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	NRM2010752258
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-8753
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

Location of Release Source

Latitude 32.5781898 Longitude -103.7015533
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Green Frog Federal #001H	Site Type Oil & Gas Facility
Date Release Discovered 4/12/2020	API# *(if applicable)* 30-025-40828

Unit Letter	Section	Township	Range	County
B	18	20S	33E	Lea

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) 332	Volume Recovered (bbls) 117
☐ 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
The source of the release was a failure in the threading where the ball valve is attached to the nipple Tank #3 (crude oil tank). The release remained inside of the containment aside from approximately 4 bbl. that remained on the engineered pad (see spill calculation). All standing fluids were recovered from inside of the containment and on the pad. Saturated pea gravel will also be removed from the containment to prevent any vertical migration of impact.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2010752258
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? Volume > 25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, Notice was given to BLM and District I NMOCD on 4/12/2020 via email by Melodie Sanjari	

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/13/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

Incident ID	NRM2010752258
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?	129 (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	NRM2010752258
District RP	
Facility ID	
Application ID	

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/25/2022

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

Incident ID	NRM2010752258
District RP	
Facility ID	
Application ID	

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.

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/25/2022

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

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

Signature: Jennifer Nobui Date: 05/23/2022

Sanjari, Melodie (MRO)

From: Sanjari, Melodie (MRO)
Sent: Monday, March 22, 2021 11:35 AM
To: Eads, Cristina, EMNRD
Subject: RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828
Attachments: Green Frog Federal #001H Deferral Report.pdf; Updated Map.pdf; Updated Table of Results.pdf

Good Morning All,

This email serves as an update on incident NRM2010752258.

As you're aware, there has been quite a bit of correspondence on this project with the Division to identify a path forward for the Site that would recognize the need to continue operating safely while being protective of human health, the environment, and groundwater. As a result of those discussions, Marathon conducted an additional surficial scrape of the impacted area and the previously determined sample locations were resampled, as discussed. The data from the secondary sampling event (highlighted in green) is attached, along with an updated map of the area and the original deferral report for easy reference.

Based on the reduction seen in the attached sample results and the additional removal of impacted material, Marathon is requesting deferral for this incident as we have determined that there is no risk to human health, the environment or groundwater at this location and that the impact that remains is stable. Please advise and I will be happy to submit an amended report via the online portal.

Thank you

Melodie Sanjari
Environmental Professional
Permian Basin
Mobile: (575) 988-8753

Total Environmental Awareness at Marathon

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Tuesday, October 6, 2020 8:21 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Cc: Johnson, Misti M. (MRO) <mjohnson4@marathonoil.com>
Subject: Re: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Good Morning,

This is a notice that the samples will be collected as detailed below at the Green Frog location this Thursday (10/8) morning at 8am.

Thank you
Get Outlook for iOS

From: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Sent: Thursday, September 17, 2020 8:20 AM
To: Sanjari, Melodie (MRO); Eads, Cristina, EMNRD
Cc: Johnson, Misti M. (MRO)
Subject: [External] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Beware of links/attachments.
Thanks. We will look at it and look forward to new data set.

Yours

Bradford Billings
EMNRD/OCD

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Tuesday, September 15, 2020 9:08 AM
To: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Cc: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>; Johnson, Misti M. (MRO) <mjohnson4@marathonoil.com>
Subject: [EXT] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Good Morning Ms. Eads,

Supporting documentation on the Groundwater Report is includes in pages 31-44

I hope all is well - I have gone ahead and gotten together the deliverables associated with the Green Frog that we discussed in our meeting last week (9/8).

Attached is the updated map with more infrastructure detail along with 2 PDF documents pulled from the Eddy/Lea County Alliance Energy/Groundwater Report that details the shallow groundwater in the area. This data, along with USGS Water Well 323429103421601 that is within a half mile radius, led to our 129 ft. bgs groundwater determination. This portion of the report also goes into the lack of external drainage and the high salinity of the surface water in the area. As for your concerns about erosion control on the location – the Green Frog Café Fed facility is included in our Permian Production SPCC plan and was inspected without deficiencies in December 2019.

Over the past week, my team and I have been discussing the deferment sampling that was suggested as an alternative and we feel another data set would help us better propose a scheduled sampling regime point forward. Marathon is proposing to return to the location to repeat the work done as a part of initial response (manual surface scrape) and to recollect samples SL1, SL2, SL4, and SL7 at 0.5', 2' and 4' bgs for BTEX & TPH analysis. As the original samples were collected five months ago and we are nearing the end of our rainy season, I believe this second data set will help define a more suitable path forward.

Let me know what you think – thanks!

Melodie Sanjari
Environmental Professional
Permian Basin
Mobile: (575) 988-8753

Total Environmental Awareness at Marathon

From: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Sent: Tuesday, September 1, 2020 2:56 PM
To: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Subject: [External] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Beware of links/attachments.
Tuesday at 2pm works for me. I will send you an invite shortly. I will also be inviting Bradford Billings to the meeting.

Figure 3 shows "Petroleum Flowlines" and gives no detail as to which lines are or are not under high pressure, and which of these lines, if any, are above ground or buried. You mentioned high pressure gas, water, and electric lines in a previous email, and I'm not sure if these were considered part of the petroleum flowlines in the figure. If that is the case, then don't worry about another figure. Pictures could also be helpful. I'm just looking to get a very clear picture of where the hazards are located at this site. So any additional information and detail you can provide would be appreciated.

I look forward to chatting with you next week!

Thanks,

Cristina Eads | 505-670-5601

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Tuesday, September 1, 2020 2:33 PM
To: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Subject: [EXT] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Ms. Eads,

I apologize for the late response I was in the field. I am available any time after 2pm mtn time next Tuesday (9/8). I know that Figure 3 of the report shows the lines but I would be happy to provide more detail if I know what you'd like to see.

Thanks so much for getting back to me

Melodie Sanjari
Environmental Professional
Permian Basin
Mobile: (575) 988-8753

Total Environmental Awareness at Marathon

From: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Sent: Tuesday, September 1, 2020 11:08 AM
To: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Subject: [External] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Beware of links/attachments.
Good morning Melodie,

Are you available for a Microsoft Teams meeting tomorrow or next Tuesday afternoon to discuss this site? I'm hoping to facilitate a conversation that will help the division better understand the obstacles this site presents in regard to remediation.
If you aren't available for a call on either of those days, please let me know what days you are available and we can try to work something out. At a minimum, it would be helpful to see, in a figure, exactly where these high pressure lines and electrical lines are located.

Thank you,

Cristina Eads | 505-670-5601

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Monday, August 31, 2020 3:52 PM
To: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Cc: Kelsey <KWade@blm.gov>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Subject: [EXT] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Ms. Eads,

I appreciate your quick response on this but I'm afraid I'll need a little more clarifying guidance. In this particular situation, we have done as much as reasonably practicable to remediate the release. We removed standing fluids and scraped as much high impacted soil as could safely be done at the time of the release. Should we expect in the future that it will be the Division's stance that an incident that fits the deferral requirements laid out in 19.15.29.12(C).2 cannot be deferred in its entirety? I understand that it is always the responsible party's job to comply with 19.15.29.8 and remediate a release; but as in this case, we remediated as much as we possibly could without compromising safety associated with equipment and pipelines in the impacted area as apparent on Figure 3 of the Deferral Report. After discussing this incident in detail with both our Asset Damage Prevention team and our certified safety professionals – we are willing to return to the location to complete another round of surface scrape of the impacted area outside of the containment and recollect samples but feel it is a safety hazard to dig any deeper under and around these lines. Is a second round of the detailed remediation attempt, sufficient to meet the Division's expectations for deferral? We would expect that we would still be requesting the deferral for the entire impacted surface area, but would expect lower hydrocarbon levels. In this case, the risk to human health as a result of remediating deeper is greater than the risk to the environment or groundwater given that there is an estimated 129' between impacted soils and groundwater. We are seeking guidance if there is something specific that you are looking for in order for this deferral request to be reevaluated with an approved result. Also, we aim to only request deferrals for those locations that are unsafe to remediate in their entirety, and we want to ensure alignment with the Division on that definition.

Thank you again for your time,

Melodie Sanjari
Environmental Professional
Permian Basin
Mobile: (575) 988-8753

Total Environmental Awareness at Marathon

From: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Sent: Thursday, August 27, 2020 4:38 PM
To: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>

Cc: Kelsey <KWade@blm.gov>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; Johnson, Misti M. (MRO) <mjohnson4@marathonoil.com>
Subject: [External] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Beware of links/attachments.
Melodie,

I understand that the equipment at and around this release make remediation difficult, however, I cannot approve a deferral request for the entire site, especially with the concentrations of hydrocarbons left in place. My recommendation would be to remove as much impacted soil by hand tools and/or hydrovac or any other method as safely as can be achieved. The deferral request can be reevaluated after all soils have been remediated where possible.

Thank you ,

Cristina Eads | 505-670-5601

From: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Sent: Thursday, August 27, 2020 12:47 PM
To: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Cc: Kelsey <KWade@blm.gov>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>; Johnson, Misti M. (MRO) <mjohnson4@marathonoil.com>
Subject: [EXT] RE: NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Ms. Eads,

Thank you for your attention to this incident – I am hoping that I can provide a little more clarity surrounding our deferral request. You are correct that SL1, SL3, and SL4 are not within containment. The area represented by those sample locations, impacted by the release, are directly on top of and underneath active high pressure gas, water and electric lines and is completely confined to the engineered pad. The release area has been thoroughly delineated and the top inch of heavily impacted surface outside of the containment was removed during initial response and recovery efforts – a deeper depth was not attempted for safety reasons. As you can see in Figure 3 and Table 3 in the report, there were six composite surface samples that were collected for horizontal delineation around the entire release area for site characterization purposes, as required in 19.15.29.11. All were returned with “non-detect” values. A more rigorous sampling regime was not chosen as we were not requesting closure. Please let me know if the addition of more lateral samples would be helpful in achieving deferral and I would be happy to discuss more specific requests.

The hydrocarbon impact in question is also primarily comprised of heavy ends, which is not as readily mobile in soil. We are confident that the impact does not pose immediate risk to the environment as it’s confined to the engineered pad in an area where groundwater is 129 feet bgs. As I wrote to Ms. Wade in June, excavation of the release area would not be safely feasible due to the presence of active lines and storage tanks both inside the containment and the area of the pad. In-situ remediation was also considered - but the application of a bioremediation product would not be affective as we would not be able to excavate or turn the soil to expose the impact to oxygen, as is often required, without damaging the infrastructure’s integrity. I appreciate that it is not ideal for one to request deferral for more than a portion of a release – but we have made every effort to recover everything that was safely possible without causing a major facility deconstruction – as 19.15.29.12(C).2 discusses. I understand that due to COVID restrictions we are unable to meet onsite, but please let me know if additional photos of the location or any other resources would help you to better understand our request. I hope I’ve been able to address you concerns.

Thank you again for your time.

Melodie Sanjari
Environmental Professional
Permian Basin
Mobile: (575) 988-8753

Total Environmental Awareness at Marathon

From: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>
Sent: Wednesday, August 26, 2020 4:33 PM
To: Sanjari, Melodie (MRO) <msanjari@marathonoil.com>
Cc: Kelsey <KWade@blm.gov>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Subject: [External] NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Beware of links/attachments.

NRM2010752258 GREEN FROG FEDERAL #001H @ 30-025-40828

Melodie,

The OCD has denied the Remediation Plan Deferral Request C-141 for incident # for the following reasons:

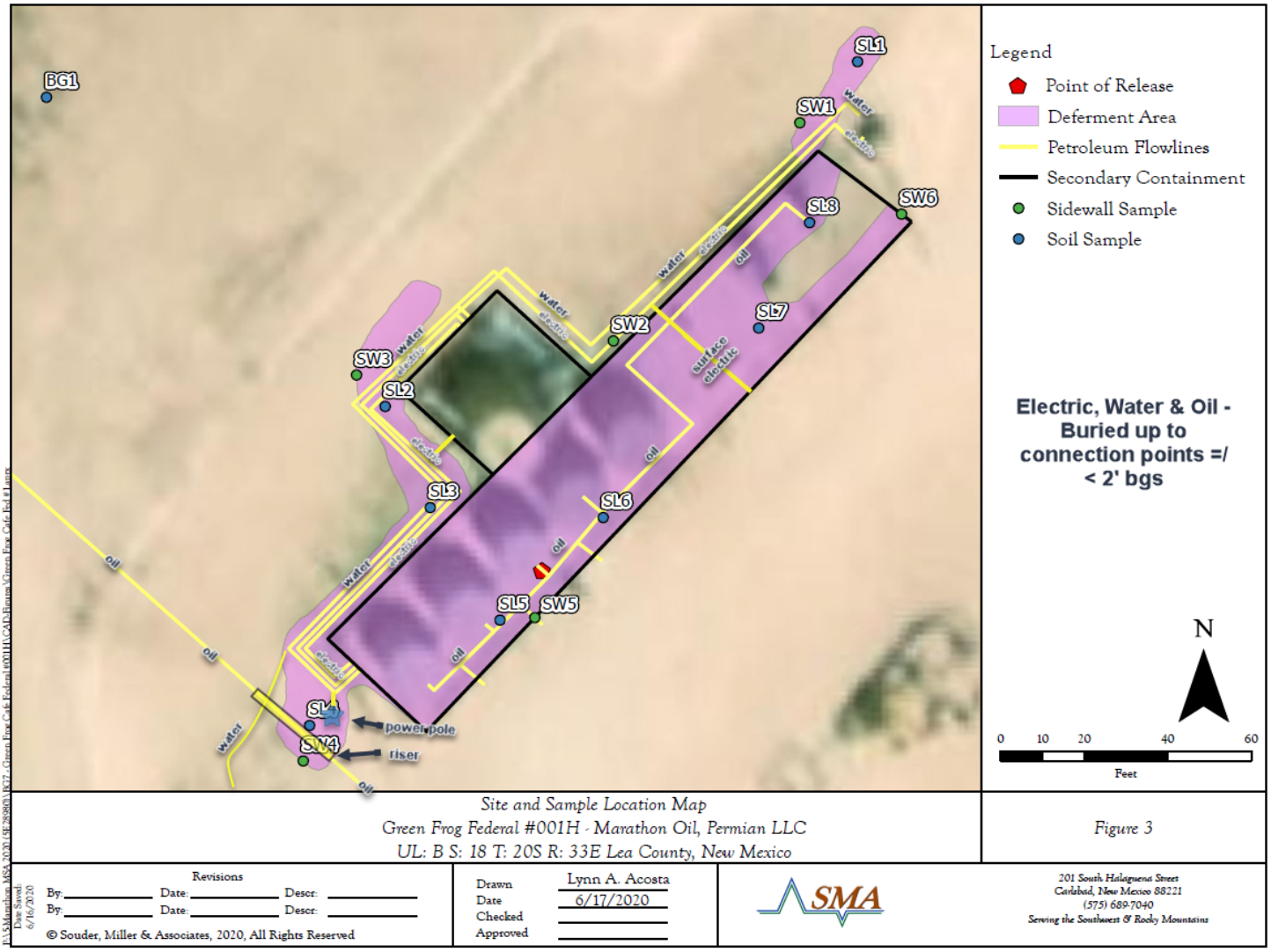
1. It appears samples SL1 , SL3, and SL4 are not within the containment, and the samples collected within the top 2' grossly exceed the closure criteria for this site. Horizontal delineation has not been completed near these sample points. Additional horizontal delineation samples will be required.
2. The OCD agrees with the BLM that the areas where the deferral is being requested should be remediated as reasonably and safely as possible, especially the samples located outside of the secondary containment.

The Denied C-141 can be found in the online image file. Please review and make the required correction prior to resubmitting though the fee portal. If you have any questions or believe this denial is in error, please contact me prior to submitting an additional C-141.

Thanks,

Cristina Eads
Environmental Bureau
EMNRD – Oil Conservation Division
5200 Oakland Avenue NE, Suite 100
Albuquerque, New Mexico 87113
505.670-5601
email: Cristina.Eads@state.nm.us

emnrd



Site and Sample Location Map
Green Frog Federal #001H - Marathon Oil, Permian LLC
UL: B S: 18 T: 20S R: 33E Lea County, New Mexico

Figure 3

P:\Marathon\MSA 2020\SF289800\BG27 - Green Frog Cotr Federal #001H\CAD\Figures\Green Frog Cotr Fed #1.mxd

Revisions
By: Date: Descr:
By: Date: Descr:

Date Saved: 6/16/2020

Drawn Lynn A. Acosta
Date 6/17/2020
Checked
Approved

SMA

201 South Halagueno Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains

Table 3:
Summary of Sample Results

Marathon Oil, Permian LLC
Green Frog Cafe Federal #001H
NRM2010752258

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria				50	10				2500	20000
SL1	4/15/2020	0.5	Excavated	437	42	4200	21000	11000	36200	<61
	10/8/2020	0.5	Excavated	6.93	0.13	110	10000	6100	16210	--
	4/15/2020	1	Deferral	23.9	2.4	160	6900	3700	10760	<60
	4/15/2020	2	In-Situ	0.276	0.069	<5.0	18	<49	18	<60
	10/8/2020	2	In-Situ	ND	<0.025	<4.9	<9.7	<48	<62.6	--
	10/8/2020	4	In-Situ	ND	<0.025	<4.9	<9.9	<49	<63.8	--
SL2	4/15/2020	0.5	Excavated	612	22	6300	14000	4800	25100	<60
	10/8/2020	0.5	Excavated	111.92	0.92	1200	9100	5000	15300	
	4/15/2020	2	Deferral	<0.221	<0.025	<5.0	29	<48	29	<60
	10/8/2020	2	Deferral	234.1	2.1	1900	9800	5600	17300	--
	4/15/2020	3	In-Situ	0.074	0.074	<5.0	21	<49	21	140
	10/8/2020	4	In-Situ	ND	<0.025	<5.0	27	<49	27	--
SL3	4/15/2020	0.5	Excavated	1014	64	9400	21000	7400	37800	<60
	4/15/2020	2	Deferral	225	11	2500	9200	3400	15100	<60
	4/15/2020	3	In-Situ	6.02	0.22	97	870	370	1337	<60
	4/15/2020	4	In-Situ	0.342	0.042	8.6	160	89	257.6	<61
SL4	4/15/2020	0.5	Excavated	1140	130	9300	15000	5500	29800	<60
	10/8/2020	0.5	Excavated	23.6	<0.25	690	6400	3100	10190	--
	4/15/2020	1	Deferral	1190	110	9800	19000	6400	35200	<60
	10/8/2020	2	Deferral	97.2	1.2	2100	8300	4300	14700	--
	4/15/2020	4	Deferral	10.95	0.35	260	530	210	1000	<60
	10/8/2020	4	Deferral	81.15	0.25	2300	8400	4400	15100	--
SL5	4/15/2020	0.5	Excavated	813	63	8000	14000	5000	27000	260
	4/15/2020	1	Deferral	1250	110	12000	18000	6200	36200	230
	4/15/2020	2	In-Situ	1.023	0.043	15	130	60	205	370
	4/15/2020	4	In-Situ	0.051	0.051	<5.0	23	<45	23	2000
	5/17/2020	4	In-Situ	-	-	-	-	-	-	1900
SL6	4/15/2020	0.5	Excavated	1690	240	15000	21000	7100	43100	80
	4/16/2020	1	Deferral	1630	200	13000	22000	8000	43000	110
	4/17/2020	2	In-Situ	0.856	0.066	<9.9	120	54	174	95
	4/18/2020	4	In-Situ	0.549	0.093	<5.0	70	<50	70	570
SL7	4/19/2020	0.5	Excavated	1030	100	9300	17000	5400	31700	82
	10/8/2020	0.5	Excavated	243.2	3.2	3100	12000	6200	21300	--
	4/20/2020	1	Deferral	1790	250	16000	22000	7300	45300	140
	4/21/2020	2	Deferral	937	87	11000	14000	4400	29400	81
	10/8/2020	2	Deferral	376.3	6.3	4100	10000	5200	19300	--
	4/22/2020	4	In-Situ	0.379	0.059	<9.8	69	<49	69	73
	10/8/2020	4	In-Situ	0.049	<0.025	8.5	270	180	450	--
SL8	4/23/2020	0.5	Excavated	700	60	6000	15000	5200	26200	340
	4/24/2020	1	Deferral	1200	150	10000	16000	5200	31200	520
	4/25/2020	2	In-Situ	8.04	0.14	140	480	190	810	2300
	5/17/2020	2	In-Situ	<0.216	<0.024	<4.8	65	<42	65	2700
	5/17/2020	4	In-Situ	0.036	0.036	<5.0	<9.9	<50	<64.9	170
	4/15/2020	5	In-Situ	0.192	0.11	<4.9	29	<47	29	690
SW1	5/30/2020	Surface	In-Situ	<0.213	<0.024	<4.7	<9.8	<49	<63.5	<60
SW2	5/30/2020	Surface	In-Situ	<0.211	<0.023	<4.7	<9.8	<49	<63.5	<60
SW3	5/30/2020	Surface	In-Situ	<0.208	<0.023	<4.6	<9.5	<47	<61.1	<60
SW4	5/30/2020	Surface	In-Situ	<0.215	<0.024	<4.8	<9.6	<48	<62.4	<60
SW5	5/30/2020	Surface	In-Situ	<0.215	<0.024	<4.8	<9.3	<46	<60.1	<60
SW6	5/30/2020	Surface	In-Situ	<0.211	<0.023	<4.7	<9.6	<48	<62.3	<60

additional samples requested by the Division; analytical labs are the in Appendix E

Souder, Miller & Associates♦201 S. Halagueno St.♦Carlsbad, NM 88220
(575) 689-8801

June 18, 2020

#5E28980-BG7

NMOCD District 2
1625 N. French Dr.
Hobbs, NM 88240

SUBJECT: Deferral Request Report for the Green Café Federal #001H Release (NRM2010752258), Eddy County, New Mexico resubmission

To Whom it May Concern:

On behalf of Marathon Oil, Permian LLC, Souder, Miller & Associates (SMA) has prepared this Deferral Request Report that describes the remediation of a release of liquids related to oil and gas production activities at the Green Café Federal #001H site. The site is in Unit B, Section 18, Township 20S, Range 33E, Lea County, New Mexico, on Federal land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1 summarizes release information and Closure Criteria.

Table 1: Release Information and Closure Criteria			
Name	Green Frog Café Federal #001H	Company	Marathon Oil, Permian LLC
API Number	30-015-45090	Location	32.5781898, -103.7015533
Incident Number	NRM2010752258		
Estimated Date of Release	4/12/2020	Date Reported to NMOCD	4/12/2020
Land Owner	Federal	Reported To	NMOCD, BLM
Source of Release	Ball Valve		
Released Volume	332	Released Material	Crude Oil
Recovered Volume	162	Net Release	170
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	4/15/2020, 5/17/2020		

1.0 Background

On April 12, 2020, a release was discovered at the Green Frog Café Federal #001 site due to damaged threading connecting the ball valve to Tank #3 (Crude Oil Tank). Initial response activities were conducted by Marathon Oil, Permian LLC, and included source elimination, a surface scrape of the affected area outside of the containment, and recovery activities. Figure 1 illustrates the vicinity and site location; Figure 2 illustrates the release location. The C-141 form is included in Appendix A.

2.0 Site Information and Closure Criteria

The Green Frog Café Federal #001H is located approximately 33 miles northeast from Carlsbad, New Mexico on Federal (BLM) land at an elevation of approximately 3,533 feet above mean sea level (amsl).

Based upon NMOSE (Appendix B), depth to groundwater in the area is estimated to be 129 feet below grade surface (bgs). There is one known water source within ½-mile of the location, according to the United States Geological Survey (USGS) online water well database. The well has a recorded depth to water of 325 feet below grade surface. The nearest significant watercourse is Laguna Gatuna, located approximately 900 feet to the east. Figure 2 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of greater than 100 feet bgs. Upon approval of deferral, the site will be remediated and reclaimed in accordance with to 19.15.29.12 and 19.15.29.13 NMAC once the site is no longer used for oil and gas operations.

Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization and Remediation Activities

On April 15 and May 17, 2020, SMA personnel performed site delineation activities by collecting soil samples around the release site (inside and outside of the containment) and throughout the visibly stained area. Soil samples were field-screened for chloride using an electrical conductivity (EC) meter and for hydrocarbons impacts using a calibrated MiniRAE 2000 photoionization detector (PID) equipped with a 10.6 eV lamp.

A total of eight (8) sample locations (SL1-SL8) and one background sample (BG1) were investigated using a hand-auger, to depths up to four feet bgs. A minimum of two samples were collected at each sampling location and field-screened using the method above. A total of forty-one (41) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to a Hall Environmental representative.

Table 3 itemizes the samples and locations for all samples depicted on Figure 3.

Due to active oil and gas operation, SMA is requesting a deferral of remediation for the release until equipment and pipelines can be reasonably moved as the impact is within an active tank containment. The release has been delineated and does not cause imminent risk to human, health, the environment, or groundwater.

Figure 3 shows the extend of the release, sample location and deferment area.

