



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

November 18, 2014

WELL WORK PERMIT


Horizontal Well

This permit, API Well Number: 47-10501376, issued to HARD ROCK EXPLORATION, 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: HR-508
Farm Name: HARPER, GENE
API Well Number: 47-10501376
Permit Type: Horizontal Well
Date Issued: 11/18/2014

Promoting a healthy environment.

11/21/2014

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 with 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. 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 - 2B
(Rev. 8/10)

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

1) Well Operator: Hard Rock Exploration, Inc. 494464205 Wirt Reedy Reedy, WV 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: HR-508 3) Elevation: 873'

4) Well Type: (a) Oil _____ or Gas X
 (b) If Gas: Production X / Underground Storage _____
 Deep _____ / Shallow X

5) Proposed Target Formation(s): Lower Huron Proposed Target Depth: 4527'

6) Proposed Total Depth: 7787' TMD Feet Formation at Proposed Total Depth: Lower Huron

7) Approximate fresh water strata depths: Deepest anticipated 745'

8) Approximate salt water depths: 1833'-2033'

9) Approximate coal seam depths: None noted in offset wells

10) Approximate void depths,(coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Drill 12 3/8" hole on air/ Freshwater foam; Drill 8 3/4" hole on Air/Freshwater foam/Fluid; Drill Bottom hole on Air.
KOP-3927', Land curve-4877'MD/ 4527'TVD , 3520'VS, 7787'TMD
Run 4.5" casing with open hole packer completion (Depths noted at bottom) -Set packers, cement on top packer, Fracture with Nitrogen gas

13) 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 3/8"	LS	37	30'	30'	n/a
Fresh Water	9 5/8"	LS	26	800'	800'	395cuft cts
Coal						
Intermediate	7"	LS	19	2470'	2470'	553cuft cts
Production	4 1/2"	N-80	11.6	7787'	7787'	130cuft
Tubing						
Liners						

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Environmental Protection

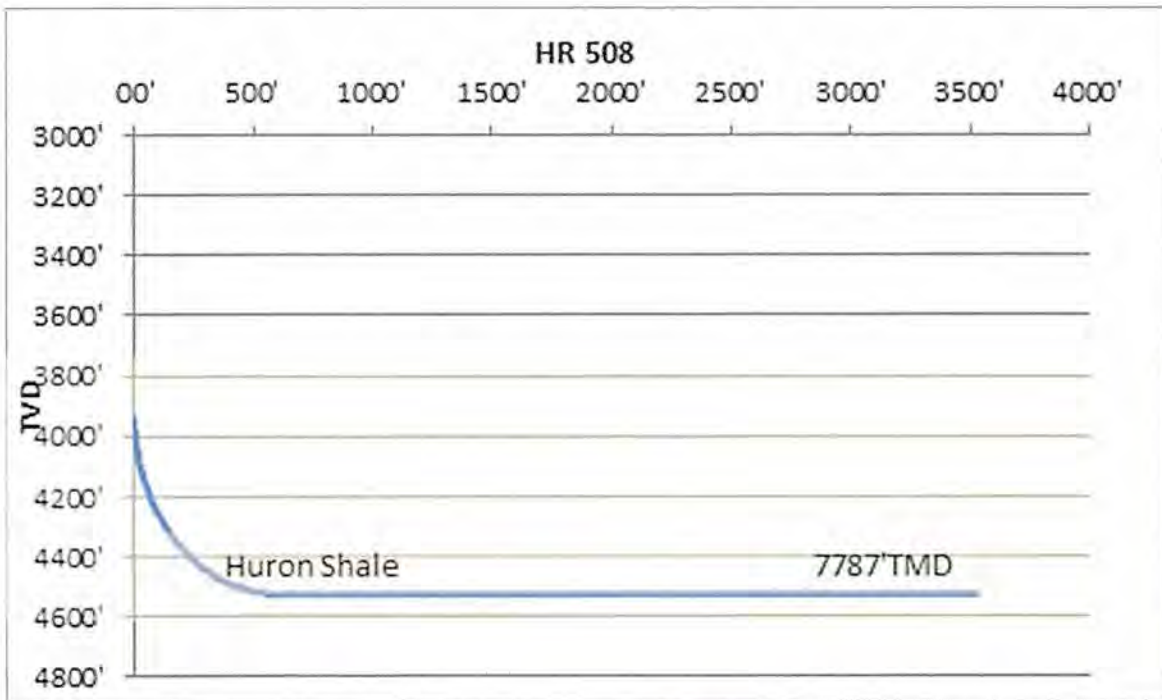
Packers: Kind: Hydraulic Set open hole packer
 Sizes: 4.5" X 6 5/8" 10k diff Seal
 Depths Set Place 14 stg open hole packer system from 4360'MD- 7787' (244 spacing per stg) . 15th packer at 2700' Dumb 1390' DTD
11/21/2014

105013764

NOTICE

WELLBORE GRAPH
HARD ROCK EXPLORATION WELL NO. HR-508

CK 8900
6500



JMZ
10-21-14

HARD ROCK EXPLORATION, INC.
1244 MARTINS BRANCH ROAD
CHARLESTON, WV 25312

10-13-14

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Office of Oil and Gas

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WV Department of
Environmental Protection
11/21/2014

WW-2A
(Rev. 6-14)

1.) Date: October 10, 2014
2.) Operator's Well Number HR-508
State 47- County 105 Permit -
3.) API Well No.:

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

4) Surface Owner(s) to be served:
(a) Name Albert Gene Harper *W*
Address 1 First American Way
Westlake, TX 76262
(b) Name _____
Address _____
(c) Name _____
Address _____
5) (a) Coal Operator
Name None
Address _____
(b) Coal Owner(s) with Declaration
Name Albert Gene Harper *W*
Address 1 First American Way
Westlake, TX 76262
Name _____
Address _____
(c) Coal Lessee with Declaration
Name None
Address _____
6) Inspector Joe Taylor
Address 1478 497 Claylick Road
Riplev, WV 25271
Telephone (304)380-7469

