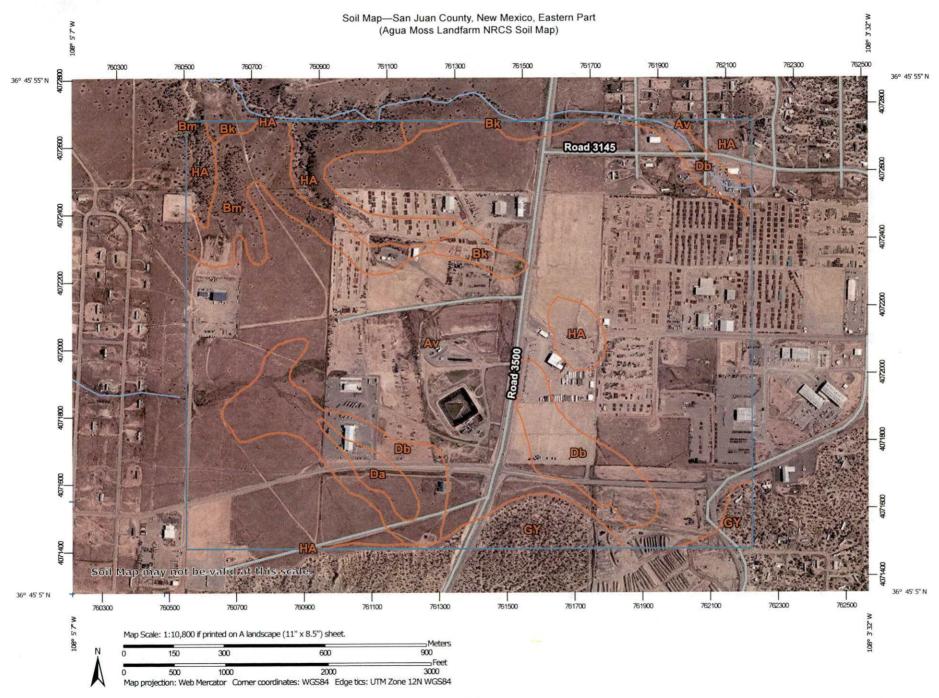
B. Other Standards for Domestic Water Supply

, ,	•	
•		
	(1)	Chlorida (Cl) (CAS 16887 00 C)
	(2)	Chloride (Cl) (CAS 16887-00-6)
	(3)	Iron (Fe) (CAS 7439-89-6)
	(4) (5)	Manganese (Mn) (CAS 7439-96-5)
	16 (6)	Sulfate (SO ₄) (CAS 14808-79-8)
	3/9/1010(8)	Total Dissolved Solids (TDS) TDS
	(9)	pHbetween 6 and 9
	(10)	Methyl tertiary-butyl ether (MTBE) (CAS 1634-04-4)0.1 mg/l
	Toxic Pollutant data:	
	(2) toxic pollutar	(4)2
	1-) Loric hountai	t" means any water contaminant or combination of the water contaminants in the list below (a) acrolein (CAS 107-02-8)
•		(b) acrylonitrile (CAS 107-13-1)
•	1	(c) benzene and alkylbenzenes (i) benzene (CA: 71-43-2)
	1	(ii) toluene (methylbenzene) (CAS 108-88-3)
		(iii) ethylbenzene CAS 100-41-4) (iv) xylenes (dimethyl benzene isomers): pacylene (CAS 9847-6): maxylene (CAS
	108-38-3); and p-xylene	(CAS 106-42-3)
		(v) styrene (ethen/lbenzene) (CAS 100-42-5) chlorinated benzenes
		(i) monochlorobenzene (CAS 108-90-7)
		(i) 1,2-dichlorobanzene (ortho-dichlorobenzene) (CAS 95-50-1)
•		(in) 1,4-dichlorobenzene (para-dichlorobenzene) (CAS 106-46-7) (iv) 1,2,4-trichloropenzene (CAS 120-82-4)
		(v) 1,2,4,5-tetraci orobenzene (CAS 95/94-3)
		(vi) pentachlorobenzene (CAS 608-93-5) (vii) hexachlorobenzene (CAS 118-34-1)
	•	(e) chlorinated phenols
		(i) 2,4-dighlorophenol (CAS/120-83-2) (ii) 2,4,5-trichlorophenol (CAS 95-95-4)
		(iii) 2,4,6-trichteropteno/(CAS 88-06-2)
	·	(iv) pentachlorophe ob PCP) (CAS 87-86-5) (i) chloroalcyl ethers
~~~~		(i) bis (2-chloroghri) ether (CAS 111-44-4)
		(ii) bis (2-chigroisogropy) ether (CAS 108-60-1)
		(lii) bis (chloromethyl) ether (CAS 542-88-1) (g) 1,2-dichloropropane (propylene dichloride, PDC) (CAS 78-87-5)
		(h) dichloroprogenes (CAS 5-2-75-6)
		(i) 1,4-dioxage (CAS 123-91 1) (j) halogepated ethanes
		(i) 1,2-dibromoethine (ethylene dibroraide, EDB) (CAS 106-93-4)
		(ii) 1,1-dichloroethane (1,1-DCA) (CAS 35-34-3) (iii) 1,2-dichloroethane (ethylene dichloride, RDC) (CAS 107-06-2)
		(iv) 1,1,1-trichloroe hane (TCA) (CAS 71-55-8)
		(v) 1,1,2-trichloroe hane (1,1,2-TCA) (CAS 79-08-5)
		(vi) 1,1,2,2-tetrachleroethane (CAS 79-34-5) (vii) hexachloroethane (CAS 67-72-1)
		(k) halogenated ethenes
