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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy	OGRID 372171
Contact Name Clara Cardoza	Contact Telephone 505.564.0733
Contact email ccardoza@hilcorp.com	Incident # *(assigned by OCD)* NVF1908731950
Contact mailing address 382 CR 3100, Aztec NM 87410	

Location of Release Source

Latitude 36.70663 Longitude -107.913304
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Haney Gas Com B 1E	Site Type Gas Well
Date Release Discovered 3/10/2019	API# *(if applicable)* 30-045-24646

Unit Letter	Section	Township	Range	County
M	20	29N	10W	San Juan

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* Gary and Mary Page)

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 1	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 21	Volume Recovered (bbls) 20
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release Well redelivery flow back fluids were underestimated and overnight (between 6 pm to 5:15 a.m) the pit had run over.

State of New Mexico
Oil Conservation Division

Incident ID	
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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

☒ The source of the release has been stopped.

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

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

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

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

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

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

Printed Name: Clara Cardoza Title: Environmental Specialist

Signature: Clara Cardoza Date: 3/27/2019

email: ccardoza@hilcorp.com Telephone: 505.564.0733

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	< 50 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☒ Yes ☐ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☒ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: __Clara Cardoza _____ Title: _____Environmental Specialist_____

Signature: _____ Date: __07/09/2019_____

email: __ccardoza@hilcorp.com_____ Telephone: ___505.564.0733_____

OCD Only

Received by: _____ Date**:** _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Clara Cardoza Title: Environmental Specialist

