Chesapeake 2 to 200 to

SITE CHARACTERIZATION

RUTH 20-2 DRILLING PIT REF: 160016

UL-D (NW¼ OF THE NW¼) OF SECTION 20, T16S, R36E ~2.4 MILES SOUTHWEST OF LOVINGTON

LEA COUNTY, NEW MEXICO

LATITUDE: N 32° 54' 48.03" LONGITUDE: W 103° 22' 57.43"

DECEMBER 2005

Clesapeake - 147179

23242528

PREPARED BY:



Standard of Care

Site Characterization

Ruth 20-2 Drilling Pit Ref: 160016

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 the 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 arrived at with currently accepted geologic, hydrogeologic and engineering practices at this time and location. The report was prepared or reviewed by a certified or registered EPI professional with a background in engineering, environmental, and/or the natural sciences.

This report was prepared by:

Jason Stegemoller, M.S. Environmental Scientist

This report was reviewed by:

Iain A. Olness, P.G. Hydrogeologist Date

Distribution List

Chesapeake- Ruth 20-2 (Ref. #160016)

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	<u>lwjohnson@state.nm.us</u>
Bradley Blevins	Field Supervisor	Chesapeake Energy	P.O. Box 190 Hobbs, NM 88240-0190	<u>bblevins@chkenergy.com</u>
Jace Marshall	Safety and Environmental Representative	Chesapeake Energy	6100 N. Western Ave Oklahoma, OK 73118	jmarshall2@chkenergy.com
Curtis Blake	Superintendent	Chesapeake Energy	P.O. Box 190 Hobbs, NM 88240-0190	cblake@chkenergy.com
Cody Morrow	Environmental Engineer	New Mexico State Land Office-Sante Fe	310 Old Sante Fe Trail P.O. Box 1148 Sante Fe, NM 87504-1148	cmorrow@slo.state.nm.us
File	1	Environmental Plus, Inc.	P.O. Box 1558 Eunice, NM 88231	iolness@envplus.net

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1.0 Summary

On July 5, 2005, Chesapeake Operating, Inc. retained Environmental Plus, Inc. (EPI) to perform site delineation, remediation and closure of the Ruth 20-2 drilling pit. This site is located approximately 2.4 miles southwest of Lovington, Lea County, New Mexico (reference *Figure 1*). EPI performed GPS surveying, photography and characterization of the site on July 11, 2005. The pit contents had been excavated prior to site delineation by EPI. The drilling pit entailed an area of approximately 28,000 square feet (ft^2) to a depth of 5-feet below ground surface (bgs) (reference *Figure 3*).

On September 8, 2005, a test trench was excavated by Sweatt Construction in the center of the pit and grab samples were collected from the pit floor and test trench by EPI personnel. A portion of each sample was placed in a laboratory provided container and set on ice for transport to an independent laboratory for quantification of benzene, toluene, ethylbenzene and total xylenes (BTEX constituents), total petroleum hydrocarbon (TPH) and chloride concentrations. The remaining portion of each sample was analyzed in the field for the presence of organic vapors utilizing an MiniRae photoionization detector (PID) equipped with a 9.8 electron-volt (eV) lamp. Field analyses indicated organic vapor concentrations ranged from 2.5 to 8.3 parts per million (ppm). Analytical results indicated TPH and BTEX constituents were non-detectectable (ND) at or above laboratory method detection limits (MDL). Chloride concentrations were reported to range from 116 to 9,310 mg/Kg (reference *Table 1*).

On September 12, 2005, a soil sample was collected from the pit floor, placed in a laboratory provided container and set on ice for transport to an independent laboratory for quantification of chloride concentrations. Analytical results indicated a chloride concentration of 4,223 mg/Kg (reference *Table 1*).

On October 19, 2005, a soil boring (BH-1) was advanced through the pit floor to approximately 75feet bgs. Soil samples were collected at 10-feet bgs to 70-feet bgs at 5-foot intervals. Additionally, soil samples were collected at 72-feet bgs (i.e., where groundwater was encountered) and 75-feet bgs. A portion of each sample was placed in a laboratory provided container and set on ice for transport to an independent laboratory. All soil samples were analyzed for chloride concentrations, additionally samples collected from BH-1 at 10 and 15-feet bgs were analyzed for TPH and BTEX constituent concentrations. The remaining portion of each sample was analyzed in the field for the presence of organic vapors utilizing a PID and chloride concentrations utilizing a LaMotte Chloride Test Kit. Field analytical results indicated that organic vapor concentrations ranged from 1.1 to 6.4 ppm and chloride concentrations ranged from 1,040 mg/Kg to >4,000 mg/Kg. Analytical results for indicated TPH and BTEX constituent concentrations at 10 and 15-feet bgs were ND at or above laboratory MDL. Chloride concentrations were reported to range from 768 to 4,800 mg/Kg (reference *Table 2*).

