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 02, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101765, issued to NOBLE ENERGY, INC., 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.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: MND 6 MHS
Farm Name: CONSOLIDATION COAL COMPA
API Well Number: 47-5101765
Permit Type: Horizontal 6A Well
Date Issued: 07/02/2014

Promoting a healthy environment.

API Number: 4705101765

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 fifty (50) 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. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW-6B
(9/13)

4705101765

CK 2014 98248
5150 00

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

51 3 558

1) Well Operator: Noble Energy, Inc. | 494501907 | Marshall | Franklin | Powhatan Point
Operator ID County District Quadrangle

2) Operator's Well Number: MND 6 MHS Well Pad Name: MND 6

3) Farm Name/Surface Owner: Consolidation Coal Company Public Road Access: CR 7/4-Fish Creek Rd

4) Elevation, current ground: 722' Elevation, proposed post-construction: 721'

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

6) Existing Pad: Yes or No No-but has been permitted

5/12/14

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus at 5895' and 55' in thickness. Anticipated pressure at 3927#.

8) Proposed Total Vertical Depth: 5940'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 13,804'

11) Proposed Horizontal Leg Length: 4,490'

12) Approximate Fresh Water Strata Depths: 128' and 265'

13) Method to Determine Fresh Water Depths: Offset well data

14) Approximate Saltwater Depths: None noted in offsets

15) Approximate Coal Seam Depths: 284' to 294'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated, drilling in pillar-mine maps attached

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

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(a) If Yes, provide Mine Info: Name: 1082' to nearest active mining
Depth: Base at 294' at deepest point
Seam: Pittsburgh
Owner: Murray American Energy (Previously Consol)

WW-6B
(9/13)

18) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	New	LS	117#	40'	40'	CTS
Fresh Water	13 3/8""	New	LS	94#	694'	694'	CTS
Coal	"	"	"	"	"	"	"
Intermediate	9 5/8"	New	J-55	36#	2017'	2017'	CTS
Production	5 1/2"	New	P110	20#	13,804'	13,804'	TOC 200' above 9.625 casing shoe
Tubing							
Liners							

JM 5/12/14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	26"	0.375		Type 1/Class A	1.2
Fresh Water	13 3/8""	17 1/2"	.380	2730	Type 1/Class A	1.2
Coal	13 3/8"	17 1/2"	.380	2730	Type 1/Class A	1.2
Intermediate	9 5/8"	12 3/8"	.352	3520	Type 1/Class A	1.19
Production	5 1/2"	8 3/4" & 8 1/2"	.361	12,640	Type 1/Class A	1.27
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 5,940 feet. Drill Horizontal leg - stimulate and produce the Marcellus Formation. If we should encounter an unanticipated void we will install casing at a minimum of 20' below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. See attached list. Maximum pressure not to exceed 10,000 lb.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 9.6

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

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing. Surface casing will have bow spring centralizers on first 2 joints then every third joint to 100' from surface. Intermediate casing will have bow spring centralizers on first 2 joints then every third joint to 100' from surface. Production string will have a rigid bow spring every joint to KOP, rigid bow spring every third joint from KOP to top of cement.

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

Conductor-1.15% CaCl *Surface and Coal (Intermediate)- Class A Portland Cement CaCl 2% 12% Accelerator, 0.2% Antifoam and 0.125#/sk Flake. Excess Yield=1.18 Production- 14.8 ppg class A 25:75:0 System +2.0% Cement extender, 0.7% Fluid Loss additive, 0.45% high temp retarder, 0.2% friction reducer 15% Excess Yield=1.27 TOC greater or equal to 200' above 9.625" shoe.
*Surface and Coal string WVDEP approved variance attached.

25) Proposed borehole conditioning procedures:

Conductor-The hole is drilled w/air and casing is run on air. Apart from insuring the hole is clean via air circulation at TD, there are no other conditioning procedures. Surface-The hole is drilled w/air and casing is run on air. Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement Coal-The hole is drilled and cased w/air or on Freshwater based mud. Once casing is at setting depth, the hole is filled w/KCl water and a minimum of one hole volume is circulated prior to pumping cement. Intermediate-Once surface casing is set and cemented, intermediate hole is drilled either on air or SOBM and filled with KCl water once drilled to TD. Production-The hole is drilled with SOBM and once to TD, circulated at maximum allowable pump rate for at least 6x bottoms up. Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.

*Note: Attach additional sheets as needed.