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

OR Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

- _____ Personal Service (Affidavit attached)
- X _____ Certified Mail (Postmarked postal receipt attached)
- _____ Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

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, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Well Operator Hard Rock Exploration, Inc.
By: Monica [Signature]
Ite: Executive Vice President
Address: 1244 Martins Branch Road
Charleston, WV 25312
Telephone: 304-984-9004
Email: monica@hardrockexploration.com

Subscribed and sworn before me this 17th day of October, 2014

Joan L. Beane Notary Public
Sept. 6, 2022

My Commission Expires
Oil and Gas Privacy Notice

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Office of Oil and Gas
NOV 03 2014

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Wirt
Operator Hard Rock Exploration, Inc. Operator's Well Number HR-508

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

[Signature] Date 10-31-14 Company Name
By
Its

Signature Date

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Office of Oil and Gas
NOV 08 2014
WV Department of
Environmental Protection
11/21/2014

10501376H

WW-2A Surface Waiver

SURFACE OWNER WAIVER

County Wirt Operator Hard Rock Exploration, Inc.
Operator well number HR-508

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure a adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Comments must be in writing. Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

- The Chief has the power to deny or condition a well work permit based on comments on the following grounds:
- 1) The proposed well work will constitute a hazard to the safety of persons.
 - 2) The soil erosion and sediment control plan is not adequate or effective;
 - 3) Damage would occur to publicly owned lands or resources;
 - 4) The proposed well work fails to protect fresh water sources or supplies;
 - 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

A. B. Hager Date 10-31-14
Signature
A. B. Hager
Print Name

Company Name _____
By _____
Its _____
RECEIVED
Office of Oil and Gas
NOV 03 2014
Signature _____ Date _____
WV Department of
Environmental Protection
11/21/2014

105013764

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Wirt
Operator Hard Rock Exploration, Inc. Operator's Well Number HR-508

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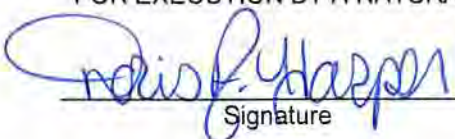
Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

WAIVER

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FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.


Signature

Date 10-31-14

Company Name _____
By _____
Its _____ Date _____

Signature _____ Date _____

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Environmental Protection
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WW-2A Surface Waiver

SURFACE OWNER WAIVER

County Wirt Operator Hard Rock Exploration, Inc.
Operator well number HR-508

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

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NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

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Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Comments must be in writing. Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

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I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Chris Harper
Signature
Chris Harper
Print Name

Date 10-31-14

Company Name _____
By _____
Its _____
Signature _____
Date NOV 03 2014

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Office of Oil and Gas
WV Department of Environmental Protection
11/21/2014

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Albert Gene & Doris Ann Harper	Hard Rock Exploration, Inc.	% of 1/8	243/300

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the proposed activity is initiated.

Well Operator:
By: Its:

Hard Rock Exploration, Inc.

 Executive Vice President

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 Office of Oil and Gas
 NOV 03 2014
 WV Department of
 Environmental Protection
 11/21/2014

WW-2B1
(5-12)

Well No. HR-508

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contractor chosen to collect sample.

Certified Laboratory Name Standard Labs or Sturm Lab
Sampling Contractor Standard Labs or Sturm Lab

Well Operator Hard Rock Exploration, Inc.
Address 1244 Martins Branch Road
Charleston, WV 25312
Telephone 304-984-9004

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

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Office of Oil and Gas
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WV Department of
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11/21/2014

1050137614

**WATER NOTICE
FOR
HARD ROCK EXPLORATION, INC.
WELL HR-508A**

NO WATER SOURCES IDENTIFIED WITHIN 2,000' OF PROPOSED WELL SITE.

**RECEIVED
Office of Oil and Gas
NOV 03 2014
WV Department of
Environmental Protection**

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Hard Rock Exploration, Inc. OP Code 494464205

Watershed (HUC 10) Folley Run of Reedy Creek Quadrangle Reedy, WV 7.5'

Elevation 873' County Wirt District Reedy

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes _____ No X

Will a pit be used for drill cuttings? Yes X No _____

If so, please describe anticipated pit waste: Drill Cuttings

Will a synthetic liner be used in the pit? Yes X No _____ If so, what ml.? 10 or greater

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC2D0190460, 3416729685)
- Reuse (at API Number 110096, 8704729, 3503009, 8704712, 3503011, 3503008, 3503005, ... - Well will be noted in DMR)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

20 MIL.

Will closed loop system be used? No

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air

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

Additives to be used in drilling medium? Soap, KCl, or Clay Stay

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

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

-Landfill or offsite name/permit number? _____

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 Monica Francisco

Company Official (Typed Name) Monica Francisco

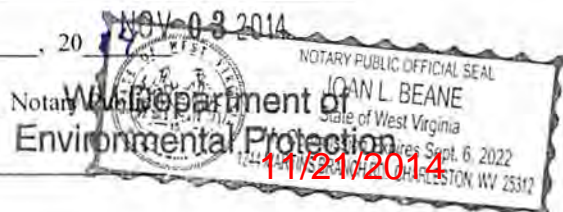
Company Official Title Executive Vice President

RECEIVED
Office of Oil and Gas

Subscribed and sworn before me this 17th day of October, 2014

Joan L. Beane
Notary Public

My commission expires Sept. 6, 2022



Proposed Revegetation Treatment: Acres Disturbed 1.22 Prevegetation pH 5.5

Lime 3 Tons/acre or to correct to pH 6.5

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

Mulch Hay/Straw/Paper (Paper at 1600 lbs/acre) Tons/acre

Seed Mixtures

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
Red Top	15	Red Top	15
Orchard Grass	25	Orchard Grass	25
Perennial Rye/Crimson Red Clover	25 Each	Perennial Rye/Crimson Red Clover	25 Each
Annual Rye	40	Annual Rye	40

