CLOSURE REPORT

NEWMAN 32 STATE #2

1RP #: 1002

EPI REF: #160036

UL-B (NW¼ OF THE NE¼) OF SECTION 32 T23S R38E

~13 MILES NORTHEAST OF JAL

LEA COUNTY, NEW MEXICO

LATITUDE: N 32° 15' 58.57" LONGITUDE: W 103° 04' 53.54"

AUGUST 2006

PREPARED BY:

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

PREPARED FOR:

Chesapeake

Distribution List

Site Characterization

Newman 32 State #2

1RP# 1002; Ref. #160036

Name	Title	Company or Agency	Mailing Address	e-mail
Larry Johnson	Environmental Engineer	New Mexico Oil Conservation Division – Hobbs	1625 French Drive Hobbs, NM 88240	lwjohnson@state.nm.us
Bradley Blevins	Field Supervisor	Chesapeake Operating, Inc.	P.O. Box 190 Hobbs, NM 88240-0190	bblevins@chkenergy.com
Curtis Blake	Superintendent	Chesapeake Operating, Inc.	P.O. Box 190 Hobbs, NM 88240-0190	cblake@chkenergy.com
Harlan Brown	Senior Environmental Representative	Chesapeake Operating, Inc.	6100 N. Western Avenue Oklahoma City, OK 73118	hbrown@chkenergy.com
Thaddeus Kostrubala	District Resource Manager	New Mexico State Land Office – Sante Fe	310 Old Sante Fe Trail P.O. Box 1148 Sante Fe, NM 87504-1148	tkostrubala@slo.state.nm.us
Myra Meyers	District Resource Manager	New Mexico State Land Office – Hobbs	2702-D North Grimes Hobbs, NM 88240	mmeyers@slo.state.nm.us
File	- -	Environmental Plus, Inc.	P.O. Box 1558 Eunice, NM 88231-1558	jstegemoller@envplus.net

STANDARD OF CARE

Site Characterization

Newman 32 State #2

1RP# 1002; Ref. #160036

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:

Jason Stegemoller
Environmental Scientist

24 August 2006
Date

This report was reviewed by:

David Duncan
Civil Engineer

8/24/06
Date

Table of Contents

1.0 PROJECT SYNOPSIS

Site Specific:

- ***Company Name:*** Chesapeake Operating, Inc.
- ***Facility Name:*** Newman 32 State #2
- ***Project Reference:*** 160036
- ***Company Contacts:*** Bradley Blevins
- ***Site Location:*** WGS84 N32° 15' 58.57"; W103° 04' 53.54"
- ***Legal Description:*** Unit Letter-B, (NW¼ of the NE¼), Section 23, T 23S, R 38E
- ***General Description:*** Approximately 13-miles northeast of Jal, New Mexico
- ***Elevation:*** 3,315-ft amsl
- ***Land Ownership:*** State of New Mexico

EPI Personnel: Project Consultant – Iain Olness
Site Foreman – Felix Hernandez

Release Specific:

- ***Product Released:*** Crude oil and produced water
- ***Volume Released:*** ~70 barrels ***Volume Recovered:*** ~25 barrels
- ***Time of Occurrence:*** 24 October 2005 p.m. ***Time of Discovery:*** 25 October 2005 a.m.
- ***Release Source:*** Stuffing box on pumping unit
- ***Initial Surface Area Affected:*** ~ 5,600 square feet

Remediation Specific:

- ***Final Vertical extent of contamination:*** 10-feet bgs at maximum depth
- ***Depth to Ground Water:*** >100-ft bgs (~210-ft bgs)
- ***Water wells within 1,000-ft:*** None
- ***Private domestic water sources within 200-ft:*** None
- ***Surface water bodies within 1,000-ft:*** None
- ***NMOCD Site Ranking Index:*** 0 points (<100-ft to top of water table)
- ***Remedial goals for Soil:*** TPH – 5,000 mg/Kg; BTEX – 50 mg/Kg; Benzene – 10 mg/Kg; Chloride and sulfate residuals may not be capable of impacting groundwater above NMWQCC groundwater standards of 250 mg/Kg and 600 mg/Kg, respectively.
- ***RCRA Waste Classification:*** Exempt
- ***Remediation Option Selected:*** a) Impacted soil above NMOCD remedial goals was excavated and transported to the EPI Land Farm for treatment; b) laboratory analyses to confirm removal of soil impacted above NMOCD remedial thresholds and NMWQCC groundwater standards in excavation bottom; c) backfill excavation with clean soil purchased from the State of New Mexico.
- ***Disposal Facility:*** Environmental Plus, Inc. Land Farm – Eunice, New Mexico
- ***Volume disposed:*** ~1,160-yd^3
- ***Project Completion Date:*** 21 March 2006

2.0 SITE AND RELEASE INFORMATION

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

2.2 Identify and describe the source or suspected source(s) of the release.
Stuffing box on pumping unit blew out of an operating pumpjack. The release area was confined to the well pad.

2.3 What is the volume of the release? (if known): 70 ***barrels of*** crude oil and water

2.4 What is the volume recovered? (if any) 24 ***barrels***

2.5 When did the release occur? (if known): 24 October 2005

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

The release site is located in the Eunice Plains physiographic subdivision, described by Nicholson & Clebsch as an area that "is underlain by a hard caliche surface and is almost entirely covered by reddish-brown dune sand. The sand cover is 2 to 5 feet thick over most of the area"

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
The unconfined groundwater aquifer at this site is projected to be ~210-ft bgs based on water depth data obtained from the New Mexico State Engineers Office and the United States Geological Survey data base (reference *Table 1*). Groundwater gradient in this area is generally to the west-southeast.

2.9 Area Water Wells
There are no public water supply wells located within a 1,000-foot radius of the release site. In addition, there are no private, domestic fresh water wells or springs used by less than five households for domestic or stock watering purposes located within a 200-foot radius of the release site (reference *Figure 2*).

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

3.0 NMOCD SITE RANKING

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

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

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

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

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

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

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

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

4.0 EXCAVATED SOIL INFORMATION

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

Date excavated: October 25, 2005 through November 3, 2005

Total volume removed: ~1,160 cubic yards

4.2 Indicated soil treatment type:

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

Name and location of treatment/~~disposal~~ facility:
Environmental Plus, Inc. Land Farm – Eunice, New Mexico

5.0 SAMPLING INFORMATION

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

Organic Vapor Concentrations – A portion of each soil sample was placed in a polyethylene bag and allowed sufficient time and temperature for organic vapors to volatilize. The detector portion of a Photoionization Detector equipped with a 10.2 electron volt lamp was placed in the bag to analyze organic vapor concentration.

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

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

Soil samples collected from the excavation were collected utilizing hand and/or mechanical excavation equipment to gather the sample from at least 6-inches below/within the surface of the excavation.

Upon collection of each sample, a portion was immediately placed in a laboratory provided container, labeled and set on ice for transport to an independent laboratory for quantification of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and total xylenes (BTEX) and chloride concentrations.

5.3 Discuss sample locations and provide rationale for their locations.

On November 4, 2005, a series of seven soil samples were collected from the excavation sidewalls at depths ranging from 3 to 4-ft bgs. A soil sample was collected from the west sidewall [WSW (3')], east sidewall [ESW (3')], three soil samples were collected from the south excavation sidewall [SSW-W (3'), SSW-M (4') and SSW-E (3')] and two soil samples were collected from the north sidewall [NSW-W (4') and NSW-E (3')] (reference *Figure 4*). Soil sample locations were chosen to provide the best representative example of soil within the excavation sidewalls.

Additionally, soil samples were collected on November 4, 2005 from the west excavation floor [BHW (3')], east excavation floor [BHE (7')] and two locations in the center excavation floor [BHM (5') and BHME (10')] (reference *Figure 4*). Soil sample locations were chosen to provide the best representative example of soil within the excavation floor.

6.0 ANALYTICAL RESULTS

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

Laboratory analyses of soil samples collected on November 4, 2005 from the excavation sidewalls indicated TPH and BTEX constituent concentrations were ND at or above laboratory MDL. Chloride concentrations were reported to range from 38.6 to 257 mg/Kg (reference *Table 2, Figure 4* and *Appendix I*).

Laboratory analyses of soil samples collected on November 4, 2005 from the excavation floor indicated BTEX constituent concentrations were ND at or above laboratory MDL. TPH concentrations were reported to range from ND to 46.0 mg/Kg, below the NMOCD remedial threshold of 5,000 mg/Kg. Reported chloride concentrations ranged from 308 to 867 mg/Kg (reference *Table 2, Figure 4* and *Appendix I*).