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October 31, 2013

Schlumberger
Attn: Daniel L. Sikorski
4600 J Barry Court
Suite 200
Canonsburg, PA 15317

RE: Cement Variance Request

Dear Sir:

This agency has approved a variance request for the cement blend listed below to be used on surface and coal protection casing only. The variance cannot be used without an oil and gas operator requesting its use on a permit application and approved by this agency:

- 2% Accelerator (S001)
- 0.2% Antifoam (D046)
- 0.125 lb/sk Polyester Flake (D0130)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson
Environmental Resources Analyst

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

IN THE MATTER OF A VARIANCE FROM	)	**ORDER NO. 2013-78**
REGULATION 35 CSR § 4-11.4/11.5/14.1	)	
AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE	)	
THE OPERATIONAL	)	
REGULATIONS OF CEMENTING OIL	)	
AND GAS WELLS	)	

REPORT OF THE OFFICE

Schlumberger requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

FINDINGS OF FACT

1.) Schlumberger proposes the following cement blend:

- 2% Accelerator (S001)
- 0.2% Antifoam (D046)
- 0.125 lb/sk Polyester Flake (D130)

2.) Schlumberger laboratory testing results indicate that the blend listed in Fact No. 1 will achieve a 500 psi compressive strength within 5 hours, 22 minutes and a 1200 psi compressive strength within 10 hours, 29 minutes.

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CONCLUSIONS OF LAW

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

ORDER

It is ordered that Schlumberger may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be 8 hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after 8 hours the cement is not set up, additional time will be required. Schlumberger shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 31rth day of October, 2013.

IN THE NAME OF THE STATE OF WEST VIRGINIA

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

James Martin, Chief
Office of Oil and Gas

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Schlumberger
East Division Technology Center

Laboratory Cement Test Report- 15.6 PPG SURFACE
Weston District Laboratory

						Signatures
Fluid No	: WES13-364P3	Client	: NOBLE	Location / Rig	: N/A	
Date	: Oct-06-2013	Well Name	: WEST VIRGINIA	Field	: N/A	Mclaughlin

Job Type	SURFACE	Depth	700.0 ft	TVD	700.0 ft
BHST	63 degF	BHCT	78 degF	BHP	494 psi
Starting Temp.	80 degF	Time to Temp.	00:09 hr:mn	Heating Rate	-0.22 degF/min
Starting Pressure	179 psi	Time to Pressure	00:09 hr:mn	Schedule	9.2-1

Composition

Slurry Density	15.60 lb/gal	Yield	1.20 ft3/sk	Mix Fluid	5.252 gal/sk
Solid Vol. Fraction	41.4 %	Porosity	58.6 %	Slurry type	Conventional

Code	Concentration	Sack Reference	Component	Blend Density	Lot Number
D901 - API A		94 lb of BLEND	Blend	197.27 lb/ft3	08-13-13/6-20
Fresh water	5.252 gal/sk		Base Fluid		
S001	2.000 %BWOC		Accelerator		364AJ1632
D046	0.200 %BWOC		Antifoam		TU3G0700A0
D130	0.125 lb/sk		Lost circ		BULK

Rheology
Geometry: R1B1F1.0
S/N 10-1287-003

Temperature	78 degF		
(rpm)	Up (deg)	Down (deg)	Average (deg)
300	63.0	63.0	63.0
200	58.0	57.0	58.5
100	46.0	49.0	47.5
60	41.0	46.0	43.5
30	33.0	43.0	38.0
6	20.6	27.7	24.2
3	16.6	20.5	18.5

10 sec Gel	23 deg - 24.55 lbf/100ft2
10 min Gel	53 deg - 56.57 lbf/100ft2
Rheo. computed	Viscosity: 25.792 cP Yield Point: 38.21 lbf/100ft2

UCA Compressive Strength
S/N 501R

Time	CS
05:22 hr:mn	500 psi
10:29 hr:mn	1200 psi

Free Fluid

1.0 mL/250mL in 2 hrs
At 78 degF and 0 deg incl
Sedimentation : None

Comments

General Comment :

Note: This is a pilot test. Field may differ after testing. Please read field report carefully and compare to pilot report and load out. Contact the laboratory with any questions or concerns.

