Oil Conservation Division 1220 South St. Francis Dr.

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

220 0. St. Hai	iers Dr., Santa	110, 1111 07505		Sa	inta Fe	, NM 8750	15		Collect & collect		N. OS DOROMINAS	warden and that
			Rele	ease Notific	eation	and Co	rrective A	ction				
					OPE	ERATOR		Subse	equent	Report	🖂 Fi	nal Repor
Name of Co	ompany Hi	ilcorp Ener	gy Comp	oany	(	Contact Lin	dsay Dumas					
Address 11	111 Travis	St. Houston	n, TX 77	002	-	Telephone N	o. <b>(281)794-</b> 9	0159				
Facility Nat	me: SJ 27	-5 110N			]	Facility Type	: Gas					
Surface Ow	vner State			Mineral C	Owner S	State		AF	PI No.3	300392776	7	
				LOC	TION	I OF DEL	EACE					
Init Letter	Section	Township	Range	Eeet from the	North/	South Line	EASE Feet from the	Fast/West I	ine	County		
A	02	27N	05W	920'	Norm	North	855	East		Rio Arriba		
				Latitude <u>36.6</u>	067696	Longitude	-107.3215485					
				NAT	URE	OF RELE	ASE					
ype of Rele	ease Oil &	& Produced V	Water			Volume of bbls	Release 33 bb	ls/17 Volu	ume Re	covered	0 bbls	
Source of Re	elease Prod	luction Tank				Date and He 11/29/17 1	our of Occurrenc 2:50pm	ce Date 11/2	e and H 29/2017	our of Disco 12:50pm	overy	
Was Immediate Notice Given?			equired	If YES, To Whom? NMOCD								
By Whom? Lisa Hunter					Date and He	our 11/30/2017	7:40AM					
Was a Watercourse Reached?			If YES, Vol	ume Impacting t	the Watercour	rse.						
🗋 Yes 🔀 No				N/A	Schuttern kiner	NMAC	n	ullean is alking the				
N/A Describe Cau	use of Proble	em and Reme	dial Actio	n Taken.*	duction	tank There	was no star <b>D</b> :	JAN 03	2019	lar.		
Describe Are	ea Affected a	and Cleanup A	Action Tal	cen.*	on site fo	or remediatio	n. The remedia	ted soil was b	ackfill	ed after soi	l samplir	ıg. All
nalytical re	esults were l	below the reg	gulatory s	tandards, except	for the	base of the ex	cavation. Potas	ssium perman	nganat	e was applie	ed to the	sand-
tone base o	on 5/7/2018 -	- no further	action rec	uired. Sampling	reports	attached.			4	ant to NIMO	CD miles	and
egulations a public health should their or the enviro federal, state	all operators or the envir operations has need. In acception of the second operation of the second second operation of the second second second operation of the second se	are required t ronment. The ave failed to ddition, NMC vs and/or regu	acceptance acceptance adequately OCD acceptance ulations.	nd/or file certain r ce of a C-141 report investigate and r otance of a C-141	release no ort by the remediate report do	e best of high otifications an NMOCD ma contamination bes not relieve	d perform correct rked as "Final R n that pose a thr the operator of	ctive actions for action of the second reat to ground responsibility	or relea ot reliev water, for cor	uses which n ve the opera surface wate npliance wi	nay endar tor of lia er, humar th any ot	nger bility n health her
Signature:	- Line	han D	umas				OIL CON	SERVATI	ION I	DIVISIO	N	
rinted Nam	e: Lindsay	Dumas				Approved by 1	Env C	)Fr		FD		
Title: Envir	onmental S	pecialist				Approval Date	BY: Co	Dry Smith	XF	Unistly :	Inousle	h
E-mail Addr	ess: Lduma	as@hilcorp.c	om		(	Conditions of	AI DATE:	1/8/19 (50	05) 334-	6179 5	Nosa	iple
								•	,	0178 Ext. 11	5 MAD	
Date: 9/5/20	)18		I	Phone: (281)794-9	0159				/	- CITO EXT. 11	5 MAD	+ JAXLON

-HNG1733529093



### Smith, Cory, EMNRD

From:Smith, Cory, EMNRDSent:Tuesday, January 8, 2019 3:36 PMTo:'Lindsay Dumas'; Fields, Vanessa, EMNRDCc:'Matt Henderson'Subject:RE: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

Lindsay,

OCD received a Final C-141 for the San Juan 27-5 #110N on 1/3/19

After review the OCD has denied the final Report.

- HEC needs to submit the final C-141 on the new C-141

- HEC sample map does not include final sampling/ stock piles/ vadose zone sampling

- HEC did not include documentation/approval for the application of the oxidize (If there is none HEC needs to state so and why they went forward without an approved plan)

Please resubmit a final C-141 with all the required documents no later than January 28, 2019.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Smith, Cory, EMNRD
Sent: Thursday, November 15, 2018 11:40 AM
To: 'Lindsay Dumas' <ldumas@hilcorp.com>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Cc: Foley, Brandon M. <bfoley@slo.state.nm.us>
Subject: RE: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

Lindsay,

OCD never received the hard copy of this closure report could you please send it in.

Thanks

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 From: Lindsay Dumas <ldumas@hilcorp.com>
Sent: Wednesday, September 5, 2018 11:55 AM
To: Smith, Cory, EMNRD <<u>Cory.Smith@state.nm.us</u>>; Fields, Vanessa, EMNRD <<u>Vanessa.Fields@state.nm.us</u>>
Cc: Foley, Brandon M. <<u>bfoley@slo.state.nm.us</u>>
Subject: RE: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

Please find attached the update C-141.

From: Smith, Cory, EMNRD [mailto:Cory.Smith@state.nm.us]
Sent: Tuesday, August 28, 2018 10:43 AM
To: Lindsay Dumas <<u>Idumas@hilcorp.com</u>>; Fields, Vanessa, EMNRD <<u>Vanessa.Fields@state.nm.us</u>>
Cc: Foley, Brandon M. <<u>bfoley@slo.state.nm.us</u>>; Matt Henderson <<u>mhenderson@hilcorp.com</u>>
Subject: RE: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

Lindsay,

OCD has denied the Final C-141 received on Aug, 6, 2018 for the San Juan 27-5 110N.

As per the below email please include documentation/approval for the application of the oxidize, a site sampling map and resubmit the C-141 final no later than September 11, 2018

Thank you,

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Smith, Cory, EMNRD
Sent: Monday, August 6, 2018 3:58 PM
To: 'Lindsay Dumas' <<u>Idumas@hilcorp.com</u>>; Fields, Vanessa, EMNRD <<u>Vanessa.Fields@state.nm.us</u>>
Cc: Foley, Brandon M. <<u>bfoley@slo.state.nm.us</u>>
Subject: RE: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

Lindsay,

Reviewing the final C-141, I don't see any pictures or mention of application of potassium permanganate.

Do you have any that I can include in the report, also I was able to piece together a sampling map from my notes with multiple samples named the same thing it might be helpful to include a sampling map.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Lindsay Dumas <<u>Idumas@hilcorp.com</u>>
 Sent: Thursday, August 2, 2018 7:09 AM
 To: Smith, Cory, EMNRD <<u>Cory.Smith@state.nm.us</u>>; Fields, Vanessa, EMNRD <<u>Vanessa.Fields@state.nm.us</u>>
 Cc: Foley, Brandon M. <<u>bfoley@slo.state.nm.us</u>>
 Subject: RE: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

The hardcopy was placed in the mail yesterday. Thanks!

From: Smith, Cory, EMNRD [mailto:Cory.Smith@state.nm.us]
Sent: Thursday, August 2, 2018 8:08 AM
To: Lindsay Dumas <<u>Idumas@hilcorp.com</u>>; Fields, Vanessa, EMNRD <<u>Vanessa.Fields@state.nm.us</u>>
Cc: Foley, Brandon M. <<u>bfoley@slo.state.nm.us</u>>
Subject: [EXTERNAL] RE: Final C-141: San Juan 27-5 110N

Lindsay,

Thank you, please make sure you send it Hard Copy to the Aztec OCD office for processing

Thanks,

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Lindsay Dumas <ldumas@hilcorp.com>
Sent: Wednesday, August 1, 2018 5:13 PM
To: Smith, Cory, EMNRD <<u>Cory.Smith@state.nm.us</u>>; Fields, Vanessa, EMNRD <<u>Vanessa.Fields@state.nm.us</u>>
Cc: Foley, Brandon M. <<u>bfoley@slo.state.nm.us</u>>
Subject: Final C-141: San Juan 27-5 110N

Please find attached the final C-141 for the remediation on the San Juan 27-5 110N.

Kind regards,

*Lindsay Dumas* Environmental Specialist Hilcorp Energy – L48 West



Invoice

NRE Field Services, LLC 3040 Southside River Road Farmington, NM 87401 505-258-4259 office@nrefieldservices.com FIELD SERVICES

### BILL TO

Hilcorp San Juan, L.P. c/o Hilcorp Energy Company PO Box 61529 Houston, TX 77208-1529

INVOICE #	DATE	TOTAL DUE	DUE DATE	TERMS	ENCLOSED
1390	05/10/2018	\$729.70	06/09/2018	Net 30	

### -SALES REP

**Travis Munkres** 

DATE	ACTIVITY	OTY	RATE	AMOUNT
05/07/2018	7009 - Unit 7009 Unit 7009	4	18.00	72.00T
05/07/2018	Potassium Permanganate Potassium	2.50	100.00	250.00T
05/07/2018	Water Trailer Charge Water Trailer Charge	4	15.00	60.00T
05/07/2018	Roustabout Operator Roustabout Operator	4	40.00	160.00T
05/07/2018	Roustabout Laborer Roustabout Laborer	4	34.00	136.00T
San Juan 27	-5 Unit 110N	SUE	BTOTAL	678.00
Sprav locatio	n with Potassium Permana	ante TAX	( (7.625%)	51.70
Thank you for your business		TO	TAL	729.70
indin you to		BAL	ANCE DUE	\$729.70

Hilcorp Energy Company Travis Munkres AFE #: 185D852 Billing Category: 9110.113 Signature: In Mul Date: 5/22/18



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

February 07, 2018

Lindsay Dumas Hilcorp Energy PO Box 61529 Houston, TX 77208-1529 TEL: (337) 276-7676 FAX

RE: San Juan 27 5 110N

OrderNo.: 1801C57

Dear Lindsay Dumas:

Hall Environmental Analysis Laboratory received 5 sample(s) on 1/26/2018 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 <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 1801C57 Date Reported: 2/7/2018

## Hall Environmental Analysis Laboratory, Inc.

Lab ID. 10010.						
Lab ID: 1801C5	57-001	Matrix: S	SOIL	<b>Received Date:</b> 1/26/2018 8:00:00 AM		
Project: San Jua	an 27 5 110N	Collection Date: 1/24/2018 11:00:00 A				
CLIENT: Hilcorp	Energy	Client Sample ID: Base				

