



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY	
Auth No. 1299308	APS No.#
Site No.	PF No.
Client No.	SF No.

DEC 16 2019 APPLICATION FOR INACTIVE WELL STATUS

Well Operator Chevron Appalachia, LLC		DEP Client ID No. 279986	Well Permit or Registration No. 37-051-24682	
Address 700 Cherrington Parkway			Well Farm Name Edenborn/RGGS B	Well No. M05H
City Coraopolis	State PA	Zip Code 15108	County Fayette	Serial No. 37-051-1081
Telephone No. 412-865-3489	Fax No. 412-865-2403	Bond Instrument No. 019029612	Is this an application for annual extension of inactive status? ☐ Yes ☒ No	
Check here if this application is being submitted for conditional inactive status in association with longwall mining: ☐				

Condition of the Well

Describe in detail how the condition of the well satisfies the criteria for approval of inactive status. See 25 Pa. Code §§ 78/78a.102(i), (2)(i) or (ii) and (3). Use additional sheets if necessary. If available, attach well records, driller's logs, and other information describing well casing, cement, equipment, and any other pertinent information. Note that if this application is being submitted in conformance with DEP Technical Guidance Document 800-0810-004 *Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells*, the Well Record/Completion Report may be referenced for all well construction information, and all tubing and annular pressures should be at 0 prior to adjacent longwall mining encroaching within 1,500 feet of the well location. Finally, all annuli should be open to the atmosphere and the inactivation procedure may be referenced under the section titled "Other information about the well's condition."

Well Type: ☒ Gas ☐ Oil ☐ Combination Oil & Gas ☐ Injection ☐ Storage ☐ Disposal

Casing Diameters: 30 "	Casing Lengths: 53 '	Type and amount of cement (sacks) used for surface casing: 782 sacks of Class A	
20 "	429 '	Tubing or Production Casing Pressure (current): N/A	If an oil well, state the depth to fluid in the surface casing: N/A
17-1/2 "	664 '	Annulus Pressure (current - between tubing or production casing and surface casing): N/A	
12-1/4 "	2628 '		
Tubing or production casing diameter: N/A	Tubing or production casing length: N/A	Are all annuli open to atmosphere? ☐ Yes ☒ No	

Other information about the well's condition:

Well was drilled to a depth of 7,436'. No tubing or production casing present.

Future Use of the Well

Describe a viable plan in accordance with 25 Pa. Code §78/78a.102(4) explaining the intended use of the well within a reasonable time. Provide the information requested below and any other information necessary for DEP to make a determination on inactive status for this well. Note that if this application is being submitted in conformance with DEP Technical Guidance Document 800-0810-004 *Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells*, the following text may be entered under the section regarding the future plan for the well: "Return well to production subsequent to final panel extraction when mining is at least 1,500 feet beyond well in chain pillar, as per re-entry procedure and TGD."

Provide certification that one of the following applies (check one):

☒ Significant reserves remain in place and I plan to return the well to production.

Provide estimate of reserves: MMcf:

Bbls:

The well will be used for: ☐ Disposal ☐ Storage ☐ Observation ☐ Injection - Recovery ☐ Other (describe)

This well will be returned to use in: Month: **12**

Year: **2024**

State your plan for future use of the well.

Drilling activities are planned to return to this well in December 2024. Completions activities will follow shortly after allowing for production of the well later in the following year.

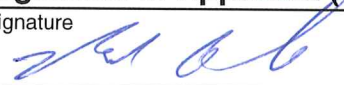
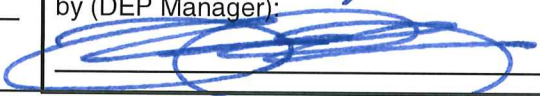
Conditional Inactive Status Checklist

For unconventional wells drilled in anticipated chain pillar locations that are being temporarily inactivated to accommodate planned, adjacent longwall mining, please provide the items included in the checklist below in addition to this application. More specific information about these items is detailed in DEP Technical Guidance Document 800-0810-004 *Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells*.

Please include the following items with the inactive status application:

- ☐ Temporary Well Inactivation Procedure
 ☐ Temporary Inactivation Well Schematic
 ☐ General Specifications for Cements/Gels
☐ Current Well Record and Completion Report
 ☐ Well Location Plat
 ☐ Electrical/Mechanical Well Logs
☐ Graphical Production History Summary
 ☐ Well Re-entry Procedure
 ☐ Post-mining Well Long-term Monitoring Procedure

Provide additional details, if necessary.

