



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

April 03, 2014

WELL WORK PERMIT

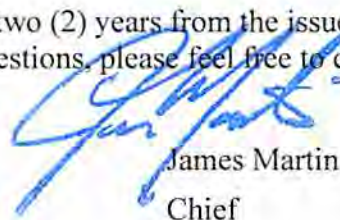
Horizontal 6A Well

This permit, API Well Number: 47-5101732, 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 HHS
Farm Name: CONSOLIDATION COAL COMPA
API Well Number: 47-5101732
Permit Type: Horizontal 6A Well
Date Issued: 04/03/2014

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. 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 § 22-6-20, 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.
2. Pursuant to 35 CSR § 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. 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.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Hydraulic Fracturing of the Cochran # 4H (API: 47-015-02897) must not exceed 3500 PSI and abide by the terms of the Fracking Plan Addendum attached to this permit.
9. Notification must be given to the local inspector at least five (5) days before fracturing and it must include a copy of the Cochran # 4H Hydraulic Fracturing Plan.

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

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

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

3) Farm Name/Surface Owner: Consolidated 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 _____

*SR 3/11/14
MJK 3/11/14*

6) Existing Pad: Yes or No No

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: 18,882'

11) Proposed Horizontal Leg Length: 12,142'

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

(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)

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04/04/2014

WW-6B
(9/13)

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill-up (Cu. Ft.)</u>
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#	18,882'	18,882'	TOC 200' above 9.825 casing shoe
Tubing							
Liners							

*pu 3/11/14
MDK 3/11/14*

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
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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04/04/2014
WV Department of Environmental Protection

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 6,913 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.

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

Conductor-1.15% CaCl *Surface and Coal (Intermediate)- Class A Portland Cement CaCl 2%, 2% Accelerator, 0.2% Antifoam and 0.125#/sk Flake. Excess Yield=1.18 Production- 14.8 ppg class A 25:75:0 System +2.6% 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-The hole is drilled and cased w/air or on 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.

WW-9
(9/13)

API Number 47-051 - 0173 ⁴⁷⁵¹⁰⁰¹⁷³²
Operator's Well No. MND 6 HHS

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 SOB

-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 [Signature]

Company Official (Typed Name) Jessica Leska

Company Official Title Regulatory Technician

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Office of Oil and Gas

Subscribed and sworn before me this 18th day of December, 20 13 JAN 13 2014

[Signature] Notary Public WV Department of Environmental Protection

My commission expires November 23, 2015

04/04/2014

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

Mary Beth Jim Nicholson

Comments: Occupied Dwelling Structures < 625' from center of pad require Surface Owner Waiver & Recorded with County Clerk.

Due to proximity to Graysville community, I would like to see construction of sound barrier around well pad

04/04/2014

Title: Oil & Gas Inspector

Date: 3/11/14

Field Reviewed? Yes No



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

Ground Elevation		722'		MND-6H SHL (Lat/Long)			(482508.3N, 1637163.3E) (NAD27)		
Azim		325°		MND-6H LP (Lat/Long)			(483445.3N, 1637503.8E) (NAD27)		
WELLBORE DIAGRAM		325°		MND-6H BHL (Lat/Long)			(493391.4N, 1630539.6E) (NAD27)		
HOLE	CASING	GEOLOGY	MD	TYD	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 ₂ 0.25# Lost Circ 30% Excess Yield = 1.18	Bow Spring on first 2 joints then every third joint to 100' 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.	Intermediate casing = 0.360" wall thickness Burst=2730 psi
		Surface Casing	694	694					
12 3/8	9-5/8" 36# J-55 LTC	Big Lime	1488	1604	AIR	15.6ppg Class A +0.4% Ret. 0.15% Disp. 0.2% AntiFom. 0.125#/sk Lost Circ 20% Excess Yield=1.19 To Surface	Bow spring centralizers every third joint to 100' foot 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 run 250' below the 5th Sand. Intermediate casing = 0.362" wall thickness Burst=3520 psi
		Big Injun	1604	1717					
		Price Formation	1717	2232					
8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Int. Casing	2017	2017	8.0ppg - 9.0ppg SOBAM	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	Right 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
		Spoontoy	3019	3065					
		Java	4570	4665					
		Pipe Creek	4665	4752					
		Angola	4752	5334					
8.75" Curve	5-1/2" 20# HCP-110 TXP BTC	Rheinstraet	5334	5655	12.0ppg-12.6ppg SOBAM	10% Excess Yield=1.27 TOC >= 200' above 9.825" shoe	Right Bow Spring every joint to KOP		
		Cashaequa	5655	5727					
		Middlesax	5727	5750					
		West River	5750	5811					
		Burkett	5811	5836					
8.75" - 8.5" Lateral	5-1/2" 20# HCP-110 TXP BTC	Tully Limestone	5836	5860	12.0ppg-12.5ppg SOBAM				
		Hamilton	5860	5895					
		Marcellus	5895	5950					
		TD	18882	5940					
		Onondaga	6290	6290					

