



west virginia department of environmental protection

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

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

July 16, 2014

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-3300924, 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: 910542
Farm Name: CUNNINGHAM, PATRICK
API Well Number: 47-3300924
Permit Type: Plugging
Date Issued: 07/16/2014

Promoting a healthy environment.

07/18/2014

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.

3300924A

WW-4B
Rev. 2/01

1) Date May 7, 2014
2) Operator's Well No. 910542
3) API Well No. 47-033 - 00924

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 1260' Watershed Isaac Creek
District Sardis County Harrison Quadrangle Wolf Summit

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 Sam Ward Name R & J Well Service
Address PO Box 2327 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 to BR&L (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 an estimated PBTD of 2,744 +/- . NOTE: If PBTD is incorrect, SD and contact Engineer. Load hole with 38 bbls of 6% gelled water or break surface with circulation.
Load hole with 38 bbls of 6% gelled water or break surface with circulation. Pump 8 sks of Class A cement (100' cement plug), flush tubing with 11 bbls 6% gelled water.
TOOH with 2 3/8" tubing to surface. SD & WOC for 8 hours. RIH w/ sandline tools & tag plug @ 2,644' +/- . If plug is not at 2,654', SD and contact the Chesapeake engineer for recalculation.
TIH strapping 2 3/8" tubing to 2,440 +/- . Pump 9 sks of Class A cement (110' cement plug), flush tubing with 9 bbls 6% gelled water. TOOH with 2 3/8" tubing to surface. SD & WOC for 8 hours.
RIH w/ sandline tools & tag plug @ 2,330' +/- . If plug is not at 2,330', SD and contact the Chesapeake engineer for recalculation. RU Wireline and Shoot 4 1/2" casing at 1,500' +/- .
Pull and laydown casing. a. If casing pulls free continue to step 16 b. If casing doesn't pull free attempt to cut again at 1250' and move to step 19. TIH strapping 2 3/8" tubing
to an estimated TD of 1,550 +/- . Pump 21 sks of Class A cement (100' cement plug), flush tubing with 6 bbls 6% gelled water. TOOH with 2 3/8" tubing to surface. SD & WOC for 8 hours.
RIH w/ sandline tools & tag plug @ 1,450' +/- . If plug is not at 1,450', SD and contact the Chesapeake engineer for recalculation. TIH strapping 2 3/8" tubing to an estimated TD of 1,312 +/- .
Pump 21 sks of Class A cement (100' cement elevation plug), flush tubing with 6 bbls 6% gelled water. TOOH with 2 3/8" tubing to surface. SD & WOC for 8 hours.
RIH w/ sandline tools & tag plug @ 1,212' +/- . If plug is not at 1,212', SD and contact the Chesapeake engineer for recalculation. TIH strapping 2 3/8" tubing to an estimated TD of 1,026 +/- .

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

Work order approved by inspector Sam D Ward

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Office of Oil and Gas
MAY 23 2014
WV Department of Environmental Protection
07/18/2014

1) Date May 7, 2014
2) Operator's
Well No. 910542
3) API Well No. 47-033-00924

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 1260' Watershed Isaac Creek
District Sardis County UHarrison Quadrangle Wolf Summit

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 Sam Ward Name R & J Well Service
Address PO Box 2327 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:

- Pump 29 sks of Class A cement (100' cement plug), flush tubing with 4 bbls 6% gelled water, TOOH with 2 3/8" tubing to surface. SD & WOC for 8 hours.
- RIH w/ sandline tools & tag plug @ 926' +/- . If plug is not at 926' SD and contact the Chesapeake engineer for recalculation. TIH strapping 2 3/8" tubing to an estimated TD of 100' +/-.
- Pump 50 bbl of 6% gelled water or break circulation. Pump 29 sks of Class A cement (100' 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.

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

Work order approved by inspector Sp D Warratt Date 5/20/2014

3300924P

Current Wellbore Schematic



WELL (PN): MCCARTHY 1 (910542)
 FIELD OFFICE:
 FIELD: Jane Lew
 STATE / COUNTY: WEST VIRGINIA / HARRISON
 LOCATION: T/D SARDIS, Q-WOLF SUMMIT
 ROUTE: CE-JLN-RT 332 - TODD STARKEY
 ELEVATION: GL: 1,262.0 KB: 1,272.0 KB Height: 10.0
 DEPTHS: TD: 4,740.0