Signature of Applicant (Well Operator)		DEP USE	
Signature 	Date 12/9/2019	☐ Approved ☒ Denied by (DEP Manager): 	Date 12/31/19
Print or type signer's name and title: Bernard A. Lambie / Regulatory Compliance Team Lead			

Form



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

Well Record
(Unconventional Operators Only)

DEP USE ONLY	
Site ID	Client Id
Primary Facility Id	Sub Facility Id

WELL INFORMATION

Well Operator Chevron Appalachia, LLC	DEP ID# 279986	US Well No. (API No.) 37-051-24682-00-00	Farm Name Edenborn/RGGS B	Well # M05H
Address 700 Cherrington Parkway		Latitude (DD) 39. 882 Longitude (DD) -79. 896019	Project Number	Serial # 37-051-1081
City Coraopolis	State PA	Zip 15108	Municipality German Twp	County Fayette
Phone 412-865-3489	Email balambie@chevron.com	Borrow Pit	USGS 7.5 min. quadrangle map Carmichaels	Section 9

Check the appropriate Submission: ☒ Original Well Record ☐ Amended Well Record

Well Type ☒ Gas	Wellbore Conditioning: SEE ATTACHED
Well Orientation ☐ Vertical ☒ Deviated from Vertical (Top & Side views & Deviation Survey must be attached)	
Drill Method(s) ☒ Rotary - Air 7436' ☐ Rotary - Mud ' ☐ Cable Tool ' ☐ Other ' ,	
Drilling Started 5/11/2019	
Drilling Complete	
Date Well Completed	
Surface Elev. 1167 ft.	GW Depth 429 ft.
True Vertical Depth 7412 ft.	Depth of DFGW 429 ft.
Total Measured Depth 7436 ft.	DFGW decided by: 5

CEMENT

Cement returned on surface casing? ☒ Yes ☐ No	If No, provide depth to top of cement and method used to determine:						
Cement returned on coal protective casing? ☒ Yes ☐ No	If No, provide depth to top of cement and method used to determine: ☐ NA						
Cement returned on intermediate casing? ☒ Yes ☐ No	If No, provide depth to top of cement and method used to determine: ☐ NA						
Casing String	Type/Class of Cement (Lead/Tail)	Slurry Temp F°	Amount of Cement (sks) (Lead/Tail/Total)	WOC hrs	Wt PPG	Yld /#3 /sk	Gas Migration Controls Used
Conductor	Bulk / Cement	60 °	/ /	8			What controls were used if any (additives/ hardware. Specify type and depth applicable). Fluid Loss Additives
Surface	/ Class A	60 °	/ 782 / 782	8	15.6	1.20	
Coal Protective	/ Class A	60 °	/ 187 / 187	8	15.6	1.20	
Grout Job	/ Class A	60 °	/ 201 / 201	8	15.6	1.20	
Intermediate	/ Class A	60 °	/ 886 / 886	8	15.6	1.19	
Production, Tail	/	60 °	/ /				
If additional strings attach form(s)			Total	2056			

CASING AND TUBING

Hole Size	Pipe Size	Wt. #/ft.	Grade Casing / Tubing Type	Thread / Weld - New/ Used	Amount in Well (ft.)	CO	R	Hardware - Baskets / Packer / Centralizers (Total/String)	Date Run
36	30	118.20	X-42	T - N	53	US	Y	SEE ATTACHED CASING SUMMARY	5/11/2019
26	20	94	J-55	T - N	429	IT	Y	SEE ATTACHED CASING SUMMARY	6/17/2019
17-1/2	13-3/8	54.50	J-55	T - N	664	US	Y	SEE ATTACHED CASING SUMMARY	6/18/2019
12-1/4	9-5/8	40	L-80IC	T - N	2628	US	Y	SEE ATTACHED CASING SUMMARY	7/23/2019
				T - N		US	Y	SEE ATTACHED CASING SUMMARY	

If any casing is welded, provide the name(s) of the welder(s):

PLUG-BACK/WELLBORE ALTERATION

Fill Material & Plugs	Depth		Date	Casing & Tubing		
	From	To		Size	Pulled	Left

LOG OF FORMATIONS

US Well No. (API No.): **37-051-24682-00-00**

(If you will need more space than this page, please photocopy the blank form before filling it in.)

Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Surface	-----0	104				Geology
Washington Rider Coal	211	224				Geology
Pittsburgh Coal Mine	604	614			F 429	Geology
Salt Sand	1357	1618				Geology
Mauch Chunk	1618	1734				Geology
Big Lime	1734	1793				Geology
Loyalhanna	1793	1887				Geology
Burgoon	1887	2019				Geology
Shenango	2019	2148				Geology
Squaw	2148	2365				Geology
Murrysville	2365	2410				Geology
Gantz	2410	2558				Geology
Venango	2558	3005				Geology
Upper Bayard	3005	3021				Geology
Chadakoin	3021	3057				Geology
Bradford Base	3057	5466				Geology
5 th Elk	5466	6864				Geology
Rhonestreet	6864	7194				Geology
Sycamore	7194	7436				Geology
Current TD		7436				Geology

If no show of oil, gas or water, explain why:

WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)

