



**west virginia** department of environmental protection

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

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

May 28, 2014

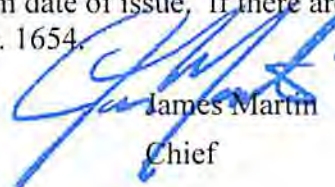
**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-9703432, issued to CHESAPEAKE APPALACHIA, L.L.C., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: 626615  
Farm Name: SUN LUMBER COMPANY  
**API Well Number: 47-9703432**  
**Permit Type: Plugging**  
Date Issued: 05/28/2014

Promoting a healthy environment.

05/30/2014

# PERMIT CONDITIONS

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

## CONDITIONS

---

1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.
4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

9703432P

WW-4B  
Rev. 2/01

1) Date April 9, 2014  
2) Operator's  
Well No. 626615  
3) API Well No. 47-097 - 03432

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil \_\_\_ / Gas X / Liquid injection \_\_\_ / Waste disposal \_\_\_ /  
(If "Gas, Production \_\_\_ or Underground storage \_\_\_) Deep \_\_\_ / Shallow X

5) Location: Elevation 2628' Watershed Howell Fork  
District Banks County Upshur Quadrangle Goshen

6) Well Operator Chesapeake Appalachia, LLC 7) Designated Agent Eric B. Gillespie  
Address P.O. Box 1300 Address P.O. Box 6070  
Jane Lew, WV 26378 Charleston, WV 25301

8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name Bill Hatfield Name R & J Well Service  
Address PO Box 522 Address P.O. Box 37  
Buckhannon, WV 26201 Hueysville, KY 41640

10) Work Order: The work order for the manner of plugging this well is as follows:  
MIRU construction equipment if necessary to repair road / location in order to get workover rig in. Remove any tanks, separators, well lines, meter runs, exc. MIRU service rig & needed  
BOP equipment. NOTE: Blow down well to pit or tank. TIH strapping 2 3/8" tubing to PBTD of 7,420' & tag Halliburton solid composite plug. NOTE: If PBTD is incorrect, SD and  
contact Engineer. Load hole with 165 bbls of 6% gelled water or break surface with circulation. Pump 11 sks of Class A cement for 100' cement plug, flush tubing with 29 bbls 6% gelled water.  
TOOH with 2 3/8" tubing to surface. SD & WOC for 8 hours. RIH w/ sandline tools & tag plug @ 7,320' +/- Plug must be at 7,320' or higher; Add additional cement if needed.  
ND BOP & 'B' Section. Weld on 5 1/2" pull sub. RU casing jacks and remove slips. Work casing for free point and ensure casing is free at or deeper than 6,750'. NU 'B' Section & BOP.  
RU Wireline and cut 5 1/2" 20# casing @ 6,750'. Pull and laydown casing. (Note TOC @ 6,884'). TIH w/ 2 3/8" tubing to 6,700' (50' inside of 5 1/2" casing).  
Circulate hole w/ 248 bbls of 6% gelled water. Pump 22 sks of Class A cement for 100' cement plug (50' inside of 5 1/2" & 50' above casing stub), flush tubing with 27 bbls 6% gelled water.  
TOOH + 300' with 2 3/8" tubing. SD & WOC for 8 hours. TIH w/ 2 3/8" tubing & tag plug @ 6,600'. Plug must be at 6,600' or higher; Add additional cement if needed. TOOH w/ 2 3/8" tubing  
to 2,666'. and Pump 32 sks of Class A cement for 100' elevation cement plug, flush tubing with 11 bbls 6% gelled water. TOOH + 300' with 2 3/8" tubing. SD & WOC for 8 hours.  
TIH w/ 2 3/8" tubing & tag plug @ 2,566'. Plug must be at 2,566' or higher; Add additional cement if needed. TOOH w/ 2 3/8" tubing to 1,100' and Pump 32 sks of Class A cement

Received

APR 17 2014

for 100' intermediate shoe cement plug, flush tubing with 5 bbls 6% gelled water 20. TOOH + 300' with 2 3/8" tubing. SD & WOC for 8 hours. (cont.)  
Notification must be given to the district oil and gas inspector 24 hours before oil and gas work can commence. WV Dept. of Environmental Protection

Work order approved by inspector Bill Hatfield Date 4/15/2014

05/30/2014

1) Date April 9, 2014  
2) Operator's Well No. 626615  
3) API Well No. 47-097 - 03432

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil \_\_\_ / Gas X / Liquid injection \_\_\_ / Waste disposal \_\_\_ /  
(If "Gas, Production \_\_\_ or Underground storage \_\_\_) Deep \_\_\_ / Shallow X

5) Location: Elevation 2628' Watershed Howell Fork  
District Banks County Upshur Quadrangle Goshen

6) Well Operator Chesapeake Appalachia, LLC 7) Designated Agent Eric B. Gillespie  
Address P.O. Box 1300 Address P.O. Box 6070  
Jane Lew, WV 26378 Charleston, WV 25301

8) Oil and Gas Inspector to be notified Name Bill Hatfield  
Address PO Box 522  
Buckhannon, WV 26201  
9) Plugging Contractor Name R & J Well Service  
Address P.O. Box 37  
Hueysville, KY 41640

10) Work Order: The work order for the manner of plugging this well is as follows:  
TIH w/ 2 3/8" tubing & tag plug @ 1,000'. Plug must be at 1,000'; Add additional cement if needed. TOOH w/ 2 3/8" tubing to 100' Pump 6 bbl of 5% gelled water  
or break circulation. Pump 29 sks of Class A cement for 100' surface cement plug, TOOH w/ tubing. Top off well with required Class A cement as needed.  
Install a 36 inch casing monument w/ 2" vent. Install a Aluminum plat monument with ALL required WV dates and WV API number, RDMO all service equipment providers  
and reclaim location to WV State requirements.