API #: 4703300924
 Serial #: 924
 SPUD DATE: 1/6/1976
 RIG RELEASE: 1/12/1976
 FIRST SALES: 9/27/1976

VERTICAL - Original Hole, 3/18/2014 10:17:45 AM		Conductor Casing; Set @ 27.0 ftKB ; Original Hole									
Vertical schematic (actual)	Zones	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)
<p>13 3/8 in; 0.00 lb/ft; 27.0 ftKB</p> <p>8 5/8 in; 0.00 lb/ft; 976.0 ftKB</p> <p>Frac; 2,379.0-2,390.0 ftKB; 2/21/2007</p> <p>Cast Iron Bridge Plug; 4 1/2 in; 2,744.0 ftKB</p> <p>Frac; 3,444.0-3,472.0 ftKB; 1/19/1976</p> <p>4 1/2 in; 0.00 lb/ft; 3,563.0 ftKB Plug Back Total Depth: 3,563.0 ftKB</p>		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	13 3/8						10.0	27.0	17.00
		Surface Casing; Set @ 976.0 ftKB ; Original Hole									
		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						10.0	976.0	966.00
		Production Casing; Set @ 3,563.0 ftKB ; Original Hole									
		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	4 1/2						10.0	3,563.0	3,553.00	
	FIFTH SAND, Original...	Description: Surface Casing Cement									
		10.0-976.0 Top of Cement (ftKB): 10.0 Top Measurement Method:									
		Fluid	Pump Start Date	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbl)	Yield (ft ³ /sack)			
	FIFTH SAND, Original...	Description: Production Casing Cement									
		2,750.0-3,563.0 Top of Cement (ftKB): 2,750.0 Top Measurement Method:									
		Fluid	Pump Start Date	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbl)	Yield (ft ³ /sack)			
	FIFTH SAND, Original...	Description: Cement Squeeze									
		2,485.0-2,487.0 Top of Cement (ftKB): 2,485.0 Top Measurement Method:									
		Fluid	Pump Start Date	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbl)	Yield (ft ³ /sack)			
	BALLTOWN, Original Hole	Perforations									
		Date	Zone	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Current Status				
		2/20/2007	FIFTH SAND, Original Hole	2,379.0	2,390.0						
		1/19/1976	BALLTOWN, Original Hole	3,444.0	3,446.0		Isolated				
	1/19/1976	BALLTOWN, Original Hole	3,469.0	3,472.0		Isolated					
	Stimulations & Treatments										
	FIFTH SAND, <Stage Number?>, Frac, 2/21/2007										
	Mn Top Dep...	Max Btm De...	Total Clean...	Avg Treat Pr...	Q Treat Avg...	Post ISIP (psi)	Comments				
	2,379.0	2,390.0									
	BALLTOWN, <Stage Number?>, Frac, 1/19/1976										
	Mn Top Dep...	Max Btm De...	Total Clean...	Avg Treat Pr...	Q Treat Avg...	Post ISIP (psi)	Comments				
	3,444.0	3,472.0									



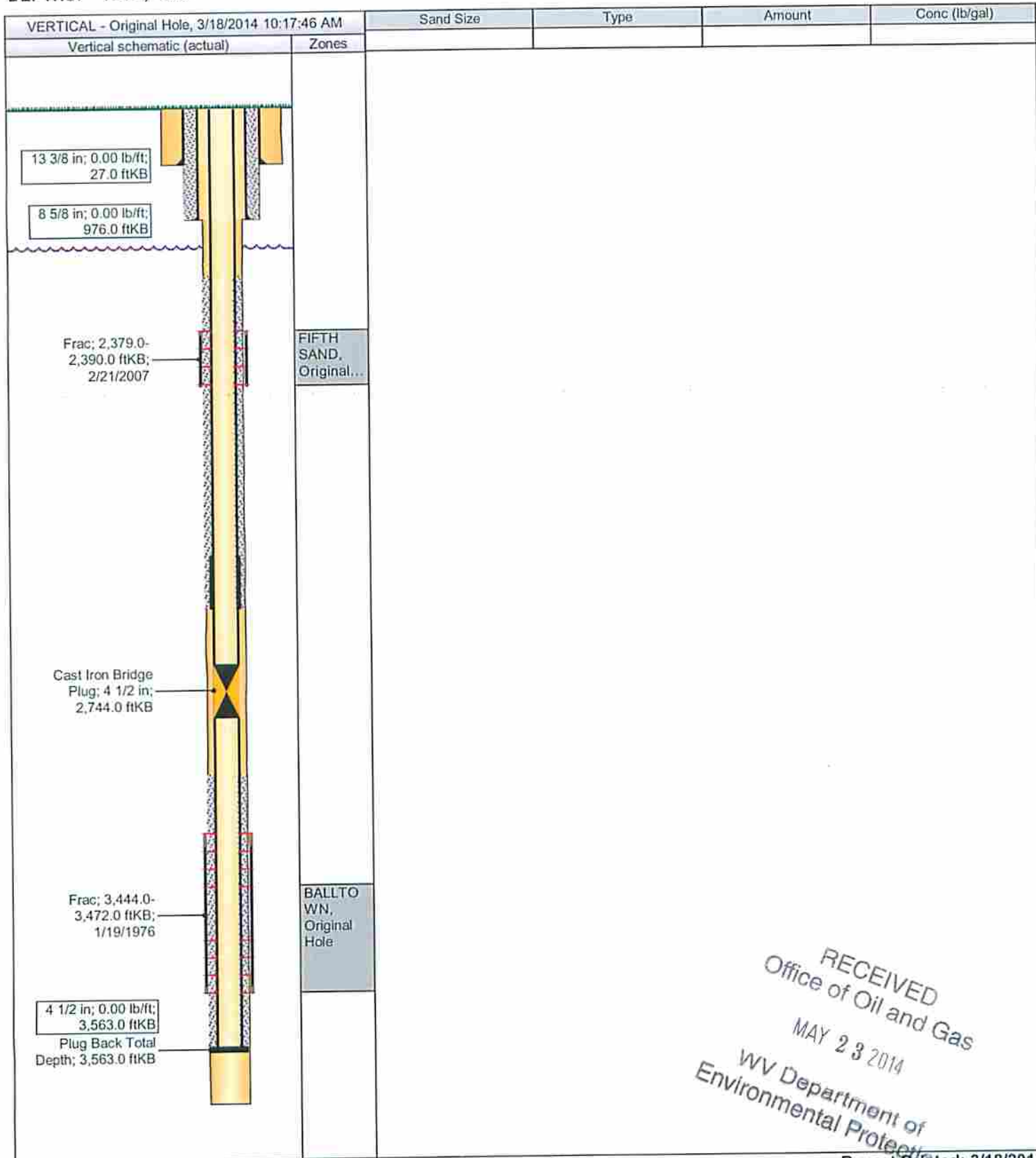
3300924P

Current Wellbore Schematic



WELL (PN): MCCARTHY 1 (910542)
 FIELD OFFICE:
 FIELD: Jane Lew
 STATE / COUNTY: WEST VIRGINIA / HARRISON
 LOCATION: T/D SARDIS, Q-WOLF SUMMIT
 ROUTE: CE-JLN-RT 332 - TODD STARKEY
 ELEVATION: GL: 1,262.0 KB: 1,272.0 KB Height: 10.0
 DEPTHS: TD: 4,740.0