Result	PQL Qua	al Units	DF	Date Analyzed	Batch
				Analyst	MRA
ND	30	mg/Kg	20	2/6/2018 3:21:27 AM	36356
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS				Analyst	том
550	9.7	mg/Kg	1	1/30/2018 4:48:43 PM	36249
ND	48	mg/Kg	1	1/30/2018 4:48:43 PM	36249
113	70-130	%Rec	1	1/30/2018 4:48:43 PM	36249
E				Analyst	RAA
2400	240	mg/Kg	50	1/31/2018 3:19:06 PM	36238
220	15-316	%Rec	50	1/31/2018 3:19:06 PM	36238
				Analyst	RAA
ND	4.8	mg/Kg	50	1/31/2018 3:19:06 PM	36238
2.2	1.2	mg/Kg	50	1/31/2018 3:19:06 PM	36238
54	2.4	mg/Kg	50	1/31/2018 3:19:06 PM	36238
11	2.4	mg/Kg	50	1/31/2018 3:19:06 PM	36238
160	4.8	mg/Kg	50	1/31/2018 3:19:06 PM	36238
114	80-120	%Rec	50	1/31/2018 3:19:06 PM	36238
	Result ND CORGANICS 550 ND 113 E 2400 220 ND 2.2 54 11 160 114	Result         PQL         Qui           ND         30         30 <b>CORGANICS</b> 550         9.7           ND         48         113         70-130 <b>E</b> 2400         240         220           220         15-316         15-316         112           ND         4.8         2.2         1.2         54         2.4           11         2.4         160         4.8         114         80-120	Result         PQL         Qual         Units           ND         30         mg/Kg           550         9.7         mg/Kg           113         70-130         %Rec           Z400         240         mg/Kg           220         15-316         %Rec           ND         4.8         mg/Kg           2.2         1.2         mg/Kg           54         2.4         mg/Kg           11         2.4         mg/Kg           114         80-120         %Rec	Result         PQL         Qual         Units         DF           ND         30         mg/Kg         20           SORGANICS         550         9.7         mg/Kg         1           ND         48         mg/Kg         1           113         70-130         %Rec         1           E         2400         240         mg/Kg         50           220         15-316         %Rec         50           ND         4.8         mg/Kg         50           2.2         1.2         mg/Kg         50           54         2.4         mg/Kg         50           11         2.4         mg/Kg         50           11         2.4         mg/Kg         50           11         2.4         mg/Kg         50           14         80-120         %Rec         50	Result         PQL         Qual         Units         DF         Date Analyzed           ND         30         mg/Kg         20         2/6/2018 3:21:27 AM           ND         30         mg/Kg         20         2/6/2018 3:21:27 AM           CORGANICS         Analyst           550         9.7         mg/Kg         1         1/30/2018 4:48:43 PM           ND         48         mg/Kg         1         1/30/2018 4:48:43 PM           113         70-130         %Rec         1         1/30/2018 4:48:43 PM           E         Analyst           2400         240         mg/Kg         50         1/31/2018 3:19:06 PM           220         15-316         %Rec         50         1/31/2018 3:19:06 PM           Analyst         MD         4.8         mg/Kg         50         1/31/2018 3:19:06 PM           2.2         1.2         mg/Kg         50         1/31/2018 3:19:06 PM         Analyst           ND         4.8         mg/Kg         50         1/31/2018 3:19:06 PM         Analyst           11         2.4         mg/Kg         50         1/31/2018 3:19:06 PM         Analyst           54         2.4         mg/Kg         50

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 9
	ND Not Detected at the Reporting Limit		Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

### Analytical Report Lab Order 1801C57

1/31/2018 3:42:17 PM

1/31/2018 3:42:17 PM

36238

36238

1

1

### Hall Environmental Analysis Laboratory, Inc.

Xylenes, Total

Surr: 4-Bromofluorobenzene

Client Sample ID: West Wall

CLIENT: Hilcorp Energy		C	lient Samp	le ID: We	est Wall	
Project: San Juan 27 5 110N			Collection	Date: 1/2	4/2018 11:00:00 AM	
Lab ID: 1801C57-002	Matrix:	SOIL	Received	Date: 1/2	6/2018 8:00:00 AM	
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	65	30	mg/Kg	20	2/6/2018 3:33:52 AM	36356
EPA METHOD 8015M/D: DIESEL RANGE	E ORGANIC	S			Analyst	том
Diesel Range Organics (DRO)	38	9.1	mg/Kg	1	1/30/2018 5:10:40 PM	36249
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	1/30/2018 5:10:40 PM	36249
Surr: DNOP	109	70-130	%Rec	1	1/30/2018 5:10:40 PM	36249
EPA METHOD 8015D: GASOLINE RANG	E				Analyst:	RAA
Gasoline Range Organics (GRO)	31	4.7	mg/Kg	1	1/31/2018 3:42:17 PM	36238
Surr: BFB	239	15-316	%Rec	1	1/31/2018 3:42:17 PM	36238
EPA METHOD 8021B: VOLATILES					Analyst:	RAA
Methyl tert-butyl ether (MTBE)	ND	0.095	mg/Kg	1	1/31/2018 3:42:17 PM	36238
Benzene	0.038	0.024	mg/Kg	1	1/31/2018 3:42:17 PM	36238
Toluene	0.60	0.047	mg/Kg	1	1/31/2018 3:42:17 PM	36238
Ethylbenzene	0.082	0.047	mg/Kg	1	1/31/2018 3:42:17 PM	36238

0.095

80-120

mg/Kg

%Rec

3.7

114

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
H Ni PQ	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 9
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S		% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy

San Juan 27 5 110N

1801C57-003

**Project:** 

Lab ID:

Lab Order **1801C57** Date Reported: **2/7/2018** 

Client Sample ID: South WallCollection Date: 1/24/2018 11:00:00 AMMatrix: SOILReceived Date: 1/26/2018 8:00:00 AM

Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	76	30	mg/Kg	20	2/6/2018 4:11:06 AM	36356
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S			Analyst	том
Diesel Range Organics (DRO)	920	10	mg/Kg	1	1/30/2018 5:32:52 PM	36249
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	1/30/2018 5:32:52 PM	36249
Surr: DNOP	106	70-130	%Rec	1	1/30/2018 5:32:52 PM	36249
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	RAA
Gasoline Range Organics (GRO)	3200	50	mg/Kg	10	1/31/2018 4:05:33 PM	36238
Surr: BFB	747	15-316 S	%Rec	10	1/31/2018 4:05:33 PM	36238
EPA METHOD 8021B: VOLATILES					Analyst	RAA
Methyl tert-butyl ether (MTBE)	ND	0.99	mg/Kg	10	1/31/2018 4:05:33 PM	36238
Benzene	1.3	0.25	mg/Kg	10	1/31/2018 4:05:33 PM	36238
Toluene	94	5.0	mg/Kg	100	2/1/2018 10:30:05 AM	36238
Ethylbenzene	20	0.50	mg/Kg	10	1/31/2018 4:05:33 PM	36238
Xylenes, Total	290	9.9	mg/Kg	100	2/1/2018 10:30:05 AM	36238
Surr: 4-Bromofluorobenzene	141	80-120 S	%Rec	10	1/31/2018 4:05:33 PM	36238

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank	
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range	
	Н	H Holding times for preparation or analysis exceeded		Analyte detected below quantitation limits Page 3 of 9	
	ND Not Detected at the Reporting Limit		Р	Sample pH Not In Range	
	PQL	Practical Quanitative Limit	RL Reporting Detection Limit		
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical Report Lab Order 1801C57

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy

San Juan 27 5 110N

**Project:** 

Date Reported: 2/7/2018 Client Sample ID: North Wall Collection Date: 1/24/2018 11:00:00 AM

Lab ID: 1801C57-004 Matrix: SOIL Received Date: 1/26/2018 8:00:00 AM Analyses Result PQL Qual Units **DF** Date Analyzed Batch **EPA METHOD 300.0: ANIONS** Analyst: MRA Chloride ND 30 mg/Kg 20 2/6/2018 4:23:31 AM 36356 Analyst: TOM EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 1/30/2018 5:54:46 PM Diesel Range Organics (DRO) ND 10 mg/Kg 1 36249 Motor Oil Range Organics (MRO) ND 51 1/30/2018 5:54:46 PM 36249 mg/Kg 1 Surr: DNOP 108 70-130 %Rec 1/30/2018 5:54:46 PM 36249 1 EPA METHOD 8015D: GASOLINE RANGE Analyst: RAA Gasoline Range Organics (GRO) ND 4.9 mg/Kg 1 1/31/2018 4:28:55 PM 36238 Surr: BFB 112 15-316 %Rec 1 1/31/2018 4:28:55 PM 36238 **EPA METHOD 8021B: VOLATILES** Analyst: RAA Methyl tert-butyl ether (MTBE) ND 0.097 1/31/2018 4:28:55 PM 36238 mg/Kg 1 Benzene ND 0.024 mg/Kg 1 1/31/2018 4:28:55 PM 36238 Toluene ND 0.049 mg/Kg 1 1/31/2018 4:28:55 PM 36238 Ethylbenzene ND 0.049 mg/Kg 1 1/31/2018 4:28:55 PM 36238 Xylenes, Total ND 0.097 mg/Kg 1 1/31/2018 4:28:55 PM 36238 Surr: 4-Bromofluorobenzene 101 80-120 %Rec 1 1/31/2018 4:28:55 PM 36238

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 9
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL Practical Quanitative Limit		RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

### Lab Order 1801C57

Date Reported: 2/7/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT:	Hilcorp Energy		Client Sample ID: East Wall							
Project:	San Juan 27 5 110N			Collection Date: 1/24/2018 11:00:00 AM						
Lab ID: 1801C57-005		Matrix: SC	Matrix: SOIL			Received Date: 1/26/2018 8:00:00 AM				
Analyses		Result	PQL Qua	l Units	DF	Date Analyzed	Batch			
EPA MET	HOD 300.0: ANIONS					Analyst	MRA			
Chloride		ND	30	mg/Kg	20	2/6/2018 4:35:56 AM	36356			
EPA MET	HOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst	том			
Diesel R	ange Organics (DRO)	260	9.6	mg/Kg	1	1/30/2018 6:16:45 PM	36249			

0 0 1				0 0			
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/30/2018 6:16:45 PM	36249
Surr: DNOP	112	70-130		%Rec	1	1/30/2018 6:16:45 PM	36249
EPA METHOD 8015D: GASOLINE RAM	IGE					Analyst:	RAA
Gasoline Range Organics (GRO)	480	97	D	mg/Kg	20	1/31/2018 4:52:13 PM	36238
Surr: BFB	193	15-316	D	%Rec	20	1/31/2018 4:52:13 PM	36238
EPA METHOD 8021B: VOLATILES						Analyst:	RAA
Methyl tert-butyl ether (MTBE)	ND	1.9	D	mg/Kg	20	1/31/2018 4:52:13 PM	36238
Benzene	ND	0.49	D	mg/Kg	20	1/31/2018 4:52:13 PM	36238
Toluene	5.0	0.97	D	mg/Kg	20	1/31/2018 4:52:13 PM	36238
Ethylbenzene	3.0	0.97	D	mg/Kg	20	1/31/2018 4:52:13 PM	36238
Xylenes, Total	43	1.9	D	mg/Kg	20	1/31/2018 4:52:13 PM	36238
Surr: 4-Bromofluorobenzene	105	80-120	D	%Rec	20	1/31/2018 4:52:13 PM	36238

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 9
	ND Not Detected at the Reporting Limit		Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

WO#: **1801C57** *07-Feb-18* 

Page 6 of 9

**Client:** Hilcorp Energy **Project:** San Juan 27 5 110N Sample ID MB-36356 SampType: mblk TestCode: EPA Method 300.0: Anions Client ID: PBS Batch ID: 36356 RunNo: 48913 Prep Date: Analysis Date: 2/6/2018 2/5/2018 SeqNo: 1573995 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Chloride ND 1.5 Sample ID LCS-36356 SampType: Ics TestCode: EPA Method 300.0: Anions Client ID: LCSS Batch ID: 36356 RunNo: 48913 Prep Date: 2/5/2018 Analysis Date: 2/6/2018 SeqNo: 1573996 Units: mg/Kg PQL %REC %RPD RPDLimit Analyte Result SPK value SPK Ref Val LowLimit HighLimit Qual Chloride 14 1.5 15.00 0 93.5 90 110

