



AE Order Number Banner

Report Description

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



App Number: pGRL1318654989

1RP - 2934

CRAIN'S HOT OIL SERVICE, INC.

PERSONAL FILE
APPROVED 1/27/14

Mr. Todd Crain, President
CRAIN HOT OIL SERVICE, INC.
PO Box 5846
Granbury, Texas 76049

COPY

January 10, 2014

Mr. Geoffrey Leking
NEW MEXICO OIL CONSERVATION DIVISION
1625 North French Drive
Hobbs, New Mexico 88240

Re: Gulf Deep No.1 SWD Battery Closure
U/L C S34 T14S R31E 660' FNL 1980' FWL
Chaves County, New Mexico

API No.: 30-005-01210

FINAL REMEDIATION REPORT AND FINAL C-141

Dear Mr. Leking:

Crain Hot Oil Service, Inc. herewith submits its *Final Remediation Report* (FRR) and *Final C-141* form for the Gulf Deep No. 1 SWD remediation of the unauthorized discharge of approximately 50 barrels of hydrocarbon and produced water from the 400 bbl. gunbarrel tank on/or about December 11, 2012. These documents are being submitted along with the FRR for the permanent closure of this facility. Please refer back to the CAP and Initial C-141 for historic details of the specific discharge event.

Initially, delineation results and the presence of the geologically hardened infrastructure referred to as a "cap" dictated the depth for excavation of the contaminated materials located within or adjacent to the boundaries of the battery. This action resulted in the removal and haulage of greater than 1,800 yards of material to disposal at the Gandy Marley Disposal Facility. Following this, the NMOCD witnessed a sampling event that resulted in the further excavation of a restricted area within the battery itself, which had been contaminated by a fairly recent discharge prior to closure of the Gulf Deep State No. 1 SWD Battery. Once this was completed, a 3" to 4" layer of clay was laid down and compacted to ensure the clay liner had sufficient integrity to prevent seepage or any type of crossover from occurring. The entire area was then backfilled with clean caliche to a commensurate elevation matching the surrounding topography and melded in with the existing drilling pad for future use as such.

Crain Hot Oil Service closed and remediated its battery and associated facilities in December of 2013. NMOCD supervised the excavation activities and witnessed the sampling events, which took place during closure. Attached with this document are the laboratory analyticals for your reference.

Sincerely,



Todd Crain, President

Enclosures: Laboratory Analyticals

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

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Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR		Initial Report	X Final Report
Name of Company: Crain Hot Oil Service, Inc.		Contact: Todd Crain	
Address: PO Box 5846, Granbury, Texas 76049		Telephone No.: 817-692-7333	
Facility Name: Gulf Deep No. 1 SWD		Facility Type: SWD Disposal API NO.: 30-005-01210	
Surface Owner: State of New Mexico	Mineral Owner:	Lease No.:	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	34	14	31	660'	FNL	1980'	FWL	Chaves

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release: Hydrocarbon and produced water	Volume of Release: Unknown	Volume Recovered: Unknown
Source of Release: 400 barrel tank overran because pump did not shut off.	Date and Hour of Occurrence: 12/11/12	Date and Hour of Discovery: 12/11/12
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Information unknown.	
By Whom? Information unknown.	Date and Hour: Information unknown.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

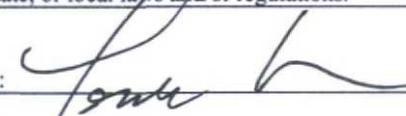
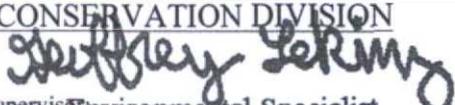
Describe Cause of Problem and Remedial Action Taken.*

The trucks were unloading into the 400 barrel tank located inside the battery. The pump was running per normal procedure but it failed to shut off and the tank began to run over. As soon as the drivers recognized there was a problem, they shut the pump down and immediately began to suck up the discharged fluid within the battery berms.

Describe Area Affected and Cleanup Action Taken.*

Please refer to the Initial C-141 and CAP submitted to the NMOCD on July 1, 2013 for additional information. The contaminated material was completely removed, the area tested and the analytical results submitted to the NMOCD. Additionally, this area was also handled during the closure of the entire battery, which resulted in more sampling and excavation. Accompanying this Final C-141 is the FRR for the entire battery and associated areas.

