



APPROVED



Remediation Summary and Closure Request Report

Remediation Summary and Closure Report
Vacuum Grayburg San Andres Unit #228
RP #3294

Chevron Environmental Management Company



Remediation Summary and Closure Request Report

Remediation Summary and Closure Report Vacuum Grayburg San Andres Unit #228 RP #3294

Unit I, Section 1, Township 18 South, Range34 East, Lea County, New Mexico

Chevron Environmental Management Company

6320 Rothway Suite 100 Houston Texas 77040

088200 | Report No 4| March 2016

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1. Introduction

GHD Services, Inc. (GHD, formerly Conestoga Rovers and Associates) is pleased to present this Remediation Summary and Closure Request Report to Chevron Environmental Management Company (CEMC) summarizing soil assessment and remediation activities conducted at the Vacuum Grayburg San Andres Unit No. 228 Well release location (hereafter referred to as the "Site").

This Report also serves as continuing documentation of corrective actions performed by Chevron in association with Remediation Permit No. 3294 (RP #3294). The New Mexico Oil Conservation Division (NMOCD) District I, Hobbs, New Mexico office assigned the RP number to the release in August of 2014.

2. Project Information and Background

The Site is located in Unit I, Section 1, Township 18 South, Range 34 East, approximately 1.82 miles southwest of Buckeye, New Mexico, in eastern Lea County (Figure 1 and Figure 2). Currently, the Site includes an active well (VGSAU #228) pump jack and well pad constructed of caliche soil materials which measures approximately 85,500-ft².

Chevron submitted a C-141 Form to the NMOCD dated December 4, 2013, describing a release of 1.4 barrels (bbls) of oil and 17.27 bbls of produced water resulting from a stuffing box leak. The C-141 reported that approximately 18 bbls of fluids were recovered.

Chevron conducted initial field assessment activities at the Site in 2014. Chevron's assessment included a site visit, soil sample collection, analytical laboratory analyses and preliminary determinations of impacts to environmental media. Following the initial field assessment activities, Chevron delegated the continuation of assessment and delineation efforts for the Site to CEMC. In June 2014, CEMC contacted GHD to perform a comprehensive soil assessment at the Site by implementing a soil boring program.

On August 12, 2014 Harrison and Cooper, Inc. (HCI) and GHD mobilized to the Site to begin soil boring activities. Soil borings were advanced using an air rotary drill rig. Six soil borings (SB-1 through SB-6) were advanced across the Site. In addition, two surficial grab samples (SS-1 and SS-2) were collected at the Site.

In August 2014, GHD prepared and submitted a soil assessment and delineation activities report to CEMC detailing recommendations to further investigate and determine the vertical extent of chloride impacts in the shallow sub-surface soils (0 to 5-feet). CEMC concurred with the recommendations outlined in GHD's 2014 report.

On June 24, 2015, GHD returned to the Site to perform additional soil assessment activities. Five soil borings (HB-1 through HB-5) were advanced across the Site via hand auger boring techniques to approximately 2-feet below ground surface (bgs). Hand auger refusal was encountered at those depths. Soil samples were collected for laboratory analysis and sent to Xenco Laboratories in Odessa, Texas for analysis of chloride by EPA Method 300.0. The 2014 and 2015 sample locations and analytical results for the Site are presented and attached as Figure 3. The 2014 and 2015 soil assessment activities were effective in delineating the horizontal and vertical extent of vadose zone

impacts at the Site. One area in the vicinity of SB-3, SB-4, SB-6, and HB-3 (northern area) and one area in the vicinity of SB-1 and HB-5 (southern area) indicated that shallow soil removal and confirmation sampling would facilitate regulatory closure of the subject release.

2.1 Recommended Remediation Action Levels

Information available on the Petroleum Recovery Research Center (PRRC) Mapping Portal, United States Geological Survey (USGS) Current Water Database for the Nation, and current (GHD) managed groundwater site(s) data demonstrate the depth to groundwater at the Site is greater than 100 feet bgs. The nearest private domestic water source is greater than 200-feet from the release site; the nearest public/municipal water source is greater than 1,000-feet from the release site; and the release site lies more than 1,000 horizontal feet from the nearest surface water body.

Consequently, the NMOCD total ranking criteria score is zero (0) for the Site. The anticipated site-specific Recommended Remediation Action Levels (RRALs) to be applied to this location by the NMOCD are 10 milligram per kilogram (mg/kg) for benzene; 50 mg/kg for total benzene, toluene, ethylbenzene, and xylene (BTEX); 5,000 mg/kg for total petroleum hydrocarbons (TPH); and an NMOCD accepted 500 mg/kg for chlorides.

New Mexico Oil Conservation Division Site Assessment	
Depth to Ground Water (>100 feet)	0
Wellhead Protection Area (> 1000 feet from water source, > 200 feet from domestic source)	0
Distance to Surface Body Water (>1000 horizontal feet)	0
Ranking Criteria Total Score	0*
*Because the ranking criteria total score is 0, NMOCD established RRALs are 50 mg/kg for BTEX, 5,000 mg/kg TPH (GRO + DRO), and 500 mg/kg for chlorides ¹ .	