4.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization; regulatory liaison; remediation; and preparing this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Ashley Maxwell at 505-320-8975 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Ashley Maxwell
Project Manager

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Surface Water Radius Map
Figure 3: Site and Sample Location Map

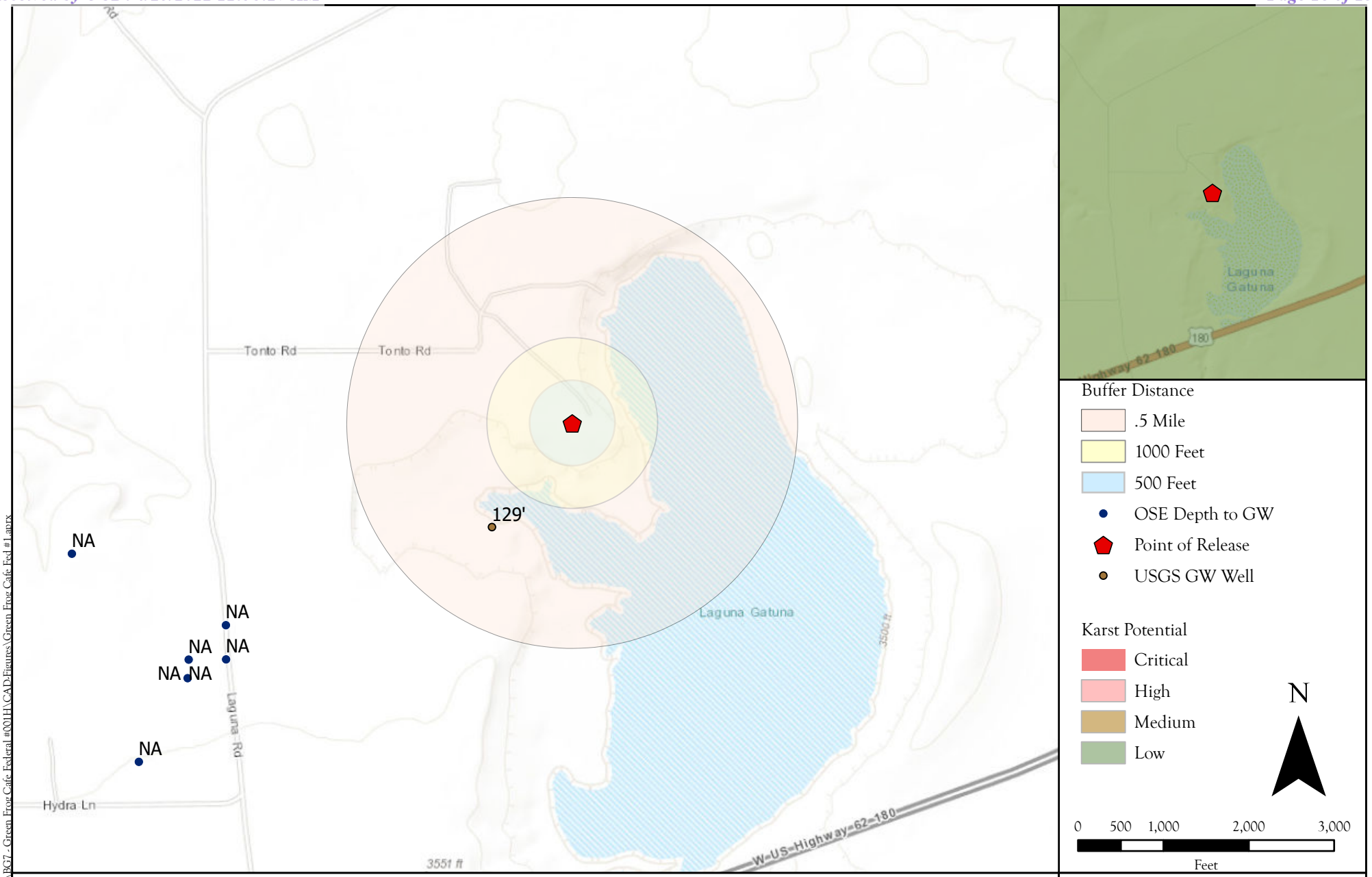
Tables:

Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141
Appendix B: NMOSE Wells Report
Appendix C: VSP Sampling Protocol
Appendix D: Field Notes
Appendix E: Laboratory Analytical Reports

FIGURES



Site Map
Green Frog Cafe Federal #001 CTB- Marathon Oil
UL: B S: 18 T: 20S R: 33E, Lea County, New Mexico

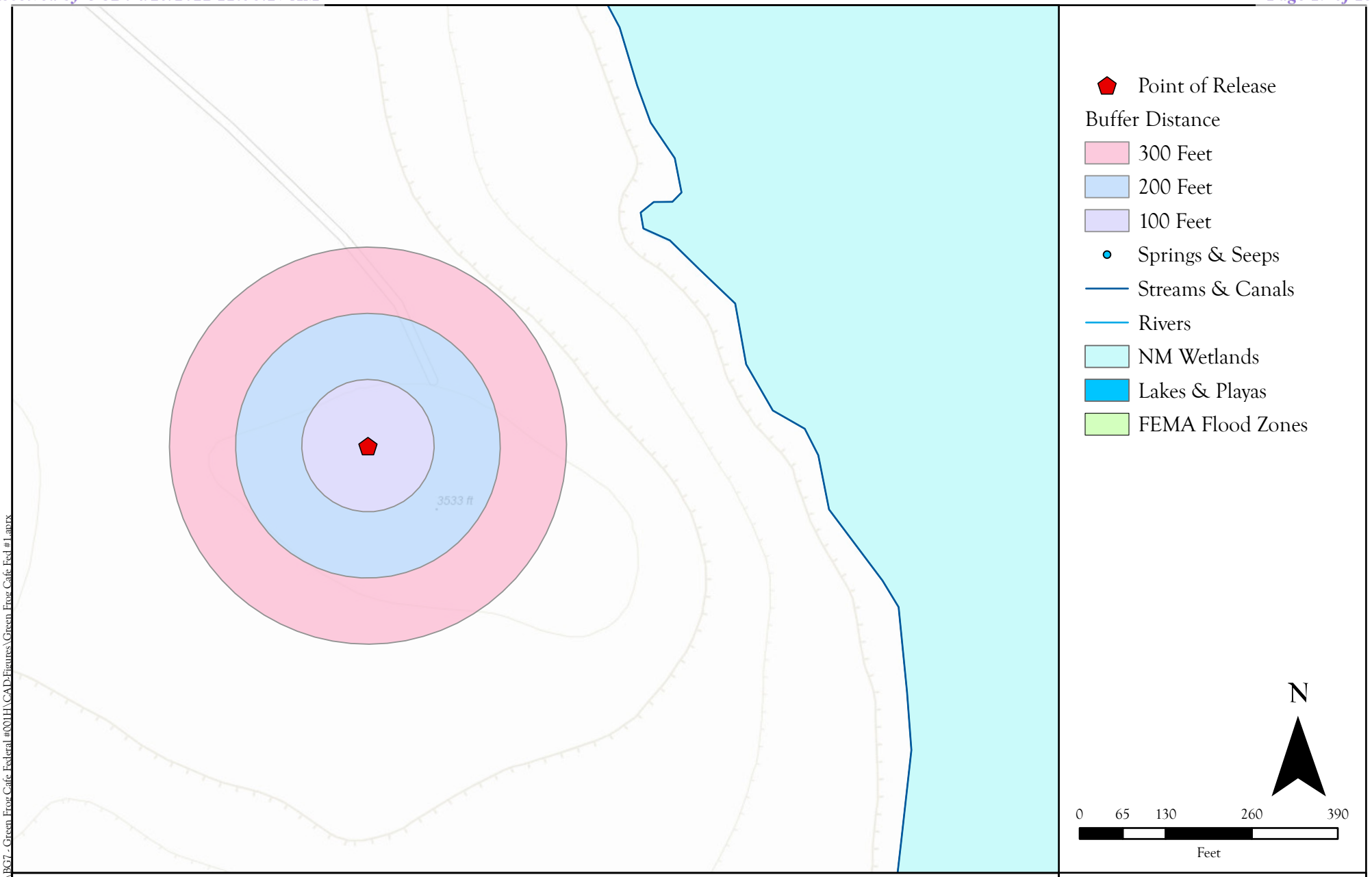
Figure 1

P:\5Marathon MSA 2020 (5F28980)\RG7 - Green Frog Cafe Federal #001H\CAD Figures\Green Frog Cafe Fed #1.mxd
Date Saved: 6/16/2020

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Sebastian Orozco
Date 6/16/2020
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains



Surface Water Protection Map
Green Frog Federal #001H - Marathon Oil
UL: B S: 18 T: 20S R: 33E, Lea County, New Mexico

Figure 2

P:\5Marathon MSA 2020 (5F28980)\BG7 - Green Frog Cafe Federal #001H\CAD Figures\Green Frog Cafe Fed #1.mxd
Date Saved: 4/15/2020

Revisions
By: _____ Date: _____ Descr: _____
By: _____ Date: _____ Descr: _____

Drawn Lynn A. Acosta
Date 4/26/2020
Checked
Approved

SMA

201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
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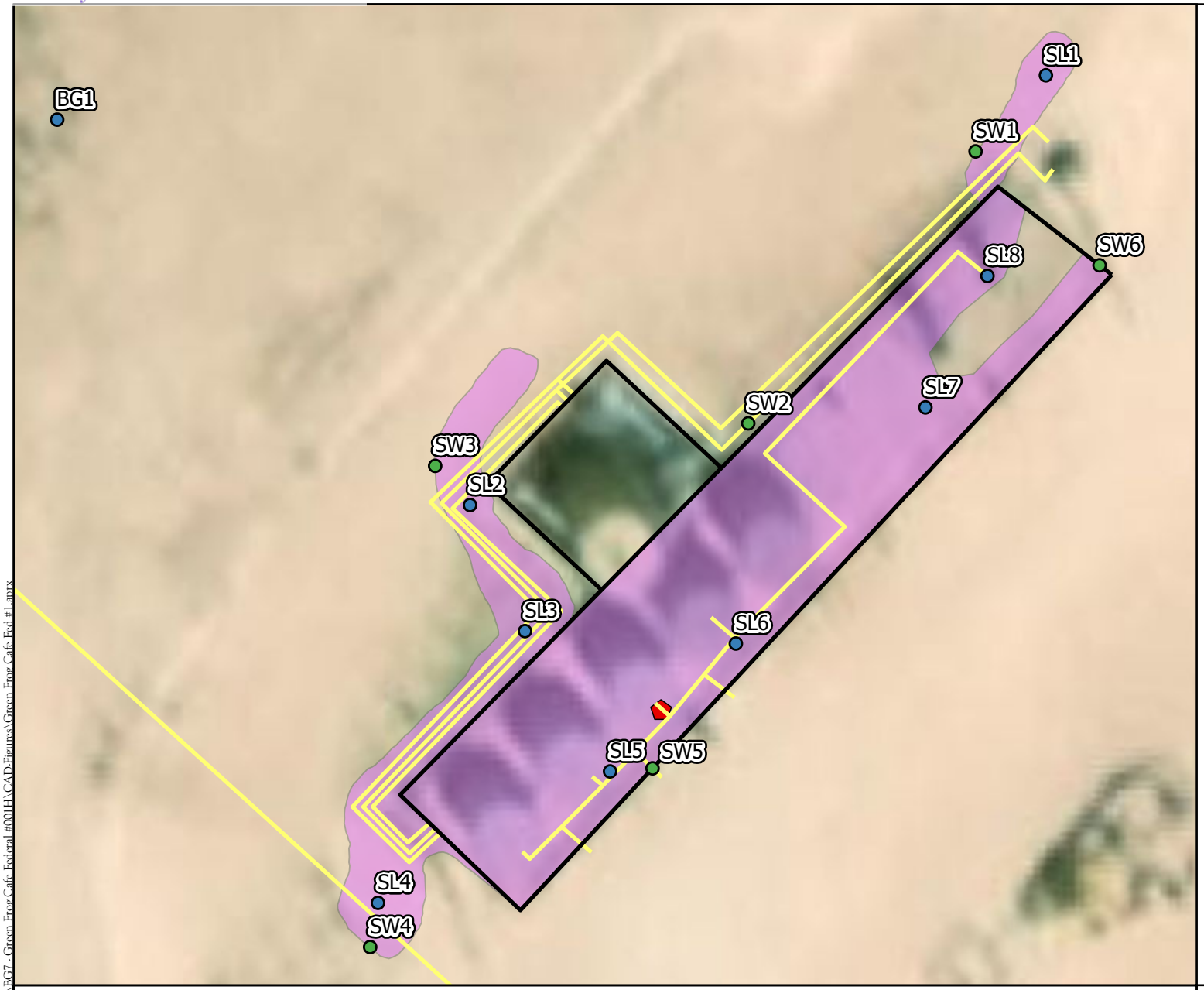


Legend

- Point of Release
- Deferment Area
- Petroleum Flowlines
- Secondary Containment
- Sidewall Sample
- Soil Sample

N

0 10 20 40 60

Feet

Site and Sample Location Map
Green Frog Federal #001H - Marathon Oil, Permian LLC
UL: B S: 18 T: 20S R: 33E Lea County, New Mexico

Figure 3

P:\5Marathon MSA 2020 (5F28980)\BG7 - Green Frog Cafe Federal #001H\CAD Figures\Green Frog Cafe Fed #1.mxd
Date Saved: 6/16/2020

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Lynn A. Acosta
Date 6/17/2020
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
Serving the Southwest & Rocky Mountains

TABLES

Table 2:
NMOCD Closure Criteria

Marathon Oil
Green Frog Cafe Federal #001H (NMR2010752258)

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	129	USGS (United States Geological Survey)
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	1,539	USGS (United States Geological Survey)
Hortizontal Distance to Nearest Significant Watercourse (ft)	900	United States Geological Survery Topo Map

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		**Closure Criteria (units in mg/kg)**				
		Chloride *numerical limit or background, whichever is greater	**TPH**	**GRO + DRO**	**BTEX**	**Benzene**
< 50' BGS		600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'	X	20000	2500	1000	50	10
Surface Water	**yes or no**	**if yes, then**				
<300' from continuously flowing watercourse or other significant watercourse?	No	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	No					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	No					
<1000' from fresh water well or spring?	No					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	**No**					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	No					
<100' from wetland?	No					
within area overlying a subsurface mine	No					
within an unstable area?	No					
within a 100-year floodplain?	No					

SMA #

Table 3:
Summary of Sample Results

Marathon Oil, Permian LLC
Green Frog Cafe Federal #001H
NRM2010752258

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	GRO + DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria				50	10			1000		2500	20000
SL1	4/15/2020	0.5	Deferral	437	42	4200	21000	25200	11000	36200	<61
		1	Deferral	23.9	2.4	160	6900	7060	3700	10760	<60
		2	In-Situ	0.276	0.069	<5.0	18	18	<49	18	<60
SL2		0.5	Deferral	612	22	6300	14000	20300	4800	25100	<60
		2	In-Situ	<0.221	<0.025	<5.0	29	29	<48	29	<60
		3	In-Situ	0.074	0.074	<5.0	21	21	<49	21	140
SL3		0.5	Deferral	1014	64	9400	21000	30400	7400	37800	<60
		2	Deferral	225	11	2500	9200	11700	3400	15100	<60
		3	In-Situ	6.02	0.22	97	870	967	370	1337	<60
		4	In-Situ	0.342	0.042	8.6	160	168.6	89	257.6	<61
SL4		0.5	Deferral	1140	130	9300	15000	24300	5500	29800	<60
		1	Deferral	1190	110	9800	19000	28800	6400	35200	<60
		4	In-Situ	10.95	0.35	260	530	790	210	1000	<60
SL5		0.5	Deferral	813	63	8000	14000	22000	5000	27000	260
		1	Deferral	1250	110	12000	18000	30000	6200	36200	230
		2	In-Situ	1.023	0.043	15	130	145	60	205	370
		4	In-Situ	0.051	0.051	<5.0	23	23	<45	23	2000
	5/17/2020	4	In-Situ	-	-	-	-	-	-	-	1900
SL6	4/15/2020	0.5	Deferral	1690	240	15000	21000	36000	7100	43100	80
		1	Deferral	1630	200	13000	22000	35000	8000	43000	110
		2	In-Situ	0.856	0.066	<9.9	120	120	54	174	95
		4	In-Situ	0.549	0.093	<5.0	70	70	<50	70	570
SL7		0.5	Deferral	1030	100	9300	17000	26300	5400	31700	82
		1	Deferral	1790	250	16000	22000	38000	7300	45300	140
		2	Deferral	937	87	11000	14000	25000	4400	29400	81
		4	In-Situ	0.379	0.059	<9.8	69	69	<49	69	73
SL8		0.5	Deferral	700	60	6000	15000	21000	5200	26200	340
		1	Deferral	1200	150	10000	16000	26000	5200	31200	520
		2	In-Situ	8.04	0.14	140	480	620	190	810	2300
	5/17/2020	2	In-Situ	<0.216	<0.024	<4.8	65	65	<42	65	2700
		4	In-Situ	0.036	0.036	<5.0	<9.9	<14.9	<50	<64.9	170
	4/15/2020	5	In-Situ	0.192	0.11	<4.9	29	29	<47	29	690
SW1	5/30/2020	Surface	In-Situ	<0.213	<0.024	<4.7	<9.8	<14.5	<49	<63.5	<60
SW2		Surface	In-Situ	<0.211	<0.023	<4.7	<9.8	<14.5	<49	<63.5	<60
SW3		Surface	In-Situ	<0.208	<0.023	<4.6	<9.5	<14.1	<47	<61.1	<60
SW4		Surface	In-Situ	<0.215	<0.024	<4.8	<9.6	<14.4	<48	<62.4	<60
SW5		Surface	In-Situ	<0.215	<0.024	<4.8	<9.3	<14.1	<46	<60.1	<60
SW6		Surface	In-Situ	<0.211	<0.023	<4.7	<9.6	<14.3	<48	<62.3	<60
BG1	5/14/2020	1	In-Situ	-	-	-	-	-	-	-	<60
		2	In-Situ	-	-	-	-	-	-	-	<60
		4	In-Situ	-	-	-	-	-	-	-	1900

APPENDIX A
FORM C141

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	NRM2010752258
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-8753
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

Location of Release Source

Latitude 32.5781898 Longitude -103.7015533
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Green Frog Federal #001H	Site Type Oil & Gas Facility
Date Release Discovered 4/12/2020	API# *(if applicable)* 30-025-40828

Unit Letter	Section	Township	Range	County
B	18	20S	33E	Lea

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) 332	Volume Recovered (bbls) 162
☐ 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
The source of the release was a failure in the threading where the ball valve is attached to the nipple Tank #3 (crude oil tank). The release remained inside of the containment aside from approximately 4 bbl. that remained on the engineered pad (see spill calculation). All standing fluids were recovered from inside of the containment and on the pad. Saturated pea gravel will also be removed from the containment to prevent any vertical migration of impact.

State of New Mexico
Oil Conservation Division

Incident ID	NRM2010752258
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? Volume > 25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, Notice was given to BLM and District I NMOCD on 4/12/2020 via email by Melodie Sanjari	

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/13/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Ramona Marcus Date: 4/16/2020

State of New Mexico
Oil Conservation Division

Incident ID	NMR2010752258
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?	129 (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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NMR2010752258
District RP	
Facility ID	
Application ID	

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 6/19/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NMR2010752258
District RP	
Facility ID	
Application ID	

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.

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: Melodie Sanjari
Title: Environmental Professional
Signature: *Melodie Sanjari*
Date: 6/19/2020
email: msanjari@marathonoil.com
Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Trend

Auto Scale | Toggle Stack | Hide Trend | Clear & Close

4/12/2020 12:12:57 AM | [00] 09:31:25.346 | 4/12/2020 9:44:22 AM

NRM2010752258

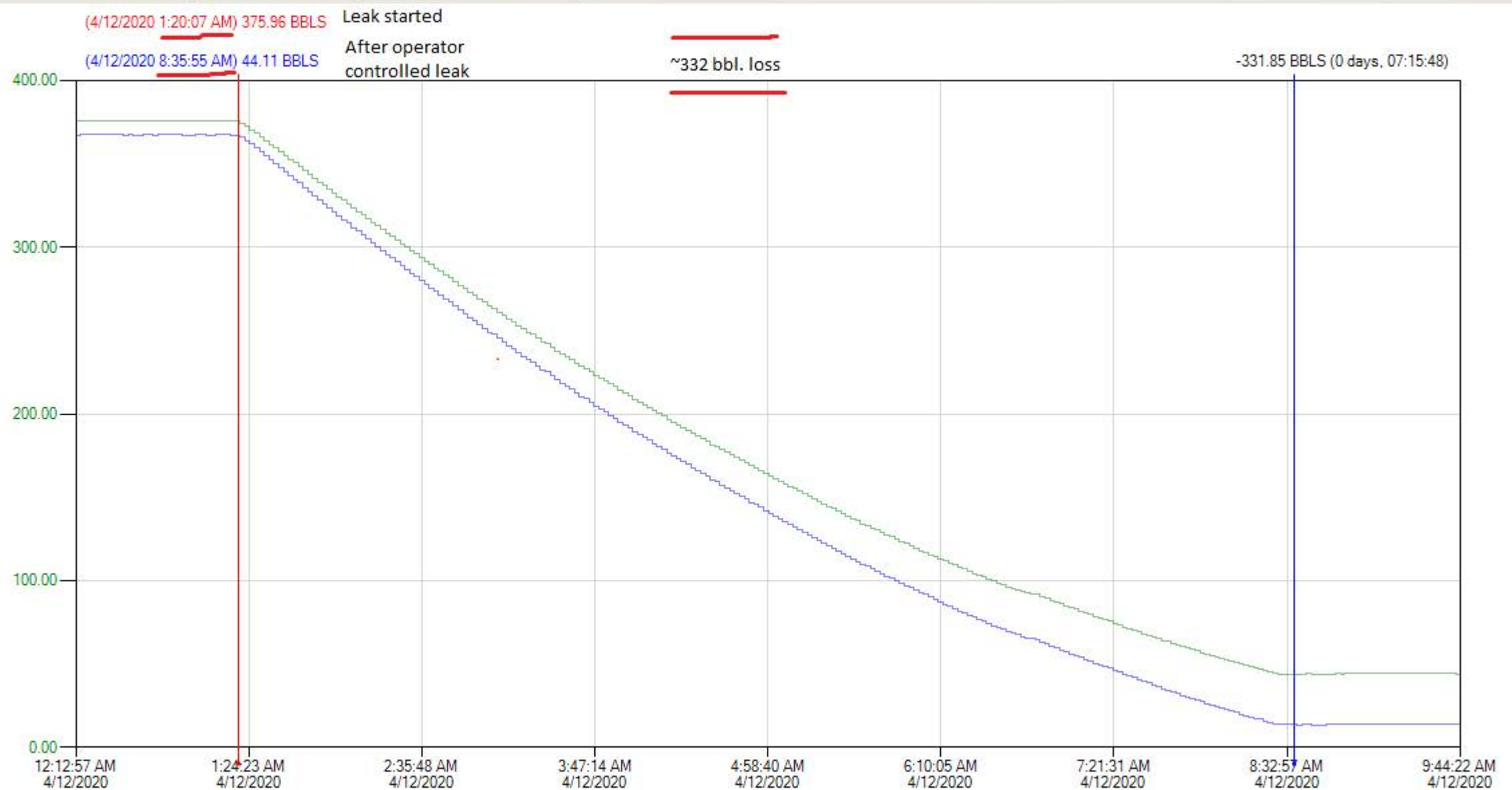
Tag Picker

Servers

DFHVS266

Tags

Tag Name	Description
PR_Abe_2.AC_PO...	Abe State
PR_Abe_2.BATT_...	Abe State
PR_Abe_2.BATT_...	Abe State
PR_Abe_2.BATT_...	Abe State
PR_Abe_2.BATT_...	Abe State
PR_Abe_2.BATT_...	Abe State
PR_Abe_2.DOWN...	Abe State
PR_Abe_2.DOWN...	Abe State
PR_Abe_2.DOWN...	Abe State
PR_Abe_2.ESD_PB	Abe State
PR_Abe_2.Facility	Abe State
PR_Abe_2.Facility...	Abe State
PR_Abe_2.LiftType	Abe State
PR_Abe_2.LiftTyp...	Abe State
PR_Abe_2.Locatio...	Abe State
PR_Abe_2.MUWI	Abe State
PR_Abe_2.SCADA...	Abe State
PR_Abe_2.TOT_O...	Abe State
PR_Abe_2.TOT_...	Abe State
PR_Abe_2.UWID	Abe State
PR_Abe_2.WELL_...	Abe State
PR_Abe_2_AutoS...	Abe State
PR_Abe_2_AutoS...	Abe State
PR_Abe_2_AutoS...	ROC Firmv
PR_Abe_2_AutoS...	Abe State
PR_Abe_2_AutoS...	Last Comm
PR_Abe_2_AutoS...	Generic RC
PR_Abe_2_AutoS...	Abe State
PR_Abe_2_AutoS...	Abe State



DFHVS266:PR_GreenFrog_1_OilTank3.LT_VOL [Cyclic - 00 00:00:33.155]

Tag Name	Description	Number	Server	Color	Units	Minimum	Maximum	IO Address	Time Offset	Source Tag	Source Server	Value at X1	Value at X2	
PR_GreenF...	Green Frog Cafe Federal...	1	DFHVS266		ft	1.00	13.00	\\DFHVS266\InSQL_M...	0:00:00.000		Top Gauge	12.03	1.41	BTM Gauge
PR_GreenF...	Green Frog Cafe Federal...	3	DFHVS266		BBLS	0.00	400.00	\\DFHVS266\InSQL_M...	0:00:00.000			375.96	44.11	

NRM2010752258

Spill Calculation Tool

Marathon Oil

Standing Liquid Inputs:

	Length (ft.)	Width (ft.)	Avg. Liquid Depth (in.)	% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Rectangle Area #1					0.00	0.00	0.00
Rectangle Area #2					0.00	0.00	0.00
Rectangle Area #3					0.00	0.00	0.00
Rectangle Area #4					0.00	0.00	0.00
Rectangle Area #5					0.00	0.00	0.00
Rectangle Area #6					0.00	0.00	0.00
Rectangle Area #7					0.00	0.00	0.00
Rectangle Area #8					0.00	0.00	0.00
				Liquid Volume:	**0.00**	**0.00**	**0.00**

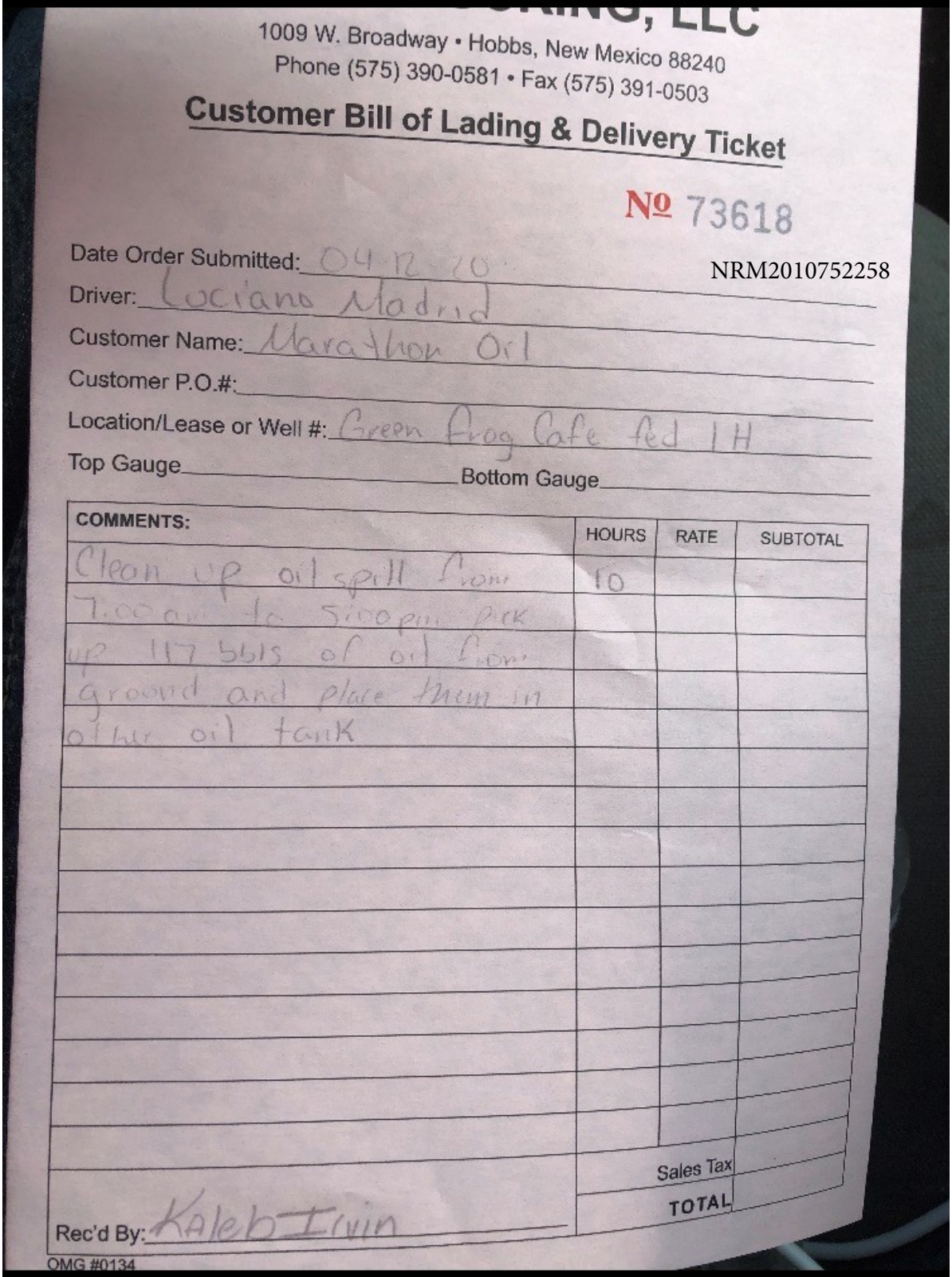
Saturated Soil Inputs: Soil Type: Gravel Loam

		Area (ft.)	Avg. Saturated Depth (in.)	% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Rectangle Area #1		278	1.5	0%	0.87	0.87	0.00
Rectangle Area #2		60	0.25	0%	0.03	0.03	0.00
Rectangle Area #3		170	1.5	0%	0.53	0.53	0.00
Rectangle Area #4		100	8	0%	1.66	1.66	0.00
Rectangle Area #5		100	5	0%	1.04	1.04	0.00
Rectangle Area #6				0%	0.00	0.00	0.00
Rectangle Area #7					0.00	0.00	0.00
Rectangle Area #8					0.00	0.00	0.00
				Saturated Volume	**4.13**	**4.13**	**0.00**

Volume Recovered *and not included in Standing Liquid Inputs* :

% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)

	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Total Spill Volume (bbls):	**4.13**	**4.13**	**0.00**



1009 W. Broadway • Hobbs, New Mexico 88240
Phone (575) 390-0581 • Fax (575) 391-0503

Customer Bill of Lading & Delivery Ticket

№ 73618

NRM2010752258

Date Order Submitted: 04-12-20

Driver: Luciano Madrid

Customer Name: Marathon Oil

Customer P.O.#:

Location/Lease or Well #: Green Frog Cafe fed 1H

Top Gauge _____ Bottom Gauge _____

COMMENTS:	HOURS	RATE	SUBTOTAL
Clean up oil spill from	10		
7.00 am to 5:00 pm pick			
up 117 bbls of oil from			
ground and place them in			
other oil tank			
		Sales Tax	
Rec'd By: Kaleb Irwin		TOTAL	

OMG #0134

R360 ENVIRONMENTAL SOLUTIONS

NRM2010752258

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name
Phone No.

