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

Thursday, October 27, 2016
WELL WORK PERMIT
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit approval for SHAWN HARLAN MSH 5H
47-051-01882-00-00

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: SHAWN HARLAN MSH 5H
Farm Name: HARLAN, SHAWN
U.S. WELL NUMBER: 47-051-01882-00-00
Horizontal 6A / New Drill
Date Issued: 10/27/2016

API Number: 51-01882

PERMIT CONDITIONS

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. 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.

8. 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.

9. 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.

WW-6B
(10/14)

API NO. 47- 51 - 01882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan Pad

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

1) Well Operator: SWN Production Co., LLC	49447757	51-Marshall	7-Liberty	438-Littleton
	Operator ID	County	District	Quadrangle

2) Operator's Well Number: Shawn Harlan MSH 5H Well Pad Name: Shawn Harlan Pad

3) Farm Name/Surface Owner: Shawn Harlan Public Road Access: Greenfield Road

4) Elevation, current ground: _____ Elevation, proposed post-construction: _____

5) Well Type (a) Gas x Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow x Deep _____
Horizontal x

6) Existing Pad: Yes or No yes JW 9/8/16

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target Formation- Marcellus, Target Top TVD- 7155', Target Base TVD- 7192', Anticipated Thickness- 37', Associated Pressure- 4668

8) Proposed Total Vertical Depth: 7184'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12,059'

11) Proposed Horizontal Leg Length: 4978'

12) Approximate Fresh Water Strata Depths: 489'

13) Method to Determine Fresh Water Depths: from log analysis and nearby water wells

14) Approximate Saltwater Depths: 1787'

15) Approximate Coal Seam Depths: 1106'

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: _____
Seam: _____
Owner: _____

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WW-6B
(10/14)

API NO. 47- 51 - 01882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan Pad

18) **CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	48#	589'	589'	539 sx/CTS
Coal	9 5/8"	New	J-55	36#	2615'	2615'	994 sx/CTS
Intermediate	7"	New	J-55	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	12,059'	12,059'	Lead 909sx tail 1195 sx/100' inside int
Tubing	2 3/8'	New	HCP-110	4.7#	Approx. 7182'	Approx. 7182'	
Liners							

JW 9/8/16

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
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	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/15% Excess
Tubing	2 3/8"	4.778"	0.190				
Liners							

PACKERS

Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:				

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WW-6B
(10/14)

API NO. 47- 51 - 4705101882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan PAd

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 unites, 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): 11.2

22) Area to be disturbed for well pad only, less access road (acres): 7.3

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 one bottoms up and continuing until operator is satisfied with borehole conditions.

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*Note: Attach additional sheets as needed.

47051018 82

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	propriatary
	D047	antifoam	polypropylene glycol	25322-69-4
Production-Lead	D167	fluid loss	aliphatic amide polymer	propriatary
	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 (attapulgite)	8031-18-3
	D201	retarder	chrystalline silica	14808-60-7
			metal oxide	propriatary
	D202	dispersant	sulphonated synthetic polymer	propriatary
			formaldehyde (impurity)	propriatary
Production-Tail	D046	antifoam	polypropylene glycol	25322-69-4
			fullers earth (attapulgite)	8031-18-3
	D167	fluid loss	aliphatic amide polymer	propriatary
	D065	dispersant	sodium polynaphthalene sulfonate	9008-63-3
			sodium sulfate	7757-82-6
	D201	retarder	chrystalline silica	14808-60-7
			metal oxide	propriatary
	D153	anti-settling	chrystalline silica	14808-60-7

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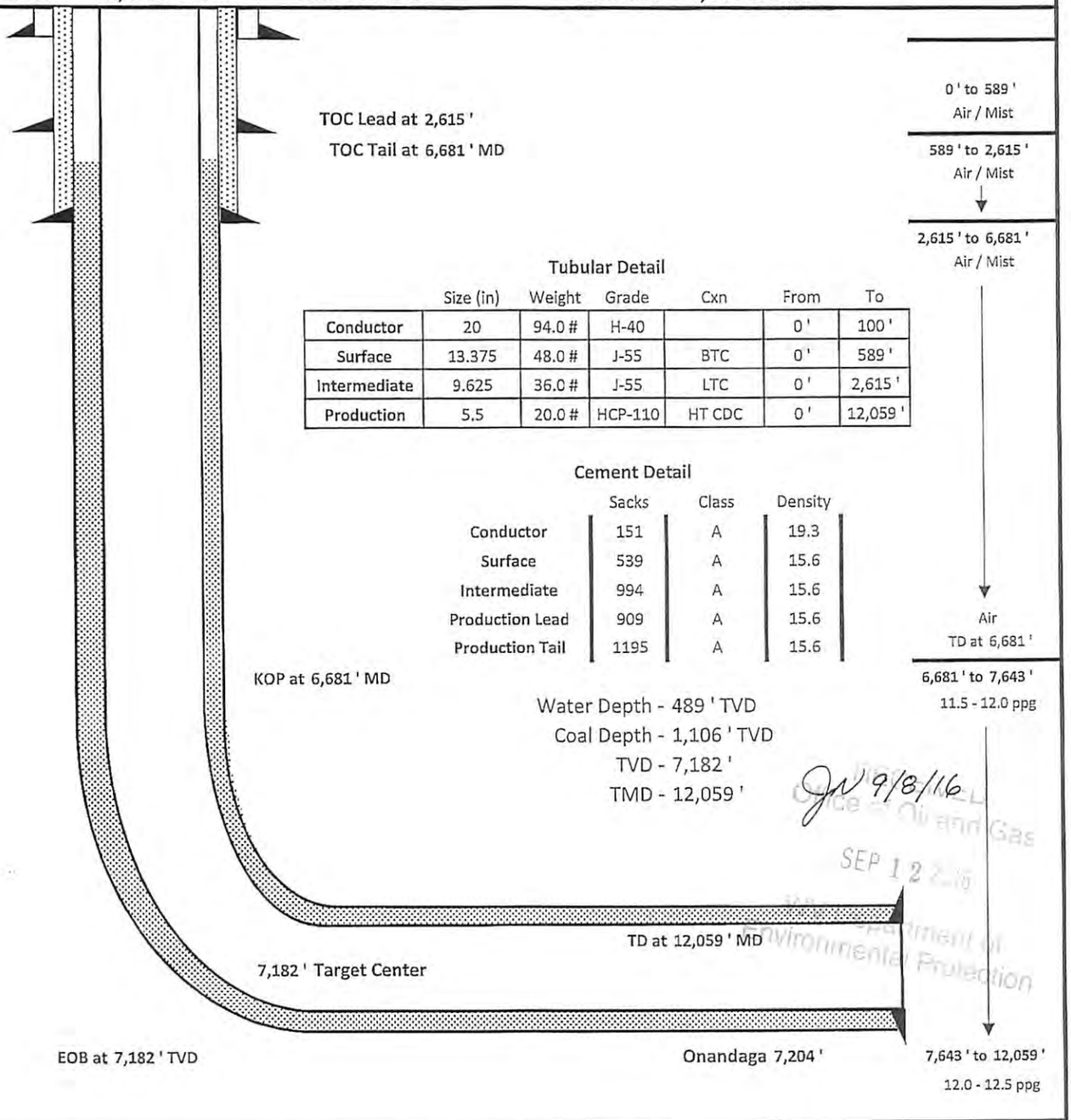
51-01882

Southwestern Energy Company				Proposed Drilling Program	
Well:	SHAWN HARLAN 5			Re-entry Rig:	SDC TBD
Field:	VICTORY FIELD			Prospect:	VICTORY
County:	MARSHALL			State:	WV
SHL:	39.7339 Latitude	-80.6232 Longitude			
BHL:	39.7445 Latitude	-80.6326 Longitude			
KB Elev:	1,417 ft MSL	KB: 26 ft AGL		GL Elev:	1,391 ft MSL



Tubular Detail

	Size (in)	Weight	Grade	Cxn	From	To
Conductor	20	94.0 #	H-40		0 '	100 '
Surface	13.375	48.0 #	J-55	BTC	0 '	589 '
Intermediate	9.625	36.0 #	J-55	LTC	0 '	2,615 '
Production	5.5	20.0 #	HCP-110	HT CDC	0 '	12,059 '

Cement Detail

	Sacks	Class	Density
Conductor	151	A	19.3
Surface	539	A	15.6
Intermediate	994	A	15.6
Production Lead	909	A	15.6
Production Tail	1195	A	15.6

Water Depth - 489 ' TVD
Coal Depth - 1,106 ' TVD
TVD - 7,182 '
TMD - 12,059 '

JN 9/8/16

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Shawn Harlan 5H

51-01552

API	Operator	Status	Vertical TD	Producing Formation	Producing Zones Not Perforated
051-00019	The Manufacturer's Light & Heat Co.	Active Storage Well	2081	Big Injun Sand	
051-00139-P	Columbia Gas Transmission	Plugged - Storage	2928	Big Injun Sand 2220'	
051-00263-P	The Manufacturer's Light & Heat Co.	Plugged - Storage	2071	No gas	
051-00467	The Manufacturer's Light & Heat Co.	Active Storage Well	2155	Maxton to Big Injun	
051-00607	Columbia Gas Transmission	Unknown	Unknown	No completion report	
051-00724	Columbia Gas Transmission	Active Storage Well	2407	Maxton & Big Injun	

WW-9
(4/16)

API Number 47 - 51 - 01882
Operator's Well No. Shawn Harlan MSH 5H

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) Laurel Run Quadrangle Littleton

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

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/WV0109517/CID28726, Carbon Limeston 28726-CID28726
Arden Landfill 10072, American 02-12954, 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.

