NAB1809355913

2RP-4685

Mack Energy Corporation

Closure

North Pole Fed TB

03/20/2020

State of New Mexico
Oil Conservation Division

Incident ID	nAB1809855913
District RP	2RP-4685
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Matt Buckles Title: Project Manager

Signature: [signature] Date: 6-26-19

email: mattbuckles@mec.com Telephone: 575-748-1288

OCD Only

Received by: Date:

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Bradford Billings Date: 03/20/2020

Printed Name: Bradford Billings Title: E.SPEC.A

NOTE: Closed with soil blending as remedial action on approval from OCD, for reference this technique is now no longer accepted for remediation.

CLOSURE

Property:

Mack Energy Corporation
North Pole Fed TB
Eddy County, New Mexico
Unit Letter "M", Section 15, Township 16 South, Range 28 East
Latitude 32.9163, Longitude -104.1712
API Number: 30-015-36079
2RP-4685

May 2019

Prepared for:

Mack Energy Corporation
11344 Lovington Highway
Artesia, NM 88210
Attn: **Mr. Matt Buckles**

Prepared by:

Thomas Franklin
Environmental Manager

Jack Zimmerman, PG, CPG
Senior Geologist

Table of Contents

APPENDICES

CLOSURE

Mack Energy Corporation
North Pole Fed TB
Eddy County, New Mexico
Unit Letter "M", Section 15, Township 16 South, Range 28 East
Latitude 32.9163, Longitude -104.1712
API Number: 30-015-36079
2RP-4685

May 2019

1.0 INTRODUCTION

1.1 Site Description & Background

American Safety Services Inc. (ASSI) has prepared this Closure Report for the Mack Energy Corporation (Mack) North Pole Fed TB (referred to hereinafter as the "Site" or "subject Site"). This Closure Report is based upon the response actions and interpretation of the data collected by ASSI.

The Site is located in Unit Letter "M", Section 15, Township 16 South, Range 28 East, Eddy County, New Mexico (GPS 32.9163, -104.1712). Figures 1, 2, and 3 (Appendix A) show the Site location.

Remedial actions were conducted in accordance with New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (NMOCD) rules (*NMAC 19.15.29 Release Notification*) and per the Remediation Plan for this location (i.e., 2RP-4685) approved by NMOCD on October 15, 2018.

1.2 Project Objective

The objective of the Closure Report is to present documentation of the on-site activities that were performed within the scope of work agreed upon to remediate the Site.

1.3 Standard of Care

ASSI's services were performed in accordance with standards provided by a firm rendering the same or similar services in the area during the same time frame. ASSI makes no warranties, expressed or implied, as to the services performed hereunder. Additionally, ASSI does not warranty the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties). Services were performed in accordance with the scope of work agreed to with the client.

1.4 Reliance

This report has been prepared for the exclusive use of Mack, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the express written authorization of both Mack and ASSI. Any unauthorized distribution or reuse is at the sole risk of Mack. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, the report, and ASSI's Agreement. The limitation of liability defined in the agreement is the aggregate limit of ASSI's liability to the client.

2.0 SITE RANKING & PROPOSED REMEDIAL ACTION GOALS

The Site is subject to regulatory oversight by the Bureau of Land Management (BLM). To address activities related to releases, the NMOCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the NMOCD rules, specifically NMAC 19.15.29.9 *Release Notification*. These documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

In accordance with the NMAC 19.15.29, ASSI utilized the general site characteristics to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the table below:

Ranking Criteria			Ranking Score
Depth to Groundwater	<50 feet	20	**20**
	50 to 99 feet	10	
	>100 feet	0	
Wellhead Protection Area, <1,000 feet from a water source, or; <200 feet from private domestic water source.	Yes	20	**0**
	No	0	
Distance to Surface Water Body	<200 feet	20	**0**
	200 to 1,000 feet	10	
	>1,000 feet	0	
Total Ranking Score			**20**

Based on ASSI's evaluation of the scoring criteria, the Site would have a Total Ranking Score of 20. This ranking is based on the following:

- The depth to the initial groundwater-bearing zone is less than 50 feet at the Site.
- The impacted area is greater than 200 feet from a private domestic water source.
- Distance to the nearest surface water body is greater than 1,000 ft.

Based on a Total Ranking Score of 20, cleanup goals for soils remaining in place include: 10 milligrams per kilogram (mg/Kg) for Benzene, 50 mg/Kg for Total Benzene, Toluene, Ethylbenzene and Xylene (BTEX), 100 mg/Kg for Total Petroleum Hydrocarbons (TPH) and 600 mg/Kg for Chloride.

Figure 5 shows the location of the Site in Eddy Co, New Mexico and surrounding topography.

3.0 INITIAL RESPONSE & SAMPLING ACTIVITIES

3.1 Initial Response

On July 9, 2018, ASSI personnel performed a site inspection in response to a release of twenty-five (25) barrels (bbls) of oil (2RP-4685). The release was due to a gasket developing a leak on the top side of an 8' x 20' clean—out plate causing the release to occur directly to the ground. Ten (10) bbls of the fluid were recovered. The release impacted approximately twenty-three thousand (23,000) square feet of pasture area adjacent to the production pad.

3.2 Sampling Activities

Initial sampling activities were conducted on July 9th by ASSI personnel, using a stainless-steel hand auger. Twenty (20) auger holes were installed at discrete locations collecting material at intervals ranging from surface (0-0.5') to a depth of two and one-half (2.5) foot below ground surface (bgs). Table 1 in Appendix B presents analytical results and Figure 3 in Appendix A shows auger hole locations. Soil material was field screened for Chloride utilizing Electro conductivity (σ) during sampling activities.

3.3 Soil Sampling Analytical Results

Twenty-six (26) soil samples were collected during initial sampling activities from sample locations Auger Hole-1 thru Auger Hole-20. On July 12th, collected samples were delivered by ASSI personnel to the laboratory for analysis. The samples were analyzed for BTEX, TPH, and Chloride (Table 1). Analytical results were compared to *Table I of NMAC 19.15.29.12* and were further evaluated to confirm the presence of elevated concentrations of TPH above NMOCD guidelines (i.e., clean-up goals). Although elevated concentrations of TPH exist at sample locations Auger Hole-1 and -2, vertical and horizontal delineation were both achieved during initial sampling efforts.

3.4 Excavation Activities

ASSI conducted excavation activities with proximity to sample locations Auger Hole-1 and -2 beginning October 18th and extending to October 31st. Excavation activities included the removal of impacted material by the use of mechanical means (i.e., backhoe and skid steer) and stockpiling the material onsite. The stockpiled excavated material was then blended and aeriated for future collection of confirmation samples.

3.5 Excavation Confirmation Sampling Activities

Horizontal delineation sampling of the open excavation was conducted on December 4th by ASSI. Samples were collected from their perspective cardinal directions (North, South, East and West) from the excavated sidewall and analyzed for TPH.

4.0 LABORATORY ANALYTICAL METHODS

The samples were analyzed for TPH utilizing EPA method SW-846 8015, BTEX using EPA method SW-846 8021B, and Chloride utilizing EPA method SW-846 300.1. Laboratory analysis results are provided in Appendix D.

Soil was collected, in laboratory prepared glassware, placed on ice, and packed in a cooler. The sample coolers and completed Chain-of-Custody (CoC) forms were relinquished to Xenco Laboratories in Midland, Texas. Sample analysis was completed on a normal turn-around time schedule.

Under Appendix A, Figure 3 indicates the approximate location of the auger holes previously installed in relation to pertinent land features and Figure 4 indicates general Site boundaries and anticipated excavation depth during the proposed removal action.

5.0 CLOSURE REQUEST

Based upon the data collected and the Site work completed by ASSI, the constituent of concern (COC) has been both vertically and horizontally delineated. Impacted material was removed from the excavated areas, temporarily stockpiled onsite, sufficiently blended, and subsequently sampled for TPH. Confirmation sampling verified a reduction in TPH concentrations in the previously excavated material (i.e., native soil). Consequently, the excavated soil was re-placed (i.e., backfilled) to its original location and the Site was returned to existing conditions.

Based on the success of the response actions which are affirmed by laboratory analytical results, no additional investigation and/or remediation appears necessary at this time. Copies of the Initial and Final C-141 are provided in Appendix E.

ASSI, on behalf of MACK, respectfully requests closure of the Site.

APPENDIX A

Figures

MACK-North Pole Fed TB

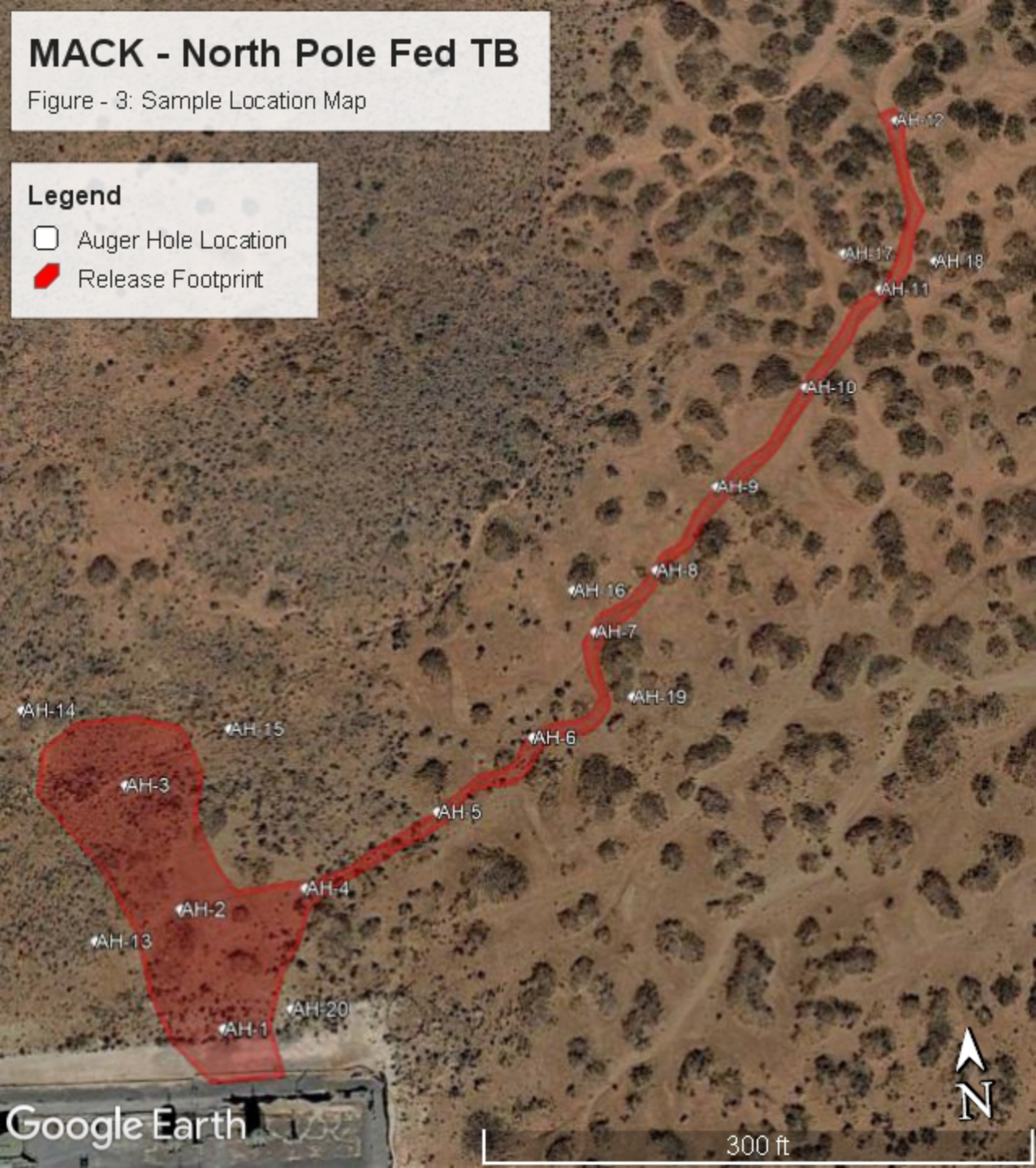
Figure 1

MACK-North Pole Fed TB

Figure 2

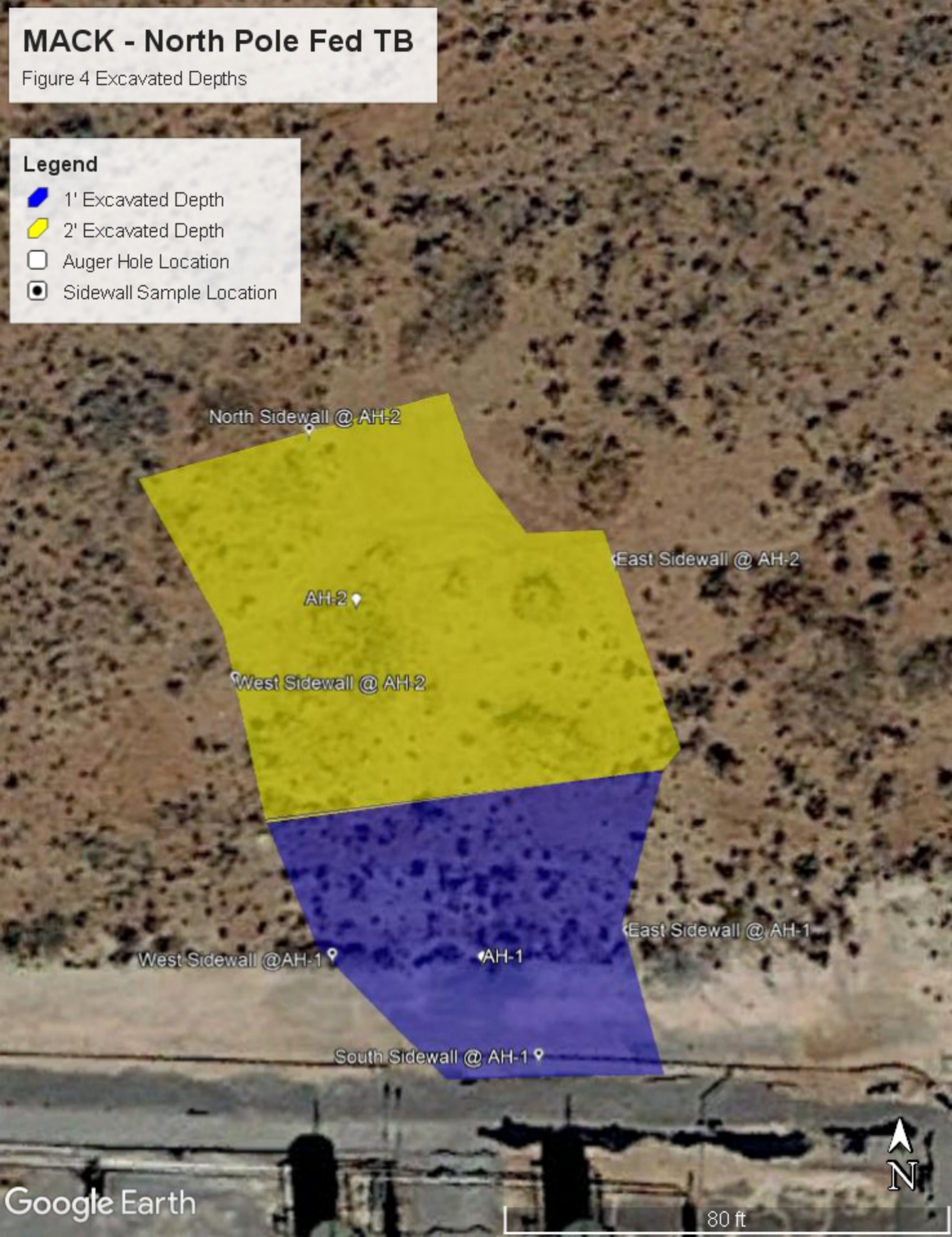
MACK - North Pole Fed TB

Figure - 3: Sample Location Map



MACK - North Pole Fed TB

Figure 4 Excavated Depths



MACK-North Pole Fed TB

Figure 5

APPENDIX B

Table 1 & 2

TABLE 1
Summary of Delineation Sampling Analytical Results
Concentrations of Benzene, BTEX, TPH & Chloride in Soil
Mack Energy
North Pole Fed TB
Eddy County, New Mexico
2RP-4685