GENERATOR

NO. 400810

Operator No.
Operators Name
Address
City, State, Zip
Phone No.

Permit/RRC No.
Lease/Well Name & No.
County
API No.
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

- Oil Based Muds
- Oil Based Cuttings
- Water Based Muds
- Water Based Cuttings
- Produced Formation Solids
- Tank Bottoms
- E&P Contaminated Soil
- Gas Plant Waste

NON-INJECTABLE WATERS
- Washout Water (Non-Injectable)
- Completion Fluid/Flow back (Non-Injectable)
- Produced Water (Non-Injectable)
- Gathering Line Water/Waste (Non-Injectable)

INTERNAL USE ONLY
- Truck Washout (exempt waste)

INJECTABLE WATERS
- Washout Water (Injectable)
- Completion Fluid/Flow back (Injectable)
- Produced Water (Injectable)
- Gathering Line Water/Waste (Injectable)

OTHER EXEMPT WASTES (type and generation process of the waste)

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☐ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount

All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☐ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

Kaleb Irwin — (PRINT) AUTHORIZED AGENTS NAME
04-15-2022 — DATE
SIGNATURE

TRANSPORTER

Transporter's Name: McHolland energy
Address
Phone No.

Driver's Name: Joe Prado
Print Name
Phone No.
Truck No.: 104

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4/15/20 — SHIPMENT DATE
DRIVER'S SIGNATURE
DELIVERY DATE
DRIVER'S SIGNATURE

DISPOSAL FACILITY

TRUCK TIME STAMP
IN: _____ OUT: _____

RECEIVING AREA
Name/No. 11

Site Name/ Permit No.: Halfway Facility / NM1-006
Address: 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220
Phone No.: 575-393-1079

NORM READINGS TAKEN? (Circle One) YES NO
If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why?

4/15/22 — DATE
TITLE
SIGNATURE
NAME (PRINT)

White - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Versio

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name _____
Phone No. 575-361 [illegible]

NO. 400809

GENERATOR

Operator No. _____
Operators Name _____
Address _____
City, State, Zip _____
Phone No. _____

Permit/RRC No. _____
Lease/Well Name & No. Green Frog state fed 1H
County _____
API No. 30-025 40824
Rig Name & No. _____
AFE/PO No. _____

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS	
Oil Based Cuttings		Washout Water (Non-Injectable)	
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)	
Water Based Cuttings		Produced Water (Non-Injectable)	
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)	
Tank Bottoms		INTERNAL USE ONLY	
E&P Contaminated Soil		Truck Washout (exempt waste)	
Gas Plant Waste			

INJECTABLE WATERS	
Washout Water (Injectable)	
Completion Fluid/Flow back (Injectable)	
Produced Water (Injectable)	
Gathering Line Water/Waste (Injectable)	
OTHER EXEMPT WASTES (type and generation process of the waste)	

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☐ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount

All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back*

QUANTITY 10 B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☐ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

_____

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

Kaleb Ivin (PRINT) AUTHORIZED AGENTS NAME — 04-13-20 DATE — [signature] SIGNATURE

TRANSPORTER

Transporter's Name Mcholland energy
Address _____
Phone No. _____

Driver's Name _____
Print Name Jose Bravo
Phone No. _____
Truck No. 148

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4-13-20 SHIPMENT DATE — [signature] DRIVER'S SIGNATURE — 4-13-20 DELIVERY DATE — [signature] DRIVER'S SIGNATURE

TRUCK TIME STAMP

IN: _____ OUT: _____

DISPOSAL FACILITY

Site Name/ Permit No. Halfway Facility / NM1-006
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220
Phone No. 575-393-1079

NORM READINGS TAKEN? (Circle One) YES NO — If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

RECEIVING AREA

Name/No.

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

_____ NAME (PRINT) — _____ DATE — _____ TITLE — _____ SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

APPENDIX B
NMOSE WELLS REPORT

2.11.4.2 Water Test Results

Table 2.11.4-2 provides a summary of laboratory results for water testing at the site. Water quality test results are also depicted in the water ionic data, metals data and inorganic and radiological data maps in Figures 2.11.4-4, 2.11.4-5, and 2.11.4-6. Water quality analytical results are summarized as follows:

- No VOCs were detected in any of the water samples. TOC was detected in all water samples. Concentrations range from 8.4 micrograms per liter (mg/l) in the sample collected from Piezometer ELEA-2 to 146 mg/l in the sample collected from the main playa at Laguna Gatuna.
- Arsenic, boron, thallium, and uranium were detected in all water samples above their respective New Mexico Water Quality Control Commission (WQCC) standards.
- Iron was detected in the Gatuna sample above the WQCC standard; lead was detected above the standard in the LG West sample; magnesium, which has no standard was detected at high levels in all of the water samples; manganese was detected at levels exceeding the standard in all but the LG West sample.
- All of the water samples collected are highly mineralized; WQCC standards for chloride, sulfate and TDS were exceeded by orders of magnitude in all samples. Water from the main body of Laguna Gatuna is the most mineralized, containing 300,000 parts per million (ppm) TDS. The samples from Laguna Gatuna West, Spring 1 and Piezometer ELEA-2 were somewhat less salty, containing 180,000 ppm, 120,000 ppm, and 83,000 ppm TDS, respectively.
- Radium 226 and radium 228 were detected in all water samples. WQCC standards for radium 226 were exceeded in the Spring 1, Gatuna, and P-2 samples; and radium 228 standards were exceeded in Gatuna and P-2 samples.

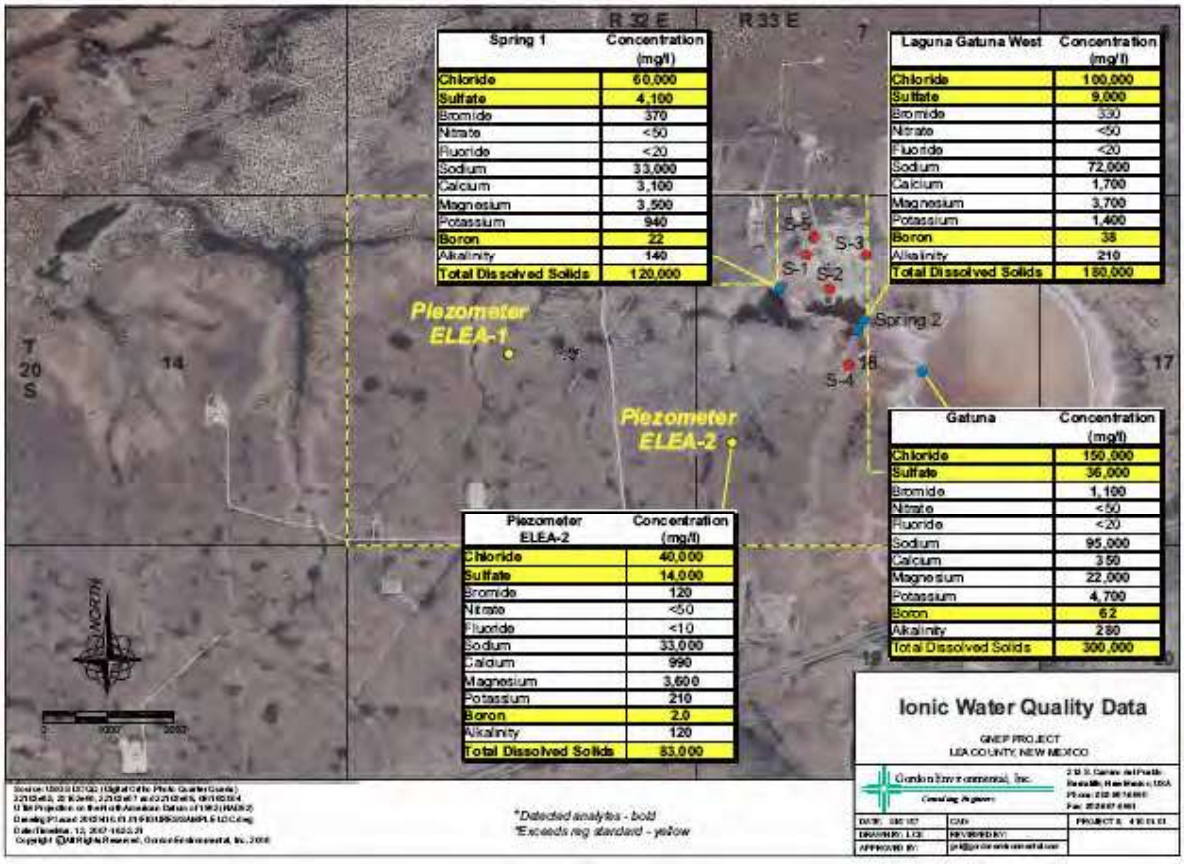


Figure 2.11.4-4 Water Ionic Sampling Results

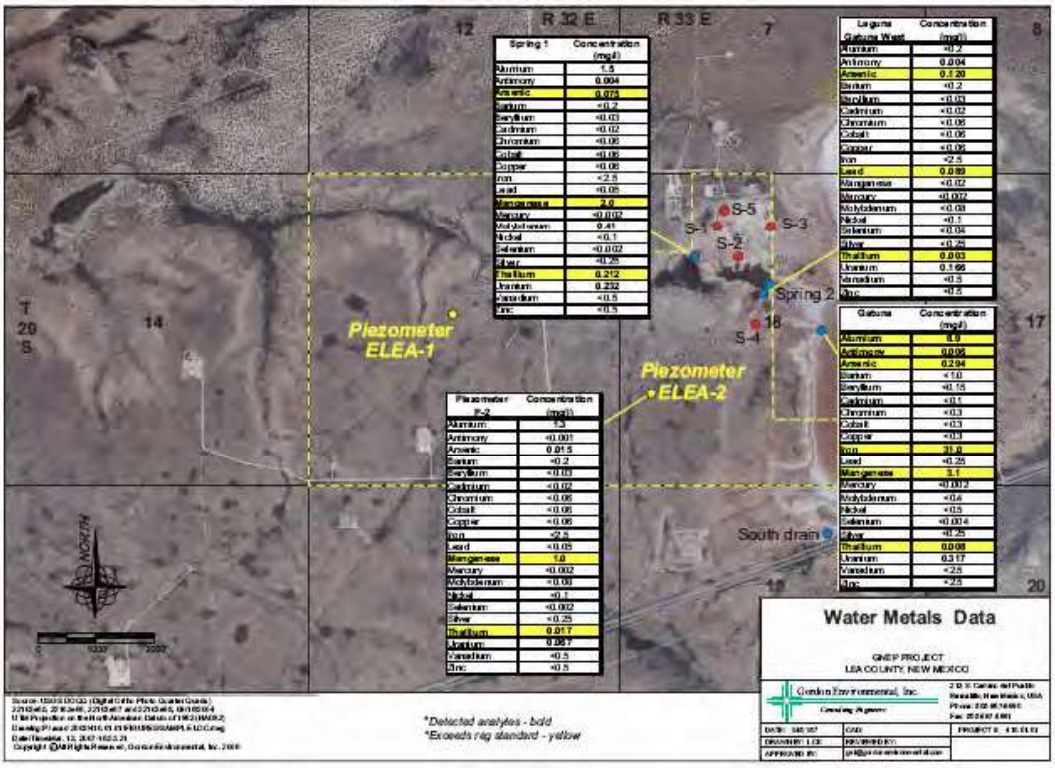


Figure 2.11.4-5 Water Metals Sampling Results

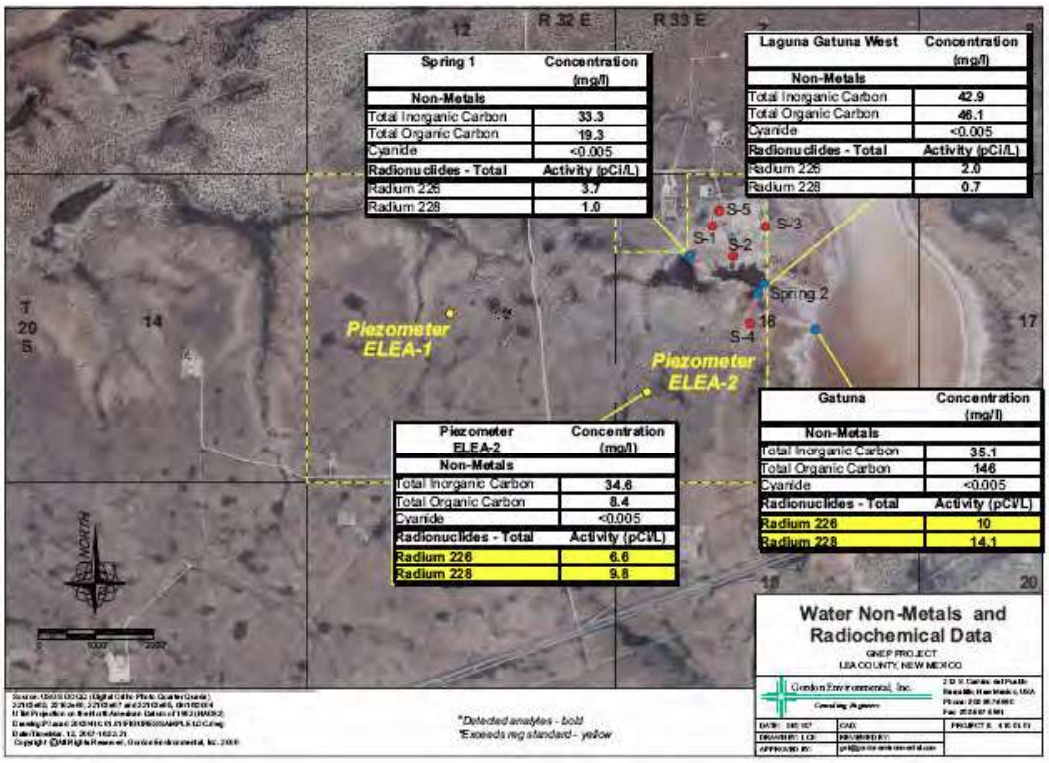


Figure 2.11.4-6 Water Non-Metals and Radiochemical Sampling Results

Table 2.11.4-2 Summary of Laboratory Testing for Water Samples at the Site

VOLATILE ORGANIC COMPOUNDS (VOCs)

Parameter	Analytical Test Method	Sampling Location and Test Result (mg/L)			
		Spring 1	LG West	Gatuna	P-2
*All parameters non-detect; refer to Appendix 2H for full parameter list.	8260B				

INORGANICS

Parameter	Analytical Test Method	Sampling Location and Test Result (mg/L)				NM Solid Waste Regs Table I		
		Spring 1	LG West	Gatuna	P-2	GWPS	PQL	AML
Anions								
Fluoride, F^-	300.0					1.6	0.4	0.8
Chloride, Cl^-		60,000	100,000	150,000	40,000	250	5.0	187.5
Bromide, Br^-		370	330	1,100	120	—	—	—
Nitrate (as N) + Nitrite (as N)						10	1.0	5.0
Sulfate, SO_4^{2-}		4,100	9,000	36,000	14,000	250	5.0	187.5
Mercury								
Mercury, Hg	7470					0.002	0.001	0.001
Total Recoverable Metals								
Aluminum, Al	6010B	1.5		8.9	1.3	5.0	3.0	3.75
Barium, Ba						1.0	0.02	0.50
Beryllium, Be						0.004	0.002	0.002
Boron, B		22	38	62	2.0	0.75	0.5	0.5625
Cadmium, Cd						0.005	0.002	0.0025
Calcium, Ca		3,100	1,700	350	990	—	—	—
Chromium, Cr						0.05	0.01	0.025
Cobalt, Co						0.05	0.03	0.0375
Copper, Cu						1.0	0.06	0.75
Iron, Fe				31		0.3	0.1	0.225
Lead, Pb			0.089			0.05	0.01	0.025
Magnesium, Mg		3,500	3,700	22,000	3,600	—	—	—
Manganese, Mn		2.0		3.1	1.0	0.05	0.03	0.0375
Molybdenum, Mo		0.41				1.0	0.75	0.75
Nickel, Ni						0.2	0.05	0.1
Potassium, K		940	1,400	4,700	210	—	—	—
Silver, Ag						0.05	0.01	0.025
Sodium, Na		33,000	72,000	95,000	30,000	—	—	—
Vanadium, V						—	0.08	0.156
Zinc, Zn						5.0	0.05	3.75
Alkalinity								
Alkalinity, Total (as $CaCO_3$)	310.1	140	210	280	120	—	—	—
Carbonate, CO_3^{2-}						—	—	—
Bicarbonate, HCO_3^-		140	210	280	120	—	—	—
Other								
Specific Conductance, SC (µmhos/cm)	120.1	220,000	320,000	600,000	170,000	—	—	—
Ammonia, NH_3 (as N)	350.2	9.9	2.4	3.9	1.4	—	—	—
Total Nitrogen, TN	Calculation	9.1	5.6	19	2.1	10	1.0	5.0
pH (pH Units)	150.1	7.40	7.43	7.05	7.26	6.5-8.5	0.1	—
Specific Gravity, SG	SM2710F	1.1	1.1	1.2	1.0	—	—	—
Total Dissolved Solids, TDS	160.1	120,000	180,000	300,000	83,000	500	5.0	375.0
Total Kjeldahl Nitrogen, TKN	351.3	9.1	5.6	19		—	—	—
Total Suspended Solids, TSS	160.2	240	29	7,000	270	—	—	—
Non-Metals								
Cyanide, CN^-	E335.4					0.2	0.1	0.1
Total Inorganic Carbon, TIC	SW9060	33.3	42.9	35.1	34.6	—	—	—
Total Organic Carbon, TOC	A5310B	19.3	46.1	146	8.4	—	—	—
Total Metals								
Antimony, Sb	SW6020	0.004	0.004	0.006		0.006	0.003	0.003
Arsenic, As	SW6020	0.075	0.120	0.294	0.015	0.01	0.005	0.005
Selenium, Se	SW6020					0.05	0.005	0.025
Thallium, Tl	SW6020	0.012	0.003	0.008	0.017	0.002	0.001	0.001
Uranium, U	SW6020	0.232	0.166	0.317	0.067	0.03	0.015	0.015
Total Radionuclides								
Radium-226 (pCi/L)	E903.0	3.7 ± 1.0	2.0 ± 0.7	10.0 ± 2.1	6.6 ± 1.2	5.0	2.5	2.5
Radium-228 (pCi/L)	RA-05	1.7 ± 0.9		14.1 ± 2.5	9.8 ± 1.1			

Notes:
Blank entry means parameter not detected
E = EPA Method (Subcontractor designation)
SM = Standard Method (Subcontractor designation)
A = Standard Method (Subcontractor designation)
SW = Solid Waste (Subcontractor Designation)
— No state or federal groundwater standard
Groundwater Protection Standard (GWPS) exceedance

The NM Solid Waste Regs Table I GWPSs, PQLs, and AMLs for the inorganic parameters As, Ni, Se, and U have been updated to reflect to most recent changes to 20 NMAC 6.2.3102 (NMWQCC) and federal MCLs.

2.4 Water Resources

2.4 Water Resources

Water resources are of interest from two major aspects:

- Surface water availability, quality, and vulnerability
- Groundwater availability, quality, and vulnerability

Information about the Site indicates that there is no surface water in the vicinity that is potable. Therefore, the construction and operation of the proposed facilities are expected to have no adverse impacts. Likewise, the geo-hydrological and climate factors lead to the conclusion that groundwater is not likely to be impacted by the construction, operation or decommissioning of the proposed facilities.

2.4.1 Surface Water Resources

This section provides information needed to evaluate the potential for the proposed facilities to impact surface water resources. Surface waters are of interest with regard to availability and quality.

Surface drainage at the Site is contained within two local playa lakes that have no external drainage. Runoff does not drain to one of state's major rivers. Surface water is lost through evaporation, resulting in high salinity conditions and the waters in soils associated with the playas. These conditions are not favorable for the development of viable aquatic or riparian habitats. Other than the playas, the nearest surface water is the Pecos River which is west of the Site. At its nearest approach, the distance from the Site to the Pecos River is 26 miles. Like most rivers in New Mexico, the Pecos River is described as "extremely variable from year-to-year" (OSE, 2004) due to its dependence on runoff. The principle use of Pecos River water is for agriculture.

Because there are no sensitive or unique aquatic or riparian habitats or wetlands at the Site, nor is there surface water in the vicinity that is potable, the construction and operation of the proposed facilities are expected to have no adverse impacts.

The Site lies within the Pecos River Basin as depicted in Figure 2.4.1-1, which has a maximum basin width of 130 mi, and a drainage area of 44,535 square miles. The Pecos River generally flows year-round. The main stem of the Pecos River and its major tributaries have low flows, and the tributary streams are frequently dry. Seventy-five percent of the total annual precipitation and 60 percent of the annual flow result from intense local thunderstorms between April and September.

Figure 2.4.1-1 Pecos River Basin Drainage Area

The Pecos River originates in the mountains of northeast New Mexico. The northern most major reservoir is Santa Rosa Lake located on the Pecos River, 225 miles north of Carlsbad. The flow in the Pecos River below Fort Sumner is regulated by storage in Sumner Lake, Brantley Reservoir, Lake Avalon, and several other smaller dams, such as Tansill and Lower Tansill Dams in the City of Carlsbad.

At its nearest point, the Pecos River is 26 miles southwest of the Site. The vast majority of tributaries to the river flowing westward are unnamed arroyos. An exception is Pierce Canyon south of Malaga Bend that provides drainage into the Pecos River. Nash Draw, the largest surface drainage feature east of the Pecos River in the region, is a closed depression and does not provide surface flow into the Pecos.

The only major natural lakes or ponds within six miles of the Site include Laguna Gatuna, Laguna Tonto, Laguna Plata, and Laguna Toston which are ephemeral playas. Surface runoff from the Site flows into Laguna Gatuna to the east and Laguna Plata to the northwest (DOE, 2004a).

Water quality in the Pecos River basin is affected by mineral dissolution from natural sources and from irrigation return flows. At Santa Rosa, New Mexico, the average suspended-sediment discharge of the river is 1,650 tons/day. Large amounts of chlorides from Salt Creek and Bitter Creek enter the river near Roswell. River inflow in the Hagerman area contributes increased amounts of calcium, magnesium, and sulfate; and waters entering the river near Lake Arthur are also high in chloride.

Below Brantley Reservoir, springs that were sampled had total dissolved solid concentrations of 3,350 to 4,000 mg/l. Brine is generated and enters the Pecos River at Malaga Bend as the river contacts the Salado Formation adding an estimated 370 tons/day of chloride to the Pecos River (Powers et al., 1978).