¹ NMOCD Guidance for Remediation of Leaks, Spills and Releases, August 13 , 1993

3. Soil Remediation Activities - 2015

Remediation activities were conducted on-site from December 1 through December 4, 2015. Field activities consisted of excavating approximately 384 cubic yards (cy) of affected soil from two areas located on the well pad. Approximately 384 cy of chloride-impacted soil was transported off-site for disposal at a Chevron-approved waste disposal facility. The remediation activities are further discussed in the following sections.

3.1 Soil Sampling and Excavation Activities

Excavation limits were based upon the results of the August 2014 and June 2015 investigations. Following the completion of site preparation activities (i.e., utility clearance via One-call services and performance of a ground penetrating radar [GPR] survey), excavation activities commenced on December 1, 2015 and were completed on December 4, 2015. Two impacted areas (Southern and Northern excavation areas) were excavated until field screening utilizing Hach chloride test strips indicated soils were below the RRAL for chlorides along each sidewall and the bottoms of the excavations. Approximately 384 cy of soil was excavated from the two areas. The final limits of the two excavation areas are included on Figure 4, the Site Details and Analytical Results Map.

Excavation wall and bottom confirmation samples were collected to confirm that the affected soil was removed and assessment had been achieved. Confirmation soil samples were obtained from the excavation walls and floors as indicated by field screening. Four side wall samples were collected at a depth of approximately 1.5 ft bgs and two bottom samples were collected at a depth of approximately 2.5 ft bgs within the southern excavation area, and four side wall samples were collected at a depth of approximately 1.5 ft bgs and five bottom samples were collected at a depth of approximately 3 ft bgs within the northern excavation area. Sampling locations are depicted on Figure 4. These samples were analyzed for chloride by EPA Method 300.0 and moisture by method SW3550. Photographic documentation of site activities is included as Appendix C.

3.2 Analytical Results

Soil samples were containerized, labeled, and placed on ice in an insulated cooler and were submitted to Xenco Laboratory in Midland, Texas for analysis under chain of custody documentation. A summary of laboratory analytical results for chlorides is presented in Table 1. Copies of certified laboratory reports are presented in Appendix B.

Excavation Confirmation Samples

Analytical results obtained from the eight wall and seven bottom soil samples collected on December 2 and 3, 2015 from the two excavation areas demonstrated that all samples were below the Site RRAL (500 mg/kg) for chloride concentrations. .

3.3 Soil Transport and Disposal Activities

From December 1 through December 3, 2015, approximately 384 cy (24 truckloads) of Class 1 Non-Hazardous chloride-impacted soil was transported off-site by Diamondback Disposal Services, Inc. to Sundance Services Landfill in Eunice, New Mexico. Copies of waste manifests for soils transported to the landfill are provided in Appendix D.

Approximately 396 cy of clean fill material was placed back into the excavations. An additional 40 cy of caliche material was delivered to the Site from a local source and used to backfill the remainder of the excavations. The backfilled material was compacted, and the Site was graded to match existing topography and slightly mounded to allow for settling. Attachment C includes photographic documentation of backfilling activities.

4. Conclusions

Confirmation soil sampling analysis indicates that impacted soils have been excavated and removed and that the remaining soils meet the RRALs for chlorides. Based on this, on behalf of CEMC, GHD requests that no further action be required for the Site.

If you have any questions or comments with regards to this Remediation Summary and Closure Request Report, please do not hesitate to contact our Houston office at (713) 734-3090.

