

# **AE Order Number Banner**

#### **Report Description**

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.



App Number: pJK1424832159

3RP - 1011
ENTERPRISE PRODUCTS OPERATING, LLC

1/19/2017

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III

1000 Rio Brazos Road, Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

#### State of New Mexico **Energy Minerals and Natural** Resources

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

Form C-141 Revised April 3, 2017

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

NMOCD

FEB 2 3 2018 Release Notification and Corrective Action

			vereas.	e Notific				210	TRICT	111
						PERATO			Initial	Report Final Report
		nterprise F					omas Long			
		ve, Farmir		VI 87401			No. <b>505-599-</b>			
Facility Na	me <b>San J</b> ı	uan 29-9 #1				Facility Typ	oe Natural Ga	s Mete	ring Gat	hering Pipeline
Surface Ov	wner <b>BLM</b>			Mineral	Owner	BLM		Serial No. N/A    East West Line   County San Juan		No. N/A
					-	OF REI	EASE			
Unit Letter	Section	Township	Range	Feet from		outh	Feet from		Vest	
D	35	29N	9W	the	Line		the	Line		San Juan
				1140			1130			
		La	atitude_36	6.686347	Longitu	ude107.7	56354 NAD83			
				NA	TURE	OF RELI	EASE			
Type of Rele	ease Natura	al Gas and C	ondensate	)		Volume o	f Release <b>Unkn</b>	own	Volume	Recovered None
Source of R	elease Sus	pected Intern	nal Corrosi	on			Hour of Occurre	ence		
\\/a= l======	into Nintino	Cirram?					@ 1:00 p.m.	taav Na		
Was Immed	late Notice		☐ Yes	□ No ⊠	Not	II YES, 10	o whom?: Cour	tesy No	uncation	vanessa Fields - NMOCD
Required					100					
						<u> </u>				
By Whom? Was a Water										
vvas a vvale	ercourse Re		☐ Yes	⊠ No		11 TES, V	nume impacting	, ine vva	atercourse	j.
If a Waterco	urse was Ir	npacted, Des	scribe Full	y.*						
pipeline.										
							guiation on Febr Final." C-141.	uary 14	, 2018 du	e to volume of impacted
Subsuriace	Joil. A tillia	party correct	ave action	report will be	include	od with the 1	mai. 0-141.			
I horoby oor	tifu that the	information	aivon abov	o io truo and	oomnlo	to to the hor	et of my knowled	dae and	underete	nd that purpugat to NIMOCD
									C-141 rep	ort does not relieve the
operator or	i esponsibili	19 TOT COTTIPILE	) with a	arry other red	ciai, sta	ite, or local is			ACION	DIVISION
	</td <td>1</td> <td>1,</td> <td></td> <td></td> <td></td> <td>OIL CON</td> <td><u>QLIV</u></td> <td>ANGA</td> <td>BIVIDION</td>	1	1,				OIL CON	<u>QLIV</u>	ANGA	BIVIDION
Signature:	M	· True	4					$\wedge$	( )	( )
Duinted Non		"alda	•			Approved by	y Environmental	Specia	list:	165
Printed Nan	ie: Jon E. F	rieids						,		
Title: Directo	or, Environn	nental				Approval Da	ate: 2/23/15	( E	Expiration	Date:
E-mail Addr	ess: jefields	@eprod.con	n			Conditions	of Approval:			Attached \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Date: Z	15/2018	3	Dhon	e: (713) 381-	6684					
		ets If Neces		c. (713) 301-	0004	N 1	T IQNI	114	774	2
		-10 11 110000	, J			1/1	CCILV	740	10	. )

Operator/Responsible Party,

The OCD has received the form C-141 you provided on The information contained on that form has been entered into our incident database and remediation case number has been assigned. Please refer to this case number in all future correspondence.

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days on or before 3 250 ft. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.

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

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

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

- •Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.
- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

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

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

<u>District I</u> 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

Form C-141 Revised August 8, 2011

at to

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

				Sar	ita F	e, NIVI 87	505						
		F	Releas	e Notifica	atio	n and C	orrective	Actio	on				
					OF	PERATO	R	$\boxtimes$	Initial	Report		Final	Repor
Name of C	ompany:	Enterprise I	Field Serv	vices LLC		Contact: T	homas Long/F	Runell S	Seale				67
Address: 6	14 Reilly A	Ave, Farmin	gton, NN	1 87401		Telephone	No. 505-599-	2286					
Facility Na	me: Valen	cia Canyo	n #35 Pip	eline		Facility Ty	pe: Natural G	as Gat	hering F	Pipeline			141
Surface Ov	wner: Forr	est Service	•	Mineral O	wner	Forrest S	ervice		API N	o. <b>NA</b>		94.73	2011
<u>l lis</u> (-				LOCA	TIOI	N OE REI	LEASE						Office MAC.
Unit Letter K	Section 34	Township 28N	Range 4W	Feet from the 2161		(/South)	Feet from the 1921	East/ Line	West	County Rio Arrik	ра	er werter	a swarzakowe
[N c			La			_Longitud	e <u>-107.24122</u> EASE	_	,			Final	lepor
		ral Gas and N				Volume o	of Release: Unk			Recovered			
Source of R	elease: Inte	ernal corrosio	on				Hour of Occurre 7 @ 11:30 a.m.	ence:		d Hour of D 17 @ 11:30		ery:	141
Was Immed	liate Notice	Given?	s 🗌 No	Not Reg	uirad		o Whom? Court	esy Not				NMOC	
D. Minarro	Themas		5 🔲 140	Not Req	ulled	Data and	Harris India 40	2047 -4	0.05			- 1157	Office
By Whom? Was a Wate			☐ Yes	⊠ No			Hour July 12, 2 olume Impacting					liter or	
If a Waterco	urse was Ir	mpacted, Des	scribe Full	y.*				,				- 1	
#35 pipeline	. The pipeli	ine was isola	ted, depre	tion: On June 2 essurized, locke npleted on July	ed out	and tagged	se responded to out. An area ap	a natura proxima	al gas rel itely 12 fe	ease on the eet long by 1	Valer 10 feet	ncia Ca t wide v	inyon was
samples for contaminant regulation d investigation I hereby cer rules and re which may e relieve the o ground water	laboratory of the concentration to the von report will tify that the gulations alternation of lear, surface were concentration to the concentration of the c	analysis on cations exceed blume of impose included information all operators a bublic health caliability should water, human	July 12, 20 NMOCD (acted soil.) with the "Figiven aboute require or the environment of their open in health or	of 17. Laboratory remediation standard Additional delificational delification (C-141.) we is true and odd to report and ronment. The relations have fact the environme	y resultandard neation completion for file acceptailed to ent. In	Its for collections. Enterprise nactivities where to the best certain relectance of a Collection, NI addition, NI addition, NI	al contractor ass ted soil samples se determined the were requested st of my knowled ase notifications -141 report by the investigate and MOCD acceptar aws and/or regu	were release by the N dge and per ne NMOd remediace of a	eceived of se was resulted to se was resulted to see was resulted	n July 19, 2 portable pe in July 24, 2 and that pur- rective active ded as "Fina amination th	2017 at r NMC 2017. suant ons for al Repo	nd indicated in the control of the c	party OCD ses es not
()	/	6	//				OIL CON		ATION	DIVISK	NC	1 4 2	yon
Signature:	IN	( the	4		-	Approved b	y Environmenta	l Specia	alist	Q	1	Late 14 .	Aig C
Printed Nam	ne: Jon E. F	ields					,		K	Men		<u></u>	) . Tipre
Title: Directo	or, Environn	nental				Approval Da	ate.8 313	97	Expiration	Date:		1	<u>te</u>
E-mail Addr	ess:jefields	@eprod.com	1			Conditions	of Approval:			Attached	4 I	i din	arty
Date: 7/	28/2017	1	Phon	ne: (713)381-66	884		-	>		Allacilet	X	7 AM - Str.	GD.

\* Attach Additional Sheets If Necessary

11

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 813120 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number has been assigned. Please refer to this case number in all future correspondence.

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

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

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

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

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

- •Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.
- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

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

Jim Griswold

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

Form C-141 Revised April 3, 2017

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

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

			Rele	ase Notific	ation	and Co	rrective A	ction	•				
						<b>OPERA</b>	ΓOR			al Report			
						Contact Thomas Long							
			ton, NM	87401					ring Din	olino			
		11 ZA-4					e Naturai Gas	Gattie					
Surface Own	Contact Thomas Long   Address 614 Reilly Ave, Farmington, NM 87401   Telephone No. 505-599-2286   Tel												
								-					
Unit Letter M					Norti	South Line		Eas	lest Dine				
		L	atitude_										
Type of Relea	ase Natural	I Gas and Na	tural Gas		UKE	Volume of Gas Loss	Release Unknow ; 5-10 BBLs	'n	Volume F	Recovered <b>None</b>			
Source of Rel	lease Intern	nal Corrosion				Date and H	lour of Occurrence	e					
Was Immedia	ate Notice (		Yes	No 🛭 Not Re	equired			sa Field	ds – NMO	CD; Whitney Smith - BLM			
					107								
						If YES, Vo	olume Impacting t	he Wate	rcourse.				
						047 [-4	da a ta abadalana	dia a a		and on the Lateral OA A			
pipeline. Th	e pipeline	was isolated	, depress	surized, locked o									
regulations al public health should their of or the environ	I operators or the envir operations hament. In a	are required to ronment. The lave failed to a addition, NMO	report an acceptance dequately CD accep	d/or file certain re e of a C-141 repo investigate and re	elease no ort by the emediate	otifications as NMOCD m contaminati	nd perform correct arked as "Final Roon that pose a three	tive acti eport" deat to gr	ons for rele oes not reli ound water	eases which may endanger ieve the operator of liability r, surface water, human health			
	//	1	/,				OIL CON	SERV	ATION	DIVISION			
Signature:	/w	1. fen	4			Approved by	Environmental S	pecialist	10				
Printed Name	: JON E. FI	ieias					010.10		Cu				
Title: Directo	or, Environ	mental			A	Approval Dat	e: Tallad	) 1	Expiration	Date:			
- 5/	ess: jefjelds	@eprod.com		(712) 201 6604	2	Conditions of	Approval: 80	SE	3021	Attached			
Attach Addit	tional Shee	ets If Necessa		(713) 381-6684		M	76717	33	791	10			

#### Fields, Vanessa, EMNRD

From:

Fields, Vanessa, EMNRD

Sent:

Wednesday, September 20, 2017 7:30 AM

To:

Long, Thomas; Smith, Cory, EMNRD; I1thomas@blm.gov

Cc:

Stone, Brian; Abiodun Adeloye

Subject:

RE: Lateral 2A-4 UL M Section 24-T27N-R10W; 36.55694,-107.8532

Good morning Tom,

Per our phone conversation the OCD grants a variance on sample SC-5. Enterprise may backfill as requested.

OCD approval does not relieve operator of approvals from other agencies.

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Long, Thomas [mailto:tjlong@eprod.com]
Sent: Tuesday, September 19, 2017 3:31 PM

To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>;

l1thomas@blm.gov

Cc: Stone, Brian <br/>
<br/>
Stone@eprod.com>

Subject: FW: Lateral 2A-4 UL M Section 24-T27N-R10W; 36.55694,-107.8532

Vanessa/Whitney,

Please find the attached site sketch and laboratory reports for the excavation at the Lateral 2A-4 release site. All sample results are below the site specific remediation standard, except for SC-5 (south wall). The sample result for SC-5 is 13 ppm DRO and 110 ppm MRO for a sum of 123 ppm TPH. Enterprise requests to backfill the excavation with this result. If you have any questions or concerns, please call or email.