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Company Official Signature

Company Official (Typed Name) Dee Southall

Company Official Title Regulatory Supervisor

Subscribed and sworn before me this 7th day of July, 2016

Brittany R Woody Notary Public

My commission expires 11/27/22

OFFICIAL SEAL
Notary Public, State of West Virginia
BRITTANY R WOODY
3302 Old Elkins Road
Buckhannon, WV 26201
My commission expires November 27, 2022

51-01882

Form WW-9

Operator's Well No. Shawn Harlan MSH 5H

SWN Production Company, LLC

Proposed Revegetation Treatment: Acres Disturbed 11.2 Prevegetation pH _____

Lime as determined by pH test min. 2 Tons/acre or to correct to pH 7.3

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: Jim Nicholson

Comments: _____

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Title: oil and gas inspector Date: 7/8/16

Field Reviewed? (✓) Yes ( ) No

SI-01887

SWN Southwestern Energy®

WVD Seeding Specification

RECEIVED Office of Oil and Gas AUG 08 2022 WV Department of Environmental Protection

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%
White Clover	5%
Birdsfoot Trefoil	5%
Rough Bluegrass	5%

All legumes are innoculated at 5x normal rate

Apply @ 100lbs per acre
April 16th- Oct. 14th

Apply @ 200lbs per acre
Oct. 15th- April 15th PLUS
50lbs per acre of Winter Wheat

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/ac).

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%

Apply @ 100lbs per acre
April 16th- Oct. 14th

Organic Fertilizer @ 200lbs per Acre

Apply @ 200lbs per acre
Oct. 15th- April 15th

Pelletized Lime @ 2 Tons per Acre

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%

Apply @ 25lbs per acre
April 16th- Oct. 14th

Apply @ 50lbs per acre
Oct. 15th- April 15th

NO FERTILIZER OR LIME INSIDE WETLAND LIMITS

51-01882

Marcellus Well Drilling Procedures
And Site Safety Plan

SWN Production Co., LLC

47 - 51 - 01882
Well name: Shawn Harlan MSH 5H
Littleton, Quad
Liberty, District
Marshall County, West Virginia

Submitted by: Danielle Southall Date: 7/6/2016

Title Regulatory Supervisor SWN Production Co., LLC

Approved by:

Date: 7/8/16

Title: Oil + Gas Inspector

Approved by:

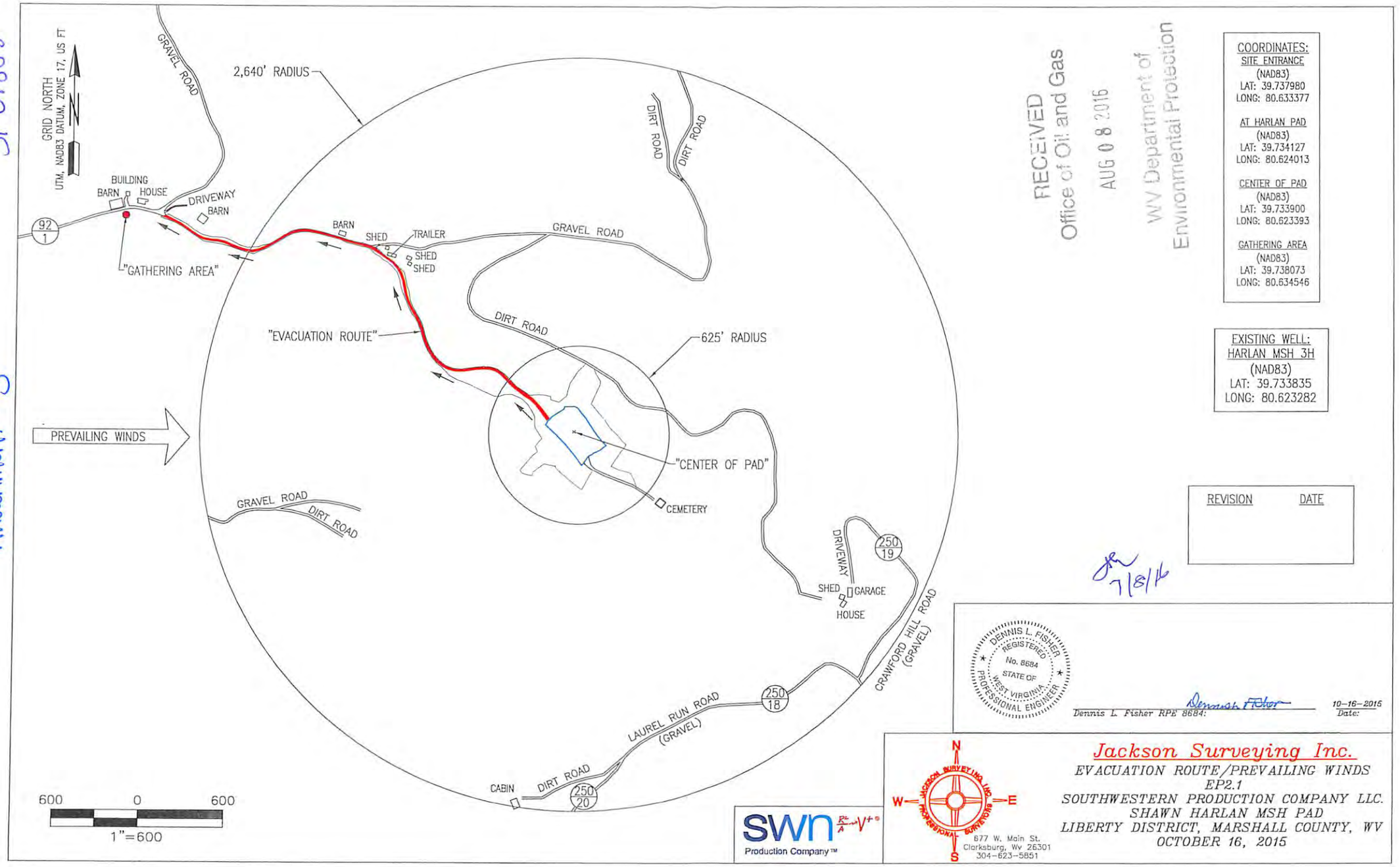
Date:

Title:

SWN Production Co., LLC – Confidential

SI-01882

Attachment #3



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COORDINATES:
SITE ENTRANCE
(NAD83)
LAT: 39.737980
LONG: 80.633377

AT HARLAN PAD
(NAD83)
LAT: 39.734127
LONG: 80.624013

CENTER OF PAD
(NAD83)
LAT: 39.733900
LONG: 80.623393

GATHERING AREA
(NAD83)
LAT: 39.738073
LONG: 80.634546

EXISTING WELL:
HARLAN MSH 3H
(NAD83)
LAT: 39.733835
LONG: 80.623282

REVISION	DATE

7/8/16

DENNIS L. FISHER
REGISTERED
No. 8684
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

Dennis L. Fisher RPE 8684: 10-16-2015
Date:

