SITE CLOSURE REPORT (FINAL)

DK #5 TANK BATTERY

NMOCD REF: #1RP-1485

EPI REF: #160264

UL-I (NE¼ OF THE SE¼) OF SECTION 25, T20S, R38E

~9 MILES NORTHEAST OF EUNICE, NEW MEXICO

LEA COUNTY, NEW MEXICO

LATITUDE: N 32° 32' 35.28" LONGITUDE: W 103° 05' 40.60"

AUGUST 2007

PREPARED BY:

ENVIRONMENTAL PLUS, INC.
2100 AVENUE O
EUNICE, NEW MEXICO 88231

PREPARED FOR:

Chesapeake

Distribution List

Site Closure Report

Chesapeake Operating, Inc. – DK #5 Tank Battery

NMOCD Ref: #1RP-1485; EPI Ref. # 160264

Name	Title	Company or Agency	Mailing Address	e-mail
Chris Williams	District I Supervisor	New Mexico Oil Conservation Division-Hobbs	1625 North French Drive Hobbs, New Mexico 88240	chriswilliams@state.nm.us
Bradely Blevins	Field Supervisor	Chesapeake Operating, Inc.	P.O. Box 190 Hobbs,New Mexico 88240-0190	bblevins@chkenergy.com
Harlan M. Brown	Senior Environmental Engineer	Chesapeake Energy Corporation	6100 N. Western Avenue Oklahoma City, Oklahoma 73118	hbrown@chkenergy.com
Bob McCasland LTD Partnership Lea I	Land Owner	- -	P.O. Box 206 Eunice, New Mexico 88231	- -
File	- -	Environmental Plus, Inc.	P.O. Box 1558 Eunice, New Mexico 88231-1558	dduncan@envplus.net

STANDARD OF CARE

Site Closure Report

DK #5 Tank Battery

(NMOCD Ref: #1RP-1485; EPI Ref: #160264)

The information provided in this report was collected consistent with the New Mexico Oil Conservation Division (NMOCD) *Guidelines for Remediation of Leaks, Spills and Releases* (August 13, 1993), the NMOCD *Unlined Surface Impoundment Closure Guidelines* (February, 1993) and Environmental Plus, Inc. (EPI) *Standard Operating Procedures and Quality Assurance/Quality Control Plan*. The conclusions are based on field observations and laboratory analytical reports as presented in the report. Recommendations follow NMOCD guidance and represent the professional opinions of EPI staff. These opinions were derived using currently accepted geologic, hydrogeologic and engineering practices at this time and location. The report was prepared or reviewed by a certified or registered professional with a background in engineering, environmental and/or natural sciences.

This report was prepared by:

Brandon Farrar
Environmental Consultant

9-7-07
Date

This report was reviewed by:

David P. Duncan
Civil Engineer

9-07-07
Date

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APPENDICES

1.0 PROJECT SYNOPSIS

Site Specific:

- ***Company Name:*** Chesapeake Operating, Inc.
- ***Facility Name:*** DK #5 Tank Battery
- ***Project Reference:*** NMOCD Ref. #1RP-1485; EPI Ref: #160264
- ***Company Contacts:*** Bradley Blevins
- ***Site Location:*** WGS84 N32° 32' 35.28"; W103° 05' 40.60"
- ***Legal Description:*** Unit Letter-I, (NE¼ of the SE¼), Section 25, T 20S, R 38E
- ***General Description:*** Approximately 9 miles northeast of Eunice, New Mexico
- ***Elevation:*** 3,565-ft amsl
- ***Land Ownership:*** Bob McCasland
- ***EPI Personnel:*** Project Consultant – David P. Duncan

Release Specific:

- ***Product Released:*** Produced water
- ***Volume Released:*** ~50-bbls
- ***Volume Recovered:*** None
- ***Time of Occurrence:*** 21 June 2007
- ***Time of Discovery:*** 25 June 2007 @ 3:00 pm
- ***Release Source:*** Equipment failure on a load line
- ***Initial Surface Area Affected:*** ~2,850-ft^2 (reference *Figure 3*)

Remediation Specific:

- ***Final Vertical extent of contamination:*** ~10-ft bgs
- ***Depth to Ground Water:*** ~46-ft bgs
- ***Water wells within 1,000-ft:*** None
- ***Private domestic water sources within 200-ft:*** None
- ***Surface water bodies within 1,000-ft:*** None
- ***NMOCD Site Ranking Index:*** Twenty (20)
- ***Remedial goals for Soil:*** TPH – 100 mg/Kg; BTEX – 50 mg/Kg; Benzene – 10 mg/Kg; Chloride residuals may not be capable of impacting groundwater above NMWQCC Ground Water Standards of 250 mg/L.
- ***RCRA Waste Classification:*** Exempt
- ***Remediation Option Selected:*** a) Hydro-excavated approximately 40 yds^3 of visibly stained/impacted soil within the confines of the tank battery (bermed and fenced) release area; b) excavated approximately 308 yds^3 of visibly stained/impacted soil from a surface area of 1,200-ft^2 at depths ranging from 2-ft bgs to 10-ft bgs outside tank battery release area ; c) transported impacted soil (~348 yds^3) to Sundance Services Inc., for disposal; d) laboratory analyses confirmed removal of highly impacted soil above NMOCD remedial threshold goals from excavation sidewalls and bottom; e) backfilled excavation with approximately 348yds^3 of caliche; and f) graded/contoured disturbed area outside the tank battery to allow natural drainage.
- ***Volume disposed:*** ~348 yds^3
- ***Disposal Facility:*** Sundance Services, Inc.
- ***Project Completion Date:*** 1 August 2007

2.0 SITE AND RELEASE INFORMATION

2.1 ***Describe the land use and pertinent geographic features within 1,000 feet of the site.***
Land surrounding the area is rangeland in native grasses utilized for livestock grazing as well as oilfield operations.

2.2 ***Identify and describe the source or suspected source(s) of the release.***
Equipment failure on a load line resulted in the release of a produced water leak.

2.3 ***What is the volume of the release? (if known):*** ~50 ***barrels of*** produced water

2.4 ***What is the volume recovered? (if any):*** 0 ***barrels of*** produced water

2.5 ***When did the release occur? (if known):*** 21 June 2007

2.6 ***Geological Description***
The United States Geological Survey (USGS) Ground-Water Report 6, *"Geology and Ground-water Conditions in Southern Lea County, New Mexico, "A. Nicholson and A. Clebsch, 1961*, describes the near surface geology of southern Lea County as "an intergrade of the Quaternary Alluvium (QA) sediments (i.e., fine to medium sand, with the mostly eroded Cenozoic Ogallala (CO) formation). Typically, the QA and CO formations in the area are capped by a thick interbed of caliche and generally overlain by sandy soil."

The release site is located in the Eunice Plain physiographic subdivision, described by Nicholson & Clebsch as an area "underlain by a hard caliche surface and is almost entirely covered by reddish-brown dune sand". The thickness of the sand cover ranges from 2 to 5 feet in most areas to as much as 20-30 feet in drift areas.

2.7 ***Ecological Description***
The area is typically of the Upper Chihuahuan Desert Biome consisting primarily of sandy soil covered with short semi-arid grasses, interspersed with Honey Mesquite and forbs. Mammals represented include Orrd's and Merriam's Kangaroo Rats, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Mule Deer, Bobcat, Red Fox and Coyote. Reptiles, amphibians and birds are numerous and typical of the area. A survey of Listed, Threatened or Endangered species was not conducted.

2.8 ***Area Groundwater***
The unconfined groundwater aquifer at this site is projected to be ~46-ft bgs based on water depth data obtained from the New Mexico State Engineers Office and United States Geological Survey data base (reference *Table 1*).

2.9 ***Area Water Wells***
No water wells exist within a 1,000-foot radius of the site. However, one (1) well exists within a 1.0-mile radius of the release site (reference *Figure 2*).

2.10 ***Area Surface Water Features***
No surface water features exist within a 1,000-foot radius of the release site (reference *Figure 2*).

3.0 NMOCD SITE RANKING

Contaminant delineation and remedial work done at this site indicate chemical parameters of the soil and physical parameters of the groundwater were characterized consistent with the characterization and remediation/abatement goals and objectives set forth in the following New Mexico Oil Conservation Division (NMOCD) publications:

- ***Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)***
- ***Unlined Surface Impoundment Closure Guidelines (February, 1993)***
- ***Pit and Below-Grade Tank Guidelines (November, 2004)***

Acceptable thresholds for contaminants/constituents of concern (CoC) were determined based on NMOCD Ranking Criteria as follows:

- *Depth to Groundwater (i.e., distance from the lower most acceptable concentration to ground-water);*
- *Wellhead Protection Area (i.e., distance from fresh water supply wells);*
- *Distance to Surface Water Body (i.e., horizontal distance to all down gradient surface water bodies).*

Based on the proximity of the site to protectable area water wells, surface water bodies, and depth to groundwater from the lower most contamination, the NMOCD ranking score for the site is twenty (20) points with the soil remedial goals highlighted in the Site Ranking table presented below:

1. GROUNDWATER	2. WELLHEAD PROTECTION AREA	3. DISTANCE TO SURFACE WATER
Depth to GW <50 feet: 20 points	If <1,000' from water source, or <200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
Depth to GW 50 to 99 feet: *10 points*		200-1,000 horizontal feet: *10 points*
Depth to GW >100 feet: 0 points	If >1,000' from water source, or >200' from private domestic water source: *0 points*	>1,000 horizontal feet: *0 points*
Site Rank (1+2+3) = 20 + 0 + 0 = 20 points		

Total Site Ranking Score and Acceptable Remedial Goal Concentrations			
Ranking Score	20 or >	10	0
Benzene[1]	10 ppm	10 ppm	10 ppm
BTEX[1]	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1,000 ppm	5,000 ppm

[1] A field soil vapor headspace measurement of 100 ppm can be substituted in lieu of laboratory analyses for benzene and BTEX.

4.0 EXCAVATED SOIL INFORMATION

4.1 ***Was soil excavated for off-site treatment or disposal?*** ☒ *Yes* ☐ *No*

Date excavated: July 18, 2007 through July 24, 2007

Total volume removed: ~348 yds^3

4.2 ***Indicated soil treatment type:***

☒ ***Disposal***
☐ ***Land Treatement***
☐ ***Composting/Biopiling***
☐ ***Other*** ( )

Name and location of treatment/disposal facility:
Sundance Services Inc., Lea County, New Mexico

5.0 SAMPLING INFORMATION

5.1 Briefly describe the field screening methods used to distinguish contaminated from uncontaminated soil.

Soil samples collected from hand auger (HA) and excavation sidewalls/bottom were analyzed in the field for organic vapor and chloride concentrations utilizing methods described below:

Organic Vapor Concentrations – A portion of each soil sample was inserted into a self-sealing polyethylene bag to allow volatilization of organic vapors. After the samples equilibrated to ~70° F, they were analyzed for organic vapors utilizing a MiniRae® Photoionization Detector (PID) equipped with a 10.6 electron volt (eV) lamp and calibrated for benzene response.