Sincerely,

Tom Long 505-599-2286 (office) 505-215-4727 (Cell) tjlong@eprod.com From: Long, Thomas

Sent: Wednesday, August 23, 2017 9:31 AM

To: Fields, Vanessa, EMNRD (Vanessa.Fields@state.nm.us); l1thomas@blm.gov; 'Smith, Cory, EMNRD

(Cory.Smith@state.nm.us)'

Cc: Stone, Brian

**Subject:** Lateral 2A-4 UL M Section 24-T27N-R10W; 36.55694,-107.8532

Vanessa/Whitney,

This email is to notify you that Enterprise had a release of natural gas and condensate on the Lateral 2A-4 pipeline on August 21, 2017 at approximately 9:30 A.M. No water ways were affected. An area of approximately 120 feet in diameter was misted by condensate. The pipeline has been isolated, depressurized, locked out and tagged out. The release site is located at UL M Section 24-T27N-R10W; 36.55694,-107.8532. I will keep you informed as to when the repairs and remediation is scheduled. If you have any questions, please call or email.

Sincerely,

Thomas J. Long
Senior Environmental Scientist
Enterprise Products Company
614 Reilly Ave.
Farmington, New Mexico 87401
505-599-2286 (office)
505-215-4727 (Cell)
tjlong@eprod.com



This message (including any attachments) is confidential and intended for a specific individual and purpose. If you are not the intended recipient, please notify the sender immediately and delete this message.

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 811 S. First St., Artesia, NM 88210 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

Form C-141 Revised April 3, 2017

Oil Conservation Division 1220 South St. Francis Dr.

Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC. CR ROC 10124/1

			Relea	se Notific	ation	and C	orrective	Acti	on		- 1	r, (-
						ERATOR				Report	$\boxtimes$	Final Report
				ervices LLC			homas Long				. J. L.	
		Ave, Farmi					No. 505-599				1	-
Facility Na	me Jicar	illa Apache	HIrac	t 2 #2		-acility Typ	e Natural Ga	as Gat	nering P	peline		
Surface Ov	vner <b>Jica</b>	rilla Apach	e Tribe	Mineral (	Owner	BIA			API No	. NA		
				LOCA		OF REL	EASE					
Unit Letter B	Section 9	Township 23N	Range 2W	Feet from the 950	North/ Line	South	Feet from the 1500	East/ Line	Vest	County Rio Arriba		
		Latitude	36.2	4780	Long	jitude	-107.04819	)	NAI	083		
				ΝΔΤ	URF	OF RELI	EASE					
Type of Rele	ease Natu	ıral Gas and	Natural	Gas Liquids	OIL	Volume of	Release 1.0 MF		Volume	Recovered	Non	е
Source of R	elease Int	ternal corros	sion				Hour of Occurre @ 12:45 p.m.	ence		Hour of Dis @ 12:45 p.		ery
Was Immed	iate Notice					If YES, To				1.14000		
			Yes L	No Not R	equired		Fields-NMOCD -JAO&G Kurt			val-JAU&G	, Jas	ion
By Whom?	Runell Se	ale					Hour August 1			m.		-1-7-
Was a Wate	rcourse R	eached?		N N		If YES, Vo	olume Impacting	g the W	atercourse	).		
	14.3-1			s ⊠ No								
If a Waterco	urse was	mpacted, De	escribe F	ully.*								45.04
Describe Co	was of Dro	blom and Da	modial /	ation Takon *O	n Augus	+ 1 2017 4	urina a ninalina	notrol	a laak wa	a ranartad a	n the	licarilla
				Action Taken.*O mployee was di								
out and tage			,					-				
Doscribo Ar	na Afforto	d and Clean	un Action	Taken.* Repai	re and r	omodiation	wore complete	d on Au	quet 22 2	017 The c	onto	minant mass
				The final excav								
ranging fron	n 4-7 feet	deep. Approx	kimately	108 cubic yards	of hydr	ocarbon im	pacted soil was	excava	ted and tr	ansported to	Nev	
Conservatio	n Division	approved lar	nd farm fa	acility. A third pa	arty corr	rective actio	n report will be	include	d with the	"Final." C-14	11.	
				pove is true and								
				ired to report a vironment. The								
				perations have								
ground water	er, surface	water, hum	an health	or the environ	ment.	In addition,	NMOCD accep	otance				
operator of i	responsibil	ity for compli	ance with	n any other fede	eral, stat	e, or local la			/ATION	DIVISIO	NI	10,000,000
	1	) F	111				OIL CON	SERI	ATION	DIVISIO	IN	- 1
Signature:	197	NIM	le					1	X	1		
Printed Nam	e: Jon E.	Fields			1	Approved by	Environmental	l Specia	alist:	1	_	
Title: Direc		The second				Approval Da	te: 17100	17	Expiration	Date:		
							111	N L	LAPITALIOTI	Date.		
E-mail Addr	ess: jefiel	ds@eprod.c	om		(	Conditions of	of Approval:			Attached		
Date: 10-7	19-20	17	Phone:	713-381-6684			_					
		ote If Noon							· · · · · · · · · · · · · · · · · · ·			

Attach Additional Sheets if Necessary

MF1726329571

October 19, 2017

OCT 2 4 2017

EMNRD Oil Conservation Division Aztec District III Office Attention: Vanessa Fields 1000 Rio Brazos Road Aztec, New Mexico 87410 Return Receipt Requested 7015 1520 0002 7267 1547

Jicarilla Apache Tribe
Environmental Protection Office
Attention: Cordell Te Cube and Hobson Sandoval
P.O. Box 507
Dulce, New Mexico 87528-0507

Return Receipt Requested 7015 1520 0002 7267 1554

RE: Jicarilla Apache H Tract 2 #2 Rio Arriba County

Ms. Fields, Mr. Te Cube and Mr. Sandoval:

Attached are the final Release Notification and Corrective Action Report (C-141) along with the Release Report as prepared by our consultant, Rule Engineering, LLC. Should have questions or need additional information, please contact Thomas Long at 505-599-2286 or me directly at 713-381-6595.

Yours truly,

Shiver J. Nolan

Sr. Compliance Administrator

enclosures

# Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release Report

UL P, Sec 4, T23N, R2W Rio Arriba County, New Mexico

November 18, 2017

Prepared for: Enterprise Field Services, LLC 614 Reilly Avenue Farmington, New Mexico 87401

Prepared by:
Rule Engineering, LLC
501 Airport Drive, Suite 205
Farmington, New Mexico 87401



# Enterprise Field Services, LLC Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release Report

Prepared for:

Enterprise Field Services, LLC 614 Reilly Avenue Farmington, New Mexico 87401

Prepared by:

Rule Engineering, LLC 501 Airport Drive, Suite 205 Farmington, New Mexico 87401

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

Reviewed by:

Russell Knight, PG, Principal Hydrogeologist

November 18, 2017

# **Table of Contents**

1.0	Introduction	. 1
2.0	Release Summary	. 1
	JANEPO/NMOCD Site Ranking	
4.0	Field Activities	. 2
5.0	Soil Sampling	. 2
	Laboratory Analytical Results	
7.0	Conclusions	. 3
8.0	Closure and Limitations	. 4

### **Tables**

Table 1 JANEPO/NMOCD Site Ranking Determination
Table 2 Soil Sample Results –Benzene, Total BTEX, and TPH

# **Figures**

Figure 1 Topographic Map Figure 2 Aerial Site Map

# **Appendices**

Appendix A Executed C-138 Soil Waste Acceptance Form

Appendix B Photograph Log

Appendix C Analytical Laboratory Reports

#### 1.0 Introduction

The Enterprise Field Services, LLC (Enterprise) Jicarilla Apache H Tract 2 #2 well tie pipeline release site is located in Unit Letter P, Section 4, Township 23 North, Range 2 West, in Rio Arriba County, New Mexico, on the Jicarilla Apache Nation. The release resulted from corrosion of pipeline discovered on August 1, 2017.

On August 14, 2017, Enterprise initiated repair activities at the location. Site work the installation of approximately 75 feet of new pipeline and excavation of hydrocarbon impacted soils.

A topographic map of the location reproduced from the United States Geological Society quadrangle map of the area is included as Figure 1 and an aerial site map is included as Figure 2.

# 2.0 Release Summary

Site Name	Jicarilla Apache H Tr	act 2 #2 Well Tie Pip	eline Release						
Site Location Description		Unit Letter P, Section 4, Township 23 North, Range 2 West (N36.24778, W107.04833)							
Land Jurisdiction	Jicarilla Apache Nati	on							
Discovery Date	August 1, 2017	August 1, 2017							
Release Source	Corrosion of pipeline								
Substance(s) Released	Natural Gas and Pipeline Liquids								
JANEPO/NMOCD Site Rank	30								
Distance to Surface Water	An unnamed, ephemeral wash is located approximately 260 feet northwest of the release location which drains to Cañada Larga								
Estimated Depth to Groundwater	Less than 50 feet below grade surface (bgs)	Distance to Water Well or Spring	Greater than 1,000 feet						
Contractor	West States Energy Contractors (West States)	Remedial Excavation Dimensions	Approximately 100 feet by 8 to 12 feet and 4 to 7 feet in depth						
Volume of Soil Transported for Disposal/Remediation	Approximately 108 cubic yards	Disposal Facility	Envirotech Landfarm (Permit #NM- 01-0011)						



# 3.0 JANEPO/NMOCD Site Ranking

The release site is located on the Jicarilla Apache Nation which utilizes the recommendations from the New Mexico Oil Conservation Division (NMOCD) for release response guidelines with oversight provided by the Jicarilla Apache Nation Environmental Protection Office (JANEPO). In accordance with the NMOCD Guidelines for Remediation of Leaks, Spills, and Releases (August 1993), this site was assigned a ranking score of 30 (Table 1).

Depth to groundwater at the site is estimated to be less than 50 feet below grade surface (bgs) based on the elevation differential between the release location and Cañada Larga along with anticipated drainage area geology.

A review was completed of the New Mexico Office of the State Engineer online New Mexico Water Rights Reporting System and no water wells were identified within a 1,000 foot radius of the location. No water wells were observed within a 1,000 foot radius of the location during a visual inspection.

An unnamed, ephemeral wash traverses the area approximately 260 feet northwest of the release location and drains to Cañada Larga.

Based on the ranking score of 30, action levels for remediated soils at the site are as follows: 10 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 100 mg/kg total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), diesel range organics (DRO), and mineral oil range organics (MRO).

## 4.0 Field Activities

On August 14, 2017, Enterprise initiated repair activities at the location. West States provided heavy equipment operation and repair support. Rule Engineering, LLC (Rule) personnel provided excavation guidance and collected confirmation samples from the resultant excavation. The repair included the installation of approximately 75 feet of new pipeline and excavation of the hydrocarbon impacted soils. Approximately 108 cubic yards of hydrocarbon impacted soils were removed from an area of excavation measuring approximately 100 feet by 8 to 12 feet and 4 to 7 feet in depth.

A depiction of the excavation with sample locations and summary of analytical results is included as Figure 2. A copy of the executed C-138 Solid Waste Acceptance Form is included in Appendix A and a photograph log is included in Appendix B.