All of which is Respectfully Submitted,

GHD

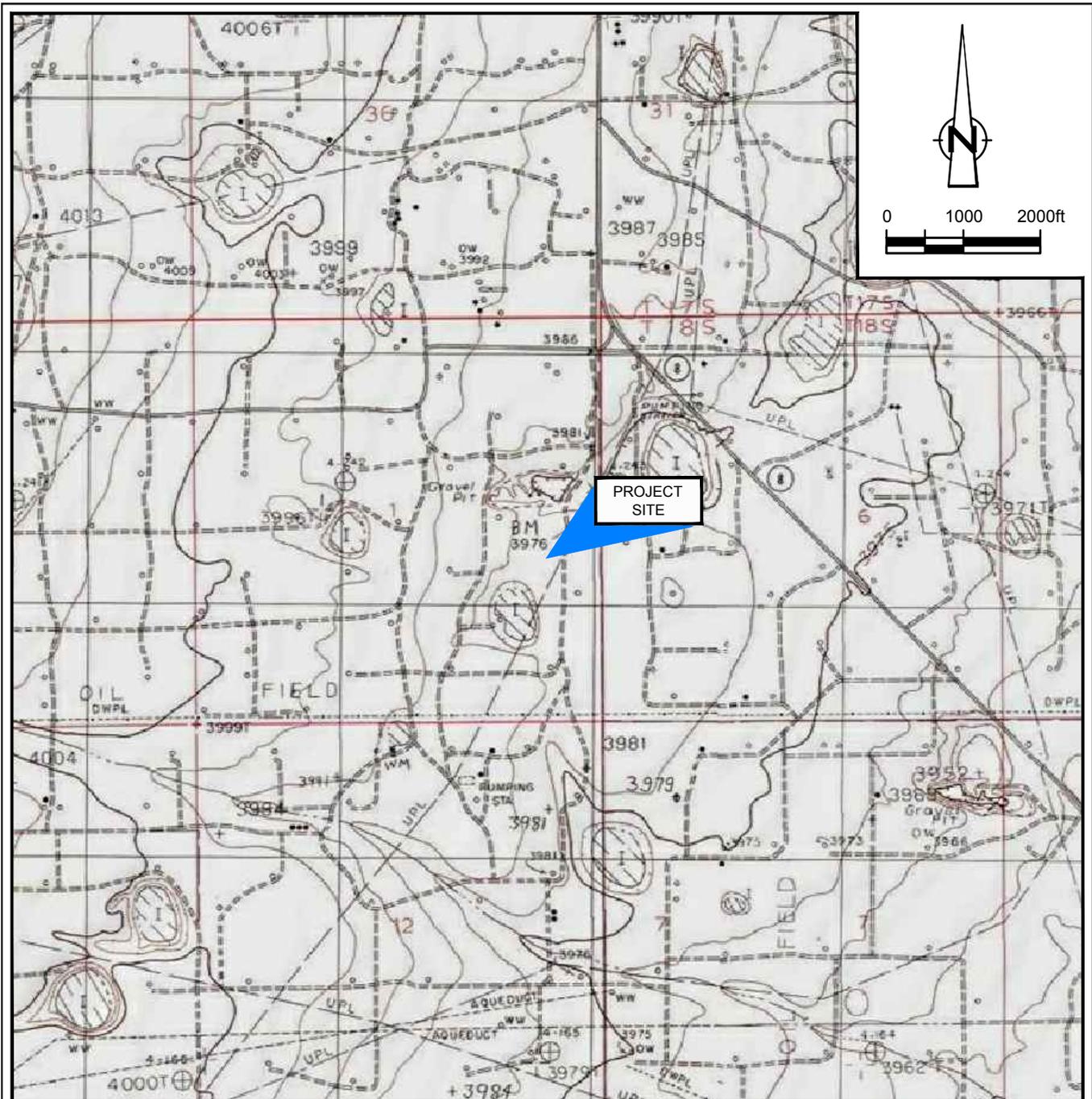


Scott Foord
Project Manager



Bernie Bockisch
Senior Project Manager

Figures



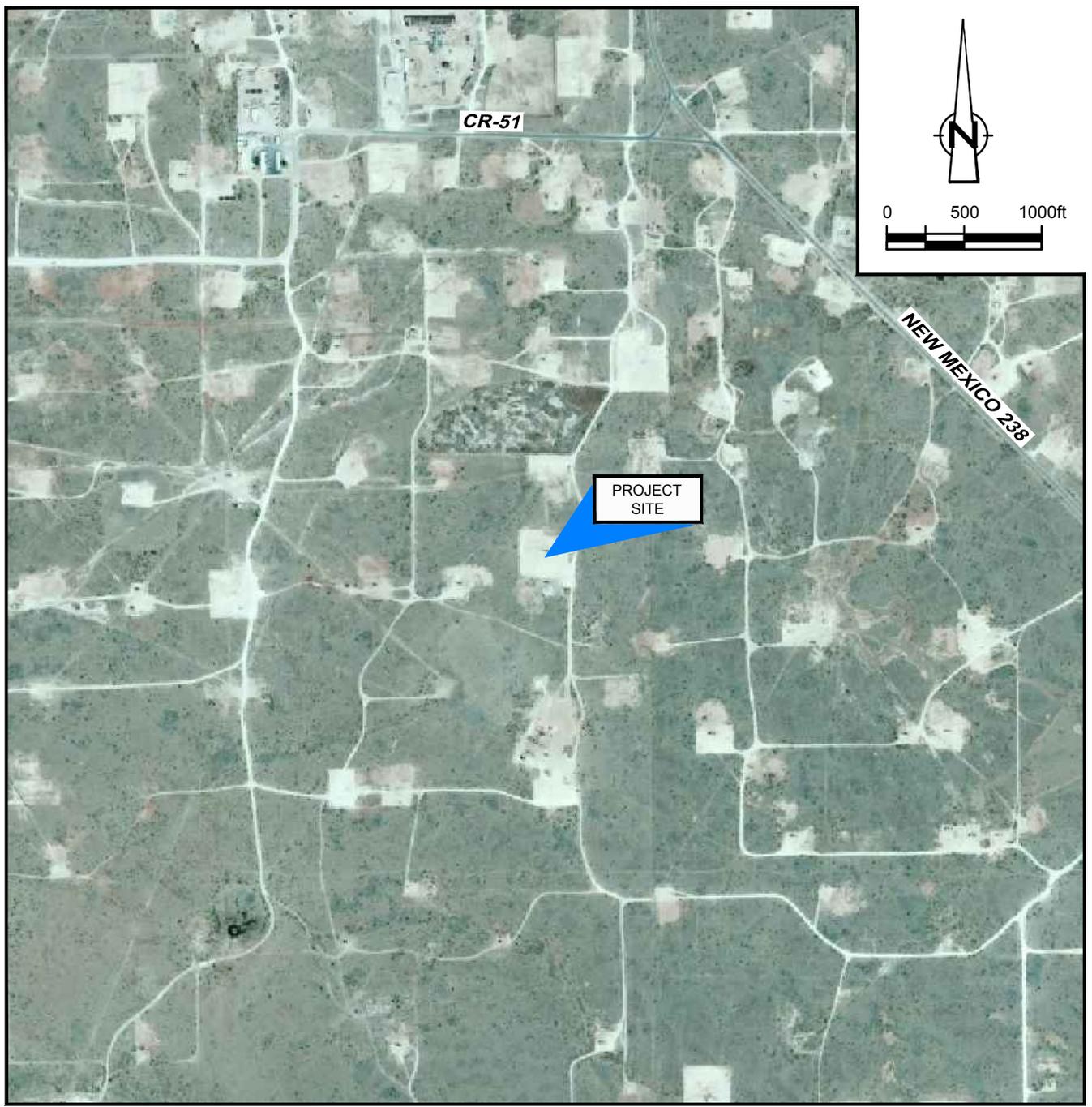
SOURCE: USGS 7.5 MINUTE QUAD
 "BUCKEYE AND LOVINGTON SW, NEW MEXICO"