2.4.2 Groundwater Resources

The purpose of this section is also to provide information needed to evaluate impacts to groundwater resources as the result of the construction, operation and decommissioning of the proposed facilities. Groundwater is significant if it can become contaminated or otherwise impacted for normal operations of the facilities. Evapo-transpiration at the Site is five times the precipitation rate, indicating that there is little infiltration of precipitation into the subsurface. Furthermore, the near surface water table appears to

be 35 feet deep, where present and is likely controlled by the water level in the playa lakes. Groundwater encountered on the east side of the Site is brackish, exceeding 10,000 parts per million in total dissolved solids which is the New Mexico regulatory threshold (NM Water Quality Control Commission Regulations, 20.6.2.3101A) for protected water. No groundwater was encountered in the test boring on the west side of the Site. Regional data indicates that groundwater is on the order of 300 to 400 feet deep. There are numerous low permeability layers between the surface and the expected groundwater level. Therefore, the geo-hydrological and climate factors lead to the conclusion that groundwater is not likely to be impacted by the construction, operation, or decommissioning of the proposed facilities.

2.4.2.1 Site and Regional Hydrogeology

Potable groundwater is available from three geologic units in southern Lea County; the Triassic Dockum shale, the Tertiary Ogallala, and Quaternary alluvium (Nicholson and Clebsch, 1961). No potable groundwater is known to exist in the immediate vicinity of the Site. Shallow groundwater is present in a number of locations in the area, but water quality and quantity are marginal at best and most, if not all, shallow wells that have been drilled in the area are either abandoned or not currently in use. Potable water for the area is generally obtained from potash company pipelines that convey water to area potash refineries from Ogallala High Plains aquifer on the caprock area of eastern Lea County. At present, water is generally obtained from these pipelines for other area users.

Much of the shallow groundwater near the Site has been directly or indirectly influenced by brine discharges from potash refining or oil and gas production. Potash mines have discharged thousands of acre-feet of near-saturated refinery process brine to Laguna Plata and to Laguna Toston for many years. But discharges ceased in Laguna Plata in the mid-1980s and in Laguna Toston by 2001. Laguna Gatuna was the site of multiple facilities for collection and discharge of brines that were co-produced from oil and gas wells in the entire area; facility permits authorized discharge of almost one million barrels of oilfield brine per month between 1969 and 1992. As a result, saturations of shallow groundwater brine have been created in a number of areas associated with the playa lakes. (More detail is provided in Section 2.11).

2.4.2.2 Groundwater at the Site

Several sources of data were used to develop information on the occurrence and quality of groundwater in the area of the Site. Nicholson and Clebsch (1961) described groundwater conditions and sources in southern Lea County. Hendrickson and Jones (1952) published records of groundwater wells and descriptions of water-bearing rocks in eastern Eddy County. Unpublished electronic records of wells in the United States Geological Survey (USGS, 2007) and New Mexico Office of the State Engineer (OSE, 2007) files were consulted to provide information on water wells in the area. Kelly (1978a, 1979, 1982, and 1984) performed a series of investigations of shallow groundwater in the vicinity of Nash Draw, Clayton Basin and the Salt Lakes. Kelly's work included compiling, field checking data, and testing existing wells in the area, as well as installing and testing an array of shallow groundwater monitor wells in the potash district. Four of these wells are located within five miles of the Site. Information from these sources was used to compile the well records in Table 2.3.2.2-1 (water well records). Pursuant to this submittal, shallow drilling and monitor well completion were performed at the Site to provide site specific information on shallow groundwater conditions.

Shallow Drilling Investigation

Well drilling and completion were performed at the Site during the week of March 9, 2007. Two wells, ELEA-1 (CP-961) and ELEA-2 (CP-960) were drilled on the Site to identify the depth and character of water-bearing rocks. Locations of these wells and other wells in the vicinity are shown on the well location map in Figure 2.4.2.2-1. Wells were drilled with direct air-rotary techniques; holes were completed with 2-inch Schedule 40 PVC casing and with gravel packs and annular seals. Since drilling, wells have been monitored for water levels and water samples have been collected and analyzed. Logs of the wells are included in Figure 2.3.2.1-2.

The goals of the drilling investigation were to identify the potential for thin groundwater saturation in lower alluvium perched on the Triassic shale, or deeper groundwater saturation in the Triassic shale. Therefore each well was advanced through the alluvium and into the underlying Triassic shale. During drilling, dry air was used to circulate drill cuttings to the surface; cuttings were examined to identify evidence of water saturation.

Piezometer ELEA-1*:* During drilling ELEA-1, caliche-capped Quaternary sands were drilled to a depth of 26 feet, where the Triassic shale was penetrated. Drill cuttings were moist, but not saturated in the lower portion of the alluvium and the upper few feet of Triassic shale. Cuttings were dry from a few feet below the top of the shale to the total depth of 80 feet. The well was plugged back to 50 feet using hydrated granular bentonite and completed with a gravel pack and well screen from 20 feet to 50 feet to promote communication with any saturation present at the alluvium-shale interface. A small amount of water was initially detected in the well; however the water has steadily declined to within a few inches of the bottom of the well and is attributed to the small amount of bentonite hydration water that was placed in the well to seal the upper annulus during completion. Based on the data obtained from ELEA-1, no shallow groundwater saturation is present at the top of the Triassic shale at the location.

Piezometer ELEA-2: ELEA-2 penetrated caliche-capped Quaternary sands to a depth of 26 feet, where Triassic shale was struck. Drill cuttings were slightly moist in the upper 25 feet of the Triassic shale, then dry-appearing to the total depth of 100 feet. During recovery of the drill tools, mud was noted on the drill bit. The well was cased with a screen interval from 58 feet to 98 feet and equipped with a gravel pack and annular seal. Water level in this well rose slowly over several days to a static depth of 34 feet below land surface (3,497 ft above mean sea level [amsl]). The water-bearing zone in this well consists of either fractures or tight sandy zones between the depths of 85 and 100 feet; water in this zone is under artesian head of 50 feet. Laboratory analyses of water samples from the well indicate that the water is highly mineralized brine.

Based upon information obtained from the onsite drilling, shallow alluvium is likely non water-bearing at the Site. Groundwater saturation in the Triassic shale appears to be limited to small amounts of highly mineralized water likely associated with the brine in Laguna Gatuna, where the brine is 3,500 ft amsl.

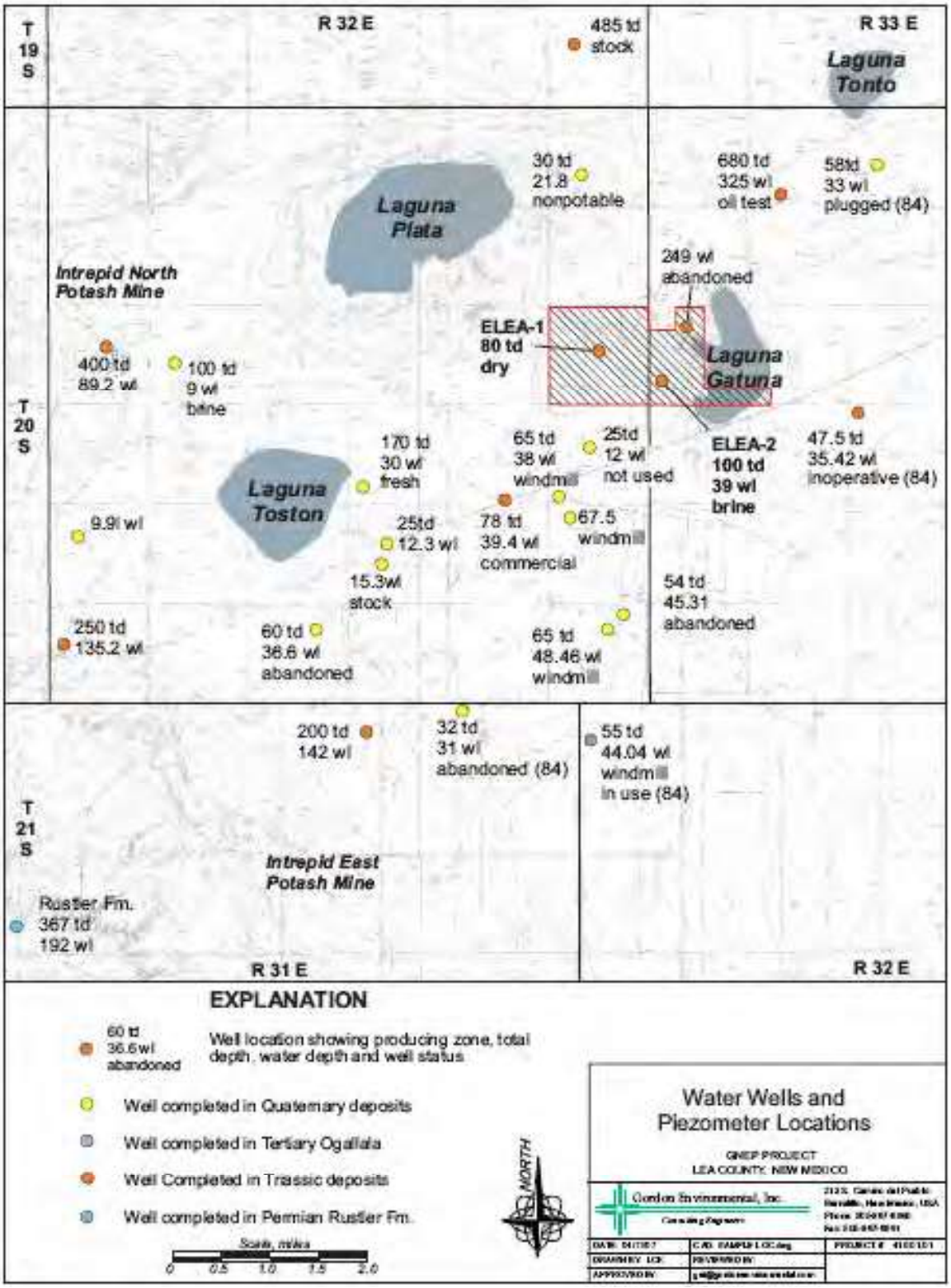


Figure 2.4.2.2-1 Water Wells and Piezometer Locations

Groundwater in the Permian Rustler Formation

In the vicinity of the Site, the Los Mendaños member of the Rustler Formation consists of 100 feet of siltstone and very fine grained sandstone, interbedded with gypsum and anhydrite. Above the mudstone at

the top of the Los Mendaños Member is the Culebra Dolomite, a 30-foot thick section of microcrystalline dolomite that is characterized by spherical vugs. Overlying the Culebra, the Tamarisk member consists of 115 feet of massive anhydrite and gypsum. Over the Tamarisk member, the Magenta member consists of 20 feet of thin, wavy, lenticular laminae of dolomite and gypsum. The uppermost portion of the Rustler Formation is the Forty-Niner member, which consists of 65 feet of anhydrite (Powers, et al., 1978). See additional detail in Appendix 2F.

The Rustler Formation is the oldest unit that is known to produce water to a well in the vicinity of the Site. Kelly (1978b) identified a stock well in Section 18, Township 21 South, Range 31 East, 6 miles southwest of the Site that is reported to be completed in the Rustler Formation at a depth of 367 feet. The well was in use at the time of Kelly's reconnaissance and produced water having an electrical conductance of 3,500 micromhos per centimeter, indicating total dissolved solids of 1,250 milligrams per liter. No other wells producing from the Rustler Formation are known to exist in the vicinity of the Site.

Groundwater in the Permian Dewey Lake Redbeds

The Dewey Lake Redbeds overlie the Rustler Formation and consist of red shale and siltstone. Five-hundred (500) feet of Dewey Lake Redbeds have been identified in oil well logs in the immediate vicinity of the Site (OCD, 2007). The Dewey Lake Redbeds outcrop in an exposure belt south of Highway 62/180, seven miles southwest of the Site. The Dewey Lake Redbeds occasionally yield small quantities of moderately mineralized water to stock wells; however no wells in the vicinity of the Site are known to produce water from the Dewey Lake Redbeds.

Groundwater in the Upper Triassic Chinle

Seven hundred feet of upper Triassic shale overlies the Dewey Lake Redbeds in the area of the Site (see hydrogeologic cross section, Figure 2.3.2.2-5). Triassic shales have been identified in exposures around the flanks of Laguna Gatuna, Laguna Plata and along an outcrop belt five miles west of the Site and south of Highway 62/180 (see local surface geology, Figure 2.3.2.2-4). The Triassic shale is thinly buried by alluvial pediment deposits in the vicinity of the Site. Several wells are completed in Triassic shale in the vicinity. Local shallow saturation in the Triassic shale has been found in a few wells; however a deeper potentiometric surface for water in the Triassic section was identified by Nicholson and Clebsch (1961), who produced the potentiometric surface map shown in Figure 2.4.2.2-2. The Nicholson and Clebsch map indicate a groundwater flow direction to the southwest near the Site. This potentiometric surface is plotted on the hydrogeologic cross section (Figure 2.3.2.2-5).

Unpublished oil well logs and file data of the OCD (OCD 2007) indicate that deeper water-bearing sands in the Triassic section were penetrated by several wells in the area of Site. The Texas State B and Bass State 6 oil wells (shown on the hydrogeologic cross section in Figure 2.3.2.2-5) struck water-bearing sands in the Triassic shale at depths of 250 feet and 415 feet, respectively. These sands are plotted on the hydrogeologic cross section in Figure 2.3.2.2-5.

Nicholson and Clebsch (1961) data indicate that quality of water from wells completed in Triassic aquifers ranges from 675 milligrams per liter (mg/l) total dissolved solids (TDS) to 2000 mg/l and average 1000 mg/l. Two wells in the area are known to have produced from this zone; a well at the Intrepid North Potash mine, and a domestic/stock well located three miles north of the Site in Section 36, Township 19 South, Range 32 East.

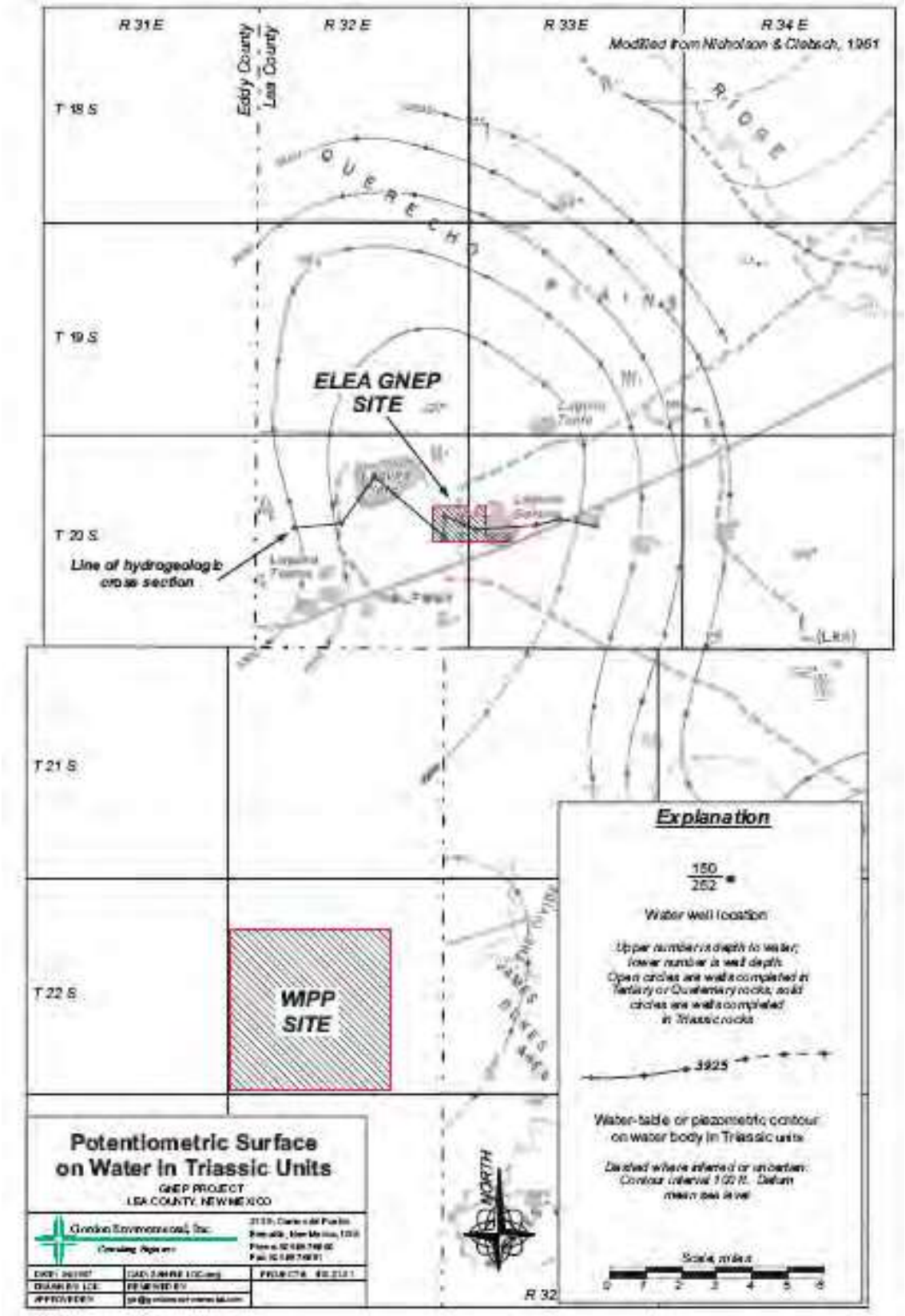


Figure 2.4.2.2-2 Piezometric Surface of Water in Triassic Units in the Area of the Site

Groundwater in the Quaternary Deposits

Quaternary age deposits in the area of the Site consist of pediment alluvium, eolian sands, and lacustrine lake deposits. The pediment deposits form a gently west-sloping surface that is interrupted by drainages, the playa basins and eolian erosion/deposition. Powers, et al., (1978) characterized Laguna Plata, Laguna Gatuna and other depressions in the area as "blowouts" formed by wind erosion. Bachman (1974) and Nicholson and Clebsch (1961) identified large accumulations of sand on prevailing downwind sides (east) of the playas. Nicholson and Clebsch (1961) noted that Laguna Toston appeared to be filled with sediments and stabilized with vegetation such that wind erosion and deposition had halted.

Groundwater occurs in Quaternary alluvium where stream beds or playa blowouts have incised into the Triassic shales and the resulting low has been subsequently filled with eolian sand or pediment materials. Recharge occurs on the flanks of the playas and over buried stream channels and flows toward the playas, or down paleochannels. Distribution and elevation of groundwater in Quaternary deposits based on available water well data are shown on the map in Figure 2.4.2.2-3. This map indicates that groundwater in Quaternary deposits is laterally discontinuous and is in thin saturations that rarely exceed 20 feet. Groundwater appears to be limited to the immediate areas of Laguna Toston, Laguna Plata and an apparent buried stream channel flowing from the area of the southeast corner of Township 20 South, Range 32 East toward Laguna Plata. Laguna Toston is a major input point for potash refinery brine and water appears to drain radially away from this location. Laguna Plata is the topographically lowest point in the area and alluvial groundwater appears to flow toward this site. Available water quality data suggests that the quality of alluvial groundwater ranges from slightly brackish to near-saturated brine in potash refinery discharge areas.

2.4.2.3 Groundwater Quality Summary

Available general groundwater quality data is summarized in the groundwater quality map in Figure 2.4.2.3-1. This map shows available laboratory measurements of TDS of groundwater samples from the area, including three BLM test wells sampled by Kelly (1979) and water samples collected from Laguna Gatuna (surface water) and piezometer ELEA-2 as part of the March 2007 site investigations. Water TDS ranged from 424 mg/l in a sample collected from a BLM test well tapping Triassic shale five miles southwest of the Site to 300,000 mg/l in a water sample collected from Laguna Gatuna. Two BLM test wells near Laguna Toston and the Intrepid North Potash Mine contained 3,100 mg/l and 173,000 mg/l TDS, respectively. The sample from piezometer ELEA-2 contained 83,000 mg/l TDS. Based on this data, most shallow alluvial groundwater in the vicinity of the Site has been impacted by brine disposals, or originated from brine disposal.

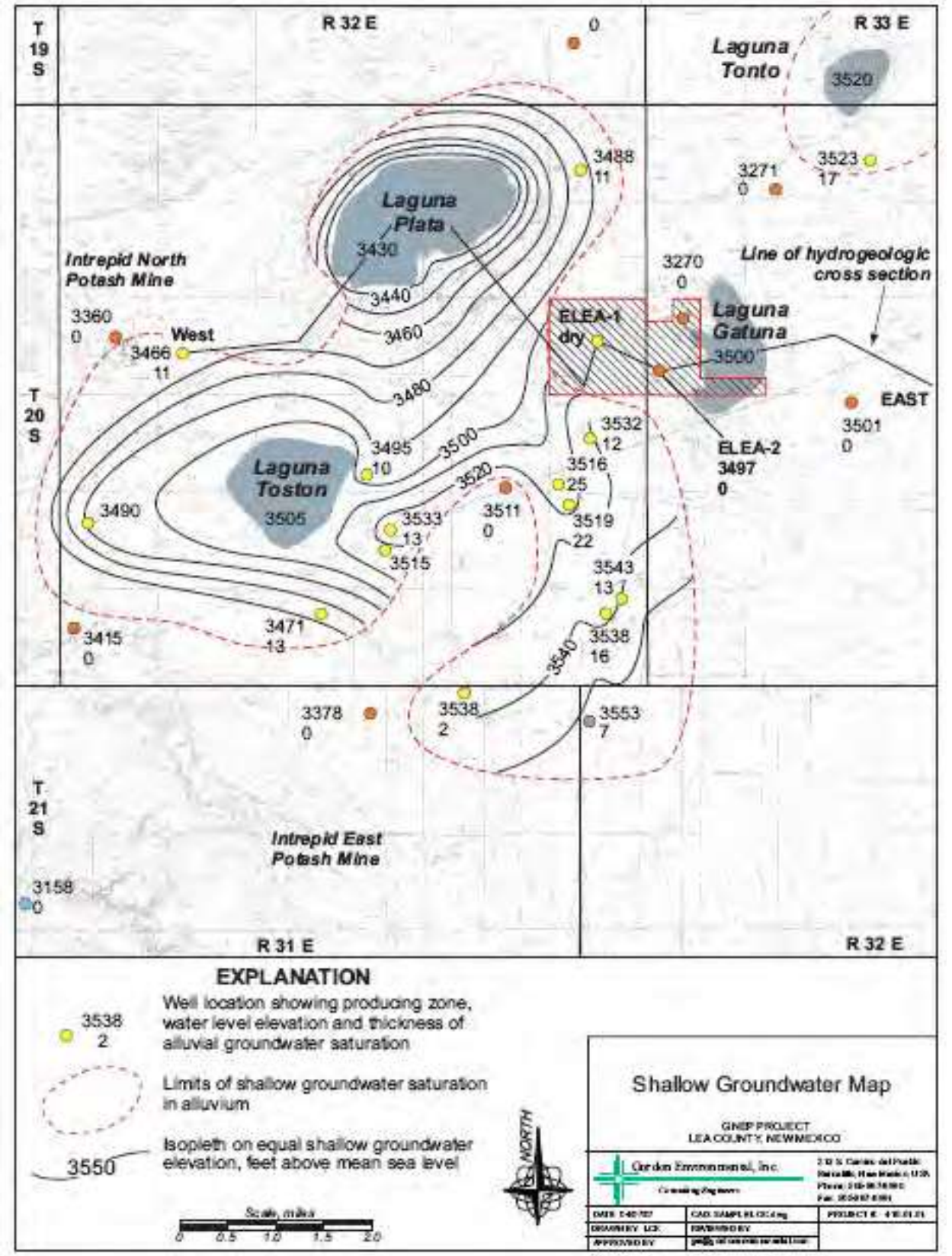


Figure 2.4.2.2-3 Shallow Groundwater Map

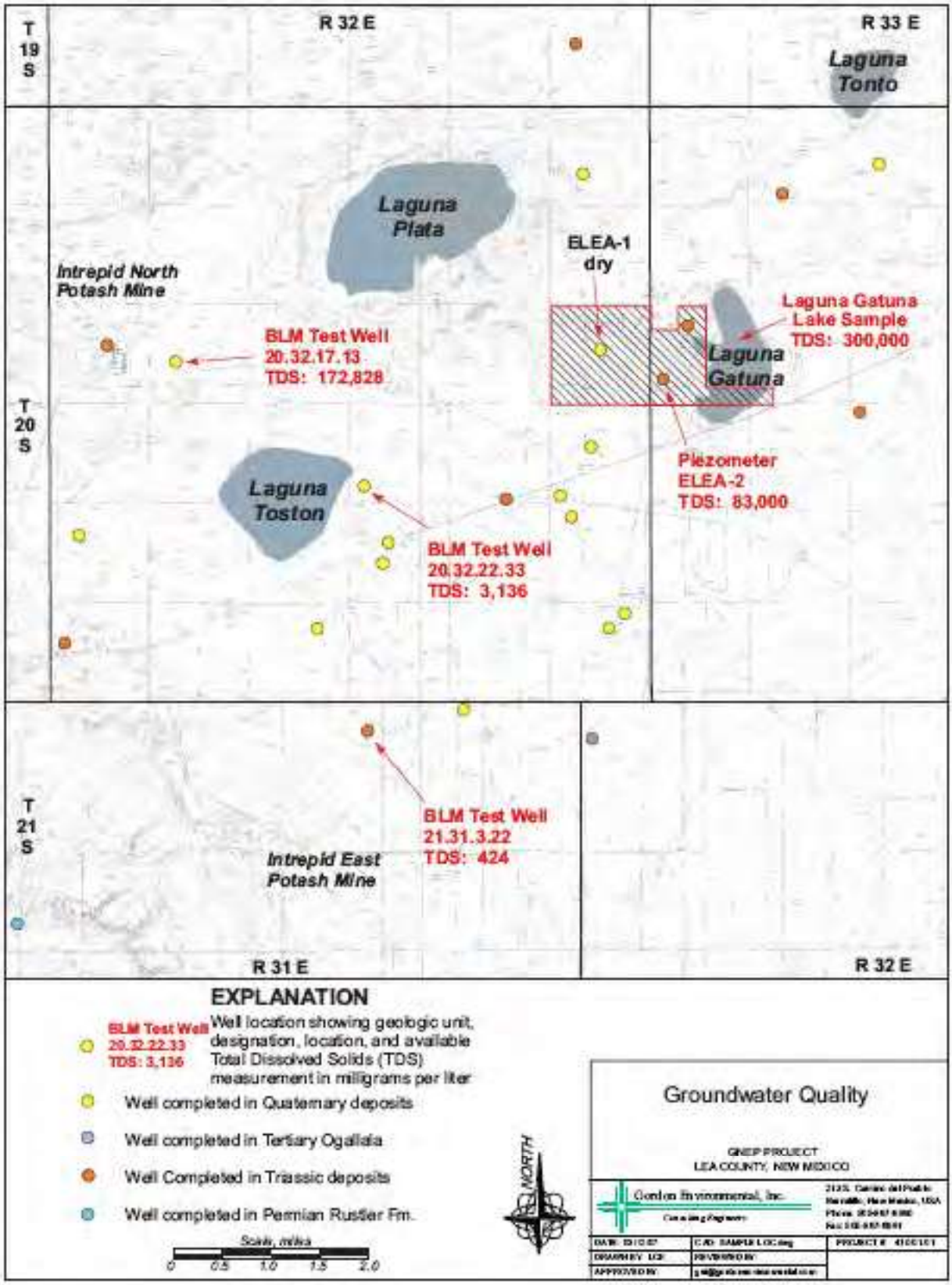


Figure 2.4.2.3-1 Groundwater Quality

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00317		CP	LE	3	4	3	05	20S	33E	623054	3607235*	2282	680	325	355