Signature: Clara Cardoza Date: 07/09/2019

email: ccardoza@hilcorp.com Telephone: 505.564.0733

OCD Only

Received by: OCD Cory Date: 7/9/19

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

Closure Approved by: Cory Date: 7/10/19

Printed Name: Cory Title: Environmental Specalist

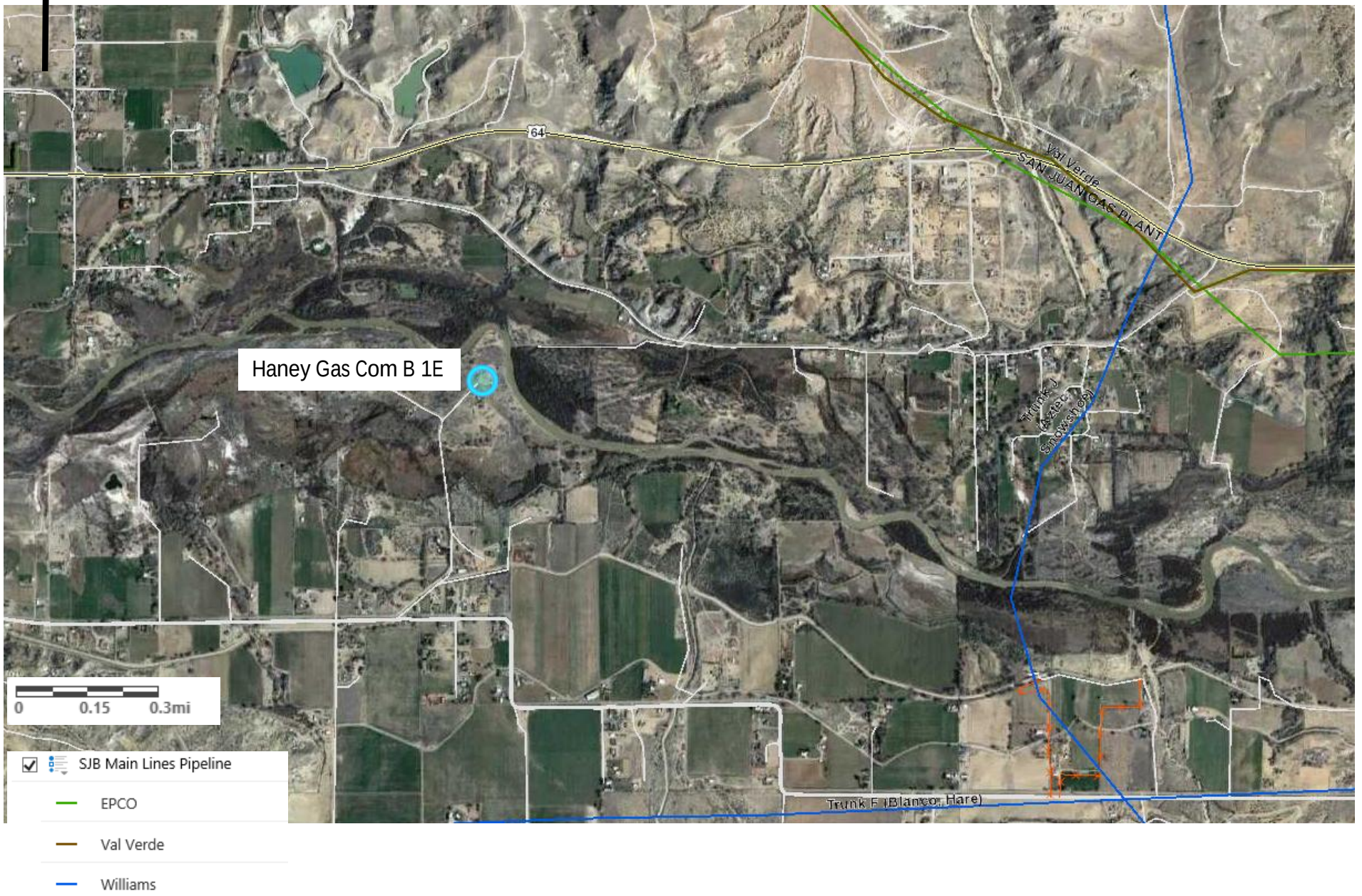
Executive Summary

On March 10, 2019 Hilcorp Energy had a release of 21 bbls of produced water and 1 bbl of oil at the Haney Gas Com B 1E. The release was due to the pit tank running over because well redelivery flow back fluids were underestimated. A vac truck was able to recover approximately 20 bbls of the released liquid. Most of the liquids were contained in the berm and on the liner. Approximately 2 bbls of liquid went off the liner to the south. Impacted soil was removed and taken to landfarm.

Confirmation sampling was conducted on Monday March 11th with Cory Smith who was in the area and in accordance with NMAC 19.15.29.12.D. Any variance was approved onsite with NMOCD. In addition to 3-five point composite samples NMOCD requested one grab sample south of the release area.

