



**west virginia** department of environmental protection

Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

July 29, 2014

**WELL WORK PERMIT**


**Vertical Well**

This permit, API Well Number: 47-10701752, issued to COLUMBIA GAS TRANSMISSION, LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: ROCKPORT 12590

Farm Name: COX, SANDRA

**API Well Number: 47-10701752**

**Permit Type: Vertical Well**

Date Issued: 07/29/2014

**Promoting a healthy environment.**

**08/01/2014**

## PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

### CONDITIONS

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1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

**PRE-DRILLING WELL PLAN**

# Columbia Gas Transmission, LLC

Wood County, WV  
Rockport Storage Pad #1  
Rockport Storage Pad #1 - Well 12590

Rockport 12590 - Orig Hole

Plan: Rockport 12590 - Plan #3

## Standard Planning Report

05 June, 2014

Received

JUN 30 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection



**Directional Drilling Contractors, LLC.**

**An Archer Company**



WW - 2B  
(Rev. 8/10)

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

1) Well Operator: Columbia Gas Transmission, LLC 307032 Wood Steele Rockport  
Operator ID County District Quadrangle

2) Operator's Well Number: Rockport 12590 3) Elevation: 1054 ✓

4) Well Type: (a) Oil \_\_\_\_\_ or Gas X \_\_\_\_\_  
(b) If Gas: Production \_\_\_\_\_ / Underground Storage X \_\_\_\_\_  
Deep X \_\_\_\_\_ / Shallow \_\_\_\_\_

5) Proposed Target Formation(s): Oriskany Proposed Target Depth: 5271' MD

6) Proposed Total Depth: 5385' MD Feet Formation at Proposed Total Depth: Helderberg

7) Approximate fresh water strata depths: no known water wells within 1000' - no offset well drilling records reported fresh water 2 LISTED ON WW 28-1

8) Approximate salt water depths: Salt Sand 1863 - 2229'

9) Approximate coal seam depths: none expected

10) Approximate void depths,(coal, Karst, other): none expected

11) Does land contain coal seams tributary to active mine? no

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Drill well for underground natural gas storage service. Fracture stimulate with +/- 500 bbls fluid.

Refer to directional drilling well plan.

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	20	B-35	59	20	20	20 (to surface)
Fresh Water	13-3/8"	H-40	48	400	400	280 (to surface)
Coal						
Intermediate	9-5/8"	J-55	36	2280	2280	730 (to surface)
Production	7"	N-80	23	5250	5250	150 (1000 ft)
Tubing						
Liners						

Packers: Kind: \_\_\_\_\_  
Sizes: \_\_\_\_\_  
Depths Set \_\_\_\_\_


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JUN 30 11



Columbia Gas Transmission, LLC

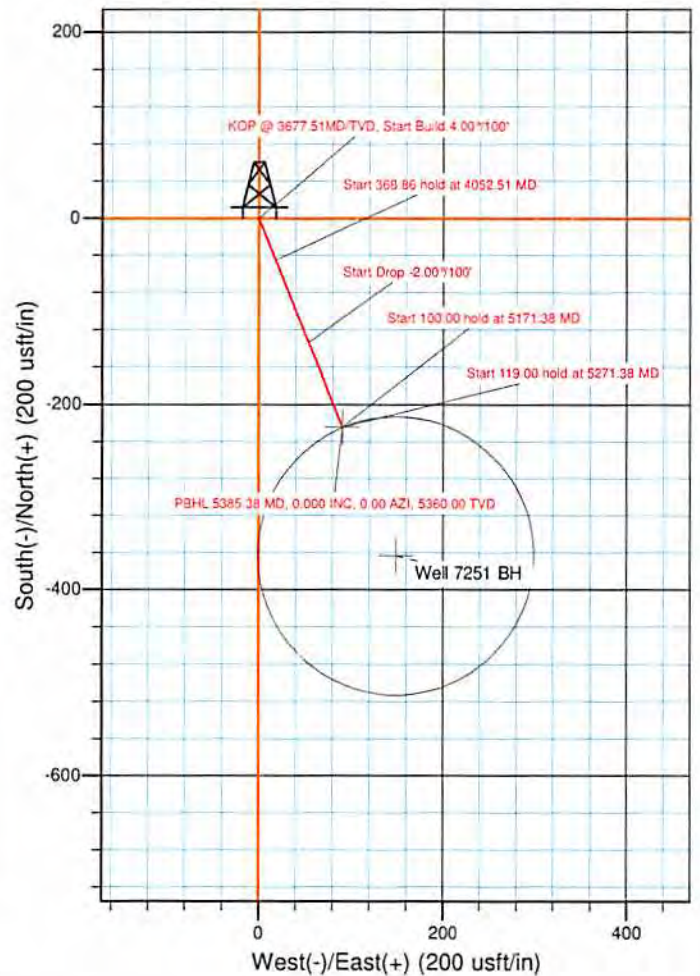
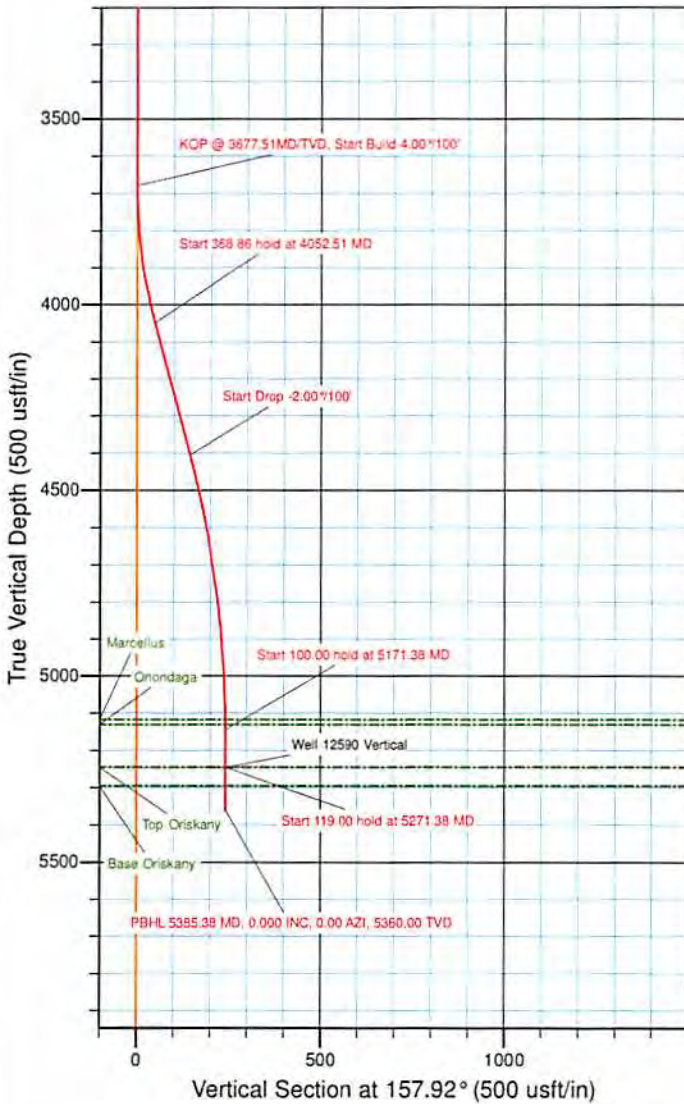
Rockport Storage Pad #1 - Well 12590						
+N/-S	+E/-W	Northing	Ground Level: Easting	0.00 Latitude	Longitude	
0.00	0.00	215211.2500	1387792.7700	39° 4' 21.779 N	81° 32' 43.996 W	