SWN Production Company™

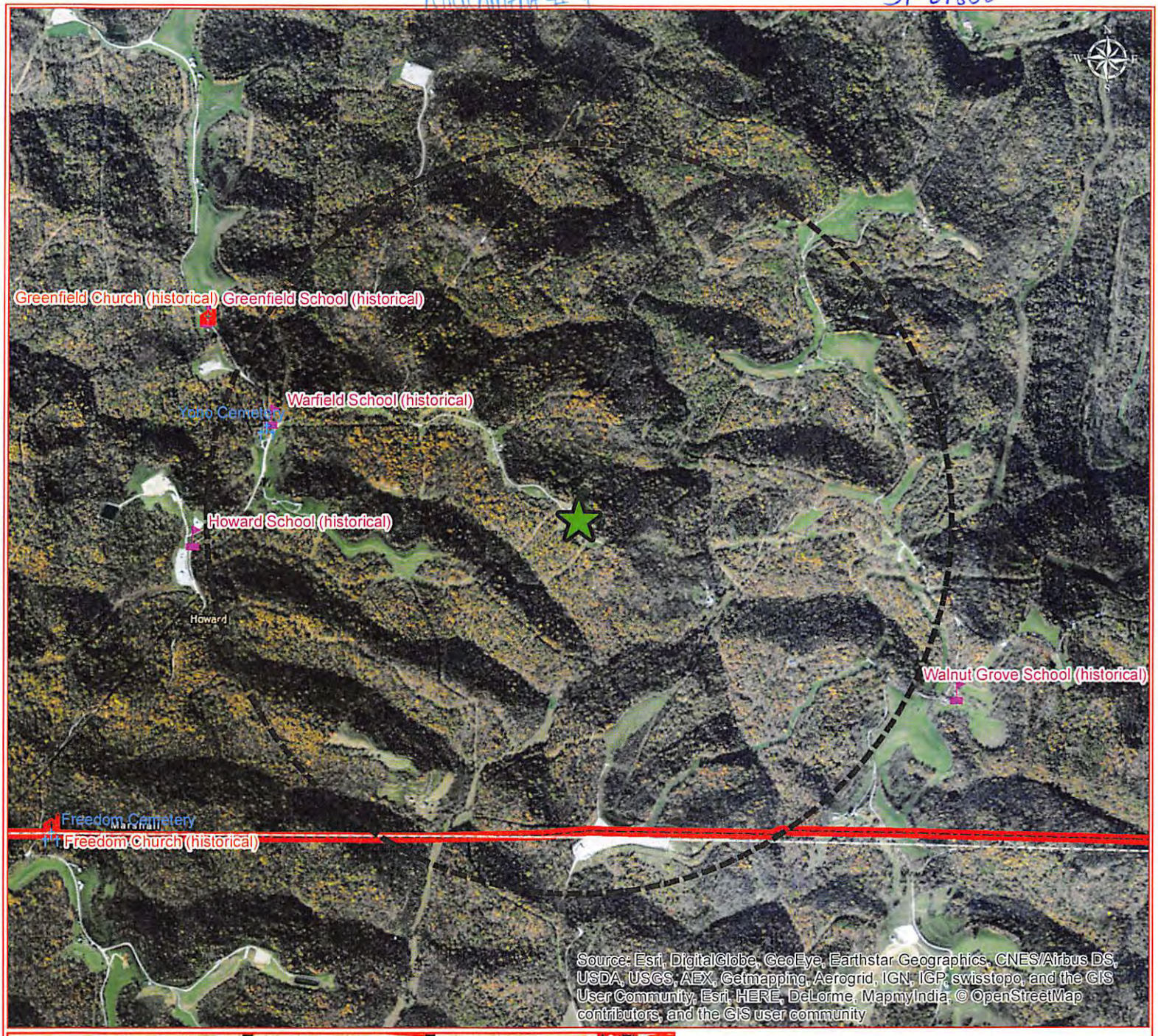
JACKSON SURVEYING INC. PROFESSIONAL SURVEYOR

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

Jackson Surveying Inc.
EVACUATION ROUTE/PREVAILING WINDS
EP2.1
SOUTHWESTERN PRODUCTION COMPANY LLC.
SHAWN HARLAN MSH PAD
LIBERTY DISTRICT, MARSHALL COUNTY, WV
OCTOBER 16, 2015

Attachment # 4

51-01882



Legend

- Harlan_Pad
- Harlan_Pad_1_Mile_Buffer
- sde.GISPUB.bmp_Cemeteries
- sde.GISPUB.bmp_Churches
- sde.GISPUB.bmp_Schools

Shawn Harlan-1Mile
Marshall County, West Virginia

1,000 500 0 1,000 Feet

1:24,000 Absolute Scale

Coordinate System: NAD 1983 StatePlane West Virginia North FIPS 4701 Feet

Path: K:\EandP\WVD\Team Data\GIS\kalab\1Mile maps\Shawn Harlan\Shawn Harlan-1Mile.mxd

51-01882

Attachment #5

COORDINATES:	
SITE ENTRANCE (NAD83)	
LAT: 39.737980	
LONG: 80.633377	
AT HARLAN PAD (NAD83)	
LAT: 39.734127	
LONG: 80.624013	
CENTER OF PAD (NAD83)	
LAT: 39.733900	
LONG: 80.623393	
GATHERING AREA (NAD83)	
LAT: 39.738073	
LONG: 80.634546	

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

EXISTING WELL:
HARLAN MSH 3H
(NAD83)
LAT: 39.733835
LONG: 80.623282

C. MICHAEL & LINDA L. BLAIR
D.B. 840/69
T.M. 18/9
247.059 ACRES

C. MICHAEL & LINDA L. BLAIR
D.B. 840/69
T.M. 18/9.1
19.996 ACRES

C. MICHAEL & LINDA L. BLAIR
D.B. 840/69
T.M. 18/9
247.059 ACRES

SCOTT L. & SHAWN D. HARLAN
D.B. 636/225
T.M. 28/1
126.265 ACRES

SCOTT L. & SHAWN D. HARLAN
D.B. 636/225
T.M. 28/1
126.265 ACRES

DAVID G. EVICK
D.B. 560/277
T.M. 29/4
102 ACRES

DAVID G. EVICK
D.B. 569/36
T.M. 28/14
111.29 ACRES

CARL R. & EILENE R. RICHMOND
D.B. 635/449
T.M. 28/13
89.96 ACRES

GRAVEL ROAD
GRAVEL ROAD
DIRT ROAD
92/1

SHEET #AS3.2
SHEET #AS3.3
SHEET #AS3.4
SHEET #AS3.5
SHEET #AS3.6
SHEET #AS3.7

300 0 300
1"=300

SWN Production Company™

DENNIS L. FISHER
REGISTERED
No. 8684
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

Dennis L. Fisher RPE 8684:
10-16-2015
Date:

JACKSON SURVEYING, INC. PROFESSIONAL SURVEYORS

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

Jackson Surveying Inc.
CONSTRUCTION AND RECLAMATION
ASBUILT OVERVIEW
AS3.1
SOUTHWESTERN PRODUCTION COMPANY LLC.
SHAWN HARLAN MSH PAD
LIBERTY DISTRICT, MARSHALL COUNTY, WV
OCTOBER 16, 2015

REVISION	DATE

JW 7/8/16

51-01882

WW-6A1
(5/13)

Operator's Well No. Shawn Harlan MSH 5H

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

See Exhibit "A"

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.

RECEIVED
Office of Oil and Gas

Well Operator: SWN Production Company, LLC

By:

Its: Sr. Landman

AUG 08 2016

WV Department of
Environmental Protection

51-01882

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., Operator
Shawn Harlan MSH 5H
Marshall County, West Virginia

RECEIVED
Office of Oil and Gas
AUG 0 8 2016
WV Department of
Environmental Protection

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
1	07-28-01	723438-008	Janet E. Wilbur a/k/a Janet T. Wilbur a/k/a Janet E. Teagarden Wilbur	Chesapeake Appalachia, L.L.C.	12.50%	702/210	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-009	David A. Teagarden	Chesapeake Appalachia, L.L.C.	12.50%	703/609	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-010	Eva T. Stalker (Eva T. Stalker, Trustee of the Eva T. Stalker Trust, dated December 28, 1989)	Chesapeake Appalachia, L.L.C.	12.50%	702/206	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-011	Jeanne G. Declue (The Jeanne Govro De Clue, Revocable Living Trust UDT July 9, 2001)	Chesapeake Appalachia, L.L.C.	12.50%	705/648	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-007	Stephen E. Justman, a widower	Chesapeake Appalachia, L.L.C.	12.50%	702/214	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-006	Hayhurst Company (Chestnut Holdings, Inc.)	Chesapeake Appalachia, L.L.C.	12.50%	691/53	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-004	Jack Hammers	Columbia Natural Resources, L.L.C.	12.50%	645/343	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-003	Paul Hammers	Columbia Natural Resources, L.L.C.	12.50%	645/345	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-002	Twila Ora Whipkey (Twila Ora Whipkey Trust dated 8/25/1999, WesBanco Bank Wheeling, Trustee)	Columbia Natural Resources, L.L.C.	12.50%	645/100	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-005	Toni Jo Mason	Columbia Natural Resources, L.L.C.	12.50%	646/161	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	723438-012	Erica M. Mason	Chesapeake Appalachia, L.L.C.	12.50%	708/61	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				

51-01882

EXHIBIT "A"
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Shawn Harlan MSH 5H
Marshall County, West Virginia

RECEIVED
Office of Oil and Gas
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WV Department of
Environmental Protection

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
1	07-28-01	723438-001	O. E. Burge (Onward E. Burge, Sarah L. Burge and Stephen W. Burge, Trustees of theOnward E. Burge Trust dated June 21, 2010 & Sarah L. Burge, Onward E. Burge and Stephen W. Burge, Trustees of the Sarah L. Burge Trust dated June 21, 2010)	Columbia Natural Resources, L.L.C.	12.50%	645/102	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				
1	07-28-01	724376-001	A. L. Evans and Rachel Evans, his wife (Donna K. Allen, Mary Lou Kittelberger, Debra A. Likavec and John D. Likavec, Nancy Jo Block, Chad E. Longfellow, Holly A. Longfellow, Tracy L. Barnby, Lloyd R. Evans, Gloria Stine, Robert W. Cubbage, Clifford Cubbage, Robbert W. Cubbage, Karen Cubbage, Dale E. Workman, Sandra E. Rush, Erma Nelda Jefferson, Laura K. Baker, Deborah A. Collins, Patty D. Jefferson, Joyce L. Lamb, Stacy L. Lyons Carla Carswell Davis, Mel Todd Carswell, Jennifer Carswell Briere, Frank K. Bonacich, Jr., Jean J. Meier, Howard Ray Furbee, Robert Dale Furbee, Dorothy Evans, Ellen G. Kirkbride, Darlene Kay Alborn, Marlene Fay Wagmiller, Elmer Dean Evans, Jack Hammers, Paul Hammers, Twila Ora Whipkey Trust dated 8/25/1999, WesBanco Bank Wheeling, Trustee, Toni Jo Mason, Erica Mason, O.E. Burge and Sarah Lou Burge, h/w and Stephen Burge, Chestnut Holdings)	The Wheeling Natural Gas Co.	12.50%	144/501	Scott L. Harlan and Shawn D. Harlan	636/225	126.150000	126.150000
			The Wheeling Natural Gas Co.	The Manufacturers Light & Heat Company		3/40				
			The Wheeling Natural Gas Co.	The Manufacturers Light & Heat Company		148/389				
			The Manufacturers Light & Heat Company	Columbia Natural Resources, L.L.C.		422/204				
			Columbia Natural Resources, L.L.C.	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, L.L.C.		33/110				