Casing Source	Cementing Company	Hardware Supplier	Logging Company
Name Tenaris Global Services U.S.A. Corp.	Name BJ Services	Name Summit Energy Services, Inc.	Name Stratagraph NE Inc
Address 3 Penn Center Boulevard, #124	Address 3415 Millennium Boulevard SE	Address PO Box 34210	Address 116 Ellsworth Avenue
City - State - Zip Pittsburgh, PA 15276	City - State - Zip Massillon, OH 44646	City - State - Zip Fort Worth, TX 76172	City - State - Zip Marietta, OH 45750
Phone 412-620-6388	Phone 330-830-2978	Phone 817-645-5000	Phone 740-373-3091

I do hereby certify to the best of my knowledge, information and belief that the well identified on this Well Record has been properly cased and cemented in accordance with the requirements of 25 Pa. Code Chapter 78a and any conditions contained in the permit for this well. In addition, I do hereby certify that any casing which is attached to a blow-out preventer with a pressure rating greater than 3,000 psi has passed a pressure test in accordance with 25 Pa. Code §78a.84(f). I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Driller		Well Operator's Signature	DEP USE ONLY	
Name SEE ATTACHED	Rig		Reviewed by:	
Address		 Printed Name / Title: Bernard A. Lambie / Regulatory Compliance Team Lead	Comments:	
City - State- Zip				
Phone				
		Date: 12/6/2019		

Well Operator	DEP ID#	Well API #	Well Farm Name	Well #
Chevron Appalachia, LLC	279986	37-051-24682-00-00	Edenborn/RGGS B	M05H

Wellbore Conditioning:

Surface: 25 bbls 8.6 ppg gel spacer, 10 bbls 8.33 ppg freshwater

Surface/Coal Protective: 25 bbls 8.6 ppg gel spacer, 10 bbls 8.33 ppg freshwater

Grout Job: no conditioning

Intermediate: 25 bbls 8.6 ppg gel spacer, 10 bbls 8.33 ppg freshwater

Production:

Well Operator Chevron Appalachia, LLC	DEP ID# 279986	Well API # 37-051-24682-00-00	Well Farm Name Edenborn/RGGS B	Well # M05H
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WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)
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Driller		Driller		Driller	
Name Rocky Mountain Drilling	Rig	Name Highlands Drilling LLC	Rig 12	Name Precision Drilling Holdings Company	Rig
Address 185 North Vernal Ave, Suite 2		Address 900 Virginia Street East		Address 10350 Richmond Avenue, Suite 700	
City - State - Zip Vernal, UT 84078		City - State - Zip Charleston, WV 25301		City - State - Zip Houston, TX 77042	
Phone 435-789-3320		Phone 304-380-0114		Phone 713-435-6100	
Portion Drilled 0'- 75'		Portion Drilled 75'- 7436'		Portion Drilled '	

Cementing Company		Cementing Company		Cementing Company	
Name		Name		Name	
Address		Address		Address	
City - State - Zip		City - State - Zip		City - State - Zip	
Phone		Phone		Phone	

Casing Source		Casing Source		Casing Source	
Name		Name		Name	
Address		Address		Address	
City - State - Zip		City - State - Zip		City - State - Zip	
Phone		Phone		Phone	



Wellbore Details

Well Name Edenborn/RGGS B M05H	Lease	Field Name Shamrock	Business Unit Appalachian Mountain	
Ground Elevation (ft) 1,155.00	Original RKB Elevation (ft) 1,155.00	Current RKB Elevation 1,179.00, 6/12/2019	Mud Line Elevation (ft)	Water Depth (ft)
Current KB to Ground (ft) 24.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Current KB to Tubing Head (ft)	

Logs				
Type	Logging Company	Date	Planned?	Cased?
Wellbore	Job	Depth Top (MD) (ftKB)	Bottom Depth (ftKB)	
Comment				

Wellbores				
Wellbore Name Original Hole	Parent Wellbore Original Hole	Directional Type Horizontal	Start Depth (MD) (ftKB) 12	
Alt. Wellbore Identifier	TAML Classification N/A	TAML Functionality	Casing Configuration Class 4	
Bottom Hole Legal Location	Wellbore UWI 370512468200	Wellbore ChevNo XX0000-00	Vertical Section Direction (°) 317.08	

Wellbore Sections						
Hole Size (in)	Start Date	End Date	Act Top (ftKB)	Act Btm (ftKB)	Prop Top (ftKB)	Prop Btm (ftKB)
8 3/4					2,650.0	6,800.0
8 1/2					6,800.0	21,485.0
36	5/11/2019 07:00	5/11/2019 10:00	12.0	53.0	12.0	52.0
26	6/16/2019 00:45	6/16/2019 15:30	74.0	450.0	52.0	450.0
17 1/2	6/17/2019 18:00	6/17/2019 23:30	450.0	712.0	450.0	719.0
12 1/4	7/21/2019 11:00	7/22/2019 13:00	712.0	2,657.0	719.0	2,650.0
8 3/4	7/24/2019 01:45	7/26/2019 07:30	2,657.0	7,436.0	2,650.0	