### Qualifiers:

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

Hilcorp Energy

**Client:** 

Project: San Juar	n 27 5 110N	
Sample ID LCS-36249	SampType: LCS TestCode: EPA Method 8015	M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 36249 RunNo: 48775	
Prep Date: 1/29/2018	Analysis Date: 1/30/2018 SeqNo: 1569177 Unit	ts: mg/Kg
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit Hig	ghLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	46 10 50.00 0 92.9 70	130
Surr: DNOP	4.5 5.000 90.5 70	130
Sample ID MB-36249	SampType: MBLK TestCode: EPA Method 8015	M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 36249 RunNo: 48775	
Prep Date: 1/29/2018	Analysis Date: 1/30/2018 SeqNo: 1569178 Unit	is: mg/Kg
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit Hig	hLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	ND 10	
Motor Oil Range Organics (MRO)	ND 50	
Surr: DNOP	9.8 10.00 97.6 70	130
Sample ID LCS-36240	SampType: LCS TestCode: EPA Method 8015	M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 36240 RunNo: 48775	
Prep Date: 1/29/2018	Analysis Date: 1/30/2018 SeqNo: 1570004 Unit	is: %Rec
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit Hig	hLimit %RPD RPDLimit Qual
Surr: DNOP	5.1 5.000 101 70	130
Sample ID MB-36240	SampType: MBLK TestCode: EPA Method 8015	M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 36240 RunNo: 48775	
Prep Date: 1/29/2018	Analysis Date: 1/30/2018 SeqNo: 1570005 Unit	is: %Rec
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit Hig	hLimit %RPD RPDLimit Qual
Surr: DNOP	11 10.00 110 70	130

Qualifiers:

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

Page 7 of 9

WO#: **1801C57** *07-Feb-18* 

WO#:	1801C57
	07-Feb-18

Client: Project: S	Hilcorp Energy San Juan 27 5 110	N								
Sample ID LCS-362	<b>38</b> Samı	Type: LC	s	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	e	
Client ID: LCSS	Bat	ch ID: 36	238	F	RunNo: 4	8820				
Prep Date: 1/29/20	18 Analysis	Date: 1/	/31/2018	S	SeqNo: 1	570842	Units: mg/H	٨g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	(GRO) 27	5.0	25.00	0	107	75.9	131			
Surr: BFB	1100		1000		115	15	316			
Sample ID MB-3623	8 Samp	туре: М	BLK	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	e	
Client ID: PBS	Bat	ch ID: 36	238	F	RunNo: 4	8820				
Prep Date: 1/29/20	18 Analysis	Date: 1/	/31/2018	S	SeqNo: 1	570844	Units: mg/k	۲g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	(GRO) ND	5.0								
Surr: BFB	1000		1000		101	15	316			

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Н 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 S
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

- Page 8 of 9

Result

SampType: LCS

Batch ID: 36238

Analysis Date: 1/31/2018

PQL

Hilcorp Energy San Juan 27 5 110N

Sample ID LCS-36238

Prep Date: 1/29/2018

Client ID: LCSS

**Client:** 

**Project:** 

Analyte

Methyl tert-butyl ether (MTBE)	0.98	0.10	1.000	0	97.7	70.1	121			
Benzene	1.0	0.025	1.000	0	104	77.3	128			
Toluene	1.0	0.050	1.000	0	104	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	102	80.7	127			
Xylenes, Total	3.1	0.10	3.000	0	105	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			
Sample ID MB-36238	Samp	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batc	h ID: 362	238	F	RunNo: 4	8820				
Prep Date: 1/29/2018	Analysis E	Date: 1/	31/2018	5	SeqNo: 1	570885	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Curr A Deservative harmonic										

SPK value SPK Ref Val %REC

TestCode: EPA Method 8021B: Volatiles

LowLimit

Units: mg/Kg

101

%RPD

**RPDLimit** 

HighLimit

RunNo: 48820 SeqNo: 1570883

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Holding times for preparation or analysis exceeded Н
- Not Detected at the Reporting Limit ND
- Practical Quanitative Limit PQL
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified W

Qual

HALL ENVIE ANAL LABO	RONMENTAL YSIS Ratory	Hall Environmenta Alb TEL: 505-343-397 Website: www.hu	l Anal 49 wquer 5 FAX ollenv	sis Labor 91 Hawkir 7ue, NM 8 505-345- ronmenia	atory 13 NE 137109 <b>Sar</b> 14107 Leom	nple Log-In C	heck List
Client Name:	HILCORP ENERGY	Work Order Number	: 180	1C57		RoptNo:	1
Received By:	Erin Melendrez	1/26/2018 8:00:00 AM	1		MA	, 5	
Completed By: Reviewed By:	ENM	1/26/2018 8:59:45 AM			Dango	- <u>5</u> -	
Chain of Cus	tody						
1. Is Chain of C	ustody complete?		Yes	~	No 🗌	Not Present	
2. How was the	sample delivered?		Cou	rier			
Log In 3. Was an attem	npt made to cool the samples?		Yes	~	No 🗌	NA 🗌	
4. Were all samp	ples received at a temperature	of >0° C to 6 0°C	Yes	V	No	NA 🗔	
5. Sample(s) in	proper container(s)?		Yes	V	No 🗌		
6, Sufficient sam	ple volume for indicated test(s	)?	Yes	1	No 🗌		
7, Are samples (	except VOA and ONG) proper	y preserved?	Yes	~	No 🗌		
<ol><li>Was preserva</li></ol>	tive added to bottles?		Yes		No 🖌	NA	
9. VOA vials hav	e zero headspace?		Yes		No 🗌	No VOA Vials 🖌	
10, Were any sar	nple containers received broke	n?	Yes		No 🗸	# of preserved bottles checked	
11. Does paperwo (Note discrepa	ork match bottle labels? ancies on chain of custody)		Yes	V	No	for pH: (<2 or	>12 unless noted)
12. Are matrices of	correctly identified on Chain of	Custody?	Yes	$\checkmark$	No 🗌	Adjusted?	
13. Is it clear what	t analyses were requested?		Yes	~	No		
14. Were all holdin (If no, notify ci	ng times able to be met? ustomer for authorization.)		Yes	$\checkmark$	• No 🗔	Checked by:	
Special Handl	ing (if applicable)						
15, Was client no	tified of all discrepancies with	this order?	Yes		No 🗌	NA 🗸	
Person	Notified:	Date:					
By Who	om: [	Via:	eM	ail 🗌 P	hone Fax	In Person	
Regard	ing:						
Client Ir	nstructions:						
16. Additional rei	marks:						
17. <u>Cooler Infor</u> Cooler No 1	mation Temp °C Condition Se 2.4 Good Not	eal Intact   Seal No   S Present	Seal D	ate	Signed By		

Client:	Linds	or-cu	umas Hilcorp	Standard	Rush					H/		E LYS	NV SIS	/IR 5 L	20 .AE	NN 30	1EI RA		r
C	-	t		Project Name	e:				68	WA!	ww.ha	allen	/iron	ment	tal.co	om			
Mailing	Address	1111	Francis St.	Sansu	an 27-5	HION		490	1 Ha	wkins	NE	- Alt	ouqu	erau	e. N	M 87	7109		
	H	ousta	O TX TIND	Project #:				Tel	504	5-345	3075		Fax	505-	345	-410	7		
Phone #	#: 78	1 194-	9159	1							0070	Anal	ysis	Reg	ues	t			
email or	Fax#:	DUMA	eHilcorp.com	Project Mana	ger:			ly)	el				4)						
QA/QC F	<sup>o</sup> ackage: dard		Level 4 (Full Validation)	Lindsau	Duma	5	s (8021	(Gas on	as/bies				PO4.SO	PCB's					
Accredit	tation:			Sampler: TY	avis Mu	inkres	MB'	H	0	=			03.	082			R		
D NEL/	AP	Other		On Ice:	Y Yes	□ No	+	+	1156	18.	AH A		03.1	s / 8		(A)	30		or N
	(Type)	1		Sample Tem	perature: 3.1	-0.7(C.F.) = 2.4	BE	E	d 8(	4 po	orPort	etals	N'N	side	(¥	-VO	3		E
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO.	BTEX + MI	BTEX + MI	TPH Metho	TPH (Meth	8310 (PNA	RCRA 8 Me	Anions (F,C	8081 Pestic	8260B (VO	8270 (Semi	Chlorid		Air Bubbles
124/18	11:00	Soil	Base	inrunz		001	1		J								J		
1/24/18	11:00	SSIL	INPST INR 11	1ar402		002	V	-	1	1	1						V	-	
124/18	11:00	Soil	Systa unli	iar 407		()03	~		1								V		
1124/18	ii:00	Soil	North Wall	jar 407		004			1								it		
1/24/18	11:00	Sail	east wall	jar 407.		005		· ,	1								V	~	
																			 -
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												-	<u> </u>						 
												-	-		ļ				-
Data	Times	Determinte	ad hur	Dessived by		Data Tima	-												
Date: 25/18 Date:	Time:	Relinquish	ed by: ed by: t. 1. hal.	Received by:	- Wall	125/18 1558 Date Time	S	tan	.da	rd	t	Lrr	ar	a	in	d			
10/18	necessary,	samples subi	mitted to Hall Environmental may be subc	contracted to other a	ccredited aboratoris	es. This serves as notice of this	s possil	bility, A	ny sut	-contra	tied dat	a will b	e clear	rly nota	ated or	n the a	ina ytica	i report.	 

V



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

May 01, 2018

Lindsay Dumas Hilcorp Energy PO Box 61529 Houston, TX 77208-1529 TEL: (337) 276-7676 FAX

RE: SJ 27-5 110N Landfarm 2

OrderNo.: 1804D57

Dear Lindsay Dumas:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/27/2018 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 <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

## Hall Environmental Analysis Laboratory, Inc.

Lab Order **1804D57** Date Reported: **5/1/2018** 

CLIENT: Hilcorp Energy		Client Sample ID: South 6									
Project: SJ 27-5 110N Landfarm 2	Collection Date: 4/26/2018 10:00:00 AM										
Lab ID: 1804D57-001	Matrix:	SOIL	Received Date: 4/27/2018 7:00:00 AM								
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch					
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS	6			Analyst	том					
Diesel Range Organics (DRO)	78	9.6	mg/Kg	1	4/30/2018 6:14:30 PM	37838					
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	4/30/2018 6:14:30 PM	37838					
Surr: DNOP	102	70-130	%Rec	1	4/30/2018 6:14:30 PM	37838					
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	NSB					
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	4/30/2018 11:15:42 AM	37835					
Surr: BFB	106	15-316	%Rec	1	4/30/2018 11:15:42 AM	37835					
EPA METHOD 8021B: VOLATILES					Analyst	NSB					
Methyl tert-butyl ether (MTBE)	ND	0.094	mg/Kg	1	4/30/2018 11:15:42 AM	37835					
Benzene	ND	0.023	mg/Kg	1	4/30/2018 11:15:42 AM	37835					
Toluene	ND	0.047	mg/Kg	1	4/30/2018 11:15:42 AM	37835					
Ethylbenzene	ND	0.047	mg/Kg	1	4/30/2018 11:15:42 AM	37835					
Xylenes, Total	ND	0.094	mg/Kg	1	4/30/2018 11:15:42 AM	37835					
Surr: 4-Bromofluorobenzene	104	80-120	%Rec	1	4/30/2018 11:15:42 AM	37835					

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 6
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order 1804D57