LP @ 5940' TYD / 6740' MD

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

+/-12142' R Lateral

TD @ +/-5940' TYD
 +/-18882' MD

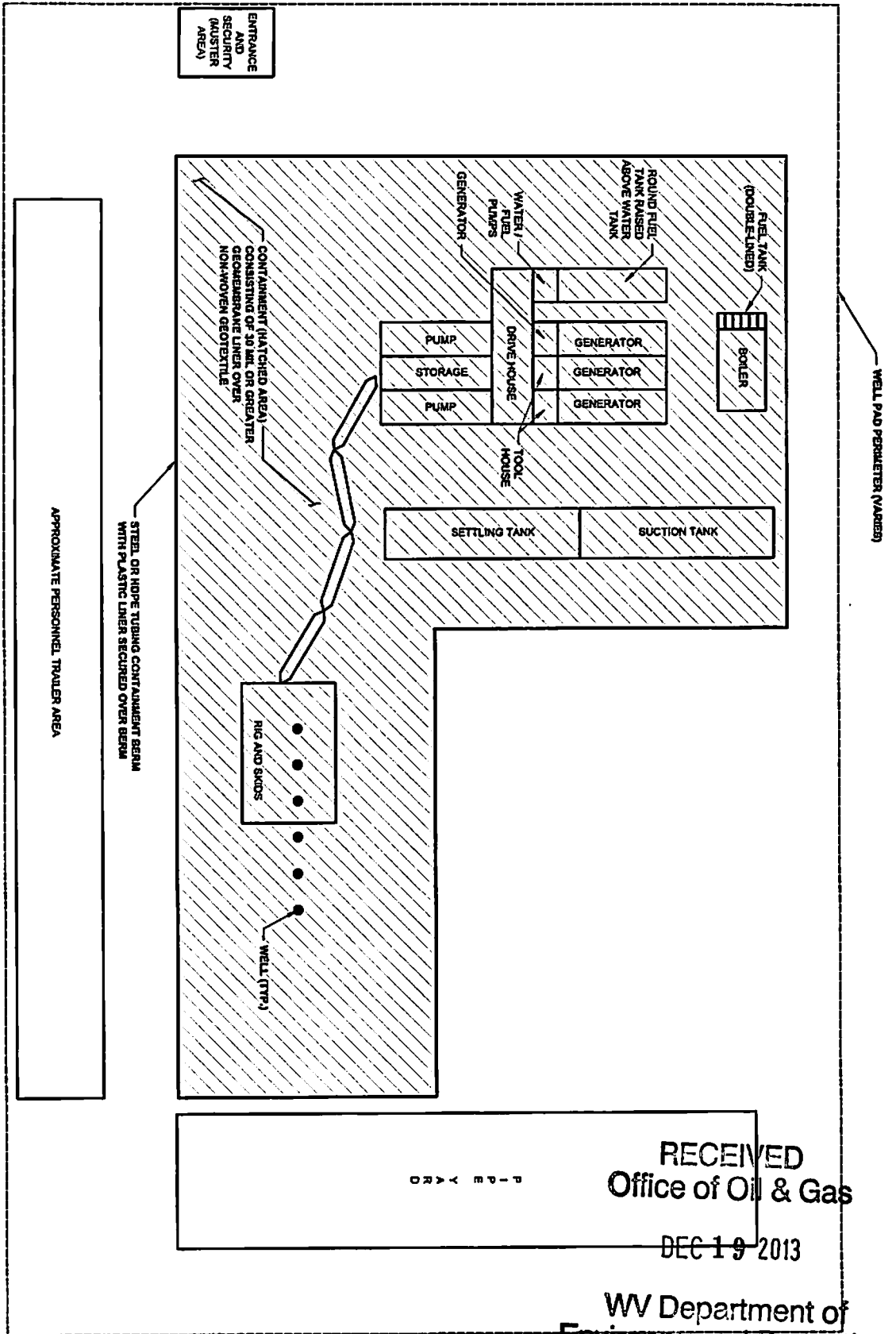
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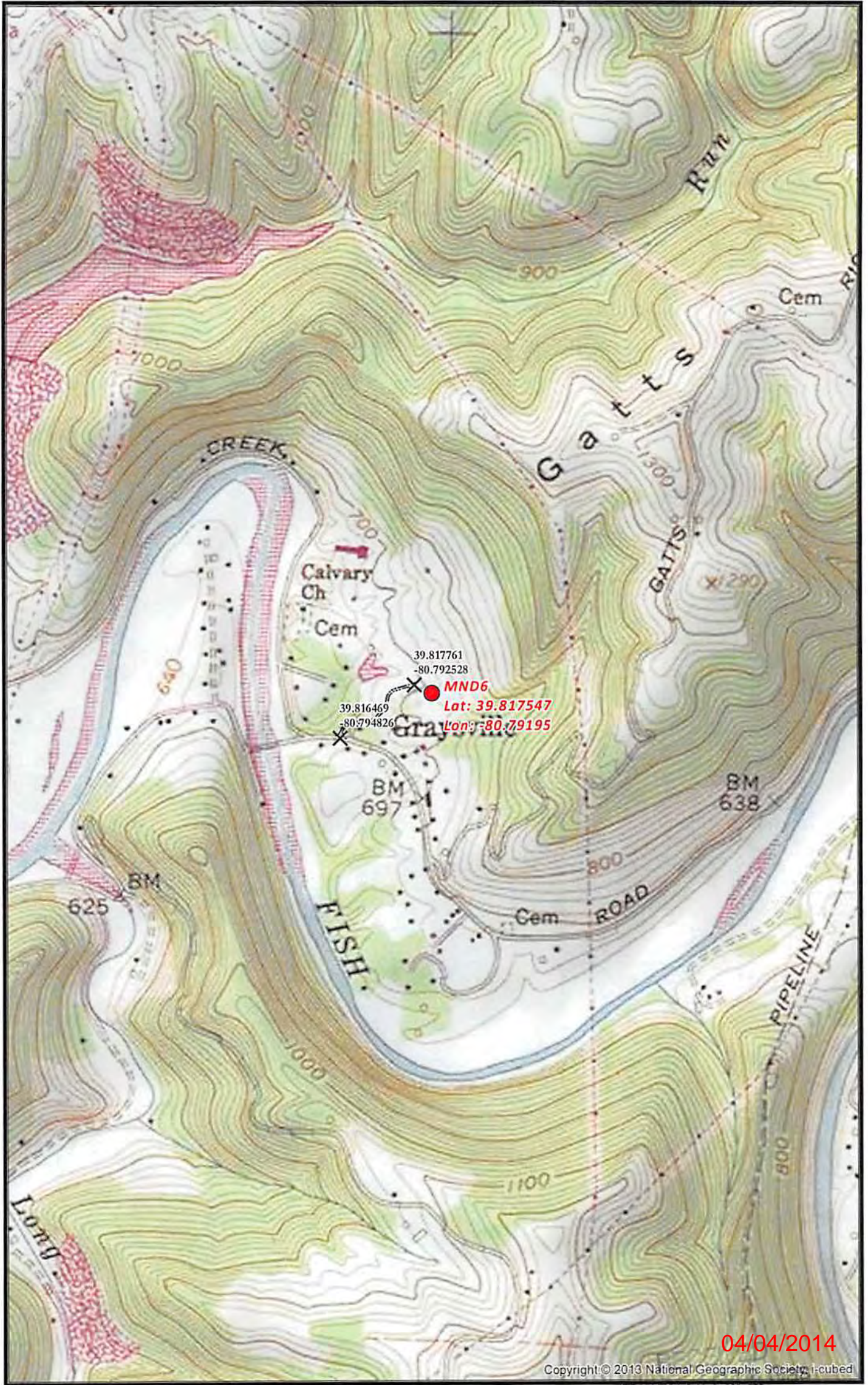
DEC 19 2013