Kick Offs & Key Depths					
Date	Type	Point or Interval	Top Depth (ftKB)	Depth Top (TVD) (ftKB)	Method

Last 5 PBD's					
Type	Date	PBD (ftKB)	Depth (TVD) (ftKB)	Method	Com

Geologic Horizons						
Formation Name	Prog Top (TVD SS) Override (ft/elv)	Prog Top (TVD) (ftKB)	Prog Btm (TVD SS) Override (ft/elv)	Prog Btm (TVD) (ftKB)	Drill Top MD (ftKB)	Drill Btm MD (ftKB)

Directional Surveys					
Description Surface Gyro/MWD	Date 6/18/2019	Definitive? N	Planned? N	Job Drill and Suspend, 6/12/2019 09:00	
Azimuth Tie In (°)	MD Tie In (ftKB)	Inclination Tie In (°)	NSTie In (ft)	EWtie In (ft)	TVDtie In (ftKB)
Comment					

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
6/18/2019	100	0.46	161.78	100.00	-0.36	-0.38	0.13	0.46	Gyro MS	Baker Hughes
6/18/2019	125	0.53	170.29	125.00	-0.55	-0.59	0.18	0.41	Gyro MS	
6/18/2019	150	0.27	171.05	150.00	-0.70	-0.76	0.21	1.04	Gyro MS	
6/18/2019	175	0.14	152.00	175.00	-0.78	-0.85	0.23	0.58	Gyro MS	
6/18/2019	200	0.14	152.10	200.00	-0.84	-0.90	0.26	0.00	Gyro MS	
6/18/2019	225	0.02	98.30	225.00	-0.87	-0.93	0.28	0.52	Gyro MS	
6/18/2019	250	0.03	94.38	250.00	-0.88	-0.93	0.29	0.04	Gyro MS	
6/18/2019	275	0.15	275.06	275.00	-0.86	-0.93	0.26	0.72	Gyro MS	
6/18/2019	300	0.05	16.44	300.00	-0.83	-0.91	0.23	0.67	Gyro MS	
6/18/2019	325	0.29	115.72	325.00	-0.88	-0.93	0.29	1.21	Gyro MS	
6/18/2019	350	0.37	138.39	350.00	-1.02	-1.02	0.40	0.61	Gyro MS	
6/18/2019	375	0.38	162.63	375.00	-1.18	-1.16	0.48	0.63	Gyro MS	
6/18/2019	400	0.53	174.11	400.00	-1.34	-1.35	0.52	0.70	Gyro MS	
6/18/2019	425	0.51	169.07	424.99	-1.53	-1.58	0.55	0.20	Gyro MS	
6/18/2019	450	0.64	179.28	449.99	-1.73	-1.83	0.57	0.66	Gyro MS	
6/18/2019	475	0.75	161.33	474.99	-1.98	-2.12	0.63	0.97	Gyro MS	
6/18/2019	500	0.66	145.82	499.99	-2.27	-2.40	0.76	0.84	Gyro MS	
6/18/2019	525	0.38	156.42	524.99	-2.49	-2.59	0.87	1.18	Gyro MS	
6/18/2019	550	0.35	154.91	549.99	-2.64	-2.74	0.94	0.13	Gyro MS	
6/18/2019	575	0.51	167.49	574.99	-2.81	-2.91	1.00	0.74	Gyro MS	
6/18/2019	596.7	0.72	189.55	596.69	-2.98	-3.14	0.99	1.44	Gyro MS	
7/21/2019	781	1.47	168.75	780.95	-5.70	-6.60	1.26	0.45	Magn MWD	



Wellbore Details

Well Name Edenborn/RGGS B M05H	Lease	Field Name Shamrock	Business Unit Appalachian Mountain
Ground Elevation (ft) 1,155.00	Original RKB Elevation (ft) 1,155.00	Current RKB Elevation 1,179.00, 6/12/2019	Mud Line Elevation (ft)
Current KB to Ground (ft) 24.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Water Depth (ft)
Current KB to Tubing Head (ft)			