Date Reported: 5/1/2018

## Hall Environmental Analysis Laboratory, Inc.

CLIENT:	Hilcorp Energy		Client Sample ID: North 6									
<b>Project:</b>	SJ 27-5 110N Landfarm 2		Collection Date: 4/26/2018 10:00:00 AM									
Lab ID:	1804D57-002	Matrix: S	SOIL	Received I	Date: 4/2	27/2018 7:00:00 AM						
Analyses		Result	PQL Qu	al Units	DF	Date Analyzed	Batch					
EPA MET	HOD 8015M/D: DIESEL RAN	GE ORGANICS				Analyst	том					
Diesel R	ange Organics (DRO)	54	9.2	mg/Kg	1	4/30/2018 6:36:45 PM	37838					
Motor Oi	I Range Organics (MRO)	ND	46	mg/Kg	1	4/30/2018 6:36:45 PM	37838					
Surr: [	ONOP	107	70-130	%Rec	1	4/30/2018 6:36:45 PM	37838					
EPA MET	HOD 8015D: GASOLINE RAM	IGE				Analyst	NSB					
Gasoline	Range Organics (GRO)	ND	4.7	mg/Kg	1	4/30/2018 11:39:03 AM	37835					
Surr: E	3FB	99.0	15-316	%Rec	1	4/30/2018 11:39:03 AM	37835					
EPA MET	HOD 8021B: VOLATILES					Analyst	NSB					
Methyl te	ert-butyl ether (MTBE)	ND	0.095	mg/Kg	1	4/30/2018 11:39:03 AM	37835					
Benzene		ND	0.024	mg/Kg	1	4/30/2018 11:39:03 AM	37835					
Toluene		ND	0.047	mg/Kg	1	4/30/2018 11:39:03 AM	37835					
Ethylben	zene	ND	0.047	mg/Kg	1	4/30/2018 11:39:03 AM	37835					
Xylenes,	Total	ND	0.095	mg/Kg	1	4/30/2018 11:39:03 AM	37835					
Surr: 4	1-Bromofluorobenzene	106	80-120	%Rec	1	4/30/2018 11:39:03 AM	37835					

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 6
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

WO#: 1804D57 01-May-18

### **Client:** Hilcorp Energy

Project: SJ 27-5	110N Landfarn	n 2								
Sample ID LCS-37838	SampType	LC	S	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: LCSS	Batch ID:	37	838	F	RunNo: 5	0909				
Prep Date: 4/27/2018	Analysis Date:	4/	30/2018	5	SeqNo: 1	653303	Units: mg/k	٢g		
Analyte	Result P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.0	70	130			
Surr: DNOP	4.8		5.000		96.3	70	130			
Sample ID MB-37838	SampType	ME	BLK	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: PBS	Batch ID:	37	838	F	RunNo: 5	0909				
Prep Date: 4/27/2018	Analysis Date:	4/	30/2018	S	SeqNo: 1	653304	Units: mg/k	(g		
Analyte	Result PO	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Н 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 S
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Sample pH Not In Range Р
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified W

### Page 3 of 6

WO#: **1804D5**7 *01-May-18* 

Client:	Hilcorp H	Energy								
Project:	SJ 27-5 1	10N Landfarn	n 2							
Sample ID	MB-37835	SampType:	MBLK	Tes	tCode: EP	A Method	8015D: Gaso	line Rang	e	
Client ID:	PBS	Batch ID:	37835	F	RunNo: <b>50</b>	929				
Prep Date:	4/27/2018	Analysis Date:	4/30/2018	S	SeqNo: 16	53363	Units: mg/K	g		
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0							
Surr: BFB		950	1000		94.9	15	316			
Sample ID	LCS-37835	SampType:	LCS	Tes	tCode: EP	A Method	8015D: Gaso	line Rang	6	
Client ID:	LCSS	Batch ID:	37835	F	RunNo: <b>50</b>	929				
Prep Date:	4/27/2018	Analysis Date:	4/30/2018	S	eqNo: 16	53364	Units: mg/K	g		
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	26	5.0 25.00	0	105	75.9	131			
Surr: BFB		1100	1000		107	15	316			
Sample ID	MB-37842	SampType:	MBLK	Tes	Code: EP	A Method	8015D: Gaso	line Rang	9	
Client ID:	PBS	Batch ID:	37842	R	unNo: 50	929				
Prep Date:	4/27/2018	Analysis Date:	4/30/2018	S	eqNo: 16	53372	Units: %Rec			
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		880	1000		87.7	15	316			
Sample ID	LCS-37842	SampType:	LCS	Test	Code: EP	A Method	8015D: Gasol	line Rang	9	
Client ID:	LCSS	Batch ID:	37842	R	unNo: 50	929				
Prep Date:	4/27/2018	Analysis Date:	4/30/2018	S	eqNo: 16	53373	Units: %Rec			
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		1100	1000		106	15	316			

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 6
- 0

Client:Hilcorp EnergyProject:SJ 27-5 110N Landfarm 2

Sample ID MB-37835	Samp	Туре: МВ	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: PBS	Batc	h ID: 37	835	F	RunNo: 5	0929				
Prep Date: 4/27/2018	Analysis [	Date: 4/	30/2018	S	SeqNo: 1	653384	Units: mg/k	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10	-							
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			
Sample ID LCS-37835	Samp	Type: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: LCSS	Batc	h ID: 37	835	F	RunNo: 5	0929				
Prep Date: 4/27/2018	Analysis [	Date: 4/	30/2018	9	SeqNo: 1	653385	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.93	0.10	1.000	0	92.9	70.1	121			
Benzene	0.97	0.025	1.000	0	96.6	77.3	128			
Toluene	0.98	0.050	1.000	0	98.4	79.2	125			
Ethylbenzene	0.97	0.050	1.000	0	96.7	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	99.7	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			
Sample ID 1804D57-002AM	s Samp	Гуре: МS	3	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Sample ID 1804D57-002AM Client ID: North 6	S Samp <sup>-</sup> Batc	Гуре: <b>МS</b> h ID: <b>37</b>	835	Tes F	tCode: El	PA Method 0929	8021B: Vola	tiles		
Sample ID         1804D57-002AM           Client ID:         North 6           Prep Date:         4/27/2018	S Samp <sup>-</sup> Batc Analysis [	Гуре: <b>М</b> h ID: <b>37</b> Date: <b>4</b> /	835 30/2018	Tes F	tCode: EF RunNo: 50 SeqNo: 10	PA Method 0929 653388	8021B: Volat Units: mg/M	tiles		
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte	S Samp <sup>-</sup> Batc Analysis I Result	Fype: <b>MS</b> h ID: <b>37</b> Date: <b>4/</b> PQL	835 30/2018 SPK value	Tes F S SPK Ref Val	tCode: EF RunNo: 50 SeqNo: 10 %REC	PA Method 0929 653388 LowLimit	8021B: Volat Units: mg/k HighLimit	tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE)	S Samp Batc Analysis I Result 0.88	Гуре: <b>МS</b> h ID: <b>37</b> Date: <b>4/</b> PQL 0.094	5 835 30/2018 SPK value 0.9363	Tes F S SPK Ref Val 0	tCode: Ef RunNo: 56 SeqNo: 10 %REC 94.4	PA Method 0929 653388 LowLimit 56.9	8021B: Vola Units: mg/K HighLimit 130	tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene	S Samp Batc Analysis I Result 0.88 0.90	Type: <b>MS</b> h ID: <b>37</b> Date: <b>4</b> PQL 0.094 0.023	835 30/2018 SPK value 0.9363 0.9363	Tes F SPK Ref Val 0 0	tCode: EF RunNo: 56 SeqNo: 10 %REC 94.4 95.6	PA Method 0929 653388 LowLimit 56.9 68.5	8021B: Volar Units: mg/k HighLimit 130 133	tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene	S Samp Batc Analysis I Result 0.88 0.90 0.92	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047	835 30/2018 SPK value 0.9363 0.9363 0.9363	Tes F SPK Ref Val 0 0 0.008357	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4	PA Method 0929 653388 LowLimit 56.9 68.5 75	8021B: Volar Units: mg/k HighLimit 130 133 130	tiles Sg %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92	Гуре: <b>MS</b> h ID: <b>37</b> Date: <b>4</b> / PQL 0.094 0.023 0.047 0.047	<b>30/2018</b> 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 0.9363	Tes F SPK Ref Val 0 0 0.008357 0.01235	tCode: EF RunNo: 56 SeqNo: 10 %REC 94.4 95.6 97.4 97.4	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4	8021B: Volar Units: mg/k HighLimit 130 133 130 128	tiles Sg %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 0.92 2.8	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.047 0.094	5 835 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809	Tes F SPK Ref Val 0 0.008357 0.01235 0.01709	tCode: Ef RunNo: 56 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3	8021B: Volat Units: mg/F HighLimit 130 133 130 128 131	tiles Kg %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 2.8 0.99	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.047 0.094	<b>30/2018</b> <b>30/2018</b> SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363	Tes F SPK Ref Val 0 0 0.008357 0.01235 0.01709	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101 106	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80	8021B: Volat Units: mg/k HighLimit 130 133 130 128 131 120	tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 2.8 0.99 SD Samp	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.047 0.094	835 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 2.809	Tes F S SPK Ref Val 0 0.008357 0.01235 0.01709 Tes	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101 106 tCode: EF	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method	8021B: Volat Units: mg/# HighLimit 130 133 130 128 131 120 8021B: Volat	tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM	S         Samp           Batc         Analysis I           Result         0.88           0.90         0.92           0.92         2.8           0.99         SD           Samp <sup>-</sup> Batc	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.094 0.094 0.094	30/2018 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 5D 835	Tes F SPK Ref Val 0 0.008357 0.01235 0.01709 Tes F	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101 106 tCode: EF RunNo: 50	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929	8021B: Volat Units: mg/# HighLimit 130 133 130 128 131 120 8021B: Volat	tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 2.8 0.99 SD Samp Batc Analysis I	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.094 0.047 0.094 Fype: MS h ID: 37 Date: 4/	30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 2.809 0.9363 30/2018	Tes F SPK Ref Val 0 0.008357 0.01235 0.01709 Tes S	tCode: EF RunNo: 56 SeqNo: 10 %REC 94.4 95.6 97.4 101 106 tCode: EF RunNo: 56 SeqNo: 10	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929 653389	8021B: Volat Units: mg/# HighLimit 130 133 130 128 131 120 8021B: Volat Units: mg/#	tiles Kg %RPD tiles Kg	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 2.8 0.99 SD Samp Batc Analysis I Result	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.094 0.094 Fype: MS h ID: 37 Date: 4/ PQL	30/2018 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 2.809 0.9363 5D 835 30/2018 SPK value	Tes F SPK Ref Val 0 0 0.008357 0.01235 0.01709 Tes SPK Ref Val	tCode: Ef RunNo: 50 SeqNo: 10 94.4 95.6 97.4 97.4 101 106 tCode: Ef RunNo: 50 SeqNo: 10 %REC	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929 653389 LowLimit	8021B: Volat Units: mg/k HighLimit 130 133 130 128 131 120 8021B: Volat Units: mg/k HighLimit	tiles (g %RPD tiles (g %RPD	RPDLimit	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE)	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 2.8 0.99 SD Samp Batc Analysis I Result 0.85	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.094 0.023 0.047 0.094 Fype: MS h ID: 37 Date: 4/ PQL 0.095	30/2018 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 2.809 0.9363 30.9363 5D 835 30/2018 SPK value 0.9533	Tes F SPK Ref Val 0 0 0.008357 0.01235 0.01709 Tes F SPK Ref Val 0	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101 106 tCode: EF RunNo: 50 SeqNo: 10 %REC 89.5	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929 653389 LowLimit 56.9	8021B: Volat Units: mg/k HighLimit 130 133 130 128 131 120 8021B: Volat Units: mg/k HighLimit 130	tiles (g %RPD tiles (g %RPD 3.61	RPDLimit RPDLimit 20	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene	S         Samp           Batc         Analysis I           Result         0.88           0.90         0.92           0.92         0.92           2.8         0.99           SD         Samp           Batc         Analysis I           Analysis I         Batc           Analysis I         0.85	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.047 0.047 0.094 Fype: MS h ID: 37 Date: 4/ PQL 0.095 0.024	30/2018 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 2.809 0.9363 30.9363 SD 835 30/2018 SPK value 0.9533 0.9533	Tes F SPK Ref Val 0 0 0.008357 0.01235 0.01709 Tes SPK Ref Val 0 0 0	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101 106 tCode: EF RunNo: 50 SeqNo: 10 %REC 89.5 89.6	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929 653389 LowLimit 56.9 68.5	8021B: Volat Units: mg/k HighLimit 130 133 130 128 131 120 8021B: Volat Units: mg/k HighLimit 130 133	tiles Sg %RPD tiles Sg %RPD 3.61 4.66	RPDLimit RPDLimit 20 20	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene	S         Samp           Batc         Analysis I           Result         0.88           0.90         0.92           0.92         2.8           0.99         SD           Samp         Batc           Analysis I         Batc           Analysis I         0.85           0.85         0.91	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.047 0.047 0.094 Fype: MS h ID: 37 Date: 4/ PQL 0.095 0.024 0.048	30/2018 30/2018 SPK value 0.9363 0.9363 0.9363 0.9363 2.809 0.9363 2.809 0.9363 30/2018 SPK value 0.9533 0.9533 0.9533	Tes F SPK Ref Val 0 0 0.008357 0.01235 0.01709 Tes SPK Ref Val 0 0 0.008357	tCode: EF RunNo: 50 SeqNo: 10 %REC 94.4 95.6 97.4 97.4 101 106 tCode: EF RunNo: 50 SeqNo: 10 %REC 89.5 89.6 95.0	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929 653389 LowLimit 56.9 68.5 75	8021B: Volat Units: mg/k HighLimit 130 133 130 128 131 120 8021B: Volat Units: mg/k HighLimit 130 133 130	tiles (g %RPD tiles (g %RPD 3.61 4.66 0.677	RPDLimit RPDLimit 20 20 20	Qual
Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofluorobenzene Sample ID 1804D57-002AM Client ID: North 6 Prep Date: 4/27/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene	S Samp Batc Analysis I Result 0.88 0.90 0.92 0.92 2.8 0.99 SD Samp Batc Analysis I Result 0.85 0.85 0.91 0.93	Fype: MS h ID: 37 Date: 4/ PQL 0.094 0.023 0.047 0.094 Fype: MS h ID: 37 Date: 4/ PQL 0.095 0.024 0.048 0.048	5 835 30/2018 SPK value 0.9363 0.9363 0.9363 2.809 0.9363 2.809 0.9363 5D 835 30/2018 SPK value 0.9533 0.9533 0.9533 0.9533	Tes F SPK Ref Val 0 0 0.008357 0.01235 0.01709 Tes SPK Ref Val 0 0 0.008357 0.01235	tCode: Ef RunNo: 50 SeqNo: 10 94.4 95.6 97.4 101 106 tCode: Ef RunNo: 50 SeqNo: 10 %REC 89.5 89.6 95.0 96.5	PA Method 0929 653388 LowLimit 56.9 68.5 75 79.4 77.3 80 PA Method 0929 653389 LowLimit 56.9 68.5 75 79.4	8021B: Volat Units: mg/k HighLimit 130 133 130 128 131 120 8021B: Volat Units: mg/k HighLimit 130 133 130 128	tiles (g %RPD tiles (g %RPD 3.61 4.66 0.677 0.808	RPDLimit RPDLimit 20 20 20 20 20	Qual