Project: Wood County, WV  
 Site: Rockport Storage Pad #1  
 Well: Rockport Storage Pad #1 - Well 12590  
 Wellbore: Rockport 12590 - Orig Hole  
 Design: Rockport 12590 - Plan #3



Azimuths to Grid North  
 True North: 1.30°  
 Magnetic North: -7.12°

Magnetic Field  
 Strength: 52486.0snT  
 Dip Angle: 66.80°  
 Date: 05/13/2014  
 Model: HDGM



ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	V Sect	Departure	Annotation	
3677.51	3677.51	0.000	0.00	0.00	0.00	0.00	0.00	KOP @ 3677.51 MD/TVD, Start Build 4.00°/100'	
4048.24	4052.51	15.000	157.92	-45.23	18.35	48.81	48.81	Start 368.86 hold at 4052.51 MD	
4404.54	4421.38	15.000	157.92	-133.69	54.24	144.28	144.28	Start Drop -2.00°/100'	
5146.00	5171.38	0.000	0.00	-224.15	90.93	241.89	241.89	Start 100.00 hold at 5171.38 MD	
5246.00	5271.38	0.000	0.00	-224.15	90.93	241.89	241.89	Start 119.00 hold at 5271.38 MD	
5359.99	5385.37	0.000	0.00	-224.15	90.93	241.89	241.89	PBHL 5385.38 MD, 0.000 INC, 0.00 AZI, 5360.00 TVD	



**Directional Drilling Contractors**  
Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Rockport Storage Pad #1 - Well 12590
<b>Company:</b>	Columbia Gas Transmission, LLC	<b>TVD Reference:</b>	WELL @ 0.00usft (Original Well Elev)
<b>Project:</b>	Wood County, WV	<b>MD Reference:</b>	WELL @ 0.00usft (Original Well Elev)
<b>Site:</b>	Rockport Storage Pad #1	<b>North Reference:</b>	Grid
<b>Well:</b>	Rockport Storage Pad #1 - Well 12590	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rockport 12590 - Orig Hole		
<b>Design:</b>	Rockport 12590 - Plan #3		

<b>Project</b>	Wood County, WV		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	West Virginia Northern Zone		

<b>Site</b>	Rockport Storage Pad #1				
<b>Site Position:</b>		<b>Northing:</b>	214,987.1000 usft	<b>Latitude:</b>	39° 4' 19.585 N
<b>From:</b>	Map	<b>Easting:</b>	1,387,883.7000 usft	<b>Longitude:</b>	81° 32' 42.779 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-1.30 "

<b>Well</b>	Rockport Storage Pad #1 - Well 12590					
<b>Well Position</b>	<b>+N/-S</b>	224.15 usft	<b>Northing:</b>	215,211.2500 usft	<b>Latitude:</b>	39° 4' 21.779 N
	<b>+E/-W</b>	-90.93 usft	<b>Easting:</b>	1,387,792.7700 usft	<b>Longitude:</b>	81° 32' 43.996 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	0.00 usft

<b>Wellbore</b>	Rockport 12590 - Orig Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	User Defined	05/13/14	-8.42	66.80	52,486

<b>Design</b>	Rockport 12590 - Plan #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	157.92

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,677.51	0.000	0.00	3,677.51	0.00	0.00	0.00	0.00	0.00	0.00	
4,052.51	15.000	157.92	4,048.24	-45.23	18.35	4.00	4.00	0.00	157.92	
4,421.38	15.000	157.92	4,404.54	-133.69	54.24	0.00	0.00	0.00	0.00	
5,171.38	0.000	0.00	5,146.00	-224.15	90.93	2.00	-2.00	0.00	180.00	
5,271.38	0.000	0.00	5,246.00	-224.15	90.93	0.00	0.00	0.00	0.00	Well 12590 Vertical
5,385.38	0.000	0.00	5,360.00	-224.15	90.93	0.00	0.00	0.00	0.00	

Received

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**Directional Drilling Contractors**  
Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Rockport Storage Pad #1 - Well 12590
<b>Company:</b>	Columbia Gas Transmission, LLC	<b>TVD Reference:</b>	WELL @ 0.00usft (Original Well Elev)
<b>Project:</b>	Wood County, WV	<b>MD Reference:</b>	WELL @ 0.00usft (Original Well Elev)
<b>Site:</b>	Rockport Storage Pad #1	<b>North Reference:</b>	Grid
<b>Well:</b>	Rockport Storage Pad #1 - Well 12590	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rockport 12590 - Orig Hole		
<b>Design:</b>	Rockport 12590 - Plan #3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,677.51	0.000	0.00	3,677.51	0.00	0.00	0.00	0.00	0.00	0.00	
<b>KOP @ 3677.51MD/TVD, Start Build 4.00°/100'</b>										
3,700.00	0.899	157.92	3,700.00	-0.16	0.07	0.18	4.00	4.00	0.00	
3,800.00	4.899	157.92	3,799.85	-4.85	1.97	5.23	4.00	4.00	0.00	
3,900.00	8.899	157.92	3,899.11	-15.98	6.48	17.24	4.00	4.00	0.00	
4,000.00	12.899	157.92	3,997.28	-33.50	13.59	36.15	4.00	4.00	0.00	
4,052.51	15.000	157.92	4,048.24	-45.23	18.35	48.81	4.00	4.00	0.00	
<b>Start 368.86 hold at 4052.51 MD</b>										
4,100.00	15.000	157.92	4,094.11	-56.62	22.97	61.10	0.00	0.00	0.00	
4,200.00	15.000	157.92	4,190.71	-80.60	32.70	86.98	0.00	0.00	0.00	
4,300.00	15.000	157.92	4,287.30	-104.58	42.43	112.86	0.00	0.00	0.00	
4,400.00	15.000	157.92	4,383.89	-128.57	52.16	138.74	0.00	0.00	0.00	
4,421.38	15.000	157.92	4,404.54	-133.69	54.24	144.28	0.00	0.00	0.00	
<b>Start Drop -2.00°/100'</b>										
4,500.00	13.428	157.92	4,480.75	-151.58	61.49	163.58	2.00	-2.00	0.00	
4,600.00	11.428	157.92	4,578.40	-171.52	69.58	185.10	2.00	-2.00	0.00	
4,700.00	9.428	157.92	4,676.75	-188.29	76.38	203.20	2.00	-2.00	0.00	
4,800.00	7.428	157.92	4,775.66	-201.88	81.89	217.85	2.00	-2.00	0.00	
4,900.00	5.428	157.92	4,875.03	-212.25	86.10	229.05	2.00	-2.00	0.00	
5,000.00	3.428	157.92	4,974.73	-219.40	89.00	236.77	2.00	-2.00	0.00	
5,100.00	1.428	157.92	5,074.63	-223.33	90.60	241.00	2.00	-2.00	0.00	
5,143.38	0.560	157.92	5,118.00	-224.02	90.88	241.75	2.00	-2.00	0.00	
<b>Marcellus</b>										
5,156.38	0.300	157.92	5,131.00	-224.11	90.92	241.85	2.00	-2.00	0.00	
<b>Onondaga</b>										
5,171.38	0.000	0.00	5,146.00	-224.15	90.93	241.89	2.00	-2.00	0.00	
<b>Start 100.00 hold at 5171.38 MD</b>										
5,200.00	0.000	0.00	5,174.62	-224.15	90.93	241.89	0.00	0.00	0.00	
5,271.38	0.000	0.00	5,246.00	-224.15	90.93	241.89	0.00	0.00	0.00	
<b>Start 119.00 hold at 5271.38 MD - Top Oriskany</b>										
5,300.00	0.000	0.00	5,274.62	-224.15	90.93	241.89	0.00	0.00	0.00	
5,321.38	0.000	0.00	5,296.00	-224.15	90.93	241.89	0.00	0.00	0.00	
<b>Base Oriskany</b>										
5,385.37	0.000	0.00	5,359.99	-224.15	90.93	241.89	0.00	0.00	0.00	
<b>PBHL 5385.38 MD, 0.000 INC, 0.00 AZI, 5360.00 TVD</b>										
5,385.38	0.000	0.00	5,360.00	-224.15	90.93	241.89	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Well 7251 BH	0.000	360.00	0.00	-363.19	148.99	214,848.0640	1,387,941.7590	39° 4' 18.224 N	81° 32' 42.002 W	
- plan misses target center by 3698.41usft at 3677.51usft MD (3677.51 TVD, 0.00 N, 0.00 E)										
- Circle (radius 150.00)										
Well 12590 Vertical	0.000	360.00	5,246.00	-224.15	90.93	214,987.1000	1,387,883.7000	39° 4' 19.585 N	81° 32' 42.779 W	
- plan hits target center										
- Point										