Chloride Concentrations – A La Motte Chloride Test Kit (Titration Method) was utilized for field chloride concentration analyses.

5.2 Briefly describe the soil analytical sampling and handling procedures used.

During advancement of hand augers (HA), soil samples were collected at 5-, 10- and 13-ft bgs. Soil samples from the excavation were collected utilizing hand and/or mechanical excavation equipment to gather the sample from at least 6-inches below/within the surface of the excavation. Prior to the collection of each soil sample, the sampling instrument was decontaminated with an Alconox solution.

Upon collection of each soil sample, a portion was immediately placed in a laboratory provided container, labeled and set on ice for transport to an independent laboratory for quantification of chloride concentrations.

5.3 Discuss sample locations and provide rationale for their locations.

On July 13, 2007, three (3) soil samples were collected within the confines of the tank battery release area (reference *Figure 4*).

On July 17, 2007, twelve (12) soil samples were collected from the sidewalls (7 ea.) and bottom (5 ea.) of the caliche pad excavation to determine vertical and horizontal extent of impacted soil (reference *Figure 4*).

On July 18, 2007, four (4) soil samples were collected from the sidewalls (3 ea.) and bottom (1 ea.) of the caliche pad excavation to determine vertical and horizontal extent of impacted soil (reference *Figure 4*).

On July 19, 2007, three (3) additional soil samples were collected (i.e. SBH-1A, ESW-1B and NSW-1A) from the sidewalls (2 ea.) and bottom (1 ea.) of the caliche pad excavation based on field analyses results from the July 17, 2007 sampling event (reference *Figure 5*).

On July 24, 2007, two (2) additional soil samples (i.e. ESW-1C and ESW-1D) were collected from the sidewalls of the caliche pad excavation based on field and laboratory analytical results (reference *Figure 5*).

On August 1, 2007, a series of three (3) soil samples were collected from advancement of hand auger (HA1-1, HA1-2 and HA1-3) within the confines of the tank battery release area to determine vertical extent of impacted soil (reference *Figure 5*).

Sample point locations were chosen to provide the best representative areas to delineate vertical and horizontal extent of impacted soil.

6.0 ANALYTICAL RESULTS

6.1 Describe the vertical and horizontal extent and magnitude of soil contamination.

Laboratory analytical results from soil samples collected on July 13, 2007 within the confines of the tank battery release area indicated BTEX and TPH concentrations were below NMOCD remedial thresholds of 50 mg/Kg and 100 mg/Kg, respectively. Chloride concentrations ranged from 80 mg/Kg (SS-2 @ 3-ft bgs) to 3,343 mg/Kg (NS-1 @ 1-ft bgs) (reference *Table 2*).

Laboratory analytical results from soil samples collected on July 17, 2007 indicated reported chloride concentrations were below remedial goal of 250 mg/Kg (reference *Table 2*).

Laboratory analytical results from soil samples collected on July 18, 2007 indicated chloride concentrations were below remedial goal of 250 mg/Kg (reference *Table 2*).

Laboratory analytical results from soil samples collected on July 19, 2007 indicated chloride concentrations ranged from 128 mg/Kg (NSW-1A @ 2-ft bgs) to 656 mg/Kg (ESW-1B @ 5-ft bgs) (reference *Table 2*).

Laboratory analytical results from soil samples collected on July 24, 2007 indicated chloride concentrations ranged from 32 mg/Kg (ESW-1D @ 4-ft bgs) to 320 mg/Kg (ESW-1C @ 4-ft bgs) (reference *Table 2*).

Laboratory analytical results from soil samples collected on August 1, 2007 within the confines of the tank battery release area indicated chloride concentrations ranged from 112 mg/Kg (HA1-2 @ 10-ft bgs and HA1-3 @ 13-ft bgs) to 256 mg/Kg (HA1-1 @ 5-ft bgs) (reference *Table 2*).

6.2 Is surface soil contamination present at the site (i.e., soil in the uppermost two feet that is visibly stained, contaminated at greater than 10 ppm (PID) or hydrocarbon saturated)?

☐ *yes* ☒ *no*

If yes, attach a site map identifying extent(s) of surface soil contamination.

Not applicable.

7.0 DISCUSSION

7.1 ***Discuss the risks associated with the remaining soil contamination:***

Chloride residuals remaining in situ are unlikely to impact local groundwater as an underlying clay formation was encountered approximately 10-ft bgs. The existing clay formation functions as an impermeable barrier and downward migration of chloride concentrations through the strata will be dispersed laterally averting groundwater impaction. Furthermore, with chloride impacts confined to a relatively small area, natural attenuation will deplete concentrations during migration.

7.2 ***Discuss the risks associated with the impacted groundwater:*** Not applicable

7.3 ***Discuss other concerns not mentioned above:*** Not applicable

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 ***Recommendation for the site:***

- ☒ ***Site Closure***
- ☐ ***Additional Groundwater Monitoring***
- ☐ ***Corrective Action***

8.2 ***Base the recommendation above on Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993). Describe below how you applied the policy to support your recommendation. If closure is recommended, please summarize significant site investigative events and describe how site specific risk issues have been adequately addressed or minimized to acceptable low risk levels.***

Approximately 2,850-ft^2 of surface area was affected by the 50-bbl release of produced water. Approximately 1,650-ft^2 of surface area affected by the release was contained within the fenced and bermed area of the existing tank battery. This area is inclusive of the three (3) tanks. An estimated 40 yds^3 of visibly stained/impacted soil were hydro-excavated. Approximately 1,200-ft^2 of surface area affected by the release was contained on the caliche pad adjacent to the tank battery release area (reference *Figure 3).*

Highly impacted soils (~348 yds^3) were excavated and transported to Sundance Services Inc. for disposal. Laboratory analyses confirmed removal of highly impacted soil above NMOCD remedial threshold goals in sidewalls and bottom of the excavation. In an effort to extract chloride impacted soil, the release area located on the caliche pad was excavated to depths ranging from 2-ft bgs to 10-ft bgs and comprised an area of approximately 1,500-ft^2. The excavation areas (caliche pad and tank battery) were backfilled with approximately 348 yds^3 of caliche. The caliche pad area was graded and contoured to allow natural drainage.

Upon decommissioning of the existing tank battery and infrastructure, a remediation proposal will be drafted to address removal of impacted soil within the tank battery confines and adjacent caliche pad.

8.3 ***If additional groundwater monitoring is recommended, indicate the proposed monitoring schedule and frequency. Conduct quarterly monitoring until the NMOCD responds to this report.*** Not applicable

8.4 ***If corrective action is recommended, provide a conceptual approach.*** Not Applicable

FIGURES

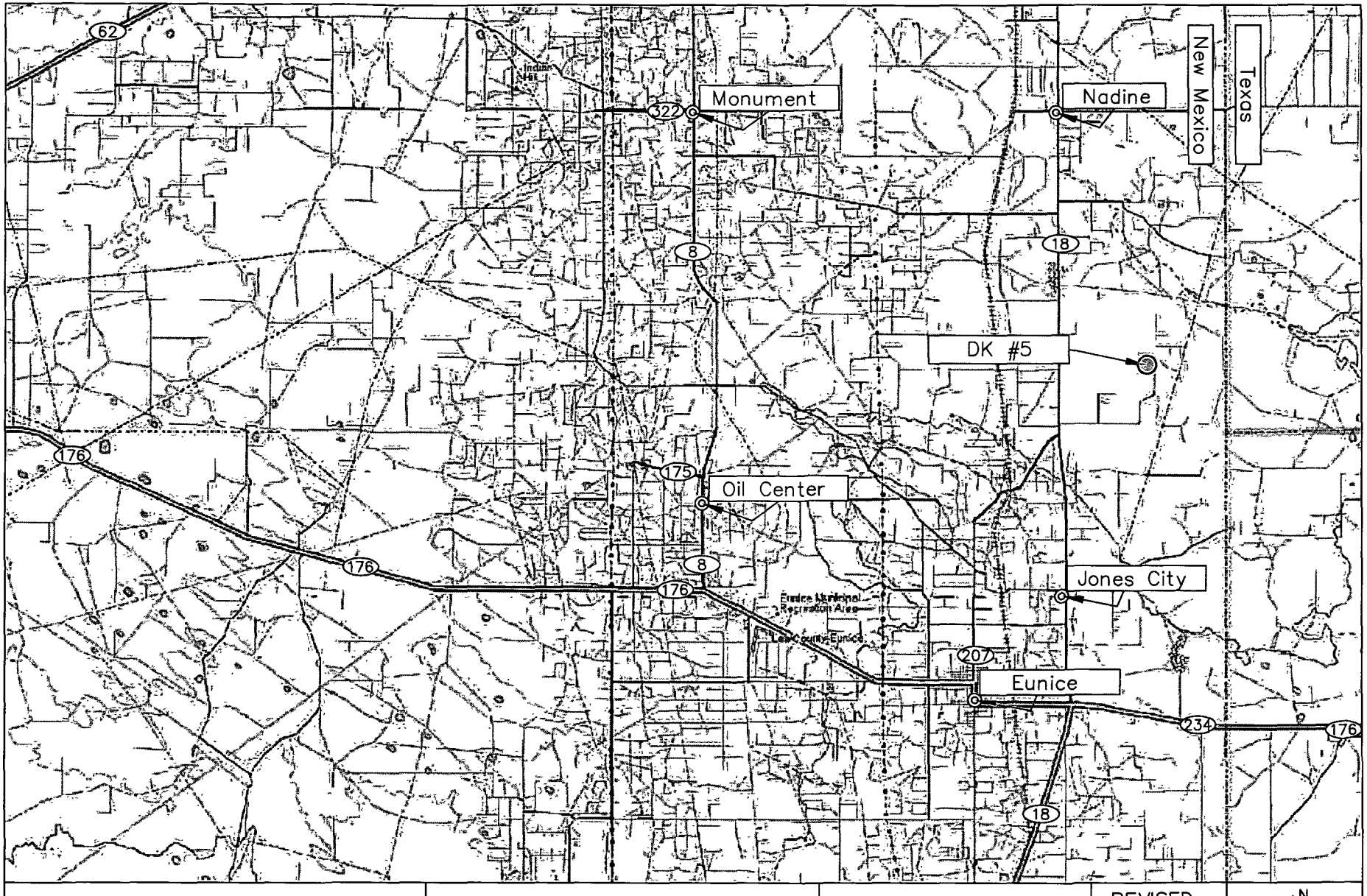


Figure 1 Area Map Chesapeake Operating Inc. DK #5	Lea County, New Mexico NE 1/4 of the SE 1/4, Sec. 25, T20S, R38E N 32°32' 35.28" W 103°05' 40.60" Elevation: 3,565 feet amsl	DWG By: Daniel Dominguez August 2007 0 3 6 Miles	REVISED: SHEET 1 of 1 N

