



west virginia department of environmental protection

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

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

Friday, January 13, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC (A)
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit approval for QUALITY RECLAMATION MRN 210H
47-049-02424-00-00

This well work permit 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 any additional specific 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 of 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.

Per 35 CSR 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- 0450.



James A. Martin
Chief

Operator's Well Number: QUALITY RECLAMATION MRN 210H
Farm Name: QUALITY RECLAMATION SERVICES, LLC
U.S. WELL NUMBER: 47-049-02424-00-00
Horizontal 6A / New Drill
Date Issued: 1/13/2017

Promoting a healthy environment.

06/02/2017

PERMIT CONDITIONS

4704902424

West Virginia Code § 22-6A-8(d) 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

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. 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 § 22-6A-5a (12), 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 one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: _____

PERMIT CONDITIONS ⁴⁷0⁴902424

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

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

1) Well Operator: SWN Production Co., LLC 494512924 49-Marion Paw Paw Grant Town
Operator ID County District Quadrangle

2) Operator's Well Number: Quality Reclamation MRN 210H Well Pad Name: Quality Reclamation MRN

3) Farm Name/Surface Owner: Quality Reclamation Services, LLC Public Road Access: CR 25

4) Elevation, current ground: 1224.5' Elevation, proposed post-construction: 1224.5'

5) Well Type (a) Gas X Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow X Deep _____

Horizontal X

*SDW
9/21/2016*

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Target Top TVD- 7778', Target Base TVD- 7848', Anticipated Thickness- 70', Associated Pressure- 5055

8) Proposed Total Vertical Depth: 7837'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 18412'

11) Proposed Horizontal Leg Length: 10083.03'

12) Approximate Fresh Water Strata Depths: 353'

13) Method to Determine Fresh Water Depths: from petrophysics and existing wells

14) Approximate Saltwater Depths: 607'

15) Approximate Coal Seam Depths: 556'

16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of.

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No X

(a) If Yes, provide Mine Info: Name: _____
Depth: _____ RECEIVED
Seam: _____ Office of Oil and Gas
Owner: _____ NOV 18 2016

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18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	J-55	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	580'	580'	531/CTS
Coal	9 5/8"	New	J-55	36#	3225'	3225'	1236/CTS
Intermediate	7"	New	HCP-110	20#	If Needed	If Needed	If Needed/As needed
Production	5 1/2"	New	HCP-110	20#	18,412'	18,412'	<small>Last 1000 in Top 2278 of 182100</small>
Tubing	2 3/8"	New	P-110	4.7#	7837'	7837'	
Liners							

SDW
9/21/2016

<u>TYPE</u>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	3250	Class A	1.20/50% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/50% Excess
Tubing	2 3/8"	4.778"	0.190	Approx 8193'	Approx 8193'		
Liners							

PACKERS

Kind:	10K Arrowset AS-1X			
Sizes:	5 1/2"			
Depths Set:				

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and stimulate any potential zones between and including the Benson to Marcellus. **If we should encounter a void place basket above and below void area- balance cement to bottom of void and grout from basket to surface. Run casing not less than 20' below void nor more than 50' below void. (*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts.)

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production units, vertical separation units, water and oil storage tanks. Max press and anticipated max rate- 9000 lbs @ 80 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 10.9

22) Area to be disturbed for well pad only, less access road (acres): 7.5

23) Describe centralizer placement for each casing string:

All casing strings will be ran with a centralizer at a minimum of 1 per every 3 joints of casing.

24) Describe all cement additives associated with each cement type:

See Attachment ***

25) Proposed borehole conditioning procedures:

All boreholes will be conditioned with circulation and rotation for a minimum of 30 minutes up and continuing until operator is satisfied with borehole conditions.

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*Note: Attach additional sheets as needed.

Schlumberger Cement Additives

	Product Name	Product Use	Chemical Name	CAS Number
Surface	S001	accelerator	calcium chloride	10043-52-4
Intermediate	S001	accelerator	calcium chloride	10043-52-4
Kick Off Plug	D080	dispersant	sodium polynaphthalene sulfonate	9008-63-3
	D801	retarder	aromatic polymer derivative	proprietary
	D047	antifoam	polypropylene glycol	25322-69-4
Production-Lead	D167	fluid loss	aliphatic amide polymer	proprietary
	D154	extender	non-crystalline silica	7631-86-9
	D400	gas migration	boric acid	10043-35-3
	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgate)	8031-18-3
	D201	retarder	chrySTALLINE silica	14808-60-7
			metal oxide	proprietary
D202	dispersant	sulphonated synthetic polymer	proprietary	
		formaldehyde (impurity)	proprietary	
Production-Tail	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgate)	8031-18-3
	D167	fluid loss	aliphatic amide polymer	proprietary
	D065	dispersant	sodium polynaphthalene sulfonate	9008-63-3
			sodium sulfate	7757-82-6
	D201	retarder	chrySTALLINE silica	14808-60-7
			metal oxide	proprietary
D153	anti-settling	chrySTALLINE silica	14808-60-7	

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Southwestern Energy Company

Proposed Drilling Program

Well: QUALITY RECLAMATION MRN 210 Re-entry Rig: SDC TBD
 Field: OSAGE FIELD Prospect: OSAGE
 County: MARION State: WV
 SHL: 39.5734 Latitude -80.1611 Longitude
 BHL: 39.5475 Latitude -80.1431 Longitude
 KB Elev: 1,250 ft MSL KB: 26 ft AGL GL Elev: 1,224 ft MSL



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TOC Lead at 3,225 '
 TOC Tail at 7,700 ' MD

0' to 580' Air / Mist
 580' to 3,225' Air / Mist
 3,225' to 7,424' Air / Mist

Tubular Detail

	Size (in)	Weight	Grade	Cxn	From	To
Conductor	20	94.0 #			0'	100'
Surface	13.375	48.0 #	H-40	BTC	0'	580'
Intermediate	9.625	36.0 #	J-55	LTC	0'	3,225'
Production	5.5	20.0 #	HCP-110	HT CDC	0'	18,412'

Cement Detail

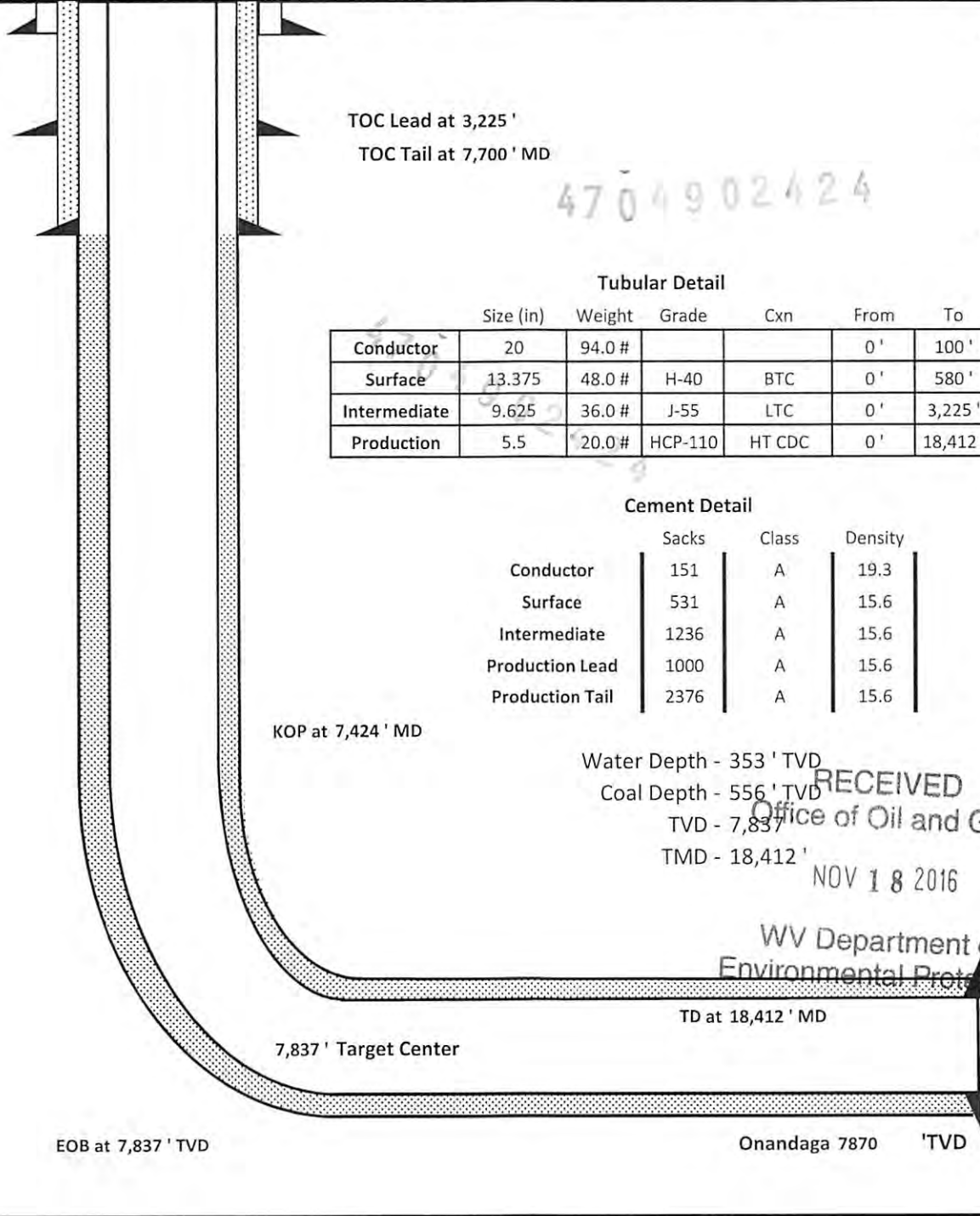
	Sacks	Class	Density
Conductor	151	A	19.3
Surface	531	A	15.6
Intermediate	1236	A	15.6
Production Lead	1000	A	15.6
Production Tail	2376	A	15.6

Air TD at 7,424' 7,424' to 8,326' 11.5 - 12.0 ppg

Water Depth - 353' TVD
 Coal Depth - 556' TVD
 TVD - 7,837'
 TMD - 18,412'

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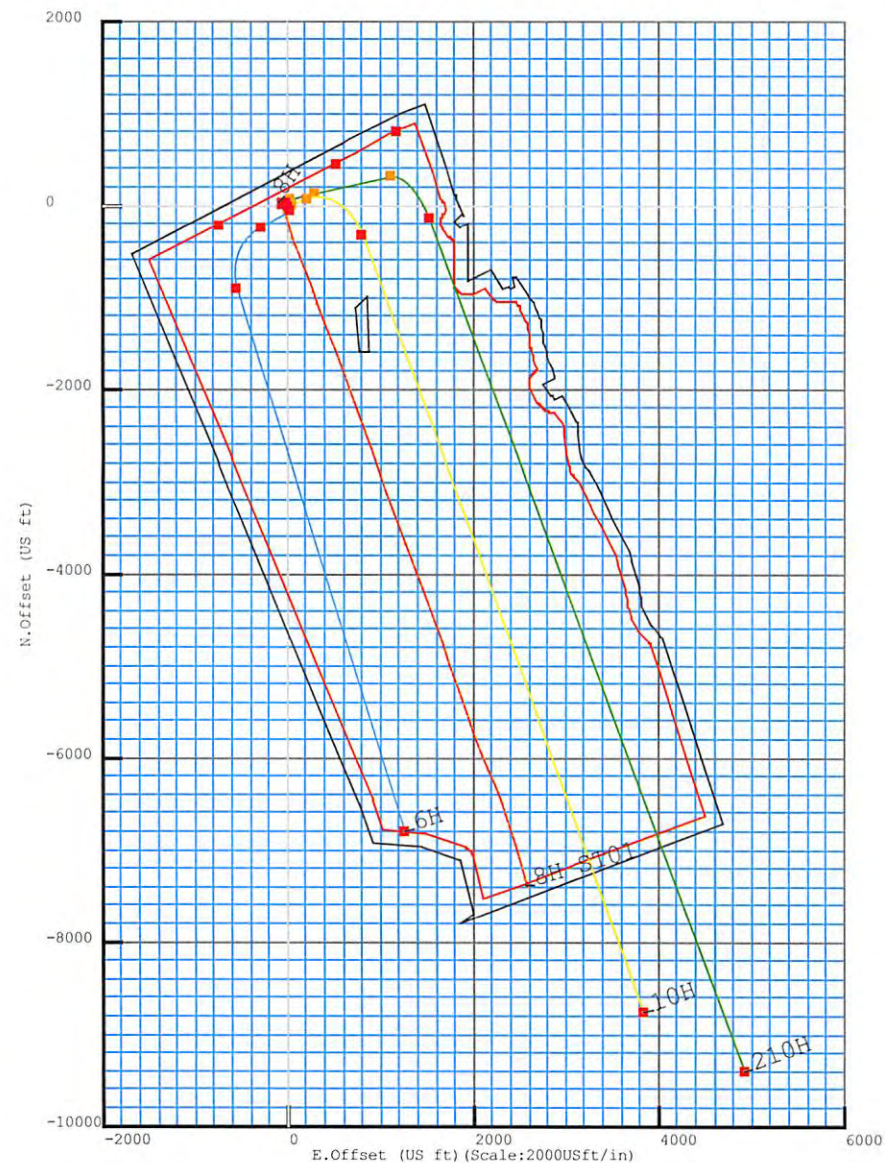
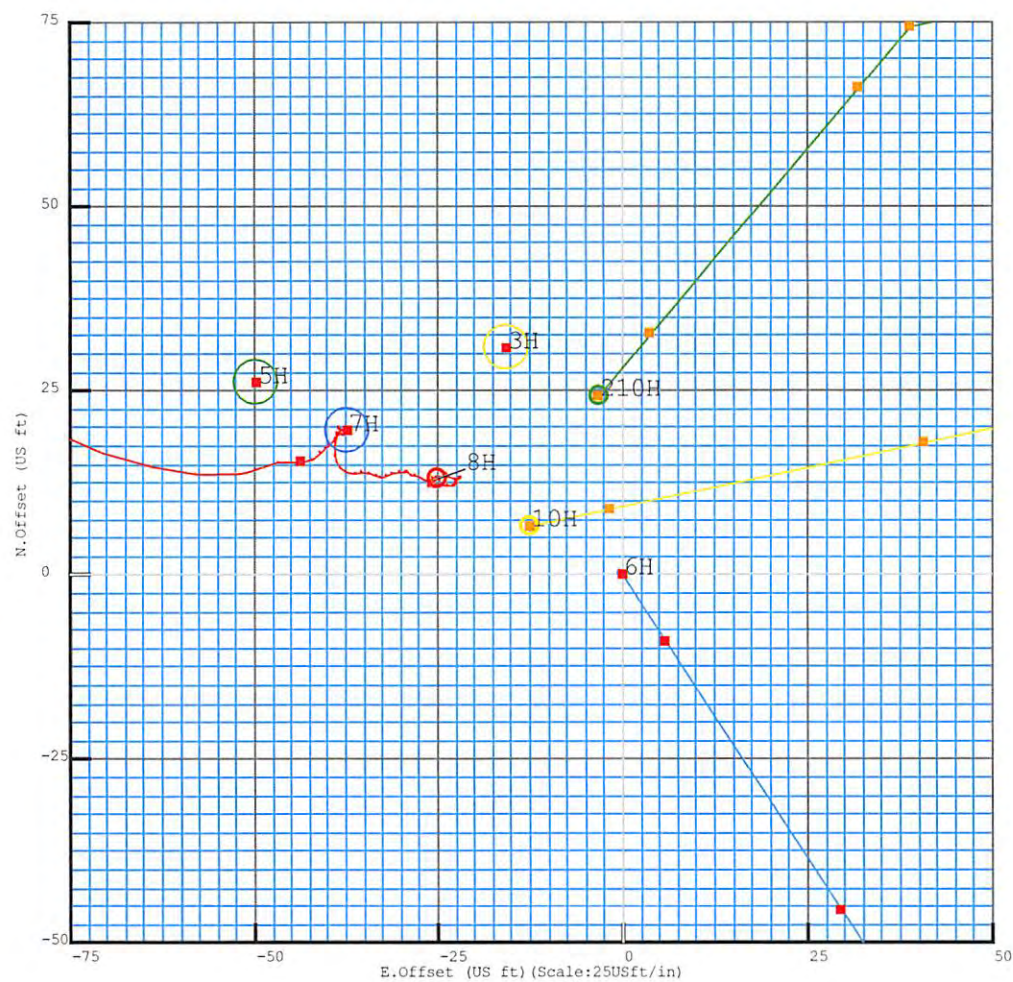
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$$\frac{R^2}{A} \rightarrow V^+$$