WV Department of
Environmental Protection

Figure 1	drawing title MASTER CONTAINMENT PLAN - DRILLING OPERATIONS	designed TMA	scale NOT TO SCALE
	project title MARCELLUS SHALE WELL PADS NOBLE ENERGY, INC.	checked TER	date 12/19/13
		area	project no. C12105

04/04/2014

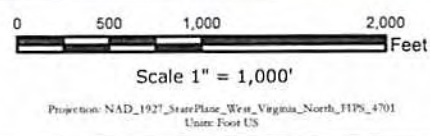
4751001/32 *Plot Spatial*



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MND6 SITE SAFETY PLAN
- SITE WELL LOCATION -

X Access Road Intersection ● Well Pad Center
- - - Proposed Access Road



noble energy 2013
Date: 12/10/2013
Author: Christopher Glover

Disclaimer: All data is licensed for use by Noble Energy Inc. use only.

1/6

EROSION & SEDIMENT CONTROL PLAN

FOR

MND 6 WELL PAD

FRANKLIN DISTRICT, MARSHALL COUNTY, WV

APPROVED
WVDEP OOG
SAY 4/2/2014

SCALE AS SHOWN	NO. DATE



FOR REVIEW ASSOCIATES BY:
 MANAGER: MICHAEL R. DODSON
 DESIGN BY: [Signature]
 CHECK BY: [Signature]
 SUPV. CHECK: [Signature]
 DATE: 4/2/14

CLIENT:
NOBLE ENERGY
 333 TECHNOLOGY DRIVE, SUITE 115
 CANONSBURG, PA 15317-3077
 BEN DEFURENE, PE
 (724) 820-3000
 ben.def@nobleenergy.com

RETNEW
 RETNEW ASSOCIATES, INC.
 1000 W. 10TH STREET, SUITE 100
 CHARLOTTE, NC 28202
 Phone: (704) 444-1728 Fax: (704) 444-1733
 Email: retnew@retnew.com
 Website: www.retnew.com

COVER SHEET
 FOR
MND 6 WELL PAD

MARSHALL COUNTY, WV
 FRANKLIN DISTRICT

DATE: 3/5/2014
 SHEET NO. 1 OF 10
 DWG NO. 093842010

GENERAL NOTES

1. THE TOPOGRAPHIC SURVEY UTILIZED FOR THIS BASE MAPPING WAS PERFORMED BY RETNEW ASSOCIATES, INC. IN SEPTEMBER 2013.
2. PROPERTY BOUNDARIES, LANDOWNER INFORMATION AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GIS PARCEL DATA.
3. EXISTING STRUCTURES, TEEC LINES AND ROADWAYS HAVE BEEN LOCATED FROM AVAILABLE ONLINE AERIAL PHOTOGRAPHY.
4. THE HORIZONTAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
5. THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN VERTICAL DATUM 1988 (NAV D 88).
6. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION FROM ANY EXCAVATION BY NOTING MASS UTILITY OF WEST VIRGINIA AT 1-800-245-4848.
7. A WETLANDS PRESENCE/ABSENCE SURVEY WAS PERFORMED BY RETNEW ASSOCIATES IN MAY & JULY 2013.
8. THE CUT & FILL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN ARE FOR PERMITTING AND INFORMATIONAL PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING GRADES AND TO VERIFY EARTHWORK VOLUMES, METHODS AND PROCEDURES. ANY ISSUES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.
9. ALL EXISTING UTILITIES HAVE BEEN SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION.
10. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES AND WILL BE RESPONSIBLE FOR THE PROTECTION OF THESE UTILITIES AND STRUCTURES AT ALL TIMES.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AND COMPLETELY AT HIS EXPENSE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED OR DESTROYED LANDSCAPE AND LAWNS.
13. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION.
14. CONTRACTOR TO RELOCATE UTILITIES AS REQUIRED.
15. CONTRACTOR MAY WIDEN ACCESS ROAD DUE TO STEEP SLOPES IF DEEMED NECESSARY AND PER APPROVAL BY THE OWNER AND ENGINEER.
16. PROPOSED ROCK CONSTRUCTION ENTRANCE TO BE BUILT SUCH THAT RUNOFF FROM PROPOSED ACCESS WILL NOT SHEET FLOW ON TO PUBLIC ROAD.
17. SEED AND MULCH ALL DISTURBED AREAS PER DETAILS IN THIS PLAN.
18. ALL CLEARED TREE GRUNDINGS SHALL BE PLACED ON UNPAVED SIDE OF CONCRETE FILTER SOCKS AND NOT STOCKPILED ON-SITE.
19. CONTRACTOR SHALL STOP WORK IMMEDIATELY AND CONTACT NOBLE ENERGY AND APPROPRIATE RESPONSIBLE AUTHORITIES SHOULD ANY HISTORICAL ARTIFACTS (I.E. BONES, POTTERY, ETC.) BE ENCOUNTERED DURING CONSTRUCTION.
20. NO WORK SHALL BE DONE OUTSIDE THE LIMITS OF DISTURBANCE OR IN PROTECTED AREAS.