Received

JUN 30 2014

**Directional Drilling Contractors**  
Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Rockport Storage Pad #1 - Well 12590
<b>Company:</b>	Columbia Gas Transmission, LLC	<b>TVD Reference:</b>	WELL @ 0.00usft (Original Well Elev)
<b>Project:</b>	Wood County, WV	<b>MD Reference:</b>	WELL @ 0.00usft (Original Well Elev)
<b>Site:</b>	Rockport Storage Pad #1	<b>North Reference:</b>	Grid
<b>Well:</b>	Rockport Storage Pad #1 - Well 12590	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rockport 12590 - Orig Hole		
<b>Design:</b>	Rockport 12590 - Plan #3		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,143.38	5,118.00	Marcellus		0.00		
5,156.38	5,131.00	Onondaga		0.00		
5,271.38	5,246.00	Top Oriskany		0.00		
5,321.38	5,296.00	Base Oriskany		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
3,677.51	3,677.51	0.00	0.00	KOP @ 3677.51MD/TVD, Start Build 4.00°/100'	
4,052.51	4,048.24	-45.23	18.35	Start 368.86 hold at 4052.51 MD	
4,421.38	4,404.54	-133.69	54.24	Start Drop -2.00°/100'	
5,171.38	5,146.00	-224.15	90.93	Start 100.00 hold at 5171.38 MD	
5,271.38	5,246.00	-224.15	90.93	Start 119.00 hold at 5271.38 MD	
5,385.37	5,359.99	-224.15	90.93	PBHL 5385.38 MD, 0.000 INC, 0.00 AZI, 5360.00 TVD	

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JUN 30 2014





10701752T

7013 1090 0001 7328 8161

**U.S. Postal Service™**  
**CERTIFIED MAIL™ RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

For delivery information visit our website at [www.usps.com](http://www.usps.com)

ROCKPORT, WV 26169

Postage	\$ 1.61	0271
Certified Fee	\$ 3.30	07
Return Receipt Fee (Endorsement Required)	\$ 2.70	Postmark Here
Restricted Delivery Fee (Endorsement Required)	\$ 0.00	JUN 30 2014
Total Postage & Fees	\$ 7.61	06/30/2014

Sent To Sandra Cox  
 Street, Apt. No. or PO Box No. 635 Queen Hollow Rd  
 City, State, ZIP+4 Rockport, WV 26169

PS Form 3800, August 2006 See Reverse for Instructions



08/01/2014



10701752T

# WW-2A Coal Waiver

## COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Wood  
Operator Columbia Gas Transmission, LLC Operator's Well Number Rockport 12590

### INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0499 extension 1654

\* coal not operated

### WAIVER

The undersigned coal operator \_\_\_\_\_ / owner \_\_\_\_\_ / lessee \_\_\_\_\_ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Signature	Date	Company Name By Its		Date
			Signature	Date

Received

JUN 30 14

Office of Oil and Gas  
WV Dept. of Environmental Protection

08/01/2014

107 01752T

WW-2A1  
(Rev. 1/11)

Operator's Well Number Rockport 12590

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6, Section 8(d)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Frank Gilmore Et Ux	Columbia Gas Transmission, LLC	storage lease 1050684	366 / 308-309

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

Received  
JUN 30 14  
Division of Oil and Gas  
WV Dept. of Environmental Protection  
*Storage*

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Columbia Gas Transmission, LLC  
 By: Its: *James E. Amos*  
James E. Amos - Senior Engineer

08/01/2014



WW-2B1  
(5-12)

Well No. Rockport 12590

West Virginia Department of Environmental Protection  
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name Standard Laboratories, Inc.  
Sampling Contractor Standard Laboratories, Inc.

Well Operator Columbia Gas Transmission, LLC  
Address 1700 MacCorkle Ave. SE  
Charleston, WV 25325-1273  
Telephone Jim Amos 304-483-0073

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

\* refer to water testing plan on next page

MUST TEST (1) SOURCE

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08/01/2014





Google earth



Water well ???  
municipal water available  
\* tried calling but only get busy signal - will stop by house  
Gary M Belcher  
8468 Slate Creek Rd  
Rockport, WV 26169  
304-474-3790  
surface elevation: ??? ft  
water depth: ??? ft  
water elevation above sea level: ??? ft

\* dwelling has a water well, but utilizes municipal water as main source - will test water well if pump works  
Drew Theys  
8429 Slate Creek Rd  
Rockport, WV 26169  
734-689-8872  
atheys@accurate-test.biz  
theys18@gmail.com  
surface elevation: ??? ft  
water depth: ??? ft  
water elevation above sea level: ??? ft

**WATER TESTING TO BE PERFORMED**

1. Gary M Belcher dwelling - will test water if they have a well or spring, and permission granted
2. Drew Theys dwelling - will test well water if able to obtain a sample

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JUN 30 114



10701752 T

WW-9  
(5/13)

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 107 - \_\_\_\_\_  
Operator's Well No. Rockport 12590

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Columbia Gas Transmission, LLC OP Code 307032

Watershed (HUC 10) Tygart Creek Quadrangle Rockport

Elevation 1054 County Wood District Steele

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes \_\_\_\_\_ No X

Will a pit be used for drill cuttings? Yes X No \_\_\_\_\_

If so, please describe anticipated pit waste: fresh water, drilling fluid, cement returns, rock cuttings

Will a synthetic liner be used in the pit? Yes X No \_\_\_\_\_ If so, what ml.? 30

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 34-105-23619, 34-167-29395, 34-167-23862 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain EnviroTank Clean (Rt. 7, Belpre, OH))

Will closed loop system be used? yes

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. air, freshwater based drilling fluid

-If oil based, what type? Synthetic, petroleum, etc. \_\_\_\_\_

Additives to be used in drilling medium? air - KCl & surfactant drilling fluid - KCl, NaCl, biocide, polymer, starch, soda ash

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. leave in pit

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) \_\_\_\_\_

-Landfill or offsite name/permit number? if needed: EnviroTank Clean (Rt. 7, Belpre, OH)

*✓ No oil base*

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto 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 or imprisonment.