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

Signature: 	OIL CONSERVATION DIVISION 	
Printed Name: Todd Crain	Approved by District Supervisor Environmental Specialist	
Title: President	Approval Date: 1/27/14	Expiration Date:
E-mail Address: tcrain@crainhotoil.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: January 10, 2014 Phone: 817-692-7333		IRP-7-13-2934 IRP-10-13-2976

* Attach Additional Sheets If Necessary

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Summary Report

(Corrected Report)

Todd Crain
Crain Hot Oil & Acidizing

Report Date: July 5, 2013

P. O. Box 5846
Granbury, TX 76049

Work Order: 13062134



Project Location: NM
Project Name: Gulf Deep No. 1 SWD
Project Number: Battery Delineation

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
332997	SW Hole @ 1'	soil	2013-06-20	09:02	2013-06-21
332998	SW Hole @ 3'	soil	2013-06-20	09:20	2013-06-21
332999	SW Hole @ 5'	soil	2013-06-20	09:27	2013-06-21
333000	Center Between 1 and 2 Tanks 4'	soil	2013-06-20	10:05	2013-06-21
333001	Center Between 1 and 2 Tanks 10'	soil	2013-06-20	10:16	2013-06-21
333002	Center Between 1 and 2 Tanks 15'	soil	2013-06-20	10:25	2013-06-21
333003	Center Between 1 and 2 Tanks 25'	soil	2013-06-20	11:00	2013-06-21
333004	Center Between 1 and 2 Tanks 30'	soil	2013-06-20	12:02	2013-06-21
333005	Center Between 1 and 2 Tanks 40'	soil	2013-06-20	16:27	2013-06-21
333006	Center Between 1 and 2 Tanks 50'	soil	2013-06-20	16:59	2013-06-21
333007	Center Between 1 and 2 Tanks 55'	soil	2013-06-20	17:14	2013-06-21
333008	Center Between 1 and 2 Tanks 65'	soil	2013-06-20	17:42	2013-06-21

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
332997 - SW Hole @ 1'	<0.100 ¹	0.462	7.39	19.1	439	356
332998 - SW Hole @ 3'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
332999 - SW Hole @ 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333000 - Center Between 1 and 2 Tanks 4'	<0.100	<0.100	<0.100	<0.100	56.3	71.5
333001 - Center Between 1 and 2 Tanks 10'	<0.0200	<0.0200	<0.0200	0.0279	<50.0	<4.00
333002 - Center Between 1 and 2 Tanks 15'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333003 - Center Between 1 and 2 Tanks 25'	<0.0200	<0.0200	<0.0200	0.0417	<50.0	<4.00
333004 - Center Between 1 and 2 Tanks 30'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

continued ...

¹Dilution due to hydrocarbons.

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Report Date: July 5, 2013

Work Order: 13062134

Page Number: 2 of 3

... continued

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
333005 - Center Between 1 and 2 Tanks 40'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333006 - Center Between 1 and 2 Tanks 50'	<0.0200	<0.0200	<0.0200	<0.0200	55.5	<4.00
333007 - Center Between 1 and 2 Tanks 55'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333008 - Center Between 1 and 2 Tanks 65'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

Sample: 332997 - SW Hole @ 1'

Param	Flag	Result	Units	RL
Chloride		2080	mg/Kg	4

Sample: 332998 - SW Hole @ 3'

Param	Flag	Result	Units	RL
Chloride		1650	mg/Kg	4

Sample: 332999 - SW Hole @ 5'

Param	Flag	Result	Units	RL
Chloride		1270	mg/Kg	4

Sample: 333000 - Center Between 1 and 2 Tanks 4'

Param	Flag	Result	Units	RL
Chloride		2200	mg/Kg	4

Sample: 333001 - Center Between 1 and 2 Tanks 10'

Param	Flag	Result	Units	RL
Chloride		265	mg/Kg	4

Sample: 333002 - Center Between 1 and 2 Tanks 15'

Param	Flag	Result	Units	RL
Chloride		99.5	mg/Kg	4

Sample: 333003 - Center Between 1 and 2 Tanks 25'