This site is ranked >50 ft per NMAC 19.15.29.12.E. Two of the four samples came back above NMOCD clean up standards (area west of release and grab sample). Additional impacted soil was remove and samples were retaken on April 3, 2019 and came back in compliance with clean up action levels.


N
Flow Back Tank
Spill Area
Sample Location
Sample Area


N
64
Val Verde
SAN JUAN GAS PLANT
Haney Gas Com B 1E
Trunk J
(Aztec, Snowshoe)
Trunk F (Blanco, Hare)
0
0.15
0.3mi
SJB Main Lines Pipeline
EPCO
Val Verde
Williams

Distance to watercourse and occupied permanent residence

Occupied residence

Distance to watercourse 355.35 ft and to occupied residence 320.19 ft


Total: 128.78 ft
128.78 ft
Wetlands
0
30
60ft

Depth to groundwater

New Mexico Office of the State Engineer

Wells with Well Log Information

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

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

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

(NAD83 UTM in meters)

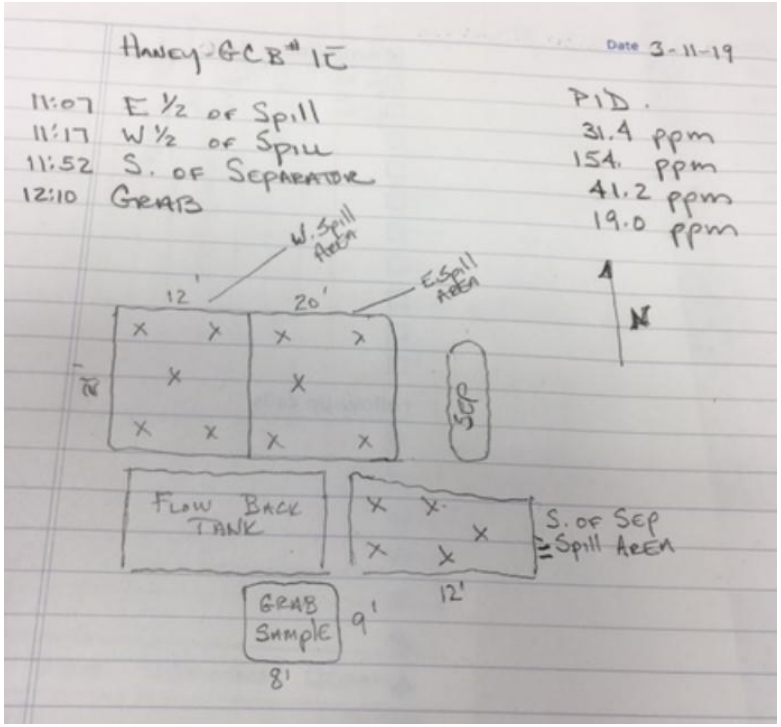
(in feet)