Company Official Signature James E. Amos

Company Official (Typed Name) James E. Amos

Company Official Title Senior Engineer

Subscribed and sworn before me this 25th day of June

Mary Marie Clendenin

My commission expires March 22, 2015



10701752T

Form WW-9

Operator's Well No. Rockport 12590

Proposed Revegetation Treatment: Acres Disturbed 10.7 (dual well pad) Prevegetation pH 6.0

Lime 2 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	20	Orchard Grass	20
Ledino Clover	10	Ledino Clover	10
Annual Rye	20	Annual Rye	20

Attach:  
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: \_\_\_\_\_

Comments: \_\_\_\_\_

Title: Jamie Stevens

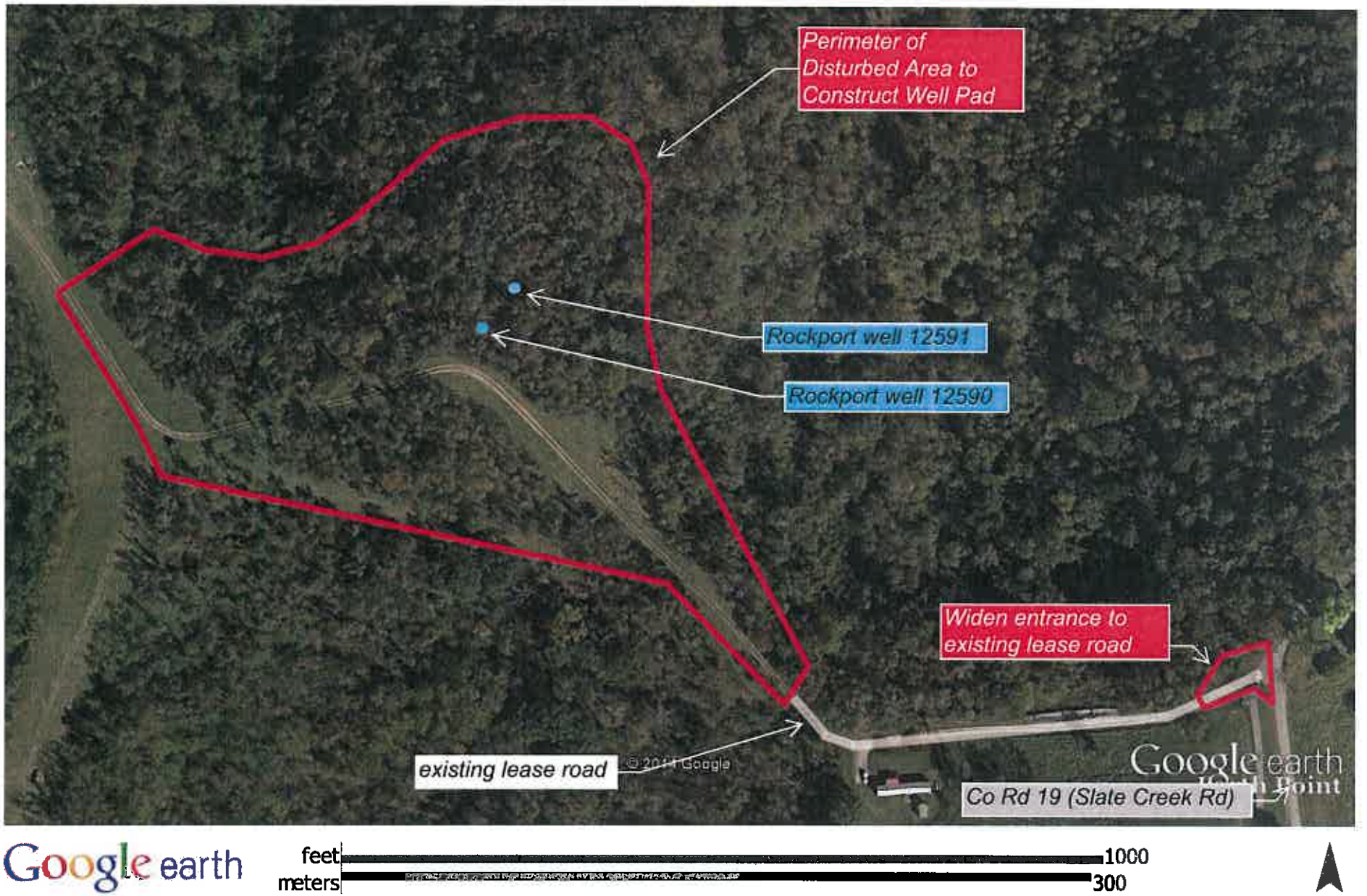
Date: 6/26/2014

Field Reviewed?  Yes  No

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**Reclamation Plan 1 of 2 - Overview**  
**Rockport storage wells 12590 & 12591**

- Crushed limestone to be applied to existing access road
- Drainage along existing road to be maintained
- Well site to be constructed per details on Reclamation Plan 2 of 2
- BMPs to be utilized per WV DEP & FERC requirements

*James G. [Signature]*  
 8/26/2014

08/01/2014

Office of Oil and Gas  
 WV Dept. of Environmental Protection

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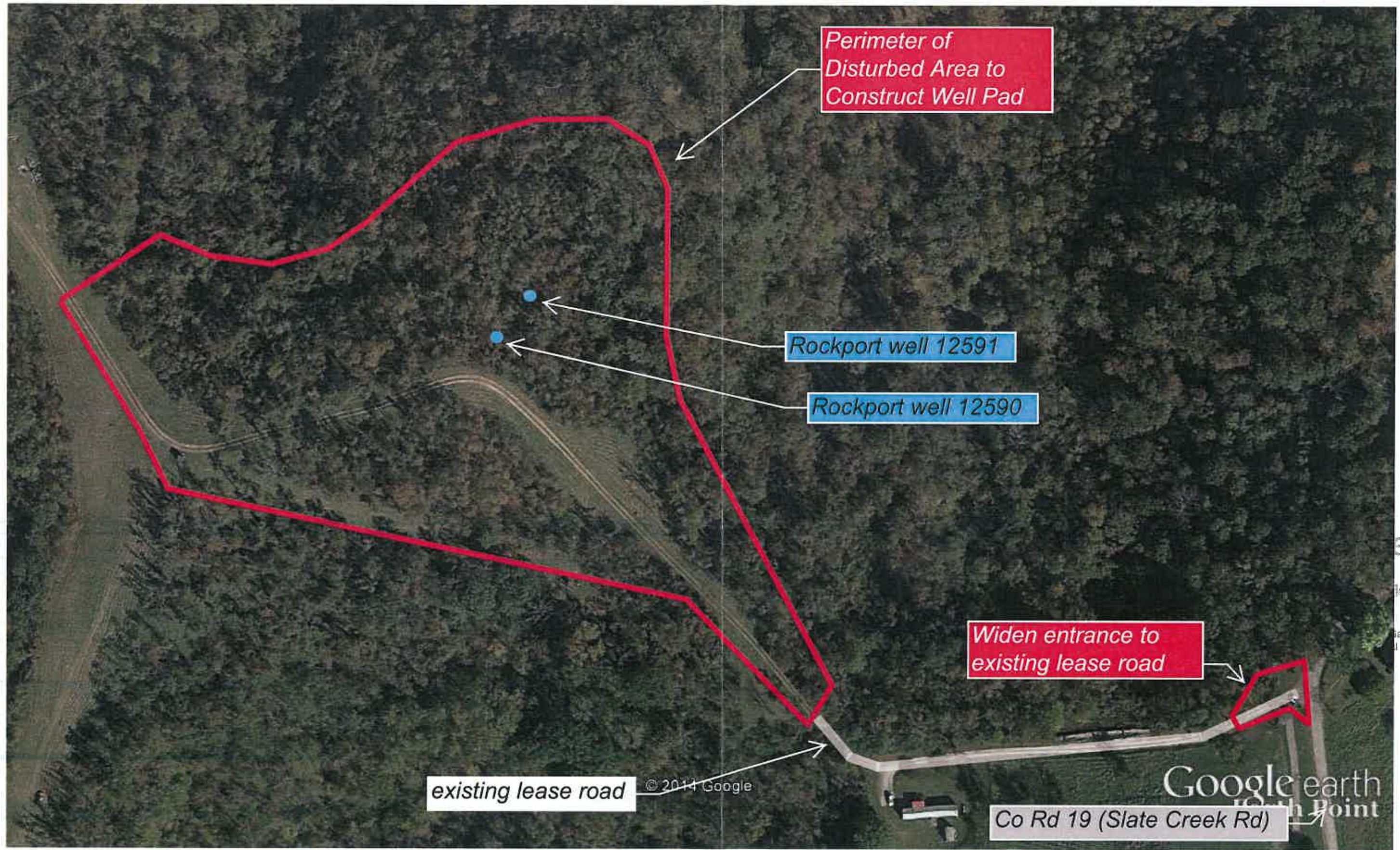
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Perimeter of Disturbed Area to Construct Well Pad