LAT/LONG: 32.7755° NORTH, 103.5076° WEST
 COORDINATE: NAD83 DATUM, U.S. FOOT
 STATE PLANE ZONE - NEW MEXICO EAST

figure 1

SITE LOCATION MAP
 VACUUM GRAYBURG SAN ANDRES UNIT #228
 LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company





LAT/LONG: 32.7755° NORTH, 103.5076° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

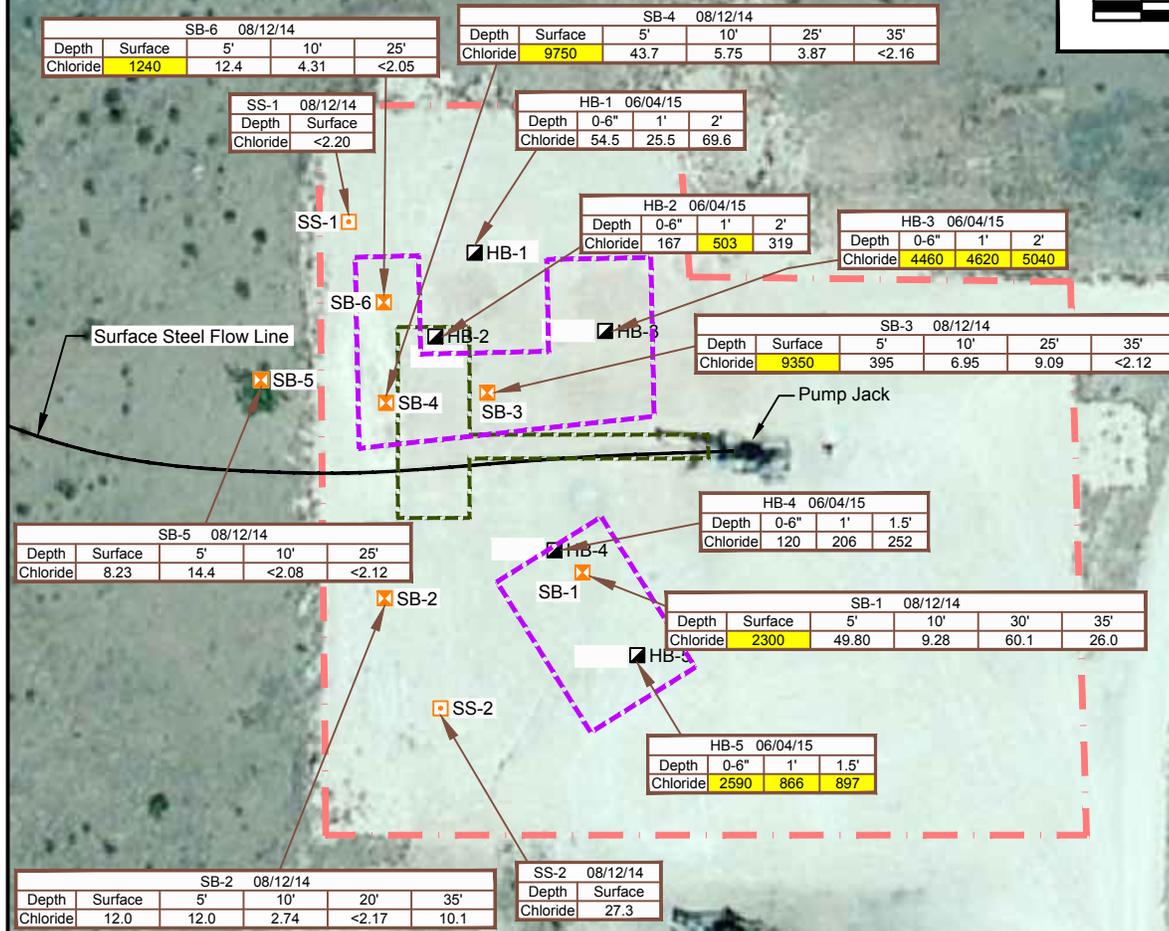
figure 2

SITE AERIAL MAP
VACUUM GRAYBURG SAN ANDRES UNIT #228
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company