		(i) chlorothene (vinyl chloride) (CAS 75-01-4) (ii) 1,1-dichloroethene (1,1-DCE) (CAS 75-35-4)
		(iii) cis-1,2-dichloroethene (cis-1,2-DCE) (CAS 156-59-2)
		(iv) trans-1,2-dichloroethene (trans-1,2-DCE) (CAS 156-60-5)
		(vi) tetrachloroethene (perchloroethylene, PCE) (CAS 127-18-4)
		(I) halogenated methanes
		(i) bromodichloromethane (CAS 75-27-4)

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## Attachment 2

NRCS Web Soil Survey Soil Map &
NRCS Web Soil Survey Chemical Soil Properties Report



#### MAP LEGEND

#### Area of Interest (AOI) Spoil Area Area of Interest (AOI) Stony Spot Soils Very Stony Spot Soil Map Unit Polygons Wet Spot Soil Map Unit Lines Other 1 Soil Map Unit Points Special Line Features **Special Point Features Water Features** (0) Blowout Streams and Canals Borrow Pit X Transportation Clay Spot Rails +++ Closed Depression Interstate Highways Gravel Pit **US Routes** Gravelly Spot Major Roads Landfill Local Roads Lava Flow Background Marsh or swamp Aerial Photography Mine or Quarry Miscellaneous Water Perennial Water Rock Outcrop Saline Spot Sandy Spot Severely Eroded Spot Sinkhole Slide or Slip Sodic Spot

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:63,400.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Juan County, New Mexico, Eastern Part Survey Area Data: Version 15, Sep 15, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 20, 2015—May 30, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### **Map Unit Legend**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Av	Avalon sandy loam, 2 to 5 percent slopes	367.9	69.9%
Bk	Blackston loam, 0 to 3 percent slopes	10.4	2.0%
Bm	Blackston gravelly loam, 3 to 8 percent slopes	27.9	5.3%
Da	Doak loam, 0 to 1 percent slopes	6.4	1.2%
Db	Doak loam, 1 to 3 percent slopes	56.3	10.7%
GY	Gypsiorthids-Badland-Stumble complex, moderately steep	20.0	3.8%
НА	Haplargids-Blackston- Torriorthents complex, very steep	37.2	7.1%
Totals for Area of Interest		526.1	100.0%

### **Chemical Soil Properties**

This table shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. It is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil.

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced saturated hydraulic conductivity and aeration, and a general degradation of soil structure.