SAMPLE LOCATION	SAMPLE DEPTH (bgs)	SAMPLE DATE	SOIL STATUS	8021B					8015M				300.1
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	MRO (mg/Kg)	Total TPH (mg/Kg)	CHLORIDE (mg/Kg)
NMAC 19.15.29				10	NE	NE	NE	50	NE	NE	NE	100	600
Delination Sampling													
Auger Hole-1	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	352	81.9	**434**	295
Auger Hole-1	0.5'-1'	7/9/2018	In-Situ	—	—	—	—	—	ND	468	131	**599**	161
Auger Hole-1	1'-1.5'	7/9/2018	In-Situ	—	—	—	—	—	ND	63.7	ND	63.7	—
Auger Hole-2	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	245	49.7	**295**	190
Auger Hole-2	0.5'-1'	7/9/2018	In-Situ	—	—	—	—	—	ND	207	47.3	**254**	—
Auger Hole-2	1'-1.5'	7/9/2018	In-Situ	—	—	—	—	—	ND	135	ND	**135**	—
Auger Hole-2	1.5'-2'	7/9/2018	In-Situ	—	—	—	—	—	ND	158	35	**193**	—
Auger Hole-2	2'-2.5'	7/9/2018	In-Situ	—	—	—	—	—	ND	38	ND	38	—
Auger Hole-3	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	56.8	ND	56.8	3.53
Auger Hole-4	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-5	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-6	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	39.9	ND	39.9	ND
Auger Hole-7	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-8	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-9	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-10	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-11	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-12	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-13	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	33.9	ND	33.9	ND
Auger Hole-14	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	32.2	ND	32.2	ND
Auger Hole-15	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-16	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	48.9	26.2	75.1	ND
Auger Hole-17	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	36.8
Auger Hole-18	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-19	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Auger Hole-20	0-0.5'	7/9/2018	In-Situ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

mg/Kg - milligrams per Kilogram

Concentrations in **BOLD** exceed NMOCD guidelines

ND - not detected at the reporting limit

NE - not established

— = not determined

In-situ - sample collected in-place

Total TPH reported values are rounded-off to 3-significant figures using the LIMS Odd/Even Rounding Rule which is a laboratory accepted standard

TABLE 2
Summary of Delineation Sampling Analytical Results
Concentrations of TPH in Soil
Mack Energy
North Pole Fed TB
Eddy County, New Mexico
2RP-4685

SAMPLE LOCATION	SAMPLE DEPTH (bgs)	SAMPLE DATE	SOIL STATUS	8015M			
				GRO (mg/Kg)	DRO (mg/Kg)	MRO (mg/Kg)	Total TPH (mg/Kg)
NMAC 19.15.29				NE	NE	NE	100
Confirmation Sampling							
South Sidewall @ Auger Hole-1	—	12/4/2018	In-Situ	ND	ND	ND	ND
East Sidewall @ Auger Hole-1	—	12/4/2018	In-Situ	ND	ND	ND	ND
West Sidewall @ Auger Hole-1	—	12/4/2018	In-Situ	ND	ND	ND	ND
North Sidewall @ Auger Hole-2	—	12/4/2018	In-Situ	ND	ND	ND	ND
East Sidewall @ Auger Hole-2	—	12/4/2018	In-Situ	ND	ND	ND	ND
West Sidewall @ Auger Hole-2	—	12/4/2018	In-Situ	ND	ND	ND	ND
Stockpile-1 @ Auger Hole-1	—	12/4/2018	Ex-Situ	ND	ND	ND	ND
Stockpile-2 @ Auger Hole-1	—	12/4/2018	Ex-Situ	ND	ND	ND	ND
Stockpile-3 @ Auger Hole-1	—	12/4/2018	Ex-Situ	ND	31	ND	31
Stockpile-1 @ Auger Hole -2	—	12/4/2018	Ex-Situ	ND	ND	ND	ND
Stockpile-2 @ Auger Hole-2	—	12/4/2018	Ex-Situ	ND	ND	ND	ND
Stockpile-3 @ Auger Hole-2	—	12/4/2018	Ex-Situ	ND	86.9	33.5	**120**
Stockpile-3 @ Auger Hole-2	—	2/14/2019	Ex-Situ	ND	105	30.3	**136**
Stockpile-3 @ Auger Hole-2	—	4/2/2019	Ex-Situ	ND	ND	ND	ND

mg/Kg - milligrams per Kilogram

Concentrations in **BOLD** exceed NMOCD remediation guidelines

ND - not detected at the reporting limit

NE - not established

— = not determined

In-situ - sample collected in-place

Total TPH reported values are rounded-off to 3-significant figures using the LIMS Odd/Even Rounding Rule which is a laboratory accepted standard

APPENDIX C

Photo Page

View Northeast– Origin of spill. Release caused by failed gasket on a heater treater. Area of Auger Hole-1 (flagged) middle of photograph.

View Northeast– Area of Auger Hole-2 (flagged) middle of photograph.

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View Southeast – Area of Auger Hole-3 (flagged) middle of photograph.

View Southwest – Area of Auger Hole-4 (flagged) middle of photograph.

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View Southwest – Area of Auger Hole-5 (flagged) middle of photograph.

View Southwest – Area of Auger Hole-6 (flagged) middle of photograph.

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View Southwest – Area of Auger Hole-7 (flagged) middle of photograph.

View Southwest – Area of Auger Hole-8 (flagged) middle of photograph.

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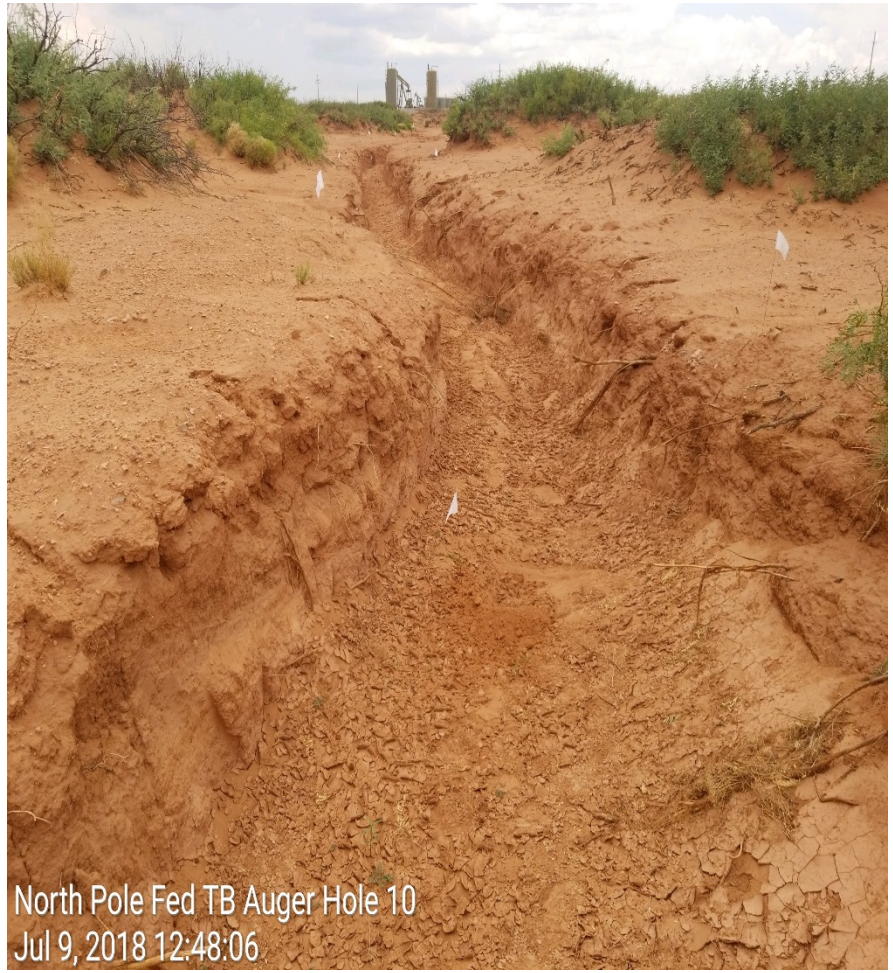
View Southwest – Area of Auger Hole-9 (flagged) middle of photograph.



View Southwest – Area of Auger Hole-10 (flagged) middle of photograph.

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View North – Area of Auger Hole-11 (flagged) middle of photograph.

View North – Area of Auger Hole-12 (flagged) middle of photograph.

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View South – Area of Auger Hole-2, excavation activities in-progress.

View Northeast – Area of Auger Hole-2, excavation activities in-progress.

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View East – Area of Auger Hole-1, excavation activities in-progress.

View Southwest – Area of Auger Hole-1, excavation activities in-progress.

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View West – Soil blending of existing stockpiles ongoing.

View Northeast – Soil blending of existing stockpiles completed.

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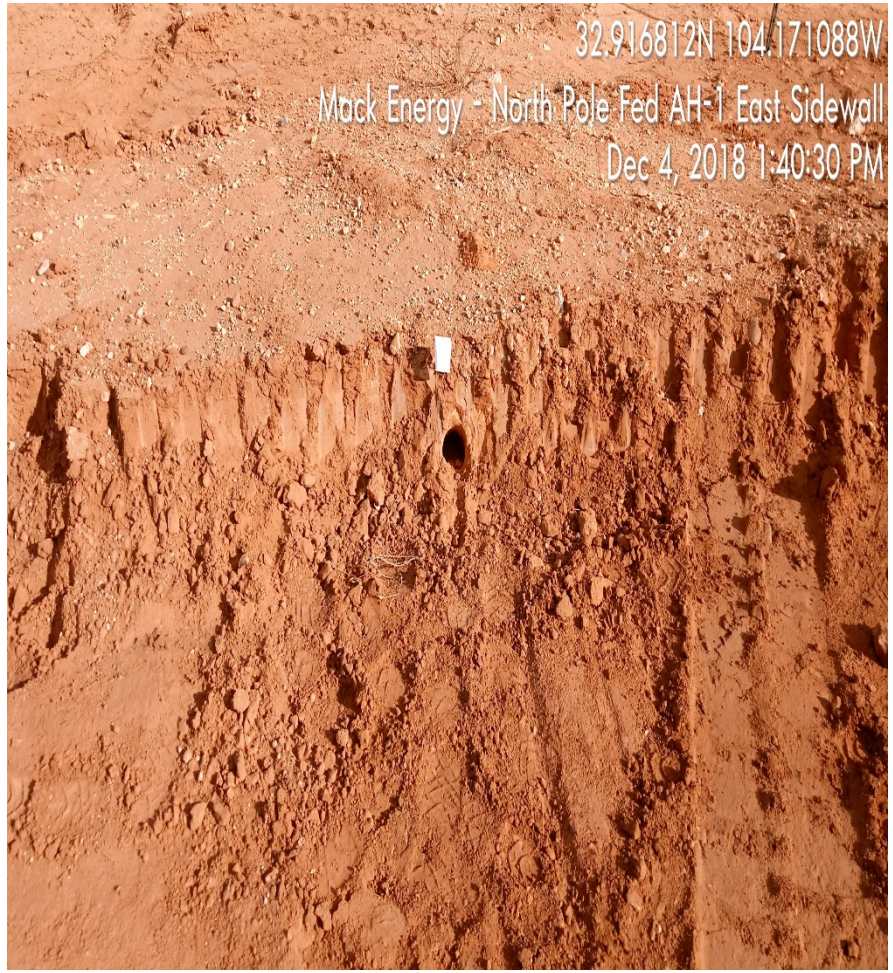
View South – Area of South Sidewall @ Auger Hole-1 (flagged) middle of photograph.



View East – Area of East Sidewall @ Auger Hole-1 (flagged) middle of photograph.

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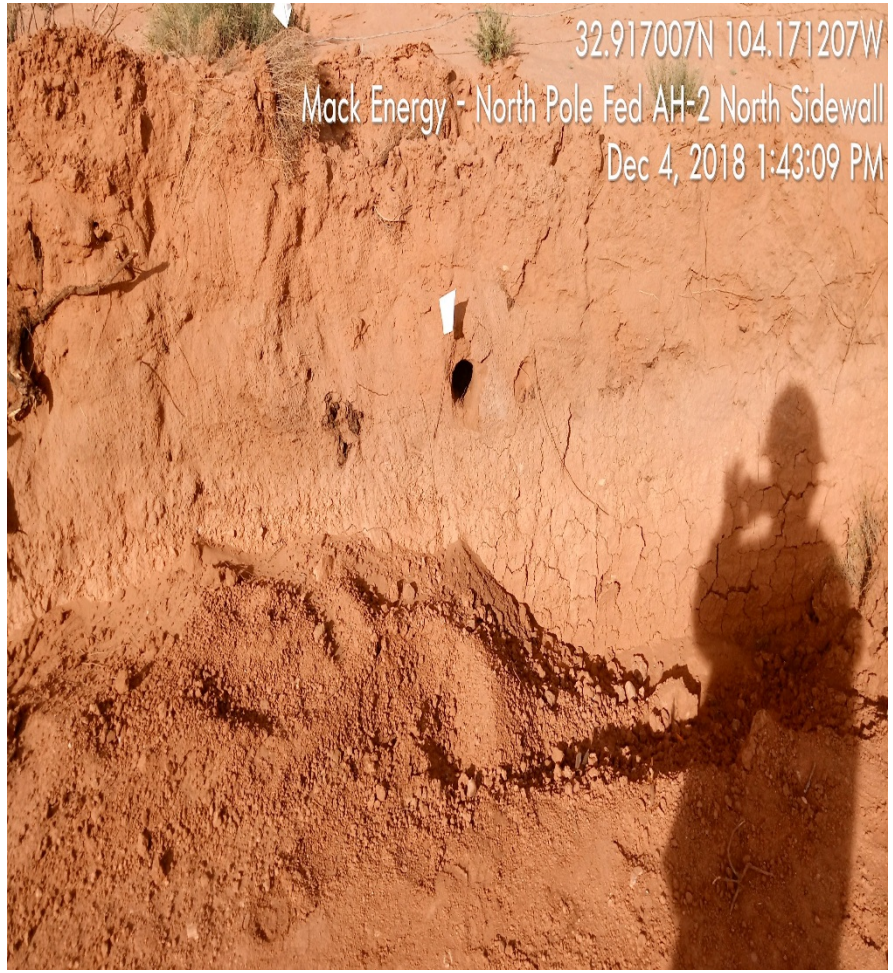
View West – Area of West Sidewall @ Auger Hole-1 (flagged) middle of photograph.



View North – Area of North Sidewall @ Auger Hole-2 (flagged) middle of photograph.

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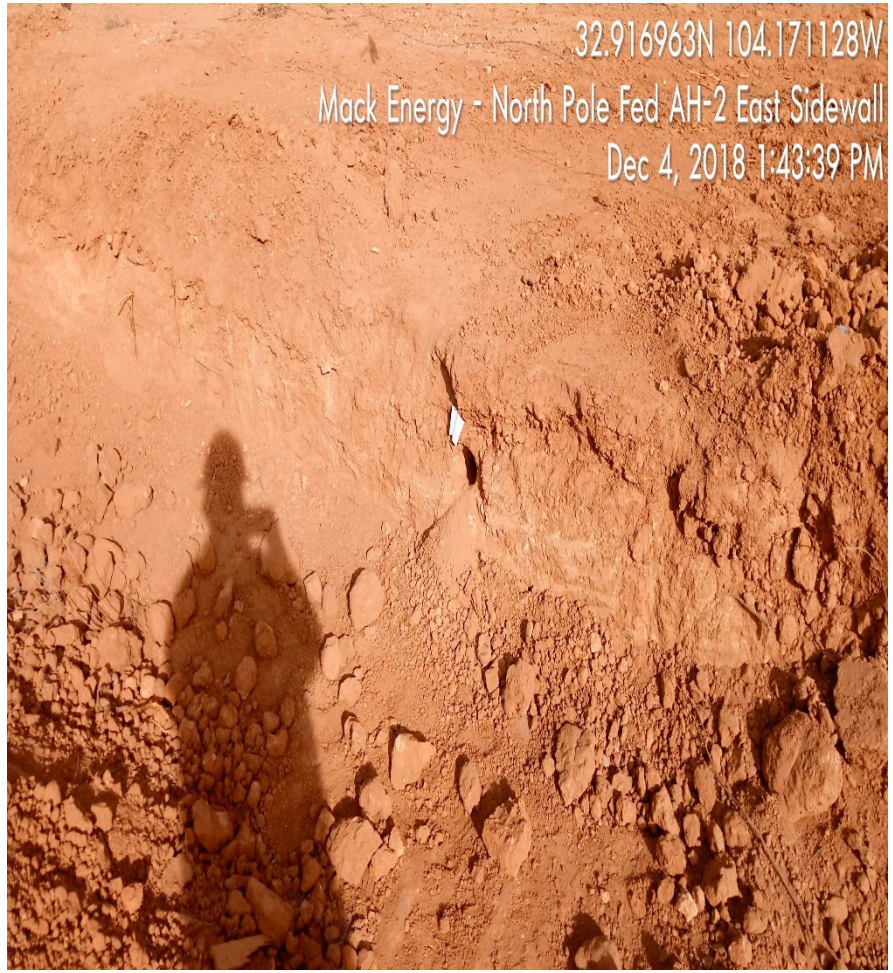

View East – Area of East Sidewall @ Auger Hole-2 (flagged) middle of photograph.

View West – Area of West Sidewall @Auger Hole-2 (flagged) middle of photograph.

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View South – Composite sample collected from Stockpile-1 @ Auger Hole -1.

View East – Composite sample collected from Stockpile-2 @ Auger Hole-1.