NOTES:

1. Highlighted cells indicate exceedance of the NMOCD RRAL of 500 mg/kg for chlorides.
2. All analytical results are reported in mg/kg.
3. "<" Indicates below laboratory Reporting Limit (RL).
4. Historical remedial excavation depth was approximately 12-inches below ground surface.



LEGEND

- Soil Boring Advanced by Drill Rig
- Soil Sample Location
- Hand Auger Soil Boring
- Approximate Site Boundary
- Depth Depth of Sample (ft)
- Approximate Historical Remedial Excavation Boundary
- Remedial Excavation Boundary December 2015

figure 3

SITE DETAILS AND ANALYTICAL RESULTS MAP - 2014 & 2015
VACUUM GRAYBURG SAN ANDRES UNIT #228
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company



Tables

TABLE 1

SOIL ANALYTICAL SUMMARY - 2015
CEMC-VGSAU #228
LEA COUNTY, NEW MEXICO

<i>Sample ID</i>	<i>Depth (bgs)</i>	<i>Sample Location</i>	<i>Sample Date</i>	<i>Chlorides</i>
NMOCD Recommended Remediation Action Levels				500
				(mg/kg)
Southern Excavation Area				
SA1-WSW 120215	1.5'	west side wall	12/2/15	197
SA1-ESW 120215	1.5'	east side wall	12/2/15	419
SA1-SSW 120215	1.5'	south side wall	12/2/15	271
SA1-NSW 120215	1.5'	north side wall	12/2/15	276
SA1-B1 120215	2.5'	bottom	12/2/15	185
SA1-B2 120215	2.5'	bottom	12/2/15	316
Northern Excavation Area				
NA1-WSW 120315	1.5'	west side wall	12/3/15	227
NA3-5 120315	3'	bottom	12/3/15	204
NA3-ESW 120315	1.5'	east side wall	12/3/15	262
NA3-4 120315	3'	bottom	12/3/15	329
NA1-1 120315	3'	bottom	12/3/15	50
NA3-3 120315	3'	bottom	12/3/15	237
NA2-SSW 120315	1.5'	south side wall	12/3/15	301
NA3-NSW 120315	1.5'	north side wall	12/3/15	269
NA1-2 120315	3'	bottom	12/3/15	54

Notes:

1. All analytical results reported in (mg/kg) milligrams per kilogram
2. Chloride analysis by EPA Method 300.0
3. RRALs from NMOCD (September 2011 Draft) Release Guidance Document
4. bgs- below ground surface
5. Depth reported in feet

Appendices

Appendix A

Original Form C-141

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

State of New Mexico
 Energy Minerals and Natural Resources

Form C-141
 Revised August 8, 2011

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

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

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company	Chevron USA Inc.	Contact	David A. Pagano
Address	15 Smith Rd., Midland, TX, 79705	Telephone No.	wk: 575-396-4414X275 cell: 505-787-9816
Facility Name:	VGSAU #228	Facility Type:	Production Well
Surface Owner	NA	Mineral Owner	State of New Mexico
		API No.	3002538628

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	1	18S	34E					Lea

Latitude = 32.775750° Longitude = -103.507609°

NATURE OF RELEASE

Type of Release	Spill to Land	Volume of Release	1.4 bbl oil & 17.27 bbl produced water	Volume Recovered	18bbbls
Source of Release	Stuffing box	Date and Hour of Occurrence	11/29/13 10:00PM	Date and Hour of Discovery	11/30/13 1:00AM
Was Immediate Notice Given?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?			
By Whom?		Date and Hour			
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Back pressure valve on flow-t plugged with material causing a stuffing box leak.

Describe Area Affected and Cleanup Action Taken.*

Release mixed with fresh water on the pad and caused an approx. 100' by 10 stream from the well head to the west of the pad and pooled in an approx. 80' by 30' rectangular area on the far west side of the pad. Vacuum Truck called out to vacuum up standing fluids. Vacuum Truck Recovered 18 bbls of fluid. Next step is for backhoe to excavate top layer of soil approx. 12" and take samples to determine effectiveness of local remediation and possibly turn remediation over to the Chevron Environmental Management Company.