## Report—Chemical Soil Properties

		Chemical Soil Pr	roperties-San Ju	an County, New M	exico, Eastern P	art		
Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	meq/100g	рН	Pct	Pct	mmhos/cm	
Av—Avalon sandy loam, 2 to 5 percent slopes				***				
Avalon	0-14	4.6-12		7.9-8.4	1-10	0-2	2.0-8.0	0
	14-53	11-23	_	7.9-8.4	10-20	0-2	2.0-8.0	0
	53-72	4.0-11	_	7.9-8.4	15-20	0-2	2.0-8.0	0
Ax—Avalon sandy loam, 5 to 8 percent slopes								77
Avalon	0-16	4.6-12	_	7.9-8.4	1-5	0-2	2.0-8.0	0
	16-80	11-23	_	7.9-8.4	10-20	0-2	2.0-8.0	0
	80-84	4.0-11	_	7.9-8.4	15-20	0-2	2.0-8.0	0
Ay—Avalon loam, 0 to 3 percent slopes								
Avalon	0-18	9.8-15	_	7.9-8.4	1-5	0-2	2.0-8.0	0
	18-60	11-23	_	7.9-8.4	10-20	0-2	2.0-8.0	0
	60-64	4.0-11	_	7.9-8.4	15-20	0-2	2.0-8.0	0
Bk—Blackston loam, 0 to 3 percent slopes								
Blackston	0-11	11-18	_	7.9-8.4	1-5	0	0.0-2.0	0
	11-27	9.8-17	_	7.9-8.4	15-20	0	4.0-8.0	0
	27-80	0.0-4.6	_	7.9-8.4	15-20	0	4.0-8.0	0

		Chemical Soll P	roperties-san Ju	an County, New M	exico, Eastern P	ап		
Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	meq/100g	pН	Pct	Pct	mmhos/cm	
Bm—Blackston gravelly loam, 3 to 8 percent slopes								
Blackston	0-9	11-18	_	7.9-8.4	1-5	0	0.0-2.0	0
	9-25	9.8-17	_	7.9-8.4	15-20	0	4.0-8.0	0
111 To 122	25-60	0.0-4.6	_	7.9-8.4	15-20	0	4.0-8.0	0
BR—Blancot-Fruitland association, gently sloping					- 4			
Blancot	0-6	9.8-18	_	7.9-8.4	0-5	0-1	0.0-2.0	0-2
	6-60	13-23	<del>-</del> -	7.9-8.4	0-5	0-1	0.0-2.0	0-2
Fruitland	0-8	4.1-7.6		7.4-8.4	0-2	0-1	0.0-4.0	0
	8-60	3.1-12		7.4-8.4	0-2	0-1	0.0-4.0	0
Da—Doak loam, 0 to 1 percent slopes								
Doak	0-6	11-19		7.4-8.4	0-5	0	0.0-2.0	0
	6-41	15-23	_	7.4-9.0	1-10	0	2.0-4.0	0-2
	41-60	15-23	<del>-</del>	7.9-9.0	5-10	0-2	2.0-4.0	0-2
Db—Doak loam, 1 to 3 percent slopes			5					
Doak	0-4	11-19	_	7.4-8.4	0-5	0	0.0-2.0	0
	4-33	15-23	_	7.4-9.0	1-10	0	2.0-4.0	0-2
4	33-60	15-23	_	7.9-9.0	5-10	0-2	2.0-4.0	0-2

	ъ. и	0-4	Effective	Soil reaction	Calcium	Gypsum	Salinity	Sodium
Map symbol and soil name	Depth	Cation- exchange capacity	cation- exchange capacity	Soil reaction	carbonate	Gypsum	Saility	adsorption ratio
	In	meq/100g	meq/100g	pН	Pct	Pct	mmhos/cm	
GY—Gypsiorthids-Badland- Stumble complex, moderately steep								
Badland	0-2	_	_	_	_	_	_	_
	2-60	_	_	_	_	_	_	_
Gypsiorthids	0-4	2.6-8.1		7.4-8.4	0	10-25	2.0-4.0	0
	4-16	2.6-8.1	-	7.4-8.4	0	15-25	2.0-4.0	0
	16-20							
Stumble	0-8	0.0-7.4	-	7.9-8.4	0-1	0-1	0.0-2.0	0
	8-60	0.0-7.4	_	7.9-9.0	0-1	0-1	0.0-4.0	0
HA—Haplargids-Blackston- Torriorthents complex, very steep								
Haplargids	0-7	7.0-14	_	7.4-8.4	0	0	0.0-4.0	0
	7-26	13-23	_	7.4-8.4	0-5	0	0.0-4.0	0
	26-60	13-18	_	7.4-8.4	1-10	0	0.0-4.0	0
Blackston	0-11	11-18		7.9-8.4	0-2	0	0.0-2.0	0
	11-26	9.8-17		7.9-8.4	10-20	0	4.0-8.0	0
	26-60	0.0-4.6		7.9-8.4	15-30	0	4.0-8.0	0
Torriorthents	0-3	11-17	1-	7.4-8.4	0-2	0-2	0.0-4.0	0
	3-15	5.7-19	_	7.4-8.4	0-2	0-2	0.0-4.0	0-2
	15-60	_	_	_	_	_		_

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	meq/100g	pН	Pct	Pct	mmhos/cm	
SW—Stumble-Fruitland association, gently sloping					20		9 5	h
Stumble	0-6	0.0-6.9	_	7.9-8.4	0-1	0	0.0-2.0	0
	6-29	0.0-6.9	1-	7.9-9.0	0-1	0	0.0-2.0	0
. *	29-60	0.0-3.7	_	7.9-9.0	0-1	0	0.0-2.0	0
	60-64	0.0-6.9	_	7.9-9.0	0-1	0	0.0-2.0	0
Fruitland	0-7	3.1-7.4	-	7.4-8.4	1-5	0	0.0-2.0	0
	7-60	3.1-12		7.4-8.4	1-5	0	0.0-2.0	0

### **Data Source Information**

Soil Survey Area: San Juan County, New Mexico, Eastern Part

Survey Area Data: Version 15, Sep 15, 2019