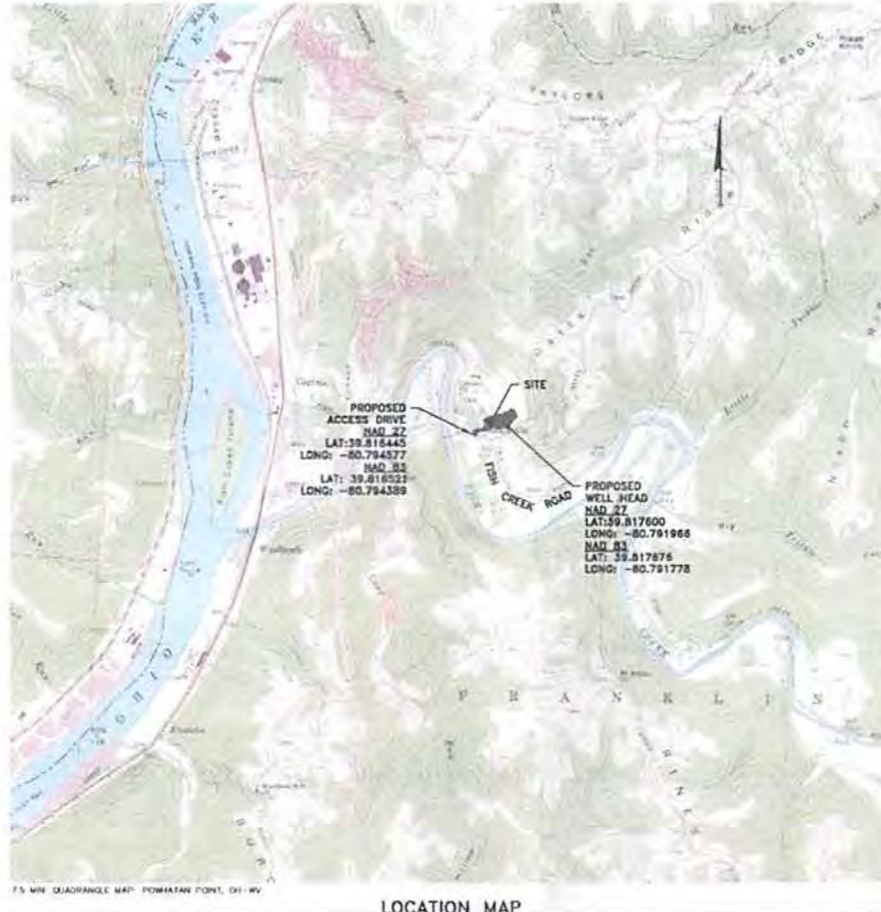
DIRECTIONS TO THE SITE

FROM WHEELING WV TAKE ION-7 SOUTH TAKE RAMP FOR ION-672 TURN LEFT ON ION-672 ROAD NAME CHANGES TO WV 2 TURN LEFT ON FISH CREEK. SITE WILL BE ON LEFT IN 1.2 MILES.