This release site is located in Unit Letter D, (NW¹/₄ of the NW¹/₄), Section 20, T16S, R36E, N32° 54' 48.033" and W103° 22' 57.430". The site is approximately 2.4-miles southwest of Lovington, New Mexico on property owned by the State of New Mexico (reference *Figures 1* through 3).

2.0 Site Description

2.1 Geological Description

<u>The United States Geological Survey (USGS) Ground-Water Report 6, "Geology and</u> <u>Ground-Water Conditions in Southern Lea County, New Mexico," A. Nicholson and A.</u> <u>Clebsch, 1961</u>, 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 High Plains physiographic subdivision, described by Nicholson & Clebsch as "a flat, gently sloping plain, treeless and marred only by slight undulations and covered with short prairie grass."

2.2 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.

2.3 Area Groundwater

The unconfined groundwater aquifer at this site is projected to be ~71-ft bgs based on water depth data obtained from the New Mexico State Engineers Office and the United States Geological Survey data base. Groundwater was encountered at approximately 72-ft bgs during the advancement of soil borings BH-1 on October 19, 2005.

2.4 Area Water Wells

There are two water supply wells (L 00209C and USGS #1) located within a 1,000 foot radius of the release site (reference *Figure 2* and *Table 3*).

2.5 Area Surface Water Features

There are no surface water bodies within a 1,000-foot radius of the release site.

3.0 NMOCD Site Ranking

Contaminant delineation and remedial work done at this site indicate that the chemical parameters of the soil and the 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); and
- <u>Unlined Surface Impoundment Closure Guidelines (February 1993)</u>

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 the 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 30 points with the soil remedial goals highlighted in the Site Ranking table presented below.

1. Ground Wa	ter	2. Wellhead Prot	ection Area	3. Distance to Surface Water
Depth to GW points	<50 feet: 20		water source, or; ate domestic water	<200 horizontal feet: 20 points
Depth to GW 10 points	50 to 99 feet:	source: 20 poin		200-1,000 horizontal feet: 10 points
Depth to GW 0 points	>100 feet:		water source, or; ate domestic water s	>1,000 horizontal feet: <i>0 points</i>
		Site Rank (1+2+3)	= 10 + 20 + 0 = 30	points
	Total Site Ran	king Score and A	cceptable Remedial	Goal Concentrations
Parameter	- 20	or >	10	0
Benzene ¹	ן 10	opm	10 ppm	10 ppm
BTEX	50 ן	opm	50 ppm	50 ppm
TPH	100	ppm	1,000 ppm	5,000 ppm

¹A field soil vapor headspace measurement of 100 ppm may be substituted for a laboratory analysis of the benzene and BTEX concentration limits.

4.0 Subsurface Soil Investigation

On September 8, 2005, soil samples were collected from a test trench (SP-1) and the pit floor pit floor (SP-2, 3, 4 and 5). A portion of each sample was placed in a laboratory provided container and submitted to an independent laboratory for analyses. The remaining portion was analyzed in the field for the presence of organic vapors utilizing a PID. Field analyses indicated that organic vapor concentrations ranged from 2.5 to 8.3 ppm (reference *Table 1* and *Figure 4*).

Laboratory analytical data for the samples collected from the pit floor indicated TPH and BTEX constituent concentrations were ND at or above laboratory method detection limits (MDL), with the exception of soil sample from SP-4. This sample indicated TPH concentrations were 7.73 mg/Kg and BTEX constituent concentrations were 0.0386 mg/Kg. Chloride concentrations in the pit floor ranged from 116 to 9,310 mg/Kg (reference *Table 1* and *Figure 4*).

On September 12, 2005, a soil sample (SCR91205SP-6) was collected from the pit floor, placed in a laboratory provided container and submitted to an independent laboratory for quantification of chloride concentrations. Laboratory analytical data indicated chloride concentrations were 4,223 mg/Kg (reference *Table 1* and *Figure 4*).