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/21/2019	880	3.65	138.76	879.85	-9.93	-10.22	3.59	2.51	Magn MWD	Baker Hughes
7/21/2019	973	4.46	128.72	972.62	-16.46	-14.71	8.36	1.16	Magn MWD	Baker Hughes
7/21/2019	1,067	5.19	123.31	1,066.28	-24.21	-19.33	14.77	0.91	Magn MWD	Baker Hughes
7/21/2019	1,161	5.85	118.09	1,159.85	-32.87	-23.92	22.55	0.88	Magn MWD	Baker Hughes
7/21/2019	1,255	7.34	118.92	1,253.22	-43.10	-29.08	32.03	1.59	Magn MWD	Baker Hughes
7/21/2019	1,348	7.71	119.92	1,345.42	-54.71	-35.06	42.64	0.42	Magn MWD	Baker Hughes
7/21/2019	1,442	8.29	118.51	1,438.51	-67.16	-41.44	54.06	0.65	Magn MWD	Baker Hughes
7/21/2019	1,536	7.02	119.43	1,531.67	-79.06	-47.50	65.01	1.36	Magn MWD	Baker Hughes
7/22/2019	1,725	4.18	119.45	1,719.75	-96.63	-56.56	81.07	1.50	Magn MWD	Baker Hughes
7/22/2019	1,819	3.85	119.30	1,813.52	-102.90	-59.79	86.81	0.35	Magn MWD	Baker Hughes
7/22/2019	1,912	4.92	118.01	1,906.24	-109.64	-63.19	93.05	1.16	Magn MWD	Baker Hughes
7/22/2019	2,006	4.48	117.17	1,999.93	-116.90	-66.76	99.88	0.47	Magn MWD	Baker Hughes
7/22/2019	2,100	2.92	128.10	2,093.73	-122.72	-69.92	105.03	1.81	Magn MWD	Baker Hughes
7/22/2019	2,193	1.66	155.23	2,186.66	-126.34	-72.60	107.46	1.75	Magn MWD	Baker Hughes
7/22/2019	2,287	0.59	243.44	2,280.64	-127.50	-74.05	107.59	1.86	Magn MWD	Baker Hughes
7/22/2019	2,381	0.95	280.63	2,374.63	-126.74	-74.13	106.40	0.64	Magn MWD	Baker Hughes
7/22/2019	2,477	0.81	294.86	2,470.62	-125.47	-73.69	105.00	0.27	Magn MWD	Baker Hughes
7/22/2019	2,570	0.50	296.29	2,563.61	-124.48	-73.24	104.04	0.33	Magn MWD	Baker Hughes
7/24/2019	2,676	0.97	313.12	2,669.61	-123.15	-72.42	102.97	0.48	Magn MWD	Baker Hughes
7/24/2019	2,769	0.66	257.76	2,762.60	-122.09	-71.99	101.87	0.87	Magn MWD	Baker Hughes
7/24/2019	2,863	0.48	287.04	2,856.59	-121.48	-71.99	100.96	0.36	Magn MWD	Baker Hughes
7/24/2019	2,956	1.00	225.26	2,949.59	-121.16	-72.45	100.02	0.95	Magn MWD	Baker Hughes
7/24/2019	3,050	0.45	8.44	3,043.58	-120.96	-72.66	99.49	1.48	Magn MWD	Baker Hughes
7/24/2019	3,144	0.40	40.04	3,137.58	-120.69	-72.05	99.75	0.25	Magn MWD	Baker Hughes
7/24/2019	3,237	0.77	20.29	3,230.57	-120.37	-71.21	100.18	0.45	Magn MWD	Baker Hughes
7/24/2019	3,331	0.76	358.45	3,324.57	-119.62	-70.00	100.38	0.31	Magn MWD	Baker Hughes
7/24/2019	3,425	0.30	137.60	3,418.56	-119.39	-69.56	100.53	1.07	Magn MWD	Baker Hughes
7/24/2019	3,521	0.45	193.39	3,514.56	-119.85	-70.11	100.61	0.39	Magn MWD	Baker Hughes
7/24/2019	3,614	0.52	195.23	3,607.56	-120.28	-70.87	100.42	0.08	Magn MWD	Baker Hughes
7/24/2019	3,708	0.59	224.84	3,701.55	-120.52	-71.63	99.96	0.31	Magn MWD	Baker Hughes
7/24/2019	3,801	0.88	272.49	3,794.55	-120.03	-71.93	98.91	0.70	Magn MWD	Baker Hughes
7/24/2019	3,895	1.31	289.38	3,888.53	-118.57	-71.55	97.18	0.57	Magn MWD	Baker Hughes
7/24/2019	3,988	0.60	278.45	3,981.52	-117.25	-71.12	95.69	0.78	Magn MWD	Baker Hughes
7/24/2019	4,082	1.73	117.08	4,075.51	-118.20	-71.69	96.47	2.45	Magn MWD	Baker Hughes
7/24/2019	4,176	3.13	104.46	4,169.42	-121.69	-72.98	100.22	1.59	Magn MWD	Baker Hughes
7/24/2019	4,269	3.30	109.32	4,262.27	-126.20	-74.50	105.20	0.35	Magn MWD	Baker Hughes
7/24/2019	4,363	2.36	123.81	4,356.16	-130.48	-76.47	109.36	1.25	Magn MWD	Baker Hughes
7/24/2019	4,459	3.44	100.74	4,452.04	-134.72	-78.11	113.84	1.64	Magn MWD	Baker Hughes
7/24/2019	4,553	5.21	102.63	4,545.77	-140.51	-79.57	120.77	1.89	Magn MWD	Baker Hughes
7/24/2019	4,646	6.15	102.08	4,638.31	-148.07	-81.53	129.76	1.01	Magn MWD	Baker Hughes
7/24/2019	4,739	5.85	108.09	4,730.80	-156.30	-84.05	139.14	0.75	Magn MWD	Baker Hughes
7/24/2019	4,833	7.11	100.84	4,824.20	-165.18	-86.63	149.41	1.60	Magn MWD	Baker Hughes
7/24/2019	4,927	6.89	97.03	4,917.50	-174.19	-88.41	160.72	0.55	Magn MWD	Baker Hughes
7/25/2019	5,020	5.99	106.89	5,009.91	-182.66	-90.51	170.90	1.53	Magn MWD	Baker Hughes
7/25/2019	5,114	5.86	116.15	5,103.41	-191.38	-94.05	179.90	1.03	Magn MWD	Baker Hughes
7/25/2019	5,208	4.62	121.20	5,197.02	-199.50	-98.12	187.44	1.41	Magn MWD	Baker Hughes
7/25/2019	5,301	3.22	134.28	5,289.80	-205.71	-101.89	192.52	1.78	Magn MWD	Baker Hughes
7/25/2019	5,395	3.70	125.69	5,383.63	-211.32	-105.50	196.87	0.75	Magn MWD	Baker Hughes
7/25/2019	5,492	4.41	122.55	5,480.39	-218.00	-109.33	202.56	0.77	Magn MWD	Baker Hughes
7/25/2019	5,585	4.45	126.43	5,573.11	-225.01	-113.40	208.47	0.33	Magn MWD	Baker Hughes
7/25/2019	5,679	3.81	130.45	5,666.87	-231.69	-117.59	213.78	0.75	Magn MWD	Baker Hughes
7/25/2019	5,772	3.05	118.42	5,759.70	-237.11	-120.77	218.31	1.12	Magn MWD	Baker Hughes
7/25/2019	5,866	3.76	112.22	5,853.53	-242.27	-123.13	223.36	0.85	Magn MWD	Baker Hughes
7/25/2019	5,960	5.12	113.57	5,947.25	-248.92	-125.97	230.06	1.45	Magn MWD	Baker Hughes
7/25/2019	6,054	6.18	104.69	6,040.79	-257.04	-128.93	238.80	1.46	Magn MWD	Baker Hughes
7/25/2019	6,147	5.77	106.46	6,133.29	-265.29	-131.53	248.13	0.48	Magn MWD	Baker Hughes
7/25/2019	6,241	8.25	104.77	6,226.58	-275.05	-134.58	259.18	2.65	Magn MWD	Baker Hughes