★ Add 100' CLASS A CEMENT PLUG FROM 4300' - 4200'  
ACROSS BENSON

JMM  
5/27/14

Received

APR 17 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector Bill Hatfield Date 4/15/2014

**SCOPE OF OPERATION**

1. Safety is the highest priority. Control costs and avoid unnecessary expenditures.
2. TIH with 2-3/8" tubing to PBTD of 7,420'.
3. Pump required cement and gel plugs per WV DEP state requirements
4. Plant a well monument with WV State API number

**PROCEDURE**

1. **Contact the WV State Inspector 48 hours prior to operations.**
2. **Safety is the highest priority.** Hold wellsite safety meetings prior to each significant operation. Review critical parameters and objectives as well as emergency action plans.
3. MIRU construction equipment if necessary to repair road / location in order to get workover rig in. Remove any tanks, separators, well lines, meter runs, exc.
4. MIRU service rig & needed BOP equipment. **NOTE: Blow down well to pit or tank.**
5. TIH strapping 2 3/8" tubing to PBTD of 7,420' & tag Halliburton solid composite plug. **NOTE: If PBTD is incorrect, SD and contact Engineer.**
6. Load hole with 165 bbls of 6% gelled water or break surface with circulation.
7. Pump 11 sks of Class A cement for 100' cement plug, flush tubing with 29 bbls 6% gelled water.
8. TOOH with 2 3/8" tubing to surface. **SD & WOC for 8 hours.**
9. RIH w/ sandline tools & tag plug @ 7,320' +/- . Plug must be at 7,320' or higher; Add additional cement if needed.
10. ND BOP & 'B' Section. Weld on 5 1/2" pull sub. RU casing jacks and remove slips. Work casing for free point and ensure casing is free at or deeper than 6,750'.
11. NU 'B' Section & BOP. RU Wireline and cut 5 1/2" 20# casing @ 6,750'. Pull and laydown casing. (Note TOC @ 6,884')
12. TIH w/ 2 3/8" tubing to 6,700'(50' inside of 5 1/2" casing). Circulate hole w/ 248 bbls of 6% gelled water. Pump 22 sks of Class A cement for 100' cement plug (50' inside of 5 1/2" above casing stub), flush tubing with 27 bbls 6% gelled water.

Received

APR 17 2014

05/30/2014

13. TOOH  $\pm$  300' with 2 3/8" tubing. SD & WOC for 8 hours.
  14. TIH w/ 2 3/8" tubing & tag plug @ 6,600'. Plug must be at 6,600' or higher; Add additional cement if needed.
  - 15.
  16. TOOH w/ 2 3/8" tubing to 2,666' and Pump 32 sks of Class A cement for 100' elevation cement plug, flush tubing with 11 bbls 6% gelled water
  17. TOOH  $\pm$  300' with 2 3/8" tubing. SD & WOC for 8 hours.
  18. TIH w/ 2 3/8" tubing & tag plug @ 2,566'. Plug must be at 2,566' or higher; Add additional cement if needed.
  19. TOOH w/ 2 3/8" tubing to 1,100' and Pump 32 sks of Class A cement for 100' intermediate shoe cement plug, flush tubing with 5 bbls 6% gelled water
  20. TOOH  $\pm$  300' with 2 3/8" tubing. SD & WOC for 8 hours.
  21. TIH w/ 2 3/8" tubing & tag plug @ 1,000'. Plug must be at 1,000'; Add additional cement if needed.
  22. TOOH w/ 2 3/8" tubing to 100' Pump 6 bbl of 6% gelled water or break circulation. Pump 29 sks of Class A cement for 100' surface cement plug, TOOH w/ tubing.
  23. Top off well with required Class A cement as needed.
  24. Install a 36 inch casing monument w/ 2" vent. Install a Aluminum plat monument with ALL required WV dates and WV API number.
  25. RDMO all service equipment providers and reclaim location to WV State requirements.
15. TOOH w/ 2 3/8" tubing to 4300' and pump 32 sks of class A cement for 100' Benson plug. TOOH  $\pm$  300' with 2 3/8" tubing. SD & WOC for 8 hours.
- 15 a. TIH w/ 2 3/8" tubing and tag plug @ 4200'. Plug must be at 4200' or higher. Add additional cement if needed.

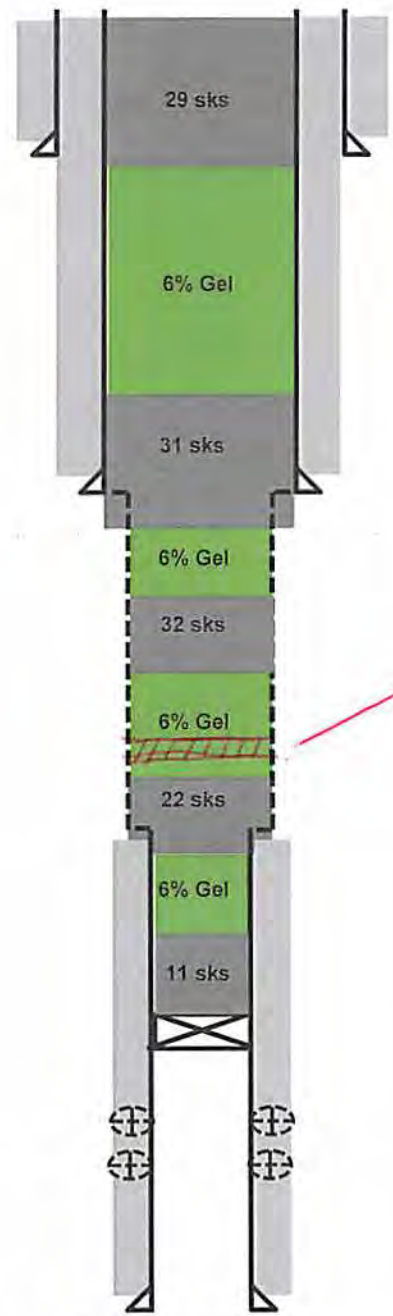
JWM  
5/27/14

Received

APR 17 2014

9703432P

### Sun Lumber Co 7 #626615



Plug from surface to 100'

11 3/4" Csg set @ 268'

8 5/8" Csg set @ 1,050'

8 5/8" TOC @ 22'