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

☐ *yes* ☒ *no*

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

Visibly stained soil has been excavated and transported to the EPI Land Farm for treatment.

7.0 DISCUSSION

7.1 Discuss the risks associated with the remaining soil contamination:

Based on depth to groundwater (>100-ft bgs), contaminants remaining in the soil should not be capable of impacting groundwater above NMWQCC groundwater standards.

7.2 Discuss the risks associated with the impacted groundwater: NA

7.3 Discuss other concerns not mentioned above: NA

8.0 CONCLUSIONS AND RECOMMENDATIONS

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

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

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

Approximately 1,160 cubic yards of hydrocarbon impacted soil above the NMOCD remedial thresholds for TPH and BTEX constituents were excavated and transported to the Environmental Plus, Inc. Land Farm for treatment. Laboratory analytical results of soil samples collected on November 4, 2005 indicated NMOCD remedial thresholds have been achieved. Approximately 1,150 cubic yards of clean soil were purchased from the State of New Mexico and utilized as backfill material. Upon completion of backfilling, the site was graded to allow natural drainage. The site will not be revegetated until the pumping unit is decommissioned.

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.*** NA

8.4 ***If corrective action is recommended, provide a conceptual approach.*** NA

FIGURES

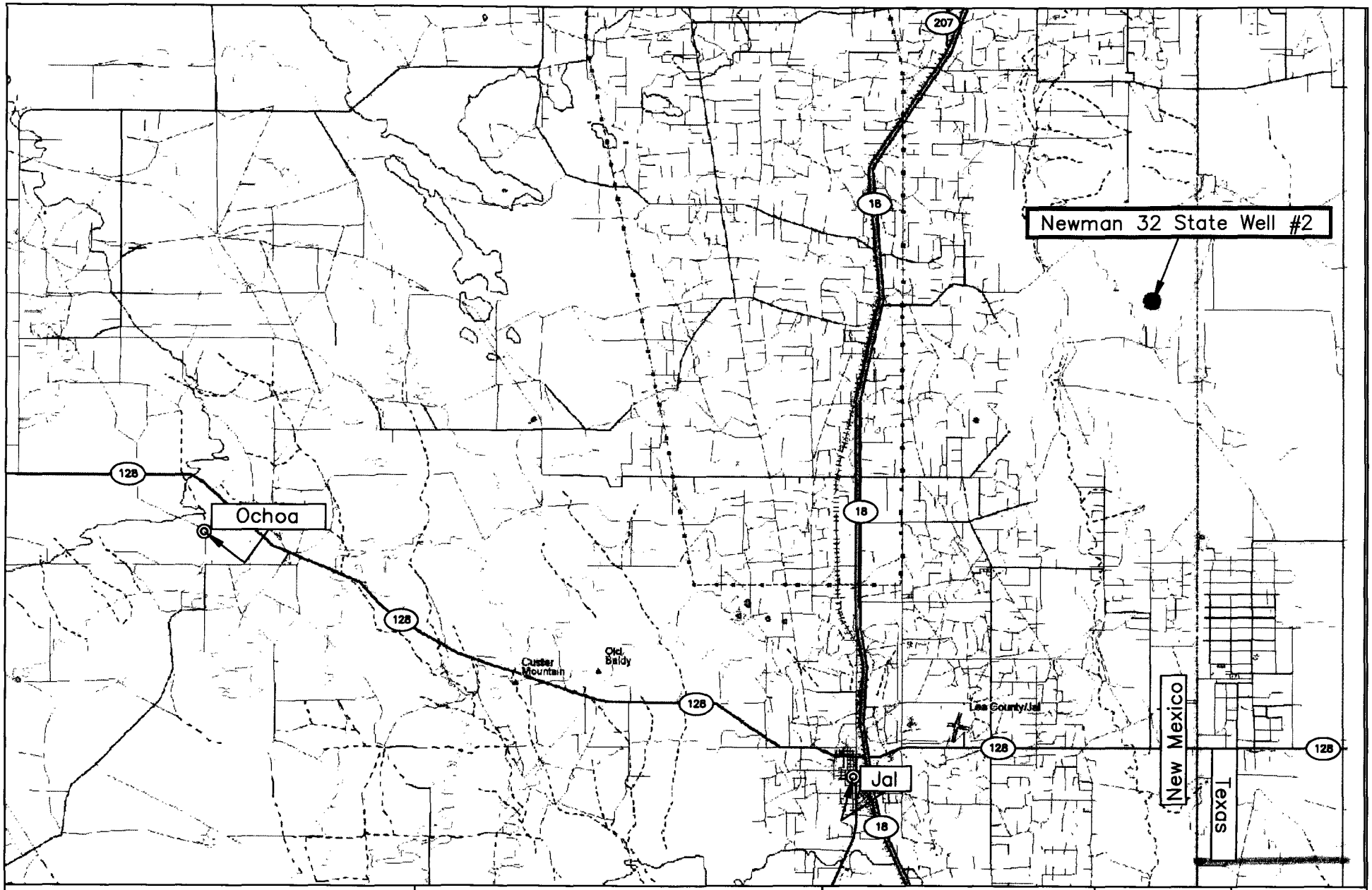


Figure 1
Area Map
Chesapeake Energy
Newman 32 State Well #2

Lea County, New Mexico
NW 1/4 of the NE 1/4, Sec. 32, T23S, R38E
N 32° 15' 58.57" W 103° 04' 53.54"
Elevation: 3,315 feet amsl

DWG By: Daniel Dominguez
October 2005

REVISED:

0 3 6
Miles

SHEET
1 of 1

N

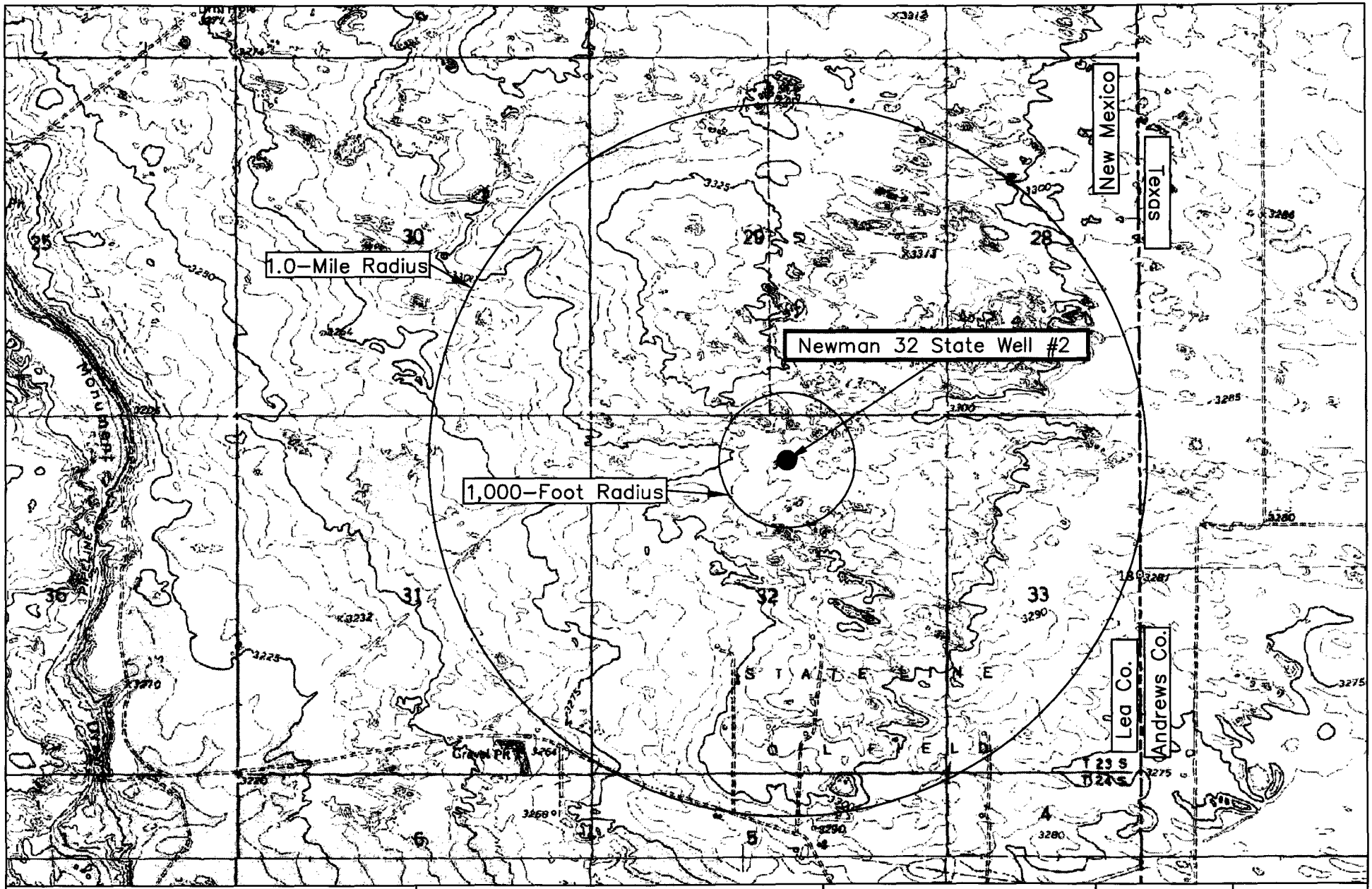


Figure 2 Site Location Map Chesapeake Energy Newman 32 State Well #2	Lea County, New Mexico NW 1/4 of the NE 1/4, Sec. 32, T23S, R38E N 32° 15' 58.57" W 103° 04' 53.54" Elevation: 3,315 feet amsl	DWG By: Daniel Dominguez October 2005	REVISED:
		0 2000 4000 Feet	SHEET 1 of 1

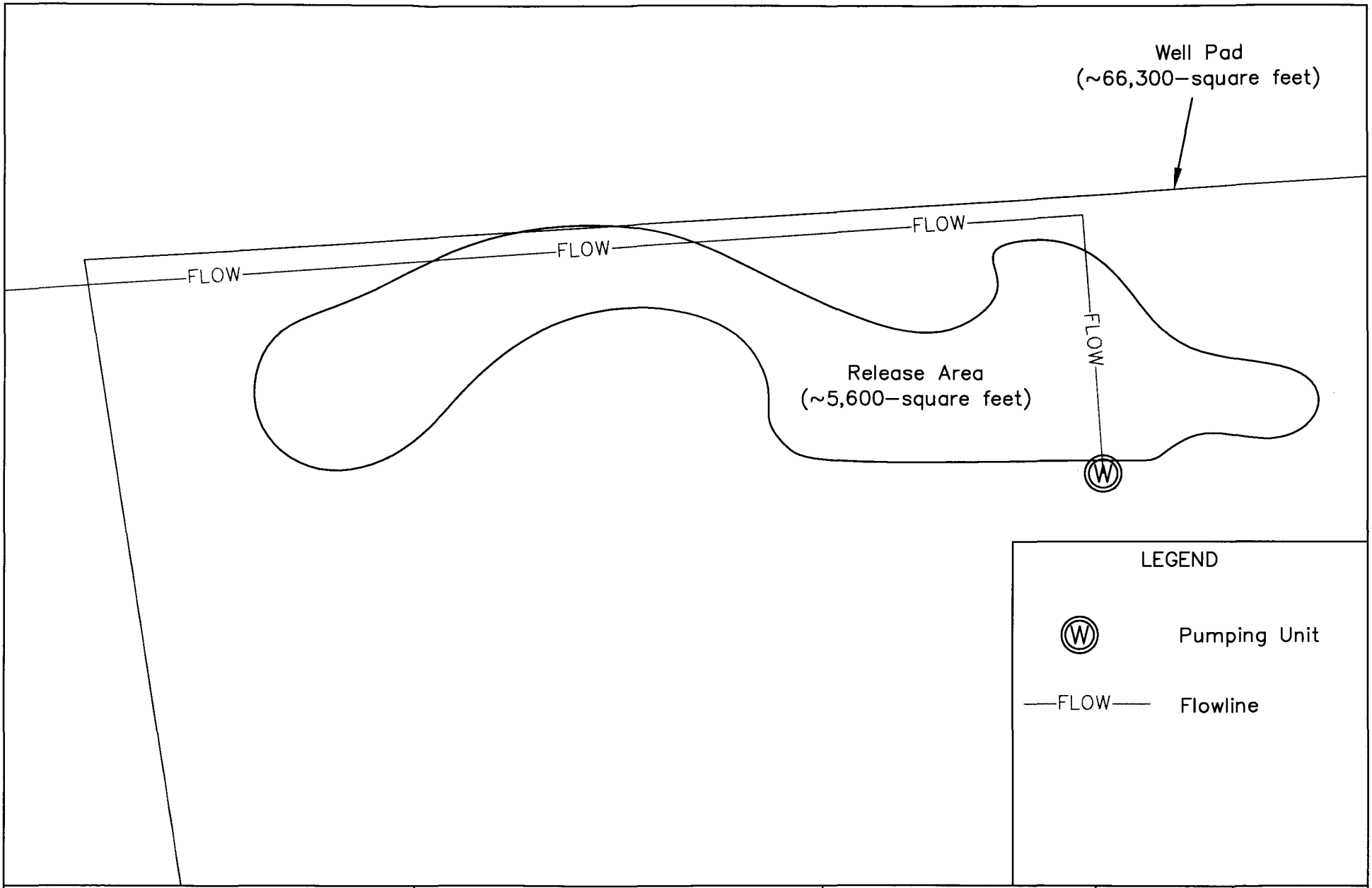


Figure 3
Site Map
Chesapeake Energy
Newman 32 State Well #2

Lea County, New Mexico
NW 1/4 of the NE 1/4, Sec. 32, T23S, R38E
N 32° 15' 58.57" W 103° 04' 53.54"
Elevation: 3,315 feet amsl

