POCAHONTAS GAS LLC

Hereby submits this

Underground Injection Control (UIC) Permit Application

U.S. EPA Form 7520-6 and Attachments

Well Number 25453 UIC

U.S. EPA Region 3
Buchanan County, Virginia

Well # 25453

This certification statement is being submitted to Mr. Kevin Rowsey, in reference to UIC Permit Application for well # 25453

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Craig W. Neal *Date:* 9/4/2020

Title: VP Operations *Phone No.* 724-599-7618

Signature: Craig W Neal

OMB No. 2040-0042 Approval Expires 4/30/2022

United States Environmental Protection Agency

Underground Injection Control Permit Application for a Class II Well

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, and 40 CFR Part 144)

For Official Use Only
Date Received
Permit Number

Read Attached Instructions Before Starting

I. Owner Name, Address, Phone Number and/or Email	II. Operator Name, Address, Phone Number and/or Email
Pocahontas Gas LLC PO Box 570 Pounding Mill, VA 24637 276-596-5137 robertstaton@cnx.com	Pocahontas Gas LLC PO Box 570 Pounding Mill, VA 24637 276-596-5137 robertstaton@cnx.com

III. Commercial Facility	IV. Ownership	V. Permit Action Requested	VI. SIC Code(s)	VII. Indian Country
Yes X No	X Private Federal State/Tribal/ Municipal	X New Permit Permit Renewal Modification Add Well to Area Permit Other	1311	Yes X No

VIII. Type of Permit (For multiple wells, use additional page(s) to provide the information requested for each additional well)

X A. Individual B. Area	Number of Wells	Well Field and/or Project Names
	1	Oakwood

IX. Class and Type of Well (see reverse)

A. Class	B. Type (enter code(s))	C. If type code is "X," explain.
II	D	

X. Well Status	XI. Well Information
A. Operating Date Injection Started X B. Conversion Date Well Constructed 07/22/2004 C. Proposed	API Number 4502702674 Permit (or EPA ID) Number Full Well Name 25453 UIC

XII. Location of Well or, for Multiple Wells, Approximate Center of Field or Project

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location

1/4 of 1/4 of Section Township Range

ft. from (N/S) Line of quarter section

ft. from (E/W) Line of quarter section.

Latitude 37.231

Longitude -81.780

XIII. Attachments

In addition to this form, complete Attachments A-U (as appropriate for the specific well class) on separate sheets. Submit complete information, as required in the instructions and list all attachments, maps or other figures, by the applicable letter.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR § 144.32)

Name and Official Title *(Please Type or Print)*	Signature	Date Signed
Craig W. Neal, VP Operations	Craig W Neal	9/11/2020

EPA Form 7520-6 (Rev. 4-19)

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Attachment A

Area of Review and Maps

The subject proposed well, #25453, is a vertical, shallow natural gas well. The Area of Review (AOR) is determined to be one-quarter mile radius from the bore hole. An Area of Review Map was prepared using the current information available for all wells. There are two CBM wells and one water source within the AOR. All the data was obtained from Pocahontas Gas LLC internal records and the Virginia Department of Mines, Minerals and Energy (DMME), Division of Gas and Oil (DGO) (See Map 1).

Map 2 shows pertinent surface features within one quarter mile of the AOR. There are 8 coalbed methane (CBM) wells and 2 shallow oil & gas (SOG) wells within half mile radius of the bore hole. All well and surface water information is shown in Table 1. The CBM wells are drilled and completed within the Pocahontas No. 3 Seam at an average depth of 2,000 feet. These wells are currently producing coalbed methane from the Pocahontas No. 3 Seam as well as several other overlying coal seams. The SOG wells are drilled and completed within commonly known natural gas producing sandstones, limestones and shales, down to the Devonian Shale horizon. The depths of the two wells are approximately 5400 and 7400 feet. See Map 2.

Water wells, Springs and Surface Water

Domestic water supply wells and springs were identified by survey during the drilling of the CBM wells as required by the Division of Gas and Oil (see Table 2). The identified water sources are natural springs. No water wells were identified within the AOR.
See Map 2.

Surface waters are limited to small streams and tributaries of Jones Fork which flows west and adjacent to the UIC, then into the Dismal River and finally into the head waters of the Upper Levisa River near Vansant, Buchanan County, Virginia.

Other surface features within the AOR are roads and previous mining reclamation scaring of the topography. There are no hazardous waste treatment, storage or disposal facilities; no surface water intake or discharge systems. There are no outcroppings of the confining or injection layers that are in the UIC, due to the rock formations being generally flat lying, horizontal, sedimentary rock layers that slightly dip to the west and north. See Map 3.

Surface owners

Map 4 is a depiction of the surface tracts and ownership based on our current mapping and parcel identification. In addition, we relied on county tax records available on the Buchanan County electronic database system (see Part V, Table 3).

Mining

Mining is entirely for coal from the surface and underground. Surface mining is afforded by contour, high-wall, and mountain top removal methods. Underground mining is accomplished from slope entries driving horizontally into the coal seam. Mining predominately occurs in the Jawbone and Tiller seams, with lesser amounts from coal seams in the elevations above these seams. There is no other mineral mining in the area. See Map 1A.

Other Features

There are no outcroppings of the proposed injection strata. There are no surface water intakes or discharges in the area. There are no hazardous waste treatment, storage or disposal facilities in the area. The nearest school, residence, or hospital is two miles, or more, away from the project area.

Jones

Fork

L54-1

L54A

L54

25453

LEGEND

- 1/4 MILE RADIUS
- CBM WELL
- 25453 PROPOSED UIC WELL
- SPRING

CNX

25453
AREA OF REVIEW

MAP 1 OF 4

BUCHANAN COUNTY, VIRGINIA

SCALE: 1" = 400'

PREPARED BY:

DATE: JUNE 23, 2020

1102141

1101792

1101792

36

101792

Jones

1102135

1102137

1102137

25453

1102135

Fork

1102135

1102137

1102136

LEGEND

PROPOSED UIC WELL

1102135 SURFACE MINING AREA

CNX

25453

AREA OF REVIEW

MAP 1A OF 4

BUCHANAN COUNTY, VIRGINIA

SCALE: 1" = 400'

PREPARED BY:

DATE: JULY 15, 2020

Jones

Fork

L53-1

L53

L53A

L54-1

L54A

L54

25453

L55-1

K55-1

25454

M54-5

M54

M54A

M55A

M55-1

M55

PMCTC13

LEGEND

- 1/4 MILE RADIUS
- 1/2 MILE RADIUS
- CBM WELL
- PROPOSED UIC WELL (25453)
- SPRING

CNX

25453
AREA OF REVIEW

MAP 2 OF 4

BUCHANAN COUNTY, VIRGINIA

SCALE: 1" = 400'

PREPARED BY:

DATE: JUNE 23, 2020

Jewell Valley

Jewell Valley

Wolfpen Branch

Peak Branch

Jones

Fork

25453

Rakes Branch

Dismal Creek

Bearwallow Branch

Jewell Branch

Cem

Jewell Chapel Ch

Big Branch

LEGEND

- 1/4 MILE RADIUS
- 1 MILE RADIUS
- PROPOSED UIC WELL

CNX

25453
AREA OF REVIEW

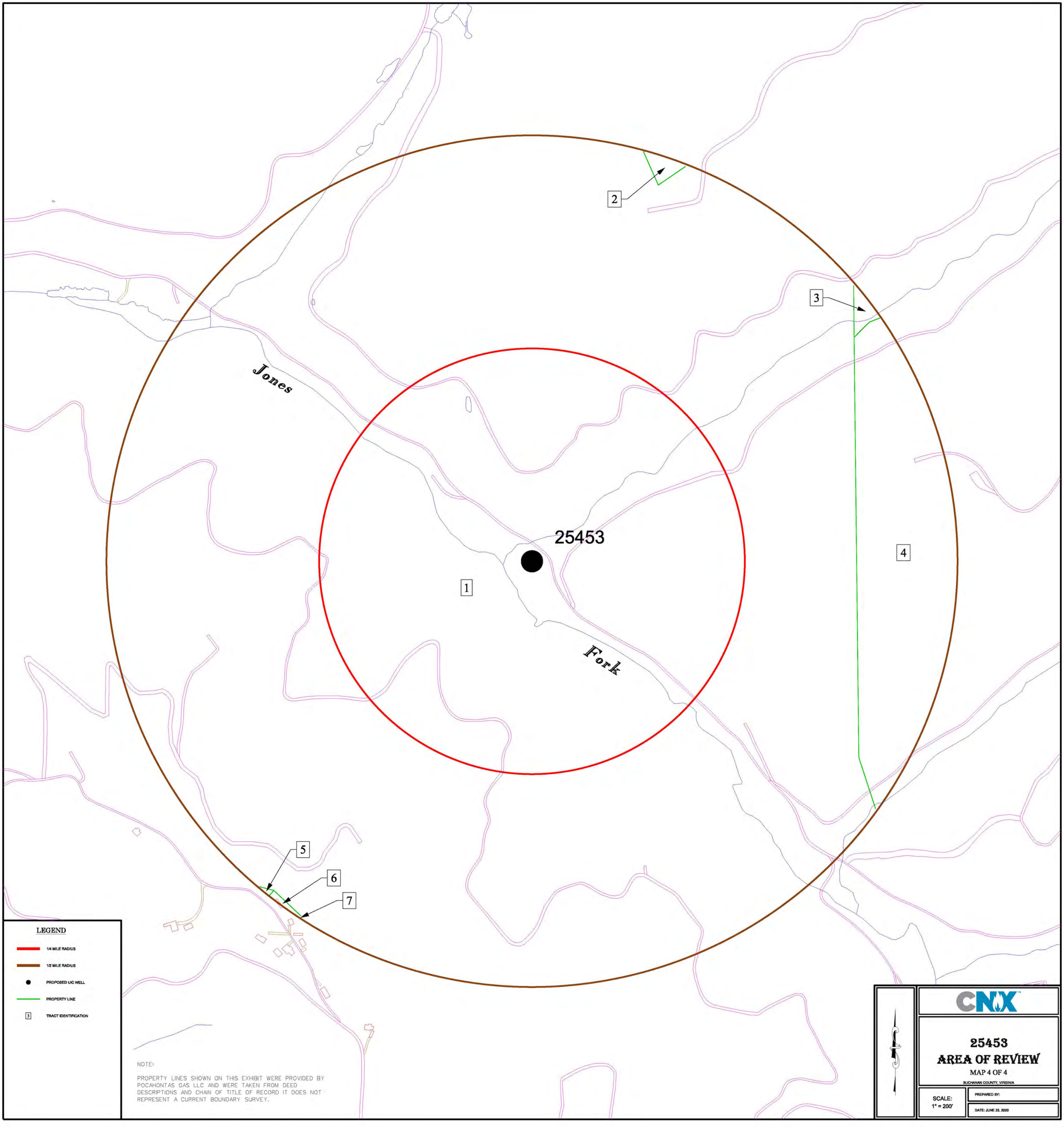
MAP 3 OF 4

BUCHANAN COUNTY, VIRGINIA

SCALE: 1" = 800'

PREPARED BY:

DATE: JUNE 23, 2020



LEGEND

- 1/4 MILE RADIUS
- 1/2 MILE RADIUS
- PROPOSED UIC WELL
- PROPERTY LINE
- 3 TRACT IDENTIFICATION

NOTE:

PROPERTY LINES SHOWN ON THIS EXHIBIT WERE PROVIDED BY POCAHONTAS GAS LLC AND WERE TAKEN FROM DEED DESCRIPTIONS AND CHAIN OF TITLE OF RECORD IT DOES NOT REPRESENT A CURRENT BOUNDARY SURVEY.

CNX

25453
AREA OF REVIEW
MAP 4 OF 4

BUCHANAN COUNTY, VIRGINIA

SCALE: 1" = 200'

PREPARED BY:

DATE: JUNE 23, 2020

PART IV **Table 1: Summary of Well Information**

	WELL NUMBER	OPERATOR	N COORDS	E COORDS	WELL TYPE	FORMATION	DATE DRILLED	CASING CONDUCTOR	CASING SURFACE	WATER PROTECTION	COAL PROTECTION	TOTAL DEPTH (FT)
1	L53	POCAHONTAS GAS LLC	3,624,538.00	10,525,530.00	CBM/PR	P3	10/12/2005	23	264	398	1924	2135
2	L53A	POCAHONTAS GAS LLC	3,623,700.22	10,526,097.11	CBM/PR	P3	1/23/2012	13	337	551	2215	2405
3	L54	POCAHONTAS GAS LLC	3,624,193.00	10,528,036.00	CBM/PR	P3	1/6/2005	28	223	1569	1569	1805
4	L54A	POCAHONTAS GAS LLC	3,624,692.24	10,527,502.59	CBM/PR	P3	8/20/2008	18	215	1594	1594	1770
5	M54	POCAHONTAS GAS LLC	3,621,881.00	10,527,888.00	CBM/PR	P3	4/23/2005	20	207	309	1962	2170
6	M54A	POCAHONTAS GAS LLC	3,622,416.72	10,527,047.44	CBM/PR	P3	12/19/2011	20	464	636	2185	2535
7	M55	POCAHONTAS GAS LLC	3,622,402.68	10,529,796.16	CBM/PR	P3	12/8/2004	38	223	1472	1472	1805
8	M55A	POCAHONTAS GAS LLC	3,622,268.01	10,528,816.55	CBM/PR	P3	2/12/2009	45	254	1800	1800	2000
9	PMCTC13	POCAHONTAS GAS LLC	3,622,329.07	10,529,882.30	SOG/PR	DEV SH	12/5/2003	40	311	2160	5351	5410
10	25454	POCAHONTAS GAS LLC	3,624,767.04	10,530,505.84	SOG/PR	DEV SH	10/19/2004	36	340	2731	2731	7405

1 Well Type: Coalbed Methane/Producing; Shallow Oil & Gas/Producing

2 Formation: Pocahontas No. 3 Seam; Devonian Shale

3 Coordinates are NAD 83 Virginia South State Plane

DRILL DATA HOLE-NOAH HORN WELL DRILLING, INC

COMPANY: CNX **HOLE #:** L-53

LOCATION: JONES FORK **DRILL RIG #:** 94

DATE STARTED: 10-07-05 **DATED COMPLETED:** 10-13-05

ELECTRIC LOGGED:YES **GROUTED:YES**

DEPTH	THICKNESS		STRATA REMARKS
FROM	TO	FT	DESCRIPTION,VOIDS ETC
0	23	23	OVERBURDEN
23	86	63	SAND/SHALE/COAL
86	116	30	SAND/SHALE
116	206	90	SAND/SHALE/COAL
206	286	80	SAND/SHALE
286	300	14	SAND STONE
300	330	30	SAND STONE/SANDY SHALE
330	360	30	SANDY SHALE/COAL/SAND STONE
360	390	30	SAND STONE/SANDY SHALE /COAL STRKS/SAND STONE
390	420	30	SAND STONE
420	570	150	SAND/SHALE/COAL
570	600	30	SAND/SHALE
600	690	90	SAND/SHALE/COAL
690	720	30	SAND/SHALE
720	750	30	SAND/SHALE/COAL
750	840	90	SAND/SHALE
840	870	30	SAND/SHALE/COAL
870	900	30	SAND STONE/SANDY SHALE
900	930	30	SAND STONE/SANDY SHALE STR/COAL/SAND STONE
930	960	30	SAND STONE/SANDY SHALE
960	990	30	SANDY SHALE/SAND STONE/COAL
990	1020	30	COAL/SAND STONE/SANDY SHALE/COAL
1020	1050	30	SAND STONE/COAL STR/SANDY SHALE
1050	1080	30	SANDY SHALE/SAND STONE/SANDY SHALE/COAL
1080	1110	30	SANDY SHALE/SAND STONE
1110	1140	30	SAND STONE/SANDY SHALE/COAL/SANDY SHALE
1140	1170	30	SAND STONE/SANDY SHALE STRKS
1170	1200	30	SAND STONE/SANDY SHALE/COAL/SANDY SHALE
1200	1230	30	SANDY SHALE/COAL/SANDY SHALE
1230	1260	30	SANDY SHALE/SAND STONE/SANDY SHALE/COAL
1260	1290	30	SANDY SHALE
1290	1320	30	SANDY SHALE/COAL/SAND STONE

1320	1350 STONE	30	SAND STONE/SANDY SHALE/SAND
1350	1380	30	SAND STONE/COAL/SAND STONE
1380	1470	90	SAND/SHALE
1470	1530	60	SAND/SHALE/COAL
1530	1620	90	SAND/SHALE
1620	1650	30	SAND/SHALE/COAL
1650	1711	61	SAND/SHALE
1711	1715	4	COAL P-3
1715	1805	90	SAND/SHALE
1805	1835	30	SAND/SHALE/COAL
1835	1865	30	SAND/SHALE
1865	1890	25	SAND/SHALE/COAL
1890	1925	35	SAND/SHALE
1925	1955	30	SANDY SHALE/SAND STONE
1955	1985 STONE	30	SAND STONE/SANDY SHALE/SAND
1985	2015	30	SAND STONE/SANDY SHALE
2015	2045	30	SAND STONE
2045	2075	30	SANDY SHALE/SAND STONE
2075	2105 STONE	30	SAND STONE/SANDY SHALE/SAND
2105	2135	30	RED SHALE 15'/SAND STONE/SHALE

2135.00 FT. TOTAL DEPTH
23.30 FT. OF 13 3/8" CASING
26430 FT. OF 9 5/8" CASING
397.80 FT. OF 7" CASING
1924.10 FT. OF 4 ½" CASING

L53

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	13 3/8"	23.3'	15"		☐	X	10-8-05	
Surface	9 5/8"	264.3'	12 3/8"	100 Cu/ft		X	10-9-05	Basket @ 88'
Water Protection	4 ½"	1924.1'	6 ½"	305 Cu/ft	X	☐	10-13-05	
Coal Protection	4 ½"	1924.1'	6 ½"	305 Cu/ft	X	☐	10-13-05	
Other Casing And Tubing Left In Well	7"	397.8'	8 7/8"	118 Cu/ft	X	☐	10-10-05	Basket @88'
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Cemented Backside of 9 5/8" casing. .

DRILLER'S LOG

Compiled by: Noah Horn Well Drilling , Inc.

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
See Attached							

Permittee: CNX Gas Company LLC (Company)
By: Leslie L. Humphrey (Signature)

Form DGO-GO-14
Rev. 1/98

BU-2807
RZC

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Operation Name: CBM-L53
Permit Number: 6474

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well
Date Well Completed: 11/1/05 Total Depth: 2129.6'

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 2: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 3: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ After Stimulation

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1)					
ZONE (2)					
ZONE (3)					

Final production if gas zones are commingled _____ MCFD _____ Hours Tested

_____ PS16 _____ Hours Tested

Permittee: CNX Gas Company LLC (Company)
By: Linda K. Arrington (Signature) Date: 11-11-05
Form DGO-GO-15
Rev. 1/98

RECEIVED
NOV 14
DGO

11-22-05

ENTERED

Well Number	L - 53				
Completion Date	Tues 11/1/05				
Total Depth	2129.6				
Permit Number	6474				
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Coals	SJ3,P32,P33,345	P31,P41,Coal,P52,P51,P62	Coal,P81,P82,P10	P11,MH2,MH1	
L - 53	L - 53	L - 53	L - 53	L - 53	
Nitrogen (MSCF)	297	405	92	299	
Water (BBLS)	147	189	106	181	
Sand (SXS 20/40)	200	300	0	250	
Sand (SXS 12/20)	43	61	0	30	
Top Perf	1708	1480	1049.5	923	
Bottom Perf.	1899.5	1655	1242	1025.5	
# Perfs	20	28	14	24	
Perf Size	0.45	0.45	0.45	0.45	
Break. Press.	1979	2167	2890	2286	
Avg. Rate	7.5	9	3	10.5	
ISIP	1685	1630	3315	1491	
Min	5	5	5	5	
Min Press.					
Avg. Press.	2989	3052	3839	2368	
Stimulated	Y	Y	Y	Y	
Stim. Date	Tues 11/1/05	Tues 11/1/05	Tues 11/1/05	Tues 11/1/05	
Permittee	CNX GAS LLC				

COMPANY:	CNX GAS CO LLC
HOLE:	L-53-A
RIG:	294
LOCATION:	BUNNEL RD, VA
DATE STARTED:	1/17/2012
DATE COMPLETED:	1/24/2012
ELECTRIC LOGGED:	YES
GROUTED:	YES

DEPTH FROM	THICKNESS TO	FT	STRATA DESCRIPTION, VOIDS ETC
0	13.4	13.4	OVERBURDEN
13.4	25	11.6	SAND
25	56	31	SAND/SHALE
56	87	31	SAND/SHALE
87	118	31	SAND/SHALE
118	119	1	COAL
119	148	29	SHALE/SAND
148	173	25	SAND/SHALE
173	174	1	COAL
174	178	4	SHALE
178	208	30	SAND/SHALE
208	209	1	COAL
209	223	14	SHALE
223	224	1	COAL
224	238	14	SHALE/SAND
238	268	30	SAND/SHALE
268	272	4	VOID
272	298	26	SHALE/SAND
298	328	30	SAND/SHALE
328	358	30	SAND/SHALE
358	360	2	SHALE
360	390	30	SAND/SHALE
390	400	10	SAND/SHALE
400	401	1	COAL
401	420	19	SHALE/SAND
420	435	15	SAND/SHALE
435	436	1	COAL
436	450	14	SHALE/SAND
450	470	20	SAND/SHALE
470	471	1	COAL
471	480	9	SHALE/SAND
480	510	30	SAND/SHALE
510	540	30	SAND/SHALE
540	570	30	SAND/SHALE
570	580	10	SAND/SHALE
580	610	30	SAND/SHALE
610	640	30	SAND/SHALE
640	645	5	SHALE
645	646	1	COAL

646	670	24	SHALE/SAND
670	700	30	SAND/SHALE
700	730	30	SAND/SHALE
730	745	15	SAND/SHALE
745	746	1	COAL
746	760	14	SHALE/SAND
760	790	30	SAND/SHALE
790	820	30	SAND/SHALE
820	840	20	SAND/SHALE
840	841	1	COAL
841	850	9	SHALE/SAND
850	880	30	SAND/SHALE
880	910	30	SAND/SHALE
910	915	5	SHALE
915	916	1	COAL
916	940	24	SHALE/SAND
940	941	1	COAL
941	970	29	SAND/SHALE
970	995	25	SAND/SHALE
995	996	1	COAL
996	1000	4	SHALE
1000	1001	1	COAL
1001	1030	29	SHALE/SAND
1030	1060	30	SAND/SHALE
1060	1090	30	SAND/SHALE
1090	1118	28	SAND/SHALE
1118	1119	1	COAL
1119	1120	1	SAND/SHALE
1120	1150	30	SAND/SHALE
1150	1180	30	SAND/SHALE
1180	1210	30	SAND/SHALE
1210	1240	30	SAND/SHALE
1240	1250	10	SAND/SHALE
1250	1252	2	COAL
1252	1270	18	SAND/SHALE
1270	1285	15	SAND/SHALE
1285	1287	2	COAL
1287	1300	13	SAND/SHALE
1300	1330	30	SAND/SHALE
1330	1360	30	SAND/SHALE
1360	1390	30	SAND/SHALE
1390	1415	25	SAND/SHALE
1415	1417	2	COAL
1417	1420	3	SAND/SHALE
1420	1450	30	SAND/SHALE
1450	1465	15	SAND/SHALE
1465	1468	3	COAL
1468	1480	12	SAND/SHALE
1480	1500	20	SAND/SHALE
1500	1501	1	COAL
1501	1510	9	SAND/SHALE
1510	1540	30	SAND/SHALE

1540	1570	30	SAND/SHALE
1570	1600	30	SAND/SHALE
1600	1630	30	SAND/SHALE
1630	1636	6	SAND
1636	1637	1	COAL
1637	1660	23	SAND
1660	1690	30	SAND/SHALE
1690	1720	30	SAND/SHALE
1720	1748	28	SAND/SHALE
1748	1749	1	COAL
1749	1750	1	SAND
1750	1775	25	SAND/SHALE
1775	1776	1	COAL
1776	1780	4	SAND/SHALE
1780	1810	30	SAND/SHALE
1810	1840	30	SAND/SHALE
1840	1857	17	SAND/SHALE
1857	1859	2	COAL
1859	1870	11	SAND/SHALE
1870	1886	16	SAND/SHALE
1886	1887	1	COAL
1887	1900	13	SAND/SHALE
1900	1915	15	SAND/SHALE
1915	1916	1	COAL P-31
1916	1930	14	SHALE/SAND
1930	1960	30	SAND/SHALE
1960	1970	10	SHALE
1970	1973	3	COAL (P-32 & P-33)
1973	1990	17	SHALE/SAND
1990	2010	20	SAND/SHALE
2010	2011	1	COAL
2011	2020	9	SHALE/SAND
2020	2050	30	SAND/SHALE
2050	2080	30	SAND/SHALE
2080	2095	15	SAND/SHALE
2095	2096	1	COAL
2096	2110	14	SHALE/SAND
2110	2140	30	SAND/SHALE
2140	2155	15	SAND/SHALE
2155	2156	1	COAL
2156	2170	14	SHALE/SAND
2170	2200	30	SAND/SHALE
2200	2225	25	SAND/SHALE
2225	2255	30	SAND/SHALE
2255	2285	30	SAND/SHALE
2285	2315	30	SAND/SHALE
2315	2345	30	SAND/SHALE
2345	2375	30	SAND/SHALE
2375	2390	15	RED SHALE
2390	2405	15	SAND/SHALE

2405

2405 FT TOTAL DEPTH
13.40 FT OF 13 3/8 CASING
337.25 FT OF 9 5/8 CASING
551.13 FT OF 7 CASING
2214.53 FT OF 4 1/2 CASING

Well: **L53A**

Casing & Tubing Program

	Casing	Casing Interval	Hole Size	Cement used in cu/ft	Cemented to Surface Yes	Cemented to Surface No	Date Cemented	Packers or Bridge Plugs
Conductor	13 3/8"	13.4	15"			X	1/17/12	
Surface	9 5/8"	337.25	12 3/8"	264	X		1/18/12	Basket @210
Water Protection	4 1/2"	2214.53	6 1/2"	337.5	X		1/24/12	
Coal Protection	4 1/2"	2214.53	6 1/2"	337.5	X		1/24/12	
Other Casing & Tubing	7"	551.13	8 7/8"	192	X		1/19/12	Basket @297
Other Casing & Tubing								
Liners								

Well Number	L-53-A			
Completion Date	02/15/12			
Total Depth	2356.54			
Permit Number	12211			
	Zone 1	Zone 2	Zone 3	Zone 4
Coals	SJ2, P22, P32, P33, P345	P31, P41, COALS, P52, P51, P62	P71,P82, P81, P10, P11, MH2	MH1, UH3, UH2, UH1
L-53-A	L-53-A	L-53-A	L-53-A	L-53-A
Nitrogen (MSCF)	0.325	0.324	0.354	0.415
Water (BBLS)	208	222	218	212
Sand (SXS 20/40)	236	300	300	300
Sand (SXS 12/20)	0	55	56	62
Top Perf	1972	1635	1244.5	1058
Bottom Perf.	2159	1917.5	1498	1182
# Perfs	16	32	32	24
Perf Size	0.45	0.45	0.45	0.45
Break. Press.	2515	1526	2236	2129
Avg. Rate	13	11	12	12
ISIP	1611	1343	1211	1343
Min	5	5	5	5
Min Press.	-	-	-	-
Avg. Press.	2765	2045	2405	2405
Stimulated	Y	Y	Y	Y
Stim. Date	02/15/12	02/15/12	02/15/12	02/15/12

Permittee CNX GAS LLC

DRILL DATA HOLE-NOAH HORN WELL DRILLING, INC

COMPANY: CNX **HOLE #:** L-54

LOCATION: JONES FORK **DRILL RIG #:** 76

DATE STARTED: 01-03-05 **DATED COMPLETED:** 01-07-05

ELECTRIC LOGGED: YES **GROUTED:** YES

DEPTH	THICKNESS		STRATA REMARKS
FROM	TO	FT	DESCRIPTION,VOIDS ETC
0	18	18	OVERBURDEN
18	28	10	OVERBURDEN 28' W/ 13 3/8" CASING
28	30	2	SHALE
30	90	60	SANDY SHALE
90	120	30	SANDY SHALE / COAL
120	210	90	SANDY SHALE
210	240	30	SANDY SHALE / COAL 222.5' W/ 9 5/8" CASING
240	270	30	SANDY SHALE / COAL
270	300	30	SANDY SHALE
300	330	30	SANDY SHALE / COAL
330	360	30	SAND
360	420	60	SANDY SHALE / COAL
420	450	30	SAND
450	510	60	SAND / SHALE
510	570	60	SAND / SHALE / COAL
570	600	30	SAND / SHALE
600	630	30	SAND
630	660	30	SAND / SHALE
660	690	30	SAND / SHALE / COAL
690	750	60	SAND
750	785	35	SAND / SHALE
785	845	60	SAND
845	875	30	SHALE / COAL
875	905	30	SANDY SHALE / COAL
905	935	30	SANDY SHALE
935	965	30	SANDY SHALE / COAL
965	995	30	SANDY SHALE
995	1055	60	SANDY SHALE / COAL
1055	1085	30	SANDY SHALE
1085	1115	30	SHALE
1115	1175	60	SANDY SHALE / COAL
1175	1235	60	SANDY SHALE
1235	1265	30	SANDY SHALE / COAL
1265	1295	30	SANDY SHALE
1295	1325	30	SANDY SHALE / COAL
1325	1355	30	SANDY SHALE
1355	1357	2	SAND
1357	1363	6	COAL P-3
1363	1385	22	SANDY SHALE
1385	1415	30	SAND / SHALE
1415	1445	30	SAND

1445	1475	30	SAND / SHALE / COAL
1475	1505	30	SAND
1505	1535	30	SAND / SHALE
1535	1565	30	SAND / SHALE / COAL
1565	1595	30	SAND / SHALE
			1568.6' W/ 4 ½" CASING
1595	1625	30	SAND
1625	1685	60	SAND / SHALE
1685	1715	30	SAND
1715	1745	30	SAND / SHALE / COAL
1745	1775	30	SAND / SHALE / GREEN
1775	1805	30	SAND / RED SHALE TD 6 ½" HOLE

1805.00 FT. TOTAL DEPTH
28.00 FT. OF 13 3/8" CASING
222.50 FT. OF 9 5/8" CASING
1568.60 FT. OF 4 ½" CASING

LS4

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	13 3/8"	28'	15"		☐	X	1-3-05	
Surface	9 5/8"	222.5'	12 3/8"	94.4 Cu/ft		X	1-4-05	Basket@25'
Water Protection	4 ½"	1568.6'	6 ½"	371.6 Cu/ft	X	☐	1-7-05	
Coal Protection	4 ½"	1568.6'	6 ½"	371.6 Cu/ft	X	☐	1-7-05	
Other Casing And Tubing Left In Well					☐	☐		
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Cemented Backside of 9 5/8" casing. .