Elevation Plug from 2,566' to 2,666'

*Benson Plug 32 SKS 4300' - 4200' CLASS A 9 W/ 5127114*

Cut 5 1/2" @ 6,750'

5 1/2" TOC @ 6,884'

8K SOLID COMPOSITE PLUG @ 7,420'

128 Perfs 7,488-7,520

5 1/2" Csg set @ 7,716'

TD @ 7,716'

- Class A Cement
- Perforated Zone
- 6% Bentonite Gel
- SBP

Received

APR 17 2014

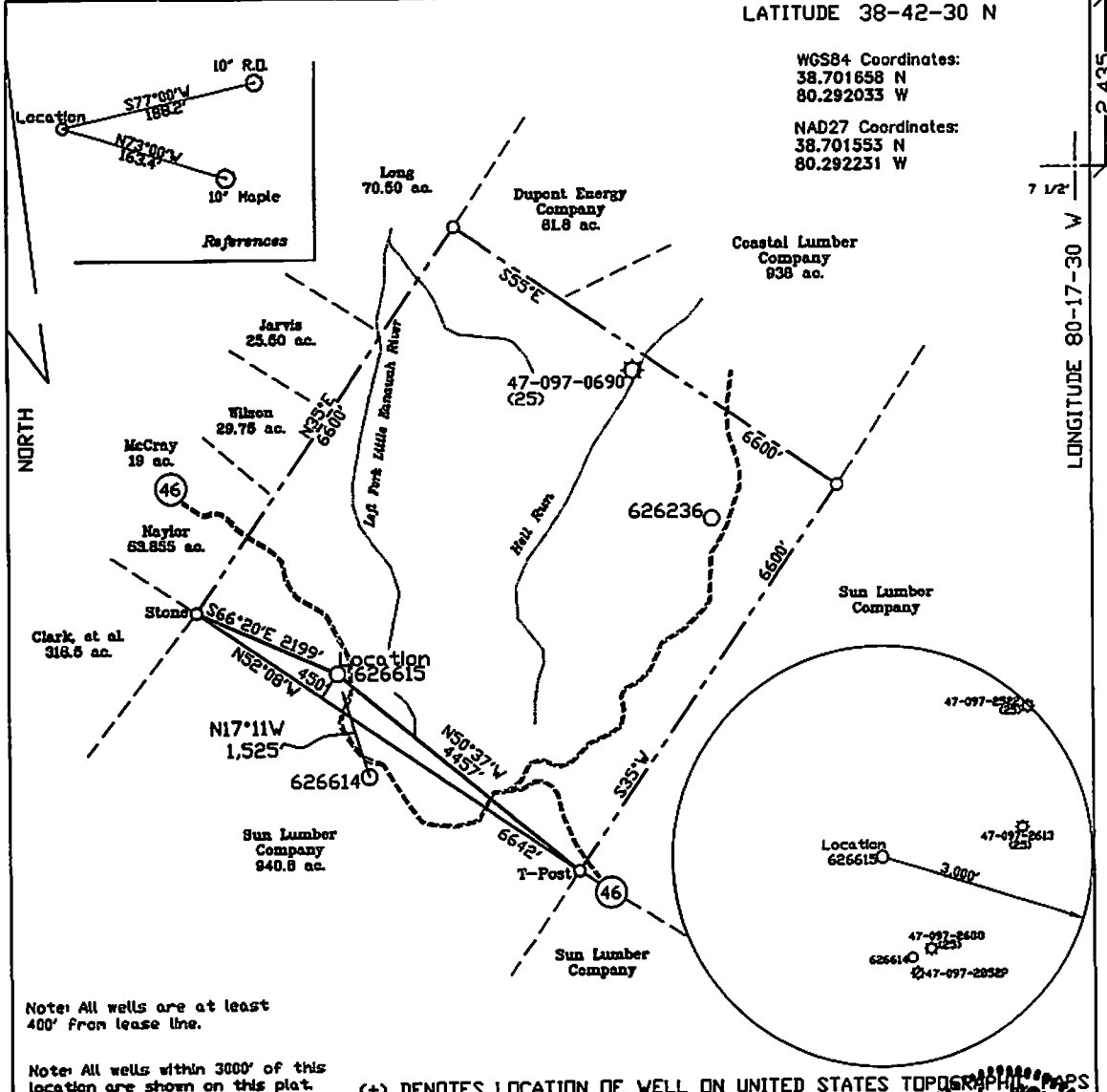
Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014

9703432P

LATITUDE 38-42-30 N

WGS84 Coordinates:  
38.701658 N  
80.292033 W  
NAD27 Coordinates:  
38.701553 N  
80.292231 W



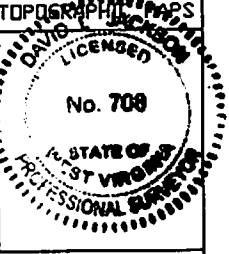
Note: All wells are at least 400' from lease line.

Note: All wells within 3000' of this location are shown on this plat.

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

FILE NO. \_\_\_\_\_  
 DRAWING NO. 1  
 SCALE 1" = 2,000'  
 MINIMUM DEGREE OF ACCURACY 1 in 200  
 PROVEN SOURCE OF ELEVATION CPS  
Submeter unit

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 THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.  
 (SIGNED) David Jackson  
 R.P.E. \_\_\_\_\_ L.L.S. 708



STATE OF WEST VIRGINIA  
 Division of Environmental Protection  
 OFFICE OF OIL AND GAS

DATE June 27 2007  
 OPERATOR'S WELL NO. 626615  
 API WELL NO. 47-097 STATE COUNTY PERMIT

WELL TYPE: OIL X GAS X LIQUID INJECTION WASTE DISPOSAL \_\_\_\_\_  
 (IF 'GAS') PRODUCTION X STORAGE DEEP X SHALLOW \_\_\_\_\_

LOCATION: ELEVATION 2,628' WATER SHED Howell Fork  
 DISTRICT Banks COUNTY Upshur  
 QUADRANGLE Goshen 7 1/2'