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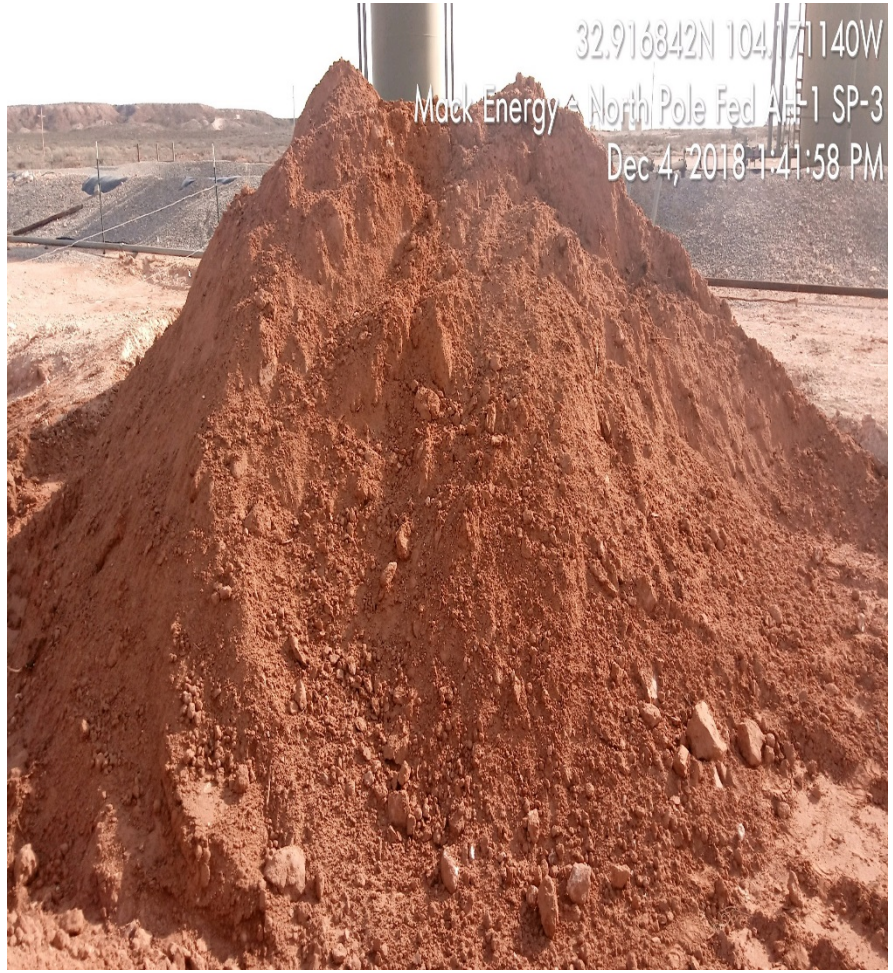

View Southeast – Composite sample collected from Stockpile-3 @ Auger Hole-1

View North – Composite sample collected from Stockpile-1 @ Auger Hole-2.

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View North – Composite sample collected from Stockpile-2 @ Auger Hole-2.

View Southeast – Composite sample collected from Stockpile-3 @ Auger Hole-2.

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View North – Surface returned to existing conditions.

View South – Surface returned to existing conditions.

MACK Energy Corporation

AMERICAN SAFETY SERVICES INC

APPENDIX D

Laboratory Analysis

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Thomas Franklin
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Location: Eddy Co. NM

Lab Order Number: 8G12006

NELAP/TCEQ # T104704516-17-8

Report Date: 07/24/18

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 1 (0.0'-0.5')	8G12006-01	Soil	07/09/18 12:30	07-12-2018 08:50
Auger Hole 2 (0.0'-0.5')	8G12006-05	Soil	07/09/18 12:41	07-12-2018 08:50
Auger Hole 3 (0.0'-0.5')	8G12006-11	Soil	07/09/18 12:59	07-12-2018 08:50
Auger Hole 4 (0.0'-0.5')	8G12006-15	Soil	07/09/18 13:07	07-12-2018 08:50
Auger Hole 5 (0.0'-0.5')	8G12006-17	Soil	07/09/18 13:14	07-12-2018 08:50
Auger Hole 6 (0.0'-0.5')	8G12006-19	Soil	07/09/18 13:21	07-12-2018 08:50
Auger Hole 7 (0.0'-0.5')	8G12006-21	Soil	07/09/18 13:28	07-12-2018 08:50
Auger Hole 8 (0.0'-0.5')	8G12006-23	Soil	07/09/18 13:35	07-12-2018 08:50
Auger Hole 9 (0.0'-0.5')	8G12006-25	Soil	07/09/18 13:42	07-12-2018 08:50
Auger Hole 10 (0.0'-0.5')	8G12006-27	Soil	07/09/18 13:49	07-12-2018 08:50
Auger Hole 11 (0.0'-0.5')	8G12006-29	Soil	07/09/18 13:56	07-12-2018 08:50
Auger Hole 12 (0.0'-0.5')	8G12006-31	Soil	07/09/18 14:03	07-12-2018 08:50
Auger Hole 13 (0.0'-0.5')	8G12006-33	Soil	07/10/18 09:50	07-12-2018 08:50
Auger Hole 14 (0.0'-0.5')	8G12006-34	Soil	07/10/18 09:55	07-12-2018 08:50
Auger Hole 15 (0.0'-0.5')	8G12006-35	Soil	07/10/18 10:00	07-12-2018 08:50
Auger Hole 16 (0.0'-0.5')	8G12006-36	Soil	07/10/18 10:05	07-12-2018 08:50
Auger Hole 17 (0.0'-0.5')	8G12006-37	Soil	07/10/18 10:10	07-12-2018 08:50
Auger Hole 18 (0.0'-0.5')	8G12006-38	Soil	07/10/18 10:15	07-12-2018 08:50
Auger Hole 19 (0.0'-0.5')	8G12006-39	Soil	07/10/18 10:20	07-12-2018 08:50
Auger Hole 20 (0.0'-0.5')	8G12006-40	Soil	07/10/18 10:25	07-12-2018 08:50

Auger Hole 1 (0.0'-0.5')

8G12006-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*87.8 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**352**	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	**81.9**	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*121 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*137 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**434**	26.6	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 2 (0.0'-0.5')

8G12006-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0105	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00526	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0211	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0105	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.0 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**245**	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	**49.7**	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.2 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**295**	26.3	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 3 (0.0'-0.5')

8G12006-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*90.6 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**56.8**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**56.8**	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 4 (0.0'-0.5')

8G12006-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.4 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 5 (0.0'-0.5')

8G12006-17 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.8 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 6 (0.0'-0.5')

8G12006-19 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*83.2 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**39.9**	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.2 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**39.9**	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 7 (0.0'-0.5')

8G12006-21 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*88.3 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.5 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 8 (0.0'-0.5')

8G12006-23 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.9 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 9 (0.0'-0.5')

8G12006-25 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*89.8 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.1 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*108 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 10 (0.0'-0.5')

8G12006-27 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*93.2 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*89.5 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*102 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 11 (0.0'-0.5')

8G12006-29 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*108 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*73.1 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 12 (0.0'-0.5')

8G12006-31 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*89.3 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*102 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 13 (0.0'-0.5')

8G12006-33 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*85.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*106 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**33.9**	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.0 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**33.9**	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 14 (0.0'-0.5')

8G12006-34 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.2 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**32.2**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*88.9 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*98.6 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**32.2**	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 15 (0.0'-0.5')

8G12006-35 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*89.1 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.7 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 16 (0.0'-0.5')

8G12006-36 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*87.8 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	**48.9**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	**26.2**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.6 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.9 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**75.1**	25.5	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 17 (0.0'-0.5')

8G12006-37 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00122	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0122	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00610	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0244	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0122	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.0 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**18.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	ND	30.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 18 (0.0'-0.5')

8G12006-38 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*85.8 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.1 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.7 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 19 (0.0'-0.5')

8G12006-39 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*86.3 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.1 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	

American Safety Services, Inc
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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 20 (0.0'-0.5')

8G12006-40 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*92.3 %*	*75-125*		*P8G1702*	*07/17/18*	*07/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*83.0 %*	*75-125*		*P8G1702*	*07/17/18*	*07/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.0 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/19/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/19/18	EPA 8021B	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1701 - General Preparation (GC)										
Blank (P8G1701-BLK1)				Prepared & Analyzed: 07/17/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 4-Bromofluorobenzene	*0.0619*		*"*	*0.0600*		*103*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0532*		*"*	*0.0600*		*88.6*	*75-125*			
LCS (P8G1701-BS1)				Prepared & Analyzed: 07/17/18						
Benzene	0.119	0.00100	mg/kg wet	0.100		119	70-130			
Toluene	0.114	0.0100	"	0.100		114	70-130			
Ethylbenzene	0.115	0.00500	"	0.100		115	70-130			
Xylene (p/m)	0.199	0.0200	"				70-130			
Xylene (o)	0.107	0.0100	"				70-130			
Surrogate: 4-Bromofluorobenzene	*0.0606*		*"*	*0.0600*		*101*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0593*		*"*	*0.0600*		*98.9*	*75-125*			
LCS Dup (P8G1701-BSD1)				Prepared & Analyzed: 07/17/18						
Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130	0.371	20	
Toluene	0.119	0.0100	"	0.100		119	70-130	4.75	20	
Ethylbenzene	0.118	0.00500	"	0.100		118	70-130	3.10	20	
Xylene (p/m)	0.200	0.0200	"				70-130		20	
Xylene (o)	0.109	0.0100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	*0.0600*		*"*	*0.0600*		*100*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0597*		*"*	*0.0600*		*99.5*	*75-125*			
Matrix Spike (P8G1701-MS1)	**Source: 8G16001-02**			Prepared & Analyzed: 07/17/18						
Benzene	0.0908	0.00102	mg/kg dry	0.102	ND	89.0	80-120			
Toluene	0.0877	0.0102	"	0.102	ND	85.9	80-120			
Ethylbenzene	0.104	0.00510	"	0.102	ND	102	80-120			
Xylene (p/m)	0.160	0.0204	"		ND		80-120			
Xylene (o)	0.0817	0.0102	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	*0.0686*		*"*	*0.0612*		*112*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0623*		*"*	*0.0612*		*102*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1701 - General Preparation (GC)										
Matrix Spike Dup (P8G1701-MSD1)	**Source: 8G16001-02**			Prepared & Analyzed: 07/17/18						
Benzene	0.103	0.00102	mg/kg dry	0.102	ND	101	80-120	12.4	20	
Toluene	0.0972	0.0102	"	0.102	ND	95.2	80-120	10.3	20	
Ethylbenzene	0.114	0.00510	"	0.102	ND	111	80-120	9.17	20	
Xylene (p/m)	0.173	0.0204	"		ND		80-120		20	
Xylene (o)	0.0940	0.0102	"		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	*0.0715*		*"*	*0.0612*		*117*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0647*		*"*	*0.0612*		*106*	*75-125*			
Batch P8G1702 - General Preparation (GC)										
Blank (P8G1702-BLK1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 4-Bromofluorobenzene	*0.0577*		*"*	*0.0600*		*96.2*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0458*		*"*	*0.0600*		*76.4*	*75-125*			
LCS (P8G1702-BS1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Benzene	0.0953	0.00100	mg/kg wet	0.100		95.3	70-130			
Toluene	0.0948	0.0100	"	0.100		94.8	70-130			
Ethylbenzene	0.110	0.00500	"	0.100		110	70-130			
Xylene (p/m)	0.193	0.0200	"				70-130			
Xylene (o)	0.103	0.0100	"				70-130			
Surrogate: 4-Bromofluorobenzene	*0.0583*		*"*	*0.0600*		*97.2*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0605*		*"*	*0.0600*		*101*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1702 - General Preparation (GC)										
LCS Dup (P8G1702-BSD1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130	6.40	20	
Toluene	0.105	0.0100	"	0.100		105	70-130	10.4	20	
Ethylbenzene	0.121	0.00500	"	0.100		121	70-130	9.54	20	
Xylene (p/m)	0.206	0.0200	"				70-130		20	
Xylene (o)	0.104	0.0100	"				70-130		20	
Surrogate: 4-Bromofluorobenzene	*0.0649*		*"*	*0.0600*		*108*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0627*		*"*	*0.0600*		*104*	*75-125*			
Matrix Spike (P8G1702-MS1)		**Source: 8G12006-38**		Prepared: 07/17/18 Analyzed: 07/19/18						
Benzene	0.0663	0.00102	mg/kg dry	0.102	ND	65.0	80-120			QM-05
Toluene	0.0648	0.0102	"	0.102	ND	63.5	80-120			QM-05
Ethylbenzene	0.0766	0.00510	"	0.102	ND	75.1	80-120			QM-05
Xylene (p/m)	0.130	0.0204	"		ND		80-120			
Xylene (o)	0.0655	0.0102	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	*0.0688*		*"*	*0.0612*		*112*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0671*		*"*	*0.0612*		*110*	*75-125*			
Matrix Spike Dup (P8G1702-MSD1)		**Source: 8G12006-38**		Prepared: 07/17/18 Analyzed: 07/19/18						
Benzene	0.0915	0.00102	mg/kg dry	0.102	ND	89.7	80-120	31.9	20	QM-05
Toluene	0.0847	0.0102	"	0.102	ND	83.0	80-120	26.6	20	QM-05
Ethylbenzene	0.100	0.00510	"	0.102	ND	98.0	80-120	26.5	20	QM-05
Xylene (p/m)	0.167	0.0204	"		ND		80-120		20	
Xylene (o)	0.0896	0.0102	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	*0.0642*		*"*	*0.0612*		*105*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0628*		*"*	*0.0612*		*103*	*75-125*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1604 - * DEFAULT PREP *** **										
Blank (P8G1604-BLK1)				Prepared & Analyzed: 07/16/18						
% Moisture	ND	0.1	%							
Duplicate (P8G1604-DUP1)		**Source: 8G12006-13**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP2)		**Source: 8G12006-40**		Prepared & Analyzed: 07/16/18						
% Moisture	4.0	0.1	%		2.0			66.7	20	
Duplicate (P8G1604-DUP3)		**Source: 8G13002-13**		Prepared & Analyzed: 07/16/18						
% Moisture	6.0	0.1	%		6.0			0.00	20	
Duplicate (P8G1604-DUP4)		**Source: 8G13004-04**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP5)		**Source: 8G12022-02**		Prepared & Analyzed: 07/16/18						
% Moisture	10.0	0.1	%		10.0			0.00	20	
Duplicate (P8G1604-DUP6)		**Source: 8G12022-08**		Prepared & Analyzed: 07/16/18						
% Moisture	14.0	0.1	%		13.0			7.41	20	
Duplicate (P8G1604-DUP7)		**Source: 8G13001-13**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP8)		**Source: 8G12006-40**		Prepared & Analyzed: 07/16/18						
% Moisture	4.0	0.1	%		2.0			66.7	20	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1305 - General Preparation (GC)										
Blank (P8G1305-BLK1)				Prepared & Analyzed: 07/13/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*95.8*		*"*	*100*		*95.8*	*70-130*			
Surrogate: o-Terphenyl	*55.4*		*"*	*50.0*		*111*	*70-130*			
LCS (P8G1305-BS1)				Prepared & Analyzed: 07/13/18						
C6-C12	937	25.0	mg/kg wet	1000		93.7	75-125			
>C12-C28	1000	25.0	"	1000		100	75-125			
Surrogate: 1-Chlorooctane	*118*		*"*	*100*		*118*	*70-130*			
Surrogate: o-Terphenyl	*51.2*		*"*	*50.0*		*102*	*70-130*			
LCS Dup (P8G1305-BSD1)				Prepared & Analyzed: 07/13/18						
C6-C12	930	25.0	mg/kg wet	1000		93.0	75-125	0.769	20	
>C12-C28	985	25.0	"	1000		98.5	75-125	1.52	20	
Surrogate: 1-Chlorooctane	*117*		*"*	*100*		*117*	*70-130*			
Surrogate: o-Terphenyl	*50.1*		*"*	*50.0*		*100*	*70-130*			
Matrix Spike (P8G1305-MS1)	**Source: 8G12006-38**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	978	25.5	mg/kg dry	1020	10.1	94.9	75-125			
>C12-C28	1020	25.5	"	1020	ND	99.6	75-125			
Surrogate: 1-Chlorooctane	*131*		*"*	*102*		*129*	*70-130*			
Surrogate: o-Terphenyl	*57.4*		*"*	*51.0*		*113*	*70-130*			
Matrix Spike Dup (P8G1305-MSD1)	**Source: 8G12006-38**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	1010	25.5	mg/kg dry	1020	10.1	98.4	75-125	3.65	20	
>C12-C28	1030	25.5	"	1020	ND	101	75-125	1.24	20	
Surrogate: 1-Chlorooctane	*126*		*"*	*102*		*123*	*70-130*			
Surrogate: o-Terphenyl	*58.2*		*"*	*51.0*		*114*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1306 - General Preparation (GC)										
Blank (P8G1306-BLK1)				Prepared & Analyzed: 07/13/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*109*		*"*	*100*		*109*	*70-130*			
Surrogate: o-Terphenyl	*60.7*		*"*	*50.0*		*121*	*70-130*			
LCS (P8G1306-BS1)				Prepared & Analyzed: 07/13/18						
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125			
>C12-C28	1090	25.0	"	1000		109	75-125			
Surrogate: 1-Chlorooctane	*103*		*"*	*100*		*103*	*70-130*			
Surrogate: o-Terphenyl	*50.1*		*"*	*50.0*		*100*	*70-130*			
LCS Dup (P8G1306-BSD1)				Prepared & Analyzed: 07/13/18						
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125	0.495	20	
>C12-C28	1100	25.0	"	1000		110	75-125	0.832	20	
Surrogate: 1-Chlorooctane	*102*		*"*	*100*		*102*	*70-130*			
Surrogate: o-Terphenyl	*50.0*		*"*	*50.0*		*99.9*	*70-130*			
Matrix Spike (P8G1306-MS1)	**Source: 8G12006-39**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	1040	25.5	mg/kg dry	1020	22.7	100	75-125			
>C12-C28	1070	25.5	"	1020	13.9	104	75-125			
Surrogate: 1-Chlorooctane	*115*		*"*	*102*		*112*	*70-130*			
Surrogate: o-Terphenyl	*57.5*		*"*	*51.0*		*113*	*70-130*			
Matrix Spike Dup (P8G1306-MSD1)	**Source: 8G12006-39**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	1090	25.5	mg/kg dry	1020	22.7	105	75-125	4.97	20	
>C12-C28	1130	25.5	"	1020	13.9	109	75-125	4.92	20	
Surrogate: 1-Chlorooctane	*119*		*"*	*102*		*116*	*70-130*			
Surrogate: o-Terphenyl	*56.7*		*"*	*51.0*		*111*	*70-130*			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 7/24/2018