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Shawn Harlan MSH 5H
Marshall County, West Virginia

RECEIVED
Office of Oil and Gas
APR 08 2016
WV Department of
Environmental Protection

SI-01882

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
2	7-18-9	724455-000	Otto A. Teagarden and Hazel Cora Teagarden, husband and wife (Donald Terry Teagarden, Chestnut Holdings, AMP FUND III, LP, Nila Joanne Wade, Hubert Louis Wade)	Manufacturers Lighr and Heat Company	12.50%	272/209	Zachary Blair	840/69	247.059000	247.059000
			Manufacturers Light and Heat Company	Columbia Gas Transmission Corporation		422/204				
			Columbia Gas Transmission Corporation	Columbia Natural Resources, LLC		642/281				
			Columbia Natural Resources, LLC	Chesapeake Appalachia, L.L.C.		650/63				
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
2	7-18-9	723463-000	Donald Terry Teagarden, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	12.50%	654/378	Zachary Blair	840/69	247.059000	247.059000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
2	7-18-9	723464-001	Hayhurst Company (Chestnut Holdings, Inc.)	Chesapeake Appalachia, L.L.C.	12.50%	693/190	Zachary Blair	840/69	247.059000	247.059000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
2	7-18-9	723464-002	Hubert Louis Wade, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	12.50%	693/612	Zachary Blair	840/69	247.059000	247.059000
		723464-003	Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
2	7-18-9		Nila Joanne Wade, a single women	Chesapeake Appalachia, L.L.C.	12.50%	694/89	Zachary Blair	840/69	247.059000	247.059000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
2	7-18-9	723464-004	O.W. Young, a single man	Chesapeake Appalachia, L.L.C.	12.50%	694/129	Zachary Blair	840/69	247.059000	247.059000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
3	7-18-8	723458-003	Paul F. Hammers, a married man dealing in his sole and separate proprty	Chesapeake Appalachia, L.L.C.	12.50%	654/380	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
3	7-18-8	723458-005	Jack R. Hammers, a married man dealing in his sole and separate property	Chesapeake Appalachia, L.L.C.	12.50%	655/1	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
3	7-18-8	723458-002	Twila Ora Whipkey, a married women dealing in her sole and separate property (WesBanco Bank Wheeling, Trustee of the Stoy K. Whipkey and Twila O. Whipkey Trust Agreement dated the 25th day of August 1999)	Chesapeake Appalachia, L.L.C.	12.50%	654/384	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
3	7-18-8	723458-006	Toni Jo Mason, a single women	Chesapeake Appalachia, L.L.C.	12.50%	655/3	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
3	7-18-8	723458-007	Erica M. Mason, a/k/a Erica Mason, a single women	Chesapeake Appalachia, L.L.C.	12.50%	682/213	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				

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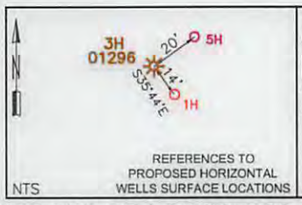
Shawn Harlan MSH 5H
Marshall County, West Virginia

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG	Surface Owner	Book/Page Must describe The Parcel	Deeded Acreage	Leased
3	7-18-8	723458-001	O.E. Burge, a married man dealing in her sole and separate property (Onward E. Burge, Sarah L. Burge and Stephen W. Burge, Trustees of the Onward E. Burge Trust dated June 21, 2010 & Sarah L. Burge, Onward E. Burge and Stephen W. Burge, Trustees of the Sarah L. Burge Trust dated June 21, 2010	Chesapeake Appalachia, L.L.C.	12.50%	653/657	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				
3	7-18-8	723458-004	Levonda Lee Emery, a married women dealing in her sole and separate property (Chestnut Holdings, Inc.)	Chesapeake Appalachia, L.L.C.	12.50%	654/674	Bernard P. Twigg	601/198	22.594000	22.594000
			Chesapeake Appalachia, L.L.C.	SWN Production Company, LLC		33/110				

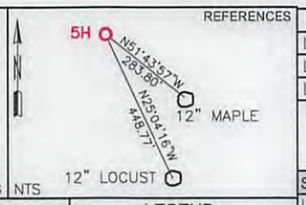
RECEIVED
Office of Oil & Gas
AUG 08 2016
WV Department of
Environmental Protection

SURFACE HOLE 11,216' | Latitude: 39°45'00" | BOTTOM HOLE 2,125'

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



REFERENCES TO PROPOSED HORIZONTAL WELLS SURFACE LOCATIONS



REFERENCES

NUMBER	DIRECTION	DISTANCE
L1	S61°57'21"E	2771.23'
L2	N24°01'29"W	494.29'
L3	N34°25'20"E	1,035.99'

BHL

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,398,287.604
EASTING: 532,286.091

"LANDING POINT" LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,398,548.080
EASTING: 532,464.591

BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,399,467.048
EASTING: 531,481.423

1,995' BOTTOM HOLE
SURFACE HOLE
5,877'
SURFACE HOLE

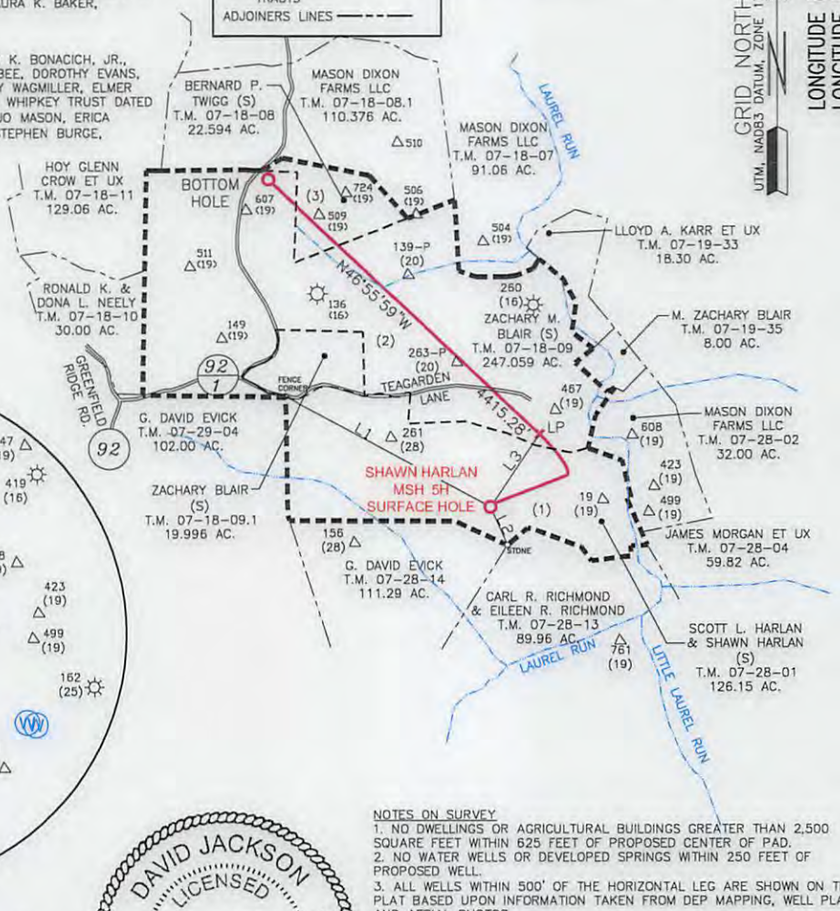
LONGITUDE 80°-37'-30"
LONGITUDE 80°-35'-00"

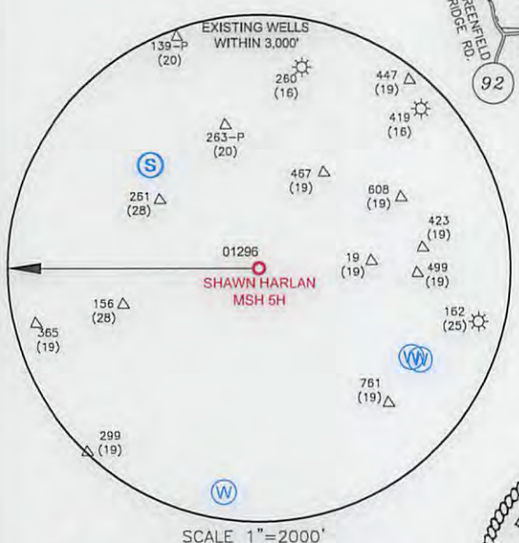
GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