DWG By: Daniel Dominguez
October 2005

REVISED:
JCS, Feb. 2006

0 25 50
Feet

SHEET
1 of 1

N

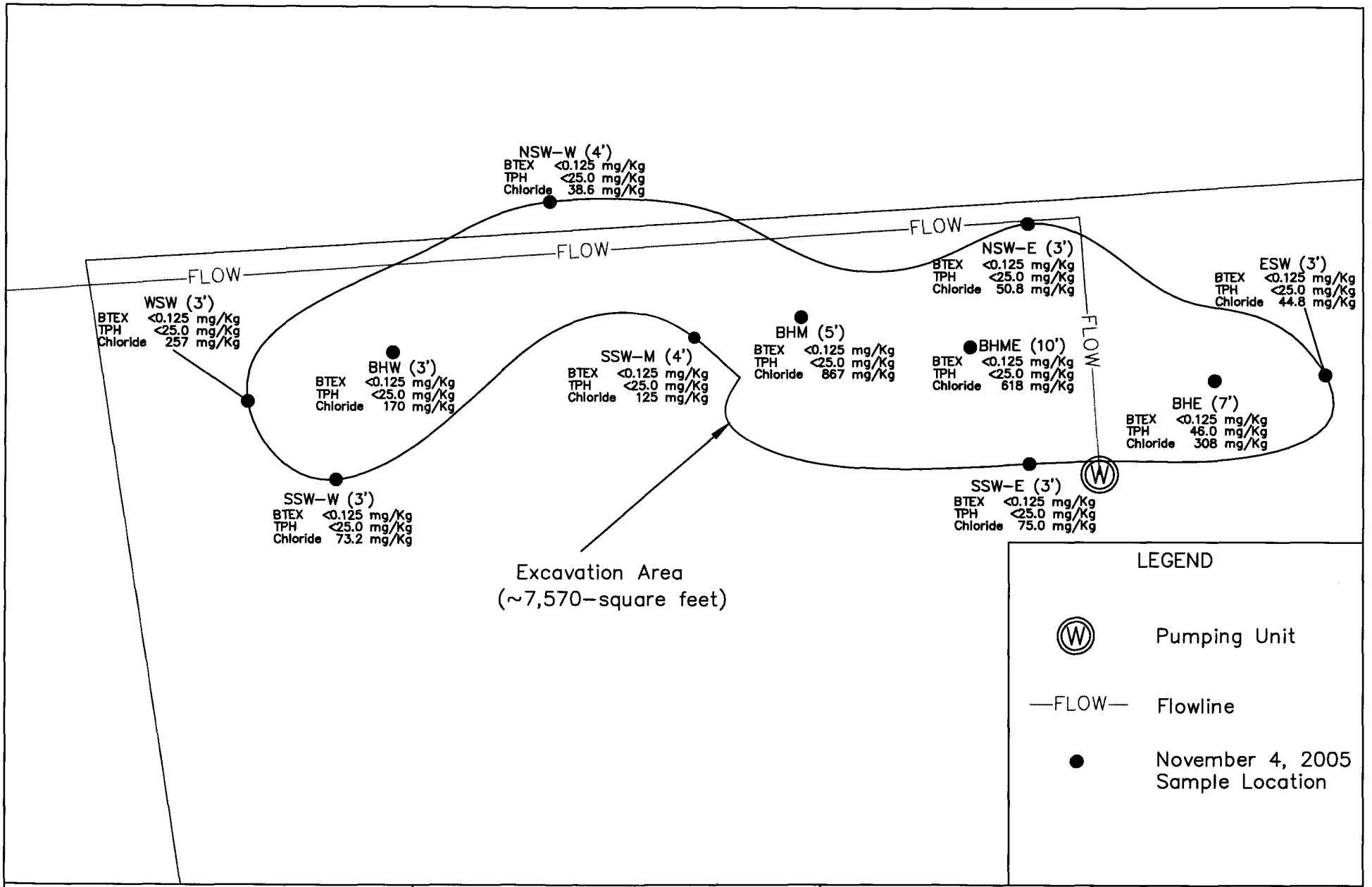


Figure 4
Excavation Map
Chesapeake Energy
Newman 32 State Well #2

Lea County, New Mexico
NW 1/4 of the NE 1/4, Sec. 32, T23S, R38E
N 32° 15' 58.57" W 103° 04' 53.54"
Elevation: 3,315 feet amsl

DWG By: Daniel Dominguez
October 2005

REVISED:
JCS, Feb. 2006

0 25 50
Feet

SHEET
1 of 1

N

TABLES

TABLE 1

WELL INFORMATION REPORT*

Chesapeake Energy Newman 32 State Well #2 (Ref. 160036)

Well Number	Diversion[A]	Owner	Use	Source	Twsp	Rng	Sec q q q	Latitude	Longitude	Date Measured	Depth to Water (ft bgs)
CP 00687	3	LINEBERY	DOM	Shallow	23S	38E	08 2 1	N 32° 19' 20.6"	W 103° 4' 55.31"	10/1/1985	335
CP 00688	3	TOM LINEBERY	DOM	Shallow	23S	38E	20 4 4	N 32° 16' 56.91"	W 103° 4' 40"	10/1/1985	265
CP 00069 DCI	0	OGALLALA SAND	DOM		24S	38E	31 3 4 2	N 32° 9' 59.22"	W 103° 6' 12.32"		
L 02851	3	ROBERT K. FIELD	DOM	Shallow	24S	38E	23 4 2 4			5/14/1955	30

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

[A] = in acre feet per annum

[B] = Interpolated from USGS Topographical Map

IND = Industrial

STK = Livestock Watering

DOM = Domestic one household

EXP = Expired

(quarters are 1=NW, 2=NE, 3=SW, 4=SE and are biggest to smallest)

TABLE 2

Summary of Soil Sample Analytical Results

Chesapeake- Newman 32 State #2 (Ref. #160036)

Soil Sample I.D.	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
WSW (3')	3	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	**257**
BHW (3')	3	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	170
SSW-W (3')	3	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	73.2
SSW-M (4')	4	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	125
NSW-W (4')	4	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	38.6
BHM (5')	5	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	**867**
BHME (10')	10	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	**618**
BHE (7')	7	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	5.95 [A]	46.0	46.0	**308**
ESW (3')	3	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	44.8
SSW-E (3')	3	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	75.0
NSW-E (3')	3	In Situ	04-Nov-05	--	<0.0250	<0.0250	<0.0250	<0.0500	<0.125	<25.0	<25.0	<25.0	50.8
NMOCD Remedial Thresholds				**100[3]**	**10**				**50**			**5,000**	**250 [B]**

Bolded *values are in excess of the NMOCD Remediation Thresholds and/or NMWQCC groundwater standards.*

-- = *Not Analyzed*

[A] *Detected below laboratory method detection limits, therefore an estimate.*

[B] *Chloride and sulfate residuals may not be capable of impacting groundwater above NMWQCC groundwater standards of 250 ppm and 600 ppm, respectively.*

APPENDICES

APPENDIX I

LABORATORY ANALYTICAL REPORTS
AND
CHAIN-OF-CUSTODY FORM

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	Newman '32' State
Location	UL-B, Sect. 32, T 23 S, R 38 E
Project Reference	160036
EPI Sampler Name	Roger Boone

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			
5K08009																									
1	NSWE (3')	G	1			1					X		04-Nov-05	11:30	X	X	X								
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Sampler Relinquished: Roger Boone	Date 11-8-05 Time 2:00	Received By: Aaron Boone	E-mail results to: lolness@envplus.net
Relinquished by: Aaron Boone	Date 11/8/05 Time 11:00	Received By: (lab staff) Carrie Kelly	NOTES: 2.0 C
Delivered by:	Sample Cool & Intact Yes (No)	Checked By:	4oz labels/seals

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

Client: ENV. PLUS

Date/Time: 11/8/05 11:00

Order #: 5K08009

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	2.0 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:

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
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: 11/17/2005

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

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	Newman '32' State
Location	UL-B, Sect. 32, T 23 S, R 38 E
Project Reference	160036
EPI Sampler Name	Roger Boone

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	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: CRUDE OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE	PRESERV.: ICE/COOL	PRESERV.: OTHER	SAMPLING: DATE	SAMPLING: TIME	ANALYSIS REQUEST: BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES (SO_4^{2-})	pH	TCLP	OTHER >>>	PAH			
5K08009																									
-01	WSW (3')	G	1			1					X		04-Nov-05	10:50	X	X	X								
-02	BHW (3')	G	1			1					X		04-Nov-05	10:55	X	X	X								
-03	SSW-W (3')	G	1			1					X		04-Nov-05	10:59	X	X	X								
-04	SSW-M (4')	G	1			1					X		04-Nov-05	11:05	X	X	X								
-05	NSW-W (4')	G	1			1					X		04-Nov-05	11:07	X	X	X								
-06	BHM (5')	G	1			1					X		04-Nov-05	11:10	X	X	X								
-07	BHME (10')	G	1			1					X		04-Nov-05	11:17	X	X	X								
-08	BHE (7')	G	1			1					X		04-Nov-05	11:19	X	X	X								
-09	ESW (3')	G	1			1					X		04-Nov-05	11:22	X	X	X								
-10	SSW-E (3')	G	1			1					X		04-Nov-05	11:25	X	X	X								

Sampler Relinquished: Roger Boone — Date: 11-8-05 Time: 5:00 — Received By: Jaron Boone

Relinquished by: Jaron Boone — Date: 11/8/05 Time: 11:00 — Received By: (lab staff) Carla Kelly

Delivered by:

Sample Cool & Intact: Yes / No

Checked By:

E-mail results to: iolness@envplus.net

NOTES:

402

2.0 labels/seals

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 EK50906 - General Preparation (Prep)										
Blank (EK50906-BLK1)				Prepared & Analyzed: 11/09/05						
% Solids	100		%							
Duplicate (EK50906-DUP1)		**Source: 5K08004-01**		Prepared & Analyzed: 11/09/05						
% Solids	94.5		%		94.1			0.424	20	
Batch EK51503 - Water Extraction										
Blank (EK51503-BLK1)				Prepared: 11/11/05 Analyzed: 11/15/05						
Chloride	ND	0.500	mg/kg							
LCS (EK51503-BS1)				Prepared: 11/11/05 Analyzed: 11/15/05						
Chloride	8.00		mg/L	10.0		80.0	80-120			
Calibration Check (EK51503-CCV1)				Prepared: 11/11/05 Analyzed: 11/15/05						
Chloride	8.00		mg/L	10.0		80.0	80-120			
Duplicate (EK51503-DUP1)		**Source: 5K08008-01**		Prepared: 11/11/05 Analyzed: 11/15/05						
Chloride	35.1	5.00	mg/kg		35.9			2.25	20	
Batch EK51504 - Water Extraction										
Blank (EK51504-BLK1)				Prepared: 11/14/05 Analyzed: 11/15/05						
Chloride	ND	0.500	mg/kg							
LCS (EK51504-BS1)				Prepared: 11/14/05 Analyzed: 11/15/05						
Chloride	8.58		mg/L	10.0		85.8	80-120			