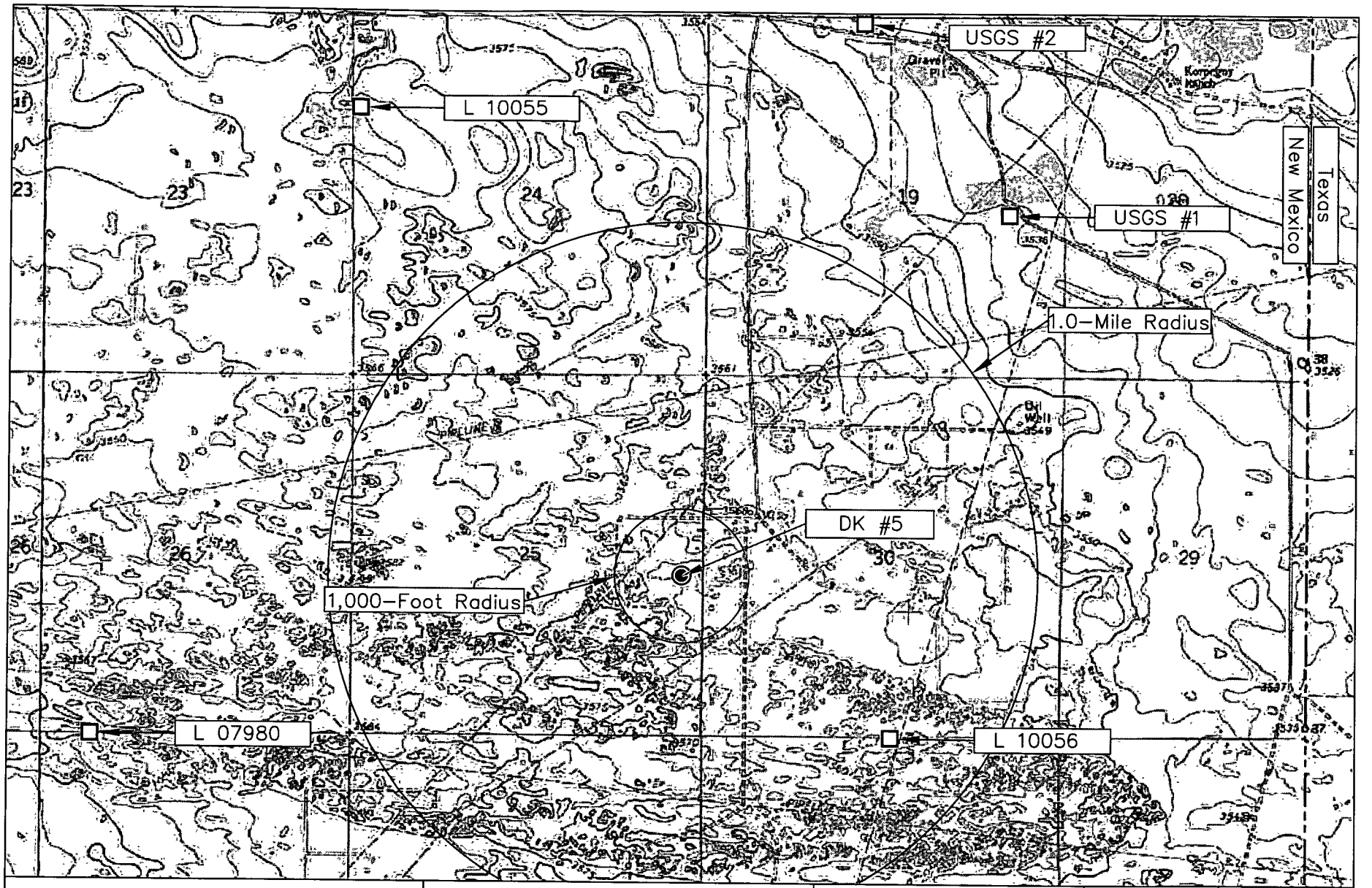


Figure 2 Site Location Map Chesapeake Operating Inc. DK #5	Lea County, New Mexico NE 1/4 of the SE 1/4, Sec. 25, T20S, R38E N 32°32' 35.28" W 103°05' 40.60" Elevation: 3,565 feet amsl	DWG By: Daniel Dominguez August 2007 0 2,000 4,000 Feet	REVISED: SHEET 1 of 1

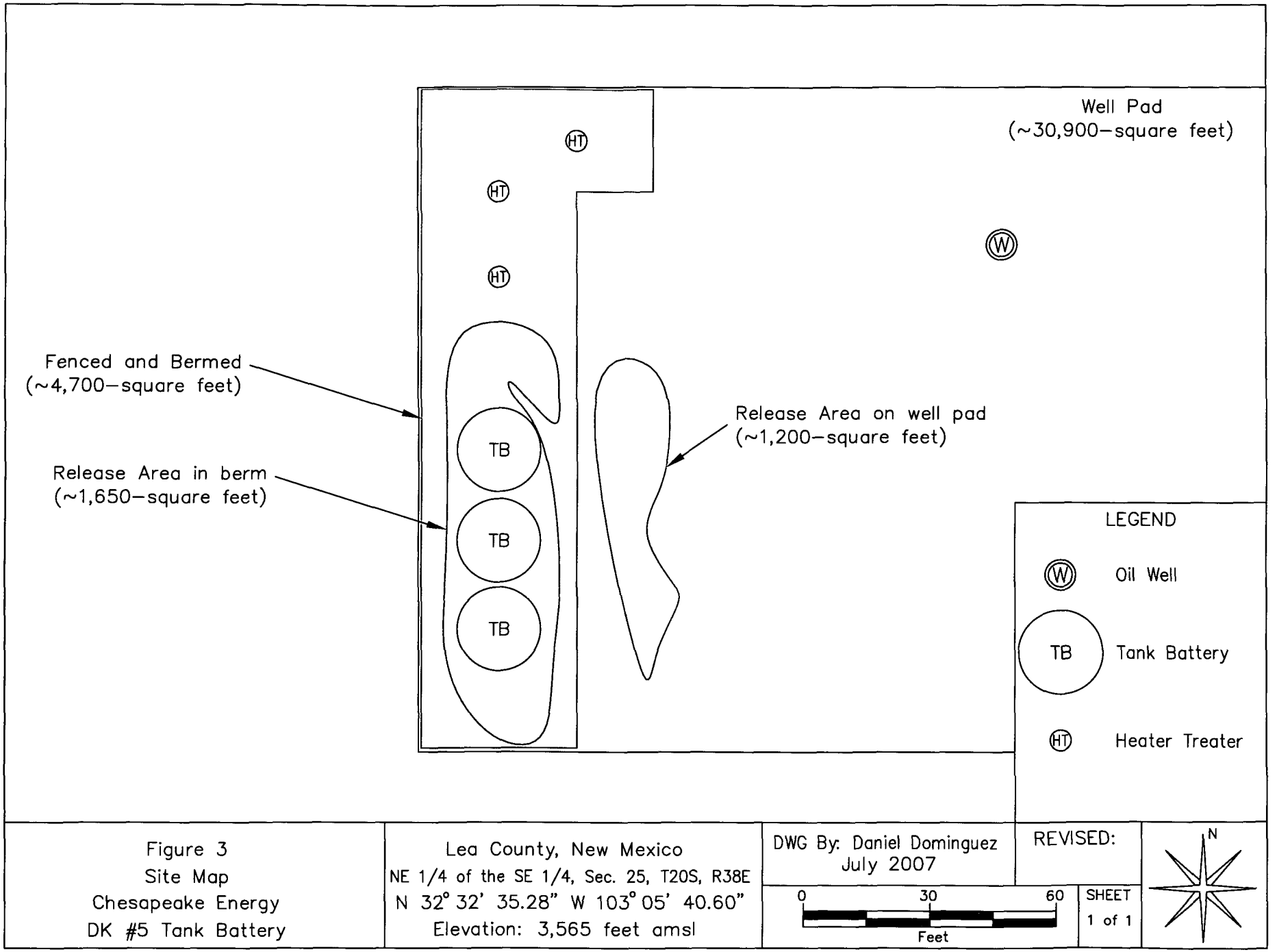


Figure 3 Site Map Chesapeake Energy DK #5 Tank Battery	Lea County, New Mexico NE 1/4 of the SE 1/4, Sec. 25, T20S, R38E N 32° 32' 35.28" W 103° 05' 40.60" Elevation: 3,565 feet amsl	DWG By: Daniel Dominguez July 2007 0 30 60 Feet	REVISED: SHEET 1 of 1	N

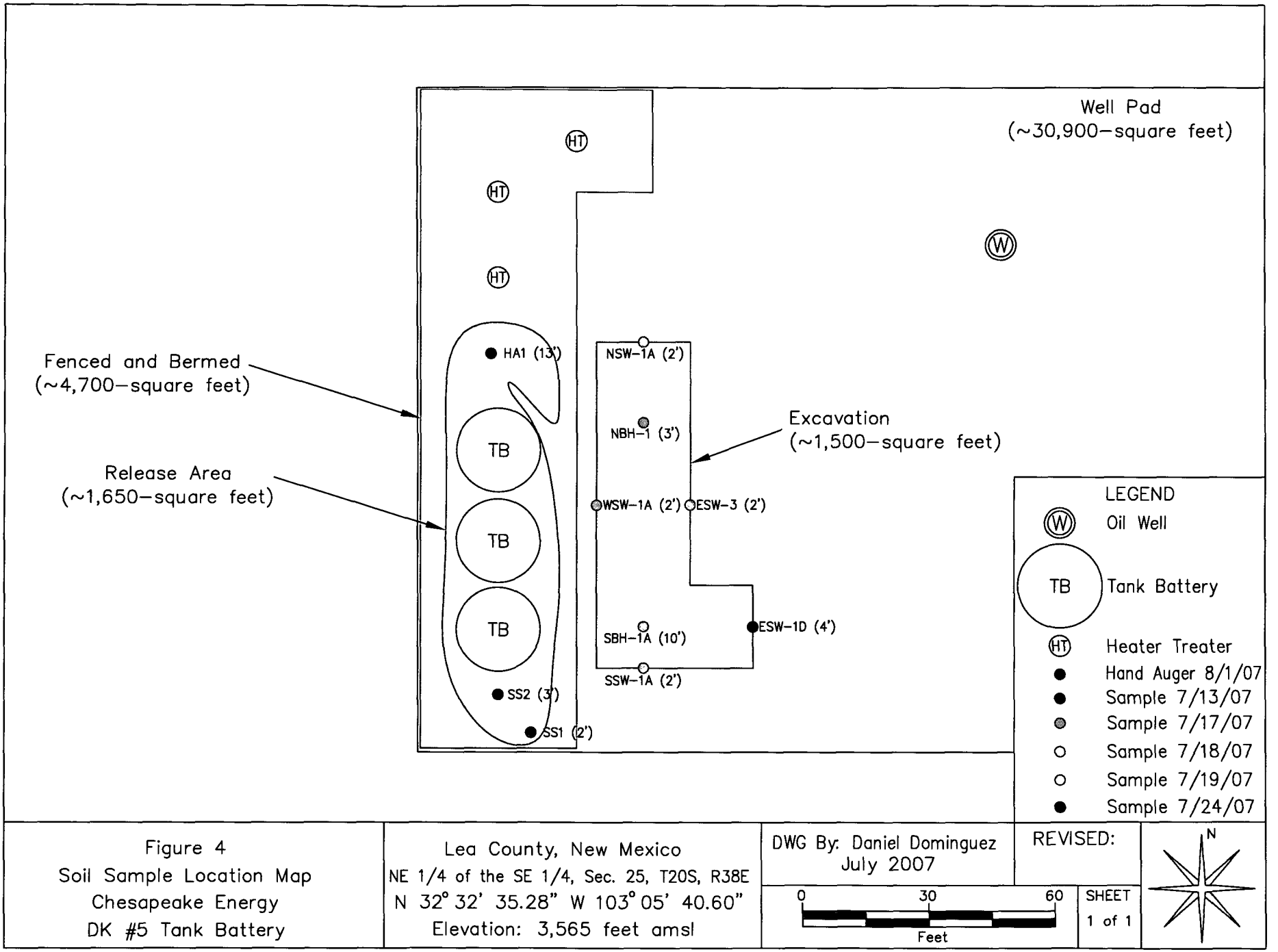


Figure 4 Soil Sample Location Map Chesapeake Energy DK #5 Tank Battery	Lea County, New Mexico NE 1/4 of the SE 1/4, Sec. 25, T20S, R38E N 32° 32' 35.28" W 103° 05' 40.60" Elevation: 3,565 feet amsl	DWG By: Daniel Dominguez July 2007	REVISED:	N
			SHEET 1 of 1	