DRILLER'S LOG

Compiled by: Noah Horn Well Drilling , Inc.

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
See Attached							

Permittee: CNX Gas Company LLC (Company)
By: Lisa K. Thompson (Signature)

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Rev. 1/98

BU-2801
RZC

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

ENTERED

Operation Name: CBM-L54
Permit Number: 6439

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well

Date Well Completed: 1/31/05 Total Depth: 1789.17'

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 2: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 3: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ After Stimulation

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1)					
ZONE (2)					
ZONE (3)					

Final production if gas zones are commingled _____ MCFD _____ Hours Tested

_____ PS16 _____ Hours Tested

Permittee: CNX Gas Company LLC (Company)
By: Shirley K. Murphy (Signature) Date: 2-23-05

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Well Number	CBM L-54		
Completion Date	Mon 1/31/05		
Total Depth	1789.17		
Permit Number	6439		
	Zone 1	Zone 2	Zone 3
Coals	SJ3,P33,P34,345,P31,P41,P42	P52,P51,P62,P61,P72	P82,P10,MH2,MH1
CBM L-54	CBM L-54	CBM L-54	CBM L-54
Nitrogen (MSCF)	466	280	283
Water (BBLS)	257	173	101
Sand (SXS 20/40)	450	300	450
Sand (SXS 12/20)	54	58	53
Top Perf	1311	1112.5	550
Bottom Perf.	1541	1275	944
# Perfs	34	20	18
Perf Size	0.45	0.45	0.45
Break. Press.	2554	2933	1290
Avg. Rate	8.5	5	10.9
ISIP	1875	1500	1005
Min	5	5	5
Min Press.			
Avg. Press.	3470	3634	3221
Stimulated	Y	Y	Y
Stim. Date	Mon 1/31/05	Mon 1/31/05	Mon 1/31/05
Permittee	CNX GAS LLC		

COMPANY CNX

HOLE L-54A

RIG #: 243

LOCATION: JONES FORK

DATE STARTED: 8/18/2008

DATE COMPLETED: 8/21/2008

ELECTRIC LOGGED: YES

GROUTED: YES

DEPTH FROM	THICKNESS TO	FT	STRATA DESCRIPTION, VOIDS ETC.
0	17.1	17.1	OVERBURDEN
17.1	18.45	1.35	OVERBURDEN
18.45	35	16.55	SAND
35	66	31	SAND/SHALE/COAL
66	97	31	SAND/SHALE/COAL
97	127	30	SAND/SHALE
127	157	30	SAND/SHALE
157	187	30	SAND/SHALE/COAL
187	217	30	SAND/SHALE
217	242	25	SAND/SHALE/COAL
242	270	28	SAND/SHALE/COAL
270	300	30	SAND/SHALE/COAL
300	330	30	SAND/SHALE/COAL
330	360	30	SAND/SHALE
360	390	30	SAND/SHALE/COAL
390	420	30	SAND/SHALE
420	435	15	SAND/SHALE
435	465	30	SAND/SHALE
465	495	30	SAND/SHALE/COAL
495	525	30	SAND/SHALE
525	555	30	SAND/SHALE/COAL
555	585	30	SAND/SHALE
585	615	30	SAND/SHALE
615	645	30	SAND/SHALE/COAL
645	675	30	SAND/SHALE
675	705	30	SAND/SHALE/COAL
705	735	30	SAND/SHALE
735	765	30	SAND/SHALE
765	795	30	SAND/SHALE/COAL
795	825	30	SAND/SHALE
825	855	30	SAND/SHALE
855	885	30	SAND/SHALE/COAL
885	915	30	SAND/SHALE/COAL

915	945	30	SAND/SHALE
945	975	30	SAND/SHALE/COAL
975	1005	30	SAND/SHALE/COAL
1005	1035	30	SAND/SHALE
1035	1065	30	SAND/SHALE
1065	1095	30	SAND/SHALE
1095	1125	30	SAND/SHALE/COAL
1125	1155	30	SAND/SHALE/COAL
1155	1185	30	SAND/SHALE/COAL
1185	1215	30	SAND/SHALE
1215	1245	30	SAND/SHALE
1245	1275	30	SAND/SHALE/COAL
1275	1305	30	SAND/SHALE/COAL
1305	1335	30	SAND/SHALE
1335	1351	16	SAND/SHALE
1351	1354	3	P-3
1354	1365	11	SAND/SHALE
1365	1395	30	SAND/SHALE
1395	1425	30	SAND/SHALE
1425	1455	30	SAND/SHALE
1455	1485	30	SAND/SHALE
1485	1515	30	SAND/SHALE/COAL
1515	1545	30	SAND/SHALE/COAL
1545	1575	30	SAND/SHALE
1575	1605	30	SAND/SHALE
1605	1635	30	SAND/SHALE
1635	1665	30	SAND/SHALE
1665	1695	30	SAND/SHALE
1695	1725	30	SAND/SHALE
1725	1755	30	SAND/SHALE
1755	1770	15	SHALE/RED SHALE

1770' TOTAL DEPTH
18.45' OF 13 3/8" CASING
214.60' OF 9 5/8" CASING
1594.15' OF 4 1/2" CASING
20.12' OF 18" CASING

Well: **L54A**

Casing & Tubing Program

	Casing	Casing Interval	Hole Size	Cement used in cu/ft	Cemented to Surface Yes	Cemented to Surface No	Date Cemented	Packers or Bridge Plugs
Conductor	18"	17.1	20"			X	8/18/08	
Conductor	13 3/8"	18.45	15"			X	8/19/08	
Surface	9 5/8"	214.6	12 3/8"	128	X		8/19/08	Basket@44'
Water Protection	4 1/2"	1594.15	6 1/2"	304.2	X		8/21/08	
Coal Protection	4 1/2"	1594.15	6 1/2"	304.2	X		8/21/08	
Other Casing & Tubing								
Other Casing & Tubing								
Liners								

Well Number	L-54A		
Completion Date	9/10/2008		
Total Depth	1739.78		
Permit Number	9532		
	Zone 1	Zone 2	Zone 3
Coals	P32,P33,P345,SJ3,SJ2	P41,COAL,P52,P51,P62,COAL	P82,P10,COAL,MH2,MH1
L-54A	L-54A	L-54A	L-54A
Nitrogen (MSCF)	326	208	368
Water (BBLS)	223	193	277
Sand (SXS 20/40)	351	138	530
Sand (SXS 12/20)	0	0	0
Top Perf	1302	991	549.5
Bottom Perf.	1534.5	1270	843.5
# Perfs	24	24	20
Perf Size	0.45	0.45	0.45
Break. Press.	2549	2120	1340
Avg. Rate	9	6	8
ISIP	1890	1708	775
Min	2	2	2
Min Press.	Na	Na	Na
Avg. Press.	2767	3149	2434
Stimulated	Y	Y	Y
Stim. Date	9/10/2008	9/10/2008	9/10/2008

Permittee	CNX GAS

DRILL DATA HOLE-NOAH HORN WELL DRILLING, INC

COMPANY: CNX **HOLE #:** M-54

LOCATION: JONES FORK **DRILL RIG #:** 94

DATE STARTED: 04-13-05 **DATED COMPLETED:** 04-21-05

ELECTRIC LOGGED:YES **GROUTED:YES**

DEPTH	THICKNESS		STRATA REMARKS
FROM	TO	FT	DESCRIPTION,VOIDS ETC
0	6	6	OVERBURDEN
6	20	14	SANDY SHALE / SAND STONE 20' W/ 13 3/8" CASING
20	30	10	SAND STONE
30	92	62	SAND STONE / SANDY SHALE STRKS
92	123	31	SANDY SHALE / SAND STONE/SANDY SHALE
123	154	31	SANDY SHALE / COAL/SAND STONE
154	172	18	SAND STONE / COAL/SANDY SHALE
172	188	16	VOID
188	208	20	SAND STONE/SANDY SHALE 206.55' W/ 9 5/8' CASING
208	235	27	(5) CEMENT & SANDY SHALE
235	265	30	SANDY SHALE / COAL @ 260-262
265	295	30	SAND STONE
295	325	30	SANDY SHALE / COAL 308.5' W/ 7" CASING
325	365	40	SAND STONE / SANDY SHALE STR
365	395	30	SAND STONE / SANDY SHALE
395	425	30	SANDY SHALE STR/SAND STONE/SANDY SHALE/COAL/SAND STONE
425	455	30	SAND STONE
455	485	30	SAND STONE/SANDY SHALE/COAL
485	515	30	SAND STONE/SANDY SHALE
515	545	30	SANDY SHALE/COAL
545	575	30	SANDY SHALE
575	605	30	SAND STONE/COAL
605	635	30	SAND STONE
635	665	30	SAND STONE/COAL
665	725	60	SAND STONE
725	755	30	SAND STONE/COAL
755	785	30	SANDY SHALE/COAL
785	845	60	SAND STONE
845	875	30	SANDY SHALE
875	905	30	SAND STONE/SANDY SHALE
905	995	90	SANDY SHALE
995	1025	30	SANDY SHALE/COAL
1025	1055	30	SAND STONE
1055	1205	150	SAND STONE
1205	1235	30	SAND STONE/SANDY SHALE
1235	1265	30	SAND STONE/SANDY SHALE/COAL/SANDY SHALE/POSS COAL
1265	1295	30	SANDY SHALE/POSS COAL/SAND STONE
1295	1325	30	SAND STONE/SANDY SHALE STRKS

1325	1355	30	SAND STONE/SANDY SHALE STRKS/COAL
1355	1385	30	SAND STONE/SANDY SHALE/SAND STONE
1385	1415	30	SAND STONE/SANDY SHALE STRKS
1415	1445	30	SAND STONE/SANDY SHALE/COAL STR
1445	1475	30	SANDY SHALE/SAND STONE/COAL STR
1475	1505	30	COAL/SANDY SHALE/SAND STONE/SANDY SHALE
1505	1540	35	SAND STONE/SANDY SHALE/COAL/SAND STONE
1540	1570	30	SAND STONE/SANDY SHALE/COAL/SAND STOEN/SANDY SHALE
1570	1600	30	SANDY SHALE/COAL/SAND STONE (HARD)
1600	1630	30	SADN STONE (HARD)
1630	1660	30	COAL/SANDY SHALE/SAND STONE (HARD)
1660	1690	30	SAND STONE/P-4 COAL/SANDY SHALE/SAND STONE
1690	1725	35	SAND STONE
1725	1730	5	POCA #3
1730	1750	20	SANDY SHALE
1750	1840	90	SAND STONE
1840	1870	30	SAND STONE/SANDY SHALE
1870	1900	30	SANDY SHALE
1900	1930	30	SANDY SHALE/COAL
1930	1945	15	SAND STONE
1945	1960	15	SANDY SHALE/COAL STR 1961.72' W/ 4 ½" CASING
1960	1990	30	SANDY SHALE / COAL STR / SAND STONE
1990	2050	60	SAND STONE / SANDY SHALE STRKS
2050	2140	90	SAND STONE
2140	2170	30	SHALE STR/SAND STONE / RED SHALE

M54

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	13 3/8"	20'	16"		☐	X	4-13-05	
Surface	9 5/8"	206.55'	12 3/8"	118 Cu/ft		X	4-16-05	Basket@177'
Water Protection	4 ½"	1961.72'	6 ½"	253.4 Cu/ft	X	☐	4-21-05	
Coal Protection	4 ½"	1961.72'	6 ½"	253.4 Cu/ft	X	☐	4-21-05	
Other Casing And Tubing Left In Well	7"	308.5	8 7/8"	118 Cu/ft	X	☐	4-17-05	Basket@ 221'
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Cemented Backside of 9 5/8" casing. .

DRILLER'S LOG

Compiled by: Noah Horn Well Drilling , Inc.

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
See Attached							

Permittee: CNX Gas Company LLC (Company)
By: [signature] (Signature)

Form DGO-GO-14
Rev. 1/98

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

BU-2800
RZC

Operation Name: CBM-M54
Permit Number: 6438

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well

Date Well Completed: 5/10/05 Total Depth: 2149.34'

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 2: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 3: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ After Stimulation

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1)					
ZONE (2)					
ZONE (3)					

Final production if gas zones are commingled _____ MCFD _____ Hours Tested

_____ PS16 _____ Hours Tested

Permittee: CNX Gas Company LLC (Company)
By: Linda L. Compton (Signature) Date: 5/20/05

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Well Number	CBM M - 54			
Completion Date	Tues 5/10/05			
Total Depth	2149.34			
Permit Number	6438			
	Zone 1	Zone 2	Zone 3	Zone 4
Coals	SJ3,P32,P33,345	P31,P41,42,52,51,62,61	P72,71,82,P10,P11,Coal	MH2,MH1,UH3,UH2
CBM M - 54	CBM M - 54	CBM M - 54	CBM M - 54	CBM M - 54
Nitrogen (MSCF)	379	423	335	327
Water (BBLS)	180	196	160	140
Sand (SXS 20/40)	250	300	275	175
Sand (SXS 12/20)	56	55	52	52
Top Perf	1733	1484	1021	841.5
Bottom Perf.	1930	1679	1309	992
# Perfs	20	28	26	18
Perf Size	0.45	0.45	0.45	0.45
Break. Press.	3290	3573	2212	2365
Avg. Rate	7	11.1	11.5	12.2
ISIP	2590	1550	1190	1485
Min	5	5	5	5
Min Press.	-	-	-	-
Avg. Press.	3616	3108	2979	2524
Stimulated	Y	Y	Y	Y
Stim. Date	Tues 5/10/05	Tues 5/10/05	Tues 5/10/05	Tues 5/10/05
Permittee	CNX GAS LLC			

COMPANY: CNX GAS CO LLC
HOLE: M-54-A
RIG: 244
LOCATION: CHICKEN RIDGE, VA

DATE STARTED: 12/12/2011
DATE COMPLETED: 12/20/2011

ELECTRIC LOGGED: YES
GROUTED: YES

DEPTH FROM	THICKNESS TO	FT	STRATA DESCRIPTION, VOIDS ETC
0	20	20	OVERBURDEN
20	26	6	SAND/SHALE
26	57	31	SAND/SHALE
57	88	31	SAND/SHALE/COAL (COAL @84-85)
88	119	31	SAND/SHALE/COAL (COAL @95-96 &111-112)
119	149	30	SAND/SHALE
149	179	30	SAND/SHALE/COAL (COAL @160-161)
179	209	30	SAND/SHALE
209	239	30	SAND/SHALE/COAL (COAL @212-213)
239	269	30	SAND/SHALE
269	299	30	SAND/SHALE/COAL (COAL @277-278 & 282-283)
299	329	30	SAND/SHALE/COAL (COAL @321-322 & 323-324)
329	359	30	SAND/SHALE
359	366	7	SAND/SHALE
366	371	5	VOID
371	389	18	SAND/SHALE
389	419	30	SAND/SHALE/COAL (COAL @400-401)
419	449	30	SAND/SHALE
449	479	30	SAND/SHALE
479	484	5	SAND
484	510	26	SAND/SHALE
510	540	30	SAND/SHALE/COAL (COAL @526-527)
540	554	14	SAND/SHALE
554	559	5	VOID
559	570	11	SAND/SHALE
570	600	30	SAND/SHALE
600	630	30	SAND/SHALE
630	660	30	SAND/SHALE
660	667	7	SAND/SHALE
667	697	30	SAND/SHALE
697	727	30	SAND/SHALE
727	757	30	SAND/SHALE/COAL (COAL @752-753)
757	787	30	SAND/SHALE
787	817	30	SAND/SHALE/COAL (COAL @805-806)
817	847	30	SAND/SHALE
847	877	30	SAND/SHALE/COAL (COAL @857-858)
877	907	30	SAND/SHALE
907	937	30	SAND/SHALE
937	967	30	SAND/SHALE/COAL (COAL @955-956 &966-967)
967	997	30	SAND/SHALE
997	1027	30	SAND/SHALE/COAL (COAL @1023-1024)
1027	1065	38	SAND/SHALE/COAL (COAL @1050-1052)
1065	1095	30	SAND/SHALE
1095	1125	30	SAND/SHALE/COAL (COAL @1104-1105)
1125	1155	30	SAND/SHALE

1155	1185	30	SAND/SHALE/COAL (COAL @ 1157-1158 & 1179-1180)
1185	1215	30	SAND/SHALE/COAL (COAL @1211-1212)
1215	1245	30	SAND/SHALE/COAL (COAL @1242-1243)
1245	1275	30	SAND/SHALE
1275	1305	30	SAND/SHALE/COAL (COAL @1295-1297)
1305	1335	30	SAND/SHALE
1335	1365	30	SAND/SHALE/COAL (COAL @1363-1364)
1365	1395	30	SAND/SHALE/COAL (COAL @1394-1395)
1395	1425	30	SAND/SHALE/COAL (COAL @ 1421-1423)
1425	1455	30	SAND/SHALE
1455	1485	30	SAND/SHALE
1485	1515	30	SAND/SHALE/COAL (COAL @1499)
1515	1545	30	SAND/SHALE/COAL (COAL @1525-1526)
1545	1575	30	SAND/SHALE
1575	1605	30	SAND/SHALE/COAL (COAL @1586-1587 &1600-1601)
1605	1635	30	SAND/SHALE/COAL (COAL @1620-1621)
1635	1665	30	SAND/SHALE
1665	1695	30	SAND/SHALE/COAL (COAL @1670-1671)
1695	1725	30	SAND/SHALE
1725	1755	30	SAND/SHALE
1755	1785	30	SAND/SHALE
1785	1815	30	SAND/SHALE/COAL (COAL @1795-1796)
1815	1845	30	SAND/SHALE/COAL (COAL @1830-1831)
1845	1875	30	SAND/SHALE/COAL (COAL @1852-1853 & 1865-1866 & 1869-1870 & 1872-1873)
1875	1905	30	SAND/SHALE/COAL (COAL @1887-1888 & 1901-1902)
1905	1935	30	SAND/SHALE/COAL (COAL @1915-1916)
1935	1965	30	SAND/SHALE
1965	1995	30	SAND/SHALE
1995	2025	30	SAND/SHALE
2025	2055	30	SAND/SHALE/COAL (COAL @2041-2042 POCA 3)
2055	2085	30	SAND/SHALE
2085	2115	30	SAND/SHALE/COAL (COAL @2095-2097)
2115	2145	30	SAND/SHALE
2145	2175	30	SAND/SHALE
2175	2205	30	SAND/SHALE
2205	2235	30	SAND/SHALE/COAL (COAL @2231-2232)
2235	2265	30	SAND/SHALE
2265	2295	30	SAND/SHALE/COAL (COAL @2285-2287)
2295	2325	30	SAND/SHALE/COAL (COAL @2301-2302)
2325	2355	30	SAND/SHALE
2355	2385	30	SAND/SHALE
2385	2415	30	SAND/SHALE/COAL (COAL @2390-2391)
2415	2445	30	SAND/SHALE
2445	2475	30	SAND/SHALE
2475	2505	30	SAND/SHALE
2505	2535	30	SAND/SHALE (RED SHALE @2515-2525)

2535

2535 FT TOTAL DEPTH
20 FT OF 13 3/8 CASING
464.05 FT OF 9 5/8 CASING
636.37 FT OF 7 CASING
2185.03 FT OF 4 1/2 CASING

Well: **M54A**

Casing & Tubing Program

	Casing	Casing Interval	Hole Size	Cement used in cu/ft	Cemented to Surface Yes	Cemented to Surface No	Date Cemented	Packers or Bridge Plugs
Conductor	13 3/8"	20	15"			X	12/12/11	
Surface	9 5/8"	464	12 3/8"	408	X		12/12/11	Basket@253
Water Protection	4 1/2"	2185.03	6 1/2"	353.8	X		12/20/11	
Coal Protection	4 1/2"	2185.03	6 1/2"	353.8	X		12/20/11	
Other Casing & Tubing	7"	636	8 7/8"	240	X		12/14/11	Basket@424
Other Casing & Tubing								
Liners								

Well Number	M-54-A				
Completion Date	1/24/2012				
Total Depth	2496.95				
Permit Number	12098				
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Coals	P345, P3-2, P3-3	P3-1, P4-1, P5-2, P5-1, P6-2, P6-1	COAL, P8-2, P10, P11, MH2	MH1, UH3, UH2, UH1	LS2, LS1, SE2
M-54-A	M-54-A	M-54-A	M-54-A	M-54-A	M-54-A
Nitrogen (MSCF)	0.388	0.34	0.366	0.315	0.283
Water (BBLS)	188	185	230	167	159
Sand (SXS 20/40)	225	250	250	200	150
Sand (SXS 12/20)	50	54	55	56	50
Top Perf	2093.5	1852	1357.5	1170.5	1044
Bottom Perf.	2099	2040	1729	1292	1110
# Perfs	20	28	28	20	12
Perf Size	0.45	0.45	0.45	0.45	0.45
Break. Press.	3018	2607	2336	2310	2695
Avg. Rate	11	13	13	13	12
ISIP	2236	1279	1177	1387	1128
Min	5	5	5	5	5
Min Press.					
Avg. Press.	3525	2730	2415	2500	2534
Stimulated	Y	Y	Y	Y	Y
Stim. Date	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012

Permittee CNX GAS LLC

DRILL DATA HOLE-NOAH HORN WELL DRILLING, INC

COMPANY: CNX **HOLE #:** M-55

LOCATION: JONES FORK **DRILL RIG #:** 976

DATE STARTED: 12-05-04 **DATED COMPLETED:** 12-09-04

ELECTRIC LOGGED: YES **GROUTED:** YES

DEPTH		THICKNESS	STRATA REMARKS
FROM	TO	FT	DESCRIPTION,VOIDS ETC
0	38	38	OVERBURDEN 38' W/ 13 3/8" CASING
38	90	52	SAND
90	120	30	SAND / SHALE
120	150	30	SAND / SHALE / COAL
150	180	30	SAND / SHALE
180	240	60	SAND 222.5' W/ 9 5/8" CASING
240	270	30	SAND / SHALE
270	300	30	SAND
300	330	30	SAND / SHALE
330	390	60	SAND
390	420	30	SAND / SHALE
420	450	30	SAND / SHALE / COAL
450	510	60	SAND
510	570	60	SAND / SHALE
570	630	60	SANDY SHALE
630	660	30	SANDY SHALE / COAL
660	690	30	SAND
690	720	30	SANDY SHALE / COAL
720	750	30	SANDY SHALE
750	780	30	SAND
780	810	30	SANDY SHALE / COAL
810	840	30	SAND
840	875	35	SANDY SHALE / COAL
875	905	30	SANDY SHALE
905	965	60	SANDY SHALE / COAL
965	995	30	SANDY SHALE
995	1055	60	SANDY SHALE / COAL
1055	1115	60	SANDY SHALE
1115	1175	60	SANDY SHALE / COAL
1175	1205	30	SAND / SHALE / COAL
1205	1265	60	SAND / SHALE
1265	1295	30	SAND
1295	1355	60	SAND / SHALE / COAL
1355	1364	9	SAND / SHALE / UPPER 3 COAL
1364	1374	10	SAND
1374	1378	4	COAL P-3
1378	1385	7	SAND
1385	1415	30	SAND / SHALE / COAL
1415	1475	60	SAND 1471.8' W/ 4 ½" CASING
1475	1505	30	SAND / SHALE / COAL
1505	1535	30	SAND / SHALE
1535	1565	30	SAND

1565	1595	30	SANDY SHALE
1595	1715	120	SAND / SHALE
1715	1775	60	SANDY SHALE
1775	1805	30	SANDY SHALE / RED SHALE
			TD 6 ½" HOLE

1805.00 FT. TOTAL DEPTH
38.00 FT. OF 13 3/8" CASING
222.50 FT. OF 9 5/8" CASING
1471.80 FT. OF 4 ½" CASING

M 55

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	13 3/8"	38'	15"		☐	X	12-5-04	
Surface	9 5/8"	222.5'	12 3/8"	106.2 Cu/ft	X	☐	12-6-04	Basket@89'
Water Protection	4 ½"	1471.8'	6 ½"	329.4 Cu/ft	X	☐	12-9-04	
Coal Protection	4 ½"	1471.8'	6 ½"	329.4 Cu/ft	X	☐	12-9-04	
Other Casing And Tubing Left In Well					☐	☐		
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Cemented Backside of 9 5/8" casing. Returns to surface on 4 ½".

DRILLER'S LOG

Compiled by: Noah Horn Well Drilling , Inc.

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
See Attached							

Permittee: CNX Gas Company LLC (Company)
By: Susan L. Arrington (Signature)

Form DGO-GO-14
Rev. 1/98

BU-2634
RZC

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Operation Name: CBM-M55
Permit Number: 6125

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well

Date Well Completed: 01/15/05 Total Depth: 1803.7'

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 2: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 3: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ After Stimulation

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1)					
ZONE (2)					
ZONE (3)					

Final production if gas zones are commingled _____ MCFD _____ Hours Tested

_____ PS16 _____ Hours Tested

Permittee: CNX Gas Company LLC (Company)
By: Justin L. Thompson (Signature) Date: 1-24-05
Form DGO-GO-15
Rev. 1/98

ENTERED 02-25-05

RECEIVED
JAN 25 2005
DGO

Well Number	CBM M - 55		
Completion Date	Sat 1/15/05		
Total Depth	1803.7		
Permit Number	6124		
	Zone 1	Zone 2	Zone 3
Coals	P32,P33,P34,P31,P41,P42,P52	P51,P62,Coal	P82,MH2,MH1
CBM M - 55	CBM M - 55	CBM M - 55	CBM M - 55
Nitrogen (MSCF)	466	280	283
Water (BBLS)	188	137	101
Sand (SXS 20/40)	450	300	450
Sand (SXS 12/20)	54	58	53
Top Perf	1178	998	560.5
Bottom Perf.	1372	1154.5	859
# Perfs	28	10	16
Perf Size	0.45	0.45	0.45
Break. Press.	2455	2335	2027
Avg. Rate	10	9.1	7.5
ISIP	1610	1576	1200
Min	5	5	5
Min Press.			
Avg. Press.	3246	3012	2644
Stimulated	Y	Y	Y
Stim. Date	Sat 1/15/05	Sat 1/15/05	Sat 1/15/05
Permittee	CNX GAS LLC		

COMPANY	CNX GAS CO LLC
HOLE	M-55-A
RIG #:	141
LOCATION:	JEWELL VALLEY RD
DATE STARTED:	2/7/2009
DATE COMPLETED:	2/13/2009
ELECTRIC LOGGED:	YES
GROUTED:	YES

DEPTH FROM	THICKNESS TO	FT	STRATA DESCRIPTION, VOIDS ETC.
0	43.75	43.75	OVERBURDEN
43.75	60	16.25	SAND/SHALE
60	90	30	SAND/SHALE/COAL
90	120	30	SAND/SHALE/COAL
120	150	30	SAND/SHALE/COAL
150	180	30	SAND/SHALE/COAL
180	210	30	SAND/SHALE
210	240	30	SAND/SHALE
240	270	30	SAND/SHALE
270	283	13	SAND/SANDY SHALE
283	313	30	SAND/SANDY SHALE/COAL
313	343	30	SAND/SANDY SHALE/COAL
343	373	30	SAND/SANDY SHALE/COAL
373	403	30	SAND/SANDY SHALE/COAL
403	433	30	SAND/SANDY SHALE
433	463	30	SAND/SANDY SHALE
463	493	30	SAND/SANDY SHALE/COAL
493	523	30	SAND/SANDY SHALE
523	553	30	SAND/SANDY SHALE
553	583	30	SAND/SANDY SHALE/COAL
583	613	30	SAND/SANDY SHALE
613	643	30	SAND/SANDY SHALE/COAL
643	673	30	SAND/SANDY SHALE/COAL
673	703	30	SAND/SANDY SHALE
703	733	30	SAND/SANDY SHALE/COAL
733	763	30	SAND/SANDY SHALE
763	793	30	SAND/SANDY SHALE
793	823	30	SAND/SANDY SHALE/COAL
823	853	30	SAND/SANDY SHALE/COAL
853	883	30	SAND/SHALE/COAL
883	920	37	SAND/COAL/SAND
920	950	30	SAND/SHALE
950	980	30	SAND/SHALE
980	1010	30	SAND/SHALE

1010	1040	30	SAND
1040	1070	30	SAND/COAL/SAND
1070	1100	30	SAND/SHALE
1100	1130	30	SAND/SHALE
1130	1160	30	SAND/SHALE/SAND
1160	1190	30	SAND
1190	1220	30	SAND/SHALE/COAL
1220	1250	30	SAND/SHALE
1250	1280	30	SAND/COAL/SAND
1280	1310	30	SAND/SHALE/COAL
1310	1340	30	SAND/SHALE
1340	1370	30	SAND/SHALE
1370	1400	30	SAND/SHALE
1400	1430	30	SAND/SHALE
1430	1460	30	SAND/SHALE/COAL
1460	1490	30	SAND/SHALE/COAL
1490	1520	30	SAND/SHALE/COAL
1520	1550	30	SAND/SHALE/COAL
1550	1580	30	SAND/SHALE/COAL
1580	1610	30	SANDY SHALE/COAL/SANDY SHALE
1610	1640	30	SANDY SHALE/COAL/SANDY SHALE
1640	1670	30	SANDY SHALE/COAL/SANDY SHALE
1670	1700	30	SANDY SHALE
1700	1706	6	SANDY SHALE
1706	1710	4	POCA-3/COAL
1710	1730	20	SAND
1730	1760	30	SAND
1760	1790	30	SAND/SANDY SHALE
1790	1820	30	SANDY SHALE/COAL/SANDY SHALE
1820	1850	30	SANDY SHALE/COAL/SANDY SHALE
1850	1880	30	SANDY SHALE
1880	1910	30	SANDY SHALE/COAL/SANDY SHALE
1910	1940	30	SANDY SHALE
1940	1970	30	SANDY SHALE
1970	2000	30	SANDY SHALE/SAND

2000' TOTAL DEPTH
44.75' OF 13 3/8" CASING
253.55' OF 7" CASING
1800' OF 4 1/2" CASING

Well: **M55A**

Casing & Tubing Program

	Casing	Casing Interval	Hole Size	Cement used in cu/ft	Cemented to Surface Yes	Cemented to Surface No	Date Cemented	Packers or Bridge Plugs
Conductor	13 3/8"	44.75	15"			X	2/9/09	
Surface	7"	253.55	8 7/8"	123.9	X		2/10/09	Bskt@126&146
Water Protection	4 1/2"	1800.00	6 1/2"	270.4	X		2/13/09	
Coal Protection	4 1/2"	1800.00	6 1/2"	270.4	X		2/13/09	
Other Casing & Tubing								
Other Casing & Tubing								
Liners								

Well Number	M-55A		
Completion Date	3/10/2009		
Total Depth	2003.27		
Permit Number	7712		
	Zone 1	Zone 2	Zone 3
Coals	P32,P33,P34,P31,P42,P41	P52,P51,	COAL,P82,P10,MH2,MH1
M-55A	M-55A	M-55A	M-55A
Nitrogen (MSCF)	303	324	380
Water (BBLS)	212	194	206
Sand (SXS 20/40)	207	220	348
Sand (SXS 12/20)	0	0	0
Top Perf	1635.5	1510.5	909
Bottom Perf.	1733	1535	1215.5
# Perfs	28	8	20
Perf Size	0.45	0.45	0.45
Break. Press.	2567	2245	2305
Avg. Rate	6	5	6
ISIP	3047	1715	1212
Min	2	2	2
Min Press.	Na	Na	Na
Avg. Press.	3525	2977	3137
Stimulated	Y	Y	Y
Stim. Date	3/10/2009	3/10/2009	3/10/2009

Permittee	CNX GAS

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

*** GEOLOGIST LOG *** HOLE NO = 03-TC- 1-3

STATE = VIRGINIA COUNTY = BUCHANAN TWP = RANGE = SECT =

S ELEV = 2017.65 HOW DET = EDM USGS QUAD = USGS SIZE = 71/2 MIN

N-COOR = 341449. E-COOR = 1046893. SOURCE = STATE LOC CODE = SURVEYED ELOG = 1235A

MERIDIAN = SECT-NUM = CONTR = DRILLER = DRILL CODE = ROTARY

FLUID = WATER FLOW = GAS CEMENTED = NO WRAPPING = UNKNOWN CONTAINER = UNKNOWN

CORE COND. = UNKNOWN UNITS = ENGLISH SURFACE AZIMUTH DEG = .00 SURFACE DIP DEG = .00

INSPECTOR = M. ORLICH DATE DRILLED = TO 120203 DATA SOURCE =

COMMENTS = DEGAS WELL, DENSITY LOG, NOT ADJ. FOR DEV.