The vertical extent of contamination from the drill pit materials was determined via a soil boring (BH-1) completed to a depth of 75-ft bgs on October 19, 2005. During the advancement of the soil boring, soil samples were collected at 10-feet bgs (i.e., 5-feet below the bottom of the pit) and 5-foot intervals to a depth of 70-feet. Additional samples were collected at 72 and 75-feet bgs. A portion of each sample was placed in a laboratory provided container and submitted for laboratory

analyses of TPH and BTEX constituent concentrations in the samples collected at 10 and 15-feet bgs and chloride concentrations in all samples. The remaining portion of each sample was analyzed in the field for organic vapor and chloride concentrations. Field analyses indicated organic vapor concentrations ranged from 1.1 to 6.4 ppm and chloride concentrations ranged from 1,040 to >4,000 mg/Kg (reference *Figure 5*).

Laboratory analytical from the soil samples collected from soil boring BH-1 indicated TPH and BTEX constituent concentrations in the samples collected at 10 and 15-feet bgs were non-detectable at or above laboratory MDL. Reported chloride concentrations for the soil samples collected from BH-1 ranged from 768 to 4,800 mg/Kg (reference *Table 1*).

5.0 Groundwater Investigation

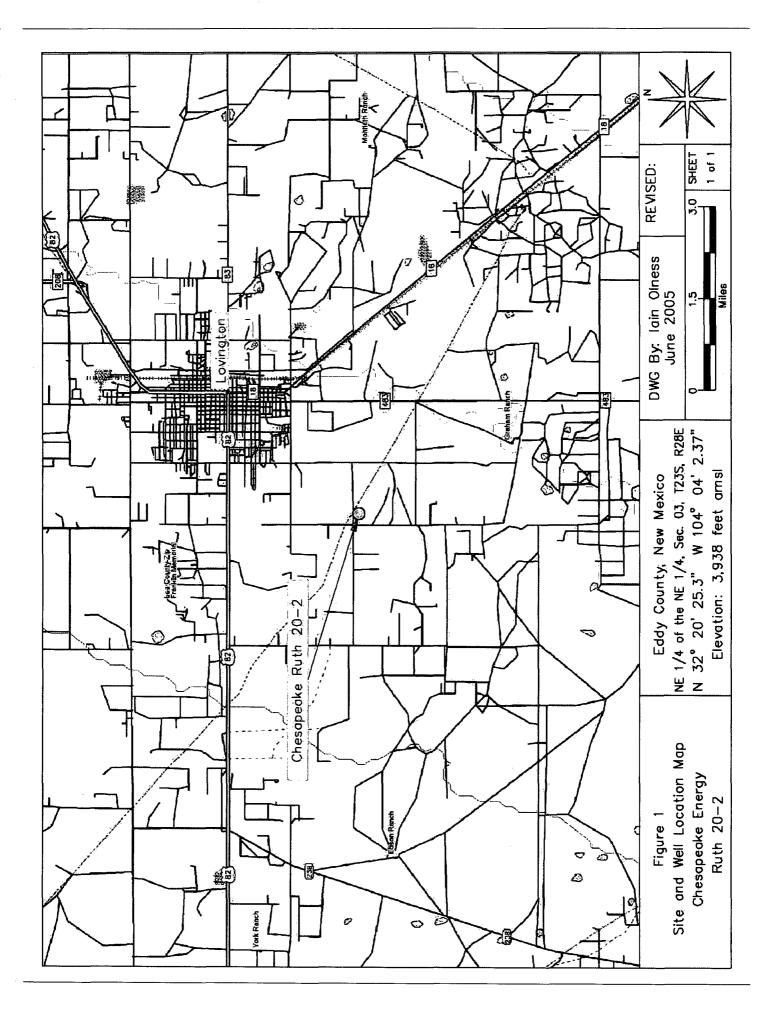
Groundwater was encountered at approximately 72-feet bgs during the advancement of soil boring BH-1. Field analyses indicated organic vapor concentrations in the soil samples collected from BH-1 ranged from 1.1 to 6.4 ppm (reference *Table 1*).