SOUTHWESTERN ENERGY
 QUALITY RECLAMATION
 MARION COUNTY, WV



Quality Reclamation MRN 21077

Area of Review

API	Operator	Status	Latitude	Longitude	Vertical TD	Producing Formation	Producing Zones Not Perforated
049-30704	Owens Illinois Glass Co. Gas Dept. PO Box 4158 Charleston WV	Abandoned	***	***	2,861'	Injun Sand	
049-30662	Owens Illinois Glass Co. Gas Dept. PO Box 4158 Charleston WV	Abandoned	***	***	2,434'	Big Injun Sand, Slate	
049-30044	Owens Illinois Glass Co. Gas Dept. PO Box 4158 Charleston WV	Abandoned	***	***	2,307'	Gantz Sand	
049-70728	Surface Owner- E. Michael/ Operator Unknown	Unknown	***	***	Unknown	Unknown	
049-70727	Surface Owner- E. Michael/ Operator Unknown	Unknown	***	***	Unknown	Unknown	
049-30770	H. E. Walker 433 Bridge Street Waynesburg PA	Abandoned	***	***	2,160'	Big Injun Sand	
049-30441	Owens Illinois Glass Co. Gas Dept. PO Box 2111 Charleston WV	Abandoned	***	***	2,119'	Injun Sand	
049-70324	New Central	Unknown	***	***	Unknown	Unknown	
049-30187	Owens Illinois Glass Co. Gas Dept. PO Box 1375 Charleston WV	Abandoned	***	***	2,160'	Big Injun Sand	
049-30762	Wilhelm & Jackson- Hamlin WV	Abandoned	***	***	2,280'	Big Injun Sand, Gantz Sand, Squaw Sand	
049-30063	Victor E. Tennant Box 121 Fairview WV	Abandoned	***	***	2,094'	Big Lime, Injun Sand, Squaw Sand, Gantz Sand	

Office of Oil and Gas
 West Virginia Department of Environmental Protection

WW-9
(4/16)

API Number 47 - 103 - _____
Operator's Well No. Quality Reclamation MRN 210H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Company, LLC OP Code 494512924

Watershed (HUC 10) Arnett Run of Monongahela River Quadrangle Grant Town

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: closed loop system in place at this time- cuttings will be taken to a permitted landfill

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number at next anticipated well, API # will be included with the WR-34/DDMR &/or permit addendum)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain flow back fluids will be put in steel tanks and reused or taken to a permitted disposal facility)

*SDW
9/21/2016*

Will closed loop system be used? If so, describe: yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. at drill to KOP, fluid drill with SOBM from KOP to TD

-If oil based, what type? Synthetic, petroleum, etc. synthetic oil base

Additives to be used in drilling medium? see attached sheets

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

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

-Landfill or offsite name/permit number? meadow SWF-1032, SS grading SWF-4902, Northwestern SWF-1025, Short Creek 1034/WW0109517/CID28726, Carbon Limestone 28726-CID28726

Arden Landfill 10072, American U2-12954, Country Wide 38390/CID38390, Pine Grove 13688

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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 [Signature]
Company Official (Typed Name) Dee Southall
Company Official Title Regulatory Supervisor

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Subscribed and sworn before me this 15th day of September

Bettany R Woody

My commission expires 11/27/2016



06/02/2017

SWN Production Company, LLC

Proposed Revegetation Treatment: Acres Disturbed 10.9 Prevegetation pH _____

Lime as determined by pH test min. 2 Tons/acre or to correct to pH 7.5

Fertilizer type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch Hay/Straw 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre

Seed Type lbs/acre

****See Attachment**

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: S. D. Warratt

Comments: Pre-seed/mulch as soon as reasonably possible per WV DEP regulation all disturbed areas. Upgrade ETS as needed per WV DEP ETS manual

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Title: oil and gas inspector

Date: 9/21/2016

Field Reviewed? (X) Yes () No

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WVD Seeding Specification



To Order Seed contact Lyndsi Eddy Flippo office 570-996-4271 cell 501-269-5451 lyndsi_eddy@swn.com (please allow 7 to 10 days for delivery)

NON-ORGANIC PROPERTIES		
Seed Mixture: ROW Mix	SWN Supplied	
Orchardgrass	40%	
Timothy	15%	
Annual Ryegrass	15%	
Brown Top Millet	5%	
Red Top	5%	
Medium Red Clover	5%	All legumes are innoculated at 5x normal rate
White Clover	5%	
Birdsfoot Trefoil	5%	
Rough Bluegrass	5%	
<p>Apply @ 100lbs per acre April 16th- Oct. 14th</p>		<p>Apply @ 200lbs per acre Oct. 15th- April 15th PLUS 50lbs per acre of Winter Wheat</p>

SOIL AMENDMENTS	
10-20-20 Fertilizer	*Apply @ 500lbs per Acre
Pelletized Lime	Apply @ 2 Tons per Acre
*unless otherwise dictated by soil test results	

Seeding Calculation Information:
1452' of 30' ROW/LOD is One Acre
871' of 50' ROW/LOD is One Acre
622' of 70' ROW/LOD is One Acre

Synopsis:
Every 622' linear feet in a 70' ROW/LOD, you should be using (2) 50lb bags of seed, (4) 50lb bags of fertilizer and (80) 50lb bags of Lime (2x seed in winter months + 50lb Winter Wheat/a).

Special Considerations:
Landowner Special Considerations including CREP program participants require additional guidance that is not given here. Discuss these requirements with SWN supervision at the beginning of the project to allow time for special seed delivery.

ORGANIC PROPERTIES	
Seed Mixture: SWN Production Organic Mix	SWN Supplied
Organic Timothy	50%
Organic Red or White Clover	50%
OR	
Organic Perennial Ryegrass	50%
Organic Red or White Clover	50%
<p>Apply @ 100lbs per acre April 16th- Oct. 14th</p>	
<p>Organic Fertilizer @ 200lbs per Acre</p>	
<p>Apply @ 200lbs per acre Oct. 15th- April 15th</p>	
<p>Pelletized Lime @ 2 Tons per Acre</p>	

WETLANDS (delineated as jurisdictional wetlands)	
Seed Mixture: Wetland Mix	SWN Supplied
VA Wild Ryegrass	20%
Annual Ryegrass	20%
Fowl Bluegrass	20%
Cosmos 'Sensation'	10%
Redtop	5%
Golden Tickseed	5%
Maryland Senna	5%
Showy Tickseed	5%
Fox Sedge	2.5%
Soft Rush	2.5%
Woolgrass	2.5%
Swamp Verbena	2.5%
<p>Apply @ 25lbs per acre April 16th- Oct. 14th</p>	
<p>Apply @ 50lbs per acre Oct. 15th- April 15th</p>	
<p>NO FERTILIZER OR LIME INSIDE WETLAND LIMITS</p>	

MARCELLUS WELL DRILLING PROCEDURES AND WELL SITE SAFETY PLAN



SWN Production Company, LLC
179 Innovation Drive
Jane Lew, West Virginia 26378

1704902424

API NO. 47-XXX-XXXXX
WELL NAME: Quality Reclamation MRN 210H
Grant Town QUAD
Paw Paw DISTRICT
Marion COUNTY, WEST VIRGINIA

Submitted by:

Dee Southall

Date: 9/15/2016

Title: Regulatory Supervisor

SWN Production Co., LLC

Approved by:

Date:

Title:

Approved by:

Date:

Title:

SWN PRODUCTION COMPANY, LLC

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**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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**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

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.

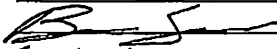
Well Operator: SWN Production Company, LLC.
 By: 
 Its: Sr. Landman

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by SWN Production Company, L.L.C., Generator
 Quality Reclamation 210H
 Marion County, West Virginia

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 Surface Gas
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Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
10	16-27-22	731035-003	Michael P. Zemonick	Chesapeake Appalachia, LLC	12.50%	1136/99	Charles T. Bragg	795/527	4.0700	4.070000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
10	16-27-22	731035-004	Daniel R. Cunningham	Chesapeake Appalachia, LLC	12.50%	1136/102	Charles T. Bragg	795/527	4.0700	4.070000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
10	16-27-22	731035-006	Robert C. Smith	Chesapeake Appalachia, LLC	12.50%	1136/108	Charles T. Bragg	795/527	4.0700	4.070000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC						
11	16-27-20	725519-000	Lily Ann Parker, a/k/a Lily Ann Parker Vincent, single	Chesapeake Appalachia, LLC	12.50%	1050/519	Lily Ann Parker	852/712	37.2500	37.250000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
12	16-27-19	733458-000	Alma O. Parker and E. Jarvis Parker (Lily Ann Parker)	The Owens Bottle Company	12.50%	230/11	Lily Ann Parker	1058/58	40.2500	40.250000
			Owens-Illinois, Inc. (FKA The Owens Bottle Company)	Owens-Illinois Glass Container, Inc	\$75/yr Gas	11/584				
			Owens-Illinois Glass Container, Inc	Noumenon Corporation		11/1198				
			Noumenon Corporation	Chesapeake Appalachia, LLC		41/786				
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
13	16-27-18	728678-000	Lily Ann Parker, single	Chesapeake Appalachia, LLC	15.00%	1071/538	Lily Ann Parker	1058/58	49.6500	49.650000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	730818-002	Everett C. Nixon	Chesapeake Appalachia, LLC	12.50%	1104/85	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-015	Peter Bayne Moran, married, dealing in his sole and separate property	Chesapeake Appalachia, LLC	15.00%	1126/15	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-002	Mary E. Farlow	Chesapeake Appalachia, LLC	12.50%	1039/370	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-009	Russell S. Clayton, Jr. (aka Russell S. Clayton), married, dealing in his sole and separate property	Chesapeake Appalachia, LLC	12.50%	1039/560	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-004	Diana Bellar-Trettel	Chesapeake Appalachia, LLC	12.50%	1039/365	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-007	Anna M. Brumage (Martha A. Scherich, Bruce H. Brumage)	Chesapeake Appalachia, LLC	12.50%	1039/385	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-003	Mary F. Hensley, married, dealing in her sole and separate property	Chesapeake Appalachia, LLC	12.50%	1039/390	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-008	Martha J. Patterson, married, dealing in her sole and separate property	Chesapeake Appalachia, LLC	12.50%	1039/380	James P. Eddy	1135/476	25.0000	25.000000
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-001	David Farlow, married, dealing in her sole and separate property	Chesapeake Appalachia, LLC	12.50%	1039/432	James P. Eddy	1135/476	25.0000	25.000000

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EXHIBIT "A"

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Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
			Chesapeake Appalachia, LLC	SWN Production Company, LLC		48/438				
14	16-27-13	724821-005	Margaret C. Clayton, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/475 48/438	James P. Eddy	1135/476	25.0000	25.000000
14	16-27-13	724821-006	George Hunsaker, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/541 48/438	James P. Eddy	1135/476	25.0000	25.000000
14	16-27-13	724821-010	Helen O. Martin, married, dealing in her sole and separate property Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/546 48/438	James P. Eddy	1135/476	25.0000	25.000000
14	16-27-13	724821-011	Rowena V. Caverley, (aka Rowena V. Caverley), single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/565 48/438	James P. Eddy	1135/476	25.0000	25.000000
14	16-27-13	724821-012	Howard Hunsaker, Jr., married, dealing in her sole and separate property	Chesapeake Appalachia, LLC	12.50%	1041/79	James P. Eddy	1135/476	25.0000	25.000000
14	16-27-13	724821-013	John C. Hunsaker, married, dealing in her sole and separate property Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1042/306 48/438	James P. Eddy	1135/476	25.0000	25.000000
14	16-27-13	724821-014	Linda H. Carder, aka Linda Hunsaker Stoerckel, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1042/518 48/438	James P. Eddy	1135/476	25.0000	25.000000
15	16-27-12	730817-000	WHG Exploration, Inc. (Appalachian Energy Holdings I LP [NPRI only: Sheila Rose Lightfoot, Tina M. Fischer]) Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1092/474 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	730818-002	Everett C. Nixon, married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1104/85 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-015	Peter Bayne Moran, Married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1126/15 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-002	Mary E. Farlow Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/370 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-009	Russel S. Clayton, Married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/560 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-004	Diana Beller-Trettel Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/365 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-007	Anna M. Brumage (Martha A. Scherich, Bruce H. Brumage) Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/385 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-003	Mary F. Hensley, Married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/390 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-008	Martha J. Patterson, married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/380 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-001	David Farlow, Married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/432 48/438	Lily A. Parker	1165/317	43.930000	43.930000

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 Quality Reclamation 210H
 Marion County, West Virginia