ROYALTY OWNERS FOR (1):
JANET E. WILBUR A/K/A JANET T. WILBUR, A/K/A JANET E. TEAGARDEN WILBUR, DAVID A. TEAGARDEN, EVA T. STALKER (EVA T. STALKER, TRUSTEE OF THE EVA T. STALKER TRUST, DATED DECEMBER 28, 1989), JEANNE G. DECLUE (THE JEANNE GOVRO DE CLUE, REVOCABLE LIVING TRUST UDT JULY 9, 2001), STEPHEN E. JUSTMAN, HAYHURST COMPANY (CHESTNUT HOLDINGS, INC.), JACK HAMMERS, PAUL HAMMERS, TWILA ORA WHIPKEY (TWILA ORA WHIPKEY TRUST DATED 8/25/1999, WESBANCO BANK WHEELING, TRUSTEE), TONI JO MASON, ERICA M. MASON, O.E. BURGE (ONWARD E. BURGE, SARAH L. BURGE AND STEPHEN W. BURGE, TRUSTEES OF THE ONWARD E. BURGE TRUST DATED JUNE 21, 2010 & SARAH L. BURGE, ONWARD E. BURGE AND STEPHEN W. BURGE, TRUSTEES OF THE SARAH L. BURGE TRUST DATED JUNE 21, 2010), A.L. EVANS AND RACHEL EVANS, (DONNA K. ALLEN, MARY LOU KITTELBERGER, DEBRA A. LIKAVEC AND JOHN D. LIKAVEC, NANCY JO BLOCK, CHAD E. LONGFELLOW, HOLLY A. LONGFELLOW, TRACY L. BARNBY, LLOYD R. EVANS, GLORIA STINE, ROBERT W. CUBBAGE, CLIFFORD CUBBAGE, ROBBERT W. CUBBAGE, KAREN CUBBAGE, DALE E. WORKMAN, SANDRA E. RUSH, ERMA NELDA JEFFERSON, LAURA K. BAKER, DEBORAH A. COLLINS, PATTY D. JEFFERSON, JOYCE L. LAMB, STACY L. LYONS CARLA CARSWELL DAVIS, MEL TODD CARSWELL, JENNIFER CARSWELL BRIERE, FRANK K. BONACICH, JR., JEAN J. MEIER, HOWARD RAY FURBEE, ROBERT DALE FURBEE, DOROTHY EVANS, ELLEN G. KIRKBRIDE, DARLENE KAY ALBORN, MARLENE FAY WAGMILLER, ELMER DEAN EVANS, JACK HAMMERS, PAUL HAMMERS, TWILA ORA WHIPKEY TRUST DATED 8/25/1999, WESBANCO BANK WHEELING, TRUSTEE, TONI JO MASON, ERICA MASON, O.E. BURGE AND SARAH LOU BURGE, H/W AND STEPHEN BURGE, CHESTNUT HOLDINGS).

SHL

LEGEND
- WATERWELL (W)
- SPRING (S)
- STREAM (ST)
- SURFACE & ROYALTY OWNER (S/R)
- SURFACE OWNER (S)
- DIVISION LINES BETWEEN LEASE TRACTS
- ADJOINERS LINES





NOTES ON SURVEY
1. NO DWELLINGS OR AGRICULTURAL BUILDINGS GREATER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
3. ALL WELLS WITHIN 500' OF THE HORIZONTAL LEG ARE SHOWN ON THIS PLAT BASED UPON INFORMATION TAKEN FROM DEP MAPPING, WELL PLATS AND AERIAL PHOTOS.
4. COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.

PLAT SCALE 1"=2000'

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

DAVID JACKSON LICENSED No. 708 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

COMPANY: SWN Production Company, LLC — SWN Production Company™

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

OPERATOR'S WELL #: SHAWN HARLAN MSH 5H

API WELL #: 47 (STATE) 051 (COUNTY) 01882 (PERMIT) H6A

WELL TYPE: OIL ☐ WASTE DISPOSAL ☐ PRODUCTION ☒ DEEP ☐ GAS ☒ LIQUID INJECTION ☐ STORAGE ☐ SHALLOW ☒

WATERSHED: LAUREL RUN OF UPPER OHIO SOUTH
ELEVATION: 1390.6'

DISTRICT: LIBERTY COUNTY: MARSHALL
QUADRANGLE: LITTLETON(SH)-WILEYVILLE(BH)

SURFACE OWNER: SCOTT L. HARLAN AND SHAWN HARLAN
ACREAGE: 126.15

OIL & GAS ROYALTY OWNER: SEE NOTE 5
ACREAGE: 126.15

DRILL ☒ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☒ PLUG OFF OLD FORMATION ☐ PERFORATE NEW FORMATION ☒

CONVERT ☐ PLUG & ABANDON ☐ CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY)

TARGET FORMATION: MARCELLUS
ESTIMATED DEPTH: 7,189' TVD 12,059' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC
ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378

DESIGNATED AGENT: DEE SOUTHALL
ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:
- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- ABANDONED WELL
- PLUGGED & ABANDONED WELL
- CUT CONDUCTOR
- LEASE BOUNDARY
- BORE PATH
- ABANDONED PATH

REVISIONS:	DATE: 07-29-2016
⚠ REVISED OWNERSHIPS FOR 6A1 08-04-2016	
	DRAWN BY: N. MANO
	SCALE: 1" = 2000'
	DRAWING NO:
	WELL LOCATION PLAT

\\D7W3HRL1\1-04-16 DJ\SWN\HARLAN\WELL PLATS\5H\FINAL\FINAL HARLEN MSH 5H 8-4-16.DWG
THURSDAY AUGUST 04 2016 02:31PM

PROPERTY NUMBER 2501164635
PAD ID 3001155880

51-01882

SWN
Southwestern Energy®
10000 Energy Drive
Spring, TX 77389
PHONE: (832) 360-8309

August 2, 2016

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

RE: SWN's proposed Shawn Harlan MSH 1H & Shawn Harlan MSH 5H in Marshall County, West Virginia, Drilling under Teagarden 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 Teagarden Road. 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
Sr. Landman
SWN Production Company, LLC
10000 Energy Drive
Spring, TX 77389

$\frac{R^2}{A} \rightarrow V+^{®}$

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WW-6AC
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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION

Date of Notice Certification: 8/5/16

API No. 47- 51 - 01882
Operator's Well No. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan PAd

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:	WV	UTM NAD 83 Easting:	532286.0
County:	51-Marshall	Northing:	4398287.6
District:	7-Liberty	Public Road Access:	Greenfield Road
Quadrangle:	438-Littleton	Generally used farm name:	Shawn Harlan
Watershed:	Laurel Run		

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
☐ 1. NOTICE OF SEISMIC ACTIVITY or ☒ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	☐ RECEIVED/ NOT REQUIRED
☐ 2. NOTICE OF ENTRY FOR PLAT SURVEY or ☒ NO PLAT SURVEY WAS CONDUCTED	☐ RECEIVED
☒ 3. NOTICE OF INTENT TO DRILL or ☐ NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or ☐ WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)	☐ RECEIVED/ NOT REQUIRED
☒ 4. NOTICE OF PLANNED OPERATION	☐ RECEIVED
☒ 5. PUBLIC NOTICE	☐ RECEIVED
☒ 6. NOTICE OF APPLICATION	☐ 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.

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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	Address:	P.O. Box 1300
By:	Dee Southall		Jane Lew, WV 26378
Its:	Regulatory Supervisor	Facsimile:	304-471-2497
Telephone:	832-796-1610	Email:	Dee_Southall@swn.com

NOTARY SEAL
OFFICIAL SEAL
Notary Public, State of West Virginia
BRITTANY R WOODY
3302 Old Elkins Road
Buckhannon, WV 26201
My commission expires November 27, 2022

Subscribed and sworn before me this 7th day of July 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 depprivacyofficer@wv.gov.

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WW-6A
(9-13)

API NO. 47- 51 - 01882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan PAd

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: 8/5/16 **Date Permit Application Filed:** 8/5/16

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: Shawn D & Scott L. Harlan ✓
Address: HC 60 Box 300
New Martinsville, WV 26155
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: Consol Energy, Inc. Attn: Casey Saunders ✓
Address: 6126 Energy Road
Moundsville, WV 26041

☐ 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

OBJECTID *	PARID	OWN1	OWN2	CAREOF	ADDR1	ADDR2	CITYNAME	STATECODE	ZIP
3342832	07 28000800000000	APPALACHIA MIDSTREAM SERVICES	LLC			PO BOX 210344	DALLAS	TX	75211
3342628	07 19003500000000	BLAIR M ZACHARY				3 ARCADIAN AC	GLEN DALE	WV	26038
3342844	07 29000400000000	EVICK G DAVID				22 16TH ST	MCMECHEN	WV	26040
3342825	07 28000100000000	HARLAN SCOTT L & SHAWN D				HC 60 BOX 300	NEW MARTINSVILLE	WV	26155
3342627	07 19003300000000	KARR LLOYD A ET UX				7349 GIRDLE ROAD	W FARMINGTON	OH	44491
3342835	07 28001100000000	MASON DIXON FARMS LLC				PO BOX 360911	MELBOURNE	FL	32936
3342828	07 28000400000000	MORGAN JAMES E - LIFE				4403 FAIRWAY DR	STEUBENVILLE	OH	43952
3342833	07 28000900000000	RICHARDS JOHN C ET UX				837 MCQUEEN BLVD	ST ALBANS	WV	25177
3342837	07 28001300000000	RICHMOND CARL R & EILENE R				HC 60 BOX 313 AA	NEW MARTINSVILLE	WV	26155
3342836	07 28001200000000	STERN EFFIE A EST ET AL			STERN JERRY G & KIRBY DONNA K	17463 FISH CREEK RD	CAMERON	WV	26033

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51-01887

WW-6A
(8-13)

API NO. 47- 51 - 0 1882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan PAd

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 on 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, 2012, 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.**

WW-6A
(8-13)

API NO. 47- 51 - 01882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan PAd

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.