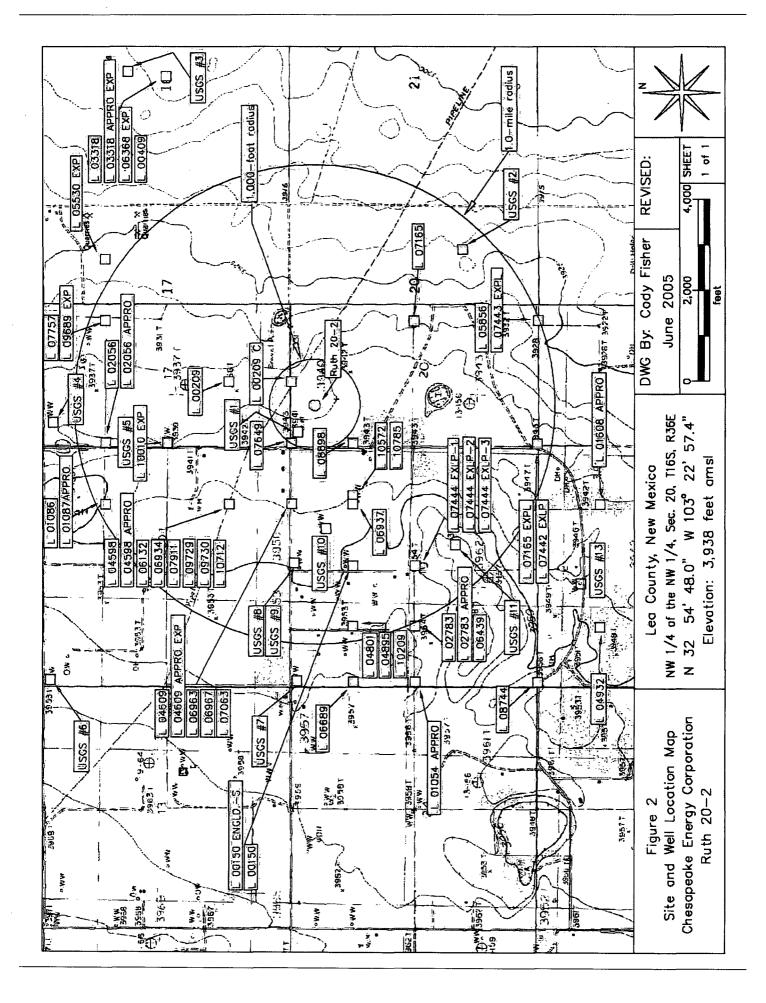
Confirmatory laboratory analytical results for soil samples collected from the pit floor (i.e., SP-1, 2, 3, 4 and 5) indicated that TPH and BTEX constituents were non-detectable at or above laboratory MDL, with the exception of SP-4. Analytical data from SP-4 indicated xylene (p/m) was 0.0386 mg/Kg and TPH was estimated at 7.73 mg/Kg, below the NMOCD remedial threshold for each respective analyte. All other analytes in SP-4 were non-detectable at or above laboratory MDL. (reference *Table 1* and *Appendix I*).

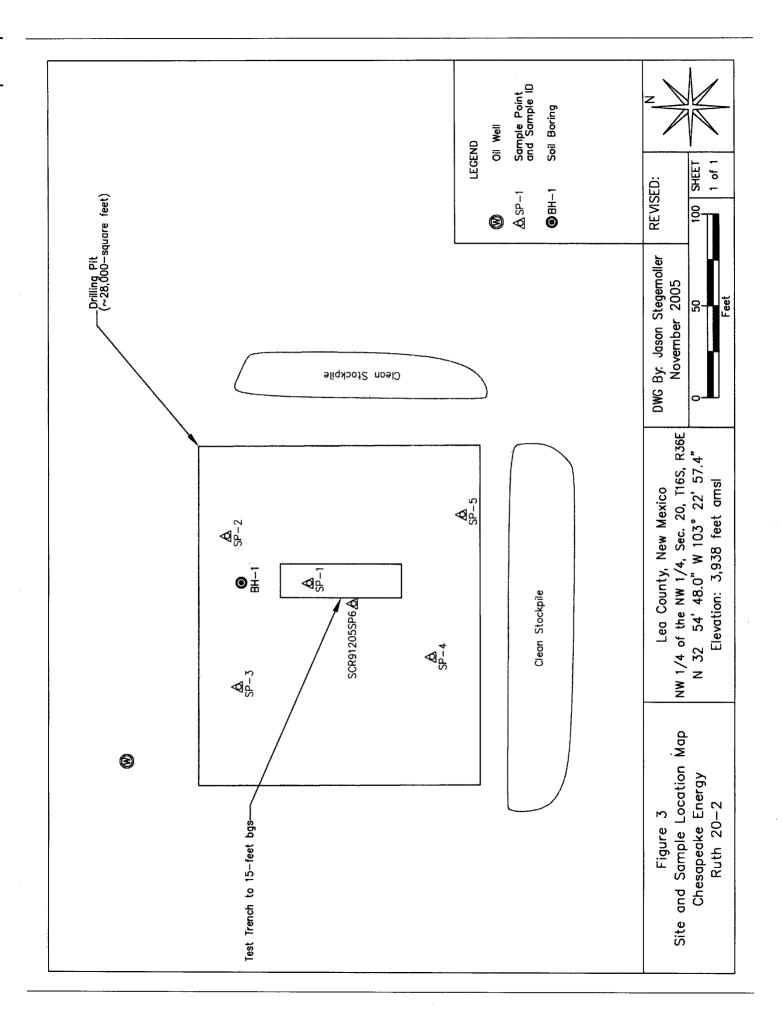
6.0 Summary of Results

Drill pit materials were excavated prior to EPI delineation activities. Laboratory and field analytical data indicated TPH and BTEX constituent concentrations in the pit floor and subsurface to approximately 75-feet bgs were below the NMOCD hydrocarbon remedial thresholds. Reported chloride concentrations in the pit floor ranged from 116 to 9,310 mg/Kg. Soil boring analytical data indicated chloride concentrations ranged from 768 to 4,800 mg/Kg (reference *Table 1*).

