

CLOSURE REPORT

NM A.S. NCT-1 #1 & 2 B-9765

EPI REF: #160069

UL-K (NE¹/₄ OF THE SW¹/₄) OF SECTION 6, T 15 S, R 32 E
~ 13.4 MILE WEST OF MALJAMAR,

LEA COUNTY, NEW MEXICO

LATITUDE: N 32° 02' 58.06"

LONGITUDE: W 103° 45' 10.80"

DECEMBER 2007

PREPARED BY:

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

PREPARED FOR:


Chesapeake

RP#
1778



02 January, 2008

Mr. Chris Williams
District I Supervisor
New Mexico Oil Conservation Division
1625 North French Drive
Hobbs, New Mexico 88240

RE: **Final Closure Report**
Chesapeake Operating, Inc.
NM A.S. State NCT-1 #1&2 B-9765
UL-K (NE ¼ of the SW ¼), Section 6, T 15 S, R 32 E
Latitude: 33° 02' 58.06"; Longitude: 103° 45' 10.80"
EPI Ref. #160069

Dear Mr. Williams:

Environmental Plus, Inc., (EPI) on behalf of Chesapeake Operating, Inc., submits the attached Letter Final Closure Report for the above referenced decommissioned Tank Battery site. The site is located on land owned by the state of New Mexico and administered by the New Mexico State Land Office.

Activities were initiated to bring impacted area(s) into conformance with NMOCD requirements. For clarity and cross reference elimination purposes, the following Letter Final Closure Report offers Site Background history, Site Delineation, Remediation Activities and Conclusion.

Site Background

The Site is located in UL-K (NE ¼ of the SW ¼) of Section 6, T15S, R32E at an elevation of approximately 4,345 feet above mean sea level (amsl). A search for water wells was completed utilizing the *New Mexico Office of the State Engineers* website and a database maintained by the United States Geological Survey (USGS). One (1) water supply well exists within a 1,000-foot radius of the release site. Additionally, there are five (5) water supply wells located within a 1.0-mile radius of the release site (reference *Figure 2*). Groundwater data indicates average water depth is approximately 216 feet below ground surface (bgs). Utilizing this information, New Mexico Oil Conservation Division (NMOCD) Remedial Goals for this site were determined as follows:

Parameter	Remedial Goal
Benzene	10 parts per million
BTEX	50 parts per million
TPH	100 parts per million

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

ENVIRONMENTAL PLUS, INC.



A. **Site Delineation** – EPI mobilized on site September 19-25, 2006 for the advancement of five (5) soil borings within the confines of the abandoned tank battery perimeter to determine vertical extent of impacted soil. Soil boring SB-1 was advanced to a depth of 70-ft bgs, SB-2 to 25-ft bgs, SB-3 to 40-ft bgs, SB-4 to 70-ft bgs and SB-5 to 55-ft bgs. Impacted soil above remedial threshold goals existed to 70-ft bgs in SB-1, 10-ft bgs in SB-2, 30-ft bgs in SB-3, 70-ft bgs in SB-4 and 40-ft bgs in SB-5 (reference *Figure 4* for location and *Table 2* for analytical data). At the time of advancement of soil borings, the tank battery was being decommissioned by an independent contractor.

The site was divided into two (2) separate excavations with Excavation I containing the east, center and west sectors. This fenced site contained the bulk of the Tank Battery components (i.e., storage tanks, heater treaters, separators, transfer pumps, pit, fill lines, etc.). Excavation II located south of fenced Excavation I area contained a storage tank (reference *Figure 3* for locations).

From September 7 through October 22, 2007 soil samples were collected from the bottom and sidewalls of Excavations I and II (i.e. south, west, center and east sectors) (reference *Figures 4-6*) and submitted to an independent laboratory for analyses.

Excavation I:

West Sector:

Analytical data confirmed BTEX and TPH concentrations were non detectable (ND) at or above laboratory analytical method detection limits (MDL) for all soil samples. Chloride concentrations ranged from 96 mg/Kg [EBH-1 (WS) @ 5-ft bgs] to 592 mg/Kg [WBH-2 (WS) @ 5-ft bgs] in the bottom, 32 mg/Kg [SSW-3B (WS) @ 4-ft bgs] to 416 mg/Kg [(SSW-4A (WS) @ 2-ft bgs] in the south sidewall and 96 mg/Kg [(WSW-4C (WS) @ 3-ft bgs] to 480 mg/Kg [WSW-2 (WS) @ 2-ft bgs] in the west sidewall. Chloride concentrations were below remedial goal of 250 mg/Kg in the north sidewall.

Center Sector:

Analytical data confirmed BTEX and TPH concentrations were ND at or above laboratory analytical MDL for all soil samples. Chloride concentrations ranged from 112 mg/Kg [EBH-1 (CS) @ 5-ft bgs] to 352 mg/Kg [WBH-2 (CS) @ 5-ft bgs] in the bottom and 16 mg/Kg [SSW-4 (CS) @ 2-ft bgs] to 1,380 mg/Kg [SSW-2 (CS) @ 2-ft bgs]. Chloride concentrations were below remedial goal of 250 mg/Kg in the north sidewall.

East Sector:

Analytical data indicated BTEX constituent concentrations were ND at or above laboratory analytical MDL for all soil sample intervals. TPH concentrations ranged from 420 mg/Kg [BH-5 (ES) @ 8-ft bgs] to 3,455 mg/Kg [BH-3 (ES) @ 8-ft bgs] in the bottom, <20.0 mg/Kg [SSW-3 (ES) @ 4-ft bgs] to 205 mg/Kg [SSW-1 (ES) @ 4-ft bgs] in the south sidewall and <32.1 mg/Kg [NSW-4B (ES) @ 5-ft bgs] to 107 mg/Kg [NSW-1B (ES) @ 4-ft bgs] in the north sidewall. TPH concentrations were below NMOCD remedial threshold goal of 100 mg/Kg in the east sidewall. Chloride concentrations ranged from 256 mg/Kg [BH-5 (ES) @ 8-ft bgs] to 672 mg/Kg [BH-4 (ES) @ 8-ft bgs] in the bottom, 112 mg/Kg [SSW-4 (ES) @ 6-ft bgs] to 368 mg/Kg



[SSW-5 (ES) @ 4-ft bgs] in the south sidewall and 114 mg/Kg [ESW-3A (ES) @ 4-ft bgs] to 426 mg/Kg [ESW-1A (ES) @ 3-ft bgs] in the east sidewall. Chloride concentrations were below remedial threshold goal of 250 mg/Kg in the north sidewall (reference *Table 3*).

Excavation II:

South Sector:

Laboratory analytical results in final soil samples collected indicated BTEX, TPH and chloride constituent concentrations were below NMOCD remedial thresholds in all soil sample intervals.

- B. **Remediation Activities** – From September 5 through October 24, 2007 approximately 13,180 yds³ of impacted soil were excavated from a combined surface area of 29,964-ft² at depths ranging from 2- to 8-ft bgs. Impacted soil was transported to Gandy Marley Inc., located near Tatum, New Mexico, for disposal. The west and center sectors of Excavation I and south sector of Excavation II were excavated to a depth of ±5-ft bgs, while the east sector (i.e. pit area) of Excavation I was excavated to a depth of ±8-ft bgs (reference *Figures 4-6* for locations). Upon receipt of laboratory analytical results confirming existing bottoms and sidewalls were within acceptable NMOCD parameters, the excavations were backfilled. Excavation II (south sector) was backfilled with a combination of caliche to within two (2) feet of original ground surface and the remainder clean topsoil. The east sector of Excavation I was backfilled with caliche to within ±5-ft of original ground surface. A 20-mil polyethylene liner sandwiched between one-foot layers of cushion material (~4,224 yds³) was installed across the bottom of Excavation I (west, center and east sectors) at this elevation. The remainder of Excavation I was backfilled with caliche from top of the cushion sand to within two (2) vertical feet of original ground surface and top portion backfilled with clean topsoil. Disturbed areas were contoured to allow natural drainage. These areas were drill seeded with Bureau of Land Management (BLM) Seed Mixture No. 2 (Sand Dropseed, Little Bluestem, Plains Coreopsis and Plains Bristlegrass) for sandy sites and winter wheat added to this blend as a cover crop. In the event grass does not become apparent in spring 2008, areas will be reseeded with BLM Mixture No. 2 blend without winter wheat.
- C. **Conclusion** – A review of *Table 2* Soil Boring Soil Sample Field Analyses and Laboratory Analytical Results indicates residual TPH and chloride concentrations in soils to 70-ft bgs may pose risks to local groundwater. However, these risks are considered manageable for the following reasons:
1. Vertical distance between groundwater (~216-ft bgs) and the lowest point of known TPH and chloride impacted soil (~70-ft bgs) is approximately 146 feet. With TPH and chloride impacts confined to one general area, natural attenuation will deplete concentrations significantly during migration. Hence, in-situ TPH and chloride residuals should not be capable of impacting groundwater above NMWQCC Ground Water Standards of 250 mg/L.
 2. Vertical migration of in-situ TPH and chloride residual concentrations have been impeded with installation of a 20-mil polyethylene liner across the bottom (4-ft bgs) of Excavation I (west, center and east sectors).



Based on information presented in this report, Environmental Plus, Inc., on behalf of Chesapeake Operating, Inc., requests the NMOCD require no additional remedial activities at the site and issue Chesapeake Operating, Inc. a *Site Closure Letter*.

Please refer questions, concerns and/or needs for additional technical information to David P. Duncan at (575) 394-3481 or via e-mail at dduncan@envplus.net. Official correspondence should be addressed to Mr. Bradley Blevins at (575) 391-1462, ext. 6224 (Office), (575) 441-0341 (Mobile) or via e-mail at bblevins@chkenergy.com.