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 EK51504 - Water Extraction										
Calibration Check (EK51504-CCV1)				Prepared: 11/14/05 Analyzed: 11/15/05						
Chloride	8.62		mg/L	10.0		86.2	80-120			
Duplicate (EK51504-DUP1)		**Source: 5K08007-01**		Prepared: 11/14/05 Analyzed: 11/15/05						
Chloride	20.4	12.5	mg/kg		20.9			2.42	20	

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 EK50909 - Solvent Extraction (GC)										
Calibration Check (EK50909-CCV1)				Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	460		mg/kg	500		92.0	80-120			
Diesel Range Organics >C12-C35	559		"	500		112	80-120			
Total Hydrocarbon C6-C35	1020		"	1000		102	80-120			
Surrogate: 1-Chlorooctane	*55.4*		*"*	*50.0*		*111*	*70-130*			
Surrogate: 1-Chlorooctadecane	*61.7*		*"*	*50.0*		*123*	*70-130*			
Matrix Spike (EK50909-MS1)	**Source: 5K08009-11**			Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	416	25.0	mg/kg dry	512	ND	81.2	75-125			
Diesel Range Organics >C12-C35	603	25.0	"	512	ND	118	75-125			
Total Hydrocarbon C6-C35	1020	25.0	"	1020	ND	100	75-125			
Surrogate: 1-Chlorooctane	*56.8*		*mg/kg*	*50.0*		*114*	*70-130*			
Surrogate: 1-Chlorooctadecane	*51.1*		*"*	*50.0*		*102*	*70-130*			
Matrix Spike Dup (EK50909-MSD1)	**Source: 5K08009-11**			Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	439	25.0	mg/kg dry	512	ND	85.7	75-125	5.38	20	
Diesel Range Organics >C12-C35	608	25.0	"	512	ND	119	75-125	0.826	20	
Total Hydrocarbon C6-C35	1050	25.0	"	1020	ND	103	75-125	2.90	20	
Surrogate: 1-Chlorooctane	*62.4*		*mg/kg*	*50.0*		*125*	*70-130*			
Surrogate: 1-Chlorooctadecane	*61.5*		*"*	*50.0*		*123*	*70-130*			
Batch EK51005 - EPA 5030C (GC)										
Blank (EK51005-BLK1)				Prepared & Analyzed: 11/10/05						
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	*0.0329*		*"*	*0.0400*		*82.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0390*		*"*	*0.0400*		*97.5*	*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 EK51005 - EPA 5030C (GC)										
LCS (EK51005-BS1)				Prepared & Analyzed: 11/10/05						
Benzene	0.0415	0.00100	mg/kg wet	0.0500		83.0	80-120			
Toluene	0.0428	0.00100	"	0.0500		85.6	80-120			
Ethylbenzene	0.0428	0.00100	"	0.0500		85.6	80-120			
Xylene (p/m)	0.0859	0.00100	"	0.100		85.9	80-120			
Xylene (o)	0.0439	0.00100	"	0.0500		87.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	*0.0361*		"	*0.0400*		*90.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0443*		"	*0.0400*		*111*	*80-120*			
Calibration Check (EK51005-CCV1)				Prepared & Analyzed: 11/10/05						
Benzene	41.4		ug/kg	50.0		82.8	80-120			
Toluene	42.0		"	50.0		84.0	80-120			
Ethylbenzene	40.7		"	50.0		81.4	80-120			
Xylene (p/m)	82.5		"	100		82.5	80-120			
Xylene (o)	43.1		"	50.0		86.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*0.0355*		*mg/kg wet*	*0.0400*		*88.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0337*		"	*0.0400*		*84.2*	*80-120*			
Matrix Spike (EK51005-MS1)		**Source: 5K08009-09**		Prepared: 11/10/05 Analyzed: 11/11/05						
Benzene	0.0419	0.00100	mg/kg dry	0.0513	ND	81.7	80-120			
Toluene	0.0433	0.00100	"	0.0513	ND	84.4	80-120			
Ethylbenzene	0.0434	0.00100	"	0.0513	ND	84.6	80-120			
Xylene (p/m)	0.0873	0.00100	"	0.103	ND	84.8	80-120			
Xylene (o)	0.0447	0.00100	"	0.0513	ND	87.1	80-120			
Surrogate: a,a,a-Trifluorotoluene	*0.0346*		"	*0.0410*		*84.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0431*		"	*0.0410*		*105*	*80-120*			
Matrix Spike Dup (EK51005-MSD1)		**Source: 5K08009-09**		Prepared: 11/10/05 Analyzed: 11/11/05						
Benzene	0.0411	0.00100	mg/kg dry	0.0513	ND	80.1	80-120	1.98	20	
Toluene	0.0412	0.00100	"	0.0513	ND	80.3	80-120	4.98	20	
Ethylbenzene	0.0411	0.00100	"	0.0513	ND	80.1	80-120	5.46	20	
Xylene (p/m)	0.0843	0.00100	"	0.103	ND	81.8	80-120	3.60	20	
Xylene (o)	0.0422	0.00100	"	0.0513	ND	82.3	80-120	5.67	20	
Surrogate: a,a,a-Trifluorotoluene	*0.0348*		"	*0.0410*		*84.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0412*		"	*0.0410*		*100*	*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 EK50811 - EPA 5030C (GC)										
Matrix Spike Dup (EK50811-MSD1)	**Source: 5K08009-03**			Prepared: 11/08/05 Analyzed: 11/09/05						
Benzene	0.0425	0.00100	mg/kg dry	0.0527	ND	80.6	80-120	0.373	20	
Toluene	0.0434	0.00100	"	0.0527	ND	82.4	80-120	0.00	20	
Ethylbenzene	0.0425	0.00100	"	0.0527	ND	80.6	80-120	0.00	20	
Xylene (p/m)	0.0857	0.00100	"	0.105	ND	81.6	80-120	0.738	20	
Xylene (o)	0.0453	0.00100	"	0.0527	ND	86.0	80-120	0.700	20	
Surrogate: a,a,a-Trifluorotoluene	*0.0366*		"	*0.0422*		*86.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0431*		"	*0.0422*		*102*	*80-120*			
Batch EK50908 - Solvent Extraction (GC)										
Blank (EK50908-BLK1)				Prepared: 11/09/05 Analyzed: 11/10/05						
Gasoline Range Organics C6-C12	ND	25.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	25.0	"							
Total Hydrocarbon C6-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*44.8*		*mg/kg*	*50.0*		*89.6*	*70-130*			
Surrogate: 1-Chlorooctadecane	*45.3*		"	*50.0*		*90.6*	*70-130*			
LCS (EK50908-BS1)				Prepared: 11/09/05 Analyzed: 11/10/05						
Gasoline Range Organics C6-C12	393	25.0	mg/kg wet	500		78.6	75-125			
Diesel Range Organics >C12-C35	444	25.0	"	500		88.8	75-125			
Total Hydrocarbon C6-C35	837	25.0	"	1000		83.7	75-125			
Surrogate: 1-Chlorooctane	*48.1*		*mg/kg*	*50.0*		*96.2*	*70-130*			
Surrogate: 1-Chlorooctadecane	*47.0*		"	*50.0*		*94.0*	*70-130*			
Calibration Check (EK50908-CCV1)				Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	425		mg/kg	500		85.0	80-120			
Diesel Range Organics >C12-C35	548		"	500		110	80-120			
Total Hydrocarbon C6-C35	973		"	1000		97.3	80-120			
Surrogate: 1-Chlorooctane	*54.2*		"	*50.0*		*108*	*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 EK50908 - Solvent Extraction (GC)										
Matrix Spike (EK50908-MS1)	**Source: 5K08007-01**			Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	413	25.0	mg/kg dry	538	ND	76.8	75-125			
Diesel Range Organics >C12-C35	518	25.0	"	538	ND	96.3	75-125			
Total Hydrocarbon C6-C35	931	25.0	"	1080	ND	86.2	75-125			
Surrogate: 1-Chlorooctane	*54.8*		*mg/kg*	*50.0*		*110*	*70-130*			
Surrogate: 1-Chlorooctadecane	*54.0*		*"*	*50.0*		*108*	*70-130*			
Matrix Spike Dup (EK50908-MSD1)	**Source: 5K08007-01**			Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	427	25.0	mg/kg dry	538	ND	79.4	75-125	3.33	20	
Diesel Range Organics >C12-C35	547	25.0	"	538	ND	102	75-125	5.45	20	
Total Hydrocarbon C6-C35	974	25.0	"	1080	ND	90.2	75-125	4.51	20	
Surrogate: 1-Chlorooctane	*54.1*		*mg/kg*	*50.0*		*108*	*70-130*			
Surrogate: 1-Chlorooctadecane	*57.3*		*"*	*50.0*		*115*	*70-130*			
Batch EK50909 - Solvent Extraction (GC)										
Blank (EK50909-BLK1)				Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	ND	25.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	25.0	"							
Total Hydrocarbon C6-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*47.9*		*mg/kg*	*50.0*		*95.8*	*70-130*			
Surrogate: 1-Chlorooctadecane	*50.8*		*"*	*50.0*		*102*	*70-130*			
LCS (EK50909-BS1)				Prepared: 11/09/05 Analyzed: 11/11/05						
Gasoline Range Organics C6-C12	447	25.0	mg/kg wet	500		89.4	75-125			
Diesel Range Organics >C12-C35	595	25.0	"	500		119	75-125			
Total Hydrocarbon C6-C35	1040	25.0	"	1000		104	75-125			
Surrogate: 1-Chlorooctane	*60.4*		*mg/kg*	*50.0*		*121*	*70-130*			
Surrogate: 1-Chlorooctadecane	*51.3*		*"*	*50.0*		*103*	*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
ESW (3') (5K08009-09) Soil									
Chloride	**44.8**	5.00	mg/kg	10	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**2.5**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
SSW-E (3') (5K08009-10) Soil									
Chloride	**75.0**	12.5	mg/kg	25	EK51504	11/14/05	11/15/05	EPA 300.0	
% Moisture	**3.1**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
NSW-E (3') (5K08009-11) Soil									
Chloride	**50.8**	12.5	mg/kg	25	EK51504	11/14/05	11/15/05	EPA 300.0	
% Moisture	**2.4**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	

