SITE CLOSURE REPORT

QUAIL QUEEN SWD NO. 001
(QUAIL STATE SWD)

EPI REF: #160030
NMOCD REF: 1RP #748

UL-O (SW¼ OF THE SE¼) OF SECTION 11, T 19 S, R 34 E
~ 18 MILE SOUTH SOUTHWEST OF BUCKEYE,
LEA COUNTY, NEW MEXICO
LATITUDE: N 32° 40' 10.5" LONGITUDE: W 103° 31' 43.0"

MARCH 2007

PREPARED BY:

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

PREPARED FOR:

Chesapeake

Distribution List

Site Closure Report

Chesapeake Operating, Inc. – Quail Queen SWD No. 001

(Quail State SWD)

NMOCD Ref. 1RP #748; Ref. # 160030

Name	Title	Company or Agency	Mailing Address	e-mail
Chris Williams	District I Supervisor	New Mexico Oil Conservation Division-Hobbs	1625 N. French Drive Hobbs, New Mexico 88240	chris.williams@state.nm.us
Bradely Blevins	Field Supervisor	Chesapeake Operating, Inc.	P.O. Box 190 Hobbs,NM 88240-0190	bblevins@chkenergy.com
Harlan M. Brown	Senior Environmental Engineer	Chesapeake Energy Corporation	6100 N. Western Avenue Oklahoma City, Ok. 73118	hbrown@chkenergy.com
Thaddeus Kostrubala	Environmenal Engineer	New Mexico State Land Office	New Mexico State Land Office P.O. Box 1148 Santa Fe, NM 87504-1148	tkostrubala@slo.state.nm.us
Myra Meyers	District Resources Manager	New Mexico State Land Office	New Mexico State Land Office 702 North Grimes, Suite D Hobbs, NM 88240	mmeyers@slo.state.nm.us
File	- -	Environmental Plus, Inc.	P.O. Box 1558 Eunice, NM 88231-1558	dduncan@envplus.net

STANDARD OF CARE

Site Closure Report

Chesapeake Energy – Quail Queen SWD No. 001

(Quail State SWD)

NMOCD Ref. 1RP #748; EPI Ref. #160030

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

3/23/07
Date

This report was reviewed by:

David P. Duncan
Civil Engineer

3/23/07
Date

Table of Contents

FIGURES

TABLES

APPENDICES

PROJECT SYNOPSIS

Site Specific:

- ***Company Name:*** Chesapeake Operating, Inc.
- ***Facility Name:*** Quail Queen SWD No. 001 – (Quail State SWD)
- ***Project Reference:*** NMOCD Ref: 1RP #748; EPI Ref: 160030
- ***Company Contact(s):*** Bradley Blevins
- ***Site Location:*** WGS84 N32° 40' 10.5"; W103° 31' 43.0"
- ***Legal Description:*** Unit Letter-O (SW¼ of the SE¼), Section 11, T 19 S, R 34 E
- ***General Description:*** Approximately 18-mile south southwest of Buckeye, New Mexico
- ***Elevation:*** ~3,972-ft amsl
- ***Land Ownership:*** State of New Mexico – New Mexico State Land Office
- ***EPI Personnel:*** Project Consultant – David P. Duncan
  Site Foremen – Danny Deaton; Sebastian Romero

Release Specific:

- ***Product Released:*** Produced water
- ***Volume Released:*** ~ 115-barrels
- ***Volume Recovered:*** ~ 55-barrels
- ***Time of Occurrence:*** 9-17-05
- ***Time of Discovery:*** 9-18-05
- ***Release Source:*** Lightening struck a 500-barrel fiberglass produced water tank
- ***Initial Surface Area Affected:*** Release Area ~ 16,500 ft^2

Remediation Specific:

- ***Final Vertical extent of contaminates:*** ~ 2-feet bgs
- ***Water wells within 1,000-ft:*** None
- ***Private domestic water sources within 200-ft:*** None
- ***Depth to Ground Water:*** ~ 76-ft bgs
- ***Surface water bodies within 1,000-ft:*** None
- ***NMOCD Site Ranking Index:*** Ten (10) points (>50-ft to top of water table and >1,000-ft from water source)
- ***Remedial goals for Soil:*** TPH – 1,000 mg/Kg; BTEX – 50 mg/Kg; Benzene – 10 mg/Kg; Chloride residuals may not be capable of impacting groundwater above NMWQCC Groundwater Standards of 250 mg/L
- ***RCRA Waste Classification:*** Exempt
- ***Remediation Option Proposed:*** a) excavated soil impacted above NMOCD remedial goals disposed at Lea Landfill, Inc.; b) laboratory analyses confirmed removal of soil impacted above NMOCD remedial threshold goals in sidewalls and bottom of the excavations; c) back- filled excavated areas with caliche and sandy soil; d) graded release site to allow natural drainage of the area; and e) will seed areas outside the tank battery perimeter with a grass blend preferred by the BLM
- ***Treatment/Disposal Facility:*** Lea Landfill, Inc., Lea County, New Mexico
- ***Volume disposed:*** Approximately 2,234-yds^3
- ***Project Completion Date:*** January 9, 2007

2.0 SITE AND RELEASE INFORMATION

2.1 Describe land use and pertinent geographic features within 1,000 feet of the site.
Surface and mineral rights for the land surrounding the release site are owned by the State of New Mexico with management overseen by the New Mexico State Land Office. The area is an established oil field with production and injection wells, tank batteries, pipelines, lease roads and other petroleum related facilities. The surrounding land is leased to Snyder Ranches for livestock grazing.

2.2 Identify and describe the source or suspected source(s) of the release.
Lightening struck a 500-barrel fiberglass produced water tank

2.3 What was the volume of the release? (if known): ~115 ***barrels of*** produced water

2.4 What was the volume recovered? (if known): ~ 55 ***barrels of*** produced water

2.5 When did the release occur? (if known): 9-17-05

2.6 Geological Description
The New Mexico Bureau of Mines and Mineral Resources Ground-Water Report 3, "*Geology and Ground-Water Resources of Eddy County, New Mexico*" G.E. Hendrickson and R.S. Jones, 1952,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 on the High Plains physiographic subdivision, described by Nicholson and Clebsch as an area that "is a flat, gently sloping plain, treeless, and marred only by slight undulations and covered with short prairie grass."

2.7 Ecological Description
The area is typical 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
Information obtained from the New Mexico Office of the State Engineer's website and United States Geological Survey (USGS) database indicate groundwater in the unconfined aquifer at this site was projected to be > 76-ft below ground surface (bgs) (reference *Table 1*). On October 18, 2005 two soil borings (BH-1 and BH-2) were advanced to total depths of forty-five (45) and sixty-five (65) feet bgs, respectively, without encountering groundwater.

2.9 Area Water Wells

No public water supply wells are located within 1,000-feet of the release site (reference *Figure 2* and *Table 1*)

2.10 Area Surface Water Features

No surface water features exist within 1,000 feet of the release sight (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 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 the NMOCD Ranking Criteria as follows:

- *Depth to Groundwater (i.e., distance from the lower most acceptable concentration to groundwater);*
- *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 ten (10) points with the soil remedial goals highlighted in the Site Ranking table presented below:

<table>
<tr><th>1. GROUNDWATER</th><th>2. WELLHEAD PROTECTION AREA</th><th>3. DISTANCE TO SURFACE WATER</th></tr>
<tr><td>Depth to GW <50 feet: 20 points</td><td rowspan="2">If <1,000' from water source, or <200' from private domestic water source: 20 points</td><td><200 horizontal feet: 0 points</td></tr>
<tr><td>Depth to GW 50 to 99 feet: 10 points</td><td>200-1,000 horizontal feet: 10 points</td></tr>
<tr><td>Depth to GW >100 feet: 0 points</td><td>If >1,000' from water source, or >200' from private domestic water source: 0 points</td><td>>1,000 horizontal feet: 0 points</td></tr>
<tr><td colspan="3">Site Rank (1+2+3) =10 + 0 + 0 = 10 points</td></tr>
<tr><td colspan="4">Total Site Ranking Score and Acceptable Remedial Goal Concentrations</td></tr>
<tr><td>Ranking Score</td><td>20 or ></td><td>10</td><td>0</td></tr>
<tr><td>Benzene[1]</td><td>10 ppm</td><td>10 ppm</td><td>10 ppm</td></tr>
<tr><td>BTEX[1]</td><td>50 ppm</td><td>50 ppm</td><td>50 ppm</td></tr>
<tr><td>TPH</td><td>100 ppm</td><td>1,000 ppm</td><td>5,000 ppm</td></tr>
</table>

[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: June 14 - July 31, 2006; December 19 - December 21, 2007

Total volume removed: 2,234- yds^3

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

- ☒ ***Disposal***
- ☐ ***Land Treatment***
- ☐ ***Composting/Biopiling***
- ☐ ***Other*** ( )

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

5.0 SAMPLING INFORMATION

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

During the advancement of two (2) soil boring (BH-1 and BH-2), soil samples were collected at two (2) feet and five (5) feet intervals initially, then at five (5) foot intervals to total depth of each boring (reference *Table 2*). Soil samples were analyzed in the field for organic vapor and chloride concentrations utilizing the methods described below:

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

Chloride Concentrations – A LaMotte Chloride Test Kit was used for analyses of chloride concentrations.

Soil samples collected during the excavation of impacted material were analyzed for organic vapor and chloride concentrations utilizing the methods as described above (reference *Figure 3*).

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

Soil samples were collected during the advancement of two (2) soil borings utilizing a hollow core drill. Soil samples were collected at two (2) feet and five (5) feet intervals initially, then at five (5) foot intervals to total depth of the soil borings.

A portion of each soil sample collected was immediately labeled, put into laboratory containers and placed on ice for submittal to an independent laboratory for quantification of gasoline and diesel range organics (TPH); benzene, toluene, ethylbenzene and total xylenes (BTEX); and chloride concentrations. The remaining portion of each sample was analyzed in the field for chloride and organic vapor concentrations utilizing methods described in Section 5.0, ***Sampling Information***, Subsection 5.1.

5.3 Discuss sample locations and provide rationale for their locations.

Soil Borings BH-1 and BH-2 were advanced to total depths of forty-five (45) and sixty-five (65) feet bgs, respectively. Both soil borings were located within the perimeter of the release area. Soil boring BH-1 was located within the most visible contaminated surface area while soil boring BH-2 was located near the outer edge of the release area perimeter. Locales were chosen to provide data on both vertical depth and lateral extent of impacted soil.

6.0 ANALYTICAL RESULTS

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

Field analyses of soil samples collected from soil boring BH-1 indicated organic vapor concentrations ranged from 1.5 parts per million (ppm) at twenty (20) feet bgs to 4.4 ppm at two (2) feet bgs. Chloride concentrations ranged from 240 milligrams per Kilogram (Kg) at forty-five (45) feet bgs to 3,540 mg/Kg at two (2) feet bgs. Soil samples collected from soil boring BH-2 indicated organic vapor concentrations ranged from 1.1 ppm at twenty (20) feet bgs to 3.0 ppm at fifteen (15) feet bgs. Chloride concentrations ranged from 240 mg/Kg at sixty-five (65) feet bgs to 3,120 mg/Kg at two (2) feet bgs.

A review of Table 2, *Summary of Soil Boring Sample Field Analyses and Laboratory Analytical Results*, for soil samples collected from BH-1 indicated BTEX constituent concentrations were non-detectable (ND) at or above laboratory analytical method detection limits (MDL) from ground surface to two (2) feet bgs. While some constituents were detectable at five (5) feet bgs, total concentrations for BTEX (0.4486 mg/Kg) were below site remedial threshold goals of 50 mg/Kg. BTEX concentrations were ND at or above laboratory analytical MDL for BH-2 from ground surface to five (5) feet bgs. TPH concentrations were ND at laboratory analytical MDL for both BH-1 and BH-2 with the exception of BH-1 at two (2) feet bgs. The concentration of TPH (18.7 mg/Kg) at this depth was below site remedial threshold goals of 1,000 mg/Kg. Chloride concentrations for soil samples collected from BH-1 ranged from 214 mg/KG (15-ft bgs) to 3,710 mg/Kg (2-ft bgs) while BH-2 ranged from 172 mg/Kg (15-ft bgs) to 1,860 mg/Kg (2-ft bgs). The general trend indicated chloride concentrations diminished with vertical depth and horizontal distance.

During excavation of the release area, soil samples were collected from various locations for both laboratory and field analyses. Laboratory and field analytical procedures were identical to those utilized in the advancement of soil borings BH-1 and BH-2 as described previously. However, due to the low or non-detectable concentrations of BTEX and TPH constituents found in soil samples collected from BH-1 and BH-2, laboratory analytical tests were not conducted at locales were field analyses of organic vapor concentrations were below 100 ppm. Areas where organic vapor or chloride concentrations exceeded remedial threshold goals were excavated until the goals were met. However, final compliance with site remedial threshold goals for BTEX, TPH and chloride concentrations was determined by laboratory analytical data (reference *Table 3*).

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.

7. 0 DISCUSSION

7.1 Discuss the risks associated with the remaining soil contamination:

Based on depth to groundwater (>76-ft bgs), chloride residual concentrations remaining in the soil should not be capable of impacting groundwater above NMWQCC Groundwater Standards of 250 mg/L. A review of Table 2, *Summary of Soil Boring Sample Field Analyses and Laboratory Analytical Results,* indicates chloride concentrations diminish with depth of soil boring BH-1 and BH-2.

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.***

To determine the vertical extent of production fluid impacted soil, two (2) soil borings (BH-1 and BH-2)) were advanced within the perimeter of the release area on October 18, 2005. After compilation of field and laboratory analytical data as outlined in Article 4, *Subsurface Soil Investigation,* for soil borings BH-1 and BH-2, EPI submitted a *Site Characterization Report* to NMOCD on December 5, 2005 inclusive of Field Work, Analytical Data and Summary of the vertical and lateral extent of impacted soil within the release area.

EPI removed impacted soil from the release area from June 14 through July 31, 2006 and December 19, 2006 through December 21, 2006. Approximately 2,234 yds^3 of impacted soil were excavated from the release area with disposal at Lea Landfill, Inc. Due to existing tank battery facilities (tankage, heater treaters, flow lines, SWD well head, road, etc.), the release area was divided into three (3) separate areas (reference *Figures 5, 7, 8*). After extracting impacted soil to a depth of approximately one (1) foot within the perimeter of the north release area, six (6) each soil samples were collected on June 15, 2006 and June 16, 2006 from the sidewalls of the excavation and analyzed in the field for organic vapor and chloride concentrations utilizing methods outlined in Section 4, *Subsurface Soil Investigation.* All twelve (12) soil samples indicated concentrations of organic vapors were below 100 ppm, but exceeded site remedial threshold goals for chloride concentrations of 250 mg/Kg. The bottom and sidewalls of the excavation were over-excavated due to high chloride concentrations. Thirteen (13) soil samples were collected from the bottom of the north area excavation on June 28, 2006 with ten (10) soil samples transported to an independent laboratory for analyses of chlorides. Field analyses of the thirteen (13) soil samples indicated organic vapors were below 100 ppm, but chloride concentrations exceeded site threshold goals of 250 mg/Kg. Laboratory analytical results of the ten (10) soil samples exceeded site threshold goals for chloride concentrations of 250 mg/Kg. Excavation of the north release site sidewalls continued from June 28 to July 5, 2006 as field analyses indicated elevated chloride concentrations. On July 6, 2006 four (4) Test Trenches were excavated to varying depths within the northern area release confines to delineate the vertical extent of chloride impacted soil (reference *Figure 6*). Soil samples collected from the four (4) Test Trenches were transported to an independent laboratory for analyses of chloride concentrations. Laboratory analytical data for Test Trench No.1 indicated four (4) samples collected at various depths (4-, 7-, 11- and 16-feet bgs) were above site remedial threshold goals of 250 mg/Kg. Soil samples collected from four (4) feet bgs

in Test Trench Nos. 2, 3 and 4 were below site remedial threshold goals of 250 mg/Kg (reference *Table 3*). The chloride impacted soil associated with Test Trench No.1 may be attributed to historical releases from the adjacent disposal well. On July 7, 2006 twelve (12) soil samples were collected from the sidewalls of the northerly excavation site and transported to an independent laboratory for analyses of chloride concentrations. Both field analyses and laboratory analytical data confirmed the twelve (12) soil samples chloride concentrations exceeded site remedial threshold goals of 250 mg/Kg.

Excavation of the south and west release areas started on July 10 and concluded on July 31, 2006. During this interim, excavation also continued on the sidewalls of the north release area. Soil samples were collected from the sidewalls seven (7 ea.) and bottom four (4 ea.) of the south release area on July 14, 2006 and transported to an independent laboratory for analyses of chloride concentrations. Laboratory analytical data indicated the four (4) soil samples taken from the bottom of the south release area were below site remedial threshold goals of 250 mg/Kg while the seven (7) soil samples taken from the sidewalls exceeded site remedial threshold goals of 250 mg/Kg. On July 18, 2006 three (3) soil samples were collected from the bottom of the east release area and one (1) cross-reference soil sample collected from the sidewalls of the north release area. Laboratory analytical data from soil samples collected from the bottom of the east release area indicated chloride concentrations in EER-BH-2 (16 mg/Kg) and EER-BH-3 (250 mg/Kg) were at or below site remedial threshold goals of 250 mg/Kg while bottom hole soil sample EER-BH-1 (360 mg/Kg) exceeded that value. The cross-reference soil sample [SW-10A (2')] collected from the sidewall of the north release area showed a decrease in chloride concentrations from 1,020 mg/Kg to 430 mg/Kg due to excavation activities.

Based on analytical data from soil samples taken on September 14, 2006 chloride concentrations ranged from 224 mg/Kg (NSW-10A @ 2-ft bgs) to 2,751 mg/Kg (SSW-8A @ 2-ft bgs), additional contaminated soil was excavated from December 19 through December 21, 2006.