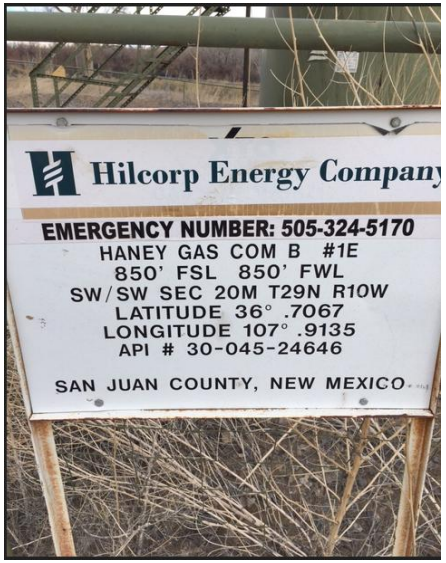
POD Number	Code	POD Subbasin	County	Source	q 64	q 16	q 4	Sec	Tws	Rng	X	Y	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
SJ 00303		SJM2	SJ	Shallow		3	3	19	29N	10W	238091	4066265*	06/17/1977	06/20/1977	06/30/1977	20	5	MCDONALD, D.K.	725
SJ 00473		SJM2	SJ	Shallow		4	2	30	29N	10W	239254	4065447*	10/12/1977	10/15/1977	10/20/1977	58	10	WRIGHT, JOHN R.	730
SJ 00497		SJM2	SJ	Shallow	3	2	3	29	29N	10W	239929	4064927*	10/25/1977	10/28/1977	11/01/1977	85	35	WRIGHT, JOHN R.	730
SJ 00506		SJM2	SJ	Shallow		3	4	28	29N	10W	242019	4064555*	01/01/1978	01/08/1978	01/16/1978	78	55	WRIGHT, JOHN R.	730
SJ 00662		SJM2	SJ	Shallow	3	4	4	28	29N	10W	242329	4064439*	06/16/1978	06/22/1978	06/30/1978	93	70	D.K.MCDONALD	725
SJ 01140		SJM2	SJ	Shallow	2	2	3	20	29N	10W	240176	4066740*	03/19/1980	03/22/1980	04/02/1980	25	6		777
SJ 01474		SJM2	SJ	Shallow		4	4	21	29N	10W	242439	4066161*	09/30/1981	03/31/1982	09/07/1982	25		SELF	
SJ 01990		SJM2	SJ	Shallow		1	4	20	29N	10W	240472	4066632*	10/26/1985	10/27/1985	11/08/1985	40	12	CHIVERS,BRYCE	809
SJ 02078		SJM2	SJ	Shallow	1	1	3	19	29N	10W	238004	4066763*	08/03/1986	08/05/1986	10/11/1988	40	9	CHIVERS,BRYCE	809
SJ 02151		SJM2	SJ	Shallow	2	1	2	28	29N	10W	242149	4065947	12/11/1987	12/14/1987	12/23/1987	37	20	MCDONALD, D.K.	725
SJ 02216		SJM2	SJ	Shallow		2	1	28	29N	10W	241638	4065789*	11/30/1988	12/01/1988	06/08/1990	30	7	CHIVERS,BRYCE	809
SJ 02547		SJM2	SJ	Shallow		4	4	20	29N	10W	240859	4066221*	04/15/1995	04/16/1995	04/01/2003	12	2	SHORTY THOMPSON	527
SJ 02548		SJM2	SJ	Shallow		4	4	20	29N	10W	240859	4066221*	04/16/2002	04/16/2002	04/01/2003	12	2	SHORTY THOMPSON	527
SJ 02840		SJM2	SJ	Shallow	1	4	3	28	29N	10W	241508	4064670*	03/06/1998	03/10/1998	04/17/1998	55	32	D. K. MCDONALD	725
SJ 02860		SJM2	SJ	Shallow	4	4	4	19	29N	10W	239382	4066150*	03/28/1998	06/20/1998	09/02/1998	21	2	RAY MILLER	
SJ 03023		SJM2	SJ	Shallow	1	3	1	18	29N	10W	238077	4068756*	08/08/2000	08/11/2000	08/22/2000	90	65	SHORTY THOMPSON	527
SJ 03142		SJM2	SJ	Shallow	2	2	2	28	29N	10W	242533	4065853*	04/07/2002	04/08/2002	04/15/2002	38	22		717
SJ 03180		SJM2	SJ	Shallow	4	4	4	21	29N	10W	242538	4066060*	05/06/2002	05/09/2002	05/13/2002	50	15		809
SJ 03441		SJM2	SJ	Shallow	3	3	4	21	29N	10W	241942	4066077*	01/15/2004	01/20/2004	01/21/2004	40	30	GLOVER	1374
SJ 03455		SJM2	SJ	Shallow	1	3	3	21	29N	10W	241151	4066312*	03/25/2004	03/25/2004	11/15/2004	20	17		
SJ 03456		SJM2	SJ	Shallow	2	3	3	21	29N	10W	241351	4066312*	03/25/2004	03/25/2004	11/15/2004	20	17		
SJ 03470		SJM2	SJ	Shallow	4	3	4	21	29N	10W	242142	4066077*	07/06/2004	07/06/2004	07/16/2004	20	7	GILES	1479
SJ 03582		SJM2	SJ	Shallow	3	3	1	28	29N	10W	241125	4065299*	07/08/2005	07/08/2005	07/20/2005	10	4	HOOD, TERRY	717
SJ 03582 POD2		SJM2	SJ	Shallow	3	3	2	28	29N	10W	241930	4065264*	04/15/2007	04/15/2007	04/19/2007	28	5	HOOD, TERRY	717
SJ 03637		SJM2	SJ	Shallow	1	3	2	28	29N	10W	241930	4065464*	08/08/2005	08/08/2005	08/11/2005	21	10	GILES, DEE III	1479
SJ 03652		SJM2	SJ	Shallow	1	2	2	28	29N	10W	242333	4065853*	01/06/2006	01/06/2006	01/09/2006	34	6	HOOD, TERRY	717
SJ 03777 POD1		SJM2	SJ	Shallow	2	4	4	29	29N	10W	240870	4064657	03/05/2007	03/05/2007	03/23/2007	100	50	BAILEY, MARK	1357
SJ 03948 POD1		SJM2	SJ	Shallow	3	4	4	21	29N	10W	242411	4065579	02/18/2011	02/18/2011	03/08/2011	38	20	BAILEY, MARK	1357
SJ 04040 POD1		SJM2	SJ	Shallow	3	4	2	30	29N	10W	239159	4065370	01/01/2014	01/08/2014	01/08/2014	32	20	HOOD, TERRY	717