FIGURES







Summary of Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Energy Ruth 20-2 Release Site (Ref.# 160016)

Sample ID	Depth (feet)	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)
I-4S	15	08-Sep-05	3.1	<0.0250	<0.0250	<0.0250	<0.0250	<0.10	<10.0	<10.0	<10.0	9,310
SP-2	5	08-Sep-05	2.5	<0.0250	<0.0250	<0.0250	<0.0250	<0.10	<10.0	<10.0	<10.0	313
SP-3	5	08-Sep-05	4.4	<0.0250	<0.0250	<0.0250	<0.0250	<0.10	<10.0	<10.0	<10.0	400
SP-4	5	08-Sep-05	7.0	<0.0250	<0.0250	<0.0250	0.039	0.039	<10.0	7.73 ¹	<10.0	247
SP-5	5	08-Sep-05	8.3	<0.0250	<0.0250	<0.0250	<0.0250	<0.10	<10.0	<10.0	<10.0	116
SCR91205SP6	5	12-Sep-05	I	I	·	I	1	1	1	ł	ł	4,223
NMOCD Remedial Thresholds	dial Thres	iholds	100	10				50			100	250 ³

¹Analyte detected but below the reporting limit; therefore, result is an estimated concentration 2 = Not Analyzed

 3 Chloride residuals may not be capable of impacting groundwater above the NMWQCC groundwater standard of 230 mg/L.

Summary of Soil Sample Field Analyses and Laboratory Analytical Results

Chesapeake Energy Ruth 20-2 Release Site (Ref.# 160016)

Sample ID	Depth (feet)	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)	Total TPH (mg/Kg)	Chloride (mg/Kg)
	10	19-Oct-05	5.4	1,360	<0.0250	<0.0250	<0.0250	<0.0250	≪0.10	<10.0	<10.0	<10.0	961
	15	19-Oct-05	4.7	1,360	<0.0250	<0.0250	<0.0250	<0.0250	<0.10	<10.0	<10.0	<10.0	1,190
	20	19-Oct-05	3.7	1,280	-	1	-		1	1	1	I	972
	25	19-Oct-05	6.4	1,280	I	I	1	ł	I	I	1	I	980
	30	19-Oct-05	3.2	1,040	1	1	1	1	I	1	1	-	989
	35	19-Oct-05	1.6	1,520	I	-	1	I	1		1	1	1,260
	40	19-Oct-05	2.6	1,520	-	1	I	1	1	1	1	ł	1,160
BH-1	45	19-Oct-05	2.3	1,120	I	-	-	1	I	1	ł	I	1,010
	50	19-Oct-05	1.9	1,040	1	-	I	1	1		1	I	808
	55	19-Oct-05	1.3	1,040	I	1	-	I	I		1	ł	768
	60	19-Oct-05	1.7	1,520	1	1	-	1	1		-	I.	1,210
	65	19-Oct-05	2.0	4,000	I	I	I	ł	1	ł	1	1	3,680
	70	19-Oct-05	1.1	4,880	1	I	1	I .	ł		1	ł	4,550
	72	19-Oct-05	1.8	>4,000	1	I	1	ł	ł	1	1	ł	4,800
	75	19-Oct-05	1	I	1	I	I	1	1	1	ł	ł	3,220
NMOCD Remedial Thresholds	dial Thres	sholds	100		10				50			100	250 ³

 1 Analyte detected but below the reporting limit; therefore, result is an estimated concentration

1 - = Not Analyzed

³ Chloride residuals may not be capable of impacting groundwater above the NMWQCC groundwater standard of 250 mg/L

Well Data

Chesapeake Energy Ruth 20-2 Pit Closure (Ref. #160016)

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Well Data

Chesapeake Energy Ruth 20-2 Pit Closure (Ref. #160016)