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Report Date: July 5, 2013

Work Order: 13062134

Page Number: 3 of 3

Param	Flag	Result	Units	RL
Chloride		123	mg/Kg	4

Sample: 333004 - Center Between 1 and 2 Tanks 30'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 333005 - Center Between 1 and 2 Tanks 40'

Param	Flag	Result	Units	RL
Chloride		56.9	mg/Kg	4

Sample: 333006 - Center Between 1 and 2 Tanks 50'

Param	Flag	Result	Units	RL
Chloride		52.1	mg/Kg	4

Sample: 333007 - Center Between 1 and 2 Tanks 55'

Param	Flag	Result	Units	RL
Chloride		52.5	mg/Kg	4

Sample: 333008 - Center Between 1 and 2 Tanks 65'

Param	Flag	Result	Units	RL
Chloride		47.8	mg/Kg	4

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Summary Report

(Corrected Report)

Todd Crain
Crain Hot Oil & Acidizing

Report Date: July 5, 2013

P. O. Box 5846
Granbury, TX 76049

Work Order: 13062603



Project Location: NM
Project Name: Gulf Deep No. 1 SWD
Project Number: Disposal Facility

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
333292	Injection Well @ 4'	soil	2013-06-24	08:31	2013-06-25
333293	Injection Well @ 10'	soil	2013-06-24	08:45	2013-06-25
333294	SE Corner Battery @ 5'	soil	2013-06-24	09:00	2013-06-25
333295	SE Corner Battery @ 10'	soil	2013-06-24	09:22	2013-06-25
333296	SE Corner Battery @ 15'	soil	2013-06-24	09:42	2013-06-25
333297	Battery W Side Hole #1 @ 5'	soil	2013-06-24	13:06	2013-06-25
333298	Battery W Side Hole #1 @ 10'	soil	2013-06-24	13:14	2013-06-25
333299	East Side Hole #5 @ 5'	soil	2013-06-24	12:05	2013-06-25
333300	East Side Hole #5 @ 10'	soil	2013-06-24	12:10	2013-06-25
333301	East Side Hole #6 @ 5'	soil	2013-06-24	13:24	2013-06-25
333302	East Side Hole #6 @ 10'	soil	2013-06-24	15:01	2013-06-25

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
333292 - Injection Well @ 4'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333293 - Injection Well @ 10'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333294 - SE Corner Battery @ 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333295 - SE Corner Battery @ 10'	<0.0400 ¹	<0.0400	0.346	0.799	181	14.8
333296 - SE Corner Battery @ 15'	<0.0400 ²	<0.0400	0.176	0.486	89.2	14.1
333297 - Battery W Side Hole #1 @ 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333298 - Battery W Side Hole #1 @ 10'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333299 - East Side Hole #5 @ 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
333300 - East Side Hole #5 @ 10'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

continued ...

¹Dilution due to hydrocarbons.

²Dilution due to hydrocarbons.

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Report Date: July 5, 2013

Work Order: 13062603

Page Number: 2 of 3

... continued

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
333301 - East Side Hole #6 @ 5'	<0.100 ³	<0.100	<0.100	<0.100	307	24.4
333302 - East Side Hole #6 @ 10'	<0.0200	<0.0200	<0.0200	<0.0200	66.9	7.77

Sample: 333292 - Injection Well @ 4'

Param	Flag	Result	Units	RL
Chloride		1250	mg/Kg	4

Sample: 333293 - Injection Well @ 10'

Param	Flag	Result	Units	RL
Chloride		2260	mg/Kg	4

Sample: 333294 - SE Corner Battery @ 5'

Param	Flag	Result	Units	RL
Chloride		58.3	mg/Kg	4

Sample: 333295 - SE Corner Battery @ 10'

Param	Flag	Result	Units	RL
Chloride		1450	mg/Kg	4

Sample: 333296 - SE Corner Battery @ 15'

Param	Flag	Result	Units	RL
Chloride		722	mg/Kg	4

Sample: 333297 - Battery W Side Hole #1 @ 5'

Param	Flag	Result	Units	RL
Chloride		775	mg/Kg	4

Sample: 333298 - Battery W Side Hole #1 @ 10'

³Dilution due to hydrocarbons.