Wellbore Details

Well Name Edenborn/RGGS B M05H	Lease	Field Name Shamrock	Business Unit Appalachian Mountain	
Ground Elevation (ft) 1,155.00	Original RKB Elevation (ft) 1,155.00	Current RKB Elevation 1,179.00, 6/12/2019	Mud Line Elevation (ft)	Water Depth (ft)
Current KB to Ground (ft) 24.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Current KB to Tubing Head (ft)	

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/25/2019	6,335	9.53	106.09	6,319.45	-287.43	-138.46	273.18	1.38	Magn MWD	Baker Hughes
7/25/2019	6,428	10.28	117.01	6,411.07	-301.82	-144.36	287.97	2.17	Magn MWD	Baker Hughes
7/25/2019	6,525	8.83	134.22	6,506.74	-317.39	-153.49	301.02	3.29	Magn MWD	Baker Hughes
7/25/2019	6,619	9.26	149.84	6,599.58	-331.97	-165.06	309.99	2.64	Magn MWD	Baker Hughes
7/25/2019	6,712	9.21	145.72	6,691.38	-346.63	-177.68	317.95	0.71	Magn MWD	Baker Hughes
7/25/2019	6,806	6.45	130.63	6,784.50	-359.32	-187.34	326.19	3.64	Magn MWD	Baker Hughes
7/25/2019	6,900	6.17	96.10	6,877.97	-368.38	-191.31	335.23	3.99	Magn MWD	Baker Hughes
7/26/2019	6,993	2.49	66.18	6,970.70	-372.82	-191.03	342.05	4.52	Magn MWD	Baker Hughes
7/26/2019	7,087	2.91	39.59	7,064.59	-373.17	-188.37	345.43	1.39	Magn MWD	Baker Hughes
7/26/2019	7,180	4.17	38.99	7,157.42	-372.39	-183.92	349.07	1.36	Magn MWD	Baker Hughes
7/26/2019	7,274	4.84	46.48	7,251.13	-371.87	-178.53	354.09	0.95	Magn MWD	Baker Hughes
7/26/2019	7,368	6.35	45.28	7,344.67	-371.66	-172.14	360.66	1.61	Magn MWD	Baker Hughes
7/26/2019	7,436	6.35	45.28	7,412.26	-371.43	-166.85	366.01	0.00	Magn MWD	Baker Hughes