*** DATA ENTERED IN TO-DEPTHS ***

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
2017.65	.00	365.50	365.50		INTERVAL	
1652.15	365.50	366.80	1.30	LS1	COAL	
1650.85	366.80	370.20	3.40		INTERVAL	
1647.45	370.20	370.40	.20	LS2	COAL	
1647.25	370.40	370.90	.50		INTERVAL	
1646.75	370.90	371.10	.20		COAL	
1646.55	371.10	440.20	69.10		INTERVAL	
1577.45	440.20	441.50	1.30		COAL	
1576.15	441.50	505.30	63.80		INTERVAL	
1512.35	505.30	507.00	1.70	UH3	COAL	
1510.65	507.00	559.00	52.00		INTERVAL	
1458.65	559.00	560.80	1.80	MH1	COAL	
1456.85	560.80	628.70	67.90		INTERVAL	
1388.95	628.70	629.30	.60	MH2	COAL	
1388.35	629.30	790.20	160.90		INTERVAL	
1227.45	790.20	790.30	.10	P91	COAL	
1227.35	790.30	800.60	10.30		INTERVAL	
1217.05	800.60	800.90	.30	P92	COAL	
1216.75	800.90	802.10	1.20		INTERVAL	
1215.55	802.10	802.30	.20	P93	COAL	
1215.35	802.30	856.50	54.20		INTERVAL	
1161.15	856.50	857.80	1.30	P71	COAL	
1159.85	857.80	908.00	50.20		INTERVAL	
1109.65	908.00	908.30	.30		COAL	
1109.35	908.30	914.80	6.50		INTERVAL	
1102.85	914.80	915.00	.20		COAL	
1102.65	915.00	946.80	31.80		INTERVAL	
1070.85	946.80	946.90	.10		COAL	
1070.75	946.90	947.70	.80		INTERVAL	
1069.95	947.70	948.00	.30	P72	COAL	
1069.65	948.00	989.50	41.50		INTERVAL	
1028.15	989.50	989.60	.10		COAL	
1028.05	989.60	999.00	9.40		INTERVAL	
1018.65	999.00	999.60	.60		COAL	
1018.05	999.60	1022.10	22.50		INTERVAL	
995.55	1022.10	1022.60	.50		COAL	
995.05	1022.60	1110.00	87.40		INTERVAL	
907.65	1110.00	1110.90	.90	P61	COAL	
906.75	1110.90	1126.00	15.10		INTERVAL	
891.65	1126.00	1126.80	.80	P62	COAL	
890.85	1126.80	1153.90	27.10		INTERVAL	

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

HOLE NO = 03-TC- 1-3

DRILL CONTR =

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
863.75	1153.90	1154.90	1.00	P51	COAL	
862.75	1154.90	1178.50	23.60		INTERVAL	
839.15	1178.50	1179.10	.60	P52	COAL	
838.55	1179.10	1276.00	96.90		INTERVAL	
741.65	1276.00	1277.90	1.90	P41	COAL	
739.75	1277.90	1303.40	25.50		INTERVAL	
714.25	1303.40	1304.00	.60	P43	COAL	
713.65	1304.00	1367.44	63.44		INTERVAL	
650.21	1367.44	1368.56	1.12	P32	COAL	
649.09	1368.56	1370.10	1.54	P33	COAL	
647.55	1370.10	1371.34	1.24	P34	COAL	
646.31	1371.34	1409.70	38.36		INTERVAL	
607.95	1409.70	1410.00	.30	P21	COAL	
607.65	1410.00	1496.10	86.10		INTERVAL	
521.55	1496.10	1496.40	.30	P01	COAL	
521.25	1496.40	1561.00	64.60		INTERVAL	
456.65	1561.00	1561.10	.10	SJ3	COAL	
456.55	1561.10	1569.90	8.80		INTERVAL	
447.75	1569.90	1570.00	.10	SJ2	COAL	
447.65	1570.00	1573.00	3.00		INTERVAL	
444.65	1573.00	1573.20	.20	SJ1	COAL	
444.45	1573.20	1892.00	318.80		INTERVAL	
125.65	1892.00	2276.00	384.00	PRD	SHALE	
-258.35	2276.00	2371.00	95.00	PRN	SANDSTONE	
-353.35	2371.00	2448.00	77.00		INTERVAL	
-430.35	2448.00	2472.00	24.00	RVC	SANDSTONE	
-454.35	2472.00	2522.00	50.00	AVS	LIMESTONE	
-504.35	2522.00	2982.00	460.00		INTERVAL	
-964.35	2982.00	3099.00	117.00	UMX	SANDSTONE	
-1081.35	3099.00	3138.00	39.00		INTERVAL	
-1120.35	3138.00	3242.00	104.00	MMX	SANDSTONE	
-1224.35	3242.00	3262.00	20.00		INTERVAL	
-1244.35	3262.00	3316.00	54.00	SMX	SANDSTONE	
-1298.35	3316.00	3464.00	148.00		INTERVAL	
-1446.35	3464.00	3515.00	51.00	LMX	SANDSTONE	
-1497.35	3515.00	3722.00	207.00		INTERVAL	
-1704.35	3722.00	3830.00	108.00	LLM	LIMESTONE	
-1812.35	3830.00	3893.00	63.00		INTERVAL	
-1875.35	3893.00	4528.00	635.00	BLM	LIMESTONE	
-2510.35	4528.00	4767.00	239.00		INTERVAL	
-2749.35	4767.00	4772.00	5.00	WER	SANDSTONE	
-2754.35	4772.00	5116.00	344.00	SUN	SHALE	
-3098.35	5116.00	5135.00	19.00	COF	BLACK SHALE	
-3117.35	5135.00	5188.00	53.00	BER	SANDSTONE	
-3170.35	5188.00	5254.00	66.00		INTERVAL	
-3236.35	5254.00	5290.00	36.00	GRD	SANDSTONE	
-3272.35	5290.00	5410.00	120.00		INTERVAL	
					BOTTOM HOLE	
-3392.35			5410.00			

PMCTC13

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	16"	16'	17 ½"			X	11-20-03	
Surface	12 ¾"	40'	15"			X	11-20-03	
Water Protection	9 5/8"	311'	12 ¼"	176.4 Cu/ft	X		11-20-03	
Coal Protection	7"	2160'	8 7/8"	383.6 Cu/ft	X		12-2-03	Basket @88'
Other Casing And Tubing Left In Well	4 ½"	5351'	6 3/8"	517.4 Cu/ft		X	12-6-03	
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.:

DRILLER'S LOG

Compiled by: GASCO Drilling

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
Pennsylvanian	Norton	Topsoil	Brown	0	25	25	1" Stream @ 25'
	Norton	Shale	Grey	25	90	65	
	Norton	Coal	Black	90	91	1	
	Norton	Sandy Shale	Grey	91	148	57	
	Norton	Coal	Black	148	149	1	
	Norton	Sandy Shale	Grey	149	260	111	2" Stream @250'
	Norton	Coal	Black	260	261	1	
	Norton	Shale	Grey	261	284	23	
	Norton	Sandy Shale	Grey	284	400	116	
	Norton	Sandstone	Grey	400	448	48	
	Norton	Coal	Black	448	449	1	
	Norton	Sandy Shale	Grey	449	490	41	
	Norton	Sandstone	Grey	490	515	25	
	Norton	Coal	Black	515	516	1	
	Norton	Sandy Shale	Grey	516	568	52	
	Norton	Coal	Black	568	570	2	
	Norton	Sandy Shale	Grey	570	637	67	
	Norton	Coal	Black	637	638	1	MH2
	Lee	Sandy Shale	Grey	638	790	152	
	Lee	Coal	Black	790	791	1	

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

B4-2573
RZC

Operation Nam PMC-TC-13
Permit Number: 5972

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well

Date Well Completed: 12/10/03 Total Depth: 5410'

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 2: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 3: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ After Stimulation

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1)					
ZONE (2)					
ZONE (3)					

Final production if gas zones are commingled _____ MCFD _____ Hours Tested

_____ PS16 _____ Hours Tested

Permittee: CNX Gas Company LLC (Company)
By: Leslie K. Arrington (Signature) Date: 6-11-04

Form DGO-GO-15
Rev. 1/98

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0677

Well Number	TC-13 (25319)				
Completion Date	12/10/2003				
Total Depth	5410				
Permit Number	5972				
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Coals	Gordon	Berea	Upper Maxon	Ravencliff	
Treatment					
Nitrogen (MSCF)	608	647	352	382	
Water (BBLS)	165	135	296	337	
Sand (SXS 20/40)	454	305	335	403	
Sand (SXS 12/20)	0	0	0	0	
Top Perf	5266	5160	3024	2286	
Bottom Perf.	5290	5170	3054	2354	
# Perfs	17	21	50	68	
Perf Size	0.45	0.45	0.45	0.45	
Break. Press.	3140	3756	2453	2750	
Avg. Rate	6.5	6.5	6	6.5	
ISIP	2499	2902	1515	1451	
Min	5	5	5	5	
Min Press.	2353	2587	1437	1419	
Avg. Press.	2644	3433	1846	1837	
Stimulated	Y	Y	Y	Y	
Stim. Date	12/10/2003	12/10/2003	12/10/2003	12/10/2003	

Permittee CNX Gas

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

*** GEOLOGIST LOG *** HOLE NO = 25454

STATE = VIRGINIA COUNTY = BUCHANAN TWP = RANGE = SECT =

S ELEV = 2600.78 HOW DET = EDM USGS QUAD = USGS SIZE = 71/2 MIN

N-COOR = 343887. E-COOR = 1047516. SOURCE = STATE LOC CODE = SURVEYED ELOG = 1235A

MERIDIAN = SECT-NUM = CONTR = DRILLER = DRILL CODE = ROTARY

FLUID = WATER FLOW = GAS CEMENTED = NO WRAPPING = UNKNOWN CONTAINER = UNKNOWN

CORE COND. = UNKNOWN UNITS = ENGLISH SURFACE AZIMUTH DEG = .00 SURFACE DIP DEG = .00

INSPECTOR = M. ORLICH DATE DRILLED = TO 101004 DATA SOURCE =

COMMENTS = CONVENTIONAL GAS WELL, GAMMA ONLY 0-331'

*** DATA ENTERED IN TO-DEPTHS ***

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
2600.78	.00	367.10	367.10		INTERVAL	
2233.68	367.10	368.00	.90	JB1	COAL	
2232.78	368.00	395.60	27.60		INTERVAL	
2205.18	395.60	396.00	.40	JB2	COAL	
2204.78	396.00	413.00	17.00		INTERVAL	
2187.78	413.00	415.00	2.00	JB3	COAL	
2185.78	415.00	456.70	41.70		INTERVAL	
2144.08	456.70	457.20	.50	T2	COAL	
2143.58	457.20	457.40	.20		INTERVAL	
2143.38	457.40	458.50	1.10	T2	COAL	
2142.28	458.50	459.00	.50		INTERVAL	
2141.78	459.00	460.50	1.50	T2	COAL	
2140.28	460.50	645.10	184.60		INTERVAL	
1955.68	645.10	646.20	1.10	US1	COAL	
1954.58	646.20	652.90	6.70		INTERVAL	
1947.88	652.90	653.00	.10		COAL	
1947.78	653.00	653.90	.90		INTERVAL	
1946.88	653.90	654.00	.10		COAL	
1946.78	654.00	669.50	15.50		INTERVAL	
1931.28	669.50	670.00	.50		COAL	
1930.78	670.00	732.90	62.90		INTERVAL	
1867.88	732.90	733.00	.10	US2	COAL	
1867.78	733.00	849.20	116.20		INTERVAL	
1751.58	849.20	850.40	1.20	GC1	COAL	
1750.38	850.40	850.90	.50		INTERVAL	
1749.88	850.90	851.30	.40		COAL	
1749.48	851.30	902.00	50.70		INTERVAL	
1698.78	902.00	902.30	.30	SE1	COAL	
1698.48	902.30	924.00	21.70		INTERVAL	
1676.78	924.00	925.30	1.30	SE2	COAL	
1675.48	925.30	985.60	60.30		INTERVAL	
1615.18	985.60	987.00	1.40	LS1	COAL	
1613.78	987.00	991.70	4.70		INTERVAL	
1609.08	991.70	992.30	.60	LS2	COAL	
1608.48	992.30	1023.50	31.20		INTERVAL	
1577.28	1023.50	1024.20	.70	LS3	COAL	
1576.58	1024.20	1050.00	25.80		INTERVAL	
1550.78	1050.00	1051.40	1.40	UH1	COAL	
1549.38	1051.40	1095.10	43.70		INTERVAL	
1505.68	1095.10	1096.00	.90	UH2	COAL	
1504.78	1096.00	1109.70	13.70		INTERVAL	

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

HOLE NO = 25454

DRILL CONTR =

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
1491.08	1109.70	1111.40	1.70	UH3	COAL	
1489.38	1111.40	1162.60	51.20		INTERVAL	
1438.18	1162.60	1164.30	1.70	MH1	COAL	
1436.48	1164.30	1229.50	65.20		INTERVAL	
1371.28	1229.50	1230.20	.70	MH2	COAL	
1370.58	1230.20	1317.10	86.90		INTERVAL	
1283.68	1317.10	1317.80	.70	LH1	COAL	
1282.98	1317.80	1355.40	37.60		INTERVAL	
1245.38	1355.40	1355.90	.50	LH3	COAL	
1244.88	1355.90	1388.30	32.40		INTERVAL	
1212.48	1388.30	1388.70	.40	P91	COAL	
1212.08	1388.70	1402.10	13.40		INTERVAL	
1198.68	1402.10	1402.20	.10	P92	COAL	
1198.58	1402.20	1403.90	1.70		INTERVAL	
1196.88	1403.90	1404.00	.10	P93	COAL	
1196.78	1404.00	1457.00	53.00		INTERVAL	
1143.78	1457.00	1457.70	.70	P81	COAL	
1143.08	1457.70	1458.00	.30		INTERVAL	
1142.78	1458.00	1458.50	.50	P82	COAL	
1142.28	1458.50	1516.20	57.70		INTERVAL	
1084.58	1516.20	1516.50	.30		COAL	
1084.28	1516.50	1560.00	43.50		INTERVAL	
1040.78	1560.00	1560.30	.30	P72	COAL	
1040.48	1560.30	1561.50	1.20		INTERVAL	
1039.28	1561.50	1561.90	.40		COAL	
1038.88	1561.90	1631.90	70.00		INTERVAL	
968.88	1631.90	1632.00	.10		COAL	
968.78	1632.00	1729.70	97.70		INTERVAL	
871.08	1729.70	1730.00	.30	P61	COAL	
870.78	1730.00	1746.40	16.40		INTERVAL	
854.38	1746.40	1747.10	.70	P62	COAL	
853.68	1747.10	1770.80	23.70		INTERVAL	
829.98	1770.80	1772.00	1.20	P51	COAL	
828.78	1772.00	1794.10	22.10		INTERVAL	
806.68	1794.10	1795.10	1.00	P52	COAL	
805.68	1795.10	1890.30	95.20		INTERVAL	
710.48	1890.30	1890.70	.40	P41	COAL	
710.08	1890.70	1894.00	3.30		INTERVAL	
706.78	1894.00	1896.50	2.50	P42	COAL	
704.28	1896.50	1924.70	28.20		INTERVAL	
676.08	1924.70	1925.90	1.20	P31	COAL	
674.88	1925.90	1977.80	51.90		INTERVAL	
622.98	1977.80	1979.36	1.56	P32	COAL	
621.42	1979.36	1980.21	.85	P33	COAL	
620.57	1980.21	1981.54	1.33	345	COAL	
619.24	1981.54	2022.00	40.46		INTERVAL	
578.78	2022.00	2022.10	.10	P21	COAL	
578.68	2022.10	2111.73	89.63		INTERVAL	
489.05	2111.73	2624.00	512.27		INTERVAL	
-23.22	2624.00	2860.00	236.00	PRD	SHALE	
-259.22	2860.00	2933.00	73.00	PRN	SANDSTONE	
-332.22	2933.00	3033.00	100.00		INTERVAL	
-432.22	3033.00	3047.00	14.00	RAV	SANDSTONE	

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

HOLE NO = 25454

DRILL CONTR =

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
-446.22	3047.00	3102.00	55.00	AVS	LIMESTONE	
-501.22	3102.00	3484.00	382.00		INTERVAL	
-883.22	3484.00	3495.00	11.00		SANDSTONE	
-894.22	3495.00	3556.00	61.00		INTERVAL	
-955.22	3556.00	3659.00	103.00	UMX	SANDSTONE	
-1058.22	3659.00	3717.00	58.00		INTERVAL	
-1116.22	3717.00	3822.00	105.00	MMX	SANDSTONE	
-1221.22	3822.00	3847.00	25.00		INTERVAL	
-1246.22	3847.00	3916.00	69.00	SMX	SANDSTONE	
-1315.22	3916.00	4009.00	93.00		INTERVAL	
-1408.22	4009.00	4106.00	97.00	LMX	SANDSTONE	
-1505.22	4106.00	4304.00	198.00		INTERVAL	
-1703.22	4304.00	4395.00	91.00	LLM	LIMESTONE	
-1794.22	4395.00	4472.00	77.00		INTERVAL	
-1871.22	4472.00	5097.00	625.00	BLM	LIMESTONE	
-2496.22	5097.00	5359.00	262.00		INTERVAL	
-2758.22	5359.00	5362.00	3.00	WER	SANDSTONE	
-2761.22	5362.00	5688.00	326.00	SUN	SHALE	
-3087.22	5688.00	5708.00	20.00	COF	BLACK SHALE	
-3107.22	5708.00	5762.00	54.00	BER	SANDSTONE	
-3161.22	5762.00	5817.00	55.00		INTERVAL	
-3216.22	5817.00	5883.00	66.00	GRD	SANDSTONE	
-3282.22	5883.00	7400.00	1517.00	DSH	SHALE	
					BOTTOM HOLE	
-4799.22			7400.00			

25454

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	13 3/8"	36'	15"		☐	X	10-5-04	
Surface	9 5/8"	340'	12 3/8"	177 Cu/ft	X	☐	10-6-04	Basket @ 154'
Water Protection	7"	2731'	8 7/8"	515.8 Cu/ft	X☐	☐	10-11-04	Basket@ 90'
Coal Protection	7"	2731'	8 7/8"	515.8 Cu/ft	X☐	☐	10-11-04	Basket@ 90'
Other Casing And Tubing Left In Well	4 ½" 4 ½"	7333' N/A	6 3/8" 6 ¼" N/A	292.8 Cu/ft 216 Cu/ft		X X	10-19-04 12-17-04	 Squeeze Job
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Cement returns to surface on 9 5/8", Grouted backside to surface. Squeezed cement on 4 ½" casing annulus. Top of Cement – 5594'

DRILLER'S LOG

Compiled by: Union Drilling, Inc.

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
Pennsylvanian	Norton/Lee/ Poca	Sand/Shale/ Coal	Grey/ Black	0	1570	1570	
	Poca	Sand/Shale/ Coal	Grey/ Black	1570	2624	1054	Salt Sands
	Princeton	Sand/Shale	Grey	2624	2860	236	
Mississippian	Ravencliffe	Shale	Red	2860	2932	72	
		Sand/Shale	Grey	2932	3556	624	
	Upper Maxon	Shale	Grey	3556	3660	104	
		Sand/Shale	Grey	3660	3718	58	
	M. Maxon	Sand	Grey	3718	3818	100	
		Sand/Shale	Grey	3818	3878	60	
	Lower Maxon	Sand	Grey	3878	3924	46	
		Sand /Shale	Grey	3924	4036	112	
	Bradley	Sand	Grey	4036	4106	70	
		Sand/Shale	Grey	4106	4166	60	
	Little Lime	Limestone	Grey	4166	4198	32	
	Big Lime	Limestone	Grey	4198	5090	892	
		Sand/Shale	Grey	5090	5212	122	

BU-2716

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Operation Name: Well 25454
Permit Number: 6287-01

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well

Date Well Completed: 1/4/05 Total Depth: 7400'

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 2: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

ZONE 3: _____ Formation Stimulated With: _____
Perforated _____ To _____ No. of Perforations _____ Perforation Size _____
Formation Broke down at: _____ PSIG Average Injection Rate: _____ (PSIG)
ISIP _____ (PSIG) MIN SIP. _____ (PSIG) Average Downhole Injection Pressure _____ (PSIG)
Stimulated: ☐ Yes ☐ No Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ After Stimulation

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
ZONE (1)					
ZONE (2)					
ZONE (3)					

Final production if gas zones are commingled _____ MCFD _____ Hours Tested

_____ PS16 _____ Hours Tested

Permittee: CNX Gas Company LLC (Company)
By: Justin L. Crumpton (Signature) Date: 3/23/05

Form DGO-GO-15
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Well Number	25454	
Completion Date	1/4/2005	
Total Depth	7400	
Permit Number	6287-01	
	Zone 1	
Coals	Devonian shale	Gordon
25454	25454	25454
Nitrogen (MSCF)	1,240	662
Water (BBLS)	255	181
Sand (SXS 20/40)	602	469
Sand (SXS 12/20)	-	-
Top Perf	6990	5832
Bottom Perf.	7232	5866
# Perfs	48	54
Perf Size	0.45	0.45
Break. Press.	3817	3080
Avg. Rate	20	25
ISIP	3136	2866
Min	5	5
Min Press.	2935	3230
Avg. Press.	3400	2956
Stimulated	Y	Y
Stim. Date	1/4/2005	1/4/2005

Permittee CNX GAS

PART III Table 2: DOMESTIC WATER SUPPLY WELLS & SPRINGS

	WELL ID	WELL/SPRING	TRACT ID	OWNER	APPROX. SPRING ELEVATION (FT)
1	K55-1	SPRING	1	POCAHONTAS RESOURCES	2200
2	L53-1	SPRING	1	POCAHONTAS RESOURCES	2120
3	L54-1	SPRING	1	POCAHONTAS RESOURCES	2000
4	L55-1	SPRING	1	POCAHONTAS RESOURCES	2150
5	M54-5	SPRING	1	POCAHONTAS RESOURCES	2400
6	M55-1	SPRING	1	POCAHONTAS RESOURCES	2100

PART V **LANDOWNERS INFORMATION**

Tract No.	Tax Info.	Owner	Address
1	1HH054001	Pocahontas Resources LLC	16325 Taylor Place, Abingdon, VA 24210
2	1HH029003	Pocahontas Resources LLC	16325 Taylor Place, Abingdon, VA 24210
3	1HH029002	Pocahontas Resources LLC	16325 Taylor Place, Abingdon, VA 24210
4	1HH030001	Pocahontas Resources LLC	16325 Taylor Place, Abingdon, VA 24210
5	1HH030006	Dian Sue Cantrell	1639 Hilltop Rd, Jewell Ridge, VA 24622
6	1HH030009	Ira Jackson, Jr	1058 Bunnel Rd, Jewell Ridge, VA 24622
7	1HH030010	Ira Jackson, Jr	1058 Bunnel Rd, Jewell Ridge, VA 24622

ATTACHMENT B PART I GEOLOGICAL AND GEOPHYSICAL INFORMATION

1.0 INJECTION ZONE

The uppermost zone planned for injection is the Upper Maxon Sandstone. The Upper Maxon is considered Upper Mississippian in age and is part of the Bluefield formation. In well 25453, the Upper Maxon sandstone is preceded by 466' of unnamed shale with calcareous streaks. The perforated zone in the Upper Maxon (depth from surface) ranges from 2954' to 2968'. According to a post frac report submitted to the DMME Oil and Gas Division, when the Upper Maxon was fracture stimulated on July 2, 2004 and August 4, 2004 the breakdown pressure-3113 psi with an ISIP of 2545 psi. The log indicates an average of 9% porosity throughout the perforated zone.

Descending the hole, the next zone planned for injection is the Berea sandstone. The Berea sandstone is considered Lower Mississippian in age and is part of the Price formation. In well 25453 the Berea sandstone is preceded by 18' of Coffee Shale and 110' of Sunbury Shale. The perforated zone in the Berea (depth from surface) ranges from 5098'-5108'. According to post frac report submitted to the DMME Oil and Gas Division, when the Berea was fracture stimulated on July 2, 2004 and August 4, 2004 the breakdown pressure ~3836 psi with an ISIP of 3085 psi. The log indicates an average of 8% porosity throughout the perforated zone.

The lowermost zone planned for injection is the Gordon sandstone. The Gordon sandstone is considered Upper Devonian in age and is part of the Price formation. In well 25453 the Gordon sandstone is preceded by 66' of unnamed shale and sandy shale. The perforated zone in the Berea (depth from surface) ranges from 5184'-5216'. According to post frac report submitted to the DMME Oil and Gas Division, when the Gordon was fracture stimulated on July 2, 2004 and August 4, 2004 the breakdown pressure ~3094 psi with an ISIP of 2808 psi. The log indicates an average of 10% porosity throughout the perforated zone.