# 5.0 Soil Sampling

Rule collected confirmation soil samples (SC-1 through SC-14) from the sidewalls and base of the excavation on August 17, 2017. Based on laboratory results indicating TPH



concentrations in excess of JANEPO action levels, additional excavation was performed on the portion of the sidewall and base associated with samples SC-3 and SC-9. Confirmation samples SC-15 and SC-16 were collected subsequent to the extension of the excavation on August 22, 2017. Each confirmation soil sample is a representative composite comprised of five equivalent aliquots of soil collected from the sampled area.

Soil samples collected for laboratory analysis were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. All samples were analyzed for BTEX per U.S. Environmental Protection Agency (USEPA) Method 8021B and TPH (GRO/DRO) per USEPA 8015M/D. Laboratory analytical results are summarized in Table 2, and the analytical laboratory reports are included in Appendix C.

A portion of each sample was field screened for VOCs and selected samples were also field analyzed for TPH. Field screening for VOC vapors was conducted with a MiniRAE 3000 photoionization detector (PID). Prior to field screening, the PID was calibrated with 100 parts per million (ppm) isobutylene gas. Field analysis for TPH was conducted for selected samples per United States Environmental Protection Agency (USEPA) Method 418.1, utilizing a Buck Scientific HC-404 total hydrocarbon analyzer. Prior to field analysis, the analyzer was calibrated following the manufacturer's procedure which includes calculation of a calibration curve using known concentration standards. Rule's practical quantitation limit for USEPA Method 418.1 is 20 mg/kg.

# 6.0 Laboratory Analytical Results

Laboratory analytical results for confirmation samples SC-3 and SC-9 reported TPH concentrations 160 mg/kg and 350 mg/kg, which exceed the JANEPO action levels for a site rank of 30. The portions of the excavation represented by these samples were removed by further excavation and confirmation samples SC-15 and SC-16 were collected from the expanded excavation extents.

Laboratory analytical results for confirmation samples SC-1 through SC-16 (excluding SC-3 and SC-9) reported benzene concentrations below the laboratory reporting limits, which are below the JANEPO action level of 10 mg/kg. Laboratory analytical results reported total BTEX concentrations ranged from below laboratory reporting limits to 5.5 mg/kg for confirmation samples SC-1 through SC-16 (excluding SC-3 and SC-9), which are below the JANEPO action level of 50 mg/kg. Laboratory analytical results reported TPH concentrations ranging from below laboratory reporting limits to 36 mg/kg for confirmation samples SC-1 through SC-16 (excluding SC-3 and SC-9), which are below JANEPO action level of 100 mg/kg for a site rank of 30. Laboratory analytical results are summarized in Table 2 and the laboratory analytical reports are included in Appendix C.

## 7.0 Conclusions

The Enterprise Jicarilla Apache H Tract 2 #2 well tie pipeline release site is located in Unit Letter P, Section 4, Township 23 North, Range 3 West, in Rio Arriba County, New Mexico,



on the Jicarilla Apache Nation. The release resulted from corrosion of the pipeline discovered on August 1, 2017. Subsequent to repair, approximately 108 cubic yards of hydrocarbon impacted soils were excavated and transported to the Envirotech Landfarm. Confirmation samples were collected from the sidewalls and base of the resultant excavation which measured approximately 100 feet by 8 feet by 12 feet and 4 to 7 feet in depth. Laboratory analytical results for the soil confirmation samples (SC-1 through SC-16, excluding samples SC-3 and SC-9 removed by excavation) reported benzene, total BTEX, and TPH concentrations below the applicable JANEPO action levels.

Based on laboratory analytical results of the confirmation soil samples, no further work is recommended.

#### 8.0 Closure and Limitations

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



**Tables** 



Table 1. JANEPO/NMOCD Site Ranking Determination Enterprise Field Services, LLC Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release Rio Arriba County, New Mexico

Ranking Criteria	Ranking	Site-Based	Basis for Determination	Data	
	Score	Ranking Score		Sources	
Depth to Groundwater			,		
<50 feet	20			NMOCD Online database,	
50-99 feet	10	20	Elevation differential information between the location and Canada Larga derived from the topographic map.	Five Lakes Canyon NE Quadrangle, Google Earth,	
>100 feet	0			and Visual Inspection	
Wellhead Protection Area					
<1,000 feet from a water source, or <200 feet from private domestic water source	20 (Yes)	0	No water source or recorded water wells within 1,000	NMOSE NMWRRS, Five Lakes Canyon NE	
moni private demestie water source	0 (No)		foot radius of location.	Quadrangle, Google Earth and Visual Inspection	
Distance to Surface Water Body					
<200 horizontal feet	20		An unnamed, ephemeral wash is located approximately	Five Lakes Canyon NE	
200 to 1,000 horizontal feet	10	10	260 feet to the northwest which drains to Canada	Quadrangle, Google Earth,	
>1,000 horizontal feet	0		Larga.	and Visual Inspection	
			1		
Site Based Total Rank	ing Score	30			

Table 2. Soil Sampling Results - Benzene, Total BTEX, and TPH Enterprise Field Services, LLC Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylben- zene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)
JAI	NEPO/NMOC	D Action Levels*	10	NE	NE	NE	50		100**	
				Excavation	Confirmation	Samples	1 5 5			
SC-1	8/17/2017	0 to 4	<0.018	<0.036	<0.036	<0.073	ND	<3.6	<10	<51
SC-2	8/17/2017	4	<0.017	0.13	0.14	1.1	1.4	9.8	<9.3	<47
SC-4	8/17/2017	3	<0.091	<0.18	<0.18	< 0.36	ND	<18	<9.5	<47
SC-5	8/17/2017	3	<0.016	<0.032	<0.032	< 0.063	ND	<3.2	<9.6	<48
SC-6	8/17/2017	0 to 3	<0.016	<0.031	<0.031	< 0.063	ND	<3.1	<9.6	<48
SC-7	8/17/2017	0 to 3	<0.017	<0.033	<0.033	<0.066	ND	<3.3	<9.7	<48
SC-8	8/17/2017	0 to 4	<0.087	<0.17	0.20	1.4	1.6	<17	<9.7	<48
SC-10	8/17/2017	0 to 4	<0.019	<0.038	<0.038	<0.076	ND	<3.8	<9.7	<49
SC-11	8/17/2017	0 to 4	<0.021	<0.042	<0.042	0.10	0.10	<4.2	<9.7	<48
SC-12	8/17/2017	0 to 4	<0.11	0.25	0.26	1.9	2.4	<21	11	<49
SC-13	8/17/2017	0 to 4	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.9	<50
SC-14	8/17/2017	0 to 3	<0.042	<0.082	0.14	1.0	1.1	11	16	<49
SC-15	8/22/2017	0 to 7	<0.097	0.4	0.58	4.5	5.5	36	<9.4	<47
SC-16	8/22/2017	4 to 7	<0.10	<0.21	<0.21	0.65	0.65	<21	<9.2	<46
				Samples RE	MOVED by E	xcavation				
SC-3	8/17/2017	4	0.26	4.2	2.7	20	27	160	<9.2	<46
SC-9	8/17/2017	0 to 4	0.79	7.3	4.1	29	41	330	20	<48

Notes: ft bgs - feet below grade surface

BTEX - benzene, toluene, ethylbenzene, and xylenes

mg/kg - milligrams per kilogram

TPH - total petroleum hydrocarbons

NE - not-established

GRO - gasoline range organics

JANEPO - Jicarilla Apache Nation Environmental Protection Office

DRO - diesel range organics

NMOCD - New Mexico Oil Conservation Division

MRO - mineral oil range organics

\*Based on the NMOCD Guidelines for Remediation of Leaks, Spills and Releases (August 1993)

<sup>\*\*</sup>Based on a site ranking of 30.

Figures



# Appendix A

Executed C-138 Solid Waste Acceptance Form



<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 District II
1301 W. Grand Avenue, Artesia, NM 88210
District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV

State of New Mexico Energy Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr.

97057-0856

Form C-138 Revised 08/01/11

\*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

1220 S. St. Francis Dr., Santa Fe, NM 87505 Santa Fe, NM 87505
REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE
<ol> <li>Generator Name and Address: Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401</li> </ol>
2. Originating Site: Jicarilla Apache H Tract 2 #2
3. Location of Material (Street Address, City, State or ULSTR): UL B Section 9 Township 23 North Range 2 West; 36.24780, -107.04819  August 2017
4. Source and Description of Waste: Source: Natural Gas Gathering Line
Description: Hydrocarbon impacted soil associated with remediation activities of a leaking natural gas gathering pipeline.  Estimated Volume _50 (yd³) bbls Known Volume (to be entered by the operator at the end of the haul)
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS
I, Thomas Long, representative or authorized agent for Enterprise Products Operating do hereby  Generator Signature  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 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.  **Operator Use Only: Waste Acceptance Frequency   Monthly   Weekly   Per Load**
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 in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)
☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS
I, Thomas Long 8-22-17, representative for Enterprise Products Operating authorizes Envirotech, Inc. to complete Generator Signature the required testing/sign the Generator Waste Testing Certification.  I,
5. Transporter: West States Energy Contractors or subcontractors , HBL
OCD Permitted Surface Waste Management Facility  Name and Facility Permit #: Envirotech Inc. Soil Remediation Facility * Permit #: NM 01-0011  Address of Facility: Hilltop, NM  Method of Treatment and/or Disposal:  Evaporation Injection Treating Plant Landfarm Landfill Other
Waste Acceptance Status:
■ APPROVED ■ DENIED (Must Be Maintained As Permanent Record)
PRINT NAME: Grantice TITLE: Environmental Manager DATE: 8/22/17 SIGNATURE: TELEPHONE NO.:

505-632-0615

Surface Waste Management Facility Authorized Agent

Appendix B

Photograph Log



#### Photograph Log Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release Enterprise Field Services, LLC

#### Photograph #1

Client: Enterprise

Site Name:

Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release

Date Photo Taken: August 22, 2017

Release Location: N36.24778, W107.04833

P-4-23N-2W Rio Arriba County, NM

Photo Taken by: Heather Woods



Description: Facing southwest, view of the final excavation extents at the north end of the excavation.

#### Photograph #2

Client: Enterprise

Site Name:

Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release

Date Photo Taken: August 22, 2017

Release Location: N36.24778, W107.04833

P-4-23N-2W Rio Arriba County, NM

Photo Taken by: Heather Woods



Description: Facing southeast, view of the final excavation extents.

# Rule

#### Photograph Log Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release Enterprise Field Services, LLC

Photograph #3

Client: Enterprise

Site Name:

Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release

Date Photo Taken: August 22, 2017

Release Location: N36.24778, W107.04833

P-4-23N-2W Rio Arriba County, NM

Photo Taken by: Heather Woods



Description: Facing east, view of the expanded area of the final excavation.