CUT & FILL

	WELL PAD	ACCESS DRIVE	TOTAL SITE
CUT	+57,253 C.Y.	+ 5,741 C.Y.	+62,994 C.Y.
STONE	+ 4,976 C.Y.	+ 508 C.Y.	+ 5,484 C.Y.
FILL	-17,190 C.Y.	-15,459 C.Y.	-32,649 C.Y.
NET CONSTRUCTION	- 9,021 C.Y.	- 9,244 C.Y.	- 18,265 C.Y.
TOPSOIL	- 3,282 C.Y.	- 1,814 C.Y.	- 5,096 C.Y.
NET	+12,067 C.Y.	-12,567 C.Y.	+ 500 C.Y.

- NOTES:
1. THE ASSUMED TYPICAL DEPTH IS 6".
 2. THE CUT & FILL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING GRADES AND VERIFY EARTHWORK VOLUMES, METHODS AND PROCEDURES. ANY ISSUES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.



WEST VIRGINIA 811
 CALL BEFORE YOU DIG!
 Dial 811 or 800.245.4848
 Please link to West Virginia

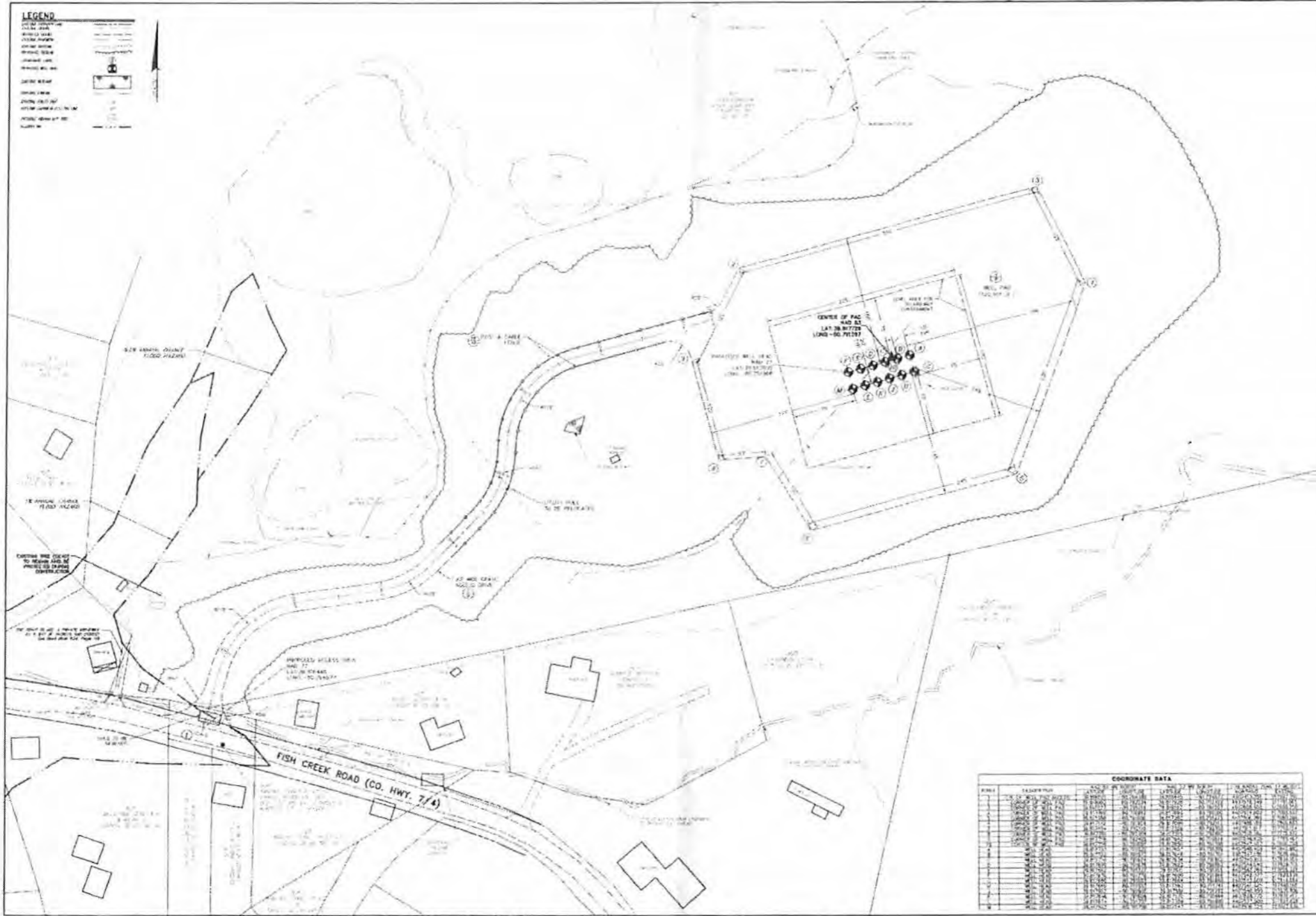
SOILS CLASSIFICATION
 SUG: BROOKSIDE SILT LOAM, 4% TO 15% SLOPES
 B0: BROOKSIDE SILT LOAM, 14% TO 24% SLOPES
 G0: CLEWFOOD SILT LOAM, 2% TO 8% SLOPES
 G1C: CLEWFOOD SILT LOAM, 8% TO 15% SLOPES