Backfilling of the excavation started on January 2 and ended on January 9, 2006. Approximately 1,274 yds^3 of caliche were transported from a BLM approved pit for use as backfill material. The use of caliche for backfill material was justified as the primary release area was located within the tank battery perimeter. A secondary area contiguous with the primary area was backfilled with an unknown quantity of sandy soil from nearby dunes and approximately 532 yds^3 of topsoil. The disturbed surface around the release area was graded to allow natural drainage. Although the sandy soil used to backfill the secondary area will enhance the growth of indigenous grasses and plants, the area will be seeded with a grass blend approved by the BLM.

8.3 ***If additional groundwater and 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

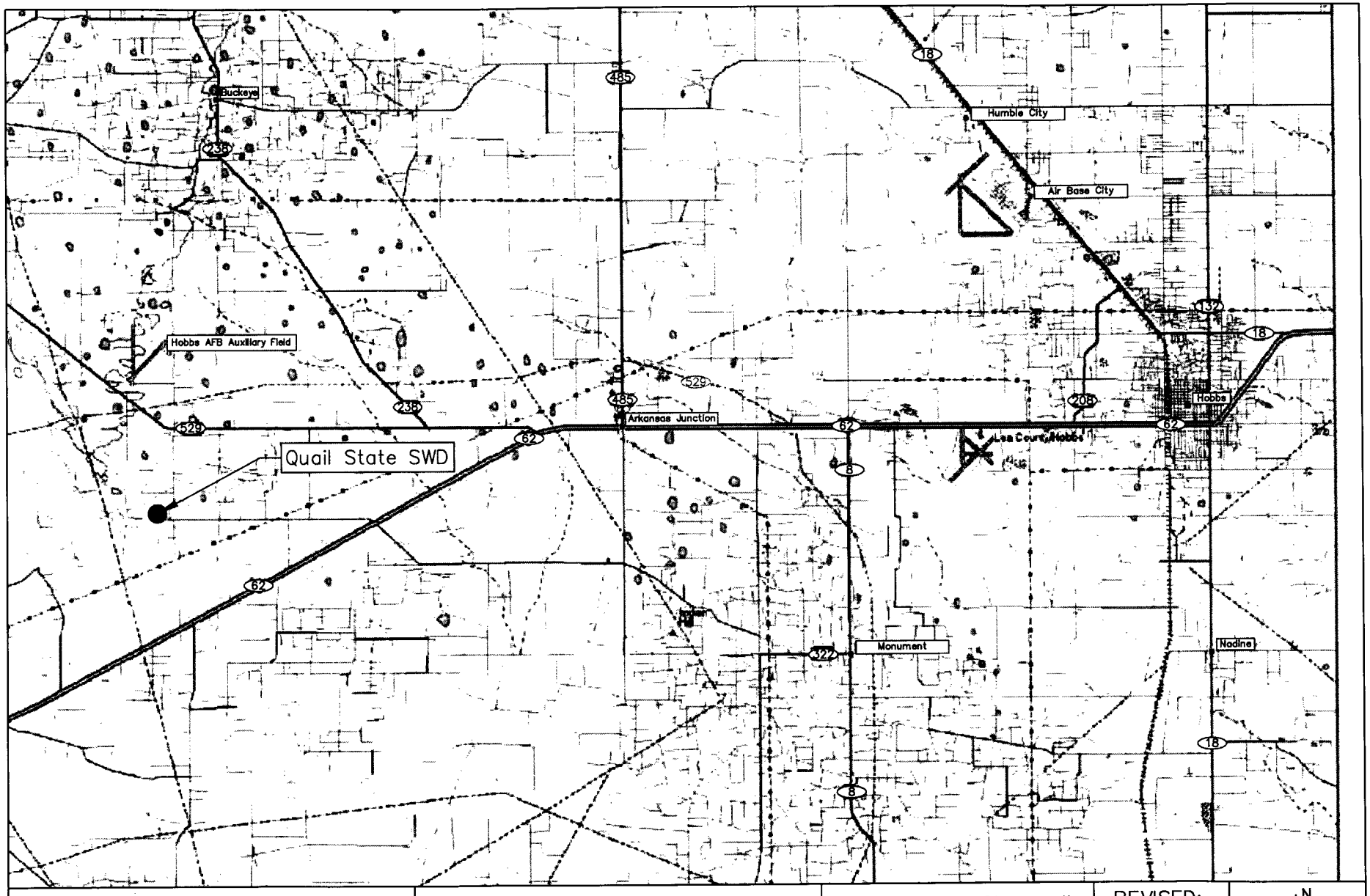


Figure 1 Area Map Chesapeake Energy Quail State SWD	Lea County, New Mexico SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E N 32° 40' 10.5" W 103° 31' 43.0" Elevation: 3,972 feet amsl	DWG By: Jason Stegemoller September 2005	REVISED:
		0 3.0 6.0 Miles	SHEET
			N

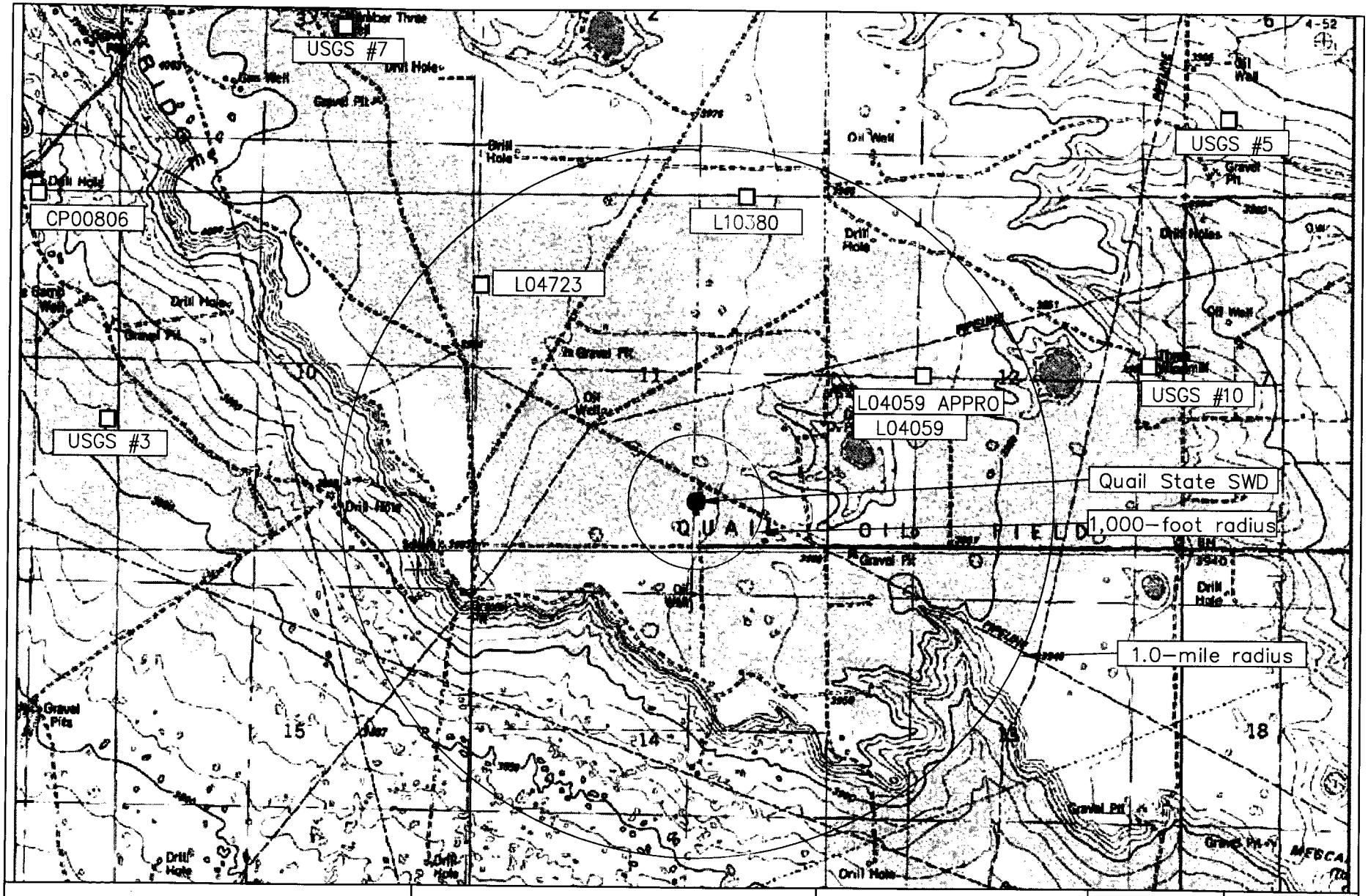


Figure 2
Site Location Map
Chesapeake Energy
Quail State SWD

Lea County, New Mexico
SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E
N 32° 40' 10.5" W 103° 31' 43.0"
Elevation: 3,972 feet amsl

DWG By: Jason Stegemoller
September 2005

REVISED:

0 2,000 4,000
Feet

SHEET
1 of 1

N

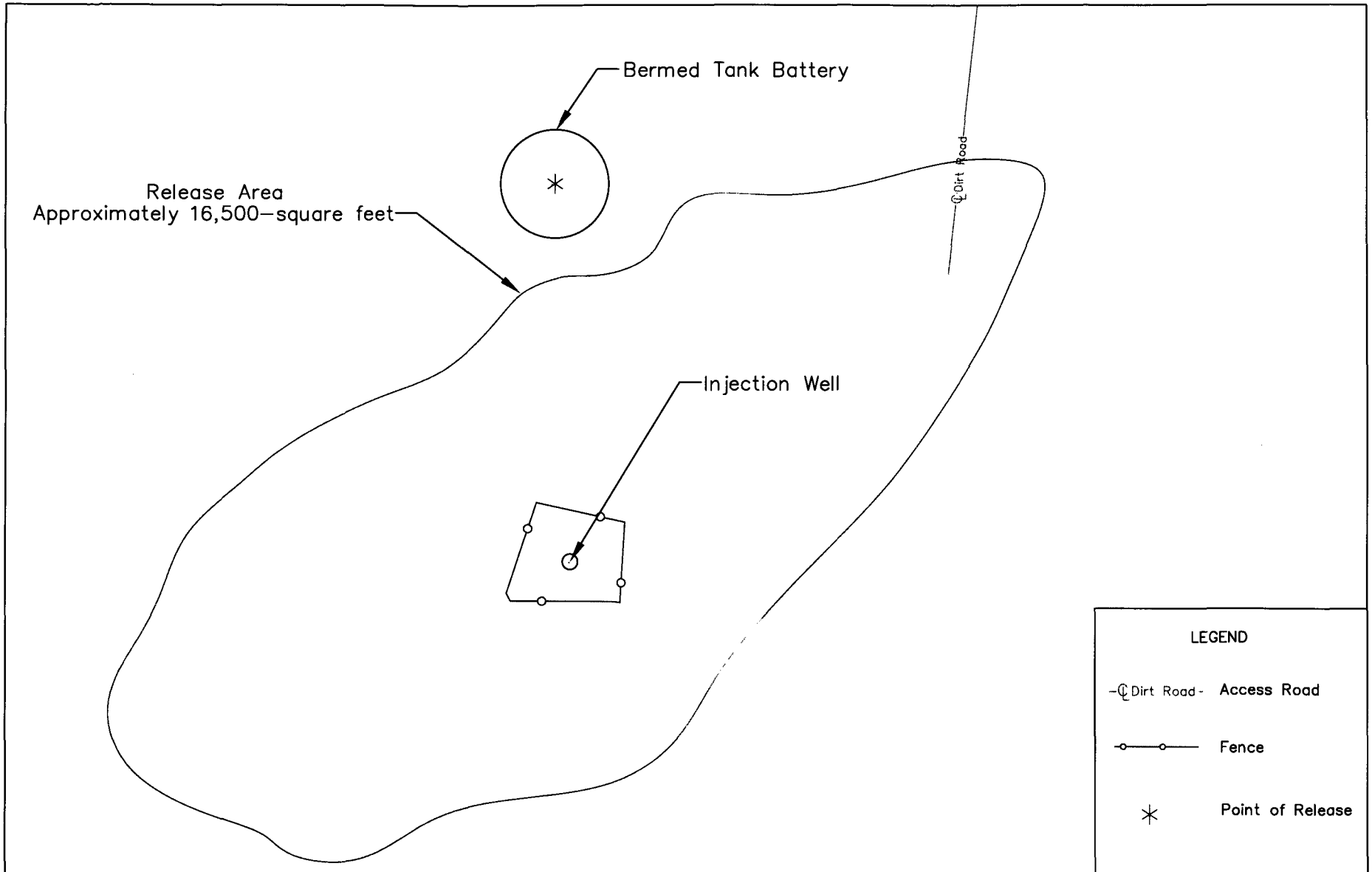


Figure 3 Site Map Chesapeake Energy Quail State SWD	Lea County, New Mexico SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E N 32° 40' 10.5" W 103° 31' 43.0" Elevation: 3,972 feet amsl	DWG By: Jason Stegemoller September 2005 0 30 60 Feet	REVISED: SHEET 1 of 1 N

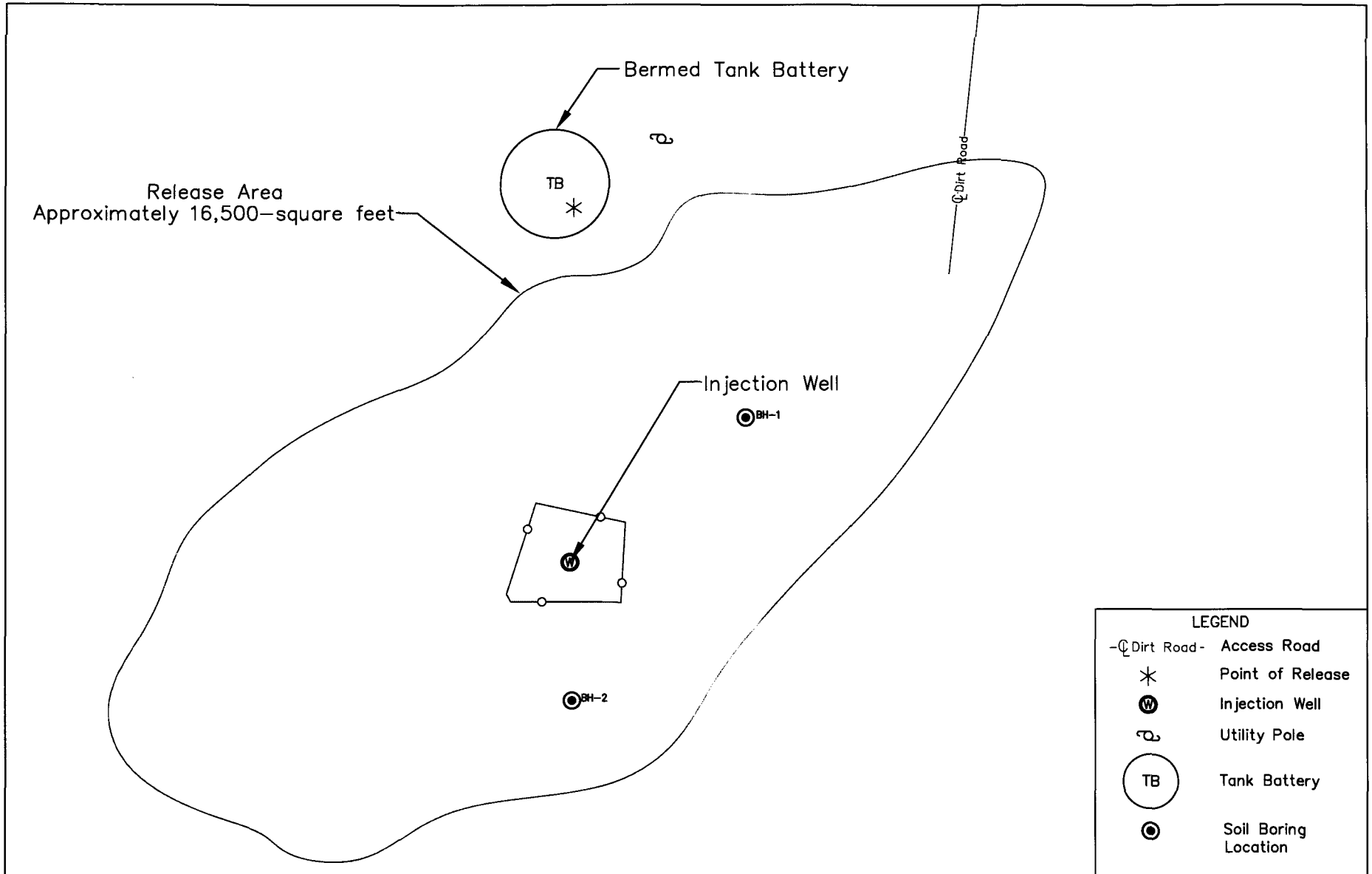


Figure 4 Soil Boring Location Map Chesapeake Energy Quail State SWD	Lea County, New Mexico SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E N 32° 40' 10.5" W 103° 31' 43.0" Elevation: 3,972 feet amsl	DWG By: Daniel Dominguez August 2006	REVISED:	N
		0 30 60 Feet	SHEET 1 of 1	