SURFACE OWNER Sun Lumber Company ACREAGE 988 ac.  
 OIL & GAS ROYALTY OWNER Sun Lumber Company et al LEASE ACREAGE 988 ac.  
 LEASE NO. 1090247

PROPOSED WORK: DRILL X CONVERT \_\_\_\_\_ DRILL DEEPER REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE \_\_\_\_\_ PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_\_\_ CLEAN OUT AND REPLUG \_\_\_\_\_  
 TARGET FORMATION Producing Marcellus, Log Chert & Plug Back To Marcellus ESTIMATED DEPTH 2,677'  
 WELL OPERATOR Chesapeake Appalachia, LLC DESIGNATED AGENT Michael John  
 ADDRESS P.O. Box 6070, Charleston, WV 25362-0070 ADDRESS P.O. Box 6070, Charleston, WV 25362-0070

Received

APR 17 2014



23

APPROVED BY 0026

9703432P

FORM WW-2B

Page 3 of 8

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

97-03432

- 1) Well Operator: Chesapeake Appalachia, L.L.C.
- 2) Operator's Well Number: 626615 3) Elevation: 2,628
- 4) Well type: (a) Oil  / or Gas  /  
If Gas:  
(b) Production  / Underground Storage  /  
Deep  / Shallow  /
- 5) Proposed Target Formation(s): Marcellus / Chert Producing Marcellus, logging chert and setting plug at top of Onondoga
- 6) Proposed Total Depth: 7,617 feet
- 7) Approximate fresh water strata depths: 44'
- 8) Approximate salt water depths: 980'
- 9) Approximate coal seam depths: 244'
- 10) Does land contain coal seams tributary to active mine? Yes  / No  /
- 11) Proposed Well Work: Drill and stimulate well
- 12) CASING AND TUBING PROGRAM

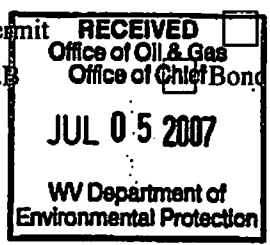
97-1-377

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT	
	String	Size	Grade	Weight Per ft.	For Drilling	Left in Well	Fill - Up (cu. Ft.)
Conductor	16"	LS			40'	40'	None
Fresh Water	11 1/2"	LS			<del>295'</del>	CTS	CTS
Intermediate	8-5/8"	L.S.	23#		1050'	1050'	CTS
Production	5 1/2"	N-80	17#		7617'	7617'	As Required by 35 CSR 4-11-1
Tubing	2 3/8"	J-55	2.7#		7542'		

PACKERS: Kind None  
Sizes \_\_\_\_\_  
Depths set \_\_\_\_\_

For Division of Oil and Gas Use Only

- Fee(s) paid:  Well Work Permit  Reclamation Fund  WPCP
- Plat  WW-9  WW-2B  Office of Chief Bond  Agent



(Type)

Handwritten note: 7020000322 \$900-

WR-35

Date 06/12/2008  
API # 47-097-03432

State of West Virginia  
Division of Environmental Protection  
Section of Oil and Gas  
Well Operator's Report of Well Work

Farm Name: Sun Lumber Company

Operator Well No.: 626615

LOCATION Elevation: 2628'  
District: Banks  
Latitude: 2,435 ft South of 38° 42' 30"  
Longitude: 210 ft West of 80° 17' 30"

Quadrangle: Goshen 7.5  
County: Upshur

Company: Chesapeake Energy  
P.O. Box 6070  
Charleston, WV 25362-000

Casing & Tubing	Used in Drilling	Left in Well	Cement Pill-Up Cu.Ft.
16"	47' KB	47' KB	Driven
11 3/4"	275' KB	275' KB	177
8 5/8"	1050' KB	1050' KB	266
5 1/2"	7719' KB	7719' KB	432.4

Agent: Mike John  
Inspector: Craig Duckworth  
Date Permit Issued: 07/12/2007  
Date Well work commenced: 11/11/2007  
Date Well Work completed: 01/29/2007  
Verbal Plugging Permission  
Granted on / /  
Rotary  Cable  Rig  
Total Depth (ft): DTD: 7716' LTD: 7704'  
Fresh Water Depth (ft): 47'  
Salt Water Depth (ft): NA  
Is coal being mined in area (Yes  No )  
Coal Depths (ft): NA

RECEIVED  
Office of Oil & Gas

FEB 08 2011

WV Department of  
Environmental Protection

Open Flow Data

1<sup>st</sup> Producing Formation Marcellus Pay Zone Depth 7,488 ft to 7,520 ft

Gas: Initial Open Flow Mcf/day Oil: Initial Open Flow bb/day  
Final Open Flow 920 Mcf/day Final Open Flow bb/day  
Time of Open Flow between Initial and Final Tests In hours  
Line  
Static Rock Pressure 1200 psig after 24 hours

2<sup>nd</sup> Producing Formation Pay Zone Depth ft to ft

Gas: Initial Open Flow Mcf/day Oil: Initial Open Flow bb/day  
Final Open Flow Mcf/day Final Open Flow bb/day  
Time of Open Flow between Initial and Final Tests hours  
Static Rock Pressure psig after hours

3<sup>rd</sup> Producing Formation Pay Zone Depth ft to ft

Gas: Initial Open Flow Mcf/day Oil: Initial Open Flow bb/day  
Final Open Flow Mcf/day Final Open Flow bb/day  
Time of Open Flow between Initial and Final Tests hours  
Static Rock Pressure psig after hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: [Signature]  
CHESAPEAKE APPALACHIA, LLC

By: DIS MLR  
Date: 7/09/08

**Chesapeake Energy**  
**Well No.: 626615**

**Perforated Intervals**

1 <sup>st</sup> Stage	Marcellus	128	holes from	7,488 ft	to	7,520 ft
2 <sup>nd</sup> Stage			holes from	ft	to	ft
3 <sup>rd</sup> Stage			holes from	ft	to	ft
4 <sup>th</sup> Stage			holes from	ft	to	ft
5 <sup>th</sup> Stage			holes from	ft	to	ft