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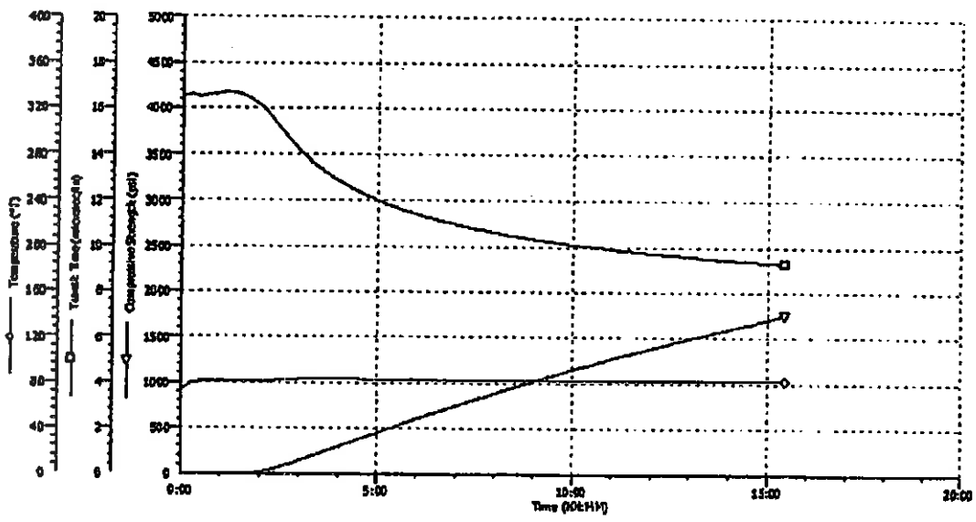
Schlumberger

UCA Graph

Wes13-36493-1 Noble West Virginia Surface
10/4/2013 4:38:02 PM
10/5/2013 6:04:31 AM
15.6 ppg
Compressive strength type B (more than 14 lb/gal)

NOBLE WV
Customer: NOBLE
D901 API A
2% S001 + 0.2% D046+0.125pps D130
Surface
91 RIGHT 501 R

BHCT 78° F
BHST 83 F
50 psi @ 2:23:30
500 psi @ 5:22:30
Current CS: 1743 psi



SCHLUMBERGER
Weston, WV District Laboratory

Test File Name: Wes13-36493-1 Noble West Virginia Surface
Printed: 10/5/2013 12:33:32 PM

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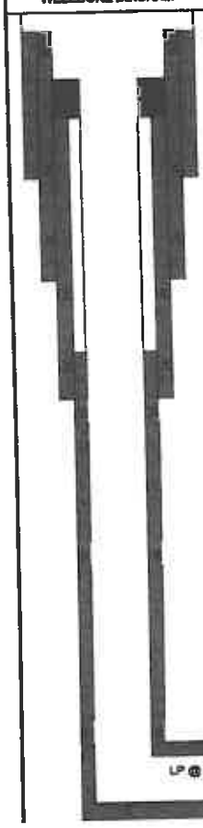
noble energy

DRILLING WELL PLAN
MND-6M-HS (Marcellus HZ)
Macellus Shale Horizontal
Marshall County, WV

		MND-6M SHL (Lat/Long)	(482492.52N, 1637105.42E) (NAD27)
Ground Elevation	722'	MND-6M LP (Lat/Long)	(481692.56N, 1634888.05E) (NAD27)
Azm	325°	MND-6M BHL (Lat/Long)	(487327.19N, 1630942.63E) (NAD27)

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	26	20" 94#	Conductor	40	40	AIR	To Surface	N/A	Ensure the hole is clean at TD.	Stabilize surface fill/soil. Conductor casing = 0.438" wall thickness
	17 1/2	13-3/8" 54.5# J-55 BTC	Pittsburgh Coal	284	294	AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 30% Excess Yield = 1.18	Bow Spring on first 2 joints then every third joint to 100' form surface	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.380" wall thickness Burst=2730 psi
			Surface Casing	694	694					
	12 3/8	9-5/8" 36# K-55 BTC	2nd Salt Sand	1377	1413	AIR	15.6ppg Class A +0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost Circ 20% Excess Yield=1.19 To Surface	Bow spring centralizers every third joint to 100' feet from surface.	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Casing to be ran 250' below the 5th Sand. Intermediate casing = 0.352" wall thickness Burst=3520 psi
			Big Lime	1488	1604					
			Big Injun	1604	1717					
			Price Formation	1717	2232					
			Int. Casing	2017	2017					
	8.75" Vertical	5-1/2" 23# HCP-110 TXP BTC	Speechley	3019	3085	8.0ppg - 9.0ppg SOBM	14.8ppg Class A 25:75:0 System +2.6% Cement extender, 0.7% Fluid Loss additive, 0.45% high temp retarder, 0.2% friction reducer 10% Excess Yield=1.27 TOC >= 200' above 9.625" shoe	Rigid Bow Spring every third joint from KOP to TOC	Once at TD, circulate at max allowable pump rate for at least 6x bottoms up. Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.361" wall thickness Burst=12640 psi Note:Actual centralizer schedules may be changed due to hole conditions
			Java	4570	4685					
			Pipe Creek	4685	4752					
			Angola	4752	5334					
	8.75" Curve		Rheinstreet	5334	5655	12.0ppg-12.5ppg SOBM		Rigid Bow Spring every joint to KOP		
			Cashaqua	5655	5727					
			Middlesex	5727	5750					
			West River	5750	5811					
			Burkett	5811	5836					
			Tully Limestone	5836	5860					
			Hamilton	5860	5895					
	8.75" - 8.5" Lateral		Marcellus	5895	5950	12.0ppg-12.5ppg SOBM				
			TD	13804 MD	5940 TVD					
			Onondaga	5950						