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 EK50811 - EPA 5030C (GC)										
Blank (EK50811-BLK1)				Prepared: 11/08/05 Analyzed: 11/09/05						
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	*0.0324*		"	*0.0400*		*81.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0392*		"	*0.0400*		*98.0*	*80-120*			
LCS (EK50811-BS1)				Prepared: 11/08/05 Analyzed: 11/09/05						
Benzene	0.0408	0.00100	mg/kg wet	0.0500		81.6	80-120			
Toluene	0.0425	0.00100	"	0.0500		85.0	80-120			
Ethylbenzene	0.0445	0.00100	"	0.0500		89.0	80-120			
Xylene (p/m)	0.0910	0.00100	"	0.100		91.0	80-120			
Xylene (o)	0.0491	0.00100	"	0.0500		98.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*0.0348*		"	*0.0400*		*87.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0444*		"	*0.0400*		*111*	*80-120*			
Calibration Check (EK50811-CCV1)				Prepared: 11/08/05 Analyzed: 11/10/05						
Benzene	41.4		ug/kg	50.0		82.8	80-120			
Toluene	42.0		"	50.0		84.0	80-120			
Ethylbenzene	40.7		"	50.0		81.4	80-120			
Xylene (p/m)	82.5		"	100		82.5	80-120			
Xylene (o)	43.1		"	50.0		86.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*0.0355*		*mg/kg wet*	*0.0400*		*88.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0337*		"	*0.0400*		*84.2*	*80-120*			
Matrix Spike (EK50811-MS1)	**Source: 5K08009-03**			Prepared: 11/08/05 Analyzed: 11/09/05						
Benzene	0.0423	0.00100	mg/kg dry	0.0527	ND	80.3	80-120			
Toluene	0.0434	0.00100	"	0.0527	ND	82.4	80-120			
Ethylbenzene	0.0425	0.00100	"	0.0527	ND	80.6	80-120			
Xylene (p/m)	0.0851	0.00100	"	0.105	ND	81.0	80-120			
Xylene (o)	0.0450	0.00100	"	0.0527	ND	85.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	*0.0358*		"	*0.0422*		*84.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*0.0395*		"	*0.0422*		*93.6*	*80-120*			

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NSW-E (3') (5K08009-11) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*81.5 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.4 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50909	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*95.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*98.8 %*	*70-130*		"	"	"	"	

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSW (3') (5K08009-01) Soil									
Chloride	**257**	10.0	mg/kg	20	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**3.7**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
BHW (3') (5K08009-02) Soil									
Chloride	**170**	10.0	mg/kg	20	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**7.4**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
SSW-W (3') (5K08009-03) Soil									
Chloride	**73.2**	5.00	mg/kg	10	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**5.2**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
SSW-M (4') (5K08009-04) Soil									
Chloride	**125**	5.00	mg/kg	10	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**11.8**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
NSW-W (4') (5K08009-05) Soil									
Chloride	**38.6**	5.00	mg/kg	10	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**3.2**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
BHM (5') (5K08009-06) Soil									
Chloride	**867**	20.0	mg/kg	40	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**12.5**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
BHME (10') (5K08009-07) Soil									
Chloride	**618**	10.0	mg/kg	20	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**4.5**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	
BHE (7') (5K08009-08) Soil									
Chloride	**308**	10.0	mg/kg	20	EK51503	11/11/05	11/15/05	EPA 300.0	
% Moisture	**8.7**	0.1	%	1	EK50906	11/09/05	11/09/05	% calculation	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BHM (5') (5K08009-06) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*85.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.8 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*86.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*92.8 %*	*70-130*		"	"	"	"	
BHME (10') (5K08009-07) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*80.7 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.1 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*96.2 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*95.4 %*	*70-130*		"	"	"	"	
BHE (7') (5K08009-08) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*80.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.3 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**J [5.95]**	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	J
Diesel Range Organics >C12-C35	**46.0**	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**46.0**	25.0	"	"	"	"	"	"	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BHE (7') (5K08009-08) Soil									
Surrogate: 1-Chlorooctane		*105 %*	*70-130*		*EK50908*	*11/09/05*	*11/11/05*	*TX 1005*	
Surrogate: 1-Chlorooctadecane		*111 %*	*70-130*		"	"	"	"	
ESW (3') (5K08009-09) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/11/05	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		*88.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*112 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*122 %*	*70-130*		"	"	"	"	
SSW-E (3') (5K08009-10) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*82.3 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.0 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50909	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*107 %*	*70-130*		"	"	"	"	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSW (3') (5K08009-01) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK50811	11/09/05	11/09/05	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		*83.4 %*		*80-120*		"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*		*80-120*		"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*113 %*		*70-130*		"	"	"	
Surrogate: 1-Chlorooctadecane		*115 %*		*70-130*		"	"	"	
BHW (3') (5K08009-02) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK50811	11/09/05	11/09/05	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		*81.5 %*		*80-120*		"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*		*80-120*		"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*96.2 %*		*70-130*		"	"	"	
Surrogate: 1-Chlorooctadecane		*95.8 %*		*70-130*		"	"	"	
SSW-W (3') (5K08009-03) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK50811	11/09/05	11/09/05	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		*80.3 %*		*80-120*		"	"	"	
Surrogate: 4-Bromofluorobenzene		*96.9 %*		*80-120*		"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	

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
SSW-W (3') (5K08009-03) Soil									
Surrogate: 1-Chlorooctane		*91.8 %*	*70-130*		*EK50908*	*11/09/05*	*11/11/05*	*TX 1005*	
Surrogate: 1-Chlorooctadecane		*94.2 %*	*70-130*		"	"	"	"	
SSW-M (4') (5K08009-04) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*87.2 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*88.2 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*95.4 %*	*70-130*		"	"	"	"	
NSW-W (4') (5K08009-05) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK51005	11/10/05	11/10/05	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		*83.1 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.8 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	25.0	"	1	EK50908	11/09/05	11/11/05	TX 1005	
Diesel Range Organics >C12-C35	ND	25.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	25.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*112 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*118 %*	*70-130*		"	"	"	"	

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/ Newman 32 State

Project Number: 160036

Location: UL-B, Sect. 32, T 23 S, R 38 E

Lab Order Number: 5K08009

Report Date: 11/17/05

Environmental Plus, Incorporated	Project: Chesapeake/ Newman 32 State	Fax: 505-394-2601
P.O. Box 1558	Project Number: 160036	**Reported:**
Eunice NM, 88231	Project Manager: Iain Olness	11/17/05 13:04

