

July 27, 2017

Olivia Yu Environmental Specialist New Mexico Oil Conservation Division, District 1 1625 N. French Drive Hobbs, New Mexico 88240

Re: Site Characterization Report and Remedial Action Plan State OG SWD No. 2 Release Bagley North Oil Field, Lea County, New Mexico NW1/4 SW1/4, Sec. 9, T11S, R33E

Dear Ms. Yu:

On behalf of Jay Management, LLC (Jay Management), Timberwolf Environmental, LLC (Timberwolf) prepared this site characterization report and remedial action plan for the State OG SWD No. 2 (Site) to address impacts related to a produced water release. The Site is located in the Bagley North Oil Field approximately 5.1 miles east-southeast of Caprock, Lea County, New Mexico (Figures 1 through 3). Work conducted at the Site has been authorized by the New Mexico Oil Conservation Division (NMOCD) District 1 Office under Remediation Permit No. 1RP-4703.

# Site Setting

The Site consists of a saltwater disposal (SWD) wellhead, three above-ground produced water tanks, and one injection pump.

The surrounding area is characterized as flat to slightly sloping rural land used for cattle grazing and oil and gas production. According the United States Department of Agriculture – Natural Resources Conservation Service web soil survey of Lea County, New Mexico, soils at the Site are mapped as the Kimbrough – Lea complex, 0 to 3 percent slopes (KU). This soil type consists of gravelly loam in the upper 3 inches, loam from 3 to 10 inches, and underlain by cemented material to a depth of 80 inches.

# Site History

The release occurred due to a nipple failure on the wellhead. Approximately 5 barrels (bbl) of produced water were released. Jay Management replaced the faulty nipple, recovered free fluids from the ground surface, and tilled most of the impacted area. Written notification of the release was made to the New Mexico Oil Conservation Division (NMOCD) on 05/16/17; a copy of Form C-141 is attached.

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On 05/22/17, collected three (3) soil samples to assess the magnitude of the impacts (Figure 4). All samples were collected using a pick-ax and shovel from 0 to 1 foot below ground surface (ft bgs). Deeper samples were unobtainable with hand tools due to refusal from the rocky/cemented soil.

The soil samples were placed in laboratory-provided sample containers, stored on ice, and transported under proper chain-of-custody protocol to the TestAmerica Laboratories in Denver, Colorado. The laboratory reports and chain-of-custody documents are attached.

Details regarding the initial sampling event and analytical results are documented in Timberwolf's report entitled *Work Plan for Site Characterization*, dated 06/22/17.

# **Regulatory** Criteria

The New Mexico Oil Conservation Division (NMOCD) established remediation action levels for soils impacted by oilfield products or wastes, which are documented under New Mexico Administrative Code (NMAC) Rule 19.15.29. The Rule was repealed and replaced by Oil Conservation Commission Order No.: R-14751, dated June 21, 2018.

Under Rule 19.15.29, soil cleanup criteria is determined primarily based on the distance between the base of impacted soil and the depth to usable groundwater. NMOCD laboratory methodology and soil closure criteria is presented in the following table.

Depth to Groundwater <sup>1</sup>	Constituent	Method <sup>2</sup>	Regulatory Limit <sup>3</sup> (mg/kg)
<u>&lt;</u> 50 feet	Chloride <sup>4</sup>	EPA 300.0	600
	ТРН	EPA SW-846 Method 8015M	100
	Total BTEX	EPA SW-846 Method 8021B or 8260B	50
	Benzene	EPA SW-846 Method 8021B or 8015M	10
51 feet-100 feet	Chloride <sup>4</sup>	EPA 300.0	10,000
	ТРН	EPA SW-846 Method 8015M	2,500
	GRO+DRO	EPA SW-846 Method 8015M	1,000
	Total BTEX	EPA SW-846 Method 8021B or 8260B	50
	Benzene	EPA SW-846 Method 8021B or 8260B	10
> 100 feet	Chloride <sup>4</sup>	EPA 300.0	20,000
	ТРН	EPA SW-846 Method 8015M	2,500
	GRO+DRO	EPA SW-846 Method 8015M	1,000
	Total BTEX	EPA SW-846 Method 8021B or 8260B	50
	Benzene	EPA SW-846 Method 8021B or 8015M	10

# Table 1. Closure Criteria for Soils Impacted by a Release

<sup>1</sup>From base of impact to useable groundwater (i.e., less than 10,000 milligrams per liter (mg/L) total dissolved solids (TDS)) <sup>2</sup>Or other test methods approved by the division

<sup>3</sup>Numerical limits or natural background level, whichever is greater

<sup>4</sup>Applies to produced water releases or other fluids which may contain chloride

mg/kg – milligrams per kilograms

TPH - total petroleum hydrocarbons (TPH = GRO + DRO + ORO)



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Prior environmental drilling in the Bagley North Oil Field revealed that groundwater is less than 50 feet below ground surface (ft bgs). Therefore, soil closure criteria at the Site is as follows:

- Chloride < 600 mg/kg
- TPH < 100 mg/kg
- Total BTEX < 50 mg/kg
- Benzene < 10 mg/kg.

# **Collection and Analysis of Soil Samples**

On 11/09/17, crews excavated two (2) test pits to a depth of 1.5 ft bgs using a backhoe. The test pits were installed to duplicate two previous sample locations (i.e., SB2 and SB3) of the initial sampling event. Timberwolf collected samples from the base of each test pit. Deeper samples were unobtainable with the backhoe due to rocky/cemented soil.

Timberwolf collected one (1) background sample (i.e., Background) adjacent to the Site to assess native chloride concentrations.

On 06/05/18, Timberwolf installed one (1) borehole to a depth of 25 ft using a rotary drilling rig and flight augers (i.e., SB2A). The purpose of this boring was to vertically delineate impacted soil. Samples were collected from the borehole at five-foot intervals using a split spoon. Samples SB3 – SB9 were collected using a stainless steel handauger. The handauger and sampling equipment were decontaminated between samples using Alconox<sup>®</sup> and deionized water.

The soil samples were placed in laboratory-provided sample containers, stored on ice, and transported under proper chain-of-custody protocol to the TestAmerica Laboratories in Nashville, Tennessee. The laboratory reports and chain-of-custody documents are attached.

The soil samples were analyzed for total petroleum hydrocarbons (TPH) using laboratory method 8015 and chloride. Analytical methods are documented in the attached laboratory reports. Soil analytical results are shown in Table 3.



O amarila ID	Ocean la Data	То	otal Petroleum Hy	drocarbons (mg/l	kg)	Chloride
Sample ID	Sample Date	GRO	DRO	ORO	Total	(mg/kg)
SB2 1.5'	11/09/17					5,300
SB2A 4-5'	06/05/18	5.7 <sup>J</sup>	< 3.5	< 3.5	12.7	830
SB2A 9-10'	06/05/18	< 3.7	< 3.1	3.2 <sup>J</sup>	10	1,600
SB2A 14-15'	06/05/18					1,000 <sup>H</sup>
SB2A 19-20'	06/05/18					400 <sup>H</sup>
SB2A 24-25'	06/05/18					140 <sup>H</sup>
SB3 1.5'	11/09/17	< 2.6	3.0 <sup>J</sup>	14		790
SB4 0-1'	06/05/18	< 3.6	< 3.1	4.0 <sup>J</sup>	10.7	28
SB5 0-1'	06/05/18	< 3.3	13	34	50.3	25
SB6 0-1'	06/05/18	< 4.3	9.8	28	42.1	12 <sup>J</sup>
SB7 0-1'	06/05/18	< 4.0	4.0 <sup>J</sup>	13	21	17
SB8 0-1'	06/05/18	< 3.2	3.8 <sup>J</sup>	10	17	20
SB9 0-1'	06/05/18	4.2 <sup>J</sup>	28	51	83.2	890
Background	11/09/17					< 7.4
NMOCD Site-Spe	ecific Criteria				100	600

# Table 3. Soil Analytical Results - 011/09/17 and 06/05/18

mg/kg – milligrams per kilogram

TPH – total petroleum hydrocarbons (TPH = GRO + DRO + ORO) GRO – gasoline range organics

- exceeds regulatory limit

# **Conclusions**

Based on Timberwolf's field investigation, the NMOCD site-specific cleanup criteria, and analytical results, the following is concluded:

• The main body of the produced water spill area encompasses three separate areas which totals approximately 0.23 acres (Figure 5). The release traveled mostly east and south. Jay Management has tilled the majority of the impacted area

-- - regulatory limit not established

DRO – diesel range organics ORO – oil range organics

- Field observations while digging with a backhoe and the NRCS Soil Survey revealed that;
  - The soil horizon is less than 1 ft thick
  - o Excavation of the consolidated rock is technically impracticable
- Concentrations of TPH were below NMOCD site-specific cleanup criteria in all samples collected from the Site



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- Concentrations of chlorides exceeded the NMOCD site-specific cleanup criteria in six soil samples
  - Samples collected from test pits (i.e., SB2 1.5' and SB3 1.5') contained concentrations of chloride at 5,300 and 790 milligrams per kilogram (mg/kg), respectively
  - Three samples collected from boring SB2A (i.e., SB2A 4-5', SB2A 9-10', and SB2A 14-15') exceeded NMOCD site-specific cleanup criteria. Vertical delineation was achieved; samples SB2A 19-20' and SB2A 24-25' were below site-specific cleanup criteria
  - SB9 0-1' exceeded NMOCD site-specific criteria for chloride; horizontal delineation will be achieved during remedial activities
  - Native soil chloride concentrations are non-saline.

# **Remedial Action Plan**

# Remedial Strategy

Since excavating the vertical extent of impacted media is technically impracticable, the proposed site remediation strategy is to excavate impacted soil until refusal, then backfill with clean fill. A groundwater monitoring well will be installed to evaluate and monitor groundwater. (Note: prior to installing a groundwater monitoring well, Timberwolf will secure a permit from the New Mexico Office of the State Engineer to drill a water well with no water rights.) The well will be monitored semi-annually for a period of two years for the following constituents: chloride.

If constituents of groundwater are below NMOCD/EPA guidelines for a period of two years the monitored program will be discontinued and a request for no further action (NFA) will be made with the NMOCD District 1 office. If groundwater constituents exceed NMOCD/EPA guidelines, the affected area will be delineated, and a remedial action plan will be submitted to address impacted groundwater.

# Remedial Action Plan

Timberwolf proposes the following remedial action plan to bring the Site in regulatory compliance:

- Excavate the soil horizon (approximately 10 to 12 inches) within the impacted area (approximately 0.23 acres). Note: impacted consolidated rock will remain in place
- Transport excavated soil (approximately 371 cubic yards) to a commercial disposal facility
- Collect confirmation samples from the side walls of the excavation
- Backfill the excavation to 1 ft using clean fill as required under 19.15.29 (D)(1) NMAC
- Restore surface vegetation

Install one groundwater monitor well at the Site to monitor chloride in groundwater semi-annually for a period of two years. Soil samples will be collected during well installation. A proposed monitor well location map is shown in Figure 6.



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If you have any questions regarding this report or remedial action plan, please call us at 979-324-2139.

Sincerely, Timberwolf Environmental, LLC

**Russell** Greer Project Manager

Jim Foster President

Attachments: Figures Form C-141 Photographic Log Laboratory Report and Chain-of-Custody Documents

cc:

Amir Sanker, Jay Management



# **FIGURES**







Created By: Blaine Stevens TE Project No.: ISR-170052

Environmental

State OG SWD No. 2 Release Jay Management, LLC **Bagley North Oil Field, Lea County, New Mexico**  2.5 Datum: NAD83 Imagery Source: USGS Quads: Caprock, Lane Salt Lake, Soldier Hill, and Dallas Store Vector Source: TE







SB1 SB2



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community







Form C-141

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised April 3, 2017

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

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1RP-4703

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Operator/Responsible Party,

The OCD has received the form C-141 you provided on \_5/16/2017\_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number \_\_1R-\_4703\_ has been assigned. Please refer to this case number in all future correspondence.

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete <u>division-approved corrective action</u> for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District \_1\_ office in \_\_Hobbs\_\_\_\_ on or before \_6/18/2017\_\_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

• Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

• Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO;  $C_6$  thru  $C_{36}$ ), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

• Nominal detection limits for field and laboratory analyses must be provided.

• Composite sampling is not generally allowed.

• Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold OCD Environmental Bureau Chief 1220 South St. Francis Drive Santa Fe, New Mexico 87505 505-476-3465 jim.griswold@state.nm.us









# JAY MANAGEMENT COMPANY, LLC STATE OG SWD #2 660' FWL & 1980' FSL UNIT L, SEC. 9-T11S-R33E API #30-025-31381 LEA COUNTY, NEW MEXICO









# PHOTOGRAPHIC DOCUMENTATION



# **PHOTOGRAPHIC LOG**

Project No.:	ISR-170052	Client:	Jay Management, LLC
Project Name: Task Description:	State OG No. 2 Release	Site Location: Date:	Lea County, New Mexico
	Site Characterization	Date:	June 5, 2018
Photo No.: 1			
Direction: Northwest			
Comments: Photo taken during 06/05/18 sampling event. View of SB2A (33.37851 °N, 103.62577 °W).			
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Photo No.: 2			
Direction: North			
Comments: Photo taken during 06/05/18 sampling event. View of SB4 (33.37849 °N, 103.62611 °W).			
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# PHOTOGRAPHIC LOG

Project No.:	ISR-170052	Client:	Jay Management, LLC Lea County, New Mexico
Project Name: Task Description:	State OG No. 2 Release Site Characterization	Site Location: Date:	Lea County, New Mexico June 6, 2018
Photo No.:	Sile Characterization	Dale:	June 6, 2018
3			
Direction:			
Northeast			
Comments: Photo taken during 06/05/18 sampling event. View of SB2A (33.37851 °N, 103.62577 °W).			SB2A
Photo No.: 4			
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# LABORATORY REPORT AND CHAIN OF CUSTODY DOCUMENTS



THE LEADER IN ENVIRONMENTAL TESTING

# **ANALYTICAL REPORT**

# TestAmerica Laboratories, Inc.

TestAmerica Nashville 2960 Foster Creighton Drive Nashville, TN 37204 Tel: (615)726-0177

# TestAmerica Job ID: 490-140799-1 Client Project/Site: State OG 170052 11-9-17

# For:

Timberwolf Environmental LLC 1920 W. Vill Maria Suite 305-2 Box 205 Bryan, Texas 77807

Attn: Mr. James Foster

Dean a. Jomen

Authorized for release by: 11/22/2017 5:12:54 PM

Dean Joiner, Project Manager II (713)690-4444 dean.joiner@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Association	14
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Certification Summary	19
Chain of Custody	21

# **Sample Summary**

Client: Timberwolf Environmental LLC Project/Site: State OG 170052 11-9-17 TestAmerica Job ID: 490-140799-1

.ab Sample ID	Client Sample ID	Matrix	Collected	Received
90-140799-1	SB2	Solid	11/09/17 16:29	11/14/17 15:32
90-140799-2	SB3	Solid	11/09/17 16:27	11/14/17 15:32
90-140799-3	Background	Solid	11/09/17 09:30	11/14/17 15:32

# Job ID: 490-140799-1

# Laboratory: TestAmerica Nashville

### Narrative

Job Narrative 490-140799-1

**Case Narrative** 

### Comments

No additional comments.

# Receipt

The samples were received on 11/11/2017 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

# HPLC/IC

Method(s) 9056: The following samples was diluted due to the nature of the sample matrix: SB2 (490-140799-1) and SB3 (490-140799-2). Elevated reporting limits (RLs) are provided.

Method(s) 9056: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 490-476741 and analytical batch 490-476742 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# GC VOA

Method(s) 8015B, 8015C: The surrogate recovery for the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) associated with preparation batch 490-475567 and analytical batch 490-475993 was outside the upper control limits. All associated sample surrogate and LCS/LCSD spike analyte recoveries were within control limits; therefore, the data has been qualified and reported.