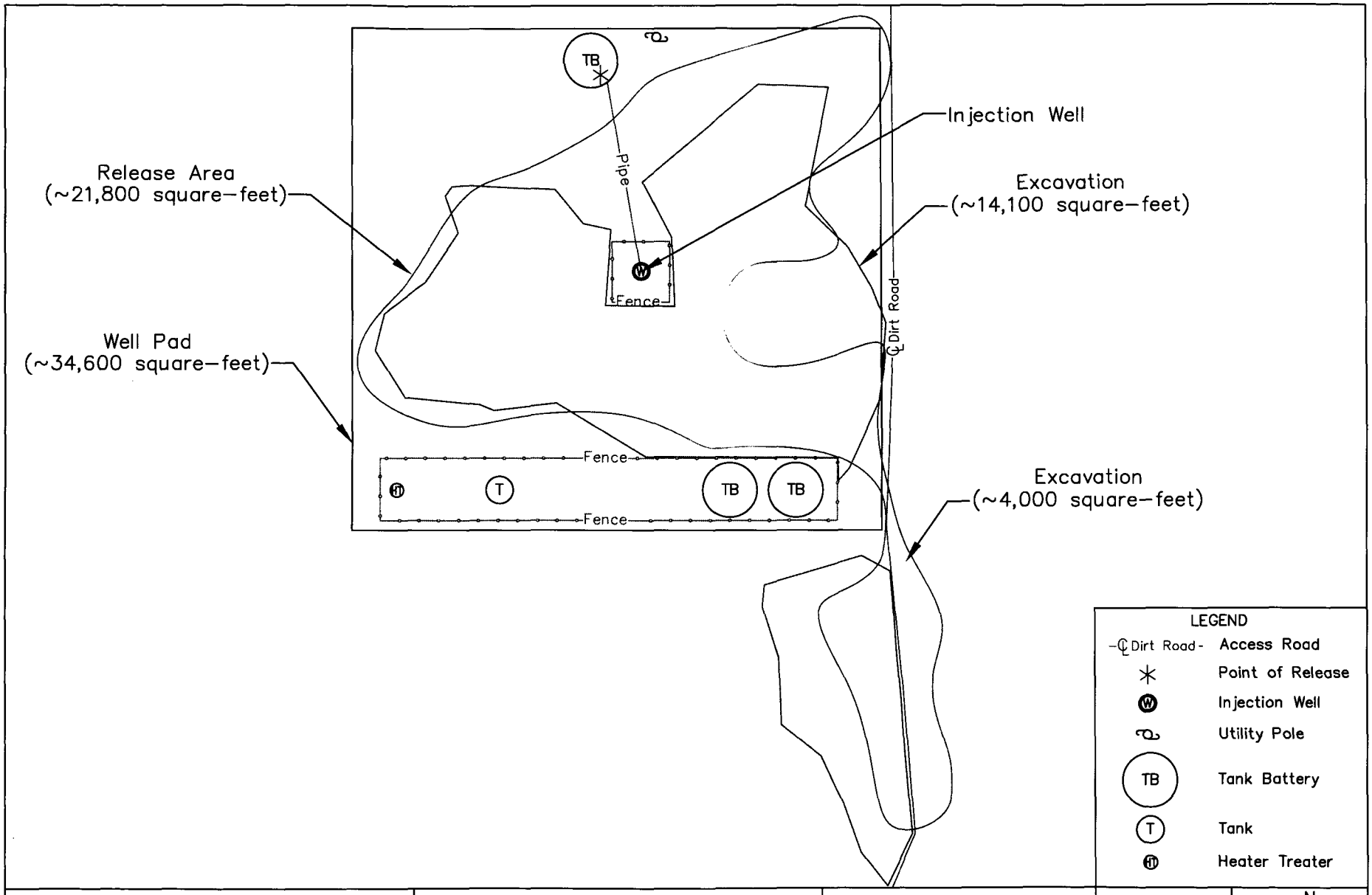


Figure 5 Excavation Location Map Chesapeake Energy Quail State SWD	Lea County, New Mexico SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E N 32° 40' 10.5" W 103° 31' 43.0" Elevation: 3,972 feet amsl	DWG By: Daniel Dominguez August 2006	REVISED:	SHEET 1 of 1

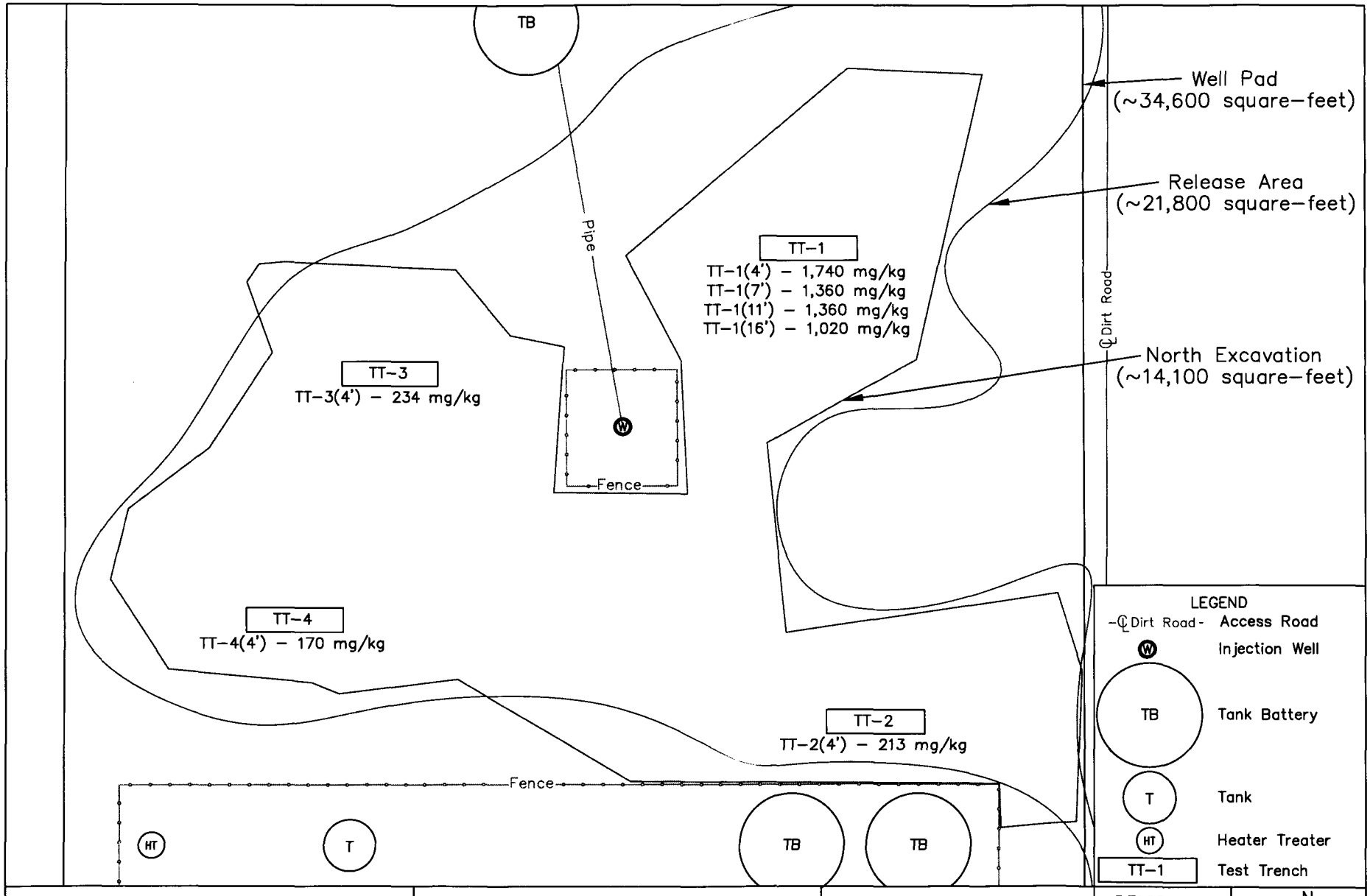


Figure 6 Test Trench Location Map Chesapeake Energy Quail State SWD	Lea County, New Mexico SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E N 32° 40' 10.5" W 103° 31' 43.0" Elevation: 3,972 feet amsl	DWG By: Daniel Dominguez August 2006 0 50 100 Feet	REVISED: SHEET 1 of 1	N

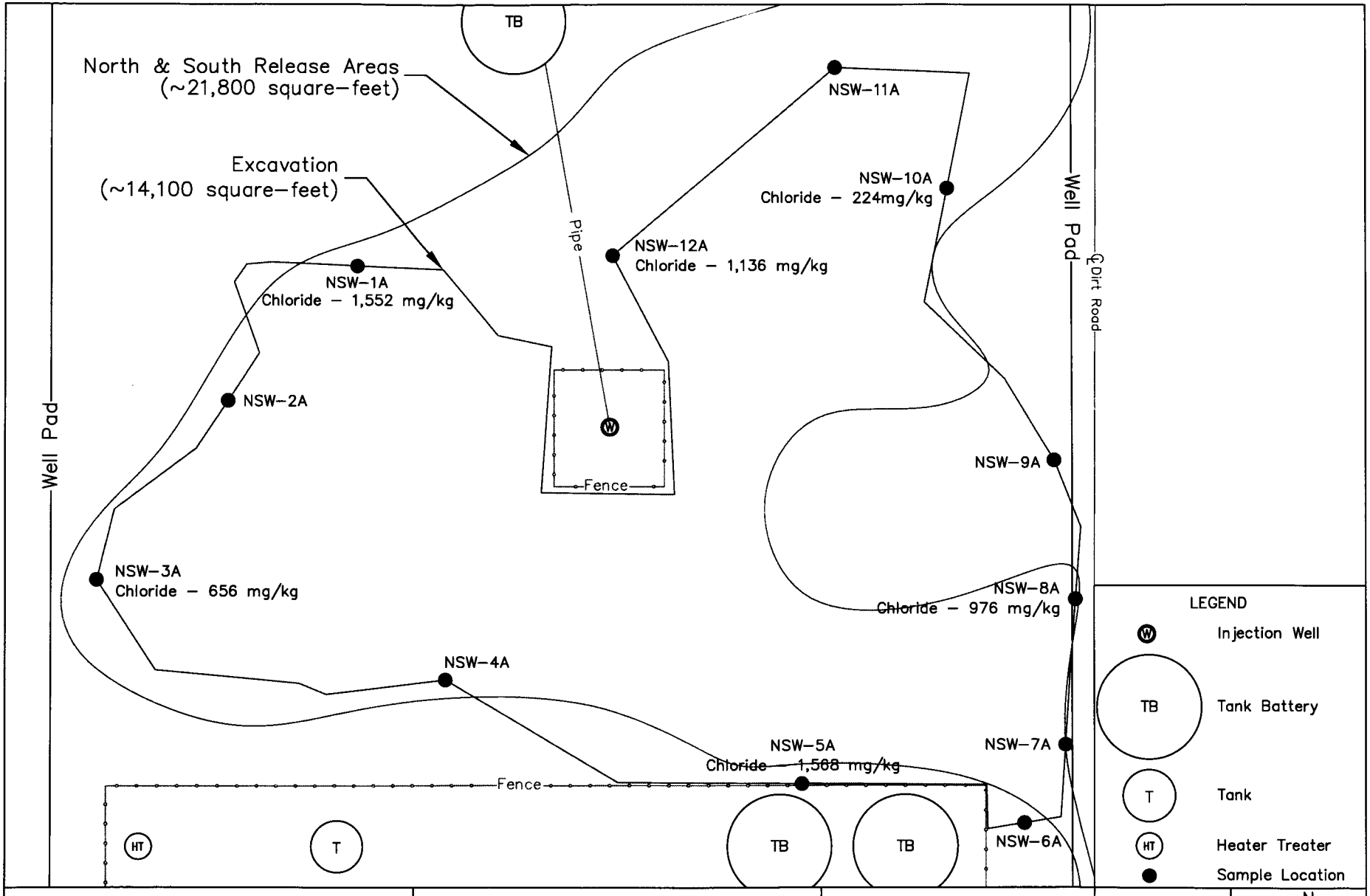


Figure 7
North Excavation/Sample Location Map
Chesapeake Energy
Quail State SWD

Lea County, New Mexico
SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E
N 32° 40' 10.5" W 103° 31' 43.0"
Elevation: 3,972 feet amsl

DWG By: Daniel Dominguez
August 2006

REVISED:
Sept 2006

SHEET
1 of 1

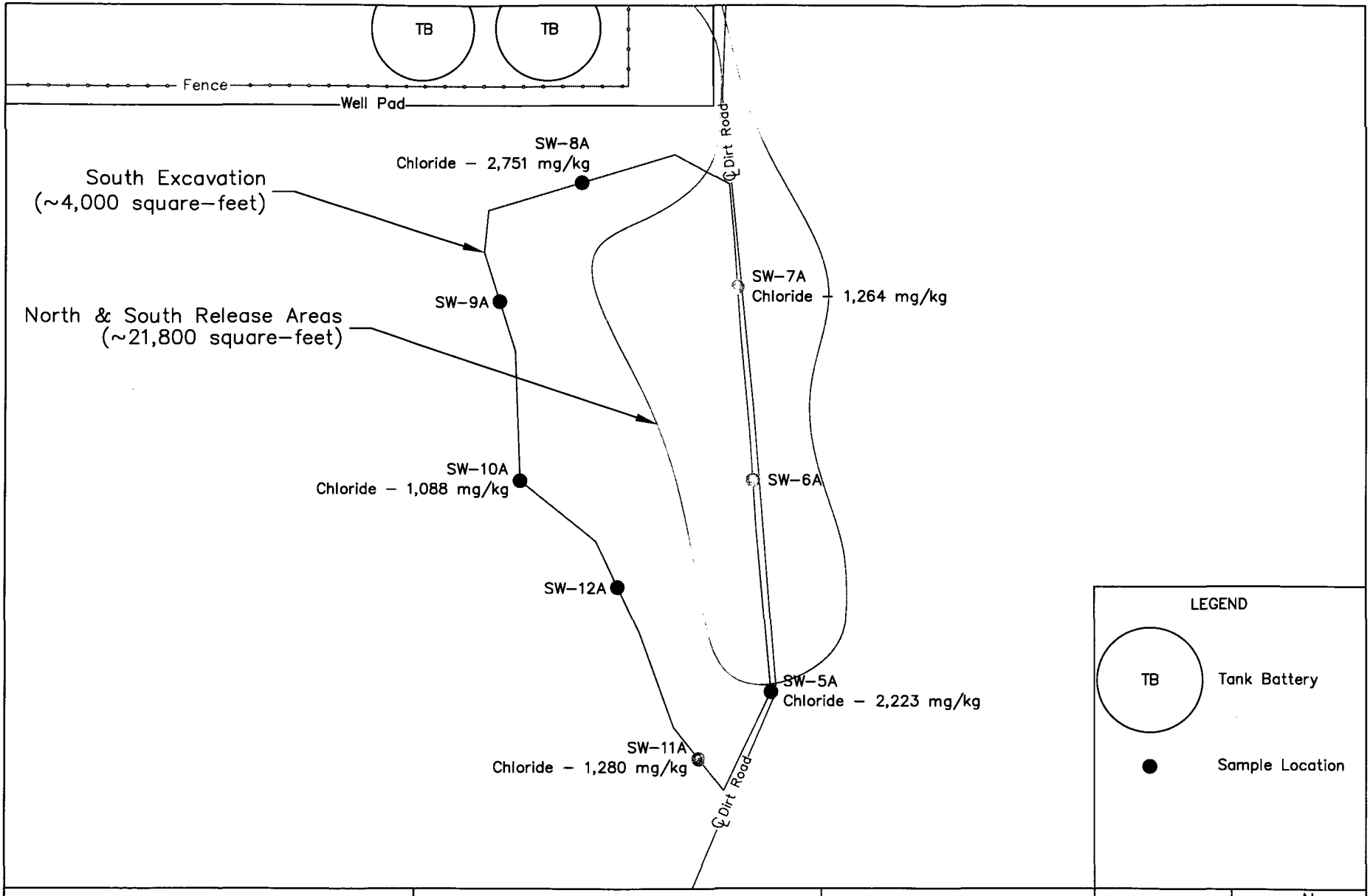


Figure 8 South Excavation/Sample Location Map Chesapeake Energy Quail State SWD	Lea County, New Mexico SW 1/4 of the SE 1/4, Sec. 11, T19S, R34E N 32° 40' 10.5" W 103° 31' 43.0" Elevation: 3,972 feet amsl	DWG By: Daniel Dominguez August 2006 0 25 50 Feet	REVISED: Sept 2006 SHEET 1 of 1	N

TABLES

TABLE 1

Well Data

Chesapeake Energy Quail Queen SWD No. 001 - (Quail State SWD); (NMOCD Ref: 1RP #748; EPI Ref: #160030)

Well Number	Diversion[A]	Owner	Use	Twsp	Rng	Sec q q q	Latitude	Longitude	Date Measured	Surface Elevation[B]	Well Depth (ft bgs)	Depth to Water (ft bgs)
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
CP00875	0	Matador Petroleum, Inc.	PRO	19S	34E	05 3 4 3	N 32° 40' 54.68"	W 103° 35' 10.86"	07-Jan-98	3,806	200	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
CP00466 EXP	0	Gulf Oil Corporation	PRO	19S	34E	16 3 3 2	N 32° 39' 10.29"	W 103° 34' 24.43"		3,760		
CP00466 (2)E EXP	0	Inc. Pennzoil United	PRO	19S	34E	16 3 3 2	N 32° 39' 10.29"	W 103° 34' 24.43"		3,760		
CP00680 EXP	0	C.W. Trainer	OBS	19S	34E	25 4 3 3	N 32° 37' 26.49"	W 103° 30' 48.18"		3,732		
CP00683	3	C.W. Trainer	OBS	19S	34E	26 4 3 3	N 32° 37' 26.49"	W 103° 30' 48.18"	20-Jul-85	3,732	120	28
USGS #1				19S	35E	17 2 1 1	N 32° 39' 44"	W 103° 28' 40"	25-Jan-96	3,822	50	26.04
USGS #2				19S	35E	09 1 3 3	N 32° 40' 15"	W 103° 28' 08"	20-Mar-96	3,834	36	19.45
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
USGS #4				19S	34E	06 3 4 1	N 32° 40' 46"	W 103° 36' 04"	08-Mar-01	3,777	500	244.23
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
USGS #6				19S	35E	05 1 2 1	N 32° 41' 30"	W 103° 28' 49"	02-Jan-01	3,866	117	46.8
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
USGS #8				19S	34E	06 3 4 1			30-Jan-96			239.06
USGS #9				19S	34E	09 2 4 2			30-Jan-96			28.73
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
USGS #11				19S	34E	16 3 3 4			07-Apr-86			231.18
USGS #12				19S	34E	31 1 3 1			14-Mar-68			53.14
USGS #13				19S	34E	31 1 3 2			17-Nov-65			58.6
USGS #14				19S	34E	31 2 3 2			15-Dec-76			147.58
USGS #15				19S	34E	31 2 3 2			28-Jan-81			147.86