Zones

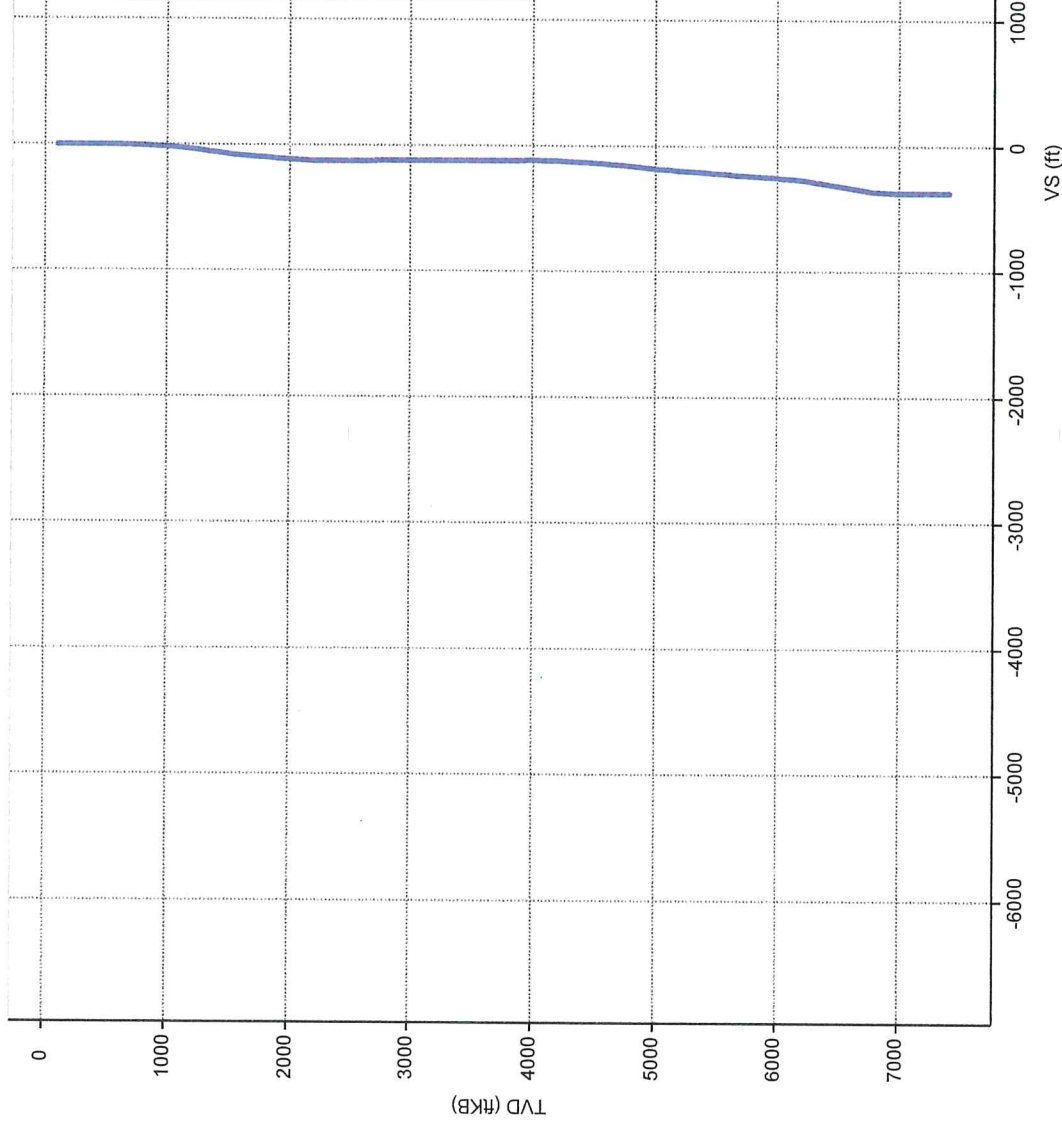
Zone Name	Top (ftKB)	Blm (ftKB)	Zone Comp Method	Completion ChevNo	Completion UWI	Completion License No.