- LIST OF DRAWINGS**
- 1 OF 10 COVER SHEET
 - 2 OF 10 ENVIRONMENTAL RESOURCES BUFFER PLAN
 - 3 OF 10 LAYOUT PLAN
 - 4 OF 10 EROSION & SEDIMENT CONTROL PLAN
 - 5 OF 10 ACCESS DRIVE PROFILES
 - 6 OF 10 CROSS SECTIONS PLAN VIEW
 - 7 OF 10 CROSS SECTIONS
 - 8 OF 10 WELL PAD RECLAMATION PLAN
 - 9 OF 10 NOTES & DETAILS
 - 10 OF 10 DETAILS

DISTURBANCE SUMMARY

TOTAL LIMITS OF DISTURBANCE	+8.8 ACRES
CLEARING REQUIRED	+8.4 ACRES
PAV. DISTURBANCE	+0.4 ACRES

Electronic Version of These Plans May Be Viewed at: Q:\OIL GAS\SAY FILES\REVIEWS



A.B.M. D.K.M

COORDINATE DATA

WELL NO.	WELL NAME	WELL TYPE	WELL DEPTH	WELL DIAMETER	WELL PERIMETER	WELL AREA	WELL PERIMETER AREA	WELL AREA	WELL PERIMETER AREA	WELL AREA	WELL PERIMETER AREA
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

RETTEN
 1425 S. 10th St., Suite 100, Oklahoma City, OK 73106
 Phone: (405) 442-1111 Fax: (405) 442-1112
 Email: retten@retten.com