Brent Barron, Laboratory Director/Technical Director

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706
Phone: 432-686-7235

Project Manager: Jay Latta
Company Name: American Safety Services Inc.
Company Address: 8715 Andrews Hwy.
City/State/Zip: Odessa, TX 79765
Telephone No: 432-557-9868/432-552-7625
Fax No:
Sampler Signature:
e-mail: ~~jlatta@americansafety.net~~ ~~jzimmerman@americansafety.net~~ rreich@americansafety.net mdial@americansafety.net

Project Name: Mack Energy-North Pole Fed TB
Project #:
Project Loc: Eddy Co. ~~NM~~ NM
PD #:
Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 8G12006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: 8015B	TOTAL: 8015M	418.1	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Auger Hole 1	0.0'	0.5'	7/9/2018	1230	N	1	X								S-Grab			X								X					X		
02	Auger Hole 1	0.5'	1.0'	7/9/2018	1232	N	1	X								S-Grab																X		
03	Auger Hole 1	1.0'	1.5'	7/9/2018	1234	N	1	X								S-Grab																X		
04	Auger Hole 1	1.5'	2.0'	7/9/2018	1236	N	1	X								S-Grab																X		
05	Auger Hole 2	0.0'	0.5'	7/9/2018	1241	N	1	X								S-Grab			X								X							
06	Auger Hole 2	0.5'	1.0'	7/9/2018	1243	N	1	X								S-Grab																X		
07	Auger Hole 2	1.0'	1.5'	7/9/2018	1245	N	1	X								S-Grab																X		
08	Auger Hole 2	1.5'	2.0'	7/9/2018	1247	N	1	X								S-Grab																X		
09	Auger Hole 2	2.0'	2.5'	7/9/2018	1249	N	1	X								S-Grab																X		
10	Auger Hole 2	2.5'	3.0'	7/9/2018	1251	N	1	X								S-Grab																X		

Special Instructions:
If Benzene exceeds 10 mg/kg or Total BTEX exceeds 50 mg/kg run deeper
If TPH exceeds 100 mg/kg run deeper sample

Relinquished by:	Date	Time	Received by:	Date	Time
	7/12/18	0850			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mussa Haddock	7/13/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: -1 °C
Adjusted: -0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Project Name: Mack Energy-North Pole Fed TB

Company Name: American Safety Services Inc.

Project #:

Company Address: 8715 Andrews Hwy.

Project Loc: Eddy Co. NM

City/State/Zip: Odessa, TX 79765

PO #:

Telephone No: 432-557-9868/432-552-7625

Fax No:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

(lab use only)
ORDER #: 8G120006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 / 8015M	TOTAL: 8015B	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold		RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
-11	Auger Hole 3	0.0'	0.5'	7/9/2018	1256	N	1	X								S-Grab	X										X							
-12	Auger Hole 3	0.5'	1.0'	7/9/2018	1258	N	1	X								S-Grab														X				
-13	Auger Hole 3	1.0'	1.5'	7/9/2018	1300	N	1	X								S-Grab														X				
-14	Auger Hole 3	1.5'	2.0'	7/9/2018	1302	N	1	X								S-Grab														X				
-15	Auger Hole 4	0.0'	0.5'	7/9/2018	1307	N	1	X								S-Grab	X										X							
-16	Auger Hole 4	0.5'	1.0'	7/9/2018	1309	N	1	X								S-Grab														X				
-17	Auger Hole 5	0.0'	0.5'	7/9/2018	1314	N	1	X								S-Grab	X										X							
-18	Auger Hole 5	0.5'	1.0'	7/9/2018	1316	N	1	X								S-Grab														X				
-19	Auger Hole 6	0.0'	0.5'	7/9/2018	1321	N	1	X								S-Grab	X										X							
-20	Auger Hole 6	0.5'	1.0'	7/9/2018	1323	N	1	X								S-Grab														X				

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/10/18	0690			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mussa Haddock	7/10/18	Time

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	N	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 1 °C
Adjusted: 0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Project Name: Mack Energy-North Pole Fed TB

Company Name: American Safety Services Inc.

Project #:

Company Address: 8715 Andrews Hwy.

Project Loc: Eddy Co. NM

City/State/Zip: Odessa, TX 79765

PO #:

Telephone No: 432-557-9868/432-552-7625

Fax No:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

(lab use only)
ORDER #: 860120016

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: 8015B	TCLP: 8015M	TCLP: 418.1	TOTAL: TPH: TX 1005	TOTAL: TPH: TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
21	Auger Hole 7	0.0'	0.5'	7/9/2018	1328	N	1	X								S-Grab	X											X						
22	Auger Hole 7	0.5'	1.0'	7/9/2018	1330	N	1	X								S-Grab																X		
23	Auger Hole 8	0.0'	0.5'	7/9/2018	1335	N	1	X								S-Grab	X											X						
24	Auger Hole 8	0.5'	1.0'	7/9/2018	1337	N	1	X								S-Grab																X		
25	Auger Hole 9	0.0'	0.5'	7/9/2018	1342	N	1	X								S-Grab	X											X						
26	Auger Hole 9	0.5'	1.0'	7/9/2018	1344	N	1	X								S-Grab																X		
27	Auger Hole 10	0.0'	0.5'	7/9/2018	1349	N	1	X								S-Grab	X											X						
28	Auger Hole 10	0.5'	1.0'	7/9/2018	1351	N	1	X								S-Grab																X		
29	Auger Hole 11	0.0'	0.5'	7/9/2018	1356	N	1	X								S-Grab	X											X						
30	Auger Hole 11	0.5'	1.0'	7/9/2018	1358	N	1	X								S-Grab																X		

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/12/18	0850			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Marsha Haddock	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: -1 °C
Adjusted: 0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Project Name: Mack Energy-North Pole Fed TB

Company Name: American Safety Services Inc.

Project #:

Company Address: 8715 Andrews Hwy.

Project Loc: Eddy Co. NM

City/State/Zip: Odessa, TX 79765

PO #:

Telephone No: 432-557-9868/432-552-7625

Fax No:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

(lab use only)
ORDER #: 8612006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH 418.1 8015B	TOTAL: TPH 418.1 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021 B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
-31	Auger Hole 12	0.0'	0.5'	7/9/2018	1403	N	1	X								S-Grab	X									X						
-32	Auger Hole 12	0.5'	1.0'	7/9/2018	1405	N	1	X								S-Grab														X		
-33	Auger Hole 13	0.0'	0.5'	7/10/2018	950	N	1	X								S-Grab	X									X						
-34	Auger Hole 14	0.0'	0.5'	7/10/2018	955	N	1	X								S-Grab	X									X				X		
-35	Auger Hole 15	0.0'	0.5'	7/10/2018	1000	N	1	X								S-Grab	X									X						
-36	Auger Hole 16	0.0'	0.5'	7/10/2018	1005	N	1	X								S-Grab	X									X						
-37	Auger Hole 17	0.0'	0.5'	7/10/2018	1010	N	1	X								S-Grab	X									X						
-38	Auger Hole 18	0.0'	0.5'	7/10/2018	1015	N	1	X								S-Grab	X									X						
-39	Auger Hole 19	0.0'	0.5'	7/10/2018	1020	N	1	X								S-Grab	X									X						
-40	Auger Hole 20	0.0'	0.5'	7/10/2018	1025	N	1	X								S-Grab	X									X						

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/11/18	0650			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mwroa Haddock	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 7 °C
Adjusted: -0.6 °C Factor 0.4 cf

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Thomas Franklin
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Location: Eddy Co. NM

Lab Order Number: 8G12006

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-17-8

Report Date: 07/31/18

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 1 (0.0'-0.5')	8G12006-01	Soil	07/09/18 12:30	07-12-2018 08:50
Auger Hole 1 (0.5'-1.0')	8G12006-02	Soil	07/09/18 12:32	07-12-2018 08:50
Auger Hole 1 (1.0'-1.5')	8G12006-03	Soil	07/09/18 12:34	07-12-2018 08:50
Auger Hole 2 (0.0'-0.5')	8G12006-05	Soil	07/09/18 12:41	07-12-2018 08:50
Auger Hole 2 (0.5'-1.0')	8G12006-06	Soil	07/09/18 12:43	07-12-2018 08:50
Auger Hole 2 (1.0'-1.5')	8G12006-07	Soil	07/09/18 12:45	07-12-2018 08:50
Auger Hole 2 (1.5'-2.0')	8G12006-08	Soil	07/09/18 12:47	07-12-2018 08:50
Auger Hole 2 (2.0'-2.5')	8G12006-09	Soil	07/09/18 12:49	07-12-2018 08:50
Auger Hole 3 (0.0'-0.5')	8G12006-11	Soil	07/09/18 12:59	07-12-2018 08:50
Auger Hole 4 (0.0'-0.5')	8G12006-15	Soil	07/09/18 13:07	07-12-2018 08:50
Auger Hole 5 (0.0'-0.5')	8G12006-17	Soil	07/09/18 13:14	07-12-2018 08:50
Auger Hole 6 (0.0'-0.5')	8G12006-19	Soil	07/09/18 13:21	07-12-2018 08:50
Auger Hole 7 (0.0'-0.5')	8G12006-21	Soil	07/09/18 13:28	07-12-2018 08:50
Auger Hole 8 (0.0'-0.5')	8G12006-23	Soil	07/09/18 13:35	07-12-2018 08:50
Auger Hole 9 (0.0'-0.5')	8G12006-25	Soil	07/09/18 13:42	07-12-2018 08:50
Auger Hole 10 (0.0'-0.5')	8G12006-27	Soil	07/09/18 13:49	07-12-2018 08:50
Auger Hole 11 (0.0'-0.5')	8G12006-29	Soil	07/09/18 13:56	07-12-2018 08:50
Auger Hole 12 (0.0'-0.5')	8G12006-31	Soil	07/09/18 14:03	07-12-2018 08:50
Auger Hole 13 (0.0'-0.5')	8G12006-33	Soil	07/10/18 09:50	07-12-2018 08:50
Auger Hole 14 (0.0'-0.5')	8G12006-34	Soil	07/10/18 09:55	07-12-2018 08:50
Auger Hole 15 (0.0'-0.5')	8G12006-35	Soil	07/10/18 10:00	07-12-2018 08:50
Auger Hole 16 (0.0'-0.5')	8G12006-36	Soil	07/10/18 10:05	07-12-2018 08:50
Auger Hole 17 (0.0'-0.5')	8G12006-37	Soil	07/10/18 10:10	07-12-2018 08:50
Auger Hole 18 (0.0'-0.5')	8G12006-38	Soil	07/10/18 10:15	07-12-2018 08:50
Auger Hole 19 (0.0'-0.5')	8G12006-39	Soil	07/10/18 10:20	07-12-2018 08:50
Auger Hole 20 (0.0'-0.5')	8G12006-40	Soil	07/10/18 10:25	07-12-2018 08:50

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 1 (0.0'-0.5')

8G12006-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0106	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00532	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0213	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0106	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*87.8 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**352**	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	**81.9**	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*121 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*137 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**434**	26.6	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 1 (0.5'-1.0')

8G12006-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8G2704	07/27/18	07/30/18	TPH 8015M	
>C12-C28	**468**	26.6	mg/kg dry	1	P8G2704	07/27/18	07/30/18	TPH 8015M	
>C28-C35	**131**	26.6	mg/kg dry	1	P8G2704	07/27/18	07/30/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*125 %*	*70-130*		*P8G2704*	*07/27/18*	*07/30/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*129 %*	*70-130*		*P8G2704*	*07/27/18*	*07/30/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**599**	26.6	mg/kg dry	1	[CALC]	07/27/18	07/30/18	calc	

Auger Hole 1 (1.0'-1.5')

8G12006-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**4.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
>C12-C28	**63.7**	26.0	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.8 %*	*70-130*		*P8G2704*	*07/27/18*	*07/27/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.8 %*	*70-130*		*P8G2704*	*07/27/18*	*07/27/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**63.7**	26.0	mg/kg dry	1	[CALC]	07/27/18	07/27/18	calc	

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Project: Mack Energy - North Pole Fed TB
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Project Manager: Thomas Franklin

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Auger Hole 2 (0.0'-0.5')

8G12006-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00105	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0105	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00526	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0211	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0105	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.0 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**245**	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	**49.7**	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*98.2 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**295**	26.3	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 2 (0.5'-1.0')

8G12006-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**207**	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	**47.3**	26.3	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*97.0 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**254**	26.3	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	

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Project Manager: Thomas Franklin

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Auger Hole 2 (1.0'-1.5')

8G12006-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**135**	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.2 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*109 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**135**	26.6	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	

Auger Hole 2 (1.5'-2.0')

8G12006-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
>C12-C28	**158**	26.6	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
>C28-C35	**35.0**	26.6	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.2 %*	*70-130*		*P8G2704*	*07/27/18*	*07/27/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.9 %*	*70-130*		*P8G2704*	*07/27/18*	*07/27/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**193**	26.6	mg/kg dry	1	[CALC]	07/27/18	07/27/18	calc	

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Auger Hole 2 (2.0'-2.5')

8G12006-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**4.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
>C12-C28	**38.0**	26.0	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8G2704	07/27/18	07/27/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*90.2 %*	*70-130*		*P8G2704*	*07/27/18*	*07/27/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*91.2 %*	*70-130*		*P8G2704*	*07/27/18*	*07/27/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**38.0**	26.0	mg/kg dry	1	[CALC]	07/27/18	07/27/18	calc	

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Project Manager: Thomas Franklin

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Auger Hole 3 (0.0'-0.5')

8G12006-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*90.6 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**56.8**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**56.8**	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 4 (0.0'-0.5')

8G12006-15 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*87.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.4 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 5 (0.0'-0.5')

8G12006-17 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*92.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.8 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*104 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 6 (0.0'-0.5')

8G12006-19 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*83.2 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**39.9**	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.2 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**39.9**	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 7 (0.0'-0.5')

8G12006-21 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*88.3 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.5 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 8 (0.0'-0.5')

8G12006-23 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.9 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 9 (0.0'-0.5')

8G12006-25 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*89.8 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.1 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*108 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 10 (0.0'-0.5')

8G12006-27 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*112 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*93.2 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*89.5 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*102 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 11 (0.0'-0.5')

8G12006-29 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*108 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*73.1 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 12 (0.0'-0.5')

8G12006-31 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*89.3 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*102 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 13 (0.0'-0.5')

8G12006-33 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*106 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*85.5 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**33.9**	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*92.0 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**33.9**	25.8	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 14 (0.0'-0.5')

8G12006-34 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*90.2 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C12-C28	**32.2**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*88.9 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*98.6 %*	*70-130*		*P8G1305*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**32.2**	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 15 (0.0'-0.5')

8G12006-35 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00515	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0206	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0103	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*89.1 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.7 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 16 (0.0'-0.5')

8G12006-36 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*87.8 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	**48.9**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	**26.2**	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*91.6 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.9 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**75.1**	25.5	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

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8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 17 (0.0'-0.5')

8G12006-37 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00122	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Toluene	ND	0.0122	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Ethylbenzene	ND	0.00610	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (p/m)	ND	0.0244	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Xylene (o)	ND	0.0122	mg/kg dry	1	P8G1701	07/17/18	07/17/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*91.0 %*	*75-125*		*P8G1701*	*07/17/18*	*07/17/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**18.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	ND	30.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.3 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/17/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 18 (0.0'-0.5')

8G12006-38 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*107 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*85.8 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1305	07/13/18	07/14/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*87.1 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*95.7 %*	*70-130*		*P8G1305*	*07/13/18*	*07/14/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/14/18	calc	
BTEX by 8021B									
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	

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Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 19 (0.0'-0.5')

8G12006-39 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/18/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*104 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*86.3 %*	*75-125*		*P8G1702*	*07/17/18*	*07/18/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*96.1 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/18/18	EPA 8021B	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

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Auger Hole 20 (0.0'-0.5')

