



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

September 29, 2014

WELL WORK PERMIT

Horizontal Well

This permit, API Well Number: 47-8704742, 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-502A
Farm Name: JARVIS, DAVID
API Well Number: 47-8704742
Permit Type: Horizontal Well
Date Issued: 09/29/2014

Promoting a healthy environment.

10/03/2014

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. This permit is being conditioned to address the possibility of flooding in the area of this well. Any tanks stored on this location must be securely anchored in cement to prevent the loss of tanks should a flood occur. In addition, cages must be placed around the well head to prevent debris from damaging the well head.

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 Roane Reedy Reedy, WV 7.5'
Operator ID County District Quadrangle

87 4 572

2) Operator's Well Number: HR-502 3) Elevation: 981'

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: 4500'

6) Proposed Total Depth: 8440' Feet Formation at Proposed Total Depth: Lower Huron

7) Approximate fresh water strata depths: Pittsburgh anticipated at 715'-770'

8) Approximate salt water depths: 1950'-2200'

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-3900' Land curve-4840'MD/ 4500'TVD , 4200'VS, 8440' TMD

Run 4.5" casing with open hole packer completion (Depths noted at bottom) -Set packers, cement above 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'	NA
Fresh Water	9 5/8"	LS	26	870'	870'	430cuft Cts
Coal						
Intermediate	7"	MC50	19	2330'	2330'	505cuft Cts
Production	4 1/2"	M80	11.6	8440'	8440'	130cuft
Tubing						
Liners						

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AUG 29 2014

Packers: Kind: Hydraulic set open hole packers

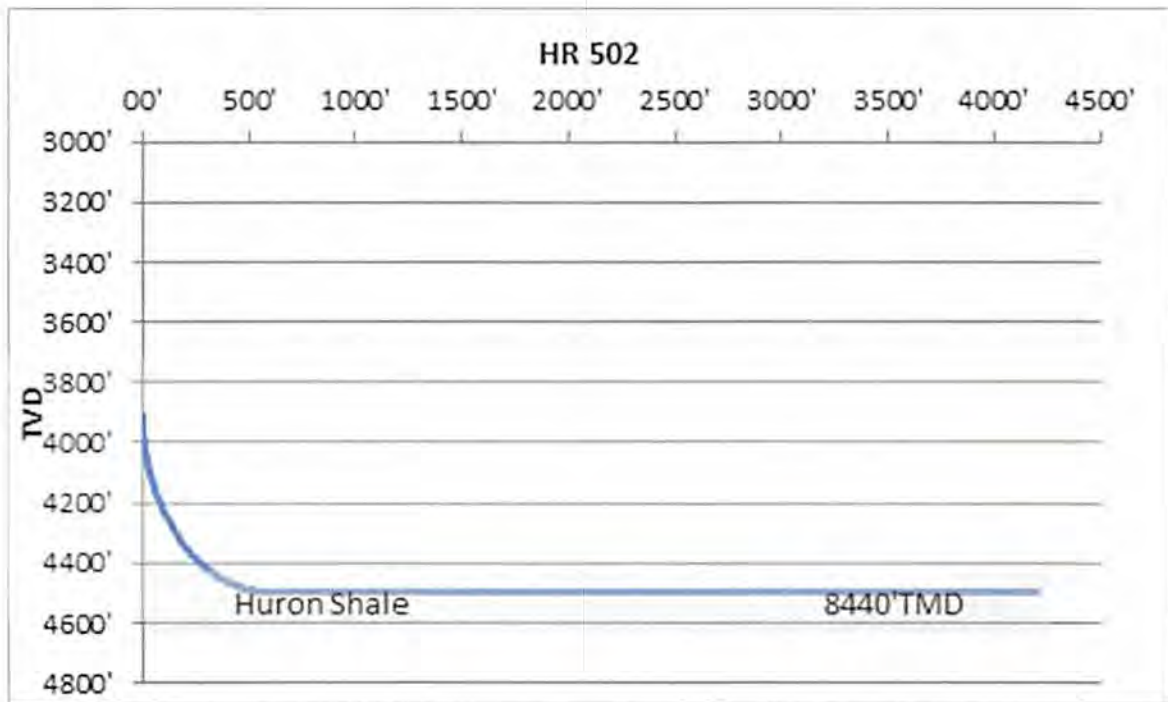
Sizes: 4.5" X 6 5/8" 10k diff Seal

Depths Set Place 15 stg open hole packer system from 4840'MD- 8440' (240' spacing per stg) , 16th packer at 2650' Dump 130cuft cmt