Average Depth to Water: **325 feet**

Minimum Depth: **325 feet**

Maximum Depth: **325 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 621870.31 **Northing (Y):** 3605283 **Radius:** 3000

***UTM location was derived from PLSS - see Help**

6/17/20 11:34 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

National Water Information System: Web Interface

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 323429103421601

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

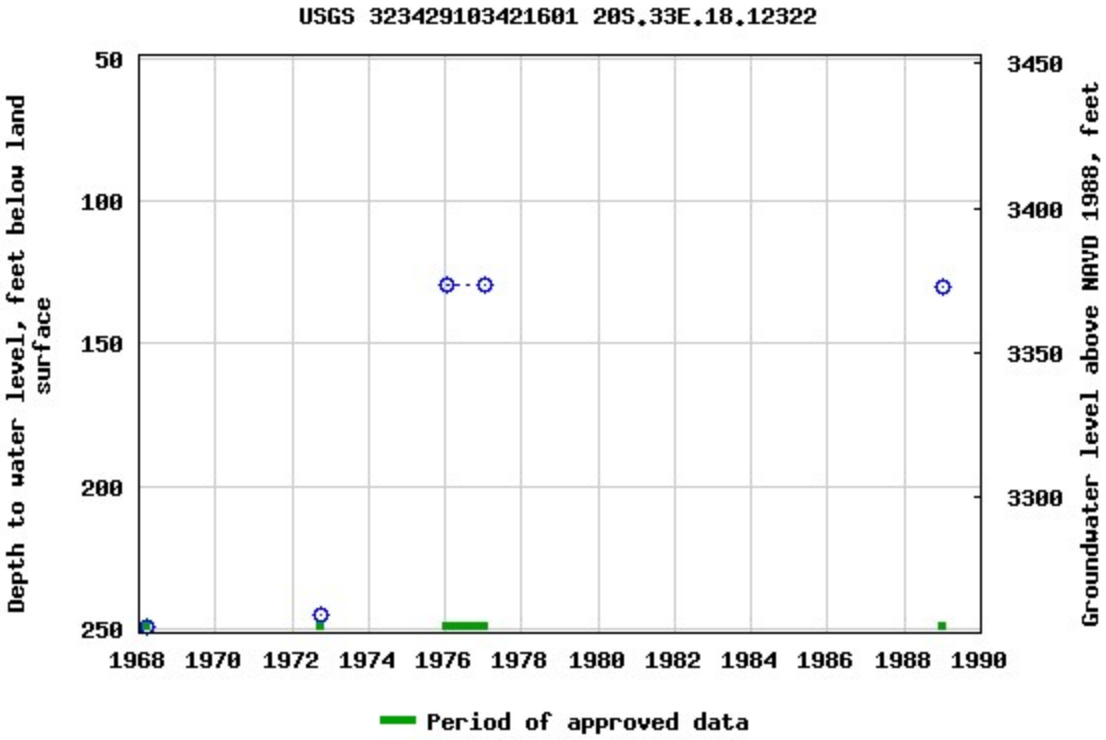
USGS 323429103421601 20S.33E.18.12322

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°34'29", Longitude 103°42'16" NAD27
Land-surface elevation 3,503 feet above NAVD88
This well is completed in the Santa Rosa Sandstone (231SNRS) 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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Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-06-17 13:38:18 EDT
0.7 0.56 nadww01

APPENDIX C
VSP SAMPLING PROTOCOL

VSP Sample Design Report for Using Stratified Sampling to Estimate the Population Proportion

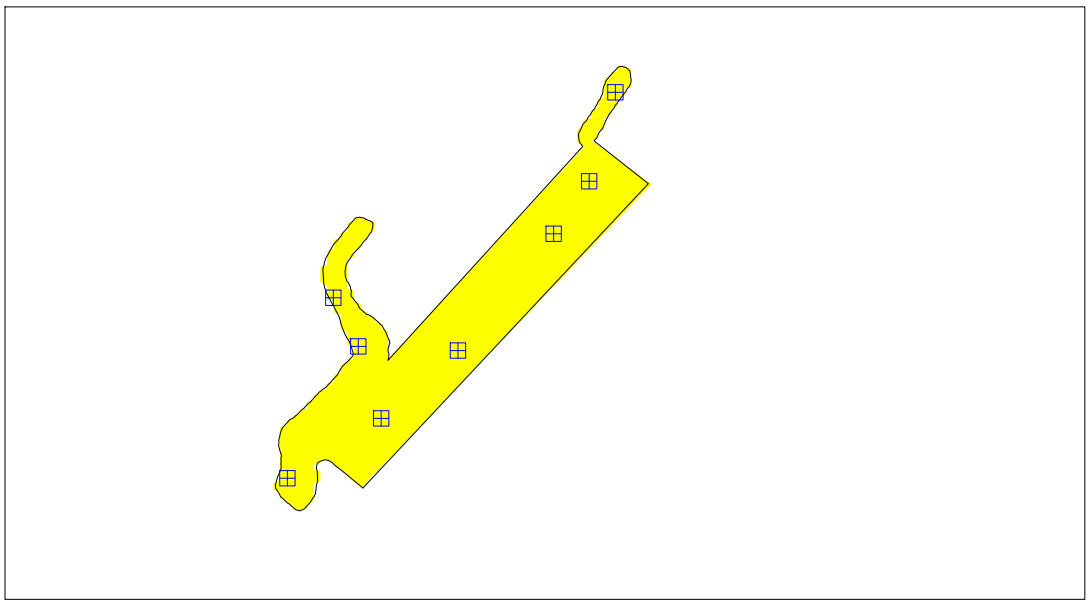
Summary

This report summarizes the stratified sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan. It is important to note that the decision for sample size calculation is determined for the combined strata, rather than any individual strata.

The following table summarizes the proportion stratified sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Estimate the population proportion of all strata combined
Criteria for Determining Total Number of Samples	Achieve pre-specified precision of the estimated proportion for specified stratum costs, but no restriction on total costs
Sample Placement (Location) in the Field	Random sampling within grids within each stratum
Formula for calculating number of sampling locations	From Gilbert (1987, page 51)
Method for calculating number of sampling locations in each stratum	Optimal Allocation
Calculated total number of samples	8
Stratum 1	8
Total area of all strata	889.09 m^2
Total cost of sampling [a]	$5,000.00

[a] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 1

X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
-11544057.8731	3839447.4777			Random in Grid		
-11544044.0155	3839456.3201			Random in Grid		
-11544051.0772	3839474.1850			Random in Grid		
-11544047.3994	3839466.9769			Random in Grid		
-11544032.6385	3839466.3612			Random in Grid		
-11544018.4975	3839483.6408			Random in Grid		
-11544013.2282	3839491.4008			Random in Grid		
-11544009.3555	3839504.5826			Random in Grid		

Primary Sampling Objective
The primary purpose of sampling at this site is to estimate the proportion for the entire site, i.e., for all strata combined, such that the estimated proportion has the minimum possible standard deviation under the condition that the sampling and measurement costs cannot exceed a specified amount. Preexisting information was used to divide the site into 1 non-overlapping strata that were expected to be more homogeneous internally than for the entire site (all strata combined). The expected variability of values within each stratum was estimated or approximated, and the stratum weights, W_h, were determined so that the total number of samples could be allocated appropriately among the strata.

Number of Total Samples: Calculation Equation and Inputs
The total number of samples is computed to achieve the pre-specified precision of the estimated population proportion for specified stratum costs, but no restriction on total costs. *Note that the calculation is for the total number of samples, i.e., for combined strata, rather than individual strata.*

The formula used to calculate the total number of samples is:

$$n = \frac{\left(\sum_{h=1}^{L} W_h \sqrt{P_h(1-P_h)}\sqrt{c_h}\right)\sum_{h=1}^{L} \frac{W_h \sqrt{P_h(1-P_h)}}{\sqrt{c_h}}}{V + {}^{1}\!/\!_{N}\sum_{h=1}^{L} W_h P_h(1-P_h)}$$

where
L is the number of strata, $h=1,2,...,L$,
P_h is the estimated proportion of measurements in stratum h,
$W_h = N_h / N$ is the weight associated with stratum h,
N_h is the total number of possible sampling locations (units) in stratum h,
N is the total number of possible units in all strata combined, $N = \sum_{h=1}^{L} N_h$
V is the pre-specified variance or precision, and
c_h is the cost of collecting and measuring a sample in stratum h.

The values of these inputs that result in the calculated number of sampling locations are:

Parameter	Stratum
	1
P_h	0.2
C_h	$500.00
W_h	889.086

Parameter	Input Value

V 1

Allocation of Samples to Strata
The total number of samples is allocated to the individual strata on an optimal basis using the formula:

$$n_h = n \frac{N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}{\sum_{h=1}^{L} N_h \sqrt{P_h(1-P_h)} / \sqrt{c_h}}$$

where
n_h is the number of samples allocated to stratum h,
L is the number of strata,
N_h is the total number of units in stratum h,
P_h is the proportion in stratum h,
c_h is the cost per population unit in stratum h.

n is the total number of units sampled in all strata, $n = \sum_{h=1}^{L} n_h$

Using this formula, the number of samples allocated to each stratum is:

Stratum	Number of Samples
1	8
Total Samples	8

Method for Determining Sampling Locations
Five methods for determining sample locations are provided in VSP: 1) simple random sampling, 2) random sampling within grids, 3) systematic sampling with a random start, 4) systematic sampling with a fixed start and 5) adaptive grid sampling. One may use a different method for each stratum, based on the conceptual site model and decision to be made for a given stratum. For this site, sample locations were chosen using random sampling within grids in each stratum.

Locating the sample points using a random sampling within grids method combines appealing aspects of both the random and the systematic grid methods. It provides data that are separated by many distances, providing information about the spatial structure of the potential contamination. It also ensures good coverage of the entire site, although not as completely as if systematic grid sampling were performed.

Statistical Assumptions
The assumptions associated with the formulas for computing the number of samples are:
1. The estimated stratum proportions, P_h, are reasonable and representative of the stratum populations being sampled.
2. The sampling locations are selected using simple random sampling.
3. The stratum costs, C_h, and the fixed cost C_0, are accurate.

The first and third assumptions will be assessed in a post data collection analysis. The second assumption, although not strictly valid for strata where systematic grid sampling was used rather than simple random sampling, is not expected to significantly affect conclusions of the study because (1) the gridded sample locations were selected based on a random start and (2) any patterns of contamination in the field that may exist are not expected to coincide with the regularity of the grid sampling pattern

Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Estimates for the proportion of the population values will be calculated using the formulas appropriate for stratified sampling; these formulas are found in EPA QA/G-5S (EPA, 2001). Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

APPENDIX D
FIELD SCREENS

Field Screening

Location Name: Green Frog Cafe (Marathon)

Date: 4/15/20

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
S1	Sand	0.5'	11:40	0.12ppm	21.3°C	1,611 ppm	
		1'	11:47	0.16ppm	21°C	300ppm	
		2'	11:49	0.15ppm	19.9°C	54.1ppm	
S2		0.5'	11:52	0.10ppm	19.5°C	1,867ppm	
		1'	11:56	0.15ppm	19.5°C	898ppm	
		2'	12:00	0.21ppm	19.4°C	229ppm	
S3		0.5'	12:14	0.08ppm	20.9°C	1,847ppm	
		1'	12:21	0.13ppm	20.9°C	1,450ppm	
		2'	12:27	0.16ppm	20.3°C	1,387ppm	
S2		3'	12:59	-	-	158 ppm	
S3		3'	1:04	-	-	1562ppm	
		4'	1:10	-	-	573ppm	
S4		0.5'	1:13	-	-	1224ppm	
		1'	1:20	-	-	890ppm	
		2'	1:23	-	-	1357ppm	
		3'	1:28	-	-	1453ppm	
		4'	1:35	-	-	1185ppm	
		5'	1:40	-	-	1463ppm	
S5		0.5'	1:50	-	-	1295ppm	
		1'	1:53	-	-	1081ppm	
		2'	1:57	-	-	1468ppm	
		3'	2:00	-	-	890ppm	
		4'	2:05	-	-	495 ppm	
		5'	2:10			217ppm	

Field Screening

Location Name: Green Frog Cafe (Marathon)

Date: 4/15/20

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
S6	Sand	0.5'	2:15	-	-	1457ppm	
		1'	2:17	-	-	1607ppm	
		2'	2:20	-	-	1276ppm	
		3'	2:23	-	-	1248ppm	
		4'	2:24	-	-	571ppm	
		5'	2:26	-	-	552	
S7		0.5'	2:30	-	-	976ppm	
		1'	2:32	-	-	1420ppm	
		2'	2:35	-	-	1460ppm	
		3'	2:38	-	-	1258ppm	
		4'	2:39	-	-	1281ppm	
		5'	2:43	-	-	1336ppm.	
S8		0.5'	2:50	-	-	1285ppm	
		1'	2:52	-	-	1363ppm	
		2'	2:55	-	-	1553ppm	
		3'	2:58	-	-	1325ppm.	
		4'	2:59	-	-	1246ppm	
		5'	3:01	-	-	316ppm.	

Field Screening

Location Name: Green Frog Fed

Date: 5/17/20

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
SL5	tan Sand	4'	1408	2.57	30.0	—	—
SL8	DK Sand	2'	1432	2.16	29.5	—	—
		4'	1435	0.47	28.6	—	—

Field Screening

Location Name: Green Frog Fed

Date: 5/17/20

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
BG1	Sandy loam	1'	1500	0.10	30.0	—	—
	"	2'	1504	0.14	24.2	—	—
	"	4'	1509	2.16	24.3	—	—

APPENDIX E

LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

April 27, 2020

Ashley Maxwell

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX

RE: Green Frog Cafe OrderNo.: 2004811

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 29 sample(s) on 4/17/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL1-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 11:40:00 AM
Lab ID: 2004811-001 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	61		mg/Kg	20	4/21/2020 2:10:02 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	4200	250		mg/Kg	50	4/21/2020 9:20:52 PM	51897
Surr: BFB	94.4	70-130		%Rec	50	4/21/2020 9:20:52 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	21000	980		mg/Kg	100	4/20/2020 9:28:35 PM	51945
Motor Oil Range Organics (MRO)	11000	4900		mg/Kg	100	4/20/2020 9:28:35 PM	51945
Surr: DNOP	0	55.1-146	S	%Rec	100	4/20/2020 9:28:35 PM	51945
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	42	1.2		mg/Kg	50	4/21/2020 9:20:52 PM	51897
Toluene	190	2.5		mg/Kg	50	4/21/2020 9:20:52 PM	51897
Ethylbenzene	65	2.5		mg/Kg	50	4/21/2020 9:20:52 PM	51897
Xylenes, Total	140	5.0		mg/Kg	50	4/21/2020 9:20:52 PM	51897
Surr: 1,2-Dichloroethane-d4	92.0	70-130		%Rec	50	4/21/2020 9:20:52 PM	51897
Surr: 4-Bromofluorobenzene	74.8	70-130		%Rec	50	4/21/2020 9:20:52 PM	51897
Surr: Dibromofluoromethane	93.6	70-130		%Rec	50	4/21/2020 9:20:52 PM	51897
Surr: Toluene-d8	95.9	70-130		%Rec	50	4/21/2020 9:20:52 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL1-1'
Project: Green Frog Cafe
Collection Date: 4/15/2020 11:47:00 AM
Lab ID: 2004811-002 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 2:47:15 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	160	49		mg/Kg	10	4/21/2020 9:50:53 PM	51897
Surr: BFB	95.5	70-130		%Rec	10	4/21/2020 9:50:53 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	6900	470		mg/Kg	50	4/19/2020 8:00:40 PM	51908
Motor Oil Range Organics (MRO)	3700	2400		mg/Kg	50	4/19/2020 8:00:40 PM	51908
Surr: DNOP	0	55.1-146	S	%Rec	50	4/19/2020 8:00:40 PM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	2.4	0.25		mg/Kg	10	4/21/2020 9:50:53 PM	51897
Toluene	12	0.49		mg/Kg	10	4/21/2020 9:50:53 PM	51897
Ethylbenzene	3.1	0.49		mg/Kg	10	4/21/2020 9:50:53 PM	51897
Xylenes, Total	6.4	0.98		mg/Kg	10	4/21/2020 9:50:53 PM	51897
Surr: 1,2-Dichloroethane-d4	97.5	70-130		%Rec	10	4/21/2020 9:50:53 PM	51897
Surr: 4-Bromofluorobenzene	58.7	70-130	S	%Rec	10	4/21/2020 9:50:53 PM	51897
Surr: Dibromofluoromethane	95.7	70-130		%Rec	10	4/21/2020 9:50:53 PM	51897
Surr: Toluene-d8	95.8	70-130		%Rec	10	4/21/2020 9:50:53 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL1-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 11:49:00 AM
Lab ID: 2004811-003 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 3:24:29 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/20/2020 10:08:42 PM	51897
Surr: BFB	92.8	70-130		%Rec	1	4/20/2020 10:08:42 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	18	9.9		mg/Kg	1	4/19/2020 5:11:16 AM	51908
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/19/2020 5:11:16 AM	51908
Surr: DNOP	97.8	55.1-146		%Rec	1	4/19/2020 5:11:16 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.069	0.025		mg/Kg	1	4/20/2020 10:08:42 PM	51897
Toluene	0.097	0.050		mg/Kg	1	4/20/2020 10:08:42 PM	51897
Ethylbenzene	ND	0.050		mg/Kg	1	4/20/2020 10:08:42 PM	51897
Xylenes, Total	0.11	0.10		mg/Kg	1	4/20/2020 10:08:42 PM	51897
Surr: 1,2-Dichloroethane-d4	88.8	70-130		%Rec	1	4/20/2020 10:08:42 PM	51897
Surr: 4-Bromofluorobenzene	82.7	70-130		%Rec	1	4/20/2020 10:08:42 PM	51897
Surr: Dibromofluoromethane	88.9	70-130		%Rec	1	4/20/2020 10:08:42 PM	51897
Surr: Toluene-d8	95.7	70-130		%Rec	1	4/20/2020 10:08:42 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL2-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 11:52:00 AM
Lab ID: 2004811-004 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 3:36:54 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	6300	250		mg/Kg	50	4/21/2020 10:20:39 PM	51897
Surr: BFB	99.4	70-130		%Rec	50	4/21/2020 10:20:39 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	14000	950		mg/Kg	100	4/19/2020 5:34:47 AM	51908
Motor Oil Range Organics (MRO)	4800	4700		mg/Kg	100	4/19/2020 5:34:47 AM	51908
Surr: DNOP	0	55.1-146	S	%Rec	100	4/19/2020 5:34:47 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	22	1.2		mg/Kg	50	4/21/2020 10:20:39 PM	51897
Toluene	230	2.5		mg/Kg	50	4/21/2020 10:20:39 PM	51897
Ethylbenzene	110	2.5		mg/Kg	50	4/21/2020 10:20:39 PM	51897
Xylenes, Total	250	5.0		mg/Kg	50	4/21/2020 10:20:39 PM	51897
Surr: 1,2-Dichloroethane-d4	94.7	70-130		%Rec	50	4/21/2020 10:20:39 PM	51897
Surr: 4-Bromofluorobenzene	66.5	70-130	S	%Rec	50	4/21/2020 10:20:39 PM	51897
Surr: Dibromofluoromethane	94.9	70-130		%Rec	50	4/21/2020 10:20:39 PM	51897
Surr: Toluene-d8	93.7	70-130		%Rec	50	4/21/2020 10:20:39 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL2-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 12:00:00 PM
Lab ID: 2004811-005 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 3:49:18 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 10:50:31 PM	51897
Surr: BFB	94.9	70-130		%Rec	1	4/21/2020 10:50:31 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	29	9.6		mg/Kg	1	4/19/2020 5:58:17 AM	51908
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/19/2020 5:58:17 AM	51908
Surr: DNOP	116	55.1-146		%Rec	1	4/19/2020 5:58:17 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.025		mg/Kg	1	4/21/2020 10:50:31 PM	51897
Toluene	ND	0.050		mg/Kg	1	4/21/2020 10:50:31 PM	51897
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 10:50:31 PM	51897
Xylenes, Total	ND	0.099		mg/Kg	1	4/21/2020 10:50:31 PM	51897
Surr: 1,2-Dichloroethane-d4	90.4	70-130		%Rec	1	4/21/2020 10:50:31 PM	51897
Surr: 4-Bromofluorobenzene	86.7	70-130		%Rec	1	4/21/2020 10:50:31 PM	51897
Surr: Dibromofluoromethane	92.1	70-130		%Rec	1	4/21/2020 10:50:31 PM	51897
Surr: Toluene-d8	96.6	70-130		%Rec	1	4/21/2020 10:50:31 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL2-3'
Project: Green Frog Cafe
Collection Date: 4/15/2020 12:59:00 PM
Lab ID: 2004811-006 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	140	60		mg/Kg	20	4/21/2020 4:01:43 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/20/2020 11:38:21 PM	51897
Surr: BFB	96.9	70-130		%Rec	1	4/20/2020 11:38:21 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	21	9.7		mg/Kg	1	4/19/2020 6:21:43 AM	51908
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/19/2020 6:21:43 AM	51908
Surr: DNOP	96.4	55.1-146		%Rec	1	4/19/2020 6:21:43 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.074	0.025		mg/Kg	1	4/20/2020 11:38:21 PM	51897
Toluene	ND	0.050		mg/Kg	1	4/20/2020 11:38:21 PM	51897
Ethylbenzene	ND	0.050		mg/Kg	1	4/20/2020 11:38:21 PM	51897
Xylenes, Total	ND	0.10		mg/Kg	1	4/20/2020 11:38:21 PM	51897
Surr: 1,2-Dichloroethane-d4	92.2	70-130		%Rec	1	4/20/2020 11:38:21 PM	51897
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	4/20/2020 11:38:21 PM	51897
Surr: Dibromofluoromethane	92.7	70-130		%Rec	1	4/20/2020 11:38:21 PM	51897
Surr: Toluene-d8	99.0	70-130		%Rec	1	4/20/2020 11:38:21 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL3-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 12:14:00 PM
Lab ID: 2004811-007 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 4:14:07 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	9400	1000		mg/Kg	200	4/21/2020 11:20:19 PM	51897
Surr: BFB	96.8	70-130		%Rec	200	4/21/2020 11:20:19 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	21000	950		mg/Kg	100	4/19/2020 6:45:11 AM	51908
Motor Oil Range Organics (MRO)	7400	4700		mg/Kg	100	4/19/2020 6:45:11 AM	51908
Surr: DNOP	0	55.1-146	S	%Rec	100	4/19/2020 6:45:11 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	64	5.0		mg/Kg	200	4/21/2020 11:20:19 PM	51897
Toluene	420	10		mg/Kg	200	4/21/2020 11:20:19 PM	51897
Ethylbenzene	160	10		mg/Kg	200	4/21/2020 11:20:19 PM	51897
Xylenes, Total	370	20		mg/Kg	200	4/21/2020 11:20:19 PM	51897
Surr: 1,2-Dichloroethane-d4	95.1	70-130		%Rec	200	4/21/2020 11:20:19 PM	51897
Surr: 4-Bromofluorobenzene	86.0	70-130		%Rec	200	4/21/2020 11:20:19 PM	51897
Surr: Dibromofluoromethane	94.4	70-130		%Rec	200	4/21/2020 11:20:19 PM	51897
Surr: Toluene-d8	95.7	70-130		%Rec	200	4/21/2020 11:20:19 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL3-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 12:27:00 PM
Lab ID: 2004811-008 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 4:26:32 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	2500	490		mg/Kg	100	4/21/2020 11:50:06 PM	51897
Surr: BFB	94.7	70-130		%Rec	100	4/21/2020 11:50:06 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	9200	470		mg/Kg	50	4/19/2020 8:24:51 PM	51908
Motor Oil Range Organics (MRO)	3400	2400		mg/Kg	50	4/19/2020 8:24:51 PM	51908
Surr: DNOP	0	55.1-146	S	%Rec	50	4/19/2020 8:24:51 PM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	11	2.5		mg/Kg	100	4/21/2020 11:50:06 PM	51897
Toluene	83	4.9		mg/Kg	100	4/21/2020 11:50:06 PM	51897
Ethylbenzene	40	4.9		mg/Kg	100	4/21/2020 11:50:06 PM	51897
Xylenes, Total	91	9.8		mg/Kg	100	4/21/2020 11:50:06 PM	51897
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	100	4/21/2020 11:50:06 PM	51897
Surr: 4-Bromofluorobenzene	88.1	70-130		%Rec	100	4/21/2020 11:50:06 PM	51897
Surr: Dibromofluoromethane	97.7	70-130		%Rec	100	4/21/2020 11:50:06 PM	51897
Surr: Toluene-d8	97.4	70-130		%Rec	100	4/21/2020 11:50:06 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL3-3'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:04:00 PM
Lab ID: 2004811-009 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 4:38:56 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	97	5.0		mg/Kg	1	4/21/2020 4:07:38 AM	51897
Surr: BFB	103	70-130		%Rec	1	4/21/2020 4:07:38 AM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	870	20		mg/Kg	2	4/19/2020 7:32:05 AM	51908
Motor Oil Range Organics (MRO)	370	98		mg/Kg	2	4/19/2020 7:32:05 AM	51908
Surr: DNOP	120	55.1-146		%Rec	2	4/19/2020 7:32:05 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.22	0.025		mg/Kg	1	4/21/2020 4:07:38 AM	51897
Toluene	1.8	0.050		mg/Kg	1	4/21/2020 4:07:38 AM	51897
Ethylbenzene	1.1	0.050		mg/Kg	1	4/21/2020 4:07:38 AM	51897
Xylenes, Total	2.9	0.10		mg/Kg	1	4/21/2020 4:07:38 AM	51897
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%Rec	1	4/21/2020 4:07:38 AM	51897
Surr: 4-Bromofluorobenzene	40.5	70-130	S	%Rec	1	4/21/2020 4:07:38 AM	51897
Surr: Dibromofluoromethane	90.5	70-130		%Rec	1	4/21/2020 4:07:38 AM	51897
Surr: Toluene-d8	100	70-130		%Rec	1	4/21/2020 4:07:38 AM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL3-4'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:10:00 PM
Lab ID: 2004811-010 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	61		mg/Kg	20	4/21/2020 4:51:20 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	8.6	5.0		mg/Kg	1	4/21/2020 4:36:39 AM	51897
Surr: BFB	93.8	70-130		%Rec	1	4/21/2020 4:36:39 AM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	160	9.9		mg/Kg	1	4/19/2020 7:55:37 AM	51908
Motor Oil Range Organics (MRO)	89	49		mg/Kg	1	4/19/2020 7:55:37 AM	51908
Surr: DNOP	127	55.1-146		%Rec	1	4/19/2020 7:55:37 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.042	0.025		mg/Kg	1	4/21/2020 4:36:39 AM	51897
Toluene	0.084	0.050		mg/Kg	1	4/21/2020 4:36:39 AM	51897
Ethylbenzene	0.056	0.050		mg/Kg	1	4/21/2020 4:36:39 AM	51897
Xylenes, Total	0.16	0.10		mg/Kg	1	4/21/2020 4:36:39 AM	51897
Surr: 1,2-Dichloroethane-d4	89.9	70-130		%Rec	1	4/21/2020 4:36:39 AM	51897
Surr: 4-Bromofluorobenzene	77.9	70-130		%Rec	1	4/21/2020 4:36:39 AM	51897
Surr: Dibromofluoromethane	88.1	70-130		%Rec	1	4/21/2020 4:36:39 AM	51897
Surr: Toluene-d8	98.4	70-130		%Rec	1	4/21/2020 4:36:39 AM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL4-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:13:00 PM
Lab ID: 2004811-011 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 5:03:45 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	9300	1000		mg/Kg	200	4/22/2020 12:19:47 AM	51897
Surr: BFB	95.4	70-130		%Rec	200	4/22/2020 12:19:47 AM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	15000	930		mg/Kg	100	4/19/2020 8:19:10 AM	51908
Motor Oil Range Organics (MRO)	5500	4700		mg/Kg	100	4/19/2020 8:19:10 AM	51908
Surr: DNOP	0	55.1-146	S	%Rec	100	4/19/2020 8:19:10 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	130	5.0		mg/Kg	200	4/22/2020 12:19:47 AM	51897
Toluene	510	10		mg/Kg	200	4/22/2020 12:19:47 AM	51897
Ethylbenzene	160	10		mg/Kg	200	4/22/2020 12:19:47 AM	51897
Xylenes, Total	340	20		mg/Kg	200	4/22/2020 12:19:47 AM	51897
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%Rec	200	4/22/2020 12:19:47 AM	51897
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	200	4/22/2020 12:19:47 AM	51897
Surr: Dibromofluoromethane	94.8	70-130		%Rec	200	4/22/2020 12:19:47 AM	51897
Surr: Toluene-d8	97.3	70-130		%Rec	200	4/22/2020 12:19:47 AM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL4-1'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:20:00 PM
Lab ID: 2004811-012 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 5:16:09 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	9800	970		mg/Kg	200	4/22/2020 12:49:34 AM	51897
Surr: BFB	97.2	70-130		%Rec	200	4/22/2020 12:49:34 AM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	19000	990		mg/Kg	100	4/19/2020 9:06:23 AM	51908
Motor Oil Range Organics (MRO)	6400	4900		mg/Kg	100	4/19/2020 9:06:23 AM	51908
Surr: DNOP	0	55.1-146	S	%Rec	100	4/19/2020 9:06:23 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	110	4.8		mg/Kg	200	4/22/2020 12:49:34 AM	51897
Toluene	520	9.7		mg/Kg	200	4/22/2020 12:49:34 AM	51897
Ethylbenzene	180	9.7		mg/Kg	200	4/22/2020 12:49:34 AM	51897
Xylenes, Total	380	19		mg/Kg	200	4/22/2020 12:49:34 AM	51897
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	200	4/22/2020 12:49:34 AM	51897
Surr: 4-Bromofluorobenzene	91.2	70-130		%Rec	200	4/22/2020 12:49:34 AM	51897
Surr: Dibromofluoromethane	94.5	70-130		%Rec	200	4/22/2020 12:49:34 AM	51897
Surr: Toluene-d8	96.6	70-130		%Rec	200	4/22/2020 12:49:34 AM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL4-4'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:35:00 PM
Lab ID: 2004811-013 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	4/21/2020 5:53:24 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	260	5.0		mg/Kg	1	4/22/2020 1:19:25 AM	51897
Surr: BFB	107	70-130		%Rec	1	4/22/2020 1:19:25 AM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	530	9.6		mg/Kg	1	4/19/2020 9:30:03 AM	51908
Motor Oil Range Organics (MRO)	210	48		mg/Kg	1	4/19/2020 9:30:03 AM	51908
Surr: DNOP	103	55.1-146		%Rec	1	4/19/2020 9:30:03 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.35	0.025		mg/Kg	1	4/22/2020 1:19:25 AM	51897
Toluene	3.4	0.050		mg/Kg	1	4/22/2020 1:19:25 AM	51897
Ethylbenzene	2.1	0.050		mg/Kg	1	4/22/2020 1:19:25 AM	51897
Xylenes, Total	5.1	0.099		mg/Kg	1	4/22/2020 1:19:25 AM	51897
Surr: 1,2-Dichloroethane-d4	86.0	70-130		%Rec	1	4/22/2020 1:19:25 AM	51897
Surr: 4-Bromofluorobenzene	35.3	70-130	S	%Rec	1	4/22/2020 1:19:25 AM	51897
Surr: Dibromofluoromethane	88.0	70-130		%Rec	1	4/22/2020 1:19:25 AM	51897
Surr: Toluene-d8	95.9	70-130		%Rec	1	4/22/2020 1:19:25 AM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL5-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:50:00 PM
Lab ID: 2004811-014 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	260	60		mg/Kg	20	4/21/2020 6:05:48 PM	51981
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	8000	2500		mg/Kg	500	4/22/2020 3:13:42 PM	51897
Surr: BFB	97.0	70-130		%Rec	500	4/22/2020 3:13:42 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	14000	900		mg/Kg	100	4/19/2020 10:17:26 AM	51908
Motor Oil Range Organics (MRO)	5000	4500		mg/Kg	100	4/19/2020 10:17:26 AM	51908
Surr: DNOP	0	55.1-146	S	%Rec	100	4/19/2020 10:17:26 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	63	12		mg/Kg	500	4/22/2020 3:13:42 PM	51897
Toluene	340	25		mg/Kg	500	4/22/2020 3:13:42 PM	51897
Ethylbenzene	130	25		mg/Kg	500	4/22/2020 3:13:42 PM	51897
Xylenes, Total	280	50		mg/Kg	500	4/22/2020 3:13:42 PM	51897
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	500	4/22/2020 3:13:42 PM	51897
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	500	4/22/2020 3:13:42 PM	51897
Surr: Dibromofluoromethane	96.3	70-130		%Rec	500	4/22/2020 3:13:42 PM	51897
Surr: Toluene-d8	93.5	70-130		%Rec	500	4/22/2020 3:13:42 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL5-1'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:53:00 PM
Lab ID: 2004811-015 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	230	60		mg/Kg	20	4/21/2020 6:43:01 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	12000	4900		mg/Kg	1E+	4/22/2020 3:43:37 PM	51897
Surr: BFB	99.0	70-130		%Rec	1E+	4/22/2020 3:43:37 PM	51897
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	18000	940		mg/Kg	100	4/19/2020 10:41:18 AM	51908
Motor Oil Range Organics (MRO)	6200	4700		mg/Kg	100	4/19/2020 10:41:18 AM	51908
Surr: DNOP	0	55.1-146	S	%Rec	100	4/19/2020 10:41:18 AM	51908
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	110	24		mg/Kg	1E+	4/22/2020 3:43:37 PM	51897
Toluene	540	49		mg/Kg	1E+	4/22/2020 3:43:37 PM	51897
Ethylbenzene	190	49		mg/Kg	1E+	4/22/2020 3:43:37 PM	51897
Xylenes, Total	410	97		mg/Kg	1E+	4/22/2020 3:43:37 PM	51897
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	1E+	4/22/2020 3:43:37 PM	51897
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1E+	4/22/2020 3:43:37 PM	51897
Surr: Dibromofluoromethane	101	70-130		%Rec	1E+	4/22/2020 3:43:37 PM	51897
Surr: Toluene-d8	97.2	70-130		%Rec	1E+	4/22/2020 3:43:37 PM	51897