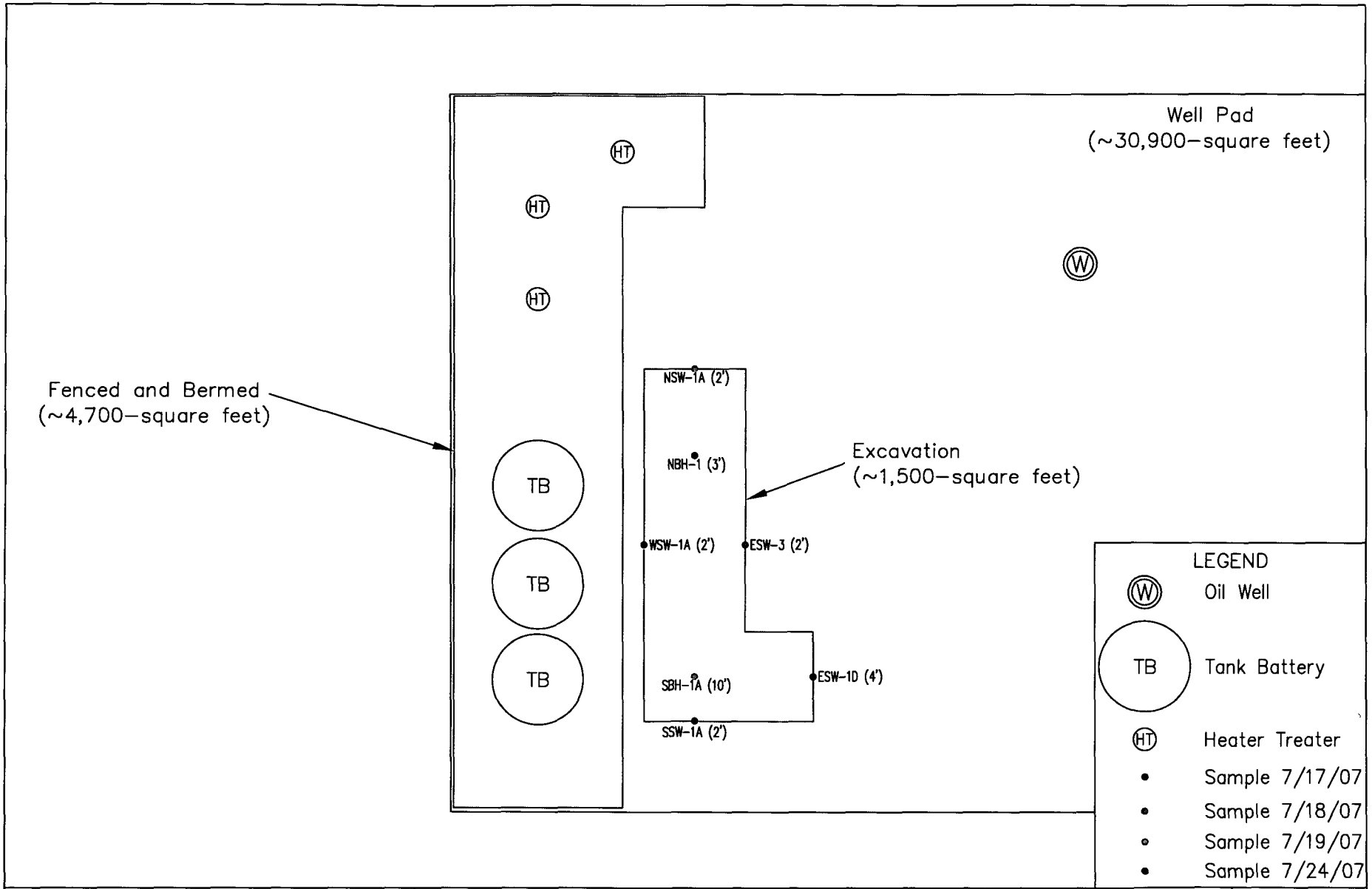


Figure 5 Excavation/Sample Map Chesapeake Energy DK #5 Tank Battery	Lea County, New Mexico NE 1/4 of the SE 1/4, Sec. 25, T20S, R38E N 32° 32' 35.28" W 103° 05' 40.60" Elevation: 3,565 feet amsl	DWG By: Daniel Dominguez July 2007	REVISED:	N
		0 30 60 Feet	SHEET 1 of 1	

TABLES

TABLE 1

Well Data

Chesapeake Operating Inc. - DK #5 (Ref. # 160264)

Well Number	Diversion[A]	Owner	Use	Twsp	Rng	Sec q q q	Latitude	Longitude	Date Measured	Surface Elevation[B]	Depth to Water (ft bgs)
L 07980	3	MILLARD DECK	DOM	20S	38E	26 3 4	N32° 32' 11.72"	W103° 07' 22.93"	05-Jun-78	3,550	65
L 10055	3	DALLAS MCCASLAND	STK	20S	38E	24 1 1 1	N32° 33' 43.29"	W103° 06' 36.98"	13-Dec-88	3,565	30
L 10056	3	DALLAS MCCASLAND	STK	20S	39E	30 4 3	N32° 32' 11.74"	W103° 05' 4.33"	17-Dec-88	3,560	40
USGS #1				20S	39E	19 4 2 1			04-Feb-81	3,541	53.53
USGS #2				20S	39E	19 1 2 2			31-Jan-96	3,545	43.7

* = Data obtained from the New Mexico Office of the State Engineer Website (http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet1) and USGS Database

[A] = In acre feet per annum

[B] = Elevation interpolated from USGS topographical map based on referenced location.

DOM = 72-12-1 Domestic one household

STK = 72-12-1 Livestock

quarters are 1=NW, 2=NE, 3=SW, 4=SE; quarters are biggest to smallest

Shaded area indicates wells not shown in Figure 2

TABLE 2

Summary of Excavation Soil Sample Analytical Results

Chesapeake Operating, Inc.

DK #5 Tank Battery (EPI Ref. #160264)

Sample Location	Depth (feet)	Soil Status	Sample Date	Field Analysis for Organic Vapors (ppm)	Field Chloride Analysis (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SS-1	2	Exavated	13-Jul-07	--	240	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	<20.0	**384**
SS-2	3	Exavated	13-Jul-07	--	240	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	<20.0	80
NS-1[c]	1	Exavated	13-Jul-07	--	3,280	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	<20.0	**3,343**
BH-1	1	Excavated	17-Jul-07	--	2,000	--	--	--	--	--	--	--	--	--
CBH-1	2	In situ	17-Jul-07	--	480	--	--	--	--	--	--	--	--	192
BH-1A	2	In situ	17-Jul-07	--	1,280	--	--	--	--	--	--	--	--	--
ESW-1	2	Excavated	17-Jul-07	--	2,880	--	--	--	--	--	--	--	--	--
ESW-1A	2	Excavated	17-Jul-07	--	640	--	--	--	--	--	--	--	--	--
SSW-1	2	Excavated	17-Jul-07	--	2,560	--	--	--	--	--	--	--	--	--
WSW-1	2	Excavated	17-Jul-07	--	1,880	--	--	--	--	--	--	--	--	--
WSW-1A	2	In situ	17-Jul-07	--	280	--	--	--	--	--	--	--	--	16
NSW-1	2	In situ	17-Jul-07	--	540	--	--	--	--	--	--	--	--	--
NBH-1	3	In situ	17-Jul-07	--	260	--	--	--	--	--	--	--	--	112
SBH-1	3	Excavated	17-Jul-07	--	520	--	--	--	--	--	--	--	--	--
SSW-1A	2	In situ	17-Jul-07	--	280	--	--	--	--	--	--	--	--	<16
ESW-2	2	In situ	18-Jul-07	--	--	--	--	--	--	--	--	--	--	32
ESW-3	2	In situ	18-Jul-07	--	--	--	--	--	--	--	--	--	--	16

TABLE 2

Summary of Excavation Soil Sample Analytical Results

Chesapeake Operating, Inc.

DK #5 Tank Battery (EPI Ref. #160264)

Sample Location	Depth (feet)	Soil Status	Sample Date	Field Analysis for Organic Vapors (ppm)	Field Chloride Analysis (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
NSW-2	6	In situ	18-Jul-07	--	--	--	--	--	--	--	--	--	--	80
SBH-1	6	In situ	18-Jul-07	--	--	--	--	--	--	--	--	--	--	64
SBH-1A	10	In situ	19-Jul-07	--	680	--	--	--	--	--	--	--	--	**368**
ESW-1B	5	Excavated	19-Jul-07	--	840	--	--	--	--	--	--	--	--	**656**
NSW-1A	2	In situ	19-Jul-07	--	280	--	--	--	--	--	--	--	--	128
ESW-1C	4	Excavated	24-Jul-07	--	460	--	--	--	--	--	--	--	--	**320**
ESW-1D	4	In situ	24-Jul-07	--	240	--	--	--	--	--	--	--	--	32
HA1-1	5	In situ	01-Aug-07	--	400	--	--	--	--	--	--	--	--	**256**
HA1-2	10	In situ	01-Aug-07	--	240	--	--	--	--	--	--	--	--	112
HA1-3	13	In situ	01-Aug-07	--	240	--	--	--	--	--	--	--	--	112
NMOCD Remedial Thresholds				**100**		**10**				**50**			**100**	**250** [B]

Bold *values are in excess of NMOCD Remediation Thresholds and/or NMWQCC Groundwater Standards.*

Shaded cells indicate sample points shown onFigure 5(Excavation/Sample Map)

[A] *Estimated concentration, analyte dectected below method detection limits*

HA = Hand Auger

[B] *Chloride residuals may not be capable of impacting local groundwater above the NMWQCC Ground Water Standards of 250 mg/L*