Sincerely,

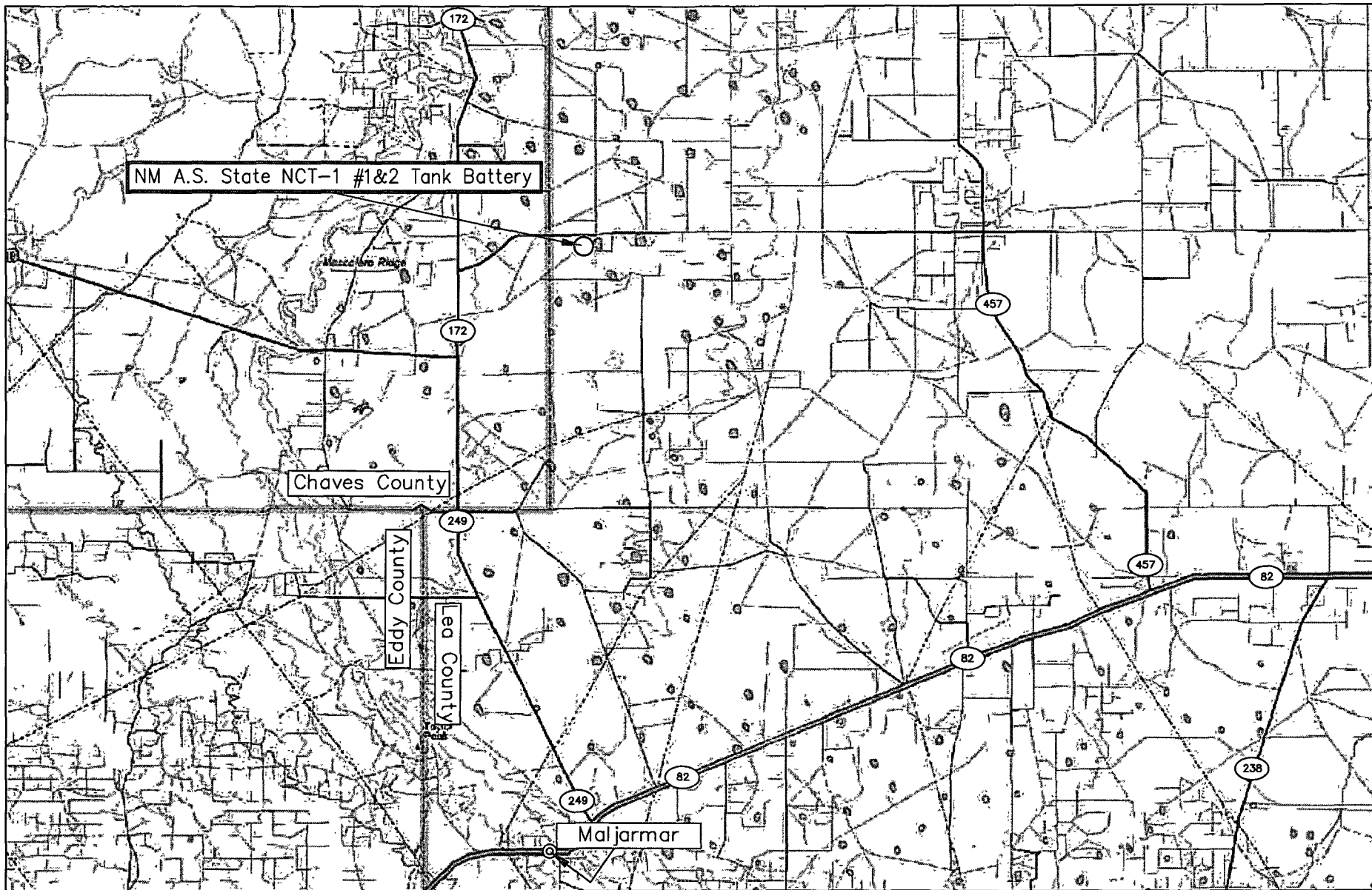
Brandon Farrar
Environmental Consultant

Cc: Bradley Blevins, Chesapeake Operating, Inc. - Hobbs, NM
Harlan Brown, Chesapeake Energy – Oklahoma City, OK
Thaddeus Kostrubala – New Mexico State Land Office
Myra Meyers – New Mexico State Land Office
File – Environmental Plus, Inc.

Encl: Figure 1 – Area Map
Figure 2 – Site Location Map
Figure 3 – Site Map
Figure 4 – Excavation and Sample Map
Figure 5 – East Excavation & Sample Map
Figure 6 – West/Center Excavation & Sample Map
Table 1 – Well Data
Table 2 – Summary of Soil Boring Field Analyses and Laboratory Analytical Results
Table 3 – Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results
Attachment I – Site Photographs
Attachment II – Laboratory Analytical Results and Chain-of-Custody Forms
Attachment III – Soil Boring Logs
Attachment IV – Information and Metrics
Copy of Initial NMOCD Form C-141
Final NMOCD Form C-141

ENCLOSURES

FIGURES



NM A.S. State NCT-1 #1&2 Tank Battery

Chaves County

Eddy County

Lea County

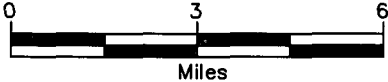
Maljarmar

Figure 1
 Area Map
 Chesapeake Energy
 NM A.S. State NCT-1 #1&2 Tank Battery

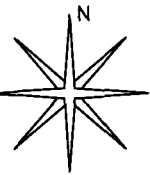
Lea County, New Mexico
 NE 1/4 of the SW 1/4, Sec. 6, T15S, R32E
 N 33° 02' 58.06" W 103° 45' 10.80"
 Elevation: 4,345 feet amsl

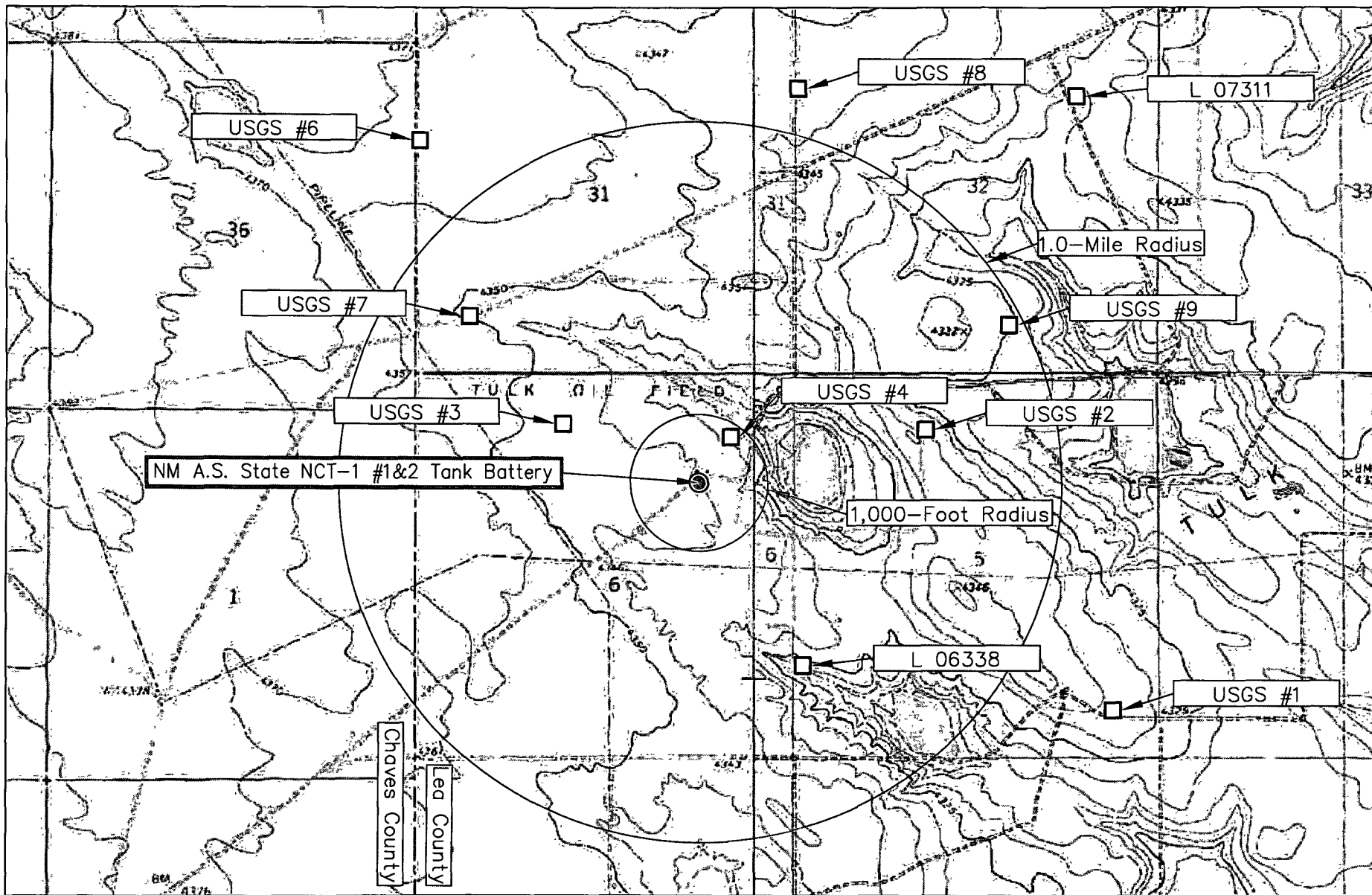
DWG By: Daniel Dominguez
 September 2006

REVISED:

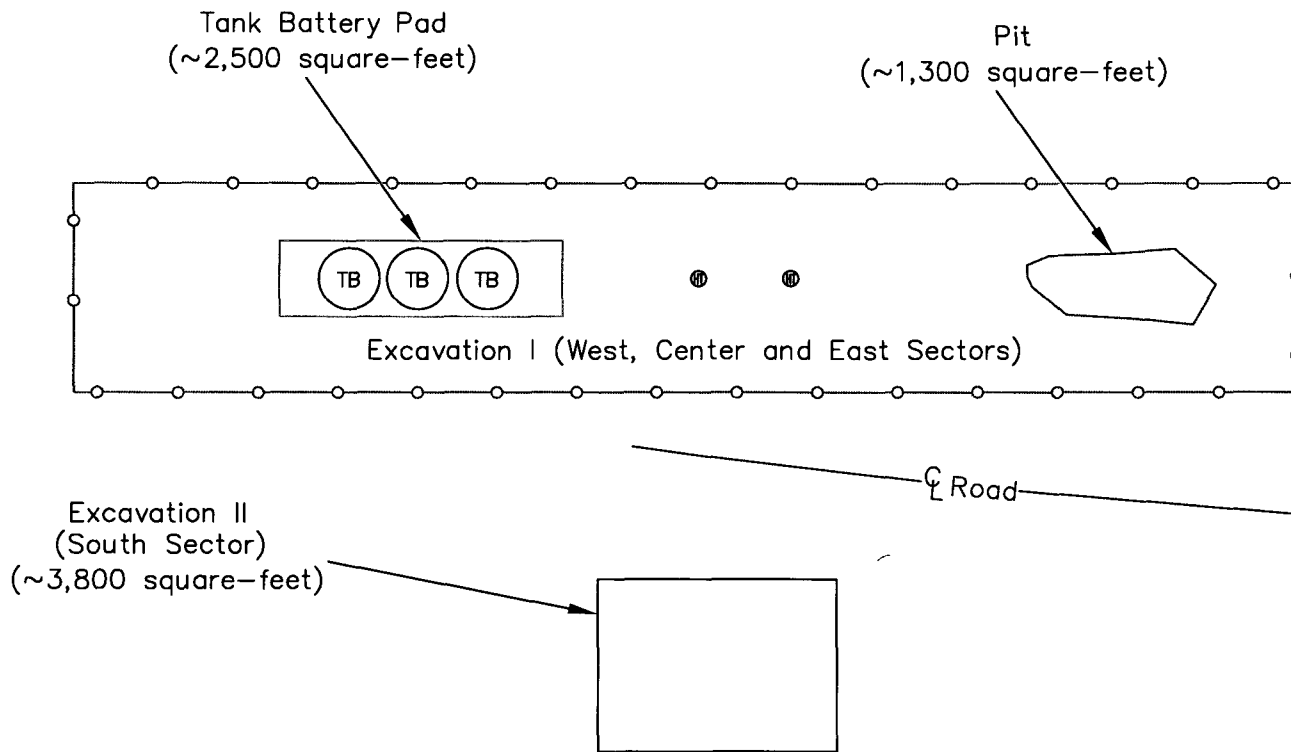


SHEET
 1 of 1





<p>Figure 2 Site Location Map Chesapeake Energy NM A.S. State NCT-1 #1&2 Tank Battery</p>	<p>Lea County, New Mexico NE 1/4 of the SW 1/4, Sec. 6, T15S, R32E N 33° 02' 58.06" W 103° 45' 10.80" Elevation: 4,345 feet amsl</p>	<p>DWG By: Daniel Dominguez September 2006</p>	<p>REVISED:</p>	
		<p>0 2,000 4,000 Feet</p>	<p>SHEET 1 of 1</p>	



LEGEND

⊙ TB Tank Battery

⊙ Heater Treater

Figure 3
Site Map
Chesapeake Energy
NM A.S. State NCT-1 #1&2 Tank Battery

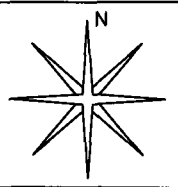
Lea County, New Mexico
NE 1/4 of the SW 1/4, Sec. 6, T15S, R32E
N 33° 02' 58.06" W 103° 45' 10.80"
Elevation: 4,345 feet amsl

DWG By: Daniel Dominguez
September 2006

0 60 120
Feet

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1 of 1



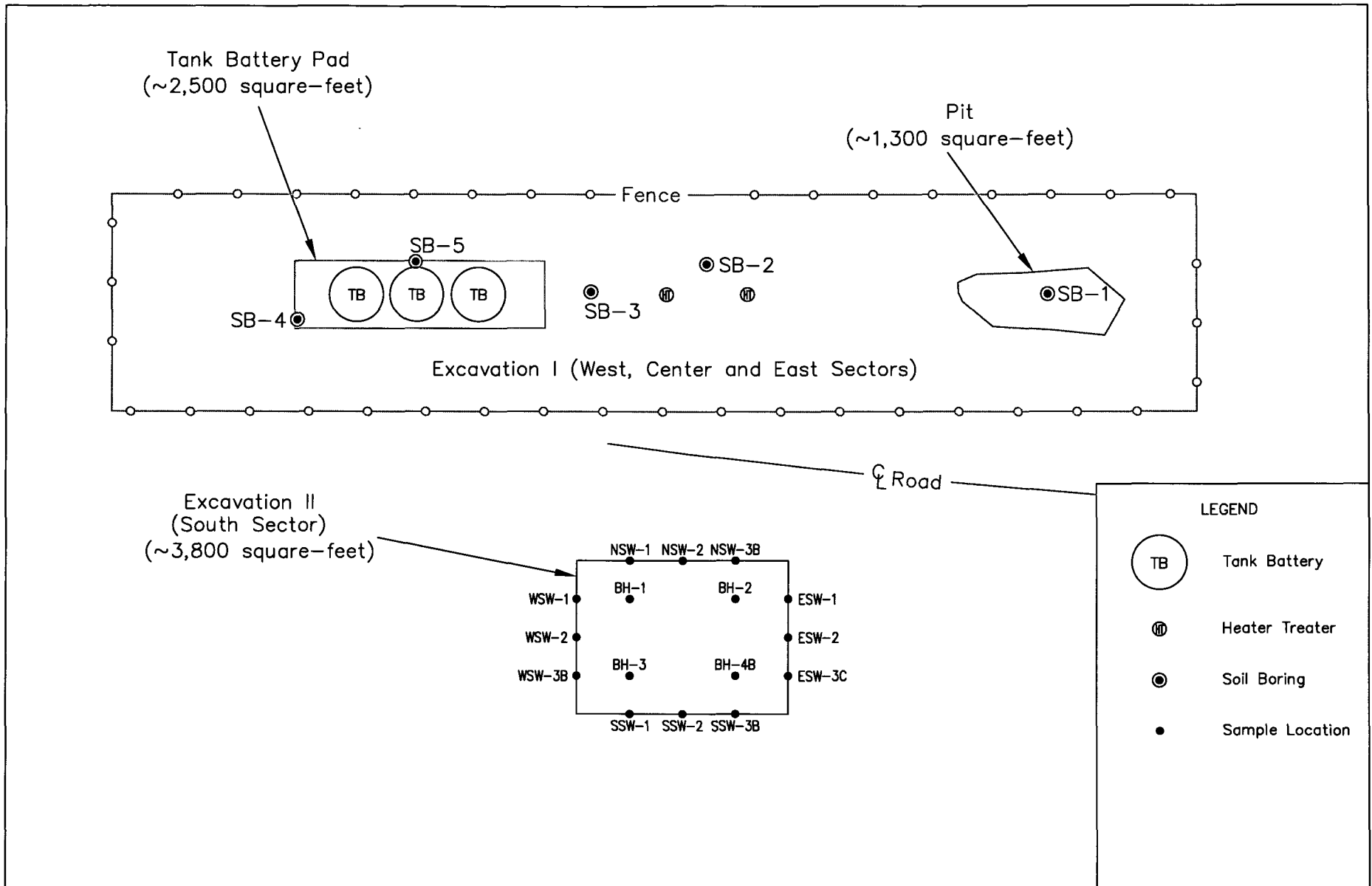


Figure 4
 Soil Boring and Sample Map
 Chesapeake Energy
 NM A.S. State NCT-1 #1&2 Tank Battery

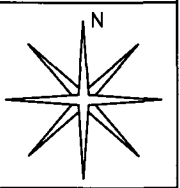
Lea County, New Mexico
 NE 1/4 of the SW 1/4, Sec. 6, T15S, R32E
 N 33° 02' 58.06" W 103° 45' 10.80"
 Elevation: 4,345 feet amsl

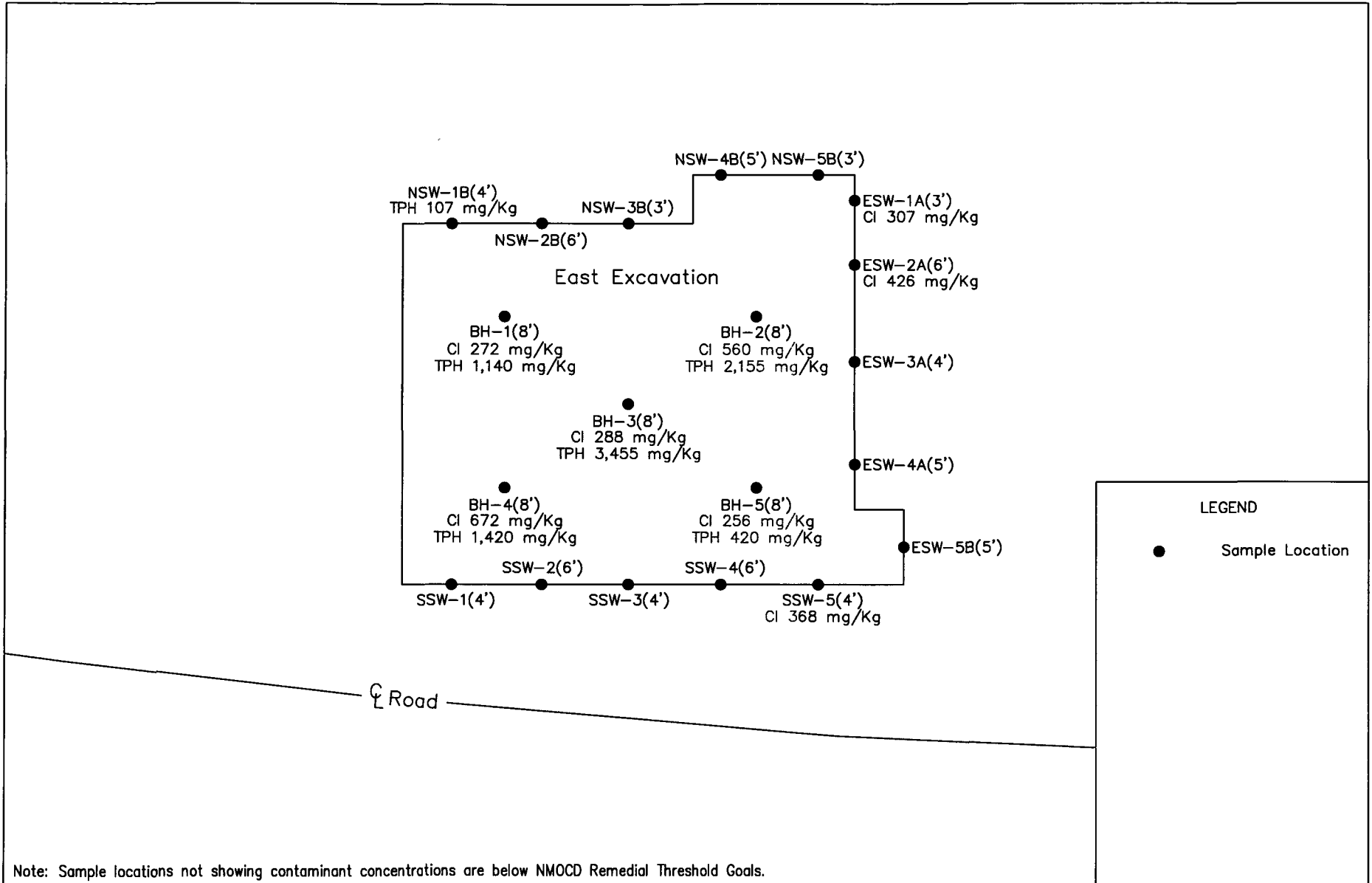
DWG By: Daniel Dominguez
 September 2006