Rockport well 12591

Rockport well 12590

Widen entrance to existing lease road

existing lease road

Co Rd 19 (Slate Creek Rd)

© 2014 Google

Google earth  
North Point

Google earth

feet  
meters



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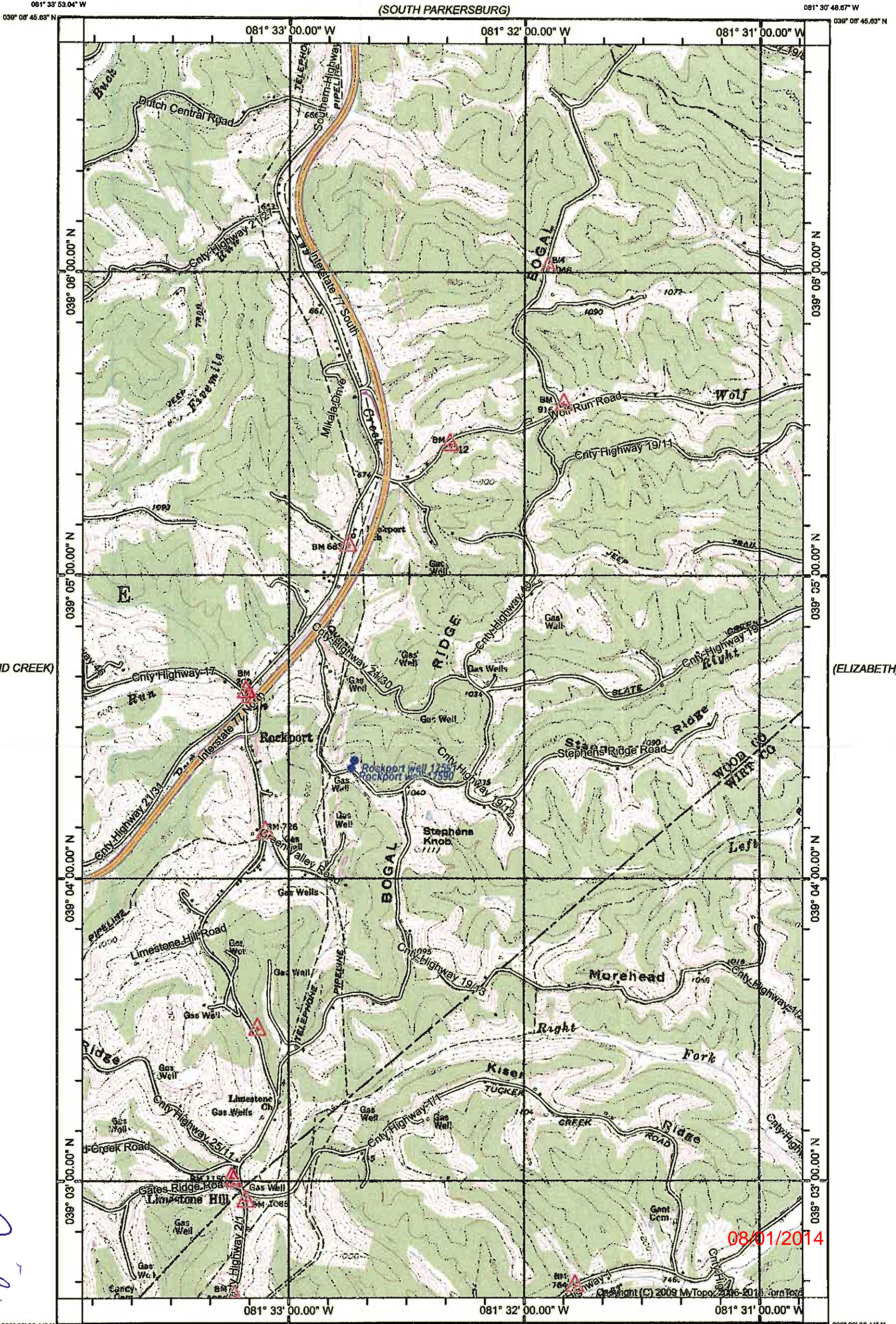
(LUBECK)



ROCKPORT QUADRANGLE  
WEST VIRGINIA  
TOPOGRAPHIC SERIES

(KANAWHA)

(SOUTH PARKERSBURG)



(POND CREEK)

(ELIZABETH)

*James  
Rejoice 2014*

08/01/2014

(SANDYVILLE)

(REEDY)

Produced by MyTopo Terrain Navigator  
Topography based on USGS 24,000 Maps  
North American 1983 Datum (NAD83)  
Polyconic Projection  
To place on the predicted North American 1927 meridian  
projection lines 9M N and 13M E

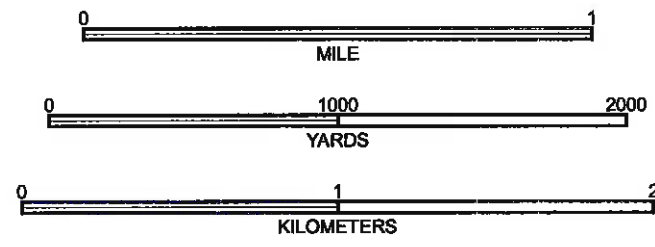
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Central Protection

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(LIVERPOOL)  
SCALE 1:24000



CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM 1929

Printed: Thu Jun 18, 2014

ROCKPORT, WV  
1960

10701752





**WV DEP OFFICE OF OIL & GAS  
DEEP WELL DRILLING PROCEDURES and SITE SAFETY PLAN**

*COLUMBLA GAS TRANSMISSION CORPORATION*

WV Operator ID 307032

Rockport Storage Well 12590  
API Permit No. 47 - 107 - XXXXX - 00 - 00  
Surface: Sandra J Cox  
Lease: Frank Gilmore  
Steele District - Wood County, WV

The following Deep Well Drilling Procedure and Site Safety Plan prepared by:

By: James E. Amos Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: Senior Storage Engineer - Columbia Gas Transmission, LLC

received

JUN 30 2014



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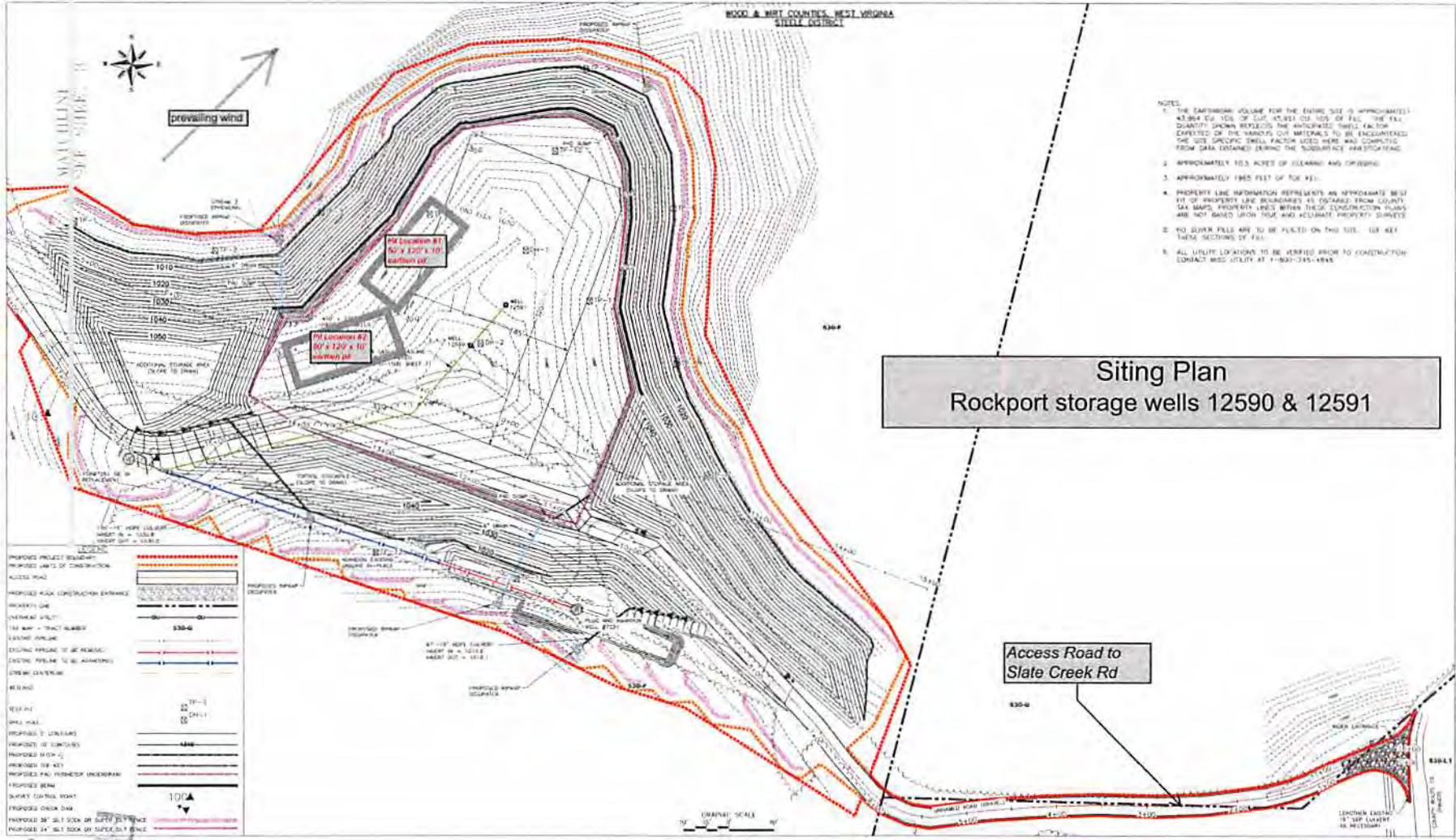
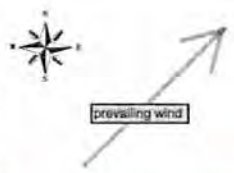
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WOOD & WEST COUNTIES, WEST VIRGINIA  
SHELBY DISTRICT



- NOTES
1. THE ESTIMATED VOLUME FOR THE ENTIRE SUEP IS APPROXIMATELY 42,864 CU YDS. OF SUCE SUCE (24,102 CU YDS. OF FILL - THE FILL QUANTITY SHOWN REFLECTS THE ANTICIPATED SUEP FILL FACTOR EXCEPT FOR THE VARIOUS CUT MATERIALS TO BE ENCLOSED. THE SITE SPECIFIC SUEP FILL FACTOR USED HERE WAS COMPUTED FROM DATA OBTAINED DURING THE SUBSURFACE INVESTIGATION.
  2. APPROXIMATELY 10.5 ACRES OF SUEP AND OVERBURD.
  3. APPROXIMATELY 1865 FEET OF TUE FILL.
  4. PROPERTY LINE INFORMATION REPRESENTS AN APPROXIMATE BEST SET OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM COUNTY S&A MAPS. PROPERTY LINES WITHIN THESE CONSTRUCTION PLANS ARE NOT BASED UPON TRUE AND ACCURATE PROPERTY SURVEYS.
  5. NO SUEP FILL ARE TO BE PLACED ON THIS SITE. SEE KEET THESE SECTIONS OF FILL.
  6. ALL UTILITY LOCATIONS TO BE VERIFIED PRIOR TO CONSTRUCTION. CONTACT WEST UTILTY AT 1-800-245-4888.

**Siting Plan**  
**Rockport storage wells 12590 & 12591**

Access Road to  
Slate Creek Rd

Dwelling

Dwelling

FOR PERMITTING  
6/12/2014

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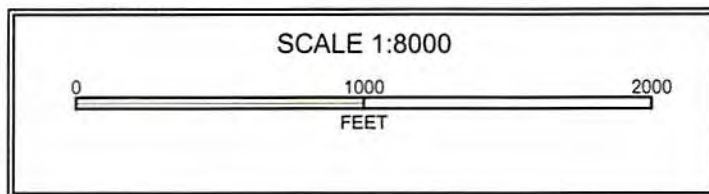
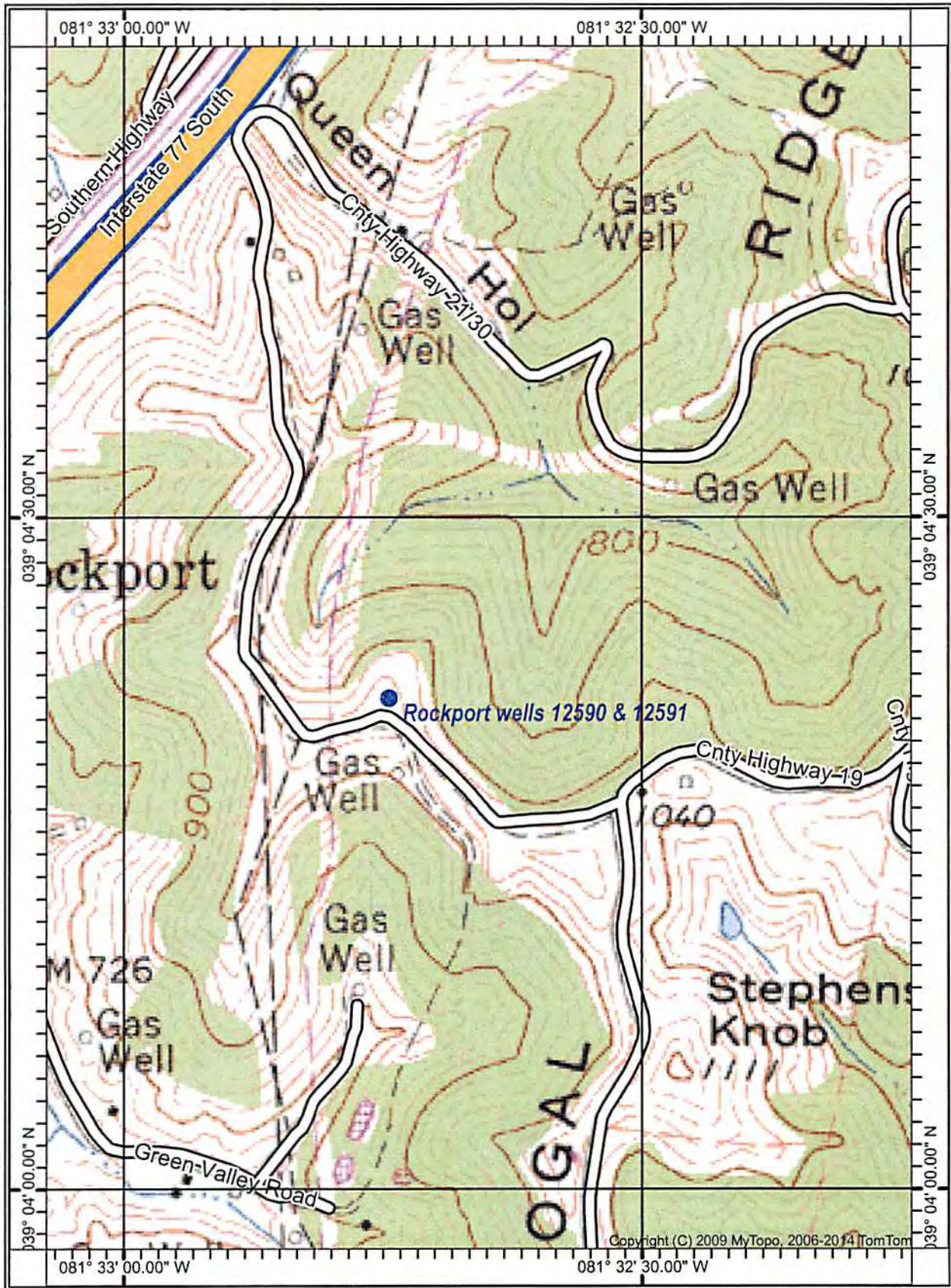
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 West Virginia Department of Environmental Protection