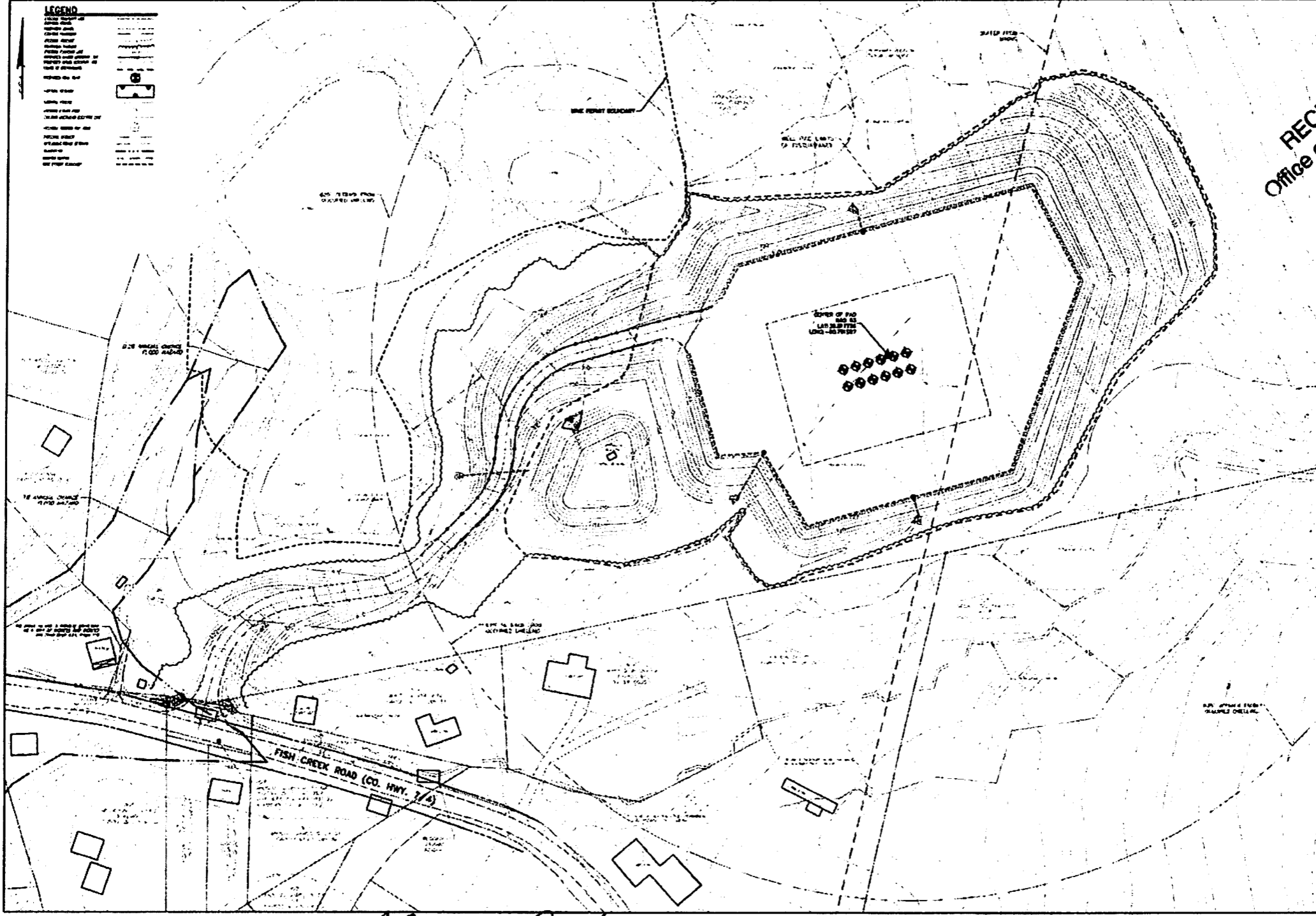
ne noble energy
 NOBLE ENERGY
 311 TECHNOLOGY DRIVE, SUITE 110
 CALOZEMING, PA 15017-2077
 BEN BERGEMAN PE
 (724) 620-3300

LAYOUT PLAN FOR MND 6 WELL PAD
 FRANKLIN DISTRICT, MARSHALL COUNTY, WV

DATE: 1/21/2014
 SHEET NO. 3 OF 10
 DWG NO. 083642010

FOR OFFICE ASSISTANTS BY:
 MICHAEL A. COHEN
 DATE BY: ASL
 CHECK BY: ASL
 DATE BY: ASL
 DATE BY: ASL
 DATE BY: ASL

SCALE: 1" = 100'
 DATE: 1/21/2014



A.B.M. O & M

ENVIRONMENTAL RESOURCES BUFFER PLAN FOR MND 6 WELL PAD <small>FRANKLIN DISTRICT MARSHALL COUNTY, WV</small>		 <small>1000 Main Street, Suite 100 Parkersburg, WV 26101 Phone: (304) 425-1234 Fax: (304) 425-1235</small>	<small>CLIENT:</small> NOBLE ENERGY <small>1111 TECHNOLOGY DRIVE, SUITE 1118 CHARLOTTE, NC 28217-3377 GUY DORVILLE, PE (771) 800-2800</small> 	<small>APPROVED BY:</small> <small>DATE:</small> 3/29/2014
<small>SCALE:</small> 1" = 100'	<small>PROJECT NO.:</small> 09284506			

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 Office of Oil and Gas
 Department of Environmental Protection