# Appendix C Analytical Laboratory Reports





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

August 21, 2017

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

**FAX** 

RE: Jicarilla Apache H Tract 2 #2

OrderNo.: 1708B15

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 14 sample(s) on 8/18/2017 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 <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> 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 #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: Rule Engineering LLC** 

Client Sample ID: SC-1

Project:

Jicarilla Apache H Tract 2 #2

Collection Date: 8/17/2017 6:00:00 PM

Lab ID:

1708B15-001

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	S			Analys	t: <b>TOM</b>
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/18/2017 9:53:44 AM	33442
Motor Oil Range Organics (MRO)	ND	51	mg/Kg	1	8/18/2017 9:53:44 AM	33442
Surr: DNOP	93.7	70-130	%Rec	1	8/18/2017 9:53:44 AM	33442
EPA METHOD 8015D: GASOLINE RANG	GE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	3.6	mg/Kg	1	8/18/2017 10:24:23 AM	1 33428
Surr: BFB	81.6	54-150	%Rec	1	8/18/2017 10:24:23 AM	1 33428
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.018	mg/Kg	1	8/18/2017 10:24:23 AM	1 33428
Toluene	ND	0.036	mg/Kg	1	8/18/2017 10:24:23 AM	1 33428
Ethylbenzene	ND	0.036	mg/Kg	1	8/18/2017 10:24:23 AM	1 33428
Xylenes, Total	ND	0.073	mg/Kg	1	8/18/2017 10:24:23 AM	A 33428
Surr: 4-Bromofluorobenzene	111	66.6-132	%Rec	1	8/18/2017 10:24:23 AM	A 33428

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

- 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 Page 1 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Jicarilla Apache H Tract 2 #2

Lab ID: 17081

**Project:** 

1708B15-002

Client Sample ID: SC-2

**Collection Date:** 8/17/2017 6:05:00 PM

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANICS	3			Analys	t: TOM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	8/18/2017 10:15:46 AM	1 33442
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/18/2017 10:15:46 AM	33442
Surr: DNOP	92.2	70-130	%Rec	1	8/18/2017 10:15:46 AM	1 33442
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	9.8	3.4	mg/Kg	1	8/18/2017 1:12:04 PM	33428
Surr: BFB	150	54-150	%Rec	1	8/18/2017 1:12:04 PM	33428
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.017	mg/Kg	1	8/18/2017 1:12:04 PM	33428
Toluene	0.13	0.034	mg/Kg	1	8/18/2017 1:12:04 PM	33428
Ethylbenzene	0.14	0.034	mg/Kg	1	8/18/2017 1:12:04 PM	33428
Xylenes, Total	1.1	0.068	mg/Kg	1	8/18/2017 1:12:04 PM	33428
Surr: 4-Bromofluorobenzene	130	66.6-132	%Rec	1	8/18/2017 1:12:04 PM	33428

Matrix: SOIL

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

- 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 Page 2 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

#### Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Jicarilla Apache H Tract 2 #2

Lab ID: 1708B15-003

**Project:** 

Client Sample ID: SC-3

**Collection Date:** 8/17/2017 6:10:00 PM

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL (	Qual Un	nits	DF Date Analyzed Bate	ch
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS	S			Analyst: TON	M
Diesel Range Organics (DRO)	ND	9.2	m	g/Kg	1 8/18/2017 10:37:51 AM 3344	42
Motor Oil Range Organics (MRO)	ND	46	m	g/Kg	1 8/18/2017 10:37:51 AM 3344	42
Surr: DNOP	85.4	70-130	%	Rec	1 8/18/2017 10:37:51 AM 3344	42
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst: NSE	В
Gasoline Range Organics (GRO)	160	18	m	g/Kg	5 8/18/2017 11:12:18 AM 3342	28
Surr: BFB	238	54-150	S %	Rec	5 8/18/2017 11:12:18 AM 3342	28
EPA METHOD 8021B: VOLATILES					Analyst: NSE	В
Benzene	0.26	0.088	m	g/Kg	5 8/18/2017 11:12:18 AM 3342	28
Toluene	4.2	0.18	m	g/Kg	5 8/18/2017 11:12:18 AM 3342	28
Ethylbenzene	2.7	0.18	m	g/Kg	5 8/18/2017 11:12:18 AM 3342	28
Xylenes, Total	20	0.35	m	g/Kg	5 8/18/2017 11:12:18 AM 3342	28
Surr: 4-Bromofluorobenzene	159	66.6-132	S %	Rec	5 8/18/2017 11:12:18 AM 3342	28

Matrix: SOIL

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

- \* 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
- POL 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 Page 3 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Client Sample ID: SC-4

**Project:** Jicarilla Apache H Tract 2 #2

**Collection Date:** 8/17/2017 6:15:00 PM

Lab ID: 1708B15-004

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS					Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/18/2017 11:00:14 AM	33442
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/18/2017 11:00:14 AM	33442
Surr: DNOP	93.7	70-130	%Rec	1	8/18/2017 11:00:14 AM	33442
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	18	mg/Kg	5	8/18/2017 11:36:20 AM	33428
Surr: BFB	86.3	54-150	%Rec	5	8/18/2017 11:36:20 AM	33428
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.091	mg/Kg	5	8/18/2017 11:36:20 AM	33428
Toluene	ND	0.18	mg/Kg	5	8/18/2017 11:36:20 AM	33428
Ethylbenzene	ND	0.18	mg/Kg	5	8/18/2017 11:36:20 AM	33428
Xylenes, Total	ND	0.36	mg/Kg	5	8/18/2017 11:36:20 AM	33428
Surr: 4-Bromofluorobenzene	118	66.6-132	%Rec	5	8/18/2017 11:36:20 AM	33428

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

- 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 Page 4 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

LC Client Sample ID: SC-5

Project: Jicarilla Apache H Tract 2 #2

**Collection Date: 8/17/2017 6:20:00 PM** 

**Lab ID:** 1708B15-005

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGI	E ORGANIC	S			Analys	t: TOM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/18/2017 11:22:18 AM	1 33442
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/18/2017 11:22:18 AM	1 33442
Surr: DNOP	101	70-130	%Rec	1	8/18/2017 11:22:18 AM	1 33442
EPA METHOD 8015D: GASOLINE RANG	E				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	3.2	mg/Kg	1	8/18/2017 12:00:14 PM	1 33428
Surr: BFB	85.8	54-150	%Rec	1	8/18/2017 12:00:14 PM	1 33428
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.016	mg/Kg	1	8/18/2017 12:00:14 PM	1 33428
Toluene	ND	0.032	mg/Kg	1	8/18/2017 12:00:14 PM	1 33428
Ethylbenzene	ND	0.032	mg/Kg	1	8/18/2017 12:00:14 PM	1 33428
Xylenes, Total	ND	0.063	mg/Kg	1	8/18/2017 12:00:14 PM	1 33428
Surr: 4-Bromofluorobenzene	115	66.6-132	%Rec	1	8/18/2017 12:00:14 PM	M 33428

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

- 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 Page 5 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# Analytical Report Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Jicarilla Apache H Tract 2 #2

Project: Lab ID:

1708B15-006

Client Sample ID: SC-6

**Collection Date:** 8/17/2017 6:23:00 PM

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	SE ORGANICS	3			Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/18/2017 11:44:33 AM	33442
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/18/2017 11:44:33 AM	33442
Surr: DNOP	99.5	70-130	%Rec	1	8/18/2017 11:44:33 AM	33442
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	3.1	mg/Kg	1	8/18/2017 12:24:06 PM	33428
Surr: BFB	89.6	54-150	%Rec	1	8/18/2017 12:24:06 PM	33428
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.016	mg/Kg	1	8/18/2017 12:24:06 PM	33428
Toluene	ND	0.031	mg/Kg	1	8/18/2017 12:24:06 PM	33428
Ethylbenzene	ND	0.031	mg/Kg	1	8/18/2017 12:24:06 PM	33428
Xylenes, Total	ND	0.063	mg/Kg	1	8/18/2017 12:24:06 PM	33428
Surr: 4-Bromofluorobenzene	123	66.6-132	%Rec	1	8/18/2017 12:24:06 PM	33428

Matrix: SOIL

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

- 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 Page 6 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Client Sample ID: SC-7

**Project:** Jicarilla Apache H Tract 2 #2

Collection Date: 8/17/2017 6:26:00 PM

Lab ID: 1708B15-007

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	S			Analys	: TOM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/18/2017 12:06:37 PM	33442
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/18/2017 12:06:37 PM	33442
Surr: DNOP	98.2	70-130	%Rec	1	8/18/2017 12:06:37 PM	33442
EPA METHOD 8015D: GASOLINE RAN	GE				Analys	: NSB
Gasoline Range Organics (GRO)	ND	3.3	mg/Kg	1	8/18/2017 12:48:04 PM	1 33428
Surr: BFB	82.5	54-150	%Rec	1	8/18/2017 12:48:04 PM	33428
EPA METHOD 8021B: VOLATILES					Analys	: NSB
Benzene	ND	0.017	mg/Kg	1	8/18/2017 12:48:04 PM	1 33428
Toluene	ND	0.033	mg/Kg	1	8/18/2017 12:48:04 PM	33428
Ethylbenzene	ND	0.033	mg/Kg	1	8/18/2017 12:48:04 PM	33428
Xylenes, Total	ND	0.066	mg/Kg	1	8/18/2017 12:48:04 PM	33428
Surr: 4-Bromofluorobenzene	113	66.6-132	%Rec	1	8/18/2017 12:48:04 PM	33428

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

- \* 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 Page 7 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Jicarilla Apache H Tract 2 #2

**Lab ID:** 1708B15-008

**Project:** 

Client Sample ID: SC-8

Collection Date: 8/17/2017 6:30:00 PM

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANIC	S			Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/18/2017 12:28:48 PM	33442
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/18/2017 12:28:48 PM	33442
Surr: DNOP	93.7	70-130	%Rec	1	8/18/2017 12:28:48 PM	33442
EPA METHOD 8015D: GASOLINE RAI	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	17	mg/Kg	5	8/18/2017 10:04:31 AM	G45053
Surr: BFB	99.7	54-150	%Rec	5	8/18/2017 10:04:31 AM	G45053
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.087	mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Toluene	ND	0.17	mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Ethylbenzene	0.20	0.17	mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Xylenes, Total	1.4	0.35	mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Surr: 4-Bromofluorobenzene	105	66.6-132	%Rec	5	8/18/2017 10:04:31 AM	B45053

Matrix: SOIL

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

- 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 Page 8 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Client Sample ID: SC-9

Project: Jicarilla Apache H Tract 2 #2

**Collection Date: 8/17/2017 6:33:00 PM** 

**Lab ID:** 1708B15-009

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL (	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS	8				Analys	t: TOM
Diesel Range Organics (DRO)	20	9.5		mg/Kg	1	8/18/2017 12:51:09 PM	1 33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 12:51:09 PM	33442
Surr: DNOP	68.6	70-130	S	%Rec	1	8/18/2017 12:51:09 PM	1 33442
EPA METHOD 8015D: GASOLINE RANG	SE .					Analys	t: NSB
Gasoline Range Organics (GRO)	330	4.3		mg/Kg	1	8/18/2017 10:28:10 AM	1 G45053
Surr: BFB	1060	54-150	S	%Rec	1	8/18/2017 10:28:10 AM	1 G45053
EPA METHOD 8021B: VOLATILES						Analys	t: NSB
Benzene	0.79	0.022		mg/Kg	1	8/18/2017 10:28:10 AM	B45053
Toluene	7.3	0.86		mg/Kg	20	8/18/2017 1:14:09 PM	B45053
Ethylbenzene	4.1	0.043		mg/Kg	1	8/18/2017 10:28:10 AM	B45053
Xylenes, Total	29	1.7		mg/Kg	20	8/18/2017 1:14:09 PM	B45053
Surr: 4-Bromofluorobenzene	116	66.6-132		%Rec	20	8/18/2017 1:14:09 PM	B45053

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

- 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 Page 9 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
  - W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: Rule Engineering LLC** 

Client Sample ID: SC-10

Project:

Jicarilla Apache H Tract 2 #2

Collection Date: 8/17/2017 6:38:00 PM

Lab ID:

1708B15-010

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANICS	6			Analys	t: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/18/2017 11:47:06 AM	1 33442
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2017 11:47:06 AM	1 33442
Surr: DNOP	89.3	70-130	%Rec	1	8/18/2017 11:47:06 AM	1 33442
EPA METHOD 8015D: GASOLINE RAN	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	3.8	mg/Kg	1	8/18/2017 11:15:34 AM	M G45053
Surr: BFB	90.3	54-150	%Rec	1	8/18/2017 11:15:34 AM	M G45053
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.019	mg/Kg	1	8/18/2017 11:15:34 AM	M B45053
Toluene	ND	0.038	mg/Kg	1	8/18/2017 11:15:34 AM	M B45053
Ethylbenzene	ND	0.038	mg/Kg	1	8/18/2017 11:15:34 AM	M B45053
Xylenes, Total	ND	0.076	mg/Kg	1	8/18/2017 11:15:34 AM	B45053
Surr: 4-Bromofluorobenzene	102	66.6-132	%Rec	1	8/18/2017 11:15:34 AM	M B45053

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits Page 10 of 19
- P Sample pH Not In Range
- Reporting Detection Limit
- Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Jicarilla Apache H Tract 2 #2

**Lab ID:** 1708B15-011

**Project:** 

Client Sample ID: SC-11

Collection Date: 8/17/2017 6:40:00 PM

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANIC	S			Analys	t: TOM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/18/2017 11:19:01 Al	M 33442
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/18/2017 11:19:01 Al	M 33442
Surr: DNOP	84.0	70-130	%Rec	1	8/18/2017 11:19:01 Al	M 33442
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	4.2	mg/Kg	1	8/18/2017 11:39:20 Al	M G45053
Surr: BFB	94.7	54-150	%Rec	1	8/18/2017 11:39:20 Al	M G45053
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.021	mg/Kg	1	8/18/2017 11:39:20 Al	M B45053
Toluene	ND	0.042	mg/Kg	1	8/18/2017 11:39:20 Al	M B45053
Ethylbenzene	ND	0.042	mg/Kg	1	8/18/2017 11:39:20 Al	M B45053
Xylenes, Total	0.10	0.084	mg/Kg	1	8/18/2017 11:39:20 Al	M B45053
Surr: 4-Bromofluorobenzene	104	66.6-132	%Rec	1	8/18/2017 11:39:20 Al	M B45053

Matrix: SOIL

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

- 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 Page 11 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# Analytical Report Lab Order 1708B15

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/21/2017

**CLIENT: Rule Engineering LLC** 

Client Sample ID: SC-12

Project:

Jicarilla Apache H Tract 2 #2

**Lab ID:** 1708B15-012

rearma repuene 11 Tract 2 112

Matrix: SOIL

**Collection Date:** 8/17/2017 6:45:00 PM **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS	S			Analys	: TOM
Diesel Range Organics (DRO)	11	9.8	mg/Kg	1	8/18/2017 10:50:56 AM	33442
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2017 10:50:56 AM	33442
Surr: DNOP	83.0	70-130	%Rec	1	8/18/2017 10:50:56 AM	33442
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	: NSB
Gasoline Range Organics (GRO)	ND	21	mg/Kg	5	8/18/2017 12:03:01 PM	G45053
Surr: BFB	104	54-150	%Rec	5	8/18/2017 12:03:01 PM	G45053
EPA METHOD 8021B: VOLATILES					Analys	: NSB
Benzene	ND	0.11	mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Toluene	0.25	0.21	mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Ethylbenzene	0.26	0.21	mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Xylenes, Total	1.9	0.42	mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Surr: 4-Bromofluorobenzene	107	66.6-132	%Rec	5	8/18/2017 12:03:01 PM	B45053

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

- 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 Page 12 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

### Lab Order 1708B15

Date Reported: 8/21/2017

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

**Project:** Jicarilla Apache H Tract 2 #2

**Lab ID:** 1708B15-013

Client Sample ID: SC-13

Collection Date: 8/17/2017 6:50:00 PM

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	3			Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/18/2017 10:23:12 AM	33442
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/18/2017 10:23:12 AM	33442
Surr: DNOP	91.2	70-130	%Rec	1	8/18/2017 10:23:12 AM	33442
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/18/2017 12:26:45 PM	G45053
Surr: BFB	89.7	54-150	%Rec	1	8/18/2017 12:26:45 PM	G45053
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Toluene	ND	0.048	mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Ethylbenzene	ND	0.048	mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Xylenes, Total	ND	0.096	mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Surr: 4-Bromofluorobenzene	101	66.6-132	%Rec	1	8/18/2017 12:26:45 PM	B45053

Matrix: SOIL

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

- 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 Page 13 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit
  - W Sample container temperature is out of limit as specified

Lab Order 1708B15

Date Reported: 8/21/2017

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Client Sample ID: SC-14

Project:

Jicarilla Apache H Tract 2 #2

Collection Date: 8/17/2017 6:55:00 PM

Lab ID:

1708B15-014

Matrix: SOIL

Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANIC	S			Analys	t: TOM
Diesel Range Organics (DRO)	16	9.8	mg/Kg	1	8/18/2017 9:55:27 AM	33442
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2017 9:55:27 AM	33442
Surr: DNOP	90.6	70-130	%Rec	1	8/18/2017 9:55:27 AM	33442
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	: NSB
Gasoline Range Organics (GRO)	11	8.4	mg/Kg	2	8/18/2017 12:50:28 PM	G45053
Surr: BFB	115	54-150	%Rec	2	8/18/2017 12:50:28 PM	G45053
EPA METHOD 8021B: VOLATILES					Analys	: NSB
Benzene	ND	0.042	mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Toluene	ND	0.084	mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Ethylbenzene	0.14	0.084	mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Xylenes, Total	1.0	0.17	mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Surr: 4-Bromofluorobenzene	110	66.6-132	%Rec	2	8/18/2017 12:50:28 PM	B45053

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

- 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
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits Page 14 of 19 J
- Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

### Hall Environmental Analysis Laboratory, Inc.

WO#:

1708B15

21-Aug-17

Client:

Rule Engineering LLC

Project:

Jicarilla Apache H Tract 2 #2

Sample ID LCS-33442

SampType: LCS

TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID:

LCSS

Batch ID: 33442

RunNo: 45040

Prep Date:

Surr: DNOP

8/18/2017

Analysis Date: 8/18/2017 PQL

10

SeqNo: 1426068

93.6

87.4

Units: mg/Kg

Analyte Diesel Range Organics (DRO)

Result 47 4.4 SPK value SPK Ref Val 50.00 5.000

%REC LowLimit HighLimit

114

130

Qual

**RPDLimit** 

Sample ID MB-33442

SampType: MBLK

TestCode: EPA Method 8015M/D: Diesel Range Organics

%RPD

Client ID:

**PBS** 

Batch ID: 33442

RunNo: 45040

Prep Date:

8/18/2017

Analysis Date: 8/18/2017

SeqNo: 1426069

Units: mg/Kg

Analyte Diesel Range Organics (DRO)

PQL SPK value SPK Ref Val 10

50

%REC

LowLimit

HighLimit

%RPD **RPDLimit** Qual

Surr: DNOP

Motor Oil Range Organics (MRO)

ND ND 9.9

Result

Result

4.8

10.00

5.000

99.3

70

73.2

70

130

Sample ID LCS-33429

SampType: LCS

SPK value SPK Ref Val

TestCode: EPA Method 8015M/D: Diesel Range Organics RunNo: 45041

Client ID: Prep Date:

LCSS

8/17/2017

Batch ID: 33429 Analysis Date: 8/18/2017

SeqNo: 1426491

Units: %Rec **HighLimit** 

130

**RPDLimit** 

Qual

Analyte Surr: DNOP

SampType: MBLK

**PQL** 

%REC

95.0

TestCode: EPA Method 8015M/D: Diesel Range Organics

%RPD

Client ID:

PBS

Sample ID MB-33429

Batch ID: 33429

RunNo: 45041

Prep Date:

8/17/2017

Analysis Date: 8/18/2017

SeqNo: 1426492

LowLimit

LowLimit

70

Units: %Rec

**RPDLimit** Qual

Page 15 of 19

Analyte Surr: DNOP

9.0

Result

10.00

%REC 90.4

70

%RPD **HighLimit** 130

SPK value SPK Ref Val

H

Qualifiers:

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

Holding times for preparation or analysis exceeded

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

J

- Reporting Detection Limit RL
- W Sample container temperature is out of limit as specified

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1708B15

21-Aug-17

Client:

Rule Engineering LLC

Project:

Jicarilla Apache H Tract 2 #2

Result

ND

930

Sample ID RB

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID:

Batch ID: G45053

PQL

RunNo: 45053

Prep Date:

Analysis Date: 8/18/2017

SeqNo: 1427093 %REC

Units: mg/Kg

150

HighLimit

Qual

Analyte Gasoline Range Organics (GRO) Surr: BFB

5.0

929

SPK value SPK Ref Val

1000

54

%RPD **RPDLimit** 

Sample ID 2.5UG GRO LCS

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

%RPD

%RPD

Client ID: Prep Date:

LCSS

Batch ID: G45053 Analysis Date: 8/18/2017 RunNo: 45053 SeqNo: 1427094

100

Units: mg/Kg

Analyte Gasoline Range Organics (GRO) Result

Result

83

PQL

%REC

LowLimit

**RPDLimit** Qual

Surr: BFB

22 1000

SPK value SPK Ref Val 5.0 25.00

88.3

76.4

LowLimit

77.8

LowLimit

HighLimit 125

150

Sample ID 1708B15-008AMS

SampType: MS

TestCode: EPA Method 8015D: Gasoline Range

RunNo: 45053

Analyte

Client ID: SC-8 Prep Date:

Analysis Date: 8/18/2017

Batch ID: G45053

87.05

3482

SPK value SPK Ref Val %REC

12.88

12.88

1000

SeqNo: 1427095

80.4

109

Units: mg/Kg HighLimit

**RPDLimit** 

Qual

Gasoline Range Organics (GRO) Surr: BFB

3800 SampType: MSD

150 TestCode: EPA Method 8015D: Gasoline Range

128

Client ID:

Sample ID 1708B15-008AMSD SC-8

Batch ID: G45053

17

RunNo: 45053

Prep Date:

Analysis Date: 8/18/2017

SeqNo: 1427096

Units: mg/Kg

Analyte Gasoline Range Organics (GRO) Result PQL 90

SPK value SPK Ref Val 87.05

%RPD

**RPDLimit** Qual

Surr: BFB

3900

3482

%REC LowLimit 88.8

77.8

HighLimit 128

8.53 20 0

Sample ID MB-33428

**PBS** 

Batch ID: 33428

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range RunNo: 45051

82.2

RunNo: 45051

%REC

SeqNo: 1427173

112

150

150

Analyte

Client ID:

Prep Date: 8/17/2017 Analysis Date: 8/18/2017

SeqNo: 1427171

Units: mg/Kg

%RPD

%RPD

Gasoline Range Organics (GRO)

Surr: BFB

Client ID:

Prep Date:

Result

ND

820

PQL SPK value SPK Ref Val 5.0

SPK value SPK Ref Val

1000

%REC LowLimit HighLimit

**RPDLimit** 

**RPDLimit** 

Page 16 of 19

Qual

Sample ID LCS-33428

**LCSS** 

8/17/2017

SampType: LCS

Batch ID: 33428

Analysis Date: 8/18/2017

**PQL** 

TestCode: EPA Method 8015D: Gasoline Range

LowLimit

Units: mg/Kg

HighLimit

Qual

### **Oualifiers:**

H

Analyte

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- ND Not Detected at the Reporting Limit

- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- Sample container temperature is out of limit as specified

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

Holding times for preparation or analysis exceeded

RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1708B15

21-Aug-17

Client: Rule Engineering LLC

**Project:** Jicarilla Apache H Tract 2 #2

Sample ID LCS-33428 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 33428 RunNo: 45051

Prep Date: 8/17/2017 Analysis Date: 8/18/2017 SeqNo: 1427173 Units: mg/Kg

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result **PQL** LowLimit HighLimit Qual Gasoline Range Organics (GRO) 24 5.0 25.00 0 94.3 76.4 930 1000 Surr: BFB 93.4 54 150

### 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

Page 17 of 19

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1708B15

21-Aug-17

Client:

Rule Engineering LLC

Project:

Jicarilla Apache H Tract 2 #2

	Sample ID RB	SampType: MBLK			Test	Code: El	iles				
	Client ID: PBS Batch ID: B45053			R	tunNo: 4	5053					
i	Prep Date:	Analysis D	ate: 8/	18/2017	S	eqNo: 1	427124	Units: mg/K	g		
1	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
ŀ	Benzene	ND	0.025								
	Toluene	ND	0.050								
	Ethylbenzene	ND	0.050								
ı	Xylenes, Total	ND	0.10								
l.	Surr: 4-Bromofluorobenzene	1.0		1.000		103	66.6	132			

١	Sample ID 100NG BTEX LC	S Samp1	ype: LC	S	Test	TestCode: EPA Method 8021B: Volatiles					
l	Client ID: LCSS	Batc	Batch ID: <b>B45053</b>			tunNo: 4	5053				
	Prep Date:	te: Analysis Date: 8/18/2017				SeqNo: 1427125 Units: mg/Kg					
	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
ı	Benzene	0.93	0.025	1.000	0	92.7	80	120			
	Toluene	0.92	0.050	1.000	0	92.0	80	120			
1	Ethylbenzene	0.92	0.050	1.000	0	92.1	80	120			
	Xylenes, Total	2.8	0.10	3.000	0	93.3	80	120			
	Surr: 4-Bromofluorobenzene	1.1		1.000		106	66.6	132			

Sample ID	1708B15-010AMS	SampT	ype: MS	3	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID:	SC-10	Batch	ID: <b>B4</b>	5053	F	RunNo: 4	5053				
Prep Date:		Analysis D	ate: 8/	18/2017	S	SeqNo: 1	427126	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.71	0.019	0.7582	0	94.2	80.9	132			
Toluene		0.70	0.038	0.7582	0.01717	90.3	79.8	136			
Ethylbenzene		0.71	0.038	0.7582	0.01118	92.0	79.4	140			
Xylenes, Total		2.2	0.076	2.275	0.03334	94.2	78.5	142			
Surr: 4-Brom	nofluorobenzene	0.81		0.7582		107	66.6	132			

Sample ID 1708B15-010AMS	SD SampT	ype: MS	SD	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: SC-10	Batch	ID: <b>B4</b>	5053	F	RunNo: 4	5053				
Prep Date:	Analysis D	ate: 8/	18/2017	S	SeqNo: 1	427127	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	<b>RPDLimit</b>	Qual
Benzene	0.72	0.019	0.7582	0	94.5	80.9	132	0.338	20	
Toluene	0.70	0.038	0.7582	0.01717	89.9	79.8	136	0.446	20	
Ethylbenzene	0.70	0.038	0.7582	0.01118	90.4	79.4	140	1.72	20	
Xylenes, Total	2.2	0.076	2.275	0.03334	93.1	78.5	142	1.18	20	
Surr: 4-Bromofluorobenzene	0.80		0.7582		106	66.6	132	0	0	

### Qualifiers:

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

- E Value above quantitation range
- J Analyte detected below quantitation limits
- Page 18 of 19

- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1708B15

21-Aug-17

Client:

Rule Engineering LLC

Project:

Jicarilla Apache H Tract 2 #2

Sample ID MB-33428 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: **PBS** Batch ID: 33428 RunNo: 45051 Prep Date: 8/17/2017 Analysis Date: 8/18/2017 SeqNo: 1427275 Units: mg/Kg SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Result PQL **HighLimit** Analyte Qual Benzene ND 0.025 Toluene ND 0.050 Ethylbenzene ND 0.050 Xylenes, Total ND 0.10 1.000 114 66.6 132 Surr: 4-Bromofluorobenzene 1.1

Sample ID LCS-33428	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	ID: 334	428	F	RunNo: 4	5051				
Prep Date: 8/17/2017	Analysis D	ate: 8/	18/2017	S	SeqNo: 14	427276	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.0	0.050	1.000	0	103	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		116	66.6	132			

#### 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

Page 19 of 19

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified



### 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

RcptNo: 1 Client Name: **RULE ENGINEERING LL** Work Order Number: 1708B15 anne Sham Received By: **Anne Thorne** 8/18/2017 7:00:00 AM anne Am 8/18/2017 7:46:04 AM Completed By: pr 8/18/17 Reviewed By: Chain of Custody Not Present 🗹 Yes No 🗌 1. Custody seals intact on sample bottles? No 🗔 Not Present Yes 🗸 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In NA 🗔 No 🗌 Yes 🗸 4. Was an attempt made to cool the samples? NA 🗌 Yes 🗸 No 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No Sample(s) in proper container(s)? No 7. Sufficient sample volume for indicated test(s)? No 8. Are samples (except VOA and ONG) properly preserved? NA 🗍 Yes 🗌 No V 9. Was preservative added to bottles? No 🗌 No VOA Vials Yes 🗌 10. VOA vials have zero headspace? No 🗸 Yes 11. Were any sample containers received broken? # of preserved bottles checked Yes 🗸 No 🗌 for pH: 12. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 13. Are matrices correctly identified on Chain of Custody? No 🗔 14. Is it clear what analyses were requested? No 🗌 Checked by: Yes 🗸 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA 🗸 16. Was client notified of all discrepancies with this order? No L Person Notified: Date By Whom: Via: Phone Fax In Person eMail Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition Seal Intact | Seal No Seal Date Signed By 1.3 Good

C	hain-	of-Cu	stody Record	Turn-A	round	Time:																
Client:	Rule 1	Engine	ering UC		andard	∑ Rush	Same Day		,											NT	'AL ORY	
		•		Project	t Name	):	O				١	//ww	v.hal	lenv	ironi	ment	tal.co	om				
Mailing .	Address:	501 A	lyport Dr. Ste 205	Jican	rilla A	trache H 7	Tract 2 #2		490	)1 Ha	awkii	ns N	IE -	Alb	uqu	erqu	e. NI	M 87	109			
			87401	Projec	t #:						5-34					-		<b>-410</b>				
Phone #	: (505	716-2	2787														uest	The state of the s	D	15.5	135	
				Projec	t Mana	ger:		_	only)	<u>ô</u>	П				(4)							Г
QA/QC F	ackage:	how hu	ruleens ineering. Com					(8021)	s or	/ MRO)			<u>60</u>		4,SC	PCB's						
X Stand	dard		☐ Level 4 (Full Validation)	Hea	ther	Woods		8) s	(Ga	8		Ì	SIMS)		О,	2 PC						
Accredit				Sample	er:Jus	tin Valde	Ł	MB	TPH (Gas		=	<del>-</del>			NO	8082						î
□ NEL/		□ Othe	or			Yes		+	+	8	418	504	r 82	S	03,1	_		(A)				o
□ EDD	(Type) _	****		Sampl	e Tem	perature:		MEDE	MTBE	9	bo	bo	100	etal	C,N	cide	(A)	)-i-				     
ъ.			0	Cont	ainer	Preservative		+	Σ +	8015B (GRO / DRO	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270	RCRA 8 Metals	Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )	Pesticides	8260B (VOA)	(Semi-VOA)				Bubble
Date	Time	Matrix	Sample Request ID	Туре	and#	Туре	HEAL No.	BTEX	BTEX	TPH 8	Ĭ.	9	H's	X.	ions	8081 F	60B	8270 (				
p ,				Mapi	l val	Meou .		В	В	片	片	Щ	4	쮼	Ar	80	82	82		_		Ą
8/17/17		Soil	SC-1		Glass		-od	X		X											$\perp$	
B/17/17	1805	Soil	SC-Z		1		702	X.		X												
B/17/17	1810	Soil	SC-3			¥	763	X		x												
8/17/17	1815	Sóil	20-4				704	Х		Y.												Γ
8/17/17	1820	Soil	SC-S				705	X		×												
8/17/17	1423	Soil	SC-6				Telo	X		X												
8/17/17	1826	Soil	SC-7				401	X		X												
C/17/17	1830	Soi)	SC-B				708	Х		X												
8/17/17	1833	Soil	SC-9				-09	χ		Ϋ́												
8/17/17	1838	Soil	SC-10				-010	X		X												
8/17/17		Soil	5C-11				011	ķ		X												
8/17/17	1845	Soil	5C-12,	-		1	0/2	¥		×												
Date:	Time: 210%	Relinquish	ed by:	Receive	d by:	Jad	Date Time 8 7 7 7 7 7 7 7 8 9 9 9 9 9 9 9 9 9 9 9	Ren	narks	Po	lge.	1	of	2	-	Per	Cu	) L E	inte	rprisi	2/2	
Date:	Time:	Relinquish	ed by:	Receive	d by:	1	Date Time													08119		
Anla	7115	111	HWAt	1		'm I	0700															
i if	necessary,	samples sub	mitted to Hall Environmental may be subc	ontracted t	o other ac	credited laboratorie	s. This serves as notice of this	possib	oility. A	ny sut	o-contr	acted	data	will be	clearl	y nota	ted on	the ar	natytic	al report		

C	hain	-ot-Cu	istody Record	Turn-Around	ime:				100					NEW/		20	BIB	450		
			ring LLC	☐ Standard Project Name	⊠ Rush e:	Some Day		2622		A	N	AL	YS	SIS	S L		30	1EN RA		ř
Mailing	Address	501 A	inport Dr. Ste 205	Jicarilla	Apacho H	Tract 2#2		490	01 Ha	awkii	ns N	IE -	Alb	uque	erqu	e, N	M 87	109		
			87401	Project #:				Te	l. 50	5-34	5-39	975	F	ax	505-	345	4107	7		
Phone #	#: (505	1 200	16-2707				-31	- 33				Α	naly	sis	Req	uest				
email or	Fax#:	hwoods (	Pruleung meurng. com	Project Mana	ager:		(8021)	s only)	MRO)			9		4,SO <sub>4</sub> )	B's					
✓ Stan	dard		☐ Level 4 (Full Validation)	Heather	- Woods		8)	(Ga	8			SIMS)		PO,	PCB'					
Accredi		□ Othe	r	Sampler: ১\ On ice:		□ No	<b>E</b>	+ TPH (Gas	8015B (GRO / DRO / MRO)	18.1)	04.1)	8270		ON'EC	s / 8082		(A)			or N)
□ EDD	(Type)			Sample Tem	perature:	3	MATERIA	MTBE	3 (G	od 4	od 5	0 0	etals	N,IC	cide	(A)				>
Date	Time	Matrix	Sample Request ID	Type and #	Preservative Type	HEAL NO.	BTEX + NC	BTEX + M	TPH 8015E	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270	RCRA 8 Metals	Anions (F,CI,NO3,NO2,PO4,SO4)	8081 Pesticides	8260B (VOA)	8270 (Semi-VOA)			Air Bubbles
3/17/17	1850	Soil	SC-13	MeOH Kit	Me OH Cold	-013	Х		X											
6/17/17	1855	Soil	SC-14	7	1	-014	×		×	$\perp$									$\perp$	
																		+	+	
																			$\pm$	
					,													$\pm$	$\pm$	
Date: 8/7/17 Date:	Time: 2108 Time: 711	Relinquisher Relinquisher	hille -	Received by:	Jast -	Date Time	Ren	narks	s: Po	rge	20	Æ Z	-							
-	necessary,	samples subi	mitted to Hall Environmental may be subc	contracted to other a	ccredited laboratorie	es. This serves as notice of this	s possi	bility.	Aпу su	b-cont	racted	d data	will be	e clear	rly note	ated or	n the a	natytical	report.	