API #: 4703300924
 Serial #: 924
 SPUD DATE: 1/6/1976
 RIG RELEASE: 1/12/1976
 FIRST SALES: 9/27/1976



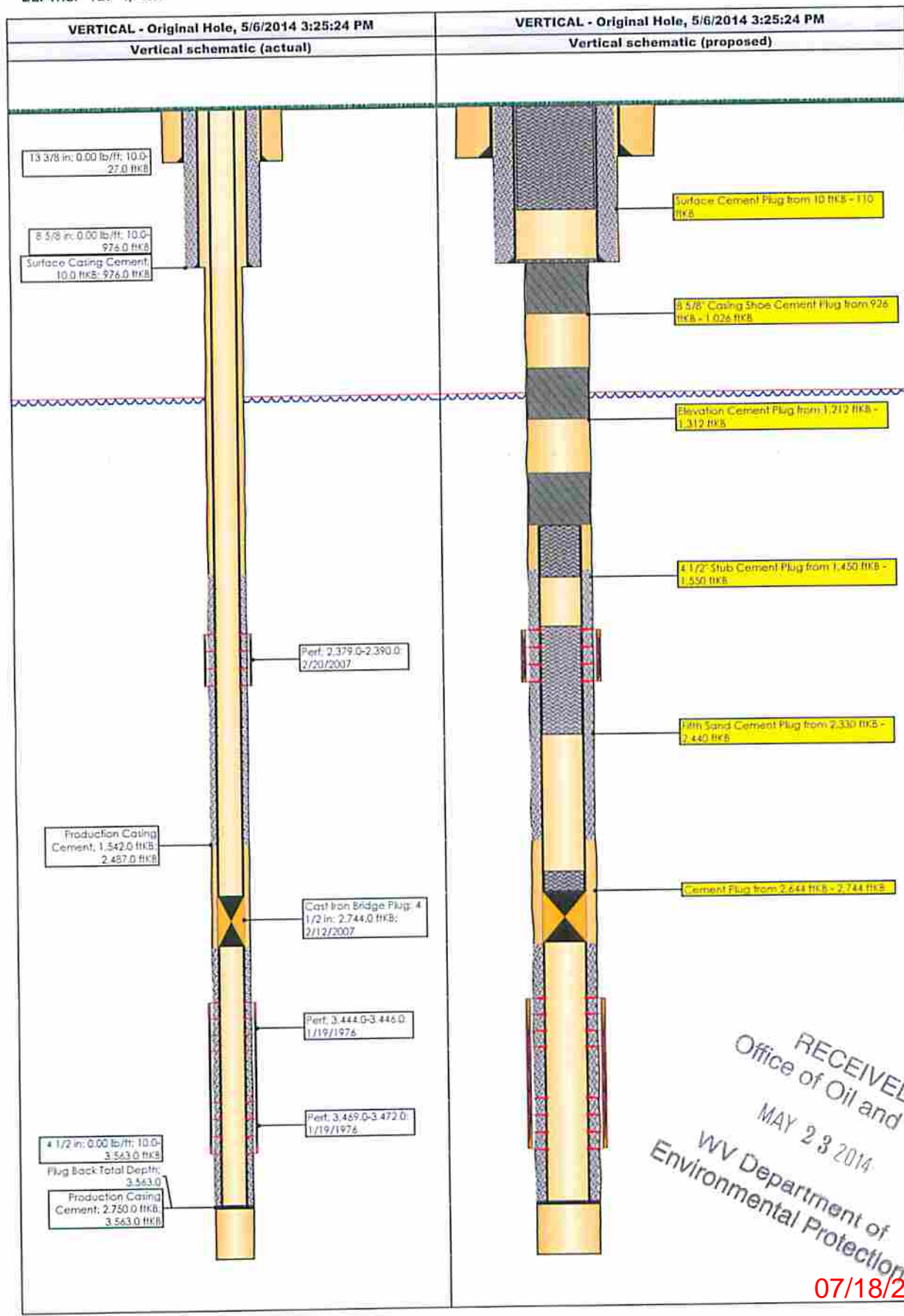
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 WV Department of
 Environmental Protection

07/18/2014

Proposed Plugging Wellbore Schematic

WELL (PN): MCCARTHY 1 (910542)
 STATE / COUNTY: WEST VIRGINIA / HARRISON
 FIELD: Jane Lew
 LOCATION: T/D SARDIS, Q-WOLF SUMMIT
 ELEVATION: GL: 1,262.0 KB: 1,272.0 KB HEIGHT: 10.0
 DEPTHS: TD: 4,740.0

API #: 470330092400
 SPUD DATE: 1/6/1976
 RIG RELEASE: 1/12/1976
 1ST SALES GAS: 9/27/1976
 1ST SALES OIL:
 CURRENT STATUS: SHUTIN



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SCOPE OF OPERATION

1. Safety is the highest priority. Control costs and avoid unnecessary expenditures.
2. TIH with 2-3/8" tubing to estimated TD of 1,865'
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 to BR&L (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 an estimated PBTD of 2,744 +/- **NOTE: If PBTD is incorrect, SD and contact Engineer.**
6. Load hole with 38 bbls of 6% gelled water or break surface with circulation.
7. Pump 8 sks of Class A cement (100' cement plug), flush tubing with 11 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 @ 2,644' +/- . If plug is not at 2,654', SD and contact the Chesapeake engineer for recalculation.
10. TIH strapping 2 3/8" tubing to 2,440 +/-.
11. Pump 9 sks of Class A cement (110' cement plug), flush tubing with 9 bbls 6% gelled water
12. TOOH with 2 3/8" tubing to surface. **SD & WOC for 8 hours.**
13. RIH w/ sandline tools & tag plug @ 2,330' +/- . If plug is not at 2,330', SD and contact the Chesapeake engineer for recalculation.
14. RU Wireline and Shoot 4 1/2" casing at 1,500' +/- . Pull and laydown casing.
 - a. If casing pulls free continue to step 16
 - b. If casing doesn't pull free attempt to cut again at 1250' and move to step 23
15. TIH strapping 2 3/8" tubing to an estimated TD of 1,550 +/-.