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

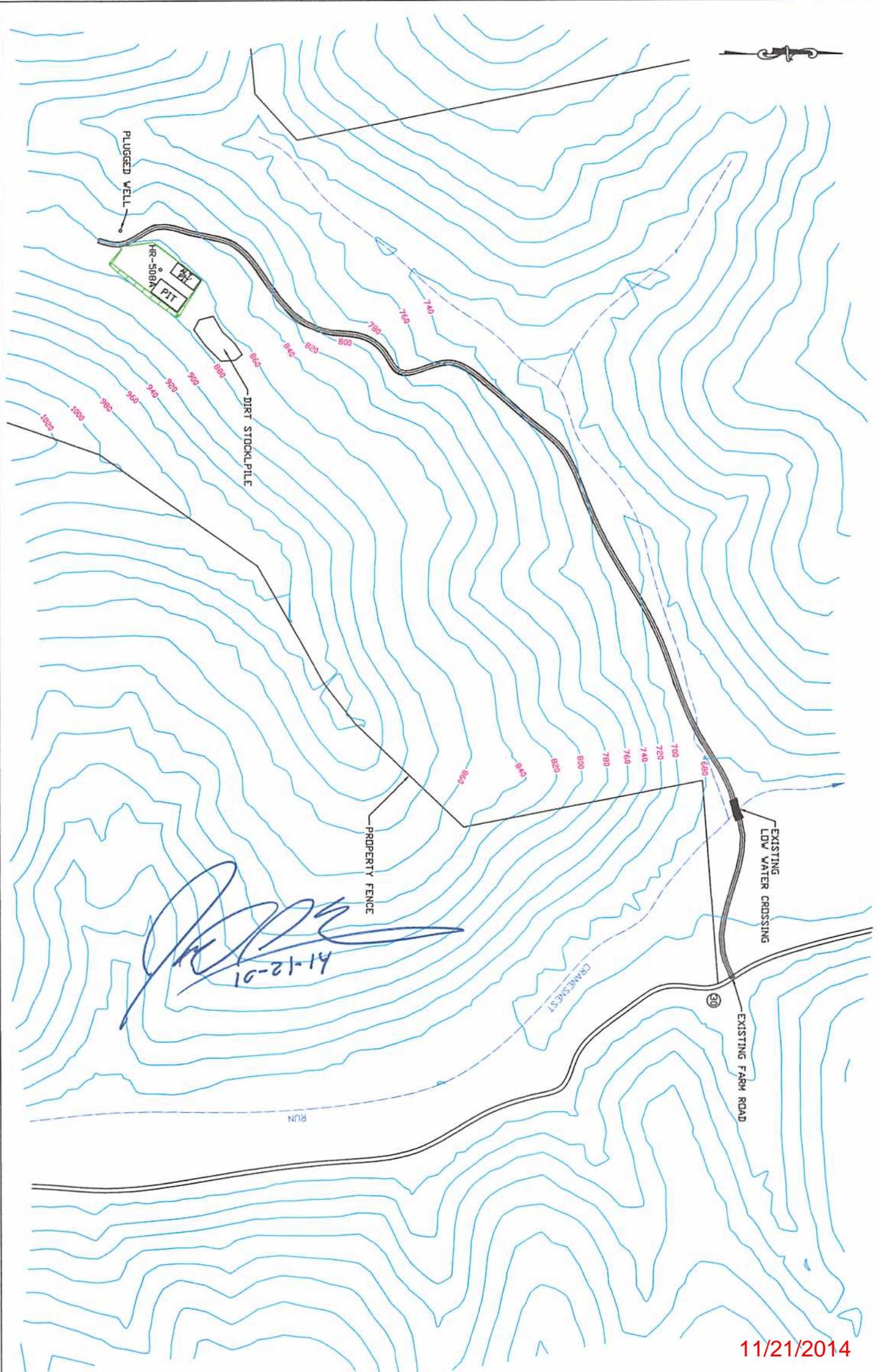
Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments: _____