8G12006-40 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00102	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Toluene	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Ethylbenzene	ND	0.00510	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Xylene (p/m)	ND	0.0204	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Xylene (o)	ND	0.0102	mg/kg dry	1	P8G1702	07/17/18	07/19/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*92.3 %*	*75-125*		*P8G1702*	*07/17/18*	*07/19/18*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*83.0 %*	*75-125*		*P8G1702*	*07/17/18*	*07/19/18*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8G1306	07/13/18	07/13/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.0 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8G1306*	*07/13/18*	*07/13/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	07/13/18	07/13/18	calc	
BTEX by 8021B									
Total BTEX	ND	0.0460	mg/kg	1	[CALC]	07/17/18	07/19/18	EPA 8021B	
Xylenes (total)	ND	0.0300	mg/kg	1	[CALC]	07/17/18	07/19/18	EPA 8021B	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1701 - General Preparation (GC)										
Blank (P8G1701-BLK1)				Prepared & Analyzed: 07/17/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 1,4-Difluorobenzene	*0.0532*		*"*	*0.0600*		*88.6*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0619*		*"*	*0.0600*		*103*	*75-125*			
LCS (P8G1701-BS1)				Prepared & Analyzed: 07/17/18						
Benzene	0.119	0.00100	mg/kg wet	0.100		119	70-130			
Toluene	0.114	0.0100	"	0.100		114	70-130			
Ethylbenzene	0.115	0.00500	"	0.100		115	70-130			
Xylene (p/m)	0.199	0.0200	"				70-130			
Xylene (o)	0.107	0.0100	"				70-130			
Surrogate: 1,4-Difluorobenzene	*0.0593*		*"*	*0.0600*		*98.9*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0606*		*"*	*0.0600*		*101*	*75-125*			
LCS Dup (P8G1701-BSD1)				Prepared & Analyzed: 07/17/18						
Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130	0.371	20	
Toluene	0.119	0.0100	"	0.100		119	70-130	4.75	20	
Ethylbenzene	0.118	0.00500	"	0.100		118	70-130	3.10	20	
Xylene (p/m)	0.200	0.0200	"				70-130		20	
Xylene (o)	0.109	0.0100	"				70-130		20	
Surrogate: 4-Bromofluorobenzene	*0.0597*		*"*	*0.0600*		*99.5*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0600*		*"*	*0.0600*		*100*	*75-125*			
Matrix Spike (P8G1701-MS1)	**Source: 8G16001-02**			Prepared & Analyzed: 07/17/18						
Benzene	0.0908	0.00102	mg/kg dry	0.102	ND	89.0	80-120			
Toluene	0.0877	0.0102	"	0.102	ND	85.9	80-120			
Ethylbenzene	0.104	0.00510	"	0.102	ND	102	80-120			
Xylene (p/m)	0.160	0.0204	"		ND		80-120			
Xylene (o)	0.0817	0.0102	"		ND		80-120			
Surrogate: 1,4-Difluorobenzene	*0.0623*		*"*	*0.0612*		*102*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0686*		*"*	*0.0612*		*112*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1701 - General Preparation (GC)										
Matrix Spike Dup (P8G1701-MSD1)	**Source: 8G16001-02**			Prepared & Analyzed: 07/17/18						
Benzene	0.103	0.00102	mg/kg dry	0.102	ND	101	80-120	12.4	20	
Toluene	0.0972	0.0102	"	0.102	ND	95.2	80-120	10.3	20	
Ethylbenzene	0.114	0.00510	"	0.102	ND	111	80-120	9.17	20	
Xylene (p/m)	0.173	0.0204	"		ND		80-120		20	
Xylene (o)	0.0940	0.0102	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	*0.0647*		*"*	*0.0612*		*106*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0715*		*"*	*0.0612*		*117*	*75-125*			
Batch P8G1702 - General Preparation (GC)										
Blank (P8G1702-BLK1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 4-Bromofluorobenzene	*0.0577*		*"*	*0.0600*		*96.2*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0458*		*"*	*0.0600*		*76.4*	*75-125*			
LCS (P8G1702-BS1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Benzene	0.0953	0.00100	mg/kg wet	0.100		95.3	70-130			
Toluene	0.0948	0.0100	"	0.100		94.8	70-130			
Ethylbenzene	0.110	0.00500	"	0.100		110	70-130			
Xylene (p/m)	0.193	0.0200	"				70-130			
Xylene (o)	0.103	0.0100	"				70-130			
Surrogate: 4-Bromofluorobenzene	*0.0583*		*"*	*0.0600*		*97.2*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0605*		*"*	*0.0600*		*101*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1702 - General Preparation (GC)										
LCS Dup (P8G1702-BSD1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130	6.40	20	
Toluene	0.105	0.0100	"	0.100		105	70-130	10.4	20	
Ethylbenzene	0.121	0.00500	"	0.100		121	70-130	9.54	20	
Xylene (p/m)	0.206	0.0200	"				70-130		20	
Xylene (o)	0.104	0.0100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	*0.0627*		*"*	*0.0600*		*104*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0649*		*"*	*0.0600*		*108*	*75-125*			
Matrix Spike (P8G1702-MS1)		**Source: 8G12006-38**		Prepared: 07/17/18 Analyzed: 07/19/18						
Benzene	0.0663	0.00102	mg/kg dry	0.102	ND	65.0	80-120			QM-05
Toluene	0.0648	0.0102	"	0.102	ND	63.5	80-120			QM-05
Ethylbenzene	0.0766	0.00510	"	0.102	ND	75.1	80-120			QM-05
Xylene (p/m)	0.130	0.0204	"		ND		80-120			
Xylene (o)	0.0655	0.0102	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	*0.0688*		*"*	*0.0612*		*112*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0671*		*"*	*0.0612*		*110*	*75-125*			
Matrix Spike Dup (P8G1702-MSD1)		**Source: 8G12006-38**		Prepared: 07/17/18 Analyzed: 07/19/18						
Benzene	0.0915	0.00102	mg/kg dry	0.102	ND	89.7	80-120	31.9	20	QM-05
Toluene	0.0847	0.0102	"	0.102	ND	83.0	80-120	26.6	20	QM-05
Ethylbenzene	0.100	0.00510	"	0.102	ND	98.0	80-120	26.5	20	QM-05
Xylene (p/m)	0.167	0.0204	"		ND		80-120		20	
Xylene (o)	0.0896	0.0102	"		ND		80-120		20	
Surrogate: 4-Bromofluorobenzene	*0.0628*		*"*	*0.0612*		*103*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0642*		*"*	*0.0612*		*105*	*75-125*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1604 - * DEFAULT PREP *** **										
Blank (P8G1604-BLK1)				Prepared & Analyzed: 07/16/18						
% Moisture	ND	0.1	%							
Duplicate (P8G1604-DUP1)		**Source: 8G12006-13**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP2)		**Source: 8G12006-40**		Prepared & Analyzed: 07/16/18						
% Moisture	4.0	0.1	%		2.0			66.7	20	
Duplicate (P8G1604-DUP3)		**Source: 8G13002-13**		Prepared & Analyzed: 07/16/18						
% Moisture	6.0	0.1	%		6.0			0.00	20	
Duplicate (P8G1604-DUP4)		**Source: 8G13004-04**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP5)		**Source: 8G12022-02**		Prepared & Analyzed: 07/16/18						
% Moisture	10.0	0.1	%		10.0			0.00	20	
Duplicate (P8G1604-DUP6)		**Source: 8G12022-08**		Prepared & Analyzed: 07/16/18						
% Moisture	14.0	0.1	%		13.0			7.41	20	
Duplicate (P8G1604-DUP7)		**Source: 8G13001-13**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP8)		**Source: 8G12006-40**		Prepared & Analyzed: 07/16/18						
% Moisture	4.0	0.1	%		2.0			66.7	20	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1305 - General Preparation (GC)										
Blank (P8G1305-BLK1)				Prepared & Analyzed: 07/13/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*95.8*		*"*	*100*		*95.8*	*70-130*			
Surrogate: o-Terphenyl	*55.4*		*"*	*50.0*		*111*	*70-130*			
LCS (P8G1305-BS1)				Prepared & Analyzed: 07/13/18						
C6-C12	937	25.0	mg/kg wet	1000		93.7	75-125			
>C12-C28	1000	25.0	"	1000		100	75-125			
Surrogate: 1-Chlorooctane	*118*		*"*	*100*		*118*	*70-130*			
Surrogate: o-Terphenyl	*51.2*		*"*	*50.0*		*102*	*70-130*			
LCS Dup (P8G1305-BSD1)				Prepared & Analyzed: 07/13/18						
C6-C12	930	25.0	mg/kg wet	1000		93.0	75-125	0.769	20	
>C12-C28	985	25.0	"	1000		98.5	75-125	1.52	20	
Surrogate: 1-Chlorooctane	*117*		*"*	*100*		*117*	*70-130*			
Surrogate: o-Terphenyl	*50.1*		*"*	*50.0*		*100*	*70-130*			
Matrix Spike (P8G1305-MS1)	**Source: 8G12006-38**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	978	25.5	mg/kg dry	1020	10.1	94.9	75-125			
>C12-C28	1020	25.5	"	1020	ND	99.6	75-125			
Surrogate: 1-Chlorooctane	*131*		*"*	*102*		*129*	*70-130*			
Surrogate: o-Terphenyl	*57.4*		*"*	*51.0*		*113*	*70-130*			
Matrix Spike Dup (P8G1305-MSD1)	**Source: 8G12006-38**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	1010	25.5	mg/kg dry	1020	10.1	98.4	75-125	3.65	20	
>C12-C28	1030	25.5	"	1020	ND	101	75-125	1.24	20	
Surrogate: 1-Chlorooctane	*126*		*"*	*102*		*123*	*70-130*			
Surrogate: o-Terphenyl	*58.2*		*"*	*51.0*		*114*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1306 - General Preparation (GC)										
Blank (P8G1306-BLK1)				Prepared & Analyzed: 07/13/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*109*		*"*	*100*		*109*	*70-130*			
Surrogate: o-Terphenyl	*60.7*		*"*	*50.0*		*121*	*70-130*			
LCS (P8G1306-BS1)				Prepared & Analyzed: 07/13/18						
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125			
>C12-C28	1090	25.0	"	1000		109	75-125			
Surrogate: 1-Chlorooctane	*103*		*"*	*100*		*103*	*70-130*			
Surrogate: o-Terphenyl	*50.1*		*"*	*50.0*		*100*	*70-130*			
LCS Dup (P8G1306-BSD1)				Prepared & Analyzed: 07/13/18						
C6-C12	1020	25.0	mg/kg wet	1000		102	75-125	0.495	20	
>C12-C28	1100	25.0	"	1000		110	75-125	0.832	20	
Surrogate: 1-Chlorooctane	*102*		*"*	*100*		*102*	*70-130*			
Surrogate: o-Terphenyl	*50.0*		*"*	*50.0*		*99.9*	*70-130*			
Matrix Spike (P8G1306-MS1)	**Source: 8G12006-39**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	1040	25.5	mg/kg dry	1020	22.7	100	75-125			
>C12-C28	1070	25.5	"	1020	13.9	104	75-125			
Surrogate: 1-Chlorooctane	*115*		*"*	*102*		*112*	*70-130*			
Surrogate: o-Terphenyl	*57.5*		*"*	*51.0*		*113*	*70-130*			
Matrix Spike Dup (P8G1306-MSD1)	**Source: 8G12006-39**			Prepared: 07/13/18 Analyzed: 07/14/18						
C6-C12	1090	25.5	mg/kg dry	1020	22.7	105	75-125	4.97	20	
>C12-C28	1130	25.5	"	1020	13.9	109	75-125	4.92	20	
Surrogate: 1-Chlorooctane	*119*		*"*	*102*		*116*	*70-130*			
Surrogate: o-Terphenyl	*56.7*		*"*	*51.0*		*111*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G2704 - General Preparation (GC)										
Blank (P8G2704-BLK1)				Prepared & Analyzed: 07/27/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*89.0*		*"*	*100*		*89.0*	*70-130*			
Surrogate: o-Terphenyl	*44.7*		*"*	*50.0*		*89.5*	*70-130*			
LCS (P8G2704-BS1)				Prepared & Analyzed: 07/27/18						
C6-C12	877	25.0	mg/kg wet	1000		87.7	75-125			
>C12-C28	944	25.0	"	1000		94.4	75-125			
Surrogate: 1-Chlorooctane	*114*		*"*	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*41.7*		*"*	*50.0*		*83.4*	*70-130*			
LCS Dup (P8G2704-BSD1)				Prepared & Analyzed: 07/27/18						
C6-C12	914	25.0	mg/kg wet	1000		91.4	75-125	4.15	20	
>C12-C28	961	25.0	"	1000		96.1	75-125	1.77	20	
Surrogate: 1-Chlorooctane	*118*		*"*	*100*		*118*	*70-130*			
Surrogate: o-Terphenyl	*42.2*		*"*	*50.0*		*84.5*	*70-130*			
Matrix Spike (P8G2704-MS1)	**Source: 8G12007-06**			Prepared: 07/27/18 Analyzed: 07/28/18						
C6-C12	1030	28.4	mg/kg dry	1140	23.8	88.7	75-125			
>C12-C28	1060	28.4	"	1140	15.4	92.2	75-125			
Surrogate: 1-Chlorooctane	*133*		*"*	*114*		*117*	*70-130*			
Surrogate: o-Terphenyl	*50.4*		*"*	*56.8*		*88.7*	*70-130*			
Matrix Spike Dup (P8G2704-MSD1)	**Source: 8G12007-06**			Prepared: 07/27/18 Analyzed: 07/28/18						
C6-C12	1010	28.4	mg/kg dry	1140	23.8	86.4	75-125	2.67	20	
>C12-C28	1060	28.4	"	1140	15.4	91.9	75-125	0.310	20	
Surrogate: 1-Chlorooctane	*129*		*"*	*114*		*113*	*70-130*			
Surrogate: o-Terphenyl	*50.0*		*"*	*56.8*		*88.1*	*70-130*			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 7/31/2018

Brent Barron, Laboratory Director/Technical Director

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706
Phone: 432-686-7235

Project Manager: Jay Latta
Company Name: American Safety Services Inc.
Company Address: 8715 Andrews Hwy.
City/State/Zip: Odessa, TX 79765
Telephone No: 432-557-9868/432-552-7625
Fax No:
Sampler Signature:
e-mail: ~~jlatta@americansafety.net~~ ~~jzimmerman@americansafety.net~~ rreich@americansafety.net mdial@americansafety.net

Project Name: Mack Energy-North Pole Fed TB
Project #:
Project Loc: Eddy Co. ~~NM~~ NM
PD #:
Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 8G12006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: 8015B	TOTAL: 8015M	418.1	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Auger Hole 1	0.0'	0.5'	7/9/2018	1230	N	1	X								S-Grab			X								X					X		
02	Auger Hole 1	0.5'	1.0'	7/9/2018	1232	N	1	X								S-Grab																X		
03	Auger Hole 1	1.0'	1.5'	7/9/2018	1234	N	1	X								S-Grab																X		
04	Auger Hole 1	1.5'	2.0'	7/9/2018	1236	N	1	X								S-Grab																X		
05	Auger Hole 2	0.0'	0.5'	7/9/2018	1241	N	1	X								S-Grab			X								X							
06	Auger Hole 2	0.5'	1.0'	7/9/2018	1243	N	1	X								S-Grab																X		
07	Auger Hole 2	1.0'	1.5'	7/9/2018	1245	N	1	X								S-Grab																X		
08	Auger Hole 2	1.5'	2.0'	7/9/2018	1247	N	1	X								S-Grab																X		
09	Auger Hole 2	2.0'	2.5'	7/9/2018	1249	N	1	X								S-Grab																X		
10	Auger Hole 2	2.5'	3.0'	7/9/2018	1251	N	1	X								S-Grab																X		

Special Instructions:
If Benzene exceeds 10 mg/kg or Total BTEX exceeds 50 mg/kg run deeper
If TPH exceeds 100 mg/kg run deeper sample

Relinquished by:	Date	Time	Received by:	Date	Time
	7/12/18	0850			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mussa Haddock	7/13/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: -1 °C
Adjusted: -0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Project Name: Mack Energy-North Pole Fed TB

Company Name: American Safety Services Inc.

Project #:

Company Address: 8715 Andrews Hwy.

Project Loc: Eddy Co. NM

City/State/Zip: Odessa, TX 79765

PO #:

Telephone No: 432-557-9868/432-552-7625

Fax No:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

(lab use only)
ORDER #: 8G12006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 / 8015M	TOTAL: 8015B	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold		RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
-11	Auger Hole 3	0.0'	0.5'	7/9/2018	1256	N	1	X								S-Grab	X									X							
-12	Auger Hole 3	0.5'	1.0'	7/9/2018	1258	N	1	X								S-Grab														X			
-13	Auger Hole 3	1.0'	1.5'	7/9/2018	1300	N	1	X								S-Grab														X			
-14	Auger Hole 3	1.5'	2.0'	7/9/2018	1302	N	1	X								S-Grab														X			
-15	Auger Hole 4	0.0'	0.5'	7/9/2018	1307	N	1	X								S-Grab	X										X						
-16	Auger Hole 4	0.5'	1.0'	7/9/2018	1309	N	1	X								S-Grab														X			
-17	Auger Hole 5	0.0'	0.5'	7/9/2018	1314	N	1	X								S-Grab	X										X						
-18	Auger Hole 5	0.5'	1.0'	7/9/2018	1316	N	1	X								S-Grab														X			
-19	Auger Hole 6	0.0'	0.5'	7/9/2018	1321	N	1	X								S-Grab	X										X						
-20	Auger Hole 6	0.5'	1.0'	7/9/2018	1323	N	1	X								S-Grab														X			

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/10/18	0690			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by ELAB: Mussa Haddock	7/10/18	Time

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	N	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 1 °C
Adjusted: 0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Project Name: Mack Energy-North Pole Fed TB

Company Name: American Safety Services Inc.