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Depth to Water (ft bgs)			新教教会	和教育和考	69			024 328	6 2] * S	F6			765	6.65	619	64.053	66.54	60	60	6	66.58	308	06]	75		N.87512
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Longitude	N 32° 54 39 81° N/103 23 53 58 85 3	NB2054639815 WHO39251888	W 103 23 23 23 73	142.472.801.M .82.62.45	N 322543393555 W/1035231526	W103523:37K4	34:26;36" W.103 23;37/64%	%kit9iLE36Z6601/M	W 10352447 4284	N 922554 9981 W 1039235535	N 82º 54: 39 83° N 103º 23.37 669	129926.275001 M 2.6866.855751 N					COLORING STREET, SAME	W 103° 21' 17.68"	W 103° 21' 17.68"	W 103° 21' 17.68"		N 52°53 47 54" W 103°23922 6754	N922538473535 [W 103528 84 0864]	W 103° 24' 7.28"	W 103° 24' 7.28"	う教育学校教育教育学校のないでい
Latitude	N 32%54/39/815	2186835929N	N 92°54'26.24° W 103°23'53'17%	N 32°54.39738"	N 32254439355	N 32º 54 26 36°	N 372,54,26,36°	N.32954926.767	N 32°54 0 59"	N32°54 39 81	N 32°54"39.83"	N 32954 39.83			A RUSSER			N 32° 54' 26.96"	N 32° 54' 40.06"	N 32º 54' 40.06"		N 32°53 47 54	5.65 24 85 ace N	N 32º 53' 21.38"	N 32º 53' 21.38"	10. B. C.
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Use	DOM	DOMES	DOM	DOMOS	NOO	EXP	STATES STATES	EXPe	- MOU	NOG	- PRO-+							MOCI		MOG		- PROS	EDONS	PRO	PRO	《梁梁文》 第133章
Owner	George Sprites	George Spires 5	Joe Grado Sci	Walter Hanning	Colle Gardy 4	4 G. Cattle Contparty	1. G. Cattle Company	G Cattle Company	Regentation	Kenny (jokson)	J Chesapeake Operating		A STATE OF STATE OF STATE					Robert Ralph Sims		Ralph E. Collins		🕴 👘 Lawton Orl Group 🤟	Geoinge Spires 1 * *	Marcum Drilling Company	Humble Oil & Refining Co.	これにおけるないまでいる なる ここののたい 長
Diversion ^A	ACC STATE	Sec. Barris	24 00 AG	24 0 20 P			********	1.000 1.000 1.000 1.000	なながた。	100 C 100 C	10.8 g	10 8 0 0 8 W	1212 V. 18 19 18	NAME OF A STREET	A CONTRACTOR			8		3		1. 18 33 . Tok		0	0	北京北京 北京
Well Number	N. 63 M. CO48CT V. 20 M.		指引。[106439 置XP %	11 % E 06689 EXP	14 11 14 T (06937	IL OP444EXPL-1	WILL OT 444 EXPLIS	14-2L 07444 EXPL-3	國計算制 到 2087年4	数据增到0209 33 %	ALEODISO ENGLID -S	PL 47:17:15/001:50	NAT RUSGS AT	N 12 11 USGS #8	54 SDSI1+ N 1	ALL NUSCS #10	11111111111111111111111111111111111111	L 03966	L 03966 APPRO	L 05269	USGS #12	NAL 01608 ABPRO	Ki ki lik [1/0#982	L 06334	L 06334 (E) 1	10 10 SOS #13

* = Data obtained from the New Mexico Office of the State Engineer Website (http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet1) Shaded area indicates well locations shown on Figure 2

^A = in acte feet per annum
 IND = Industrial
 IRR = Irrigation
 IRR = Irrigation
 DOM = Domestic
 EXP = Exploration
 STK = Livestock watering
 OIL = Oil Production
 PRO = Prospecting or Development of Natural Resources

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

APPENDIX I

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORM

ANALYTICAL RESULTS NOT INCLUDED IN DRAFT COPY OF REPORT

PROJECT PHOTOGRAPHS

APPENDIX II

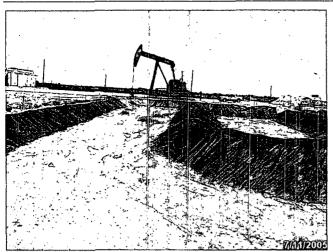


Photo #1: Pit area looking northerly.

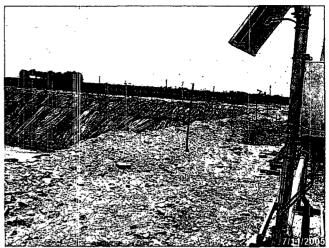
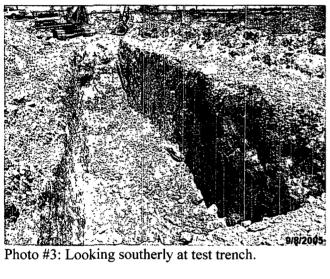


Photo #2: Looking westerly at pit area and liner.