WW-6A
(8-13)

API NO. 47- 51 - 01882
OPERATOR WELL NO. Shawn Harlan MSH 5H
Well Pad Name: Shawn Harlan PAd

Notice is hereby given by:

Well Operator: SWN Production Co., LLC
Telephone: 832-796-1610
Email: Dee_Southall@swn.com

Address: P.O. Box 1300
Jane Lew, WV 26378
Facsimile: 304-471-2497

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.

OFFICIAL SEAL
Notary Public, State of West Virginia
BRITTANY R WOODY
3302 Old Elkins Road
Buckhannon, WV 26201
My commission expires November 27, 2022

Subscribed and sworn before me this 7th day of July, 2016.

Brittany R Woody Notary Public

My Commission Expires 11/27/22

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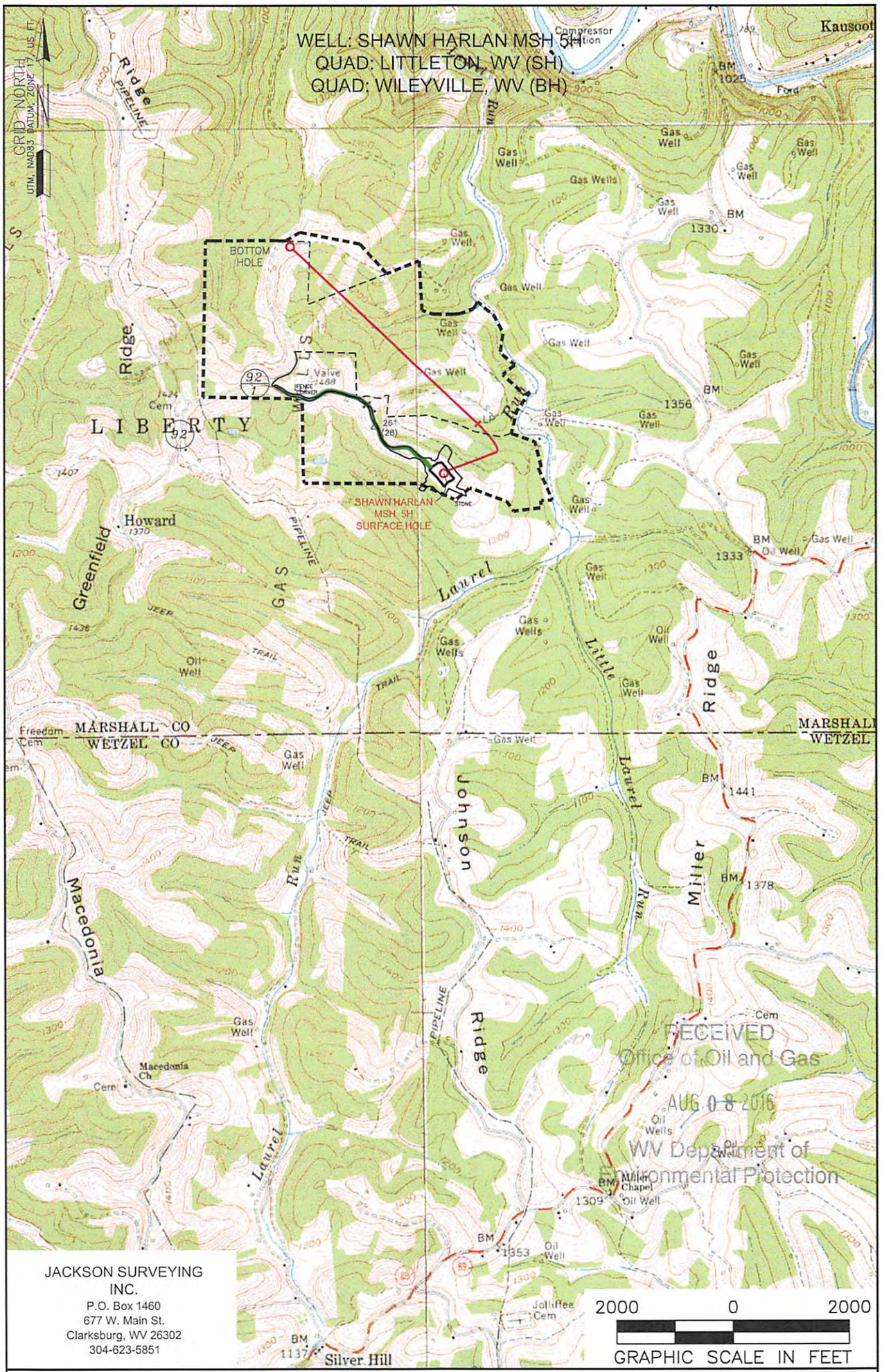
51-01882



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

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NOTE:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF PROPOSED GAS WELLS AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINES AND OWNERS WERE OBTAINED FROM VARIOUS FIELD EVIDENCE, TAX RECORDS, AND AERIAL MAPPING.

LEGEND:
- - - - - - - LEASE BOUNDARY

Applicant/Well Operator Name SWN PRODUCTION COMPANY, LLC	Well (Farm) Name SHAWN HARLAN MSH 5H	Well# 5H
Address PO BOX 1300 JANE LEW, WV 26378	County MARSHALL	District LIBERTY
Surface Landowner/ Lessor MICHAEL A. DUNN ET UX	USGS 7 1/2 Quadrangle Map Name LITTLETON (SH) & WILEYVILLE (BH)	

\\D7W3HRL1\1-04-16 DJ\SWN\HARLAN\WELL PLATS\5H\FINAL\FINAL HARLEN MSH 5H 8-4-16.DWG
THURSDAY AUGUST 04 2016 02:33PM

WW-6A4
(1/12)

Operator Well No. Shawn Harlan MSH 5H
51-01882

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: 07/07/2016 **Date Permit Application Filed:** 8/5/14

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: Shawn D. & Scott L. Harlan
Address: HC 60 BOX 300
New Martinsville, WV 26155

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: West Virginia
County: Marshall
District: Liberty
Quadrangle: Littleton
Watershed: Laurel Run Road

UTM NAD 83 Easting: 532,286.0
Northing: 4,398,287.6
Public Road Access: Macedonia
Generally used farm name:

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: 179 Innovation Drive
Jane Lew, WV 26378
Telephone: 304-884-1615
Email: Steve_Perkins@swn.com
Facsimile:

Authorized Representative: Steve Perkins
Address: 179 Innovation Drive
Jane Lew, WV 26378
Telephone: 304-884-1615
Email: Steve_Perkins@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.

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WW-6A5
(1/12)

Operator Well No. Shawn Harlan MSH 5H
51-01882

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: 07/07/2016 **Date Permit Application Filed:** 8/5/16

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

☒ CERTIFIED MAIL RETURN RECEIPT REQUESTED ☐ HAND 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: Shawn D. & Scott L. Harlan
Address: HC 60 BOX 300
New Martinsville, WV 26155

Name:
Address:

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: West Virginia
County: Marshall
District: Liberty
Quadrangle: Littleton
Watershed: Laurel Run Road

UTM NAD 83 Easting: 532,286.0
Northing: 4,398,287.6
Public Road Access: Macedonia Ridge
Generally used farm name:

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: SWN Production Company, LLC
Telephone: 304-884-1615
Email: Steve_Perkins@swn.com

Address: 179 Innovation Drive
Jane Lew, WV 26378
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.

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Office of Oil and Gas
AUG 08 2016
WV Department of
Environmental Protection

SI-01883

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

July 6, 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 Shawn Harlan Pad MSH 5H Well Site, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit #06-2015-0114 for the subject site Southwestern Energy for access to the State Road for the well site located off of Marshall County Route 92/1 SLS.