Title: COG Inspector Date: 10-21-14

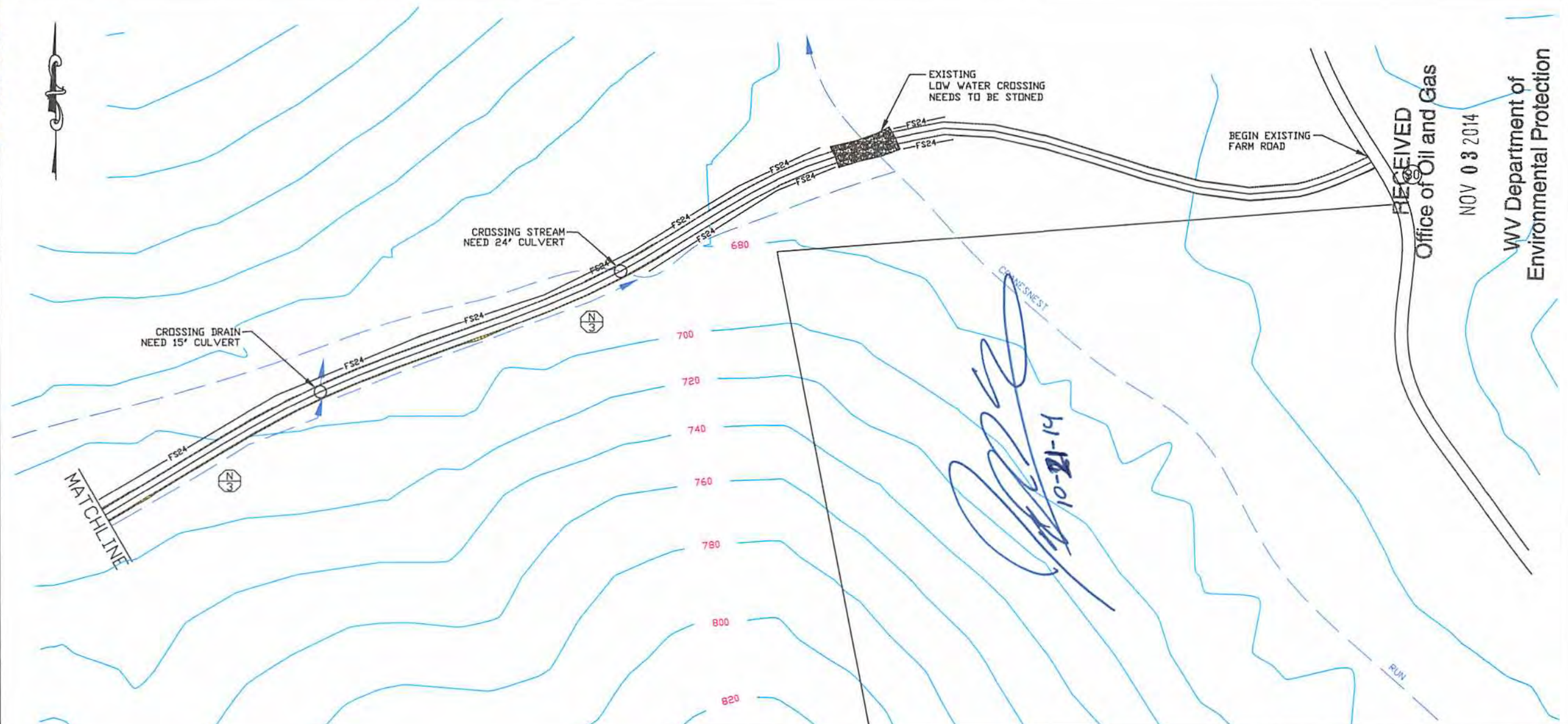
Field Reviewed? () Yes () No



11/21/2014

DISTURBED AREAS		LEGEND		<p style="text-align: center;">RECEIVED</p> <p style="text-align: center;">SITE PLAN Office of Oil and Gas</p> <p style="text-align: center;">HARD ROCK EXPLORATION PROPOSED WELL # HR-508A REEDY DISTRICT, WIRT COUNTY REEDY QUAD, WV 7.5'</p> <p style="text-align: center;">OCTOBER 3, 2014</p> <p style="text-align: center;">WV Department of Environmental Protection</p> <p style="text-align: center;">PAGE 1 OF 1</p>
WELL PAD CONSTRUCTION	0.50 AC.		STREAM	
EXISTING ROAD TO BE UPGRADED	0.72 AC.		PROPERTY LINE	
ADDITIONAL CLEARING			SLOPE AREA	
TOTAL DISTURBED AREA	1.22 AC		WETLAND	
			BUFFER AREA	

10501376H



LEGEND

- PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES
- LEVEL SPREADER
- DIVERSION DITCH
- BERM OUTLET

- STREAM
- PROPERTY LINE
- SLOPE AREA
- WETLAND
- 24" COMPOST FILTER SOCK AS REQUIRED
- FS24

EROSION AND SEDIMENT CONTROL PLAN

HARD ROCK EXPLORATION
 PROPOSED WELL # HR-508A
 REEDY DISTRICT, WIRT COUNTY
 REEDY QUAD, WV 7.5"
 OCTOBER 3, 2014

TRUE LINE SURVEYING
 6211 FAIRVIEW DR.
 HUNTINGTON, WV 25705

PAGE 1 OF 3

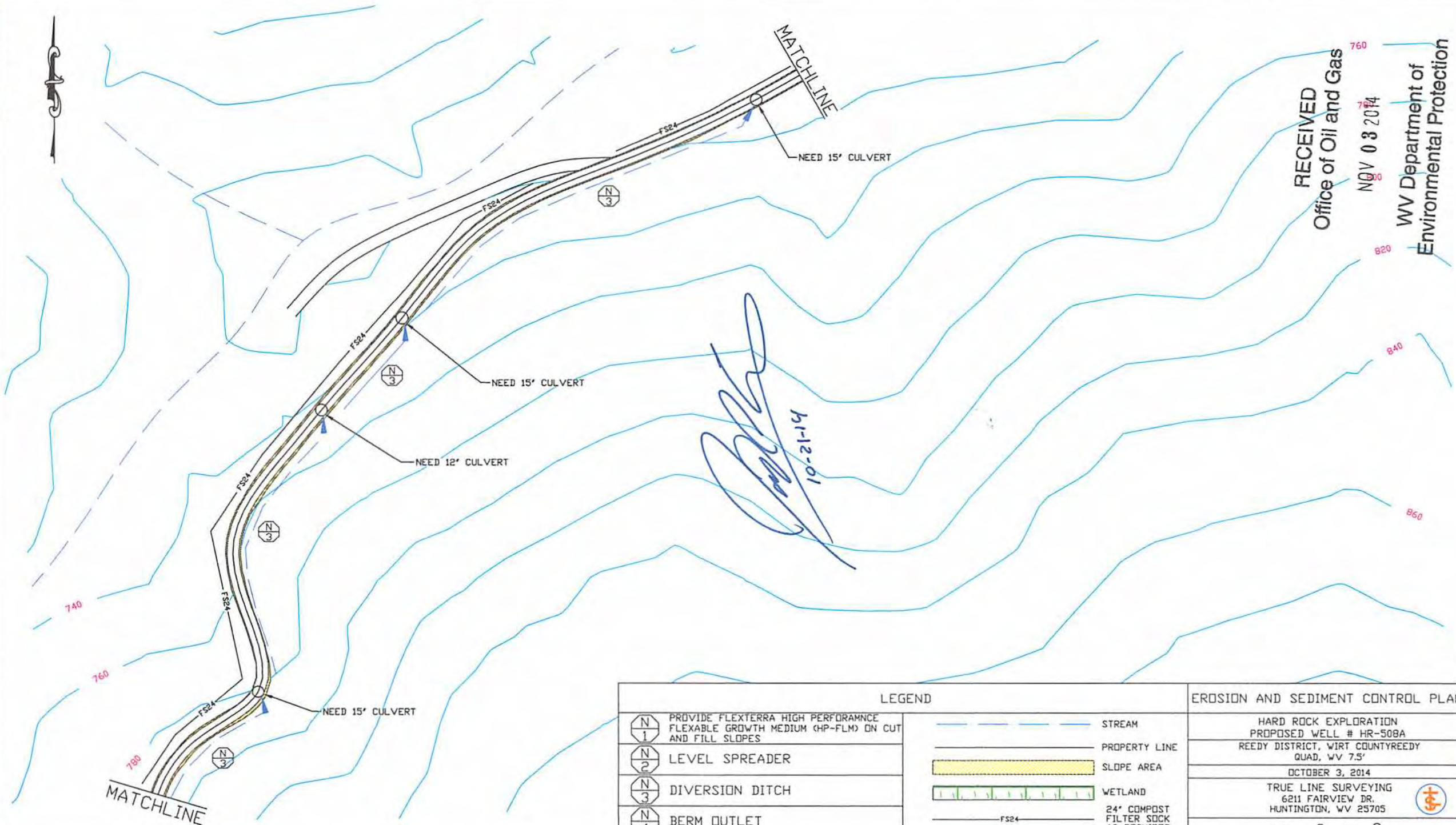
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WV Department of
Environmental Protection