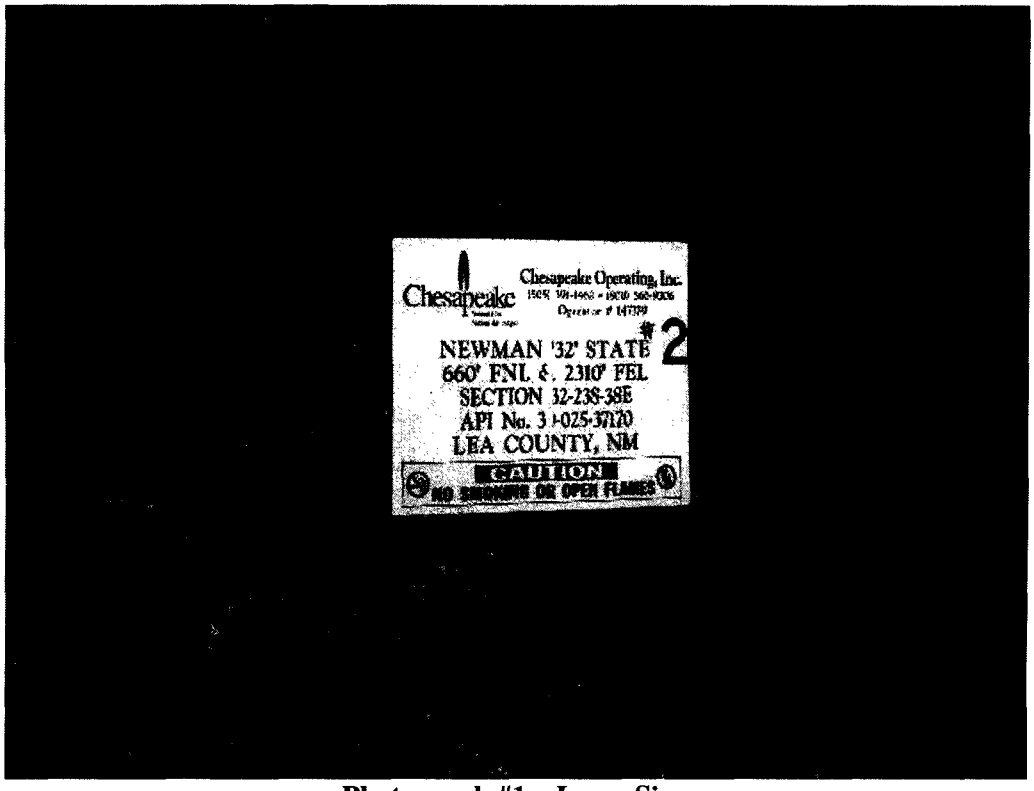
ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WSW (3')	5K08009-01	Soil	11/04/05 10:50	11/08/05 11:00
BHW (3')	5K08009-02	Soil	11/04/05 10:55	11/08/05 11:00
SSW-W (3')	5K08009-03	Soil	11/04/05 10:59	11/08/05 11:00
SSW-M (4')	5K08009-04	Soil	11/04/05 11:05	11/08/05 11:00
NSW-W (4')	5K08009-05	Soil	11/04/05 11:07	11/08/05 11:00
BHM (5')	5K08009-06	Soil	11/04/05 11:10	11/08/05 11:00
BHME (10')	5K08009-07	Soil	11/04/05 11:17	11/08/05 11:00
BHE (7')	5K08009-08	Soil	11/04/05 11:19	11/08/05 11:00
ESW (3')	5K08009-09	Soil	11/04/05 11:22	11/08/05 11:00
SSW-E (3')	5K08009-10	Soil	11/04/05 11:25	11/08/05 11:00
NSW-E (3')	5K08009-11	Soil	11/04/05 11:30	11/08/05 11:00

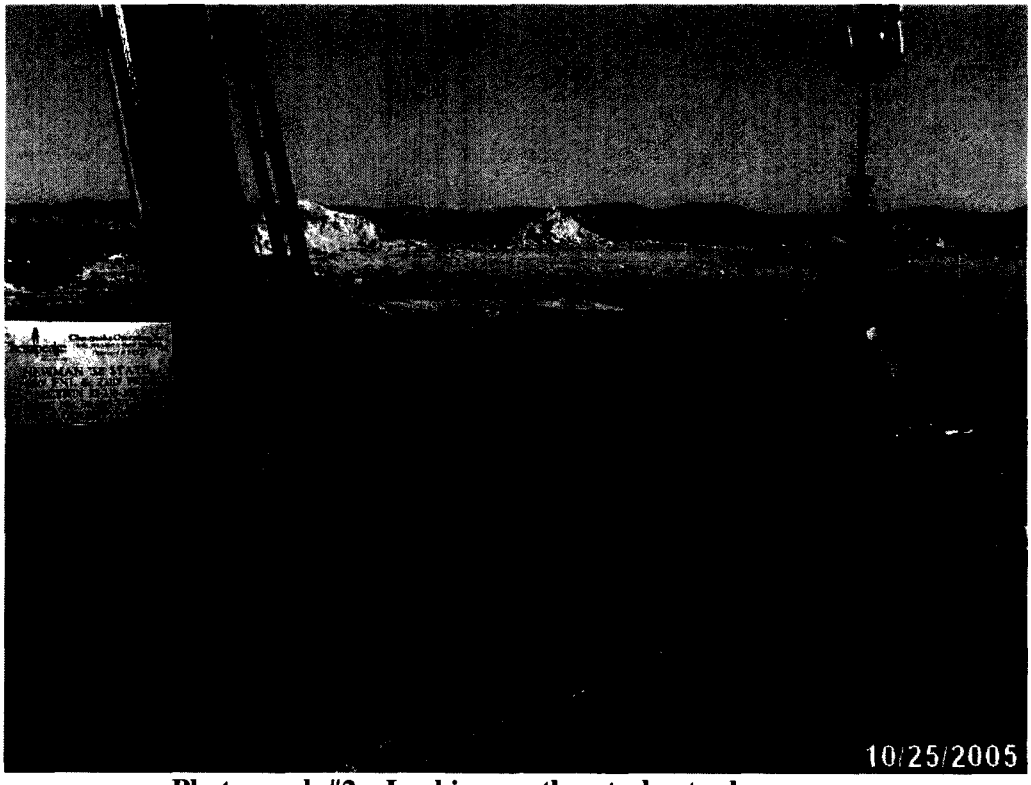
12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