The operator has signed an 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

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

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

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Office of Oil and Gas
AUG 08 2016
WV Department of
Environmental Protection

51-01882

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
NALCO ONESOURCE	EC6110A	Biocide	Ethanol	000064-17-5
			Glutaraldehyde (Pentanediol)	000111-30-8
			Quaternary Ammonium Compounds	N/A-063
	EC6629A	Biocide	No Hazardous Components	NONE
WEATHERFORD	WBK-133 OXIDIZER	Breaker	Ammonium Persulfate	007727-54-0
	WBK-134	Breaker	Ammonium Persulfate	007727-54-0
			Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7
	WCS-631LC	Clay Stabilizer	Proprietary Non Hazardous Salt	N/A-229
			Water	007732-18-5
	WFR-55LA	Friction Reducer	No Hazardous Components	NONE
	WGA-15L	Gel	Petroleum Distillate Hydrotreated Light	064742-47-8
	WPB-584-L	Buffer	Potassium Carbonate	000584-08-7
			Potassium Hydroxide	001310-58-3
	WXL-101LE	Corsslinker	No Hazardous Components	NONE
	WXL-101LM	Crosslinker	Petroleum Distillate Hydrotreated Light	064742-47-8
	WXL-105L	Crosslinker	Water	007732-18-5
			Ethylene Glycol	000107-21-1
			Boric Acid	010043-35-3
			Ethanolamine	000141-43-5
SCHLUMBERGER	B244 Green-Cide 25G	Biocide	Glutaraldehyde	111-30-8
	L071 Temporary Clay Stabilizer	Clay Stabilizer	Cholinium Chloride	67-48-1
	Breaker J218	Breaker	Diammonium Peroxidisulphate	7727-54-0
	EB-Clean* J475 Breaker		Diammonium Peroxidisulphate	7727-54-0
	Friction Reducer B315	Friction Reducer	Distillates (petroleum), Hydrotreated light Aliphatic Alcohol Glycol Ether	64742-47-8 Proprietary
	Friction Reducer J609		Ammonium Sulfate	7783-20-2

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AUG 0 8 2016
WV Department of
Environmental Protection

51-01882

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
SCHLUMBERGER	Water Gelling Agent J580	Gel	Carbohydrate Polymer	Proprietary
	Scale Inhibitor B317	Scale Inhibitor	Trisodium ortho phosphate Ethane-1, 2-diol	7601-54-9 107-21-1
	Borate Crosslinker J532	Crosslinker	Aliphatic polyol Sodium tetraborate decahydrate	Proprietary 1303-96-4
	Crosslinker J610		Aliphatic polyol Potassium hydroxide	Proprietary 1310-58-3

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Environmental Protection

51-01882

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
BAKER HUGHES	ALPHA 1427	Biocide	Didecyl Dimethyl Ammonium Chloride	007173-51-1
			Ethanol	000064-17-5
			Glutaraldehyde (Pentanediol)	000111-30-8
			Quaternary Ammonium Compound	068424-85-1
			Water	007732-18-5
	BF-7L	Buffer	Potassium Carbonate	000584-08-7
	ClayCare	Clay Stabilizer	Choline Chloride	000067-48-1
			Water	007732-18-5
	Enzyme G-I	Breaker	No Hazardous Components	NONE
	ENZYME G-NE	Breaker	No Hazardous Components	NONE
	FRW-18	Friction Reducer	Petroleum Distillate Hydrotreated Light	064742-47-8
	GW-3LDF	Gel	Petroleum Distillate Blend	N/A-014
			Polysaccharide Blend	N/A-021
	SCALETROL 720	Scale Inhibitor	Diethylene Glycol	000111-46-6
			Ethylene Glycol	000107-21-1
	XLW-32	Crosslinker	Boric Acid	010043-35-3
			Methanol (Methyl Alcohol)	000067-56-1
FRAC TECH SERVICES	APB01 (AMMONIUM PERSUFATE BREAKER)	Breaker	Ammonium Persulfate	007727-54-0
	B05 (LOW PH BUFFER)	Buffer	Acetic acid	000064-19-7
	BXL03 Borate XL Delayed High Temp	Crosslinker	No Hazardous Components	NONE
	FRW-200	Friction Reducer	No Hazardous Components	NONE
	HVG01 (TURQUOISE-1 BULK)	Gelling Agent	Petroleum Distillate Hydrotreated Light	064742-47-8
	KCLS-4	Clay Stabilizer	No Hazardous Components	NONE
	LTB-1	Breaker	Ammonium Persulfate	N/A

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AUG 08 2016
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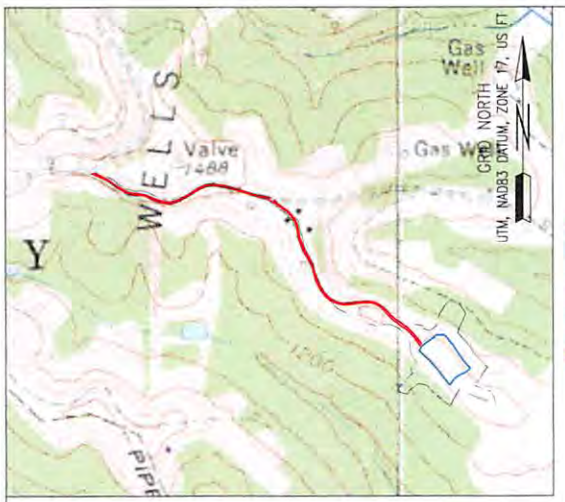
Environmental Protection



SHAWN HARLAN MSH PAD
CONSTRUCTION AND RECLAMATION PLAN
AS-BUILT
LIBERTY DISTRICT, MARSHALL COUNTY, WV
OCTOBER 2015

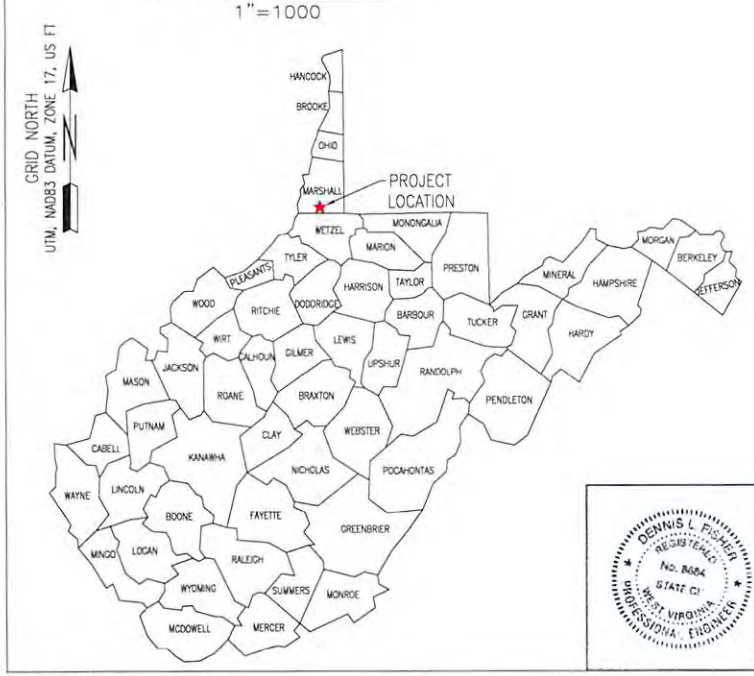
WVDEP OOG
ACCEPTED AS-BUILT
10 / 27 / 2016

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
AS3.6 ASBUILT
AS3.7 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
MRD5.6 RECLAMATION PLAN
MRD5.7 RECLAMATION PLAN
MRD6.3 RECLAMATION DETAILS
MRD6.4 DETAILS

TOTAL DISTURBED AREA: 11.2 ACRES
ROAD DISTURBED AREA: 3.9 ACRES
PAD DISTURBED AREA: 7.3 ACRES

REVISION	DATE
CHANGES PER DEP	08/31/2016



COORDINATES:

SITE ENTRANCE
(NAD83)
LAT: 39.737980
LONG: 80.633377

AT HARLAN PAD
(NAD83)
LAT: 39.734127
LONG: 80.624013

CENTER OF PAD
(NAD83)
LAT: 39.733900
LONG: 80.623393

GATHERING AREA
(NAD83)
LAT: 39.738073
LONG: 80.634546

EXISTING WELL:
HARLAN MSH 3H
(NAD83)
LAT: 39.733835
LONG: 80.623282

WEST VIRGINIA 811
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www.WV811.com