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
15	16-27-12	724821-005	Margaret C. Clayton, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/475 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-006	George Hunsaker, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/541 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-010	Helen O. Martin, married, dealing in her sole and separate property Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/546 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-011	Rowena C. Caverly, Single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1039/555 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-012	Howard Hunsaker, Jr., Married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1041/79 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-013	John C. Hunsaker, married Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1042/306 48/438	Lily A. Parker	1165/317	43.930000	43.930000
15	16-27-12	724821-014	Linda H. Carder a/k/a Linda Hunsaker Stoerkel, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1042/518 48/438	Lily A. Parker	1165/317	43.930000	43.930000
16	16-27-11	725530-000	Velma M. Clark, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1053/346 48/438	Lily A. Parker	1165/317	23.1250	23.125000
17	16-27-10	PENDING	H. Stephen Thompson	SWN Production Company, LLC	12.50%	1197/671	Lily A. Parker	1165/317	16.5000	16.500000
18	16-27-08.1	730853-000	Bradley S. Linville, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1095/406 48/438	Bradley S. Linville	1093/650	33.9200	33.920000

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EXHIBIT "A"

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 Quality Reclamation 210H
 Marion County, West Virginia

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
1	16-23-3	723995-001	James W. Ice and Dorothy Ice, h/w Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1029/895 48/438	Quality Reclamation Services, LLC	1156/165	226.071000	226.071000
1	16-23-3	723995-002	Marjorie A. Kopp, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1031/73 48/438	Quality Reclamation Services, LLC	1156/165	226.071000	226.071000
2	16-23-6	730989-001	Michael L. Clelland and Lisa M. Clelland (h/w, JT) Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1106/811 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
2	16-23-6	730989-002	Edward Hill Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1124/124 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
2	16-23-6	730989-003	Michael P. Zemonick Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1124/121 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
2	16-23-6	730989-004	Robert C. Smith Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1124/127 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
2	16-23-6	730989-005	Roger Hill Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1123/599 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
2	16-23-6	730989-006	Daniel R. Cunningham Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1123/605 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
2	16-23-6	730989-007	Beulah Miller aka Beulah Smith Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1123/602 48/438	Michael L. Clelland and Lisa M. Clelland (h/w, JT)	890/162	20.3200	20.320000
3	16-23-5	730779-000	Charles T. Bragg, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1091/375 48/438	Charles T. Bragg, single	856/108	26.5855	26.585500
3	16-23-5	733472-000	Rebecca J. Barb and W. D. Barb, her husband (Charles T. Bragg single, Douglas P. Ice and Donna E. Ice h/w JT, Joshua A. Corwin and Courtney A. Corwin h/w JT) Owens-Illinois, Inc. (FKA The Owens Bottle Company) Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC	The Owens Bottle Company Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	240/19 11/584 11/1198 41/786 48/438	Charles T. Bragg, single	856/108	26.5855	26.585500

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 Quality Reclamation 210H
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Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
4	16-23-5.2	733472-000	Rebecca J. Barb and W. D. Barb, her husband (Joshua A. Corwin and Courtney A. Corwin h/w JT) Owens-Illinois, Inc. (FKA The Owens Bottle Company) Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC	The Owens Bottle Company Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	240/19 11/584 11/1198 41/786 48/438	Joshua A. Corwin and Courtney A. Corwin h/w, JT	1058/270	1.0200	1.020000
5	16-23-5.1	733472-000	Rebecca J. Barb and W. D. Barb, her husband (Douglas P. Ice and Donna E. Ice h/w JT) Owens-Illinois, Inc. (FKA The Owens Bottle Company) Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC	The Owens Bottle Company Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	240/19 11/584 11/1198 41/786 48/438	Douglas P. Ice and Donna E. Ice (h/w, JT)	983/294	2.000000	2.000000
6	(CR 25/5)	Pending	W.V. D.O.T. D.O.H.	SWN Production Company, LLC	20.00%	See Attached	W.V. D.O.T. D.O.H.	482/301 482/298	0.661700	0.661700
7	16-27-27	733472-000	Rebecca J. Barb and W. D. Barb, her husband (Charles T. Bragg) Owens-Illinois, Inc. (FKA The Owens Bottle Company) Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC	The Owens Bottle Company Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	240/19 11/584 11/1198 41/786 48/438	Charles T. Bragg	1032/97	17.6000	17.600000
8	16-27-28	733472-000 733481-000	Rebecca J. Barb and W. D. Barb, her husband (Waco Oil and Gas Co. Inc., The Morris Foundation Inc.) Owens-Illinois, Inc. (FKA The Owens Bottle Company) Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC XTO Energy Inc. Chesapeake Appalachia, LLC	The Owens Bottle Company Owens-Illinois Glass Container, Inc Noumenon Corporation Chesapeake Appalachia, LLC SWN Production Company, LLC Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50% 15.00%	240/19 11/584 11/1198 41/786 48/438 1122/287 48/438	Charles T. Bragg, single	1032/97	20.0000	20.000000
9	16-27-29	730779-000	Charles T. Bragg, single Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	15.00%	1091/375 48/438	Charles T. Bragg	1032/197	15.7900	15.790000
10	16-27-22	731035-005	Beulah Smith, n/k/a Beulah Miller Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1136/105 48/438	Charles T. Bragg	795/527	4.0700	4.070000
10	16-27-22	731035-001	Edward Hill Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	1136/93 48/438	Charles T. Bragg	795/527	4.0700	4.070000
10	16-27-22	731035-002	Roger Hill	Chesapeake Appalachia, LLC	12.50%	1136/96	Charles T. Bragg	795/527	4.0700	4.070000

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employees, contractors, agents, and affiliates, on the surface of the lands covered herein, if any, including, but not limited to the construction of any pits and/or pipelines or gathering lines on the Leased Premises.

b. **No Storage.** Lessee may not use the Leased Premises, or any part thereof, for gas, oil, hydrocarbons, or brine storage purposes.

c. **Use of Surface or Subsurface Water.** Lessee shall not use the surface waters or the groundwaters located within the Leased Premises and shall not diminish or impair the riparian rights, consumptive or non-consumptive water rights or groundwater of the State of West Virginia within or adjoining the Leased Premises or any private riparian landowner adjoining the Leased Premises within said State and shall not diminish or impair the riparian rights, consumptive or non-consumptive water rights or groundwater of the State of West Virginia within or adjoining the Leased Premises or any private riparian landowner adjoining the Leased Premises within said State.

d. **Navigational Servitude.** Lessee may not perform any work, construction, production or any related activities on the bed, banks or shores of any waterway below the high water mark thereof within the waterway. Lessee shall not in any way hinder or impair the navigational servitude of the United States of America or the public rights of navigation or floatage in the Ohio River, if applicable, or any other navigable or floatable waterway.

e. **Reserved Rights of Lessor.** Lessor reserves all rights not granted in this Lease, and specifically excepts herefrom all minerals other than the Granted Minerals including, by way of example and not limitation, geothermal energy, salt, brine, coal and coalbed methane.

3. **Facilities Development.** All development and production activities and facilities shall be constructed on adjoining and/or other lands, but not the Leased Premises, and above and outside the high water mark of the Ohio River, other waterways or islands therein, except to the extent that horizontal well laterals are located underneath the bed, banks and shores of the same.

4. **Term.** This Lease shall remain in force for a term of Four (4) years from the date hereof ("Primary Term"), and as long thereafter as Granted Minerals are produced from the Leased Premises or on acreage pooled therewith, or drilling operations are continued as hereinafter provided. If, at the expiration of the Primary Term of this Lease, Granted Minerals are not being produced on the Leased Premises or on acreage pooled therewith, but Lessee is then engaged in drilling or re-working operations thereon, then this Lease shall continue in force for so long as operations are being continuously prosecuted on the Leased Premises or on acreage pooled therewith ("Operations"). Operations shall be considered to be continuously prosecuted if not more than one hundred twenty (120) consecutive days shall elapse between the completion or abandonment of one well and the beginning of operations for the drilling of a subsequent well. If after discovery of Granted Minerals on the Leased Premises or on acreage pooled therewith, the production thereof should cease from any cause after the Primary Term, this Lease shall not terminate if Lessee commences additional drilling or re-working operations within one hundred twenty (120) days from date of cessation of production or from date of completion of a dry hole. If Granted Minerals shall be discovered and produced as a result of such operations at or after the expiration of the Primary Term of this Lease, this Lease shall continue in force so long as Granted Minerals are produced from the Leased Premises or on acreage pooled therewith.

5. **Unitization.** Lessee may voluntarily pool, consolidate, or unitize portions of the Leased Premises as to hydrocarbon bearing geologic formations in order to constitute a unit for the purpose of exploring for and producing Granted Minerals. Said unit may not exceed Six Hundred Forty (640) acres and shall be comprised of lands contiguous to the Leased Premises and/or in the immediate vicinity of the Leased Premises;

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06/02/2017

OG0002-0425

Tract No. _____
Sale _____
Lease No. _____

WVDOH requested revisions: DRAFT Version 2

**THE STATE OF WEST VIRGINIA OIL AND GAS LEASE
NO SURFACE USE
(4 YEAR PAID-UP LEASE)**

This Oil and Gas Lease (this "Lease") is dated and effective as of October , 2016, (the "Effective Date"), by and between the **WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS**, whose address is Right of Way Division, 1900 Kanawha Blvd, East, Building 5, Room A-110 Charleston, West Virginia 25305-0430, party of the first part, hereinafter designated as **LESSOR**, and **SWN Production Company, LLC**, a Texas corporation, whose address is **10000 Energy Drive, Spring, Texas 77389**, party of the second part, hereinafter designated as **LESSEE**.

UNDER AND PURSUANT TO THE PROVISIONS OF THE CONSTITUTION AND LAWS OF THE STATE OF WEST VIRGINIA RELATING TO LEASING PUBLIC LANDS BELONGING TO THE STATE OF WEST VIRGINIA, WITNESSETH:

1. **Grant of Lease.** In consideration of the bonus of Three Thousand (\$3,000.00) per acre paid at closing to Lessor, the royalties to be paid, and the covenants, obligations, stipulations and conditions to be observed and performed as herein set forth, Lessor does hereby demise, lease and let unto the Lessee the following described tracts of land for the sole purpose and with the exclusive right of exploring, drilling, completing, operating for, and producing oil, gas, and other liquid or gaseous hydrocarbons (including, by way of example and not limitation, any and all natural gas liquids such as butane, ethane, isobutane, natural gasolines, pentanes, propane, and similar liquids or byproducts) produced in association with the oil or gas in or underlying the Leased Premises (the "Granted Minerals"), situated in Paw Paw District, Marion County, West Virginia, and being more particularly described as follows:

Chunks Run Road as further identified on Exhibit "A"

Containing 0.6617 acres, more or less (the "Leased Premises"). Lessor represents and warrants to Lessee that the West Virginia Division of Highways is the proper agency or instrumentality of the State of West Virginia to enter into this Lease for the purpose of leasing the Granted Minerals and Leased Premises to Lessee on the terms set forth herein, and that the Director of the West Virginia Division of Highways is vested with the full legal authority and is duly authorized to execute this Lease on behalf of the Lessor and the State of West Virginia.

2. **Limitations on the Grant of Lease.**

a. **Surface Activities Prohibited.** This lease does not include, and specifically prohibits and excludes the right to enter upon or conduct exploration for, drilling, and production and marketing activities of any kind associated with the Granted Minerals, or any other activities by Lessee, its representatives,

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provided, that the unit may, with the written consent of Lessor, be larger, but no greater than One Thousand, Two Hundred and Eighty (1,280) acres, which consent shall not be unreasonably withheld, if that unit, in comparison to a unit of Six Hundred Forty (640) acres, shall provide for the greater development of the Granted Minerals in compliance with the diligent development and protection from drainage requirements of Paragraph Fourteen of this Lease. Once formed, the unit(s) may not be reformed, re-pooled, altered, amended, or changed in any manner without the prior written consent of Lessor, which consent shall not be unreasonably withheld. If Lessor does not grant or deny consent within Thirty (30) days of its receipt of the subject Lessee's request, said request will be deemed approved and consent granted.

6. **Pugh Clause – Horizontal and Vertical.** As to any acreage of the Leased Premises which is not included within any properly constituted and publicly recorded production unit at the expiration of the Primary Term, as extended hereunder, this Lease shall automatically terminate, and be of no further force or effect. Further, and to the extent Lessee has established production in paying quantities beyond the expiration of the Primary Term on the Leased Premises, or lands pooled or unitized therewith, the Lease shall terminate, on a production unit-by-production unit basis, as to all depths, horizons and zones lying at least One Hundred feet (100') below the deepest producing horizon on the Leased Premises or any lands pooled therewith determined by reference to the deepest producing horizon in each respective production unit. Thereafter, this Lease shall continue in full force and effect for all depths, horizons and zones lying above the depth of One Hundred feet (100') below the deepest producing formation of a particular production unit as to all acreage located within that particular production unit. Upon the drilling and completion of a well within a production unit containing at least a portion of the Leased Premises, Lessee shall file a declaration of pooling and unitization within a reasonable time in the records of the Office of the Clerk of the County Commission of the county in which the applicable Granted Minerals are situated.

7. **Royalty.**

a. **Delivery and Payment.** Lessee shall deliver or cause to be delivered to the Lessor, or its successors, nominees, agents, or assigns, at no cost to Lessor, a royalty equal to Twenty Percent (20%) or One-Fifth of Eight Eighths (1/5 of 8/8ths) of the Gross Proceeds realized by Lessee, or any Affiliate of Lessee, from the sale of the Granted Minerals, produced and sold from the Leased Premises.

i. **Gross Proceeds.** Gross Proceeds means the total monies and other consideration accruing to Lessee for the disposition of the Granted Minerals and/or any other marketable by-products, including condensate, produced from the Leased Premises. Gross Proceeds shall be calculated based on the total gross volume of Granted Minerals produced and sold, exclusive of production and post-production costs and severance taxes or other taxes of any nature.

ii. **Affiliate of Lessee.** Affiliate of Lessee means any person, corporation, firm, or other entity in which Lessee, or any parent company, subsidiary or affiliate of Lessee, owns an interest of Five Percent (5%) or more, whether by stock ownership or otherwise, or over which Lessee, or any parent company or affiliate of Lessee exercises any degree of control, directly or indirectly, by ownership, interlocking directorate, or in any other manner; and any corporation, firm or other entity which owns any interest in Lessee, whether by stock ownership or otherwise, or which exercises any degree of control, directly or indirectly, over Lessee, by stock ownership, interlocking directorate, or in any other manner.

b. **Due Dates of Royalty.** Lessee shall pay Lessor all royalties that may become due under this Lease within one hundred twenty (120) days after the first day of the month following the month during which any well commences production into a pipeline for sale of such production. Thereafter, all royalties shall be paid to Lessor on or before the last day of the third month following the month of production

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or within Ninety (90) days after the first day of the month following, whichever is longer.

c. **Automatic Termination for Non-Payment of Royalty.** If royalty is not paid within the time prescribed in the preceding sub-section entitled Due Dates of Royalty, Lessor will provide Lessee written notice of nonpayment of royalty in accordance with paragraph 32 of this Lease. If Lessee fails to pay Lessor royalty actually due and owing to Lessor within Thirty (30) days from Lessee's receipt of such notice, this Lease will automatically terminate. Inaccurate royalty payments shall not be governed by the provisions of this paragraph 7(a)(c), but shall be resolved in good faith between Lessor and Lessee in a timely manner.

d. **Production & Post-Production Costs.** Neither Lessee, nor any Affiliate of Lessee, may reduce Lessor's royalty for any post-production expense, including, by way of example and not limitation, pipelines, surface facilities, telemetry, gathering, dehydration, transportation, fractionation, compression, manufacturing, processing, treating, or marketing of the Granted Minerals or any severance or other taxes of any nature paid on the production thereof. Royalties under this Lease shall be based on the total proceeds of sale of the Granted Minerals, exclusive of any and all production and/or post-production costs.