0 50 100
 Feet

REVISED:
 October 2006

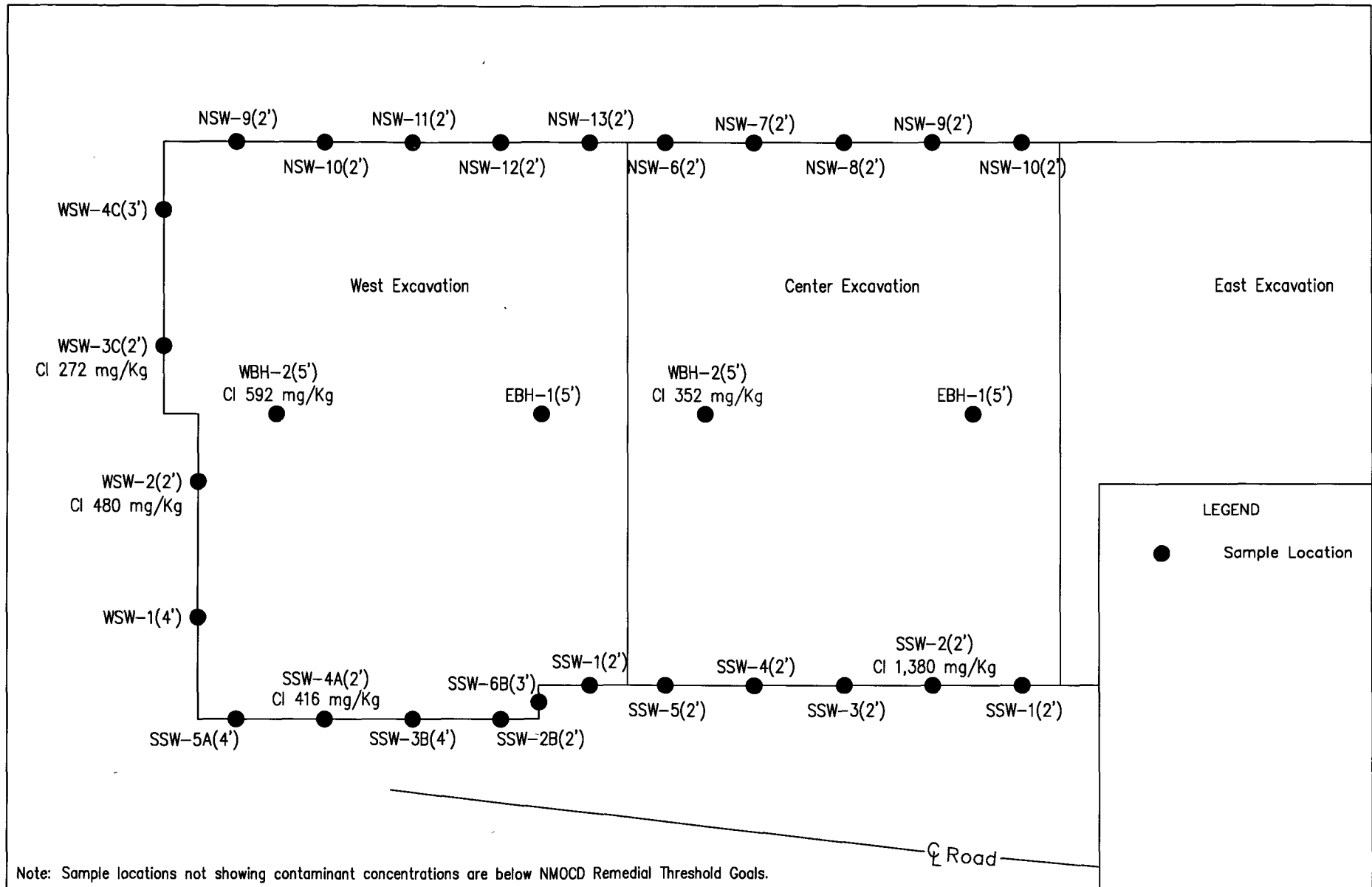
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<p>Figure 5 East Excavation/Sample Map Chesapeake Energy NM A.S. State NCT-1 #1&2 Tank Battery</p>	<p>Lea County, New Mexico NE 1/4 of the SW 1/4, Sec. 6, T15S, R32E N 33° 02' 58.06" W 103° 45' 10.80" Elevation: 4,345 feet amsl</p>	<p>DWG By: Daniel Dominguez September 2006</p>	<p>REVISED: Oct 2007</p>	

Note: Sample locations not showing contaminant concentrations are below NMOCD Remedial Threshold Goals.



<p>Figure 6 West/Center Excavation & Sample Map Chesapeake Energy NM A.S. State NCT-1 #1&2 Tank Battery</p>	<p>Lea County, New Mexico NE 1/4 of the SW 1/4, Sec. 6, T15S, R32E N 33° 02' 58.06" W 103° 45' 10.80" Elevation: 4,345 feet amsl</p>	<p>DWG By: Daniel Dominguez September 2006</p>	<p>REVISED: SHEET 1 of 1</p>	
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TABLES

TABLE 1

Well Data

Chesapeake Energy - NM A.S. State NCT-1 #1&2 Tank Battery (Ref. #160069)

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 06338	3	JESSIE W. STEVENS	STK	15S	32E	5 3 1	N33° 02' 31.97"	W103° 44' 53.22"	26-Jun-68	4,320	233
L 07311	0	R.L BURNS OIL CO.	PRO	14S	32E	32 2 2	N33° 03' 52.72"	W103° 44' 6.80"	25-Jan-75	4,330	210
USGS #1				15S	32E	5 4 3			27-Jan-81	4,334	213.33
USGS #2				15S	32E	5 1 2 4			06-Dec-90	4,335	205.53
USGS #3				15S	32E	6 1 2 3			09-Jan-96	4,347	220.73
USGS #4				15S	32E	6 2 2 3			05-Jan-83	4,336	188.92
USGS #6				14S	32E	31 1 3 1			05-Apr-61	4,365	224.32
USGS #7				14S	32E	31 3 3 2			19-Feb-81	4,350	219.6
USGS #8				14S	32E	32 1 1 3			24-Mar-71	4,346	219.99
USGS #9				14S	32E	32 4 3 1			30-Jan-96	4,325	198.05
L 06328	3	H. B. BURRIS	STK	15S	32E	7 4 1 2	N33° 01' 39.78"	W103° 45' 24.14"	20-Jun-68	4,345	234
USGS #5				15S	32E	7 4 1 2			05-Feb-86	4,347	223.13

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

Shaded area indicates well locations not shown on Figure 2

^A = in acre feet per annum

^B = Elevation interpolated from USGS topographical map based on referenced location

STK = Livestock watering

PRO = Prospecting or development of natural resource

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

TABLE 2

Summary of Soil Boring Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating NM A.S. State N.C.T. - 1 #1 & 2 B-9765 (Ref.# 160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C12 (mg/Kg)	Carbon Ranges C12-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Sulfate (mg/Kg)	Chloride (mg/Kg)
SB-1	3	In situ	19-Sep-06	--	160	45.3	8.73	56.2	153	263	10,100	30,100	4,750	45,000	53.5	142
SB-1	5-6	In situ	19-Sep-06	1,480	--	4.40	2.34	22.4	92.2	121	4,650	16,700	2,560	23,900	21.7	49.6
SB-1	10-11	In situ	19-Sep-06	1,525	--	1.65	7.42	17.2	53.8	80.1	2,050	6,320	616	8,990	30.7	253
SB-1	15-16	In situ	19-Sep-06	1,860	--	5.93	30.7	31.9	102	171	2,780	6,420	687	9,890	89.8	567
SB-1	20-21	In situ	19-Sep-06	1,093	--	1.81	12.9	17.9	58.0	90.6	2,500	6,330	644	9,470	95.6	518
SB-1	25-26	In situ	19-Sep-06	912	--	0.866	6.30	11.1	38.8	57.1	2,020	5,410	592	8,020	23.8	564
SB-1	30-31	In situ	19-Sep-06	479	960	0.220	1.75	4.92	21.3	28.2	1,070	3,290	448	4,810	19.9	718
SB-1	35-36	In situ	19-Sep-06	732	1,440	0.927	4.28	2.68	56.4	64.3	2,310	5,260	539	8,110	26.3	1,130
SB-1	40-41	In situ	19-Sep-06	1,311	1,680	0.101	1.25	0.567	27.3	29.2	1,970	5,300	573	7,840	27.5	1,400
SB-1	45-46	In situ	19-Sep-06	1,466	2,320	0.338	1.96	0.733	22.2	25.3	2,640	6,420	664	9,720	41.7	1,800
SB-1	50-51	In situ	19-Sep-06	1,433	3,280	--	--	--	--	--	1,210	2,980	452	4,640	26.2	1,560
SB-1	55-56	In situ	19-Sep-06	1,728	2,720	--	--	--	--	--	1,140	2,680	391	4,210	24.8	1,160
SB-1	60-61	In situ	20-Sep-06	950	2,200	--	--	--	--	--	955	2,950	423	4,330	35.2	1,830
SB-1	65-66	In situ	20-Sep-06	860	1,920	--	--	--	--	--	1,340	4,050	539	5,930	27.8	1,410
SB-1	70-71	In situ	20-Sep-06	1,509	1,760	--	--	--	--	--	1,540	4,440	536	6,520	27.8	1,350
SB-2	5-6	In situ	20-Sep-06	3.7	880	<0.0250	<0.0250	<0.0250	<0.050	<0.125	<10.0	13.5	<10.0	13.5	240	630
SB-2	10-11	In situ	20-Sep-06	2.6	240	<0.0250	<0.0250	<0.0250	<0.050	<0.125	<10.0	J[4.33]	<10.0	<30.0	51.8	329
SB-2	15-16	In situ	20-Sep-06	1.9	320	--	--	--	--	--	--	--	--	--	47.5	113
SB-2	20-21	In situ	20-Sep-06	1.6	160	--	--	--	--	--	--	--	--	--	46.2	114
SB-2	25-26	In situ	20-Sep-06	1.4	160	--	--	--	--	--	--	--	--	--	45.7	7.90
SB-3	5-6	In situ	21-Sep-06	80.5	400	<0.0250	<0.0250	<0.0250	<0.050	<0.125	98.2	1,680	283	2,060	148	375
SB-3	10-11	In situ	21-Sep-06	157	720	<0.0250	<0.0250	<0.0250	<0.050	<0.125	10.0	142	17.5	170	47.5	618
SB-3	15-16	In situ	21-Sep-06	135	720	--	--	--	--	--	42.1	407	87.0	536	67.2	507