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

E Value above quantitation range

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

W Sample container temperature is out of limit as specified

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WO#: **1804D57** *01-May-18* 

WO#: 1804D57

01-May-18

### Client: Hilcorp Energy

Project:	SJ 27-5 11	10N Landfa	rm 2								
Sample ID	1804D57-002AMSE	SampTyp	e: MS	SD	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	North 6	Batch II	D: 37	835	F	RunNo: 5	50929				
Prep Date:	4/27/2018	Analysis Date	e: 4/	/30/2018	S	SeqNo: 1	653389	Units: mg/h	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total		2.9 (	0.095	2.860	0.01709	100	77.3	131	1.60	20	
Surr: 4-Bron	ofluorobenzene	0.97		0.9533		102	80	120	0	0	
Sample ID	MB-37842	SampTyp	e: ME	BLK	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	PBS	Batch II	D: 37	842	F	RunNo: 5	0929				
Prep Date:	4/27/2018	Analysis Date	e: 4/	30/2018	S	SeqNo: 1	653392	Units: %Re	с		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bron	ofluorobenzene	1.0		1.000		101	80	120			
Sample ID	LCS-37842	SampTyp	e: LC	s	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	LCSS	Batch II	D: 37	842	F	RunNo: 5	0929				
Prep Date:	4/27/2018	Analysis Date	e: 4/	30/2018	S	SeqNo: 1	653393	Units: %Re	с		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Brom	ofluorobenzene	1.1		1.000		109	80	120			

Qualifiers:

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

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H	ALL	Hall Envi
E E	VIRONMENTAL	
	NALYSIS	
L/	ABORATORY	TEL: 505
	20 A	Websii

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

CI	ient Name:	HILCORP	ENERGY	Work	Order Numb	ber: 1804D	57		Rcpt	lo: 1	
					۰ <u>چ</u>					, .	
Re	ceived By:	Anne Tho	orne	4/27/20	18 7:00:00 A	M		anne A.	in the second se		
Co	mpleted By:	Anne Tho	orne	4/27/20	18 7:44:01 /	M	· · · ·	Am. A			
Re	viewed By:	IM	C	427	18		- 3 .	Cana St			
Y	MIN 4	27/18		···· •	· · · ·						
Ch	ain of Cus	tody	× " . '								
1.	ls Chain of C	ustody comp	plete?			Yes 5		No 🗌	Not Present		
2.	How was the	sample deliv	vered?		* * * 2 20	Courie					
3	Nas an attem	nt made to	cool the samp	les?		Ves	P .	No	NA		
0.	vus an aton	ipt made to	ooor me samp			103 1				*	
4. V	Nere all samp	ples received	d at a tempera	ture of >0° C	to 6.0°C	Yes V		No 🗌	NA 🗌	•	
					-	_	7				
5. 3	Sample(s) in	proper conta	iner(s)?			Yes 🕨	<u>'</u> ]	No 🗌			÷
6. 5	Sufficient sam	iple volume f	for indicated te	est(s)?		Yes 🗸		No 🗌			
7. A	re samples (	except VOA	and ONG) pro	perly preserve	ed?	Yes 🗸		No 🗌			
8. V	Vas preserva	tive added to	bottles?			Yes [	~	No 🔽	NA 🗌		
								_			
9. v	/OA vials hav	e zero head	space?			Yes		No 🗌	No VOA Vials		
10.1	Nere any sar	nple contain	ers received b	roken?		Yes 🗆		No ⊻	# of preserved		
11 г	oes paperwo	ork match bo	ttle labels?			Yes V		No 🗌	bottles checked for pH:	1.8/	
(	Note discrepa	ancies on ch	ain of custody	)					VA	of 12 unless noted)	
12. A	are matrices o	correctly ider	ntified on Chain	n of Custody?		Yes 🔽		No 🗌	Adjusted	/	
13. 1	s it clear what	t analyses w	ere requested	?		Yes 🗸		No 🛄	Mr.		
14. V	Vere all holdu	ng times able ustomer for a	e to be met? authorization.)			Yes ⊻		No L	Checked by.		
<b>C</b> =-	aial Handl	ine lif on	linchia								
Spe	cial nandi	ing (ir app	<u>olicapie)</u>			X-					
15.	vvas client no		Iscrepancies v	vith this order?	r 1	Yes L		NO	NA 💌		
	Person	Notified:			Date			da <mark>d</mark> a j			-
	By Who	ing:		anterio de contraine de	Via:	eMail	Pho	ne [_] Fax			
	Client Ir	nstructions:						and the state of the			
16	Additional rei	marks	1			and the sea		n or 0.00			
477		nanto.									
17.	Cooler Infor	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Si	aned By	-		
	1	1.0	Good	Yes	UQUI IIU	Joan Date		Suca Dy	<u>~</u>	÷	
	and a second			n na shina na shinan na si shina na si				an an an an ann an an an an an an an an			

С	hain	of-Cu	stody Record	Turn-Around	Time:						1.6.1						<b>BZ B</b> .				ı
Client:	Hilcon	PEN	ergy Company	Standard	C Rush					A		LL AL	EI YS	IS		AE		RA	TC	AI DR	Y
			J 1 1 6	Project Name	3:					-		v hol	loov	ironr	noni						~ *
Mailing	Address	11117	Travis St.	5327-5	5110N L	andfarm-2		49	01 H	awk	ins N	V.Hai	Alb	uque	erqu	e, NI	M 87 <sup>.</sup>	109			
	How	ton. T	x 77002	Project #:				Te	el. 50	5-34	15-39	975	F	ax	505-	345-	4107	7			
Phone a	#: 83	2-83	7-4585									A	naly	sis	Req	uest	-				
email o	r Fax#: [	Duma	asChilcorp.com	Project Mana	ger:		-	ô					04			Ŧ				T	
QA/QC	Package:			Lindsa	y Dumo	25	302	MR	B's		NS		4, S			bsel					
🗆 Stan	dard	.*	Level 4 (Full Validation)		-	14	s) (8	10	PC		OSIN		P P			HIA					
Accredi	tation:		mpliance	Sampler: Tr	avis Mu	intres	TMB	/ DF	082	=	827		VO2,		8	esel					
	AC	□ Other		On Ice:	Yés	⊡ No		RO	es/8	504	o	S	3, P		(YO)	(Pr					
	(Type)	<u> </u>		# of Coolers:			TBE	00	icide	por	310	leta	8	2	V-ir	orm					
				Gooler-Temp	(including CF).		M /	30151	Pest	Meth	by 8	A 8 N	Br,	(VO/	(Serr	Colif					
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1804857	BTEX	TPH:8	8081	EDB (	PAHs	RCR/	CI, F,	8260	8270	Total					
41210/18	IDAM	Soil	South 6	Hoziar		-col	X	$\times$													
4/24/18	IDAM	Soil	North Le	Hoziar		-262-	X	$\mathbf{X}$													
				1 3																	
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							-											-+	-		
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Date:	Time:	Relinquish	ed by:	Received by:	Via:	Date Time	Rer	nark	s:												
4/26/18	1650	Lin	mu Dime	Viblat	. I JAGE	4/2010168	S	50	nda	27,6	į -	hu	5	a	NOV	no	1 1	- TY	1-2		
Date:	Time:	Relinquish	ed by:	Received by.	) Via:	Date Time		Δ.	CF	: 1	18	251	28	52						3	
1/20/18-	1830	Cha	ista Walter	V Up	an M	04/27/18		/ \			10			- Lan							

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



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

March 14, 2018

Lindsay Dumas Hilcorp Energy PO Box 61529 Houston, TX 77208-1529 TEL: (337) 276-7676 FAX

RE: SJ 27-5 110N

OrderNo.: 1803595

Dear Lindsay Dumas:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/10/2018 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 <u>www.hallenvironmental.com</u> 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,