2.0 CONFINING ZONE

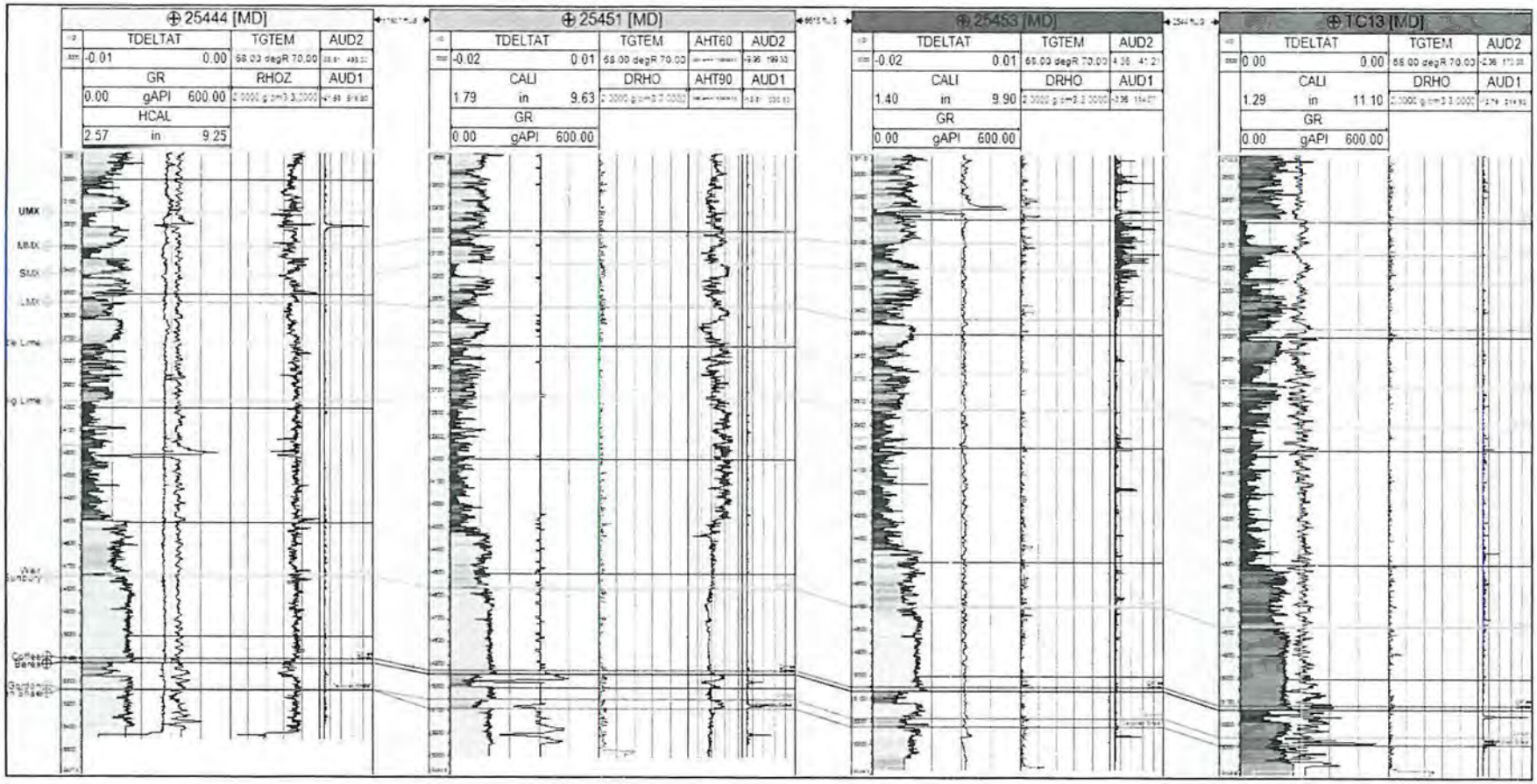
The injection zone for the Maxon sands are a mixture of sandstone interbedded with shale/siltstone. The shales/siltstones that are interbedded with the sandstone are considered to have low permeability and deemed a confining zone above the Upper Maxon. The Berea interval will be injected into a more porous sandstone zone capped by the Coffee and Sunbury Shales that are considered to be of low permeability. The Gordon interval will be injected into a more porous sandstone zone and is capped by an unnamed shale that is considered to have little permeability. These rocks are overlain by competent and dense quartz arenites in the Pocahontas Formation that lies approximately 2,000 feet above the Lower Maxon, and 2,200 feet below the surface.

This sequence provides structural competence and relatively impermeable barriers that will limit the potential upward migration of fluids. No known faults are in close proximity of the injection area that would allow movement of fluids. This well will be located near the Dry Fork Anticline in a synclinal feature.

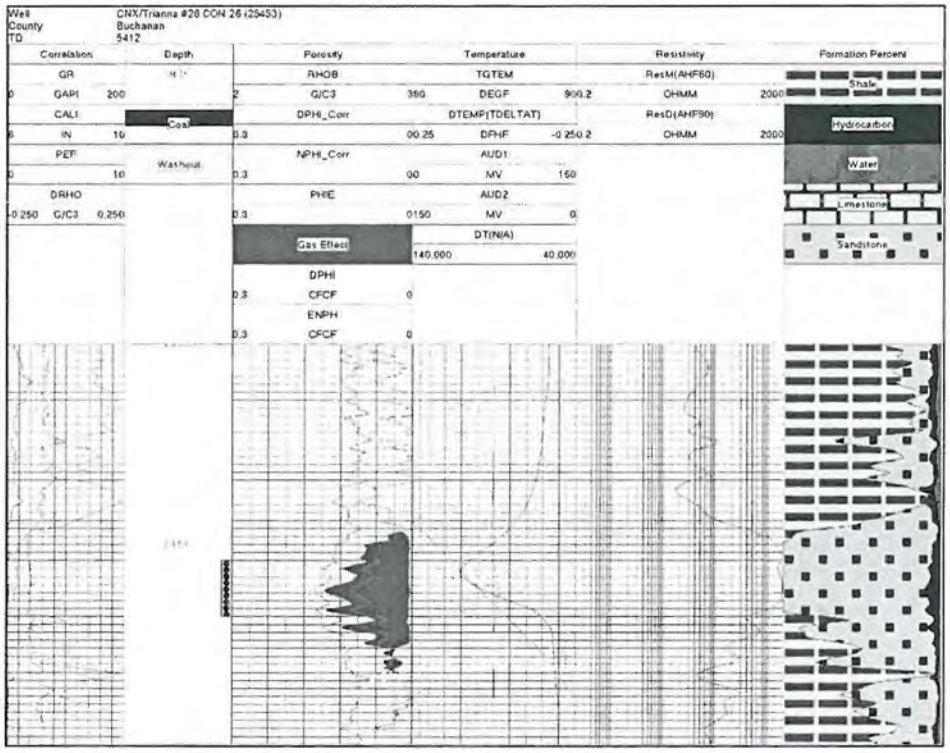
3.0 USDWs

Underground Source of Drinking Water (USDW) is determined to be typically not greater than 300 feet, and typically 100 feet, below the surface. This depth is evidenced by background water surveys conducted for more than 4,000 CBM wells over a period of almost 30 years by Pocahontas Gas LLC and throughout Buchanan County. Domestic water supply wells are generally established in the alluvial filled creek and stream valleys. Spring waters are sometimes used for domestic water supply. The springs typically originate from coal seam outcroppings and abandoned mine openings, located on the hillsides above the creek and stream elevations. No water wells, or springs used as drinking water, were identified within the AOR.

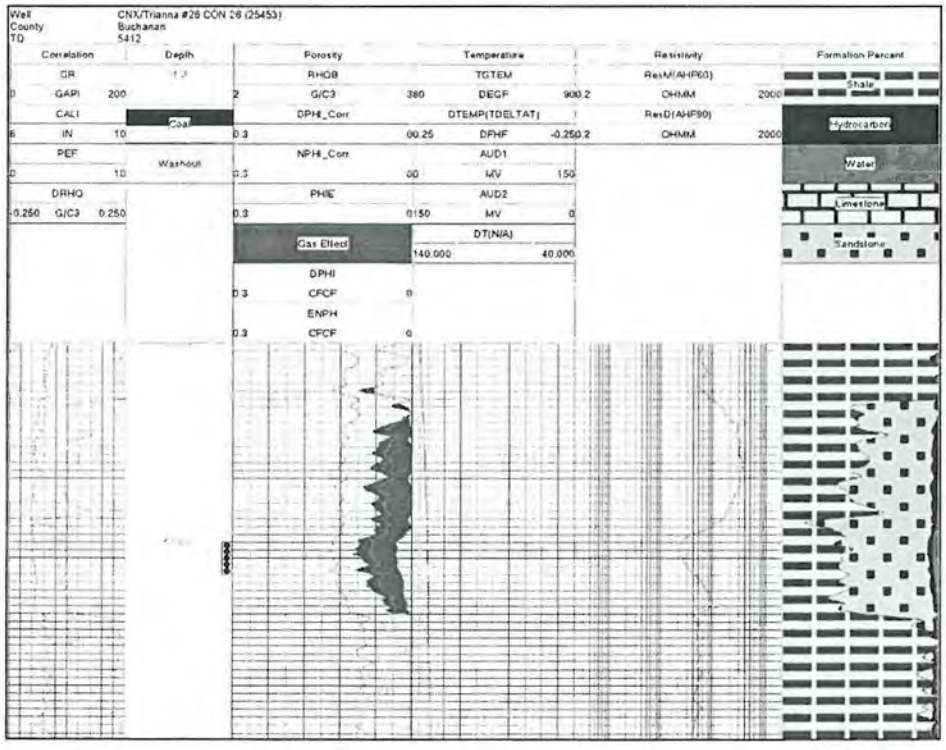
Cross Section



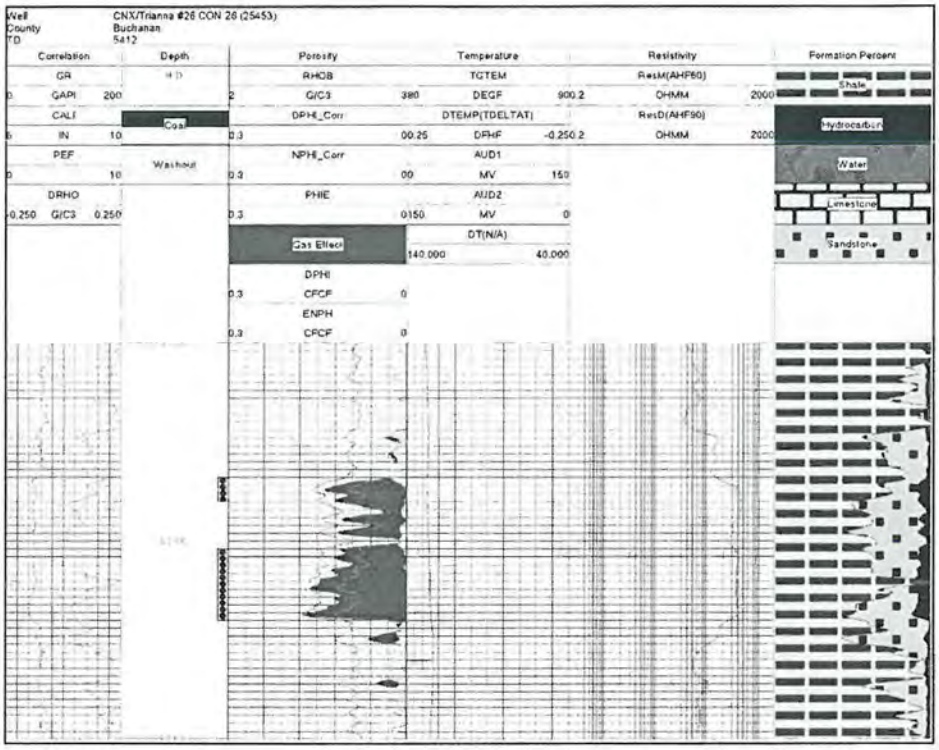
Upper Maxon Interval



Berea interval

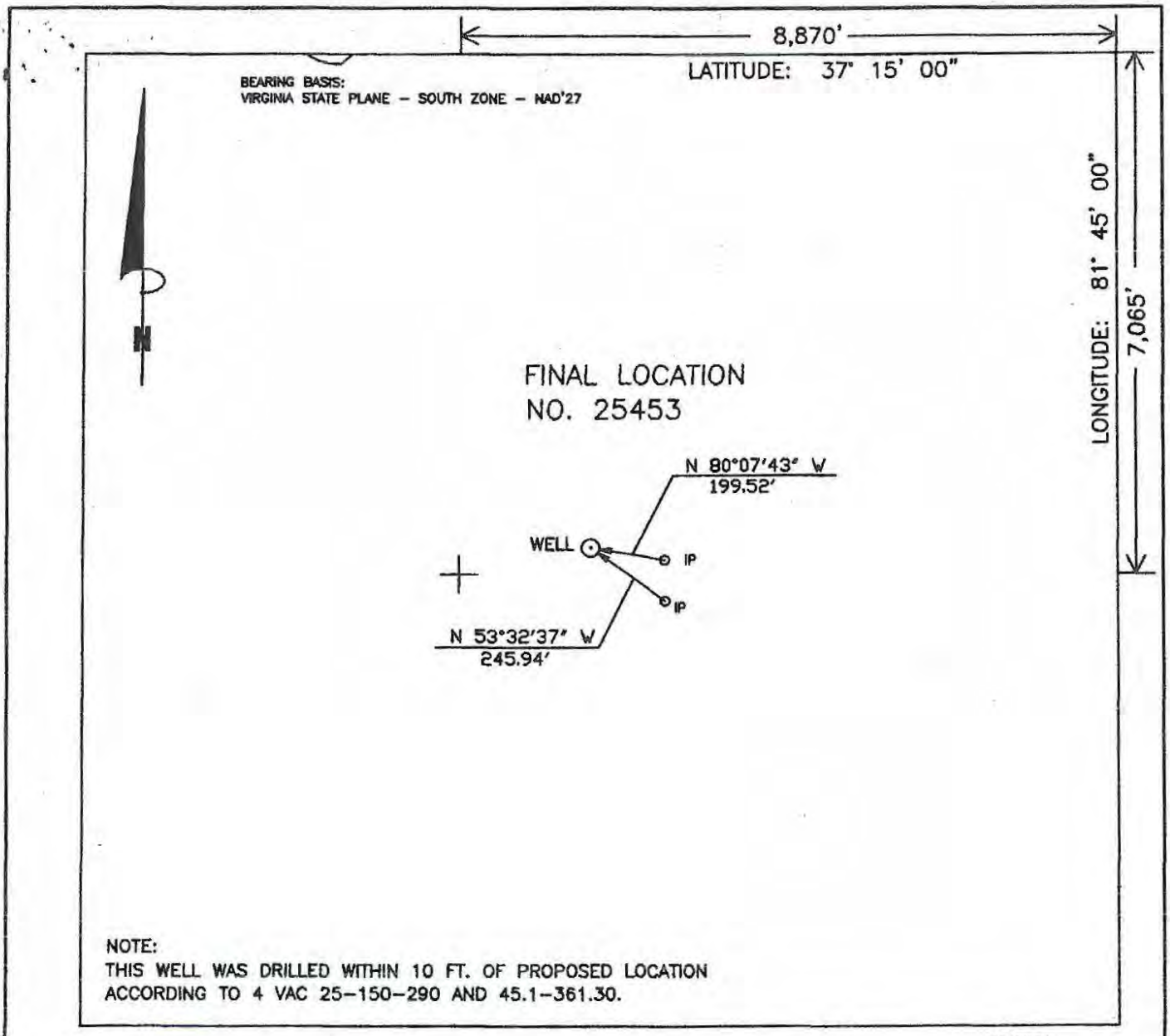


Gordon Interval



Geologic Structure

The location of well 25453 is located roughly 5.5 miles North West of the hinge of the Dry Fork Anticline. The well is located within an unnamed parasitic syncline feature that is seen in subsurface mapping. Like the Dry Fork Anticline this synclinal feature is slightly plunging. No known faults exist in close proximity to well 25453.



NOTE:
THIS WELL WAS DRILLED WITHIN 10 FT. OF PROPOSED LOCATION
ACCORDING TO 4 VAC 25-150-290 AND 45.1-361.30.

25453FNL
CON29/29-0404/22

WELL LOCATION PLAT

COMPANY CNX GAS COMPANY, LLC. WELL NAME OR NUMBER WELL NO.25453

TRACT NUMBER POCAHONTAS MINING QUADRANGLE JEWELL RIDGE

DISTRICT: GARDEN

WELL COORDINATES (VIRGINIA STATE PLANE): STATE PLANE: N 343,277.50 E 1,045,123.07

ELEVATION: 1964.32' METHOD USED TO DETERMINE ELEVATION: BY TRIG. LEVELS FROM CONSOL INC BM'S

COUNTY BUCHANAN Scale: 1" = 400' Date 06-11-04

THIS PLAT IS A NEW PLAT _____; AN UPDATED PLAT _____; OR A FINAL LOCATION PLAT X

+ Denotes the location of a well on United States Topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown (optional)

D R Price

Licensed Professional Engineer or Licensed Land Surveyor (Affix Seal)

COMMONWEALTH OF VIRGINIA
D. R. PRICE
LICENSE No.
8540
6/11/04
PROFESSIONAL ENGINEER

Form DGO-GO-7
Rev. 10/96

BU-2674

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Operations Name: 25453
Permit Number: 6186

DRILLING REPORT

ATTACH A FINAL LOCATION PLAT AS REQUIRED BY 4 VAC 25-150-360.C.

DRILLING DATA

Date drilling commenced: 6-10-04 Drilling Contractor: GASCO Drilling Inc.
Date drilling completed: 6-24-04 Rig Type: ☒ Rotary ☐ Cable Tool
Total Depth of Well: DTD: 5383' LTD: 5402'

GEOLOGICAL DATA

Fresh Water at	15	Feet	5"	GPM/Inch Stream	500	Feet	Damp	GPM/Inch Stream
	85	Feet	7"	GPM/Inch Stream		Feet		GPM/Inch Stream
Salt Water at		Feet		GPM/Inch Stream		Feet		GPM/Inch Stream
		Feet		GPM/Inch Stream		Feet		GPM/Inch Stream

Coal Seams

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA YES	NO	MINED OUT
See Attached						

Gas and Oil Shows

Form DGO-GO-14
Rev. 1/98

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R 11-22

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

*** GEOLOGIST LOG *** HOLE NO = 25453

STATE = VIRGINIA COUNTY = BUCHANAN TWP = RANGE = SECT =

S ELEV = 1964.32 HOW DET = EDM USGS QUAD = USGS SIZE = 71/2 MIN

N-COOR = 343278. E-COOR = 1045123. SOURCE = STATE LOC CODE = SURVEYED ELOG = 1235A

MERIDIAN = SECT-NUM = CONTR = DRILLER = DRILL CODE = ROTARY

FLUID = WATER FLOW = GAS CEMENTED = NO WRAPPING = UNKNOWN CONTAINER = UNKNOWN

CORE COND. = UNKNOWN UNITS = ENGLISH SURFACE AZIMUTH DEG = .00 SURFACE DIP DEG = .00

INSPECTOR = M. ORLICH DATE DRILLED = TO 061504 DATA SOURCE =

COMMENTS = CONVENTIONAL GAS WELL; COAL LOGGED OPEN HOLE

*** DATA ENTERED IN TO-DEPTHS ***

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
1964.32	.00	77.40	77.40		INTERVAL	
1886.92	77.40	78.00	.60		COAL	
1886.32	78.00	120.80	42.80		INTERVAL	
1843.52	120.80	121.00	.20	US2	COAL	
1843.32	121.00	229.90	108.90		INTERVAL	
1734.42	229.90	230.00	.10	GC1	COAL	
1734.32	230.00	243.00	13.00		INTERVAL	
1721.32	243.00	243.10	.10	GC2	COAL	
1721.22	243.10	311.70	68.60		INTERVAL	
1652.62	311.70	312.50	.80	SE2	COAL	
1651.82	312.50	364.00	51.50		INTERVAL	
1600.32	364.00	365.00	1.00	LS1	COAL	
1599.32	365.00	372.90	7.90		INTERVAL	
1591.42	372.90	373.00	.10		COAL	
1591.32	373.00	373.30	.30		INTERVAL	
1591.02	373.30	373.90	.60	LS2	COAL	
1590.42	373.90	408.90	35.00		INTERVAL	
1555.42	408.90	409.40	.50	LS3	COAL	
1554.92	409.40	430.60	21.20		INTERVAL	
1533.72	430.60	431.50	.90	UH1	COAL	
1532.82	431.50	486.10	54.60		INTERVAL	
1478.22	486.10	486.30	.20	UH2	COAL	
1478.02	486.30	502.90	16.60		INTERVAL	
1461.42	502.90	504.00	1.10	UH3	COAL	
1460.32	504.00	549.10	45.10		INTERVAL	
1415.22	549.10	550.90	1.80	MH1	COAL	
1413.42	550.90	614.40	63.50		INTERVAL	
1349.92	614.40	615.20	.80	MH2	COAL	
1349.12	615.20	659.00	43.80		INTERVAL	
1305.32	659.00	659.40	.40	P11	COAL	
1304.92	659.40	686.00	26.60		INTERVAL	
1278.32	686.00	686.30	.30	P10	COAL	
1278.02	686.30	686.50	.20		INTERVAL	
1277.82	686.50	687.00	.50	P10	COAL	
1277.32	687.00	754.90	67.90		INTERVAL	
1209.42	754.90	755.00	.10	LH3	COAL	
1209.32	755.00	842.60	87.60		INTERVAL	
1121.72	842.60	842.80	.20	P81	COAL	
1121.52	842.80	843.10	.30		INTERVAL	
1121.22	843.10	843.60	.50	P82	COAL	
1120.72	843.60	879.00	35.40		INTERVAL	

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

HOLE NO = 25453

DRILL CONTR =

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
1085.32	879.00	879.50	.50	P71	COAL	
1084.82	879.50	892.10	12.60		INTERVAL	
1072.22	892.10	892.80	.70		COAL	
1071.52	892.80	942.00	49.20		INTERVAL	
1022.32	942.00	942.90	.90	P72	COAL	
1021.42	942.90	943.60	.70		INTERVAL	
1020.72	943.60	944.00	.40		COAL	
1020.32	944.00	993.00	49.00		INTERVAL	
971.32	993.00	993.80	.80		COAL	
970.52	993.80	1012.90	19.10		INTERVAL	
951.42	1012.90	1013.10	.20		COAL	
951.22	1013.10	1109.40	96.30		INTERVAL	
854.92	1109.40	1110.80	1.40	P61	COAL	
853.52	1110.80	1120.00	9.20		INTERVAL	
844.32	1120.00	1120.90	.90	P62	COAL	
843.42	1120.90	1142.60	21.70		INTERVAL	
821.72	1142.60	1143.90	1.30	P51	COAL	
820.42	1143.90	1169.40	25.50		INTERVAL	
794.92	1169.40	1170.40	1.00	P52	COAL	
793.92	1170.40	1205.80	35.40		INTERVAL	
758.52	1205.80	1205.90	.10		COAL	
758.42	1205.90	1270.40	64.50		INTERVAL	
693.92	1270.40	1272.00	1.60	P41	COAL	
692.32	1272.00	1299.20	27.20		INTERVAL	
665.12	1299.20	1300.00	.80	P31	COAL	
664.32	1300.00	1358.40	58.40		INTERVAL	
605.92	1358.40	1360.40	2.00	P32	COAL	
603.92	1360.40	1361.40	1.00	P32	COAL	
602.92	1361.40	1362.90	1.50	345	COAL	
601.42	1362.90	1483.60	120.70		INTERVAL	
480.72	1483.60	1484.00	.40	P01	COAL	
480.32	1484.00	1539.00	55.00		INTERVAL	
425.32	1539.00	1540.00	1.00	SJ2	COAL	
424.32	1540.00	1550.50	10.50		INTERVAL	
413.82	1550.50	1551.00	.50	SJ1	COAL	
413.32	1551.00	1908.00	357.00		INTERVAL	
56.32	1908.00	2196.00	288.00	PRD	SHALE	
-231.68	2196.00	2338.00	142.00	PRN	SANDSTONE	
-373.68	2338.00	2364.00	26.00		INTERVAL	
-399.68	2364.00	2418.00	54.00	RVC	SANDSTONE	
-453.68	2418.00	2480.00	62.00	AVS	LIMESTONE	
-515.68	2480.00	2946.00	466.00		INTERVAL	
-981.68	2946.00	2980.00	34.00	* UMX	SANDSTONE	
-1015.68	2980.00	3100.00	120.00		INTERVAL	
-1135.68	3100.00	3190.00	90.00	MMX	SANDSTONE	
-1225.68	3190.00	3213.00	23.00		INTERVAL	
-1248.68	3213.00	3258.00	45.00	SMX	SANDSTONE	
-1293.68	3258.00	3433.00	175.00		INTERVAL	
-1468.68	3433.00	3459.00	26.00	LMX	SANDSTONE	
-1494.68	3459.00	3666.00	207.00		INTERVAL	
-1701.68	3666.00	3758.00	92.00	LLM	LIMESTONE	
-1793.68	3758.00	3830.00	72.00		INTERVAL	
-1865.68	3830.00	4452.00	622.00	BLM	LIMESTONE	

CONSOLIDATION COAL COMPANY
TAZEWELL GAS OPERATIONS
DEGAS EXPIRE (180)

HOLE NO = 25453

DRILL CONTR =

STRATA ELEV (TOP)	STRATA DEPTH FROM	TO	STRATA THICK	SEAM CODE	LITHOLOGY	CHARACTERISTICS AND COMMENTS
-2487.68	4452.00	4692.00	240.00		INTERVAL	
-2727.68	4692.00	4696.00	4.00	WER	SANDSTONE	
-2731.68	4696.00	5046.00	350.00	SUN	SHALE	
-3081.68	5046.00	5064.00	18.00	COF	BLACK SHALE	
-3099.68	5064.00	5118.00	54.00	* BER	SANDSTONE	
-3153.68	5118.00	5184.00	66.00		INTERVAL	
-3219.68	5184.00	5221.00	37.00	* GRD	SANDSTONE	
-3256.68	5221.00	5402.00	181.00		INTERVAL	
-3437.68			5402.00		BOTTOM HOLE	

FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
Ravencliffe	2374	2476	102	No Show		
L. Maxon	3216	3260	44	Show		
Berea	5066	5120	54	Show		
Gordon	5172	5230	58	Show		

Cuttings or samples: ☐ are X are not available for examination by a member of the Virginia Division of Mineral Resources

Cuttings or samples: ☐ have X have not been furnished to the Virginia Division of Mineral Resources

ELECTRIC LOGS AND SURVEYS

List logs ran on wellbore: Density, Gamma, Caliper, Temp, CBL, Deviation

Did logs disclose vertical location of a coal seam? X Yes ☐ No

SURVEY RESULTS

Depth Of Survey	Direction/Distance/ Degrees From True Vertical	Depth Of Survey	Direction/Distance Degrees From True Vertical
224	¼		
683	½		
898	¼		
1115	¼		
1301	½		
1516	¼		
1705	¼		
1905	¼		
2109	¼		

Use additional sheets as necessary

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FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
Ravencliffe	2374	2476	102	No Show		
L. Maxon	3216	3260	44	Show		
Berea	5066	5120	54	Show		
Gordon	5172	5230	58	Show		

Cuttings or samples: ☐ are X are not available for examination by a member of the Virginia Division of Mineral Resources

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List logs ran on wellbore: Density, Gamma, Caliper, Temp, CBL, Deviation

Did logs disclose vertical location of a coal seam? X Yes ☐ No

SURVEY RESULTS

Depth Of Survey	Direction/Distance/ Degrees From True Vertical	Depth Of Survey	Direction/Distance Degrees From True Vertical
224	¼		
683	½		
898	¼		
1115	¼		
1301	½		
1516	¼		
1705	¼		
1905	¼		
2109	¼		

Use additional sheets as necessary

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CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	16"	25'	Driven		☐	X	6-10-04	
Surface	9 5/8"	330'	12 ¼"	236 Cu/ft	X	☐	6-11-04	Basket @ 88"
Water Protection	7"	2163'	8 7/8"	401 Cu/ft		X	6-16-04	
Coal Protection	7"	2163'	8 7/8"	401 Cu/ft		X	6-16-04	
Other Casing And Tubing Left In Well	4 ½" 12 ¾" 2 3/8"	5323' 40' 5142'	6 3/8" 15"	320 Cu/ft		X X	8-4-04 6-10-04 8-13-04	
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Balance job on 9 5/8", filled backside. 7" Cement Job locked up, was perforated and was not able to squeeze to surface, installed 7" by 4 ½" casing head. TOC 1504'.

DRILLER'S LOG

Compiled by: Noah Horn Well Drilling Inc.

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
Pennsylvanian	Norton/Lee/ Poca	Sand/Shale/ Coal	Grey/ Black	0	910	910	
	Poca	Sand/Shale/ Coal	Grey/ Black	910	2020	1110	Salt Sands
	Pridemore	Sand/Shale	Grey	2020	2236	216	
Mississippian	Princeton	Sandstone	Grey	2236	2336	100	
		Sand/Shale	Grey	2336	2374	38	
	Ravencliffe	Shale	Red	2374	2476	102	
		Sand/Shale	Grey	2476	2946	470	
	Upper Maxon	Shale	Grey	2946	2982	36	
		Sand/Shale	Grey	2982	3100	118	
	M. Maxon	Sand	Grey	3100	3186	86	
		Sand/Shale	Grey	3186	3216	30	
	L. Maxon	Sand	Grey	3216	3260	44	
		Sand/Shale	Grey	3260	3374	114	
	Bradley	Sand	Grey	3374	3452	78	
		Sand/Shale	Grey	3452	3526	74	
	Little Lime	Limestone	Grey	3526	3556	30	

CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes	Cemented To Surface No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	16"	25'	Driven		☐	X	6-10-04	
Surface	9 5/8"	330'	12 ¼"	236 Cu/ft	X	☐	6-11-04	Basket @ 88"
Water Protection	7"	2163'	8 7/8"	401 Cu/ft		X	6-16-04	
Coal Protection	7"	2163'	8 7/8"	401 Cu/ft		X	6-16-04	
Other Casing And Tubing Left In Well	4 ½" 12 ¾" 2 3/8"	5323' 40' 5142'	6 3/8" 15"	320 Cu/ft		X X	8-4-04 6-10-04 8-13-04	
Liners					☐	☐		

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: Balance job on 9 5/8", filled backside. 7" Cement Job locked up, was perforated and was not able to squeeze to surface, installed 7" by 4 ½" casing head. TOC 1504'.