Handwritten signature and date: 10-21-14

10501376H



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760
740
820
840
860

LEGEND		EROSION AND SEDIMENT CONTROL PLAN	
	PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES		STREAM
	LEVEL SPREADER		PROPERTY LINE
	DIVERSION DITCH		SLOPE AREA
	BERM OUTLET		WETLAND
			24" COMPOST FILTER SOCK AS REQUIRED
		HARD ROCK EXPLORATION PROPOSED WELL # HR-508A REEDY DISTRICT, WIRT COUNTY REEDY QUAD, WV 7.5" OCTOBER 3, 2014 TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705 	
		PAGE 2 OF 3	

HPLE10501



MATCHLINE

NEED 12' CULVERT

NEED 15' CULVERT

NEED 15' CULVERT

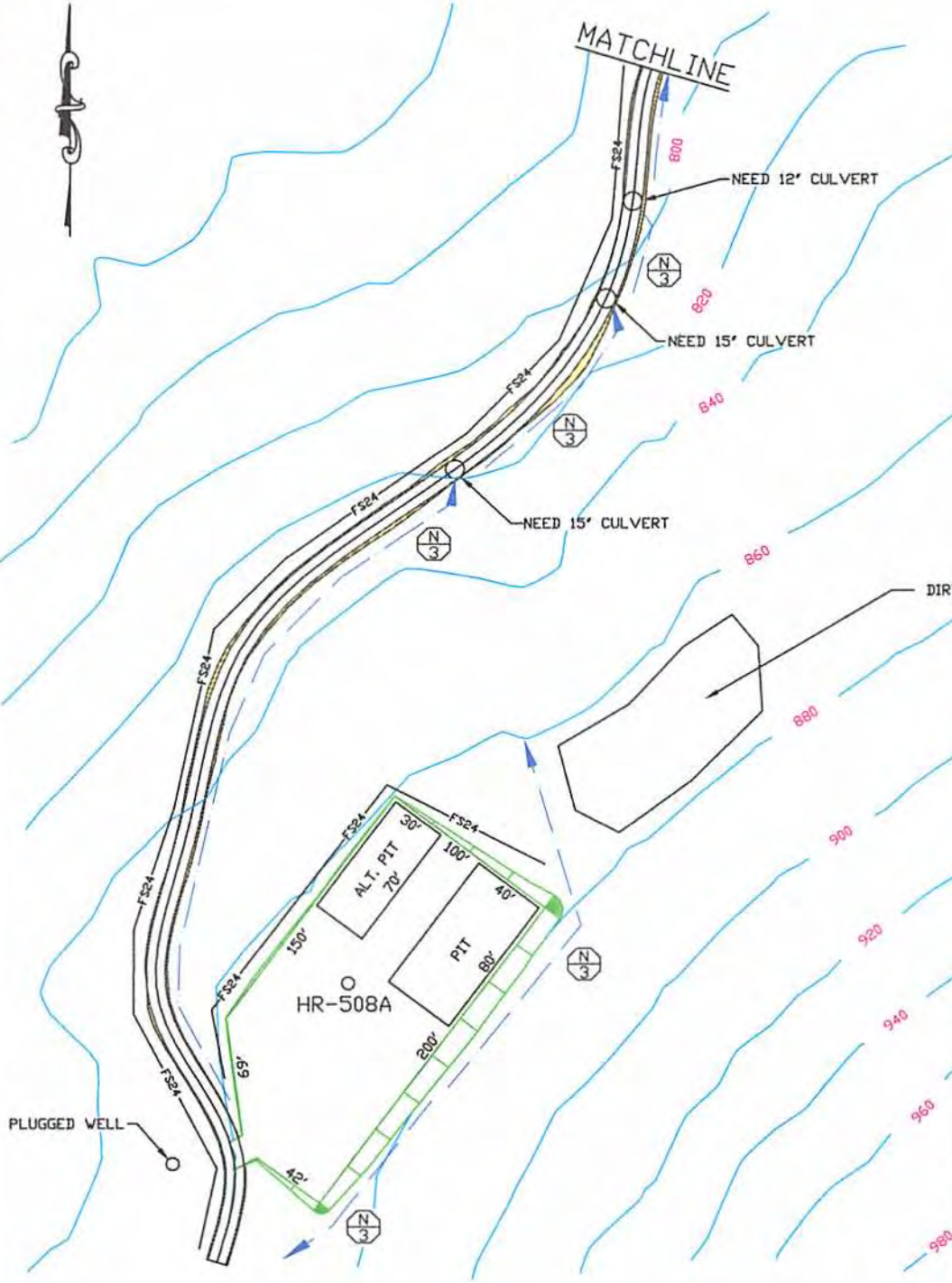
DIRT STOCKPILE

HR-508A

PLUGGED WELL

Handwritten signature and date: 10-21-14

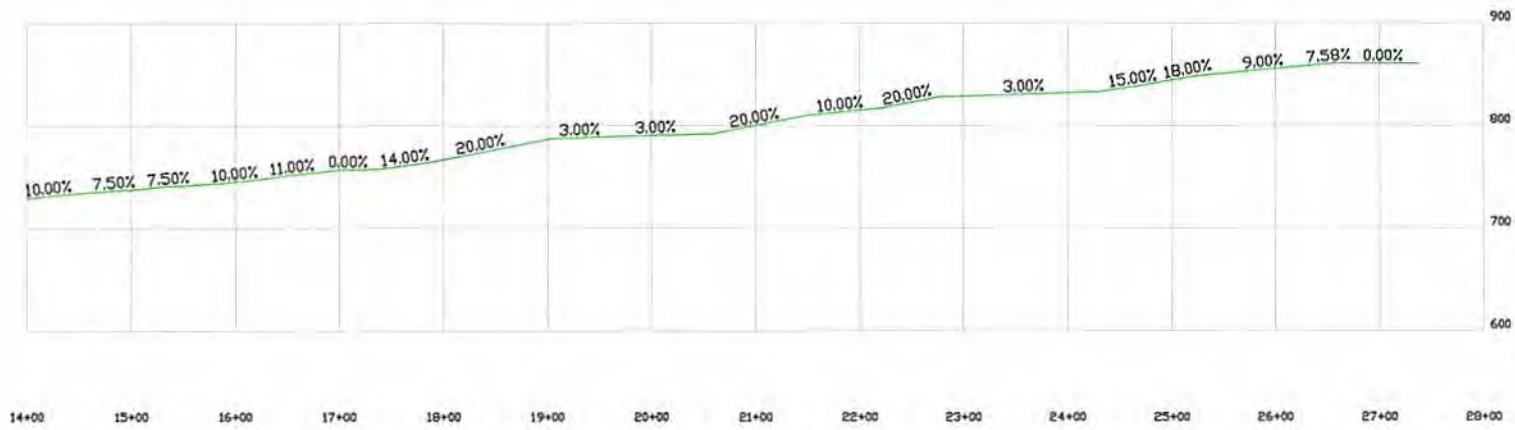