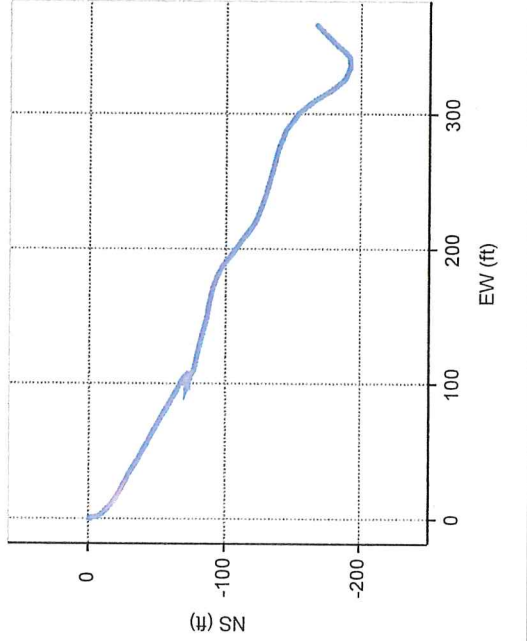
Directional Plot

Well Name Edenbom/RGGS B M05H	Lease Edenbom/RGGS B M05H	Field Name Shamrock	Business Unit Appalachian Mountain	Surface UWI 3705124682	Surface ChevNo XX0000
Wellbore Name	Directional Type	Top Depth (ftKB)	Total Depth of Wellbore (ftKB)	Wellbore UWI	Wellbore ChevNo

Vertical Section



Plan





Casing Summary

Well Name Edenborn/RGGS B M05H		Lease		Field Name Shamrock		Business Unit Appalachian Mountain	
Ground Elevation (ft) 1,155.00	Original RKB (ft) 1,155.00	Current RKB Elevation 1,179.00, 6/12/2019				Mud Line Elevation (ft)	Water Depth (ft)

Production Casing, Planned?-Y, <depth>ftKB

Set Depth (MD) (ftKB)		Set Tension (kips)			String Nominal OD (in)		String Min Drift (in)		Centralizers		Scratchers	
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread		Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)

Conductor, Planned?-N, 53ftKB

Set Depth (MD) (ftKB) 53		Set Tension (kips)		String Nominal OD (in) 30		String Min Drift (in)		Centralizers 0		Scratchers		
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread		Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
1	Casing Joint	30	29.250	118.20	X-42			8.6	53	44.41	3,790.0	2,600.0

Surface, Planned?-N, 429.1ftKB

Set Depth (MD) (ftKB) 429.1		Set Tension (kips)		String Nominal OD (in) 20		String Min Drift (in) 18.937		Centralizers 5		Scratchers	
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread	Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
1	Hanger	20	19.125	94.00	J-55	BTC	32	32.5	0.54	2,110.0	520.0
1	Hanger Pup	20	19.125	94.00	J-55	BTC	32.5	36.6	4.11	2,110.0	520.0
1	Casing Pup Joint	20	19.125	94.00	J-55	BTC	36.6	51.1	14.48	2,110.0	520.0
7	Casing Joint	20	19.125	94.00	J-55	BTC	51.1	344.3	293.24	2,110.0	520.0
1	Float Collar	20	19.125	94.00	J-55	BTC	344.3	386.7	42.33	2,110.0	520.0
1	Float Shoe	20	19.125	94.00	J-55	BTC	386.7	429.1	42.45	2,110.0	520.0

Intermediate Casing 1, Planned?-N, 664.6ftKB

Set Depth (MD) (ftKB) 664.6		Set Tension (kips)		String Nominal OD (in) 13 3/8		String Min Drift (in)		Centralizers 7		Scratchers		
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread		Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
1	Casing Hanger	13 3/8	12.625	54.50	J-55			30.1	32.3	2.23		
1	Hanger Pup	13 3/8	12.625	54.50	J-55	BTC		32.3	36	3.69		
1	Pup joint	13 3/8	12.620	54.50	J-55	BTC		36	51.1	15.14		
13	Casing Joint	13 3/8	12.625	54.50	J-55	BTC		51.1	579.1	527.96		
1	Float Collar	13 3/8	12.625	54.50	J-55	BTC		579.1	621.7	42.60		
1	Float Shoe	13 3/8	12.625	54.50	J-55	BTC		621.7	664.6	42.90		

Intermediate Casing 2, Planned?-N, 2628.6ftKB

Set Depth (MD) (ftKB) 2628.6		Set Tension (kips)		String Nominal OD (in) 9 5/8		String Min Drift (in)		Centralizers 21		Scratchers		
Jts	Item Des	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top Thread		Top Depth (MD) (ftKB)	Btm Depth (MD) (ftKB)	Len (ft)	P Burst (psi)	P Collapse (psi)
1	Hanger	9 5/8	8.835			BTC		28.7	30.8	2.10		
1	Hanger Pup	9 5/8	8.835	40.00	L-80IC	BTC		30.8	36.4	5.63		
62	Casing Joint	9 5/8	8.835	40.00	L-80IC	BTC		36.4	2543.8	2,507.39		
1	Float Collar	9 5/8		40.00	L-80IC	BTC		2543.8	2585.6	41.72		
1	Float Shoe	9 5/8		40.00	L-80IC	BTC		2585.6	2628.6	43.04		