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Report Date: July 5, 2013

Work Order: 13062603

Page Number: 3 of 3

Param	Flag	Result	Units	RL
Chloride		136	mg/Kg	4

Sample: 333299 - East Side Hole #5 @ 5'

Param	Flag	Result	Units	RL
Chloride		1810	mg/Kg	4

Sample: 333300 - East Side Hole #5 @ 10'

Param	Flag	Result	Units	RL
Chloride		349	mg/Kg	4

Sample: 333301 - East Side Hole #6 @ 5'

Param	Flag	Result	Units	RL
Chloride		2830	mg/Kg	4

Sample: 333302 - East Side Hole #6 @ 10'

Param	Flag	Result	Units	RL
Chloride		2270	mg/Kg	4

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Report Date: July 30, 2013

Work Order: 13072435

Page Number: 1 of 2

Summary Report

Todd Crain
Crain Hot Oil & Acidizing

Report Date: July 30, 2013

P. O. Box 5846
Granbury, TX 76049

Work Order: 13072435



Project Location: NM
Project Name: Gulf Deep No. 1 SWD
Project Number: New Tank Battery by Well

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
336122	Background	soil	2013-07-23	10:05	2013-07-24
336123	NE New Tank Area #1	soil	2013-07-23	10:10	2013-07-24
336124	Hole #2	soil	2013-07-23	10:15	2013-07-24
336125	Hole #3	soil	2013-07-23	10:20	2013-07-24
336126	Hole #4	soil	2013-07-23	10:26	2013-07-24
336127	Hole #5	soil	2013-07-23	10:30	2013-07-24
336128	Hole #6	soil	2013-07-23	10:40	2013-07-24
336129	Hole #7	soil	2013-07-23	10:48	2013-07-24

Sample - Field Code	BTEX				TPH DRO - NEW DRO	TPH GRO GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
336122 - Background	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
336123 - NE New Tank Area #1	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	4.26
336124 - Hole #2	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	4.06
336125 - Hole #3	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	4.32
336126 - Hole #4	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	4.08
336127 - Hole #5	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	4.22
336128 - Hole #6	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
336129 - Hole #7	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

Sample: 336122 - Background

Param	Flag	Result	Units	RL
Chloride		1120	mg/Kg	4

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Report Date: July 30, 2013

Work Order: 13072435

Page Number: 2 of 2

Sample: 336123 - NE New Tank Area #1

Param	Flag	Result	Units	RL
Chloride		1160	mg/Kg	4

Sample: 336124 - Hole #2

Param	Flag	Result	Units	RL
Chloride		1450	mg/Kg	4

Sample: 336125 - Hole #3

Param	Flag	Result	Units	RL
Chloride		1190	mg/Kg	4

Sample: 336126 - Hole #4

Param	Flag	Result	Units	RL
Chloride		1480	mg/Kg	4

Sample: 336127 - Hole #5

Param	Flag	Result	Units	RL
Chloride		1820	mg/Kg	4

Sample: 336128 - Hole #6

Param	Flag	Result	Units	RL
Chloride		2210	mg/Kg	4

Sample: 336129 - Hole #7

Param	Flag	Result	Units	RL
Chloride		1590	mg/Kg	4

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Summary Report

Todd Crain
Crain Hot Oil & Acidizing

Report Date: July 30, 2013

P. O. Box 5846
Granbury, TX 76049

Work Order: 13072433



Project Location: NM
Project Name: Gulf Deep No. 1 SWD
Project Number: Battery South End

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
336115	South End 6"	soil	2013-07-23	08:00	2013-07-24
336116	South End 3'	soil	2013-07-23	08:10	2013-07-24

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
336115 - South End 6"	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	4.23
336116 - South End 3'	<0.0200	<0.0200	<0.0200	<0.0200	60.2	4.35

Sample: 336115 - South End 6"

Param	Flag	Result	Units	RL
Chloride		196	mg/Kg	4

Sample: 336116 - South End 3'