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LEGEND		EROSION AND SEDIMENT CONTROL PLAN	
	PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES		STREAM
	LEVEL SPREADER		PROPERTY LINE
	DIVERSION DITCH		SLOPE AREA
	BERM OUTLET		WETLAND
			24" COMPOST FILTER SOCK AS REQUIRED
		HARD ROCK EXPLORATION PROPOSED WELL # HR-508A REEDY DISTRICT, WIRT COUNTY REEDY QUAD, WV 7.5' OCTOBER 3, 2014 TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705 PAGE <u>3</u> OF <u>3</u>	



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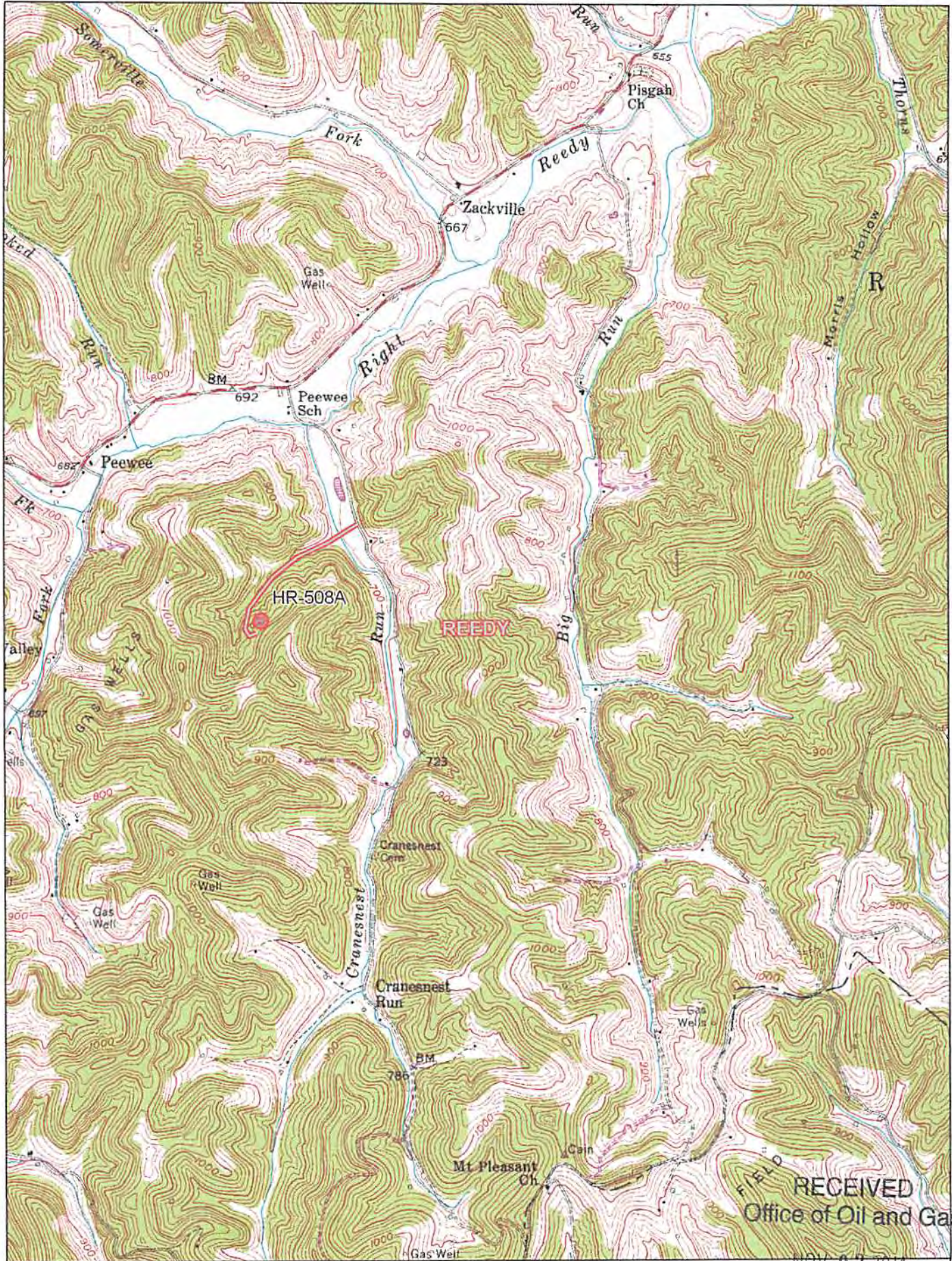
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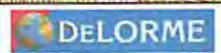
ROAD PROFILE
HARD ROCK EXPLORATION PROPOSED WELL # HR-508A
REEDY DISTRICT, WIRT COUNTY NAME OF REEDY, WV 7.5'
OCTOBER 3, 2014
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705
PAGE <u>1</u> OF <u>1</u>