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Environmental Protection

07/18/2014

16. Pump 21 sks of Class A cement (100' cement plug), flush tubing with 6 bbls 6% gelled water
17. TOOH with 2 3/8" tubing to surface. **SD & WOC for 8 hours.**
18. RIH w/ sandline tools & tag plug @ 1,450'+/-. If plug is not at 1,450', SD and contact the Chesapeake engineer for recalculation.
19. TIH strapping 2 3/8" tubing to an estimated TD of 1,312 +/-.
20. Pump 21 sks of Class A cement (100' cement elevation plug), flush tubing with 6 bbls 6% gelled water
21. TOOH with 2 3/8" tubing to surface. **SD & WOC for 8 hours.**
22. RIH w/ sandline tools & tag plug @ 1,212'+/-. If plug is not at 1,212', SD and contact the Chesapeake engineer for recalculation.
23. TIH strapping 2 3/8" tubing to an estimated TD of 1,026 +/-.
24. Pump 29 sks of Class A cement (100' cement plug), flush tubing with 4 bbls 6% gelled water
25. TOOH with 2 3/8" tubing to surface. **SD & WOC for 8 hours.**
26. RIH w/ sandline tools & tag plug @ 926'+/-. If plug is not at 926' SD and contact the Chesapeake engineer for recalculation.
27. TIH strapping 2 3/8" tubing to an estimated TD of 100' +/-.
28. Pump 50 bbl of 6% gelled water or break circulation.
29. Pump 29 sks of Class A cement (100' cement plug). TOOH w/ tubing.
30. Top off well with required Class A cement as needed.
31. Install a 36 inch casing monument w/ 2" vent. Install a Aluminum plat monument with **ALL required WV dates and WV API number.**
32. RDMO all service equipment providers and reclaim location to WV State requirements.

Oil and Gas Division

WELL RECORD

Rotary Oil _____
 Cable _____ Gas
 Recycling _____ Comb.
 Water Flood _____ Storage _____
 Disposal _____ (Kind)

Quadrangle CLARKSBURG SW

Permit No. HAR-924

Company Allegheny Land & Mineral Co.
 Address Box 1740, Clarksburg, WV 26301
 Farm C. W. McCarthy Acres 50
 Location (waters) Tenmile Creek
 Well No. 2-A-542 Elev. 1262'
 District Sardis County Harrison
 The surface of tract is owned in fee by _____
Peter W. Ditchman
 Address Enterprise, WV 26568
 Mineral rights are owned by Harvey L. Murray,
et al., 320 S. 23rd, Clarksburg, WV
 Drilling Commenced January 6, 1976
 Drilling Completed January 12, 1976
 Initial open flow 189.00 M cu. ft. _____ bbls.
 Final production 1958 M cu. ft. per day _____ bbls.
 Well open 2 hrs. before test 1310#RP
 Well treatment details: after 17 hrs.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size			
20-16			
Cond.			
13- 11 "	27'	0	
9 5/8			
8 5/8	976'	976'	Cement to surface
7			
5 1/2			
4 1/2	3563'	3563'	Cement to 2750'
3			
2			
Liners Used			

Fractured January 19, 1976

Attach copy of cementing record.

Coal was encountered at 108 Feet _____ Inches
 Fresh water 76' & 1100 Feet _____ Salt Water none Feet _____
 Producing Sand Balltown Depth 3444-3474'

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Clay & Shale			0	108	Water @ 76'	
Coal*****			108	110	Coal *****	
Sand & Shale			110	962		
Sand			962	1165	Water @ 1100'	
Sandy Streaks			1165	1502		
Big Lime Sand			1502	1584		
Injun Sand			1584	1638		
Slate & Shale			1638	2188		
Gordon Sand			2188	2224		
Sand & Shale			2224	3444		
Balltown Sand			3444	3474		
Slate & Shale			3474	4596		
Sand			4596	4608		
Slate & Shale			4608	4740		
Total depth			4740	4740	Driller	

Perforations:
 3446 - 3448' - 5 shots
 3469 - 3472' - 5 shots

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE MADE IN TRIPLICATE. ONE COPY MAILED TO THE DEPARTMENT. ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD COPY (AND EXTRA COPIES IF REQUIRED) SHOULD BE MAILED TO EACH COAL OPERATOR AT THEIR RESPECTIVE ADDRESSES.

Peter W. Ditchman

COAL OPERATOR OWNER

Enterprise, WV 26568

ADDRESS

COAL OPERATOR OR OWNER

ADDRESS

same

LEASE OR PROPERTY OWNER

ADDRESS

Allegheny Land & Mineral Co.

Box 1740 NAME OF WELL OPERATOR

Clarksburg, WV 26301

COMPLETE ADDRESS

January 29 1976

WELL AND LOCATION

Sardis District

Harrison County

Well No. A-542

C. W. McCarthy Farm

STATE INSPECTOR SUPERVISING PLUGGING Paul Garratt, Clarksburg, WV 26301

AFFIDAVIT

STATE OF WEST VIRGINIA, }
County of Harrison } ss:

Robert Davis and John Lemley

being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by Union Drilling Co. and Allegheny Land & Mineral Co. well operator, and participated in the work of plugging and filling the above well, that said work was commenced on the 13th day of January, 1976, and that the well was plugged and filled in the following manner:

SAND OR ZONE RECORD FORMATION	FILLING MATERIAL	PLUGS USED SIZE & KIND	CASING	
			C&G PULLED	C&G LEFT IN
	<u>Aquagel - 4740 - 4440'</u>			
	<u>Cement - 4440 - 4340'</u>			
	<u>Aquagel - 4340 - 3563'</u>			
	<u>Partial abandonment</u>			
COAL SEAMS (NAME)		DESCRIPTION OF MONUMENT		
(NAME)				
(NAME)				
(NAME)				
(NAME)				

and that the work of plugging and filling said well was completed on the 13th day of January, 1976.