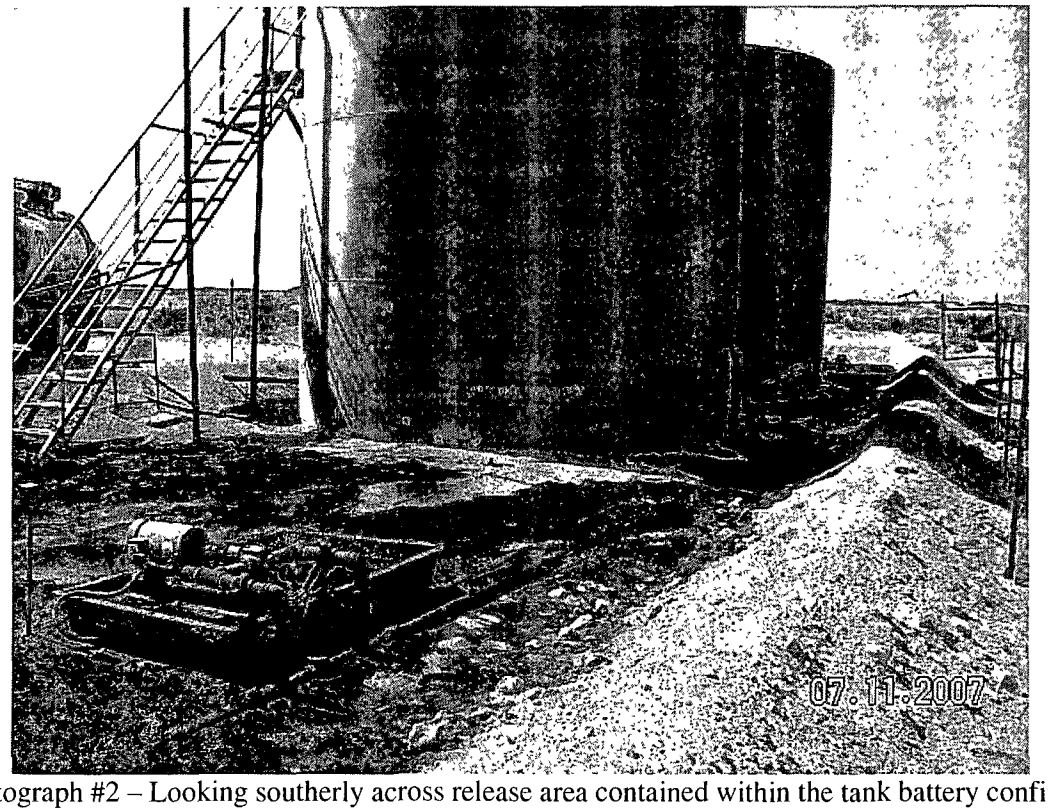
[C] *Surface soil sample collected from HA sample point*

APPENDICES

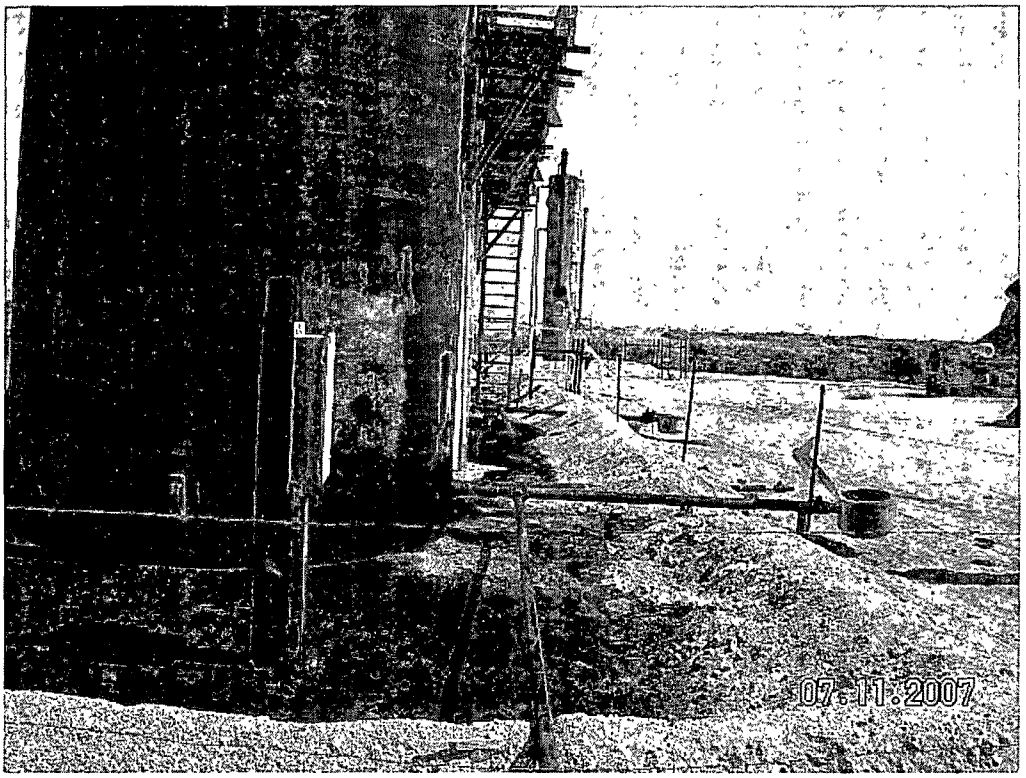
APPENDIX I

PROJECT PHOTOGRAPHS

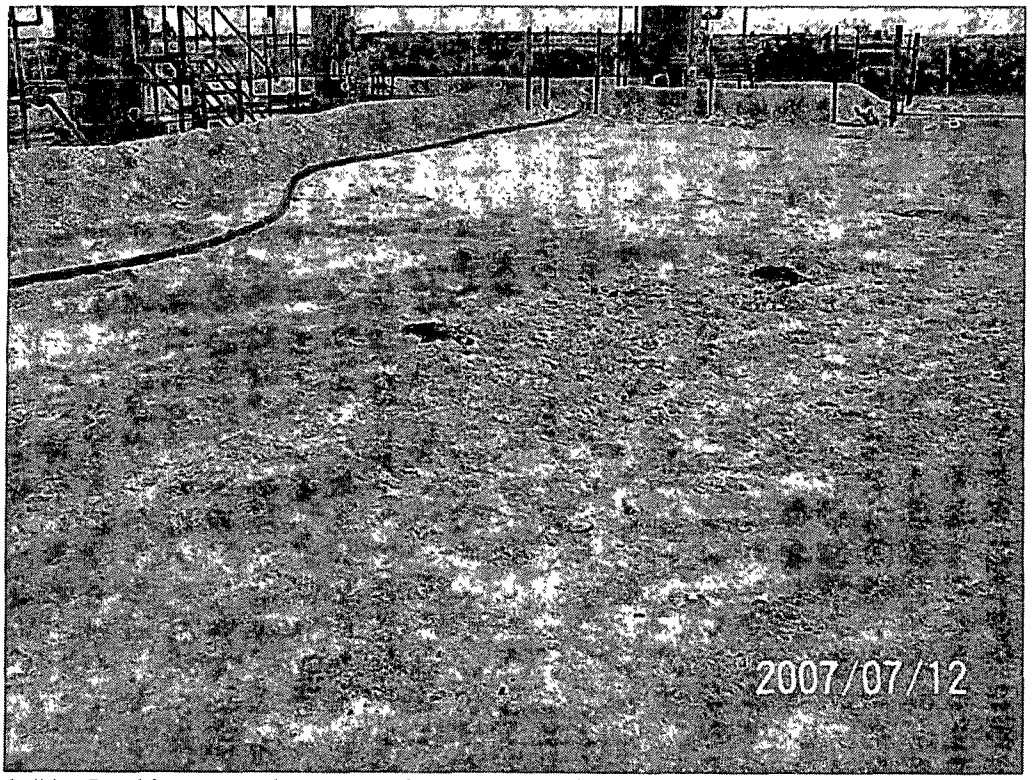
Photograph #1 – Lease sign.



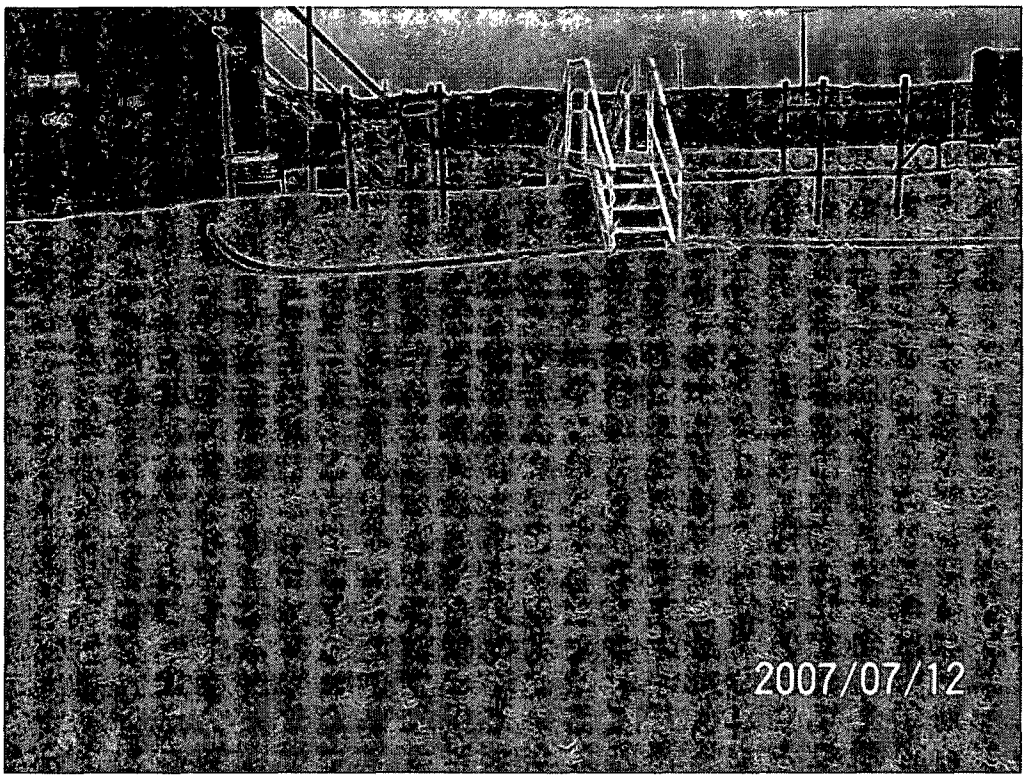
Photograph #2 – Looking southerly across release area contained within the tank battery confines.