Method(s) 8015B, 8015C, NWTPH-Gx: Surrogate recovery for the following samples was outside control limits: (LCS 490-475567/2-A), (LCS 490-476658/5), (LCS 490-476658/63), (LCSD 490-475567/3-A), (LCSD 490-476658/6), (LCSD 490-476658/64), (490-140576-A-2-A MS), (490-140576-A-2-A MS) and (490-141079-F-1-A MS) and (490-141079-F-1-A MSD). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# GC Semi VOA

Method(s) 8015C, 8015D: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 490-476769 and analytical batch 490-477140 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# **Organic Prep**

Method(s) TX 1005\_S\_Prep: The following samples analyzed for method <TX1005S> were received and analyzed from an unpreserved bulk soil jar: SB2 (490-140799-1), SB3 (490-140799-2) and Background (490-140799-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# 1 2 3 4 5 6 7 8 9 0

# Qualifiers

GC	ν	'n	Δ
90	v	U	~

Qualifier Description	
Indicates the analyte was analyzed for but not detected.	5
Α	<u> </u>
Qualifier Description	
Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	
Indicates the analyte was analyzed for but not detected.	
Qualifier Description	8
MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not	
applicable.	5
Indicates the analyte was analyzed for but not detected.	
-	Qualifier Description         Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.         Indicates the analyte was analyzed for but not detected.         Qualifier Description         MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# **Client Sample Results**

Client: Timberwolf Environmental LLC Project/Site: State OG 170052 11-9-17

### **Client Sample ID: SB2** Lab Sample ID: 490-140799-1 Date Collected: 11/09/17 16:29 Matrix: Solid Date Received: 11/14/17 15:32 **General Chemistry** Analyte **Result Qualifier** RL RL Unit D Prepared Analyzed Dil Fac 0.1 0.1 % 11/15/17 10:31 Percent Moisture 7.3 1 0.1 0.1 % 11/15/17 10:31 **Percent Solids** 92.7 1

TestAmerica Nashville

# **Client Sample Results**

	Cli	ent Sample I	Results						
Client: Timberwolf Environ Project/Site: State OG 170				TestAmeri	ca Job ID: 490-14	40799-1	2		
Client Sample ID: SB2 Date Collected: 11/09/17 16:29					Lab Sample ID: 490-140799-1 Matrix: Solid				
Date Received: 11/14/17		Percent Solids: 92.7							
Method: 9056 - Anions, Analyte	Ion Chromatography - Result Qualif		MDL Unit	D Prepare	d Analyzed	Dil Fac	5		
Chloride	5300	220	150 mg/Kg	<u> </u>	11/17/17 01:44	20	6		
							7		
							8		
							9		

**Percent Moisture** 

**Percent Solids** 

Analyzed

Analyzed

11/15/17 10:31

11/15/17 10:31

11/15/17 12:14 11/16/17 03:08

# Lab Sample ID: 490-140799-2 Matrix: Solid Percent Solids: 96.0 Dil Fac 1

6

Dil Fac

1

1

1

Client Sample ID: SB	33					La	ab Sampl
Date Collected: 11/09/17	16:27						•
Date Received: 11/14/17	15:32						
_ Method: 8015C - Nonha	logenated Organi	cs usina G	C/FID -Modif	fied (Ga	soline Ra	ange (	Organics)
	-					-	-
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared
C6-C10	<b>Result</b>				Unit mg/Kg	— <b>D</b> Ŧ	Prepared 11/15/17 12:*
		U					

4.0

96.0

Method: 8015C - Nonha	alogenated Organi	cs using	GC/FID -Modif	ied (Die	sel Rang	je Org	janics)		
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C28	3.0	J	4.9	2.4	mg/Kg	₩ \[\]	11/17/17 07:46	11/19/17 02:02	1
C24-C40	14		4.9	2.4	mg/Kg	¢	11/17/17 07:46	11/19/17 02:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		50 - 150				11/17/17 07:46	11/19/17 02:02	1
_ Method: 9056 - Anions	. Ion Chromatogra	phy - Soli	uble						
Analyte	· · · · · · · · · · · · · · · · · · ·	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	790		110	74	mg/Kg	<u>\$</u>		11/17/17 02:20	10
 General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac

0.1

0.1

0.1 %

0.1 %
Client: Timberwolf Environmental LLC Project/Site: State OG 170052 11-9-17 TestAmerica Job ID: 490-140799-1

6

#### **Client Sample ID: Background** Lab Sample ID: 490-140799-3 Date Collected: 11/09/17 09:30 Matrix: Solid Date Received: 11/14/17 15:32 **General Chemistry** Analyte **Result Qualifier** RL RL Unit D Prepared Analyzed Dil Fac 0.1 0.1 % 11/15/17 10:31 Percent Moisture 3.6 1 0.1 0.1 % 11/15/17 10:31 **Percent Solids** 96.4 1

		Client S	Sample F	Results								
Client: Timberwolf Envir Project/Site: State OG 1			-		Т	TestAmerica Job ID: 490-140799-1						
Client Sample ID: E	•				La	b Sample	D: 490-140	)799-3 c: Solid				
Date Received: 11/14/1	17 15:32						Percent Solic					
Method: 9056 - Anion Analyte		phy - Soluble Qualifier	e RL	MDL Unit	D	Prepared	Analyzed	Dil Fac	5			
Chloride	7.4	U	11	7.4 mg/Kg	<del>\</del>		11/17/17 02:56	1	6			

#### Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics) Lab Sample ID: MB 490-476059/1-A **Client Sample ID: Method Blank Matrix: Solid** Prep Type: Total/NA Analysis Batch: 475993 Prep Batch: 476059 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac C6-C10 5.0 11/15/17 10:38 11/15/17 21:43 2.5 U 2.5 mg/Kg 1 MB MB Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 50 - 150 11/15/17 10:38 11/15/17 21:43 a,a,a-Trifluorotoluene 71 1 Lab Sample ID: LCS 490-476059/2-A **Client Sample ID: Lab Control Sample** Matrix: Solid Prep Type: Total/NA Analysis Batch: 475993 Prep Batch: 476059 LCS LCS Spike %Rec. Added Analyte Result Qualifier Unit D %Rec Limits C6-C10 500 107 70 - 130 536 mg/Kg LCS LCS Surrogate %Recovery Qualifier Limits a,a,a-Trifluorotoluene 50 - 150 145 Lab Sample ID: LCSD 490-476059/3-A **Client Sample ID: Lab Control Sample Dup** Matrix: Solid Prep Type: Total/NA Analysis Batch: 475993 Prep Batch: 476059 Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit C6-C10 500 526 105 70 - 130 mg/Kg 2 21 LCSD LCSD Surrogate %Recovery Qualifier Limits a,a,a-Trifluorotoluene 144 50 - 150

#### Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Lab Sample ID: MB 490-476 Matrix: Solid Analysis Batch: 476838								Clie		ole ID: Method Prep Type: To Prep Batch:	otal/NA
		MB					_	_	-		
Analyte	Result	Qualifier	RL		MDL	Unit	D	P	repared	Analyzed	Dil Fac
C10-C28	2.5	U	5.0		2.5	mg/Kg		11/1	7/17 07:46	11/18/17 02:11	1
C24-C40	2.5	U	5.0		2.5	mg/Kg	I	11/1	7/17 07:46	11/18/17 02:11	1
	MB	MB									
Surrogate	%Recovery	Qualifier	Limits					P	repared	Analyzed	Dil Fac
o-Terphenyl (Surr)	88		50 - 150					11/1	7/17 07:46	11/18/17 02:11	1
Lab Sample ID: LCS 490-47	6769/2-A						Clien	it Sa	mple ID:	Lab Control S	Sample
Matrix: Solid										Prep Type: To	
Analysis Batch: 476838										Prep Batch:	476769
•			Spike	LCS	LCS	5				%Rec.	
Analyte			Added	Result	Qua	lifier	Unit	D	%Rec	Limits	
C10-C28			40.0	33.0			mg/Kg		82	54 - 130	

# 1 2 3 4 5 6 7 8 8 9 10

# Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics) (Continued)

Lab Sample ID: LCS 490-4	476769/2-A					Clie	nt Sa	mple ID	: Lab Cor		_
Matrix: Solid Analysis Batch: 476838									Prep Ty Prep Ba		
,, <b>,</b>	LCS	109									
Surrogate	%Recovery		Limits								
o-Terphenyl (Surr)	104		50 - 150								
Lab Sample ID: LCSD 490	)-476769/3-A				C	client Sa	ample	ID: Lat	o Control		
Matrix: Solid									Prep Ty		
Analysis Batch: 476838			Ondia	1.000	1.000				Prep Ba	atch: 4	
Analyte			Spike Added		LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPI Limi
C10-C28			40.0	29.9		mg/Kg		75	54 - 130	10	4
			-0.0	20.0				10	01-100	10	-11
•	LCSD										
Surrogate	%Recovery	Qualifier	Limits								
o-Terphenyl (Surr)	95		50 - 150								
									Prep Ty	ype: So	alubl/
Analysis Batch: 476742	Pa	MB MB		DI	MDI Unit			renered			
Analysis Batch: 476742 Analyte	Re	sult Qualifie	r		MDL Unit		D P	repared	Analyz	zed	Dil Fa
Analysis Batch: 476742 Analyte	Re		r	<b>RL</b>	MDL Unit		<u>D</u> P	repared		zed	Dil Fa
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4		sult Qualifie	r			g			Analyz	zed 23:37 <sup>–</sup>	Dil Fa
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid		sult Qualifie		10	7.0 mg/K	g			Analyz 11/16/17 9: Lab Cor Prep Ty	zed 23:37 <sup>–</sup>	Dil Fa
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742		sult Qualifie	Spike	10 LCS	7.0 mg/K	g Clie	nt Sa	mple ID	Analyz 11/16/17 9: Lab Cor Prep Ty %Rec.	zed 23:37 <sup>–</sup>	Dil Fac
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte		sult Qualifie	Spike Added	10 LCS Result	7.0 mg/K	g Clie Unit		mple ID	Analy: 11/16/17 9: Lab Cor Prep Ty %Rec. Limits	zed 23:37 <sup>–</sup>	Dil Fac
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte		sult Qualifie	Spike	10 LCS	7.0 mg/K	g Clie	nt Sa	mple ID	Analyz 11/16/17 9: Lab Cor Prep Ty %Rec.	zed 23:37 <sup>–</sup>	Dil Fa
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride	476741/2-A	esult Qualifie	Spike Added	10 LCS Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg	nt Sa	mple ID %Rec 98	Analyz 11/16/17 9: Lab Cor Prep Ty %Rec. Limits 80 - 120	zed 23:37 - ntrol Sa ype: Sc	Dil Fa
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490	476741/2-A	esult Qualifie	Spike Added	10 LCS Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg	nt Sa	mple ID %Rec 98	Analy: 11/16/17 9: Lab Cor Prep Ty %Rec. Limits	zed 23:37 - ntrol Sa ype: Sc Sample	Dil Fa ample bluble e Duj
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid	476741/2-A	esult Qualifie	Spike Added 100	10 LCS Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg	nt Sa	mple ID %Rec 98	Analyz 11/16/17 11/16/17 1: Lab Cor Prep Ty %Rec. Limits 80 - 120 0 Control Prep Ty	zed 23:37 - ntrol Sa ype: Sc Sample	Dil Fa ample oluble e Dup
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742	476741/2-A	esult Qualifie	Spike Added 100 Spike	10 LCS Result 98.8	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa	nt Sa	mple ID <u>%Rec</u> 98 ID: Lat	Analyz 11/16/17	zed 23:37 - ntrol Sa ype: So Sample ype: So	Dil Fac ample bluble e Dup bluble RPE
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte	476741/2-A	esult Qualifie	Spike Added 100 Spike Added	10 LCS Result 98.8 LCSD Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa Unit	nt Sa	mple ID <u>%Rec</u> 98 ID: Lat	Analyz 11/16/17 2: Lab Cor Prep Ty %Rec. Limits 80 - 120 0 Control Prep Ty %Rec. Limits	zed 23:37 - ntrol Sa ype: So Sample ype: So 	Dil Fac
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte	476741/2-A	esult Qualifie	Spike Added 100 Spike	10 LCS Result 98.8	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa	nt Sa	mple ID <u>%Rec</u> 98 ID: Lat	Analyz 11/16/17	zed 23:37 - ntrol Sa ype: So Sample ype: So	Dil Fac ample bluble e Dup bluble RPI Limi
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte Chloride	476741/2-A  )-476741/3-A	esult Qualifie	Spike Added 100 Spike Added	10 LCS Result 98.8 LCSD Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa Unit	nt Sa	mple ID %Rec 98 ID: Lat %Rec 102	Analyz 11/16/17 2: Lab Cor Prep Ty %Rec. Limits 80 - 120 0 Control Prep Ty %Rec. Limits 80 - 120	zed 23:37 - ntrol Sa ype: So Sample ype: So RPD 4	Dil Fa ample bluble e Dup bluble RPI Limi 2
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: 490-14075	476741/2-A  )-476741/3-A	esult Qualifie	Spike Added 100 Spike Added	10 LCS Result 98.8 LCSD Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa Unit	nt Sa	mple ID %Rec 98 ID: Lat %Rec 102	Analyz 11/16/17 11/16/17 11/16/17 11/16/17 12/17 11/16/17 1	zed 23:37 - htrol Sa ype: So Sample ype: So 4 nple ID	Dil Fa ample oluble e Dup oluble RPI Limi 20 : SB2
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: 490-14075 Matrix: Solid	476741/2-A  )-476741/3-A	esult Qualifie	Spike Added 100 Spike Added	10 LCS Result 98.8 LCSD Result	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa Unit	nt Sa	mple ID %Rec 98 ID: Lat %Rec 102	Analyz 11/16/17 2: Lab Cor Prep Ty %Rec. Limits 80 - 120 0 Control Prep Ty %Rec. Limits 80 - 120	zed 23:37 - htrol Sa ype: So Sample ype: So 4 nple ID	Dil Fac ample bluble e Dup bluble RPI Limi 20 : SB2
Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: 490-14075 Matrix: Solid Analysis Batch: 476742	476741/2-A 0-476741/3-A 99-1 MS	esult Qualifie	Spike Added 100 Spike Added	10 LCS Result 98.8 LCSD Result 102	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa Unit	nt Sa	mple ID %Rec 98 ID: Lat %Rec 102	Analyz 11/16/17 11/16/17 11/16/17 11/16/17 12/17 11/16/17 1	zed 23:37 - htrol Sa ype: So Sample ype: So 4 nple ID	Dil Fac
Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCS 490-4 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: LCSD 490 Matrix: Solid Analysis Batch: 476742 Analyte Chloride Lab Sample ID: 490-14075 Matrix: Solid	476741/2-A 0-476741/3-A 99-1 MS Sample	Psult Qualifie 7.0 U	Spike Added 100 Spike Added 101	10 LCS Result 98.8 LCSD Result 102 MS	7.0 mg/K LCS Qualifier	g Clie Unit mg/Kg Client Sa Unit	nt Sa	mple ID %Rec 98 ID: Lat %Rec 102	Analyz 11/16/17 2: Lab Cor Prep Ty %Rec. Limits 80 - 120 0 Control Prep Ty %Rec. Limits 80 - 120 Client San Prep Ty	zed 23:37 - htrol Sa ype: So Sample ype: So 4 nple ID	Dil Fac 1 ample bluble e Dup bluble RPD Limit 20 : SB2

# Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 490-140799 Matrix: Solid Analysis Batch: 476742	9-1 MSD							C	Client San Prep Ty		
· · ·	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	7200	E	109	7330	E 4	mg/Kg	<u> </u>	92	80 - 120	4	20

#### Method: Moisture - Percent Moisture

Lab Sample ID: 490-14079 Matrix: Solid Analysis Batch: 476051	9-3 DU					Clie	 e ID: Backgr ep Type: Tot	
-	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	3.6		 3.8		%		 4	20
Percent Solids	96.4		96.2		%		0.2	20

# 8 9 10 11

# GC VOA

#### Analysis Batch: 475993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-140799-2	SB3	Total/NA	Solid	8015C	476059
MB 490-476059/1-A	Method Blank	Total/NA	Solid	8015C	476059
LCS 490-476059/2-A	Lab Control Sample	Total/NA	Solid	8015C	476059
LCSD 490-476059/3-A	Lab Control Sample Dup	Total/NA	Solid	8015C	476059
Prep Batch: 476059					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-140799-2	SB3	Total/NA	Solid	5030B	
MB 490-476059/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 490-476059/2-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 490-476059/3-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
GC Semi VOA					
Prep Batch: 476769					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-140799-2	SB3	Total/NA	Solid	3550C	
MB 490-476769/1-A	Method Blank	Total/NA	Solid	3550C	
	Lah Cantral Camala	T - ( - 1/b   A	Solid	3550C	
LCS 490-476769/2-A	Lab Control Sample	Total/NA	Cona		
LCS 490-476769/2-A LCSD 490-476769/3-A	Lab Control Sample Dup	Total/NA Total/NA	Solid	3550C	
LCSD 490-476769/3-A	Lab Control Sample Dup				
LCSD 490-476769/3-A	Lab Control Sample Dup				Prep Batch
LCSD 490-476769/3-A Analysis Batch: 4768	Lab Control Sample Dup	Total/NA	Solid	3550C	•
LCSD 490-476769/3-A Analysis Batch: 4768 Lab Sample ID	Lab Control Sample Dup	Total/NA Prep Type	Solid Matrix	3550C Method	476769
LCSD 490-476769/3-A Analysis Batch: 4768 Lab Sample ID MB 490-476769/1-A	Lab Control Sample Dup 38 Client Sample ID Method Blank	Total/NA Prep Type Total/NA	Solid <u>Matrix</u> Solid	3550C Method 8015C	476769
LCSD 490-476769/3-A Analysis Batch: 4768 Lab Sample ID MB 490-476769/1-A LCS 490-476769/2-A LCSD 490-476769/3-A	Lab Control Sample Dup Client Sample ID Method Blank Lab Control Sample Lab Control Sample Dup	Total/NA           Prep Type           Total/NA           Total/NA	Solid Matrix Solid Solid	3550C Method 8015C 8015C	Prep Batch 476769 476769 476769
LCSD 490-476769/3-A Analysis Batch: 4768 Lab Sample ID MB 490-476769/1-A LCS 490-476769/2-A	Lab Control Sample Dup Client Sample ID Method Blank Lab Control Sample Lab Control Sample Dup	Total/NA           Prep Type           Total/NA           Total/NA	Solid Matrix Solid Solid	3550C Method 8015C 8015C	476769

# HPLC/IC

#### Leach Batch: 476741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-140799-1	SB2	Soluble	Solid	DI Leach	
490-140799-2	SB3	Soluble	Solid	DI Leach	
490-140799-3	Background	Soluble	Solid	DI Leach	
MB 490-476741/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 490-476741/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 490-476741/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
490-140799-1 MS	SB2	Soluble	Solid	DI Leach	
490-140799-1 MSD	SB2	Soluble	Solid	DI Leach	

#### Analysis Batch: 476742

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
490-140799-1	SB2	Soluble	Solid	9056	476741
490-140799-2	SB3	Soluble	Solid	9056	476741
490-140799-3	Background	Soluble	Solid	9056	476741
MB 490-476741/1-A	Method Blank	Soluble	Solid	9056	476741

TestAmerica Job ID: 490-140799-1

# HPLC/IC (Continued)

#### Analysis Batch: 476742 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-476741/2-A	Lab Control Sample	Soluble	Solid	9056	476741
LCSD 490-476741/3-A	Lab Control Sample Dup	Soluble	Solid	9056	476741
490-140799-1 MS	SB2	Soluble	Solid	9056	476741
490-140799-1 MSD	SB2	Soluble	Solid	9056	476741

# **General Chemistry**

#### Analysis Batch: 476051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
490-140799-1	SB2	Total/NA	Solid	Moisture		
490-140799-2	SB3	Total/NA	Solid	Moisture		
490-140799-3	Background	Total/NA	Solid	Moisture		
490-140799-3 DU	Background	Total/NA	Solid	Moisture		

Initial

Amount

Initial

Amount

2.98 g

Batch

Number

476051

Batch

Number

476741

476742

Final

Amount

Final

Amount

30 mL

Dil

Dil

20

Factor

Factor

Run

Run

Batch

Туре

Analysis

Batch

Type

Leach

Analysis

Batch

Method

Moisture

Batch

Method

DI Leach

9056

**Client Sample ID: SB2** 

Client Sample ID: SB2 Date Collected: 11/09/17 16:29

**Client Sample ID: SB3** 

Date Collected: 11/09/17 16:27

Date Received: 11/14/17 15:32

Date Received: 11/14/17 15:32

Prep Type

Prep Type

Soluble

Soluble

Total/NA

Date Collected: 11/09/17 16:29

Date Received: 11/14/17 15:32

Lab Sample ID: 490-140799-1

Lab Sample ID: 490-140799-1

Analyst

Analyst

JML

Prepared

or Analyzed

Prepared

or Analyzed

11/16/17 22:09

11/17/17 01:44 LDC

11/15/17 10:31 BAA

9

# Lab Sample ID: 490-140799-2

Lab Sample ID: 490-140799-2

Lab Sample ID: 490-140799-3

Lab Sample ID: 490-140799-3

Matrix: Solid

Matrix: Solid

Matrix: Solid

Matrix: Solid

Percent Solids: 96.0

Matrix: Solid

Lab

TAL NSH

Matrix: Solid

Lab

TAL NSH

TAL NSH

Percent Solids: 92.7

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type Total/NA	<b>Type</b> Analvsis	Method Moisture	Run	Factor	Amount	Amount	Number 476051	or Analyzed	Analyst BAA	Lab TAL NSH