LP @ 5940' TVD / 6925' MD

8.75 / 8.5 Hole - Cemented Long String 5-1/2" 20# HCP-110 TXP BTC

+/-5879' ft Lateral

TD @ +/-5940' TVD +/-13804' MD

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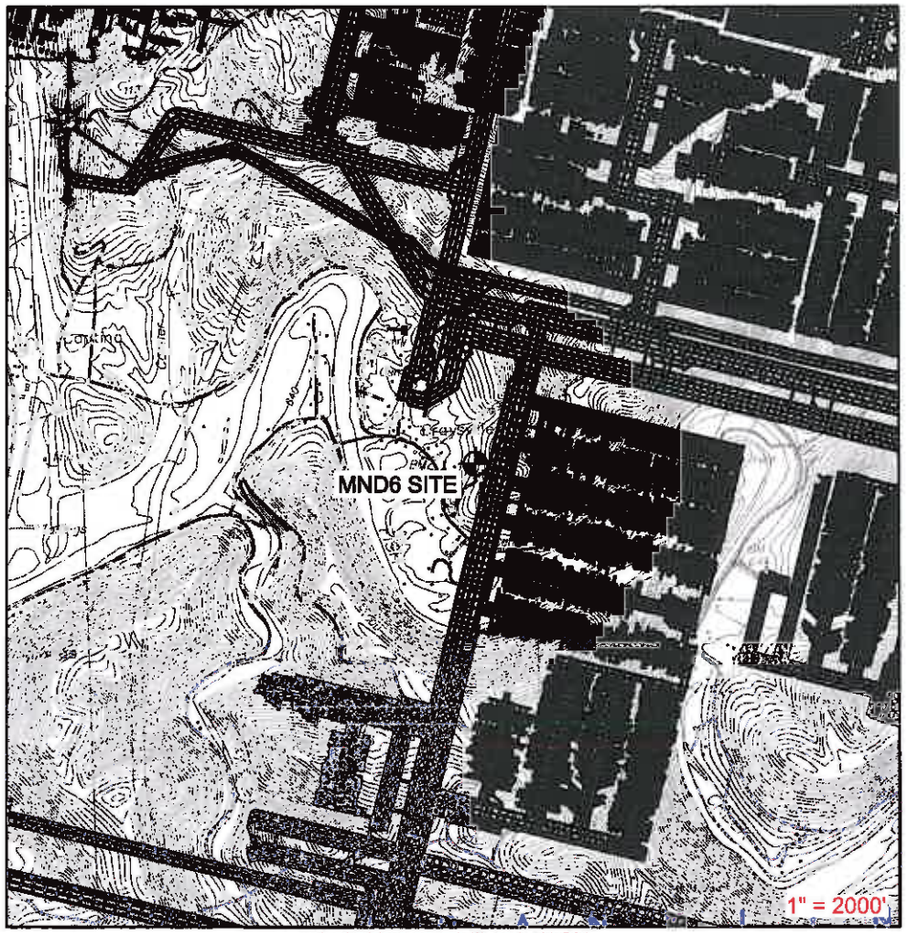