No.	REVISIONS	DATE	No.	REVISIONS	DATE	Dwg. No.	REFERENCE

HATCH MOTT MacDONALD COLUMBIA GAS TRANSMISSION ROCKPORT EFFICIENCY WELL PAD PLAN - #12590 & #12591 DATE: 06/12/2014 DRAWING NUMBER: 0-101 SHEET: 02 OF 06 F
--





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## CONTACTS and TELEPHONE NUMBERS

### Emergency

<u>County/State</u>	<u>Fire</u>	<u>EMS</u>	<u>Police</u>
Wood Co, WV	911	911	911

### Non-emergency

Pond Creek Volunteer Fire Dept	304-474-3111	
Camden Clark Memorial Hospital	304-424-2111	I-77 north to Rt 50 Exit Left (west) on Rt 50 Approx 0.5 mile right on 7 <sup>th</sup> Ave Exit Right on to 7 <sup>th</sup> Ave Approx 4 miles to hospital on left

### Incident Reporting

Columbia Operations Monitoring Center	800-835-7191
---------------------------------------	--------------

### Spill Reporting

Columbia Operations Monitoring Center	800-835-7191
WV DEP – Office of Oil & Gas	800-642-3074

### Material Safety Data Sheets (MSDS)

Safetec Global Solutions (24 hour service)	800-704-9215
--	--------------

### Columbia Personnel

<u>Name</u>	<u>Office</u>	<u>Cell</u>	<u>Home</u>
Paul Amick	304-357-3445	304-545-5052	304-755-5052
Jim Amos	304-373-2412	304-483-0073	304-489-3077
Rick Conley		330-464-8709	
Dave Reynolds		330-464-9038	330-427-2228
Steve Simmons	304-373-2413	304-590-5528	304-373-9997

### Rig and Crew

### WV DEP O&G State Inspector

Wood County	Jamie Stevens	cell: 304-206-7775
-------------	---------------	--------------------

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## WELL CONSTRUCTION PROGRAM

### General Well Information

Storage Well: Rockport 12590  
API Permit: 47 - 107 - ~~?????~~ - 00 - 00  
Surface Owner: Sandra J Cox  
Lease: Frank Gilmore  
Location: Rockport Quad, Steele District, Wood Co, WV  
Elevation: Pre Site Prep: 1054 ft GL  
Post Site Prep: 1030 ft GL (per HMM)  
Rig KB: 16 ft

#### Directions to well:

##### From North

I-77 to Rockport Exit (~10 miles south of Parkersburg)  
Left on Rt 21 south  
3 miles turn left on to Slate Creek Road at top of hill before church  
*(DO NOT PARK ON BLACK TOP PAVEMENT OF CHURCH)*  
0.9 miles continue straight on to Slate Creek Road  
0.7 miles turn left at mail box #8466  
Follow 0.2 miles to well site

##### From South

I-77 to Rockport Exit (~15 miles south of Parkersburg)  
Right on Rt 21 south  
1.6 miles turn left on to Slate Creek Road at top of hill before church  
*(DO NOT PARK ON BLACK TOP PAVEMENT OF CHURCH)*  
0.9 miles continue straight on to Slate Creek Road  
0.7 miles turn left at mail box #8466  
Follow 0.2 miles to well site

### Concise Procedure

Spud and seat 20 ft of 20" conductor pipe. Drill 17-1/2" hole to +/- 400 ft GL. Run 13-3/8" casing and cement to surface. Drill 12-1/4" hole to +/- 2280 ft GL (50' below base of Salt Sand). Run 9-5/8" casing and cement to surface. Drill 8-3/4" hole to kick-off point at +/- 3678 ft GL. Directionally drill to a depth 20 ft above the top of Oriskany at +/- 5250 ft MD GL. Run 7" casing and cement bottom 1000 ft. Run cement bond log. Drill 6-1/8" hole to a total depth of +/- 5385 ft MD GL. Obtain electric logs. Install wellhead equipment. Fracture stimulate.

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**WELL CONSTRUCTION PROGRAM**

<b>Casing Program</b>					
<b>Type</b>	<b>Planned Setting Depth</b>	<b>Size</b>	<b>Weight</b>	<b>Grade</b>	<b>Planned Cement Top</b>
Conductor	20 ft GL	20"	0.281W 59 ppf	B-35	none
Surface	400 ft GL	13-3/8"	48 ppf	H-40 ERW	surface
Intermediate	2280 ft GL	9-5/8"	36 ppf	J-55 ERW	surface
Production	5250 ft GL	7"	23 ppf	N-80 ERW	1000 ft of coverage

<b>Geologic Prognosis</b>				
<b>Formation</b>	<b>Lithology</b>	<b>TVD GL</b>	<b>MD GL</b>	<b>Comments</b>
		Salt Sand	sandstone	
Berea horizon	sandstone	2543 - 2545 ft	2543 - 2545 ft	
KOP	shale	3678 ft	3678 ft	
Marcellus	soft black shale	5118 - 5131 ft	5143 - 5156 ft	
Onondaga	limestone	5131 - 5246 ft	5156 - 5271 ft	
Oriskany	sandstone	5246 - 5296 ft	5271 - 5321 ft	
Helderberg	limestone	5296 - 5360 ft	5321 - 5385 ft	
TD		5360 ft	5385 ft	
<i>Gas/water contact</i>		???? ft	???? ft	