8. **Method of Payment.** All rents, royalties, bonuses, or other payments accruing and/or owing from Lessee to Lessor under this Lease shall be made or tendered in the following manner:

a. By certified or cashier check delivered in accordance with paragraph 32 of this Lease, or

b. By direct deposit or wire transfer to the credit of Lessor as provided in writing by Lessor to Lessee in writing by a separate instrument delivered contemporaneously with this Lease.

9. **Information, Metering, Lessor's Right to Audit.** Upon request, Lessee shall furnish to Lessor copies of title opinions covering the Leased Premises; copies of filings made by Lessee with the Department of Environmental Protection related to the Leased Premises; copies of daily drilling reports, gauge tickets, sales receipts, division orders, or amounts of gross production; copies of gas contracts or any other agreements pursuant to which Lessee will sell, use, transfer, process, or dispose of the Granted Minerals produced from the Leased Premises; and/or any other information related to the production and sales of the Granted Minerals, excepting any documentation that is subject to a confidentiality clause or similar provision which limits distribution of the subject documentation to third-parties. Lessee shall meter gas deriving from the Leased Premises at the wellhead in accordance with West Virginia law. Lessor shall, on an annual basis, have the right to audit the books, accounts, contracts, records, and data of Lessee pertaining to the development and sale of the Granted Minerals. Lessee shall also supply Lessor with a copy of Lessor's completion report of such well or wells within thirty calendar (30) days of completion.

10. **Quarterly Royalty Statement, Annual Report.** Lessee shall furnish an annual report, including production volumes and sales prices, to the Lessor not less than annually on the anniversary date of this Lease, unless otherwise requested by Lessor. The Lessee shall include the following information no less frequently than once per calendar quarter, either on the check stub of a royalty payment or on an attachment to or enclosure with a royalty payment:

a. The lease, property, or well names and the well identification numbers on which royalties are being paid;

b. The month and year during which the sales occurred for which payment is being made;

c. The total production from the well or wells expressed as the number of barrels of oil or the total

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amount of gas in million cubic feet (MCF) and the volume of any other Granted Minerals, condensate, or other constituents therein which were sold

- d. The price per barrel of oil and per MCF of gas sold; and
- e. The name, address, and telephone number of a contact person where the Lessor may obtain information about royalty payments made by the Lessee hereunder

11. **Shut-In Royalty.** If a well has been completed capable of production in paying quantities, and has been temporarily shut-in for lack of a market, Lessee shall pay Lessor annually, on or before Ninety (90) days of such shut-in event, the sum of One Hundred (\$100.00) Dollars per acre for the first year, and Two Hundred Fifty Dollars (\$250.00) per acre for the year thereafter on the ensuing anniversary. In no event may Lessee maintain this Lease by payment of shut-in royalty beyond a continuous two-year period, and this Lease shall terminate automatically on the first day following the second anniversary date of initial shut-in. Additionally, in no event may Lessee maintain this Lease by payment of shut-in royalty beyond a cumulative three-year period during which all production of Granted Minerals was shut-in, and this Lease shall terminate automatically on the first day following the date that all production of Granted Minerals has been shut-in for a cumulative period of Three (3) years.

12. **Notice of Intent to Drill and Complete.** Lessee shall supply Lessor prior written notice of Lessee's intention to drill at least fourteen (14) calendar days prior to the spudding in of a well associated with producing the Granted Minerals..

13. **Diligence, Duty to Drill Offset Wells.** Lessee shall conduct its drilling operations hereunder utilizing best industry practices in existence at the time of such drilling, and shall otherwise conduct its operations in a good and workmanlike manner as a reasonably prudent operator would under the same or similar circumstances until all drilling and producing operations are completed, or until such time as the final well is plugged and abandoned. Additionally, if Granted Minerals are discovered on or in the Leased Premises, Lessee shall further develop and produce the Leased Premises as a reasonable and prudent operator would, and exercise all due diligence in drilling additional well(s) as may be necessary to fully develop the Leased Premises. Lessee shall protect the Granted Minerals in and under the Leased Premises from drainage by wells on adjoining or nearby tracts or leases, including those held by Lessee or any Affiliate of Lessee. Neither the rentals, royalties, nor any other consideration set forth under this Lease shall relieve Lessee of its obligation to reasonably develop and produce the Leased Premises and to reasonably protect the Granted Minerals in and under the Leased Premises from drainage or other damage.

14. **Waste Prohibited, Damage.** Lessee shall not commit, or cause to be committed, waste, damage, or pollution to the Leased Premises. Lessee shall take all reasonable steps to prevent its operations from causing or contributing to soil erosion, or to the injury of terraces, grades, embankments, other soil, or structures on the Leased Premises. Lessee shall not pollute the surface or subterranean waters of the Leased Premises, any reservoirs, springs, streams, irrigation ditches, stock ponds, or other wells on the Leased Premises. Lessee shall not decrease the fertility of the soil, damaging any crops, grasses, timber, or pastures on the Leased Premises, and shall not harm or injure any animals, fish, or livestock on or in the Leased Premises, or damage any buildings, roads, structures, or other improvements on the Leased Premises. Lessee shall preserve the Leased Premises, and upon the termination of this Lease, promptly surrender and return the Leased Premises to the Lessor in the same condition, or substantially similar condition, as the Leased Premises were in prior to Lessee taking possession of the Leased Premises. Lessee shall compensate Lessor, its successors or assigns, for damages caused by Lessee to any being or thing which is the subject of this provision.

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15. **Well Plugging.** Before abandoning any well associated with this Lease, Lessee shall securely plug and abandon such well or wells in accordance with the rules and regulations of the West Virginia Department of Environmental Protection and the laws of the State of West Virginia, and any other governmental agency having jurisdiction.

16. **Record Management.** The Lessee shall keep an accurate account of all drilling operations, including but not limited to the following: a log of each well drilled, duly sworn to by the contractor or driller; original gas sales contracts with amendments; gas balancing agreements and schedules; information concerning litigation, settlement agreements, or other agreements relating to sales and pricing of the Granted Minerals.

17. **Ratification.** No instrument executed by Lessor shall be effective to constitute a ratification, renewal, extension or amendment of this Lease unless such instrument is clearly titled to indicate its purpose and intent.

18. **Compliance with Applicable Law.** This Lease shall be subject to the Constitution and laws of the State of West Virginia and the rules and regulations of the West Virginia Division of Highways and the West Virginia Department of Transportation now or hereafter in force, all of which are made a part and condition of this Lease; provided, that no regulation made after the execution of this Lease affecting either the length of the term hereof, the rate of royalty, or payment hereunder, or the assignment hereof, shall operate to alter the terms and conditions of this Lease. Lessee agrees to comply in all material respects with the laws, rules and regulations of the State of West Virginia and the United States of America.

19. **Insurance.** A company licensed by the West Virginia Insurance Commission to do business in the state of West Virginia shall underwrite all policies required by this Lease. Lessee, and/or any person or entity acting on Lessee's behalf under this Lease, shall maintain with one or more such licensed insurance carriers at all times during which this Lease remains in force and effect sufficient workers compensation and employer's liability insurance, commercial general liability and umbrella liability insurance, business auto and umbrella liability insurance, and environmental liability insurance in the amount of at least Twenty-Five Million Dollars (\$25,000,000.00), combined single limit, identifying Lessor as an additional insured (except for workers compensation and employer's liability), and shall be primary coverage for Lessor. Said policy or policies, declaration pages and certificates of insurance thereof shall be delivered to Lessor upon commencement of the Lease, and upon each renewal of said insurance policy. The insurance policies required under this paragraph 19 shall name Lessor as an additional insured, except for workers compensation and employer's liability with regard to the Leased Premises, and shall reflect that the insurer has waived any right of subrogation against the Lessor.

20. **Bonding.** Within Thirty (30) days from the Effective Date of this Lease, Lessee shall post a surety bond in favor of the Lessor in an amount of Two Hundred Thousand Dollars (\$200,000.00) to secure payment of all sums due and performance of all obligations arising under this Lease.

21. **Assignment.** The rights and estate of Lessee (or any permitted assignee or transferee of Lessee) hereunder may not be assigned or otherwise transferred, in whole or in part, without the prior written consent of Lessor, which consent shall not be unreasonably withheld. In the event Lessee proposes to assign or transfer this Lease, the Lessee shall give Lessor written notice of its intent to assign or transfer its interest in the Lease, which notice shall specify the type of assignment or transfer contemplated, the identity and contact information of the proposed assignee or transferee, and the timeframe of the proposed assignment or transfer ("Transfer Notice"). Upon delivery of a Transfer Notice to the Lessor, Lessor shall have Fifteen

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(15) days to either: (a) consent to the proposed assignment or transfer by delivering written its consent to Lessee; or (b) in its reasonable discretion, withhold its consent to the proposed assignment or transfer by delivering written notice to Lessee that it is withholding its consent and specifying the reasons therefor. In the event that Lessor fails to respond to a Transfer Notice within the fifteen-day period specified in the immediately preceding sentence, Lessor shall be deemed for all purposes under the law to have approved the assignment or transfer outlined in the Transfer Notice, and to have consented to such assignment or transfer in the same manner as if it would have delivered its written consent to Lessee.

22. **Default.** The occurrence of any of the following shall be deemed a default of this Lease:

- a. Failure of Lessee to timely pay Lessor any amounts required under this Lease in accordance with paragraph 7.
- b. If any creditor of Lessee, its agents, and/or assigns, takes any action to execute on, garnish, or attach the Lessee's assets located on or accessing the Leased Premises. This provision shall not impair Lessee's ability to mortgage its interests in the Granted Minerals or the Leased Premises.
- c. Failure of Lessee to obtain any requisite "prior written consent" as set forth within this Lease.
- d. Failure of Lessee to maintain insurance in the type and amount as set forth within this Lease.
- e. Shut-in of Lease exceeding the periods set forth in paragraph 11 of this Lease.

23. **Notice of Default or Breach.** If Lessor considers that Lessee has failed to comply with its obligations under this Lease, whether express and implied, Lessor shall notify Lessee in writing, setting out in what respects Lessee has breached this Lease. Lessee shall then have Thirty (30) days after receipt of said notice to cure all alleged breaches asserted by Lessor or, if it is not practical to cure such alleged breaches within thirty (30) days, then Lessee shall have Thirty (30) days to commence curing the alleged breach and diligently and continuously pursue to completion such cure. If Lessee, having received such written notice of breach of Lease, shall thereafter fail or refuse to satisfy in the timeframes set forth in the immediately preceding sentence, or respond in a meaningful fashion to Lessor's notice within such Thirty (30) day period, or such longer period of time if Lessee is in good faith continuously effectuating a cure of such alleged breach(es), this Lease shall automatically cease and terminate. Upon such termination, Lessee agrees to (a) immediately and unconditionally surrender possession of the Leased Premises, or of the portion of the Leased Premises included in such notice of breach, and (b) plug and abandon any producing or non-producing well(s).

24. **Remedies for Default or Breach.** The Lessor shall be entitled to recover from the Lessee any and all royalties, charges, or claims of every kind and nature due and owing and/or arising out of this Lease, upon Lessee's failure to remedy any alleged breach within the applicable cure period and to take immediate possession of the Leased Premises. If Lessor institutes proceedings to clear title or take possession of the Leased Premises, Lessor shall be entitled to recover from Lessee its reasonable attorney fees and costs, investigation costs, any expert fees, and any other reasonable costs or expenses related to such proceedings.

25. **Surrender of Lease.** The Lessee may surrender this Lease or any part of this Lease if, and only if, Lessee is not then in default of any obligations under this Lease and upon payment of all liabilities then accrued and due. Such surrender must be evidenced by written notice delivered to Lessor Thirty (30) days prior to the effective date of surrender. Lessee shall deliver to Lessor a release or releases in recordable form approved by Lessor, and Lessee shall release the applicable portion of this Lease upon expiration. Lessee may not release any portion of this Lease included in a pool or unit as long as Operations

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are being conducted on such pool or unit. Any partial release must describe all depths and horizons in and under the Leased Premises so released.

26. No Warranty of Title.

a. Lessor makes no representation of title or ownership, either express or implied, and further makes no warranty as to the actual or potential presence of Granted Minerals. Lessee represents it has performed all necessary due diligence regarding the title or ownership of the Granted Minerals, and agrees to be bound by the quantum of acreage as set forth in the Legal Description above.

b. Lessee shall notify Lessor of any adverse claim to the Leased Premises affecting title to all or a portion of the rights to develop the Granted Minerals, and Lessor may, with the approval of the Attorney General, enter into an escrow arrangement for future rents and royalties accruing to such disputed portion of the Leased Premises under terms and conditions that the Attorney General feels proper to safeguard the rights and interest of the State of West Virginia.

c. If an adverse claimant files suit against the State of West Virginia or against Lessee claiming title to all or a portion of the Granted Minerals, or if the Lessee, after receiving notice of an adverse claim, institutes litigation in a court of competent jurisdiction to adjudicate the validity of the claim, the rents and royalties accruing to the litigated portion shall be placed in an escrow account until such time as the ownership of the disputed interest is determined by a court of competent jurisdiction.

d. If a court of competent jurisdiction determines that Lessor does not have title to all or part of the Granted Minerals in the Leased Premises, the rentals, royalties, and bonus thereafter accruing from any part as to which this Lease covers less than the full interest in such Granted Minerals, shall thereafter be paid only in the proportion which the interest therein, if any, covered by this Lease bears to the whole and undivided fee simple estate therein. Any sums of money paid pursuant to this Lease are not reimbursable to Lessee.