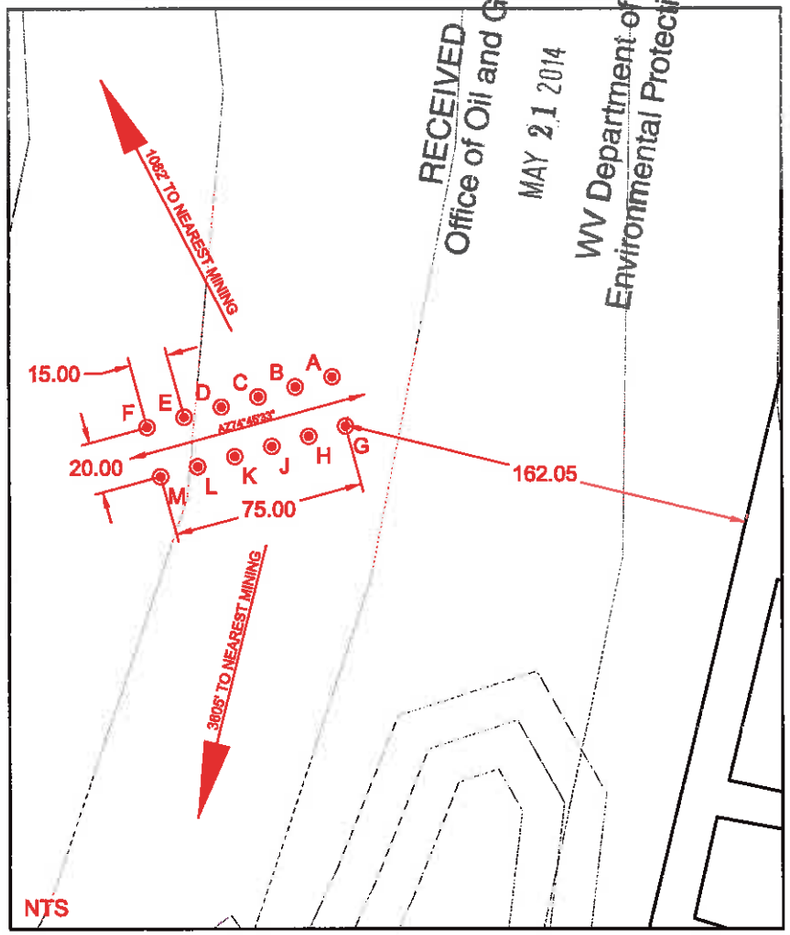

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CLIENT	
NOBLE ENERGY	
PROJECT	DATE
MND6 SITE	2-1-13

ALL DIMENSIONS RELATED TO COAL LOCATION (EXISTING AND/OR PROPOSED) ARE BASED ON INFO PROVIDED BY CONSOLIDATION COAL COMPANY. THIS INFO MAY NOT BE CURRENT WITH MINING PLANS. ANY QUESTIONS OR CONCERNS PERTAINING TO THE LOCATION OF COAL SHOULD BE DIRECTED TO CONSOLIDATION COAL COMPANY.

0' 2000' 4000' 6000'

DATE	REVISION
10-14-13	5

BLUE MOUNTAIN ENGINEERING

WW-9
(9/13)

4705101765

API Number 47 - _____ - _____
Operator's Well No. MND 6 MHS

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy, Inc. OP Code 494501907

Watershed (HUC 10) Fish Creek Undefined (HUC 10) Quadrangle Powhatan Point

Elevation 721' Post Construction County Marshall District Franklin

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-No pit will be utilized

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 TBD-Next anticipated well)
- ■ Off Site Disposal (Supply form WW-9 for disposal location)
- ____ Other (Explain _____

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air thru coal string, then SOBM

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

Additives to be used in drilling medium? Please see attached

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

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

-Landfill or offsite name/permit number? Please see attached

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 Laura L. Adkins

Company Official (Typed Name) Laura Adkins

Company Official Title Regulatory Analyst

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MAY 2014
WV Department of Environmental Protection

Subscribed and sworn before me this 19 day of MAY, 2014

Howard R Young
Notary Public

OFFICIAL SEAL
NOTARY PUBLIC, STATE OF WEST VIRGINIA
HOWARD R. YOUNG
THE UPS STORE
3501 McCORKLE AVE SE
CHARLESTON, WV 25304
MY COMMISSION EXPIRES SEPT. 3, 2014

My commission expires 9/3/2014

4705101765

Chemical List Including CAS#'s

Type: Friction Reducer (DWP-612)
Chemical Component as listed on MSDS: Long Chain Polyacrylamide
CAS: N/A

Type: Biocide (DWP-944)
1st Chemical Component as listed on MSDS: 2,2-Dibromo-3-nitrilopropionamide
CAS: 10222-01-2
2nd Chemical Component as listed on MSDS: Polyethylene Glycol Mixture
CAS: 25322-68-3

Type: Scale Inhibitor (DAP-901)
1st Chemical Component as listed on MSDS: Methanol
CAS: 67-56-1
2nd Chemical Component as listed on MSDS: Phosphoric Acid Ammonium Salt
CAS: Trade Secret
3rd Chemical Component as listed on MSDS: Ammonium Chloride
CAS: 12125-02-9
4th Chemical Component as listed on MSDS: Organic Phosphonate
CAS: Trade Secret
5th Chemical Component as listed on MSDS: Amine Salt
CAS: Trade Secret
6th Chemical Component as listed on MSDS: Oxyalkylated Polyamine
CAS: Trade Secret

Type: Surfactant (DWP-938)
Chemical Component as listed on MSDS: Soap
CAS: N/A

Type: Hydrochloric Acid
Chemical Component as listed on MSDS: Hydrochloric Acid
CAS: 7647-01-0

Type: PA Breaker (DWP-690)
Chemical Component as listed on MSDS: Hydrogen Peroxide
CAS: Trade Secret