Record Count: 29

Depth to groundwater < 50ft based on water depth of wells within surrounding 9 sections of the Haney Gas Com B 1E

Sample locations/field notes





East spill area sample locations

Sample locations/field notes cont.

West spill area sample locations

South spill area sample locations

Sample locations/field notes cont.

Grab sample location

Clara Cardoza

From:	Clara Cardoza
Sent:	Friday, March 29, 2019 1:00 PM
To:	cory.smith@state.nm.us
Cc:	Kurt Hoekstra
Subject:	Haney GC B 1E Incident # NVF1908731950

Cory, Hilcorp would like to schedule confirmation sampling at the Haney GC B 1E for Wednesday April 3rd at 8 a.m. There were two sample points that came back high on chlorides. Please let us know if you have any questions or concerns.

Thank you,

Clara M Cardoza
Environmental Specialist
505-564-0733 (O)
505-793-2784 (C)

Data table of soil contaminant concentration data

Sample Name	Date	Sample Location	Field VOCs by PID (ppm)	Laboratory Results									
				Chloride (mg/kg)	TPH as DRO (mg/kg)	TPH as GRO (mg/kg)	TPH as MRO (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylene (mg/kg)	Total BTEX (mg/kg)
NMOCD Action Level				600	-	-	-	100	10	-	-	-	50
E ½ of spill	3/11/19	E ½ of spill	31.4	260	ND	ND	ND	ND	ND	ND	ND	ND	ND
W ½ of spill	3/11/19	W ½ of spill	154	870	ND	ND	ND	ND	ND	0.23	ND	ND	0.23
S of Separator	3/11/19	S of separator	41.2	120	12	ND	ND	12	ND	ND	ND	ND	ND
Grab	3/11/19	Grab	19	1800	ND	ND	ND	ND	0.018	0.061	ND	ND	0.079
Grab	4/3/19	Grab	n/a	18.3	-	-	-	-	-	-	-	-	-
W ½ of spill	4/3/19	W ½ of spill	n/a	318	-	-	-	-	-	-	-	-	-

Initial confirmation samples taken on 3/11/2019 and witnessed by Cory Smith. Two of the samples did not pass on chlorides in accordance with Table 1 of NMAC 19.15.29.12 and were resampled on 4/3/2019. The resample came back below action levels.

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

March 13, 2019

Clara Cardoza

Hilcorp Energy
PO Box PO Box 4700
Farmington, NM 84701
TEL:
FAX

RE: HANEY GC B 1E OrderNo.: 1903504

Dear Clara Cardoza:

Hall Environmental Analysis Laboratory received 4 sample(s) on 3/12/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1903504**
Date Reported: **3/13/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy
Client Sample ID: E 1/2 of Spill
Project: HANEY GC B 1E
Collection Date: 3/11/2019 11:07:00 AM
Lab ID: 1903504-001 **Matrix:** SOIL
Received Date: 3/12/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	3/12/2019 9:53:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/12/2019 9:53:21 AM
Surr: DNOP	103	70-130		%Rec	1	3/12/2019 9:53:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	17		mg/Kg	5	3/12/2019 8:44:08 AM
Surr: BFB	95.5	73.8-119		%Rec	5	3/12/2019 8:44:08 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.085		mg/Kg	5	3/12/2019 8:44:08 AM
Toluene	ND	0.17		mg/Kg	5	3/12/2019 8:44:08 AM
Ethylbenzene	ND	0.17		mg/Kg	5	3/12/2019 8:44:08 AM
Xylenes, Total	ND	0.34		mg/Kg	5	3/12/2019 8:44:08 AM
Surr: 4-Bromofluorobenzene	98.0	80-120		%Rec	5	3/12/2019 8:44:08 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	260	60		mg/Kg	20	3/12/2019 12:26:04 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting 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
Client Sample ID: W 1/2 of Spill
Project: HANEY GC B 1E
Collection Date: 3/11/2019 11:17:00 AM
Lab ID: 1903504-002 **Matrix:** SOIL **Received Date:** 3/12/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/12/2019 10:15:32 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/12/2019 10:15:32 AM
Surr: DNOP	103	70-130		%Rec	1	3/12/2019 10:15:32 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	17		mg/Kg	5	3/12/2019 9:07:37 AM
Surr: BFB	96.2	73.8-119		%Rec	5	3/12/2019 9:07:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.084		mg/Kg	5	3/12/2019 9:07:37 AM
Toluene	0.23	0.17		mg/Kg	5	3/12/2019 9:07:37 AM
Ethylbenzene	ND	0.17		mg/Kg	5	3/12/2019 9:07:37 AM
Xylenes, Total	ND	0.34		mg/Kg	5	3/12/2019 9:07:37 AM
Surr: 4-Bromofluorobenzene	97.8	80-120		%Rec	5	3/12/2019 9:07:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	870	60		mg/Kg	20	3/12/2019 1:03:18 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting 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
Client Sample ID: S of Separator
Project: HANEY GC B 1E
Collection Date: 3/11/2019 11:52:00 AM
Lab ID: 1903504-003 **Matrix:** SOIL
Received Date: 3/12/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**
Diesel Range Organics (DRO)	12	9.6		mg/Kg	1	3/12/2019 10:37:29 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/12/2019 10:37:29 AM
Surr: DNOP	104	70-130		%Rec	1	3/12/2019 10:37:29 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.2		mg/Kg	1	3/12/2019 9:31:04 AM
Surr: BFB	97.8	73.8-119		%Rec	1	3/12/2019 9:31:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.021		mg/Kg	1	3/12/2019 9:31:04 AM
Toluene	ND	0.042		mg/Kg	1	3/12/2019 9:31:04 AM
Ethylbenzene	ND	0.042		mg/Kg	1	3/12/2019 9:31:04 AM
Xylenes, Total	ND	0.084		mg/Kg	1	3/12/2019 9:31:04 AM
Surr: 4-Bromofluorobenzene	95.8	80-120		%Rec	1	3/12/2019 9:31:04 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	120	60		mg/Kg	20	3/12/2019 1:15:43 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting 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
Client Sample ID: Grab
Project: HANEY GC B 1E
Collection Date: 3/11/2019 12:10:00 PM
Lab ID: 1903504-004 **Matrix:** SOIL **Received Date:** 3/12/2019 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	3/12/2019 10:59:45 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/12/2019 10:59:45 AM
Surr: DNOP	104	70-130		%Rec	1	3/12/2019 10:59:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	3/12/2019 9:54:29 AM
Surr: BFB	96.2	73.8-119		%Rec	1	3/12/2019 9:54:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.018	0.016		mg/Kg	1	3/12/2019 9:54:29 AM
Toluene	0.061	0.033		mg/Kg	1	3/12/2019 9:54:29 AM
Ethylbenzene	ND	0.033		mg/Kg	1	3/12/2019 9:54:29 AM
Xylenes, Total	ND	0.065		mg/Kg	1	3/12/2019 9:54:29 AM
Surr: 4-Bromofluorobenzene	99.3	80-120		%Rec	1	3/12/2019 9:54:29 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	1800	60		mg/Kg	20	3/12/2019 1:28:07 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903504**