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL5-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 1:57:00 PM
Lab ID: 2004811-016 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	370	60		mg/Kg	20	4/21/2020 7:20:15 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	15	10		mg/Kg	2	4/22/2020 4:13:17 PM	51909
Surr: BFB	95.2	70-130		%Rec	2	4/22/2020 4:13:17 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	130	9.9		mg/Kg	1	4/20/2020 2:16:34 PM	51938
Motor Oil Range Organics (MRO)	60	50		mg/Kg	1	4/20/2020 2:16:34 PM	51938
Surr: DNOP	98.7	55.1-146		%Rec	1	4/20/2020 2:16:34 PM	51938
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.043	0.040		mg/Kg	2	4/22/2020 4:13:17 PM	51909
Toluene	0.22	0.10		mg/Kg	2	4/22/2020 4:13:17 PM	51909
Ethylbenzene	0.19	0.10		mg/Kg	2	4/22/2020 4:13:17 PM	51909
Xylenes, Total	0.57	0.20		mg/Kg	2	4/22/2020 4:13:17 PM	51909
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%Rec	2	4/22/2020 4:13:17 PM	51909
Surr: 4-Bromofluorobenzene	82.2	70-130		%Rec	2	4/22/2020 4:13:17 PM	51909
Surr: Dibromofluoromethane	94.5	70-130		%Rec	2	4/22/2020 4:13:17 PM	51909
Surr: Toluene-d8	97.3	70-130		%Rec	2	4/22/2020 4:13:17 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL5-4'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:05:00 PM
Lab ID: 2004811-017 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2000	60		mg/Kg	20	4/21/2020 7:32:40 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 9:01:43 AM	51909
Surr: BFB	95.9	70-130		%Rec	1	4/21/2020 9:01:43 AM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	23	9.0		mg/Kg	1	4/20/2020 2:41:21 PM	51938
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/20/2020 2:41:21 PM	51938
Surr: DNOP	99.5	55.1-146		%Rec	1	4/20/2020 2:41:21 PM	51938
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.051	0.025		mg/Kg	1	4/21/2020 9:01:43 AM	51909
Toluene	ND	0.050		mg/Kg	1	4/21/2020 9:01:43 AM	51909
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 9:01:43 AM	51909
Xylenes, Total	ND	0.10		mg/Kg	1	4/21/2020 9:01:43 AM	51909
Surr: 1,2-Dichloroethane-d4	88.4	70-130		%Rec	1	4/21/2020 9:01:43 AM	51909
Surr: 4-Bromofluorobenzene	94.1	70-130		%Rec	1	4/21/2020 9:01:43 AM	51909
Surr: Dibromofluoromethane	89.9	70-130		%Rec	1	4/21/2020 9:01:43 AM	51909
Surr: Toluene-d8	99.2	70-130		%Rec	1	4/21/2020 9:01:43 AM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL6-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:15:00 PM
Lab ID: 2004811-018 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	80	60		mg/Kg	20	4/21/2020 7:45:04 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	15000	4900		mg/Kg	1E+	4/22/2020 5:41:53 PM	51909
Surr: BFB	98.5	70-130		%Rec	1E+	4/22/2020 5:41:53 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	21000	1000		mg/Kg	100	4/20/2020 3:06:11 PM	51938
Motor Oil Range Organics (MRO)	7100	5000		mg/Kg	100	4/20/2020 3:06:11 PM	51938
Surr: DNOP	0	55.1-146	S	%Rec	100	4/20/2020 3:06:11 PM	51938
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	240	25		mg/Kg	1E+	4/22/2020 5:41:53 PM	51909
Toluene	750	49		mg/Kg	1E+	4/22/2020 5:41:53 PM	51909
Ethylbenzene	220	49		mg/Kg	1E+	4/22/2020 5:41:53 PM	51909
Xylenes, Total	480	98		mg/Kg	1E+	4/22/2020 5:41:53 PM	51909
Surr: 1,2-Dichloroethane-d4	98.6	70-130		%Rec	1E+	4/22/2020 5:41:53 PM	51909
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1E+	4/22/2020 5:41:53 PM	51909
Surr: Dibromofluoromethane	98.2	70-130		%Rec	1E+	4/22/2020 5:41:53 PM	51909
Surr: Toluene-d8	98.4	70-130		%Rec	1E+	4/22/2020 5:41:53 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL6-1'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:17:00 PM
Lab ID: 2004811-019 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	110	60		mg/Kg	20	4/21/2020 8:22:18 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	13000	4800		mg/Kg	1E+	4/22/2020 6:11:02 PM	51909
Surr: BFB	97.9	70-130		%Rec	1E+	4/22/2020 6:11:02 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	22000	920		mg/Kg	100	4/20/2020 3:30:57 PM	51938
Motor Oil Range Organics (MRO)	8000	4600		mg/Kg	100	4/20/2020 3:30:57 PM	51938
Surr: DNOP	0	55.1-146	S	%Rec	100	4/20/2020 3:30:57 PM	51938
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	200	24		mg/Kg	1E+	4/22/2020 6:11:02 PM	51909
Toluene	730	48		mg/Kg	1E+	4/22/2020 6:11:02 PM	51909
Ethylbenzene	220	48		mg/Kg	1E+	4/22/2020 6:11:02 PM	51909
Xylenes, Total	480	97		mg/Kg	1E+	4/22/2020 6:11:02 PM	51909
Surr: 1,2-Dichloroethane-d4	98.4	70-130		%Rec	1E+	4/22/2020 6:11:02 PM	51909
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1E+	4/22/2020 6:11:02 PM	51909
Surr: Dibromofluoromethane	96.4	70-130		%Rec	1E+	4/22/2020 6:11:02 PM	51909
Surr: Toluene-d8	98.6	70-130		%Rec	1E+	4/22/2020 6:11:02 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL6-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:20:00 PM
Lab ID: 2004811-020 **Matrix:** SOIL
Received Date: 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	95	61		mg/Kg	20	4/21/2020 8:34:43 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	9.9		mg/Kg	2	4/22/2020 6:40:10 PM	51909
Surr: BFB	92.0	70-130		%Rec	2	4/22/2020 6:40:10 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	120	9.7		mg/Kg	1	4/20/2020 4:20:03 PM	51938
Motor Oil Range Organics (MRO)	54	48		mg/Kg	1	4/20/2020 4:20:03 PM	51938
Surr: DNOP	106	55.1-146		%Rec	1	4/20/2020 4:20:03 PM	51938
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.066	0.050		mg/Kg	2	4/22/2020 6:40:10 PM	51909
Toluene	0.22	0.099		mg/Kg	2	4/22/2020 6:40:10 PM	51909
Ethylbenzene	0.15	0.099		mg/Kg	2	4/22/2020 6:40:10 PM	51909
Xylenes, Total	0.42	0.20		mg/Kg	2	4/22/2020 6:40:10 PM	51909
Surr: 1,2-Dichloroethane-d4	94.9	70-130		%Rec	2	4/22/2020 6:40:10 PM	51909
Surr: 4-Bromofluorobenzene	89.6	70-130		%Rec	2	4/22/2020 6:40:10 PM	51909
Surr: Dibromofluoromethane	96.2	70-130		%Rec	2	4/22/2020 6:40:10 PM	51909
Surr: Toluene-d8	93.8	70-130		%Rec	2	4/22/2020 6:40:10 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL6-4'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:24:00 PM
Lab ID: 2004811-021 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	570	61		mg/Kg	20	4/21/2020 8:47:07 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/22/2020 7:09:47 PM	51909
Surr: BFB	92.4	70-130		%Rec	1	4/22/2020 7:09:47 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	70	9.9		mg/Kg	1	4/20/2020 11:26:55 AM	51939
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/20/2020 11:26:55 AM	51939
Surr: DNOP	88.8	55.1-146		%Rec	1	4/20/2020 11:26:55 AM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.093	0.025		mg/Kg	1	4/22/2020 7:09:47 PM	51909
Toluene	0.17	0.050		mg/Kg	1	4/22/2020 7:09:47 PM	51909
Ethylbenzene	0.076	0.050		mg/Kg	1	4/22/2020 7:09:47 PM	51909
Xylenes, Total	0.21	0.10		mg/Kg	1	4/22/2020 7:09:47 PM	51909
Surr: 1,2-Dichloroethane-d4	92.4	70-130		%Rec	1	4/22/2020 7:09:47 PM	51909
Surr: 4-Bromofluorobenzene	82.8	70-130		%Rec	1	4/22/2020 7:09:47 PM	51909
Surr: Dibromofluoromethane	96.1	70-130		%Rec	1	4/22/2020 7:09:47 PM	51909
Surr: Toluene-d8	99.7	70-130		%Rec	1	4/22/2020 7:09:47 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL7-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:30:00 PM
Lab ID: 2004811-022 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	82	60		mg/Kg	20	4/21/2020 8:59:31 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	9300	5000		mg/Kg	1E+	4/22/2020 7:38:58 PM	51909
Surr: BFB	97.8	70-130		%Rec	1E+	4/22/2020 7:38:58 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	17000	880		mg/Kg	100	4/20/2020 12:41:19 PM	51939
Motor Oil Range Organics (MRO)	5400	4400		mg/Kg	100	4/20/2020 12:41:19 PM	51939
Surr: DNOP	0	55.1-146	S	%Rec	100	4/20/2020 12:41:19 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	100	25		mg/Kg	1E+	4/22/2020 7:38:58 PM	51909
Toluene	450	50		mg/Kg	1E+	4/22/2020 7:38:58 PM	51909
Ethylbenzene	150	50		mg/Kg	1E+	4/22/2020 7:38:58 PM	51909
Xylenes, Total	330	99		mg/Kg	1E+	4/22/2020 7:38:58 PM	51909
Surr: 1,2-Dichloroethane-d4	98.4	70-130		%Rec	1E+	4/22/2020 7:38:58 PM	51909
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1E+	4/22/2020 7:38:58 PM	51909
Surr: Dibromofluoromethane	100	70-130		%Rec	1E+	4/22/2020 7:38:58 PM	51909
Surr: Toluene-d8	99.4	70-130		%Rec	1E+	4/22/2020 7:38:58 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL7-1'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:32:00 PM
Lab ID: 2004811-023 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	140	59		mg/Kg	20	4/21/2020 9:11:56 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	16000	4900		mg/Kg	1E+	4/23/2020 12:38:06 PM	51909
Surr: BFB	97.9	70-130		%Rec	1E+	4/23/2020 12:38:06 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	22000	950		mg/Kg	100	4/20/2020 1:06:09 PM	51939
Motor Oil Range Organics (MRO)	7300	4800		mg/Kg	100	4/20/2020 1:06:09 PM	51939
Surr: DNOP	0	55.1-146	S	%Rec	100	4/20/2020 1:06:09 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	250	24		mg/Kg	1E+	4/23/2020 12:38:06 PM	51909
Toluene	800	49		mg/Kg	1E+	4/23/2020 12:38:06 PM	51909
Ethylbenzene	230	49		mg/Kg	1E+	4/23/2020 12:38:06 PM	51909
Xylenes, Total	510	97		mg/Kg	1E+	4/23/2020 12:38:06 PM	51909
Surr: 1,2-Dichloroethane-d4	92.7	70-130		%Rec	1E+	4/23/2020 12:38:06 PM	51909
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1E+	4/23/2020 12:38:06 PM	51909
Surr: Dibromofluoromethane	98.9	70-130		%Rec	1E+	4/23/2020 12:38:06 PM	51909
Surr: Toluene-d8	97.8	70-130		%Rec	1E+	4/23/2020 12:38:06 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL7-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:39:00 PM
Lab ID: 2004811-024 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	81	60		mg/Kg	20	4/21/2020 9:24:20 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	11000	5000		mg/Kg	1E+	4/23/2020 1:06:48 PM	51909
Surr: BFB	98.5	70-130		%Rec	1E+	4/23/2020 1:06:48 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	14000	490		mg/Kg	50	4/22/2020 10:56:47 PM	51939
Motor Oil Range Organics (MRO)	4400	2500		mg/Kg	50	4/22/2020 10:56:47 PM	51939
Surr: DNOP	0	55.1-146	S	%Rec	50	4/22/2020 10:56:47 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	87	25		mg/Kg	1E+	4/23/2020 1:06:48 PM	51909
Toluene	400	50		mg/Kg	1E+	4/23/2020 1:06:48 PM	51909
Ethylbenzene	140	50		mg/Kg	1E+	4/23/2020 1:06:48 PM	51909
Xylenes, Total	310	100		mg/Kg	1E+	4/23/2020 1:06:48 PM	51909
Surr: 1,2-Dichloroethane-d4	92.7	70-130		%Rec	1E+	4/23/2020 1:06:48 PM	51909
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1E+	4/23/2020 1:06:48 PM	51909
Surr: Dibromofluoromethane	99.7	70-130		%Rec	1E+	4/23/2020 1:06:48 PM	51909
Surr: Toluene-d8	97.8	70-130		%Rec	1E+	4/23/2020 1:06:48 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL7-4'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:39:00 PM
Lab ID: 2004811-025 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	73	60		mg/Kg	20	4/21/2020 9:36:44 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	9.8		mg/Kg	2	4/23/2020 1:35:32 PM	51909
Surr: BFB	101	70-130		%Rec	2	4/23/2020 1:35:32 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	69	9.9		mg/Kg	1	4/20/2020 1:56:07 PM	51939
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/20/2020 1:56:07 PM	51939
Surr: DNOP	74.0	55.1-146		%Rec	1	4/20/2020 1:56:07 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	0.059	0.049		mg/Kg	2	4/23/2020 1:35:32 PM	51909
Toluene	0.11	0.098		mg/Kg	2	4/23/2020 1:35:32 PM	51909
Ethylbenzene	ND	0.098		mg/Kg	2	4/23/2020 1:35:32 PM	51909
Xylenes, Total	0.21	0.20		mg/Kg	2	4/23/2020 1:35:32 PM	51909
Surr: 1,2-Dichloroethane-d4	91.8	70-130		%Rec	2	4/23/2020 1:35:32 PM	51909
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	2	4/23/2020 1:35:32 PM	51909
Surr: Dibromofluoromethane	98.1	70-130		%Rec	2	4/23/2020 1:35:32 PM	51909
Surr: Toluene-d8	98.2	70-130		%Rec	2	4/23/2020 1:35:32 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL8-0.5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:50:00 PM
Lab ID: 2004811-026 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	340	60		mg/Kg	20	4/21/2020 9:49:09 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	6000	2500		mg/Kg	500	4/23/2020 2:04:14 PM	51909
Surr: BFB	102	70-130		%Rec	500	4/23/2020 2:04:14 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	15000	860		mg/Kg	100	4/21/2020 7:20:16 PM	51939
Motor Oil Range Organics (MRO)	5200	4300		mg/Kg	100	4/21/2020 7:20:16 PM	51939
Surr: DNOP	0	55.1-146	S	%Rec	100	4/21/2020 7:20:16 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	60	12		mg/Kg	500	4/23/2020 2:04:14 PM	51909
Toluene	290	25		mg/Kg	500	4/23/2020 2:04:14 PM	51909
Ethylbenzene	110	25		mg/Kg	500	4/23/2020 2:04:14 PM	51909
Xylenes, Total	240	49		mg/Kg	500	4/23/2020 2:04:14 PM	51909
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	500	4/23/2020 2:04:14 PM	51909
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	500	4/23/2020 2:04:14 PM	51909
Surr: Dibromofluoromethane	101	70-130		%Rec	500	4/23/2020 2:04:14 PM	51909
Surr: Toluene-d8	101	70-130		%Rec	500	4/23/2020 2:04:14 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL8-1'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:52:00 PM
Lab ID: 2004811-027 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	520	60		mg/Kg	20	4/21/2020 10:01:33 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	10000	5000		mg/Kg	1E+	4/23/2020 2:32:44 PM	51909
Surr: BFB	99.2	70-130		%Rec	1E+	4/23/2020 2:32:44 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	16000	960		mg/Kg	100	4/20/2020 2:46:04 PM	51939
Motor Oil Range Organics (MRO)	5200	4800		mg/Kg	100	4/20/2020 2:46:04 PM	51939
Surr: DNOP	0	55.1-146	S	%Rec	100	4/20/2020 2:46:04 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	150	25		mg/Kg	1E+	4/23/2020 2:32:44 PM	51909
Toluene	530	50		mg/Kg	1E+	4/23/2020 2:32:44 PM	51909
Ethylbenzene	160	50		mg/Kg	1E+	4/23/2020 2:32:44 PM	51909
Xylenes, Total	360	99		mg/Kg	1E+	4/23/2020 2:32:44 PM	51909
Surr: 1,2-Dichloroethane-d4	92.2	70-130		%Rec	1E+	4/23/2020 2:32:44 PM	51909
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1E+	4/23/2020 2:32:44 PM	51909
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1E+	4/23/2020 2:32:44 PM	51909
Surr: Toluene-d8	94.9	70-130		%Rec	1E+	4/23/2020 2:32:44 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL8-2'
Project: Green Frog Cafe
Collection Date: 4/15/2020 2:55:00 PM
Lab ID: 2004811-028 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2300	150		mg/Kg	50	4/22/2020 1:57:05 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	140	9.9		mg/Kg	2	4/23/2020 3:01:12 PM	51909
Surr: BFB	105	70-130		%Rec	2	4/23/2020 3:01:12 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	480	9.2		mg/Kg	1	4/21/2020 4:03:48 PM	51939
Motor Oil Range Organics (MRO)	190	46		mg/Kg	1	4/21/2020 4:03:48 PM	51939
Surr: DNOP	96.6	55.1-146		%Rec	1	4/21/2020 4:03:48 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	0.14	0.049		mg/Kg	2	4/23/2020 3:01:12 PM	51909
Toluene	1.9	0.099		mg/Kg	2	4/23/2020 3:01:12 PM	51909
Ethylbenzene	1.6	0.099		mg/Kg	2	4/23/2020 3:01:12 PM	51909
Xylenes, Total	4.4	0.20		mg/Kg	2	4/23/2020 3:01:12 PM	51909
Surr: 1,2-Dichloroethane-d4	91.7	70-130		%Rec	2	4/23/2020 3:01:12 PM	51909
Surr: 4-Bromofluorobenzene	66.9	70-130	S	%Rec	2	4/23/2020 3:01:12 PM	51909
Surr: Dibromofluoromethane	96.4	70-130		%Rec	2	4/23/2020 3:01:12 PM	51909
Surr: Toluene-d8	93.9	70-130		%Rec	2	4/23/2020 3:01:12 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004811**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL8-5'
Project: Green Frog Cafe
Collection Date: 4/15/2020 3:01:00 PM
Lab ID: 2004811-029 **Matrix:** SOIL **Received Date:** 4/17/2020 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	690	60		mg/Kg	20	4/21/2020 10:51:12 PM	52000
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/23/2020 3:29:41 PM	51909
Surr: BFB	100	70-130		%Rec	1	4/23/2020 3:29:41 PM	51909
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	29	9.4		mg/Kg	1	4/20/2020 3:36:06 PM	51939
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/20/2020 3:36:06 PM	51939
Surr: DNOP	82.4	55.1-146		%Rec	1	4/20/2020 3:36:06 PM	51939
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	0.11	0.025		mg/Kg	1	4/23/2020 3:29:41 PM	51909
Toluene	0.082	0.049		mg/Kg	1	4/23/2020 3:29:41 PM	51909
Ethylbenzene	ND	0.049		mg/Kg	1	4/23/2020 3:29:41 PM	51909
Xylenes, Total	ND	0.099		mg/Kg	1	4/23/2020 3:29:41 PM	51909
Surr: 1,2-Dichloroethane-d4	90.5	70-130		%Rec	1	4/23/2020 3:29:41 PM	51909
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	4/23/2020 3:29:41 PM	51909
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	4/23/2020 3:29:41 PM	51909
Surr: Toluene-d8	96.6	70-130		%Rec	1	4/23/2020 3:29:41 PM	51909