#### **Client Sample ID: SB3** Date Collected: 11/09/17 16:27 Date Received: 11/14/17 15:32

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.20 g	5.0 mL	476059	11/15/17 12:14	JLP	TAL NSH
Total/NA	Analysis	8015C		1	0.1 mL	5 mL	475993	11/16/17 03:08	AK1	TAL NSH
Total/NA	Prep	3550C			26.67 g	1.00 mL	476769	11/17/17 07:46	MNM	TAL NSH
Total/NA	Analysis	8015C		1			477140	11/19/17 02:02	GMH	TAL NSH
Soluble	Leach	DI Leach			2.96 g	30 mL	476741	11/16/17 22:09	JML	TAL NSH
Soluble	Analysis	9056		10			476742	11/17/17 02:20	LDC	TAL NSH

#### **Client Sample ID: Background** Date Collected: 11/09/17 09:30 Date Received: 11/14/17 15:32

_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			476051	11/15/17 10:31	BAA	TAL NSH

#### **Client Sample ID: Background** Date Collected: 11/09/17 09:30 Date Received: 11/14/17 15:32

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			2.95 g	30 mL	476741	11/16/17 22:09	JML	TAL NSH

**TestAmerica Nashville** 

Percent Solids: 96.4

Date Collected: 11/09/17 09:30         Date Received: 11/14/17 15:32         Prep Type       Batch       Batch       Method       Run       Dil       Initial       Final       Ba         Soluble       Analysis       9056       Method       1       Amount       Amount       Mu         Laboratory References:       TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177	ind ind	Matrix: Solid
Prep TypeTypeMethodRunFactorAmountAmountNuSolubleAnalysis90561147Laboratory References:	6.4	ercent Solids: 96.4
Soluble Analysis 9056 1 47		
Laboratory References:		Analyst Lab
•	H	LDC TAL NSH
TAL NOT - TESIAMENCA NASHVINE, 2900 FUSICE CREIGHTONICE, NASHVINE, TN 57204, TEL (015)720-017		

#### Laboratory References:

# **Method Summary**

Client: Timberwolf Environmental LLC Project/Site: State OG 170052 11-9-17

5
8
9
10

Method	Method Description	Protocol	Laboratory
8015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL NSH
8015C	Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	SW846	TAL NSH
9056	Anions, Ion Chromatography	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH
	JS Environmental Protection Agency = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, Nove	mbor 1096 And Ita Lindat	<b></b>
011040			
Laborator	/ References:		
ται Νς	H = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0	177	

# **Accreditation/Certification Summary**

Client: Timberwolf Environmental LLC Project/Site: State OG 170052 11-9-17

# 

Laboratory	: TestAmerica	Nashville
	1 1000 11101100	

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Program	EPA Region	Identification Number	Expiration Date
			12-31-17
ISO/IEC 17025		0453.07	12-31-17
State Program	10	UST-087	01-01-18
State Program	9	AZ0473	05-05-18
State Program	6	88-0737	04-25-18
State Program	9	2938	10-31-18
State Program	1	PH-0220	12-31-17
NELAP	4	E87358	06-30-18
State Program	4	E87358(FL)/453.07(A2L A)	12-31-17
NELAP	5	200010	12-09-17
State Program	7	131	04-01-18
NELAP	7	E-10229	12-31-17
State Program	4	19	06-30-18
State Program	4	90038	12-31-17
NELAP	6	30613	06-30-18
State Program	1	TN00032	11-03-19
State Program	3	316	03-31-18
State Program	1	M-TN032	06-30-18
NELAP	5	047-999-345	12-31-17
State Program	4	N/A	06-30-18
State Program	8	NA	02-24-20
State Program	9	TN00032	07-31-18
NELAP	1	2963	10-09-18
NELAP	2	TN965	06-30-18
NELAP		11342	03-31-18
	4	387	12-31-17
	8	R-146	06-30-18
	5	CL0033	07-06-19
-	6	9412	08-31-18
	10	TN200001	04-27-18
			06-30-18
	1		12-30-17
-	4		02-28-18
<del>.</del>	4		12-16-17
	4		02-23-20
			08-31-18
	-		12-01-19
	8		07-31-18
			06-14-18
			07-19-18
•			02-28-18
•			02-20-18
A2LA	8	453.07	12-31-17
	A2LAISO/IEC 17025State ProgramState ProgramState ProgramState ProgramState ProgramState ProgramNELAPState ProgramNELAPState ProgramNELAPState ProgramState Program <td>A2LAISO/IEC 17025State Program9State Program9State Program9State Program1NELAP4State Program4NELAP5State Program7NELAP7State Program4NELAP7State Program4NELAP6State Program4NELAP6State Program1State Program1State Program1State Program3State Program1NELAP5State Program4State Program8State Program9NELAP1NELAP2State Program4State Program5State Program6NELAP10NELAP3State Program4State Program&lt;</td> <td>A2LA         NA: NELAP &amp; A2LA           ISO/IEC 17025         0453.07           State Program         9         AZ0473           State Program         9         AZ0473           State Program         9         2938           State Program         9         2938           State Program         1         PH-0220           NELAP         4         E87358           State Program         4         E87358(FL)/453.07(A2L           A)         NELAP         5         200010           State Program         7         131           NELAP         5         200010           State Program         4         9038           NELAP         7         E-10229           State Program         4         90038           NELAP         6         30613           State Program         1         TN00032           State Program         1         M-TN032           NELAP         5         047-999-345           State Program         8         NA           State Program         8         NA           State Program         9         TN0032           NELAP         1</td>	A2LAISO/IEC 17025State Program9State Program9State Program9State Program1NELAP4State Program4NELAP5State Program7NELAP7State Program4NELAP7State Program4NELAP6State Program4NELAP6State Program1State Program1State Program1State Program3State Program1NELAP5State Program4State Program8State Program9NELAP1NELAP2State Program4State Program5State Program6NELAP10NELAP3State Program4State Program<	A2LA         NA: NELAP & A2LA           ISO/IEC 17025         0453.07           State Program         9         AZ0473           State Program         9         AZ0473           State Program         9         2938           State Program         9         2938           State Program         1         PH-0220           NELAP         4         E87358           State Program         4         E87358(FL)/453.07(A2L           A)         NELAP         5         200010           State Program         7         131           NELAP         5         200010           State Program         4         9038           NELAP         7         E-10229           State Program         4         90038           NELAP         6         30613           State Program         1         TN00032           State Program         1         M-TN032           NELAP         5         047-999-345           State Program         8         NA           State Program         8         NA           State Program         9         TN0032           NELAP         1

#### Laboratory: TestAmerica Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	17-051-0	08-04-18
Louisiana	NELAP	6	01967	06-30-18

Client: Timberwolf Environmental LLC Project/Site: State OG 170052 11-9-17

11 12

## Laboratory: TestAmerica Houston (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority Oklahoma	Program State Program	EPA Region	dentification Number	Expiration Date
Texas	NELAP	6	T104704223-17-22	10-31-18
USDA	Federal		P330-17-00132	04-20-20

TestAmerica The Leader IN ENVIRONMENTAL TESTING Nashville, TN COOLER RECEIPT FORM	490-140799 Chain of Custody
Cooler Received/Opened On <u>11/11/2017</u> @ 1005	~~ ,
Time Samples Removed From Cooler       Time Samples Placed In Storage         1. Tracking #	
IR Gun ID17610176 pH Strip Lot Chlorine Strip Lot	. <u></u>
2. Temperature of rep. sample or temp blank when opened: Degrees Ce/sius	
3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen?	YES NO NA
4. Were custody seals on outside of cooler? 1 (Front)	YES NO NA
5. Were the seals intact, signed, and dated correctly?	FESNONA
6. Were custody papers inside cooler?	YES).NONA
Lertify that I opened the cooler and answered questions 1-6 (intial)	
7. Were custody seals on containers: YES NO and Intact	YESNO.
Were these signed and dated correctly?	YESNO
8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Pa	U
9. Cooling process:	
10. Did all containers arrive in good condition (unbroken)?	VESNONA
11. Were all container labels complete (#, date, signed, pres., etc)?	XE\$NONA
12. Did all container labels and tags agree with custody papers?	ESNONA
13a. Were VOA vials received?	YES(NONA
b. Was there any observable headspace present in any VOA vial?	V YESNO <b>,¶X</b>
<ul> <li>Larger than this.</li> <li>14. Was there a Trip Blank in this cooler? YESNONA If multiple coolers sequer</li> </ul>	
14. Was there a Trip Blank in this cooler? YESNONA If multiple coolers, sequer I certify that I unloaded the cooler and answered questions 7-14 (initial)	nce # <b>/* //</b>
15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level?	
b. Did the bottle labels indicate that the correct preservatives were used	YESNONA
16. Was residual chlorine present?	KESNONA
I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial)	YESNONA
17. Were custody papers properly filled out (ink, signed, etc)?	
<ol> <li>18. Did you sign the custody papers in the appropriate place?</li> </ol>	YEFNONA
19. Were correct containers used for the analysis requested?	
20. Was sufficient amount of sample sent in each container?	YES NO. NA
	KESNONA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) I certify that I attached a label with the unique LIMS number to each container (intial)

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES.

₽U

Testameria testing

**No.**

CHAIN OF CUSTODY RECORD

CUSTOMED NEODWATION	IEODMATION				OMATION			ANALYSIS/METHOD BEOLIEST	
			S2L		NOTATION				
COMPANY: Timberuor	ĥ	OR OR	PROJECT NAME/NUMBER:		67002		รษ		LAB JUB NU.
SEND REPORT TO: Fresher			BILLI	Z	MATION				
ADDRESS: 1930	Villa Kikila	BILL TO:	-	mberroon f					
		ADDI	ADDRESS: 1920	S	VINA HA	Harda	512 512	Loc: 490	SEAL IN IACI
			Bruan	Ř	77807			140799	CORR TEMP C
PHONE:		PHONE:	!				,		IR GUN ID
FAX:		FAX:		РО	PO NO:		12.	<u> </u>	INITIAL/DATE
SAMPLE NO. SAMPI	SAMPLE DESCRIPTION	SAMPLE DATE	LE SAMPLE E TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	1		REMARKS/PRECAUTIONS.
\$ \$		1/4/	+		y.r	Neve			
<r3< td=""><td></td><td></td><td>1631</td><td></td><td>1</td><td>1</td><td>1 / 1</td><td></td><td></td></r3<>			1631		1	1	1 / 1		
Racika roum	Duck		930	-					
					-				
SAMPLER: 2 C.			SHIPMENT	SHIPMENT METHOD:				AIRBILL NO.:	
REQUIRED TURNAROUND	CROUTINE TAT (10 BUSINESS DAYS)	0 BUSINESS	1	SH TAT (MAY I	C RUSH TAT (MAY REQUIRE SURCHARGE)	CHARGE)			
1. RELINQUISHED BY:		DATE	2. RELINQUISHED BY:	IED-BY: //	-		DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: LUNALO	fer	-1/01/22	w/10/1-1 SIGNATURES	17.	K	TAN	11-11-17	SIGNATURE:	
PRINTED NAME/COMPANY:	Turberoof	TIME	PRINTED MAME/COMPANY:	E/COMPANY:	0		TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:		DATE	2. RECEIVED BY:	34.	L PARTING AND A L PARTING		DATE	3. RECEIVED BY:	DATE
SIGNATURE:			SIGNATURE:					SIGNATURE:	
PRINTED NAME/COMPANY:		TIME	PRINTED NAM	ED NAME/COMPANY:			TIME	PRINTED NAME/COMPANY:	TIME
				<b>Te</b> 1733 N. Corpus	<b>TestAmerica</b> 1733 N. Padre Island Drive Corpus Const, TX 78408	d Drive		0.6	TAL-8222-560 (0412)
			Pho	ne: 361.28	Phone: 361.289.2673/Fax: 361.289.2471	361.289.24	-		



THE LEADER IN ENVIRONMENTAL TESTING

# **ANALYTICAL REPORT**

# TestAmerica Laboratories, Inc.

TestAmerica Nashville 2960 Foster Creighton Drive Nashville, TN 37204 Tel: (615)726-0177

# TestAmerica Job ID: 490-153484-1

Client Project/Site: Timberwolf - New Mexico Star OG 170052

# For:

Timberwolf Environmental LLC 1920 W. Vill Maria Suite 305-2 Box 205 Bryan, Texas 77807



Dean a. Jomen

Authorized for release by: 6/19/2018 6:35:29 PM

Dean Joiner, Project Manager II (713)690-4444 dean.joiner@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Chronicle	20
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Certification Summary	25
Chain of Custody	27

TestAmerica Job ID: 490-153484-1

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-153484-1	SB4 0-1'	Solid	06/05/18 12:05	06/08/18 09:20
490-153484-2	SB5 0-1'	Solid	06/05/18 12:15	06/08/18 09:20
490-153484-3	SB6 0-1'	Solid	06/05/18 11:30	06/08/18 09:20
490-153484-4	SB7 0-1'	Solid	06/05/18 11:40	06/08/18 09:20
490-153484-5	SB8 0-1'	Solid	06/05/18 11:48	06/08/18 09:20
490-153484-6	SB9 0-1'	Solid	06/05/18 12:00	06/08/18 09:20
490-153484-7	SB2A 4-5'	Solid	06/05/18 11:55	06/08/18 09:20
490-153484-8	SB2A 9-10'	Solid	06/05/18 12:00	06/08/18 09:20

#### Job ID: 490-153484-1

#### Laboratory: TestAmerica Nashville

Narrative

Job Narrative 490-153484-1

**Case Narrative** 

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/8/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

#### HPLC/IC

Method(s) 9056: The method blank for analytical batch 490-521653 contained Chloride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056: The method blank for analytical batch 490-521724 contained Chloride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056: The following samples were diluted due to the nature of the sample matrix: SB9 0-1' (490-153484-6), SB2A 4-5' (490-153484-7) and SB2A 9-10' (490-153484-8). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Qualifiers

GC	VOA
90	VUA

GC VUA		
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	5
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	<b>J</b>
GC Semi V	OA	
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	7
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	
HPLC/IC		8
Qualifier	Qualifier Description	
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	9
U	Indicates the analyte was analyzed for but not detected.	

# Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Result	ts				
lient: Timberwolf Environm roject/Site: Timberwolf - Ne		G 170052	-			٦	TestAmerica J	lob ID: 490-15	3484-1
lient Sample ID: SB4						La	ab Sample	ID: 490-153	
ate Collected: 06/05/18 12 ate Received: 06/08/18 09								Matrix Percent Solid	: Solid s: 80.4
Method: 8015C - Nonhalo						_		Amelunad	
Analyte		Qualifier	RL	MDL		— <b>D</b>	Prepared	Analyzed	Dil Fac
C6-C10	3.6		7.3	3.0	mg/Kg	74	06/12/18 09:38	06/16/18 10:52	1 <b>-</b>
		A	Limits				Prepared	Analyzed	Dil Fac
•	%Recovery	Qualifier							
<b>Surrogate</b> a,a,a-Trifluorotoluene	92		50 - 150				06/12/18 09:38	06/16/18 10:52	1
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo	ogenated Organic	cs using G	<u>50 - 150</u> GC/FID -Modif				janics)		1
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte	ogenated Organic Result	cs using G Qualifier	GC/FID -Modif	MDL	Unit	D	g <mark>anics)</mark> Prepared	Analyzed	1 Dil Fac
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28	ogenated Organic Result	CS USING G Qualifier	<b>GC/FID -Modif</b> <b>RL</b> <u>6.1</u>	MDL 3.1	Unit mg/Kg	<b>D</b> ₩	ganics) Prepared 06/16/18 14:50	Analyzed 06/18/18 13:02	1 Dil Fac
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte	ogenated Organic Result	CS USING G Qualifier	GC/FID -Modif	MDL 3.1	Unit mg/Kg	D	ganics) Prepared 06/16/18 14:50	Analyzed 06/18/18 13:02	1 Dil Fac 1 1
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28	ogenated Organic Result	CS USING G Qualifier U J	<b>GC/FID -Modif</b> <b>RL</b> <u>6.1</u>	MDL 3.1	Unit mg/Kg	<b>D</b> ₩	ganics) Prepared 06/16/18 14:50	Analyzed 06/18/18 13:02	1Dil Fac11Dil Fac
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40	ogenated Organic Result 3.1 4.0	CS USING G Qualifier U J	<b>GC/FID -Modif</b> <b>RL</b> 6.1 6.1	MDL 3.1	Unit mg/Kg	<b>D</b> ₩	panics) Prepared 06/16/18 14:50 06/16/18 14:50	Analyzed 06/18/18 13:02 06/18/18 13:02	1 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr)	ogenated Organic Result 3.1 4.0 %Recovery 111	CS USING G Qualifier U J Qualifier	50 - 150 <b>GC/FID -Modif</b> <b>RL</b> 6.1 6.1 6.1 <i>Limits</i> 50 - 150	MDL 3.1	Unit mg/Kg	<b>D</b> ₩	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 13:02 06/18/18 13:02 Analyzed	1 1 <i>Dil Fac</i>
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate	ogenated Organic Result 3.1 4.0 %Recovery 111 on Chromatograp	CS USING G Qualifier U J Qualifier	50 - 150 <b>GC/FID -Modif</b> <b>RL</b> 6.1 6.1 6.1 <i>Limits</i> 50 - 150	MDL 3.1	Unit mg/Kg mg/Kg	<b>D</b> ₩	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 13:02 06/18/18 13:02 Analyzed	1 1 <i>Dil Fac</i>
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic	ogenated Organic Result 3.1 4.0 %Recovery 111 on Chromatograp	CS USING G Qualifier U J Qualifier phy - Solul	50 - 150 <b>GC/FID -Modif</b> RL 6.1 6.1 <u>Limits</u> 50 - 150 <b>ble</b>	MDL 3.1 3.1 MDL	Unit mg/Kg mg/Kg		<b>Prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 13:02 06/18/18 13:02 Analyzed 06/18/18 13:02	1 1 <b>Dil Fac</b> 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic Analyte	ogenated Organic Result 3.1 4.0 %Recovery 111 on Chromatograp Result	CS USING G Qualifier U J Qualifier phy - Solul	50 - 150 SC/FID -Modif RL 6.1 6.1 <u>Limits</u> 50 - 150 ble RL	MDL 3.1 3.1 MDL	Unit mg/Kg mg/Kg Unit		<b>Prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 13:02 06/18/18 13:02 Analyzed 06/18/18 13:02 Analyzed	1 1 <b>Dil Fac</b> 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic Analyte Chloride	ogenated Organic Result 3.1 4.0 %Recovery 111 on Chromatograp Result 28	CS USING G Qualifier U J Qualifier phy - Solul	50 - 150 SC/FID -Modif RL 6.1 6.1 <u>Limits</u> 50 - 150 ble RL	MDL 3.1 3.1 MDL 8.7	Unit mg/Kg mg/Kg Unit mg/Kg		<b>Prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 13:02 06/18/18 13:02 Analyzed 06/18/18 13:02 Analyzed	1 1 <b>Dil Fac</b> 1