Param	Flag	Result	Units	RL
Chloride		152	mg/Kg	4

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Summary Report

Todd Crain
Crain Hot Oil Services

Report Date: November 27, 2013

P. O. Box 5846
Granbury, TX 76049

Work Order: 13112226



Project Location: NM
Project Name: Gulf Deep No. 1 SWD - Old Batt. Del.
Project Number: Gulf Deep No. 1 SWD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
347376	Hole No. 7 @ 5'	soil	2013-11-21	10:25	2013-11-22
347377	Hole No. 7 @ 9'	soil	2013-11-21	10:33	2013-11-22
347378	Hole No. 7 @ 12'	soil	2013-11-21	10:48	2013-11-22
347379	Hole No. 7 @ 15'	soil	2013-11-21	10:55	2013-11-22
347380	Hole No. 7 @ 20'	soil	2013-11-21	11:03	2013-11-22
347381	Hole No. 7 @ 30'	soil	2013-11-21	11:34	2013-11-22
347382	Hole No. 1 @ 5'	soil	2013-11-21	10:15	2013-11-22
347383	Hole No. 1 @ 9'	soil	2013-11-21	10:19	2013-11-22
347384	Hole No. 4 @ 5'	soil	2013-11-21	11:37	2013-11-22
347385	Hole No. 4 @ 10'	soil	2013-11-21	11:46	2013-11-22
347386	Hole No. 8 @ 5'	soil	2013-11-21	11:54	2013-11-22
347387	Hole No. 8 @ 10'	soil	2013-11-21	12:02	2013-11-22

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
347376 - Hole No. 7 @ 5'	<0.0200	<0.0200	<0.0200	0.820	<50.0	31.0
347377 - Hole No. 7 @ 9'	<0.0200	<0.0200	0.898	1.71	99.2	57.3
347378 - Hole No. 7 @ 12'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
347379 - Hole No. 7 @ 15'	<0.0200	<0.0200	<0.0200	<0.0200	72.3	<4.00
347380 - Hole No. 7 @ 20'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
347381 - Hole No. 7 @ 30'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
347382 - Hole No. 1 @ 5'	<0.0400	<0.0400	<0.0400	<0.0400	<50.0	<8.00
347383 - Hole No. 1 @ 9'	<0.0400	<0.0400	<0.0400	<0.0400	<50.0	<8.00
347384 - Hole No. 4 @ 5'	<0.100	0.741	0.240	5.76	148	262
347385 - Hole No. 4 @ 10'	0.0964	2.08	0.0766	5.77	114	182
347386 - Hole No. 8 @ 5'	0.668	17.6	23.4	53.1	1240	1470
347387 - Hole No. 8 @ 10'	<0.0400	0.0415	0.0551	0.539	269	38.9

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Report Date: November 27, 2013

Work Order: 13112226

Page Number: 2 of 3

Sample: 347376 - Hole No. 7 @ 5'

Param	Flag	Result	Units	RL
Chloride		111	mg/Kg	4

Sample: 347377 - Hole No. 7 @ 9'

Param	Flag	Result	Units	RL
Chloride		226	mg/Kg	4

Sample: 347378 - Hole No. 7 @ 12'

Param	Flag	Result	Units	RL
Chloride		23.5	mg/Kg	4

Sample: 347379 - Hole No. 7 @ 15'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 347380 - Hole No. 7 @ 20'

Param	Flag	Result	Units	RL
Chloride		32.8	mg/Kg	4

Sample: 347381 - Hole No. 7 @ 30'

Param	Flag	Result	Units	RL
Chloride		65.7	mg/Kg	4

Sample: 347382 - Hole No. 1 @ 5'

Param	Flag	Result	Units	RL
Chloride		732	mg/Kg	4

Sample: 347383 - Hole No. 1 @ 9'

Param	Flag	Result	Units	RL
Chloride		464	mg/Kg	4

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Report Date: November 27, 2013

Work Order: 13112226

Page Number: 3 of 3

Sample: 347384 - Hole No. 4 @ 5'

Param	Flag	Result	Units	RL
Chloride		1130	mg/Kg	4

Sample: 347385 - Hole No. 4 @ 10'

Param	Flag	Result	Units	RL
Chloride		741	mg/Kg	4

Sample: 347386 - Hole No. 8 @ 5'

Param	Flag	Result	Units	RL
Chloride		704	mg/Kg	4

Sample: 347387 - Hole No. 8 @ 10'