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **MB-51981** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **51981** RunNo: **68314**
Prep Date: **4/21/2020** Analysis Date: **4/21/2020** SeqNo: **2363480** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-51981** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **51981** RunNo: **68314**
Prep Date: **4/21/2020** Analysis Date: **4/21/2020** SeqNo: **2363481** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

Sample ID: **MB-52000** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52000** RunNo: **68314**
Prep Date: **4/21/2020** Analysis Date: **4/21/2020** SeqNo: **2363518** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52000** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52000** RunNo: **68314**
Prep Date: **4/21/2020** Analysis Date: **4/21/2020** SeqNo: **2363519** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **LCS-51908** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **51908** RunNo: **68236**
Prep Date: **4/17/2020** Analysis Date: **4/19/2020** SeqNo: **2360040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	115	70	130			
Surr: DNOP	5.6		5.000		113	55.1	146			

Sample ID: **MB-51908** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **51908** RunNo: **68236**
Prep Date: **4/17/2020** Analysis Date: **4/19/2020** SeqNo: **2360063** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		114	55.1	146			

Sample ID: **LCS-51945** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **51945** RunNo: **68265**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361902** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	108	70	130			
Surr: DNOP	3.7		5.000		73.6	55.1	146			

Sample ID: **MB-51945** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **51945** RunNo: **68265**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361904** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	7.4		10.00		74.4	55.1	146			

Sample ID: **2004811-021AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SL6-4'** Batch ID: **51939** RunNo: **68266**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361915** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	98	9.8	48.78	69.57	58.0	47.4	136			
Surr: DNOP	4.4		4.878		90.2	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **2004811-021AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SL6-4'** Batch ID: **51939** RunNo: **68266**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361916** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	110	9.9	49.26	69.57	89.6	47.4	136	14.9	43.4	
Surr: DNOP	4.2		4.926		85.4	55.1	146	0	0	

Sample ID: **LCS-51939** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **51939** RunNo: **68266**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361959** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.4	70	130			
Surr: DNOP	3.9		5.000		77.4	55.1	146			

Sample ID: **MB-51939** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **51939** RunNo: **68266**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361961** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		82.8	55.1	146			

Sample ID: **MB-51938** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **51938** RunNo: **68249**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2362082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.4		10.00		84.4	55.1	146			

Sample ID: **LCS-51938** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **51938** RunNo: **68249**
Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2362083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.5	70	130			
Surr: DNOP	4.1		5.000		82.9	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **lcs-51897** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **51897** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/20/2020** SeqNo: **2363812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.7	80	120			
Toluene	1.1	0.050	1.000	0	106	80	120			
Ethylbenzene	1.1	0.050	1.000	0	106	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.3	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.3	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.1	70	130			
Surr: Toluene-d8	0.49		0.5000		97.1	70	130			

Sample ID: **lcs-51909** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.5	80	120			
Toluene	1.1	0.050	1.000	0	107	80	120			
Ethylbenzene	1.1	0.050	1.000	0	108	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.4	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.7	70	130			
Surr: Dibromofluoromethane	0.45		0.5000		90.3	70	130			
Surr: Toluene-d8	0.49		0.5000		98.6	70	130			

Sample ID: **mb-51897** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **51897** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/20/2020** SeqNo: **2363814** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.5	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.9	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.3	70	130			
Surr: Toluene-d8	0.49		0.5000		98.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **mb-51909** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363815** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.2	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.1	70	130			
Surr: Toluene-d8	0.49		0.5000		97.2	70	130			

Sample ID: **2004811-016ams** SampType: **MS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **SL5-2'** Batch ID: **51909** RunNo: **68352**
Prep Date: **4/17/2020** Analysis Date: **4/22/2020** SeqNo: **2364794** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.049	0.9814	0.04381	87.4	80	120			
Toluene	1.2	0.098	0.9814	0.2725	90.3	80	120			
Ethylbenzene	1.2	0.098	0.9814	0.2087	96.2	80	120			
Xylenes, Total	3.4	0.20	2.944	0.5972	94.3	80	120			
Surr: 1,2-Dichloroethane-d4	0.93		0.9814		94.3	70	130			
Surr: 4-Bromofluorobenzene	0.84		0.9814		85.6	70	130			
Surr: Dibromofluoromethane	0.93		0.9814		94.3	70	130			
Surr: Toluene-d8	0.95		0.9814		96.8	70	130			

Sample ID: **2004811-016amsd** SampType: **MSD4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **SL5-2'** Batch ID: **51909** RunNo: **68352**
Prep Date: **4/17/2020** Analysis Date: **4/22/2020** SeqNo: **2364795** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.050	1.000	0.04381	83.7	80	120	2.34	20	
Toluene	1.1	0.10	1.000	0.2725	82.2	80	120	5.63	20	
Ethylbenzene	1.1	0.10	1.000	0.2087	90.1	80	120	3.79	20	
Xylenes, Total	3.3	0.20	3.000	0.5972	89.4	80	120	2.81	20	
Surr: 1,2-Dichloroethane-d4	0.97		1.000		96.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.88		1.000		87.6	70	130	0	0	
Surr: Dibromofluoromethane	0.97		1.000		96.9	70	130	0	0	
Surr: Toluene-d8	0.96		1.000		95.8	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **2004811-017ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **SL5-4'** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363948** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	1.645	74.1	70	130			
Surr: BFB	490		500.0		97.9	70	130			

Sample ID: **2004811-017amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **SL5-4'** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363949** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	4.9	24.49	1.645	67.4	70	130	10.7	20	S
Surr: BFB	460		489.7		94.2	70	130	0	0	

Sample ID: **lcs-51897** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **51897** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/20/2020** SeqNo: **2363970** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	80.9	70	130			
Surr: BFB	480		500.0		96.4	70	130			

Sample ID: **lcs-51909** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363971** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.2	70	130			
Surr: BFB	490		500.0		98.3	70	130			

Sample ID: **mb-51897** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **51897** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/20/2020** SeqNo: **2363972** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		95.9	70	130			

Sample ID: **mb-51909** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363973** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004811**
27-Apr-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe

Sample ID: **mb-51909**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **51909**	RunNo: **68321**							
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2363973**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		95.9	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 2004811 RcptNo: 1

Received By: Desiree Dominguez 4/17/2020 8:45 DAD 4/17/20 DD

Completed By: Desiree Dominguez 4/17/2020 7:50:06 AM DD

Reviewed By: JC 4/17/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

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

Adjusted? _____

Checked by: SPA 4/17/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Not Present			

Chain-of-Custody Record

Client: SMA

Mailing Address: 201 S. Halagueño
Carlsbad, NM 88220

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day
☑ Standard ☐ Rush

Project Name: Green Frog Cafe

Project #:

Project Manager: Ashley Maxwell

Sampler: SOV/LAA

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.4-0.0=3.4 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004811	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/15/20	11:40	Soil	SL1-0.5'	4oz	Cool	-001	X	X					X			
	11:47		SL1-1'			-002										
	11:49		SL1-2'			-003										
	11:52		SL2-0.5'			-004										
	12:00		SL2-2'			-005										
	12:59		SL2-3'			-006										
	12:14		SL3-0.5'			-007										
	12:27		SL3-2'			-008										
	1:04		SL3-3'			-009										
	1:10		SL3-4'			-010										
	1:13		SL4-0.5'			-011										
	1:20		SL4-1'			-012										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/16/20	1429	Salvador Ortega			4/16	1430
4/16	1900			courier	4/17/20	8:45

Remarks:

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

Chain-of-Custody Record

Client: SMA

Mailing Address: 201 S. Halagueño
Carlsbad, NM 88220

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day
☑ Standard ☐ Rush

Project Name: Green Frog Cafe

Project #:

Project Manager: Ashley Maxwell

Sampler: SOV/LAA

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.4-0.0=3.4 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004811	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/15/20	1:35	Soil	SL4-4'	4oz	Cool	-013	X	X					X			
	1:50		SL5-0.5'			-014										
	1:53		SL5-1'			-015										
	1:57		SL5-2'			-016										
	2:05		SL5-4'			-017										
	2:15		SL6-0.5'			-018										
	2:17		SL6-1'			-019										
	2:20		SL6-2'			-020										
	2:24		SL6-4'			-021										
	2:30		SL7-0.5'			-022										
	2:32		SL7-1'			-023										
	2:39		SL7-2'			-024										

Date	Time	Relinquished by	Received by	Via	Date	Time
4/16/20	1429	Salvador Orozco				
4/16	1900			courier	4/17/20	8:45

Remarks:

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

Chain-of-Custody Record

Client: SMA

Mailing Address: 201 S. Halagueño
Carlsbad, NM 88220

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day
☑ Standard ☐ Rush

Project Name: Green Frog Cafe

Project #:

Project Manager: Ashley Maxwell

Sampler:

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.4 - 0.0 = 3.4 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004811	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/15/20	2:39	Soil	SL7-4'	4oz	Cool	-025	X	X					X			
	2:50		SL8-0.5'			-026										
	2:52		SL8-1'			-027										
	2:55		SL8-2'			-028										
	3:01		SL8-5'			-029										

Date	Time	Relinquished by	Received by	Via	Date	Time
4/16/20	1429	Sebastean Orozco	[signature]		4/16	1430
4/16	1900	[signature]	[signature]	courier	4/17/20	8:45

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 28, 2020

Ashley Maxwell

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX

RE: Green Frog Fed OrderNo.: 2005806

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/19/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005806**
Date Reported: **5/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL5-4'
Project: Green Frog Fed
Collection Date: 5/17/2020 2:08:00 PM
Lab ID: 2005806-001 **Matrix:** SOIL **Received Date:** 5/19/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1900	60		mg/Kg	20	5/23/2020 8:48:37 PM	52667

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005806**
Date Reported: **5/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL8-2'
Project: Green Frog Fed
Collection Date: 5/17/2020 2:32:00 PM
Lab ID: 2005806-002 **Matrix:** SOIL **Received Date:** 5/19/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2700	150		mg/Kg	50	5/27/2020 1:05:39 PM	52667
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/21/2020 7:44:35 PM	52577
Surr: BFB	98.4	70-130		%Rec	1	5/21/2020 7:44:35 PM	52577
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	65	8.5		mg/Kg	1	5/21/2020 3:20:52 PM	52605
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	5/21/2020 3:20:52 PM	52605
Surr: DNOP	118	55.1-146		%Rec	1	5/21/2020 3:20:52 PM	52605
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	5/21/2020 7:44:35 PM	52577
Toluene	ND	0.048		mg/Kg	1	5/21/2020 7:44:35 PM	52577
Ethylbenzene	ND	0.048		mg/Kg	1	5/21/2020 7:44:35 PM	52577
Xylenes, Total	ND	0.096		mg/Kg	1	5/21/2020 7:44:35 PM	52577
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%Rec	1	5/21/2020 7:44:35 PM	52577
Surr: 4-Bromofluorobenzene	82.4	70-130		%Rec	1	5/21/2020 7:44:35 PM	52577
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	5/21/2020 7:44:35 PM	52577
Surr: Toluene-d8	99.9	70-130		%Rec	1	5/21/2020 7:44:35 PM	52577

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005806**
Date Reported: **5/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SL8-4'
Project: Green Frog Fed
Collection Date: 5/17/2020 2:35:00 PM
Lab ID: 2005806-003 **Matrix:** SOIL **Received Date:** 5/19/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	170	60		mg/Kg	20	5/23/2020 9:13:26 PM	52667
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/21/2020 8:14:20 PM	52577
Surr: BFB	101	70-130		%Rec	1	5/21/2020 8:14:20 PM	52577
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/21/2020 4:33:23 PM	52605
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/21/2020 4:33:23 PM	52605
Surr: DNOP	114	55.1-146		%Rec	1	5/21/2020 4:33:23 PM	52605
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	0.036	0.025		mg/Kg	1	5/21/2020 8:14:20 PM	52577
Toluene	ND	0.050		mg/Kg	1	5/21/2020 8:14:20 PM	52577
Ethylbenzene	ND	0.050		mg/Kg	1	5/21/2020 8:14:20 PM	52577
Xylenes, Total	ND	0.10		mg/Kg	1	5/21/2020 8:14:20 PM	52577
Surr: 1,2-Dichloroethane-d4	96.0	70-130		%Rec	1	5/21/2020 8:14:20 PM	52577
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	5/21/2020 8:14:20 PM	52577
Surr: Dibromofluoromethane	98.5	70-130		%Rec	1	5/21/2020 8:14:20 PM	52577
Surr: Toluene-d8	100	70-130		%Rec	1	5/21/2020 8:14:20 PM	52577

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005806**
28-May-20

Client: Souder, Miller & Associates
Project: Green Frog Fed

Sample ID: **MB-52667** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52667** RunNo: **69127**
Prep Date: **5/23/2020** Analysis Date: **5/23/2020** SeqNo: **2395515** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52667** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52667** RunNo: **69127**
Prep Date: **5/23/2020** Analysis Date: **5/23/2020** SeqNo: **2395516** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005806**
28-May-20

Client: Souder, Miller & Associates
Project: Green Frog Fed

Sample ID: **MB-52605** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52605** RunNo: **69068**
Prep Date: **5/20/2020** Analysis Date: **5/21/2020** SeqNo: **2392533** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.6		10.00		95.9	55.1	146			

Sample ID: **LCS-52605** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52605** RunNo: **69068**
Prep Date: **5/20/2020** Analysis Date: **5/21/2020** SeqNo: **2392535** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	87.0	70	130			
Surr: DNOP	4.4		5.000		87.7	55.1	146			

Sample ID: **2005806-002AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SL8-2'** Batch ID: **52605** RunNo: **69068**
Prep Date: **5/20/2020** Analysis Date: **5/21/2020** SeqNo: **2392538** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	130	9.4	47.13	64.67	143	47.4	136			S
Surr: DNOP	5.2		4.713		110	55.1	146			

Sample ID: **2005806-002AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SL8-2'** Batch ID: **52605** RunNo: **69068**
Prep Date: **5/20/2020** Analysis Date: **5/21/2020** SeqNo: **2392539** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	140	9.1	45.29	64.67	164	47.4	136	4.90	43.4	S
Surr: DNOP	5.2		4.529		115	55.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005806**
28-May-20

Client: Souder, Miller & Associates
Project: Green Frog Fed

Sample ID: **mb-52577** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52577** RunNo: **69081**
Prep Date: **5/19/2020** Analysis Date: **5/21/2020** SeqNo: **2392357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.5	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.5	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.2	70	130			
Surr: Toluene-d8	0.50		0.5000		99.2	70	130			

Sample ID: **LCS-52577** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52577** RunNo: **69081**
Prep Date: **5/19/2020** Analysis Date: **5/21/2020** SeqNo: **2392358** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.9	80	120			
Toluene	1.1	0.050	1.000	0	106	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.2	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		93.0	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.4	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005806**

28-May-20

Client: Souder, Miller & Associates

Project: Green Frog Fed

Sample ID: **mb-52577**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **52577**	RunNo: **69081**
Prep Date: **5/19/2020**	Analysis Date: **5/21/2020**	SeqNo: **2392372** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	520		500.0		103	70	130			

Sample ID: **LCS-52577**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52577**	RunNo: **69081**
Prep Date: **5/19/2020**	Analysis Date: **5/21/2020**	SeqNo: **2392377** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.7	70	130			
Surr: BFB	520		500.0		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **2005806** RcptNo: **1**

Received By: **Isaiah Ortiz** **5/19/2020 9:30:00 AM** I-OK

Completed By: **Isaiah Ortiz** **5/19/2020 10:27:59 AM** I-OK

Reviewed By: LB 5/19/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

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

Adjusted? _____

Checked by: DAD 5/19/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.2	Good	Not Present			

Chain-of-Custody Record

Client: SMA - Carlsbad

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5 day turn

Project Name: Green Frog Fed

Project #: CL.20.00917

Project Manager: Ashley Maxwell

Sampler: LAH

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.3 (0.1+0) / 4.7 °C (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2005806	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/17/20	1408	Soil	SLS-4'	4oz		-001							X			
"	1432	"	SL8-2'	"		-002	X	X					X			
"	1435	"	SL8-4'	"		-003	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					5/18/20	1000
5/18/20	1900		Jacqui		5/19/20	0930

Remarks: Direct Bill: Marathon Oil

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 26, 2020

Ashley Maxwell

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX:

RE: Green Frog Fed OrderNo.: 2005805

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/19/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005805**
Date Reported: **5/26/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG1-1'
Project: Green Frog Fed
Collection Date: 5/17/2020 3:00:00 PM
Lab ID: 2005805-001 **Matrix:** SOIL **Received Date:** 5/19/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/23/2020 7:46:34 PM	52667

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005805**
Date Reported: **5/26/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG1-2'
Project: Green Frog Fed
Collection Date: 5/17/2020 3:04:00 PM
Lab ID: 2005805-002 **Matrix:** SOIL **Received Date:** 5/19/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	5/23/2020 8:23:47 PM	52667

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005805**
Date Reported: **5/26/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: BG1-4'
Project: Green Frog Fed
Collection Date: 5/17/2020 3:09:00 PM
Lab ID: 2005805-003 **Matrix:** SOIL **Received Date:** 5/19/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1900	60		mg/Kg	20	5/23/2020 8:36:12 PM	52667

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005805**

26-May-20

Client: Souder, Miller & Associates

Project: Green Frog Fed

Sample ID: **MB-52667**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52667**	RunNo: **69127**							
Prep Date: **5/23/2020**	Analysis Date: **5/23/2020**	SeqNo: **2395515**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52667**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52667**	RunNo: **69127**							
Prep Date: **5/23/2020**	Analysis Date: **5/23/2020**	SeqNo: **2395516**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **2005805** RcptNo: **1**

Received By: **Isaiah Ortiz** **5/19/2020 9:30:00 AM** I-04

Completed By: **Isaiah Ortiz** **5/19/2020 10:22:34 AM** I-04

Reviewed By: LR 5/19/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

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

Adjusted? _____

Checked by: DAD 5/19/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.2	Good	Not Present			

Chain-of-Custody Record

Client: SMA - Carlsbad

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5 day turn

Project Name: Green Frog Fed

Project #: CL.20.00917

Project Manager: Ashley Maxwell

Sampler: LAA

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.3-0.1(FF) / 4.2 °C

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2008580S	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/17/20	1500	Soil	BG1-1'	4oz		-001							X			
"	1504	"	BG1-2'	"		-002							X			
"	1509	"	BG1-4'	"		-003							X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
					5/18/20	1000
5/18/20	1940					

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
				Courier	5/19/20	0930

Remarks: Direct Bill: Marathon Oil

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 08, 2020

Ashley Maxwell
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL:
FAX:

RE: Green Frog Cafe Fed 001 OrderNo.: 2005D02

Dear Ashley Maxwell:

Hall Environmental Analysis Laboratory received 6 sample(s) on 5/30/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005D02**
Date Reported: **6/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW1
Project: Green Frog Cafe Fed 001
Collection Date: 5/29/2020 10:00:00 AM
Lab ID: 2005D02-001 **Matrix:** SOIL **Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	6/5/2020 2:15:35 AM	52879
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/31/2020 5:45:16 PM	52791
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/31/2020 5:45:16 PM	52791
Surr: DNOP	69.6	55.1-146		%Rec	1	5/31/2020 5:45:16 PM	52791
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2020 3:02:37 PM	52788
Surr: BFB	79.3	66.6-105		%Rec	1	6/1/2020 3:02:37 PM	52788
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	6/1/2020 3:02:37 PM	52788
Toluene	ND	0.047		mg/Kg	1	6/1/2020 3:02:37 PM	52788
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2020 3:02:37 PM	52788
Xylenes, Total	ND	0.095		mg/Kg	1	6/1/2020 3:02:37 PM	52788
Surr: 4-Bromofluorobenzene	90.8	80-120		%Rec	1	6/1/2020 3:02:37 PM	52788

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005D02**
Date Reported: **6/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW2
Project: Green Frog Cafe Fed 001
Collection Date: 5/29/2020 10:15:00 AM
Lab ID: 2005D02-002 **Matrix:** SOIL **Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	6/5/2020 7:17:43 PM	52903
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/31/2020 6:09:49 PM	52791
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/31/2020 6:09:49 PM	52791
Surr: DNOP	55.6	55.1-146		%Rec	1	5/31/2020 6:09:49 PM	52791
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2020 3:26:09 PM	52788
Surr: BFB	83.3	66.6-105		%Rec	1	6/1/2020 3:26:09 PM	52788
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	6/1/2020 3:26:09 PM	52788
Toluene	ND	0.047		mg/Kg	1	6/1/2020 3:26:09 PM	52788
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2020 3:26:09 PM	52788
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2020 3:26:09 PM	52788
Surr: 4-Bromofluorobenzene	95.5	80-120		%Rec	1	6/1/2020 3:26:09 PM	52788

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005D02**
Date Reported: **6/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW3
Project: Green Frog Cafe Fed 001
Collection Date: 5/29/2020 10:25:00 AM
Lab ID: 2005D02-003 **Matrix:** SOIL **Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Chloride	ND	60		mg/Kg	20	6/5/2020 8:19:47 PM	52903
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/31/2020 6:34:02 PM	52791
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/31/2020 6:34:02 PM	52791
Surr: DNOP	52.5	55.1-146	S	%Rec	1	5/31/2020 6:34:02 PM	52791
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/1/2020 3:49:39 PM	52788
Surr: BFB	81.2	66.6-105		%Rec	1	6/1/2020 3:49:39 PM	52788
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	6/1/2020 3:49:39 PM	52788
Toluene	ND	0.046		mg/Kg	1	6/1/2020 3:49:39 PM	52788
Ethylbenzene	ND	0.046		mg/Kg	1	6/1/2020 3:49:39 PM	52788
Xylenes, Total	ND	0.093		mg/Kg	1	6/1/2020 3:49:39 PM	52788
Surr: 4-Bromofluorobenzene	93.2	80-120		%Rec	1	6/1/2020 3:49:39 PM	52788

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005D02**
Date Reported: **6/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW4
Project: Green Frog Cafe Fed 001
Collection Date: 5/29/2020 10:30:00 AM
Lab ID: 2005D02-004 **Matrix:** SOIL **Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Chloride	ND	60		mg/Kg	20	6/5/2020 8:32:12 PM	52903
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/31/2020 6:58:31 PM	52791
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/31/2020 6:58:31 PM	52791
Surr: DNOP	60.0	55.1-146		%Rec	1	5/31/2020 6:58:31 PM	52791
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2020 4:13:13 PM	52788
Surr: BFB	80.4	66.6-105		%Rec	1	6/1/2020 4:13:13 PM	52788
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/1/2020 4:13:13 PM	52788
Toluene	ND	0.048		mg/Kg	1	6/1/2020 4:13:13 PM	52788
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2020 4:13:13 PM	52788
Xylenes, Total	ND	0.095		mg/Kg	1	6/1/2020 4:13:13 PM	52788
Surr: 4-Bromofluorobenzene	93.4	80-120		%Rec	1	6/1/2020 4:13:13 PM	52788

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005D02**
Date Reported: **6/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW5
Project: Green Frog Cafe Fed 001
Collection Date: 5/29/2020 10:35:00 AM
Lab ID: 2005D02-005 **Matrix:** SOIL **Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Chloride	ND	60		mg/Kg	20	6/5/2020 8:44:36 PM	52903
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/31/2020 7:22:56 PM	52791
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/31/2020 7:22:56 PM	52791
Surr: DNOP	50.9	55.1-146	S	%Rec	1	5/31/2020 7:22:56 PM	52791
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2020 5:47:26 PM	52788
Surr: BFB	82.5	66.6-105		%Rec	1	6/1/2020 5:47:26 PM	52788
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	6/1/2020 5:47:26 PM	52788
Toluene	ND	0.048		mg/Kg	1	6/1/2020 5:47:26 PM	52788
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2020 5:47:26 PM	52788
Xylenes, Total	ND	0.095		mg/Kg	1	6/1/2020 5:47:26 PM	52788
Surr: 4-Bromofluorobenzene	94.6	80-120		%Rec	1	6/1/2020 5:47:26 PM	52788

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005D02**
Date Reported: **6/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW6
Project: Green Frog Cafe Fed 001
Collection Date: 5/29/2020 10:45:00 AM
Lab ID: 2005D02-006 **Matrix:** SOIL **Received Date:** 5/30/2020 8:22:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Chloride	ND	60		mg/Kg	20	6/5/2020 8:57:01 PM	52903
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/31/2020 7:47:22 PM	52791
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/31/2020 7:47:22 PM	52791
Surr: DNOP	45.2	55.1-146	S	%Rec	1	5/31/2020 7:47:22 PM	52791
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2020 6:10:54 PM	52788
Surr: BFB	82.2	66.6-105		%Rec	1	6/1/2020 6:10:54 PM	52788
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	6/1/2020 6:10:54 PM	52788
Toluene	ND	0.047		mg/Kg	1	6/1/2020 6:10:54 PM	52788
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2020 6:10:54 PM	52788
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2020 6:10:54 PM	52788
Surr: 4-Bromofluorobenzene	95.3	80-120		%Rec	1	6/1/2020 6:10:54 PM	52788