Project #:

Company Address: 8715 Andrews Hwy.

Project Loc: Eddy Co. NM

City/State/Zip: Odessa, TX 79765

PO #:

Telephone No: 432-557-9868/432-552-7625

Fax No:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

(lab use only)
ORDER #: 8612006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: 8015B	TCLP: 8015M	TCLP: 418.1	TOTAL: TPH: TX 1005	TOTAL: TPH: TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
21	Auger Hole 7	0.0'	0.5'	7/9/2018	1328	N	1	X								S-Grab	X											X						
22	Auger Hole 7	0.5'	1.0'	7/9/2018	1330	N	1	X								S-Grab																X		
23	Auger Hole 8	0.0'	0.5'	7/9/2018	1335	N	1	X								S-Grab	X											X						
24	Auger Hole 8	0.5'	1.0'	7/9/2018	1337	N	1	X								S-Grab																X		
25	Auger Hole 9	0.0'	0.5'	7/9/2018	1342	N	1	X								S-Grab	X											X						
26	Auger Hole 9	0.5'	1.0'	7/9/2018	1344	N	1	X								S-Grab																X		
27	Auger Hole 10	0.0'	0.5'	7/9/2018	1349	N	1	X								S-Grab	X											X						
28	Auger Hole 10	0.5'	1.0'	7/9/2018	1351	N	1	X								S-Grab																X		
29	Auger Hole 11	0.0'	0.5'	7/9/2018	1356	N	1	X								S-Grab	X											X						
30	Auger Hole 11	0.5'	1.0'	7/9/2018	1358	N	1	X								S-Grab																X		

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/12/18	0850			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mussa Haddad	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 7.1 °C
Adjusted: 0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Project Name: Mack Energy-North Pole Fed TB

Company Name: American Safety Services Inc.

Project #:

Company Address: 8715 Andrews Hwy.

Project Loc: Eddy Co. NM

City/State/Zip: Odessa, TX 79765

PO #:

Telephone No: 432-557-9868/432-552-7625

Fax No:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

(lab use only)
ORDER #: 8612006

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Greundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH 418.1	8015B	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	TOTAL: 8021 B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
31	Auger Hole 12	0.0'	0.5'	7/9/2018	1403	N	1	X								S-Grab	X									X							
32	Auger Hole 12	0.5'	1.0'	7/9/2018	1405	N	1	X								S-Grab															X		
33	Auger Hole 13	0.0'	0.5'	7/10/2018	950	N	1	X								S-Grab	X									X							
34	Auger Hole 14	0.0'	0.5'	7/10/2018	955	N	1	X								S-Grab	X									X					X		
35	Auger Hole 15	0.0'	0.5'	7/10/2018	1000	N	1	X								S-Grab	X									X							
36	Auger Hole 16	0.0'	0.5'	7/10/2018	1005	N	1	X								S-Grab	X									X							
37	Auger Hole 17	0.0'	0.5'	7/10/2018	1010	N	1	X								S-Grab	X									X							
38	Auger Hole 18	0.0'	0.5'	7/10/2018	1015	N	1	X								S-Grab	X									X							
39	Auger Hole 19	0.0'	0.5'	7/10/2018	1020	N	1	X								S-Grab	X									X							
40	Auger Hole 20	0.0'	0.5'	7/10/2018	1025	N	1	X								S-Grab	X									X							

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/11/18	0650			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Munroa Haddock	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 7 °C
Adjusted: -0.6 °C Factor 0.4 cf

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Thomas Franklin
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Location: Eddy Co. NM

Lab Order Number: 8G13001

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-17-8

Report Date: 07/24/18

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Auger Hole 1 (0.0'-0.5')	8G13001-01	Soil	07/09/18 12:30	07-12-2018 08:50
Auger Hole 1 (0.5'-1.0')	8G13001-02	Soil	07/09/18 12:32	07-12-2018 08:50
Auger Hole 2 (0.0'-0.5')	8G13001-05	Soil	07/09/18 12:41	07-12-2018 08:50
Auger Hole 3 (0.0'-0.5')	8G13001-11	Soil	07/09/18 12:59	07-12-2018 08:50
Auger Hole 4 (0.0'-0.5')	8G13001-15	Soil	07/09/18 13:07	07-12-2018 08:50
Auger Hole 5 (0.0'-0.5')	8G13001-17	Soil	07/09/18 13:14	07-12-2018 08:50
Auger Hole 6 (0.0'-0.5')	8G13001-19	Soil	07/09/18 13:21	07-12-2018 08:50
Auger Hole 7 (0.0'-0.5')	8G13001-21	Soil	07/09/18 13:28	07-12-2018 08:50
Auger Hole 8 (0.0'-0.5')	8G13001-23	Soil	07/09/18 13:35	07-12-2018 08:50
Auger Hole 9 (0.0'-0.5')	8G13001-25	Soil	07/09/18 13:42	07-12-2018 08:50
Auger Hole 10 (0.0'-0.5')	8G13001-27	Soil	07/09/18 13:49	07-12-2018 08:50
Auger Hole 11 (0.0'-0.5')	8G13001-29	Soil	07/09/18 13:56	07-12-2018 08:50
Auger Hole 12 (0.0'-0.5')	8G13001-31	Soil	07/09/18 14:03	07-12-2018 08:50
Auger Hole 13 (0.0'-0.5')	8G13001-33	Soil	07/09/18 09:50	07-12-2018 08:50
Auger Hole 14 (0.0'-0.5')	8G13001-34	Soil	07/09/18 09:55	07-12-2018 08:50
Auger Hole 15 (0.0'-0.5')	8G13001-35	Soil	07/09/18 10:00	07-12-2018 08:50
Auger Hole 16 (0.0'-0.5')	8G13001-36	Soil	07/09/18 10:05	07-12-2018 08:50
Auger Hole 17 (0.0'-0.5')	8G13001-37	Soil	07/09/18 10:10	07-12-2018 08:50
Auger Hole 18 (0.0'-0.5')	8G13001-38	Soil	07/09/18 10:15	07-12-2018 08:50
Auger Hole 19 (0.0'-0.5')	8G13001-39	Soil	07/09/18 10:20	07-12-2018 08:50
Auger Hole 20 (0.0'-0.5')	8G13001-40	Soil	07/09/18 10:25	07-12-2018 08:50

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 1 (0.0'-0.5')

8G13001-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**295**	1.06	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 1 (0.5'-1.0')

8G13001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**161**	1.06	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 2 (0.0'-0.5')

8G13001-05 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**190**	1.05	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 3 (0.0'-0.5')

8G13001-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.53**	1.02	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc	Project: Mack Energy - North Pole Fed TB	Fax: (432) 363-0198
8715 Andrews Hwy	Project Number: [none]	
Odessa TEXAS, 79765	Project Manager: Thomas Franklin	

Auger Hole 4 (0.0'-0.5')

8G13001-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 5 (0.0'-0.5')

8G13001-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 6 (0.0'-0.5')

8G13001-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc	Project: Mack Energy - North Pole Fed TB	Fax: (432) 363-0198
8715 Andrews Hwy	Project Number: [none]	
Odessa TEXAS, 79765	Project Manager: Thomas Franklin	

Auger Hole 7 (0.0'-0.5')

8G13001-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 8 (0.0'-0.5')

8G13001-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc	Project: Mack Energy - North Pole Fed TB	Fax: (432) 363-0198
8715 Andrews Hwy	Project Number: [none]	
Odessa TEXAS, 79765	Project Manager: Thomas Franklin	

Auger Hole 9 (0.0'-0.5')

8G13001-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P8G1706	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 10 (0.0'-0.5')

8G13001-27 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 11 (0.0'-0.5')

8G13001-29 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 12 (0.0'-0.5')

8G13001-31 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 13 (0.0'-0.5')

8G13001-33 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.03	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 14 (0.0'-0.5')

8G13001-34 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 15 (0.0'-0.5')

8G13001-35 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.03	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 16 (0.0'-0.5')

8G13001-36 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

Auger Hole 17 (0.0'-0.5')

8G13001-37 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**36.8**	1.22	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**18.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc	Project: Mack Energy - North Pole Fed TB	Fax: (432) 363-0198
8715 Andrews Hwy	Project Number: [none]	
Odessa TEXAS, 79765	Project Manager: Thomas Franklin	

Auger Hole 18 (0.0'-0.5')

8G13001-38 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 19 (0.0'-0.5')

8G13001-39 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Auger Hole 20 (0.0'-0.5')

8G13001-40 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.02	mg/kg dry	1	P8G1707	07/17/18	07/18/18	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P8G1604	07/16/18	07/16/18	ASTM D2216	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1604 - * DEFAULT PREP *** **										
Blank (P8G1604-BLK1)				Prepared & Analyzed: 07/16/18						
% Moisture	ND	0.1	%							
Duplicate (P8G1604-DUP1)		**Source: 8G12006-13**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP2)		**Source: 8G12006-40**		Prepared & Analyzed: 07/16/18						
% Moisture	4.0	0.1	%		2.0			66.7	20	
Duplicate (P8G1604-DUP3)		**Source: 8G13002-13**		Prepared & Analyzed: 07/16/18						
% Moisture	6.0	0.1	%		6.0			0.00	20	
Duplicate (P8G1604-DUP4)		**Source: 8G13004-04**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP5)		**Source: 8G12022-02**		Prepared & Analyzed: 07/16/18						
% Moisture	10.0	0.1	%		10.0			0.00	20	
Duplicate (P8G1604-DUP6)		**Source: 8G12022-08**		Prepared & Analyzed: 07/16/18						
% Moisture	14.0	0.1	%		13.0			7.41	20	
Duplicate (P8G1604-DUP7)		**Source: 8G13001-13**		Prepared & Analyzed: 07/16/18						
% Moisture	3.0	0.1	%		3.0			0.00	20	
Duplicate (P8G1604-DUP8)		**Source: 8G12006-40**		Prepared & Analyzed: 07/16/18						
% Moisture	4.0	0.1	%		2.0			66.7	20	
Batch P8G1706 - * DEFAULT PREP *** **										
Blank (P8G1706-BLK1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	ND	1.00	mg/kg wet							

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1706 - * DEFAULT PREP *** **										
LCS (P8G1706-BS1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	378	1.00	mg/kg wet	400		94.6	80-120			
LCS Dup (P8G1706-BSD1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	380	1.00	mg/kg wet	400		95.1	80-120	0.525	20	
Duplicate (P8G1706-DUP1)		**Source: 8G12007-12**		Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	ND	1.04	mg/kg dry		ND				20	
Duplicate (P8G1706-DUP2)		**Source: 8G13001-08**		Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	397	1.06	mg/kg dry		398			0.0963	20	
Matrix Spike (P8G1706-MS1)		**Source: 8G12007-12**		Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	1040	1.04	mg/kg dry	1040	ND	99.8	80-120			
Batch P8G1707 - * DEFAULT PREP *** **										
Blank (P8G1707-BLK1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8G1707-BS1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	396	1.00	mg/kg wet	400		99.0	80-120			
LCS Dup (P8G1707-BSD1)				Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	399	1.00	mg/kg wet	400		99.7	80-120	0.742	20	
Duplicate (P8G1707-DUP1)		**Source: 8G13001-27**		Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	ND	1.02	mg/kg dry		ND				20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8G1707 - * DEFAULT PREP *** **										
Duplicate (P8G1707-DUP2)		**Source: 8G13001-40**		Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	ND	1.02	mg/kg dry		ND				20	
Matrix Spike (P8G1707-MS1)		**Source: 8G13001-27**		Prepared: 07/17/18 Analyzed: 07/18/18						
Chloride	952	1.02	mg/kg dry	1020	ND	93.3	80-120			

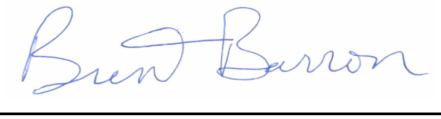
American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:  Date: 7/24/2018

Brent Barron, Laboratory Director/Technical Director

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Company Name: American Safety Services Inc.

Company Address: 8715 Andrews Hwy.

City/State/Zip: Odessa, TX 79765

Telephone No: 432-557-9868/432-552-7625 Fax No:

Sampler Signature:

e-mail: ~~Franklin~~ ~~jlatta@americansafety.net~~ ~~jzimmerman@americansafety.net~~ rreich@americansafety.net mdial@americansafety.net

Project Name: Mack Energy-North Pole Fed TB

Project #:

Project Loc: Eddy Co. ~~NM~~ NM

PO #:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: ~~8613006~~ 8613001

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride 300	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Auger Hole 1	0.0'	0.5'	7/9/2018	1230	N	1	X								S-Grab											X			
02	Auger Hole 1	0.5'	1.0'	7/9/2018	1232	N	1	X								S-Grab												X		
03	Auger Hole 1	1.0'	1.5'	7/9/2018	1234	N	1	X								S-Grab											X			
04	Auger Hole 1	1.5'	2.0'	7/9/2018	1236	N	1	X								S-Grab												X		
05	Auger Hole 2	0.0'	0.5'	7/9/2018	1241	N	1	X								S-Grab											X			
06	Auger Hole 2	0.5'	1.0'	7/9/2018	1243	N	1	X								S-Grab												X		
07	Auger Hole 2	1.0'	1.5'	7/9/2018	1245	N	1	X								S-Grab												X		
08	Auger Hole 2	1.5'	2.0'	7/9/2018	1247	N	1	X								S-Grab												X		
09	Auger Hole 2	2.0'	2.5'	7/9/2018	1249	N	1	X								S-Grab											X			
10	Auger Hole 2	2.5'	3.0'	7/9/2018	1251	N	1	X								S-Grab												X		

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/11/18	0850			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Melissa Haddock	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N
by Courier? UPS DHL FedEx Lone Star		

Temperature Upon Receipt:
Received: -1 °C
Adjusted: -0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Company Name: American Safety Services Inc.

Company Address: 8715 Andrews Hwy.

City/State/Zip: Odessa, TX 79765

Telephone No: 432-557-9868/432-552-7625 Fax No:

Sampler Signature:

e-mail: ~~franklin~~ ~~jlatta@americansafety.net~~ ~~jzimmerman@americansafety.net~~ rreich@americansafety.net mdial@americansafety.net

Project Name: Mack Energy-North Pole Fed TB

Project #:

Project Loc: Eddy Co. NM

PO #:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only) ORDER #: ~~8G12001~~ 13001

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water GW = Groundwater NP=Non-Potable SL=Sludge S=Soil/Solid Specify Other	Analyze For: TPH: 418.1 / 8015M	TPH: TX 1005 / TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride 300	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
-11	Auger Hole 3	0.0'	0.5'	7/9/2018	1256	N	1	X								S-Grab												X			
-12	Auger Hole 3	0.5'	1.0'	7/9/2018	1258	N	1	X								S-Grab													X		
-13	Auger Hole 3	1.0'	1.5'	7/9/2018	1300	N	1	X								S-Grab												X			
-14	Auger Hole 3	1.5'	2.0'	7/9/2018	1302	N	1	X								S-Grab													X		
-15	Auger Hole 4	0.0'	0.5'	7/9/2018	1307	N	1	X								S-Grab												X			
-16	Auger Hole 4	0.5'	1.0'	7/9/2018	1309	N	1	X								S-Grab													X		
-17	Auger Hole 5	0.0'	0.5'	7/9/2018	1314	N	1	X								S-Grab												X			
-18	Auger Hole 5	0.5'	1.0'	7/9/2018	1316	N	1	X								S-Grab													X		
-19	Auger Hole 6	0.0'	0.5'	7/9/2018	1321	N	1	X								S-Grab												X			
-20	Auger Hole 6	0.5'	1.0'	7/9/2018	1323	N	1	X								S-Grab													X		

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/10/18	0690			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mussa Haddock	7/10/18	

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered		N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: -1 °C
Adjusted: 0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midiland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Company Name: American Safety Services Inc.

Company Address: 8715 Andrews Hwy.