27. Indemnity. Unless caused by the negligence of Lessor, or any agent, servant, or employee of Lessor, Lessee shall defend, indemnify, protect and hold harmless Lessor and Lessor's heirs, successors, representatives, agents and/or assigns from and against any and all claims, demands, causes of action, liability, loss, damage or expense of any and every kind and nature, including without limitation costs, expenses, and attorneys' fees, for injury (including death), or damage to persons or property (including environmental damage to the surface, waterways, or subsurface estates of any person, firm, corporation, or other entity) arising out of, incidental to, or resulting from (i) the operations or activities of Lessee or Lessee's servants, agents, employees, guests, licensees, invitees or independent contractors on or in the Leased Premises; (ii) the exercise of any right granted under this Lease, and/or; (iii) any obligation imposed under this Lease. Any successor in interest of any rights of Lessee in this Lease shall likewise be obligated to defend and indemnify Lessor and Lessor's heirs, successors, representatives, agents and assigns in the same manner as the original Lessee.

28. Limitations on Drilling. From and after the Effective Date of this Lease, Lessee shall not commence construction of any new wellpad that is intended to produce the Granted Minerals from the Leased Premises if such wellpad would be located within Five Hundred Fifty feet (550') of any outside boundary of the tracts comprising the Leased Premises measured linearly from any point along said tract boundary to the midpoint of the secondary containment berm of a particular wellpad. Lessor and Lessee agree that the limitation on pad construction and/or location set forth in this paragraph 28 is intended to reduce any long-term, substantial interference with the public's use of the surface of the Leased Premises as it exists on the date of the Lease. Further, if Lessor determines in its reasonable discretion after conducting a proper investigation that the drilling activities of Lessee related to the production of Granted Minerals from the Leased Premises have created a

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long-term, substantial interference with the public's use of the the surface of Leased Premises as aforesaid, then Lessor shall have the right to seek from Lessee additional measures or controls to mitigate such long-term, substantial impairment caused by Lessee's said drilling activities.

29. **Force Majeure.** If Lessee is prevented from complying with its obligations under this Lease, express or implied (except payment of money), due to scarcity of or inability to obtain or use equipment or material or by operations of Force Majeure, or any federal or state law, or any order, rule or regulation, then, while so prevented, Lessee's obligation to comply with such this Lease shall be temporarily suspended, and Lessee shall not be liable in damages; and this Lease shall be extended only so long as Lessee is prevented by any such cause from conducting Operations on or in the Leased Premises; *provided*, in no event shall Lessee's performance be suspended as a result of Force Majeure, federal or state law, or any rule or regulation for a period in excess of two (2) consecutive years. As used herein, the term "Force Majeure" shall mean acts of god such as flood, fire, adverse weather conditions, war, sabotage, rebellion, insurrection, riot, strike or labor disputes, or by other cause(s) not within Lessee's control, but shall specifically exclude scarcity, cost, or inability to obtain or use equipment, contracts, personnel, water, or other material(s).

30. **Further Assurances.** Each of the parties hereto shall, and shall cause its respective affiliates to, from time to time at the request of the other party, without any additional consideration, furnish the other party such further information or assurances, execute and deliver such additional documents, instruments and conveyances, and take such other actions and do such other things, as may be reasonably necessary in the opinion of counsel to the requesting party to carry out the provisions of this Lease. In the event that Lessor is not the proper agency or instrumentality of the State of West Virginia to enter into this Lease, as stated in paragraph 1 herein, Lessor shall cause all of the proper agencies or instrumentalities of the State of West Virginia, without any additional consideration, to join in this Lease, as Lessor, upon the same terms provided herein.

31. **Governing Law.** This Lease shall be governed by the laws of the State of West Virginia and any dispute arising out of this Lease shall be resolved in a West Virginia court of law having jurisdiction thereof.

32. **Notices and Payments.** All notices and payments which are permitted or required under this Lease shall be in writing and shall be deemed valid and received if delivered personally; by registered or certified mail, return receipt requested; or by special carrier (such as Federal Express or UPS), with signature required, to the Lessor and/or the Lessee to the following addresses, unless otherwise agreed by the parties in a signed writing:

a. **Notices To Lessor:**

West Virginia Division of Highways
Right of Way Division
1900 Kanawha Boulevard, East
Building 5, Room A-110
Charleston, WV 25305

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b. **Payments to Lessor:**

West Virginia Division of Highways
Finance Division
1900 Kanawha Boulevard, East
Building 5, room A-220
Charleston, WV 25305

c. **To Lessee:**

SWN Production Company, LLC
Attn: Bill Reedy, Land Supervisor
10000 Energy Drive
Spring, Texas 77389

33. **Successors in Interest.** The terms, conditions, covenants, obligations, considerations or requirements of this Lease shall extend to and be binding upon the parties hereto, their heirs, successors, executors, administrators, and assigns, all of whom shall be jointly and severally liable.

34. **Severability.** Should any one or more of the provisions in this Lease become or be determined to be void or invalid, in whole or in part, the remainder of this Lease shall remain in full force and effect.

35. **Counterparts.** This Lease may be executed in any number of counterparts, and by different parties in separate counterparts, all of which shall be identical. Each such counterpart shall be deemed to be an original instrument, but all such counterparts together shall constitute but one instrument.

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IN WITNESS WHEREOF, the parties hereunto subscribed their signatures on the day and year first above written.

West Virginia Department of Transportation, Division of Highways



ATTEST:

By: Paul A. Mattox, Jr., P.E.,
Secretary of Transportation/Commissioner of Highways

SWN Production Company, LLC



ATTEST:

By: Stephen M. Guidry
Title: Vice President Land

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ACKNOWLEDGEMENT FOR WEST VIRGINIA DEPARTMENT OF TRANSPORTATION,
DIVISION OF HIGHWAYS

State of West Virginia,

County of Kanawha,

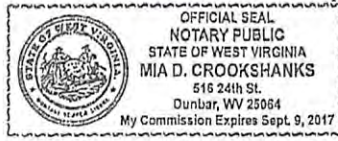
Personally appeared before me, the undersigned Notary Public, within and for said County and State, Paul A. Mattox, Jr., to me known to be the person who subscribed the name of the West Virginia Department of Transportation, Division of Highways, to the foregoing instrument, as its Secretary of Transportation and Commissioner of Highways, and acknowledged to me that he executed the same as his free and voluntary act and deed and as the free and voluntary act and deed of such West Virginia Department of Transportation, Division of Highways, for the uses and purposes herein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal on this 2nd day of Nov. 2016.

My Commission Expires: 9-9-2017

Mia D. Crookshanks
Notary Public

(SEAL)

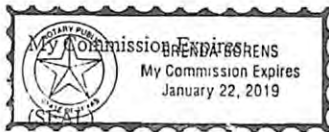


ACKNOWLEDGEMENT FOR SWN Production Company, LLC

State of Texas

County of Harris

This instrument was acknowledged before me on November 11, 2016, by Stephen M. Guidry the authorized representative of SWN Production Company, LLC, a Texas corporation, on behalf of the corporation.



Brenda Barnes
Notary Public

This Instrument prepared by:
Larry W. George, Esq.
Special Assistant Attorney General
West Virginia Department of Commerce
One Bridge Place, Suite 205
10 Hale Street
Charleston, West Virginia

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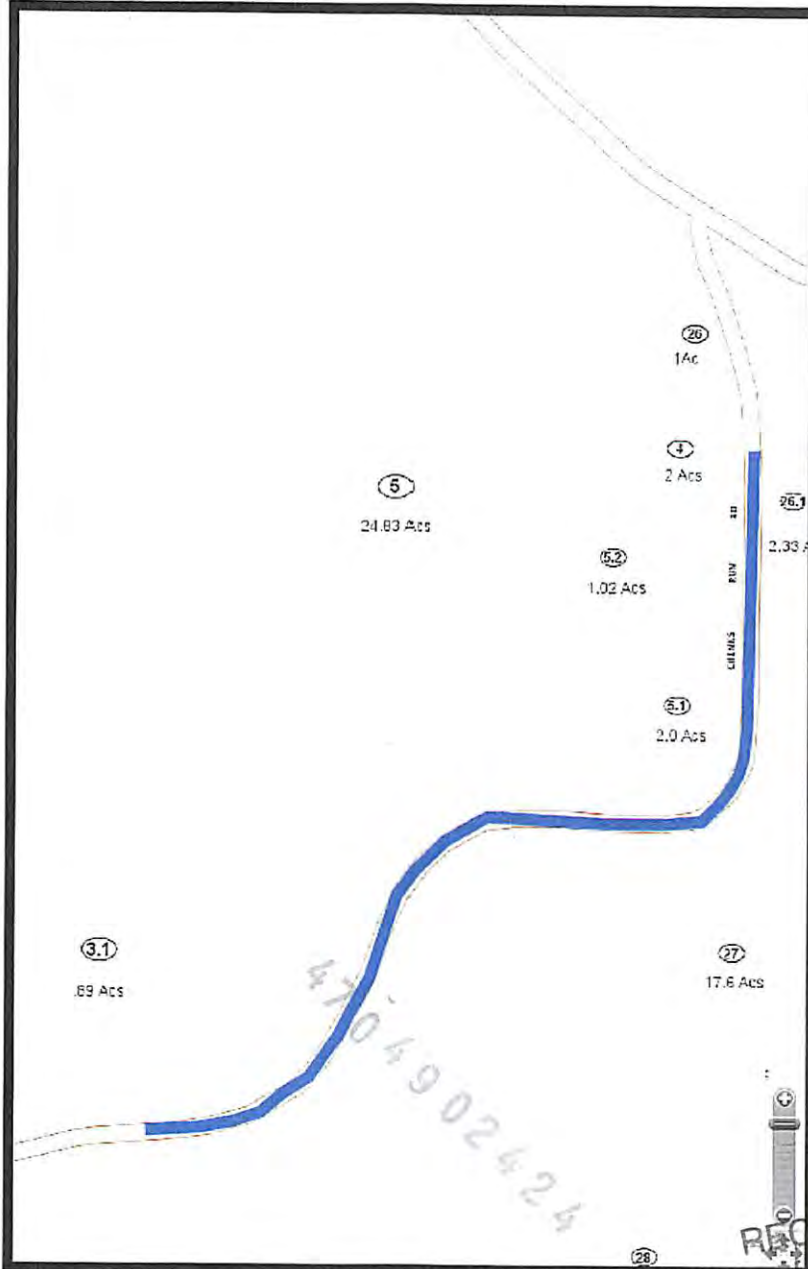
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Exhibit A

Attached to and made a part of that certain Oil and Gas Lease dated September 8, 2016,
by and between West Virginia Department of Transportation, Division of Highways,
as Lessor, and SWN Production Company, L.L.C., as Lessee, covering land in Paw Paw District,
County of Marion, State of West Virginia

Marion County, Paw Paw District
Detail, Tax Map 23 and Tax Map 27



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SWN Production Company, LLC
P O Box 12359
Spring, Texas 77391-2359
www.swn.com

November 17, 2016

Ms. Laura Adkins
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

RE: SWN's proposed Quality Reclamation MRN 210H in Marion County, West Virginia, Drilling under CR 25/5 (Chunks Run Road).

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill under CR 25/5. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,

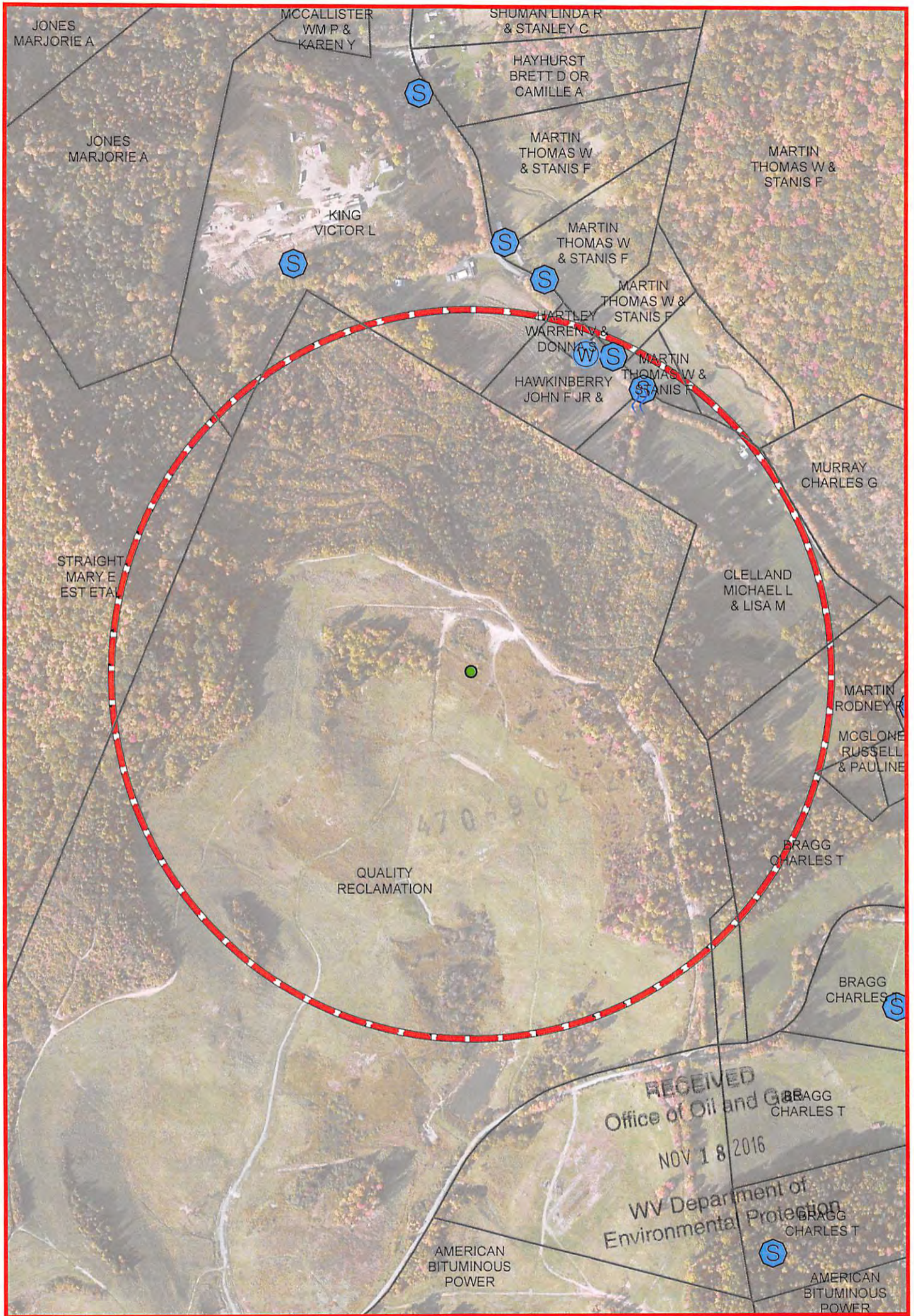
Boston Smith
Senior Landman
SWN Production Company, LLC
PO Box 12359
Spring, TX 77391-2359

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The intent of this map is for general reference only. Information on this map was created using the best available data at the time but is not guaranteed accurate.