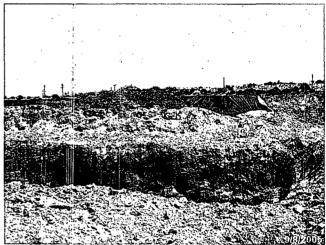


Photo #4: Looking westerly towards test trench.

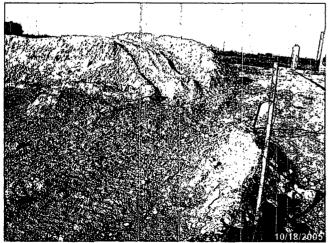


Photo #5: Looking northerly at clean stockpile.

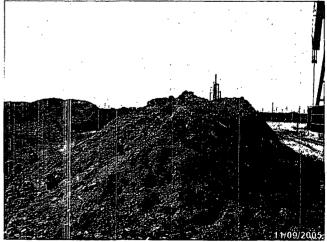


Photo #6: Looking northerly at clean stockpile.

APPENDIX III

Soil Boring Logs

					L	.og	🛛 f Te	st Borings (NOTE - Page 1 of 3)
	• •.			<u></u>			Proi	ct Number: 160016
للر	L)			ial Pi	LUS, IN	c.		ct Name: Chesapeake Ruth 20-2 Pit Closure
t	۶.	TATE AF		D LAND	FARM A	ND	Locat	
<u>\</u>				UNICE 394-348	31			Number: BH-1 Surface Elevation: 3,938-feet amsl
		5	Q	s.	0110 0			
Time	Sample Type	over hes)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Svmbol	Depth	Start Date: <u>10/19/05</u> Time: <u>1030 hrs</u> Completion Date: <u>10/19/05</u> Time: <u>1350 hrs</u>
	Sa	Recove	Mois	Rea	Chlo Ano (mg	N N N N N) qq	Description
							-	1' Sandy Loam Topsoil
							-	CALICHE, White to Tan, Hard —
							L	5
							F	_
							\vdash	
								-
1030	PS	6		5.4	1,360			0
								_
							_	_
1035	PS	12		4.7	1,360	SM	4	5 SAND, White to Tan to Red, Fine to Coarse Grained
								_
					2 7 7			
								_
1038	PS	7		3.7	1,280	SF	,	20 Sand turns to Red
1038	L2				1,200			-
							\vdash	
1010					1.000			5 Sand turns to White
1043	PS	8		6.4	1,280	SF	· -	_
							-	-
L		 		<u> </u>				30
1050	PS	12		3.2	1,040	SM	1	
	 Wate	r Leve	l Meas	uremen	ts (fee	t)		
Date		e So	epth	Casing Depth	Cave-	n W	later _evel	Drilling Method: HSA 3.5' ID
-			-	-		+-	-	Backfill Method: Bentanite
					<u> </u>			Field Representative: JR

						~~		
					L	.og 		Borings (NOTE - Page 2 of 3)
للرك	i L	Enviri			lus, Ing	_		t Number: 160016
==(^E P		TATE AF	PROVE		FARM A		_	t Name: Chesapeake Ruth 20-2 Pit Closure
\mathcal{M}			Ξ	UNICE 394-348		ŀ	Locatio	
							Boring N	
Time	Sample Type	over Jes)	Molsture		ride (Ysls) /Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: <u>10/19/05</u> Time: <u>1030 hrs</u> Completion Date: 1 <u>0/19/05</u> Time: <u>1350 hrs</u>
T	Sar Ty	Recovery (inches)	Mols	PID Readings (ppm)	Chloride Analysis (mg/Kg)	S'U S'Y	, Def	Completion Date: <u>10/19/05</u> Time: <u>1350 hrs</u> Description
								SAND, White to Tan to Red, Fine to Coarse Grained
							L	
							–	_
							-	—
1054	PS	11		1.6	1,520	SM	3	
							-	_
1203	PS	8		2.6	1,520	SM	40	
								_
								_
								_
1220	PS	8		2.3	1,120	SM	45	
1660	13				1,120			—
								_
		4						_
				10	1.040	0	50	
1230	PS	12		1.9	1,040	SM		_
							<u> </u>	-
							E	_
1241	PS	8		1.3	1,040	SM		
							-	_
							<u> </u>	-
						L	60	
1316	PS	8		1.7	1,320	SM	<u> </u>	
	 Wate	r Leve	 Neas	urement	s (fee	L		
Date		e So	epth	Casing Depth	Cave-l Depth	n V	evel	silling Method: HSA 3.5' ID
		·	-				- B	ackfill Method: Bentonite
	1			·			F	eld Representative: JR