TABLE 2

Summary of Soil Boring Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating NM A.S. State N.C.T. - 1 #1 & 2 B-9765 (Ref.# 160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C12 (mg/Kg)	Carbon Ranges C12-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Sulfate (mg/Kg)	Chloride (mg/Kg)
SB-3	20-21	In situ	21-Sep-06	20.1	560	--	--	--	--	--	<10.0	17.1	<10.0	17.1	63.0	397
SB-3	25-26	In situ	21-Sep-06	12.6	480	--	--	--	--	--	<10.0	J[5.74]	<10.0	<0.30	69.8	336
SB-3	30-31	In situ	21-Sep-06	8.6	400	--	--	--	--	--	<10.0	<10.0	<10.0	<30.0	88.5	251
SB-3	35-36	In situ	22-Sep-06	6.0	240	--	--	--	--	--	--	--	--	--	52.5	37.5
SB-3	40-41	In situ	22-Sep-06	4.1	160	--	--	--	--	--	--	--	--	--	97.0	33.8
SB-4	5-6	In situ	22-Sep-06	2.2	1,200	<0.0250	<0.0250	<0.0250	<0.050	<0.125	<10.0	<10.0	<10.0	<30.0	90.3	1,230
SB-4	10-11	In situ	22-Sep-06	2.0	960	--	--	--	--	--	--	--	--	--	63.3	765
SB-4	15-16	In situ	22-Sep-06	0.5	1,840	--	--	--	--	--	--	--	--	--	17.6	391
SB-4	20-21	In situ	22-Sep-06	0.0	1,040	--	--	--	--	--	--	--	--	--	42.9	722
SB-4	25-26	In situ	22-Sep-06	0.0	1,200	--	--	--	--	--	--	--	--	--	48.7	947
SB-4	30-31	In situ	22-Sep-06	0.0	1,000	--	--	--	--	--	--	--	--	--	40.4	787
SB-4	35-36	In situ	22-Sep-06	0.0	880	--	--	--	--	--	--	--	--	--	38.8	761
SB-4	40-41	In situ	22-Sep-06	0.0	880	--	--	--	--	--	--	--	--	--	42.8	887
SB-4	45-46	In situ	22-Sep-06	0.0	1,520	--	--	--	--	--	--	--	--	--	54.6	1,240
SB-4	50-51	In situ	22-Sep-06	0.0	1,400	--	--	--	--	--	--	--	--	--	72.5	1,250
SB-4	55-56	In situ	22-Sep-06	0.0	1,400	--	--	--	--	--	--	--	--	--	70.1	1,010
SB-4	60-61	In situ	22-Sep-06	0.0	1,240	--	--	--	--	--	--	--	--	--	24.3	239
SB-4	65-66	In situ	22-Sep-06	0.0	920	--	--	--	--	--	--	--	--	--	76.9	794
SB-4	70-71	In situ	22-Sep-06	0.0	620	--	--	--	--	--	--	--	--	--	60.7	498
SB-5	5-6	In situ	25-Sep-06	0.0	240	<0.0250	<0.0250	<0.0250	<0.050	<0.125	<10.0	<10.0	<10.0	<30.0	64.4	66.6
SB-5	10-11	In situ	25-Sep-06	0.0	240	<0.0250	<0.0250	<0.0250	<0.050	<0.125	<10.0	<10.0	<10.0	<30.0	122	214
SB-5	15-16	In situ	25-Sep-06	0.0	600	--	--	--	--	--	--	--	--	--	145	543
SB-5	20-21	In situ	25-Sep-06	0.0	560	--	--	--	--	--	--	--	--	--	34.4	477

TABLE 2

Summary of Soil Boring Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating NM A.S. State N.C.T. - 1 #1 & 2 B-9765 (Ref.# 160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C12 (mg/Kg)	Carbon Ranges C12-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Sulfate (mg/Kg)	Chloride (mg/Kg)
SB-5	25-26	In situ	25-Sep-06	0.0	400	--	--	--	--	--	--	--	--	--	53.3	307
SB-5	30-31	In situ	25-Sep-06	0.0	560	--	--	--	--	--	--	--	--	--	72.6	439
SB-5	35-36	In situ	25-Sep-06	0.0	480	--	--	--	--	--	--	--	--	--	80.6	464
SB-5	40-41	In situ	25-Sep-06	0.0	640	--	--	--	--	--	--	--	--	--	88.0	397
SB-5	45-46	In situ	25-Sep-06	0.0	400	--	--	--	--	--	--	--	--	--	79.3	232
SB-5	50-51	In situ	25-Sep-06	0.0	240	--	--	--	--	--	--	--	--	--	87.9	29.7
SB-5	55-56	In situ	25-Sep-06	0.0	160	--	--	--	--	--	--	--	--	--	103	11.3
NMOCD Remedial Thresholds				100		10				50				100	600	250

-- Data Not Available

Blk values are in excess of Remedial Threshold

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating, Inc.

NM A.S. State N.C.T.-1 #1 & #2 B-9765 (EPI Ref. #160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C10 (mg/Kg)	Carbon Ranges >C10-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
BH-1 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	30.4	--	30.4	16
BH-2 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	22.8	--	22.8	<16
BH-3 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	27.8	--	27.8	32
BH-4 (SS)		Excavated	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	118.0	--	32.0	<16
BH-4B (SS)	5	In situ	12-Sep-07	3.3	--	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	32.6	--	32.6	<16
NSW-1 (SS)		In situ	07-Sep-07		--	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	16
NSW-2 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	96
NSW-3 (SS)		Excavated	07-Sep-07		--	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	349	--	349	<16
NSW-3B (SS)	3	In situ	12-Sep-07	0.0	--	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	<16
ESW-1 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	26.1	--	26.1	16
ESW-2 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	65.9	--	65.9	<16
ESW-3 (SS)		Excavated	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	651	--	651	16
ESW-3B (SS)	3	Excavated	12-Sep-07	7.1		<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	1,060	--	1,060	16
ESW-3C (SS)	3	In situ	19-Sep-07	1.0	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	<16
WSW-1 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.003	<0.012	<10.0	48.1	--	49-8.1	<16
WSW-2 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	<16
WSW-3 (SS)		Excavated	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	16.8	--	16.8	<16
WSW-3B (SS)	3	In situ	12-Sep-07	0.0	--	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	16
SSW-1 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	49.3	--	49.3	<16
SSW-2 (SS)		In situ	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	12.5	--	12.5	<16
SSW-3 (SS)		Excavated	07-Sep-07			<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	226	--	226	<16
SSW-3B (SS)	3	In situ	12-Sep-07	2.1	--	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	77.7	--	77.7	16

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating, Inc.

NM A.S. State N.C.T.-1 #1 & #2 B-9765 (EPI Ref. #160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C10 (mg/Kg)	Carbon Ranges >C10-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
NSW-1 (ES)	6	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	0.006	0.006	0.006	<10.0	--	<20.0	1,540
NSW-1A (ES)	4	Excavated	04-Oct-07	--	600	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	384
NSW-1B (ES)	4	In situ	10-Oct-07	--	320	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<11.1	68.8	37.9	107.0	63.8
NSW-2 (ES)	4	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	0.004	0.004	<10.0	<10.0	--	<20.0	1,950
NSW-2A (ES)	7	Excavated	04-Oct-07	--	560	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	544
NSW-2B (ES)	6	In situ	10-Oct-07	--	200	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<11.1	11.3	<11.1	11.3	128
NSW-3 (ES)	6	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	1,100
NSW-3A (ES)	3	Excavated	04-Oct-07	--	400	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	80
NSW-3B (ES)	3	In situ	10-Oct-07	--	240	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.6	23.8	<10.6	23.8	85.1
NSW-4 (ES)	4	Excavated	25-Sep-07	--	--	<0.025	0.103	0.026	0.100	0.229	<10.0	589	--	589	736
NSW-4A (ES)	6	Excavated	04-Oct-07	--	1,360	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	912
NSW-4B (ES)	5	In situ	10-Oct-07	--	240	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.7	<10.7	<10.7	<32.1	106
NSW-5 (ES)	6	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	1,780
NSW-5A (ES)	2	Excavated	04-Oct-07	--	240	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	80
NSW-5B (ES)	3	In situ	10-Oct-07	--	240	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.5	33.4	20.7	54.1	95.7
ESW-1 (ES)	6	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	5,170
ESW-1A (ES)	3	In situ	02-Oct-07	--	240	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<11.1	<11.1	--	<22.2	307
ESW-2 (ES)	4	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	1,650
ESW-2A (ES)	6	In situ	02-Oct-07	--	360	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.5	<10.5	--	<21.0	426
ESW-3 (ES)	6	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	240
ESW-3A (ES)	4	In situ	02-Oct-07	--	240	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.7	<10.7	--	<21.4	114
ESW-4 (ES)	4	Excavated	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	352

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating, Inc.