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Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
Pennsylvanian	Norton/Lee/ Poca	Sand/Shale/ Coal	Grey/ Black	0	910	910	
	Poca	Sand/Shale/ Coal	Grey/ Black	910	2020	1110	Salt Sands
	Pridemore	Sand/Shale	Grey	2020	2236	216	
Mississippian	Princeton	Sandstone	Grey	2236	2336	100	
		Sand/Shale	Grey	2336	2374	38	
	Ravencliffe	Shale	Red	2374	2476	102	
		Sand/Shale	Grey	2476	2946	470	
	Upper Maxon	Shale	Grey	2946	2982	36	
		Sand/Shale	Grey	2982	3100	118	
	M. Maxon	Sand	Grey	3100	3186	86	
		Sand/Shale	Grey	3186	3216	30	
	L. Maxon	Sand	Grey	3216	3260	44	
		Sand/Shale	Grey	3260	3374	114	
	Bradley	Sand	Grey	3374	3452	78	
		Sand/Shale	Grey	3452	3526	74	
	Little Lime	Limestone	Grey	3526	3556	30	

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
	Big Lime	Limestone	Grey	3556	4448	892	
		Sand/Shale	Grey	4448	4550	102	
	Weir	Siltstone/Sand	Grey	4550	4756	206	
	Pocono Shale	Shale	Grey	4756	5048	292	
	Sunbury Shale	Shale	Grey	5048	5066	18	
	Berea	Sand	Grey	5066	5120	54	
	Cleveland Sh.	Shale	Grey	5120	5172	52	
	Gordon	Sand	Grey	5172	5230	58	
Devonian	Devonian Sh.	Shale	Grey	5230	5402	172	

Permittee: CNX Gas Company LLC (Company)
By: Leslie K. Arrington (Signature)

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Rev. 1/98

Well Number	25453 CON-26
Completion Date	07/02&08/04
Total Depth	5383
Permit Number	6186

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Coals	GRD	BER	UMX		
Treatment					
Nitrogen (MSCF)	789	672	575		
Water (BBLS)	232	208	284		
Sand (SXS 20/40)	702	349	491		
Sand (SXS 12/20)	0	0	0		
Top Perf	5184	5098	2954		
Bottom Perf.	5216	5108	2968		
# Perfs	42	21	29		
Perf Size	0.45	0.45	0.45		
Break. Press.	3094	3836	3113		
Avg. Rate	7.5	7	7		
ISIP	2808	3085	2545		
Min	5	5	5		
Min Press.	2682	2783	2399		
Avg. Press.	3067	3030	2625		
Stimulated	Y	Y	Y		
Stim. Date	07/02&08/04	07/02&08/04	07/02&08/04		

Permittee	CNX Gas LLC

Attachment B

II. Formation Testing

Well 25453 contains three zones that can be considered for injection.

Gordon Sandstone
Berea Sandstone
Maxon Sandstone

Due to limited information regarding the wells completion a Step Rate Test was conducted on each zone separately. A retrievable plug was set below each zone and a packer was set above. Thus, isolating each zone separately for testing. Water was pumped down 2-3/8" production tubing at increasing rates and pressure was measure at the surface. Each pump interval was 15 minutes in duration and the rate was increased .5 bbl/min. The bottom hole pressure was calculated using the following equation:

$BHP = SP - FR$

BHP = Bottom Hole Pressure (psi)
SP = Surface or Pump Pressure (psi)
FR = Friction Resistance of the Pipe

$FR = (.039L\ \rho V^2 f)/D$

L = Length of Pipe (ft)
ρ = Density (lbs/gal)
V = Velocity (ft/s)
f = Friction factor
D = ID of Pipe (in)

Based on industry standard, it was assumed the friction factor for the2-3/8" tubing is .003.

Gordon Sandstone

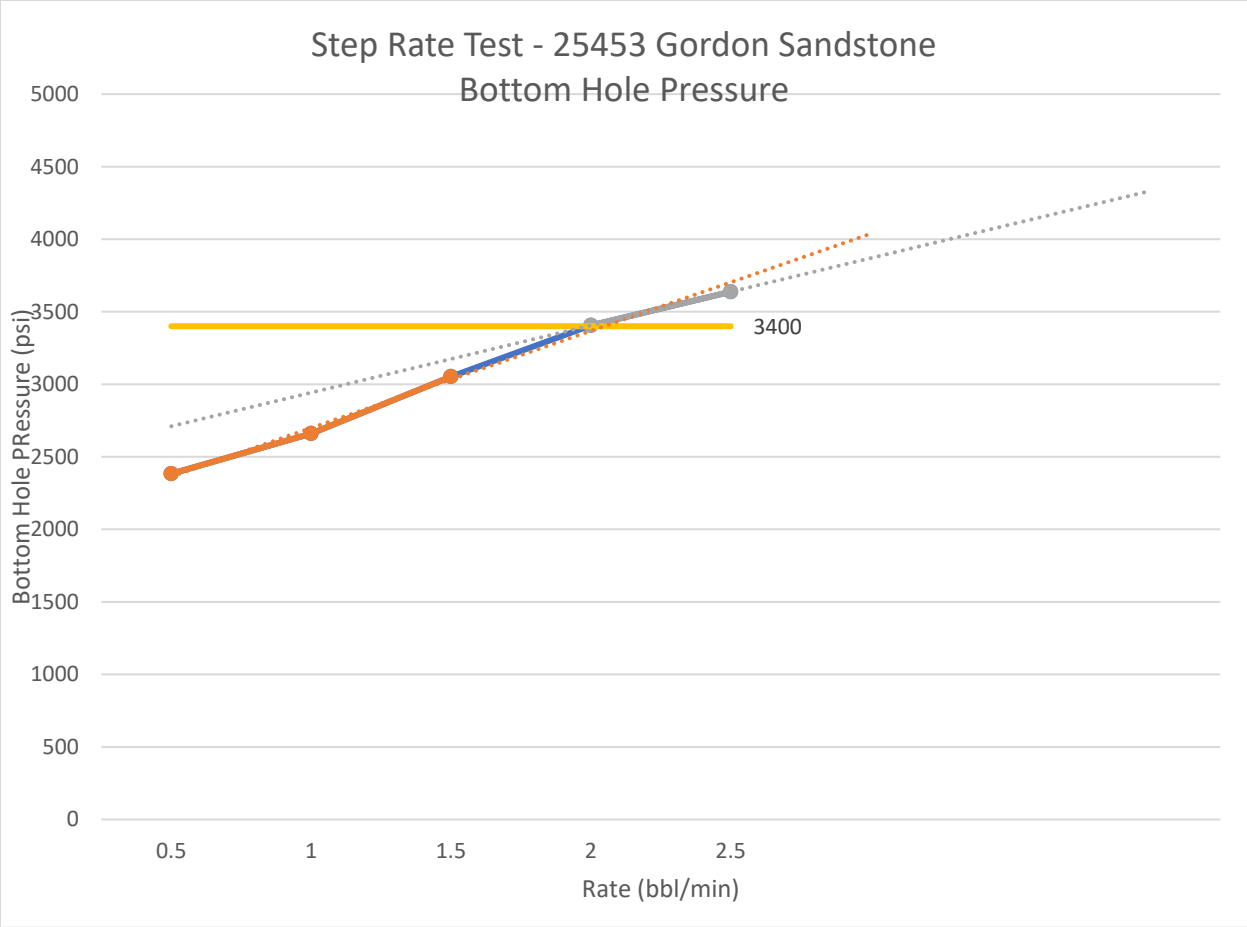
Below are the results obtained from the step rate test:

See included plot from pump truck

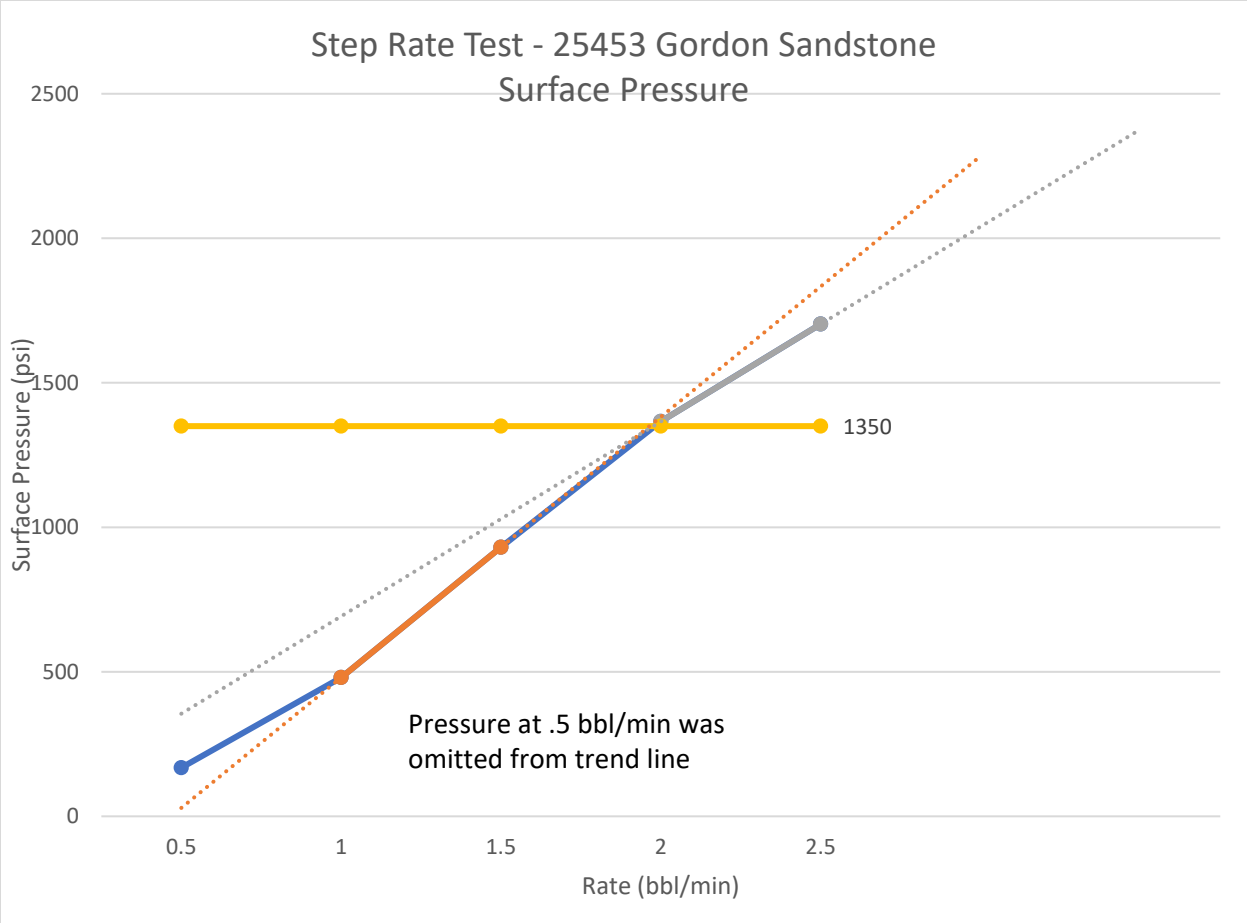
Step Rate Test

Well Number:	25453
Company:	CNX
Date:	8/25/2020
Formation:	Gordon 5184' - 5216'
Tubing Depth (ft):	5143
Tubing Type:	2-3/8" J-55 4.7 lbs/ft
Tubing ID (in):	1.995
Friction Factor:	0.003
Interval Time (min):	15

Interval	Flow Rate (bbl/min)	Average Pump Pressure (psi)	Fluid Velocity (ft/s)	Friction Loss (psi)	Bottom Hole Pressure (psi)
1	0.5	168	2.155152333	11.69073383	2383.228266
2	1	480	4.310304666	46.76293534	2660.156065
3	1.5	931	6.465457	105.2166045	3052.702395
4	2	1366	8.620609333	187.0517413	3405.867259
5	2.5	1703	10.77576167	292.2683458	3637.650654



The above graph plots the Rate (bbl/min) vs. Bottom Hole Pressure. The break down pressure can be estimated from the point in which the slope of the curve changes. This is represented by the dotted lines on the graph. The intersection of the two dotted lines represents the point in which the formation begins to yield. In the above graph that is at approximately 3400 psi.



Above is a plot showing corresponding surface pressures during testing.

Maxon Sandstone

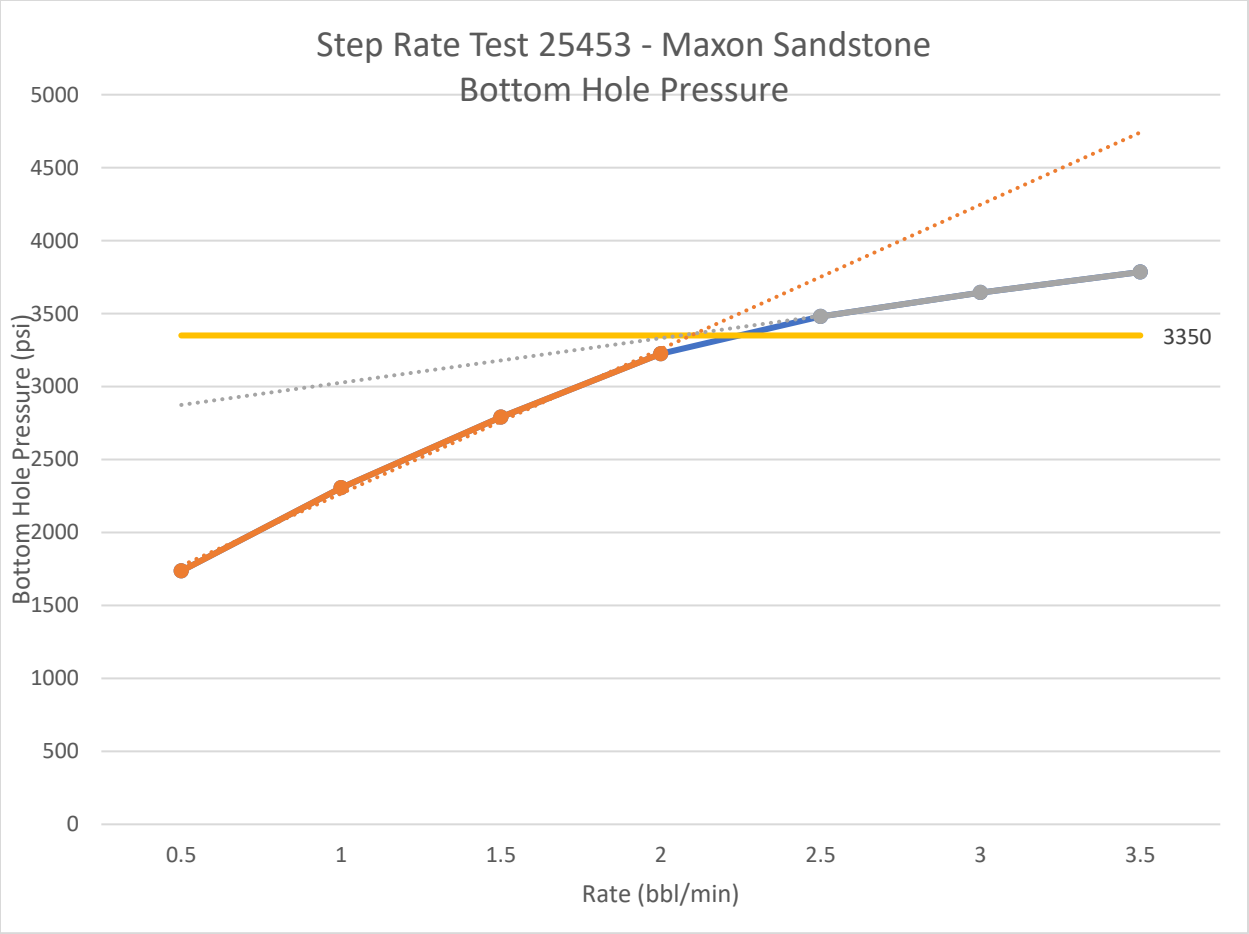
Below are the results obtained from the step rate test:

See Included plot from Pump Truck:

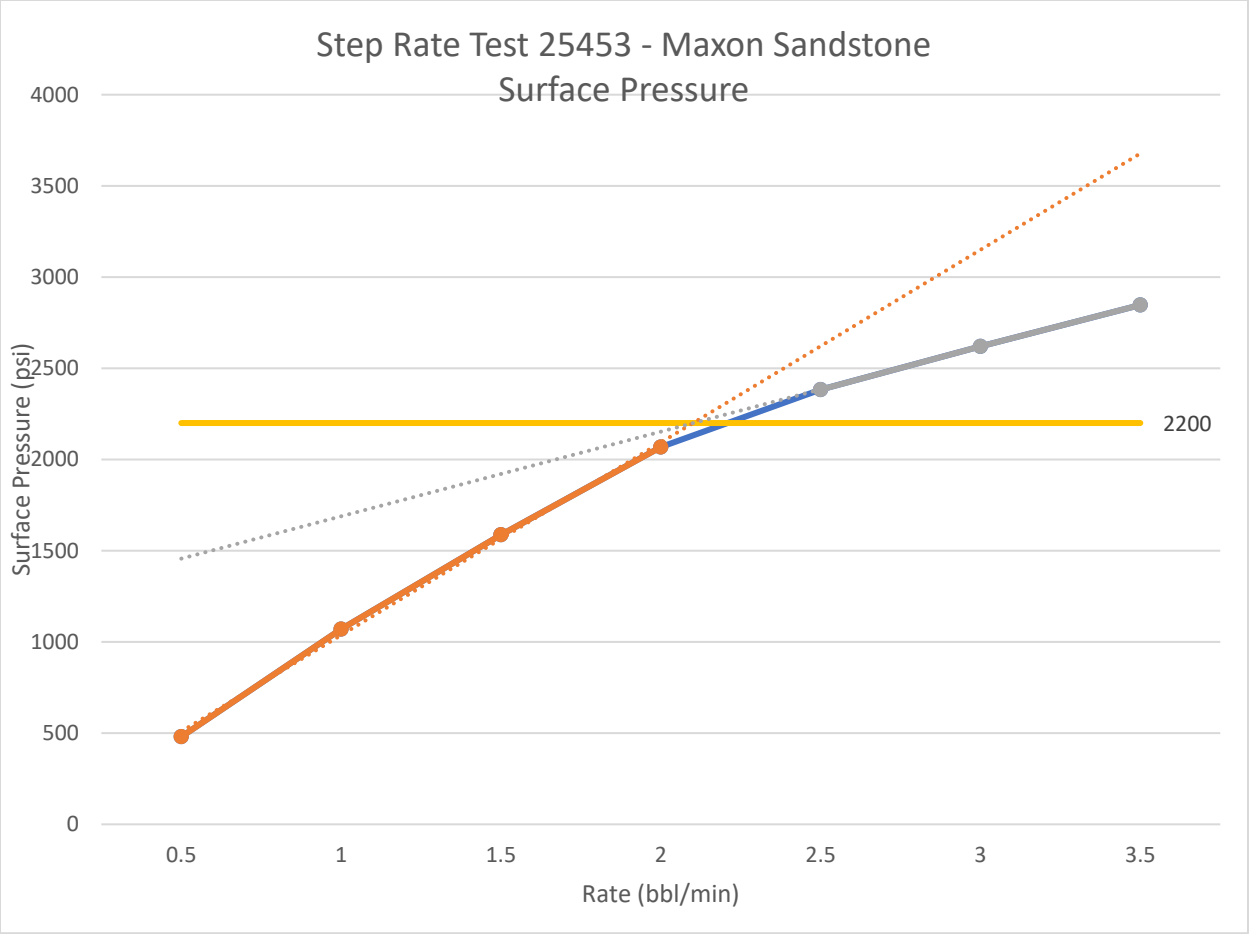
Step Rate Test

Well Number:	25453
Company:	CNX
Date:	8/26/2020
Formation:	Maxon 2954' - 2968'
Tubing Depth (ft):	
Tubing Type:	2-3/8" J-55 4.7 lbs/ft
Tubing ID (in):	
Friction Factor:	
Interval Time (min):	15

Interval	Flow Rate (bbl/min)	Average Pump Pressure (psi)	Fluid Velocity (ft/s)	Friction Loss (psi)	Bottom Hole Pressure (psi)
1	0.5		2.155152333	6.62846196	
2	1		4.310304666	26.51384784	
3	1.5		6.465457	59.65615764	
4	2		8.620609333	106.0553914	
5	2.5		10.77576167	165.711549	
6	3		12.930914	238.6246306	
7	3.5		15.08606633	324.794636	



The above graph plots the Rate (bbl/min) vs. Bottom Hole Pressure. The break down pressure can be estimated from the point in which the slope of the curve changes. This is represented by the dotted lines on the graph. The intersection of the two dotted lines represents the point in which the formation begins to yield. In the above graph that is at approximately 3350 psi.



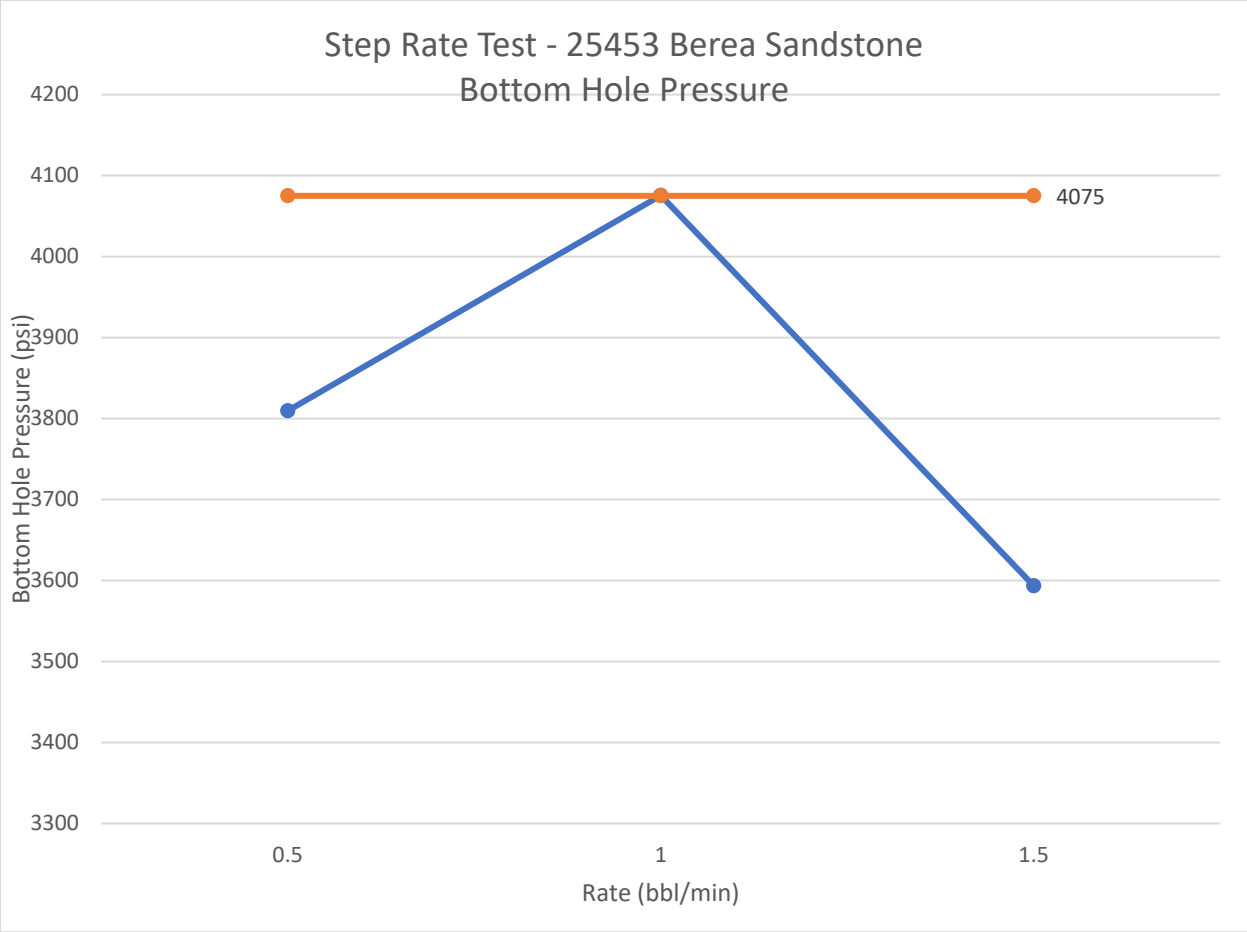
Above is a plot showing corresponding surface pressures during testing.

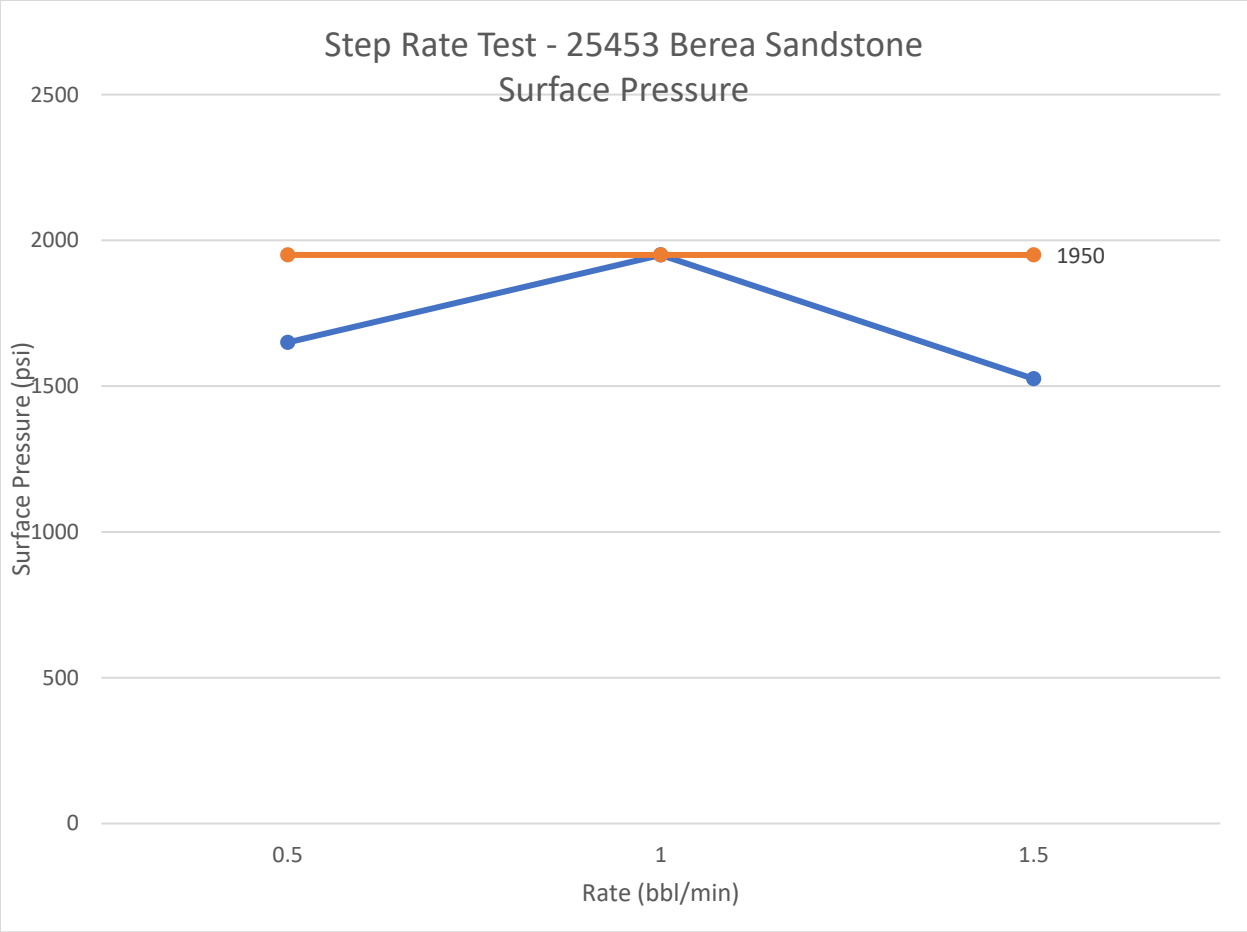
Berea Sandstone

See Included plot from Pump Truck:

The same step rate testing was conducted on the Berea Sandstone. The Berea Sandstone did not react in the same manner as the other two zones. Pumping was started at .5 bbl/min and pressure began to build rapidly maxing out at 2050 psi after 15 min. The rate was increased to 1 bbl/min and pressure began to increase as expected. After approximately 5 mins of pumping the pressure began to decrease after maxing out at 2400 psi. Pumping was continued and pressure continued to decrease. The operation was suspended to check equipment for malfunctions. The pressure returned to zero after approximately 8 minutes. Everything was checked and seem to be functioning as it should. The test was restarted at .5 bbl/min rate and increased to 1 bbl/min after 15 minutes. A similar result was observed. This time maxing out at 1650 psi at .5 bbl/min and maxing out at 1950 psi at 1 bbl/min before beginning to fall. When the pressure began to fall again, pumping was ceased.

It can be interpreted that the formation was yielding somewhere between 1950 psi and 2400 psi surface pump pressure.