0.1

0.1 %

80.4

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Result	ts					
lient: Timberwolf Environr		0 470050	-			Г	FestAmerica J	lob ID: 490-15	3484-1	
roject/Site: Timberwolf - N	New Mexico Star Or	G 170052								
lient Sample ID: SB	5 0-1'					La	b Sample	ID: 490-153	484-2	
ate Collected: 06/05/18									: Solid	
ate Received: 06/08/18 0	J9:20						F	Percent Solid	s: 84.9	
Method: 8015C - Nonhal	logenated Organi	cs usina G	C/FID -Modif	ied (Ga	soline Ra	ange (	Organics)			
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac	
C6-C10	3.3	U	6.7	3.3	mg/Kg	<u></u>	06/12/18 09:38	06/16/18 11:21	1	
							Duenenal	Amahanad	Dil Fac	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dirrac	
•	<b>%Recovery</b> 90	Qualifier	Limits				06/12/18 09:38	06/16/18 11:21	1	
a,a,a-Trifluorotoluene	90		50 - 150	ind (Dia	col Bana		06/12/18 09:38		1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal	logenated Organic		50 - 150		e <mark>sel Rang</mark> Unit	ge Org D	06/12/18 09:38		Dil Fac	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte	logenated Organic	cs using G	50 - 150	MDL	Unit	-	06/12/18 09:38	06/16/18 11:21	1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28	logenated Organic Result	cs using G	GC/FID -Modif	MDL 2.9	Unit	— <b>D</b>	06/12/18 09:38 janics) Prepared	06/16/18 11:21 Analyzed 06/18/18 13:20	1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40	logenated Organic Result	cs using G Qualifier	<b>GC/FID -Modif</b> <b>RL</b> 55.8	MDL 2.9	Unit mg/Kg	— <b>D</b>	06/12/18 09:38 panics) Prepared 06/16/18 14:50	06/16/18 11:21 Analyzed 06/18/18 13:20	1	
a, a, a- Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate	logenated Organic Result 13 34	cs using G Qualifier	<b>5</b> 0 - 150 <b>C/FID -Modif</b> <b>RL</b> 5.8 5.8	MDL 2.9	Unit mg/Kg	— <b>D</b>	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50	Analyzed           06/18/18         11:21           4         06/18/18         11:21           06/18/18         13:20         06/18/18         13:20           06/18/18         13:20         06/18/18         13:20	1 Dil Fac 1 1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr)	logenated Organic Result 13 34 %Recovery 95	CS USING G Qualifier Qualifier	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 5.8 5.8 <i>Limits</i> 50 - 150	MDL 2.9	Unit mg/Kg	— <b>D</b>	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	06/16/18 11:21 Analyzed 06/18/18 13:20 06/18/18 13:20 Analyzed	1 Dil Fac 1 1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I	Iogenated Organic Result 13 34 %Recovery 95	CS USING G Qualifier Qualifier	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 5.8 5.8 <i>Limits</i> 50 - 150	MDL 2.9 2.9	Unit mg/Kg	— <b>D</b>	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	06/16/18 11:21 Analyzed 06/18/18 13:20 06/18/18 13:20 Analyzed	1 Dil Fac 1 1	
Surrogate a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I Analyte Chloride	Iogenated Organic Result 13 34 %Recovery 95	cs using G Qualifier Qualifier phy - Solul	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 5.8 5.8 <b>Limits</b> 50 - 150 <b>ble</b>	MDL 2.9 2.9 MDL	Unit mg/Kg mg/Kg		06/12/18 09:38 prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed           06/16/18 11:21           Analyzed           06/18/18 13:20           06/18/18 13:20           Analyzed           06/18/18 13:20	Dil Fac11Dil Fac1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I Analyte Chloride	logenated Organic Result 13 34 %Recovery 95 Ion Chromatograp Result	cs using G Qualifier Qualifier phy - Solul	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 5.8 5.8 <b>Limits</b> 50 - 150 <b>ble</b> <b>RL</b>	MDL 2.9 2.9 MDL	Unit mg/Kg mg/Kg Unit		06/12/18 09:38 prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed           06/16/18 11:21           Analyzed           06/18/18 13:20           06/18/18 13:20           Analyzed           06/18/18 13:20           Analyzed           06/18/18 13:20	Dil Fac11Dil Fac1	
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I Analyte	logenated Organic Result 13 34 %Recovery 95 Ion Chromatograp Result 25	cs using G Qualifier Qualifier phy - Solul	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 5.8 5.8 <b>Limits</b> 50 - 150 <b>ble</b> <b>RL</b>	MDL 2.9 2.9 MDL 8.4	Unit mg/Kg mg/Kg Unit		06/12/18 09:38 prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed           06/16/18 11:21           Analyzed           06/18/18 13:20           06/18/18 13:20           Analyzed           06/18/18 13:20           Analyzed           06/18/18 13:20	Dil Fac11Dil Fac1	

0.1

84.9

0.1 %

**Percent Solids** 

06/12/18 15:05

1

		Client	: Sample F	Result	ts				
lient: Timberwolf Environm roject/Site: Timberwolf - Ne		G 170052	-			-	TestAmerica J	lob ID: 490-15	3484-1
lient Sample ID: SB6 ate Collected: 06/05/18 1/						La	ab Sample	ID: 490-153 Matrix	484-3 : Solid
ate Received: 06/08/18 09								Percent Solid	
Method: 8015C - Nonhalo	ogenated Organi	cs using G	SC/FID -Modif	ied (Ga	soline Ra	ange (	Organics)		
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
C6-C10	4.3	U	8.6	4.3	mg/Kg	<u></u>	06/12/18 09:38	06/16/18 11:51	1
• •	9/ Basayary	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Surrogate	%Recovery								
<b>Surrogate</b> a,a,a-Trifluorotoluene	<u></u>		50 - 150				06/12/18 09:38	06/16/18 11:51	1
-	ogenated Organic	cs using G	GC/FID -Modif			je Org			,
a,a,a-Trifluorotoluene	ogenated Organic			f <mark>ied (Die</mark> MDL		j <b>e Or</b> ç D		06/16/18 11:51 Analyzed	1 Dil Fac
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo	ogenated Organic	cs using G	GC/FID -Modif	MDL			janics)		,
a,a,a-Trifluorotoluene <mark>Method: 8015C - Nonhalo</mark> Analyte	ogenated Organic Result	cs using G	GC/FID -Modif	MDL 3.4	Unit	D	ganics) Prepared 06/16/18 14:50	Analyzed 06/18/18 13:37	,
a,a,a-Trifluorotoluene <mark>Method: 8015C - Nonhalo</mark> Analyte C10-C28	ogenated Organic Result 91	cs using G Qualifier	GC/FID -Modif RL 6.7	MDL 3.4	Unit mg/Kg	— D #	ganics) Prepared 06/16/18 14:50	Analyzed 06/18/18 13:37	,
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40	ogenated Organio Result 93 93 93 93 28	cs using G Qualifier	GC/FID -Modif RL 6.7 6.7	MDL 3.4	Unit mg/Kg	— D #	panics) Prepared 06/16/18 14:50 06/16/18 14:50	Analyzed 06/18/18 13:37 06/18/18 13:37	<b>Dil Fac</b> 1
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate	ogenated Organio Result 9.8 28 %Recovery 89	CS USING G Qualifier Qualifier	GC/FID -Modif RL 6.7 6.7 6.7 Limits 50 - 150	MDL 3.4	Unit mg/Kg	— D #	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 13:37 06/18/18 13:37 Analyzed	<b>Dil Fac</b> 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr)	ogenated Organio Result 9.8 28 %Recovery 89 on Chromatograp	CS USING G Qualifier Qualifier	GC/FID -Modif RL 6.7 6.7 6.7 Limits 50 - 150	MDL 3.4	Unit mg/Kg mg/Kg	D 77 27 27 27 27 27 27 27 27 27 27 27 27	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 13:37 06/18/18 13:37 Analyzed	<b>Dil Fac</b> 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic	ogenated Organio Result 9.8 28 %Recovery 89 on Chromatograp	CS USING G Qualifier Qualifier phy - Solul Qualifier	GC/FID -Modif RL 6.7 6.7 <u>Limits</u> 50 - 150 ble	MDL 3.4 3.4 MDL	Unit mg/Kg mg/Kg	₽ ☆	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed 06/18/18 13:37 06/18/18 13:37 Analyzed 06/18/18 13:37	Dil Fac 1 1 Dil Fac 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic Analyte	ogenated Organic Result 9.8 28 %Recovery 89 on Chromatograp Result	CS USING G Qualifier Qualifier phy - Solul Qualifier	GC/FID -Modif RL 6.7 6.7 <u>Limits</u> 50 - 150 ble RL	MDL 3.4 3.4 MDL	Unit mg/Kg mg/Kg Unit	D 77 27 27 27 27 27 27 27 27 27 27 27 27	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed 06/18/18 13:37 06/18/18 13:37 Analyzed 06/18/18 13:37 Analyzed	Dil Fac 1 1 Dil Fac 1
a, a, a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic Analyte Chloride	ogenated Organio Result 9.8 28 %Recovery 89 on Chromatograp Result 12	CS USING G Qualifier Qualifier phy - Solul Qualifier	GC/FID -Modif RL 6.7 6.7 <u>Limits</u> 50 - 150 ble RL	MDL 3.4 3.4 MDL 9.5	Unit mg/Kg mg/Kg Unit mg/Kg	D 77 27 27 27 27 27 27 27 27 27 27 27 27	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed 06/18/18 13:37 06/18/18 13:37 Analyzed 06/18/18 13:37 Analyzed	Dil Fac 1 1 Dil Fac 1

0.1

0.1 %

73.3

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Resul	ts					
Client: Timberwolf Environm Project/Site: Timberwolf - Ne		G 170052				٦	FestAmerica J	lob ID: 490-15	3484-1	2
Client Sample ID: SB7 Date Collected: 06/05/18 1						La	b Sample	ID: 490-153 Matrix	484-4 : Solid	
Date Received: 06/08/18 09								Percent Solid		
Method: 8015C - Nonhalo Analyte		<mark>cs using G</mark> Qualifier	C/FID -Modif	ied (Ga MDL		ange ( D	O <mark>rganics)</mark> Prepared	Analyzed	Dil Fac	5
C6-C10	<u>Result</u>				mg/Kg		06/12/18 09:38	Analyzed 06/16/18 12:21		
			0.0	•			00, .2, .0 00.22		-	6
	% Passyory	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Surrogate	%Recovery									
Surrogate a,a,a-Trifluorotoluene	<u>%Recovery</u> 88		50 - 150				06/12/18 09:38	06/16/18 12:21	1	
a,a,a-Trifluorotoluene	88			ied (Die	sel Rano	ie Oro		06/16/18 12:21	1	7
<b>v</b>	ogenated Organic			ied (Die MDL		ge Org D		06/16/18 12:21 Analyzed	1 Dil Fac	7 8
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo	ogenated Organic	<mark>cs using G</mark> Qualifier	C/FID -Modif				janics)		1 Dil Fac	7 8
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte	ogenated Organic Result	<mark>cs using G</mark> Qualifier	C/FID -Modif	MDL 3.3	Unit	D	<mark>janics)</mark> Prepared	Analyzed 06/18/18 13:56		7 8 9
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28	ogenated Organic Result 4.0	<mark>Cs using G</mark> Qualifier J	GC/FID -Modif RL 6.5	MDL 3.3	Unit mg/Kg	— <b>D</b> ङ	<b>panics)</b> Prepared 06/16/18 14:50	Analyzed 06/18/18 13:56		7 8 9 1(
Analyte C10-C28 C24-C40	ogenated Organic Result 4.0 13	<mark>Cs using G</mark> Qualifier J	C/FID -Modif 	MDL 3.3	Unit mg/Kg	— <b>D</b> ङ	<b>prepared</b> 06/16/18 14:50 06/16/18 14:50	Analyzed 06/18/18 13:56 06/18/18 13:56	1 1	7 8 9 10
Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr)	ogenated Organic Result 4.0 13 %Recovery 103	CS USING G Qualifier J Qualifier	<b>C/FID -Modif</b> <u>RL</u> <u>6.5</u> <u>6.5</u> <u>Limits</u> <u>50 - 150</u>	MDL 3.3	Unit mg/Kg	— <b>D</b> ङ	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 13:56 06/18/18 13:56 Analyzed	1 1	7 8 9 10 11
a,a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate	ogenated Organic Result 4.0 13 %Recovery 103 on Chromatograp	CS USING G Qualifier J Qualifier	<b>C/FID -Modif</b> <u>RL</u> <u>6.5</u> <u>6.5</u> <u>Limits</u> <u>50 - 150</u>	MDL 3.3	Unit mg/Kg mg/Kg	— <b>D</b> ङ	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 13:56 06/18/18 13:56 Analyzed	1 1	7 8 9 10 11
Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic	ogenated Organic Result 4.0 13 %Recovery 103 on Chromatograp	CS USING G Qualifier J Qualifier Phy - Solut	<b>C/FID -Modif</b> <u>RL</u> <u>6.5</u> <u>6.5</u> <u>Limits</u> <u>50 - 150</u> <b>ble</b>	MDL 3.3 3.3	Unit mg/Kg mg/Kg Unit	D 	<b>prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 13:56 06/18/18 13:56 Analyzed 06/18/18 13:56	1 1 Dil Fac	7 8 9 10 11
Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ic Analyte Chloride	ogenated Organic Result 4.0 13 %Recovery 103 on Chromatograp Result	CS USING G Qualifier J Qualifier Phy - Solut	<b>C/FID -Modif</b> <u>RL</u> <u>6.5</u> <u>6.5</u> <u>Limits</u> <u>50 - 150</u> <b>ble</b> <b>RL</b>	MDL 3.3 3.3 MDL	Unit mg/Kg mg/Kg Unit		<b>prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 13:56 06/18/18 13:56 Analyzed 06/18/18 13:56 Analyzed	1 1 Dil Fac	7 8 9 10 11
a,a,a-Trifluorotoluene Method: 8015C - Nonhalo Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Io Analyte	ogenated Organio Result 4.0 13 %Recovery 103 on Chromatograp Result 17	CS USING G Qualifier J Qualifier Phy - Solut	<b>C/FID -Modif</b> <u>RL</u> <u>6.5</u> <u>6.5</u> <u>Limits</u> <u>50 - 150</u> <b>ble</b> <b>RL</b>	MDL 3.3 3.3 MDL	Unit mg/Kg mg/Kg Unit mg/Kg		<b>prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 13:56 06/18/18 13:56 Analyzed 06/18/18 13:56 Analyzed	1 1 Dil Fac	7 8 9 10 11

0.1

0.1 %

76.0

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Result	ts					
Client: Timberwolf Environmer Project/Site: Timberwolf - New		G 170052				٦	FestAmerica J	lob ID: 490-15	3484-1	2
Client Sample ID: SB8 0 Date Collected: 06/05/18 11:4						La	b Sample	ID: 490-153 Matrix	484-5 : Solid	
Date Received: 06/08/18 09:2								Percent Solid		
Method: 8015C - Nonhaloge						-				5
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac	
C6-C10	3.2	U	6.5	3.2	mg/Kg		06/12/18 09:38	06/16/18 12:51	1	6
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Surrogate	/arrecovery	quanner								
Surrogate a,a,a-Trifluorotoluene	<u>93</u>		50 - 150				06/12/18 09:38	06/16/18 12:51	1	
	93			ied (Die	sel Rang	je Org		06/16/18 12:51	1	7
a,a,a-Trifluorotoluene	enated Organic			f <mark>ied (Die</mark> MDL		je Org D		06/16/18 12:51 Analyzed	1 Dil Fac	7 8
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge	enated Organic	<mark>cs using G</mark> Qualifier	C/FID -Modif	MDL	Unit		janics)		1 Dil Fac	7 8
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte	93 enated Organic Result	<mark>cs using G</mark> Qualifier	GC/FID -Modif RL	MDL 2.9	Unit	D	<mark>janics)</mark> Prepared	Analyzed 06/18/18 14:14		7 8 9
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28	enated Organic Result 3.8	<mark>Cs using G</mark> Qualifier J	GC/FID -Modif RL 5.7	MDL 2.9	Unit mg/Kg	— <b>D</b>	<b>panics)</b> Prepared 06/16/18 14:50	Analyzed 06/18/18 14:14		7 8 9 10
a,a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28 C24-C40	enated Organic Result 3.8 10	<mark>Cs using G</mark> Qualifier J	<b>C/FID -Modif</b> <u>RL</u> <u>5.7</u> 5.7	MDL 2.9	Unit mg/Kg	— <b>D</b>	<b>prepared</b> 06/16/18 14:50 06/16/18 14:50	Analyzed 06/18/18 14:14 06/18/18 14:14	1 1	7 8 9 10
a,a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28 C24-C40 Surrogate	enated Organic Result 3.8 10 %Recovery 98	CS USING G Qualifier J Qualifier	<b>C/FID -Modif</b> <u>RL</u> <u>5.7</u> <u>5.7</u> <u>Limits</u> <u>50 - 150</u>	MDL 2.9	Unit mg/Kg	— <b>D</b>	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 14:14 06/18/18 14:14 Analyzed	1 1	7 8 9 1( 11
a,a,a,a-Trifluorotoluene         Method: 8015C - Nonhaloge         Analyte         C10-C28         C24-C40         Surrogate         o-Terphenyl (Surr)	enated Organio Result 3.8 10 %Recovery 98	CS USING G Qualifier J Qualifier	<b>C/FID -Modif</b> <u>RL</u> <u>5.7</u> <u>5.7</u> <u>Limits</u> <u>50 - 150</u>	MDL 2.9	Unit mg/Kg mg/Kg		panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 14:14 06/18/18 14:14 Analyzed	1 1	7 8 9 10 11
Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ion	enated Organio Result 3.8 10 %Recovery 98	CS USING G Qualifier J Qualifier Phy - Solut	<b>C/FID -Modif</b> <u>RL</u> <u>5.7</u> <u>5.7</u> <u>Limits</u> <u>50 - 150</u> <b>ble</b>	MDL 2.9 2.9 MDL	Unit mg/Kg mg/Kg		<b>prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 14:14 06/18/18 14:14 Analyzed 06/18/18 14:14	1 1 Dil Fac	7 8 9 10 11
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ion Analyte	enated Organic Result 3.8 10 %Recovery 98 Chromatograp Result	CS USING G Qualifier J Qualifier Phy - Solut	<b>C/FID -Modif</b> <u>RL</u> 5.7 5.7 <u>Limits</u> 50 - 150 <b>ble</b> <b>RL</b>	MDL 2.9 2.9 MDL	Unit mg/Kg mg/Kg Unit		<b>prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 14:14 06/18/18 14:14 Analyzed 06/18/18 14:14 Analyzed	1 1 Dil Fac	7 8 10 11
Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ion Analyte Chloride	enated Organic Result 3.8 10 %Recovery 98 Chromatograp Result 20	CS USING G Qualifier J Qualifier Phy - Solut	<b>C/FID -Modif</b> <u>RL</u> 5.7 5.7 <u>Limits</u> 50 - 150 <b>ble</b> <b>RL</b>	MDL 2.9 2.9 MDL 7.9	Unit mg/Kg mg/Kg Unit mg/Kg		<b>prepared</b> 06/16/18 14:50 06/16/18 14:50 <b>Prepared</b> 06/16/18 14:50	Analyzed 06/18/18 14:14 06/18/18 14:14 Analyzed 06/18/18 14:14 Analyzed	1 1 Dil Fac	7 8 9 10 11