APPENDIX II

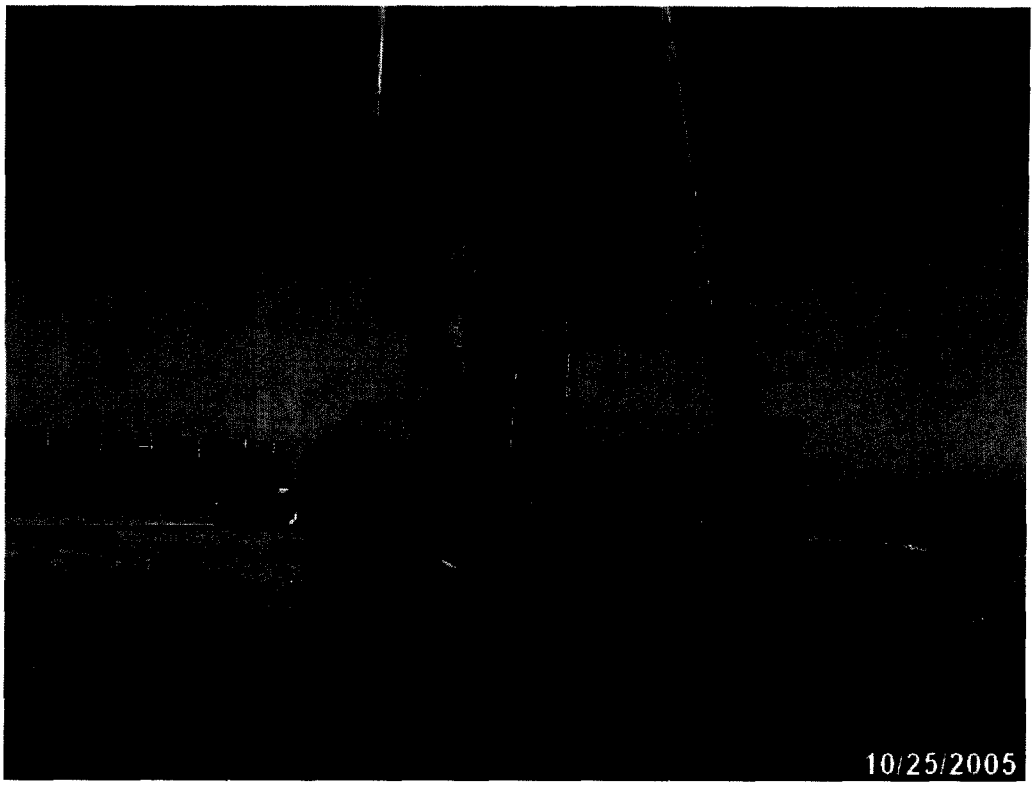
PROJECT PHOTOGRAPHS



Photograph #1 – Lease Sign

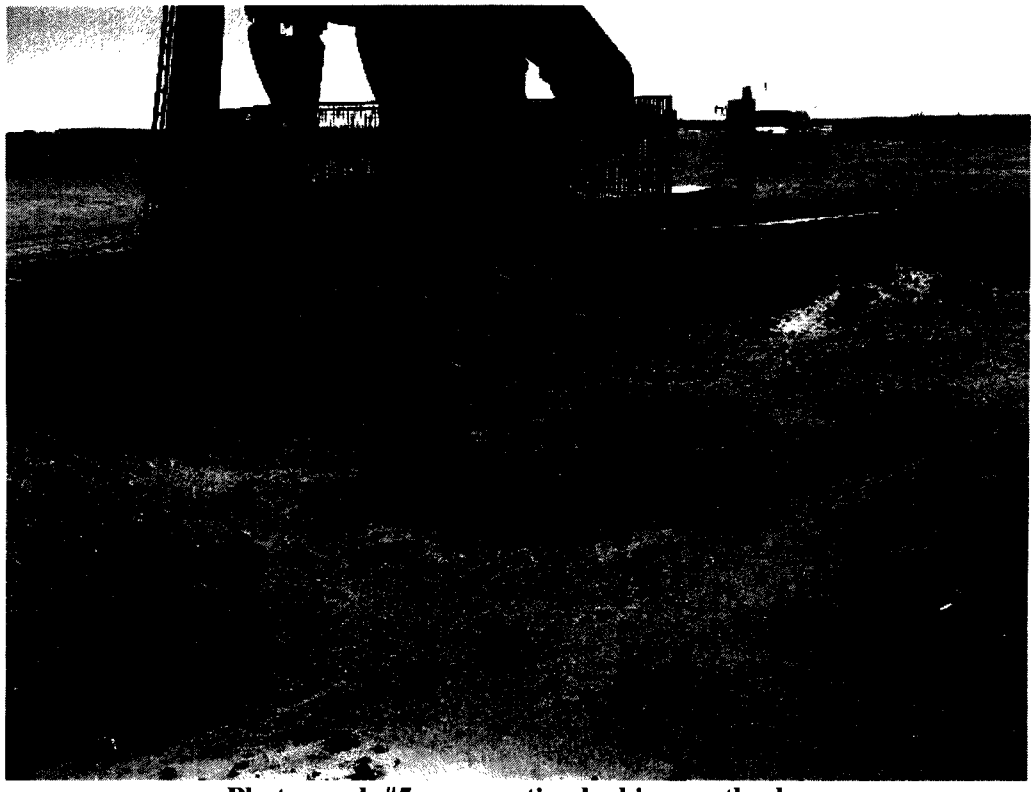


Photograph #2 – Looking northeasterly at release area.



Photograph #3 – Looking at easterly at release area.

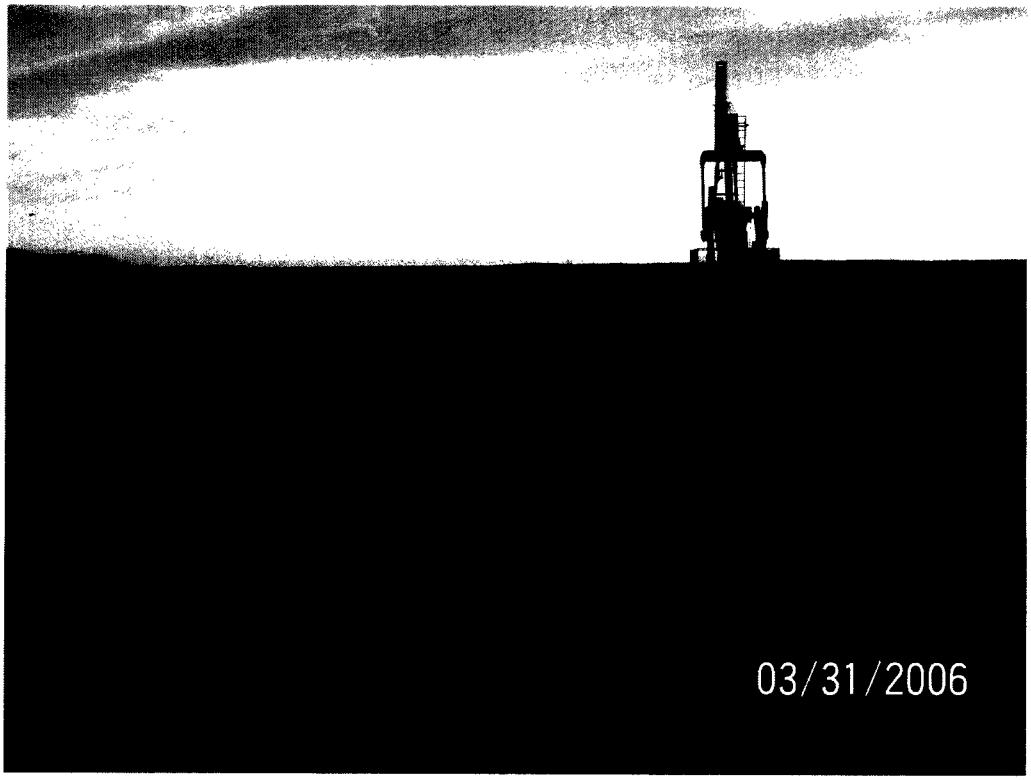
Photograph #4 – Excavation area looking westerly.



Photograph #5 – excavation looking southerly.

Photograph #6 – Excavation area looking southwesterly.

Photograph #7 – Site graded and contoured, looking northwesterly.



Photograph #8 – Site graded and contoured, looking westerly.

APPENDIX III

FINAL
NMOCD C-141 FORM

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. 6224
Facility Name: Newman 32 State Well #2 1RP# 1002	**Facility Type:** Oil Well

Surface Owner: State of New Mexico	**Mineral Owner:** State of New Mexico	**Lease No.:** A0-2614-0000

LOCATION OF RELEASE API#3002537170000

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	32	23S	38E	660	North	2,310	East	Lea

Latitude: N 32° 15' 58.57" **Longitude:** W 103° 04' 53.54"

NATURE OF RELEASE

Type of Release: Oil and Water	**Volume of Release:** 70 barrels	**Volume Recovered:** 25 barrels
Source of Release: Oil Well	**Date and Hour of Occurrence:** 24 October 2005	**Date and Hour of Discovery:** 25 October 2005 early am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** Gary Wink, NMOCD	
By Whom? Iain Olness	**Date and Hour:** 25 October 2005 @ 1040 hrs	
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.* Stuffing box on pumping unit blew out. Stuffing box was repacked and bolts replaced.

Describe Area Affected and Cleanup Action Taken.* Approximately 5,600 square feet of surface area was impacted by the release. A vacuum truck was retained to recover product. Hydrocarbon impacted soil above the NMOCD remedial thresholds of 5,000 mg/Kg for TPH, 50 mg/Kg for BTEX and 10 mg/Kg for benzene was excavated and transported to the Environmental Plus, Inc. Land Farm for treatment. The excavation was backfilled with clean soil obtained from the State of New Mexico upon receipt of laboratory analytical data indicating NMOCD remedial thresholds had been achieved..

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 Supervisor	**Approval Date:** 11.20.06 **Expiration Date:** —
E-mail Address: bblevins@chkenergy.com	**Conditions of Approval:** — **Attached** ☐
Date: 8-23-06 **Phone:** (505) 391-1462 ext. 6224	

*** Attach Additional Sheets If Necessary**

RP#1002

application pPAC0622747346