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Water Purveyor Map			Well Pad: Quality Reclamation MRN Pad	County: MARION
Map by: speart	Date: 9/21/2016		Quality Reclamation MRN Coordinates: 39.573286, -80.161368	
NAD 1983 BLM Zone 17N ftUS				

Latitude: 39°35'00"

SURFACE HOLE 10,183'

Latitude: 39°35'00"

BOTTOM HOLE 5,103'

JACKSON SURVEYING

INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5851

Table with 2 columns: Location Type (SURFACE HOLE, LANDING POINT, BOTTOM HOLE) and UTM Coordinates (NORTHING, EASTING).

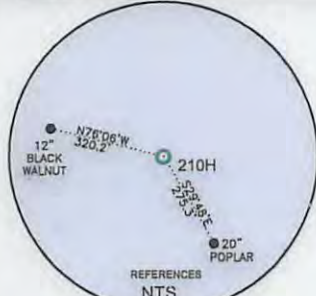
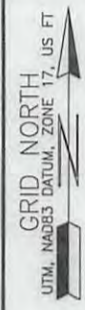
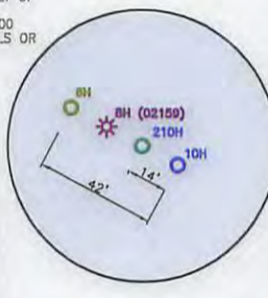
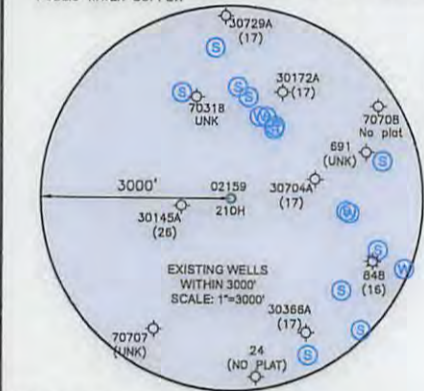


Table with 5 columns: LINE, BEARING, DISTANCE, DESCRIPTION, MONUMENT. Contains data for lines L1, L2, and L3.



WELL RESTRICTIONS

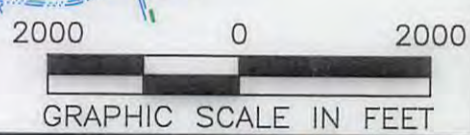
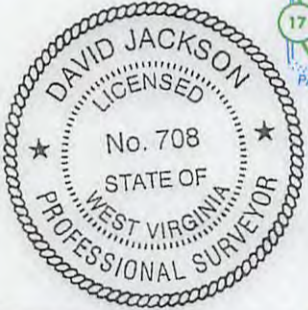
- List of 6 well restrictions including no occupied dwellings, no agriculture buildings, no water wells, etc.



- Notes on survey including surface and royalty owner information and tax parcel maps.

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 708 David L Jackson



COMPANY: SWN Production Company, LLC

State of West Virginia logo and WVDEP Office of Oil & Gas address: 601 57TH STREET, CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

QUALITY RECLAMATION MRN
OPERATOR'S WELL #: 210H
API WELL #: 47 STATE 049 COUNTY PERMIT

Form with well type (Production), watershed (Arnett Run of Monongahela River), district (Paw Paw), county (Marion), and other well details.

Form with well operator (SWN Production Company, LLC), designated agent (Dee Southall), and address (P.O. Box 1300, Jane Lew, WV 26378).

Table with 2 columns: Legend (Proposed surface hole, Existing wellhead, etc.) and Revisions (Revised W.V. D.O.T. D.O.H. Tract 11-16-2016).

47-049-02434

JACKSON SURVEYING


INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5851

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS			
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	QUALITY RECLAMATION SERVICES, LLC (S)	16-23-03	226.071
	JAMES W. ICE & DOROTHY ICE, MARJORIE A. KOPP (R)		
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
2	MICHEAL L. CLELLAND & LISA M. CLELLAND (S)	16-23-06	20.32
3	CHARLES T. BRAGG (S)	16-23-05	26.5855
4	JOSHUA A. CORWIN & COURTNEY A. CORWIN (S)	16-23-5.2	1.02
5	DOUGLAS P. ICE & DONNA E. ICE (S)	16-23-5.1	2.00
6	W.V. D.O.T. D.O.H.	(CR 25/5)	0.6617
7	CHARLES T. BRAGG (S)	16-27-27	17.60
8	CHARLES T. BRAGG (S)	16-27-28	20.00
9	CHARLES T. BRAGG (S)	16-27-29	15.79
10	CHARLES T. BRAGG (S)	16-27-22	4.07
11	LILY A. PARKER (S)	16-27-20	37.25
12	LILY ANN PARKER (S)	16-27-19	40.25
13	LILY ANN PARKER (S)	16-27-18	49.65
14	JAMES P. EDDY (S)	16-27-13	25.00
15	LILY ANN PARKER (S)	16-27-12	43.93
16	LILY ANN PARKER (S)	16-27-11	23.125
17	LILY ANN PARKER (S)	16-27-10	16.50
18	BRADLEY S. LINVILLE (S)	16-27-08.1	33.92

ADJOINING OWNERS TABLE			
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
A	JOHN F. JR. & BARBARA S. HAWKINBERRY	16-23-08.1	8.85
B	THOMAS W. & STANIS F. MARTIN	16-25-17	0.83
C	THOMAS W. & STANIS F. MARTIN	16-25-20	45.00
D	CHARLES G. MURRAY	16-25-19	9.89
E	RODNEY R. & NELLIE J. MARTIN	16-27-26.1	2.33
F	RODNEY R. MARTIN	16-27-26	1.0
G	RUSSELL & PAULINE MCGLONE	16-23-4	2.0
H	RODNEY R. MARTIN	16-27-26.2	2.5
I	LILY A. PARKER	16-27-22.1	0.41
J	ALBERTA L. SHUMAN	16-27-22.2	0.23
K	NOUMEN CORP.	16-27-21	2.5
L	KATHY GOWER	16-27-17.1	2.15
M	KEVIN D. & SHIRLEY D. ROBBINS	16-27-17	9.47
N	JAMES P. EDDY	16-27-14	0.11
O	JAMES P. EDDY	16-27-13.1	0.26
P	MICHAEL L. DUKICH	16-27-09.3	1.09
Q	MICHAEL L. DUKICH	16-27-09.4	1.02
R	ROBERT W. & MARLENE M. MORRIS	16-27-9.1	1.02
S	JERFFREY L. & ANNE C. AMMONS	16-27-9.5	1.19
T	JOSEPH P. & CORA J. AMMONS	16-27-9.6	1.30
U	ALBERT L. OR RUTH A. REED	16-27-9	2.20
V	RANDY E. & ROBIN D. FISHER	16-27-9.2	0.76
W	RICHARD C. & SUSAN J. KEENER	16-27-8.2	1.29
X	ALBERT C. MORRIS & TAMMY J. MORRIS	16-27-8.4	0.883
Y	VIRGINIA M. & RUSSEL F. WEEKLEY	16-27-7.4	0.54
Z	MICHAEL D. WEEKLEY	16-27-7.2	0.900
AA	STEPHEN F. WEEKLEY	16-27-7.1	0.34
BB	RODERICK D. & VA. M. WEEKLEY	16-27-7	0.24
CC	HELEN WEEKLEY	16-27-7.3	0.15
DD	RANDY W. CUNNINGHAM & KAREN A. CUNNINGHAM	16-27-6.1	0.88
EE	GLEN L. & DEBRA L. CLUTTER	16-27-05	1.21
FF	SHEILA G. VISHNICK	16-27-01	2.00

06/02/2017

REVISIONS:	COMPANY:		
△ REVISED W.V. D.O.T. D.O.H. TRACT 11-16-2016			
	OPERATOR'S	QUALITY RECLAMATION MRN	DATE: 10-14-2016
	WELL #:	210H	DRAWN BY: N. MANO
	DISTRICT:	PAW PAW	SCALE: N/A
	COUNTY:	MARION	DRAWING NO:
	STATE:	WV	WELL LOCATION PLAT 2

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: _____

API No. 47- 049 - _____
Operator's Well No. Quality Reclamation MRN 210H
Well Pad Name: Quality Reclamation MRN

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>WV</u>	UTM NAD 83	Easting: <u>572050</u>
County: <u>49-Marion</u>		Northing: <u>4380741</u>
District: <u>Paw Paw</u>	Public Road Access: <u>CR 25</u>	
Quadrangle: <u>Grant Town</u>	Generally used farm name: <u>Quality Reclamation Services, LLC</u>	
Watershed: <u>Arnett Run of Monongahela River</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY		OOG OFFICE USE ONLY
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED		<input type="checkbox"/> RECEIVED
<input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input type="checkbox"/> 4. NOTICE OF PLANNED OPERATION		<input type="checkbox"/> RECEIVED
<input type="checkbox"/> 5. PUBLIC NOTICE		<input type="checkbox"/> RECEIVED
<input type="checkbox"/> 6. NOTICE OF APPLICATION	47 0 49 02 1 2 4	<input type="checkbox"/> RECEIVED

Required Attachments:

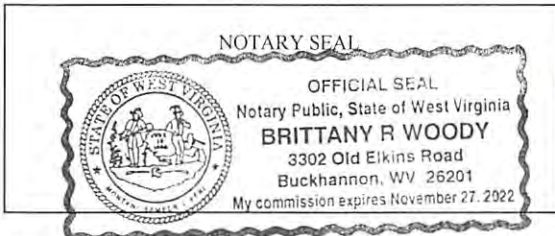
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Certification of Notice is hereby given:

THEREFORE, I _____, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification 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.

Well Operator: SWN Production Co, LLC
By: Dee Southall
Its: Regulatory Supervisor
Telephone: 832-796-1610

Address: P.O. Box 1300
Jane Lew, WV 26378
Facsimile: 304-471-2497
Email: Dee_Southall@swn.com



Subscribed and sworn before me this 15th day of September 2016
Brittany R Woody Notary Public
My Commission Expires 11/27/22

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.

4704902424

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 11/17/16 **Date Permit Application Filed:** 11/17/16

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
 Name: Quality Reclamation Service, LLC
 Address: PO Box 281
Grant Town, WV 26574

Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
 Address: _____

Name: _____
 Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: Eastern Associated Coal Corp. %CNX Land Property Tax
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

COAL OPERATOR
 Name: _____
 Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: See Attachment #1
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
 Address: _____

*Please attach additional forms if necessary

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WV Department of Environmental Protection
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LANDOWNER	SOURCE	LATITUDE	LONGITUDE	WELL DEPTH	Address	
Warren & Donna Hartley	Well	39.57687	-80.159623	18'	1149 McCurdysville Pike	RIVESVILLE, WV 26588
Thomas & Stanis Martin x2	Spring	39.576837	-80.159226		1190 McCurdysville Pike	RIVESVILLE, WV 26588



470031

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well in a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2016, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

47 0 4 9 0 3 -

WW-6A
(8-13)

API NO. 47- 049 -
OPERATOR WELL NO. Quality Reclamation MRN 210H
Well Pad Name: Quality Reclamation MRN

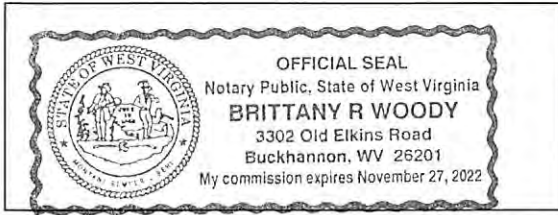
Notice is hereby given by:

Well Operator: SWN Production Co., LLC
Telephone: 832-796-1000
Email: Dee_Southall@swn.com

Address: P.O. Box 12359
Spring, TX 77391-4954
Facsimile: 92816182780@fax.com

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.



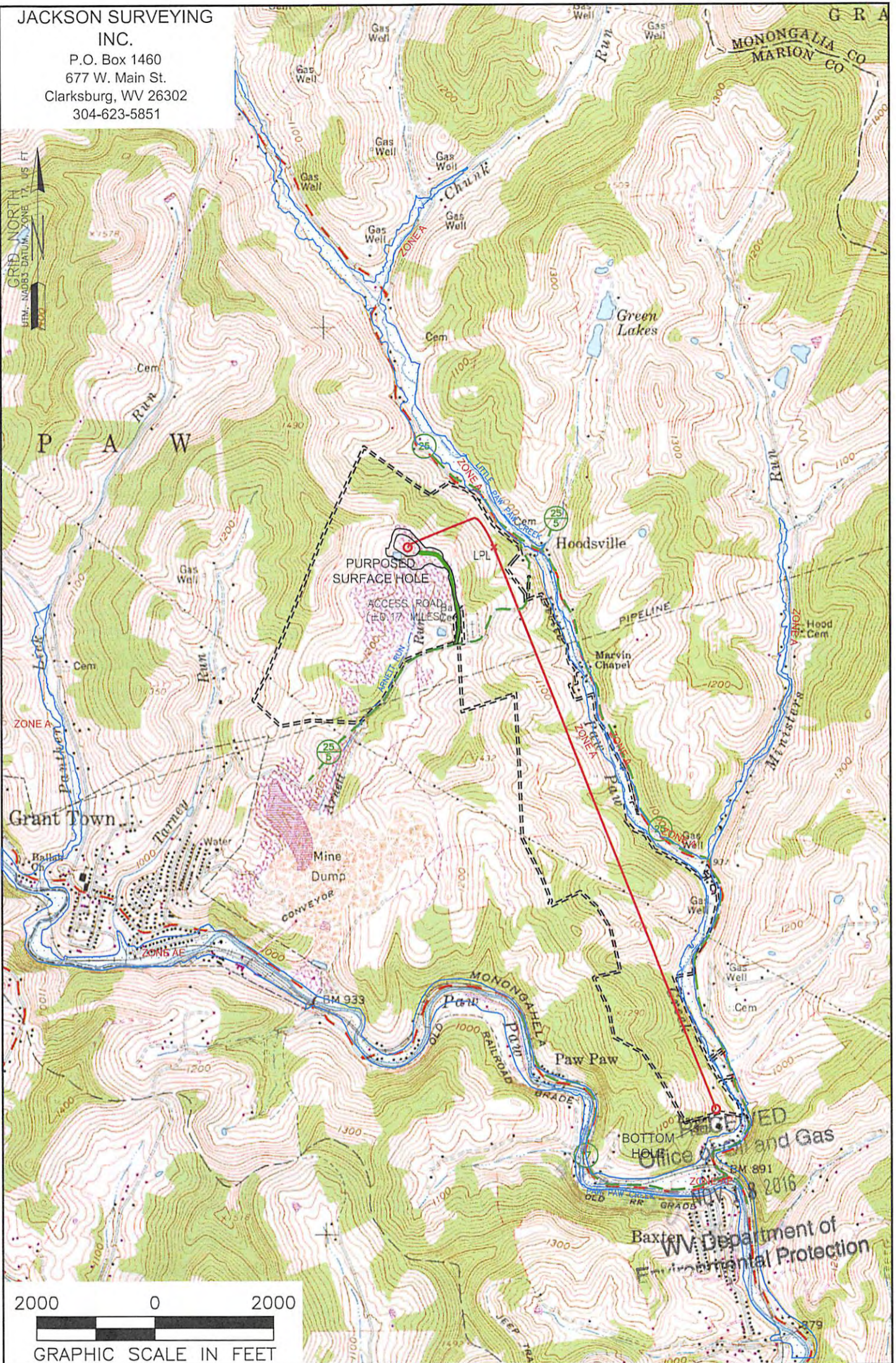
Subscribed and sworn before me this 15th day of September 2016
Brittany R Woody Notary Public
My Commission Expires 11/27/22