0.1

87.0

0.1 %

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Result	ts				
lient: Timberwolf Environr roject/Site: Timberwolf - N			•			-	FestAmerica J	lob ID: 490-15	3484-1
lient Sample ID: SB						La	b Sample	ID: 490-153 Matrix	484-6 :: Solid
ate Received: 06/08/18 0							Г	Percent Solid	
Method: 8015C - Nonhal	logenated Organie	cs using G	C/FID -Modif	ied (Ga	soline Ra	ange (	Organics)		
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
C6-C10	4.2	J	7.5	3.8	mg/Kg	<u></u>	06/12/18 09:38	06/16/18 13:21	1
							Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits					, <b>, _</b> u	
Surrogate a,a,a-Trifluorotoluene	<b>%Recovery</b> 93	Qualifier	50 - 150				06/12/18 09:38	06/16/18 13:21	1
<b>`</b>	93		50 - 150	ïed (Die	sel Rang	le Orç	06/12/18 09:38		1
a,a,a-Trifluorotoluene	93 logenated Organic		50 - 150	f <mark>ied (Die</mark> MDL		je Org D	06/12/18 09:38		1 Dil Fac
a,a,a-Trifluorotoluene Method: 8015C - Nonhal	93 logenated Organic	cs using G	50 - 150	MDL			06/12/18 09:38	06/16/18 13:21	1 Dil Fac 1
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte	93 logenated Organic Result	cs using G	50 - 150 GC/FID -Modif RL	MDL 3.1	Unit		06/12/18 09:38 ganics) Prepared	06/16/18 13:21 Analyzed 06/18/18 14:32	1 Dil Fac 1 1
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28	logenated Organic Result 28	cs using G Qualifier	50 - 150 <b>C/FID -Modif</b> <u>RL</u> <u>6.2</u>	MDL 3.1	Unit mg/Kg	— D #	06/12/18 09:38 ganics) Prepared 06/16/18 14:50	06/16/18 13:21 Analyzed 06/18/18 14:32	Dil Fac111Dil Fac
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40	logenated Organic Result 28 51	cs using G Qualifier	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 6.2 6.2	MDL 3.1	Unit mg/Kg	— D #	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50	Analyzed           06/18/18         13:21           Analyzed         06/18/18           06/18/18         14:32           06/18/18         14:32	1
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate	logenated Organic Result 28 51 %Recovery 93	CS USING G Qualifier Qualifier	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 6.2 6.2 6.2 <i>Limits</i> 50 - 150	MDL 3.1	Unit mg/Kg	— D #	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	06/16/18 13:21 Analyzed 06/18/18 14:32 06/18/18 14:32 Analyzed	1
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr)	logenated Organic Result 28 51 <i>%Recovery</i> 93 Ion Chromatograp	CS USING G Qualifier Qualifier	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 6.2 6.2 6.2 <i>Limits</i> 50 - 150	MDL 3.1	Unit mg/Kg mg/Kg	— D #	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	06/16/18 13:21 Analyzed 06/18/18 14:32 06/18/18 14:32 Analyzed	1
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I	logenated Organic Result 28 51 <i>%Recovery</i> 93 Ion Chromatograp	CS USING G Qualifier Qualifier phy - Solul	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 6.2 6.2 6.2 <i>Limits</i> 50 - 150 <b>ble</b>	MDL 3.1 3.1 MDL	Unit mg/Kg mg/Kg	D 森	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed           06/16/18 13:21           Analyzed           06/18/18 14:32           06/18/18 14:32           Analyzed           06/18/18 14:32	1 1 <b>Dil Fac</b> 1
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I Analyte Chloride General Chemistry	logenated Organic Result 28 51 %Recovery 93 Ion Chromatograp Result 890	CS USING G Qualifier Qualifier Qualifier Qualifier	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 6.2 6.2 <u>Limits</u> 50 - 150 <b>ble</b> <b>RL</b> 63	MDL 3.1 3.1 MDL 44	Unit mg/Kg mg/Kg Unit mg/Kg	D 77 27 27 27 27 27 27 27 27 27 27 27 27	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed           06/16/18 13:21           Analyzed           06/18/18 14:32           06/18/18 14:32           Analyzed           06/18/18 14:32           Analyzed           06/18/18 14:32	1 1 Dil Fac 1 Dil Fac 5
a,a,a-Trifluorotoluene Method: 8015C - Nonhal Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, I Analyte Chloride	logenated Organic Result 28 51 %Recovery 93 Ion Chromatograp Result 890	CS USING G Qualifier Qualifier phy - Solul	50 - 150 <b>C/FID -Modif</b> <b>RL</b> 6.2 6.2 6.2 <u>Limits</u> 50 - 150 <b>ble</b> <b>RL</b>	MDL 3.1 3.1 MDL 44	Unit mg/Kg mg/Kg Unit mg/Kg	D 77 27 27 27 27 27 27 27 27 27 27 27 27	06/12/18 09:38 panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed           06/16/18 13:21           Analyzed           06/18/18 14:32           06/18/18 14:32           Analyzed           06/18/18 14:32           Analyzed           06/18/18 14:32	1 1 Dil Fac 1 Dil Fac

0.1

79.5

0.1 %

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Resul'	ts					
lient: Timberwolf Environm roject/Site: Timberwolf - Ne		G 170052	-			Т	⊺estAmerica J	Job ID: 490-15	3484-1	
Client Sample ID: SB2 Date Collected: 06/05/18 1						La	b Sample	ID: 490-153 Matrix	3484-7 c: Solid	
ate Received: 06/08/18 0								Percent Solid		
Method: 8015C - Nonhald						ange C				
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac	
C6-C10	5.7	J	9.2	4.6	mg/Kg	— <del></del>	06/12/18 09:38	06/16/18 13:51	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
a,a,a-Trifluorotoluene	93		50 - 150				06/12/18 09:38	06/16/18 13:51	1	
Method: 8015C - Nonhald	ogenated Organi	cs using (	€C/FID -Modif	íied (Die	sel Ranç	je Org	janics)			Ì
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
C10-C28	3.5	U	7.1	3.5	mg/Kg		06/16/18 14:50	06/18/18 14:49	1	
C24-C40	3.5	U	7.1	3.5	mg/Kg	¢	06/16/18 14:50	06/18/18 14:49	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
o-Terphenyl (Surr)	90		50 - 150				06/16/18 14:50	06/18/18 14:49	1	
Method: 9056 - Anions, Io	on Chromatogra	phy - Solu	ble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	830		70	49	mg/Kg	<u> </u>		06/14/18 16:03	5	
Conorol Chamiotry										
General Chemistry										
Analyte	Result	Qualifier	RL		Unit %	D	Prepared	Analyzed	Dil Fac	

0.1

70.2

0.1 %

**Percent Solids** 

06/12/18 15:05

1

		Client	Sample F	Result	ts					
Client: Timberwolf Environmen Project/Site: Timberwolf - New		G 170052				Г	FestAmerica J	lob ID: 490-15	3484-1	2
Client Sample ID: SB2A Date Collected: 06/05/18 12:0						La	b Sample	ID: 490-153 Matrix	484-8 : Solid	
Date Received: 06/08/18 09:2							I	Percent Solid		
Method: 8015C - Nonhaloge						-	-			5
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac	
C6-C10	3.7	-	7.5	3.7	mg/Kg	<u>\$</u>	06/12/18 09:38	06/16/18 14:21	1	6
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Surrogate										
Surrogate a,a,a-Trifluorotoluene	91		50 - 150				06/12/18 09:38	06/16/18 14:21	1	
	•	cs using G		ied (Die	sel Rang	e Org		06/16/18 14:21	7	
a,a,a-Trifluorotoluene	enated Organic	cs using G Qualifier			esel Rang Unit	e Org		06/16/18 14:21 Analyzed	ז Dil Fac	8
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge	enated Organic	Qualifier	GC/FID -Modif			_	janics)		7 Dil Fac	8
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte	enated Organic Result	Qualifier U	GC/FID -Modif	MDL	Unit mg/Kg	D	j <mark>anics)</mark> Prepared	Analyzed 06/18/18 15:08		7 8 9
a,a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28	enated Organic Result 3.1	Qualifier U J	GC/FID -Modif RL 6.2	MDL 3.1	Unit mg/Kg	- D 7	panics) Prepared 06/16/18 14:50	Analyzed 06/18/18 15:08		7 8 9 10
a,a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28 C24-C40	enated Organic Result 3.1 3.2	Qualifier U J	GC/FID -Modif RL 6.2 6.2	MDL 3.1	Unit mg/Kg	- D 7	<b>Prepared</b> 06/16/18 14:50 06/16/18 14:50	Analyzed 06/18/18 15:08 06/18/18 15:08	1 1	7 8 9 10
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28 C24-C40 Surrogate	enated Organic Result 3.1 3.2 %Recovery 99	Qualifier U J Qualifier	GC/FID -Modif RL 6.2 6.2 6.2 Limits 50 - 150	MDL 3.1	Unit mg/Kg	- D 7	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 15:08 06/18/18 15:08 Analyzed	1 1 Dil Fac	7 8 9 10 11
a,a,a-Trifluorotoluene         Method: 8015C - Nonhaloge         Analyte         C10-C28         C24-C40         Surrogate         o-Terphenyl (Surr)	enated Organio Result 3.1 3.2 %Recovery 99 Chromatograp	Qualifier U J Qualifier	GC/FID -Modif RL 6.2 6.2 6.2 Limits 50 - 150	MDL 3.1 3.1	Unit mg/Kg	- D 7	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared	Analyzed 06/18/18 15:08 06/18/18 15:08 Analyzed	1 1 Dil Fac	7 8 9 10 11
Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ion	enated Organio Result 3.1 3.2 %Recovery 99 Chromatograp	Qualifier U J Qualifier phy - Solul	GC/FID -Modif RL 6.2 6.2 <u>Limits</u> 50 - 150 ble	MDL 3.1 3.1 MDL	Unit mg/Kg mg/Kg		panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed 06/18/18 15:08 06/18/18 15:08 Analyzed 06/18/18 15:08	1 1 Dil Fac	7 8 9 10 11
a,a,a-Trifluorotoluene Method: 8015C - Nonhaloge Analyte C10-C28 C24-C40 Surrogate o-Terphenyl (Surr) Method: 9056 - Anions, Ion Analyte	enated Organic Result 3.1 3.2 %Recovery 99 Chromatograp Result	Qualifier U J Qualifier phy - Solul	GC/FID -Modif RL 6.2 6.2 <u>Limits</u> 50 - 150 ble RL	MDL 3.1 3.1 MDL	Unit mg/Kg mg/Kg Unit	— ₩ ₩ ₽	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed 06/18/18 15:08 06/18/18 15:08 Analyzed 06/18/18 15:08 Analyzed	Dil Fac	7 8 9 10 11
a,a,a-Trifluorotoluene         Method: 8015C - Nonhaloge         Analyte         C10-C28         C24-C40         Surrogate         o-Terphenyl (Surr)         Method: 9056 - Anions, Ion         Analyte         Chloride	enated Organic Result 3.1 3.2 %Recovery 99 Chromatograp Result 1600	Qualifier U J Qualifier phy - Solul	GC/FID -Modif RL 6.2 6.2 <u>Limits</u> 50 - 150 ble RL	MDL 3.1 3.1 MDL	Unit mg/Kg mg/Kg Unit mg/Kg	— ₩ ₩ ₽	panics) Prepared 06/16/18 14:50 06/16/18 14:50 Prepared 06/16/18 14:50	Analyzed 06/18/18 15:08 06/18/18 15:08 Analyzed 06/18/18 15:08 Analyzed	Dil Fac	7 8 9 10 11

0.1

0.1 %

79.0

# **QC Sample Results**

Lab Sample ID: MB 490-5	21113/1-A									Clie		ole ID: M		
Matrix: Solid												Prep Ty		
Analysis Batch: 522151		MR	мв									Prep Ba	atch: 5/	21113
Analyte	Re		Qualifier	RL		MDL	Unit		D	Pr	repared	Analyz	zed	Dil Fac
C6-C10		2.5	U	5.0			mg/K				•	06/16/18		1
							0	0						
Surrenate	% Deces		MB	Limits						Π.	in a word	Analy		Dil Fac
Surrogate a.a.a-Trifluorotoluene		92	Qualifier	<u>50 _ 150</u>							repared	Analyz 06/16/18		DII Fac 1
a,a,a-11111001010101010		92		50 - 750						00/11	2/10 09.30	00/10/18	10.22	1
Lab Sample ID: LCS 490-	521113/2-A							Clie	ent	San	nple ID:	Lab Cor	ntrol Sa	ample
Matrix: Solid												Prep Ty		
Analysis Batch: 522151												Prep Ba	atch: 5	21113
				Spike	LCS	LCS						%Rec.		
Analyte				Added	Result	Qual	ifier	Unit		D	%Rec	Limits		
C6-C10				500	508			mg/Kg			102	70 - 130		
	LCS	LCS	5											
Surrogate	%Recovery	Qua	lifier	Limits										
a,a,a-Trifluorotoluene	84			50 - 150										
														_
Lab Sample ID: LCSD 490	)-521113/3-A						C	lient Sa	am	ple		Control		
Matrix: Solid												Prep Ty		
Analysis Batch: 522151				Spike	LCSD	1.09	n					Prep Ba %Rec.	itcn: 5/	ZTTT3 RPD
Analyte				Added	Result			Unit		D	%Rec	Limits	RPD	Limit
C6-C10				500	500			mg/Kg		_	100	70 - 130	2	21
0	LCSD													
Surrogate a,a,a-Trifluorotoluene	%Recovery 84	Qua	lifter	Limits 50 - 150										
a,a,a-1111100101010ene	04			50 - 150										
Lab Sample ID: 490-15348	34-1 MS										Client	Sample	ID: SB	4 0-1'
Matrix: Solid												Prep Ty		
Analysis Batch: 522151												Prep Ba		
-	Sample	Sam	nple	Spike	MS	MS						%Rec.		
Analyte	Result		lifier	Added	Result	Qual	ifier	Unit		D	%Rec	Limits		
C6-C10	3.6	U		726	712			mg/Kg		<del>₿</del>	98	56 - 130		
	MS	мs												
Surrogate	%Recovery		lifier	Limits										
a,a,a-Trifluorotoluene	82			50 - 150										
Lab Sample ID: 490-15348	34-1 MSD											Sample		
Matrix: Solid												Prep Ty		
Analysis Batch: 522151	Sample	Sam	nle	Spike	Men	MSD						Prep Ba %Rec.	atcn: 52	21113 RPD
Analyte	Result		-	Added	Result			Unit		D	%Rec	%Rec.	RPD	Limit
C6-C10	3.6			726	694	Gudi		mg/Kg		₽	<u>96</u>	56 - 130	3	21
					004							20 - 100	5	- 1
• · ·	MSD													
Surrogate	%Recovery	Qua	lifier	Limits										
				E0 1E0										

a,a,a-Trifluorotoluene 84

50 - 150

# **QC Sample Results**

#### Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics) Lab Sample ID: MB 490-522413/1-A **Client Sample ID: Method Blank Matrix: Solid** Prep Type: Total/NA Analysis Batch: 522599 Prep Batch: 522413 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac C10-C28 5.0 2.5 U 2.5 mg/Kg 06/16/18 14:50 06/18/18 12:08 1 C24-C40 2.5 U 5.0 2.5 mg/Kg 06/16/18 14:50 06/18/18 12:08 1 MB MB Surrogate %Recovery Qualifier Limits Prepared Analvzed Dil Fac o-Terphenyl (Surr) 104 50 - 150 06/16/18 14:50 06/18/18 12:08 1 Lab Sample ID: LCS 490-522413/2-A **Client Sample ID: Lab Control Sample Matrix: Solid** Prep Type: Total/NA Analysis Batch: 522599 Prep Batch: 522413 LCS LCS Spike %Rec. Limits Analyte Added Result Qualifier Unit D %Rec C10-C28 40.0 44.3 111 54 - 130 mg/Kg LCS LCS Surrogate %Recovery Qualifier Limits o-Terphenyl (Surr) 50 - 150 116 Lab Sample ID: LCSD 490-522413/3-A **Client Sample ID: Lab Control Sample Dup Matrix: Solid** Prep Type: Total/NA Analysis Batch: 522599 Prep Batch: 522413 LCSD LCSD Spike %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit C10-C28 40.0 54 - 130 43.0 mg/Kg 108 3 47 LCSD LCSD Surrogate %Recovery Qualifier Limits o-Terphenyl (Surr) 112 50 - 150 Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 490-521724/3 Matrix: Solid Analysis Batch: 521724									Clie	ent San	ple ID: Method Prep Type: To	
	MB	МВ										
Analyte	Result	Qualifier		RL	I	MDL	Unit		D P	repared	Analyzed	Dil Fac
Chloride	0.70	U		1.0		0.70	mg/Kg				06/14/18 12:07	1
Lab Sample ID: LCS 490-521724/4 Matrix: Solid Analysis Batch: 521724								Clie	ent Sa	mple ID	: Lab Control S Prep Type: To	
Analysis Baton. 021724			Spike		LCS	LCS					%Rec.	
Analyte			Added		Result	Qual	lifier	Unit	D	%Rec	Limits	
Chloride			10.0		9.84			mg/Kg		98	80 - 120	