Step Rate Test - 25453 Berea Sandstone
Bottom Hole Pressure
4200
4100
4000
3900
3800
3700
3600
3500
3400
3300
Bottom Hole Pressure (psi)
4075
0.5
1
1.5
Rate (bbl/min)


Step Rate Test - 25453 Berea Sandstone
Surface Pressure
2500
2000
1500
1000
500
0
Surface Pressure (psi)
1950
0.5
1
1.5
Rate (bbl/min)

Summary

Results from the resting are summarized below:

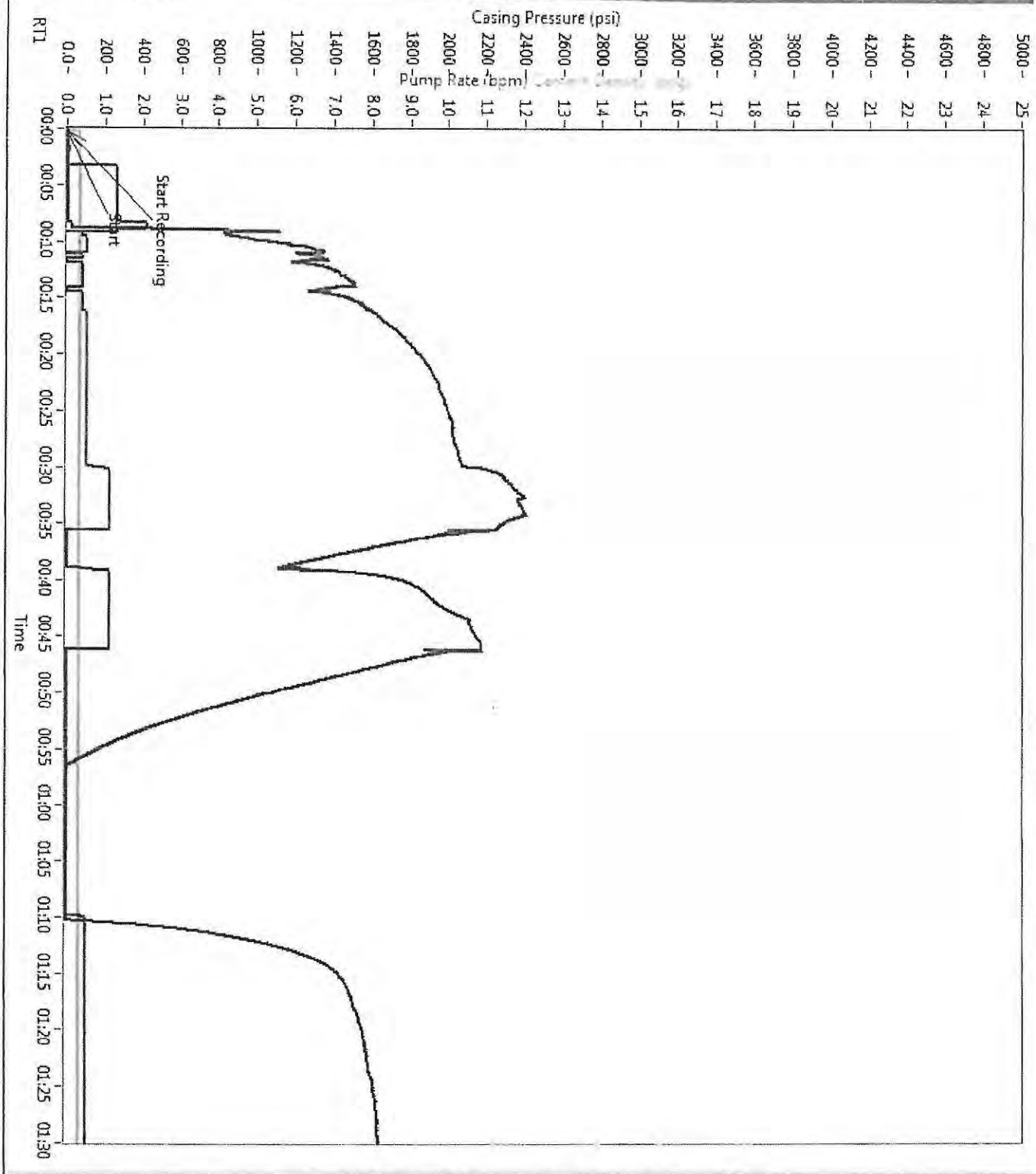
Formation	Breakdown Pressure (psi)	Formation Depth (ft)	Head Pressure- SG 1.0 (psi)	Head Pressure- SG 1.08 (psi)	Maxium Injection Pressure (psi)
Gordon	3400.00	5216.00	2258.53	2439.21	960.79
Berea	4075.00	5108.00	2211.76	2388.71	1517.67
Maxon	3350.00	2968.00	1285.14	1387.96	1765.84

The Gordon Sandstone is the formation that will limit the Maximum Injection Pressure for the well. Assuming brine water with a specific gravity of less than 1.08 is injected, that would result in a maximum injection pressure of 960 psi.

Berea

CNX GAS CO LLC / 25453 / INJECTION TEST

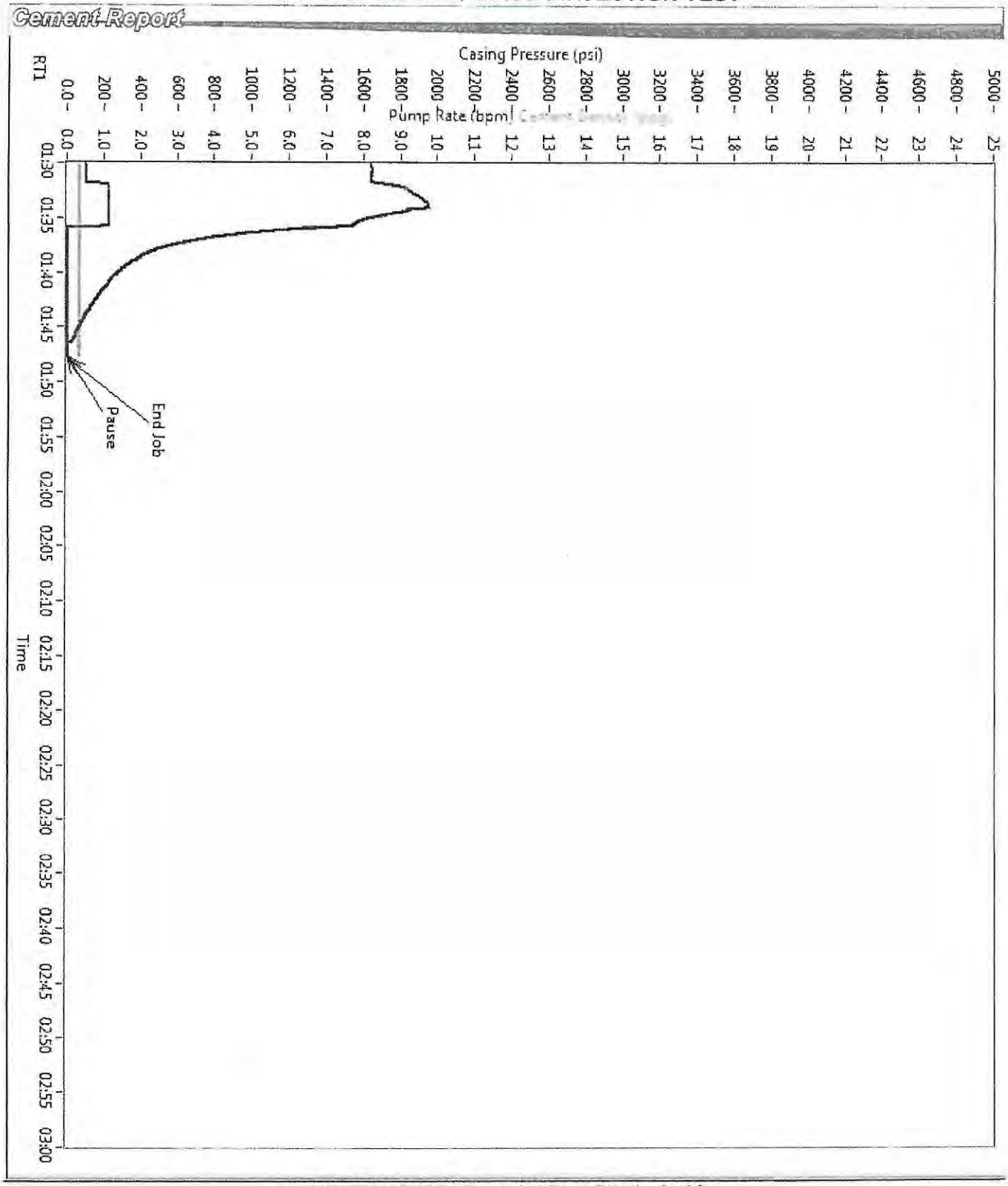
Cement Report



INJECTION TEST - Recorded Time Plot 1 - 1 of 2

BEREA

CNX GAS CO LLC / 25453 / INJECTION TEST

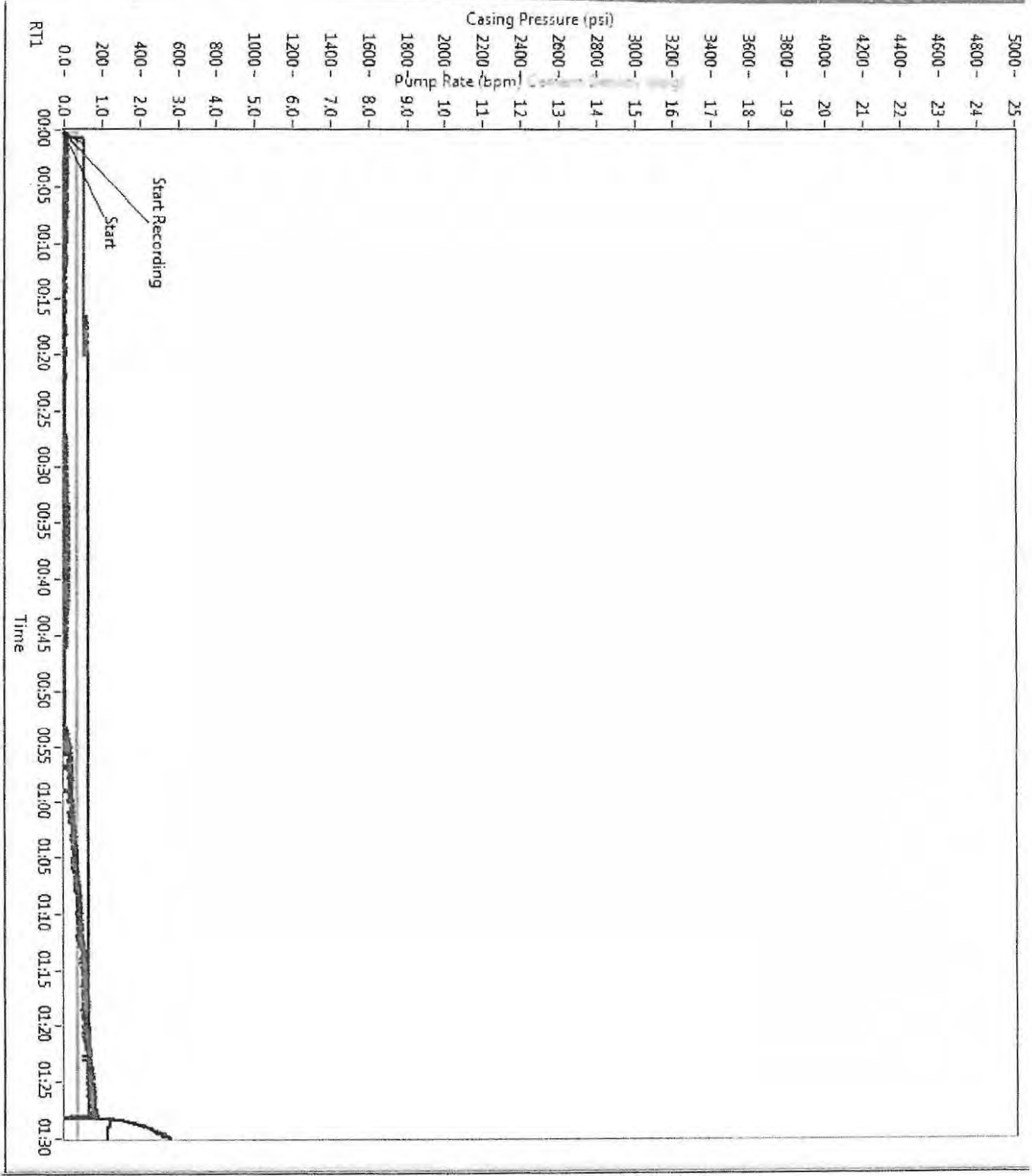


INJECTION TEST - Recorded Time Plot 1 - 2 of 2

max01

CNX GAS CO LLC / 25453 / INJECTION TEST

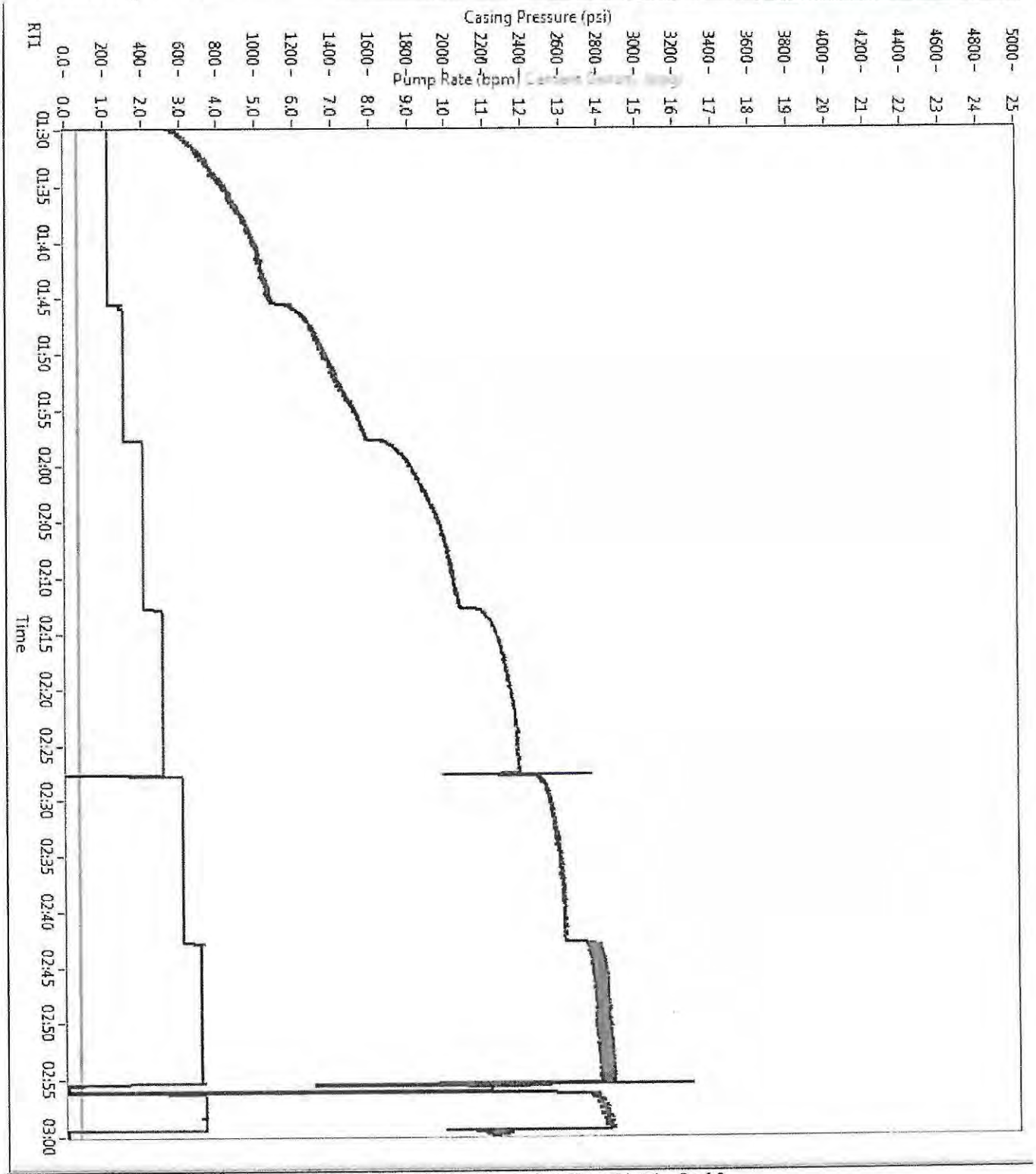
Cement Report



INJECTION TEST - Recorded Time Plot 1 - 1 of 3

Maxon

CNX GAS CO LLC / 25453 / INJECTION TEST

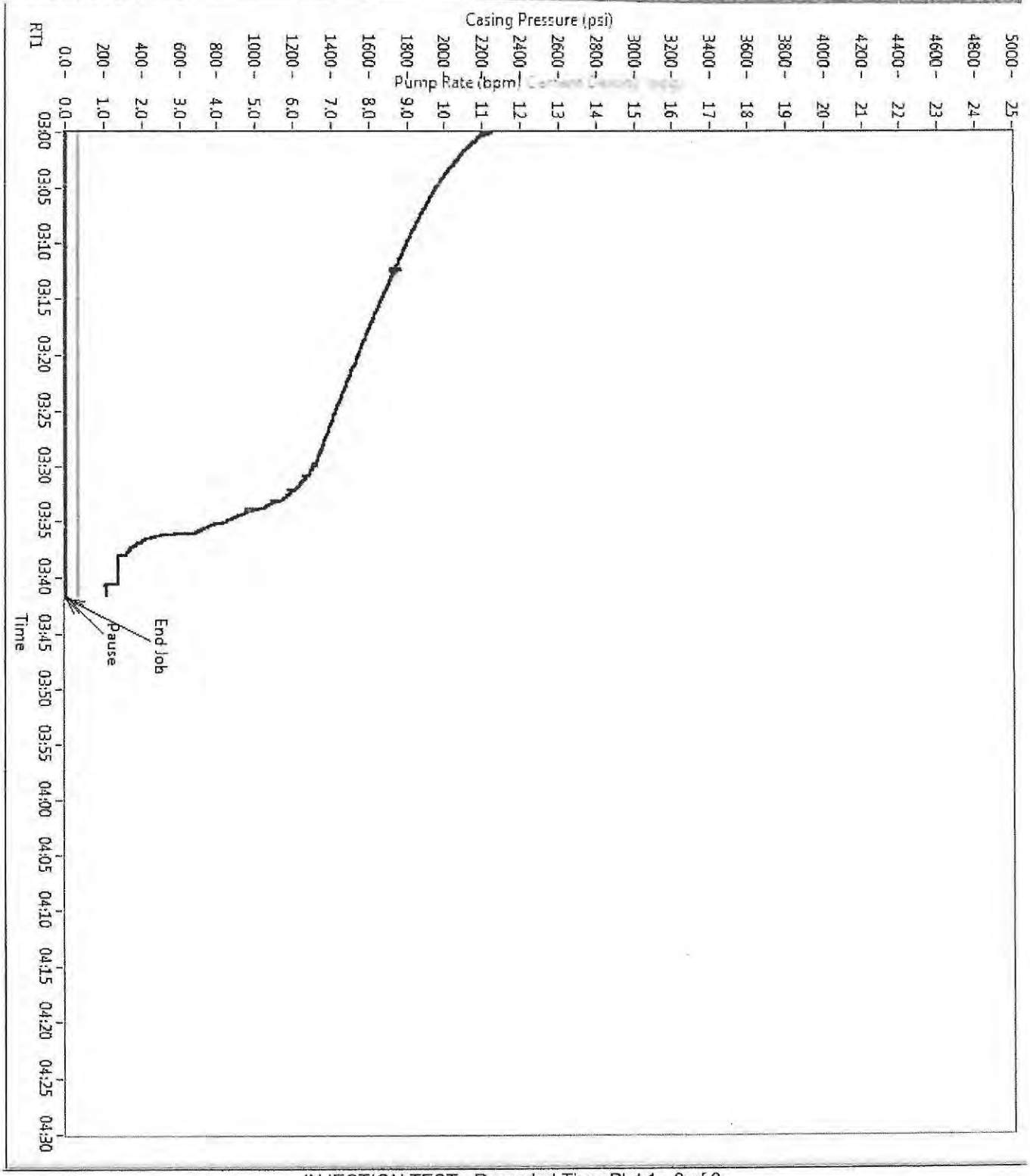


INJECTION TEST - Recorded Time Plot 1 - 2 of 3

MAXON

CNX GAS CO LLC / 25453 / INJECTION TEST

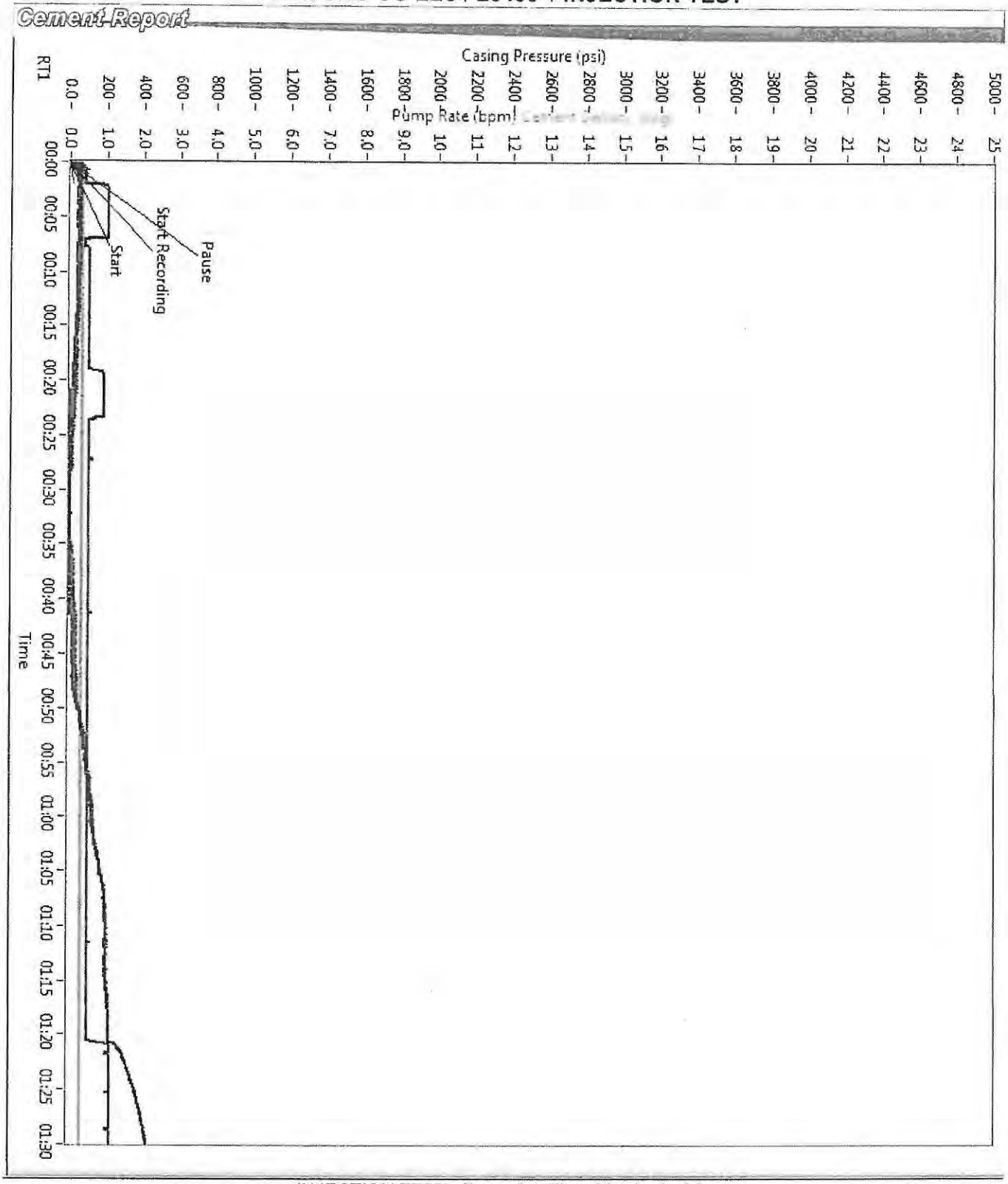
Cement Report



INJECTION TEST - Recorded Time Plot 1 - 3 of 3

Gordon

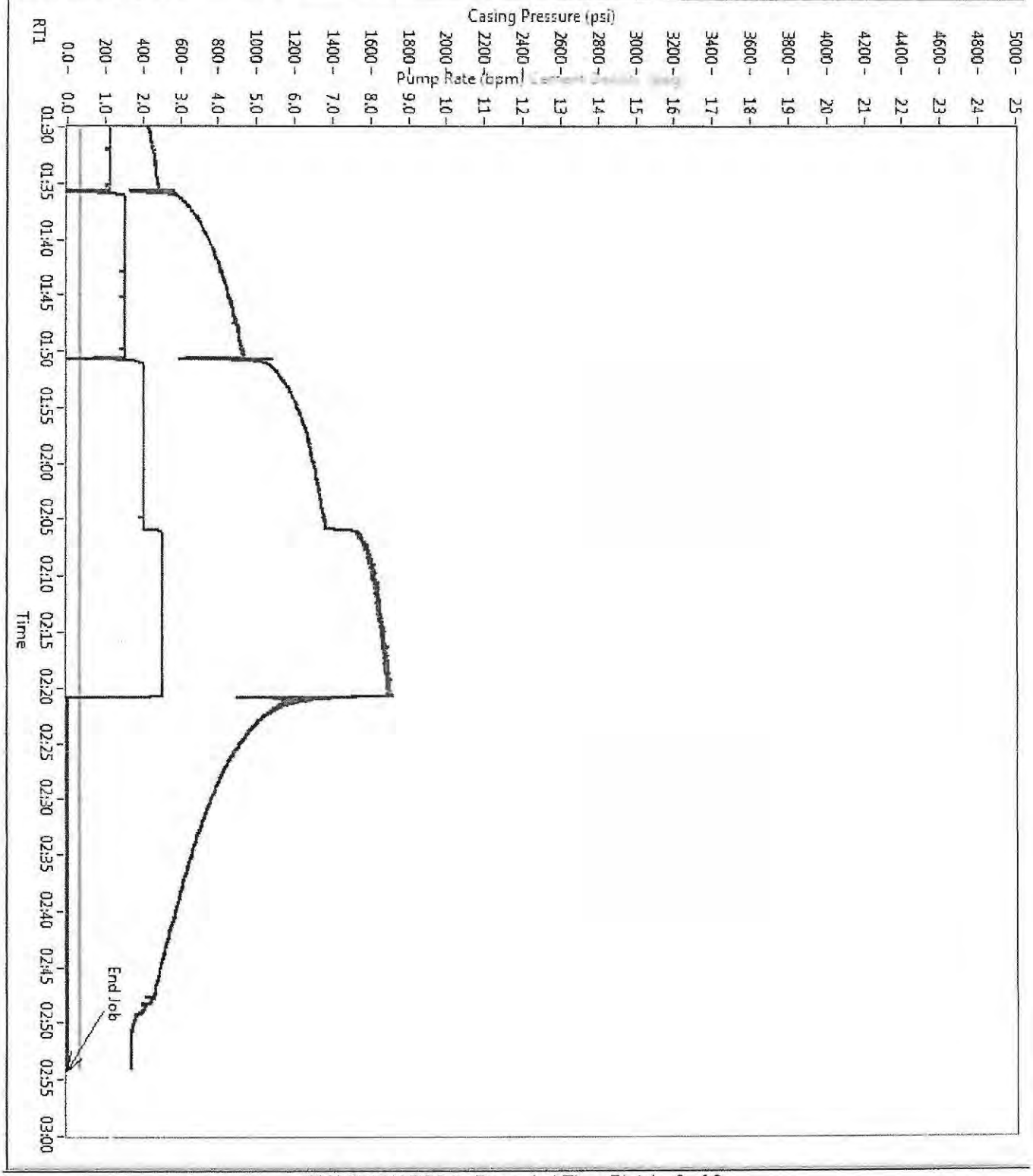
CNX GAS CO LLC / 25453 / INJECTION TEST



INJECTION TEST - Recorded Time Plot 1 - 1 of 2

Gordon

CNX GAS CO LLC / 25453 / INJECTION TEST



INJECTION TEST - Recorded Time Plot 1 - 2 of 2

OMB No. 2040-0042 Approval Expires 4/30/2022

United States Environmental Protection Agency

WELL REWORK RECORD, PLUGGING AND ABANDONMENT PLAN, OR PLUGGING AND ABANDONMENT AFFIDAVIT

Name and Address, Phone Number and/or Email of Permittee

Pocahontas Gas LLC
PO Box 570
Pounding Mill, VA 24637
276-596-5048
andrewstatzer@cnx.com

Permit or EPA ID Number	API Number	Full Well Name
	4502702674	25453 UIC

State	County
Virginia	Buchanan

Locate well in two directions from nearest lines of quarter section and drilling unit

Latitude 37.231

Surface Location

1/4 of 1/4 of Section Township Range

Longitude -81.780

ft. from (N/S) Line of quarter section

ft. from (E/W) Line of quarter section.