City/State/Zip: Odessa, TX 79765

Telephone No: 432-557-9868/432-552-7625

Fax No:

Sampler Signature:

e-mail: ~~Franklin~~ jlatta@americansafety.net, ~~jzimmerman@americansafety.net~~, rreich@americansafety.net, mdial@americansafety.net

Project Name: Mack Energy-North Pole Fed TB

Project #:

Project Loc: Eddy Co. NM

PO #:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 8C13001 ~~12006~~

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride 300	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
21	Auger Hole 7	0.0'	0.5'	7/9/2018	1328	N	1	X								S-Grab												X			
22	Auger Hole 7	0.5'	1.0'	7/9/2018	1330	N	1	X								S-Grab													X		
23	Auger Hole 8	0.0'	0.5'	7/9/2018	1335	N	1	X								S-Grab												X			
24	Auger Hole 8	0.5'	1.0'	7/9/2018	1337	N	1	X								S-Grab													X		
25	Auger Hole 9	0.0'	0.5'	7/9/2018	1342	N	1	X								S-Grab												X			
26	Auger Hole 9	0.5'	1.0'	7/9/2018	1344	N	1	X								S-Grab													X		
27	Auger Hole 10	0.0'	0.5'	7/9/2018	1349	N	1	X								S-Grab												X			
28	Auger Hole 10	0.5'	1.0'	7/9/2018	1351	N	1	X								S-Grab													X		
29	Auger Hole 11	0.0'	0.5'	7/9/2018	1356	N	1	X								S-Grab												X			
30	Auger Hole 11	0.5'	1.0'	7/9/2018	1358	N	1	X								S-Grab													X		

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/12/18	0850			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Mussa Haddock	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 0.6 °C
Adjusted: 0.6 °C Factor 0.4

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Jay Latta

Company Name: American Safety Services Inc.

Company Address: 8715 Andrews Hwy.

City/State/Zip: Odessa, TX 79765

Telephone No: 432-557-9868/432-552-7625 Fax No:

Sampler Signature:

e-mail: jlatta@americansafety.net; jzimmerman@americansafety.net; rreich@americansafety.net; mdial@americansafety.net

Project Name: Mack Energy-North Pole Fed TB

Project #:

Project Loc: Eddy Co. NM

PO #:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 8G13001 ~~8G12006~~

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride 300	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
-31	Auger Hole 12	0.0'	0.5'	7/9/2018	1403	N	1	X								S-Grab											X				
-32	Auger Hole 12	0.5'	1.0'	7/9/2018	1405	N	1	X								S-Grab											X	X			
-33	Auger Hole 13	0.0'	0.5'	7/10/2018	950	N	1	X								S-Grab											X				
-34	Auger Hole 14	0.0'	0.5'	7/10/2018	955	N	1	X								S-Grab											X	X	TPH		
-35	Auger Hole 15	0.0'	0.5'	7/10/2018	1000	N	1	X								S-Grab											X				
-36	Auger Hole 16	0.0'	0.5'	7/10/2018	1005	N	1	X								S-Grab											X				
-37	Auger Hole 17	0.0'	0.5'	7/10/2018	1010	N	1	X								S-Grab											X				
-38	Auger Hole 18	0.0'	0.5'	7/10/2018	1015	N	1	X								S-Grab											X				
-39	Auger Hole 19	0.0'	0.5'	7/10/2018	1020	N	1	X								S-Grab											X				
-40	Auger Hole 20	0.0'	0.5'	7/10/2018	1025	N	1	X								S-Grab											X				

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	7/11/18	0650			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL: Aurora Haddock	7/12/18	8:50

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: -0.6 °C
Adjusted: -0.6 °C Factor 0.9 cl

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Revised Analytical Report

Prepared for:

Thomas Franklin
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Location: Eddy County, New Mexico

Lab Order Number: 8L05002

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-18-9

Report Date: 04/30/19

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
South Sidewall @ Auger Hole-1	8L05002-01	Soil	12/04/18 13:00	12-05-2018 10:25
East Sidewall @ Auger Hole-1	8L05002-02	Soil	12/04/18 13:05	12-05-2018 10:25
West Sidewall @ Auger Hole-1	8L05002-03	Soil	12/04/18 13:10	12-05-2018 10:25
North Sidewall @ Auger Hole-2	8L05002-04	Soil	12/04/18 13:15	12-05-2018 10:25
East Sidewall @ Auger Hole-2	8L05002-05	Soil	12/04/18 13:20	12-05-2018 10:25
West Sidewall @ Auger Hole-2	8L05002-06	Soil	12/04/18 13:25	12-05-2018 10:25
Stockpile-1 @ Auger Hole-1	8L05002-07	Soil	12/04/18 13:30	12-05-2018 10:25
Stockpile-2 @ Auger Hole-1	8L05002-08	Soil	12/04/18 13:35	12-05-2018 10:25
Stockpile-3 @ Auger Hole-1	8L05002-09	Soil	12/04/18 13:40	12-05-2018 10:25
Stockpile-1 @ Auger Hole-2	8L05002-10	Soil	12/04/18 13:45	12-05-2018 10:25
Stockpile-2 @ Auger Hole-2	8L05002-11	Soil	12/04/18 13:50	12-05-2018 10:25
Stockpile-3 @ Auger Hole-2	8L05002-12	Soil	12/04/18 13:55	12-05-2018 10:25

South Sidewall @ Auger Hole-1

8L05002-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*101 %*	*70-130*		*P8L0802*	*12/08/18*	*12/09/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*108 %*	*70-130*		*P8L0802*	*12/08/18*	*12/09/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	12/08/18	12/09/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

East Sidewall @ Auger Hole-1

8L05002-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**3.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.8	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*99.8 %*	*70-130*		*P8L0802*	*12/08/18*	*12/09/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*106 %*	*70-130*		*P8L0802*	*12/08/18*	*12/09/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	12/08/18	12/09/18	calc	

West Sidewall @ Auger Hole-1

8L05002-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**8.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P8L0802	12/08/18	12/09/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.2 %*	*70-130*		*P8L0802*	*12/08/18*	*12/09/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*103 %*	*70-130*		*P8L0802*	*12/08/18*	*12/09/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	12/08/18	12/09/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

North Sidewall @ Auger Hole-2

8L05002-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*95.6 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*99.6 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

East Sidewall @ Auger Hole-2

8L05002-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**4.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.8 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*98.5 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

West Sidewall @ Auger Hole-2

8L05002-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.4 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*98.5 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Stockpile-1 @ Auger Hole-1

8L05002-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*83.3 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*85.7 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Stockpile-2 @ Auger Hole-1

8L05002-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*105 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Stockpile-3 @ Auger Hole-1

8L05002-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	**31.0**	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.5 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*100 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**31.0**	26.6	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Stockpile-1 @ Auger Hole-2

8L05002-10 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**5.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*93.9 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*101 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Stockpile-2 @ Auger Hole-2

8L05002-11 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**2.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Surrogate: o-Terphenyl		*111 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Stockpile-3 @ Auger Hole-2

8L05002-12 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P8L0704	12/07/18	12/07/18	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C12-C28	**86.9**	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
>C28-C35	**33.5**	26.6	mg/kg dry	1	P8L0803	12/08/18	12/08/18	TPH 8015M	
Surrogate: 1-Chlorooctane		*69.6 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	*S-09*
Surrogate: o-Terphenyl		*73.9 %*	*70-130*		*P8L0803*	*12/08/18*	*12/08/18*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**120**	26.6	mg/kg dry	1	[CALC]	12/08/18	12/08/18	calc	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0704 - * DEFAULT PREP *** **										
Blank (P8L0704-BLK1)				Prepared & Analyzed: 12/07/18						
% Moisture	ND	0.1	%							
Duplicate (P8L0704-DUP1)		**Source: 8L04028-25**		Prepared & Analyzed: 12/07/18						
% Moisture	16.0	0.1	%		16.0			0.00	20	
Duplicate (P8L0704-DUP2)		**Source: 8L04029-17**		Prepared & Analyzed: 12/07/18						
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P8L0704-DUP3)		**Source: 8L06001-02**		Prepared & Analyzed: 12/07/18						
% Moisture	8.0	0.1	%		8.0			0.00	20	
Duplicate (P8L0704-DUP4)		**Source: 8L06006-05**		Prepared & Analyzed: 12/07/18						
% Moisture	5.0	0.1	%		5.0			0.00	20	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0802 - TX 1005										
Blank (P8L0802-BLK1)				Prepared & Analyzed: 12/08/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*93.9*		*"*	*100*		*93.9*	*70-130*			
Surrogate: o-Terphenyl	*49.7*		*"*	*50.0*		*99.3*	*70-130*			
LCS (P8L0802-BS1)				Prepared & Analyzed: 12/08/18						
C6-C12	933	25.0	mg/kg wet	1000		93.3	75-125			
>C12-C28	934	25.0	"	1000		93.4	75-125			
Surrogate: 1-Chlorooctane	*113*		*"*	*100*		*113*	*70-130*			
Surrogate: o-Terphenyl	*52.7*		*"*	*50.0*		*105*	*70-130*			
LCS Dup (P8L0802-BSD1)				Prepared & Analyzed: 12/08/18						
C6-C12	754	25.0	mg/kg wet	1000		75.4	75-125	21.2	20	R2
>C12-C28	939	25.0	"	1000		93.9	75-125	0.527	20	
Surrogate: 1-Chlorooctane	*114*		*"*	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*52.1*		*"*	*50.0*		*104*	*70-130*			
Matrix Spike (P8L0802-MS1)	**Source: 8L05002-03**			Prepared: 12/08/18 Analyzed: 12/09/18						
C6-C12	832	27.2	mg/kg dry	1090	20.7	74.6	75-125			QM-07
>C12-C28	1110	27.2	"	1090	ND	102	75-125			
Surrogate: 1-Chlorooctane	*132*		*"*	*109*		*122*	*70-130*			
Surrogate: o-Terphenyl	*60.3*		*"*	*54.3*		*111*	*70-130*			
Batch P8L0803 - TX 1005										
Blank (P8L0803-BLK1)				Prepared & Analyzed: 12/08/18						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*54.5*		*"*	*50.0*		*109*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8L0803 - TX 1005										
LCS (P8L0803-BS1)				Prepared & Analyzed: 12/08/18						
C6-C12	898	25.0	mg/kg wet	1000		89.8	75-125			
>C12-C28	1070	25.0	"	1000		107	75-125			
Surrogate: 1-Chlorooctane	*113*		*"*	*100*		*113*	*70-130*			
Surrogate: o-Terphenyl	*51.4*		*"*	*50.0*		*103*	*70-130*			
LCS Dup (P8L0803-BSD1)				Prepared & Analyzed: 12/08/18						
C6-C12	887	25.0	mg/kg wet	1000		88.7	75-125	1.21	20	
>C12-C28	1050	25.0	"	1000		105	75-125	2.07	20	
Surrogate: 1-Chlorooctane	*111*		*"*	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*50.7*		*"*	*50.0*		*101*	*70-130*			
Matrix Spike (P8L0803-MS1)	**Source: 8L05002-04**			Prepared: 12/08/18 Analyzed: 12/09/18						
C6-C12	948	26.6	mg/kg dry	1060	ND	89.1	75-125			
>C12-C28	1100	26.6	"	1060	10.3	103	75-125			
Surrogate: 1-Chlorooctane	*117*		*"*	*106*		*110*	*70-130*			
Surrogate: o-Terphenyl	*53.0*		*"*	*53.2*		*99.7*	*70-130*			
Matrix Spike Dup (P8L0803-MSD1)	**Source: 8L05002-04**			Prepared: 12/08/18 Analyzed: 12/09/18						
C6-C12	956	26.6	mg/kg dry	1060	ND	89.9	75-125	0.843	20	
>C12-C28	1130	26.6	"	1060	10.3	105	75-125	1.87	20	
Surrogate: 1-Chlorooctane	*121*		*"*	*106*		*114*	*70-130*			
Surrogate: o-Terphenyl	*53.9*		*"*	*53.2*		*101*	*70-130*			

Notes and Definitions

S-09	Surrogate recovery limits have been exceeded.
R2	The RPD exceeded the acceptance limit.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:  Date: 4/30/2019

Brent Barron, Laboratory Director/Technical Director

AMERICAN SAFETY SERVICES INC
8715 Andrews Hwy
Odessa, TX 79768
Phone: 432-552-7625

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Thomas Franklin
Company Name: American Safety Services Inc.
Company Address: 8715 Andrews Hwy.
City/State/Zip: Odessa, TX 79765
Telephone No: 432-557-9868/432-557-7963
Fax No:
Sampler Signature: DP
e-mail: dpayne@americansafety.net; tfranklin@americansafety.net; jzimmerman@americansafety.net

Project Name: Mack Energy - North Pole Fed TB
Project #:
Project Loc: Eddy Co. NM
PO #:
Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only) ORDER #: 8L05002

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 8015M (8015B) 418.1	TOTAL: TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	North Sidewall @ Auger Hole - 1	-	-	12/4/2018	1300	N	1	X								S-Grab	X												X
02	East Sidewall @ Auger Hole - 1	-	-	12/4/2018	1305	N	1	X								S-Grab	X												X
03	West Sidewall @ Auger Hole - 1	-	-	12/4/2018	1310	N	1	X								S-Grab	X												X
04	South Sidewall @ Auger Hole - 2	-	-	12/4/2018	1315	N	1	X								S-Grab	X												X
05	East Sidewall @ Auger Hole - 2	-	-	12/4/2018	1320	N	1	X								S-Grab	X												X
06	West Sidewall @ Auger Hole - 2	-	-	12/4/2018	1325	N	1	X								S-Grab	X												X
07	Stockpile - 1 @ Auger Hole - 1	-	-	12/4/2018	1330	N	1	X								S-Comp	X												X
08	Stockpile - 2 @ Auger Hole - 1	-	-	12/4/2018	1335	N	1	X								S-Comp	X												X
09	Stockpile - 3 @ Auger Hole - 1	-	-	12/4/2018	1340	N	1	X								S-Comp	X												X
10	Stockpile - 1 @ Auger Hole - 2	-	-	12/4/2018	1345	N	1	X								S-Comp	X												X

Special Instructions: "Invoice to Matt Buckles"

Relinquished by:	Date	Time	Received by:	Date	Time
Don Payne	12-5-18	1025			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL:	Date	Time
			Ashley Ussery	12-5-18	10:25

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 3.9 °C
Adjusted: 4.1 °C Factor 1

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

AMERICAN SAFETY SERVICES INC
8715 Andrews Hwy
Odessa, TX 79768
Phone: 432-552-7625

Project Manager: Thomas Franklin
Company Name: American Safety Services Inc.
Company Address: 8715 Andrews Hwy.
City/State/Zip: Odessa, TX 79765
Telephone No: 432-557-9868/432-557-7963
Fax No:
Sampler Signature: DP
e-mail: dpayne@americansafety.net; tfranklin@americansafety.net; izimmerman@americansafety.net

Project Name: Mack Energy - North Pole Fed TB
Project #:
Project Loc: Eddy Co. NM
PO #:
Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only) ORDER #: 5002

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1	8015M	TPH: TX 1005	TX 1008	8015B	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
1	Stockpile - 2 @ Auger Hole - 2	-	-	12/4/2018	1350	N	1	X								S-Grab	X															X
2	Stockpile - 3 @ Auger Hole - 2	-	-	12/4/2018	1355	N	1	X								S-Grab	X															X

NFE

Special Instructions: *Invoice to Matt Buckles*

Relinquished by:	Date	Time	Received by:	Date	Time
	12-5-18	1025			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by PBEL:	Date	Time
				12.5.18	1023

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 3.7 °C
Adjusted: 3.7 °C Factor 1

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Josh Talley
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Location: Eddy County, New Mexico

Lab Order Number: 9B15008

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-18-9

Report Date: 02/21/19

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Josh Talley

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Stockpile 3 @ Auger Hole 2	9B15008-01	Soil	02/14/19 13:30	02-15-2019 12:00

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Josh Talley

Fax: (432) 363-0198

Stockpile 3 @ Auger Hole 2

9B15008-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
% Moisture	**6.0**	0.1	%	1	P9B1912	02/19/19	02/19/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P9B1803	02/15/19	02/17/19	TPH 8015M	
>C12-C28	**105**	26.6	mg/kg dry	1	P9B1803	02/15/19	02/17/19	TPH 8015M	
>C28-C35	**30.3**	26.6	mg/kg dry	1	P9B1803	02/15/19	02/17/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*120 %*	*70-130*		*P9B1803*	*02/15/19*	*02/17/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*134 %*	*70-130*		*P9B1803*	*02/15/19*	*02/17/19*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**136**	26.6	mg/kg dry	1	[CALC]	02/15/19	02/17/19	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Josh Talley

Fax: (432) 363-0198

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9B1912 - * DEFAULT PREP *** **										
Blank (P9B1912-BLK1)				Prepared & Analyzed: 02/19/19						
% Moisture	ND	0.1	%							
Duplicate (P9B1912-DUP1)		**Source: 9B15001-06**		Prepared & Analyzed: 02/19/19						
% Moisture	8.0	0.1	%		9.0			11.8	20	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9B1803 - TX 1005										
Blank (P9B1803-BLK1)				Prepared: 02/15/19 Analyzed: 02/17/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*96.5*		*"*	*100*		*96.5*	*70-130*			
Surrogate: o-Terphenyl	*52.3*		*"*	*50.0*		*105*	*70-130*			
LCS (P9B1803-BS1)				Prepared: 02/15/19 Analyzed: 02/16/19						
C6-C12	1140	25.0	mg/kg wet	1000		114	75-125			
>C12-C28	1170	25.0	"	1000		117	75-125			
Surrogate: 1-Chlorooctane	*122*		*"*	*100*		*122*	*70-130*			
Surrogate: o-Terphenyl	*64.5*		*"*	*50.0*		*129*	*70-130*			
LCS Dup (P9B1803-BSD1)				Prepared: 02/15/19 Analyzed: 02/16/19						
C6-C12	940	25.0	mg/kg wet	1000		94.0	75-125	19.4	20	
>C12-C28	965	25.0	"	1000		96.5	75-125	19.3	20	
Surrogate: 1-Chlorooctane	*110*		*"*	*100*		*110*	*70-130*			
Surrogate: o-Terphenyl	*53.5*		*"*	*50.0*		*107*	*70-130*			
Duplicate (P9B1803-DUP1)	**Source: 9B15008-01**			Prepared: 02/15/19 Analyzed: 02/17/19						
C6-C12	ND	26.6	mg/kg dry		11.1				20	
>C12-C28	27.2	26.6	"		105			118	20	
Surrogate: 1-Chlorooctane	*133*		*"*	*106*		*125*	*70-130*			
Surrogate: o-Terphenyl	*75.5*		*"*	*53.2*		*142*	*70-130*			*S-GC*

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 2/21/2019

Brent Barron, Laboratory Director/Technical Director

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PG 1 of 1

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Josh Talley/Ryan Reich

Company Name: American Safety Services Inc.