# **QC Sample Results**

# Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-521724 Matrix: Solid	4/5				(	Client Sa	mple	ID: Lab	Control Prep Ty		
Analysis Batch: 521724									i i op i y		
· · · · · <b>,</b> · · · · · · · · · · · · · · · · · · ·			Spike	LCSE	LCSD				%Rec.		RPD
Analyte			Added	Resul	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride			10.0	9.92		mg/Kg		99	80 - 120	1	20
Lab Sample ID: MB 490-521443/1	- <b>A</b>						Cli	ent Sam	ple ID: M	ethod	Blank
Matrix: Solid									Prep Ty		
Analysis Batch: 521653											
	MB	MB									
Analyte	Result	Qualifier		RL	MDL Unit	0	) F	repared	Analy	zed	Dil Fac
Chloride	7.0	U	_	10	7.0 mg/k	g –			06/14/18	04:56	1
Matrix: Solid	2-A					Clier	nt Sa	mple ID	: Lab Cor Prep Ty		
Matrix: Solid	2-A		Spike	LCS	LCS	Clier	nt Sa	mple ID			
Matrix: Solid Analysis Batch: 521653	2-A		Spike Added		LCS Qualifier	<b>Clier</b> Unit	nt Sa D	mple ID %Rec	Prep Ty		
Matrix: Solid Analysis Batch: 521653 Analyte	2-A		•		Qualifier				Prep Ty %Rec.		
Matrix: Solid Analysis Batch: 521653 Analyte Chloride			Added	Resul	Qualifier	Unit mg/Kg	D	<b>%Rec</b>	Prep Ty %Rec. Limits	ype: So	oluble
Matrix: Solid Analysis Batch: 521653 Analyte Chloride Lab Sample ID: LCSD 490-521443			Added	Resul	Qualifier	Unit mg/Kg	D	<b>%Rec</b>	Prep Ty %Rec. Limits 80 - 120	ype: So  Sampl	e Dup
Matrix: Solid Analysis Batch: 521653 Analyte Chloride Lab Sample ID: LCSD 490-521443 Matrix: Solid			Added	Resul	Qualifier	Unit mg/Kg	D	<b>%Rec</b>	Prep Ty %Rec. Limits 80 - 120	ype: So  Sampl	e Dup
Matrix: Solid Analysis Batch: 521653 Analyte Chloride Lab Sample ID: LCSD 490-521443 Matrix: Solid			Added	Resul 98.0	Qualifier	Unit mg/Kg	D	<b>%Rec</b>	Prep Ty %Rec. Limits 80 - 120	ype: So  Sampl	e Dup
Lab Sample ID: LCS 490-521443/2 Matrix: Solid Analysis Batch: 521653 Analyte Chloride Lab Sample ID: LCSD 490-521443 Matrix: Solid Analysis Batch: 521653 Analyte			<b>Added</b> 99.1	Resul 98.0 LCSE	Qualifier	Unit mg/Kg	D	<b>%Rec</b>	Prep Ty %Rec. Limits 80 - 120 Control Prep Ty	ype: So  Sampl	e Dup oluble

#### Method: Moisture - Percent Moisture

Lab Sample ID: 490-15348 Matrix: Solid Analysis Batch: 521284	4-4 DU						Client Sample ID: SB Prep Type: Tot	
· · · · · <b>,</b> · · · · · · · · · · · · · · · · · · ·	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	24.0		25.7		%		7	20
Percent Solids	76.0		74.3		%		2	20

Prep Type

Total/NA

Matrix

Solid

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

**Client Sample ID** 

SB4 0-1'

SB5 0-1'

SB6 0-1'

SB7 0-1'

SB8 0-1'

SB9 0-1'

SB2A 4-5'

SB4 0-1'

SB4 0-1'

SB2A 9-10'

Method Blank

Lab Control Sample

Lab Control Sample Dup

Method

5030B

**Prep Batch** 

# 10

Analysis Batch: 522151

**GC VOA** 

Prep Batch: 521113

Lab Sample ID

490-153484-1

490-153484-2

490-153484-3

490-153484-4

490-153484-5

490-153484-6

490-153484-7

490-153484-8

MB 490-521113/1-A

LCS 490-521113/2-A

LCSD 490-521113/3-A

490-153484-1 MS

490-153484-1 MSD

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-1	SB4 0-1'	Total/NA	Solid	8015C	521113
490-153484-2	SB5 0-1'	Total/NA	Solid	8015C	521113
490-153484-3	SB6 0-1'	Total/NA	Solid	8015C	521113
490-153484-4	SB7 0-1'	Total/NA	Solid	8015C	521113
490-153484-5	SB8 0-1'	Total/NA	Solid	8015C	521113
490-153484-6	SB9 0-1'	Total/NA	Solid	8015C	521113
490-153484-7	SB2A 4-5'	Total/NA	Solid	8015C	521113
490-153484-8	SB2A 9-10'	Total/NA	Solid	8015C	521113
MB 490-521113/1-A	Method Blank	Total/NA	Solid	8015C	521113
LCS 490-521113/2-A	Lab Control Sample	Total/NA	Solid	8015C	521113
LCSD 490-521113/3-A	Lab Control Sample Dup	Total/NA	Solid	8015C	521113
490-153484-1 MS	SB4 0-1'	Total/NA	Solid	8015C	521113
490-153484-1 MSD	SB4 0-1'	Total/NA	Solid	8015C	521113

## GC Semi VOA

#### Prep Batch: 522413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-1	SB4 0-1'	Total/NA	Solid	3550C	
490-153484-2	SB5 0-1'	Total/NA	Solid	3550C	
490-153484-3	SB6 0-1'	Total/NA	Solid	3550C	
490-153484-4	SB7 0-1'	Total/NA	Solid	3550C	
490-153484-5	SB8 0-1'	Total/NA	Solid	3550C	
490-153484-6	SB9 0-1'	Total/NA	Solid	3550C	
490-153484-7	SB2A 4-5'	Total/NA	Solid	3550C	
490-153484-8	SB2A 9-10'	Total/NA	Solid	3550C	
MB 490-522413/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 490-522413/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 490-522413/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

#### Analysis Batch: 522599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-1	SB4 0-1'	Total/NA	Solid	8015C	522413
490-153484-2	SB5 0-1'	Total/NA	Solid	8015C	522413

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Matrix

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

**Client Sample ID** 

SB6 0-1'

SB7 0-1'

SB8 0-1'

SB9 0-1'

SB2A 4-5'

SB2A 9-10'

Method Blank

Lab Control Sample

Lab Control Sample Dup

GC Semi VOA (Continued)

Analysis Batch: 522599 (Continued)

Method

8015C

8015C

8015C

8015C

8015C

8015C

8015C

8015C

8015C

**Prep Batch** 

522413

522413

522413

522413

522413

522413

522413

522413

522413

# 8 9 1(

Leach Batch: 521443

HPLC/IC

Lab Sample ID

490-153484-3

490-153484-4

490-153484-5

490-153484-6

490-153484-7

490-153484-8

MB 490-522413/1-A

LCS 490-522413/2-A

LCSD 490-522413/3-A

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-1	SB4 0-1'	Soluble	Solid	DI Leach	
490-153484-2	SB5 0-1'	Soluble	Solid	DI Leach	
490-153484-3	SB6 0-1'	Soluble	Solid	DI Leach	
490-153484-4	SB7 0-1'	Soluble	Solid	DI Leach	
490-153484-5	SB8 0-1'	Soluble	Solid	DI Leach	
490-153484-6	SB9 0-1'	Soluble	Solid	DI Leach	
490-153484-7	SB2A 4-5'	Soluble	Solid	DI Leach	
490-153484-8	SB2A 9-10'	Soluble	Solid	DI Leach	
MB 490-521443/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 490-521443/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 490-521443/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

#### Analysis Batch: 521653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-1	SB4 0-1'	Soluble	Solid	9056	521443
490-153484-2	SB5 0-1'	Soluble	Solid	9056	521443
490-153484-3	SB6 0-1'	Soluble	Solid	9056	521443
490-153484-4	SB7 0-1'	Soluble	Solid	9056	521443
490-153484-5	SB8 0-1'	Soluble	Solid	9056	521443
MB 490-521443/1-A	Method Blank	Soluble	Solid	9056	521443
LCS 490-521443/2-A	Lab Control Sample	Soluble	Solid	9056	521443
LCSD 490-521443/3-A	Lab Control Sample Dup	Soluble	Solid	9056	521443

#### Analysis Batch: 521724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-6	SB9 0-1'	Soluble	Solid	9056	521443
490-153484-7	SB2A 4-5'	Soluble	Solid	9056	521443
490-153484-8	SB2A 9-10'	Soluble	Solid	9056	521443
MB 490-521724/3	Method Blank	Total/NA	Solid	9056	
LCS 490-521724/4	Lab Control Sample	Total/NA	Solid	9056	
LCSD 490-521724/5	Lab Control Sample Dup	Total/NA	Solid	9056	

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-1

# **General Chemistry**

#### Analysis Batch: 521284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-1	SB4 0-1'	Total/NA	Solid	Moisture	
490-153484-2	SB5 0-1'	Total/NA	Solid	Moisture	
490-153484-3	SB6 0-1'	Total/NA	Solid	Moisture	
490-153484-4	SB7 0-1'	Total/NA	Solid	Moisture	
490-153484-5	SB8 0-1'	Total/NA	Solid	Moisture	
490-153484-6	SB9 0-1'	Total/NA	Solid	Moisture	
490-153484-7	SB2A 4-5'	Total/NA	Solid	Moisture	
490-153484-8	SB2A 9-10'	Total/NA	Solid	Moisture	
490-153484-4 DU	SB7 0-1'	Total/NA	Solid	Moisture	

# Lab Chronicle

Initial

Amount

Initial

Amount

5.15 g

0.1 mL

25.31 g

3.01 g

Batch

Number

521284

Batch

Number

521113

522151

522413

522599

521443

521653

Final

Amount

Final

Amount

5.0 mL

5 mL

1.00 mL

30 mL

Dil

Dil

1

1

1

Factor

Factor

Run

Run

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Batch

Method

Moisture

Batch

5030B

8015C

3550C

8015C

DI Leach 9056

Method

Client Sample ID: SB4 0-1'

Date Collected: 06/05/18 12:05

Date Received: 06/08/18 09:20

Client Sample ID: SB4 0-1' Date Collected: 06/05/18 12:05

Date Received: 06/08/18 09:20

Prep Type

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Soluble

Soluble

Total/NA

Batch

Туре

Analysis

Batch

Type

Prep

Prep

Analysis

Analysis

Analysis

Leach

Lab Sample ID: 490-153484-1

Lab Sample ID: 490-153484-1

Analyst

Analyst

DHC

Prepared

or Analyzed

Prepared

or Analyzed

06/12/18 09:38

06/16/18 10:52 FKG

06/16/18 14:50 AMD

06/18/18 13:02 GMH

06/13/18 10:20 LDC

06/14/18 08:09 SW1

06/12/18 15:05 BAA

Matrix: Solid

Lab

TAL NSH

Matrix: Solid

Lab

TAL NSH

TAL NSH

TAL NSH

TAL NSH

TAL NSH

TAL NSH

Percent Solids: 80.4

# 9

#### Lab Sample ID: 490-153484-2 Matrix: Solid

Date Collected: 06/05/18 12:15 Date Received: 06/08/18 09:20

Client Sample ID: SB5 0-1'

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			521284	06/12/18 15:05	BAA	TAL NSH

#### Client Sample ID: SB5 0-1' Date Collected: 06/05/18 12:15 Date Received: 06/08/18 09:20

#### Lab Sample ID: 490-153484-2 Matrix: Solid Percent Solids: 84.9

Lab Sample ID: 490-153484-3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.11 g	5.0 mL	521113	06/12/18 09:38	DHC	TAL NSH
Total/NA	Analysis	8015C		1	0.1 mL	5 mL	522151	06/16/18 11:21	FKG	TAL NSH
Total/NA	Prep	3550C			25.21 g	1.00 mL	522413	06/16/18 14:50	AMD	TAL NSH
Total/NA	Analysis	8015C		1			522599	06/18/18 13:20	GMH	TAL NSH
Soluble	Leach	DI Leach			2.95 g	30 mL	521443	06/13/18 10:20	LDC	TAL NSH
Soluble	Analysis	9056		1			521653	06/14/18 08:24	SW1	TAL NSH

#### Client Sample ID: SB6 0-1' Date Collected: 06/05/18 11:30 Date Received: 06/08/18 09:20

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			521284	06/12/18 15:05	BAA	TAL NSH

Matrix: Solid

# Lab Chronicle

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Lab Sample ID: 490-153484-4

Lab Sample ID: 490-153484-4

Lab Sample ID: 490-153484-5

Lab Sample ID: 490-153484-5

9

Matrix: Solid

Matrix: Solid

Matrix: Solid

Matrix: Solid

Percent Solids: 87.0

Percent Solids: 76.0

#### Client Sample ID: SB6 0-1' Lab Sample ID: 490-153484-3 Date Collected: 06/05/18 11:30 Matrix: Solid Date Received: 06/08/18 09:20 Percent Solids: 73.3 Batch Batch Dil Initial Final Batch Prepared Prep Type Type Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Prep 5030B 5.04 g 5.0 mL 521113 06/12/18 09:38 DHC TAL NSH Total/NA 8015C 0.1 mL 5 mL 522151 06/16/18 11:51 FKG TAL NSH Analysis 1 Total/NA Prep 3550C 25.31 q 1.00 mL 522413 06/16/18 14:50 AMD TAL NSH Total/NA Analysis 8015C 522599 06/18/18 13:37 GMH TAL NSH 1 Soluble 30 mL 521443 06/13/18 10:20 LDC TAL NSH Leach DI Leach 3.03 g 9056 521653 TAL NSH Soluble Analysis 1 06/14/18 09:08 SW1

#### Client Sample ID: SB7 0-1' Date Collected: 06/05/18 11:40

Date Received: 06/08/18 09:20

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			521284	06/12/18 15:05	BAA	TAL NSH

## Client Sample ID: SB7 0-1' Date Collected: 06/05/18 11:40 Date Received: 06/08/18 09:20

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.13 g	5.0 mL	521113	06/12/18 09:38	DHC	TAL NSH
Total/NA	Analysis	8015C		1	0.1 mL	5 mL	522151	06/16/18 12:21	FKG	TAL NSH
Total/NA	Prep	3550C			25.13 g	1.00 mL	522413	06/16/18 14:50	AMD	TAL NSH
Total/NA	Analysis	8015C		1			522599	06/18/18 13:56	GMH	TAL NSH
Soluble	Leach	DI Leach			3.05 g	30 mL	521443	06/13/18 10:20	LDC	TAL NSH
Soluble	Analysis	9056		1			521653	06/14/18 09:23	SW1	TAL NSH

# Client Sample ID: SB8 0-1' Date Collected: 06/05/18 11:48

Date Received: 06/08/18 09:20

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			521284	06/12/18 15:05	BAA	TAL NSH

#### Client Sample ID: SB8 0-1' Date Collected: 06/05/18 11:48 Date Received: 06/08/18 09:20

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.03 g	5.0 mL	521113	06/12/18 09:38	DHC	TAL NSH
Total/NA	Analysis	8015C		1	0.1 mL	5 mL	522151	06/16/18 12:51	FKG	TAL NSH
Total/NA	Prep	3550C			25.08 g	1.00 mL	522413	06/16/18 14:50	AMD	TAL NSH
Total/NA	Analysis	8015C		1			522599	06/18/18 14:14	GMH	TAL NSH
Soluble	Leach	DI Leach			3.05 g	30 mL	521443	06/13/18 10:20	LDC	TAL NSH

# Lab Chronicle

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Lab Sample ID: 490-153484-7

Lab Sample ID: 490-153484-7

Matrix: Solid

Matrix: Solid

Percent Solids: 70.2

ate Received	d: 06/08/18 0	9:20						Р	ercent S	olids: 87
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Analysis	9056		1			521653	06/14/18 09:38	SW1	TAL NSH
lient Sam	d: 06/05/18 1	2:00					La	b Sample II		153484- atrix: Soli
	d: 06/05/18 1	2:00		Dil	Initial	Final	La			
ate Collecte	d: 06/05/18 1 <u>1: 06/08/18 0</u> Batch	2:00 9:20	Run	Dil Factor	Initial Amount	Final Amount		b Sample II Prepared or Analyzed		
ate Collecte ate Received	d: 06/05/18 1 d: 06/08/18 0	2:00 9:20 Batch	Run				Batch	Prepared	Ma	atrix: Sol

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.03 g	5.0 mL	521113	06/12/18 09:38	DHC	TAL NSH
Total/NA	Analysis	8015C		1	0.1 mL	5 mL	522151	06/16/18 13:21	FKG	TAL NSH
Total/NA	Prep	3550C			25.52 g	1.00 mL	522413	06/16/18 14:50	AMD	TAL NSH
Total/NA	Analysis	8015C		1			522599	06/18/18 14:32	GMH	TAL NSH
Soluble	Leach	DI Leach			2.98 g	30 mL	521443	06/13/18 10:20	LDC	TAL NSH
Soluble	Analysis	9056		5			521724	06/14/18 15:49	SW1	TAL NSH