And further deponents saith not.

Robert Davis
John Lemley

Sworn to and subscribed before me this 29th day of January, 1976

07/18/2014

WR-35

DATE: April 6, 2010
API #: 47-0330924

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

Well Operator's Report of Well Work

Farm name: PATRICK AND FRANK CUNNINGHAM Operator Well No.: 910542

LOCATION: Elevation: 1,260' Quadrangle: WOLF SUMMIT 7 1/2

District: SARDIS County: HARRISON

Latitude: 6900 Feet South of 39 Deg. 22 Min. 30 Sec.

Longitude: 7400 Feet West of 80 Deg. 22 Min. 30 Sec.

Company: CHESAPEAKE APPALACHIA, L.L.C.

	Casing & Tubing	Used in Drilling	Left in well	Cement fill up Cu. Ft.
Address: Post Office Box 18496 Oklahoma City, OK 73154-0496				
Agent: Eric Gillespie				
Inspector: Tim Bennett	13 3/8"	EXISTING	27	
Date Permit Issued: 1/5/2007	8 5/8"	EXISTING	976	
Date Well Work Commenced: 02/09/2007	4 1/2"	EXISTING	3563	
Date Well Work Completed: 02/20/2007				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Depth (feet): 4740' CIBP @ 2,744'				
Fresh Water depths (ft): 76'				
Salt water depths (ft): 1100'				
Is coal being mined in area (Y/N)? No				
Coal Depths (ft): 108-110'				

OPEN FLOW DATA

Producing formation 5th Sand Pay zone depth (ft) 2379-2390

X Gas: Initial open flow Commingled MCF/d Oil: Initial open flow Bbl/d
 Final open flow 103 MCF/d Final open flow Bbl/d
 Time of open flow between initial and final tests 4 Hours

Static rock Pressure 80 psig (surface pressure) after 96 Hours

Second producing formation Pay zone depth (ft)

Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
 Final open flow MCF/d Final open flow Bbl/d
 Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) 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: _____, Chesapeake Appalachia, L.L.C.
By: Dee Swiger
Date: _____

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Office of Oil & Gas
APR 14 2010
WV Department of
Environmental Protection

5 PROVIDED BY 00 56

3300924P

FORM WW-2B

Page 3 of

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

33-00924-F

- 1) Well Operator: Chesapeake Appalachia, L.L.C. 33-7-692
- 2) Operator's Well Number: 910542 3) Elevation: 1260'
- 4) Well type: (a) Oil / or Gas /
 (b) If Gas: Production / Underground Storage /
 Deep / Shallow /
- 5) Proposed Target Formation(s): Big Injun/Gordon Stray/ 5th
- 6) Proposed Total Depth: 2,700 feet
- 7) Approximate fresh water strata depths: 76', 1100'
- 8) Approximate salt water depths: N/A
- 9) Approximate coal seam depths: 108'
- 10) Does land contain coal seams tributary to active mine? Yes / No /
- 11) Proposed Well Work: Perforate and Stimulate Additional Zones, squeeze to 1300', will shoot squeeze holes @ 2600' & pump 180 sks of Bulk Class A.
- 12) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight Per ft.	For Drilling	Left in Well	Fill-Up (cu. Ft.)
Conductor	13"			27'	0	
				<i>BN</i>	<i>12-06-07</i>	
Fresh Water	8-5/8"			976'	976'	CTS
Production	4-1/2"			3,563'	3,563'	As required by 35 CSR 4-11-1
Tubing						
Liners						

RECORDED
Office of Oil & Gas
Office of Chief
DEC 20 2003
WV Department of
Environmental Protection

PACKERS: Kind CIBP
 Sizes 4 1/2
 Depths set 2700

For Division of Oil and Gas Use Only

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

OK
7020000204
650

07/18/2014



McCarthy 1 (910542)
P&A Procedure
Harrison County, WV
API Number: 47-033-00924
GWI: 1.00 NRI: 0.916

March 18, 2014

Discussion

Approval is requested to plug and abandon the subject well, McCarthy1. The subject well is located in Harrison County, WV. It was spud 1/6/1976 and drilled to a depth of 4,740' where it was completed in the Balltown and Fifth sand. Presently the well is non-producing with last recorded production in 2008 of 1-3 mcf/d via test meter. The subject well is uneconomic to operate (**\$15000/yr w/o OH&TX**). Additionally the well is listed on the WVDEP plug or produce ultimatum expiring 2019. 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.

Approvals

 Production Manager

 Geoscience Manager

 Land Manager

 Reservoir Manager

 Production Engineer

Scott Glenn

Michelle Hileman

Jeff Brooks

David Eudey

Shawn Jackson

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WELL DATA

Location (Surface)	Lat. 39.355776 Long. -80.400775
TD	4,740'

CASING AND TUBULAR DATA

STRING	SIZE	WEIGHT/GRADE	DEPTH
Surface	13 3/8"	NA	80'
Intermediate	8 5/8"	NA	280'
Production	4 1/2"	Assumed 11.6# J	3,563'

PRESSURE AND DIMENSIONAL DATA

SIZE	WEIGHT	GRADE	BURST	COLLAPSE	DRIFT
13 3/8"	NA	NA	NA	NA	NA
8 5/8"	NA	NA	NA	NA	NA
4 1/2"	11.6#	J	5,350	4,960	3.875"
2 3/8"	4.7#	N-80	11,200	11,780	1.901"

CAPACITIES

SIZE	WEIGHT	CAPACITY (FT ³ /FT.)	CAPACITY (BBL/FT.)
13 3/8"	48#	0.8818	0.1570
8 5/8"	36#	0.3340	0.0595
4 1/2"	11.6#	0.0873	0.0155
2 3/8"	4.7#	0.0217	0.0038