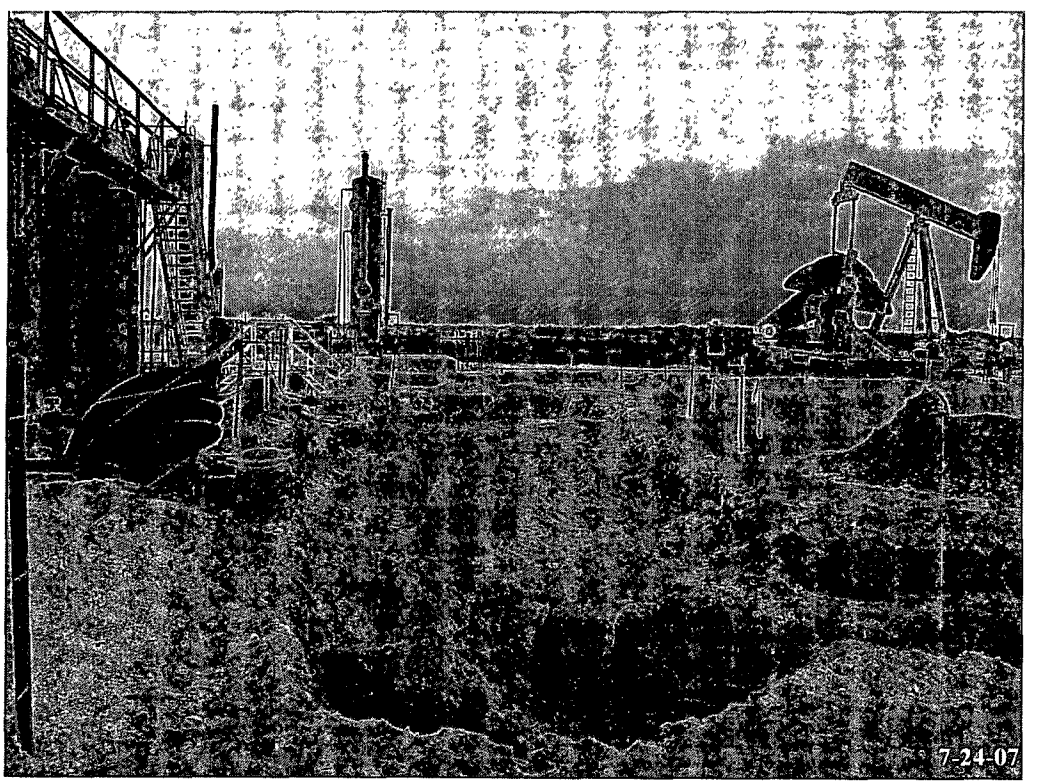
Photograph #3 – Looking northerly across release area contained within the tank battery confines.



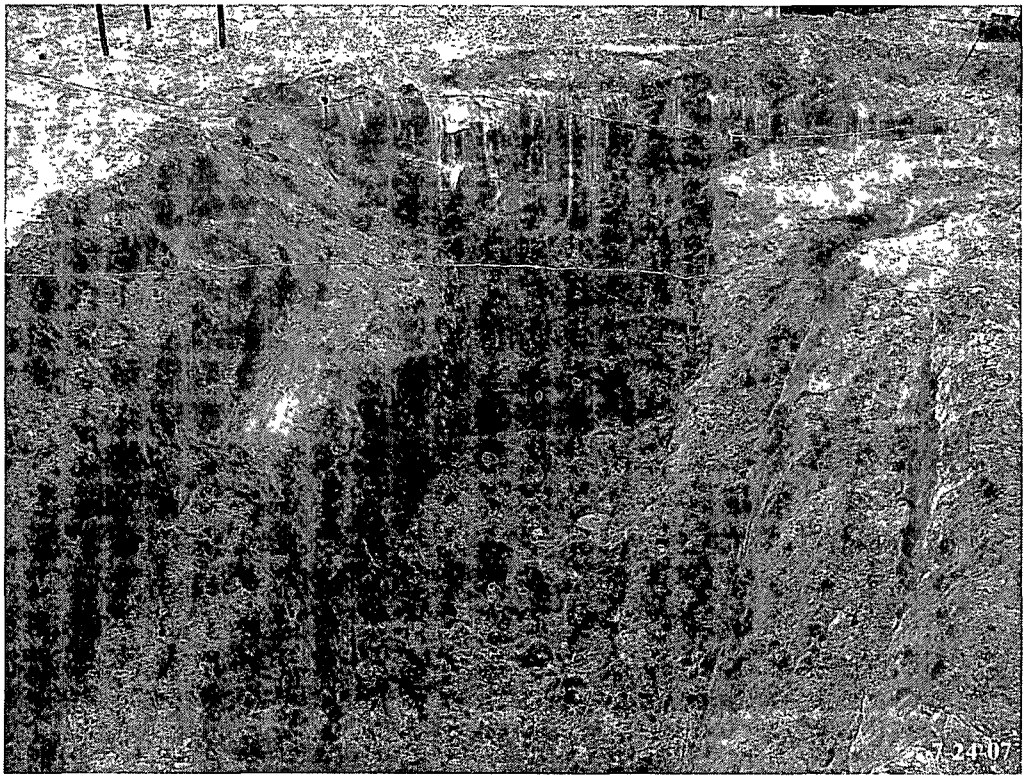
Photograph #4 – Looking westerly across release area outside the tank battery confines. Dark soil indicates contamination.



Photograph #5 – Looking westerly across release area outside the tank battery confines. Dark soil indicates contamination.

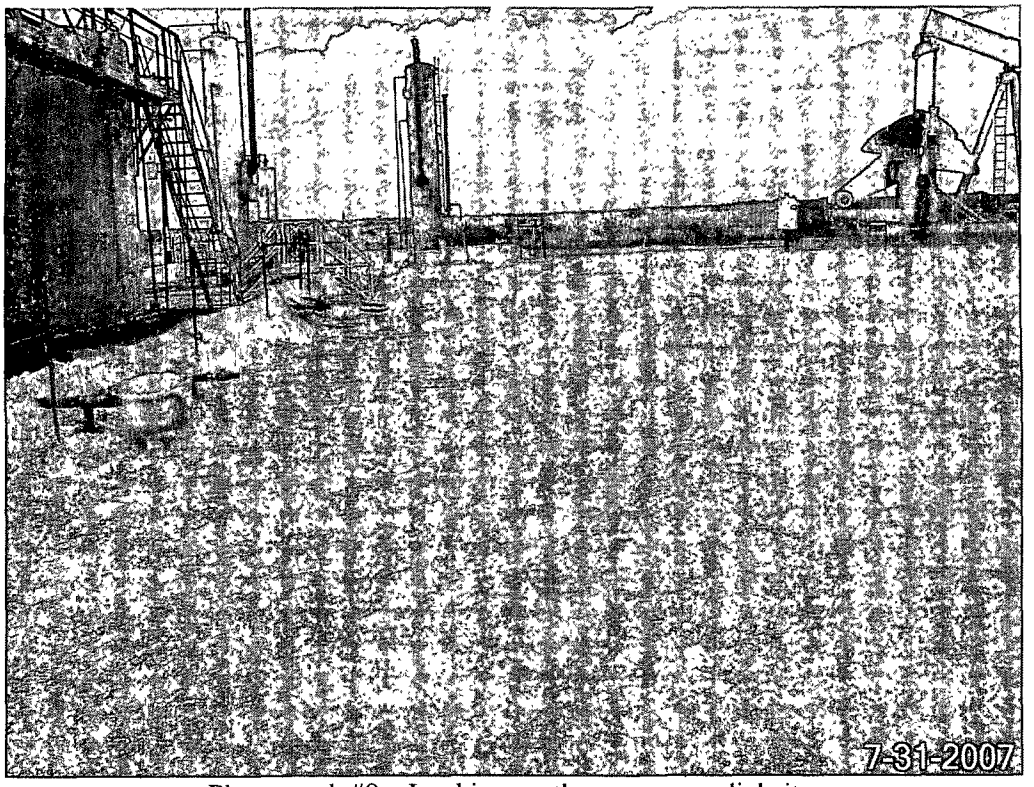


Photograph #6 – Looking north across caliche pad excavation.

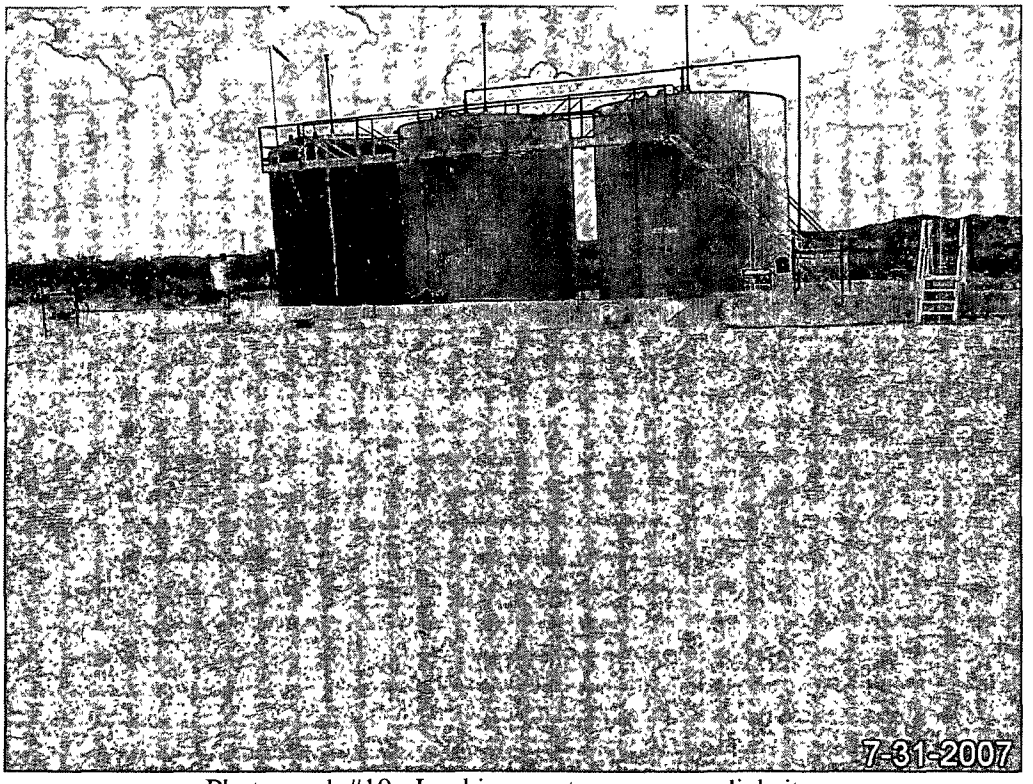


Photograph #7 – Looking westerly across caliche pad excavation.