#### Client Sample ID: SB2A 4-5' Date Collected: 06/05/18 11:55 Date Received: 06/08/18 09:20

—	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			521284	06/12/18 15:05	BAA	TAL NSH

#### Client Sample ID: SB2A 4-5' Date Collected: 06/05/18 11:55 Date Received: 06/08/18 09:20

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.05 g	5.0 mL	521113	06/12/18 09:38	DHC	TAL NSH
Total/NA	Analysis	8015C		1	0.1 mL	5 mL	522151	06/16/18 13:51	FKG	TAL NSH
Total/NA	Prep	3550C			25.17 g	1.00 mL	522413	06/16/18 14:50	AMD	TAL NSH
Total/NA	Analysis	8015C		1			522599	06/18/18 14:49	GMH	TAL NSH
Soluble	Leach	DI Leach			3.05 g	30 mL	521443	06/13/18 10:20	LDC	TAL NSH
Soluble	Analysis	9056		5			521724	06/14/18 16:03	SW1	TAL NSH
## Lab Chronicle

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Lab Sample ID: 490-153484-8

Lab Sample ID: 490-153484-8

06/13/18 10:21 LDC

06/14/18 16:18 SW1

Matrix: Solid

Matrix: Solid

TAL NSH

TAL NSH

#### Client Sample ID: SB2A 9-10' Date Collected: 06/05/18 12:00

Date Received: 06/08/18 09:20

_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			521284	06/12/18 15:05	BAA	TAL NSH

#### Client Sample ID: SB2A 9-10' Date Collected: 06/05/18 12:00 Date Received: 06/08/18 09:20

Leach

Analysis

DI Leach

9056

: 06/08/18 09:20						P	ercent S	olids: 79.0
Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
5030B			5.14 g	5.0 mL	521113	06/12/18 09:38	DHC	TAL NSH
8015C		1	0.1 mL	5 mL	522151	06/16/18 14:21	FKG	TAL NSH
3550C 8015C		1	25.44 g	1.00 mL	522413 522599			TAL NSH TAL NSH
	Batch Method 5030B 8015C	Batch         Run           5030B         8015C           3550C         3550C	BatchDilMethodRunFactor5030B8015C13550C1	Batch MethodDil RunDil FactorInitial Amount5030B 8015C5.14 g3550C10.1 mL	Batch MethodRunDil FactorInitial AmountFinal Amount5030B 8015C10.1 mL5.0 mL3550C25.44 g1.00 mL	Batch         Run         Dil         Initial         Final         Batch           Method         Run         Factor         Amount         Amount         Number           5030B         5.14 g         5.0 mL         521113           8015C         1         0.1 mL         5 mL         522151           3550C         25.44 g         1.00 mL         522413	Batch         Run         Dil Factor         Initial Amount         Final Amount         Batch         Prepared or Analyzed           5030B         5.14 g         5.0 mL         521113         06/12/18 09:38           8015C         1         0.1 mL         5 mL         522151         06/16/18 14:21           3550C         25.44 g         1.00 mL         522413         06/16/18 14:50	Batch         Run         Dil         Initial         Final         Batch         Prepared           Method         Run         Factor         Amount         Amount         Source         Source         Or Analyzed         Analyst           5030B         5.14 g         5.0 mL         521113         O6/12/18 09:38         DHC           8015C         1         0.1 mL         5 mL         522151         O6/16/18 14:21         FKG           3550C         25.44 g         1.00 mL         522413         O6/16/18 14:50         AMD

30 mL

521443

521724

3.00 g

10

#### Laboratory References:

Prep Type Total/NA Total/NA Total/NA Total/NA Soluble

Soluble

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TestAmerica Nashville

## **Method Summary**

#### Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Method	Method Description	Protocol	Laboratory
3015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL NSH
3015C	Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	SW846	TAL NSH
9056	Anions, Ion Chromatography	SW846	TAL NSH
Aoisture	Percent Moisture	EPA	TAL NSH
3550C	Ultrasonic Extraction	SW846	TAL NSH
5030B	Purge and Trap	SW846	TAL NSH
OI Leach	Deionized Water Leaching Procedure	ASTM	TAL NSH

#### **Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## **Accreditation/Certification Summary**

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

#### Laboratory: TestAmerica Nashville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-19
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	06-30-18
Arizona	State Program	9	AZ0473	05-05-19
Arkansas DEQ	State Program	6	88-0737	04-25-19
California	State Program	9	2938	10-31-18
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-18
Georgia	State Program	4	E87358(FL)/453.07(A2L A)	06-30-18
Illinois	NELAP	5	200010	12-09-18
Iowa	State Program	7	131	04-01-18 *
Kansas	NELAP	7	E-10229	10-31-18
Kentucky (UST)	State Program	4	19	06-30-18
Kentucky (WW)	State Program	4	90038	12-31-18
Louisiana	NELAP	6	30613	06-30-18
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-19
Massachusetts	State Program	1	M-TN032	06-30-18
Minnesota	NELAP	5	047-999-345	12-31-18
Mississippi	State Program	4	N/A	06-30-18
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-18
New Hampshire	NELAP	1	2963	10-09-18
New Jersey	NELAP	2	TN965	06-30-18
New York	NELAP	2	11342	03-31-19
North Carolina (WW/SW)	State Program	4	387	12-31-18
North Dakota	State Program	8	R-146	06-30-18
Ohio VAP	State Program	5	CL0033	07-06-19
Oklahoma	State Program	6	9412	08-31-18
Oregon	NELAP	10	TN200001	04-26-19
Pennsylvania	NELAP	3	68-00585	06-30-18
Rhode Island	State Program	1	LAO00268	12-30-18
South Carolina	State Program	4	84009 (001)	02-28-18 *
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-18
USDA	Federal		P330-13-00306	12-01-19
Utah	NELAP	8	TN00032	07-31-18
Virginia	NELAP	3	460152	06-14-18 *
Washington	State Program	10	C789	07-19-18
West Virginia DEP	State Program	3	219	02-28-19
Wisconsin	State Program	5	998020430	08-31-18
Wyoming (UST)	A2LA	8	453.07	12-31-19

#### Laboratory: TestAmerica Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	17-051-0	08-04-18
Louisiana	NELAP	6	01967	06-30-18
Oklahoma	State Program	6	2017-138	08-31-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Nashville

## **Accreditation/Certification Summary**

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

11 12

## Laboratory: TestAmerica Houston (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Texas	NELAP	6	T104704223-17-22	10-31-18
USDA	Federal		P330-18-00130	04-30-21

TestAmerica		
THE LEADER IN ENVIRONMENTAL TESTING Nashville, TN	<b>COOLER RECEIPT FORM</b>	490-153484 Chain of Custody
	Ime Samples Placed In Storage       12.2         4 digits, FedEx)       Courier: FedEx         H Strip Lot       Image: Chlorine Strip Lot	450 S (2 Hour Window)
<ol> <li>If Item #2 temperature is 0°C or less, was</li> <li>Were custody seals on outside of cooler?</li> <li>If yes, how many and where:</li> </ol>	the representative sample or temp blank frozen?	YES NONA
<ol> <li>Were the seals intact, signed, and dated c</li> <li>Were custody papers inside cooler?</li> <li><u>I certify that I opened the cooler and answere</u></li> </ol>	24	YES.NONA
<ol> <li>Were custody seals on containers:</li> <li>Were these signed and dated correctly?</li> <li>Packing mat'l used? Bubblewing P</li> </ol>	YES NO and Intact	YESNONA YESNONA
<ol> <li>9. Cooling process:</li> <li>10. Did all containers arrive in good condition</li> <li>11. Were all container labels complete (#, data)</li> </ol>	Ice-pack Ice (direct contact) Dry ice n (unbroken)?	e Other None
<ul> <li>12. Did all container labels and tags agree with</li> <li>13a. Were VOA vials received?</li> <li>b. Was there any observable headspace pro</li> </ul>	h custody papers?	YESNONA YESNONA YESNONA YESNONA
🚳 🍋 Larger than this.		J. J
14. Was there a Trip Blank in this cooler?		
<ul><li>15a. On pres'd bottles, did pH test strips sugg</li><li>b. Did the bottle labels indicate that the cor</li><li>16. Was residual chlorine present?</li></ul>		YESNO(NA) YESNO(NA) YESNO(NA)
<u>I certify that I checked for chlorine and pH as p</u> 17. Were custody papers properly filled out (in 18. Did you sign the custody papers in the app	k, signed, etc)?	EsNONA
<ol> <li>Were correct containers used for the analy</li> <li>Was sufficient amount of sample sent in ea</li> </ol>	sis requested?	ESNONA ESNONA ESNONA
I certify that I entered this project into LIMS and I certify that I attached a label with the unique L 21. Were there Non-Conformance issues at log		 

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Q <mark>B 4 5</mark> 6

TestAmerica Mouston 6310 Rothway Streat	Chain of C	Chain of Custody Record 1 77ク島ク	<sup>2</sup> TestAmerica
Houston, TX 77046-5%62 Phene: 713.690.44% Fax: 713.690.5646	Regulatory Program:		THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. TAL-8210 (0713)
Client Contact	Aanager: Dean Johner	H	COC No:
Company Name: Timberworf		Lab Contact: Carrier:	l of COCs
Address: 1970 W. Willa Maria	Turnaround Time		Sampler:
City/State/Zip: Knyan TX 77807	WORKING DAYS		For Lab Use Only:
Phone:	TAT If different from Below		Walk-in Client:
Project Name: & Aghe A.C. 3000	/ <u>,</u> ) ( <u>n</u> /		Lab Sampling:
ס	1 week 2 davs		Job / SDG No.:
P 0#	1 day	) [6	
Samole Identification	Sample Sample Arrive A Sample Cacomp A Sample Cacomp Marrix Cont Time Cacomp Marrix Cont Time Cont Sample Cacomp Marrix Cac Marrix Cont Sample Cac Marrix Ca		Samula Shariffa Mofas.
584 0	8 1205 G Soil I N		
585	1315 1		
3 586 0-1	1130		
Y 587 N-1			
558	0 48		
62589 0-1'			Loc: 490
19582A 4-5'	1112		133484
Jassi 4-10'	1/ 1/ 1/ 1/		
9 582 A 14-151	1305		
10 SE2 A 19-20'	5101		
11 SED H BY-DS		>	
Preservation Used: 1= Ice 2= HC: 3= H2S04 4=HN03	3: 5=NaOH 6= Other		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Commants Section if the lab is to discose of the sample.	000	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month	etained longer than 1 month)
Non-Hazard	Poison B     Unknown	Return to Client Client Control Return to Client	ive for Months
ctions/QC F			
Custody Seals Intact: Tes No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: Z.7 Corr'd:	Therm ID No.:
Perinduished by	-201 Pate/Time:	Received by: Company:	Date/Time:
Relinquished by:	Date/Time:	Received by: Company:	Date/Time:
A Relinquished by:	Company: Date/Time: Rec	Received in Jeboquatory Poy: Company: R	Date/Time: 06-01/2019-09-20
2018		0.0	

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THE LEADER IN ENVIRONMENTAL TESTING

# **ANALYTICAL REPORT**

## TestAmerica Laboratories, Inc.

TestAmerica Nashville 2960 Foster Creighton Drive Nashville, TN 37204 Tel: (615)726-0177

## TestAmerica Job ID: 490-153484-2

Client Project/Site: Timberwolf - New Mexico Star OG 170052

## For:

Timberwolf Environmental LLC 1920 W. Vill Maria Suite 305-2 Box 205 Bryan, Texas 77807

Attn: Mr. James Foster

Dean a. Jomen

Authorized for release by: 7/6/2018 2:26:26 PM

Dean Joiner, Project Manager II (713)690-4444 dean.joiner@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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## **Sample Summary**

TestAmerica Job ID: 490-153484-2

#### Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

ab Sample ID	Client Sample ID	Matrix	Collected	Received
90-153484-9	SB2A 14-15'	Solid	06/05/18 12:05	06/08/18 09:20
90-153484-10	SB2A 19-20'	Solid	06/05/18 12:15	06/08/18 09:20
90-153484-11	SB2A 24-25'	Solid	06/05/18 12:20	06/08/18 09:20

## Job ID: 490-153484-2

#### Laboratory: TestAmerica Nashville

Narrative

Job Narrative 490-153484-2

**Case Narrative** 

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/8/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

#### HPLC/IC

Method(s) 9056: Samples were prepared before hold time expired.

SB2A 14-15' (490-153484-9), SB2A 19-20' (490-153484-10) and SB2A 24-25' (490-153484-11)

Method(s) 9056: The following sample was diluted due to the nature of the sample matrix: SB2A 14-15' (490-153484-9). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## 1 2 3 4 5 6 7 8 9

## Qualifiers

#### HPLC/IC

Qualifier Description
Sample was prepped or analyzed beyond the specified holding time
MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
Result exceeded calibration range.
Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-2

Client Sample ID: SB2A	14-15'				La	b Sample	D: 490-153	484-9
Date Collected: 06/05/18 12:							Matrix	: Solid
Date Received: 06/08/18 09:2	20							
General Chemistry								
Analyte	Result Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	22.4	0.1	0.1	%			06/26/18 13:48	1
Percent Solids	77.6	0.1	0.1	%			06/26/18 13:48	1

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-2

Client Sample ID: SB	2A 14-15'					Lal	b Sample	ID: 490-153	<b>484-9</b>	
Date Collected: 06/05/18 1	2:05					Matrix: Solid				
Date Received: 06/08/18 0	9:20				Percent Solids: 77.6					
_ Method: 9056 - Anions, I	on Chromatogra	phy - Soluble	e							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	1000	н	130	90	mg/Kg	<u> </u>		07/05/18 16:03	10	Ģ

TestAmerica Nashville

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-2

Client Sample ID: SB2A	19-20'				Lab	Sample	ID: 490-1534	84-10
Date Collected: 06/05/18 12:	15					•	Matrix	: Solid
Date Received: 06/08/18 09:2	20							
General Chemistry								
Analyte	Result Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.6	0.1	0.1	%			06/26/18 13:48	1
Percent Solids	83.4	0.1	0.1	%			06/26/18 13:48	1

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-2

Client Sample ID: SB	32A 19-20'				Lab	Sample I	D: 490-1534	84-10	
Date Collected: 06/05/18	12:15			Matrix: Solid					
Date Received: 06/08/18	09:20		Percent Solids: 83.4						
Method: 9056 - Anions, Analyte	· · · · · · · · · · · · · · · · · · ·	<mark>phy - Soluble</mark> Qualifier	e RL	MDL Unit	D	Prepared	Analyzed	Dil Fac	5
Chloride	400	н	12	8.5 mg/Kg	<u> </u>		07/04/18 06:17	1	6

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-2

Client Sample ID: SB2A	<b>4 24-25'</b>					Lab	Sample I	D: 490-1534	84-11	
Date Collected: 06/05/18 12:	:20						-	Matrix	: Solid	
Date Received: 06/08/18 09:	20									
-										- 2
General Chemistry										
General Chemistry Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac	
-	Result 22.6	Qualifier	<b>RL</b> 0.1	<b>RL</b> 0.1		<b>D</b>	Prepared	Analyzed 06/26/18 13:48	Dil Fac	ł

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052 TestAmerica Job ID: 490-153484-2

Client Sample ID: SB	2A 24-25'					Lab	Sample I	D: 490-1534	84-11	
Date Collected: 06/05/18	12:20			Matrix: Solid					: Solid	
Date Received: 06/08/18	09:20		Percent Solids: 77.4						s: 77.4	
Method: 9056 - Anions, Analyte	· · · · · · · · · · · · · · · · · · ·	<mark>phy - Soluble</mark> Qualifier	e RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	5
7 allary to		Н	13	9.0	mg/Kg	- <del>\alpha</del> -		07/04/18 06:32	1	

## **QC Sample Results** Client: Timberwolf Environmental LLC

MB MB

7.0 U

Result Qualifier

Project/Site: Timberwolf - New Mexico Star OG 170052

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 490-524488/1-A

Lab Sample ID: LCS 490-524488/2-A

Lab Sample ID: LCSD 490-524488/3-A

Lab Sample ID: 490-153484-9 MS

Matrix: Solid

**Matrix: Solid** 

**Matrix: Solid** 

Matrix: Solid

Analyte

Chloride

Analyte Chloride

Analyte Chloride

Analysis Batch: 526874

Analysis Batch: 526874

Analysis Batch: 526874

Analyzed

07/04/18 04:49

# **Client Sample ID: Method Blank Prep Type: Soluble** Dil Fac

1

				Clier	nt Sai	mple ID	: Lab Cor			7
							Prep Ty	/pe: So	oluble	8
	Spike	LCS	LCS				%Rec.			
	Added	Result	Qualifier	Unit	D	%Rec	Limits			9
	100	96.3		mg/Kg		96	80 - 120			
			c	Client Sa	mple	ID: Lab	o Control	Sample	e Dup	10
							Prep Ty	/pe: So	oluble	11
	Spike	LCSD	LCSD				%Rec.		RPD	
	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	12
	100	96.5		mg/Kg		96	80 - 120	0	20	
					С	lient Sa	mple ID: Prep Ty			
nlo	Sniko	МЗ	MS				%Pac			

D

Prepared

Analysis Batch: 526874										
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	1100	ΗE	130	1280	E 4	mg/Kg	☆	116	80 - 120	 

RL

10

MDL Unit

7.0 mg/Kg

Matrix: Solid	Analysis Batch: 526874									SB2A 1 /pe: Sc	
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	1100	ΗE	129	1280	E 4	mg/Kg	<del>Å</del>	117	80 - 120	0	20

## **Method: Moisture - Percent Moisture**

Lab Sample ID: 490-153484- Matrix: Solid Analysis Batch: 524858	9 DU					Clien	t Sample ID: SB2A <sup>,</sup> Prep Type: Tot	
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	22.4	·	23.9		%		6	20
Percent Solids	77.6		76.1		%		2	20

## **QC** Association Summary

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

SB2A 14-15'