Param	Flag	Result	Units	RL
Chloride		70.4	mg/Kg	4

Summary Report

COPY

Todd Crain
Crain Hot Oil Services

Report Date: September 17, 2013

P. O. Box 5846
Granbury, TX 76049

Work Order: 13081909



Project Location: NM
Project Name: Gulf Deep No. 1 SWD-New Batt. at Sites Wellsite
Project Number: New Battery at Sites Wellsite

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
338947	N Sideline Site Hole No. 1	soil	2013-08-16	09:15	2013-08-19
338948	N Sideline Site Hole No. 2	soil	2013-08-16	08:37	2013-08-19
338949	N Sideline Site Hole No. 3	soil	2013-08-16	08:50	2013-08-19
338950	N Sideline Site Hole No. 4	soil	2013-08-16	08:58	2013-08-19
338951	N Sideline Site Hole No. 5	soil	2013-08-16	09:11	2013-08-19
338952	Pad N Side of Battery Site N Corner	soil	2013-08-16	09:45	2013-08-19
338953	Pad N Side of Battery Site S Corner	soil	2013-08-16	10:00	2013-08-19
338954	Pad N Side of Battery Site E Corner	soil	2013-08-16	10:21	2013-08-19
338955	Pad N Side of Battery Site W Corner	soil	2013-08-16	10:38	2013-08-19
338956	Pad N Side of Battery Site Center Pad	soil	2013-08-16	10:12	2013-08-19

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
338947 - N Sideline Site Hole No. 1	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<50.0	<4.00 Qs
338948 - N Sideline Site Hole No. 2	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<20.0 ¹
338949 - N Sideline Site Hole No. 3	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
338950 - N Sideline Site Hole No. 4	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
338951 - N Sideline Site Hole No. 5	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
338952 - Pad N Side of Battery Site N Corner	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<20.0 ²
338953 - Pad N Side of Battery Site S Corner	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs	<50.0	<4.00 Qs
338954 - Pad N Side of Battery Site E Corner	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
338955 - Pad N Side of Battery Site W Corner	<0.100 ³	<0.100	<0.100	<0.100	<50.0	<20.0 ⁴

continued ...

¹Sample dilution due to surfactants.

²Sample dilution due to surfactants.

³Sample dilution due to surfactants.

⁴Sample dilution due to surfactants.

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Report Date: September 17, 2013

Work Order: 13081909

Page Number: 2 of 3

... continued

Sample - Field Code	BTEX				TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
338956 - Pad N Side of Battery Site Center Pad	<0.100 ^b	<0.100	<0.100	<0.100	<50.0	<20.0 ^b

Sample: 338947 - N Sideline Site Hole No. 1

Param	Flag	Result	Units	RL
Chloride		2110	mg/Kg	4

Sample: 338948 - N Sideline Site Hole No. 2

Param	Flag	Result	Units	RL
Chloride		1970	mg/Kg	4

Sample: 338949 - N Sideline Site Hole No. 3

Param	Flag	Result	Units	RL
Chloride		642	mg/Kg	4

Sample: 338950 - N Sideline Site Hole No. 4

Param	Flag	Result	Units	RL
Chloride		1040	mg/Kg	4

Sample: 338951 - N Sideline Site Hole No. 5

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 338952 - Pad N Side of Battery Site N Corner

Param	Flag	Result	Units	RL
Chloride		114	mg/Kg	4

Sample: 338953 - Pad N Side of Battery Site S Corner

⁵Sample dilution due to surfactants.

⁶Sample dilution due to surfactants.

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Report Date: September 17, 2013

Work Order: 13081909

Page Number: 3 of 3

Param	Flag	Result	Units	RL
Chloride		281	mg/Kg	4

Sample: 338954 - Pad N Side of Battery Site E Corner

Param	Flag	Result	Units	RL
Chloride		681	mg/Kg	4

Sample: 338955 - Pad N Side of Battery Site W Corner

Param	Flag	Result	Units	RL
Chloride		611	mg/Kg	4

Sample: 338956 - Pad N Side of Battery Site Center Pad

Param	Flag	Result	Units	RL
Chloride		666	mg/Kg	4