Type: Gel Slurry (DWP-111)
Chemical Component as listed on MSDS: Viscosifier
CAS: N/A

Type: Oxidizer Breaker (DWP-901)
Chemical Component as listed on MSDS: Ammonium Persulfate
CAS: 7727-54-0

Type: Buffer (DWP-204)
Chemical Component as listed on MSDS: Formic Acid
CAS: 64-18-6

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Site Water/Cuttings Disposal

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Cuttings

Haul off Company:

Eap Industries, Inc. DOT # 0876278
1575 Smith Twp State Rd. Atlasburg PA 15004
1-888-294-5227

MAX Environmental Technologie
233 Max Lane
Yukon, PA 25698
PAD004835146

Disposal Locations:

Apex Environmental, LLC Permit # 06-08438
11 County Road 78
Amsterdam, OH 43903
740-543-4389

Westmoreland Waste, LLC Permit # 100277
111 Conner Lane
Belle Vernon, PA 15012
724-929-7694

Sycamore Landfill (Allied Waste) R30-07900105-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Water

Haul off Company:
Dynamic Structures, Clear Creek DOT # 720485
3790 State Route 7
New Waterford, OH 44445
330-892-0164

Disposal Location:

Solidification
Waste Management, Arden Landfill Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-225-1589

Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowelville, OH 44436

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Form WW-9

Operator's Well No. MND 6 MHS

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 9.6 acres Prevegetation pH _____

Lime 2 to 3 Tons/acre or to correct to pH _____

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay or straw at 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5
See site plans for full list		See site plans for full list	

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jim Nicholson WVOOG State Inspector

Comments: Jim Nicholson

Title: Oil & Gas Inspector Date: 5/12/14

Field Reviewed? (✓) Yes ( ) No

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plat spotted

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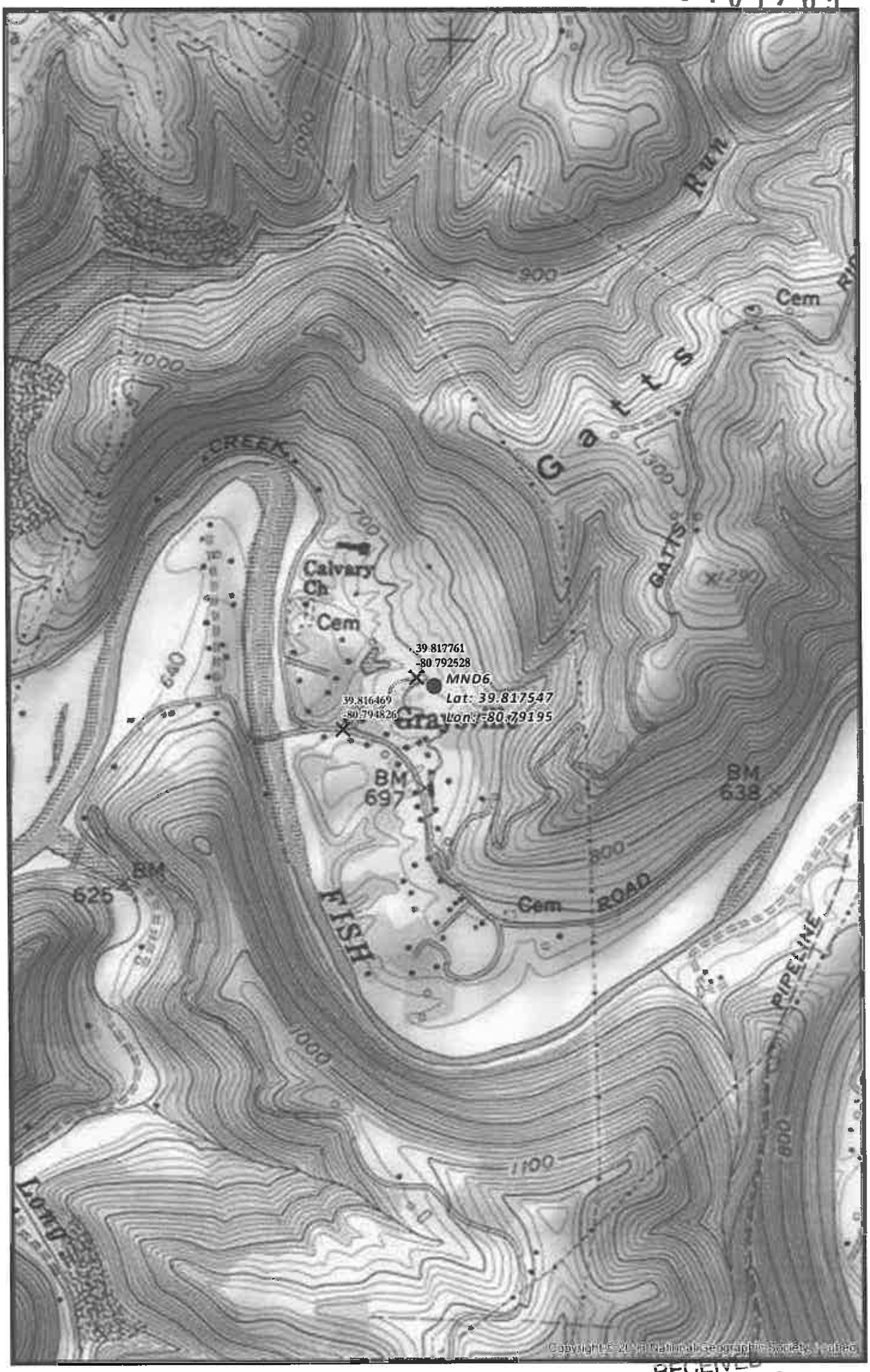