Office of Oil and Gas
WV Dept. of Environment
10/03/2014

NOTICE

WELLBORE GRAPH
HARD ROCK EXPLORATION WELL NO. HR-502



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

8-7-14

Received

AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

10/03/2014

8704742H

WW-2A
(Rev. 6-14)

1). Date: August 5, 2014
2.) Operator's Well Number HR-502
State County Permit
3.) API Well No.: 47- 087 -

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 Wayne Phipps ✓ Address PO Box 56
Raymond OH 43067
(b) Name David Jarvis W Address 1685 Riplev Road
Spencer, WV 25276
(c) Name _____ Address _____
5) (a) Coal Operator Name None Address _____
(b) Coal Owner(s) with Declaration Name Wayne Phipps Address PO Box 56
Raymond OH 43067
Name David Jarvis W Address 1685 Riplev Road
Spencer, WV 25276
(c) Coal Lessee with Declaration Name None Address _____
6) Inspector Ed Gainer Address PO Box 821
Spencer, WV 25276 Telephone 304-389-7582

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

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

OR
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 Green Received
Its: Executive Vice President
Address: 1244 Martins Branch Road AUG 29 2014
Charleston, WV 25312
Telephone: 304-984-9004
Email: monica@hardrockexploration.com Office of Oil and Gas
Department of Environmental Protection

Subscribed and sworn before me this 5th day of August, 2014

Joan L. Beane Notary Public
Sept. 6, 2022

My Commission Expires _____
Oil and Gas Privacy Notice

8704942H

7011 2000 0001 7717 5654

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

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 2.00 87
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 8.87



Sent to

Wayne Phipps ✓

Street, Apt. No., or PO Box No. PO Box 56

City, State, ZIP+4 Raymond OH 43067

PS Form 3800, August 2005 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature X <i>Wayne Phipps</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) _____ C. Date of Delivery _____</p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>
<p>1. Article Addressed to:</p> <p>Wayne Phipps PO Box 56 Raymond, OH 43067</p>	<p>3. Service Type</p> <p><input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail</p> <p><input type="checkbox"/> Registered <input checked="" type="checkbox"/> Return Receipt for Merchandise</p> <p><input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p>
<p>2. Article Number (Transfer from service label) 7011 2000 0001 7717 5654</p>	<p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>

Received

SEP 2 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

10/03/2014

SURFACE OWNER WAIVER

County Roane

Operator Hard Rock Exploration, Inc.

Operator well number HR-502

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.

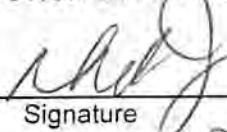
VOLUNTARY STATEMENT OF NO OBJECTION

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.


 _____ Date 8/30/14
 Signature
David Davis

 Print Name

Company Name
 By
 Its

Received

AUG 29 2014 Date

Office of Oil and Gas
 WV Dept. of Environmental Protection
 Signature _____ Date _____

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Roane
Operator Hard Rock Exploration, Inc.

Operator's Well Number HR-502

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 8/20/14

Company Name _____
By _____
Its _____ Date _____

Signature _____ Date _____

Received

AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

10/03/2014

**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
Roy B. and Jacqueline Gutherie	Reserve Oil and Gas, Inc.	% of 1/8	491/740
James and Margaret Slingerland	Reserve Oil and Gas, Inc.	% of 1/8	247/671
Lester G. Cottle II	Hard Rock Exploration, Inc.	% of 1/8	251/748
James Slingerland	Hard Rock Exploration, Inc.	% of 1/8	252/82
Reserve Oil and Gas, Inc.	J & M Resources	Assignment	504/459
J & M Resources	Hard Rock Exploration, Inc.	Assignment	252/87

SEE ATTACHED

**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

Received

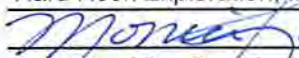
AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

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 affected activity is initiated.

Well Operator:
By: Its:

Hard Rock Exploration, Inc.