Data obtained from the New Mexico Office of the State Engineer Website (http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet1) and the USGS Website (http://waterdata.usgs.gov/nwis).
Shaded areas indicate well locations shown on Figure 2

[A] = in acre feet per annum

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

STK = Livestock

OBS = Observation

PRO = Prospecting or development of natural resources

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 Energy Quail Queen SWD No. 001 - (Quail State SWD); (NMOCD Ref: 1RP#; EPI Ref.#160030)

Soil Boring	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	m,p-Xylenes (mg/Kg)	o-Xylene (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as Diesel) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
BH-1	2		18-Oct-05	4.4	3540	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0125	<10.0	18.7	18.7	**3710**
	5		18-Oct-05	2	450	<0.0250	0.0259	0.0657	0.2680	0.0890	0.4486	<10.0	<10.0	<20.0	**652**
	10		18-Oct-05	5	400	--	--	--	--	--	--	--	--	--	133
	15		18-Oct-05	2.3	480	--	--	--	--	--	--	--	--	--	214
	20		18-Oct-05	1.5	400	--	--	--	--	--	--	--	--	--	--
	25		18-Oct-05	2.3	320	--	--	--	--	--	--	--	--	--	--
	30		18-Oct-05	1.5	320	--	--	--	--	--	--	--	--	--	--
	35		18-Oct-05	1.6	240	--	--	--	--	--	--	--	--	--	--
	40		18-Oct-05	3.1	240	--	--	--	--	--	--	--	--	--	--
	45		18-Oct-05	3.5	240	--	--	--	--	--	--	--	--	--	--
BH-2	2		18-Oct-05	2.6	3,120	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.125	<10.0	<10.0	<20.0	**1860**
	5		18-Oct-05	2.3	1,280	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.125	<10.0	<10.0	<20.0	**814**
	10		18-Oct-05	2.2	640	--	--	--	--	--	--	--	--	--	215
	15		18-Oct-05	3.0	500	--	--	--	--	--	--	--	--	--	172
	20		18-Oct-05	1.1	500	--	--	--	--	--	--	--	--	--	--
	25		18-Oct-05	1.9	480	--	--	--	--	--	--	--	--	--	--
	30		18-Oct-05	2.1	480	--	--	--	--	--	--	--	--	--	--
	35		18-Oct-05	1.4	400	--	--	--	--	--	--	--	--	--	--
	40		18-Oct-05	1.7	400	--	--	--	-	--	--	--	--	--	--
	45		18-Oct-05	1.5	400	--	--	--	--	--	--	--	--	-	--
	50		18-Oct-05	0.9	400	--	--	--	--	--	--	--	--	--	--
	55		18-Oct-05	0.2	320	--	--	--	--	--	--	--	--	--	--
	60		18-Oct-05	0.3	240	--	--	--	--	--	--	--	--	-	--
	65		18-Oct-05	0.2	240	--	--	--	--	--	--	--	--	--	--
NMOCD Remedial Thresholds				**100**[3]		**10**					**50**			**1,000**	**250**[4]

[1] *Bolded values are in excess of the NMOCD Remediation Thresholds*

[2] *"--": Not Analyzed*

[3] *In lieu of laboratory analyes of benzene, toluene, ethylbenzene and total xylenes.*

[4] *Chloride residuals may not be capable of impacting local groundwaterabove the NMWQCCstandard of 250 mg/L*

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Energy Quail Queen SWD No. 001 - (Quail State SWD); (NMOCD Ref: 1RP#; EPI Ref.#160030)

Sample I.D.	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)	TPH (as gasoline) (mg/Kg)	TPH (as Diesel) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
SW-1	1.5		15-Jun-06	36.6	1,280	--	--	--	--	--	--	--	--	--
SW-2	1		15-Jun-06	36.4	1,120	--	--	--	--	--	--	--	--	--
SW-3	1		15-Jun-06	6.7	720	--	--	--	--	--	--	--	--	--
SW-4	1		15-Jun-06	10.1	1,640	--	--	--	--	--	--	--	--	--
SW-5	1		15-Jun-06	15.4	2,240	--	--	--	--	--	--	--	--	--
SW-6	1		15-Jun-06	4.5	4,000+	--	--	--	--	--	--	--	--	--
SW-7	1		16-Jun-06	36.1	2,280	--	--	--	--	--	--	--	--	--
SW-8	1		16-Jun-06	29.0	2,320	--	--	--	--	--	--	--	--	--
SW-9	1		16-Jun-06	35.7	1,040	--	--	--	--	--	--	--	--	--
SW-10	1		16-Jun-06	33.4	1,120	--	--	--	--	--	--	--	--	--
SW-11	1		16-Jun-06	27.7	800	--	--	--	--	--	--	--	--	--
SW-12	1		16-Jun-06	26.6	3,040	--	--	--	--	--	--	--	--	--
BH-1 2'	2		28-Jun-06	26.4	1,120	--	--	--	--	--	--	--	--	787
BH-2 2'	2		28-Jun-06	25.3	640	--	--	--	--	--	--	--	--	276
BH-3 2'	2		28-Jun-06	28.9	1,360	--	--	--	--	--	--	--	--	1,110
BH-4 2'	2		28-Jun-06	30.2	800	--	--	--	--	--	--	--	--	383
BH-5 2'	2		28-Jun-06	28.4	1,200	--	--	--	--	--	--	--	--	851
BH-6 2'	2		28-Jun-06	31.3	1,920	--	--	--	--	--	--	--	--	1,450
BH-7 2'	2		28-Jun-06	26.3	1,720	--	--	--	--	--	--	--	--	--
BH-8 2'	2		28-Jun-06	25.7	2,600	--	--	--	--	--	--	--	--	--
BH-9 2'	2		28-Jun-06	17.8	640	--	--	--	--	--	--	--	--	340
BH-10 2'	2		28-Jun-06	22.5	720	--	--	--	--	--	--	--	--	340
BH-11 2'	2		28-Jun-06	20.8	800	--	--	--	--	--	--	--	--	425
BH-12 2'	2		28-Jun-06	28.8	760	--	--	--	--	--	--	--	--	468
BH-13 2'	2		28-Jun-06	33.2	1,360	--	--	--	--	--	--	--	--	--
TT-1 4'	4		05-Jul-06	--	2,880	--	--	--	--	--	--	--	--	1,740
TT-1 7'	7		05-Jul-06	--	2,480	--	--	--	--	--	--	--	--	1,360

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Energy Quail Queen SWD No. 001 - (Quail State SWD); (NMOCD Ref: 1RP#; EPI Ref.#160030)

Sample I.D.	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)	TPH (as gasoline) (mg/Kg)	TPH (as Diesel) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
TT-1 11'	11		05-Jul-06	--	2,580	--	--	--	--	--	--	--	--	1,360
TT-1 16'	16		05-Jul-06	--	1,680	--	--	--	--	--	--	--	--	1,020
TT-2 4'	4		05-Jul-06	--	640	--	--	--	--	--	--	--	--	213
TT-3 4'	4		05-Jul-06	--	680	--	--	--	--	--	--	--	--	234
TT-4 4'	4		05-Jul-06	--	480	--	--	--	--	--	--	--	--	170
SW-1 2'	2		7-Jul-06	--	1,960	--	--	--	--	--	--	--	--	1,280
SW-2 2'	2		7-Jul-06	--	640	--	--	--	--	--	--	--	--	276
SW-3 2'	2		7-Jul-06	--	1,760	--	--	--	--	--	--	--	--	1,130
SW-4 2'	2		7-Jul-06	--	920	--	--	--	--	--	--	--	--	532
SW-5 2'	2		7-Jul-06	--	1,380	--	--	--	--	--	--	--	--	766
SW-6 2'	2		7-Jul-06	--	880	--	--	--	--	--	--	--	--	298
SW-7 2'	2		7-Jul-06	--	1,040	--	--	--	--	--	--	--	--	468
SW-8 2'	2		7-Jul-06	--	1,120	--	--	--	--	--	--	--	--	766
SW-9 2'	2		7-Jul-06	--	1,280	--	--	--	--	--	--	--	--	553
SW-10 2'	2		7-Jul-06	--	1,760	--	--	--	--	--	--	--	--	1,020
SW-11 2'	2		7-Jul-06	--	1,000	--	--	--	--	--	--	--	--	425
SW-12 2'	2		7-Jul-06	--	900	--	--	--	--	--	--	--	--	447
SEE-BH-1 2'	2		14-Jul-06	--	740	--	--	--	--	--	--	--	--	179
SEE-BH-2 2'	2		14-Jul-06	--	880	--	--	--	--	--	--	--	--	221
SEE-BH-3 2'	2		14-Jul-06	--	1,720	--	--	--	--	--	--	--	--	182
SEE-BH-4 2'	2		14-Jul-06	--	640	--	--	--	--	--	--	--	--	87.6
SEE-SW-1 2'	2		14-Jul-06	--	4,000	--	--	--	--	--	--	--	--	5,380
SEE-SW-2 2'	2		14-Jul-06	--	1,780	--	--	--	--	--	--	--	--	1,300
SEE-SW-3 2'	2		14-Jul-06	--	2,800	--	--	--	--	--	--	--	--	962
SEE-SW-4 2'	2		14-Jul-06	--	4,000	--	--	--	--	--	--	--	--	2,030
SEE-SW-5 2'	2		14-Jul-06	--	4,000	--	--	--	--	--	--	--	--	2,100
SEE-SW-6 2'	2		14-Jul-06	--	2,640	--	--	--	--	--	--	--	--	1,490

TABLE 3

Summary of Excavation Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Energy Quail Queen SWD No. 001 - (Quail State SWD); (NMOCD Ref: 1RP#; EPI Ref.#160030)

Sample I.D.	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)	TPH (as gasoline) (mg/Kg)	TPH (as Diesel) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
SEE-SW-7 2'	2		14-Jul-06	--	1,480	--	--	--	--	--	--	--	--	635
EER-BH-1 (0.5')	0.5		18-Jul-06	--	840	--	--	--	--	--	--	--	--	360
EER-BH-2 (0.5')	0.5		18-Jul-06	--	440	--	--	--	--	--	--	--	--	16
EER-BH-3 (0.5')	0.5		18-Jul-06	--	660	--	--	--	--	--	--	--	--	250
SW-10A (2')	2		18-Jul-06	--	920	--	--	--	--	--	--	--	--	430
SEE-NESW-8 2'	2		31-Jul-06	--	4,000	--	--	--	--	--	--	--	--	5,050
SEE-WNSW-9 2'	2		31-Jul-06	--	1,200	--	--	--	--	--	--	--	--	606
SEE-SWSW-10 2'	2		31-Jul-06	--	2,080	--	--	--	--	--	--	--	--	947
SSW-5A (2')	2	In situ	14-Sep-06	--	1,760	--	--	--	--	--	--	--	--	2,223
SSW-7A (2')	2	In Situ	14-Sep-06	--	1,240	--	--	--	--	--	--	--	--	1,264
SSW-8A (2')	2	In situ	14-Sep-06	--	2,720	--	--	--	--	--	--	--	--	2,751
SSW-10A (2')	2	In situ	14-Sep-06	--	1,200	--	--	--	--	--	--	--	--	1,088
SSW-11A (2')	2	In situ	14-Sep-06	--	1,160	--	--	--	--	--	--	--	--	1,280
NSW-1A (2')	2	In situ	14-Sep-06	--	1,552	--	--	--	--	--	--	--	--	1,552
NSW-3A (2')	2	In situ	14-Sep-06	--	720	--	--	--	--	--	--	--	--	656
NSW-5A (2')	2	In situ	14-Sep-06	--	1,280	--	--	--	--	--	--	--	--	1,568
NSW-8A (2')	2	In situ	14-Sep-06	--	880	--	--	--	--	--	--	--	--	976
NSW-10A (2')	2	In situ	14-Sep-06	--	480	--	--	--	--	--	--	--	--	224
NSW-12A (2')	2	In situ	14-Sep-06	--	1,200	--	--	--	--	--	--	--	--	1,136
SW-5B (1')	1'/+2'	Excavated	19-Dec-06	--	1,280	--	--	--	--	--	--	--	--	--
SW-5C (1')	1'/+1'	Excavated	19-Dec-06	--	1,120	--	--	--	--	--	--	--	--	--
SW-5D (1')	1'/+2'	Excavated	19-Dec-06	--	1,000	--	--	--	--	--	--	--	--	
SW-5E (1')	1'/+1'	Excavated	19-Dec-06	--	2,000	--	--	--	--	--	--	--	--	--
SW-5F (1')	1'/+2'	Excavated	19-Dec-06	--	1,200	--	--	--	--	--	--	--	--	--
SW-5G (1')	1'/+1'	Excavated	19-Dec-06	--	1,200	--	--	--	--	--	--	--	--	--
SW-5H (1')	1'/+3'	In situ	19-Dec-06	--	600	--	--	--	--	--	--	--	--	416
SW-11B (1')	1	In situ	19-Dec-06	--	560	--	--	--	--	--	--	--	--	416
SW-13 (1')	1	In situ	19-Dec-06	--	1,080	--	--	--	--	--	--	--	--	928
NMOCD Remedial Thresholds				100[3]		10				50			1,000	250[4]

[1] Bolded values are in excess of the NMOCD Remediation Thresholds

[2] --: Not Analyzed

[3] In lieu of laboratory analyes of benzene, toluene, ethylbenzene and total xylenes.

[4] Chloride residuals may be capable of impacting local groundwaterabove NMWQCC Groundwater Standard of 250 mg/L

BH= Bottom Hole; TT = Test Trench; SW = Sidewall; SEE = Southeast Excavation; EER =Excavation east of the road; SSW = South Sidewall; NSW = North Sidewall

APPENDICES

APPENDIX I

LABORATORY ANALYTICAL REPORTS
AND
CHAIN-OF-CUSTODY FORMS

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Chesapeake/ Quail State SWD

Project Number: 160030

Location: UL-O, Sect. 11, T 19 S, R 34 E

Lab Order Number: 5J19010

Report Date: 11/02/05

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	**Reported:**
Eunice NM, 88231	Project Manager: Iain Olness	11/02/05 14:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 2'	5J19010-01	Soil	10/18/05 12:45	10/19/05 14:10
BH-1 5'	5J19010-02	Soil	10/18/05 12:59	10/19/05 14:10
BH-1 10'	5J19010-03	Soil	10/18/05 13:10	10/19/05 14:10
BH-1 15'	5J19010-04	Soil	10/18/05 13:20	10/19/05 14:10
BH-2 2'	5J19010-11	Soil	10/18/05 14:43	10/19/05 14:10
BH-2 5'	5J19010-12	Soil	10/18/05 14:47	10/19/05 14:10
BH-2 10'	5J19010-13	Soil	10/18/05 15:00	10/19/05 14:10
BH-2 15'	5J19010-14	Soil	10/18/05 15:10	10/19/05 14:10

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 2' (5J19010-01) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EJ51903	10/19/05	10/20/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*102 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.0 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EJ51913	10/19/05	10/20/05	EPA 8015M	
Diesel Range Organics >C12-C35	**18.7**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**18.7**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*87.6 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*84.4 %*	*70-130*		"	"	"	"	
BH-1 5' (5J19010-02) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EJ51903	10/19/05	10/19/05	EPA 8021B	
Toluene	**0.0259**	0.0250	"	"	"	"	"	"	
Ethylbenzene	**0.0657**	0.0250	"	"	"	"	"	"	
Xylene (p/m)	**0.268**	0.0250	"	"	"	"	"	"	
Xylene (o)	**0.0890**	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*89.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EJ51913	10/19/05	10/20/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*89.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*76.8 %*	*70-130*		"	"	"	"	
BH-2 2' (5J19010-11) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EJ51903	10/19/05	10/20/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*96.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.0 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EJ51913	10/19/05	10/20/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-2 2' (5J19010-11) Soil									
Surrogate: 1-Chlorooctane		*93.0 %*	*70-130*		*EJ51913*	*10/19/05*	*10/20/05*	*EPA 8015M*	
Surrogate: 1-Chlorooctadecane		*78.6 %*	*70-130*		"	"	"	"	
BH-2 5' (5J19010-12) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EJ51903	10/19/05	10/20/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*99.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EJ51913	10/19/05	10/20/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*82.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*76.4 %*	*70-130*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 2' (5J19010-01) Soil									
Chloride	**3710**	50.0	mg/kg	100	EJ52107	10/20/05	10/21/05	EPA 300.0	
% Moisture	**6.1**	0.1	%	1	EJ51912	10/19/05	10/20/05	% calculation	
BH-1 5' (5J19010-02) Soil									
Chloride	**652**	10.0	mg/kg	20	EJ52107	10/20/05	10/21/05	EPA 300.0	
% Moisture	**4.7**	0.1	%	1	EJ51912	10/19/05	10/20/05	% calculation	
BH-1 10' (5J19010-03) Soil									
Chloride	**133**	5.00	mg/kg	10	EK50206	10/31/05	11/02/05	EPA 300.0	
BH-1 15' (5J19010-04) Soil									
Chloride	**214**	10.0	mg/kg	20	EK50206	10/31/05	11/02/05	EPA 300.0	
BH-2 2' (5J19010-11) Soil									
Chloride	**1860**	25.0	mg/kg	50	EJ52107	10/20/05	10/21/05	EPA 300.0	
% Moisture	**9.9**	0.1	%	1	EJ51912	10/19/05	10/20/05	% calculation	
BH-2 5' (5J19010-12) Soil									
Chloride	**814**	10.0	mg/kg	20	EJ52107	10/20/05	10/21/05	EPA 300.0	
% Moisture	**7.9**	0.1	%	1	EJ51912	10/19/05	10/20/05	% calculation	
BH-2 10' (5J19010-13) Soil									
Chloride	**215**	10.0	mg/kg	20	EK50206	10/31/05	11/02/05	EPA 300.0	
BH-2 15' (5J19010-14) Soil									
Chloride	**172**	10.0	mg/kg	20	EK50206	10/31/05	11/02/05	EPA 300.0	