								······
					L	.09	Of Tes	t Borings (NOTE - Page 3 of 3)
				_	-		Projec	t Number: 160016
E				AL PI	lus, In farm a	C.	Projec	t Name: Chesapeake Ruth 20-2 Pit Closure
		ENVI	RONMEN	TAL SEP	RVICES		Locatio	n: UL-D, Section 20, Township 16 South, Range 36 East
<u>``</u> "			505-	UNICE 394-348	31	ľ	Boring	Number: BH-1 Surface Elevation: 3,938-feet amsl
	0 1	2 2	ę.	s	an C			Start Date: 10/19/05 Time: 1030 hrs
Time	Sample Type	hes	Moisture	oling Dm (md	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Completion Date: <u>10/19/05</u> Time: <u>1350 hrs</u>
-	¶10	Recovery (inches)	Moi	PID Readings (ppm)	Ϋ́́Α̈́Ε,	SUC		Description
			1				F	SAND, White to Tan to Red, Fine to Coarse Grained
							F	_
							<u> </u>	_
							–	_
		10		2.0	4 000	SM		5
1320	PS	10	ļ	2.0	4,000			_
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							-	_
							Γ.	_
1327	PS	10	1	1.1	4,880	SM	7	
							V	
1343	PS	12	Damp	1.8	>4,000	SM		_
							L	_
		<u> </u>	<u> </u>					5
1350	PS	12	Vet			SM		End of Soil Boring at 76' bgs
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							-	_
			+	1.		<u> </u>	80	
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			<u> </u>	<u> </u>		ļ		J
	I						\vdash	_
<u> </u>				uremen	ts (fee	t)		
Date		ne Se	ample epth	Casing Depth	Cave- Depti	In W	evel	Drilling Method: HSA 3.5' ID
10/19/	05 13	43		_	-		72'	Backfill Method: Bentonite
		-		<u> </u>	-			ield Representative: JR

APPENDIX IV

INFORMATIONAL COPY OF NMOCD C-103 FORM

Submit 3 Copies To Appropriate District Office	State of New Mexico	Form C-103 May 27, 2004
District 1 1625 N. French Dr., Hobbs, NM 88240	Energy, Minerals and Natural Resources	WELL API NO.
District II 1301 W. Grand Ave., Artesia, NM 88210	OIL CONSERVATION DIVISION	30-025-36866
District III	1220 South St. Francis Dr.	5. Indicate Type of Lease STATE FEE X
1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM	Santa Fe, NM 87505	6. State Oil & Gas Lease No.
87505 SUNDRY NOTIC	ES AND REPORTS ON WELLS	7. Lease Name or Unit Agreement Name
(DO NOT USE THIS FORM FOR PROPOSA	LS TO DRILL OR TO DEEPEN OR PLUG BACK TO A TION FOR PERMIT" (FORM C-101) FOR SUCH	Ruth 20
	ias Well 🗌 Other	8. Well Number 002
2. Name of Operator Chesapeake Op	perating, Inc.	9. OGRID Number 147179
3. Address of Operator P. O. Box 1		10. Pool name or Wildcat
Midland, T.	X 79702-8050	Lovington; UpperPenn, West
4. Well Location		fi c (c) Wort i'r
Unit Letter D 52		
Section 20	Township 16S Range 36E 11. Elevation (Show whether DR, RKB, RT, GR, etc.)	NMPM CountyLea
Pit or Below-grade Tank Application 🗌 or (3940 GR	
	er_70'Distance from nearest fresh water well 1000+_Di	stance from nearest surface water <u>1000+</u>
Pit Liner Thickness: <u>12</u> mil	Below-Grade Tank: Volume 12,129 bbls; C	Construction Material
12. Check Ar	propriate Box to Indicate Nature of Notice	Report or Other Data
NOTICE OF INT		BSEQUENT REPORT OF:
		RK
TEMPORARILY ABANDON PULL OR ALTER CASING OTHER:Close Pit 13. Describe proposed or comple	MULTIPLE COMPL CASING/CEMEN Image: State all pertinent details, and state all pertinent details.	RILLING OPNS. P AND A
TEMPORARILY ABANDON PULL OR ALTER CASING OTHER:Close Pit 13. Describe proposed or comple	MULTIPLE COMPL: CASING/CEMEN	RILLING OPNS. P AND A
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