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:	David A. Pagano	Approved by Environmental Specialist:			
Title:	Health & Environmental Specialist	Approval Date:	08/17/2016	Expiration Date:	///
E-mail Address:	dpgn@chevron.com	Conditions of Approval:		Attached <input type="checkbox"/>	
Date:	12/4/13	Phone:	505-787-9816	pTO1424538405	

* Attach Additional Sheets If Necessary

Appendix B

Soil Laboratory Analytical Report

Analytical Report 520702

for
GHD Services, INC- Midland

Project Manager: William Foord

VGSAU #228

088200

14-DEC-15

Collected By: Client



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



14-DEC-15

Project Manager: **William Foord**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **520702**
VGSAU #228
Project Address:

William Foord:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 520702. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 520702 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



Sample Cross Reference 520702



GHD Services, INC- Midland, Midland, TX

VGSAU #228

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
-----------	--------	----------------	--------------	---------------



CASE NARRATIVE



Client Name: GHD Services, INC- Midland

Project Name: VGSAU #228

Project ID: 088200
Work Order Number(s): 520702

Report Date: 14-DEC-15
Date Received: 12/07/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 520702

GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #228



Project Id: 088200
 Contact: William Foord
 Project Location:

Date Received in Lab: Mon Dec-07-15 01:15 pm
 Report Date: 14-DEC-15
 Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	520702-001	520702-002	520702-003	520702-004	520702-005	520702-006
	<i>Field Id:</i>	SA1-WSW 120215	SA1-ESW 120215	SA1-SSW 120215	SA1-NSW 120215	SA1-B1 120215	SA1-B2 120215
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-02-15 12:00	Dec-02-15 12:10	Dec-02-15 12:20	Dec-02-15 12:30	Dec-02-15 12:40	Dec-02-15 12:50
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-11-15 13:00					
	<i>Analyzed:</i>	Dec-12-15 00:16	Dec-12-15 00:53	Dec-12-15 01:11	Dec-12-15 01:29	Dec-12-15 01:47	Dec-12-15 02:06
	<i>Units/RL:</i>	mg/kg RL					
Chloride		197 20.0	419 20.0	271 20.0	276 20.0	185 20.0	316 20.0
Percent Moisture	<i>Extracted:</i>						
	<i>Analyzed:</i>	Dec-09-15 10:30					
	<i>Units/RL:</i>	% RL					
Percent Moisture		10.4 1.00	9.15 1.00	9.62 1.00	10.7 1.00	12.2 1.00	9.41 1.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
 Project Manager



Certificate of Analysis Summary 520702

GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #228



Project Id: 088200
 Contact: William Foord
 Project Location:

Date Received in Lab: Mon Dec-07-15 01:15 pm
 Report Date: 14-DEC-15
 Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	520702-007	520702-008	520702-009	520702-010	520702-011	520702-012
	<i>Field Id:</i>	NA1-WSW 120315	NA3-5 120315	NA3-ESW 120315	NA3-4 120315	NA1-1 120315	NA3-3 120315
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-03-15 14:00	Dec-03-15 14:10	Dec-03-15 14:20	Dec-03-15 14:30	Dec-03-15 14:40	Dec-03-15 14:50
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-11-15 13:00					
	<i>Analyzed:</i>	Dec-12-15 03:00	Dec-12-15 03:19	Dec-12-15 03:37	Dec-12-15 03:55	Dec-12-15 04:13	Dec-12-15 04:50
	<i>Units/RL:</i>	mg/kg RL					
Chloride		227 20.0	204 20.0	262 20.0	329 20.0	49.9 10.0	237 20.0
Percent Moisture	<i>Extracted:</i>						
	<i>Analyzed:</i>	Dec-09-15 10:30					
	<i>Units/RL:</i>	% RL					
Percent Moisture		8.07 1.00	12.3 1.00	9.74 1.00	9.42 1.00	13.5 1.00	12.1 1.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks
 Project Manager



Certificate of Analysis Summary 520702

GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #228



Project Id: 088200
 Contact: William Foord
 Project Location:

Date Received in Lab: Mon Dec-07-15 01:15 pm
 Report Date: 14-DEC-15
 Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	520702-013	520702-014	520702-015			
	<i>Field Id:</i>	NA2-SSW 120315	NA3-NSW 120315	NA1-2 120315			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Dec-03-15 15:00	Dec-03-15 15:10	Dec-03-15 15:20			
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-11-15 13:00	Dec-11-15 13:00	Dec-11-15 13:00			
	<i>Analyzed:</i>	Dec-12-15 05:08	Dec-12-15 05:26	Dec-12-15 05:44			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		301 20.0	269 20.0	54.2 10.0			
Percent Moisture	<i>Extracted:</i>						
	<i>Analyzed:</i>	Dec-09-15 10:30	Dec-09-15 10:30	Dec-09-15 10:30			
	<i>Units/RL:</i>	% RL	% RL	% RL			
Percent Moisture		20.7 1.00	7.45 1.00	23.2 1.00			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks
 Project Manager

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **SQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Atlanta - Midland/Odessa - Tampa/Lakeland - Phoenix - Latin America