4704902924

RECEIVED
Office of Oil and Gas
NOV 18 2016
WV Department of
Environmental Protection 06/02/2017

JACKSON SURVEYING
 INC.
 P.O. Box 1460
 677 W. Main St.
 Clarksburg, WV 26302
 304-623-5851

GRID NORTH
 UTM - NAD83 DATUM, ZONE 17, US FT



NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL BOUNDARIES SHOWN HEREON ARE UNLESS OTHERWISE DEPICTED.
4. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- LPL
- FLOOD PLAIN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- TRAIL BOUNDARY
- PROPOSED BOUNDARY

06/02/2017
RECEIVED
 Office of Oil and Gas

WELL OPERATOR:
 SWN PRODUCTION COMPANY, LLC
 ADDRESS:
 P.O. BOX 1300 JANE LEW, WV 26378
 SURFACE OWNER:
 QUALITY RECLAMATION SERVICES, LLC

WELL (FARM) NAME:
 QUALITY RECLAMATION MRN
 COUNTY - CODE
 MARION - 049
 USGS 7 1/2 QUADRANGLE MAP NAME
 GRANT TOWN, WV
 WELL #
 SERIAL #
 DISTRICT;
 PAW PAW
 NOV 18 2016
 WV Department of
 Environmental Protection

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least TEN (10) days prior to filing a permit application.

Date of Notice: 09/12/2016 **Date Permit Application Filed:** 11/17/16

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Quality Reclamation Service LLC
Address: PO Box 281
Grant Town, WV 26574

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83 Easting:	<u>572,050.144</u>
County:	<u>Marion</u>	Northing:	<u>4,380,741.729</u>
District:	<u>Paw Paw</u>	Public Road Access:	<u>CR 25</u>
Quadrangle:	<u>Grant Town 7 1/2'</u>	Generally used farm name:	<u>Quality Reclamation MRN</u>
Watershed:	<u>Arnett Run of Monongahela River</u>		

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

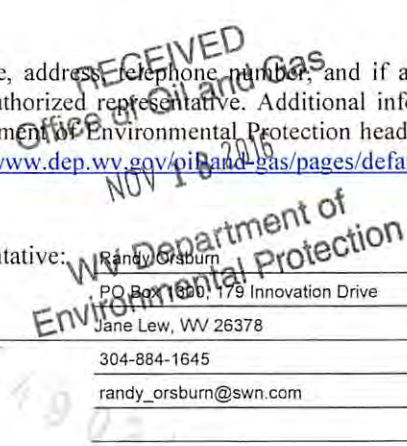
Notice is hereby given by:

Well Operator: SWN Production Company, LLC
Address: PO Box 1300, 179 Innovation Drive
Jane Lew, WV 26378
Telephone: 304-884-1615
Email: randy_orsburn@swn.com
Facsimile: _____

Authorized Representative: Randy Orsburn
Address: PO Box 1300, 179 Innovation Drive
Jane Lew, WV 26378
Telephone: 304-884-1645
Email: randy_orsburn@swn.com
Facsimile: _____

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 09/12/2016 **Date Permit Application Filed:** 11/17/16

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: <u>Quality Reclamation Service LLC</u>	Name: _____
Address: <u>PO Box 281</u>	Address: _____
<u>Grant Town, WV 26574</u>	_____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>572,050.144</u>	
County: <u>Marion</u>		Northing: <u>4,380,741.729</u>	
District: <u>Paw Paw</u>	Public Road Access: <u>CR 25</u>		
Quadrangle: <u>Grant Town 7 1/2'</u>	Generally used farm name: <u>Quality Reclamation MRN</u>		
Watershed: <u>Arnett Run of Monongahela River</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: <u>SWN Production Company, LLC</u>	Address: <u>PO Box 1300, 179 Innovation Drive</u>
Telephone: <u>304-884-1645</u>	<u>Jane Lew, WV 26378</u>
Email: <u>randy_orsburn@swn.com</u>	Facsimile: _____

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

RECEIVED
Office of Oil and Gas
NOV 18 2016

WV Department of
Environmental Protection



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

September 23, 2016

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Quality Reclamation Pad, Marion County
Quality Reclamation MRN 210H

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit #04-2011-0958 for the subject site to Southwestern Energy for access to the State Road for the well site located off of Marion County Route 25/5 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

Office of Oil and Gas

NOV 18 2016

WV Department of
Environmental Protection

Cc: Brittany Woody
Southwestern Energy
CH, OM, D-6
File

**QUALITY RECLAMATION MRN PAD
CONSTRUCTION AND RECLAMATION PLAN
AS-BUILT
PAW PAW DISTRICT, MARION COUNTY, WV
NOVEMBER 2015**

**WVDEP OOG
ACCEPTED AS-BUILT**

WJL 1/11/2017

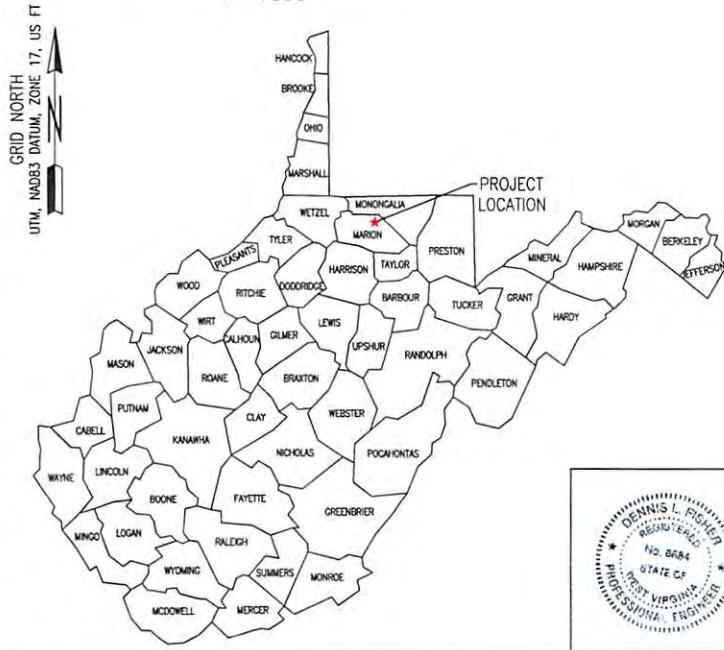
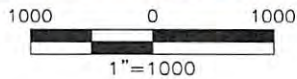
EXISTING WELL:
QUALITY MRN 8H
(NAD83)
LAT: 39.573374
LONG: 80.161170

COORDINATES:
SITE ENTRANCE
(NAD83)
LAT: 39.568868
LONG: 80.158337

AT QUALITY PAD
(NAD83)
LAT: 39.573142
LONG: 80.160491

CENTER OF PAD
(NAD83)
LAT: 39.573429
LONG: 80.161166

GATHERING AREA
(NAD83)
LAT: 39.568921
LONG: 80.158632



SHEET INDEX

- TS1. TITLE SHEET
- EP2.1 EVACUATION ROUTE/ PREVAILING WIND
- EP2.2 EVACUATION ROUTE/ PREVAILING WIND
- AS3.1 ASBUILT OVERVIEW
- AS3.2 ASBUILT
- AS3.3 ASBUILT
- AS3.4 ASBUILT
- AS3.5 ASBUILT
- ASR4.1 CONSTRUCTION AND RECLAMATION ACCESS ROAD PROFILE
- MRD5.1 RECLAMATION PLAN OVERVIEW
- MRD5.2 RECLAMATION PLAN
- MRD5.3 RECLAMATION PLAN
- MRD5.4 RECLAMATION PLAN
- MRD5.5 RECLAMATION PLAN
- MRD6.3 DETAILS
- MRD6.4 DETAILS

QUALITY RECLAMATION PERMIT LOD (LIMITS OF DISTURBANCE)	
QUALITY RECLAMATION SERVICE LLC.	Road= 24,180 Sq. Ft.
D.B. 975/710	
0.89 Ac.	
TM 23/3.1	
QUALITY RECLAMATION SERVICE LLC.	Road= 115,225 Sq. Ft.
D.B. 975/710	Pad= 338,535 Sq. Ft.
226.071 Ac.	
TM 23/3	

TOTAL PERMIT LOD: 11.0 ACRES

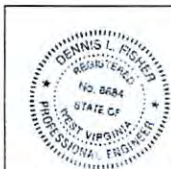
QUALITY RECLAMATION MODIFIED LOD (LIMITS OF DISTURBANCE)	
QUALITY RECLAMATION SERVICE LLC.	Road= 22,345 Sq. Ft.
D.B. 975/710	
0.89 Ac.	
TM 23/3.1	
QUALITY RECLAMATION SERVICE LLC.	Road= 120,230 Sq. Ft.
D.B. 975/710	Pad= 330,395 Sq. Ft.
226.071 Ac.	
TM 23/3	

TOTAL MODIFIED LOD: 10.9 ACRES

REVISION	DATE
CHANGES ON SHEETS AS3.5 & MRD5.5 ALSO ADDED SHEET MRD6.4	11-24-2015
CHANGES PER DEP	11-01-2016

WEST VIRGINIA 811
CALL BEFORE YOU DIG! Dial 811 or 800.245.4848
www.WV811.com

SWN *R⁺ V⁺*
A
Production Company™



Dennis L. Fisher RPE 8884

Dennis L. Fisher

11-01-2016
Date

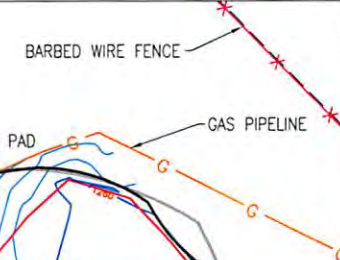
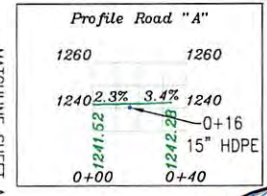
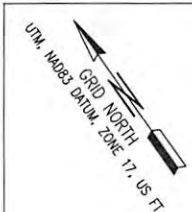


Jackson Surveying Inc.

TITLE SHEET

TS.1

SOUTHWESTERN PRODUCTION COMPANY LLC.
QUALITY RECLAMATION MRN PAD
PAW PAW DISTRICT, MARION COUNTY, WV
NOVEMBER 05, 2015



- LEGEND -

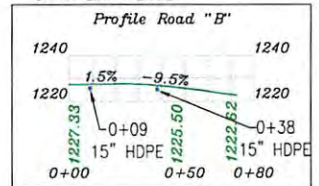
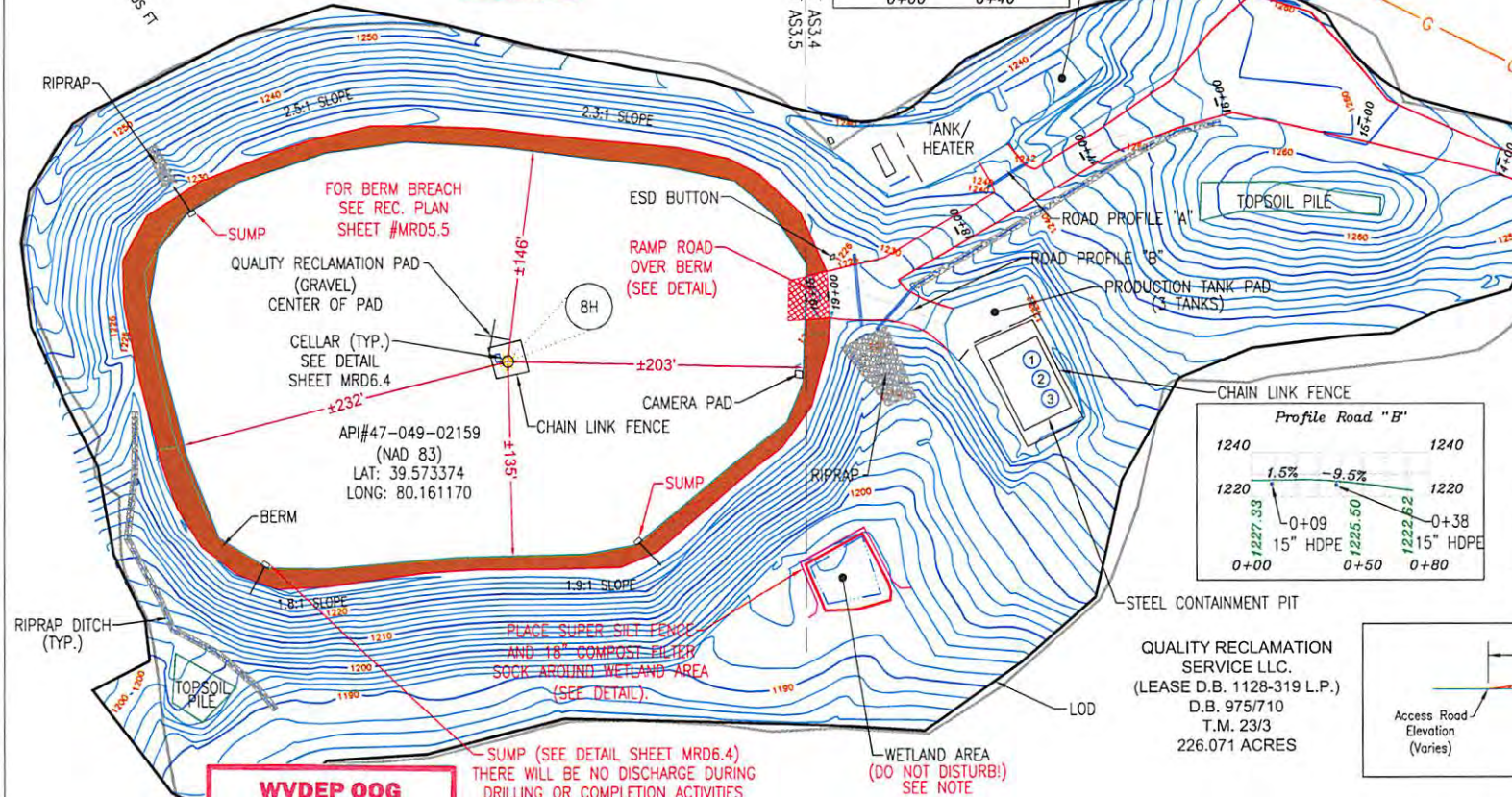
EDGE ACCESS ROAD
PUBLIC/PRIVATE ROAD
PERMIT LOD
MODIFIED LOD
BARBED WIRE FENCE
PROPERTY LINES
OVERHEAD UTILITIES
CL ACCESS ROAD
GAS LINE
DITCH
MINOR CONTOUR AS-BUILT
MAJOR CONTOUR AS-BUILT
CONSTRUCTION FENCE

RED TEXT INDICATES ITEMS TO BE CONSTRUCTED PRIOR TO DRILLING ACTIVITY.