**Fracturing / Stimulation**

1 <sup>st</sup> Stage	Marcellus	Type of Treatment	Slick Water
	Total Acid 36 Gal of 15% HCl	Breakdown Pressure	4300 psi
	Average Rate 79 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>	ATP	3612 psi
	Total Fluid 20,404 bbl	Total Nitrogen	0 scf
	ISIP 1522 psi	5 mln	1490 psi
		Total Sand	66,500 lb of 100
		Total Sand	353,860 lb of 30/70

**Well Log**

Formation Name	Top	Bottom	Comments
Sand/Shale/Coal	0	792	
Salt Sand	792	1022	
Sand/Shale	1022	1106	
Ravenciff	1106	1192	
Sand/Shale	1192	1291	
Maxon	1291	1342	
Sand/Shale	1342	1528	
Middle Maxon	1528	1598	
Sand/Shale	1598	1673	
Bradley	1673	1730	
Little Lime	1730	1754	
Big Lime	1754	1956	
Big Injun	1956	2112	
Pocono Shale	2112	2270	
Weir	2270	2336	
Pocono Shale	2336	2394	
Berea	2394	2484	
Pocono Shale	2484	2530	
Fifth	2530	2634	
Pocono Shale	2634	3512	
Riley	3512	3600	
Pocono Shale	3600	4288	
Benson	4288	4292	
Pocono Shale	4292	4644	
Alexander	4644	4732	
Devonian Shale	4732	6598	
Elk	6598	6648	
Devonian Shale	6648	7296	
Genesee	7296	7338	
Tulley	7338	7365	
Hamilton	7365	7448	
Marcellus	7448	7520	
Onandoga	7520	7534	
Oriskany	7534	7704	

9703432A

# Current Wellbore Schematic

WELL (PN): SUN LUMBER CO 7 (626615)  
 FIELD OFFICE: JANE LEW  
 FIELD: CLEVELAND STORAGE  
 STATE / COUNTY: WEST VIRGINIA / UPSHUR  
 LOCATION: T/D BANKS, Q-GOSHEN  
 ROUTE: CE-JLC-RT 302 - KENNA ULDERICH  
 ELEVATION: GL: 2,616.0 KB: 2,638.0 KB Height: 22.0  
 DEPTHS: TD: 7,716.0

API #: 4709703432  
 Serial #: 3432  
 SPUD DATE: 11/11/2007  
 RIG RELEASE: 12/13/2007  
 1ST SALES GAS: 4/2/2008  
 1ST SALES OIL:  
 Current Status: SHUTIN

VERTICAL - Original Hole, 4/7/2014 8:54:03 AM		Wellheads									
Vertical schematic (actual)	Zones	Type					Com				
		<b>Surface Casing; Set @ 268.0 ftKB ; Original Hole</b>									
		Set Tension (kips)		Mud Weight		Cut Pull Date			Depth Cut Pull (ftKB)		
		Item Des	OD (in)	ID (in)	Drift (in)	Wt (lb/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)
		Casing Joints	11 3/4	11.084		42.00	H-40	LT&C	22.0	266.5	244.50
		Guide Shoe	11 3/4			42.00	H-40	LT&C	266.5	268.0	1.50
		<b>Intermediate Casing; Set @ 1,050.0 ftKB ; Original Hole</b>									
		Set Tension (kips)		Mud Weight		Cut Pull Date			Depth Cut Pull (ftKB)		
		Item Des	OD (in)	ID (in)	Drift (in)	Wt (lb/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)
		Casing Joints	8 5/8	7.921		32.00	J-55	LT&C	22.0	1,007.3	985.30
		Float Collar	8 5/8						1,007.3	1,008.3	1.00
Casing Joints	8 5/8	7.921		32.00	J-55	LT&C	1,008.3	1,049.0	40.70		
Float Shoe	8 5/8					ST-C	1,049.0	1,050.0	1.00		
<b>Production Casing; Set @ 7,716.0 ftKB ; Original Hole</b>											
Set Tension (kips)		Mud Weight		Cut Pull Date			Depth Cut Pull (ftKB)				
Item Des	OD (in)	ID (in)	Drift (in)	Wt (lb/ft)	Grade	Top Thread	Top (ftKB)	Btm (ftKB)	Len (ft)		
Casing Joints	5 1/2	4.778		20.00	P-110	LT&C	22.0	7,716.0	7,694.00		
<b>Description: Surface Casing Cement</b> <b>22.0-268.0</b> <b>Top of Cement (ftKB): 22.0</b> <b>Top Measurement Method: Returns to Surface</b>											
Fluid	Pump Start Date	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbl)	Yield (ft <sup>3</sup> /sack)					
Lead	11/14/2007	150	A								
<b>Description: Intermediate Casing Cement</b> <b>22.0-1,050.0</b> <b>Top of Cement (ftKB): 22.0</b> <b>Top Measurement Method: Returns to Surface</b>											
Fluid	Pump Start Date	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbl)	Yield (ft <sup>3</sup> /sack)					
Lead	11/16/2007	225	A								
<b>Description: Production Casing Cement</b> <b>6,884.0-7,716.0</b> <b>Top of Cement (ftKB): 6,884.0</b> <b>Top Measurement Method: Acoustic Log</b>											
Fluid	Pump Start Date	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbl)	Yield (ft <sup>3</sup> /sack)					
Lead	12/14/2007	230	Poz 50/50	13.50		1.58					
<b>Perforations</b>											
Date	Zone	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Current Status						
1/24/2008	MARCELLUS SHALE, Original Hole	7,488.0	7,520.0	4.0	Isolated						