13-Mar-19

Client: Hilcorp Energy

Project: HANEY GC B 1E

Sample ID: **MB-43627**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **43627**	RunNo: **58294**
Prep Date: **3/12/2019**	Analysis Date: **3/12/2019**	SeqNo: **1956139** Units: **mg/Kg**

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

Sample ID: **LCS-43627**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **43627**	RunNo: **58294**
Prep Date: **3/12/2019**	Analysis Date: **3/12/2019**	SeqNo: **1956140** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903504**

13-Mar-19

Client: Hilcorp Energy

Project: HANEY GC B 1E

Sample ID: **LCS-43624**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **43624**	RunNo: **58283**
Prep Date: **3/12/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955221** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.9	63.9	124			
Surr: DNOP	4.7		5.000		94.7	70	130			

Sample ID: **MB-43624**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **43624**	RunNo: **58283**
Prep Date: **3/12/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955222** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	70	130			

Sample ID: **1903504-004AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **Grab**	Batch ID: **43624**	RunNo: **58283**
Prep Date: **3/12/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	9.6	48.22	7.923	91.4	53.5	126			
Surr: DNOP	5.2		4.822		108	70	130			

Sample ID: **1903504-004AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **Grab**	Batch ID: **43624**	RunNo: **58283**
Prep Date: **3/12/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955414** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.4	47.17	7.923	82.7	53.5	126	10.2	21.7	
Surr: DNOP	5.1		4.717		107	70	130	0	0	

Sample ID: **LCS-43617**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **43617**	RunNo: **58283**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955417** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.2		5.000		103	70	130			

Sample ID: **MB-43617**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **43617**	RunNo: **58283**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955418** Units: **%Rec**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903504**

13-Mar-19

Client: Hilcorp Energy

Project: HANEY GC B 1E

Sample ID: **MB-43617**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **43617**	RunNo: **58283**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955418** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		109	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903504**

13-Mar-19

Client: Hilcorp Energy
Project: HANEY GC B 1E

Sample ID: **MB-43605**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **43605**	RunNo: **58288**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955652** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		95.8	73.8	119			

Sample ID: **LCS-43605**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **43605**	RunNo: **58288**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955653** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	80.1	123			
Surr: BFB	1100		1000		108	73.8	119			

Sample ID: **MB-43586**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **43586**	RunNo: **58288**
Prep Date: **3/8/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955663** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	950		1000		95.5	73.8	119			