WELLHEAD EQUIPMENT

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

DRIVING DIRECTIONS

Contact Field Personnel

PERSONNEL / PHONE LIST**Central District Team**

Production Engineer	Shawn Jackson	Office: (405) 935-6276 Mobile (405) 365-9974
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	David Cowan	Cell: (304) 389-3509

WW-4A
Revised 6-07

1) Date: May 7, 2014
2) Operator's Well Number
910542
3) API Well No.: 47 - 033 - 00924

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>Patrick H. Cunningham</u>	Name _____
Address <u>252 Isaac Creek Road</u>	Address _____
<u>Clarksburg, WV 26301</u>	_____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>James P. Burns III</u>
_____	Address <u>165 Broadway Avenue</u>
_____	<u>Fairmont, WV 26554</u>
(c) Name _____	Name _____
Address _____	Address _____
_____	_____
6) Inspector <u>Sam Ward</u>	(c) Coal Lessee with Declaration
Address <u>PO Box 2327</u>	Name _____
<u>Buckhannon, WV 26201</u>	Address _____
Telephone <u>304-389-7583</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.

Well Operator Chesapeake Appalachia, LLC
 By: Dee Southall
 Its: Regulatory Analyst II
 Address P.O. Box 1300
Jane Lew, wv 26378
 Telephone 304-517-1416 EXT. 86024

Subscribed and sworn before me this 16th day of May
Brittany Woody
 My Commission Expires 11/27/14



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.

07/18/2014

33 00924P

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26378
 James P. Burns III
 165 Broadway Ave
 Fairmont, WV 26554

CK 5157136
 10000

PS Form 3800, August 2006 See Reverse for Instructions

7503 4539 0000

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Restricted Delivery Fee (Endorsement Required)		

26301
 Patrick H. Cunningham
 252 Isaac Creek Road
 Clarksburg, WV 26301

PS Form 3800, August 2006 See Reverse for Instructions

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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 Isaac Creek Quadrangle Wolf Summit

Elevation 1260' County Harrison District Sardis

Description of anticipated Pit Waste: Water from plugging process

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

*SDW
5/20/2014*

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- XX 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
- XX 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

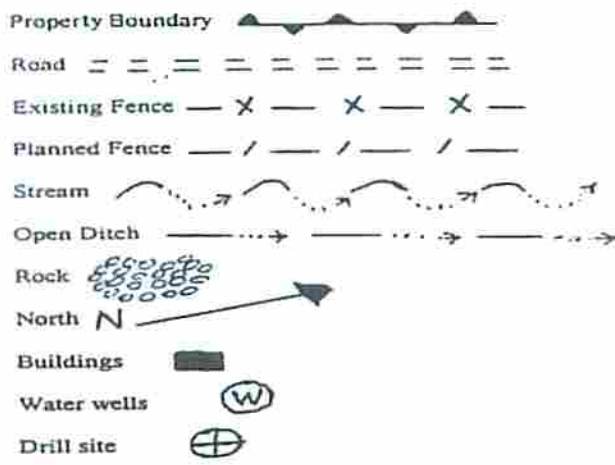
Subscribed and sworn before me this 16th day of May, 2014

Brittany R. Woody
Notary

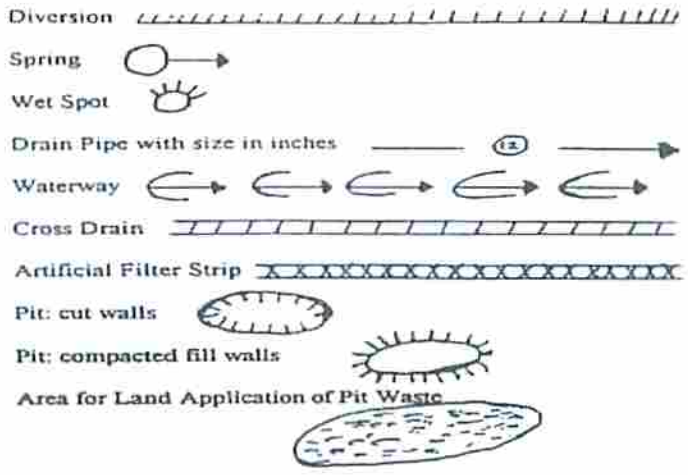
My commission expires 11/27/22



07/18/2014



LEGEND



Proposed Revegetation Treatment: Acres Disturbed _____ Prevegetation pH _____

Lime as determined by pH test min. 2 _____ Tons/acre or to correct to pH 6.5

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

Mulch ^{Hay/Straw} _____ Tons/acre

Seed Mixtures

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

Seed Type	Area II	lbs/acre
Orchard Grass	20	
Red Top	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: Saul D. Warrick