WETLAND NOTE:
THIS AREA WAS NOT DISTURBED BY THE ORIGINAL CONSTRUCTION. IN ADDITION TO THE CONSTRUCTION FENCE, PLACE A SUPER SILT FENCE AND 18" COMPOST FILTER SOCK AROUND THE WETLAND AS SHOWN.

WETLAND NOTE 11-01-2016:
THE PAD WAS ORIGINALLY CONSTRUCTED IN JANUARY, 2012. THE ISOLATED WETLAND WAS PROTECTED BY CONSTRUCTION FENCE AND SILT FENCE. THERE IS NO ADDITIONAL CONSTRUCTION/ DISTURBANCE PLANNED IN THIS AREA.

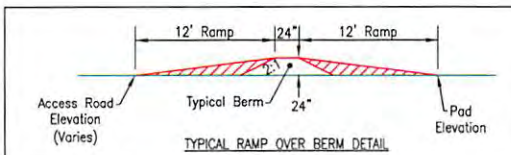
REVISION	DATE
CHANGES PER DEP	11-24-2015
CHANGES PER DEP	11-01-2016



PRODUCTION TANKS (UTM METERS)

	Northing	Easting
#1	4,380,680.395	572,135.816
#2	4,380,675.950	572,135.017
#3	4,380,671.491	572,134.153

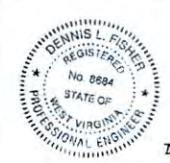
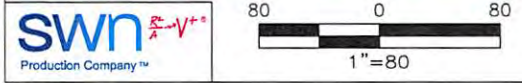
QUALITY RECLAMATION SERVICE LLC.
(LEASE D.B. 1128-319 L.P.)
D.B. 975/710
T.M. 23/3
226.071 ACRES



WVDEP OOG ACCEPTED AS-BUILT
1/11/2017

SUMP (SEE DETAIL SHEET MRD6.4)
THERE WILL BE NO DISCHARGE DURING DRILLING OR COMPLETION ACTIVITIES

WETLAND AREA (DO NOT DISTURB!)
SEE NOTE



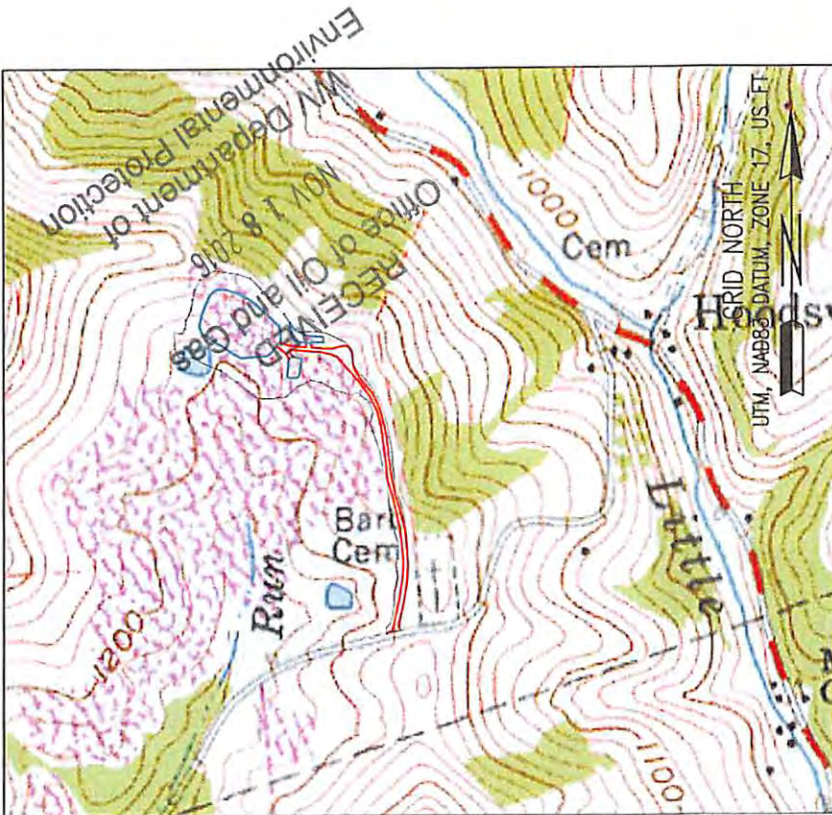
Dennis L. Fisher RPE 8884
Date: 11-01-2016



Jackson Surveying Inc.
CONSTRUCTION AND RECLAMATION ASBUILT
AS3.5
SOUTHWESTERN PRODUCTION COMPANY LLC.
QUALITY RECLAMATION MRN PAD
PAW PAW DISTRICT, MARION COUNTY, WV
NOVEMBER 05, 2015

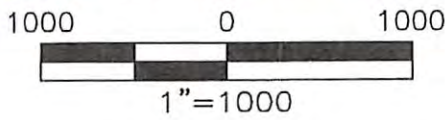
677 W. Main St.
Clarksburg, Wv 26301
304-623-5851

QUALITY RECLAMA
 CONSTRUCTION AND F
 AS-BU
 PAW PAW DISTRICT, M
 NOVEMBE

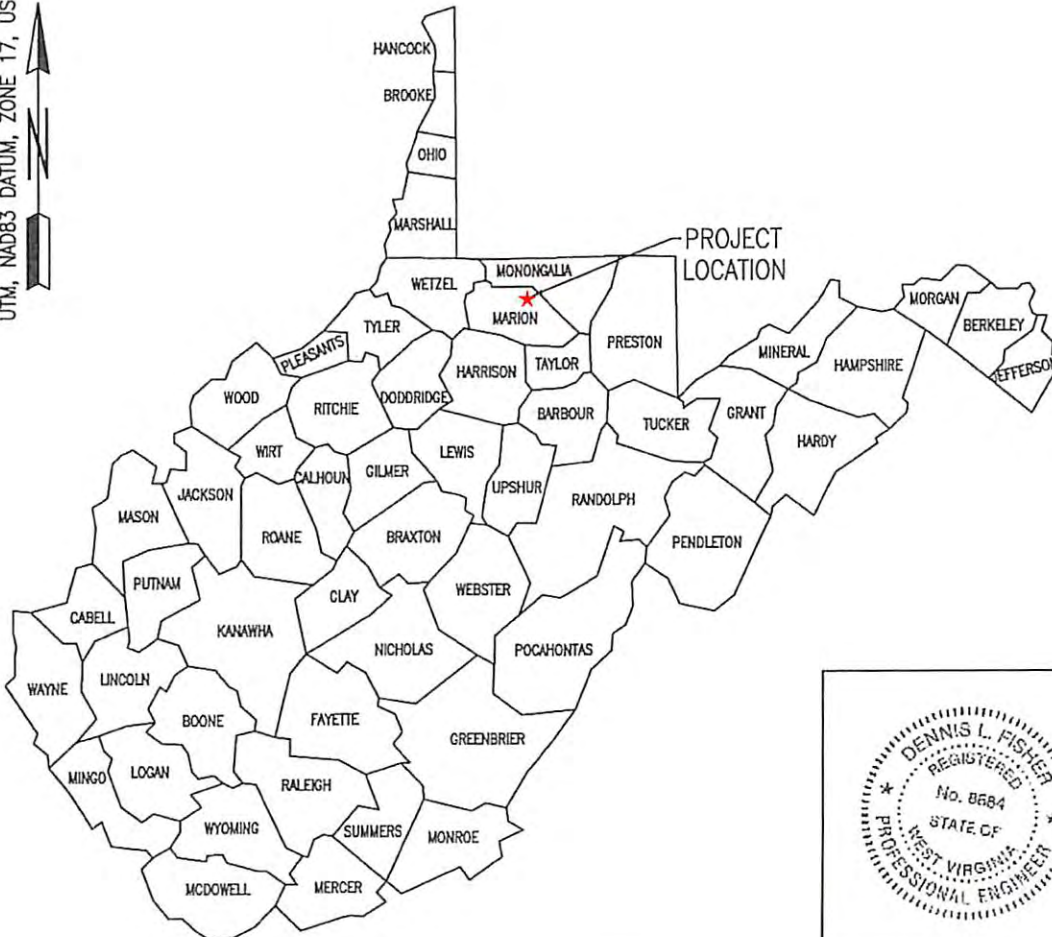


EXISTING WELL:
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 GATHERING AREA
 (NAD83)
 LAT: 39.568921
 LONG: 80.158632



GRID NORTH
 UTM, NAD83 DATUM, ZONE 17, US FT



Dennis L. Fisher RPE 8684:
 06/02/2017

ATION MRN PAD
 RECLAMATION PLAN
 ILT
 ARION COUNTY, WV
 ER 2015

SDW
 9/21/2016

SHEET INDEX

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 (LIMITS OF DISTURBANCE)

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 D.B. 975/710
 0.89 Ac.
 TM 23/3.1

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TOTAL PERMIT LOD: 11.0 ACRES

<u>REVISION</u>	<u>DATE</u>
CHANGES ON SHEETS AS3.5 & MRD5.5 ALSO ADDED SHEET MRD6.4.	11-24-2015

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 (LIMITS OF DISTURBANCE)

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QUALITY RECLAMATION SERVICE LLC. Road= 120,230 Sq. Ft.
 D.B. 975/710 Pad= 330,395 Sq. Ft.
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 TM 23/3

TOTAL MODIFIED LOD: 10.9 ACRES

WEST VIRGINIA 811
 CALL BEFORE YOU DIG! Dial 811 or 800.245.4848
 www.WV811.com

SWn $\frac{R^2}{A} \rightarrow V^+$ [®]
 Production Company™

[Signature]
 11-24-2015.
 Date:



Jackson Surveying Inc.

TITLE SHEET

TS.1

SOUTHWESTERN PRODUCTION COMPANY LLC.
 QUALITY RECLAMATION MRN PAD
 PAW PAW DISTRICT, MARION COUNTY, WV
 NOVEMBER 05, 2015

06/02/2017

Product Name	Product Use	Chemical Name	CAS Number
EC6734A (Champion Technologies)	Biocide	Hydrogen Peroxide	7722-84-1
		Acetic Acid	64-19-7
		Peroxyacetic Acid	79-21-0
GYPTRON T-390 (Champion Technologies)	Scale Inhibitor	Methanol	67-56-1
		Nonylphenol Ethoxylate	Proprietary
Bactron K-139 (Champion Technologies)	Biocide	Glutaraldehyde	111-30-8
		Quaternary Ammonium Compounds, Benzyl-C12-16-Alkyldimethyl, Chlorides	68424-85-1
		Ethanol	64-17-5
Bactron K-219 (Champion Technologies)	Biocide	Methanol	67-56-1
		Quaternary Ammonium Compounds, Benzyl-C12-16-Alkyldimethyl, Chlorides	68424-85-1
A264 (Schlumberger)	Corrosion Inhibitor	Methanol	67-56-1
		Aliphatic Acids	Proprietary
		Prop-2-yn-1-ol	107-19-7
		Aliphatic Alcohols, Ethoxylated #1	Proprietary
Myacide GA 25 (Schlumberger)	Biocide	Water	7732-18-5
		Glutaral	111-30-8
Scale Inhibitor B317 (Schlumberger)	Scale Inhibitor	Trisodium Ortho Phosphate	7601-54-9
		Ethane-1,2-diol	107-21-1
H215 (Schlumberger)	Hydrochloric Acid	Hydrochloric Acid	7647-01-0
J218 (Schlumberger)	Breaker	Diammonium Peroxidisulphate	7727-54-0
EB-Clean* J475 (Schlumberger)	Breaker	Diammonium Peroxidisulphate	7727-54-0
Water Gelling Agent J580 (Schlumberger)	Gel	Carbohydrate Polymer	Proprietary
Friction Reducer J609W (Schlumberger)	Friction Reducer	Ammonium Sulfate	7783-20-2
		Urea	57-13-6
Crosslinker J610 (Schlumberger)	Crosslinker	Potassium Hydroxide	1310-58-3
		Aliphatic Polyol	Proprietary
Iron Stabilizer L58 (Schlumberger)	Iron Stabilizer	Sodium Erythorbate	6381-77-7
40/70-Mesh Sand S012 (Schlumberger)	Sand	Crystalline Silica	14808-60-7
Sand S100 (Schlumberger)	Sand	Crystalline Silica	14808-60-7
EC6486A (Nalco Champion)	Scale Inhibitor	Amine Triphosphate	Proprietary
		Ethylene Glycol	107-21-1
SSA-2 (Halliburton)	Sand	Crystalline Silica	14808-60-7
FR-76 (Halliburton)	Friction Reducer	Inorganic salt	64742-47-8
		Hydrotreated light petroleum distillate	
LCA-1 (Halliburton)		Hydrotreated light petroleum distillate	Proprietary
SP BREAKER (Halliburton)	Breaker	Sodium Persulfate	7775-27-1

Product Name	Product Use	Chemical Name	CAS Number
HAI-150E (Halliburton)	Corrosion Inhibitor	Methanol	NA
		Aliphatic Acids	
		Prop-2-yn-1-ol	
		Aliphatic Alcohols, Ethoxylated #1	
Diesel Fuel (Halliburton)		Diesel Fuel	68476-34-6
Hydrochloric Acid 10-30% (Halliburton)		Hydrochloric Acid	7647-01-0
WG-36 Gelling Agent (Halliburton)	Gel	Polysaccharide	9000-30-0
BC-140C (Halliburton)	Crosslinker		NA

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