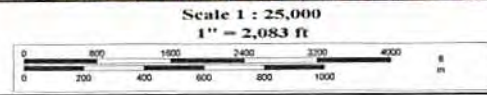


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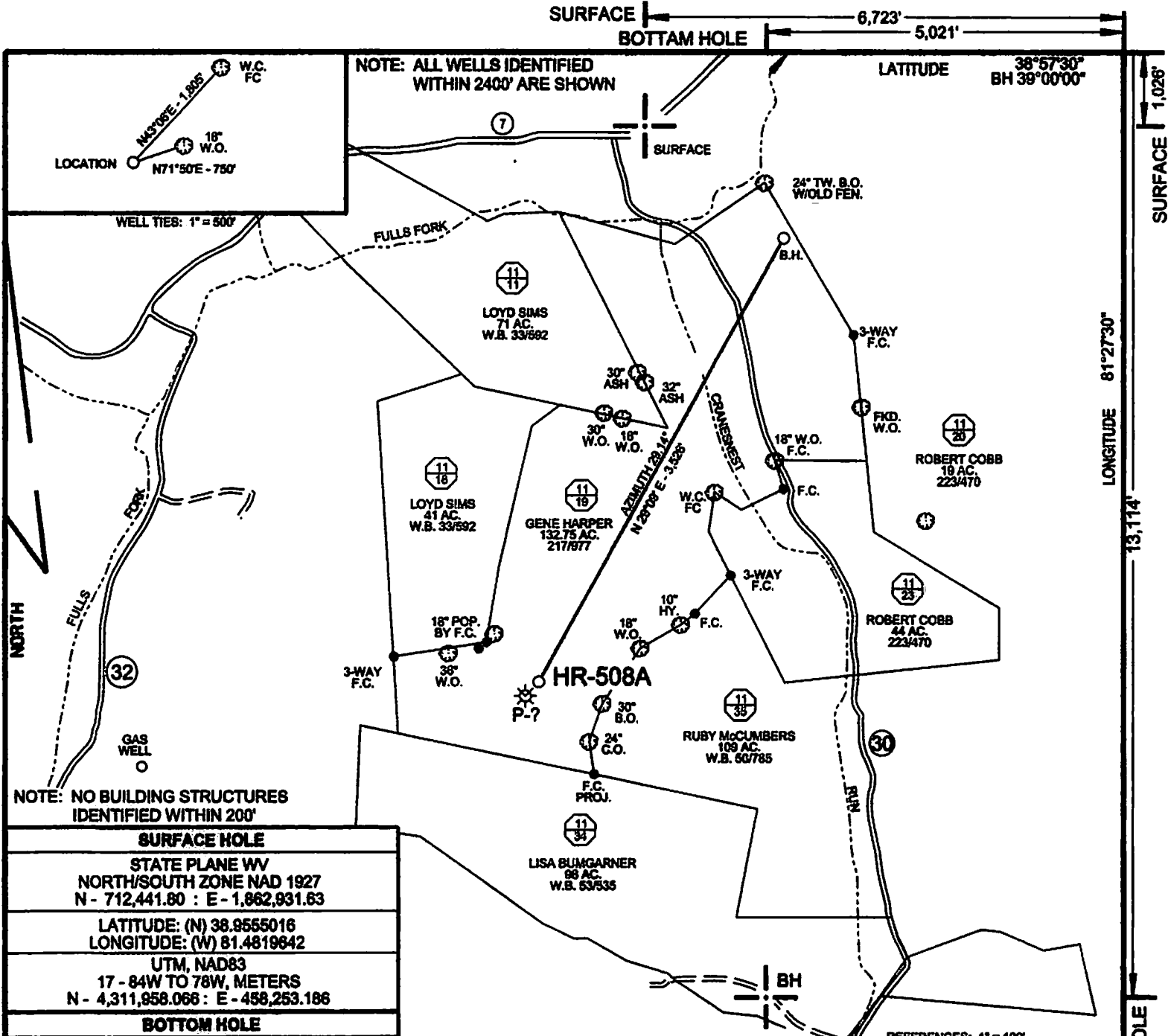
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Zoom Level: 13-0 Datum: WGS84



WV Dept of Environmental Protection
NOV 21 2014



NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

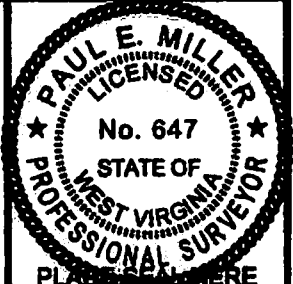
SURFACE HOLE	
STATE PLANE WV NORTH/SOUTH ZONE NAD 1927 N - 712,441.80 : E - 1,862,931.63	
LATITUDE: (N) 38.9555016 LONGITUDE: (W) 81.4819642	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,311,958.066 : E - 458,253.186	
BOTTOM HOLE	
STATE PLANE WV NORTH/SOUTH ZONE NAD 1927 N - 715,521.47 : E - 1,864,648.59	
LATITUDE: (N) 38.9639813 LONGITUDE: (W) 81.4759827	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,312,896.323 : E - 458,776.389	

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

FILE NO.	HR-508A.DGN
DRAWING NO.	HR-508
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	1:200
PROVEN SOURCE OF ELEVATION	MAPPING GRADE GPS