Well Class	Timing of Action (pick one)	Type of Action (pick one)
Class I	✔ Notice Prior to Work	Well Rework
✔ Class II	Date Expected to Commence N/A at this time	✔ Plugging and Abandonment
Class III	Report After Work	Conversion to a Non-Injection Well
Class V	Date Work Ended	

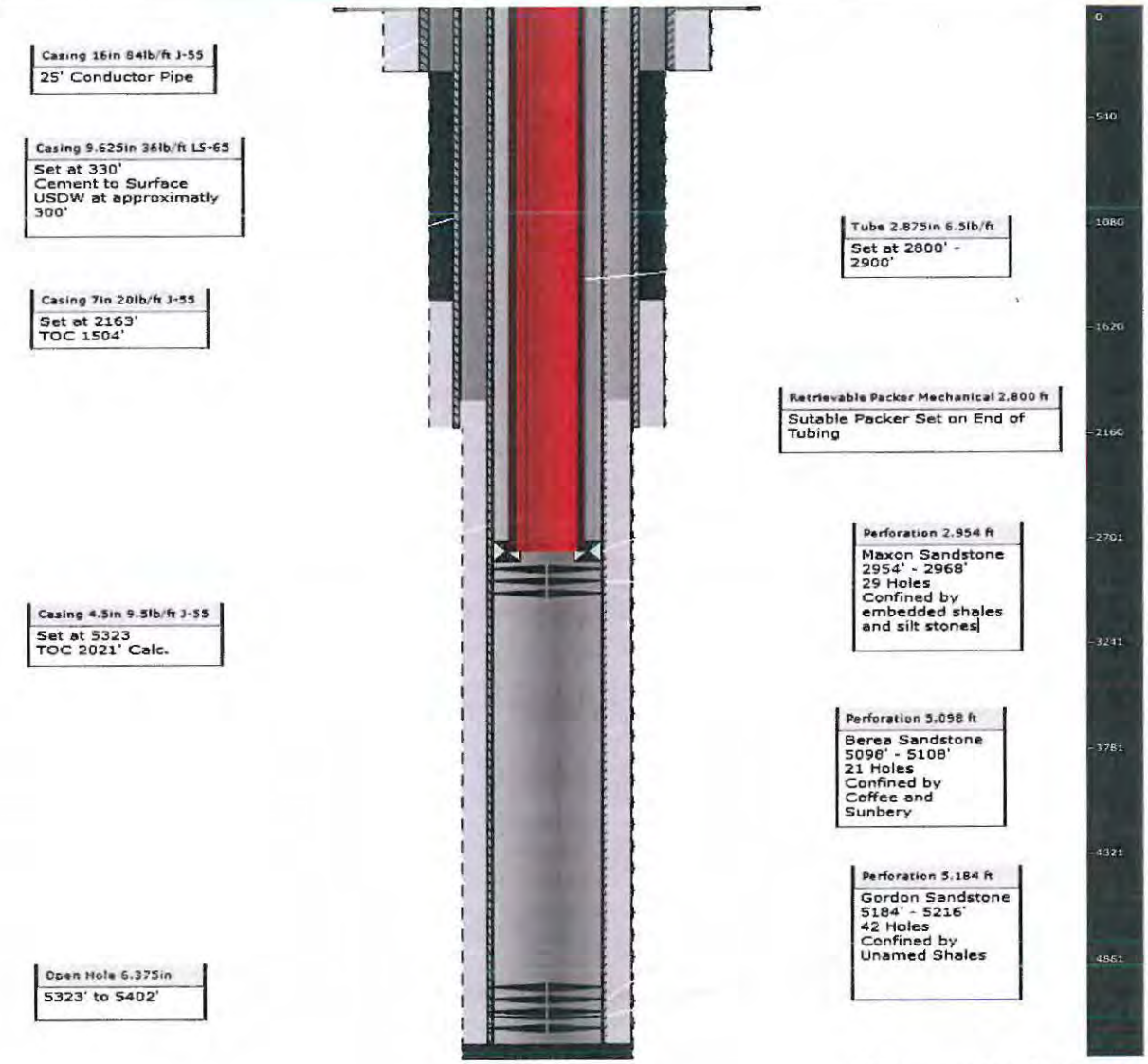
Provide a narrative description of the work planned to be performed, or that was performed. Use additional pages as necessary. See instructions.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR § 144.32)

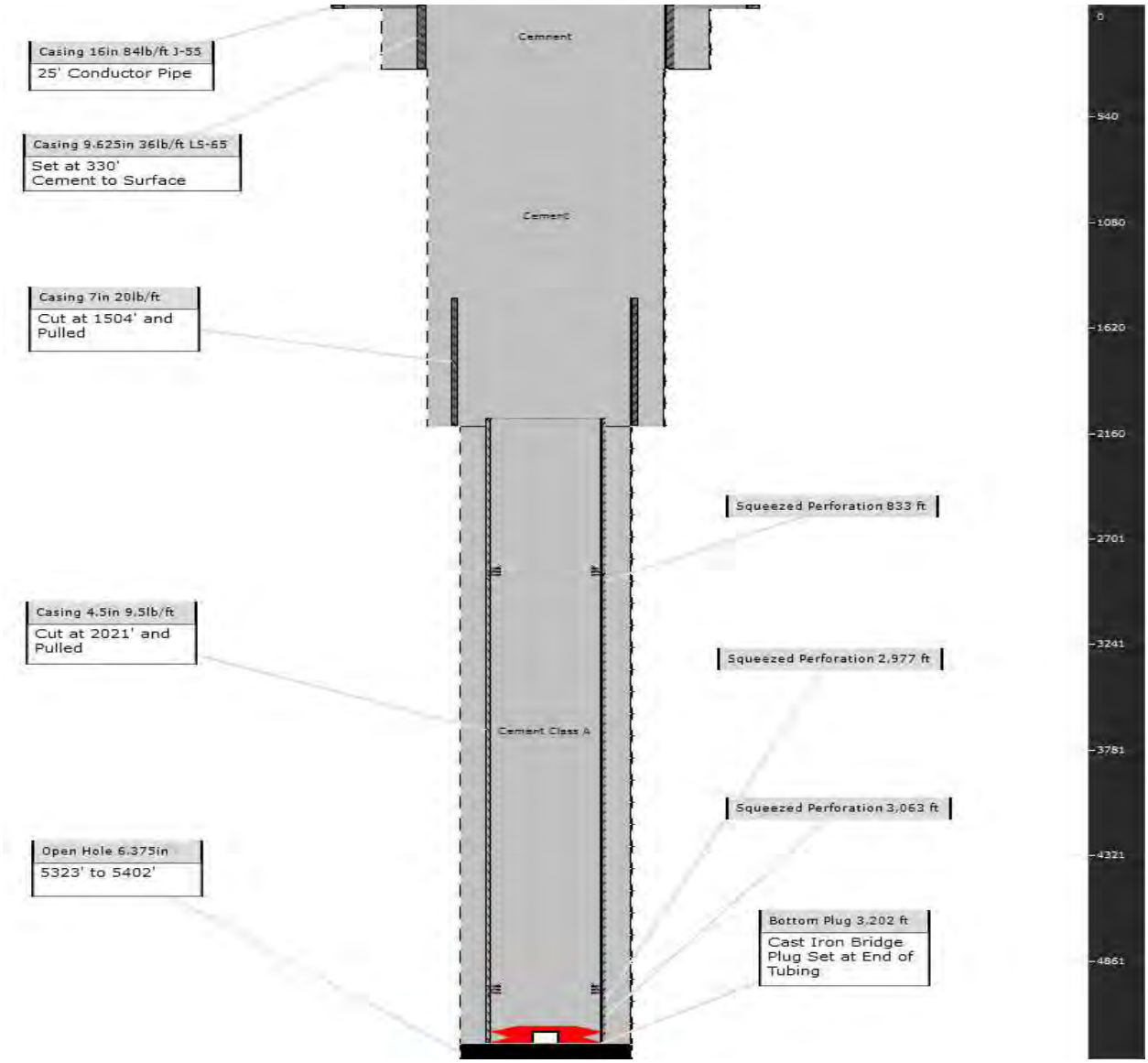
Name and Official Title *(Please type or print)*	Signature	Date Signed
Craig W. Neal, VP Operations	Craig W Neal	9/11/2020

EPA Form 7520-19 (Rev. 4-19)



Legend:

- Open Hole
- Tubing
- Perforation
- Retrievable Packer Mechanical
- Casing



Measured Depth - 5402 ft

Legend:

- Open Hole
- Casing
- Perforation
- Bottom Plug
- Squeezed Perforation

Attachment D. Injection Operation and Monitoring Program

The injection well facility will be monitor by the following:

- Discharge Flow Meter, to monitor injection rate and accumulated injection amount
- Discharge Pressure Transducer, to monito injection pump discharge pressure
- Tank Level Switch, to monitor tank levels
- Annulus Pressure Transducer, to monitor pressure in annulus between injection tubing and 4.5" casing
- Wellhead Pressure Transducer, to monitor pressure at the wellhead

Flow rate, wellhead pressure and annulus pressure will be continuously monitored and recorded. There will be shutdowns programed for high injection pressure, and high annulus pressure. The upper shutdown limit for the injection pressure will be 25 psi below the Maximum Injection Pressure. Annular pressure shut down will be set at 200 psi. Tank level will not trigger a shutdown but will trigger an audible and visual alarm. All alarms will be communicated to command center.

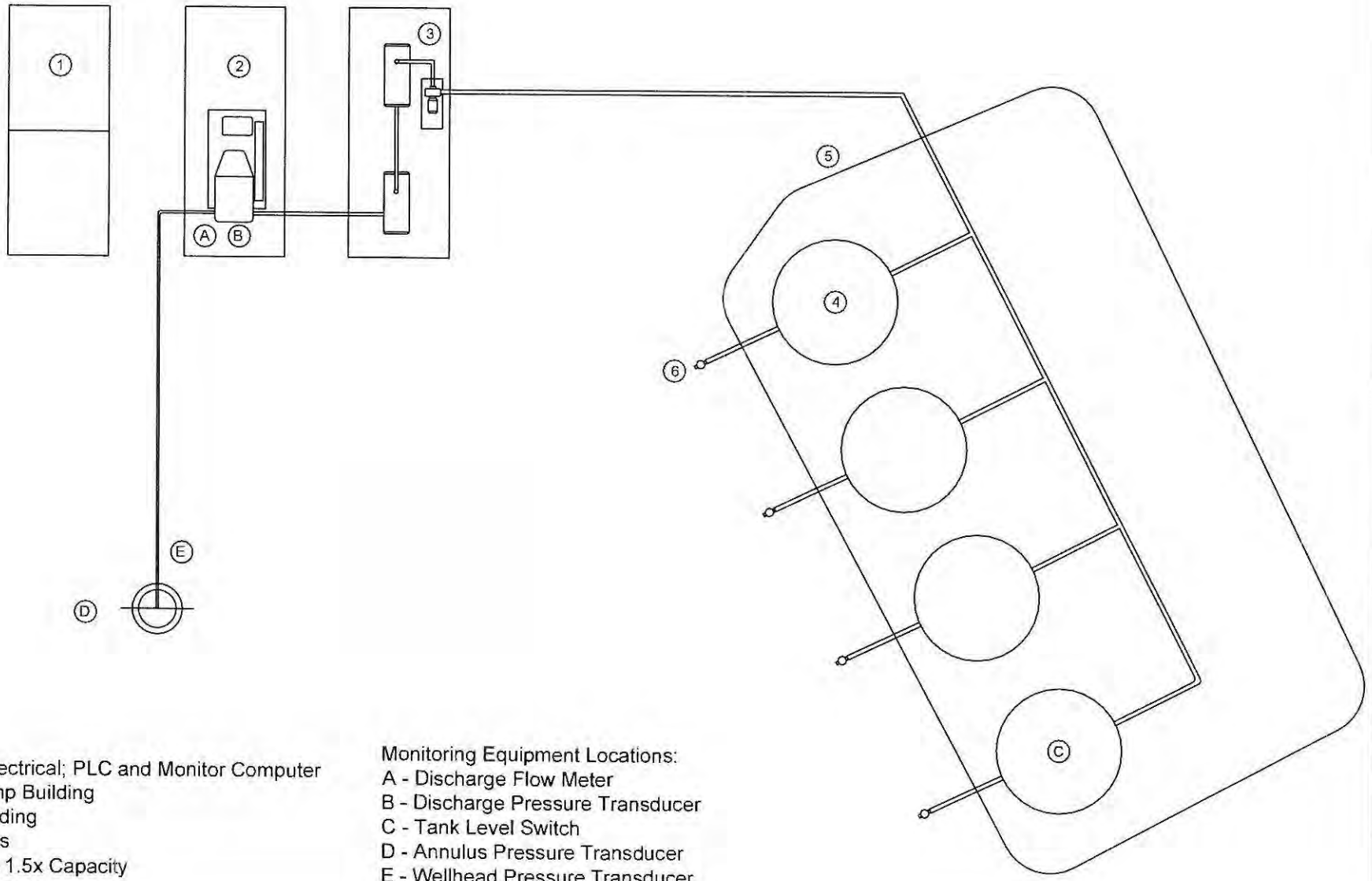
In the event of a well failure Pocahontas Gas, LLC has contractors in place with various expertise to remediate the failure as soon as possible. The EPA will be notified within 24 hours of the nature of the failure and the plan to remediate.

A maximum of 45,000 bbls per month or average of 1500 bbls per day at a maximum injection pressure of **960 psi**.

Analysis of injected fluids will be conducted quarterly and include the following: pH, specific gravity, TDS, and conductivity. All fluid will be from Pocahontas Gas, LLC, Virginia Operation

Annular fluid will consist of a mixture of water and a commercially available "packer fluid."

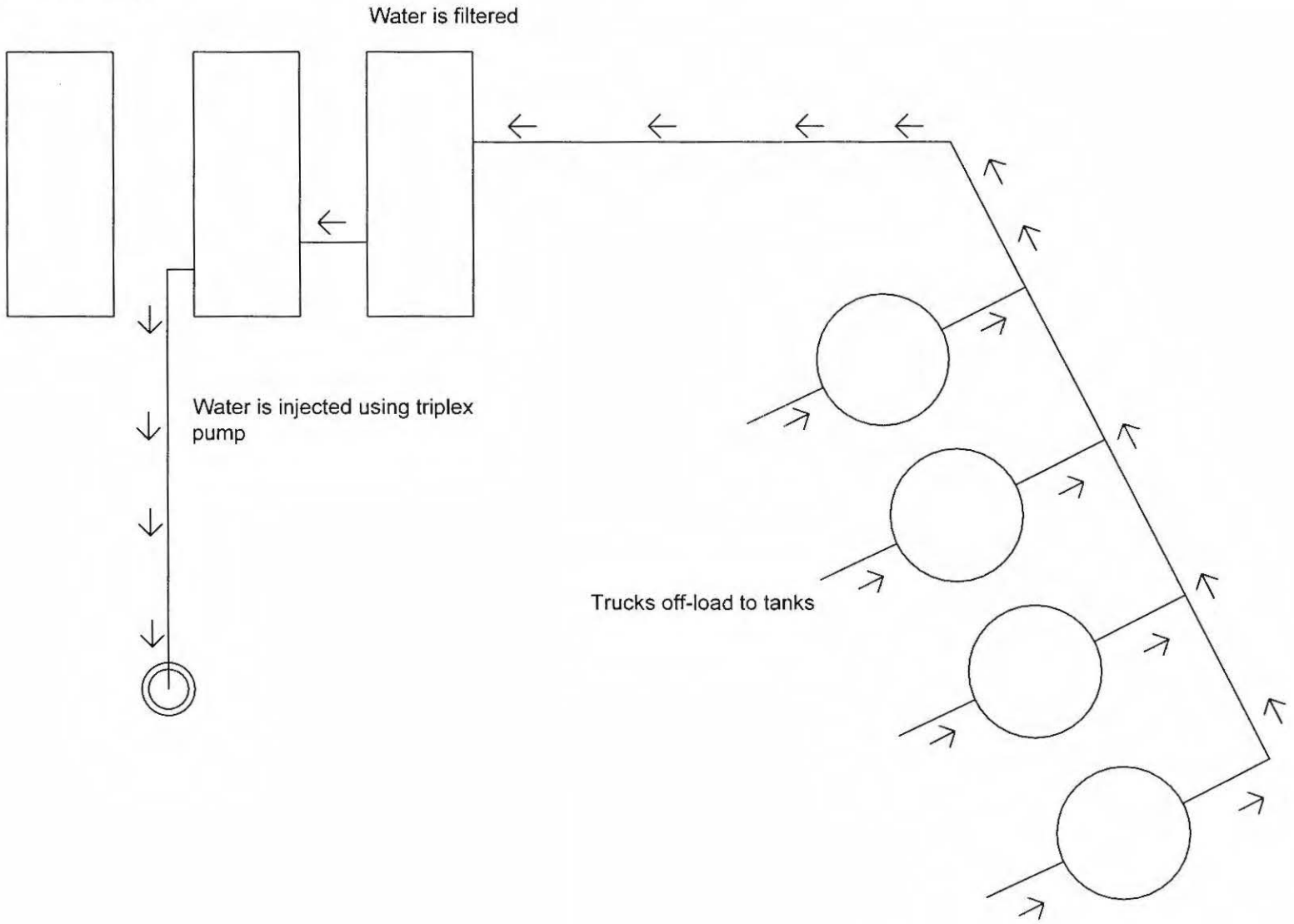
25453 Construction and Monitoring



Notes:
1 - Office and Electrical; PLC and Monitor Computer
2 - Injection Pump Building
3 - Filtration Building
4 - 210 bbl Tanks
5 - Earthen Dike 1.5x Capacity
6 - Basket Strainer

Monitoring Equipment Locations:
A - Discharge Flow Meter
B - Discharge Pressure Transducer
C - Tank Level Switch
D - Annulus Pressure Transducer
E - Wellhead Pressure Transducer

25453 Fluid Flow



25453 Plug to Abandon Plan

- Release packer and pull injection tubing
- Set cast iron bridge plug below Gordon Injection Zone using wireline
- Cut and remove and un-cemented 4-1/2” casing
- Cut and remove and un-cemented 7” casing
- Cement to surface using Class A Cement
- Remove wellhead and install Plugging Monument according to state regulations.

QUOTE

Skyline Contracting Inc.

PO Box 663 Oakwood, VA 24631
276-498-3560

DATE: DECEMBER 10, 2020

TO CNX Resources
Pocahontas Gas LLC.

CONTACT NAME	JOB DESCRIPTION	SALES	QUOTE NUMBER
Andy Statzer	Well 25453 Plugging	KWH	

QTY	DESCRIPTION	UNIT PRICE	LINE TOTAL
1	Move service rig on location and rig up, release packer and pull tubing, establish well total depth.	$5,275.00	$5,275.00
1	Set steel bridge plug and cut casing provided by others	$5,200.00	$5,200.00
1	Pull casing, trip in tubing and tag steel plug. Prepare to pump cement to surface	$2,695.00	$2,695.00
1	Pump cement to surface, trip out tubing, and install plug monument	$2,970.00	$2,970.00
1	Cement Charge	$18,750.00	$18,750.00
1	Move all equipment, tubing, and casing off location	$1,575.00	$1,575.00
	Subtotal		$36,465.00
	Sales Tax		
	Delivery		
	Total		$36,465.00

To accept this quotation, sign here and return: _____

THANK YOU FOR YOUR BUSINESS!

Attachment F. Financial Assurance

Surety Bond

POWER OF ATTORNEY

RLI Insurance Company
Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Bond No. CMS0334529

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes, hut may be detached by the approving officer if desired.

That this Power of Attorney may be effective and given to either or both of **RLI Insurance Company** and **Contractors Bonding and Insurance Company**, required for the applicable bond.

That **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, each Illinois corporations (as applicable), each authorized and licensed to do business in all states and the District of Columbia do hereby make, constitute and appoint: Sandra L. Ham in the City of St. Louis, State of MO, it's true and lawful Agent and Attorney in Fact, with full power and authority hereby conferred upon him/her to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed Twenty Five Million Dollars ($25,000,000) for any single obligation, and specifically for the following described bond.

Principal: Pocahontas Gas LLC a subsidiary of CNX Gas Company LLC
Obligee: United States Environmental Protection Agency Region III

RLI Insurance Company and **Contractors Bonding and Insurance Company**, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and now in force, to-wit:

> **"All bonds, policies, undertakings, Powers of Attorney or other obligations of the Corporation shall be executed in the corporate name of the Corporation by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Corporation. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the Corporation. The signature of any such officer and the corporate seal may be printed by facsimile or other electronic image."**

IN WITNESS WHEREOF, **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Vice President with its corporate seal affixed this 2nd day of September, 2020.

SEAL SEAL

RLI Insurance Company
Contractors Bonding and Insurance Company

Barton W. Davis — Vice President

State of Illinois }
County of Peoria } SS

On this 2nd day of September, 2020, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, and acknowledged said instrument to be the voluntary act and deed of said corporation.

By: Jacqueline M. Bockler
Jacqueline M. Bockler — Notary Public

OFFICIAL SEAL
JACQUELINE M BOCKLER
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES JAN 14 2022

CERTIFICATE

I, the undersigned officer of **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** this 2nd day of September, 2020.

RLI Insurance Company
Contractors Bonding and Insurance Company

By: Jeffrey D Fick
Jeffrey D Fick — Corporate Secretary

A00AIID19

Principal
Signature(s): Michael C. Hardoby
Name(s): Michael C. Hardoby
Title(s): Vice President & Treasurer
Corporate seal[20]:

Corporate Surety(ies)
Name and address: RLI Insurance Company
9025 N. Lindbergh Drive, Peoria, IL 60615
State of incorporation: Illinois
Liability limit: $ 50,000.00
Signature(s): Sandra L. Ham
Name(s) and title(s): Sandra L. Ham, Attorney-In-Fact
Corporate seal[21]:

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]
Bond premium: $ 375.00

[20] A corporate seal is only recommended if the company has a corporate seal.
[21] A corporate seal is only recommended if the company has a corporate seal.

III. Performance Surety Bond

A surety bond guaranteeing performance of injection well plugging, as specified in this chapter, may be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Performance Bond

Date bond executed: 09/02/2020
Effective date: 09/02/2020
Principal: Pocahontas Gas LLC a subsidiary of CNX Gas Company LLC
1000 CONSOL Energy Drive, Canonsburg, PA 15317

Type of organization: Limited Liability Corporation
[State] of incorporation: N/A

Surety(ies): RLI Insurance Company
9026 N. Lindbergh Drive, Peoria, IL 61615

EPA Identification Number, name, address, and injection well plugging amount(s) for each injection well guaranteed by this bond: injection well plugging, 25453 UIC

Total penal sum of bond: $ 50,000.00
Surety's bond number: CMS0334529

Know All Persons By These Presents, That We, the Principal and Surety(ies) hereto are firmly bound to United States Environmental Protection Agency Region III, in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the Underground Injection Control Regulations, as amended, to have a permit or comply with provisions to operate under the Class VI Rule for each injection well identified above, and

Whereas said Principal is required to provide financial assurance for _____ injection well plugging _____ as a condition of the permit or approval to operate under the Rule, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of this obligation are such that if the Principal shall faithfully perform injection well plugging _____, whenever required to do so, of each injection well for which this bond guarantees injection well plugging _____, in accordance with the Injection Well Plugging _____ Plan(s) and other requirements of the permit or provisions for operating under the Rule and other requirements of the permit or provisions for operating under the Rule as may be amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the Principal shall provide alternate financial assurance and obtain the UIC Program Director's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the UIC Program Director from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by the UIC Program Director that the Principal has been found in violation of the injection well plugging _____ requirements of 40 CFR part 146, for an injection well which this bond guarantees performances of injection well plugging _____, the Surety(ies) shall either perform injection well plugging _____ in accordance with the Injection Well Plugging _____ Plan(s) and other permit requirements or provisions for operating under the Rule and other requirements or place the amount for _____ injection well plugging _____ into a standby trust fund for the fulfillment of injection well plugging _____ obligations described at 40 CFR 146.84, 146.92, 146.93, and/or 146.94, respectively.

Upon notification by the UIC Program Director that the Principal has failed to provide alternate financial assurance and obtain written approval of such assurance from the UIC Program Director during the 90 days following receipt by both the Principal and the UIC

Program Director of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the injection well(s) into the standby trust fund.

The surety(ies) hereby waive(s) notification of amendments to Injection Well Plugging _____ Plan(s), permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond only for failure to pay and by sending notice by certified mail to the owner or operator and to the UIC Program Director of the area in which the injection well(s) is (are) located. EPA requires that cancellation not become final for 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the UIC Program Director, as evidenced by the return receipts.

The principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the UIC Program Director of the area in which the bonded injection well(s) is (are) located.

[The following paragraph is an optional rider that may be included.] Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new [corrective action, injection well plugging, post injection site care and site closure, and/or emergency and remedial response] amount, provided that the penal sum does not increase by more than 20 percent in any one year, unless the UIC Program Director determines in writing that the reduced amount is adequate to fulfill the Principal's obligations under 40 CFR 146.84, 146.92, 146.93, and/or 146.94, respectively.

In Witness Whereof, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies).

Form 3207CNR
(REV. 4/12/02)

WELL NO. 823453
API NO./PERMIT NO. 6186
FIELD Conoco IV Well

WELL LOG

COLUMBIA NATURAL RESOURCES, INC.

Casco Drilling Rig #6
DRILLING CONTRACTOR

THIS RECORD MUST BE ACCURATELY
KEPT AND FILLED OUT IN FULL.

FOR DRILLING CONTRACTOR

Southwest Region
REGION

Donald R Hughes; Regional Mgr. SW

DISTRIBUTION
ORIG.–GEOLOGY WELL FILE
COPY–REGION WELL FILE
COPY–AREA WELL FILE

Well No. 825453 API No. 6186

Budget No. _____ AFE No. 825453

Farm Pocahontas Mining Co Lease No. CONSOL JV

Region Southwest Acres 112.69 / Plat

County Buchanan State Virginia

Township/District Garden District

Sect-lot
Map Sq. _____ Map No. Jewell Ridge Read

Quad. 15' ☐ 7½ ☒ _____

Latitude 7,060 ft. S of 37° 15' 00"

Longitude 8,365 ft. W of 81° 45' 00"

On waters of Jones Fork of Dismal Creek

Coal Owner Pocahontas Mining LLP

Coal Operator Reserve Coal Properties & Jewell Smokeless

Surface Owner Pocahontas Mining LLP

New Lease ☐ Old Lease ☒

Location Made by DR Price Date 3/25/04

Notebook - Page -

Elevation 1964.09 Indicate Method Trig

Field CONSOL JV Prospect

Classification Drill New Development Well

Contractor Gasco Drilling Inc

Address Vansant, VA

Telephone (276) 498-3032

Contractor's Representative Randy Deel

Address Vansant, VA

Telephone (276) 498-3032

Company Representative Melvin Harvey

Address Salyersville, Ky

Telephone (606) 349-5215

Road Started 5-20-2004 20 ___

Drilling Started 6-10-2004 20 ___

Drilling Completed 6-24-2004 20 ___

Well Shut In 7-22-2004 20 ___

Drill Deeper Started _____ 20 ___

Drill Deeper Completed _____ 20 ___

Plugging Started _____ 20 ___

Plugging Completed _____ 20 ___

WELL PROGNOSIS

WELL NO. #25453 ELEV. 1964.09'

ESTIMATED TOTAL DEPTH 5370 FEET

TARGET INFORMATION Berea & Gordon

ESTIMATED CASING

SIZE (O.D.)	GRADE	WT.	SETTING DEPTH
12 3/4	N/A	N/A	40'
9 5/8	LS	26	300'
7	LS	19	2150'
4 1/2"	4-LS	10.5	4370'
		9.5	1000'

ESTIMATE FORMATIONS TOPS

TOP	BTM.	FORMATION INCL. COAL, WATER OIL AND GAS
588	2114	Salt Sand
2392	2464	Ravencliff
2926	3042	U. Maxon
3528	3580	Little Lime
3560	4472	Big Lime
4594	4740	Weir
5080	5132	Berea
5,190	5243	Gordon
5243	5370	Devonian Shale

SAVE SAMPLES TO	SAVE SAMPLES FROM	SAMPLE INSTRUCTIONS
TD	4900	Samples 10' Intervals to Observe Formation Change

LOGS TO BE RUN:

GR from TD to Surface

LDT, CNL, ACT, PE, Audio, & Temp from TD to 7" Csg Pt

SPECIAL TEST, MUD PROGRAM, ETC.

* Drill on Air / Foam
* Test any Significant Show of Gas
* Note all Coal, Water, and Formations in Well Log
* Maintain Well Location and Road according to Company & State Environmental Policies

FORMATIONS (DRILLER)

NATURE OF FORMATION Hard, Soft, Color	FROM	TO	REMARKS Oil, Gas, Water, Etc.
Overburden	0	35	
Sandstone	35	40	
Sandy shale	40	55	
Sandstone	55	160	
Coal	160	161	
Sandy shale	161	190	
Shale	190	195	
Sandy shale	195	230	
Coal	230	231	
Shale	231	280	
Sandstone	280	295	
Sandy shale	295	310	
Sandstone	310	315	
Sandy shale	315	385	
Sandstone	385	405	
Coal	405	406	
Shale	406	480	
Sandy shale	480	530	
Sandstone	530	570	
Salt sand	570	2109	
Sandy Shale	2109	2203	
@ Red Rock	2203	2217	
Princeton sand	2217	2309	
Sandy Shale	2309	2385	
Bevier Ish	2385	2458	
Red Rock	2458	2520	
Sandy Shale	2520	2570	
Red Rock	2570	2600	
Sandy Shale	2600	2610	
Red Rock	2610	2630	

FORMATIONS (DRILLER)

NATURE OF FORMATION Hard, Soft, Color	FROM	TO	REMARKS Oil, Gas, Water, Etc.
Sandy Shale	2630	2720	
Red Rock	2720	2764	
Sand Stone	2764	2780	
Shale	2780	2917	
Sandy Shale	2917	2940	
upper Maxton	2940	3080	
Sandy Shale	3080	3125	
cuddle maxton	3125	3177	
Shale/shale	3177	3205	
Lower Maxton	3205	3255	
SANDY SHALE	3255	3405	
Bradley	3405	3469	
Shale	3469	3520	
Little Lime	3520	3598	
Big Lime	3598	4440	
Red Rock	4440	4480	
Shady shale	4480	4577	
Lexa	4577	4720	
Shady shale	4720	5070	
Berea	5070	5120	
Shady Shale	5120	5170	
Gordon	5170	5210	
Shale	5210	TD	

FORMATIONS (GEOLOGIST)

NATURE OF FORMATION Hard, Soft, Color	FROM	TO	REMARKS Oil, Gas, Water, Etc.
Sand/Shale	0	910	Gauged 5C
Salt Sand	910	2020	2355 · N/S
Sand/Shale	2020	2236	2479 N/S
Princeton	2236	2336	3320 Trace
Sand/Shale	2336	2374	4414 Trace
Ravenclift	2374	2476	
Sand/Shale	2476	2946	
Upper Maxon	2946	2982	
Sand/Shale	2982	3100	
Middle Maxon	3100	3186	
Sand/Shale	3186	3216	
Lower Maxon	3216	3260	
Sand/Shale	3260	3374	
Bradley	3374	3456	
Sand/Shale	3456	3526	
Little Lime	3526	3556	
Big Lime	3556	4448	
Sand/Shale	4448	4550	
Weir	4550	4756	
Pocono Shale	4756	5048	
Sunbury Shale	5048	5066	
Berea	5066	5120	
Cleveland Shale	5120	5172	
Gordon	5172	5230	
Devonian Shale	5230	5402	
	TD: 5383		
	LTP: 5402		

DEVIATION SURVEYS

Depth	Inclination	Direction	Depth	Inclination	Direction
224	1/4°				
653	1/2°				
898	1/4°				
1115	1/4°				
1301	1/2°				
1516	1/4°				
1705	1/4°				
1905	1/4°				
2109	1/4°				

CASING RECORD

Set on 6-11-04 20 9 5/8 in O.D.