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

August 25, 2017

Heather Woods
Rule Engineering LLC
501 Airport Dr., Ste 205

Farmington, NM 87401 TEL: (505) 325-1055

FAX

RE: Enterprise Jicarilla Apache Tract 2 #2

OrderNo.: 1708C94

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/23/2017 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 <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> 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 #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

Indial

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1708C94

Date Reported: 8/25/2017

### Hall Environmental Analysis Laboratory, Inc.

Enterprise Jicarilla Apache Tract 2 #2

**CLIENT:** Rule Engineering LLC

LLC

**Lab ID:** 1708C94-001

Project:

Matrix: SOIL

Client Sample ID: SC-15

Collection Date: 8/22/2017 11:55:00 AM Received Date: 8/23/2017 7:15:00 AM

**PQL Qual Units** Analyses Result **DF** Date Analyzed Batch **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: TOM Diesel Range Organics (DRO) 9.4 mg/Kg 1 8/23/2017 10:26:25 AM 33506 Motor Oil Range Organics (MRO) ND 47 8/23/2017 10:26:25 AM 33506 mg/Kg Surr: DNOP 89.1 70-130 %Rec 8/23/2017 10:26:25 AM 33506 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) 36 19 mg/Kg 5 8/23/2017 9:35:36 AM G45160 Surr: BFB 135 54-150 %Rec 5 8/23/2017 9:35:36 AM G45160 **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 0.097 8/23/2017 9:35:36 AM mg/Kg 5 B45160 Toluene 0.40 0.19 mg/Kg 5 8/23/2017 9:35:36 AM B45160 Ethylbenzene 0.58 mg/Kg 5 B45160 0.19 8/23/2017 9:35:36 AM mg/Kg Xylenes, Total 4.5 0.39 8/23/2017 9:35:36 AM B45160 %Rec Surr: 4-Bromofluorobenzene 127 66.6-132 8/23/2017 9:35:36 AM B45160

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

- 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 Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1708C94

Date Reported: 8/25/2017

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC

Client Sample ID: SC-16

Project:

Enterprise Jicarilla Apache Tract 2 #2

Collection Date: 8/22/2017 2:40:00 PM

Lab ID:

1708C94-002

Matrix: SOIL

Received Date: 8/23/2017 7:15:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANIC	S			Analys	t: TOM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	8/23/2017 10:48:25 AN	A 33506
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/23/2017 10:48:25 AN	A 33506
Surr: DNOP	95.2	70-130	%Rec	1	8/23/2017 10:48:25 AM	A 33506
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	21	mg/Kg	5	8/23/2017 9:59:38 AM	G45160
Surr: BFB	99.2	54-150	%Rec	5	8/23/2017 9:59:38 AM	G45160
EPA METHOD 8021B: VOLATILES					Analys	t: NSB
Benzene	ND	0.10	mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Toluene	ND	0.21	mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Ethylbenzene	ND	0.21	mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Xylenes, Total	0.65	0.42	mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Surr: 4-Bromofluorobenzene	109	66.6-132	%Rec	5	8/23/2017 9:59:38 AM	B45160

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

- 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 Detection Limit
  - W Sample container temperature is out of limit as specified

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1708C94

25-Aug-17

Client:

Rule Engineering LLC

**Project:** 

Enterprise Jicarilla Apache Tract 2 #2

Sample ID LCS-33506	SampType	e: LCS	8	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: LCSS	Batch ID	: 335	06	F	RunNo: 4	5143				
Prep Date: 8/23/2017	Analysis Date	: 8/2	23/2017	5	SeqNo: 1	429401	Units: mg/k	<b>K</b> g		
Analyte	Result P	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	95.0	73.2	114			
Surr: DNOP	4.4		5.000		88.6	70	130			
Sample ID MB-33506	SampType	e: MB	LK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: PBS	Batch ID	: 335	06	F	RunNo: 4	5143				
Prep Date: 8/23/2017	Analysis Date	: 8/2	23/2017	8	SeqNo: 1	429402	Units: mg/k	<b>K</b> g		
Analyte	Result P	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	<b>RPDLimit</b>	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		94.4	70	130			
Sample ID 1708C94-001AMS	SampType	: MS		Tes	tCode: E	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: SC-15	Batch ID	: 335	06	F	RunNo: 4	5143				
Prep Date: 8/23/2017	Analysis Date	: 8/2	23/2017	8	SeqNo: 1	429889	Units: mg/k	<b>K</b> g		
Analyte	Result P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.7	48.64	4.062	93.3	55.8	122			
Surr: DNOP	4.0		4.864		81.7	70	130			

Sample ID 1	1708C94-001AMSD	SampTy	pe: MS	SD	Test	Code: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: S	SC-15	Batch	ID: 33	506	R	lunNo: 4	5143				
Prep Date:	8/23/2017	Analysis Da	te: 8/	23/2017	S	eqNo: 1	429890	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Or	ganics (DRO)	51	9.9	49.65	4.062	94.2	55.8	122	2.78	20	
Surr: DNOP		4.3		4.965		85.7	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 Detection Limit

W Sample container temperature is out of limit as specified

Page 4 of 8

### Hall Environmental Analysis Laboratory, Inc.

WO#:

1708C94

25-Aug-17

Client:

Rule Engineering LLC

Project:

Enterprise Jicarilla Apache Tract 2 #2

Sample ID RB

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID:

Batch ID: G45160

RunNo: 45160

Prep Date:

Analysis Date: 8/23/2017

Result **PQL** SPK value SPK Ref Val

SeqNo: 1430147 %REC

Units: mg/Kg

Qual

Analyte Gasoline Range Organics (GRO)

ND

LowLimit

54

HighLimit

**RPDLimit** 

Surr: BFB

900

5.0

TestCode: EPA Method 8015D: Gasoline Range

150

%RPD

Sample ID 2.5UG GRO LCS

SampType: LCS

RunNo: 45160

90.2

Client ID: LCSS Batch ID: G45160

Prep Date:

Analysis Date: 8/23/2017

SeqNo: 1430148

Units: mg/Kg

Gasoline Range Organics (GRO)

Result PQL 25 5.0

%REC SPK value SPK Ref Val 98.1

LowLimit 76.4 54 %RPD **RPDLimit** 

Surr: BFB

1000

Result

130

5600

Result

25.00 1000

96.75

3870

1000

100

HighLimit 125

150

Qual

Sample ID 1708C94-001AMS

SampType: MS

TestCode: EPA Method 8015D: Gasoline Range

Client ID: SC-15 Prep Date:

Batch ID: G45160 Analysis Date: 8/23/2017

RunNo: 45160 SeqNo: 1430149

Units: mg/Kg

128

150

HighLimit

Analyte Gasoline Range Organics (GRO) **PQL** 

19

SPK value SPK Ref Val %REC 36.03

LowLimit 77.8

54

77.8

54

%RPD **RPDLimit** 

Qual

Qual

Surr: BFB

SampType: MSD

TestCode: EPA Method 8015D: Gasoline Range

Client ID: SC-15

Sample ID 1708C94-001AMSD

Batch ID: G45160

PQL

RunNo: 45160

102

144

Prep Date:

Analysis Date: 8/23/2017

SeqNo: 1430150

Units: mg/Kg

**HighLimit** 

Gasoline Range Organics (GRO)

Surr: BFB

130 19 96.75 5500 3870

SPK value SPK Ref Val 36.03

%REC LowLimit 96.2 141

128 150

%RPD 3.99 0

20 0

**RPDLimit** 

### **Qualifiers:**

ND

Value exceeds Maximum Contaminant Level.

Not Detected at the Reporting Limit

- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- Practical Quanitative Limit **PQL**
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- I Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit RL Sample container temperature is out of limit as specified
- Page 5 of 8

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1708C94

25-Aug-17

Client:

Rule Engineering LLC

**Project:** 

Enterprise Jicarilla Apache Tract 2 #2

Sample ID RB	SampT	ype: MB	BLK	Tes	tCode: E	PA Method	8021B: Volat	iles		
Client ID: PBS	Batch	ID: <b>B4</b>	5160	F	RunNo: 4	5160				
Prep Date:	Analysis D	ate: 8/	23/2017	S	SeqNo: 1	430178	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		115	66.6	132			
Sample ID 100NG BTEX LCS	SampT	ype: LC	s	Tes	tCode: E	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	ID: <b>B4</b>	5160	F	RunNo: 4	5160				
Prep Date:	Analysis D	ate: 8/:	23/2017	۶	SeaNo: 1	430179	Units: ma/K	a		

Prep Date:	Analysis D	Date: 8/	23/2017	S	SeqNo: 1	430179	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	109	80	120			
Toluene	1.1	0.050	1.000	0	109	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.3	0.10	3.000	0	109	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		113	66.6	132			

Sample ID 1708C94-002AM	S Samp1	Type: MS	3	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: SC-16	Batcl	h ID: <b>B4</b>	5160	F	RunNo: 4	5160				
Prep Date:	Analysis D	Date: 8/	23/2017	S	SeqNo: 1	430180	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.7	0.10	4.191	0.05239	110	80.9	132			
Toluene	4.9	0.21	4.191	0.1681	112	79.8	136			
Ethylbenzene	4.8	0.21	4.191	0.1320	111	79.4	140			
Xylenes, Total	15	0.42	12.57	0.6538	115	78.5	142			
Surr: 4-Bromofluorobenzene	4.9		4.191		116	66.6	132			

Sample ID 1708C94-002AMS	SD SampT	ype: MS	SD	Test	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: SC-16	Batch	ID: <b>B4</b>	5160	R	lunNo: 4	5160				
Prep Date:	Analysis D	ate: 8/	23/2017	S	SeqNo: 1	430181	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.5	0.10	4.191	0.05239	106	80.9	132	4.16	20	
Toluene	4.6	0.21	4.191	0.1681	107	79.8	136	4.94	20	
Ethylbenzene	4.6	0.21	4.191	0.1320	107	79.4	140	3.58	20	
Xylenes, Total	14	0.42	12.57	0.6538	110	78.5	142	4.27	20	
Surr: 4-Bromofluorobenzene	4.7		4.191		113	66.6	132	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