Comments: _____

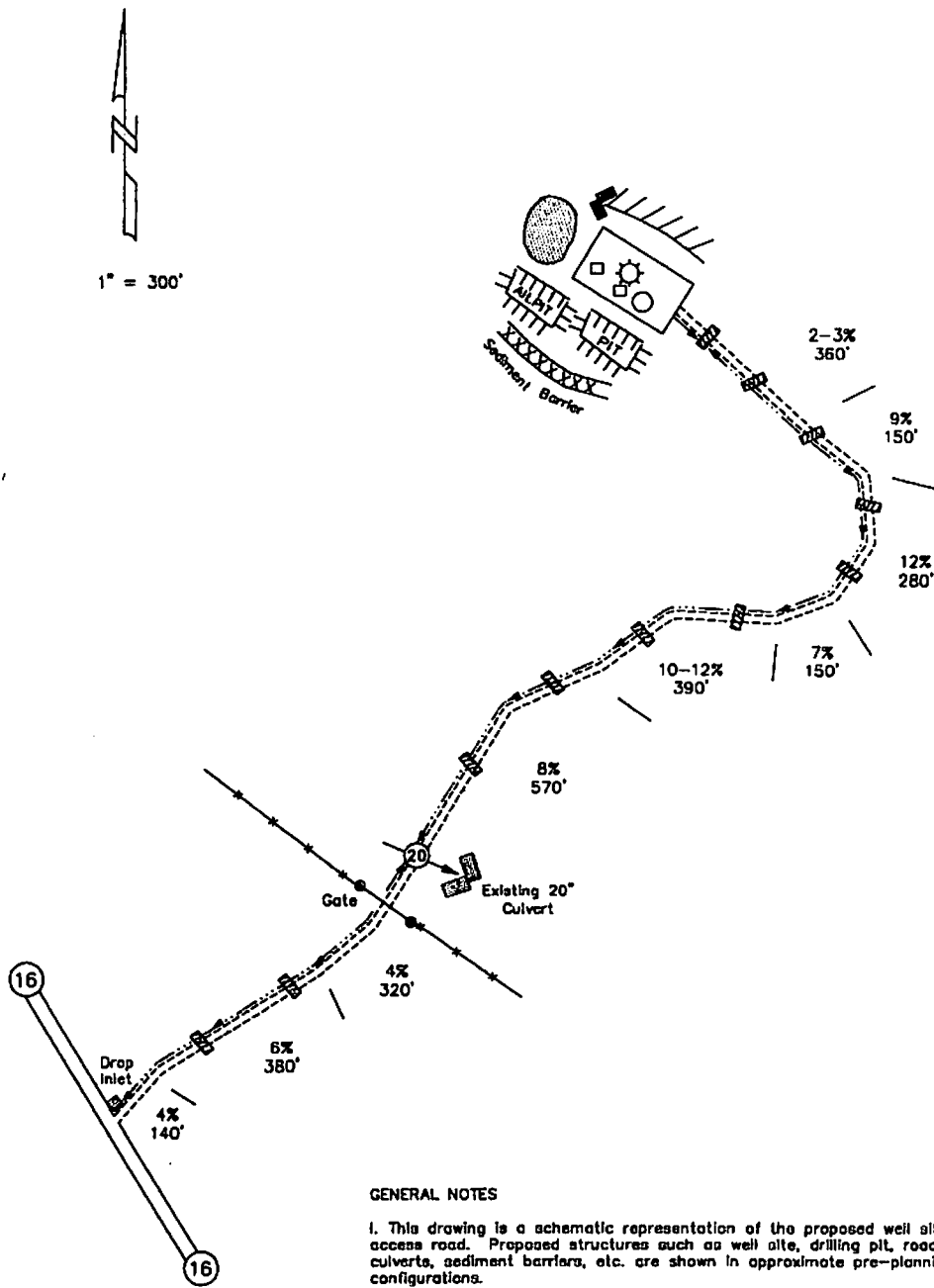
Title: Oil and Gas Inspector

Date: 5/20/2014

Field Reviewed? () Yes (X) No

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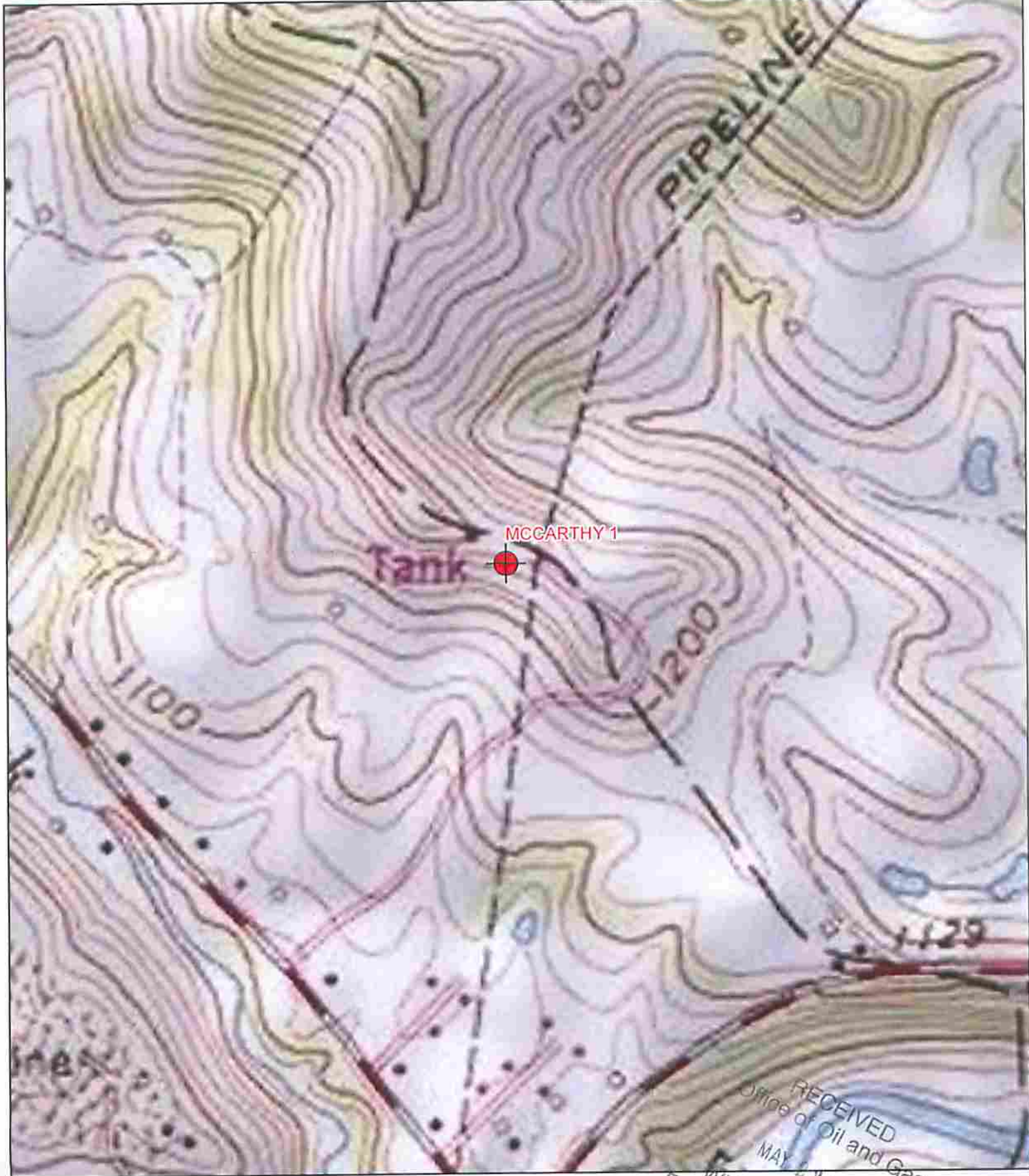
GENERAL NOTES