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

(SIGNED) *Paul E. Miller*
R.P.E. _____ L.L.S. 647



STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION		DATE <u>OCTOBER 3</u> , 20 <u>14</u> OPERATOR'S WELL NO. <u>HR-508A</u> API WELL NO. _____
WELL TYPE: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> (IF "GAS,") PRODUCTION <input type="checkbox"/> STORAGE <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>		<u>47</u> <u>105</u> <u>01376H</u> STATE COUNTY PERMIT
LOCATION: ELEVATION <u>873'</u> WATER SHED <u>CRANESNEST RUN OF RIGHT REEDY CREEK</u> DISTRICT <u>REEDY</u> COUNTY <u>WIRT</u> QUADRANGLE <u>REEDY, WV 7.5'</u>		COUNTY NAME
SURFACE OWNER <u>GENE HARPER</u> ACREAGE <u>132.75</u> OIL & GAS ROYALTY OWNER <u>Albert & Doris Karpav</u> LEASE ACREAGE <u>132.75</u> LEASE NO. _____		PERMIT
PROPOSED WORK: DRILL <input checked="" type="checkbox"/> CONVERT <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input checked="" type="checkbox"/> OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____		
PLUG AND ABANDON <input type="checkbox"/> CLEAN OUT AND REPLUG <input type="checkbox"/> TARGET FORMATION <u>LOWER HURON</u> ESTIMATED DEPTH <u>7787' MD; 457' TVD</u> WELL OPERATOR <u>HARD ROCK EXPLORATION, INC.</u> DESIGNATED AGENT <u>JAMES L. STEPHENS</u> ADDRESS <u>1244 MARTINS BR. RD., CHARLESTON, WV 25312</u> ADDRESS <u>SAME</u>		

FORM WW-6

COUNTY NAME
PERMIT

105013764

Hard Rock Consulting, LLC



Hard Rock Land Services, LLC

October 13, 2014

West Virginia Department of
Environmental Protection
Office of Oil & Gas
Attn: James Martin
601 57th Street SE
Charleston, WV 25304

Ref: Permit application for well HR-508; crossing roads identified as: County Route 30 within TM 11 Parcel 35 located in the Reedy District of Wirt County, State of West Virginia

Dear Mr. Martin:

Please be advised that Hard Rock Exploration, Inc. (Hard Rock) has the right to explore for, develop, produce, measure, and market natural gas and oil produced from the planned well identified in the above referenced permit application. This authority was granted to Hard Rock Exploration, Inc., as Lessee, by the Oil & Gas Lease, dated August 18, 2014, and recorded in the Public Records of the County of Wirt, in Book ?, Page ?, in West Virginia. Consistent with the rights granted, Hard Rock has the authority to explore for and drill under the road/right-of-way identified above.

Please direct questions to Monica Francisco, at (304)984-9004, or by email to: monica@hardrockexploration.com.

Regards,

HARD ROCK EXPLORATION, INC.

A handwritten signature in cursive script, appearing to read "Monica Francisco".

Monica Francisco
Executive Vice President

encl.

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WV Department of
Environmental Protection

11/21/2014

Hard Rock Consulting, LLC



Hard Rock Land Services, LLC

October 13, 2014

Mr. Gene Smith
 West Virginia Department of Environmental Protection
 601 57th Street SE
 Charleston, West Virginia 25304

RE: Permit for well HR-508

Dear Gene:

I am writing regarding fresh water casing protection for the above referenced well. Hard Rock Exploration respectfully request this permit be issued allowing a deeper string of fresh water protection.

The new emergency rules act as a blanket policy and does not take several factors into consideration. The primary issue is that a lot of wells in the state of West Virginia are drilled on air, and the majority of operators with air drilling operations work diligently to reduce the amount of water in their operations. The new guidelines appear to be focused on fluid drilling and do not take into account wells being drilled on air. Our request is based on what we consider to be better engineering practices for air drilling operations.

The proper placement of the casing shoe must be considered; Hard Rock wants the ability to place the casing shoe in a rock, which has the mechanical integrity to ensure a proper seal at the casing shoe. If we follow the "new guidelines" most of the wells in our operational area would have the casing shoe placed in a red rock section and we would run casing 100 feet below the Pittsburgh Sand. Red rock has been proven to be a formation that is not stable with drilling operations; the rock is sensitive to time and the fluids that are produced from the intermediate hole. When the red rock is not covered we have seen sloughing and wash-outs during drilling operations.

Our proposed fresh water protection string set just above elevation does three things to ensure protection of fresh water and the minimization of pit fluids:

- (1) It limits the time exposure on the fresh water aquifer and adds only a few hours of air drilling to the well.
- (2) With the minimal time exposed and a casing shoe located in a mechanically sound rock it will ensure the cement will seal and form a good compressive barrier to future drilling operations.

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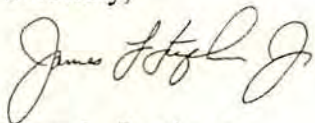
NOV 03 2014

- (3) The last item, which is overlooked by the new standards, is pit volumes. The proposed fresh water casing placement will allow the majority of the 8 ¾ hole to be drilled on air. Using this method will permit Hard Rock to reduce fluids for drilling and decrease pit water volumes.

We also request that a cement record log from a cement service company be filed with our WR-35. We think that failure of either the cement quality or circulation should be a good measure of when to require additional logging and most fresh water protection strings are witnessed by the State Oil and Gas inspector for verification of a good cement job. Running a bond log under pressure should only be done if a known problem exists; the pressuring up of the casing string is detrimental to the newly established cement and could cause a micro-annulus problem. In addition, bond logs ran at the shallow depths with large internal diameter casings are very inaccurate if not ran under pressure. I think that the cement record log and the circulation of cement at surface will satisfy the "new guidelines".

I hope this request is considered and permits are issued in the very near future.

Sincerely,



James L. Stephens
President

Cc: Monica Stephens
Ron Crites

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11/21/2014