Received

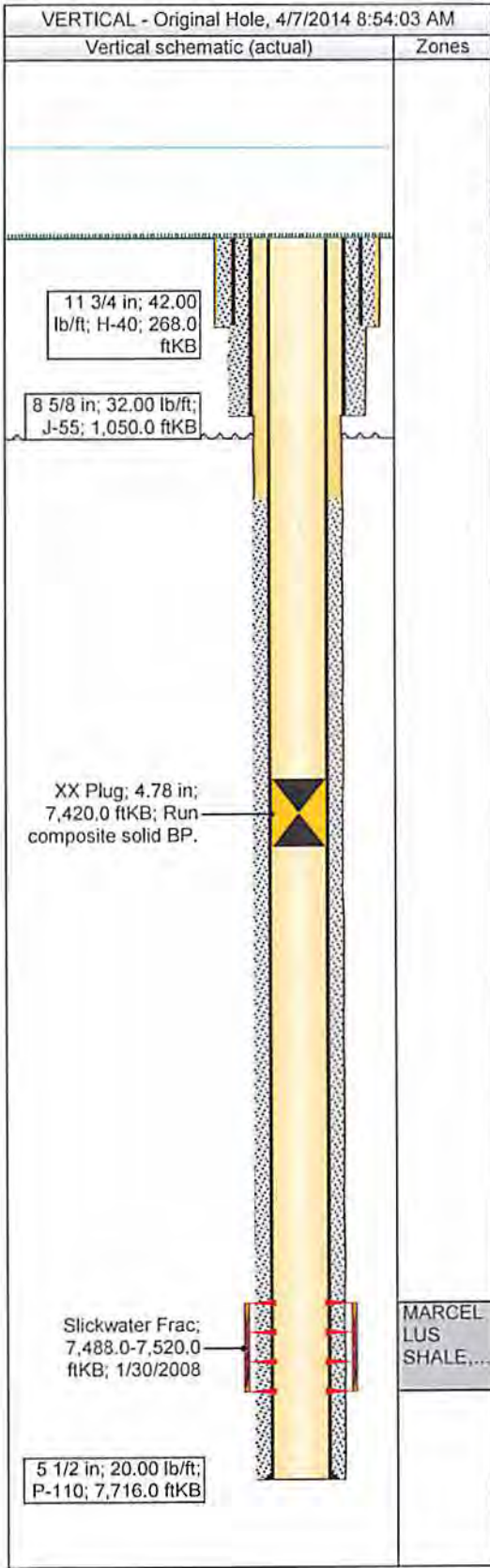
APR 17 2014

9703432P

### Current Wellbore Schematic

WELL (PN): SUN LUMBER CO 7 (626615)  
 FIELD OFFICE: JANE LEW  
 FIELD: CLEVELAND STORAGE  
 STATE / COUNTY: WEST VIRGINIA / UPSHUR  
 LOCATION: T/D BANKS, Q-GOSHEN  
 ROUTE: CE-JLC-RT 302 - KENNA ULDERICH  
 ELEVATION: GL: 2,616.0 KB: 2,638.0 KB Height: 22.0  
 DEPTHS: TD: 7,716.0

API #: 4709703432  
 Serial #: 3432  
 SPUD DATE: 11/11/2007  
 RIG RELEASE: 12/13/2007  
 1ST SALES GAS: 4/2/2008  
 1ST SALES OIL:  
 Current Status: SHUTIN



Stimulations & Treatments						
MARCELLUS SHALE, Stage 1, Slickwater Frac, 1/30/2008						
Min Top Dep.	Max Btm De...	Total Clean...	Avg Treat Pr...	Q Treat Avg...	Post ISIP (psi)	Comment
7,488.0	7,520.0	77.00	3,612.0	79.00	1,522.0	66,500 #100 mesh, .1 to .5 ppg., & 353,860 # of 30/70 .1 to 3 ppg. Total sand 420,360# total H2O 20,404 bbls, 1500 gals HCL acid
Sand Size		Type	Amount	Conc (lb/gal)		
100 Mesh		Northern White Sand	66,500.0			
30/50		Northern White Sand	353,860.0			

Received

APR 17 2014

Office of Oil and Gas  
 WV Dept. of Environmental Protection

05/30/2014



**Sun Lumber Co 7 (626615)  
P&A Procedure  
Upshur County, WV  
API Number: 47-097-03432  
GWI: 0.975      NRI: 0.853**

April 7, 2014

**Discussion**

Approval is requested to plug and abandon the subject well, Sun Lumber Co 7. The subject well is located in Upshur County, WV. It was spud 11/11/2007 and drilled to a depth of 7,716' where it was completed in the Marcellus Shale. Presently the well is non-producing with last recorded production in August 4, 2009 of 6 mcf. The subject well proved to be uneconomical and was plugged back to 7,420' with an 8K solid composite plug while the offset (Sun Lumber Co 8) was unsuccessfully tested uphole in the Geneseo formation. Since there is not any further uphole potential, it is recommend that COI plug and abandon the subject well to eliminate operating cost associated with the asset and mitigate any future liability associated with the well. Additionally the well is listed on the WVDEP plug or produce ultimatum expiring 2019.

**Approvals**

\_\_\_\_\_  
Production Manager

\_\_\_\_\_  
Geoscience Manager

\_\_\_\_\_  
Land Manager

\_\_\_\_\_  
Reservoir Manager

\_\_\_\_\_  
Production Engineering Advisor

**Scott Glenn**

**Michelle Hileman**

**Jeff Brooks**

**David Eudey**

**Robert Bradley**

Received

APR 17 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014

**PERSONNEL / PHONE LIST****Central District Team**

Production Engineer	Robert Bradley	Office: (405) 935-1886 Mobile (817) 805-0957
Operations Manager	Chris Flanagan	Office: (304) 517-1416 ext 86044 Mobile: (304) 203-4985
Production Superintendent	Manny Johnson	Office: (740) 695-1623 ext 87804 Mobile: (304) 641-0085
Land Man	Randy Orsburn	Office: (304) 517-1416 ext 86020
WV State Inspector	Bill Hatfield	Cell: (304) 767-1828

**Received**

APR 17 2014

WELL DATA

Location (Surface)	Lat. 38.70148 Long. -80.291905
TD	7,716'

CASING AND TUBULAR DATA

STRING	SIZE	WEIGHT/GRADE	DEPTH
Surface	11 3/4"	42lb/ft; H-40	268'
Intermediate	8 5/8"	32 lb/ft; J-55	1,050'
Production	5 1/2"	20 lb/ft; P-110	7,716'