NM A.S. State N.C.T.-1 #1 & #2 B-9765 (EPI Ref. #160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C10 (mg/Kg)	Carbon Ranges >C10-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
ESW-4A (ES)	5	In situ	02-Oct-07	--	240	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.8	<10.8	--	<21.6	230
ESW-5A (ES)	7	Excavated	02-Oct-07	--	400	<0.0011	<0.0011	<0.0011	<0.0033	<0.0066	<10.6	<10.6	--	<21.2	1,040
ESW-5B (ES)	5	In situ	16-Oct-07	0.4	320	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	224
SSW-1 (ES)	4	In situ	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	224
SSW-2 (ES)	6	In situ	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	176
SSW-3 (ES)	4	In situ	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	112
SSW-4 (ES)	6	In situ	25-Sep-07	--	--	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	112
SSW-5 (ES)	4	In situ	25-Sep-07	--	--	<0.001	<0.001	<0.001	0.003	0.003	<10.0	58.0	--	58.0	368
BH-1 (ES)	8	In situ	25-Sep-07	--	--	<0.025	0.098	0.218	1.170	1.490	<10.0	1,140	--	1,140	272
BH-2 (ES)	8	In situ	25-Sep-07	--	--	<0.025	0.110	0.399	2.030	2.540	35.0	2,120	--	2,155	560
BH-3 (ES)	8	In situ	25-Sep-07	--	--	0.016	0.010	0.015	0.214	0.239	15.0	3,440	--	3,455	288
BH-4 (ES)	8	In situ	25-Sep-07	--	--	<0.025	0.077	0.060	0.079	0.181	<10.0	1,420	--	1,420	672
BH-5 (ES)	8	In situ	25-Sep-07	--	--	<0.025	0.096	<0.025	0.102	0.198	<10.0	420	--	420	256
SSW-1 (CS)	2	In situ	01-Oct-07	--	240	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	112
SSW-2 (CS)	2	In situ	01-Oct-07	--	1,000	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	1,380
SSW-3 (CS)	2	In situ	01-Oct-07	--	320	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	160
SSW-4 (CS)	2	In situ	01-Oct-07	--	160	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	16
SSW-5 (CS)	2	In situ	01-Oct-07	--	160	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	32
NSW-6 (CS)	2	In situ	01-Oct-07	--	240	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	64
NSW-7 (CS)	2	In situ	01-Oct-07	--	320	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	128
NSW-8 (CS)	2	In situ	01-Oct-07	--	320	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	208
NSW-9 (CS)	2	In situ	01-Oct-07	--	320	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	224

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Operating, Inc.

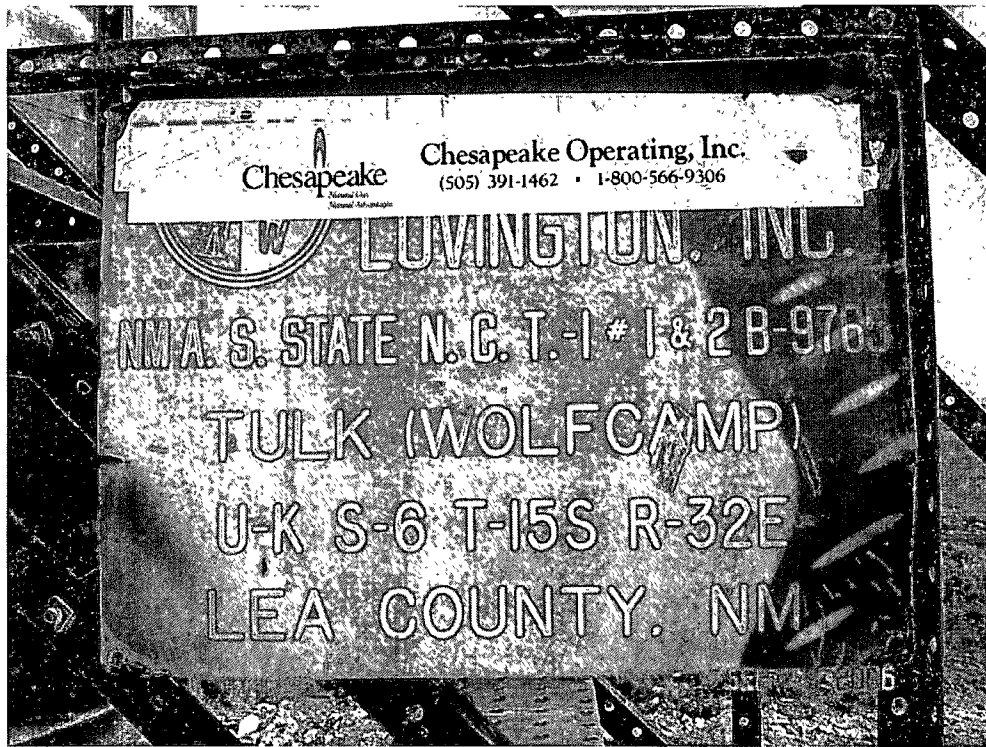
NM A.S. State N.C.T.-1 #1 & #2 B-9765 (EPI Ref. #160069)

Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	Carbon Ranges C6-C10 (mg/Kg)	Carbon Ranges >C10-C28 (mg/Kg)	Carbon Ranges C28-C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
NSW-10 (CS)	2	In situ	01-Oct-07	--	240	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	96
EBH-1 (CS)	5	In situ	01-Oct-07	--	200	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	112
WBH-2 (CS)	5	In situ	01-Oct-07	--	480	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	352
SSW-1 (WS)	2	In situ	01-Oct-07	--	240	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	64
SSW-2 (WS)	2	Excavated	01-Oct-07	--	240	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	129	--	129	112
SSW-2A (WS)	3	Excavated	15-Oct-07	212	240	<0.025	0.244	0.039	0.400	0.683	<125	10,300	--	10,300	176
SSW-2B (WS)	2	In situ	17-Oct-07	55.7	240	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	32
SSW-3 (WS)	2	Excavated	01-Oct-07	--	800	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	1,130	--	1,130	624
SSW-3A (WS)	7	Excavated	15-Oct-07	63.6	1,280.0	<0.025	0.094	<0.025	<0.025	0.094	<10.0	289	--	289	1,330
SSW-3B (WS)	4	In situ	17-Oct-07	53.6	560	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	48
SSW-4 (WS)	2	Excavated	01-Oct-07	--	800	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	55.6	--	55.6	496
SSW-4A (WS)	2	In situ	15-Oct-07	23.7	480	<0.025	0.093	<0.025	<0.025	0.093	<10.0	<10.0	--	<20.0	416
SSW-5 (WS)	2	Excavated	01-Oct-07	--	560	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	448
SSW-5A (WS)	4	In situ	15-Oct-07	36.7	200	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	64
SSW-6 (WS)	2	Excavated	15-Oct-07	77.9	160	<0.025	0.097	0.038	0.143	0.278	<25.0	2,320	--	2,320	48
SSW-6B (WS)	3	Excavated	17-Oct-07	21.2	400	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	346.0	--	346	48
SSW-6C (WS)	3	In situ	22-Oct-07	12.6	360	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	32
WSW-1 (WE)	4	In situ	11-Oct-07	10.2	320	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	160
WSW-2 (WS)	2	In situ	11-Oct-07	6.2	560	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	480
WSW-3 (WS)	3	Excavated	11-Oct-07	1,474	320	<0.001	<0.001	<0.001	<0.003	<0.006	<10.0	<10.0	--	<20.0	144
WSW-3B (WS)	2	Excavated	12-Nov-07	271	320	--	--	--	--	--	--	--	--	--	--
WSW-3C (WS)	2	In situ	16-Oct-07	0.6	360	<0.002	<0.002	<0.002	<0.006	<0.012	<10.0	<10.0	--	<20.0	272

ATTACHMENTS

ATTACHMENT I

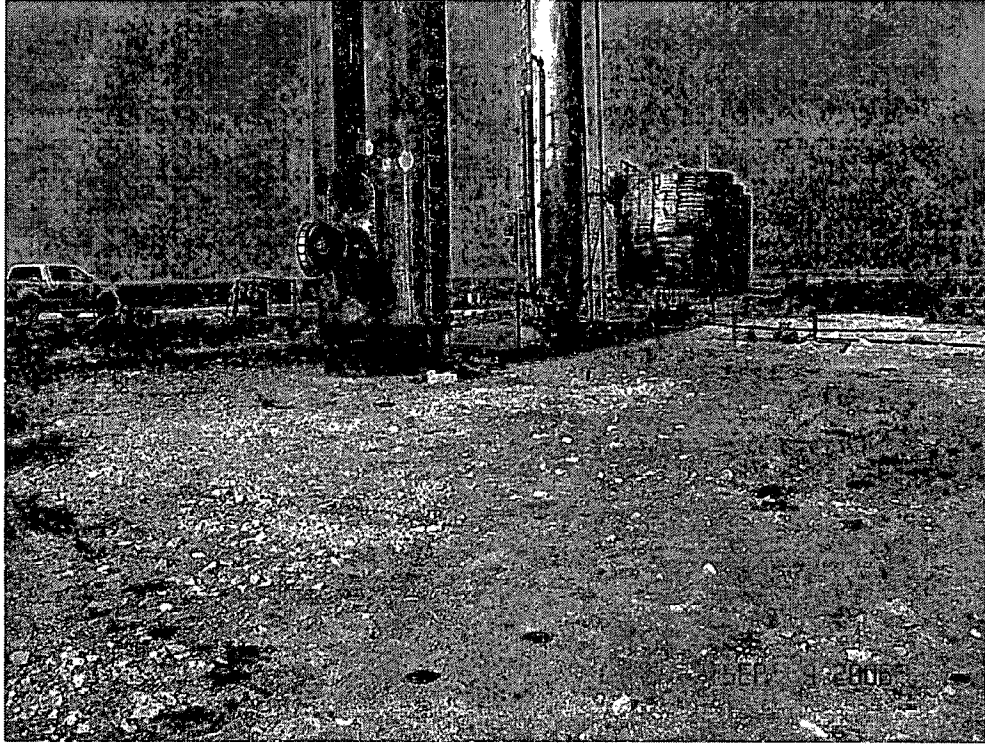
PROJECT PHOTOGRAPHS



Photograph No. 1 – Lease Sign.