Sample ID: **LCS-43586**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **43586**	RunNo: **58288**
Prep Date: **3/8/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955664** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		107	73.8	119			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903504**

13-Mar-19

Client: Hilcorp Energy
Project: HANEY GC B 1E

Sample ID: **MB-43605**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **43605**	RunNo: **58288**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955690** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	80	120			

Sample ID: **LCS-43605**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **43605**	RunNo: **58288**
Prep Date: **3/11/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955691** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.2	80	120			
Toluene	0.97	0.050	1.000	0	97.4	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.7	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.7	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **MB-43586**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **43586**	RunNo: **58288**
Prep Date: **3/8/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955699** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		100	80	120			

Sample ID: **LCS-43586**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **43586**	RunNo: **58288**
Prep Date: **3/8/2019**	Analysis Date: **3/12/2019**	SeqNo: **1955700** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Qualifiers:

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

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 1903504 RcptNo: 1

Received By: **Anne Thorne** 3/12/2019 8:00:00 AM Anne Thorne

Completed By: **Anne Thorne** 3/12/2019 8:11:22 AM Anne Thorne

Reviewed By: AT / ENM 3/12/19

Labeled by: EM/AT

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Energy

Mailing Address:

Phone #: 505-486-9543

email or Fax#: ccardoza@hilcorp.com

QA/QC Package: khoekstra@hilcorp.com

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush SAME DAY

Project Name: Haney GC B #1E

Project #:

Project Manager: Ciara Cardoza

Sampler: Kurt

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and # (03/12/19 MeOH kit)	Preservative Type	HEAL No. 1903504	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
3-11	11:07	Soil	E ½ of Spill	(1) 4oz Jar	on ice	001	X		X									X				
3-11	11:17	"	W ½ of Spill	"	"	002	X		X									X				
3-11	11:52	"	S. of Separator	"	"	003	X		X									X				
3-11	12:10	"	Grab	"	"	004	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
3-11	1:45	Kurt Hoekstra		3/11/19	1345
3/11/19	1821	Martin Nieto		03/12/19	0800

Remarks:

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 09, 2019

HilCorp-Farmington, NM

Sample Delivery Group:	L1085556
Samples Received:	04/04/2019
Project Number:	
Description:	
Site:	HANEY GCB#1E
Report To:	Clara Cardoza 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

GRAB AREA L1085556-01 Solid

Collected by	Collected date/time	Received date/time
Kurt	04/03/19 08:10	04/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1260972	1	04/08/19 16:00	04/08/19 21:14	ST	Mt. Juliet, TN

W SPILL AREA L1085556-02 Solid

Collected by	Collected date/time	Received date/time
Kurt	04/03/19 08:20	04/04/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1261880	1	04/08/19 17:15	04/09/19 00:44	ELN	Mt. Juliet, TN

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 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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	18.3	B P1	10.0	1	04/08/2019 21:14	WG1260972

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	318		10.0	1	04/09/2019 00:44	WG1261880

Method Blank (MB)

(MB) R3399669-1 04/08/19 16:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	3.14	J	0.795	10.0

L1085122-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1085122-02 04/08/19 18:07 • (DUP) R3399669-5 04/08/19 18:15

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	11200	11300	20	1.21		15

L1085556-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085556-01 04/08/19 21:14 • (DUP) R3399669-6 04/08/19 21:23

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	18.3	23.2	1	23.5	P1	15

Laboratory Control Sample (LCS)

(LCS) R3399669-2 04/08/19 16:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	184	91.9	80.0-120	

L1085122-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1085122-01 04/08/19 17:33 • (MS) R3399669-7 04/08/19 22:19 • (MSD) R3399669-8 04/08/19 22:35

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	10100	10800	10900	144	161	1	80.0-120	E V	E V	0.768	15

Method Blank (MB)

(MB) R3399735-1 04/08/19 23:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	4.28	J	0.795	10.0

L1085575-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085575-01 04/09/19 01:10 • (DUP) R3399735-5 04/09/19 01:18

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	230	249	1	7.98		15

L1086376-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1086376-09 04/09/19 04:17 • (DUP) R3399735-6 04/09/19 04:26

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	12.2	14.7	1	18.1	P1	15

Laboratory Control Sample (LCS)