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ51903 - EPA 5030C (GC)										
Blank (EJ51903-BLK1)				Prepared & Analyzed: 10/19/05						
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	*37.0*		*ug/kg*	*40.0*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*35.9*		*"*	*40.0*		*89.8*	*80-120*			
LCS (EJ51903-BS1)				Prepared & Analyzed: 10/19/05						
Benzene	0.0423	0.00100	mg/kg wet	0.0500		84.6	80-120			
Toluene	0.0476	0.00100	"	0.0500		95.2	80-120			
Ethylbenzene	0.0539	0.00100	"	0.0500		108	80-120			
Xylene (p/m)	0.0997	0.00100	"	0.100		99.7	80-120			
Xylene (o)	0.0544	0.00100	"	0.0500		109	80-120			
Surrogate: a,a,a-Trifluorotoluene	*38.1*		*ug/kg*	*40.0*		*95.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*35.9*		*"*	*40.0*		*89.8*	*80-120*			
Calibration Check (EJ51903-CCV1)				Prepared: 10/19/05 Analyzed: 10/20/05						
Benzene	42.0		ug/kg	50.0		84.0	80-120			
Toluene	48.4		"	50.0		96.8	80-120			
Ethylbenzene	59.3		"	50.0		119	80-120			
Xylene (p/m)	109		"	100		109	80-120			
Xylene (o)	59.7		"	50.0		119	80-120			
Surrogate: a,a,a-Trifluorotoluene	*38.2*		*"*	*40.0*		*95.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*38.8*		*"*	*40.0*		*97.0*	*80-120*			
Matrix Spike (EJ51903-MS1)	**Source: 5J19002-07**			Prepared & Analyzed: 10/19/05						
Benzene	1.11	0.0250	mg/kg dry	1.30	ND	85.4	80-120			
Toluene	1.27	0.0250	"	1.30	ND	97.7	80-120			
Ethylbenzene	1.48	0.0250	"	1.30	ND	114	80-120			
Xylene (p/m)	2.73	0.0250	"	2.60	ND	105	80-120			
Xylene (o)	1.44	0.0250	"	1.30	ND	111	80-120			
Surrogate: a,a,a-Trifluorotoluene	*40.5*		*ug/kg*	*40.0*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*39.9*		*"*	*40.0*		*99.8*	*80-120*			

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ51903 - EPA 5030C (GC)										
Matrix Spike Dup (EJ51903-MSD1)	**Source: 5J19002-07**			Prepared: 10/19/05 Analyzed: 10/20/05						
Benzene	1.22	0.0250	mg/kg dry	1.30	ND	93.8	80-120	9.38	20	
Toluene	1.37	0.0250	"	1.30	ND	105	80-120	7.20	20	
Ethylbenzene	1.53	0.0250	"	1.30	ND	118	80-120	3.45	20	
Xylene (p/m)	3.12	0.0250	"	2.60	ND	120	80-120	13.3	20	
Xylene (o)	1.56	0.0250	"	1.30	ND	120	80-120	7.79	20	
Surrogate: a,a,a-Trifluorotoluene	*37.8*		*ug/kg*	*40.0*		*94.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*39.8*		*"*	*40.0*		*99.5*	*80-120*			
Batch EJ51913 - Solvent Extraction (GC)										
Blank (EJ51913-BLK1)				Prepared & Analyzed: 10/19/05						
Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	*41.6*		*mg/kg*	*50.0*		*83.2*	*70-130*			
Surrogate: 1-Chlorooctadecane	*42.5*		*"*	*50.0*		*85.0*	*70-130*			
LCS (EJ51913-BS1)				Prepared & Analyzed: 10/19/05						
Gasoline Range Organics C6-C12	415	10.0	mg/kg wet	500		83.0	75-125			
Diesel Range Organics >C12-C35	414	10.0	"	500		82.8	75-125			
Total Hydrocarbon C6-C35	829	10.0	"	1000		82.9	75-125			
Surrogate: 1-Chlorooctane	*48.3*		*mg/kg*	*50.0*		*96.6*	*70-130*			
Surrogate: 1-Chlorooctadecane	*53.8*		*"*	*50.0*		*108*	*70-130*			
Calibration Check (EJ51913-CCV1)				Prepared: 10/19/05 Analyzed: 10/20/05						
Gasoline Range Organics C6-C12	469		mg/kg	500		93.8	80-120			
Diesel Range Organics >C12-C35	443		"	500		88.6	80-120			
Total Hydrocarbon C6-C35	912		"	1000		91.2	80-120			
Surrogate: 1-Chlorooctane	*54.9*		*"*	*50.0*		*110*	*70-130*			
Surrogate: 1-Chlorooctadecane	*52.1*		*"*	*50.0*		*104*	*70-130*			

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ51913 - Solvent Extraction (GC)										
Matrix Spike (EJ51913-MS1)	**Source: 5J19007-01**			Prepared & Analyzed: 10/19/05						
Gasoline Range Organics C6-C12	427	10.0	mg/kg dry	512	ND	83.4	75-125			
Diesel Range Organics >C12-C35	426	10.0	"	512	ND	83.2	75-125			
Total Hydrocarbon C6-C35	853	10.0	"	1020	ND	83.6	75-125			
Surrogate: 1-Chlorooctane	*50.8*		*mg/kg*	*50.0*		*102*	*70-130*			
Surrogate: 1-Chlorooctadecane	*52.6*		*"*	*50.0*		*105*	*70-130*			
Matrix Spike Dup (EJ51913-MSD1)	**Source: 5J19007-01**			Prepared & Analyzed: 10/19/05						
Gasoline Range Organics C6-C12	429	10.0	mg/kg dry	512	ND	83.8	75-125	0.467	20	
Diesel Range Organics >C12-C35	412	10.0	"	512	ND	80.5	75-125	3.34	20	
Total Hydrocarbon C6-C35	841	10.0	"	1020	ND	82.5	75-125	1.42	20	
Surrogate: 1-Chlorooctane	*50.2*		*mg/kg*	*50.0*		*100*	*70-130*			
Surrogate: 1-Chlorooctadecane	*51.4*		*"*	*50.0*		*103*	*70-130*			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ51912 - General Preparation (Prep)										
Blank (EJ51912-BLK1)				Prepared: 10/19/05 Analyzed: 10/20/05						
% Solids	100		%							
Duplicate (EJ51912-DUP1)	**Source: 5J18008-01**			Prepared: 10/19/05 Analyzed: 10/20/05						
% Solids	89.1		%		89.2			0.112	20	
Duplicate (EJ51912-DUP2)	**Source: 5J19008-02**			Prepared: 10/19/05 Analyzed: 10/20/05						
% Solids	92.2		%		91.9			0.326	20	
Batch EJ52107 - Water Extraction										
Blank (EJ52107-BLK1)				Prepared: 10/20/05 Analyzed: 10/21/05						
Chloride	ND	0.500	mg/kg							
LCS (EJ52107-BS1)				Prepared: 10/20/05 Analyzed: 10/21/05						
Chloride	8.90		mg/L	10.0		89.0	80-120			
Calibration Check (EJ52107-CCV1)				Prepared: 10/20/05 Analyzed: 10/21/05						
Chloride	9.05		mg/L	10.0		90.5	80-120			
Duplicate (EJ52107-DUP1)	**Source: 5J19009-01**			Prepared: 10/20/05 Analyzed: 10/21/05						
Chloride	360	10.0	mg/kg		407			12.3	20	
Batch EK50206 - Water Extraction										
Blank (EK50206-BLK1)				Prepared: 10/31/17 Analyzed: 11/02/05						
Chloride	ND	0.500	mg/kg							

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK50206 - Water Extraction										
LCS (EK50206-BS1)				Prepared: 10/31/17 Analyzed: 11/02/05						
Chloride	8.58		mg/L	10.0		85.8	80-120			
Calibration Check (EK50206-CCV1)				Prepared: 10/31/17 Analyzed: 11/02/05						
Chloride	8.46		mg/L	10.0		84.6	80-120			
Duplicate (EK50206-DUP1)	**Source: 5J19010-03**			Prepared: 10/31/17 Analyzed: 11/02/05						
Chloride	130	5.00	mg/kg		133			2.28	20	

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	*Sample results reported on a dry weight basis*
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Celey D Keene Date: 11/2/2005

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
James L. Hawkins, Chemist/Geologist
Sandra Sanchez, Lab Tech.

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

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	John Robinson

Bill To

Attn: Iain Olness
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	ANALYSIS REQUEST: BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES ($SO_4^=$)	pH	TCLP	OTHER >>>	PAH			
-11 1	BH-2 (2')	G	1			1					X		18-Oct-05	14:43	X	X	X								
-12 2	BH-2 (5')	G	1			1					X		18-Oct-05	14:47	X	X	X								
-13 3	BH-2 (10')	G	1			1					X		18-Oct-05	15:00			X			See Notes					
-14 4	BH-2 (15')	G	1			1					X		18-Oct-05	15:10			X			See Notes					
-15 5	BH-2 (20')	G	1			1					X		18-Oct-05	15:18			X			See Notes					
-16 6	BH-2 (25')	G	1			1					X		18-Oct-05	15:23			X			See Notes					
-17 7	BH-2 (30')	G	1			1					X		18-Oct-05	15:26			X			See Notes					
-18 8	BH-2 (35')	G	1			1					X		18-Oct-05	15:44			X			See Notes					
-19 9	BH-2 (40')	G	1			1					X		18-Oct-05	15:47			X			See Notes					
-20 10	BH-2 (45')	G	1			1					X		18-Oct-05	16:00			x			See Notes					

Sampler Relinquished: Iain Olness	Date: 10/19/05 Time: 1055	Received By: Jesse Miller	E-mail results to: iolness@envplus.net
Relinquished by: Jesse Miller	Date: 10/19/05 Time: 2:10	Received By: (lab staff) Connie Valdez	NOTES: Analyze subsequent samples for chloride until two consecutive samples are below 250 mg/Kg. Only Analyze BH-2 (60') and BH-2 (65') for TPH and BTEX if analytical results for BH-2 (5') indicate TPH >1,000 ppm, benzene >10 ppm and/or BTEX >50 ppm.
Delivered by:	Sample Cool & Intact: Yes (Yes) No	Checked By:	50

Seals/labels 4oz/plastic

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

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	John Robinson

Bill To

Attn: Iain Olness
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			
21 1	BH-2 (50')	G	1			1					X		18-Oct-05	14:43			X								
22 2	BH-2 (55')	G	1			1					X		18-Oct-05	14:47			X								
23 3	BH-2 (60')	G	1			1					X		18-Oct-05	15:00	X	X	X				See Notes				
24 4	BH-2 (65')	G	1			1					X		18-Oct-05	15:10	X	X	X				See Notes				
5																									
6																									
7																									
8																									
9																									
10																									

Sampler Relinquished: Iain Olness Date 10/19/05 Time 1055 Received By: Jesse Keller

Relinquished by: Jesse Keller Date 10/19/05 Time 2:10 Received By: (lab staff) Carrie Kelly

Delivered by:

Sample Cool & Intact Yes No

Checked By:

E-mail results to: iolness@envplus.net

NOTES: Analyze subsequent samples for chloride until two consecutive samples are below 250 mg/Kg. Only Analyze BH-2 (60') and BH-2 (65') for TPH and BTEX if analytical results for BH-2 (5') indicate TPH >1,000 ppm, benzene >10 ppm and/or BTEX >50 ppm.

seals/labels 4oz/plastic

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: EPI

Date/Time: 10/19/15 2:15

Order #: 585010

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	5.0 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present
Chain of custody present?	Yes	No	
Sample Instructions complete on Chain of Custody?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample label(s)	Yes	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	Not Applicable for chloride samples

Other observations:

_____

_____

_____

Variance Documentation:

Contact Person: _____ Date/Time: _____ Contacted by: _____

Regarding:

_____

_____

_____

Corrective Action Taken:

_____

_____

_____

_____

_____

_____

_____

_____

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Chesapeake/ Quail State SWD

Project Number: 160030

Location: UL-O, Sect. 11, T 19 S, R 34 E

Lab Order Number: 6G07013

Report Date: 07/14/06

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 2'	6G07013-01	Soil	06/28/06 08:10	07/07/06 11:20
BH-2 2'	6G07013-02	Soil	06/28/06 08:15	07/07/06 11:20
BH-3 2'	6G07013-03	Soil	06/28/06 08:30	07/07/06 11:20
BH-4 2'	6G07013-04	Soil	06/28/06 08:40	07/07/06 11:20
BH-5 2'	6G07013-05	Soil	06/28/06 08:50	07/07/06 11:20
BH-6 2'	6G07013-06	Soil	06/28/06 09:30	07/07/06 11:20
BH-9 2'	6G07013-07	Soil	06/30/06 13:05	07/07/06 11:20
BH-10 2'	6G07013-08	Soil	06/30/06 13:30	07/07/06 11:20
BH-11 2'	6G07013-09	Soil	06/30/06 13:45	07/07/06 11:20
BH-12 2'	6G07013-10	Soil	06/30/06 14:00	07/07/06 11:20

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 2' (6G07013-01) Soil									
Chloride	**787**	20.0	mg/kg Wet	2	EG61005	07/10/06	07/11/06	SW 846 9253	
BH-2 2' (6G07013-02) Soil									
Chloride	**276**	20.0	mg/kg Wet	2	EG61005	07/10/06	07/11/06	SW 846 9253	
BH-3 2' (6G07013-03) Soil									
Chloride	**1110**	20.0	mg/kg Wet	2	EG61005	07/10/06	07/11/06	SW 846 9253	
BH-4 2' (6G07013-04) Soil									
Chloride	**383**	20.0	mg/kg Wet	2	EG61005	07/10/06	07/11/06	SW 846 9253	
BH-5 2' (6G07013-05) Soil									
Chloride	**851**	20.0	mg/kg Wet	2	EG61005	07/10/06	07/11/06	SW 846 9253	
BH-6 2' (6G07013-06) Soil									
Chloride	**1450**	20.0	mg/kg Wet	2	EG61005	07/10/06	07/11/06	SW 846 9253	
BH-9 2' (6G07013-07) Soil									
Chloride	**340**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
BH-10 2' (6G07013-08) Soil									
Chloride	**340**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
BH-11 2' (6G07013-09) Soil									
Chloride	**425**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
BH-12 2' (6G07013-10) Soil									
Chloride	**468**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EG61005 - General Preparation (WetChem)										
Blank (EG61005-BLK1)				Prepared: 07/10/06 Analyzed: 07/11/06						
Chloride	ND	20.0	mg/kg Wet							
LCS (EG61005-BS1)				Prepared & Analyzed: 07/11/06						
Chloride	84.0		mg/kg	100		84.0	80-120			
Matrix Spike (EG61005-MS1)	**Source: 6G07011-30**			Prepared: 07/10/06 Analyzed: 07/11/06						
Chloride	489	20.0	mg/kg Wet	500	0.00	97.8	80-120			
Matrix Spike Dup (EG61005-MSD1)	**Source: 6G07011-30**			Prepared: 07/10/06 Analyzed: 07/11/06						
Chloride	489	20.0	mg/kg Wet	500	0.00	97.8	80-120	0.00	20	
Reference (EG61005-SRM1)				Prepared & Analyzed: 07/11/06						
Chloride	52.1		mg/kg	50.0		104	80-120			
Batch EG61006 - General Preparation (WetChem)										
Blank (EG61006-BLK1)				Prepared: 07/10/06 Analyzed: 07/13/06						
Chloride	ND	20.0	mg/kg Wet							
LCS (EG61006-BS1)				Prepared & Analyzed: 07/13/06						
Chloride	84.0		mg/kg	100		84.0	80-120			
Matrix Spike (EG61006-MS1)	**Source: 6G07014-04**			Prepared: 07/10/06 Analyzed: 07/13/06						
Chloride	1450	20.0	mg/kg Wet	500	1020	86.0	80-120			
Matrix Spike Dup (EG61006-MSD1)	**Source: 6G07014-04**			Prepared: 07/10/06 Analyzed: 07/13/06						
Chloride	1450	20.0	mg/kg Wet	500	1020	86.0	80-120	0.00	20	

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EG61006 - General Preparation (WetChem)										
Reference (EG61006-SRM1)				Prepared & Analyzed: 07/13/06						
Chloride	50.0		mg/kg	50.0		100	80-120			

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 7-14-06

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Danny Deaton

Bill To

Attn: Iain Olness
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 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^=$)	pH	TCLP	OTHER >>>	PAH			
160030																									
01	1	BH-1 (2')	G	1			1					X		28-Jun-06	8:10			X							
02	2	BH-2 (2')	G	1			1					X		28-Jun-06	8:15			X							
03	3	BH-3 (2')	G	1			1					X		28-Jun-06	8:30			X							
04	4	BH-4 (2')	G	1			1					X		28-Jun-06	8:40			X							
05	5	BH-5 (2')	G	1			1					X		28-Jun-06	8:50			X							
06	6	BH-6 (2')	G	1			1					X		28-Jun-06	9:30			X							
07	7	BH-7 (2') (see jasper attached e-mail	G	1			1					X		30-Jun-06	~~12:45~~			X							
~~08~~	8	~~BH-8 (2')~~	~~G~~	~~1~~			~~1~~					~~X~~		~~30-Jun-06~~	~~12:55~~			~~X~~		Not Submitted/Lab					
~~09~~	9	~~BH-9 (2')~~	~~G~~	~~1~~			~~1~~					~~X~~		~~30-Jun-06~~	~~13:05~~			~~X~~		Not Submitted/Lab					
10	10	BH-10 (2')	G	1			1					X		30-Jun-06	13:30			x							

Sampler Relinquished: Iain Olness	Date: 7July 06 Time: 0836	Received By: Jaron Boone	E-mail results to: iolness@envplus.net
Relinquished by: Jaron Boone	Date: 7/7/06 Time: 1120	Received By: (lab staff)	NOTES: ~~050~~ all 05
Delivered by:	Sample Cool & Intact: Yes / No	Checked By:	~~plastic bags~~ 4oz glass w/seals jar w/ lube!