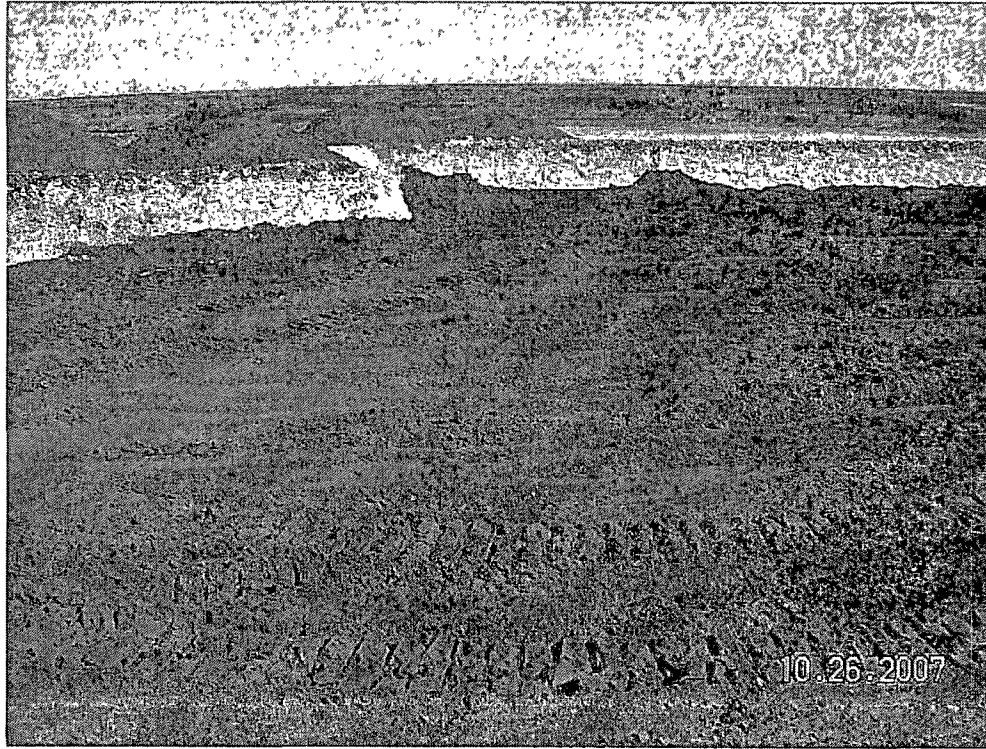
Photograph No. 2 – Looking northerly across possible pit area.



Photograph No. 3 – Looking southwesterly at existing heater treaters and storage tanks.



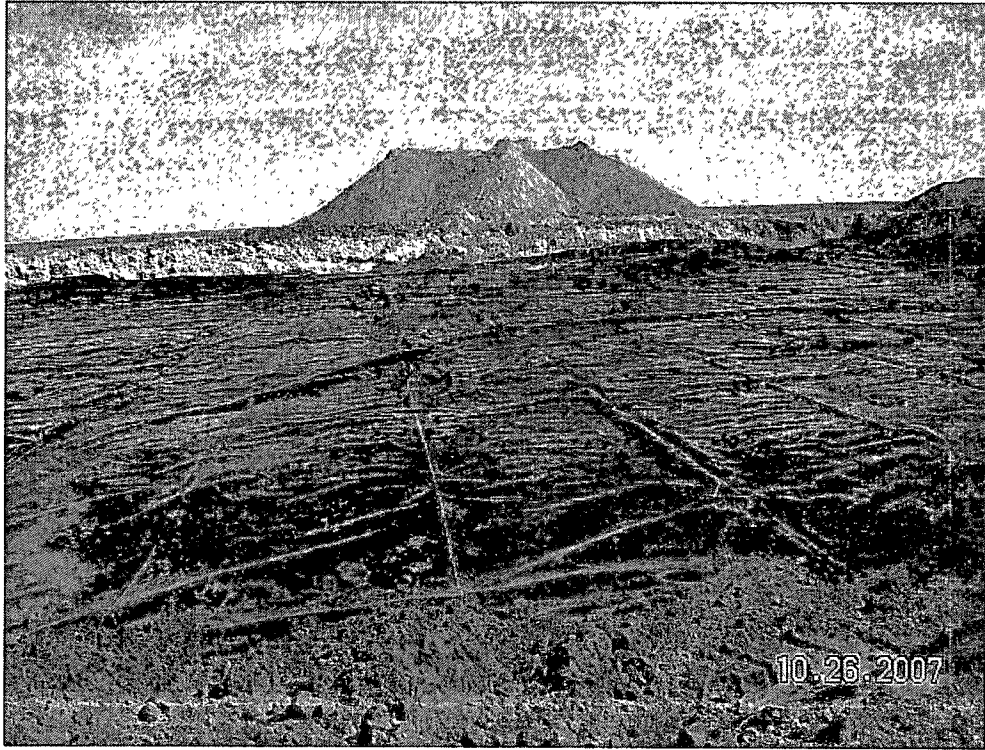
Photograph No. 4 – Looking easterly at backfilling of excavation area.



Photograph No. 5 – Looking northerly at backfilling of excavation area.



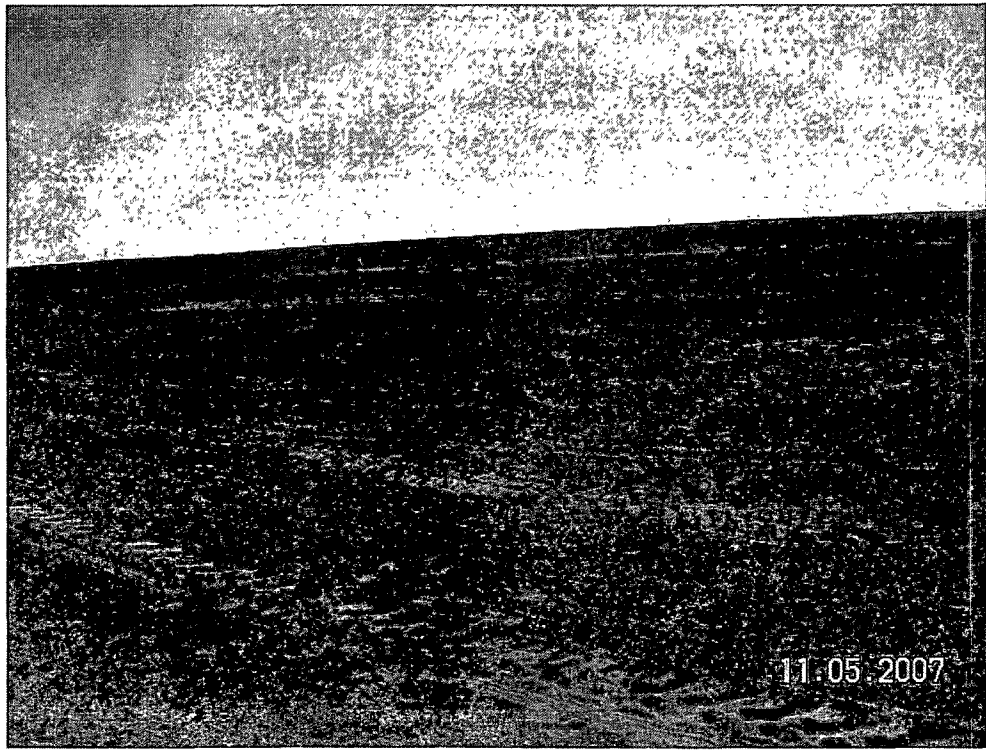
Photograph No. 6 – Looking northeasterly during installation of liner.



Photograph No. 7 – Looking easterly during installation of liner.



Photograph No. 8 – Looking northeasterly at liner and cushion material.



Photograph No. 9 – Remediated site.



Photograph No. 10 – Remediated site.

ATTACHMENT II

LABORATORY ANALYTICAL REPORTS

AND

CHAIN-OF-CUSTODY FORMS

NOTE:

Laboratory analytical results are consolidated in a Compact Disc located on the back cover of the Final Closure Report

ATTACHMENT III
SOIL BORING LOGS

Log Of Test Borings

(NOTE - Page 1 of 3)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-1

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: 09-18-06 Time: 0830		Completion Date: 09-20-06 Time: 1115	
								Description			
1100	SS	4	very little	1,480	160		5				
1130	SS	4	very little	1,525			10				
1200	SS	4	little	1,860			15				
1300	SS	8	little	1,093			20				
1335	SS	8	little	912			25				
1410	SS	8	little	479	960		30				
1440	SS	8	little	732	1,440		35				

Log Of Test Borings

(NOTE - Page 2 of 3)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-1

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (Inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: 09-18-06 Time: 0830	Completion Date: 09-20-06 Time: 1115	Description
1515	SS		very little	1,311	1,680		40			40' SANDSTONE, Brown
1558	SS	8	very little	1,466	2,320		45			45' SANDSTONE, Tan
1648	SS	8	little	1,433	3,280		50			50' SANDSTONE, Tan
1735	SS	8	little	1,728	2,720		55			55' SANDSTONE, Tan
0900	SS	8	little	950	2,200		60			60' SANDSTONE, Tan
0945	SS	8	little	860	1,920		65			65' SANDSTONE, Tan
1030	SS	8	little	1,509	1,760		70			70' SANDSTONE, Tan

Log Of Test Borings

(NOTE - Page 1 of 1)



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

Project Number: 160069
 Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery
 Location: UL-K, Section 6, Township 15 South, Range 32 East
 Boring Number: SB-2 Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Description
								Start Date: 9-20-06 Time: 1121 Completion Date: 9-20-06 Time: 1723
								Topsoll
								Solid Rock
1245	DL	8	-	3.7	880		5	5' SANDSTONE, Whitish/Tan
1400	SS	8	-	2.6	240		10	10' SANDSTONE, Tan
1420	SS	8	-	1.9	320		15	15' SANDSTONE, Tan
1505	SS	8	-	1.6	160		20	20' SANDSTONE, Tan
1600	SS	8	-	1.4	160		25	25' SANDSTONE, Tan
								End of Soil Boring at 25' bgs
							30	

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Drilling Method
-	-	-	-	-	-	Auger Traller
-	-	-	-	-	-	Backfill Method: Bentonite
-	-	-	-	-	-	Field Representative: G/B

Log Of Test Borings

(NOTE - Page 1 of 2)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-3

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (Inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: <u>9-21-06</u> Time: <u>1520</u>		Completion Date: <u>9-22-06</u> Time: <u>1020</u>		Description
												ROCK
1635	DL	-	no	80.5	400		5					5' ROCK
												CALICHE
1645	SS	1	no	157	720		10					10' CALICHE
1704	SS	10	no	139	720		15					15' SANDSTONE, Brown/Tan
1726	SS	10	no	20.1	560		20					20' SANDSTONE, Brown/Tan
1750	SS	10	no	12.6	480		25					25' SANDSTONE, Brown/Tan
1816	SS	10	no	8.6	400		30					30' SANDSTONE, Brown/Tan
0900	SS	8	no	6.0	240		35					35' SANDSTONE, Brown/Tan