	Phone	Fax
4143 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



BS / BSD Recoveries

Project Name: VGSAU #228



Work Order #: 520702

Project ID: 088200

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes



Work Order #: 520702

Form 3 - MS Recoveries

Project Name: VGSAU #228



Project ID: 088200

Matrix Spike Percent Recovery [D] = $100 \cdot (C-A)/B$
Relative Percent Difference [E] = $200 \cdot (C-A)/(C+B)$
All Results are based on MDL and Validated for QC Purposes

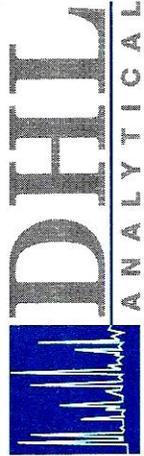
BRL - Below Reporting Limit

Project Name: VGSAU #228

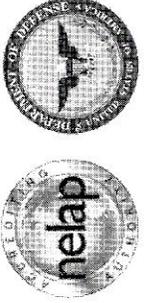
Work Order #: 520702

Project ID: 088200

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit



2300 Double Creek Dr. ■ Round Rock, TX 78664
 Phone (512) 388-8222 ■ FAX (512) 388-8229
 Web: www.dhlanalytical.com
 E-Mail: login@dhlanalytical.com



N^o 62089

CHAIN-OF-CUSTODY

CLIENT: GHG DATE: 12-7-15 PAGE 1 OF 1
 ADDRESS: 2135 S. Loop 250 W. Mckinney DHL WORK ORDER #:
 PHONE: 432-686-0086 FAX/E-MAIL: William.Foord@ghg.com PROJECT LOCATION OR NAME: UGSAU #228
 DATA REPORTED TO: ADDITIONAL REPORT COPIES TO: CLIENT PROJECT #: 088200 COLLECTOR: Chen Q.

Field Sample I.D.	S=SOIL W=WATER A=AIR L=LIQUID		P=PAINT SL=SLUDGE O=OTHER SO=SOLID		Container Type	# of Containers	PRESERVATION				UNPRESERVED	FIELD NOTES
	DHL Lab #	Date	Time	Matrix			HCl	HNO ₃	H ₂ SO ₄ □ NaOH □	ICE		
							Yes □ No	Authorize 5% surcharge for TRP Report?				
SA1-WSW120215		12-2-15	1200	S	6oz	1						
SA1-ESW120215		12-2-15	1210	S	6oz	1						
SA1-SSW120215		12-2-15	1220	S	9oz	1						
SA1-NSW120215		12-2-15	1230	S	8oz	1						
SA1-B120215		12-2-15	1240	S	8oz	1						
SA1-B2120215		12-2-15	1250	S	8oz	1						
NA1-WSW120315		12-3-15	1400	S		1						
NA3-5 120315		12-3-15	1410	S		1						
NA3-ESW120315		12-3-15	1420	S		1						
NA3-4 120315		12-3-15	1430	S		1						
NA3-1 120315		12-3-15	1440	S		1						
NA3-3 120315		12-3-15	1450	S		1						
NA2-SSW120315		12-3-15	1500	S		1						
NA3-NSW 120315		12-3-15	1510	S		1						
NA1-2 120315		12-3-15	1520	S		1						
TOTAL												

LABORATORY USE ONLY:
 RECEIVING TEMP: 3.1°C THERM #: _____
 CUSTODY SEALS: BROKEN INTACT NOT USED
 CARRIER BILL #:
 APC DELIVERY
 HAND DELIVERED

TURN AROUND TIME
 RUSH CALL FIRST
 1 DAY CALL FIRST
 2 DAY
 NORMAL
 OTHER

RELINQUISHED BY (Signature): _____ DATE/TIME: 12-7-15 1315
 RECEIVED BY (Signature): _____ DATE/TIME: 12-7-15 1315

RELINQUISHED BY (Signature): _____ DATE/TIME: _____
 RECEIVED BY (Signature): _____ DATE/TIME: _____

DHL DISPOSAL @ \$5.00 each Return

Client: GHD Services, INC- Midland

Date/ Time Received: 12/07/2015 01:15:00 PM

Work Order #: 520702

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	No
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Carley Owens Date: 12/07/2015
 Carley Owens

Checklist reviewed by: Kelsey Brooks Date: 12/08/2015
 Kelsey Brooks

Appendix C

Photographic Documentation



PHOTO 1: View of Site prior to excavation activities.



PHOTO 2: View of South Area following backfilling activities.



PHOTO 3: View of excavation activities within North Area.



PHOTO 4: Additional view of North Area during excavation.