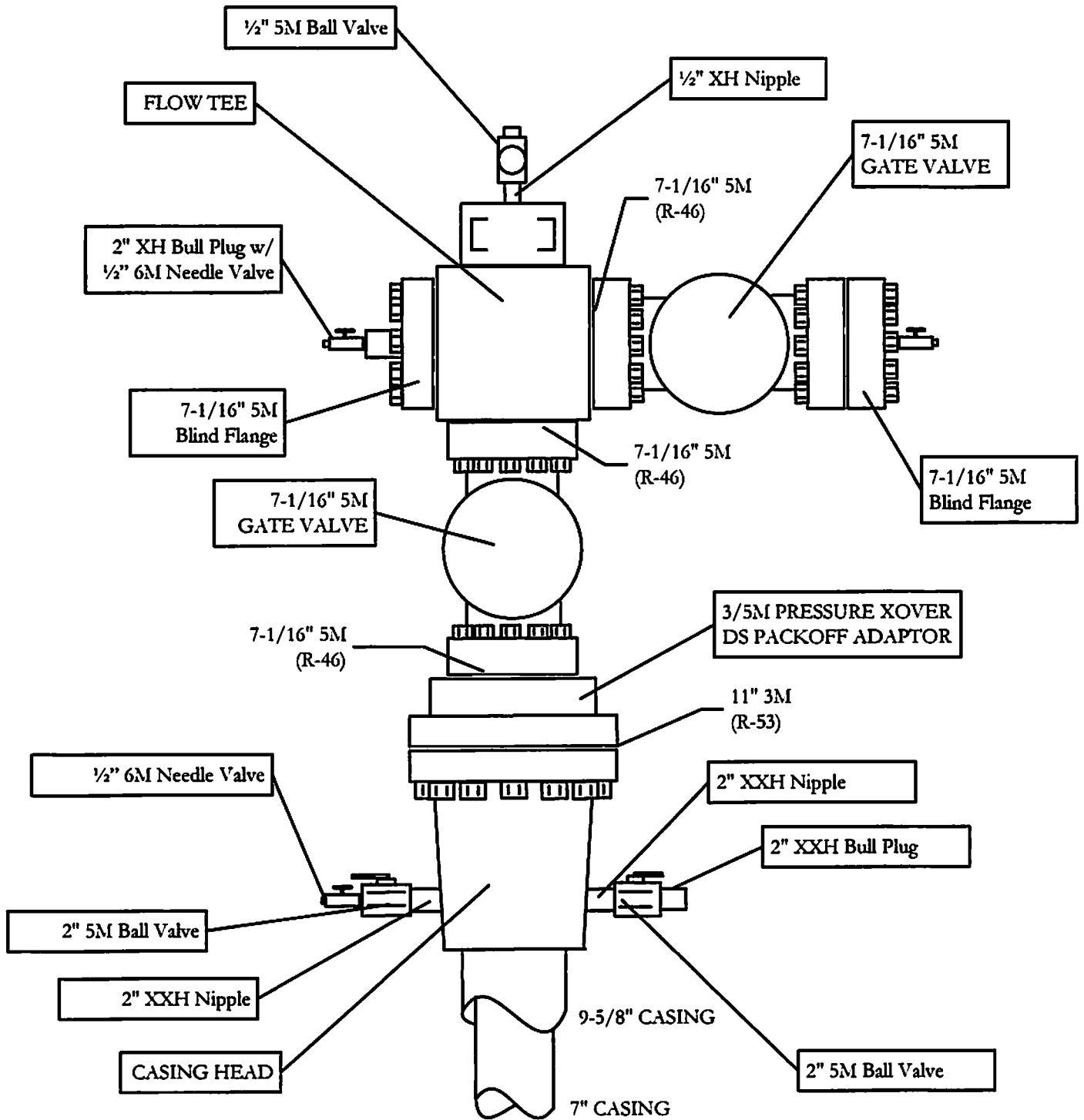
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# WELLHEAD SCHEMATIC

## 9-5/8" x 7" x 7" x 7" API 3/5M



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## BOP REQUIREMENTS

### Description of BOP's to be Installed on each Casing String

Casing – 13-3/8”	BOP Type: Annular Size: 13” Pressure Rating: 2000 psi	
Casing – 9-5/8”	BOP Type: Annular Size: 9” Pressure Rating: 3000 psi	BOP Type: Double Ram Size: 9” Pressure Rating: 3000 psi
Casing – 7”	BOP Type: Annular Size: 7-1/16” Pressure Rating: 3000 psi	BOP Type: Double Ram Size: 7-1/16” Pressure Rating: 3000 psi

### BOP Installation and Pressure Testing

1. The 13” annular BOP will be installed when nipping up on the 13-3/8” casing. The head will be pressure tested to 500 psi or higher.
2. The 9” BOP stack will be installed when nipping up on the 9-5/8” casing. The rams will be pressure tested to a minimum of 2500 psi, and the annular to 2000 psi.
3. The 7-1/16” BOP stack will be installed when nipping up on the 7” casing. The rams will be pressure tested to a minimum of 2500 psi, and the annular to 2000 psi.
4. The in-line kelly cock will be pressure tested when each of the BOP stacks are tested.

### Personnel with Well Control Certifications

Jim Amos (Columbia Gas Transmission)  
Paul Arnick (Columbia Gas Transmission)  
Rick Conley (Columbia Gas Transmission)  
Dave Reynolds (Columbia Gas Transmission)  
Steve Simmons (Columbia Gas Transmission)

### Recording of Significant Drilling Events

A detailed record of significant drilling events will be recorded in Columbia Gas Transmission's well log book or in their digital morning reporting system. The State inspector will be notified upon any significant events, including but not limited to: encountering hydrogen sulfide gas and well control events.

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## WELL FLARING OPERATIONS

### Flare Line Installation

1. Flaring operations are not planned. In the event of a well control situation that warrants flaring, a minimally rated 3000 psi double choke manifold with 4-1/2" panic line and 2-3/8" choke lines will be installed. The lines will be a minimum of 175 ft in length. They will be anchored with chains to pipe tubs or anchors and/or buried with dirt.

### Ignition Methods and Notification

1. Primary – Burn barrel and/or propane torch.
2. Backup – Marine flare pistol.

\* Local fire department will be notified prior to flaring operations.

### Minimum Distance of Clearing of Flammable Material

All flammable material will be kept a minimum distance of 150 ft from flare.

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## WELL KILLING OPERATIONS

In the event well killing operations are required, industry accepted best practices will be utilized. There will be at minimum one person on site at all times that holds a Well Control Certification.

### Inventory of Materials to be used to Mix Kill Weight Fluid

Maximum surface pressure is 1800 psig for Rockport Storage. Maximum reservoir pore pressure is estimated to be less than 2100 psi. A column of fresh water (8.33 ppg) at reservoir depth will exert 2275 psi in hydrostatic pressure. This creates an overbalance of 175 psi.

There will be approximately 300 bbls of pre-mixed viscosified drilling fluid on site, and a minimum of 300 bbls of fresh water. Additives and chemicals sufficient to mix 200 bbls drilling fluid will be stored on site, and extra material available at Specialty Oilfield Services shop in PA if needed.

### Mixing and Fluid Pumping

Either rig mud pumps or dispatched service company will be utilized for mud mixing and pumping in the event of a well control event.

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## HYDROGEN SULFIDE OPERATIONS

Mobile monitors will be utilized to detect the presence of H<sub>2</sub>S. A detector will be kept in the dog house for use by rig personnel to monitor rig floor and cellar area. Columbia Gas personnel will wear personal monitors at all times.

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