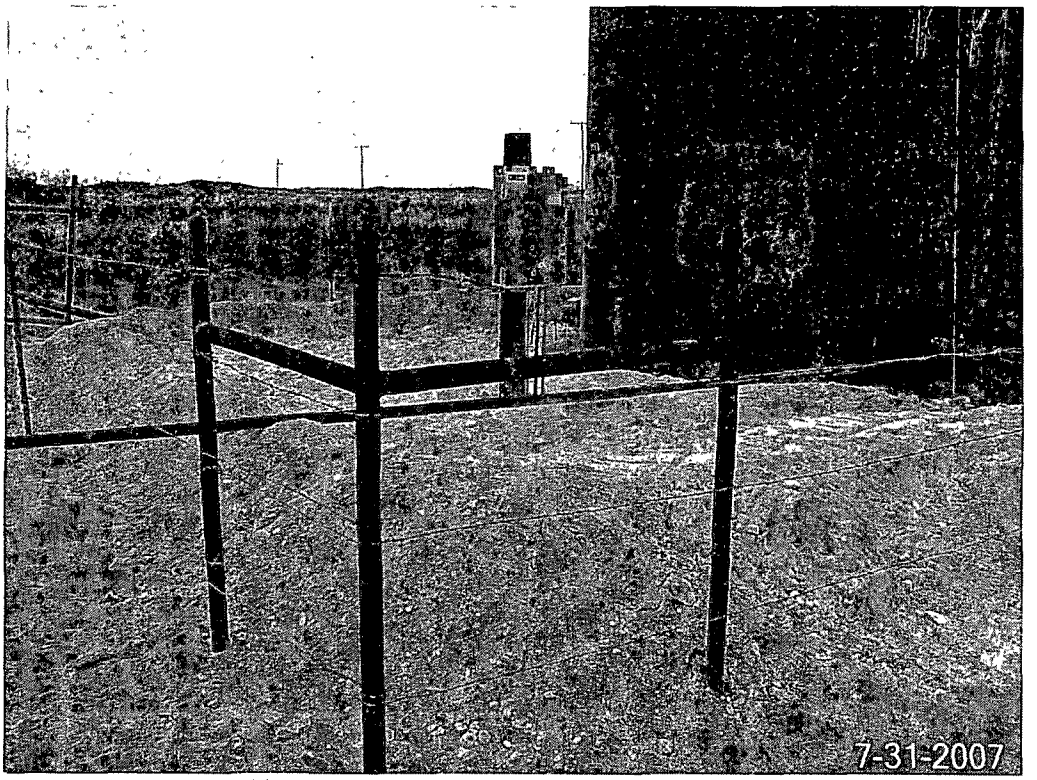
Photograph #8 – Looking east across caliche pad excavation.



Photograph #9 – Looking north across remedial site.



Photograph #10 - Looking west across remedial site.



Photograph #11 – Looking northeast across remedial area within the tank battery confines

APPENDIX II

LABORATORY ANALYTICAL REPORTS

CHAIN-OF-CUSTODY FORMS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: DAVID P. DUNCAN
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 07/16/07
Reporting Date: 07/18/07
Project Owner: CHESAPEAKE ENERGY (160264)
Project Name: DK 5 TANK BATTERY
Project Location: UL-I, SECT. 25, T 20 S, R 38 E

Sampling Date: 07/13/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC/AB

LAB NO.	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		07/17/07	07/17/07	07/16/07	07/16/07	07/16/07	07/16/07
H12898-1	SS-1 (2')	<10.0	<10.0	<0.002	<0.002	<0.002	<0.006
H12898-2	SS-2 (3')	<10.0	<10.0	<0.002	<0.002	<0.002	<0.006
H12898-3	NS-1 (1')	<10.0	<10.0	<0.002	<0.002	<0.002	<0.006
Quality Control		758	751	0.115	0.100	0.104	0.313
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		94.7	93.9	115	100	104	104
Relative Percent Difference		6.1	6.4	15.1	10.3	12.4	10.7

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8021 B

Burgess J. A. Cooke, Ph. D.

7/18/07
Date

H12898 EPI

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: DAVID P. DUNCAN
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 07/16/07
Reporting Date: 07/19/07
Project Owner: CHESAPEAKE ENERGY (160264)
Project Name: DK 5 TANK BATTERY
Project Location: UL-I, SECT. 25, T 20 S, R 38 E

Sampling Date: 07/13/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl (mg/Kg)	SO_4 (mg/Kg)
ANALYSIS DATE:		07/18/07	07/18/07
H12898-1	SS-1 (2')	384	*91.6
H12898-2	SS-2 (3')	80	*126
H12898-3	NS-1 (1')	3343	30.2
Quality Control		500	23.5
True Value QC		500	25.0
% Recovery		100	93.9
Relative Percent Difference		4.1	5.6

METHODS: Cl: Std. Methods 4500-Cl⁻B; SO_4: EPA 600 375.4

Note: Analyses performed on 1:4 aqueous extracts.
* Color matrix interference. Result should therefore be considered an approximation.

Date: 07-19-07

H12898 EPI

Environmental Plus, Inc.

2100 Avenue O, Eunice, NM 88231 P.O. Box 1558, Eunice, NM 88231
(505) 394-3481 FAX: (505) 394-2601

Chain of Custody Form

LAB: Cardinal

Company Name	Environmental Plus, Inc.
EPI Project Manager	David P. Duncan
Mailing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Chesapeake Energy
Facility Name	DK 5 Tank Battery
Location	UL-I, Sect. 25, T 20 S, R 38 E
Project Reference	160264
EPI Sampler Name	Jacob Melancon

Bill To

Attn: David P. Duncan
P.O. Box 1558
Eunice, NM 88231

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8016M	CHLORIDES (Cl)	SULFATES (SO_4^{-2})	pH	TCLP	OTHER >>>	PAH
H18898 - 1	SS-1 (2')	G	1			X					X		13-Jul-07	9:45	X	X	X	X				
- 2	SS-2 (3')	G	1			X					X		13-Jul-07	9:50	X	X	X	X				
- 3	NS-1 (1')	G	1			X					X		13-Jul-07	10:35	X	X	X	X				
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Sampler Relinquished: Jacob Melancon Date 7-16 Time 10:30 Received By: Jason Boone

Relinquished by: Jason Boone Date 7.16 Time 11:40 Received By: (lab staff) Nikki Tullis

Delivered by:

Sample Cool & Intact (Yes) No

Checked By: NT

E-mail results to: dduncan@envplus.net
EMAIL RESULTS TO: dduncan@envplus.net and BBlevins@chkenergy.com

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: DAVID P. DUNCAN
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 07/18/07
Reporting Date: 07/19/07
Project Owner: CHESAPEAKE ENERGY (160264)
Project Name: DK 5 TANK BATTERY
Project Location: UL-I, SECT. 25, T 20 S, R 38 E

Analysis Date: 07/19/07
Sampling Date: 07/17/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: KS

LAB NO.	SAMPLE ID	Cl^- (mg/Kg)
H12927-1	CBH-1 (2')	192
H12927-2	WSW-1A (2')	16
H12927-3	NBH-1 (3')	112
H12927-4	SSW-1A (2')	< 16
Quality Control		480
True Value QC		500
% Recovery		96
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-Cl^-B

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

07-19-07
Date

H12927 EPI

Environmental Plus, Inc.

Chain of Custody Form

2100 Avenue O, Eunice, NM 88231 P.O. Box 1558, Eunice, NM 88231
(505) 394-3481 FAX: (505) 394-2601

LAB: Cardinal

Company Name	Environmental Plus, Inc.
EPI Project Manager	David P. Duncan
Mailing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Chesapeake Energy
Facility Name	DK 5 Tank Battery
Location	UL-I, Sect. 25, T 20 S, R 38 E
Project Reference	160264
EPI Sampler Name	Sebastian Romero

BILL TO

Attn: David P. Duncan
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^=$)	pH	TCLP	OTHER >>>	PAH
H12927 – 1	CBH-1 (2')	G	1			X					X		17-Jul-07	10:40			X					
– 2	WSW-1A (2')	G	1			X					X		17-Jul-07	13:20			X					
– 3	NBH-1 (3')	G	1			X					X		17-Jul-07	13:46			X					
– 4	SSW-1A (2')	G	1			X					X		17-Jul-07	14:40			X					
5																						
6																						
7																						
8																						
9																						
10																						

Sampler Relinquished: Sebastian Romero	Date: 7-18-07 Time: 9:05	Received By: Aaron Boone	E-mail results to: dduncan@envplus.net EMAIL RESULTS TO: dduncan@envplus.net and BBlevins@chkenergy.com
Relinquished by: Aaron Boone	Date: 7-18-07 Time: 1:50	Received By: (lab staff)	
Delivered by:	Sample Cool & Intact: (Yes) No	Checked By:	

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: DAVID P. DUNCAN
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 07/23/07
Reporting Date: 07/23/07
Project Owner: CHESAPEAKE ENERGY (160264)
Project Name: DK 5 TANK BATTERY
Project Location: UL-I, SECT. 25, T 20 S, R 38 E

Analysis Date: 07/23/07
Sampling Date: 07/18/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/Kg)
H12957-1	ESW-2 (2')	32
H12957-2	ESW-3 (2')	16
H12957-3	NSW-2 (2')	80
H12957-4	SBH-1 (6')	64
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-ClˉB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

07-23-07
Date

H12957 EPI

Environmental Plus, Inc.

Chain of Custody Form

2100 Avenue O, Eunice, NM 88231 *P.O. Box 1558, Eunice, NM 88231*
(505) 394-3481 FAX: (505) 394-2601

LAB: Cardinal

Company Name	Environmental Plus, Inc.
EPI Project Manager	David P. Duncan
Mailing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Chesapeake Energy
Facility Name	DK 5 Tank Battery
Location	UL-I, Sect. 25, T 20 S, R 38 E
Project Reference	160264
EPI Sampler Name	Sebastian Romero

Bill To

Attn: David P. Duncan
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^{=}$)	pH	TCLP	OTHER >>>	PAH			
#12957- 1	ESW-2 (2')	G	1			X					X		18-Jul-07	13:55			X								
- 2	ESW-3 (2')	G	1			X					X		18-Jul-07	14:00			X								
- 3	NSW-2 (2')	G	1			X					X		18-Jul-07	14:20			X								
-	SBH-1 (6')	G	1			X					X		18-Jul-07	14:40			X								
5																									
6																									
7																									
8																									
9																									
10																									

Sampler Relinquished: Sebastian Romero	7/23/2007 Time 9.00	Received By: Jaron Boone	E-mail results to: dduncan@envplus.net
Relinquished by: Jaron Boone	7/23/2007 Time 10.00	Received By: (lab staff) Hope Greenwood	RUSH ORDER: E-mail results to dduncan@envplus.net and BBlevins@chkenergy.com
Delivered by:	Sample Cool & Intact Yes / No	Checked By:	OK NT

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: DAVID P. DUNCAN
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 07/23/07
Reporting Date: 07/23/07
Project Owner: CHESAPEAKE ENERGY (160264)
Project Name: DK 5 TANK BATTERY
Project Location: UL-I, SECT. 25, T 20 S, R 38 E

Analysis Date: 07/23/07
Sampling Date: 07/19/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/Kg)
H12956-1	SBH-1A (10')	368
H12956-2	ESW-1A (5')	656
H12956-3	NSW-1A (2')	128
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

07-23-07
Date

H12956 EPI

Environmental Plus, Inc.