PRESSURE AND DIMENSIONAL DATA

SIZE	WEIGHT	GRADE	BURST	COLLAPSE	DRIFT
11 3/4"	42lb/ft	H-40	1,980	1,040	10.928"
8 5/8"	32 lb/ft	J-55	2,860	2,530	7.796"
5 1/2"	20 lb/ft	P-110	12,640	11,100	4.653"
2 3/8"	4.7 lb/ft	N-80	11,200	11,780	1.901"

CAPACITIES

SIZE	WEIGHT	CAPACITY (FT <sup>3</sup> /FT.)	CAPACITY (BBL/FT.)
11 3/4"	42lb/ft	0.6701	0.1193
8 5/8"	32 lb/ft	0.3422	0.0609
7 7/8"	Open Hole	0.3382	0.0602
5 1/2"	20 lb/ft	0.1245	0.0222
2 3/8"	4.7 lb/ft	0.0217	0.0039

WELLHEAD EQUIPMENT

COMPONENT	SIZE & RATING
Manufacturer	?
Tubing Spool	?
Casing Spool	?
Bradenhead	?

DRIVING DIRECTIONS

Contact Field Personnel

Received

APR 17 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014



9703432P CK# 5146997  
\$ 100<sup>00</sup>

WW-4A  
Revised 6-07

1) Date: April 9, 2014  
2) Operator's Well Number  
626615  
3) API Well No.: 47 - 097 - 03432

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Sun Lumber Co</u> ✓	Name _____
Address <u>29 Main Ave. PO Box 590</u>	Address _____
<u>Weston, WV 26452</u>	
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Sun Lumber Co</u>
	Address <u>29 Main Ave. PO Box 590</u> ✓
	<u>Weston, WV 26452</u>
(c) Name _____	Name _____
Address _____	Address _____
6) Inspector <u>Bill Hatfield</u>	(c) Coal Lessee with Declaration
Address <u>PO Box 522</u>	Name _____
<u>Buckhannon, WV 26201</u>	Address _____
Telephone <u>304-767-1828</u>	

**TO THE PERSONS NAMED ABOVE:** You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Received

Well Operator	<u>Chesapeake Appalachia, LLC</u>	
By:	<u>Dee Southall</u>	<u>APR 17 2014</u>
Its:	<u>Regulatory Analyst II</u>	
Address	<u>P.O. Box 1300</u>	<u>Office of Oil and Gas</u>
	<u>Jane Lew, wv 26378</u>	<u>WV Dept. of Environmental Protection</u>
Telephone	<u>304-517-1416 EXT. 86024</u>	

Subscribed and sworn before me this 11th day of April 2014  
Brittany R Woody Notary  
My Commission Expires 11/27/2022



**Oil and Gas Privacy Notice**

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a 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 of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

05/30/2014

9703432P

10 0002 7258 5203

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

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

Postage	\$	
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		

Sun Lumber Co  
29 Main Ave.  
PO Box 590  
Weston, WV 26452

PS Form 3800, August 2006 See Reverse for Instructions

Received

APR 17 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

9703A32P

WW-9  
Rev. 5/08

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 097 - 03432  
Operator's Well No. 626615

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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM  
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name Chesapeake Appalachia, LLC OP Code 494477557

Watershed Howell Fork Quadrangle Goshen

Elevation 2628' County Upshur District Banks

Description of anticipated Pit Waste: Water from plugging process

Will a synthetic liner be used in the pit? yes 20 ML.

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 2D0072539/2D0413175/2D0610306/2D0610317 )
- Reuse (at API Number at next anticipated well, API# will be included on the WR34/&or permit addendum )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain flowback will be put in steel tanks and reused or taken to permitted disposal facility)

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain \_\_\_\_\_)
- Swabbing
- Plugging

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 Analyst II

Received

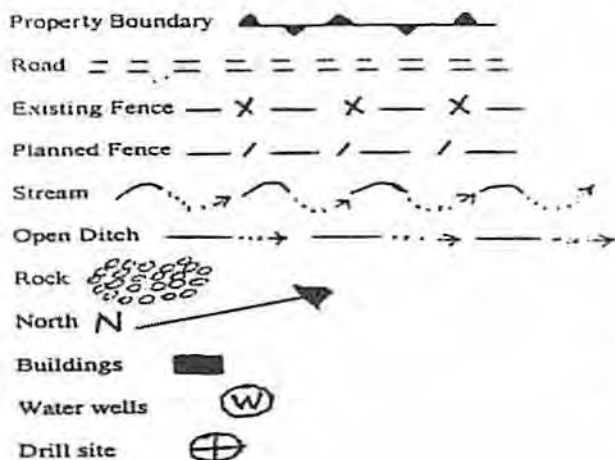
APR 17 2014

Subscribed and sworn before me this 11<sup>th</sup> day of April, 2014 Office of Oil and Gas  
WV Dept. of Environmental Protection

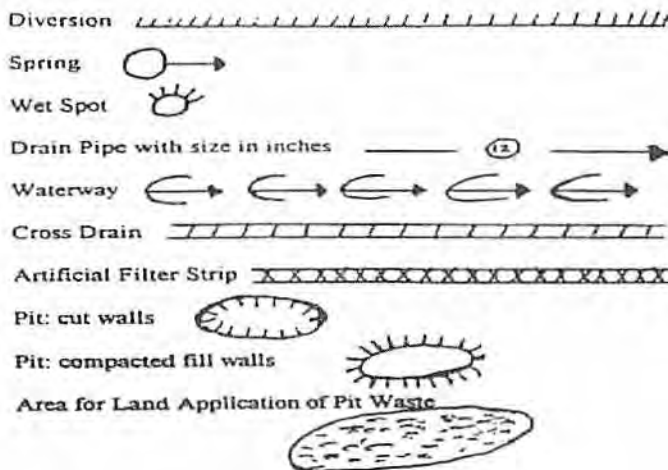
Brittany R Woody Notary Public

My commission expires 11/27/22





**LEGEND**



Proposed Revegetation Treatment: Acres Disturbed \_\_\_\_\_ Prevegetation pH \_\_\_\_\_