Executive Vice President

10/03/2014

Hard Rock Consulting, LLC



Hard Rock Land Services, LLC

August 6, 2014

CK# 000021
\$650⁰⁰

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-502; crossing roads identified as: County Route 14/1 between TM 5 Parcel 20 and TM 5 Parcel 20.4 located in the Reedy District of Roane 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 Reserve Oil and Gas, Inc., as Lessee, by the Oil & Gas Leases, dated August 19, 2011, and recorded in the Public Records of the County of Roane, in Book 247, Page 671 and Book 491 Page 740, in West Virginia, and to Hard Rock Exploration, Inc., as Lessee, by the Oil & Gas Leases, dated March 14, 2014 and July 2, 2014, respectively, and recorded in the Public Records of the County of Roane, in Book 251 Page 748 and Book 252 Page 82, respectively. The rights for the Reserve Oil and Gas, Inc. leases were then granted to J & M Resources by assignment recorded in Book 504, Page 459 and then granted to Hard Rock Exploration, Inc. by assignment recorded in Book 252 Page 87. 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.

Monica Francisco
Executive Vice President

encl.

Received

AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

WW-2B1
(5-12)

Well No. HR-502

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 contactor 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.

Received

AUG 29 2014

**WATER NOTICE
FOR
HARD ROCK EXPLORATION, INC.
WELL HR-502A**

No water sources found

IF A SOURCE IS FOUND WITHIN 2000' OF
WELL BORE, IT MUST BE TESTED, AND SAMPLES
MUST BE TAKEN BEFORE WELL CAN BE SPUDDED.

J.M.

**True Line Surveying, Inc.
7/22/14**

Received

AUG 29 2014

Office of Oil and Gas
Dept. of Environmental Protection

10/03/2014

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) Fork of Reedy Creek Quadrangle Reedy, WV 7.5'

Elevation 981' County _____ 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.? 40 or greater 20 MIL

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 _____)

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

AUG 29 2014

Subscribed and sworn before me this 5th day of August

Joan L. Beane

Notary Public



My commission expires Sept. 6, 2022

Proposed Revegetation Treatment: Acres Disturbed 1.05 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

Area I		Area II	
Seed Type	lbs/acre	Seed Type	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: Sediment protection is place at all times.

Access road borders old slip on hill. No movement has occurred for years.