C.S. Grade 26 Wt/Ft.

Total Left in Well 330 (Threads Off)

Individual Joint Measurements pages 28

	MFGR.	TYPE	DIA.	LENGTH	SET@
CASING SHOE					
PACKER					
GUIDE SHOE	Gemco				336 KB
FLOAT SHOE					
FLOAT COLLAR	Flapper	insert			306 KB
STAGE COLLAR					
COLLAR					

Grouted Backside with 80 sks. Stayed @ surface

CEMENTING RECORD

Hole Size 12 1/4" Service Co. Schlumberger

OPERATION	FROM TIME	TO TIME
RUN PIPE	12:00 pm	1:00 PM
CIRCULATED		
MIX CEMENT	1:30 PM	1:35 PM
PUMPED PLUG	1:35 PM	1:45 PM

Circulated "0" to Pit.

CEMENTING RECORD

Mixed 120 sks Class "A" Cement with Additives

2% CaCl2 1/4 #/sk Flake

Yield 1.18 C.F./sk wt. 15.6 ppg

Mixed 80 sks Class "A" Cement with Additives

2% CaCl2 1/4 #/sk Flake

Yield 1.18 C.F./sk wt 15.6 ppg

Mixed _____ sks _____ Cement with Additives

Yield _____ C.F./sk wt. _____ ppg

Displ. plug w/ 24 P.D. Pressure 200 psig

calc. cement _____ ' to _____ '

actual/logged _____ ' to _____ '

Pipe wt.

Before setting _____ #; After setting _____ #

Remarks: Centralizers, scratchers, baskets, etc.

Cent on # 1

Cent on # 6

Basket on #7 tied to #6 Cent.

Plug down @ 1:45

CASING RECORD

Set on 6/13/04 20 7 in O.D.

LS Grade J9 Wt/Ft.

Total Left in Well 2167.45 (Threads Off)

Individual Joint Measurements pages 29

	MFGR.	TYPE	DIA.	LENGTH	SET@
CASING SHOE					
PACKER					
GUIDE SHOE	Bennco	Cem.			2171 KB
FLOAT SHOE					
FLOAT COLLAR					
STAGE COLLAR					
Flapper Insert COLLAR	Int. Rub	A1			4107 KB

50 Joints

CEMENTING RECORD

Hole Size 8 7/8 Service Co. SLB

OPERATION	FROM TIME	TO TIME
RUN PIPE		
CIRCULATED		
MIX CEMENT		
PUMPED PLUG		

CEMENTING RECORD

Mixed 185 sks 50/50 Cement with Additives

6% Gel 2% Cacl 1/8# Flake

Yield 1.53 C.F./sk wt. 13.3 ppg

Mixed 100 sks A Cement with Additives

2% CACL

Yield 1.18 C.F./sk wt 15.6 ppg

Mixed _____ sks _____ Cement with Additives

Yield _____ C.F./sk wt. _____ ppg

Displ. plug w/ 83 P.D. Pressure _____ psig

calc. cement _____ ' to _____ '

actual/logged _____ ' to _____ '

Pipe wt.

Before setting _____ #; After setting _____ #

Remarks: Centralizers, scratchers, baskets, etc.

Cent. on Joints # 1 + 48

Cement Job Locked up After

44 BBl Displacement

CASING RECORD

Set on 6/24/04 20 9.5 + 10.5 with 16/Ft ~~in Csg~~.

M65 Grade 4½" ~~Wt/Ft~~.

Total Left in Well 5323.65 (Threads Off)

Individual Joint Measurements pages _____

	MFGR.	TYPE	DIA.	LENGTH	SET@
CASING SHOE					
PACKER					
GUIDE SHOE	Inc.	AL			5329
FLOAT SHOE					
FLOAT COLLAR					
STAGE COLLAR					
COLLAR					

Run 19 Joints 9.5
107 Joints 10.5
2 Pups

CEMENTING RECORD

Hole Size 6¼ Service Co. SLB

OPERATION	FROM TIME	TO TIME
RUN PIPE	545 PM	
CIRCULATED		
MIX CEMENT		
PUMPED PLUG		12:15 AM 6/23/04

CEMENTING RECORD

Mixed 160 sks Litecrete Cement with Additives

Yield 2 C.F./sk wt. 11 ppg.

Mixed _____ sks _____ Cement with Additives

Yield _____ C.F./sk wt _____ ppg

Mixed _____ sks _____ Cement with Additives

Yield _____ C.F./sk wt. _____ ppg

Displ. plug w/ 84.4 P.D. Pressure 0 psig

calc. cement 5323 ' to 2024 '

actual/logged _____ ' to _____ '

Pipe wt.

Before setting 54870 #; After setting _____ #

Remarks: Centralizers, scratchers, baskets, etc.

Run Cent. on Joints # 1
6, 12, 18, 24, 30, 36, 42, 48, 54
60, 66
Marker Joint 2676 2686 KB

LOGGING RECORD

Logged By (Service Co.) Schlumberger

Logs run	From	To	Date
G.R	5402	Surface	6/24/04
AIT		2163	
CNL			
LDT			
Audio			
Temp			
	DTD: 5383		
	LTD: 5402		

Logged By (Service Co.) Meeks

Logs run	From	To	Date
BDL	2100	Surface	6/17/04
CCL			
GR			
HDL			

Logged By (Service Co.) Meeks' Wireline

Logs run	From	To	Date
GR CCL	TD	2100	6-30-04
CBL, VDL	TD	"	
	LTD: 5335		
	TOC: 2730		

PERFORATING RECORD

Perforated By (Service Co.) Meeks

From	To	No. of Shots Per Foot	Kind of Shot	Date
1450	1451	4	HCC	6/17/04
1100	1102	4	"	
1000	1002	4	"	
900	902	4	"	
800	802	4	"	
	Squeeze Perfs		on 7" casing	

Perforated By (Service Co.) Meeks Gordon

From	To	No. of Shots Per Foot	Kind of Shot	Date
5184	5190	13	HSC	6/30/04
5204	5216	29	HSC	
5098	5108	Bersa 10' 21 Shots	HSC	7/7/04
		S.M. Plug @	5150	
2954	2968	Maxon 14' 29 Shots	HSC	7/7/04
		B.M. Plug @ 3020		

Perforated By (Service Co.)

From	To	No. of Shots Per Foot	Kind of Shot	Date

Mudlogging By (ServiceCo.)

From	To	Date

FRAC OR ACID REPORT

Date	7/1/04	7-7-04	7-7-04
Service Co.	SLB	SLB	SLB
Frac Type	Foam	Foam	Foam
Formation	Gordon	Bersa	Mavon
Perforations	5184-5216	5098-5108	2954-2986
Pre Frac OF	42 shots	21 Shots	29
Pre Frac PSI		1350	2400
Breakdown PSI	3094	3836	3113
Breakdown Rate	28,700 scf/min	24000	25000
ISIP	2769	3140	2586
Frac Gradient	.63	.72	.97
Ave Rate	27	20	20
ATP	3067	3030	2625
Max PSI	3419	3836	3113
BH Rate			
Post ISIP	2888	3085	2545
5 Min SIP	2682	2783	2399
10 Min SIP			
15 Min SIP			
Total Sand	70731	34929	46052
Min Sand Conc	1	1	1
Max Sand Conc	4	4	4
Perf Balls	0	0	0
N_2	879,100	671,700	575,000
Clean H_2O	232	208	284
Total HCl	250	350	350
%HCl	15	15	15
Total Slurry	328	246	333

FRAC OR ACID REPORT

Additives

Type	Quantity

Remarks:

FINAL OPEN FLOW TEST

Y ZONE		TYPE GAUGE (SPECIFY)	PRESSURE (SPECIFY UNITS)	SIZE OPENING-IN.	OPEN FLOW M.C.F./DAY	OPEN FLOW HRS. BLOWN
TO		Pitot Tube	Atmosphere	10/10 4" W/W	540	24 Hrs
TO 5216						
TO						
FROM	TO					
FROM	TO					
FROM	TO					

24

25

WELLHEAD PRESSURE TESTS

DATE TAKEN	FORMATION(S)	MINUTE PRESSURE PSIG						WELLHEAD PRESSURE—PSIG				
		1	3	5	10	20	30	24 HR	48 HR	72 HR	MAXIMUM	TIME
7/23/2021	Gordon, Berea, Mason								500 #		500 #	48 Hrs

27

Date turned into line _____

FINAL OPEN FLOW TEST

DATE GAUGED	FORMATION(S)	PAY ZONE	TYPE GAUGE (SPECIFY)	PRESSURE (SPECIFY UNITS)	SIZE OPENING–IN.	OPEN FLOW M.C.F./DAY	OPEN FLOW HRS. BLOWN
7/8/2004	Gordon, Berea, Mason	FROM 2954 TO 5216	Pitot Tube	Atmosphere	10/10 4" W/W	540	24 Hrs
		FROM TO					
		FROM TO					
		FROM TO					
		FROM TO					
		FROM TO					
		FROM TO					
		FROM TO					

26

WELLHEAD PRESSURE TESTS

DATE TAKEN	FORMATION(S)	MINUTE PRESSURE PSIG						WELLHEAD PRESSURE—PSIG				
		1	3	5	10	20	30	24 HR	48 HR	72 HR	MAXIMUM	TIME
7/23/04	Gordon, Berea, Mason								300 #		500 #	49 Hrs

27

Date turned into line _____

INDIVIDUAL ☑ CASING ☐ TUBING JOINT MEASUREMENT

	SIZE 9 5/8	WEIGHT 26#	MFR.	GRADE L.S	THD. 8RD	COUPLING
1.	33	60				
2.	33	65				
3.	44	10				
4.	44	25				
5.	44	15				
6.	44	15				
7.	44	10				
8.	44	10				
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
TOTAL		TOTAL		TOTAL		TOTAL

330.90

ALL MEASUREMENTS ☑ LESS ☐ WITH THREADS

INDIVIDUAL ☐ CASING ☐ TUBING JOINT MEASUREMENT

	SIZE 7	WEIGHT 19	MFR. MAV.	GRADE LS	THD. 8rd	COUPLING SC DJ
1.	44 25	44 20	44 20			
2.	44 20	43 90	44 15			
3.	44 15	44 15	43 35			
4.	44 20	44 20	44 30			
5.	44 20	43 90	44 50			
6.	44 25	44 20	44 15			
7.	44 25	44 15	44 10			
8.	44 20	44 15	44 15			
9.	44 20	44 20	44 20			
10.	44 20	44 15	44 15			
11.	44 20	44 15				
12.	44 20	44 20				
13.	44 20	44 20				
14.	44 20	43 90				
15.	44 15	44 15				
16.	44 20	43 90				
17.	44 20	44 20				
18.	44 20	44 15				
19.	44 25	44 20				
20.	44 20	44 20				
TOTAL		TOTAL		TOTAL		TOTAL

ALL MEASUREMENTS ☑ LESS ☐ WITH THREADS

INDIVIDUAL ☑ CASING ☐ TUBING JOINT MEASUREMENT

	SIZE	WEIGHT	MFR.	GRADE	THD.	COUPLING
	4 1/2	9.5 #10.5	MAV	M65	8RD	SCFT
1.	10	10	10.5 43	10 43	00 43	05 43
2.	9.5 43	50	43	00 42	95	10 10
3.	43	75	43	25 43	15	43 05
4.	43	45	42	95 43	05	43 05
5.	42	55	43	10 42	95	43 70
6.	42	30	43	15 43	10	43 25
7.	42	10	43	35 42	40	43 75
8.	42	10	42	00 42	40	42 35
9.	43	00	43	00 42	00	42 35
10.	43	45	42	65 43	00	43 05
11.	42	05	41	70 43	10	42 85
12.	43	25	42	10 42	85	43 05
13.	42	60	43	65 43	00	43 60
14.	43	05	42	25 43	15	43 20
15.	43	00	OUT 44	95 43	00	43 05
16.	43	10	43	80 43	00	43 05
17.	43	00	41	75 43	00	43 15
18.	42	95	43	05 43	05	43 05
19.	43	00	42	95 43	00	43 70
20.	43	25	43	50 42	35	43 00
TOTAL	825	55	TOTAL 848	25 TOTAL 857	50 TOTAL 829	40

ALL MEASUREMENTS ☑ LESS ☐ WITH THREADS

INDIVIDUAL ☑ CASING ☐ TUBING JOINT MEASUREMENT

	SIZE	WEIGHT	MFR.	GRADE	THD.	COUPLING
	4 1/2	10.5	MAV	M65	8RD	SCFT
1.	43	15	43	10	(43 55	OUT)
2.	42	35	42	90	43	15
3.	43	00	42	85	42	95
4.	43	00	43	10	43	05
5.	43	10	42	60	42	30
6.	43	00	43	05	43	05
7.	43	10	43	15	42	85
8.	42	35	42	45	43	05
9.	43	00	43	70	(43 25	OUT)
10.	43	15	43	05		
11.	43	10	42	40		
12.	43	00	43	00		
13.	42	95	43	10		
14.	42	50	42	40		
15.	43	10	42	95		
16.	43	10	42	95		
17.	42	15	42	85		
18.	42	20	43	05		
19.	43	40	43	05		
20.	43	20	43	70		
TOTAL	858	30	TOTAL 859	40	TOTAL 386	70 TOTAL

Total Casing 5444.90

ALL MEASUREMENTS ☑ LESS ☐ WITH THREADS

REMARKS

7/20/2004

Ran 2 3/8" Tbg Siphon String

Ran 160 Jts of 2 3/8" Tbg

1 10' Perf Jt

TP: 5179' set @ 5185' KB

Seating Nipple set @ 5169', 5175' KB

REMARKS

List of undesirable material left in the hole (wire line, drilling tools, etc.

Well # 25453 – CONSOL JV Prospect (CON-26)

05/20/2004 – Will Begin BR & L Today, 5/20/2004
05/22/2004 – Began BR & L on 5/21/2004
05/25/2004 – BR & L
05/26/2004 – BR & L
05/27/2004 – BR & L
06/01/2004 – BR & L
06/02/2004 – BR & L
06/03/2004 – BR & L
06/05/2004 – Finished BR & L on 6/4/2004. WORR.
06/10/2004 – Will MIRU Gasco Rig #6 Today. Plan to Spud Today.
06/11/2004 – Currently drilling 12 ¼" Hole at 100' on A/F. MIRU Gasco Rig #6. Spud Well at 6:00 P.M. on 6/10/2004. Set 25' of 16" Conductor and 40' of 12 ¾" Conductor. 5"Stream of Water at 15'. Nipple Up and TIH with 12 ¼" Hammer Bit. Began drilling. Picked Up 7" Stream of Water at 85'.
06/12/2004 – Currently SD for Weekend. TD 12 1/4" Hole at 360'on A/F. Clean Hole and TOH. Ran 8 Jts of 9 5/8" Csg, 26# - LS. TP: 330' set at 336' KB. Insert set at 292' KB. MIRU Schlumberger. Cement with 120 sks Class A, 2% CaCl2, 1/8 #/sk Flake. Did not get circulation. Grout Backside with 80 sks Class A, 2% CaCl2, 1/8 #/sk Flake. Cement to Surface. Plug down at 1:45 P.M. on 6/11/2004. WOC and SD for Weekend.
06/14/2004 – Currently preparing to resume drilling.
06/15/2004 – Currently drilling 8 7/8" Hole at 1737' on A/F. Resumed drilling 8 7/8" Hole. Damp at 500', went to soaping. Made 1377' in last 24 Hrs.
06/16/2004 – Currently WOC. TD 8 7/8" Hole at 2203' on A/F. Clean Hole and TOH. Ran 49 Jts of 7" Csg, 19# - LS. TP: 2163' set at 2169' KB. Insert set at 2125' KB. MIRU Schhumberger. Cement with 185 sks 50/50 Poz, 6% Gel, 2% CaCl2, 1/8 #/sk Flake and tail in with 100 sks of Class A, 2% CaCl2. Cement locked up with 42 Bbls of Displacement Pumped. Left approximately 1000' of Cement inside Casing. WOC.
06/17/2004 – Currently drilling cement on A/D at 1437'. Finished WOC. Waited 24 Hrs on Lead Cement. Broke Out and Nippled Up. TIH with 6 3/8" Hammer Bit. Tagged Cement at 1050'. Began Drilling.
06/18/2004 – Currently evaluating situation. Drilled Cement to 2100' on A/F. Clean Hole and TOH. Load Hole with Treated Water. MIRU Meeks' Wireline. Attempted to run GR, CCL, CBL, and VDL Logs. Too much foam in hole, bond tool would not work. TIH with Open Ended DP. Flush hole and re-load with Treated Water to Displace out Foam. Re-Ran GR, CCL, CBL, and VDL Logs. TOC: 1504'. Perforate 7" Csg at 1450' with 4 squeeze holes. MIRU Schlumberger. Attempt to Break Circulation and could not. Pressured up to 1500 Psi at Surface. Perforate and Pressure Up to 1500 Psi at the following depths with the same results: 1100', 1000', 900', 800'. Evaluating Options.
06/19/2004 – Installed 9 5/8" X 7" Head, per orders from DGO because 7" Casing could not be squeezed by to Surface. SD for Weekend Off.
06/21/2004 – Currently Preparing to Resume Drilling.
06/22/2004 – Currently drilling 6 3/8" Hole at 2500' on A/D. Nipple Up and TIH with 6 ½" Hammer Bit and began drilling. Drilled to 2275' on A/D. Bit Laid down. Made Bit Trip. TIH with 6 3/8" Hammer Bit and resumed drilling.

06/23/2004 – Currently drilling 6 3/8" Hole at 3500' on A/D. Drilled 6 3/8" Hole to 3440' on A/D. Bit Laid Down. Made Bit Trip and resumed drilling. Gas Checks: 2400': No Show, 3300': Odor.
06/24/2004 – Currently drilling 6 3/8" Hole at 5213' on A/D. Made 1713' in last 24 Hrs.
06/25/2004 – Currently WOSR. TD 6 3/8" Hole at 5383' on A/D. Clean Hole and TOH. MIRU Schlumberger. Ran Open Hole Logs. LTD: 5402'. Ran 4 ½" M-65 Csg. Ran 17 Jts of 9.5#, 107 Jts of 10.5#, plus 2 pups. TP: 5323' set at 5328'KB. Marker Joint set at 2744' to 2754'. Insert set at 5318' KB. MIRU Schlumberger. Cement with 160 sks LiteCRETE. Plug down at 12:15 A.M. on 6/25/2004. Released Gasco Rig #6 to Well # 25451.
06/30/2004 – Will CBL, Swab, and Perf Today.
07/01/2004 – MIRU Meeks' Wireline and Key Energy Service Rig. Ran GR, CCL, CBL, and VDL Logs. LTD: 5335', TOC: 2730'. Will Swab, Perf, and Frac Today.
07/02/2004 – Swabbed well dry. Perforate Gordon using 3 3/8" HSC Guns, 11 gram charges. Top Perf: 5184', Bottom Perf: 5216', Total Perfs: 42 Holes. MIRU Schlumberger. Spot 250 gal 15% HCl. Broke down Gordon. BP: 3094 Psi, BR: 28,700 SCFM, ISIP: 2769 Psi, N2 Factor: 1099 SCF/BBL. Foam ClearFRAC Gordon using 75% Quality Foam at 27 BPM Foam Rate. Sand Concentration 1 to 4 PPA BH. Total Clean: 232 Bbls, Total Slurry: 308 Bbls, Total Sand: 70,200 Lbs 20/40 Mesh, Total N2: 789,100 SCF. ATP: 3067 Psi, MTP: 3419 Psi, ISIP: 2808 Psi, 5 MIN SIP: 2682 Psi. Began Flowback through 3/8" Choke and Worked to 1" Choke. LOON to Pit.
07/03/2004 – 24 Hr OF 140/10 2" W/W: 496 MCF/D. Well blowing Dry. SI for RP.
07/07/2004 – Will Get RP on Gordon Today. Will Perf and Frac Berea and Upper Maxon Today.
07/08/2004 – 120 Hr RP 1350 Psi. MIRU Meeks' Wireline. Perforate Berea under Lubricator using 3 3/8" HSC Guns, 12 gram charges. Top Perf: 5098', Bottom Perf: 5108', Total Perfs: 21 Holes. Set SM Frac Plug at 5150'. MIRU Schlumberger. Pumped 350 gal 15% HCl, dropped ball, and broke down formation. BP: 3836 Psi, BR: 24,500 SCFM, ISIP: 3140 Psi, N2 Factor: 1196 SCF/BBL. Foam ClearFRAC using 65% Quality at 20 BPM Foam Rate. Sand Concentration 1 to 4 PPA BH. Total Clean: 208 Bbls, Total Slurry: 246 Bbls, Total Sand: 34,900 Lbs 20/40 Mesh, Total N2: 671,700 SCF N2. ATP: 3030 Psi, MTP: 3836 Psi, ISIP: 3085 Psi, 5 MIN SIP: 2783 Psi. Perforate Maxon using 3 3/8" HSC, 12 gram charges. Top Perf: 2954', Bottom Perf: 2968', Total Perfs: 29 Holes. Set BM Frac Plug at 3020'. Pump 350 gal 15% HCl, dropped ball, and broke down formation. BP: 3113 Psi, BR: 25,000 SCFM, ISIP: 2586 Psi, N2 Factor: 982 SCF/BBL. Foam ClearFRAC Maxon using 65% Quality Foam at 20 BPM Foam Rate. Sand Concentration 1 to 4 PPA BH. Total Clean: 284 Bbls, Total Slurry: 333 Bbls, Total Sand: 46,100 Lbs 20/40 Mesh, Total N2: 575,000 SCF N2. ATP: 2625 Psi, MTP: 3113 Psi, ISIP: 2545 Psi, 5 MIN SIP: 2399 Psi. Began flowback through 3/8" Choke and worked to 1". LOON to Pit.
07/09/2004 – 24 Hr of 10/10 4" W/W: 540 MCF/D. Well Surging Heavy. A lot of fluid in wellbore. Drilled Out BM Frac Plug and drove to SM Frac Plug. Stem backed off of Jars. Will attempt to fish out Today.
07/10/2004 – TIH with Sandline and Overshot. Sat down 40' High. 40' of sand on top of SM Frac Plug. SI Well and will resume 7/12/2004.

07/13/2004 – Blow Well down to Pit. Unloaded sand and fluid. TIH with Sand Pump. Clean out sand to Top of Jars. TIH with Sandline Overshot. Retrieved Jars. TIH with Sand Pump. Clean out Sand to SM Frac Plug. SION. Will Blow Well down today and attempt to drill out Frac Plug.
07/14/2004 – Blow Well down to Pit. TIH with sandline tools. Drilled on SM Frac Plug all Day. SION. Will continue Today.
07/16/2004 – Blow Well down. TIH with Sand Line Tools. Drilled on SM Frac Plug. Appears to have Sand on Plug. TOH with Sand Line Tools. Began TIH with 2 3/8" Tbg and 3 7/8" Rock Bit. Will Continue Today.
07/17/2004 – Drilled out BM Frac Plug. Sand in wellbore below frac plug. Began Cleaning out Sand. Will Continue Today.
07/18/2004 – Attempted to Clean Out Sand. Air Compressor would not run. SI Well. Will Continue on 7/19/2004.
07/20/2004 – Cleaned Out Sand to Bottom. Began TOH with 2 3/8" Tbg and 3 7/8" Rock Bit. Will Continue Today.
07/21/2004 – Finished 2 3/8" Tbg and 3 7/8" Rock Bit. Ran 2 3/8" Tbg Siphon String. Ran 160 Jts of 2 3/8" EUE Tbg, plus 1 10' Perf Joint. TP: 5179' set at 5185' KB. Seating Nipple Set at 5169', 5175' KB. SI for RP.
07/23/2004 – 48 Hr RP: 500 Psi. WOPL and Reclamation.

Gordon/Berea/Maxon
FOF (24 Hr) 540 MCF/D on 7/8/2004
FRP (48 Hr) 500 Psi on 7/22/2004

CCTD: $ 382,025.02

VOLUME FACTOR DATA

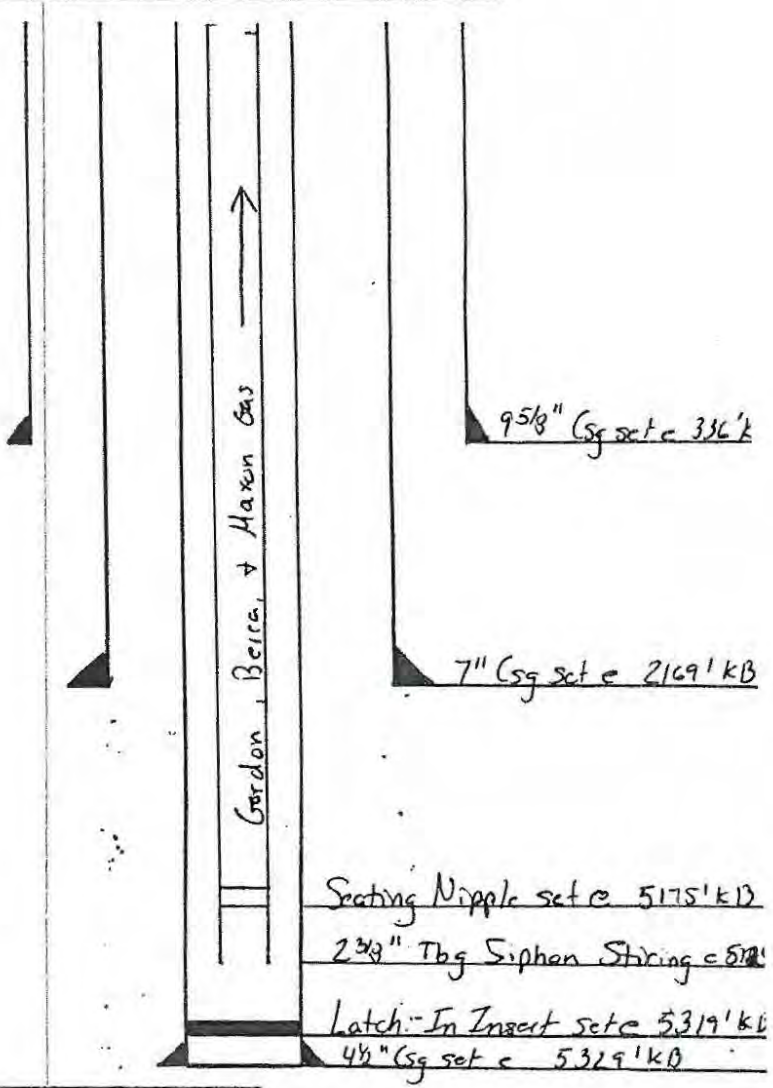
WELL NO. 825453

COMPLETED/WORKED OVER Completed

TWP/DIST Garden District CO. Buchanan ST. Virginia

OBTAINED FROM: WELL LOG SUMMARY (✓), OTHER _____

PIPE SIZE	FEET	WEIGHT
12 3/4"	40 '	N/A #
9 5/8"	330 '	26 #
7"	2163 '	19 #
4½"	5323 '	10.5/9.5 #
2 3/8"	5179 '	4.7 #
___"	'	#
PACKER	'	
BIT SIZE	6 3/4"	
TOTAL DEPTH	5383 '	
OPEN HOLE	'	



Set 25' of 16" Conductor

Gordon Perforations Top: 5184 Bottom: 5216 Total: 42

Berea Perforations Top: 5098 Bottom: 5108 Total: 21

Maxon Perforations Top: 2954 Bottom: 2968 Total: 29

ATTACHMENT I. *EXISTING EPA PERMITS*

Ball A-1	*VAS2D921BBUC*
BPC-01	*VAS2D960BBUC*
N26	*VAS2D930BBUC*
U7	*VAS2D926BBUC*
AW114A	*VAS2D970BRUS*

Attachment J. Description of Business

Pocahontas Gas LLC is an Operator, Explorer, Gatherer and Producer of natural gas extracted from Coalbed Methane Gas Wells and Conventional Gas Wells, located in southwestern Commonwealth of Virginia. Pocahontas Gas is a subsidiary of CNX Gas Company LLC.

Attachment K. Optional Additional Project Information

1. Virginia Cultural Resources Information System
2. IPAC – Information for Planning and Consultation

Virginia Dept. of Historic Resources

V-CRIS

Virginia Cultural Resource Information System

Legend

- Architecture Labels
- Architecture Points
- Historic Districts
- USGS GIS Place names
- County Boundaries

N

Feet

0 500 1000 1500 2000

1:18,056 / 1"=1,505 Feet

Title: No Historical Significance **Date: 9/9/2020**

DISCLAIMER:Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions.The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites:Locations of archaeological sites may be sensitive the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Buchanan County, Virginia

Local office

Virginia Ecological Services Field Office

(804) 693-6694
(804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

http://www.fws.gov/northeast/virginiafield/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Gray Bat Myotis grisescens — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6329

Indiana Bat Myotis sodalis — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Virginia Big-eared Bat Corynorhinus (=Plecotus) townsendii virginianus — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/8369

Crustaceans

NAME	STATUS
Big Sandy Crayfish Cambarus callainus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8285	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.

2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to

confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

KLX Energy Services

CEMENT BOND LOG GAMMA RAY/CCL/VDL

Company	CNX GAS
Well	25453
Field	
County	BUCHANAN
State	V.A.
Country	USA
API #:	PERMIT # 6196

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

THANK YOU FOR USING KLX ENERGY SERVICES

Database File:	cnx2.db
Dataset Pathname:	pass3.1
Presentation Format:	scbl_dr
Dataset Creation:	Thu Aug 13 14:50:32 2020 by Calc Std Casedhole 10081
Charted by:	Depth in Feet scaled 1:240

9	Collar Locator	-1	0	Amplitude (mV)	100	200	VDL	1200
0	Gamma Ray	200					
0	Line Speed (ft/min)	100					

9	Collar Locator	-1	0	Amplitude (mV)	100	200	VDL	1200
0	Gamma Ray	200					
0	Line Speed (ft/min)	100					