MND6 SITE SAFETY PLAN - SITE WELL LOCATION -	0 500 1,000 2,000 Feet Scale 1" = 1,000'	noble energy	Date: 12/10/2013 Author: ChristopherGlover
Access Road Intersection / Well Pad Center Proposed Access Road	Projection: NAD_1927_StatePlane_West_Virginia_North_FIPS_4701 Units: Foot US	Disclaimer: All data is licensed for use by Noble Energy Inc. use only.	1/6

Document Path: G:\Denver\GIS-Denver\Projects\District_30\Appalachia\MXDs\EHSR\Permitting\Mountaville\MND6\MND6_WV_MND6_Well_Location.mxd

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PROPOSED SURFACE LOCATION LONG. W 80°47'31.0" (NAD 27) **Latitude:** N 39°50'00"

Longitude: W 80°47'30"

78'

5,747'

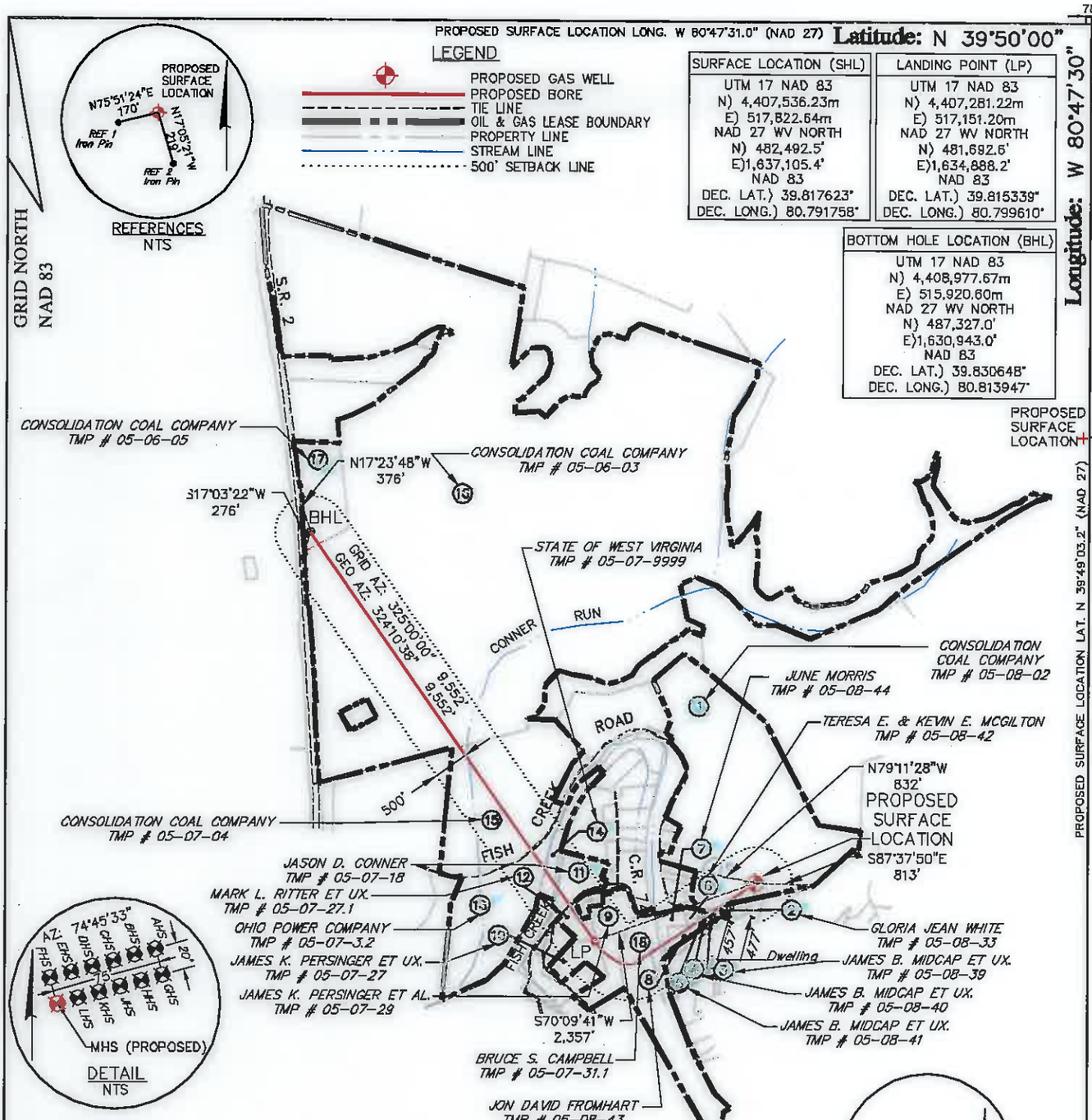
PROPOSED SURFACE LOCATION LAT. N 39°49'03.2" (NAD 27)