## HPLC/IC

#### Leach Batch: 524488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-9	SB2A 14-15'	Soluble	Solid	DI Leach	
490-153484-10	SB2A 19-20'	Soluble	Solid	DI Leach	
490-153484-11	SB2A 24-25'	Soluble	Solid	DI Leach	
MB 490-524488/1-A	Method Blank	Soluble	Solid	DI Leach	
_CS 490-524488/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
_CSD 490-524488/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
490-153484-9 MS	SB2A 14-15'	Soluble	Solid	DI Leach	
490-153484-9 MSD	SB2A 14-15'	Soluble	Solid	DI Leach	
nalysis Batch: 5265 Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	·
Lab Sample ID	Client Sample ID				
-		Prep Type Soluble	Matrix Solid	Method 9056	Prep Batch 524488
Lab Sample ID	Client Sample ID SB2A 14-15'				· ·
Lab Sample ID 490-153484-9 nalysis Batch: 5268	Client Sample ID SB2A 14-15'				Prep Batch 524488 Prep Batch
Lab Sample ID 490-153484-9 nalysis Batch: 5268 Lab Sample ID	Client Sample ID SB2A 14-15' 74	Soluble	Solid	9056	524488
Lab Sample ID 490-153484-9 nalysis Batch: 5268 Lab Sample ID 490-153484-10	Client Sample ID SB2A 14-15' 74 Client Sample ID	Soluble Prep Type	Solid Matrix	9056 Method	524488
Lab Sample ID 490-153484-9	Client Sample ID SB2A 14-15' 74 Client Sample ID SB2A 19-20'	Soluble Prep Type Soluble	Solid Matrix Solid	9056 Method 9056	524488 Prep Batch 524488
Lab Sample ID 490-153484-9 nalysis Batch: 5268 Lab Sample ID 490-153484-10 490-153484-11 MB 490-524488/1-A	Client Sample ID           SB2A 14-15'           74           Client Sample ID           SB2A 19-20'           SB2A 24-25'	Soluble Prep Type Soluble Soluble	Solid Matrix Solid Solid Solid	9056 Method 9056 9056	524488 Prep Batch 524488 524488
Lab Sample ID 490-153484-9 nalysis Batch: 5268 Lab Sample ID 490-153484-10 490-153484-11	Client Sample ID         SB2A 14-15'         74         Client Sample ID         SB2A 19-20'         SB2A 24-25'         Method Blank	Soluble Prep Type Soluble Soluble Soluble Soluble	Solid Matrix Solid Solid Solid	9056 Method 9056 9056 9056	524488 Prep Batch 524488 524488 524488 524488

## **General Chemistry**

490-153484-9 MSD

#### Analysis Batch: 524858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-153484-9	SB2A 14-15'	Total/NA	Solid	Moisture	
490-153484-10	SB2A 19-20'	Total/NA	Solid	Moisture	
490-153484-11	SB2A 24-25'	Total/NA	Solid	Moisture	
490-153484-9 DU	SB2A 14-15'	Total/NA	Solid	Moisture	

Soluble

Solid

9056

524488

## Lab Chronicle

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

ate Collected	d: 06/05/18 1 i: 06/08/18 0							b Sample II	Ма	atrix: Sol
_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			524858	06/26/18 13:48	BAA	TAL NSH
	Analysis	MOISTURE		I			524050	00/20/10 13.40	DAA	TAL NOT
Client Samp	ole ID: SB2	2A 14-15'					La	b Sample II	D: 490-	153484
ate Collected										atrix: Sol
ate Received	1: 06/08/18 0	9:20						P	ercent S	olids: 77
	Batch	Batch	_	Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			3.01 g	30 mL	524488	07/03/18 18:00	LDC	TAL NSF
Soluble	Analysis	9056		10	10 mL	1.0 mL	526515	07/05/18 16:03	LDC	TAL NSH
lient Samp	ole ID: SB2	2A 19-20'					Lab	Sample ID	: 490-1	53484-'
ate Collected	d: 06/05/18 1	2:15						•		atrix: So
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	, ano ano		524858	06/26/18 13:48	BAA	
							Lab	Sample ID		
Date Collected	d: 06/05/18 1	2:15					Lab			atrix: So
Date Collected	d: 06/05/18 1	2:15		Dil	Initial	Final	Lab		Ма	atrix: So
Date Collected	d: 06/05/18 1 l: 06/08/18 0	2:15 9:20	Run	Dil Factor	Initial Amount	Final Amount		P	Ма	atrix: So
Date Collected Date Received Prep Type	d: 06/05/18 1 d: 06/08/18 0 Batch	2:15 9:20 Batch	Run				Batch	P Prepared	Ma ercent S	atrix: So olids: 83 Lab
Date Collected Date Received Prep Type Soluble	d: 06/05/18 1 d: 06/08/18 0 Batch Type	2:15 9:20 Batch Method	Run		Amount	Amount	Batch Number	P Prepared or Analyzed	Ma ercent S Analyst LDC	atrix: Sol olids: 83 Lab TAL NSH
Date Collected Date Received Prep Type Soluble Soluble Client Samp Date Collected	d: 06/05/18 1 d: 06/08/18 0 Batch Type Leach Analysis Die ID: SB2 d: 06/05/18 1	2:15 9:20 Batch Method DI Leach 9056 2A 24-25' 2:20	Run	Factor	Amount	Amount	Batch Number 524488 526874	Prepared or Analyzed 07/03/18 18:00	Ma ercent S Analyst LDC LDC : 490-1	Lab TAL NSF TAL NSF TAL NSF
Date Collected Date Received Prep Type Soluble Soluble Client Samp Date Collected	d: 06/05/18 1 1: 06/08/18 0 Batch Type Leach Analysis Die ID: SB2 1: 06/05/18 1 1: 06/08/18 0	2:15 9:20 Batch Method DI Leach 9056 2A 24-25' 2:20 9:20	Run	Factor 1	Amount 2.98 g	Amount 30 mL	Batch Number 524488 526874 Lab	Prepared or Analyzed 07/03/18 18:00 07/04/18 06:17 Sample ID	Ma ercent S Analyst LDC LDC : 490-1	Lab TAL NSF TAL NSF TAL NSF
Date Collected Date Received Prep Type Soluble Soluble Client Samp Date Collected Date Received	d: 06/05/18 1 : 06/08/18 0 Batch Type Leach Analysis DIE ID: SB2 d: 06/05/18 1 : 06/08/18 0 Batch	2:15 9:20 Batch Method DI Leach 9056 2A 24-25' 2:20 9:20 Batch		Factor 1 Dil	Amount 2.98 g Initial	Amount 30 mL	Batch Number 524488 526874 Lab	P Prepared or Analyzed 07/03/18 18:00 07/04/18 06:17 Sample ID Prepared	Ma ercent S Analyst LDC LDC : 490-1 Ma	trix: So olids: 83 Lab TAL NSH TAL NSH TAL NSH 53484-' atrix: So
Date Collected Date Received Prep Type Soluble Soluble Client Samp Date Collected Date Received Prep Type	d: 06/05/18 1 d: 06/08/18 0 Batch Type Leach Analysis DIE ID: SB2 d: 06/05/18 1 d: 06/08/18 0 Batch Type	2:15 9:20 Batch Method DI Leach 9056 2A 24-25' 2:20 9:20 Batch Method	Run	Factor 1 Dil Factor	Amount 2.98 g	Amount 30 mL	Batch Number 524488 526874 Lab Batch Number	P Prepared or Analyzed 07/03/18 18:00 07/04/18 06:17 Sample ID Prepared or Analyzed	Ma ercent S Analyst LDC LDC : 490-1 Ma Analyst	Lab TAL NSF TAL NSF TAL NSF 53484-' atrix: Sol
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Date Collected Date Received Prep Type Soluble Soluble Client Samp Date Collected Date Received Prep Type Total/NA	d: 06/05/18 1 d: 06/08/18 0 Batch Type Leach Analysis DIE ID: SB2 d: 06/05/18 1 d: 06/08/18 0 Batch Type Analysis DIE ID: SB2 d: 06/05/18 1	2:15 9:20 Batch Method DI Leach 9056 2A 24-25' 2:20 9:20 Batch Method Moisture 2A 24-25' 2:20		Factor 1 Dil Factor	Amount 2.98 g Initial	Amount 30 mL	Batch Number 524488 526874 Lab Batch Number 524858	P Prepared or Analyzed 07/03/18 18:00 07/04/18 06:17 Sample ID Prepared or Analyzed 06/26/18 13:48 Sample ID	Ma ercent S Analyst LDC LDC : 490-1 Ma Analyst BAA : 490-1	trix: So olids: 83 TAL NSH TAL NSH 53484- atrix: So 53484- atrix: So
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Prep Type Soluble Soluble Client Samp Date Collected Date Received Prep Type Total/NA	d: 06/05/18 1 d: 06/08/18 0 Batch Type Leach Analysis DIE ID: SB2 d: 06/05/18 1 d: 06/08/18 0 Batch Type Analysis DIE ID: SB2 d: 06/05/18 1 d: 06/05/18 1 d: 06/08/18 0	2:15 9:20 Batch Method DI Leach 9056 2A 24-25' 2:20 9:20 Batch Method Moisture 2A 24-25' 2:20 9:20		Factor 1 Dil Factor 1	Amount 2.98 g Initial Amount	Amount 30 mL Final Amount	Batch Number 524488 526874 Lab Batch Number 524858 Lab	P Prepared or Analyzed 07/03/18 18:00 07/04/18 06:17 Sample ID Prepared or Analyzed 06/26/18 13:48 Sample ID Prepared ID	Ma ercent S Analyst LDC LDC : 490-11 Ma Analyst EAA : 490-11 Ma ercent S	trix: So olids: 83 TAL NSH TAL NSH 53484- atrix: So 53484- atrix: So

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TestAmerica Nashville

## **Method Summary**

#### Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

Method	Method Description	Protocol	Laboratory
9056	Anions, Ion Chromatography	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL NSH

#### **Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## **Accreditation/Certification Summary**

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

#### Laboratory: TestAmerica Nashville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	06-30-18 *
Arizona	State Program	9	AZ0473	05-05-19
Arkansas DEQ	State Program	6	88-0737	04-25-19
California	State Program	9	2938	10-31-18
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-18 *
Georgia	State Program	4	NA: NELAP & A2LA	12-31-19
Illinois	NELAP	5	200010	12-09-18
lowa	State Program	7	131	04-01-18 *
Kansas	NELAP	7	E-10229	10-31-18
Kentucky (UST)	State Program	4	19	06-30-18 *
Kentucky (WW)	State Program	4	90038	12-31-18
Louisiana	NELAP	6	30613	06-30-18 *
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-19
Massachusetts	State Program	1	M-TN032	06-30-18 *
Minnesota	NELAP	5	047-999-345	12-31-18
Mississippi	State Program	4	N/A	06-30-19
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-18
New Hampshire	NELAP	1	2963	10-09-18
New Jersey	NELAP	2	TN965	06-30-18 *
New York	NELAP	2	11342	03-31-19
North Carolina (WW/SW)	State Program	- 4	387	12-31-18
North Dakota	State Program	8	R-146	06-30-18 *
Ohio VAP	State Program	5	CL0033	07-06-19
Oklahoma	State Program	6	9412	08-31-18
Oregon	NELAP	10	TN200001	04-26-19
Pennsylvania	NELAP	3	68-00585	06-30-18 *
Rhode Island	State Program	1	LAO00268	12-30-18
South Carolina	State Program	4	84009 (001)	02-28-18 *
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-18
USDA	Federal	0	P330-13-00306	12-01-19
Utah	NELAP	8	TN00032	07-31-18
Virginia	NELAP	3	460152	06-14-19
•		3 10	460152 C789	07-19-18
Washington	State Program	3	219	02-28-19
West Virginia DEP	State Program	5		
	State Program		998020430	08-31-18
Wyoming (UST)	A2LA	8	453.07	12-31-19

#### Laboratory: TestAmerica Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	17-051-0	08-04-18
Louisiana	NELAP	6	01967	06-30-19
Oklahoma	State Program	6	2017-138	08-31-18
Texas	NELAP	6	T104704223-17-22	10-31-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Nashville

## Accreditation/Certification Summary C TestAmerica Job ID: 490-153484-2

Client: Timberwolf Environmental LLC Project/Site: Timberwolf - New Mexico Star OG 170052

## Laboratory: TestAmerica Houston (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USDA	Federal		P330-18-00130	04-30-21



## Joiner, Dean

From: Sent:	Russell Greer <russell@teamtimberwolf.com></russell@teamtimberwolf.com>
_	Wednesday, June 20, 2018 10:05 AM
То:	Joiner, Dean; Bailey Moore; Clay Morris; Jim Foster; Kaitlyn Jacisin; Kevin Cole; Morgan Vizi; Preston Kocian; Ryan Mersmann
Subject:	RE: TestAmerica report files from 490-153484-1 Timberwolf - New Mexico Star OG 170052

#### -External Email-

#### Dean,

We need to run the following samples for chloride:

- SB2A 14-15'
- SB2A 19-20'
- SB2A 24-25'

Please let me know if you have any questions. Thanks,

#### **Russell Greer**



1920 W. Villa Maria, Suite 205 (Box 205) Bryan, Texas 77807 (979) 450-1509

 From: Joiner, Dean [mailto:dean.joiner@testamericainc.com]

 Sent: Tuesday, June 19, 2018 6:40 PM

 To: Bailey Moore <bailey@teamtimberwolf.com>; Clay Morris <clay@teamtimberwolf.com>; Jim Foster

 <jim@teamtimberwolf.com>; Kaitlyn Jacisin <kaitlyn@teamtimberwolf.com>; Kevin Cole

 <kevin@teamtimberwolf.com>; Morgan Vizi <morgan@teamtimberwolf.com>; Preston Kocian

 <preston@teamtimberwolf.com>; Russell Greer <russell@teamtimberwolf.com>; Ryan Mersmann

 <ryan@teamtimberwolf.com>

 Subject: TestAmerica report files from 490-153484-1 Timberwolf - New Mexico Star OG 170052

Hello,

Attached please find the report files for job 490-153484-1; Timberwolf - New Mexico Star OG 170052

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: <u>Project Feedback</u>

**DEAN A JOINER** Project Manager

TestAmerica Houston THE LEADER IN ENVIRONMENTAL TESTING

Tel: 713.690.4444 www.testamericainc.com

Reference: [430566] Attachments: 1

This email has been scanned for Virus/Malware by RusTECH MaiLCLOUD Protect.

TestAmerica	· · ·	
Nashville, TN	COOLER RECEIPT FORM	490-153484 Chain of Custody
Cooler Received/Opened On <u>6/8/2018</u> Time Samples Removed From Cooler <u>9</u> 1. Tracking # <u>9000</u> (las IR Gun ID <u>17610176</u> 2. Temperature of rep. sample or temp blar	t 4 digits, FedEx) PH Strip Lot	400 5 (2 Hour Window) V/A
<ol> <li>If Item #2 temperature is 0°C or less, was</li> <li>Were custody seals on outside of cooler?</li> <li>If yes, how many and where:</li> </ol>	the representative sample or temp blank frozen?	YES NONA
<ol> <li>Were the seals intact, signed, and dated of</li> <li>Were custody papers inside cooler?</li> <li>I certify that I opened the cooler and answere</li> </ol>	2/1	YES.NONA
<ol> <li>Were custody seals on containers:</li> <li>Were these signed and dated correctly?</li> <li>8. Packing mat'l used? Bubblewrap F</li> </ol>	YES NO and Intact Plastic bag Peanuts Vermiculite Foam Insert Pa	YESNONA YESNONA
<ol> <li>9. Cooling process:</li> <li>10. Did all containers arrive in good conditio</li> <li>11. Were all container labels complete (#, dat</li> <li>12. Did all container labels and tags agree with the second second</li></ol>	n (unbroken)? te, signed, pres., etc)?	Other None
13a. Were VOA vials received? b. Was there any observable headspace pr		YESNONA YESNONA YESNONA
<ul> <li>Larger than this.</li> <li>14. Was there a Trip Blank in this cooler?</li> <li>Lertify that I unloaded the cooler and answer</li> </ul>	YESOONA If multiple coolers, sequer	nce #
<ul><li>15a. On pres'd bottles, did pH test strips sugg</li><li>b. Did the bottle labels indicate that the co</li><li>16. Was residual chlorine present?</li></ul>	gest preservation reached the correct pH level? rrect preservatives were used	YESNO(NA) YESNO(NA) YESNO(NA)
I certify that I checked for chlorine and pH as 1 17. Were custody papers properly filled out (in 18. Did you sign the custody papers in the ap	nk, signed, etc)?	(ESNONA (ESNONA
19. Were correct containers used for the analy 20. Was sufficient amount of sample sent in end I certify that I entered this project into LIMS and I certify that I attached a label with the unique	ach container? d answered questions 17-20 (intial)	YESNONA YESNONA
21. Were there Non-Conformance issues at log		#

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TestAmerica Houston 6310 Rothway Street	Chain of (	Chain of Custody Record 1 77วิธิว	TestAmerico
Houston, 1X 77046-5262 Phene: 713.690.444& Fax: 713.690.5646	Regulatory Program:		THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. TAL-8210 (0713)
Client Contact	Project Manager: Dean Jolner Site C	1 <del></del> .	COC No:
		Lab Contact: Carrier:	of COCs
Address: 1970 W. Willa Maria	Turna		Sampler:
City/State/Zip: Knyan TX 77607	WORKING DAYS		For Lab Use Only:
Phone: Eav.	M		Walk-in Client:
Project Name: 57 at 06 170052	2 weeks 1 week		
Site:	) əlq	۲ ۲ ۲	Job / SDG No.:
	Sample		
Sample Identification	Sample Sample Type # of 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	27 2 2 2 2 2 2	Sample Specific Notes:
584 0	6/8/1205 G Soll I W		
2 585 0-1'	1315 1 1		
3 586 0-1			
587			
558	0 48		
6N589 0-1'	1 2x60	· · · · · · · · · · · · · · · · · · ·	Loc: 490
SELA			100404
4		$\sqrt{4}$	
9 587 A 14-151	1305		
10 SE2 A 19-20'			
11 Star H ay-25		<u>&gt;</u>	
Preservation Used: 1=1ce 2=4Cf 3=42S04. 4=4N07. 5=N04. 6= 004er	3 5=NaOH 6= Other		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Commarts Section if the lab is to discose of the sample		sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	tined longer than 1 month)
Non-Hazard     Flammable     Skin Irritant	Poison B Unknown	Return to Client Christossal by Lab	or Months
ctions/QC F			
Custody Seals Intact: Tes No	eal No.:	ooler Temp. (°C): Obs'd: Z*7	Therm ID No.:
Petinguished by Y www. A ver	rwolf 6/1/13 1110		Date/Time:
Relinquished by:	Date/Time:	Received by: Company:	Date/Time:
Relinquished by:	Company: Date/Time: Re	Received in Jaboratory by: Company, Com	Date/Time: 06-01-2019 09:20
2018	7		

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