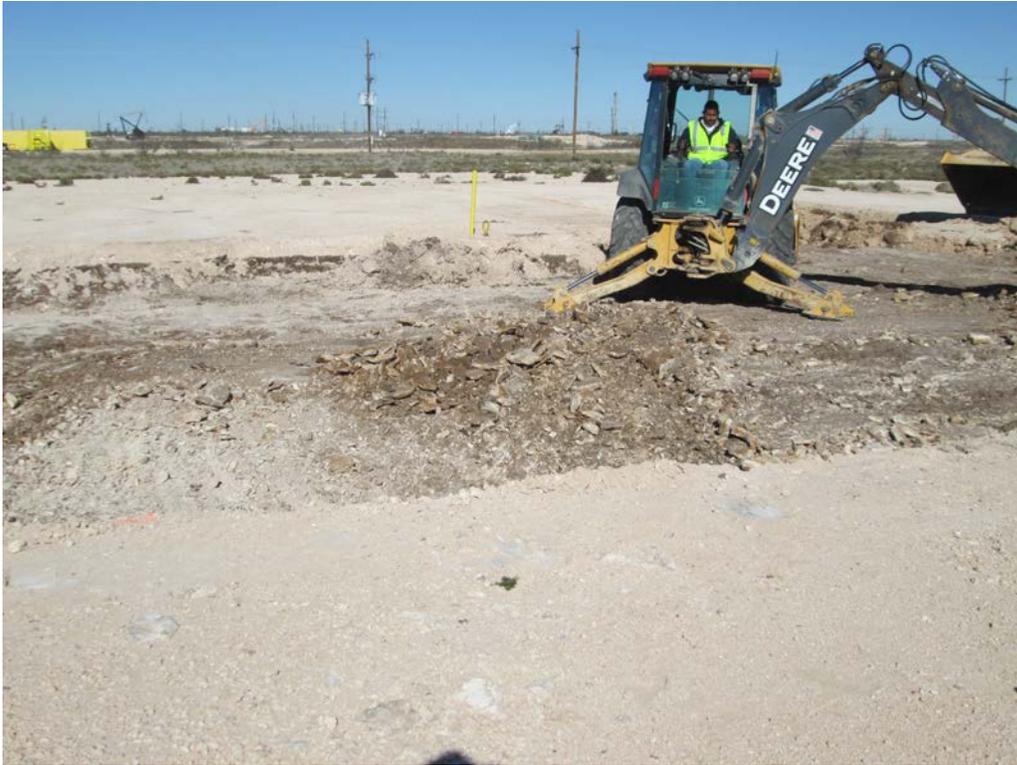


PHOTO 5: View of excavation activities for North Area.



PHOTO 6: View of North Area following backfilling activities.

Appendix D

Waste Manifests

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

Form C-138
Revised March 12, 2007

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

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address: Chevron Environmental Management Company 1400 Smith St RM 07063 Houston TX 77002, Attn: Rob Speer
2. Originating Site: VGSAU 228, County Road 51, Buckeye, NM 88260
3. Location of Material (Street Address, City, State or ULSTR): VGSAU 228, County Road 51, Buckeye, NM 88260
4. Source and Description of Waste: Crude oil impacted soil Estimated Volume <u>400</u> yd ³ bbls Known Volume (to be entered by the operator at the end of the haul) _____ yd ³ / bbls
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS I, <u>Drew Forster</u> , representative or authorized agent for <u>Chevron Environmental Management Co.</u> do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification) <input checked="" type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. <i>Operator Use Only: Waste Acceptance Frequency</i> <input type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load <input type="checkbox"/> RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items) <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4)
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS I, _____, representative for _____ do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.
5. Transporter: Diamondback Disposal Services, Inc.

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: Sundance Services- NM-01-003

Address of Facility: Sundance Lane, Eunice, NM 88231

Method of Treatment and/or Disposal:

Evaporation Injection Treating Plant Landfarm Landfill Other

Waste Acceptance Status:

APPROVED

DENIED (Must Be Maintained As Permanent Record)

PRINT NAME: Dominique Tellez

TITLE: Sales

DATE: 11-18-15

SIGNATURE: Dominique Tellez
Surface Waste Management Facility Authorized Agent

TELEPHONE NO.: 575-408-2606

This Memorandum

is an acknowledgment that a Bill of Lading has been issued and is not Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper No. BOL-016

Carrier No. _____

Date 12-3-15

Page 1 of 1

Diamondback Disposal Services, Inc

(Name of carrier)

(SCAC)

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee Sundance Services
Street Sundance Lane
City Ennice State NM Zip Code 88231

FROM: Shipper VGSAU No. 228
Street 1.82 miles SW of Buckeye, NM
City Buckeye State NM Zip Code _____
24 hr. Emergency Contact Tel. No. _____

Route _____ Vehicle Number _____

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
<u>70</u>		<u>Non-regulated material (exempt non-haz soil)</u>	<u>Y</u>			

PLACARDS TENDERED: YES NO (088200)

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____"
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Signature

REMIT C.O.D. TO: ADDRESS
COD Amt: \$ _____
Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)
C.O.D. FEE: PREPAID COLLECT \$ _____
TOTAL CHARGES \$ _____
FREIGHT CHARGES: FREIGHT PREPAID Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER Chevron EMC c/o GHD Services, Inc.
PER 6320 Rothway, Suite 100, Houston, TX 77040
[Signature] as agent for CEMC

CARRIER Richard Ramirez
PER _____
DATE 12-3-15

4