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005D02**

08-Jun-20

Client: Souder, Miller & Associates

Project: Green Frog Cafe Fed 001

Sample ID: **MB-52879**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52879**	RunNo: **69412**							
Prep Date: **6/4/2020**	Analysis Date: **6/4/2020**	SeqNo: **2407961**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52879**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52879**	RunNo: **69412**							
Prep Date: **6/4/2020**	Analysis Date: **6/4/2020**	SeqNo: **2407962**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	90	110			

Sample ID: **MB-52903**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52903**	RunNo: **69444**							
Prep Date: **6/5/2020**	Analysis Date: **6/5/2020**	SeqNo: **2409023**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52903**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52903**	RunNo: **69444**							
Prep Date: **6/5/2020**	Analysis Date: **6/5/2020**	SeqNo: **2409024**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005D02**
08-Jun-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe Fed 001

Sample ID: **LCS-52791** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52791** RunNo: **69277**
Prep Date: **5/31/2020** Analysis Date: **5/31/2020** SeqNo: **2401817** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	70	130			
Surr: DNOP	3.6		5.000		72.3	55.1	146			

Sample ID: **MB-52791** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52791** RunNo: **69277**
Prep Date: **5/31/2020** Analysis Date: **5/31/2020** SeqNo: **2401818** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		85.0	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005D02**
08-Jun-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe Fed 001

Sample ID: **mb-52788** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **52788** RunNo: **69307**
Prep Date: **5/31/2020** Analysis Date: **6/1/2020** SeqNo: **2403247** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	820		1000		82.3	66.6	105			

Sample ID: **lcs-52788** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **52788** RunNo: **69307**
Prep Date: **5/31/2020** Analysis Date: **6/1/2020** SeqNo: **2403248** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.6	80	120			
Surr: BFB	890		1000		89.3	66.6	105			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005D02**
08-Jun-20

Client: Souder, Miller & Associates
Project: Green Frog Cafe Fed 001

Sample ID: **mb-52788** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **52788** RunNo: **69307**
Prep Date: **5/31/2020** Analysis Date: **6/1/2020** SeqNo: **2403285** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.94		1.000		94.3	80	120			

Sample ID: **LCS-52788** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **52788** RunNo: **69307**
Prep Date: **5/31/2020** Analysis Date: **6/1/2020** SeqNo: **2403286** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.0	80	120			
Toluene	0.98	0.050	1.000	0	98.3	80	120			
Ethylbenzene	0.99	0.050	1.000	0	99.3	80	120			
Xylenes, Total	3.0	0.10	3.000	0	98.4	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **SMA-CARLSBAD** Work Order Number: **2005D02** RcptNo: **1**

Received By: **Isaiah Ortiz** **5/30/2020 8:22:00 AM** I-Ox

Completed By: **Isaiah Ortiz** **5/30/2020 8:40:19 AM** I-Ox

Reviewed By: IB 5/30/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preserved added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑ IO

    # of preserved bottles checked for pH: 5/30/20 (<2 or >12 unless noted)
    Adjusted?
    Checked by:
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

Special Handling (if applicable)

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

    Person Notified: Date:
    By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
    Regarding:
    Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Not Present			

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Green Frog Cafe Fed #001

Project #:

Project Manager: Ashley Maxwell

Sampler: LAH/SO

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.1 -0 (CF) 4.1 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2005P02	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/29/20	10:00	Soil	SW1	4oz	Cool	-001	X	X					X			
	10:15		SW2			-002										
	10:25		SW3			-003										
	10:30		SW4			-004										
	10:35		SW5			-005										
	10:45		SW6			-006										

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/29/20	1200	Rebecca Dragoo			5/29	1230
5/29	1900					

Received by: Via: Date Time
5/30/20 0822

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 15, 2020

Melodie Sanjari
Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220
TEL: (575) 297-0956
FAX:

RE: Green Frog OrderNo.: 2010550

Dear Melodie Sanjari:

Hall Environmental Analysis Laboratory received 12 sample(s) on 10/10/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL1-0.5
Project: Green Frog
Collection Date: 10/8/2020 9:00:00 AM
Lab ID: 2010550-001 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	10000	190		mg/Kg	20	10/13/2020 6:15:14 PM	55771
Motor Oil Range Organics (MRO)	6100	960		mg/Kg	20	10/13/2020 6:15:14 PM	55771
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 6:15:14 PM	55771
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	110	25		mg/Kg	5	10/12/2020 7:28:51 PM	55766
Surr: BFB	235	75.3-105	S	%Rec	5	10/12/2020 7:28:51 PM	55766
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	0.13	0.12		mg/Kg	5	10/12/2020 7:28:51 PM	55766
Toluene	2.4	0.25		mg/Kg	5	10/12/2020 7:28:51 PM	55766
Ethylbenzene	1.2	0.25		mg/Kg	5	10/12/2020 7:28:51 PM	55766
Xylenes, Total	3.2	0.49		mg/Kg	5	10/12/2020 7:28:51 PM	55766
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	5	10/12/2020 7:28:51 PM	55766

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Green Frog
Lab ID: 2010550-002 **Matrix:** SOIL

Client Sample ID: SL1-2'
Collection Date: 10/8/2020 9:10:00 AM
Received Date: 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/13/2020 6:39:21 PM	55771
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/13/2020 6:39:21 PM	55771
Surr: DNOP	86.0	30.4-154		%Rec	1	10/13/2020 6:39:21 PM	55771
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/12/2020 8:16:05 PM	55766
Surr: BFB	96.8	75.3-105		%Rec	1	10/12/2020 8:16:05 PM	55766
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	10/12/2020 8:16:05 PM	55766
Toluene	ND	0.049		mg/Kg	1	10/12/2020 8:16:05 PM	55766
Ethylbenzene	ND	0.049		mg/Kg	1	10/12/2020 8:16:05 PM	55766
Xylenes, Total	ND	0.099		mg/Kg	1	10/12/2020 8:16:05 PM	55766
Surr: 4-Bromofluorobenzene	99.1	80-120		%Rec	1	10/12/2020 8:16:05 PM	55766

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL1-4'
Project: Green Frog
Collection Date: 10/8/2020 9:30:00 AM
Lab ID: 2010550-003 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	10/13/2020 7:03:39 PM	55771
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/13/2020 7:03:39 PM	55771
Surr: DNOP	58.0	30.4-154		%Rec	1	10/13/2020 7:03:39 PM	55771
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/12/2020 8:39:34 PM	55766
Surr: BFB	96.4	75.3-105		%Rec	1	10/12/2020 8:39:34 PM	55766
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	10/12/2020 8:39:34 PM	55766
Toluene	ND	0.049		mg/Kg	1	10/12/2020 8:39:34 PM	55766
Ethylbenzene	ND	0.049		mg/Kg	1	10/12/2020 8:39:34 PM	55766
Xylenes, Total	ND	0.099		mg/Kg	1	10/12/2020 8:39:34 PM	55766
Surr: 4-Bromofluorobenzene	99.7	80-120		%Rec	1	10/12/2020 8:39:34 PM	55766

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL2-0.5'
Project: Green Frog
Collection Date: 10/8/2020 9:45:00 AM
Lab ID: 2010550-004 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	9100	190		mg/Kg	20	10/13/2020 7:27:54 PM	55771
Motor Oil Range Organics (MRO)	5000	970		mg/Kg	20	10/13/2020 7:27:54 PM	55771
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 7:27:54 PM	55771
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	1200	99		mg/Kg	20	10/12/2020 9:41:47 AM	55766
Surr: BFB	387	75.3-105	S	%Rec	20	10/12/2020 9:41:47 AM	55766
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	0.92	0.49		mg/Kg	20	10/12/2020 9:41:47 AM	55766
Toluene	30	0.99		mg/Kg	20	10/12/2020 9:41:47 AM	55766
Ethylbenzene	24	0.99		mg/Kg	20	10/12/2020 9:41:47 AM	55766
Xylenes, Total	57	2.0		mg/Kg	20	10/12/2020 9:41:47 AM	55766
Surr: 4-Bromofluorobenzene	139	80-120	S	%Rec	20	10/12/2020 9:41:47 AM	55766

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL2-2'
Project: Green Frog
Collection Date: 10/8/2020 10:00:00 AM
Lab ID: 2010550-005 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	9800	200		mg/Kg	20	10/13/2020 7:52:11 PM	55771
Motor Oil Range Organics (MRO)	5600	990		mg/Kg	20	10/13/2020 7:52:11 PM	55771
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 7:52:11 PM	55771
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	1900	98		mg/Kg	20	10/12/2020 10:05:12 AM	55766
Surr: BFB	418	75.3-105	S	%Rec	20	10/12/2020 10:05:12 AM	55766
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	2.1	0.49		mg/Kg	20	10/12/2020 10:05:12 AM	55766
Toluene	77	0.98		mg/Kg	20	10/12/2020 10:05:12 AM	55766
Ethylbenzene	45	0.98		mg/Kg	20	10/12/2020 10:05:12 AM	55766
Xylenes, Total	110	2.0		mg/Kg	20	10/12/2020 10:05:12 AM	55766
Surr: 4-Bromofluorobenzene	155	80-120	S	%Rec	20	10/12/2020 10:05:12 AM	55766

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL2-4'
Project: Green Frog
Collection Date: 10/8/2020 10:15:00 AM
Lab ID: 2010550-006 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/13/2020 1:30:10 PM	55768
Surr: BFB	104	70-130		%Rec	1	10/13/2020 1:30:10 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**	
Diesel Range Organics (DRO)	27	9.9		mg/Kg	1	10/13/2020 11:20:36 AM	55773
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/13/2020 11:20:36 AM	55773
Surr: DNOP	98.7	30.4-154		%Rec	1	10/13/2020 11:20:36 AM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	10/13/2020 1:30:10 PM	55768
Toluene	ND	0.050		mg/Kg	1	10/13/2020 1:30:10 PM	55768
Ethylbenzene	ND	0.050		mg/Kg	1	10/13/2020 1:30:10 PM	55768
Xylenes, Total	ND	0.099		mg/Kg	1	10/13/2020 1:30:10 PM	55768
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%Rec	1	10/13/2020 1:30:10 PM	55768
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	10/13/2020 1:30:10 PM	55768
Surr: Dibromofluoromethane	101	70-130		%Rec	1	10/13/2020 1:30:10 PM	55768
Surr: Toluene-d8	97.3	70-130		%Rec	1	10/13/2020 1:30:10 PM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL4-0.5'
Project: Green Frog
Collection Date: 10/8/2020 10:30:00 AM
Lab ID: 2010550-007 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	690	49		mg/Kg	10	10/12/2020 11:06:56 PM	55768
Surr: BFB	111	70-130		%Rec	10	10/12/2020 11:06:56 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**	
Diesel Range Organics (DRO)	6400	200		mg/Kg	20	10/13/2020 12:31:16 PM	55773
Motor Oil Range Organics (MRO)	3100	990		mg/Kg	20	10/13/2020 12:31:16 PM	55773
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 12:31:16 PM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.25	D	mg/Kg	10	10/12/2020 11:06:56 PM	55768
Toluene	5.7	0.49	D	mg/Kg	10	10/12/2020 11:06:56 PM	55768
Ethylbenzene	2.9	0.49	D	mg/Kg	10	10/12/2020 11:06:56 PM	55768
Xylenes, Total	15	0.99	D	mg/Kg	10	10/12/2020 11:06:56 PM	55768
Surr: 1,2-Dichloroethane-d4	96.9	70-130	D	%Rec	10	10/12/2020 11:06:56 PM	55768
Surr: 4-Bromofluorobenzene	61.3	70-130	SD	%Rec	10	10/12/2020 11:06:56 PM	55768
Surr: Dibromofluoromethane	112	70-130	D	%Rec	10	10/12/2020 11:06:56 PM	55768
Surr: Toluene-d8	96.7	70-130	D	%Rec	10	10/12/2020 11:06:56 PM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL4-2'
Project: Green Frog
Collection Date: 10/8/2020 10:40:00 AM
Lab ID: 2010550-008 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	2100	50		mg/Kg	10	10/12/2020 11:35:30 PM	55768
Surr: BFB	112	70-130		%Rec	10	10/12/2020 11:35:30 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**	
Diesel Range Organics (DRO)	8300	190		mg/Kg	20	10/13/2020 12:54:53 PM	55773
Motor Oil Range Organics (MRO)	4300	960		mg/Kg	20	10/13/2020 12:54:53 PM	55773
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 12:54:53 PM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	1.2	0.25		mg/Kg	10	10/12/2020 11:35:30 PM	55768
Toluene	33	0.50		mg/Kg	10	10/12/2020 11:35:30 PM	55768
Ethylbenzene	21	0.50		mg/Kg	10	10/12/2020 11:35:30 PM	55768
Xylenes, Total	42	1.0		mg/Kg	10	10/12/2020 11:35:30 PM	55768
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	10	10/12/2020 11:35:30 PM	55768
Surr: 4-Bromofluorobenzene	63.8	70-130	S	%Rec	10	10/12/2020 11:35:30 PM	55768
Surr: Dibromofluoromethane	111	70-130		%Rec	10	10/12/2020 11:35:30 PM	55768
Surr: Toluene-d8	100	70-130		%Rec	10	10/12/2020 11:35:30 PM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL4-4'
Project: Green Frog
Collection Date: 10/8/2020 11:00:00 AM
Lab ID: 2010550-009 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	2300	240		mg/Kg	50	10/13/2020 2:55:31 PM	55768
Surr: BFB	103	70-130		%Rec	50	10/13/2020 2:55:31 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**	
Diesel Range Organics (DRO)	8400	200		mg/Kg	20	10/13/2020 1:18:29 PM	55773
Motor Oil Range Organics (MRO)	4400	980		mg/Kg	20	10/13/2020 1:18:29 PM	55773
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 1:18:29 PM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	0.25	0.12		mg/Kg	5	10/13/2020 12:03:58 AM	55768
Toluene	3.9	0.24		mg/Kg	5	10/13/2020 12:03:58 AM	55768
Ethylbenzene	ND	0.24		mg/Kg	5	10/13/2020 12:03:58 AM	55768
Xylenes, Total	77	4.9		mg/Kg	50	10/13/2020 2:55:31 PM	55768
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	5	10/13/2020 12:03:58 AM	55768
Surr: 4-Bromofluorobenzene	50.6	70-130	S	%Rec	5	10/13/2020 12:03:58 AM	55768
Surr: Dibromofluoromethane	111	70-130		%Rec	5	10/13/2020 12:03:58 AM	55768
Surr: Toluene-d8	96.3	70-130		%Rec	5	10/13/2020 12:03:58 AM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL7-0.5'
Project: Green Frog
Collection Date: 10/8/2020 11:10:00 AM
Lab ID: 2010550-010 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	3100	250		mg/Kg	50	10/13/2020 3:24:00 PM	55768
Surr: BFB	105	70-130		%Rec	50	10/13/2020 3:24:00 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**	
Diesel Range Organics (DRO)	12000	170		mg/Kg	20	10/13/2020 1:42:14 PM	55773
Motor Oil Range Organics (MRO)	6200	860		mg/Kg	20	10/13/2020 1:42:14 PM	55773
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 1:42:14 PM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	3.2	0.12		mg/Kg	5	10/13/2020 2:26:30 AM	55768
Toluene	73	2.5		mg/Kg	50	10/13/2020 3:24:00 PM	55768
Ethylbenzene	47	2.5		mg/Kg	50	10/13/2020 3:24:00 PM	55768
Xylenes, Total	120	4.9		mg/Kg	50	10/13/2020 3:24:00 PM	55768
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	5	10/13/2020 2:26:30 AM	55768
Surr: 4-Bromofluorobenzene	44.6	70-130	S	%Rec	5	10/13/2020 2:26:30 AM	55768
Surr: Dibromofluoromethane	110	70-130		%Rec	5	10/13/2020 2:26:30 AM	55768
Surr: Toluene-d8	101	70-130		%Rec	5	10/13/2020 2:26:30 AM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL7-2'
Project: Green Frog
Collection Date: 10/8/2020 11:20:00 AM
Lab ID: 2010550-011 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	4100	250		mg/Kg	50	10/13/2020 3:52:29 PM	55768
Surr: BFB	105	70-130		%Rec	50	10/13/2020 3:52:29 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**	
Diesel Range Organics (DRO)	10000	190		mg/Kg	20	10/13/2020 2:05:58 PM	55773
Motor Oil Range Organics (MRO)	5200	940		mg/Kg	20	10/13/2020 2:05:58 PM	55773
Surr: DNOP	0	30.4-154	S	%Rec	20	10/13/2020 2:05:58 PM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	6.3	0.12		mg/Kg	5	10/13/2020 2:55:02 AM	55768
Toluene	130	2.5		mg/Kg	50	10/13/2020 3:52:29 PM	55768
Ethylbenzene	70	2.5		mg/Kg	50	10/13/2020 3:52:29 PM	55768
Xylenes, Total	170	5.0		mg/Kg	50	10/13/2020 3:52:29 PM	55768
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	5	10/13/2020 2:55:02 AM	55768
Surr: 4-Bromofluorobenzene	46.5	70-130	S	%Rec	5	10/13/2020 2:55:02 AM	55768
Surr: Dibromofluoromethane	111	70-130		%Rec	5	10/13/2020 2:55:02 AM	55768
Surr: Toluene-d8	99.0	70-130		%Rec	5	10/13/2020 2:55:02 AM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2010550**
Date Reported: **10/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: SL7-4'
Project: Green Frog
Collection Date: 10/8/2020 11:30:00 AM
Lab ID: 2010550-012 **Matrix:** SOIL **Received Date:** 10/10/2020 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	8.5	4.9		mg/Kg	1	10/13/2020 4:20:57 PM	55768
Surr: BFB	103	70-130		%Rec	1	10/13/2020 4:20:57 PM	55768
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	270	8.8		mg/Kg	1	10/14/2020 9:42:05 AM	55773
Motor Oil Range Organics (MRO)	180	44		mg/Kg	1	10/14/2020 9:42:05 AM	55773
Surr: DNOP	119	30.4-154		%Rec	1	10/14/2020 9:42:05 AM	55773
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	10/13/2020 4:20:57 PM	55768
Toluene	0.049	0.049		mg/Kg	1	10/13/2020 4:20:57 PM	55768
Ethylbenzene	ND	0.049		mg/Kg	1	10/13/2020 4:20:57 PM	55768
Xylenes, Total	ND	0.098		mg/Kg	1	10/13/2020 4:20:57 PM	55768
Surr: 1,2-Dichloroethane-d4	86.1	70-130		%Rec	1	10/13/2020 4:20:57 PM	55768
Surr: 4-Bromofluorobenzene	78.0	70-130		%Rec	1	10/13/2020 4:20:57 PM	55768
Surr: Dibromofluoromethane	102	70-130		%Rec	1	10/13/2020 4:20:57 PM	55768
Surr: Toluene-d8	100	70-130		%Rec	1	10/13/2020 4:20:57 PM	55768

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**
15-Oct-20

Client: Marathon Oil Company
Project: Green Frog

Sample ID: **MB-55773**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **55773**	RunNo: **72584**							
Prep Date: **10/12/2020**	Analysis Date: **10/13/2020**	SeqNo: **2549889**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		87.8	30.4	154			

Sample ID: **LCS-55773**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **55773**	RunNo: **72584**							
Prep Date: **10/12/2020**	Analysis Date: **10/13/2020**	SeqNo: **2549890**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.6	70	130			
Surr: DNOP	4.1		5.000		81.1	30.4	154			

Sample ID: **2010550-006AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **SL2-4'**	Batch ID: **55773**	RunNo: **72584**							
Prep Date: **10/12/2020**	Analysis Date: **10/13/2020**	SeqNo: **2549892**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	68	9.5	47.48	27.39	85.8	15	184			
Surr: DNOP	4.7		4.748		99.9	30.4	154			

Sample ID: **2010550-006AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **SL2-4'**	Batch ID: **55773**	RunNo: **72584**							
Prep Date: **10/12/2020**	Analysis Date: **10/13/2020**	SeqNo: **2549893**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	85	9.4	47.21	27.39	122	15	184	21.9	23.9	
Surr: DNOP	5.4		4.721		114	30.4	154	0	0	

Sample ID: **LCS-55771**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **55771**	RunNo: **72618**							
Prep Date: **10/12/2020**	Analysis Date: **10/13/2020**	SeqNo: **2550264**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	87.0	70	130			
Surr: DNOP	4.7		5.000		94.3	30.4	154			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**
15-Oct-20

Client: Marathon Oil Company
Project: Green Frog

Sample ID: **MB-55771**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **55771**	RunNo: **72618**
Prep Date: **10/12/2020**	Analysis Date: **10/13/2020**	SeqNo: **2550265** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		106	30.4	154			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**

15-Oct-20

Client: Marathon Oil Company

Project: Green Frog

Sample ID: **mb-55766**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **55766**	RunNo: **72598**
Prep Date: **10/10/2020**	Analysis Date: **10/12/2020**	SeqNo: **2548929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.3	75.3	105			

Sample ID: **lcs-55766**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **55766**	RunNo: **72598**
Prep Date: **10/10/2020**	Analysis Date: **10/12/2020**	SeqNo: **2548930** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	85.0	72.5	106			
Surr: BFB	1100		1000		108	75.3	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**
15-Oct-20

Client: Marathon Oil Company
Project: Green Frog

Sample ID: **mb-55766**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **55766**	RunNo: **72598**							
Prep Date: **10/10/2020**	Analysis Date: **10/12/2020**	SeqNo: **2548956**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		100	80	120			

Sample ID: **LCS-55766**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **55766**	RunNo: **72598**							
Prep Date: **10/10/2020**	Analysis Date: **10/12/2020**	SeqNo: **2548957**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.5	80	120			
Toluene	0.92	0.050	1.000	0	91.5	80	120			
Ethylbenzene	0.94	0.050	1.000	0	93.6	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.5	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**
15-Oct-20

Client: Marathon Oil Company
Project: Green Frog

Sample ID: **lcs-55768** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **55768** RunNo: **72604**
Prep Date: **10/11/2020** Analysis Date: **10/12/2020** SeqNo: **2549302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	90.7	80	120			
Toluene	1.0	0.050	1.000	0	103	80	120			
Ethylbenzene	1.0	0.050	1.000	0	105	80	120			
Xylenes, Total	3.2	0.10	3.000	0	107	80	120			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		86.8	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			

Sample ID: **mb-55768** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **55768** RunNo: **72604**
Prep Date: **10/11/2020** Analysis Date: **10/12/2020** SeqNo: **2549303** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.2	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		108	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		103	70	130			
Surr: Toluene-d8	0.48		0.5000		96.0	70	130			

Sample ID: **2010550-006ams** SampType: **MS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **SL2-4'** Batch ID: **55768** RunNo: **72625**
Prep Date: **10/11/2020** Analysis Date: **10/13/2020** SeqNo: **2550603** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9921	0	93.2	71.1	115			
Toluene	1.1	0.050	0.9921	0.007676	109	79.6	132			
Ethylbenzene	1.1	0.050	0.9921	0	109	83.8	134			
Xylenes, Total	3.5	0.099	2.976	0	118	82.4	132			
Surr: 1,2-Dichloroethane-d4	0.46		0.4960		92.0	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.4960		94.9	70	130			
Surr: Dibromofluoromethane	0.52		0.4960		105	70	130			
Surr: Toluene-d8	0.50		0.4960		102	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**
15-Oct-20

Client: Marathon Oil Company
Project: Green Frog

Sample ID: **2010550-006amsd** SampType: **MSD4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **SL2-4'** Batch ID: **55768** RunNo: **72625**
Prep Date: **10/11/2020** Analysis Date: **10/13/2020** SeqNo: **2550604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.025	0.9823	0	85.4	71.1	115	9.72	20	
Toluene	0.94	0.049	0.9823	0.007676	94.7	79.6	132	15.3	20	
Ethylbenzene	0.95	0.049	0.9823	0	97.1	83.8	134	12.7	20	
Xylenes, Total	3.0	0.098	2.947	0	100	82.4	132	16.7	20	
Surr: 1,2-Dichloroethane-d4	0.44		0.4912		89.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.48		0.4912		97.6	70	130	0	0	
Surr: Dibromofluoromethane	0.49		0.4912		100	70	130	0	0	
Surr: Toluene-d8	0.46		0.4912		92.9	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2010550**
15-Oct-20

Client: Marathon Oil Company
Project: Green Frog

Sample ID: **lcs-55768**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **55768**	RunNo: **72604**
Prep Date: **10/11/2020**	Analysis Date: **10/12/2020**	SeqNo: **2549385** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.7	70	130			
Surr: BFB	500		500.0		101	70	130			

Sample ID: **mb-55768**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **55768**	RunNo: **72604**
Prep Date: **10/11/2020**	Analysis Date: **10/12/2020**	SeqNo: **2549386** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	530		500.0		106	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Marathon Oil Company Work Order Number: 2010550 RcptNo: 1

Received By: **Juan Rojas** 10/10/2020 7:30:00 AM

Completed By: **Juan Rojas** 10/10/2020 7:52:03 AM

Reviewed By: 10/10/2020

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: JR 10/10/20

Special Handling (if applicable)

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

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good				

Chain-of-Custody Record

Client: Marathon Oil

Mailing Address: on file.

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 day

Project Name: GreenFrog

Project #:

Project Manager: Melodie Sanjari

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.4-0.1=0.3 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2010550	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
10/8/20	9:00	Soil	SL1-0.5'	4oz.		-001	✓	✓								
	9:10		SL1-2'			-002	✓	✓								
	9:30		SL1-4'			-003	✓	✓								
	9:45		SL2-0.5			-004	✓	✓								
	10:00		SL2-2'			-005	✓	✓								
	10:15		SL2-4'			-006	✓	✓								
	10:30		SL4 0.5'			-007	✓	✓								
	10:40		SL4-2'			-008	✓	✓								
	11:00		SL4-4'			-009	✓	✓								
	11:10		SL7-0.5'			-010	✓	✓								
	11:20		SL7-2'			-011	✓	✓								
↓	11:30		SL7. 4'	↓		-012	✓	✓								

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
10/9/20	11:00				10/9/20	1100
10/9/20	1900		raiver		10/10/20	7:30

Remarks: email results to msanjari@marathonoil.com
Direct Bill to Marathon.
> CL.20.00917 <

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

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 101199

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 101199
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Deferral Request Approved. However, the depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old. Please redefine DTW prior to implementing 19.15.29.13 NMAC when completing P&A or reconstruction at site.	5/23/2022