% 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 Detection Limit

W Sample container temperature is out of limit as specified

Page 6 of 8



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

# Sample Log-In Check List

Client Name: RULE ENGI	NEERING LL Wor	k Order Number:	1708C94		RcptNo:	1
Received By: Anne Thora	ne 8/23/2	017 7:15:00 AM		aone Am		
Completed By: Anne Thorn	ne 8/23/2	017 7:28:57 AM		aone Am	_	
Reviewed By: 6	10/17			Cana Ji wa		
Chain of Custody						
1. Custody seals intact on sa	ample bottles?		Yes 🗌	No $\square$	Not Present	
2. Is Chain of Custody comp	lete?		Yes 🗸	No 🗆	Not Present	
3. How was the sample deliv	rered?		Courier			
Log In						
4. Was an attempt made to	cool the samples?		Yes 🗹	No 🗆	NA $\square$	
5. Were all samples received	d at a temperature of >0°	C to 6.0°C	Yes 🗹	No 🗆	NA 🗆	
6. Sample(s) in proper conta	ainer(s)?		Yes 🗸	No 🗆		
7. Sufficient sample volume	for indicated test(s)?		Yes 🗹	No 🗆		
8. Are samples (except VOA	and ONG) properly pres	erved?	Yes 🗸	No 🗆		
9. Was preservative added to	o bottles?		Yes	No 🗹	NA 🗆	
10. VOA vials have zero head	space?		Yes	No 🗆	No VOA Vials	
11, Were any sample contain	ers received broken?		Yes	No 🗹	# of preserved	***
				$\Box$	bottles checked	
<ol><li>Does paperwork match both (Note discrepancies on ch</li></ol>			Yes 🗹	No 🗀	for pH: (<2 o	r >12 unless noted)
13. Are matrices correctly ider		ly?	Yes 🗹	No 🗆	Adjusted?	
14. Is it clear what analyses w	ere requested?		Yes 🗹	No 🗌	,	
15. Were all holding times able			Yes 🗸	No 🗌	Checked by:	
(If no, notify customer for a	authorization.)					(data)
Special Handling (if app	olicable)					
16. Was client notified of all di		er?	Yes	No 🗆	NA 🗹	
Person Notified:		Date	THE PROPERTY AND ADDRESS OF THE PARTY OF THE	MANAGE BURGON SERVICE MARKETER CONTROL		
By Whom:	All annot recommend the ethics and the second relative and the specific property and provide a second relative	Via: [	eMail	Phone Fax	☐ In Person	
Regarding:						
Client Instructions:						
17. Additional remarks:						
18. Cooler Information						
Cooler No Temp °C	-	ct   Seal No	Seal Date	Signed By		
1.3	Good Yes		\$1,000 mm on the 140 mm of the 150 mm of the	The second section of the second section is the second section of the second section s		

Chain-of-Custody Record  Client: Rule Engineering LC		Turn-Around Time:    Standard   Rush Same Day   ANALYSIS LABORATORY																			
0			Project Name	www.hallenvironmental.com																	
Mailing	Address	501 A	timport Dr. ste 205	Enterpris	u dicavilla	Apache Track 2 #2		49	01 H	lawki								109			
Farmington, NM 87401		Enderprise Licarilla Apache Tract 2 #2 Project #:				Tel. 305-345-3975 Fax 505-345-4107															
Phone #: (505) 714-2787											Α	naly	rsis	Req	uest					-4:	
email or Fax#: hwoods@rullengineeving.com			Project Mana	ger:	*		(ylu	30)					(4)								
QA/QC Package:  Standard   Level 4 (Full Validation)			Heather			<b>科略</b> 's (8021)	Gas or	O / MF			SIMS)		20 <sub>4</sub> ,SC	PCB's							
Accredi				Sampler: 14	Callera leb	nadi	1	HC	DR			0.8		02,	382						
□ NEL	AP	□ Othe	er	Sampler: I-4	DAYES	□ No	# +	i i	00	18.1	4.1	8270		3,V	/ 8(		(A)				Z
□ EDD (Type)			Sample Temperature. 1,3				3E -	(GF	d 4	d 5	ō	tals	N,	des	~	0				کا	
Date	Time	Matrix	Sample Request ID	AC (8/23/17	Preservative Type		BTEX + MTEE	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or	RCRA 8 Metals	Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )	8081 Pesticides / 8082	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles (Y or N)
8/22/17	1155	Soil	SC-15	(i)40261a3	Non	701	Х		X		*							П			
8/22/17			56-14	(1)407 GHES	Non	702	X		£									$\top$	$\top$	1	$\top$
713	1440	5011	56 14	17407-01122	YCO			_	74.	$\dashv$								$\dashv$	+	+	+
					. "						$\dashv$		-				-	$\dashv$	+	+	+
													_	-			$\dashv$	$\dashv$	+	+	_
**				,							_							_	$\perp$		$\perp$
																	Ì				T
																		$\neg$	$\neg$		
					1													$\top$	$\top$		
								-			$\dashv$							$\dashv$	+	+	+
										$\dashv$	-	-	_				$\dashv$	$\dashv$	+	+	+
Dete:	Time:	Relinguish	ed by:	Received by:		Date Time	Ren	nark											_		
Dete: Time: Relinquished by:    1772   Heath M Woods     Date: Time: Relinquished by:		Must Wester 8/12/17 1722			Remarks: Direct Bill to Enterprise																
Pate:	1840	Relinquish	ed by:	Received by:	lune -	Date Time 07/5															
7	f necessary,	sainples sub	mitted to Hall Environmental may be subc	contracted to other ac	ccredited laboratorie	es. This serves as notice of this	possil	bility.	Any su	ıb-cont	racted	I data	will be	cleart	y nota	ited on	the ar	alytica	l report	t.	

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

State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Form C-141 Revised April 3, 2017

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

# Santa Fe, NM 87505 Release Notification and Corrective Action

					Ol	PERATOR			Initial F	Report		Final Repor
Name of Co							homas Long/					
Address 6	14 Reilly	Ave, Farmir	ngton, NI	M 87401			No. <b>505-599-</b>					
Facility Nar	me Jicar	illa Apache	H Trac	t 2 #2		Facility Typ	oe Natural Ga	as Gati	nering P	peline		
Surface Ow	vner <b>Jica</b>	rilla Apach	e Tribe	Mineral	l Owner	BIA			API No	. NA		
5.					THE RESERVE AND ADDRESS OF THE PERSON NAMED IN	N OF REL						
Unit Letter	Section	Township	Range	Feet from	North	South	Feet from	East/	Vest	County Rio Arril		
В	9	23N	2W	the <b>950</b>	Line		the 1500 Line				Da	
		Latitude_	36.24	780	_ Lon	gitude	-107.04819	1	NAD	)83		
					TURE	OF RELE						
Type of Rele							Release UNKNO			Recovered		
Source of Re			ernal cor	rosion		8/1/2017	Hour of Occurre @ 12:45 p.m.	ence		d Hour of E 2 @ 12:45		ery
Was Immedi	ate Notice		Ves 🗆	No 🗆 ···	Rogular	If YES, To	Whom? Fields-NMOCD	Hoha	on Sand	val- IAO	G I	ion
,		M	162	No 🗌 Not	required		I-JAO&G Kurt			var JAU6	.J, Jas	VII
By Whom?						Date and	Hour August 1	1, 2017 (	@ 3:42 p.			
Was a Water				N			olume Impacting		otoroouroo		ירו /וור	ST 3
			☐ Yes	⊠ No					OIL	CONS. I	NIA IN	ion o
If a Watercoo	urse was I	mpacted, De	scribe Fu	ılly.*						SEP 1	4 201	7
Apache H Tr out and tagg this reportab	ract 2 #2 p jed out. Co ble per NM	ipeline. Ente ourtesy notifie OCD regulati	erprise er ication wa ion due to	mployee was on the sent to NMO on the volume of	dispatch OCD on of subsur	ed and verifice August 1, 20 rface impacts		e pipelir eline rep	ne was iso pair activiti	plated, dep ies, Enterp	oressuri orise de	ized, locked etermined
							are complete. En rith the "Final" C-		se remove	d the conta	aminar	nt mass by
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.												
		1/1	//			OIL CONSERVATION DIVISION						
Signature:	1 m	1. Fu	4						1	K		)
Printed Nam	e: Jon E.	Fields				Approved by	y Environmental	Specia	alist:	June !	~	<u></u>
Title: Direct	or, Enviro	nmental				Approval Da	ate: 9/2012	17	Expiration	Date:		
E-mail Addre	ess: jefiel	ds@eprod.c	om			Conditions of Approval:				Attache	d n	
	6/2017			13-381-6684							V-	
Attach Addit	tional She	ets If Nece	ssary			ME	17268	32°	1871			

Operator/Responsible Party,

The OCD has received the form C-141 you provided on The information contained on that form has been entered into our incident database and remediation case number has been assigned. Please refer to this case number in all future correspondence.

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

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

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

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

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

- •Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.
- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

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

### Jim Griswold

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

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 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

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

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

Form C-141 Revised April 3, 2017

Release Notification and Corrective Action														
					OI	PERATO	₹	$\triangleright$	Initial	Report	☐ F	inal Report		
Name of Company Enterprise Field Services, LLC  Contact Thomas Long  Address 644 Reilly Avg Formington NM 97404  Telephone No. 505 509 2386														
							Telephone No. 505-599-2286							
Facility Name Gobenador Compressor Station							e Natural Ga	s Con	pressor	Station				
Surface O	wner <b>Priva</b>	BLM			Serial N	umber:								
LOCATION OF RELEASE														
Unit Letter D	Section 31	Township 30N	Range 7W	Feet from the 635	North Line	South	Feet from the 120	East Line	West	County Rio Arri	ba			
	Letitude 36 77467 Lengitude 107 61797 NAD92													
	Latitude 36.77467 Longitude 107.61787 NAD83  NATURE OF RELEASE													
Type of Rel	ease: Fresh	Lubrication		NS. DIV DIS		Volume o BBLs of Oil	f Release 8-10 Fresh Lubricati	ion	Volume	Recovered	d None			
Source of R			N	OV <b>2</b> 7 2017		11/14/201	Hour of Occurre 7 @ 12:00p.m.	rae .	11/14/20	d Hour of I 017 @ 12:0	00p.m.	1		
Was Immediate Notice Given?  ☐ Yes ☐ No ☒ Not  Required  If YES, To Whom? : Notification to Cory Smith – NMOCD														
By Whom?						Date and Hour 11/15/2017 @ 11:34 a.m.								
Was a Wate	ercourse Re	ached?	☐ Yes	⊠ No		If YES, Volume Impacting the Watercourse.								
	If a Watercourse was Impacted, Describe Fully.*													
Describe Cause of Problem and Remedial Action Taken.* On November 14, 2017, a technician was filing the day tank and the overflow switch failed causing fresh lubrication oil to overflow the day tank. An estimated volume of 8-10 barrels was released and flowed out of the compressor building and onto the ground.														
Describe Area Affected and Cleanup Action Taken.* The remediation is in the scheduling process. The contaminant mass will be removed by hand tools as much as practical. A third party corrective action report will be included with the "Final." C-141.														
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.														
	//	1/-	1.			OIL CONSERVATION DIVISION								
Signature:	M	1. to	-U		_	Approved by Environmental Specialist:								
Printed Nan	ne: Jon E. F	ields				White a p	y Environmental	Specia	allot.		en			
Title: Direct	or, Environn	nental				Approval Da	ate: 12/6/1		Expiration	Date:				
E-mail Addr	ess: jefields	@eprod.con	n			Conditions	of Approval:				A			
Date: 11/17 /17 Phone: (713) 381-														

\* Attach Additional Sheets If Necessary

WF1734047736

Operator/Responsible Party,

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

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days\_ on or before \( \frac{130000}{20000} \). If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.

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

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

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

- •Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.
- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

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

### Jim Griswold

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