Title: Inspector

Date: 8/20/14

Field Reviewed? Yes No

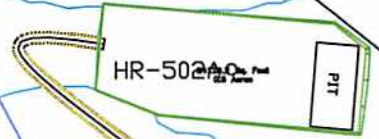
Received

AUG 29 2014

870472H



*Proposed
Access
Road*



PROPERTY LINE

8/29/14

Received

AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

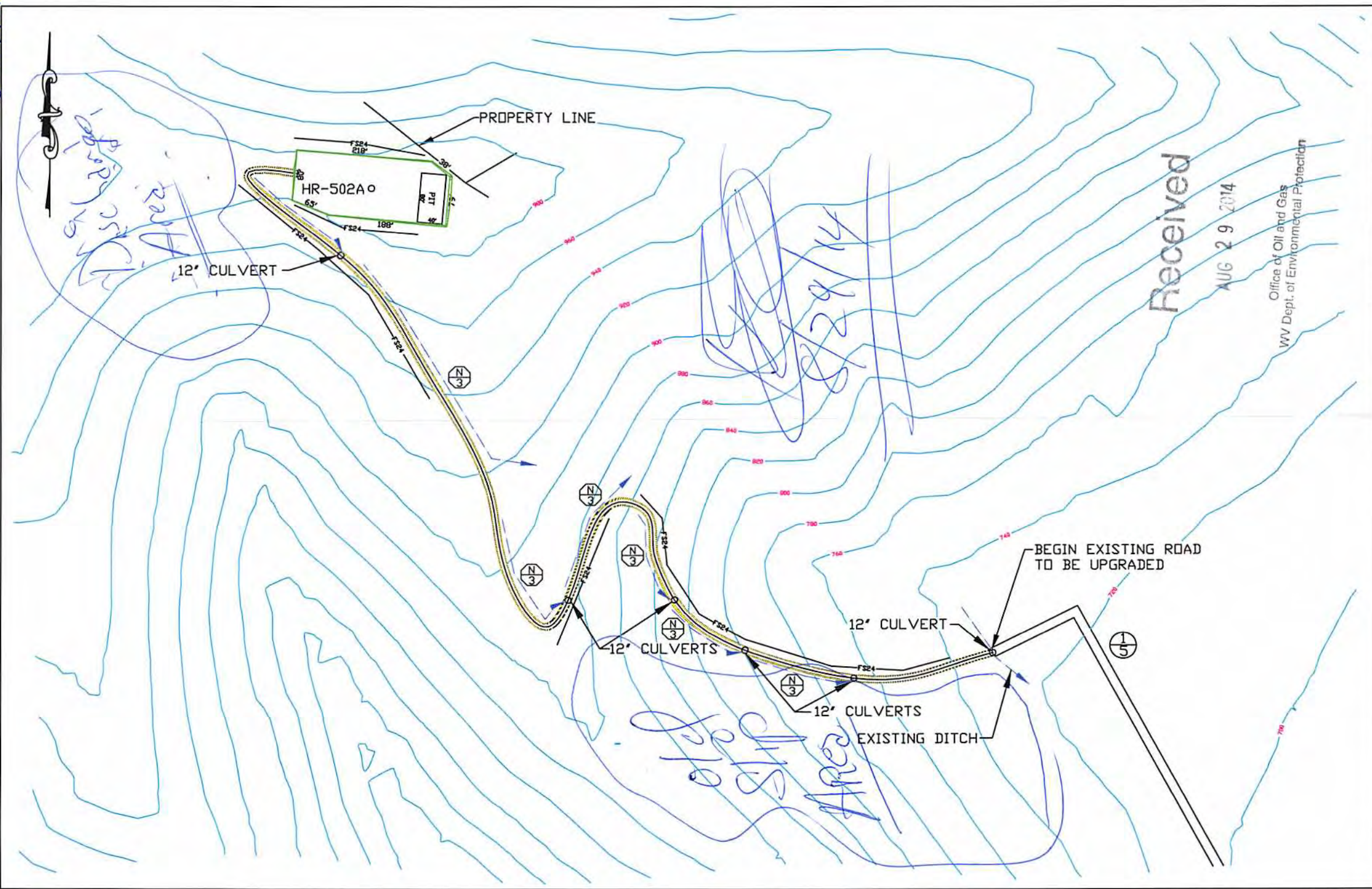
*old
dip
No current
improvement*

BEGIN EXISTING ROAD
TO BE UPGRADED



DISTURBED AREAS		LEGEND		SITE PLAN	
WELL PAD CONSTRUCTION	0.55 AC.	STREAM	—	HARD ROCK EXPLORATION PROPOSED WELL # HR-502A	REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5'
NEW ACCESS ROAD CONSTRUCTION	0.50 AC.	PROPERTY LINE	—	AUGUST 28, 2014	
ADDITIONAL CLEARING		SLOPE AREA	[Hatched Box]	TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	PAGE 1 OF 1
TOTAL DISTURBED AREA	1.05 AC	WETLAND	[Green Box]		
		BUFFER AREA	[White Box]		

87047214

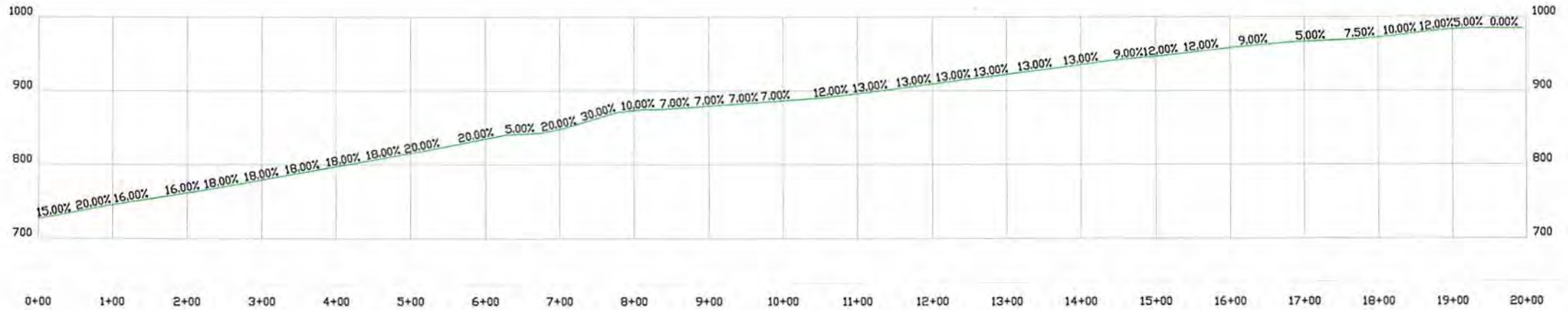


Received
AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

EROSION AND SEDIMENT CONTROL PLAN	
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 F324
	HARD ROCK EXPLORATION PROPOSED WELL # HR-502A REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 757 AUGUST 28, 2014 TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705
PAGE 1 OF 1	