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 outcrop(s) 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 (deep). 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, Chesapeake Appalachia, LLC will have other sediment control in place to minimize erosion and sedimentation.

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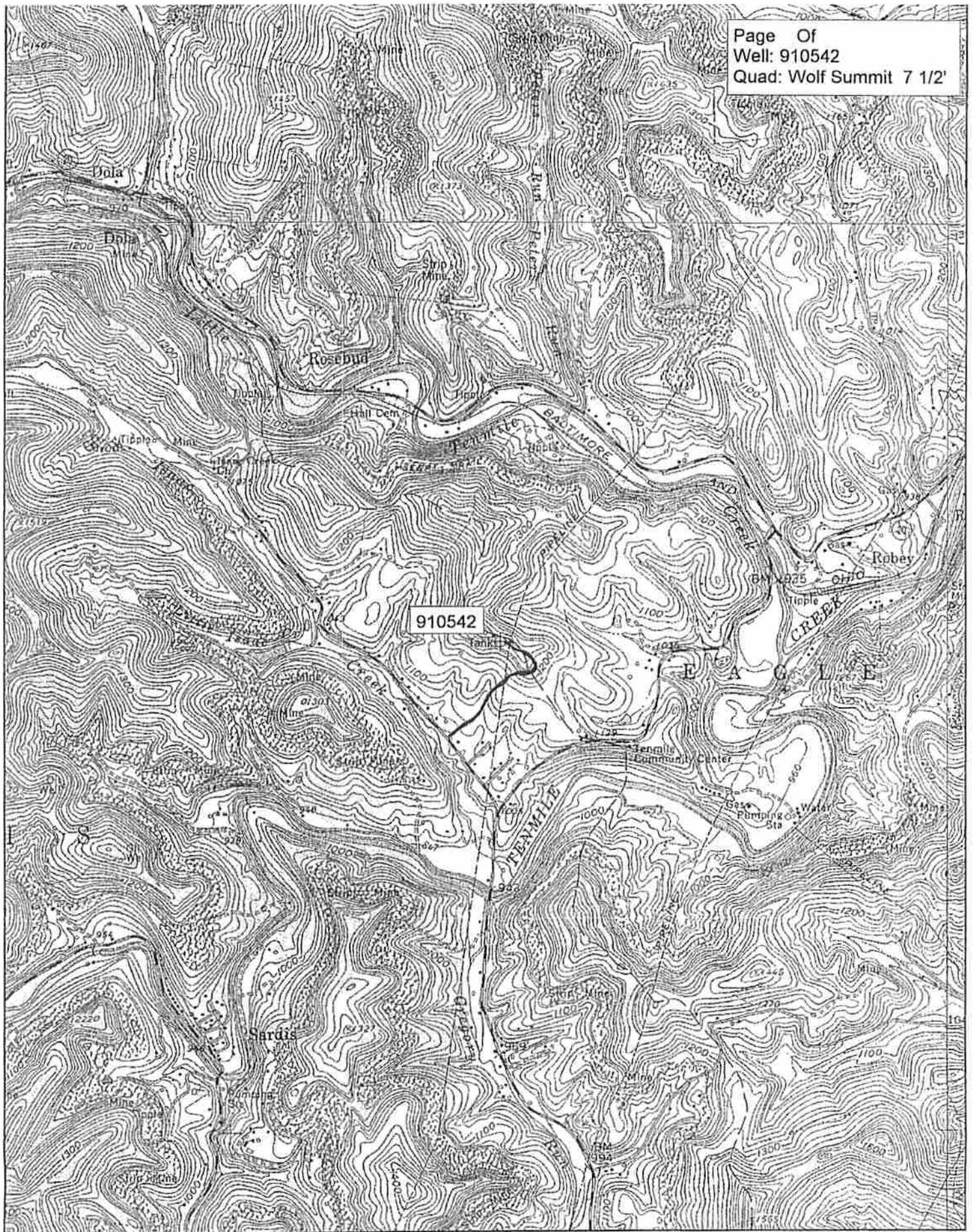
Well: McCarthy 1
 Permit : 4703300924
 Quad: Wolf Summit
 District: Sardis
 County: Harrison
 State: WV

Geographic NAD83 UTM 17N
 Latitidue 39.3558645
 Longitude -80.4005885
UTM NAD83 (Meters)
 551643.3 E
 4356439.8 N

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 Chesapeake Energy



07/18/2014



WW-7

8-30-06



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

API: 47-033-00924

WELL NO.: 910542

FARM NAME: Cunningham, Patrick

RESPONSIBLE PARTY NAME: Chesapeake Appalachia, LLC

COUNTY: Harrison DISTRICT: Sardis

QUADRANGLE: Wolf Summit

SURFACE OWNER: Patrick Cunningham

ROYALTY OWNER: Wanda Jean Waychoff, John Clayton Banks, Kathryn Louise Wilt, Charles Lee Murray, and Martha E. Wallace

UTM GPS NORTHING: 4356439.8

UTM GPS EASTING: 551643.3

GPS ELEVATION: 1260'

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 5/21/14

Regulatory
Title _____

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