Log Of Test Borings

(NOTE - Page 2 of 2)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-3

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (Inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Description
								Start Date: 9-21-06 Time: 1520 Completion Date: 9-22-06 Time: 1020
0950	SS	8	no	4.1	160		40	40' SANDSTONE, Brown/Tan End of Soil Boring at 40' bgs
							45	
							50	
							55	
							60	
							65	

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Drilling Method
-	-	-	-	-	-	Auger Trailer
-	-	-	-	-	-	Backfill Method: Bentonite
-	-	-	-	-	-	Field Representative: G/B

Log Of Test Borings

(NOTE - Page 1 of 3)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-4

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: 9-22-06 Time: 1035	
								Completion Date: 9-22-06 Time: 1940	
								Description	
								CALICHE - TB Pad	
1050	SS	10	little	2.2	1,200		5	5' CLAY, Red	
1121	SS	-	no	2.0	960		10	10' ROCK	
1139	DL	10	very little	.5	1,840		15	15' CALICHE/Sand	
1206	SS	10	no	0	1,040		20	20' SANDSTONE, Tan	
1234	SS	10	no	0	1,200		25	25' SANDSTONE, Tan	
1312	SS	10	no	0	1,000		30	30' SANDSTONE, Tan	
1332	SS	8	no	0	880		35	35' SANDSTONE, Tan	

Log Of Test Borings

(NOTE - Page 2 of 3)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-4

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (Inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Description
								Start Date: 9-22-06 Time: 1035 Completion Date: 9-22-06 Time: 1940
1401	SS	8	no	0	880		40	40' SANDSTONE, Tan, Dense
1436	SS	10	no	0	1,520		45	45' SANDSTONE, Tan, Dense
1515	SS	8	no	0	1,400		50	50' SANDSTONE, Tan, Dense
1559	SS	8	no	0	1,400		55	55' SANDSTONE, Tan, Dense
1658	SS	8	no	0	1,240		60	60' SANDSTONE, Tan, Dense
1800	SS	8	no	0	920		65	65' SANDSTONE, Tan, Dense
1859	SS	8	no	0	620		70	70' SANDSTONE, Tan, Dense

Log Of Test Borings

(NOTE - Page 3 of 3)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-4

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: 9-22-06 Time: 1035	Completion Date: 9-22-06 Time: 1940
								Description	
								End of Soil Boring at 70' bgs	
							75		
							80		
							85		
							90		
							95		
							100		

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Drilling Method: Auger Trailer
-	-	-	-	-	-	Backfill Method: Bentonite
-	-	-	-	-	-	Field Representative: G/B/F

Log Of Test Borings

(NOTE - Page 1 of 2)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-5

Surface Elevation: 3,675-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: 9-25-06 Time: 0830	Completion Date: 9-25-06 Time: 1830	Description
										CALICHE - TB Pad
1015	SS	8	no	0	240		5			5' CALICHE
1025	SS	8	no	0	240		10			10' CALICHE
										Hard Rock
1130	SS	8	no	0	600		15			15' CALICHE
1149	SS	8	no	0	560		20			20' SANDSTONE, Tan
1208	SS	8	no	0	400		25			25' SANDSTONE, Tan
1315	SS	8	no	0	560		30			30' SANDSTONE, Tan
1340	SS	8	no	0	480		35			35' SANDSTONE, Tan

Log Of Test Borings

(NOTE - Page 2 of 2)



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

Project Number: 160069

Project Name: Chesapeake-NM A.S. State NCT-1 #1&2 Tank Battery

Location: UL-K, Section 6, Township 15 South, Range 32 East

Boring Number: SB-5

Surface Elevation: 3,675-feet ansl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: 9-25-06	Time: 0830	Completion Date: 9-25-06	Time: 1830	Description
1416	SS	8	no	0	640		40					40' SANDSTONE, Tan
1507	SS	8	no	0	400		45					45' SANDSTONE, Tan
1603	SS	8	no	0	240		50					50' SANDSTONE, Tan
1701	SS	8	no	0	160		55					55' SANDSTONE, Tan End of Soil Boring at 55' bgs

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-In Depth	Water Level	Drilling Method: Auger Trailer
-	-	-	-	-	-	Backfill Method: Bentonite
-	-	-	-	-	-	Field Representative: G/B/F

APPENDIX IV

INFORMATION AND METRICS FORM

INITIAL NMOCD FORM C-141

FINAL NMOCD FORM C-141



Information and Metrics

Incident Date: 7 September 2006	NMOCD Notified: 7 September 2006
---	--

Site: NM A.S. State NCT-1 #1&2 Tank Battery		Assigned Site Reference : #160069	
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): Unknown		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: NM A.S. State NCT-1 #1&2 Tank Battery			
Source of contamination: Tank Battery			
Land Owner, i.e., BLM, ST, Fee, Other: State			
LSP Dimensions: Unknown			
LSP Area: Subsurface			
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude: N 32° 02' 58.06"			
Longitude: W 103° 45' 10.80"			
Elevation above mean sea level: 3,675 feet			
Feet from South Section Line:			
Feet from East Section Line:			
Location- Unit or ¼: NE¼ of the SW¼		Unit Letter: K	
Location- Section: 6			
Location- Township: 15 South			
Location- Range: 32 East			
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): ~216 feet			
Depth of contamination (DC): unknown			
Depth to groundwater (DG - DC = DtGW): ~216 feet			
1. Groundwater		2. Wellhead Protection Area	
If Depth to GW <50 feet: <i>20 points</i>		If <1000' from water source, or; <200' from private domestic water source: <i>20 points</i>	
If Depth to GW 50 to 99 feet: <i>10 points</i>		If >1000' from water source, or; >200' from private domestic water source: <i>0 points</i>	
If Depth to GW >100 feet: <i>0 points</i>			
		3. Distance to Surface Water Body	
		<200 horizontal feet: <i>20 points</i>	
		200-1000 horizontal feet: <i>10 points</i>	
		>1000 horizontal feet: <i>0 points</i>	
Site Rank (1+2+3) = 0+20+0=20			
Total Site Ranking Score and Acceptable Concentrations			
Parameter	>19	10-19	0-9
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: Bradley Blevins
Address: P.O. Box 190	Telephone No.: (505) 391-1462 ext. 6224
Facility Name: NM A.S State NCT-1 #1&2 TB	Facility Type: Tank Battery
Surface Owner: State of New Mexico	Mineral Owner:
API No.:	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	6	15S	32E					Lea

Latitude: N 32° 02' 58.06" **Longitude:** W 103° 45' 10.80"

NATURE OF RELEASE

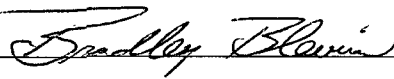
Type of Release: No reportable leak occurred at this Site	Volume of Release: N/A	Volume Recovered: N/A
Source of Release:	Date and Hour of Occurrence:	Date and Hour of Discovery:
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not 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: Not Applicable	
If a Watercourse was Impacted, Describe Fully.* Not Applicable		

Depth to Groundwater: ~216 feet

Describe Cause of Problem and Remedial Action Taken.* Not applicable

Describe Area Affected and Cleanup Action Taken.* Chesapeake Operating, Inc., purchased the subject property from another petroleum company. Due to lack of general maintenance of equipment and surrounding areas, the tank battery and appurtenances were removed. Chesapeake Operating, Inc., then chose to perform "in-house" delineation of the tank battery confines. Based on laboratory analytical results from the delineation activities, Chesapeake Operating, Inc., voluntarily initiated remediation of the subject property to conform with NMOCD standards.

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:	
Title: Field Supervisor	Approval Date:	Expiration Date:
E-mail Address: bblevins@chkenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 7-19-07 Phone: (505) 391-1462 ext. 6224		

* Attach Additional Sheets If Necessary

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: Bradley Blevins
Address: P.O. Box 190	Telephone No.: (505) 391-1462 ext. 6224
Facility Name: NM A.S State NCT-1 #1&2 TB	Facility Type: Tank Battery

Surface Owner: State of New Mexico	Mineral Owner:	API No.:
---	-----------------------	-----------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	6	15S	32E					Lea

Latitude: N 32° 02' 58.06" **Longitude:** W 103° 45' 10.80"

NATURE OF RELEASE

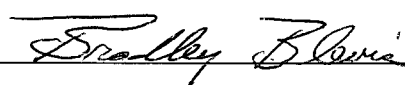

Type of Release: Crude oil	Volume of Release: unknown	Volume Recovered: 0 bbls
Source of Release: Pipeline	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: 11 September 2006 @
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher, NMOCD	
By Whom? Bradley Blevins	Date and Hour: September 11, 2006 @	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse: Not Applicable	
If a Watercourse was Impacted, Describe Fully.* Not Applicable		

Depth to Groundwater: ~216 feet

Describe Cause of Problem and Remedial Action Taken.* An unknown amount of oil was released due to the structural integrity of union on a pipeline failing. The oil leaked below ground following the pipeline until discovered by a pumper. An unknown area was impacted.

Describe Area Affected and Cleanup Action Taken.* The tank battery facility was totally decommissioned. From 9-19-06 through 9-25-06, the TB area was delineated by advancement of five (5) soil borings. From 9-05-07 through 10-24-07 approximately 13,180 yds³ of impacted soil were removed from Excavations I and II comprising an area of ~29,964 ft² with depths ranging from 2-to 8-feet bgs. Impacted soil was transported to Gandy Marley (Tatum, NM) for disposal with imported clean topsoil and caliche delivered on return trips. A 20-mil polyethylene liner sandwiched between one (1) foot layers of cushion material was installed in Excavation I. Both Excavations I & II were backfilled with caliche within two (2) feet of original ground surface and the remainder with clean topsoil. Disturbed areas were contoured for natural drainage and drill seeded with BLM Mixture No. 2 adding winter wheat for a cover crop. Additional reseeding activities may be required in spring of 2008.

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: 2/6/08	Expiration Date:
E-mail Address: bblevins@chkenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 1-15-08 Phone: (575) 391-1462 ext. 6224		

* Attach Additional Sheets If Necessary