Only

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

## Hall Environmental Analysis Laboratory, Inc.

Lab Order **1803595** Date Reported: **3/14/2018** 

1 3/13/2018 7:25:43 PM 36964

CLIENT: Hilcorp Energy		Client Sample ID: North Pile										
<b>Project:</b> SJ 27-5 110N			Collection	Date: 3/8	3/2018 1:00:00 PM							
Lab ID: 1803595-001	Matrix:	SOIL	Received	Received Date: 3/10/2018 8:00:00 AM								
Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch						
EPA METHOD 8015M/D: DI	ESEL RANGE ORGANIC	s			Analyst	t: TOM						
Diesel Range Organics (DRO)	120	9.2	mg/Kg	1	3/14/2018 5:19:10 AM	36967						
Motor Oil Range Organics (MF	RO) ND	46	mg/Kg	1	3/14/2018 5:19:10 AM	36967						
Surr: DNOP	117	70-130	%Rec	1	3/14/2018 5:19:10 AM	36967						
EPA METHOD 8015D: GAS	OLINE RANGE				Analyst	NSB						
Gasoline Range Organics (GR	O) 15	4.8	mg/Kg	1	3/13/2018 7:25:43 PM	36964						
Surr: BFB	186	15-316	%Rec	1	3/13/2018 7:25:43 PM	36964						
EPA METHOD 8021B: VOL	ATILES				Analyst	: NSB						
Methyl tert-butyl ether (MTBE)	ND	0.096	mg/Kg	1	3/13/2018 7:25:43 PM	36964						
Benzene	ND	0.024	mg/Kg	1	3/13/2018 7:25:43 PM	36964						
Toluene	ND	0.048	mg/Kg	1	3/13/2018 7:25:43 PM	36964						
Ethylbenzene	ND	0.048	mg/Kg	1	3/13/2018 7:25:43 PM	36964						
Xylenes, Total	0.21	0.096	mg/Kg	1	3/13/2018 7:25:43 PM	36964						

80-120

%Rec

96.1

2

Surr: 4-Bromofluorobenzene

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 8
	ND Not Detected at the Reporting Limit		Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order 1803595

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/14/2018

CLIENT: Hilcorp Energy			Client Sampl	e ID: So	uth Pile	
<b>Project:</b> SJ 27-5 110N			Collection ]	Date: 3/8	3/2018 1:00:00 PM	
Lab ID: 1803595-002	Matrix:	Received 1				
Analyses	Result	PQL Qua	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RAN	GE ORGANICS	5			Analyst	том
Diesel Range Organics (DRO)	130	9.6	mg/Kg	1	3/14/2018 5:44:01 AM	36967
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	3/14/2018 5:44:01 AM	36967
Surr: DNOP	114	70-130	%Rec	1	3/14/2018 5:44:01 AM	36967
EPA METHOD 8015D: GASOLINE RAM	IGE				Analyst	NSB
Gasoline Range Organics (GRO)	13	4.9	mg/Kg	1	3/13/2018 7:49:12 PM	36964
Surr: BFB	164	15-316	%Rec	1	3/13/2018 7:49:12 PM	36964
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Methyl tert-butyl ether (MTBE)	ND	0.099	mg/Kg	1	3/13/2018 7:49:12 PM	36964
Benzene	ND	0.025	mg/Kg	1	3/13/2018 7:49:12 PM	36964
Toluene	0.060	0.049	mg/Kg	1	3/13/2018 7:49:12 PM	36964
Ethylbenzene	ND	0.049	mg/Kg	1	3/13/2018 7:49:12 PM	36964
Xylenes, Total	0.22	0.099	mg/Kg	1	3/13/2018 7:49:12 PM	36964
Surr: 4-Bromofluorobenzene	97.4	80-120	%Rec	1	3/13/2018 7:49:12 PM	36964

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

## Hall Environmental Analysis Laboratory, Inc.

Lab Order 1803595 Date Reported: 3/14/2018

<b>CLIENT:</b> Hilcorp Energy	Client Sample ID: South										
<b>Project:</b> SJ 27-5 110N			Collection	Date: 3/8	3/2018 12:30:00 PM						
Lab ID: 1803595-003	Matrix:	Received	Received Date: 3/10/2018 8:00:00 AM								
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch					
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANICS	5			Analys	t: TOM					
Diesel Range Organics (DRO)	71	9.9	mg/Kg	1	3/14/2018 6:08:37 AM	36967					
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	3/14/2018 6:08:37 AM	36967					
Surr: DNOP	110	70-130	%Rec	1	3/14/2018 6:08:37 AM	36967					
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB					
Gasoline Range Organics (GRO)	7.2	4.8	mg/Kg	1	3/13/2018 8:12:44 PM	36964					
Surr: BFB	139	15-316	%Rec	1	3/13/2018 8:12:44 PM	36964					
EPA METHOD 8021B: VOLATILES					Analys	t: NSB					
Methyl tert-butyl ether (MTBE)	ND	0.097	mg/Kg	1	3/13/2018 8:12:44 PM	36964					
Benzene	ND	0.024	mg/Kg	1	3/13/2018 8:12:44 PM	36964					
Toluene	0.089	0.048	mg/Kg	1	3/13/2018 8:12:44 PM	36964					
Ethylbenzene	ND	0.048	mg/Kg	1	3/13/2018 8:12:44 PM	36964					
Xylenes, Total	0.16	0.097	mg/Kg	1	3/13/2018 8:12:44 PM	36964					
Surr: 4-Bromofluorobenzene	94.3	80-120	%Rec	1	3/13/2018 8:12:44 PM	36964					

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

### Hall Environmental Analysis Laboratory, Inc.

Lab Order **1803595** Date Reported: **3/14/2018** 

CLIENT: Hilcorp Energy	Client Sample ID: East												
<b>Project:</b> SJ 27-5 110N	Collection Date: 3/8/2018 12:30:00 PM												
Lab ID: 1803595-004	Matrix:	SOIL	Received	Received Date: 3/10/2018 8:00:00 AM									
Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch							
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS	6			Analyst	том							
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	3/14/2018 6:33:25 AM	36967							
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	3/14/2018 6:33:25 AM	36967							
Surr: DNOP	115	70-130	%Rec	1	3/14/2018 6:33:25 AM	36967							
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	NSB							
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	3/13/2018 8:36:15 PM	36964							
Surr: BFB	99.7	15-316	%Rec	1	3/13/2018 8:36:15 PM	36964							
EPA METHOD 8021B: VOLATILES					Analyst	NSB							
Methyl tert-butyl ether (MTBE)	ND	0.097	mg/Kg	1	3/13/2018 8:36:15 PM	36964							
Benzene	ND	0.024	mg/Kg	1	3/13/2018 8:36:15 PM	36964							
Toluene	0.079	0.049	mg/Kg	1	3/13/2018 8:36:15 PM	36964							
Ethylbenzene	ND	0.049	mg/Kg	1	3/13/2018 8:36:15 PM	36964							
Xylenes, Total	0.11	0.097	mg/Kg	1	3/13/2018 8:36:15 PM	36964							
Surr: 4-Bromofluorobenzene	91.9	80-120	%Rec	1	3/13/2018 8:36:15 PM	36964							

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

50 3/13/2018 8:59:45 PM

50 3/13/2018 8:59:45 PM

50 3/13/2018 8:59:45 PM

50 3/13/2018 8:59:45 PM

3/13/2018 8:59:45 PM

50

36964

36964

36964

36964

36964

### Hall Environmental Analysis Laboratory, Inc.

Benzene

Toluene

Ethylbenzene

Xylenes, Total

Surr: 4-Bromofluorobenzene

Lab Order 1803595 Date Reported: 3/14/2018

CLIENT: Hilcorp Energy Project: SI 27-5 110N		0	Client Samp	le ID: Ba	se 2/2018 12:30:00 PM	
Lab ID: 1803595-005	Matrix:	SOIL	Received	0/2018 8:00:00 AM		
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS	6			Analyst	том
Diesel Range Organics (DRO)	660	9.4	mg/Kg	1	3/14/2018 6:57:51 AM	36967
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	3/14/2018 6:57:51 AM	36967
Surr: DNOP	114	70-130	%Rec	1	3/14/2018 6:57:51 AM	36967
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	NSB
Gasoline Range Organics (GRO)	1400	240	mg/Kg	50	3/13/2018 8:59:45 PM	36964
Surr: BFB	181	15-316	%Rec	50	3/13/2018 8:59:45 PM	36964
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Methyl tert-butyl ether (MTBE)	ND	4.9	mg/Kg	50	3/13/2018 8:59:45 PM	36964

1.2

2.4

2.4

4.9

80-120

mg/Kg

mg/Kg

mg/Kg

mg/Kg

%Rec

ND

22

7.8

110

98.7

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method	Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	Page 5
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range	1 age 5
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of lim	it as specif

- of 8
- fied

Client:	Hilcorp Energy
Project:	SJ 27-5 110N

Sample ID LCS-36967	SampT	ype: LC	S	TestCode: EPA Method 8015M/D: Diesel Range Organics									
Client ID: LCSS	Batch	n ID: 36	967	F	RunNo: 4								
Prep Date: 3/12/2018	Analysis D	ate: 3/	13/2018	S	SeqNo: 1	(g							
Analyte	Result PQL SPK value			SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Diesel Range Organics (DRO)	52	10	50.00	0	104	70	130						
Surr: DNOP	5.1		5.000		102	70	130						
				TestCode: EPA Method 8015M/D: Diesel Range Organics									
Sample ID MB-36967	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics				
Sample ID MB-36967 Client ID: PBS	SampT Batch	ype: ME	3LK 967	Tes F	tCode: El RunNo: 4	PA Method 9733	8015M/D: Di	esel Rang	e Organics				
Sample ID MB-36967 Client ID: PBS Prep Date: 3/12/2018	SampT Batch Analysis D	ype: ME 1D: 36 ate: 3/	3LK 967 13/2018	Tes F S	tCode: El RunNo: 4 SeqNo: 1	PA Method 9733 610107	8015M/D: Di Units: mg/F	esel Rang (g	e Organics				
Sample ID MB-36967 Client ID: PBS Prep Date: 3/12/2018 Analyte	SampT Batch Analysis D Result	ype: <b>ME</b> ID: <b>36</b> ate: <b>3</b> / PQL	8LK 967 13/2018 SPK value	Tes F SPK Ref Val	tCode: El RunNo: 4 SeqNo: 1 %REC	PA Method 9733 610107 LowLimit	8015M/D: Di Units: mg/k HighLimit	esel Rang (g %RPD	e Organics	Qual			
Sample ID MB-36967 Client ID: PBS Prep Date: 3/12/2018 Analyte Diesel Range Organics (DRO)	SampT Batch Analysis D Result ND	ype: ME 1D: 369 Pate: 3/ PQL 10	3LK 967 13/2018 SPK value	Tes F S SPK Ref Val	tCode: El RunNo: 4 SeqNo: 1 %REC	PA Method 9733 610107 LowLimit	8015M/D: Di Units: mg/H HighLimit	esel Rang (g %RPD	e Organics RPDLimit	Qual			
Sample ID MB-36967 Client ID: PBS Prep Date: 3/12/2018 Analyte Diesel Range Organics (DRO) Motor Oil Range Organics (MRO)	SampT Batch Analysis D Result ND ND	ype: ME 1D: 369 Pate: 3/ PQL 10 50	3LK 967 13/2018 SPK value	Tes F SPK Ref Val	tCode: El RunNo: 4 SeqNo: 1 %REC	PA Method 9733 610107 LowLimit	8015M/D: Di Units: mg/P HighLimit	esel Rang Kg %RPD	e Organics RPDLimit	Qual			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Sample pH Not In Range Р
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified W

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14-Mar-18

WO#: 1803595

WO#:	1803595
	14-Mar-18

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Client: Project:	Hilcorp I SJ 27-5 1	Energy 110N											
Sample ID MB-	-36964	SampT	ype: ME	3LK	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	e			
Client ID: PBS	6	Batch	n ID: 36	964	RunNo: <b>49750</b>								
Prep Date: 3/1	12/2018	Analysis D	ate: 3/	13/2018	S	SeqNo: 1	609795	Units: mg/k	٢g				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Range Org	anics (GRO)	ND	5.0										
Surr: BFB		930		1000		92.8	15	316					
Sample ID LCS	5-36964	SampT	ype: LC	S	Tes	e							
Client ID: LCS	SS	Batch	n ID: 36	964	F	RunNo: 4	9750						
Prep Date: 3/1	12/2018	Analysis D	ate: 3/	13/2018	S	SeqNo: 1609796 Units: mg/Kg							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Range Org	anics (GRO)	26	5.0	25.00	0	105	75.9	131					
Surr: BFB		1000		1000		104	15	316					