Company Address: 8715 Andrews Hwy.

City/State/Zip: Odessa, TX 79765

Telephone No: 432-557-9868/432-552-7625 Fax No:

Sampler Signature:

e-mail: tfranklin@americansafety.net; jzimmerman@americansafety.net

Project Name: Mack Energy- North Pole Fed TB

Project #:

Project Loc: Eddy Co. TX

PO #:

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 9B15008

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW=Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TPH: 418.1 / 8015B	TOTAL: TPH: 8015B	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Hold	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Stockpile 3 @ Auger Hole 2	-	-	2/14/2019	1330	N	1	X								S-Comp	X																X

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
	2/14/19	18:00		2/14/19	18:00
Relinquished by:	Date	Time	Received by:	Date	Time
	2/15/19	12:00			
Relinquished by:	Date	Time	Received by PBEL:	Date	Time
				2-15-18	12:00

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:
Received: 0.0 °C
Adjusted: °C Factor 1

PBELAB

1400 Rankin Hwy
Midland, Tx 79701
Phone: 432-686-7235

SUMMARY REPORT

American Safety Services, Inc		Project:	Mack Energy - North Pole Fed TB
8715 Andrews Hwy		Project Number:	[none]
Odessa TEXAS, 79765		Project Manager:	Josh Talley
SAMPLED:	02/14/19	**REPORTED:**	02/21/19 13:21
RECEIVED:	02-15-201		

LAB #		9B15008-01	-	-	-	-	-
MATRIX	Minimum	Soil	-	-	-	-	-
SAMPLE ID	Reporting Limit	Stockpile 3 @ Auger Hole 2	-	-	-	-	-

General Chemistry Parameters by EPA / Standard Methods (Soil)

% Moisture	0.1	%	6.0	-	-	-	-	-

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M (Soil)

C6-C12	25.0	mg/kg dry	<26.6	-	-	-	-	-
Total Petroleum Hydrocarbon C6-C35	26.6	mg/kg dry	136	-	-	-	-	-
>C12-C28	25.0	mg/kg dry	105	-	-	-	-	-
>C28-C35	25.0	mg/kg dry	30.3	-	-	-	-	-
1-Chlorooctane	130	[surr]	120%	-	-	-	-	-
o-Terphenyl	130	[surr]	134% [1]	-	-	-	-	-

Special Notes

1 = Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

Permian Basin Environmental Lab, L.P.

Sara Gotcher For Brent Barron
Technical Director

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Thomas Franklin
American Safety Services, Inc
8715 Andrews Hwy
Odessa, TEXAS 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Location: Eddy County, NM

Lab Order Number: 9D02012

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-18-9

Report Date: 04/09/19

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Stockpile 3 @ Auger Hole 2	9D02012-01	Soil	04/02/19 11:30	04-02-2019 16:30

Upon sending the final report PBELAB Staff was informed that this sample was clean dirt and the client did not expect any detections. Upon further review of the data, it was found that the sample preceeding this sample had results greater than 20000 ppm for TPH. The samples after this sample were also high. This sample was reanalyzed and the resulting data was indeed non-detect. I have issued a Non-Conformance Corrective action (SY040519bb01) to investigate the root cause, and will be retraining the analyst on data review and manual integration. This revised report reflects the correct results.

Stockpile 3 @ Auger Hole 2

9D02012-01RE1 (Soil)

Permian Basin Environmental Lab, L.P.

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C6-C12	ND	25.0	mg/kg dry	1	P9D0304	04/03/19	04/05/19	TPH 8015M	
>C12-C28	ND	25.0	mg/kg dry	1	P9D0304	04/03/19	04/05/19	TPH 8015M	
>C28-C35	ND	25.0	mg/kg dry	1	P9D0304	04/03/19	04/05/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*155 %*	*70-130*		*P9D0304*	*04/03/19*	*04/05/19*	*TPH 8015M*	*S-HI1*
Surrogate: o-Terphenyl		*158 %*	*70-130*		*P9D0304*	*04/03/19*	*04/05/19*	*TPH 8015M*	*S-HI1*
Total Petroleum Hydrocarbon C6-C35	ND	25.0	mg/kg dry	1	[CALC]	04/03/19	04/05/19	calc	

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9D0304 - TX 1005										
Blank (P9D0304-BLK1)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*94.5*		*"*	*100*		*94.5*	*70-130*			
Surrogate: o-Terphenyl	*52.9*		*"*	*50.0*		*106*	*70-130*			
LCS (P9D0304-BS1)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	808	25.0	mg/kg wet	1000		80.8	75-125			
>C12-C28	1110	25.0	"	1000		111	75-125			
Surrogate: 1-Chlorooctane	*110*		*"*	*100*		*110*	*70-130*			
Surrogate: o-Terphenyl	*47.4*		*"*	*50.0*		*94.8*	*70-130*			
LCS Dup (P9D0304-BSD1)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	848	25.0	mg/kg wet	1000		84.8	75-125	4.91	20	
>C12-C28	1130	25.0	"	1000		113	75-125	1.77	20	
Surrogate: 1-Chlorooctane	*113*		*"*	*100*		*113*	*70-130*			
Surrogate: o-Terphenyl	*48.7*		*"*	*50.0*		*97.3*	*70-130*			
Calibration Blank (P9D0304-CCB1)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	5.79		mg/kg wet							
>C12-C28	22.1		"							
Surrogate: 1-Chlorooctane	*95.2*		*"*	*100*		*95.2*	*70-130*			
Surrogate: o-Terphenyl	*53.1*		*"*	*50.0*		*106*	*70-130*			
Calibration Blank (P9D0304-CCB2)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	6.26		mg/kg wet							
>C12-C28	15.4		"							
Surrogate: 1-Chlorooctane	*95.1*		*"*	*100*		*95.1*	*70-130*			
Surrogate: o-Terphenyl	*52.8*		*"*	*50.0*		*106*	*70-130*			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9D0304 - TX 1005										
Calibration Check (P9D0304-CCV1)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	470	25.0	mg/kg wet	500		93.9	85-115			
>C12-C28	561	25.0	"	500		112	85-115			
Surrogate: 1-Chlorooctane	*108*		*"*	*100*		*108*	*70-130*			
Surrogate: o-Terphenyl	*50.4*		*"*	*50.0*		*101*	*70-130*			
Calibration Check (P9D0304-CCV2)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	465	25.0	mg/kg wet	500		93.0	85-115			
>C12-C28	437	25.0	"	500		87.4	85-115			
Surrogate: 1-Chlorooctane	*104*		*"*	*100*		*104*	*70-130*			
Surrogate: o-Terphenyl	*49.6*		*"*	*50.0*		*99.2*	*70-130*			
Calibration Check (P9D0304-CCV3)				Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	476	25.0	mg/kg wet	500		95.2	85-115			
>C12-C28	559	25.0	"	500		112	85-115			
Surrogate: 1-Chlorooctane	*111*		*"*	*100*		*111*	*70-130*			
Surrogate: o-Terphenyl	*53.6*		*"*	*50.0*		*107*	*70-130*			
Duplicate (P9D0304-DUP1)	**Source: 9D03002-03**			Prepared: 04/03/19 Analyzed: 04/04/19						
C6-C12	13.1	27.8	mg/kg dry		15.3			15.0	20	
>C12-C28	46.8	27.8	"		84.0			56.8	20	
Surrogate: 1-Chlorooctane	*129*		*"*	*111*		*116*	*70-130*			
Surrogate: o-Terphenyl	*72.0*		*"*	*55.6*		*130*	*70-130*			

American Safety Services, Inc
8715 Andrews Hwy
Odessa TEXAS, 79765

Project: Mack Energy - North Pole Fed TB
Project Number: [none]
Project Manager: Thomas Franklin

Fax: (432) 363-0198

Notes and Definitions

S-HI1	Both Surrogate recoveries were above the acceptance limits, however, the sample the sample was non-detect for the compounds of interest.
ROI	Received on Ice
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 4/9/2019

Brent Barron, Laboratory Director/Technical Director

PBELAB

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-686-7235

Project Manager: Thomas Franklin
Company Name: American Safety Services, Inc
Company Address: 8715 Andrews Highway
City/State/Zip: Odessa, Texas 79762
Telephone No: (432) 552-7625 Fax No: (432) 363-0198
Sampler Signature: [signature]
e-mail: tfranklin@americansafety.net

Project Name: Mack - North Pole Fed Tr
Project #:
Project Loc: Eddy Co NM
PO #:
Report Format: ☐ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 9D02012

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers: Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TOTAL: TPH: 418.1	8015M	8015B	TPH: TX 1005	TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 6260	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	Stockpile 3 @ Auger Hole 2	—	—	4-2-19	11:30		1	X									X															X

Special Instructions: ★Sample is from the field.★
Send bill to Matt Buckles with Mack Energy

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	4-2-19	16:30			
Relinquished by:	Date	Time	Received by:	Date	Time
			Teresa Bledsoe	4/2/19	16:30
Relinquished by:	Date	Time	Received by PBEL:	Date	Time

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N
by Courier? UPS DHL FedEx Lone Star		

Temperature Upon Receipt:
Received: 11.6 °C CF +1
Adjusted: 12.6 °C Factor 12

APPENDIX E

C-141

NM OIL CONSERVATION
ARTESIA DISTRICT
MAR 28 2018
RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1809355913

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Mack Energy Corporation 13837	Contact Matt Buckles
Address 11344 Lovington Highway	Telephone No. 575-748-1288
Facility Name North Pole Fed TB	Facility Type Tank Battery

Surface Owner BLM	Mineral Owner BLM	API No. 30-015-36079

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	15	16S	28E	330	South	330	West	Eddy

Latitude 32.916374 **Longitude** -104.171295 NAD83

NATURE OF RELEASE

Type of Release Oil	Volume of Release 25 bbls	Volume Recovered 10 Bbls
Source of Release Heater Treater	Date and Hour of Occurrence 3/21/2018 1:00 am	Date and Hour of Discovery 3/21/2018 9:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher and Shelly Tucker	
By Whom? Matt Buckles	Date and Hour 3/21/18 7:42 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A gasket on an 8' x 20' heater treater developed a leak on the top side of the clean out plate. Immediately upon discovery we dug out and hauled any saturated oily dirt to an approved disposal site to prevent further leaching.

Describe Area Affected and Cleanup Action Taken.*
The area affected is directly North of the North Pole TB. The oil followed a path of 240 yards northeast less than 1 yard wide and an area northwest of the heater treater 65 yards by 35 yards. This area northwest was caused by oil spraying. The area is approximately 23,000 sq ft. We will fully delineate and discuss remediation plans.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Matt Buckles	OIL CONSERVATION DIVISION Signed By Approved by Environmental Specialist:
Printed Name: Matt Buckles	
Title: Environmental	Approval Date: 4/2/18 Expiration Date: N/A
E-mail Address: mattbuckles@mec.com	Conditions of Approval: See attached Attached ☐ 2RP-4185
Date: 3/28/2017 Phone: 575-748-1288	

4/2/18 AB

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Mack Energy Corporation 13837	OGRID
Contact Name Matt Buckles	Contact Telephone 575-748-1288
Contact email mattbuckles@mec.com	Incident # NAB1809355913
Contact mailing address 11344 Lovington Highway	

Location of Release Source

Latitude 32.916374 Longitude -104.171295
(NAD 83 in decimal degrees to 5 decimal places)

Site Name North Pole Fed TB	Site Type Tank Battery
Date Release Discovered 3/21/2018	API# 30-015-36079

Unit Letter	Section	Township	Range	County
M	15	16S	28E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) 25	Volume Recovered (bbls) 10
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A gasket on an 8’ X 20’ heater treater developed a leak on the top side of the clean out plate. Immediately upon discovery we dug out and hauled any saturated oily dirt to an approved disposal site to prevent further leaching.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? 25 bbl release
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Matt Buckles. Mike Bratcher and Shelly Tucker on 3/21/2018 @ 7:42 pm. Email	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____Matt Buckles_____ Title: _____Project Manager_____

Signature: _____Matt Buckles_____ Date: ____10/15/2018_____

email: _____mattbuckles@mec.com_____ Telephone: _____575-748-1288_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	24’ (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
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Printed Name: _____Matt Buckles_____ Title: _____Project Manager_____

Signature: ___Matt Buckles_____ Date: ___10/15/2018_____

email: ___mattbuckles@mec.com_____ Telephone: ___575-748-1288_____

OCD Only

Received by: _____ Date**:** _____

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Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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Printed Name: ___Matt Buckles_____ Title: _____Project Manager_____

Signature: _____Matt Buckles_____ Date: _____10/15/2018_____

email: ____mattbuckles@mec.com_____ Telephone: _____575-748-1288_____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: ____Matt Buckles_____ Title: _____Project Manager_____

Signature: _____Matt Buckles_____ Date: _____10/15/2018_____

email: _____mattbuckles@mec.com_____ Telephone:__575-748-1288_____

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Received by: _____ Date**:** _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date**:** _____

Printed Name: _____ Title: _____
__

APPENDIX F

Groundwater Data

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater ▼ Geographic Area: United States ▼ GO

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 325448104071801

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

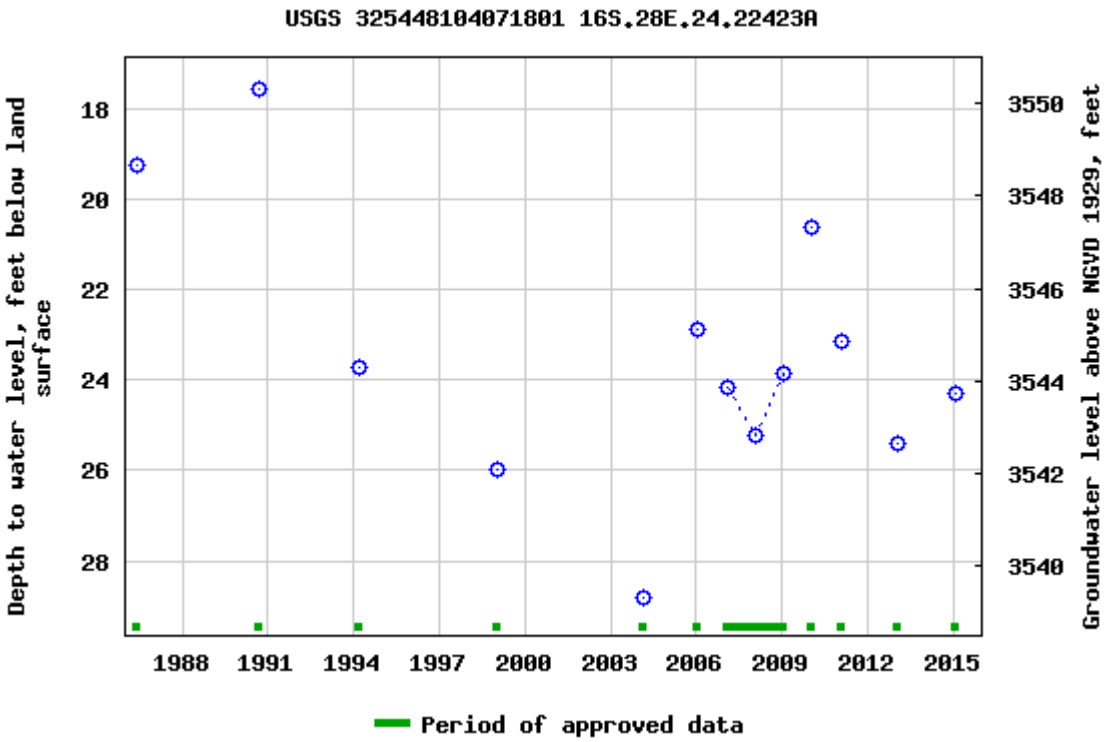
USGS 325448104071801 16S.28E.24.22423A

Available data for this site Groundwater: Field measurements ▼ GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°54'48", Longitude 104°07'18" NAD27
Land-surface elevation 3,568 feet above NGVD29
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

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