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

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Danny Deaton

Bill To

Attn: Iain Olness
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 8015M	CHLORIDES (Cl)	SULFATES (SO_4^{-2})	pH	TCLP	OTHER >>>	PAH
660703																						
-09 1	BH-11 (2')	G	1			1					X		30-Jun-06	13:45			X					
-10 2	BH-12 (2')	G	1			1					X		30-Jun-06	14:00			X					
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Sampler Relinquished: Iain Olness	Date: 7 July 06 Time: 0836	Received By: Jason Boone	E-mail results to: iolness@envplus.net
Relinquished by: Jason Boone	Date: 7/7/06 Time: 11:20	Received By: (lab staff) Carri Wells	NOTES:
Delivered by:	Sample Cool & Intact: Yes No	Checked By:	

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: EPI

Date/Time: 7/7/06 11:20

Order #: 660703

Initials: JK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	0.5 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present
Chain of custody present?	Yes	No	
Sample Instructions complete on Chain of Custody?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample label(s)	Yes	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	Not Applicable

Other observations:

Variance Documentation:

Contact Person: - Date/Time: Contacted by:

Regarding:

Corrective Action Taken:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Chesapeake/ Quail State SWD

Project Number: 160030

Location: UL-O, Sect. 11, T 19 S, R 34 E

Lab Order Number: 6G07014

Report Date: 07/17/06

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TT-1 4'	6G07014-01	Soil	07/05/06 08:10	07/07/06 11:20
TT-1 7'	6G07014-02	Soil	07/05/06 08:45	07/07/06 11:20
TT-1 11'	6G07014-03	Soil	07/05/06 09:30	07/07/06 11:20
TT-1 16'	6G07014-04	Soil	07/05/06 14:30	07/07/06 11:20
TT-2 4'	6G07014-05	Soil	07/06/06 08:50	07/07/06 11:20
TT-3 4'	6G07014-06	Soil	07/06/06 10:30	07/07/06 11:20
TT-4 4'	6G07014-07	Soil	07/06/06 13:30	07/07/06 11:20

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TT-1 4' (6G07014-01) Soil									
Chloride	**1740**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
TT-1 7' (6G07014-02) Soil									
Chloride	**1360**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
TT-1 11' (6G07014-03) Soil									
Chloride	**1360**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
TT-1 16' (6G07014-04) Soil									
Chloride	**1020**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
TT-2 4' (6G07014-05) Soil									
Chloride	**213**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
TT-3 4' (6G07014-06) Soil									
Chloride	**234**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	
TT-4 4' (6G07014-07) Soil									
Chloride	**170**	20.0	mg/kg Wet	2	EG61006	07/10/06	07/13/06	SW 846 9253	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EG61006 - General Preparation (WetChem)										
Blank (EG61006-BLK1)				Prepared: 07/10/06 Analyzed: 07/13/06						
Chloride	ND	20.0	mg/kg Wet							
LCS (EG61006-BS1)				Prepared & Analyzed: 07/13/06						
Chloride	84.0		mg/kg	100		84.0	80-120			
Matrix Spike (EG61006-MS1)	**Source: 6G07014-04**			Prepared: 07/10/06 Analyzed: 07/13/06						
Chloride	1450	20.0	mg/kg Wet	500	1020	86.0	80-120			
Matrix Spike Dup (EG61006-MSD1)	**Source: 6G07014-04**			Prepared: 07/10/06 Analyzed: 07/13/06						
Chloride	1450	20.0	mg/kg Wet	500	1020	86.0	80-120	0.00	20	
Reference (EG61006-SRM1)				Prepared & Analyzed: 07/13/06						
Chloride	50.0		mg/kg	50.0		100	80-120			

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 7/17/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D. (070614)	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			
01	1 TT-1 (4')	G	1			1					X		05-Jul-06	8:10			X								
02	2 TT-1 (7')	G	1			1					X		05-Jul-06	8:45			X								
03	3 TT-1 (11')	G	1			1					X		05-Jul-06	9:30			X								
04	4 TT-1 (16')	G	1			1					X		05-Jul-06	14:30			X								
05	5 TT-2 (4')	G	1			1					X		06-Jul-06	8:50			X								
06	6 TT-3 (4')	G	1			1					X		06-Jul-06	10:30			X								
07	7 TT-4 (4')	G	1			1					X		06-Jul-06	13:30			X								
	8																								
	9																								
	10																								

Sampler Relinquished: Iain Olness
Date: 7 July 06 Time: 0836
Received By: Jason Boone

Relinquished by: Jason Boone
Date: 7/7/06 Time: 9:20
Received By: (lab staff) Ceeri Kelly

Delivered by:

Sample Cool & Intact (Yes) No

Checked By:

E-mail results to: iolness@envplus.net

NOTES: 150 plastic bags w/ label

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: EPI

Date/Time: 7/7/06 11:20

Order #: 606070048

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	5.0 C
Shipping container/cooler in good condition?	~~Yes~~	No	
Custody Seals intact on shipping container/cooler?	Yes	No	~~Not present~~
Custody Seals intact on sample bottles?	Yes	No	~~Not present~~
Chain of custody present?	~~Yes~~	No	
Sample Instructions complete on Chain of Custody?	~~Yes~~	No	
Chain of Custody signed when relinquished and received?	~~Yes~~	No	
Chain of custody agrees with sample label(s)	~~Yes~~	No	
Container labels legible and intact?	~~Yes~~	No	
Sample Matrix and properties same as on chain of custody?	~~Yes~~	No	
Samples in proper container/bottle?	~~Yes~~	No	
Samples properly preserved?	~~Yes~~	No	
Sample bottles intact?	~~Yes~~	No	
Preservations documented on Chain of Custody?	~~Yes~~	No	
Containers documented on Chain of Custody?	~~Yes~~	No	
Sufficient sample amount for indicated test?	~~Yes~~	No	
All samples received within sufficient hold time?	~~Yes~~	No	
VOC samples have zero headspace?	Yes	No	~~Not Applicable~~

Other observations:

Variance Documentation:

Contact Person: - Date/Time: Contacted by:

Regarding:

Corrective Action Taken:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Chesapeake/ Quail State SWD

Project Number: 160030

Location: UL-O, Sect. 11, T 19 S, R 34 E

Lab Order Number: 6G10009

Report Date: 07/13/06

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SW-1 2'	6G10009-01	Soil	07/07/06 08:10	07/10/06 09:55
SW-2 2'	6G10009-02	Soil	07/07/06 08:45	07/10/06 09:55
SW-3 2'	6G10009-03	Soil	07/07/06 09:30	07/10/06 09:55
SW-4 2'	6G10009-04	Soil	07/07/06 14:30	07/10/06 09:55
SW-5 2'	6G10009-05	Soil	07/07/06 08:50	07/10/06 09:55
SW-6 2'	6G10009-06	Soil	07/07/06 10:30	07/10/06 09:55
SW-7 2'	6G10009-07	Soil	07/07/06 13:30	07/10/06 09:55
SW-8 2'	6G10009-08	Soil	07/07/06 13:45	07/10/06 09:55
SW-9 2'	6G10009-09	Soil	07/07/06 14:05	07/10/06 09:55
SW-10 2'	6G10009-10	Soil	07/07/06 14:45	07/10/06 09:55
SW-11 2'	6G10009-11	Soil	07/07/06 15:10	07/10/06 09:55
SW-12 2'	6G10009-12	Soil	07/07/06 15:40	07/10/06 09:55

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-1 2' (6G10009-01) Soil									
Chloride	**1280**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-2 2' (6G10009-02) Soil									
Chloride	**276**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-3 2' (6G10009-03) Soil									
Chloride	**1130**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-4 2' (6G10009-04) Soil									
Chloride	**532**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-5 2' (6G10009-05) Soil									
Chloride	**766**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-6 2' (6G10009-06) Soil									
Chloride	**298**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-7 2' (6G10009-07) Soil									
Chloride	**468**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-8 2' (6G10009-08) Soil									
Chloride	**766**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-9 2' (6G10009-09) Soil									
Chloride	**553**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-10 2' (6G10009-10) Soil									
Chloride	**1020**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	
SW-11 2' (6G10009-11) Soil									
Chloride	**425**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-12 2' (6G10009-12) Soil									
Chloride	**447**	20.0	mg/kg Wet	2	EG61014	07/10/06	07/11/06	SW 846 9253	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EG61014 - Water Extraction										
Blank (EG61014-BLK1)				Prepared: 07/10/06 Analyzed: 07/11/06						
Chloride	ND	20.0	mg/kg Wet							
LCS (EG61014-BS1)				Prepared & Analyzed: 07/11/06						
Chloride	84.0		mg/kg	100		84.0	80-120			
Matrix Spike (EG61014-MS1)		**Source: 6G10009-06**		Prepared: 07/10/06 Analyzed: 07/11/06						
Chloride	766	20.0	mg/kg Wet	500	298	93.6	80-120			
Matrix Spike Dup (EG61014-MSD1)		**Source: 6G10009-06**		Prepared: 07/10/06 Analyzed: 07/11/06						
Chloride	776	20.0	mg/kg Wet	500	298	95.6	80-120	1.30	20	
Reference (EG61014-SRM1)				Prepared & Analyzed: 07/11/06						
Chloride	50.0		mg/kg	50.0		100	80-120			

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 7/13/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D. 6G10009	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^{-2})	pH	TCLP	OTHER >>>	PAH
-01	1 SW-1 (2')	G	1			1					X		07-Jul-06	8:10			X					
-02	2 SW-2 (2')	G	1			1					X		07-Jul-06	8:45			X					
-03	3 SW-3 (2')	G	1			1					X		07-Jul-06	9:30			X					
-04	4 SW-4 (2')	G	1			1					X		07-Jul-06	14:30			X					
-05	5 SW-5 (2')	G	1			1					X		07-Jul-06	8:50			X					
-06	6 SW-6 (2')	G	1			1					X		07-Jul-06	10:30			X					
-07	7 SW-7 (2')	G	1			1					X		07-Jul-06	13:30			X					
-08	8 SW-8 (2')	G	1			1					X		07-Jul-06	13:45			X					
-09	9 SW-9 (2')	G	1			1					X		07-Jul-06	14:05			X					
-10	10 SW-10 (2')	G	1			1					X		07-Jul-06	14:45			X					

Sampler Relinquished: Iain Olness
Date: 10 July 06 Time: 7:12
Received By:

Relinquished by:
Date: 10 July 06 Time: 9:55
Received By: (lab staff)

Delivered by:
Sample Cool & Intact: (Yes) No
Checked By:

E-mail results to: iolness@envplus.net
NOTES: Rec 0.5°C

4oz glass w/ Teflon lid & label

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D. 6G10009		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
-11	1	SW-11 (2')	G	1			1					X		07-Jul-06	15:10			X					
-12	2	SW-12 (2')	G	1			1					X		07-Jul-06	15:40			X					
	3																						
	4																						
	5																						
	6																						
	7																						
	8																						
	9																						
	10																						

Sampler Relinquished: [signature]	Date 10 July 06 Time 7:12	Received By: [signature]	E-mail results to: iolness@envplus.net NOTES: Rec 0.5°C
Relinquished by: [signature]	Date 10 July 06 Time 9:55	Received By: (lab staff) [signature]	
Delivered by:	9:55 Sample Cool & Intact (Yes) No	Checked By:	

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: EPI

Date/Time: 7/10/04

Order #: 6G10009

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	0.5 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	~~Not present~~
Custody Seals intact on sample bottles?	~~Yes~~	No	Not present
Chain of custody present?	Yes	No	
Sample Instructions complete on Chain of Custody?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample label(s)	Yes	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	~~Not Applicable~~

Other observations:

Variance Documentation:

Contact Person: - Date/Time: Contacted by:

Regarding:

Corrective Action Taken:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Chesapeake/ Quail State SWD

Project Number: 160030

Location: UL-O, Sect. 11, T 19 S, R 34 E

Lab Order Number: 6G17008

Report Date: 07/18/06

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SEE-BH-1 2'	6G17008-01	Soil	07/14/06 08:10	07/17/06 16:15
SEE-BH-2 2'	6G17008-02	Soil	07/14/06 08:45	07/17/06 16:15
SEE-BH-3 2'	6G17008-03	Soil	07/14/06 09:30	07/17/06 16:15
SEE-BH-4 2'	6G17008-04	Soil	07/14/06 14:30	07/17/06 16:15
SEE-SW-1 2'	6G17008-05	Soil	07/14/06 08:50	07/17/06 16:15
SEE-SW-2 2'	6G17008-06	Soil	07/14/06 10:30	07/17/06 16:15
SEE-SW-3 2'	6G17008-07	Soil	07/14/06 13:30	07/17/06 16:15
SEE-SW-4 2'	6G17008-08	Soil	07/14/06 13:45	07/17/06 16:15
SEE-SW-5 2'	6G17008-09	Soil	07/14/06 14:05	07/17/06 16:15
SEE-SW-6 2'	6G17008-10	Soil	07/14/06 14:45	07/17/06 16:15
SEE-SW-7 2'	6G17008-11	Soil	07/14/06 15:00	07/17/06 16:15

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SEE-BH-1 2' (6G17008-01) Soil									
Chloride	**179**	5.00	mg/kg	10	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-BH-2 2' (6G17008-02) Soil									
Chloride	**221**	5.00	mg/kg	10	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-BH-3 2' (6G17008-03) Soil									
Chloride	**182**	5.00	mg/kg	10	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-BH-4 2' (6G17008-04) Soil									
Chloride	**87.6**	5.00	mg/kg	10	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-1 2' (6G17008-05) Soil									
Chloride	**5380**	500	mg/kg	1000	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-2 2' (6G17008-06) Soil									
Chloride	**1300**	20.0	mg/kg	40	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-3 2' (6G17008-07) Soil									
Chloride	**962**	10.0	mg/kg	20	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-4 2' (6G17008-08) Soil									
Chloride	**2030**	25.0	mg/kg	50	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-5 2' (6G17008-09) Soil									
Chloride	**2100**	25.0	mg/kg	50	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-6 2' (6G17008-10) Soil									
Chloride	**1490**	20.0	mg/kg	40	EG61812	07/18/06	07/18/06	EPA 300.0	
SEE-SW-7 2' (6G17008-11) Soil									
Chloride	**635**	10.0	mg/kg	20	EG61812	07/18/06	07/18/06	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EG61812 - Water Extraction										
Blank (EG61812-BLK1)				Prepared & Analyzed: 07/18/06						
Chloride	ND	0.500	mg/kg							
LCS (EG61812-BS1)				Prepared & Analyzed: 07/18/06						
Chloride	10.4	0.500	mg/kg	10.0		104	80-120			
Calibration Check (EG61812-CCV1)				Prepared & Analyzed: 07/18/06						
Chloride	10.1		mg/L	10.0		101	80-120			
Duplicate (EG61812-DUP1)		**Source: 6G17008-01**		Prepared & Analyzed: 07/18/06						
Chloride	185	5.00	mg/kg		179			3.30	20	
Duplicate (EG61812-DUP2)		**Source: 6G17008-11**		Prepared & Analyzed: 07/18/06						
Chloride	639	10.0	mg/kg		635			0.628	20	

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 7/18/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
P.O. Box 1558
Eunice, NM 88231

LAB I.D. 6G17008		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
-01	1	SEE-BH-1 (2')	G	1			1					X		14-Jul-06	8:10			X					
-02	2	SEE-BH-2 (2')	G	1			1					X		14-Jul-06	8:45			X					
-03	3	SEE-BH-3 (2')	G	1			1					X		14-Jul-06	9:30			X					
-04	4	SEE-BH-4 (2')	G	1			1					X		14-Jul-06	14:30			X					
-05	5	SEE-SW-1 (2')	G	1			1					X		14-Jul-06	8:50			X					
-06	6	SEE-SW-2 (2')	G	1			1					X		14-Jul-06	10:30			X					
-07	7	SEE-SW-3 (2')	G	1			1					X		14-Jul-06	13:30			X					
-08	8	SEE-SW-4 (2')	G	1			1					X		14-Jul-06	13:45			X					
-09	9	SEE-SW-5 (2')	G	1			1					X		14-Jul-06	14:05			X					
-10	10	SEE-SW-6 (2')	G	1			1					X		14-Jul-06	14:45			X					

Sampler Relinquished: Iain Olness Date: [illegible] Time: [illegible]
Received By: Jason Boone
Relinquished by: Jason Boone Date: 7/17/06 Time: 9:15
Received By: (lab staff) Carrie [illegible]
Delivered by:
Sample Cool & Intact: Yes No
Checked By: 10.0°C

E-mail results to: iolness@envplus.net

NOTES: RUSH 24 HRS
w/ labels & seal jar 4oz glass

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
P.O. Box 1558
Eunice, NM 88231

LAB I.D. 6G17008		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			
-1	1	SEE-SW-7 (2')	G	1			1					X		14-Jul-06	15:00			X								
	2																									
	3																									
	4																									
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									

Sampler Relinquished: Iain Romero	Date [illegible] Time [illegible]	Received By: Jason Boone
Relinquished by: Jason Boone	Date 7/17/06 Time 4:15	Received By: (lab staff) [illegible]
Delivered by:	Sample Cool & Intact (Yes) No	Checked By:

E-mail results to: iolness@envplus.net

NOTES: RUSH
w/ labels & seal jar

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: EPI

Date/Time: 7/17/06 4:15

Order #: 6G170

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	6.0 C
Shipping container/cooler in good condition?	~~Yes~~	No	
Custody Seals intact on shipping container/cooler?	Yes	No	~~Not present~~
Custody Seals intact on sample bottles?	~~Yes~~	No	Not present
Chain of custody present?	~~Yes~~	No	
Sample Instructions complete on Chain of Custody?	~~Yes~~	No	
Chain of Custody signed when relinquished and received?	~~Yes~~	No	
Chain of custody agrees with sample label(s)	~~Yes~~	No	
Container labels legible and intact?	~~Yes~~	No	
Sample Matrix and properties same as on chain of custody?	~~Yes~~	No	
Samples in proper container/bottle?	~~Yes~~	No	
Samples properly preserved?	~~Yes~~	No	
Sample bottles intact?	~~Yes~~	No	
Preservations documented on Chain of Custody?	~~Yes~~	No	
Containers documented on Chain of Custody?	~~Yes~~	No	
Sufficient sample amount for indicated test?	~~Yes~~	No	
All samples received within sufficient hold time?	~~Yes~~	No	
VOC samples have zero headspace?	Yes	No	~~Not Applicable~~

Other observations:

6G17008-02 and 04 have no custody seals

Variance Documentation:

Contact Person: - Date/Time: Contacted by:

Regarding:

Corrective Action Taken:

argon **laboratories**

ENVIRONMENTAL PLUS, INC.
2100 AVENUE O
EUNICE, NM 88231

REPORT DATE: 07/20/06
SAMPLE DATE: 07/18/06

ATTN: IAIN OLNESS
CLIENT PROJ. ID: 160030
QUAIL STATE SWD

AL JOB #: A07041

Project Summary:

On July 19, 2006, this laboratory received 4 soil samples.