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

Client: Hi Project: SJ

Hilcorp Energy SJ 27-5 110N

Sample ID MB-36964	Samp	Гуре: МЕ	BLK	Tes	tCode: El									
Client ID: PBS	Batc	h ID: 36	964	F	RunNo: 4									
Prep Date: 3/12/2018	Analysis E	Date: 3/	13/2018	S	SeqNo: 1	609836	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Methyl tert-butyl ether (MTBE)	ND	0.10												
Benzene	ND	0.025												
Toluene	ND	0.050												
Ethylbenzene	ND	0.050												
Xylenes, Total	ND	0.10												
Surr: 4-Bromofluorobenzene	0.90		1.000		89.8	80	120							
Sample ID LCS-36964	Samp	Type: LC	S	Tes	tCode: El	PA Method	8021B: Volat	iles						
Sample ID LCS-36964 Client ID: LCSS	Samp] Batc	Гуре: <b>LC</b> h ID: <b>36</b>	S 964	Tes F	tCode: El RunNo: 4	PA Method 9750	8021B: Volat	iles						
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018	Samp Batc Analysis E	Fype: LC h ID: 36 Date: 3/	S 964 13/2018	Tes F	tCode: El tunNo: 4 SeqNo: 1	PA Method 9750 609837	8021B: Volat	iles g						
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018 Analyte	SampT Batc Analysis E Result	Гуре: <b>LC</b> h ID: <b>36</b> Date: <b>3/</b> PQL	S 964 13/2018 SPK value	Tes F S SPK Ref Val	tCode: El RunNo: 4 SeqNo: 1 %REC	PA Method 9750 609837 LowLimit	8021B: Volat Units: mg/K HighLimit	iles g %RPD	RPDLimit	Qual				
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018 Analyte Methyl tert-butyl ether (MTBE)	SampT Batc Analysis E Result 1.0	Type: LC h ID: 36 Date: 3/ PQL 0.10	<b>S</b> 964 13/2018 SPK value 1.000	Tes F SPK Ref Val 0	tCode: El RunNo: 4 SeqNo: 1 %REC 103	PA Method 9750 609837 LowLimit 70.1	8021B: Volat Units: mg/K HighLimit 121	iles g %RPD	RPDLimit	Qual				
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene	Samp Batc Analysis I Result 1.0 1.0	Type: LC h ID: 36 Date: 3/ PQL 0.10 0.025	964 13/2018 SPK value 1.000 1.000	Tes F S SPK Ref Val 0 0	tCode: El RunNo: 4 SeqNo: 1 <u>%REC</u> 103 105	PA Method 9750 609837 LowLimit 70.1 77.3	8021B: Volat Units: mg/K HighLimit 121 128	g %RPD	RPDLimit	Qual				
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene	Samp Batc Analysis I Result 1.0 1.0 1.0	Fype: LC h ID: 36 Date: 3/ PQL 0.10 0.025 0.050	S 964 13/2018 SPK value 1.000 1.000 1.000	Tes F SPK Ref Val 0 0 0 0	tCode: <b>El</b> RunNo: <b>4</b> SeqNo: <b>1</b> <u>%REC</u> 103 105 104	PA Method 9750 609837 LowLimit 70.1 77.3 79.2	8021B: Volat Units: mg/K HighLimit 121 128 125	g %RPD	RPDLimit	Qual				
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene	Samp Batc Analysis E Result 1.0 1.0 1.0 1.0	Fype: LC h ID: 36 Date: 3/ PQL 0.10 0.025 0.050 0.050	S 964 13/2018 SPK value 1.000 1.000 1.000 1.000	Tes F SPK Ref Val 0 0 0 0 0	tCode: El RunNo: 4 SeqNo: 1 %REC 103 105 104 103	PA Method 9750 609837 LowLimit 70.1 77.3 79.2 80.7	8021B: Volat Units: mg/K HighLimit 121 128 125 127	iles g %RPD	RPDLimit	Qual				
Sample ID LCS-36964 Client ID: LCSS Prep Date: 3/12/2018 Analyte Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene Xylenes, Total	Samp Batc Analysis E Result 1.0 1.0 1.0 3.1	Fype: LC h ID: 36 Date: 3/ PQL 0.10 0.025 0.050 0.050 0.10	S 964 13/2018 SPK value 1.000 1.000 1.000 3.000	Tes F SPK Ref Val 0 0 0 0 0 0 0	tCode: El RunNo: 4 SeqNo: 1 %REC 103 105 104 103 105	PA Method 9750 609837 LowLimit 70.1 77.3 79.2 80.7 81.6	8021B: Volat Units: mg/K HighLimit 121 128 125 127 129	g %RPD	RPDLimit	Qual				

Qualifiers:

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

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1803595 14-Mar-18

WO#:

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environme TEL: 505-345- Website: war	ental Analysis Labora. 4901 Hawkins Albuquerque, NM 87 8975 FAX: 505-345-4 w.hallenvironmental c	NE 109 <b>San</b> 107 107	nple Log-In Check List
Client Name HILCORP ENERGY	Work Order Num	iber. 1803595		RcptNo 1
Received By: Isalah Ortiz	3/10/2018 8:00:00	AM	IGN	-
Completed By Isaiah Ortiz	3/12/2018 9:26:25	AM	IC	- 1
Reviewed By 592C 03/12	-(18	labelid	64:1	AZ
Chain of Custody				0
1. Is Chain of Custody complete?		Yes 🗹	No	Not Present
2. How was the sample delivered?		Courier		
Log In 3. Was an attempt made to cool the sa	amples?	Yes 🗹	No 🗍	NA
4. Were all samples received at a temp	perature of >0° C to 6.0°C	Yes 🗸	Na 🗌	NA
5. Sample(s) in proper container(s)?		Yes 🗸	No 🗌	
6. Sufficient sample volume for indicate	ed test(s)?	Yes 🖌	No 🗌	
7. Are samples (except VOA and ONG)	properly preserved?	Yes 🗹	No 🗌	
8. Was preservative added to bottles?		Yes	No 🗸	NA 🗌
9. VOA vials have zero headspace?		Yes	No 🗌	No VOA Vials 🗹
10. Were any sample containers receive	d broken?	Yes	No 🔽	# of preserved
11. Does paperwork match bottle labels? (Note discremancies on chain of cust	) odv)	Yes 🗹	No 🗌	bottles checked for pH: (<2 or >12 upless noted)
12 Are matrices correctly identified on C	hain of Custody?	Yes V	No	Adjusted?
13. Is it clear what analyses were reques	ited?	Yes 🔽	No 🗌	
14. Were all holding times able to be mei (if no, notify customer for authorization	t? on.)	Yes 🗹	No	Checked by:
Special Handling (if applicable)	1			
15. Was client notified of all discrepancie	es with this order?	Yes	No 🗌	NA 🗸
Person Notified	Date		and a second	
By Whom:	Via.	eMail Ph	one Fax	In Person
Regarding:			nan harrain air steitean air schail às an	<ol> <li>CONTRACTOR IN CONTRACTOR AND AND AND AND AND AND AND AND AND AND</li></ol>
Client Instructions				
16 Additional remarks.				
17. <u>Cooler Information</u> Cooler No Temp °C Condition 1 0.4 Good	on Seal Intact Seal No Yes	Seal Date 5	Signed By	

If necessiny, simples submitted to Hall Environmental may be subco	3/9/18 1804 / Marty Chart	3/9/18 1320 molary Duman					28 12 201 (Dat			318 12:30 Soil Smith	3/8 1:00 Soil South Dile	3/8 1:00 Soil North Dile	Date Time Matrix Sample Request ID	D EDD (Type)	D NELAP D Other	Accreditation:	Standard     Cevel 4 (Full Validation)	email or Fax#: LDUMUS@ Nitorp. Com	Phone # 832 - 839 - 4585	Houston, Tx 77002	Mailing Address: 1111 TYAVIS St.		Client Hilcorp	Chain-of-Custody Record
ntracted to other accredited laboratories. This serves as notice of this	Received by: Date Time	Mats Walt 3/4/4 1320					cm Jui zut	The Jac		410-20-2	402- m- 202	Hoziar - 001	Container Preservative HEAL No.	Sample Temperature: (7), 4	On Ice: NATes INO	Sampler: Travis Munkres	Lindsay Dumas	Project Manager:		Project #:	SJ 27-5 10N	Project Name:	Standard DRush	Tum-Around Time:
tis possibility.	AFI	Remark Stau					· >	$\diamond$	<;	$\times$	X	×	BTEX + MT BTEX + MT	BE	+ T + T	MB PH	s (802 (Gas	21) only)			49			M
Any sub-contra	6#18	ndard								$\times$	X	×	TPH Methor TPH (Metho	d 80	015 18.	B (C	as/bi	esel)		el. 505-345	901 Hawkin	5	D 2:	I
cled dat	50	t	┝		 		_	+	+		_		EDB (Metho 8310 (PNA)	or F	04. 24	1)				-3975	SNE	ww.h	A	
a will be	g g	50	-					+	+				RCRA 8 Me	tals		·/			Anal	<u>u</u>	- All	allenv	K	Π
e cleari	N	tro											Anions (F,C	I,NO	7.8C	102	PO4.5	(O4)	ysis	Fax	upudu	viron	SH	
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he anal		3				_		+	+				8270 (Semi-	VO	A)					107	871	h	9	
lytical report.		re																			60		CATORY	ENTA
								T					Air Bubbles	(Y (	or N	)								



# ANALYTICAL REPORT

July 09, 2018

### HilCorp-Farmington, NM

Sample Delivery Group: Samples Received:

Project Number:

Description:

Site:

Report To:

L1005502 06/29/2018

SJ 27-5 UNIT 110N Kurt Hoekstra and Lindsay Dumas 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Napline & Richards

Daphne Richards Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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Cp 2Tc 3Ss 4Cn 5Sr 6Qc 7GI 8AI 9Sc

-

### ACCOUNT: HilCorp-Farmington, NM

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

			Collected by	Collected date/time	Received date/time
SVADOS L1005502-01 Solid			Kurt	06/27/18 13:50	06/29/18 08:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Volatile Organic Compounds (GC) by Method 8015/8021	WG1132779	1	06/29/18 10:30	07/02/18 15:54	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1133536	1	07/05/18 18:32	07/06/18 16:57	MTJ
			Collected by	Collected date/time	Received date/time
N VADOS L1005502-02 Solid			Kurt	06/28/18 13:55	06/29/18 08:45
Method	Batch	Dilution	Preparation	Analysis	Analyst
			date/time	date/time	
Volatile Organic Compounds (GC) by Method 8015/8021	WG1132779	1	06/29/18 10:30	07/02/18 15:33	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1133536	1	07/05/18 18:32	07/06/18 16:30	LTM

Sr Qc GI AI Sc

-

Тс

Cn



SDG:

### CASE NARRATIVE

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

Japline R Richards

Daphne Richards Technical Service Representative





### Collected date/time: 06/27/18 13:50

# SAMPLE RESULTS - 01

### ONE LAB. NATIONWIDE.

### Volatile Organic Compounds (GC) by Method 8015/8021

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	mg/kg		mg/kg		date / time		2
Benzene	0.00105		0.000500	1	07/02/2018 15:54	WG1132779	Tc
Toluene	ND		0.00500	1	07/02/2018 15:54	WG1132779	
Ethylbenzene	ND		0.000500	1	07/02/2018 15:54	WG1132779	350
Total Xylene	ND		0.00150	1	07/02/2018 15:54	WG1132779	55
TPH (GC/FID) Low Fraction	ND		0.100	1	07/02/2018 15:54	WG1132779	4
(S) a,a,a-Trifluorotoluene(FID)	99.5		77.0-120		07/02/2018 15:54	WG1132779	Cn
(S) a,a,a-Trifluorotoluene(PID)	105		75.0-128		07/02/2018 15:54	WG1132779	L

### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result	Qualifier	RDL	Dilution	Analysis	Batch	600
Analyte	mg/kg		mg/kg		date / time		
C10-C28 Diesel Range	31.9		4.00	1	07/06/2018 16:57	WG1133536	7
C28-C40 Oil Range	11.4		4.00	1	07/06/2018 16:57	WG1133536	GI
(S) o-Terphenyl	75.1		18.0-148		07/06/2018 16:57	WG1133536	

AI Sc

SAMPLE RESULTS - 02

### Volatile Organic Compounds (GC) by Method 8015/8021

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	mg/kg		mg/kg		date / time		2
Benzene	0.00155		0.000500	1	07/02/2018 15:33	WG1132779	Tc
Toluene	ND		0.00500	1	07/02/2018 15:33	WG1132779	Altern Aller Alternation
Ethylbenzene	ND		0.000500	1	07/02/2018 15:33	WG1132779	<sup>3</sup> Sc
Total Xylene	ND		0.00150	1	07/02/2018 15:33	WG1132779	55
TPH (GC/FID) Low Fraction	ND		0.100	1	07/02/2018 15:33	WG1132779	4
(S) a,a,a-Trifluorotoluene(FID)	99.3		77.0-120		07/02/2018 15:33	WG1132779	Cn
(S) a,a,a-Trifluorotoluene(PID)	106		75.0-128		07/02/2018 15:33	WG1132779	

### Semi-Volatile Organic Compounds (GC) by Method 8015

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	22.1		4.00	1	07/06/2018 16:30	WG1133536
C28-C40 Oil Range	7.72		4.00	1	07/06/2018 16:30	WG1133536
(S) o-Terphenyl	77.3		18.0-148		07/06/2018 16:30	WG1133536



### WG1132779

Volatile Organic Compounds (GC) by Method 8015/8021

# QUALITY CONTROL SUMMARY

Тс

Ss

Cn

Sr

### Method Blank (MB)

(MB) R3322588-4 07/02	/18 11:07				
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/kg		mg/kg	mg/kg	
Benzene	U		0.000120	0.000500	
Toluene	U		0.000150	0.00500	
Ethylbenzene	U		0.000110	0.000500	
Total Xylene	U		0.000460	0.00150	
TPH (GC/FID) Low Fraction	U		0.0217	0.100	
(S) a,a,a-Trifluorotoluene(FID)	101			77.0-120	
(S) a,a,a-Trifluorotoluene(PID)	108			75.0-128	

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

(LCS) R3322588-1 07/02	/18 09:22 • (LCS	D) R3322588	-2 07/02/18 09	):43							GI
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%	<sup>8</sup> Al
Benzene	0.0500	0.0444	0.0449	88.8	89.7	71.0-121			1.06	20	
Toluene	0.0500	0.0466	0.0469	93.3	93.8	72.0-120			0.548	20	9
Ethylbenzene	0.0500	0.0533	0.0535	107	107	76.0-121			0.428	20	SC
Total Xylene	0.150	0.163	0.163	109	109	75.0-124		*	0.184	20	L
(S) a,a,a-Trifluorotoluene(FID)				99.9	99.6	77.0-120					
(S) a,a,a-Trifluorotoluene(PID)				104	104	75.0-128					

### Laboratory Control Sample (LCS)

(LCS) R3322588-3 07/02	/18 10:25					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	mg/kg	mg/kg	%	%		
TPH (GC/FID) Low Fraction	5.50	5.26	95.7	70.0-136		
(S) a,a,a-Trifluorotoluene(FID)			85.6	77.0-120		
(S) a,a,a-Trifluorotoluene(PID)			111	75.0-128		

ACCOUNT: HilCorp-Farmington, NM PROJECT:

SDG: L1005502 DATE/TIME: 07/09/18 09:10

PAGE: 7 of 12

### WG1132779

Volatile Organic Compounds (GC) by Method 8015/8021

### QUALITY CONTROL SUMMARY L1005502-01,02

### L1004629-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

OS) L1004629-01 07/02/18 16:36 • (MS) R3322588-5 07/02/18 16:57 • (MSD) R3322588-6 07/02/18 17:18													
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	2
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%	Tc
Benzene	0.0500	13.3	66.4	65.7	106	105	1000	10.0-146			1.10	29	
Toluene	0.0500	155	186	212	62.6	115	1000	10.0-143			13.1	30	355
Ethylbenzene	0.0500	80.0	129	136	98.5	111	1000	10.0-147			4.78	31	00
Total Xylene	0.150	543	612	640	46.0	64.7	1000	10.0-149	E J6	E J6	4.47	30	<sup>4</sup> Cn
(3) a,a,a-Trifluorotoluene(FID)					101	96.6		77.0-120					
(S) a,a,a-Trifluorotoluene(PID)					107	107		75.0-128					<sup>5</sup> Sr

### L1004629-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1004629-01 07/02/	DS) L1004629-01 07/02/18 16:36 • (MS) R3322588-7 07/02/18 17:39 • (MSD) R3322588-8 07/02/18 18:00												-	
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	<b>RPD</b> Limits		SI
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%		_
TPH (GC/FID) Low Fraction	5.50	6210	10700	10800	82.0	82.7	1000	10.0-147			0.351	30	8	4
(S) a,a,a-Trifluorotoluene(FID)					92.4	92.4		77.0-120						
(S) a,a,a-Trifluorotoluene(PID)					113	114		75.0-128					9 5	òC

ACCOUNT: HilCorp-Farmington, NM PROJECT:

SDG: L1005502

DATE/TIME: 07/09/18 09:10

PAGE: 8 of 12

### WG1133536

Semi-Volatile Organic Compounds (GC) by Method 8015

# QUALITY CONTROL SUMMARY

Method Blank (MB)

- /										
/18 13:59										
MB Result	MB Qualifier	MB MDL	MB RDL							
mg/kg		mg/kg	mg/kg							
U		1.61	4.00							
U		0.274	4.00							
88.6			18.0-148							
	/18 13:59 MB Result mg/kg U U 88.6	/18 13:59 MB Result <u>MB Qualifier</u> mg/kg U U 88.6	/18 13:59 MB Result <u>MB Qualifier</u> MB MDL mg/kg mg/kg U 1.61 U 0.274 <i>88.6</i>	MB Result         MB Qualifier         MB MDL         MB RDL           mg/kg         mg/kg         mg/kg           U         1.61         4.00           U         0.274         4.00           88.6         18.0-148	MB Result     MB Qualifier     MB MDL     MB RDL       mg/kg     mg/kg     mg/kg       U     1.61     4.00       U     0.274     4.00       88.6     18.0-148	MB Result     MB Qualifier     MB MDL     MB RDL       mg/kg     mg/kg     mg/kg       U     1.61     4.00       U     0.274     4.00       88.6     18.0-148	MB Result     MB Qualifier     MB MDL     MB RDL       mg/kg     mg/kg     mg/kg       U     1.61     4.00       U     0.274     4.00       88.6     18.0-148	MB Result     MB Qualifier     MB MDL     MB RDL       mg/kg     mg/kg     mg/kg       U     1.61     4.00       U     0.274     4.00       88.6     18.0-148	MB Result     MB Qualifier     MB MDL     MB RDL       mg/kg     mg/kg     mg/kg       U     1.61     4.00       U     0.274     4.00       88.6     18.0-148	MB Result       MB Qualifier       MB MDL       MB RDL         mg/kg       mg/kg       mg/kg         U       1.61       4.00         U       0.274       4.00         88.6       18.0-148

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

(LCS) R3323648-2 07/	06/18 14:13 • (LCSI	D) R3323648-	3 07/06/18 14:2	26							Sr
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%	
C10-C28 Diesel Range	50.0	47.2	50.0	94.3	100	50.0-150			5.92	20	
(S) o-Terphenyl				94.0	102	18.0-148					17

ONE LAB. NATIONWIDE.

<sup>1</sup>Cp

<sup>3</sup>Ss <sup>4</sup>Cn

Tc

## GLOSSARY OF TERMS

Тс

Ss

Cn

Sr

Qc

AI

Sc

### Guide to Reading and Understanding Your Laboratory Report

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

### Abbreviations and Definitions

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
Qualifier	Description
Sample Summary (Ss)	times of preparation and/or analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
U	Not detected at the Reporting Limit (or MDL where applicable).
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
SDG	Sample Delivery Group.
RPD	Relative Percent Difference.
Rec.	Recovery.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
MDL	Method Detection Limit.

E J6

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

ACCOUNT: HilCorp-Farmington, NM DATE/TIME: 07/09/18 09:10

SDG:

L1005502

## ACCREDITATIONS & LOCATIONS

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

### State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico 1	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
lowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky <sup>16</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>14</sup>	2006
Louisiana 1	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

### Third Party Federal Accreditations

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

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

### Our Locations

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



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HilCorp			Billing Info	rmation:				Analy	Analysis / Container / Preservative				Chain of Custody Page of			
382 Road 3100 Aztec, NM 87401							60								ESC	
Report to: En				mail To: LINDSAY DUMAS			ALN G							12065 Lelbar Mount Juliet	Tow Rd	
Project Description:				City/State Collected:			Deo, G.R.							Phone: 615- Phone: 800 Fax: 615-758	758-5858 767-5859 1-5859	
hone: ax:	Client Project #			Lab Project #										1# /4	1# 1005502	
collected by (print):	Site/Facility ID	27-5 U	NIT 110	5.110N			2	12						Acctnum: HILCORANM		
follected by (signature):	Rush? (Lab MUST Be Notified)			Quote #		801.	000						Template Prelogin:	Template: Prelogin:		
mmediately Packed on Ice N Y X	Next Day Two Day Three Da	y5 Day 10 Di ay <b>STA</b>	(Rad Only) sy (Rad Only) NDARL	ly) Date Results Needed			Hd	19X	AND		- nhexiltense	il in the second se		TSR: PB;		
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Catrs	F	2						Shipped V	Na: sample # (lab only)	
5. VADOS	Ciono	5	0-6"	6-27-18	1:50	1	X	X					- and	and the second second second second	61	
N. VADOS	Comp	5	0-6"	6-27-18	1:55	1	×	X							in	
•																
Matrix:	Remarke				angel											
S - Soil AIR - Air F - Filter IW - Groundwater B - Bioassay VW - WasteWater									рН Тетр			Sample Receipt Checkler COC Seal Present/Intact: NP Y N COC Signed/Accurste: N Bottles arrive intact: N				
W - Drinking Water	Samples return UPSFet	ned via: dExCou	rier.	T	racking # 7	king# 1305 89				Flow Other				Correct bottles used:		
elinguistre by (signifure)		Date:	-18	me: R 7:00	eceived by: (Signa	ture)		0017		Trip Blank Received: Yes Na" HCL / MeoH			VOA Zero Headspace:YN Proservation Correct/Checked:YN			
Reinquished by : (Signature) Date:		Ti	me: R	eceived by: (Signa			Tem	Temp: °C Bottles Received:			If preservation required by Login: Date/Time					
Relinquished by : (Signature) Date:		Ti	me: R	eceived for lab by	(Sigon	ure)		Date	Date: 01/18 Time: 845			Hold: Condition: NCF / DY				