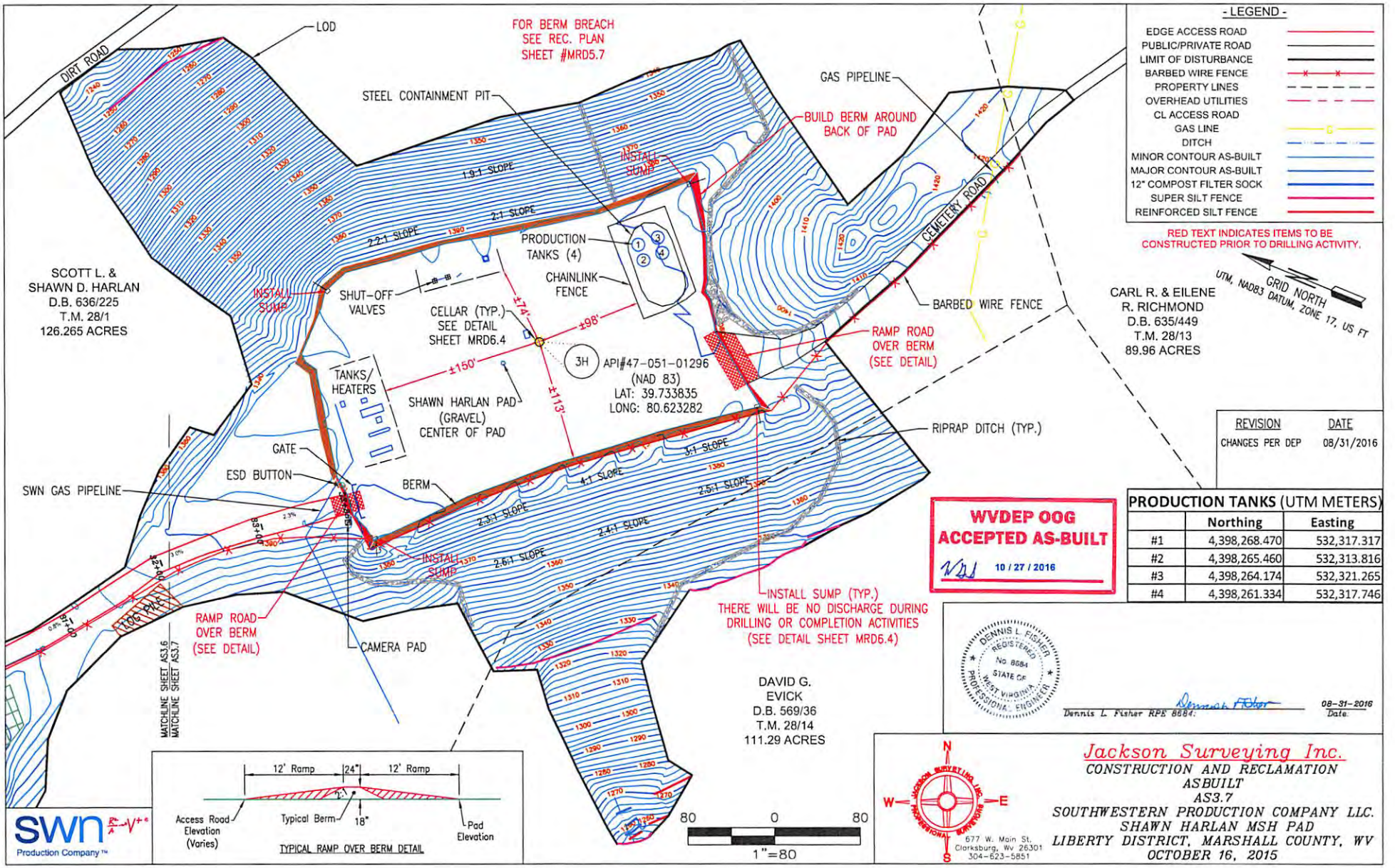
swn Production Company™

DENNIS L. FISHER REGISTERED No. 8884 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

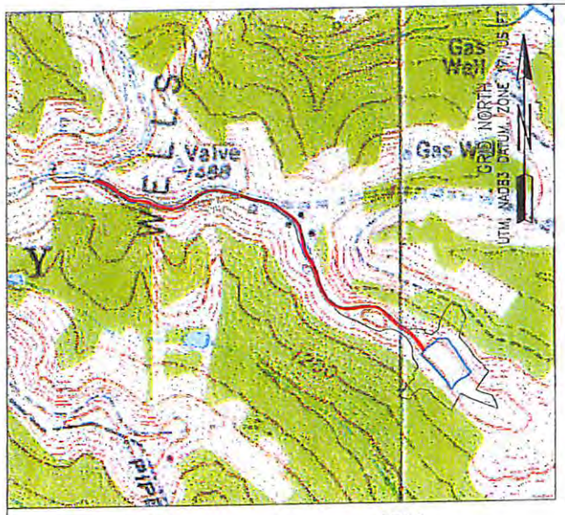
Dennis L. Fisher RPE 8884: 08-31-2016
Date:

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

TITLE SHEET
TS.1
SOUTHWESTERN PRODUCTION COMPANY LLC.
SHAWN HARLAN MSH PAD
LIBERTY DISTRICT, MARSHALL COUNTY, WV
OCTOBER 16, 2015


LOD
DIRT ROAD
FOR BERM BREACH
SEE REC. PLAN
SHEET #MRD5.7
STEEL CONTAINMENT PIT
GAS PIPELINE
BUILD BERM AROUND
BACK OF PAD
INSTALL SUMP
1.9:1 SLOPE
2:1 SLOPE
2.2:1 SLOPE
PRODUCTION
TANKS (4)
CHAINLINK
FENCE
SHUT-OFF
VALVES
CELLAR (TYP.)
SEE DETAIL
SHEET MRD6.4
±74'
±98'
±150'
±113'
3H
API#47-051-01296
(NAD 83)
LAT: 39.733835
LONG: 80.623282
TANKS/
HEATERS
SHAWN HARLAN PAD
(GRAVEL)
CENTER OF PAD
CEMETERY ROAD
BARBED WIRE FENCE
RAMP ROAD
OVER BERM
(SEE DETAIL)
SCOTT L. &
SHAWN D. HARLAN
D.B. 636/225
T.M. 28/1
126.265 ACRES
CARL R. & EILENE
R. RICHMOND
D.B. 635/449
T.M. 28/13
89.96 ACRES
GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT
GATE
ESD BUTTON
BERM
SWN GAS PIPELINE
RIPRAP DITCH (TYP.)
5:1 SLOPE
4:1 SLOPE
2.5:1 SLOPE
2.3:1 SLOPE
2.4:1 SLOPE
2.6:1 SLOPE
INSTALL SUMP (TYP.)
THERE WILL BE NO DISCHARGE DURING
DRILLING OR COMPLETION ACTIVITIES
(SEE DETAIL SHEET MRD6.4)
RAMP ROAD
OVER BERM
(SEE DETAIL)
CAMERA PAD
MATCHLINE SHEET AS3.6
MATCHLINE SHEET AS3.7
DAVID G.
EVICK
D.B. 569/36
T.M. 28/14
111.29 ACRES
12' Ramp
24"
12' Ramp
Access Road
Elevation
(Varies)
Typical Berm
18"
Pad
Elevation
TYPICAL RAMP OVER BERM DETAIL
80
0
80
1"=80
- LEGEND -
EDGE ACCESS ROAD
PUBLIC/PRIVATE ROAD
LIMIT OF DISTURBANCE
BARBED WIRE FENCE
PROPERTY LINES
OVERHEAD UTILITIES
CL ACCESS ROAD
GAS LINE
DITCH
MINOR CONTOUR AS-BUILT
MAJOR CONTOUR AS-BUILT
12" COMPOST FILTER SOCK
SUPER SILT FENCE
REINFORCED SILT FENCE
RED TEXT INDICATES ITEMS TO BE
CONSTRUCTED PRIOR TO DRILLING ACTIVITY.
REVISION
DATE
CHANGES PER DEP
08/31/2016
WVDEP OOG
ACCEPTED AS-BUILT
10 / 27 / 2016
PRODUCTION TANKS (UTM METERS)
Northing
Easting
#1
4,398,268.470
532,317.317
#2
4,398,265.460
532,313.816
#3
4,398,264.174
532,321.265
#4
4,398,261.334
532,317.746
DENNIS L. FISHER
REGISTERED
No. 8684
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
Dennis L Fisher RPE 8684
08-31-2016
Date
SWN
Production Company™
Jackson Surveying Inc.
CONSTRUCTION AND RECLAMATION
ASBUILT
AS3.7
SOUTHWESTERN PRODUCTION COMPANY LLC.
SHAWN HARLAN MSH PAD
LIBERTY DISTRICT, MARSHALL COUNTY, WV
OCTOBER 16, 2015
677 W. Main St.
Clarksburg, Wv 26301
304-623-5851

SHAWN HARLAN MSH PAD
CONSTRUCTION AND RECLAMATION PLAN
AS-BUILT
LIBERTY DISTRICT, MARSHALL COUNTY, WV
OCTOBER 2015



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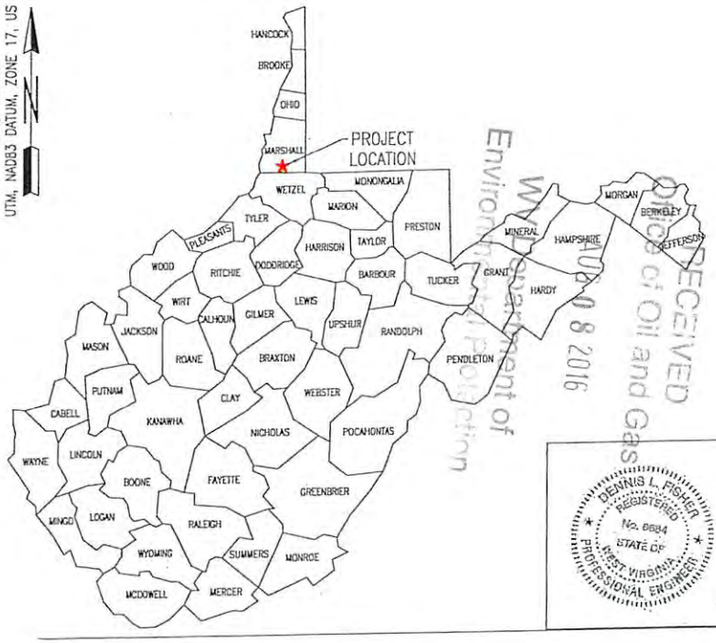

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Production Company™

7/8/16

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Office of Oil and Gas
AUG 08 2016
WV Department of Environmental Protection

DENNIS L. FISHER
REGISTERED
No. 8684
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

Dennis L. Fisher RPE 8684: Dennis L. Fisher
Date: 10-16-2015

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SHAWN HARLAN MSH PAD
LIBERTY DISTRICT, MARSHALL COUNTY, WV
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