Samples were analyzed according to instructions in accompanying chain-of-custody. Results of analysis are summarized on the following pages. Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Sample Control at (505) 397-0295

Hiram Cueto
Lab Manager

2126 W. Marland Ave., Hobbs, NM 88240 • Phone (505) 397-0295 • Fax (505) 397-0296
email: info@argonlabs.com

argon laboratories

Environmental Plus, Inc.	Project Number: 160030	
PO Box 1558	Project Name: Quail State SWD	Work Order #:
Eunice, NM 88231	Project Manager: Iain Olness	A07041

Anions by Ion Chromatography - EPA Method 300.0

Analyte	Result	Rep. Lim. @ D.F.=1	Units	Analyzed	Method	Notes
EER-BH-1 (0.5') (A07041) Soil	**Sampled: 07/18/06**	**Received: 07/19/06**				
Chloride	360	10	mg/Kg	07/20/06	EPA 300.0	
EER-BH-2 (0.5') (A07042) Soil	**Sampled: 07/18/06**	**Received: 07/19/06**				
Chloride	16	10	mg/Kg	07/20/06	EPA 300.0	
EER-BH-3 (0.5') (A07043) Soil	**Sampled: 07/18/06**	**Received: 07/19/06**				
Chloride	250	10	mg/Kg	07/20/06	EPA 300.0	
SW-10A (2') (A07044) Soil	**Sampled: 07/18/06**	**Received: 07/19/06**				
Chloride	430	10	mg/Kg	07/20/06	EPA 300.0	

Approved By
Argon Laboratories

QC Officer

2126 W. Marland Ave., Hobbs, NM 88240 • Phone (505) 397-0295 • Fax (505) 397 0296
email: info@argonlabs.com

argon laboratories

Environmental Plus, Inc.	Project Number: 160030	
P.O. Box 1558	Project Name: Quail State SWD	Work Order #:
Eunice, NM 88231	Project Manager: Ian Olness	A07041

EPA 300.0 - Quality Control

Analyte	MS Rec	MSD Rec	RPD	Reporting Limit	Units	Notes
Matrix Spike / Matrix Spike Duplicate						*Spiked Sample ID: A07057*
Chloride	111%	111%	0%	10	mg/Kg	

Analyte	LCS Rec	LCSD Rec	RPD	Reporting Limit	Units	Notes
Laboratory Control Spike / Laboratory Control Spike Duplicate						*LCS ID: LCS0720A*
Chloride	97%	102%	5%	10	mg/Kg	

Note: Daily method blank showed no contamination at or above the reporting limits.

2126 W. Marland Ave., Hobbs, NM 88240 • Phone (505) 397-0295 • Fax (505) 397-0296
email: info@argonlabs.com

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 Argon

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
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
1	EER-BH-1 (0.5')	G	1			1					X		18-Jul-06	8:10			X					
2	EER-BH-2 (0.5')	G	1			1					X		18-Jul-06	8:45			X					
3	EER-BH-3 (0.5')	G	1			1					X		18-Jul-06	9:30			X					
4	SW-10A (2')	G	1			1					X		18-Jul-06	14:30			X					
5																						
6																						
7																						
8																						
9																						
10																						

Sampler Relinquished: Iain Olness — Date: 18 July 06 — Time: 0652 — Received By: Aaron Boone

Relinquished by: — Date: 7-19-06 — Time: 1211 — Received By: (lab staff)

Delivered by:

Sample Cool & Intact: Yes No

Checked By:

E-mail results to: iolness@envplus.net

NOTES: RUSH

Argon Laboratories Sample Receipt Checklist

Client Name: Environmental Plus, Inc. Date & Time Received: 07/19/06 12:11

Project Name: Quail State SWD Client Project Number: 160030

Received By: Noemi Franco Matrix: Water ☐ Soil ☑

Sample Carrier: Client ☑ Laboratory ☐ Fed Ex ☐ UPS ☐ Other ☐

Argon Labs Project Number: A05041

Shipper Container in good condition? N/A____	Yes ☑	No ☐	Samples received in proper containers?	Yes ☑	No ☐
			Samples received intact?	Yes ☑	No ☐
Samples received under refrigeration?	Yes ☑	No ☐	Sufficient sample volume for requested tests?	Yes ☑	No ☐
Chain of custody present?	Yes ☑	No ☐	Samples received within holding time?	Yes ☑	No ☐
Chain of Custody signed by all parties?	Yes ☑	No ☐	Do samples contain proper preservative? N/A ☑	Yes ☐	No ☐
Chain of Custody matches all sample labels?	Yes ☑	No ☐	Do VOA vials contain zero headspace? (None submitted ☑)	Yes ☐	No ☐

ANY "No" RESPONSE MUST BE DETAILED IN THE COMMENTS SECTION BELOW

Date Client Contacted: _____ Person Contacted: _____

Contacted By: _____ Subject: _____

Comments: _____

Action Taken: _____

ADDITIONAL TEST(S) REQUEST / OTHER

Contacted By: _____ Date: _____ Time: _____

Call Received By: _____

Comments: _____

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Chesapeake/ Quail State SWD

Project Number: 160030

Location: UL-O, Sect. 11, T 19 S, R 34 E

Lab Order Number: 6H02008

Report Date: 08/04/06

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N.E. Wall 2'	6H02008-01	Soil	2006-07-31 09:45	2006-08-02 11:15
W.N. Wall 2'	6H02008-02	Soil	2006-07-31 10:00	2006-08-02 11:15
S.W. Wall 2'	6H02008-03	Soil	2006-07-31 10:25	2006-08-02 11:15

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated	Project: Chesapeake/ Quail State SWD	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160030	
Eunice NM, 88231	Project Manager: Iain Olness	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
N.E. Wall 2' (6H02008-01) Soil									
Chloride	**5050**	50.0	mg/kg	100	EH60204	08/02/06	08/02/06	EPA 300.0	
W.N. Wall 2' (6H02008-02) Soil									
Chloride	**606**	10.0	mg/kg	20	EH60204	08/02/06	08/02/06	EPA 300.0	
S.W. Wall 2' (6H02008-03) Soil									
Chloride	**947**	20.0	mg/kg	40	EH60204	08/02/06	08/02/06	EPA 300.0	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EH60204 - Water Extraction										
Blank (EH60204-BLK1)				Prepared & Analyzed: 08/02/06						
Chloride	ND	0.500	mg/kg							
LCS (EH60204-BS1)				Prepared & Analyzed: 08/02/06						
Chloride	9.70	0.500	mg/kg	10.0		97.0	80-120			
Calibration Check (EH60204-CCV1)				Prepared & Analyzed: 08/02/06						
Chloride	9.83		mg/L	10.0		98.3	80-120			
Duplicate (EH60204-DUP1)		Source: 6G31011-02		Prepared & Analyzed: 08/02/06						
Chloride	47.1	5.00	mg/kg		48.0			1.89	20	
Duplicate (EH60204-DUP2)		Source: 6G31013-02		Prepared & Analyzed: 08/02/06						
Chloride	173	5.00	mg/kg		176			1.72	20	
Matrix Spike (EH60204-MS1)		Source: 6G31011-02		Prepared & Analyzed: 08/02/06						
Chloride	152	5.00	mg/kg	100	48.0	104	80-120			
Matrix Spike (EH60204-MS2)		Source: 6G31013-02		Prepared & Analyzed: 08/02/06						
Chloride	285	5.00	mg/kg	100	176	109	80-120			

Environmental Plus, Incorporated
P.O. Box 1558
Eunice NM, 88231

Project: Chesapeake/ Quail State SWD
Project Number: 160030
Project Manager: Iain Olness

Fax: 505-394-2601

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 8/4/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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 ELT

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain Olness
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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Sebastian Romero

Bill To

Attn: Iain Olness
P.O. Box 1558
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D. (1402008)	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: CRUDE OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE	PRESERV.: ICE/COOL	PRESERV.: OTHER	SAMPLING: DATE	SAMPLING: TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES ($SO_4^{=}$)	pH	TCLP	OTHER >>>	PAH			
01	1 N.E. Wall (2')	G	1			1					X		31-Jul-06	9:45			X								
02	2 W.N. Wall (2')	G	1			1					X		31-Jul-06	10:00			X								
03	3 S.W. Wall (2')	G	1			1					X		31-Jul-06	10:25			X								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	10																								

Sampler Relinquished:	Date / Time	Received By:	E-mail results to: iolness@envplus.net
Relinquished by:	Date 7-26-06 / Time 11:15	Received By: (lab staff)	NOTES: 3.0 4oz glass wrj label & jar seal
Delivered by:	Sample Cool & Intact Yes No	Checked By:	

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

ent: EPI

ıte/ Time: 8/2/06 11:15

b ID # : 6H0200P

tials: CK

Sample Receipt Checklist

					Client Initials
	Temperature of container/ cooler?	Yes	No	3.0 °C	
2	Shipping container in good condition?	Yes	No		
3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
5	Chain of Custody present?	Yes	No		
6	Sample instructions complete of Chain of Custody?	Yes	No		
7	Chain of Custody signed when relinquished/ received?	Yes	No		
8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
9	Container label(s) legible and intact?	Yes	No	Not Applicable	
10	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
11	Containers supplied by ELOT?	Yes	No		
12	Samples in proper container/ bottle?	Yes	No	See Below	
13	Samples properly preserved?	Yes	No	See Below	
14	Sample bottles intact?	Yes	No		
15	Preservations documented on Chain of Custody?	Yes	No		
16	Containers documented on Chain of Custody?	Yes	No		
17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
18	All samples received within sufficient hold time?	Yes	No	See Below	
19	VOC samples have zero headspace?	Yes	No	Not Applicable	

Variance Documentation

ontact: _____ Contacted by: _____ Date/ Time: _____

egarding: _____

_____

orrective Action Taken:

_____

_____

_____

heck all that Apply:

- ☐ See attached e-mail/ fax
- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

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: 09/15/06
Reporting Date: 09/18/06
Project Owner: CHESAPEAKE ENERGY (160030)
Project Name: QUAIL STATE SWD
Project Location: UL-O, SECT. 11, T 19 S, R 34 E

Analysis Date: 09/18/06
Sampling Date: 09/14/06
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/kg)
H11544-1	SSW-5A (2')	2223
H11544-2	SSW-7A (2')	1264
H11544-3	SSW-8A (2')	2751
H11544-4	SSW-10A (2')	1088
H11544-5	SSW-11A (2')	1280
H11544-6	NSW-1A (2')	1552
H11544-7	NSW-3A (2')	656
H11544-8	NSW-5A (2')	1568
H11544-9	NSW-8A (2')	976
H11544-10	NSW-10A (2')	224
H11544-11	NSW-12A (2')	1136
Quality Control		990
True Value QC		1000
% Recovery		100
Relative Percent Difference		0.0

METHOD: Standard Methods	4500-ClˉB

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

Jose S. Mora
Chemist

09-18-06
Date

H11544

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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Jacob Melancon

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			
H11544	1	SSW-5A (2')	G	1			1					X		14-Sep-06	9:30			X								
	2	SSW-7A (2')	G	1			1					X		14-Sep-06	9:40			X								
	3	SSW-8A (2')	G	1			1					X		14-Sep-06	9:45			X								
	4	SSW-10A (2')	G	1			1					X		14-Sep-06	9:55			X								
	5	SSW-11A (2')	G	1			1					X		14-Sep-06	10:00			X								
	6	NSW-1A (2')	G	1			1					X		14-Sep-06	10:10			X								
	7	NSW-3A (2')	G	1			1					X		14-Sep-06	10:27			X								
	8	NSW-5A (2')	G	1			1					X		14-Sep-06	10:40			X								
	9	NSW-8A (2')	G	1			1					X		14-Sep-06	10:55			X								
	10	NSW-10A (2')	G	1			1					X		14-Sep-06	11:07			x								

Sampler Relinquished:	Date: 9-15-06 Time: 6:00	Received By:	E-mail results to: iolness@envplus.net
Relinquished by:	Date: 09-15-06 Time: 4:35	Received By: (lab staff)	NOTES:
Delivered by:	Sample Cool & Intact: Yes / No	Checked By:	

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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	Jacob Melancon

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
H11544 -1	NSW-12A (2')	G	1			1					X		14-Sep-06	11:20			X					
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Sampler Relinquished:	Date 9-15-06 Time 6:00	Received By:	E-mail results to: dduncan@envplus.net
Relinquished by:	Date 09-15-06 Time 4:35	Received By: (lab staff)	NOTES: RUSH ORDER - Email results to dduncan@envplus.net.
Delivered by:	Sample Cool & Intact (Yes) No	Checked By:	

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: 12/20/06
Reporting Date: 12/20/06
Project Owner: CHESAPEAKE ENERGY (160030)
Project Name: QUAIL STATE SWD
Project Location: UL-O, SECT. 11, T 19 S, R 34 E

Analysis Date: 12/20/06
Sampling Date: 12/19/06
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: LB
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/Kg)
H11921-1	SSW-5B (1')	416
H11921-2	SSW-11B (1')	416
H11921-3	SSW-13 (1')	928
Quality Control		480
True Value QC		500
% Recovery		96
Relative Percent Difference		4.0

METHOD: Standard Methods	4500-ClB

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

Chemist

12-21-06
Date

H11921

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	Quail State SWD
Location	UL-O, Sect. 11, T 19 S, R 34 E
Project Reference	160030
EPI Sampler Name	George Blackburn

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	ANALYSIS REQUEST: BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^{=}$)	pH	TCLP	OTHER >>>	PAH			
H11921-4 1	SSW-5B (1')	G	1			1					X		19-Dec-06	13:21			X								
2	SSW-11B (1')	G	1			1					X		19-Dec-06	9:20			X								
3	SSW-13 (1')	G	1			1					X		19-Dec-06	14:30			X								
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Sampler Relinquished: [signature] Date: 12/20/06 Time: 9:55 Received By: [signature]

Relinquished by: Jaron Roone Date: 12-20-06 Time: 9:55 Received By: (lab staff) [signature]

Delivered by:

Sample Cool & Intact: (Yes) No

Checked By: [signature]

E-mail results to: dduncan@envplus.net

NOTES:

APPENDIX II

PROJECT PHOTOGRAPHS

Log Of Test Borings

ENVIRONMENTAL PLUS, INC.
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES
EUNICE
505-394-3481

Project Number: 160030

Project Name: Chesapeake Quail State SWD

Location: UL-O, Section 11, Township 19 South, Range 34 East

Boring Number: BH-2 | Surface Elevation: 3,972

Start Date: 10/18/05 Time: 1443 hrs

Completion Date: 10/18/05 Time: 1630 hrs

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1443				2.6			Rock, Top Soil, Black Clay
						2	
						5	
1447				2.3			Caliche
						10	
1500				2.2			Caliche
						15	
1510				3.0			Caliche
						20	
1518				1.1			Caliche
						25	
1523				1.9			Light Tan Sugar Sand
						30	
1526				2.1			Light Tan Sugar Sand

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
10/18/05	-	-	-	-	-
-	-	-	-	-	-

Drilling Method: HSA 3.5" ID

Backfill Method: Bentonite

Field Representative: JR

Log Of Test Borings

(NOTE - Page 2 of 3)

ENVIRONMENTAL PLUS, INC.
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES
EUNICE
505-394-3481

Project Number: 160030
Project Name: Chesapeake Quail State SWD
Location: UL-O, Section 11, Township 19 South, Range 34 East
Boring Number: BH-2 | Surface Elevation: 3,972
Start Date: 10/18/05 Time: 1443 hrs
Completion Date: 10/18/05 Time: 1630 hrs

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						35	
1544				1.4			Light Tan Sugar Sand Pebbles
						40	
1547				1.7			Light Tan Sugar Sand Pebbles
						45	
1600				1.5			Light Tan Sugar Sand
						50	
1605				.9			Redish Tan Sugar Sand
						55	
1610				.2			Redish Tan Sugar Sand
						60	
1622				.3			Redish Tan Sugar Sand

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
10/18/05	-	-	-	-	-
-	-	-	-	-	-

Drilling Method: HSA 3.5" ID
Backfill Method: Bentonite
Field Representative: JR

Log Of Test Borings

ENVIRONMENTAL PLUS, INC.
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES
EUNICE
505-394-3481