2100 Avenue O, Eunice, NM 88231 P.O. Box 1558, Eunice, NM 88231
(505) 394-3481 FAX: (505) 394-2601

Chain of Custody Form

LAB: Cardinal

Company Name	Environmental Plus, Inc.
EPI Project Manager	David P. Duncan
Mailing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Chesapeake Energy
Facility Name	DK 5 Tank Battery
Location	UL-I, Sect. 25, T 20 S, R 38 E
Project Reference	160264
EPI Sampler Name	Sebastian Romero

Bill To

Attn: David P. Duncan
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^=$)	pH	TCLP	OTHER >>>	PAH			
H12956 – 1	SBH-1A (10')	G	1			X					X		19-Jul-07	9:50			X								
– 2	ESW-1A (5')	G	1			X					X		19-Jul-07	10:00			X								
– 3	NSW-1A (2')	G	1			X					X		19-Jul-07	10:25			X								
5																									
6																									
7																									
8																									
9																									
10																									

Sampler Relinquished: Sebastian Romero	7/23/2007 Time: 9:00	Received By: Jason Boone	E-mail results to: dduncan@envplus.net
Relinquished by: Jason Boone	7/23/2007 Time: 10:00	Received By: (lab staff) Hope S. Moreno	RUSH ORDER: E-mail results to dduncan@envplus.net and BBlevins@chkenergy.com
Delivered by:	Sample Cool & Intact: (Yes) No	Checked By: HSM	

CARDINAL LABORATORIES

PHONE (325) 673-7001 · 2111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E. MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: DAVID P. DUNCAN
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 08/02/07
Reporting Date: 08/03/07
Project Owner: CHESAPEAKE ENERGY (160264)
Project Name: DK 5 TANK BATTERY
Project Location: UL-I, SECT. 25, T 20 S, R 38 E

Analysis Date: 08/02/07
Sampling Date: 08/01/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: KS
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl⁻ (mg/Kg)
H13022-1	HA1-1 (5')	256
H13022-2	HA1-2 (10')	112
H13022-3	HA1-3 (13')	112
Quality Control		490
True Value QC		500
% Recovery		98
Relative Percent Difference		< 0.1

METHOD: Standard Methods	4500-Cl B

Note: Analyses performed on 1:4 w:v aqueous extracts.

Hope S. Moreno
Chemist

08-03-07
Date

H13022 EPI

Environmental Plus, Inc.

Chain of Custody Form

2100 Avenue O, Eunice, NM 88231 *P.O. Box 1558, Eunice, NM 88231*
(505) 394-3481 FAX: (505) 394-2601

LAB: Cardinal

Company Name	Environmental Plus, Inc.
EPI Project Manager	David P. Duncan
Mailing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Chesapeake Energy
Facility Name	DK 5 Tank Battery
Location	UL-I, Sect. 25, T 20 S, R 38 E
Project Reference	160264
EPI Sampler Name	George Blackburn

Bill To

Attn: David P. Duncan
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^{=}$)	pH	TCLP	OTHER >>>	PAH			
H13022 -1	HA1-1 (5')	G	1			X					X		01-Aug-07	8:00			X								
-2	HA1-2 (10')	G	1			X					X		01-Aug-07	8:30			X								
-3	HA1-3 (13')	G	1			X					X		01-Aug-07	9:00			X								
5																									
6																									
7																									
8																									
9																									
10																									

Sampler Relinquished: George Blackburn	8/2/2007 Time 0700	Received By: Jason Boone	E-mail results to: dduncan@envplus.net
Relinquished by: Jason Boone	8/2/2007 Time 1040	Received By: (lab staff) Kristin Dyrkacz	RUSH ORDER: E-mail results to dduncan@envplus.net and BBlevins@chkenergy.com
Delivered by:	Sample Cool & Intact: (Yes) No	Checked By: KS	

APPENDIX III

HAND AUGER LOG

Hand Auger Log

(NOTE - Page 1 of 1)

ENVIRONMENTAL PLUS, INC.
CONSULTING AND
REMEDIAL CONSTRUCTION
EUNICE, NEW MEXICO
505-394-3481

Project Number: 160264

Project Name: Chesapeake Operating Inc. - DK #5

Location: UL-I, Section 25, Township 20 South, Range 38 East

Boring Number: HA1 | Surface Elevation: 3,565-feet amsl

Start Date: 8-1-07 Time: 0730 hrs

Completion Date: 8-1-07 Time: 0900 hrs

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Description
0800	core	12	very wet		400		5	5' SAND, Tan
								CLAY/Sand, orange, tan
0830	core	12	damp		240		10	10' CLAY/Sand, orange, tan
0900	core	12	damp		240			13' CLAY/Sand, red
							15	End of Soil Boring at 13' bgs
							20	
							25	
							30	

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

Drilling Method: Hand Auger

Backfill Method: Cuttings

Field Representative: GB

APPENDIX IV

INFORMATION AND METRICS FORM
INITIAL NMOCD FORM C-141
FINAL NMOCD FORM C-141

Chesapeake
Information and Metrics

Incident Date: 21 June 2007	**NMOCD Notified:** 25 June 2007

Site: DK #5 Tank Battery	**Assigned Site Reference :** #160264
Company: Chesapeake Energy	
Street Address: 1616 West Bender	
Mailing Address: P.O. Box 190	
City, State, Zip: Hobbs, New Mexico 88240	
Representative: Bradley Blevins	
Representative Telephone: (505) 391-1462 ext. 6224	
Telephone:	
Fluid volume released (bbls): ~50 bbls	**Recovered (bbls):** none
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)	
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)	
Leak, Spill, or Pit (LSP) Name: DK #5 Tank Battery	
Source of contamination: Equipment failure on a load line	
Land Owner, i.e., BLM, ST, Fee, Other: Bob McCasland	
LSP Dimensions:	
LSP Area: ~2,850 ft^2	
Location of Reference Point (RP):	
Location distance and direction from RP:	
Latitude: N 32° 32' 35.28"	
Longitude: W 103° 05' 40.60"	
Elevation above mean sea level: 3,565 feet	
Feet from North Section Line:	
Feet from East Section Line:	
Location- Unit or ¼¼: NE¼ of the SE¼	**Unit Letter:** I
Location- Section: 25	
Location- Township: T20S	
Location- Range: R38E	
Surface water body within 1000 ' radius of site: none	
Domestic water wells within 1000' radius of site: none	
Agricultural water wells within 1000' radius of site: one	
Public water supply wells within 1000' radius of site: none	
Depth from land surface to groundwater (DG): ~46-ft	
Depth of contamination (DC): ~10-ft bgs	
Depth to groundwater (DG – DC = DtGW): ~36-ft	

1. Groundwater	**2. Wellhead Protection Area**	**3. Distance to Surface Water Body**
If Depth to GW <50 feet: *20 points*	If <1000' from water source, or;<200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
If Depth to GW 50 to 99 feet: *10 points*		200-1000 horizontal feet: *10 points*
If Depth to GW >100 feet: *0 points*	If >1000' from water source, or; >200' from private domestic water source: *0 points*	>1000 horizontal feet: *0 points*

Site Rank (1+2+3) = 20 + 0 + 0 = 20

Total Site Ranking Score and Acceptable Remedial Goal Concentrations

Ranking Score	20 or >	10	0
Benzene[1]	10 ppm	10 ppm	10 ppm
BTEX[1]	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1,000 ppm	5,000 ppm

[1]100 ppm field VOC headspace measurement may be substituted for lab analysis

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-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 ☐ Final Report

Name of Company: Chesapeake Energy	Contact: Brad Blevins
Address: 1616 West Bender	Telephone No.: 505-441-0341
Facility Name: D-K 5	Facility Type: Producing

Surface Owner	Mineral Owner	Lease No.
Bob McCasland		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	25	20S	38E	2310	FSL	330	FEL	Lea

Latitude: 32.5429 Longitude: 103.094

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 50	Volume Recovered: 0
Source of Release: Equipment failure	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? Approx 6-21-07	6.25.07
By Whom?	Date and Hour 6-25-07 3:00 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

PROD WTR
CHLORIDES: Chloride Content - 114,665
Chloride in Soil 3,000

Equipment Failure on load line, Hydrovac Truck Cleaned inside firewall.

Describe Area Affected and Cleanup Action Taken *

Area inside firewall will be Cleaned up by Hydrovac To a Safe Level, Backfill will then be Hauled in.

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: Bradley Blevins	OIL CONSERVATION DIVISION
Printed Name: Bradley Blevins	Approved by District Supervisor: ENVIROENGR
Title: Environmental	Approval Date: 7.12.07 Expiration Date: 9.12.07
E-mail Address: bblevins@chkenergy.com	Conditions of Approval: + SUBMIT FINAL C-141 W/ ATTACHMENTS BY Attached ☐
Date: 7-12-07 Phone: 505-441-0341	

* Attach Additional Sheets If Necessary

+ AREAS IN YELLOW NEED COMPLETION
+ ALSO GIVE CHLORIDE CONTENT OF PRODUCED WTR.

RP-1485

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Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Chesapeake Energy	**Contact:** Bradley Blevins
Address: 1616 West Bender Hobbs, NM 88240-0190	**Telephone No.:** (505) 391-1462 ext. 6224
Facility Name: DK #5	**Facility Type:** Producing

Surface Owner: Bob McCasland	**Mineral Owner:**	**API No.:** 30-025-33890

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	25	20S	38E	2310	FSL	330	FEL	Lea

Latitude: N 32° 32' 35.28" **Longitude:** W 103° 05' 40.60"

NATURE OF RELEASE

Type of Release: Produced water	**Volume of Release:** ~50 bbls	**Volume Recovered:** None
Source of Release: Equipment failure	**Date and Hour of Occurrence:** 21 June 2007	**Date and Hour of Discovery:** 25 June 2007
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	**If YES, To Whom?**	
By Whom?	**Date and Hour:** 25 June 2007 @ 3:00 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse:** NA	

If a Watercourse was Impacted, Describe Fully.* NA

Depth to Groundwater: ~46 feet

Describe Cause of Problem and Remedial Action Taken.* Equipment failure on a load line resulted in the release of approximately 50-bbls of produced water. The release area inside bermed firewall was hydro-excavated.

Describe Area Affected and Cleanup Action Taken.* Approximately 2,850-ft^2 of surface area was impacted by the release. Approximately 40 yds^3 of visibly stained/impacted soil within the confines of the bermed firewall were hyro-excavated from a surface area of approximately 1,650-ft^2. In an effort to extract chloride impacted soil, the release area located on the well pad adjacent to the bermed firewall was excavated to depths ranging from 2-ft bgs to 10-ft bgs and comprised a surface area of approximately 1,500-ft^2. Excavated soils impacted above NMOCD remedial threshold goals were disposed at Sundance Services, Inc. (~348 yds^3). Laboratory analyses confirmed removal of highly impacted soil above NMOCD remedial threshold goals in sidewalls and bottom of excavation. The excavation areas (caliche pad and tank battery) were backfilled with approximately 348 yds^3 of caliche. The disturbed area on the caliche pad was contoured to allow natural drainage.

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: Bradley Blevins	**Approved by District Supervisor:** ENVIRONMENTAL ENGINEER	
Title: Field Supervisor	**Approval Date:** 9/12/07	**Expiration Date:**
E-mail Address: bblevins@chkenergy.com	**Conditions of Approval:**	**Attached** ☐
Date: **Phone:** (505) 391-1462 ext. 6224		

*** Attach Additional Sheets If Necessary**