(LCS) R3399735-2 04/08/19 23:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	195	97.4	80.0-120	

L1085556-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1085556-02 04/09/19 00:44 • (MS) R3399735-3 04/09/19 00:53 • (MSD) R3399735-4 04/09/19 01:01

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	318	757	727	87.8	81.8	1	80.0-120			4.03	15

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

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
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.
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.
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.
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.
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.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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.
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.
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.
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 Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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 is the 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 [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	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

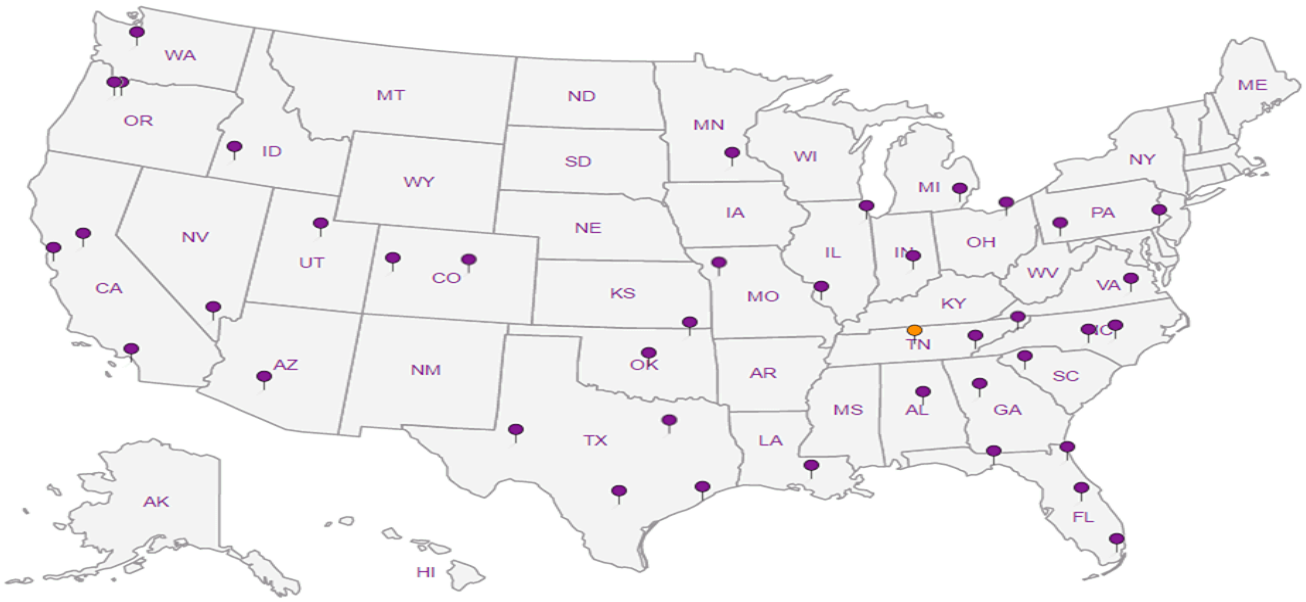
Third Party Federal Accreditations

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		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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.



HilCorp-Farmington, NM

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Billing Information:

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Houston, TX 77208

khoekstra@hilcorp.com

Report to: Clara Cardoza

Email To: ccardoza@hilcorp.com

Project Description:

City/State Collected:

Phone: 505-486-9543
Fax:

Client Project #

Lab Project #

Collected by (print): Kurt

Site/Facility ID #: Haney GCB #1E

P.O. #

Collected by (signature): Kurt Hoekstra

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day X Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE	Remarks	Sample # (lab only)
Grab Area	Comp	Soil	0-6"	4-3-19	8:10	1	X		-01
W. Spill Area	Comp	Soil	0-6"	4-3-19	8:20	1	X		-02

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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L # 1085556

F096

Acctnum: HILCORANM

Template:

Prelogin:

TSR: 288 - Daphne Richards

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier __ _____

Tracking # 4794 8827 3389

Sample Receipt Checklist
COC Seal Present/Intact: NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
R/D SCREEN: <0.5 mR/hr

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
Kurt Hoekstra	4-3-19	2:10		Ø	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 0.1+0.1=0.2 12 2402	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4/4/19 Time: 0845	Hold: Condition: NCF / (OK)