Project Number: 160030

Project Name: Chesapeake Quail State SWD

Location: UL-O, Section 11, Township 19 South, Range 34 East

Boring Number: BH-2 | Surface Elevation: 3,972

Start Date: 10/18/05 Time: 1443 hrs

Completion Date: 10/18/05 Time: 1630 hrs

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						65	
1630				2			Redish Tan Sugar Sand End of Boring at 65.0'
						70	
						75	
						80	
						85	
						90	

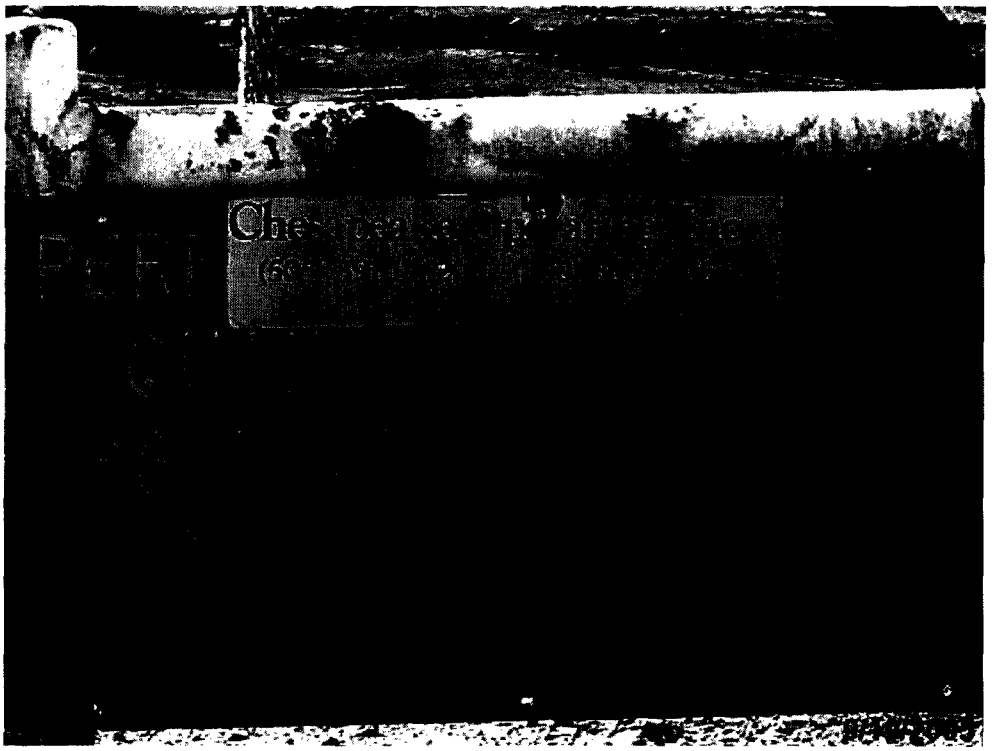
Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
10/18/05	-	-	-	-	-
-	-	-	-	-	-

Drilling Method: HSA 3.5" ID

Backfill Method: Bentonite

Field Representative: JR



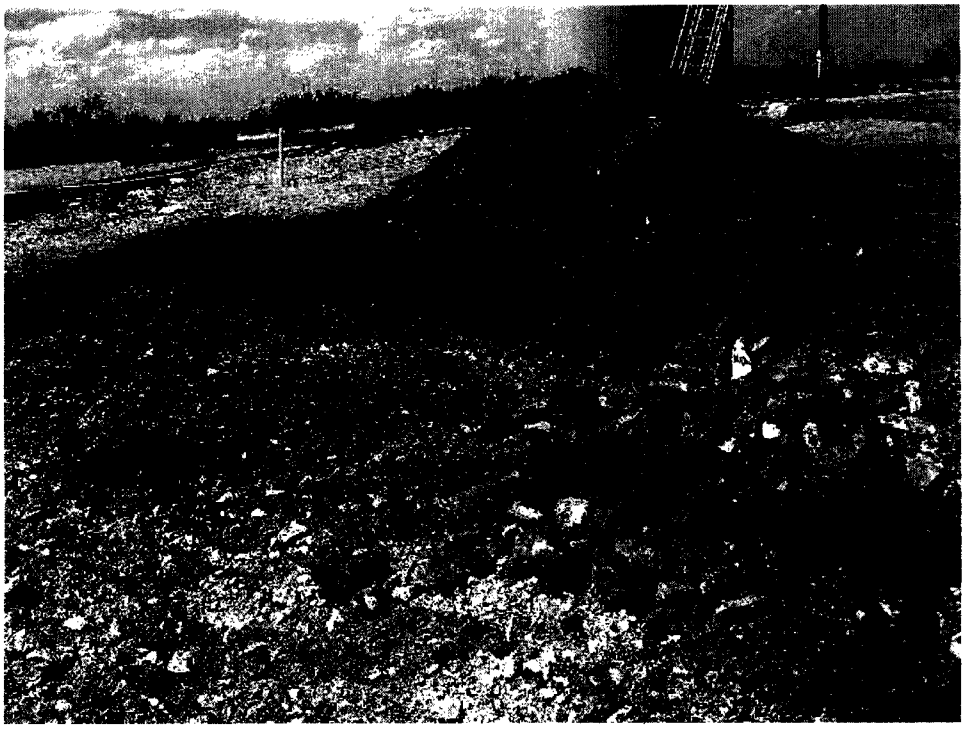
Photograph #1- Lease sign.

Photograph #2- Looking westerly at fiberglass tank with top in foreground. Fluid and dark stained soil indicate contamination.

Photograph #3- Produced water saturated soil, looking northerly.

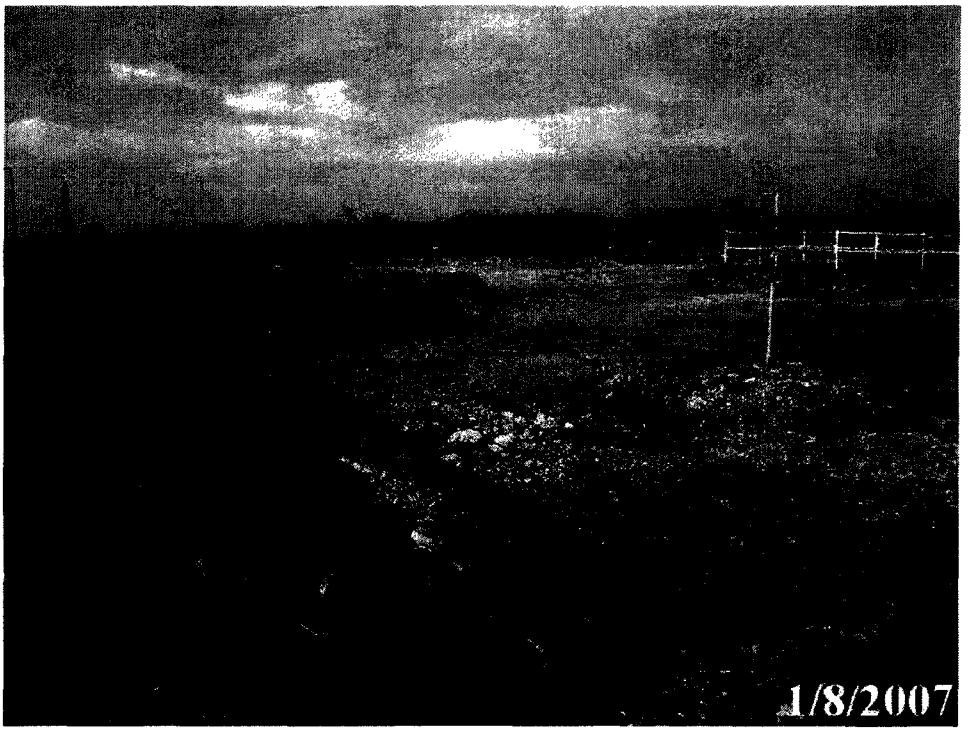
Photograph #4- Injection well and fenced area, looking southerly.

Photograph #5 – Looking easterly at excavation and stockpile.


Photograph #6 – Looking northeasterly at excavation and stockpile.

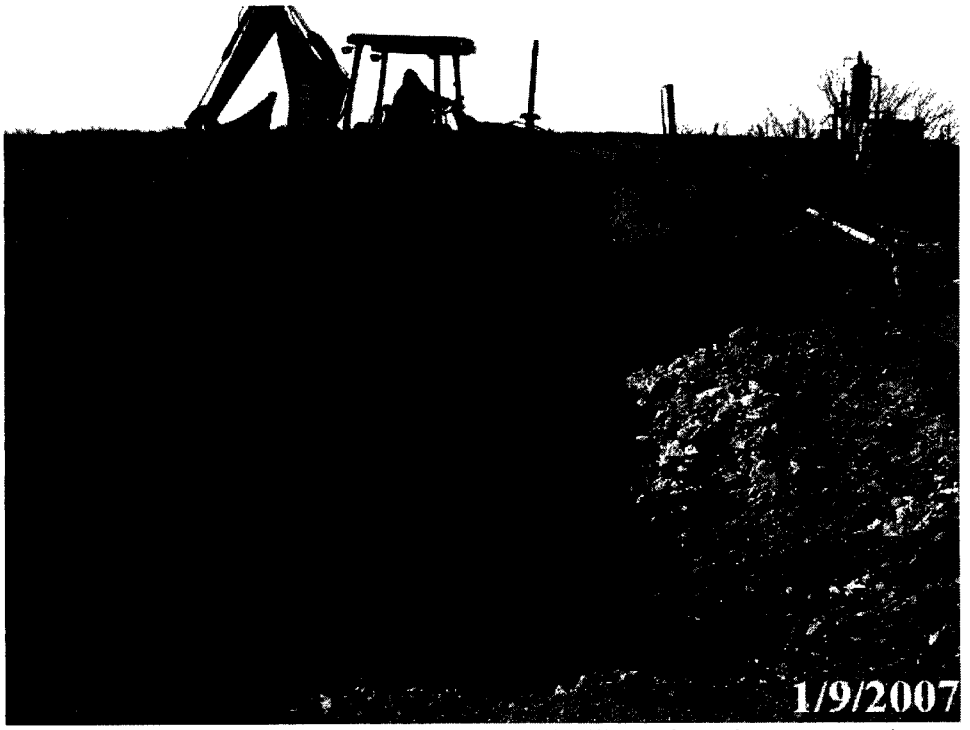
Photograph #7 – Looking northwesterly at excavation and tank battery.

Photograph #8 – Looking south at southern excavation.



Photograph #9 - Looking northwesterly at northern excavation.

Photograph #10 – Looking southwesterly at south excavation.



Photograph #11 – Looking westerly at backfilling of southern excavation.

Photograph #12 – Looking south at finished excavation.

APPENDIX III

SOIL BORING LOGS

Log Of Test Borings

(NOTE - Page 1 of 2)

ENVIRONMENTAL PLUS, INC.
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES
EUNICE
505-394-3481

Project Number: 160030
Project Name: Chesapeake Quail State SWD
Location: UL-O, Section 11, Township 19 South, Range 34 East
Boring Number: BH-1 | Surface Elevation: 3,972
Start Date: 10/18/05 Time: 1245 hrs
Completion Date: 10/18/05 Time: 1415 hrs

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1245				4.4			Rock, Top Soil, Black Clay
						2	
						5	
1259				2.4			Caliche, Rock
						10	
1310				4.5			Caliche, Rock
						15	
1320				2.3			Caliche, Rock
						20	
1330				1.5			Caliche, Rock
						25	
1335				2.3			SAND, Caliche
						30	
1345				1.5			SAND

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
10/18/05	-	-	-	-	-
-	-	-	-	-	-

Drilling Method: HSA 3.5" ID
Backfill Method: Bentonite
Field Representative: JR

Log Of Test Borings

(NOTE - Page 2 of 2)

ENVIRONMENTAL PLUS, INC.
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES
EUNICE
505-394-3481

Project Number: 160030

Project Name: Chesapeake Quail State SWD

Location: UL-O, Section 11, Township 19 South, Range 34 East

Boring Number: BH-1 | Surface Elevation: 3,972

Start Date: 10/18/05 Time: 1245 hrs

Completion Date: 10/18/05 Time: 1415 hrs

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						35	
1355				1.6			SAND, Pebbles
						40	
1403				3.1			SAND, Pebbles
						45	
1415				3.5			SAND, Pebbles End of Boring at 45.0'
						50	
						55	
						60	

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
10/18/05	-	-	-	-	-
-	-	-	-	-	-

Drilling Method: HSA 3.5" ID

Backfill Method: Bentonite

Field Representative: JR

APPENDIX IV

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

Chesapeake

Information and Metrics

Incident Date: 17 September 2005	**NMOCD Notified:** 18 September 2005

Site: Quail Queen SWD No. 001 (Quail State SWD)	**Assigned Site Reference :** 160030
Company: Chesapeake Energy	
Street Address: 5014 Carlsbad Highway	
Mailing Address: 5014 Carlsbad Highway	
City, State, Zip: Hobbs, New Mexico 88240	
Representative: Bradley Blevins	
Representative Telephone: (505) 391-1462 ext. 24	
Telephone:	
Fluid volume released (bbls): 115 barrels	**Recovered (bbls):** 55 barrels
>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: Quail Queen SWD No. 001 (Quail State SWD)	
Source of contamination: 500 barrel fiberglass produced water tank struck by lightening.	
Land Owner, i.e., BLM, ST, Fee, Other: State of New Mexico	
LSP Dimensions: 230 feet by 110 feet	
LSP Area: ~16,500 ft^2	
Location of Reference Point (RP):	
Location distance and direction from RP:	
Latitude: N 32° 40' 10.571"	
Longitude: W 103° 31' 43.001"	
Elevation above mean sea level: 3,972 feet	
Feet from South Section Line: 660	
Feet from East Section Line: 1980	
Location- Unit or ¼¼: SW¼ of the SE¼	**Unit Letter:** O
Location- Section: 11	
Location- Township: 19 South	
Location- Range: 34 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: none	
Public water supply wells within 1000' radius of site: none	
Depth from land surface to groundwater (DG): 50 to 100 feet	
Depth of contamination (DC): Unknown	
Depth to groundwater (DG – DC = DtGW): 50 to 100 feet	

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) =10+20+0=30		

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: 5014 Carlsbad Highway	**Telephone No.:** (505) 391-1462 ext. 24
Facility Name: Quail Queen SWD No. 001 (Quail State SWD)	**Facility Type:** Tank Battery

Surface Owner: State of New Mexico-leased to Snyder Ranches	**Mineral Owner:** State of New Mexico	**Lease No.:** API #30-025-25536

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	~~North~~/South Line	Feet from the	East/~~West~~ Line	County
O	11	19S	34E	660	South	1,980	East	Lea

Latitude: N 32º 40' 10.571" **Longitude:** W 103° 31' 43.001"

NATURE OF RELEASE

Type of Release: Produced Water	**Volume of Release:** 115 barrels	**Volume Recovered:** 55 barrels
Source of Release: Tank Battery	**Date and Hour of Occurrence:** September 17, 2005 P.M.	**Date and Hour of Discovery:** September 18, 2005 A.M.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** NMOCD- Hobbs	
By Whom? Bradley Blevins, Chesapeake	**Date and Hour:** September 18, 2005 @ 1130 hours	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse:** Not Applicable	

If a Watercourse was Impacted, Describe Fully.* Not Applicable

Describe Cause of Problem and Remedial Action Taken.* Lightening strike on 500 barrel fiberglass water tank. Wells were shut in upon discovery.

Describe Area Affected and Cleanup Action Taken.* Approximately 16,500 square feet of surface area was impacted by the release. The site will be delineated and a Remediation/Closure Plan developed and submitted to the NMOCD>

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:**	
Title: Field Technician	**Approval Date:**	**Expiration Date:**
E-mail Address: bblevins@chkenergy.com	**Conditions of Approval:**	**Attached** ☐
Date: 4-4-07 **Phone:** (505) 391-1462 ext. 24		

*** 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: 5014 Carlsbad Highway	**Telephone No.:** (505) 391-1462 ext. 24
Facility Name: Quail Queen SWD No. 001 (Quail State SWD)	**Facility Type:** Tank Battery

Surface Owner: State of New Mexico-leased to Snyder Ranches	**Mineral Owner:** State of New Mexico	**Lease No.:** API #30-025-25536

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	~~North~~/South Line	Feet from the	East/~~West~~ Line	County
O	11	19S	34E	660	South	1,980	East	Lea

Latitude: N 32º 40' 10.571" **Longitude:** W 103° 31' 43.001"

NATURE OF RELEASE

Type of Release: Produced Water	**Volume of Release:** 115 barrels	**Volume Recovered:** 55 barrels
Source of Release: Tank Battery	**Date and Hour of Occurrence:** September 17, 2005 P.M.	**Date and Hour of Discovery:** September 18, 2005 A.M.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** NMOCD- Hobbs	
By Whom? Bradley Blevins, Chesapeake	**Date and Hour:** September 18, 2005 @ 1130 hours	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse:** Not Applicable	

If a Watercourse was Impacted, Describe Fully.* Not Applicable

Describe Cause of Problem and Remedial Action Taken.* Lightening strike on 500 barrel fiberglass water tank. Wells were shut in upon discovery.

Describe Area Affected and Cleanup Action Taken.* Approximately 16,500 square feet of surface area was impacted by the release. a) excavated impacted soil above NMOCD remedial goals disposed at Lea Landfill, Inc.; b) laboratory analyses confirmed removal of soil impacted above NMOCD remedial threshold goals in sidewalls and bottom of the excavations; c) back-filled excavated areas with caliche and sandy soil; d) graded release site to allow natural drainage of the area; and e) will seed areas outside the tank battery perimeter with a grass blend preferred by the BLM.

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~~:** Environ Engr
Title: Field Technician	**Approval Date:** 5.22.07 **Expiration Date:** —
E-mail Address: bblevins@chkenergy.com	**Conditions of Approval:** — **Attached** ☐ —
Date: 5-9-07 **Phone:** (505) 391-1462 ext. 24	

*** Attach Additional Sheets If Necessary**

441-0341