LEGEND

- PROPOSED GAS WELL
- PROPOSED BORE
- TIE LINE
- OIL & GAS LEASE BOUNDARY
- PROPERTY LINE
- STREAM LINE
- 500' SETBACK LINE

SURFACE LOCATION (SHL)	LANDING POINT (LP)
UTM 17 NAD 83	UTM 17 NAD 83
N) 4,407,536.23m	N) 4,407,281.22m
E) 517,822.64m	E) 517,151.20m
NAD 27 WV NORTH	NAD 27 WV NORTH
N) 482,492.5'	N) 481,692.6'
E)1,637,105.4'	E)1,634,888.2'
NAD 83	NAD 83
DEC. LAT.) 39.817623°	DEC. LAT.) 39.815339°
DEC. LONG.) 80.791758°	DEC. LONG.) 80.799610°

BOTTOM HOLE LOCATION (BHL)
UTM 17 NAD 83
N) 4,408,977.67m
E) 515,920.60m
NAD 27 WV NORTH
N) 487,327.0'
E)1,630,943.0'
NAD 83
DEC. LAT.) 39.830648°
DEC. LONG.) 80.813947°



GENERAL NOTES:

1. THE LOCATION OF BOUNDARY LINES SHOWN HEREON ARE BASED ON RECORD DEED, PLATS, AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS, UNLESS OTHERWISE NOTED.
2. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
3. THERE ARE NO EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
4. PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR OR LAKE.
5. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.
6. THERE ARE TWO DWELLINGS LOCATED WITHIN 650' OF PROPOSED WELLBORE.
7. THE SURROUNDING LANDS ARE BEING SERVED BY PUBLIC WATER BY THE GRAND VIEW DOOLIN WATER SYSTEM PROVIDED BY MARSHALL COUNTY PUBLIC HEALTH AND SANITATION DIVISION.

FILE #: 093842010

DRAWING #: 093842010_SV-Plat

SCALE: PLAT & TICK: 1" = 2,000'

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: NGS (CORS)

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED: Scott M Faulkner

P.E.: L.L.S.: 2190

SCOTT M. FAULKNER LICENSED No.2190 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: MARCH 10, 2014

OPERATOR'S WELL #: MND 6 MHS

API WELL #: 47 (STATE) 051 (COUNTY) 01765 HGA (PERMIT)

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

WATERSHED: FISH CREEK

ELEVATION: 722'

COUNTY/DISTRICT: MARSHALL / FRANKLIN

QUADRANGLE: POWHATAN POINT, OHIO--W.VA

SURFACE OWNER: CONSOLIDATION COAL COMPANY

ACREAGE: 136.587±

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY LLC and NOBLE ENERGY, INC.

ACREAGE:

☐ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON

☒ DRILL ☐ PLUG OFF OLD FORMATION ☐ CLEAN OUT & REPLUG ☐ OTHER CHANGE (SPECIFY):

TARGET FORMATION: MARCELLUS

ESTIMATED DEPTH: TVD: 5,940 ft. TMD: 13,804 ft.

WELL OPERATOR: NOBLE ENERGY, INC.

DESIGNATED AGENT: STEVE M. GREEN

ADDRESS: 333 TECHONOLOGY DRIVE, SUITE 116

ADDRESS: 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590

CITY: CANONSBURG STATE: PA ZIP CODE: 15317

CITY: CHARLESTON STATE: WV ZIP CODE: 25301