Lime <sup>as determined by pH test min. 2</sup> \_\_\_\_\_ Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) <sup>500</sup> \_\_\_\_\_ lbs/acre (500 lbs minimum)

Mulch <sup>Hay/Straw</sup> \_\_\_\_\_ Tons/acre

Seed Mixtures

Seed Type	Area I		Seed Type	Area II	
		lbs/acre			lbs/acre
Orchard Grass	20		Orchard Grass	20	
Red Top	15		Red Top	15	
White Clover	15		White Clover	15	

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Bill Hatfield

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

Received

Title: \_\_\_\_\_ Oil and Gas Inspector

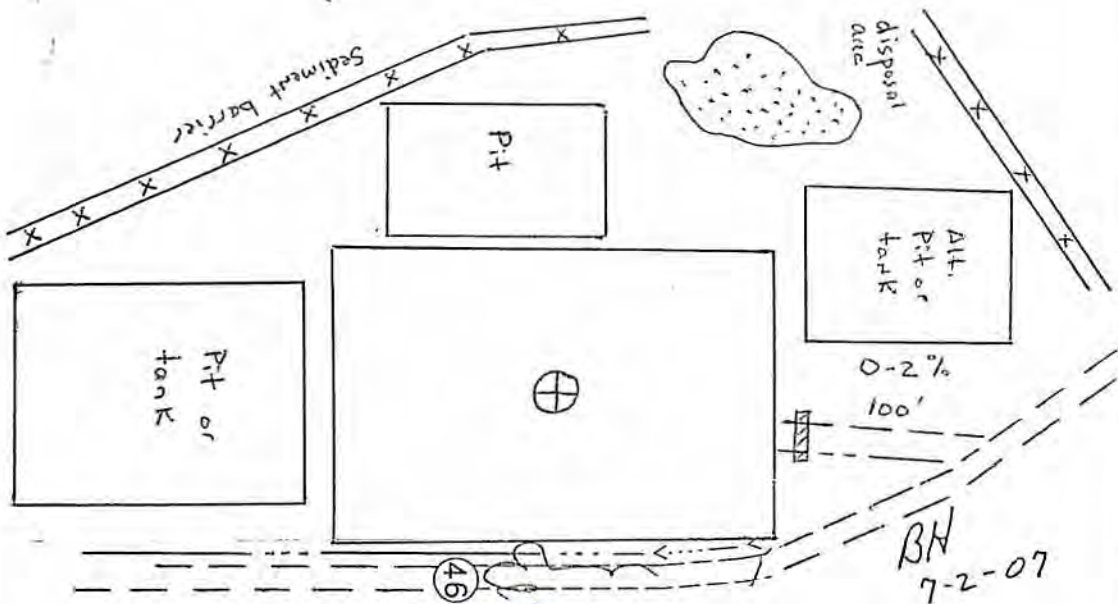
Date: 4-15-2014 APR 17 2014

Field Reviewed?  Yes  No

GENERAL NOTES

- i. This drawing is a schematic representation of the proposed well site and access road. Proposed structures such as well site, drilling pit, roadway, culverts, sediment barriers, etc. are shown in approximate pre-planning configurations.
- ii. Trees and slash will be cleared as necessary before any proposed road, site, or pipeline construction begins. If sufficient residue materials are available from clearing, this material will be windrowed below the anticipated fill cut(slope) to intercept and retain sediment from disturbed areas. All marketable timber will be cut and stacked in areas adjacent to operations.
- iii. All culvert pipes will be a minimum of 12" in diameter. All culvert pipes installed will be accompanied by an entrance sump with dimensions no less than 3 ft. (width) x 3 ft. (length) x 4 ft. (depth). Culverts will be installed at an angle to ensure proper flow. The out fall of culverts will be protected from erosion and sedimentation using large rocks or other sediment controls deemed necessary in the prevention of erosion and sedimentation. Storm water from the ditches to the culverts will be directed to stable natural vegetative areas. Where culverts are not practical, ~~drain~~ will have other sediment control in place to minimize erosion and sedimentation.

Checked by: *[Signature]*



*Bill Hatfield*  
4/15/2014

Received

APR 17 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

05/30/2014

9703432P



Well: Sun Lumber Co 7  
 Permit : 4709703432  
 Quad: Goshen  
 District: Banks  
 County: Upshur  
 State: WV

Geographic NAD83 UTM 17N  
 Latitidue 38.701598  
 Longitude -80.291718  
UTM NAD83 (Meters)  
 561588 E  
 4283901 N

Office of Oil and Gas  
 WV Dept. of Environmental Protection Copyright © 2013 National Geographic Society, i-cubed

Chesapeake  
 05/30/2014  
 0 250 500 1,000  
 Feet

WW-7

8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas  
**WELL LOCATION FORM: GPS**

API: 47-097-03432

WELL NO.: 626615

FARM NAME: Sun Lumber Co

RESPONSIBLE PARTY NAME: Chesapeake Appalachia, LLC

COUNTY: Upshur DISTRICT: Banks

QUADRANGLE: Goshen

SURFACE OWNER: Sun Lumber Co

ROYALTY OWNER: Sun Lumber Co

UTM GPS NORTHING: 4283901

UTM GPS EASTING: 561588

GPS ELEVATION: 2638'

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS \_\_\_\_\_ : Post Processed Differential \_\_\_\_\_  
Real-Time Differential \_\_\_\_\_

Mapping Grade GPS \_\_\_\_\_ : Post Processed Differential \_\_\_\_\_  
Real-Time Differential \_\_\_\_\_

4. **Letter size copy of the topography map showing the well location.**

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

Signature \_\_\_\_\_  
Date 4/11/14

Office of Oil and Gas  
WV Dept. of Environmental Protection  
*Regulatory Analyst II*  
Title \_\_\_\_\_

Received

APR 17 2014

05/30/2014