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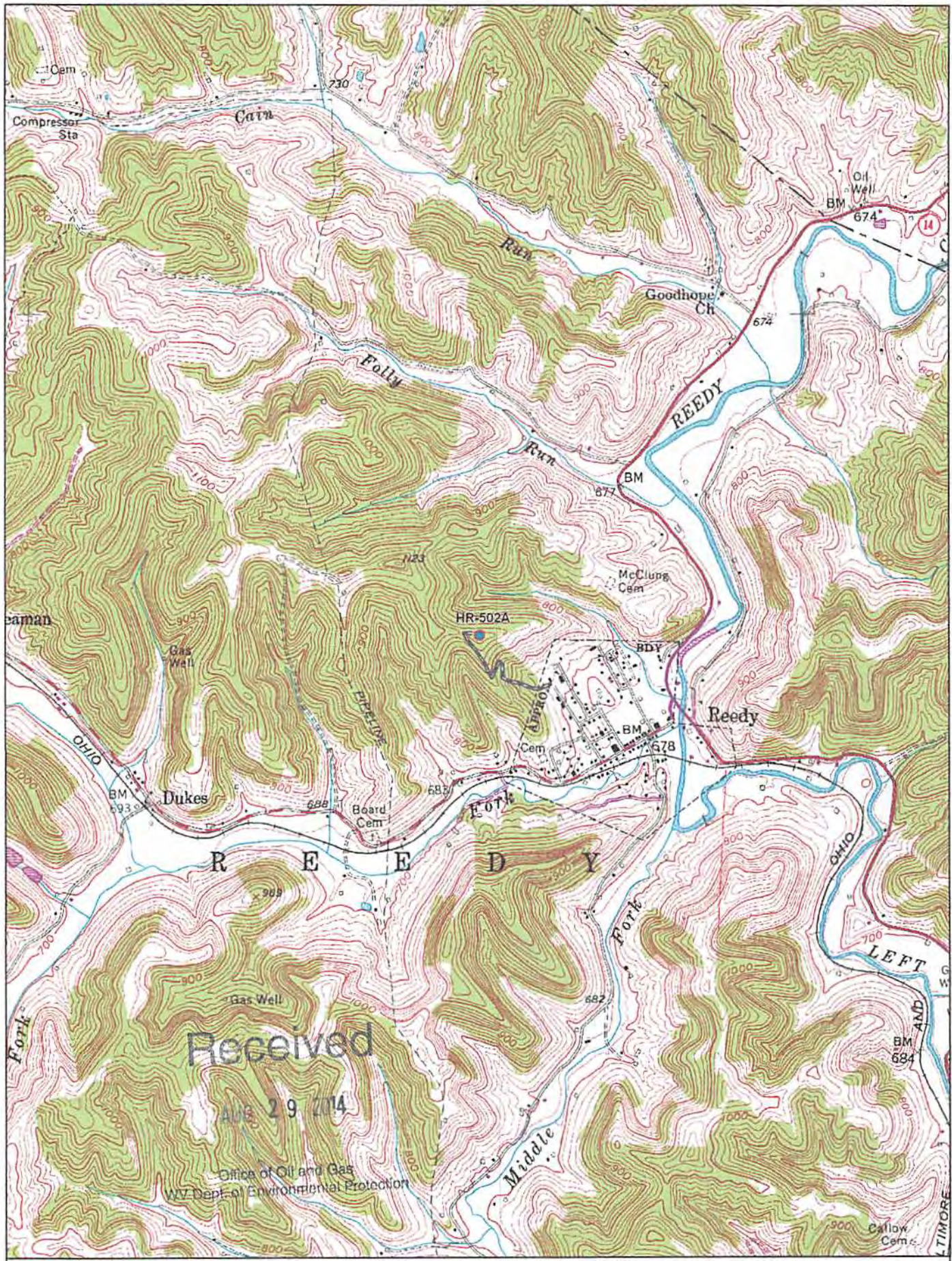
Received

AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

ROAD PROFILE
HARD ROCK EXPLORATION PROPOSED WELL # HR-502A
REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5'
JULY 22, 2014
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705
PAGE <u>1</u> OF <u>1</u>





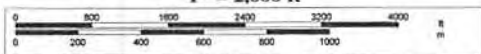
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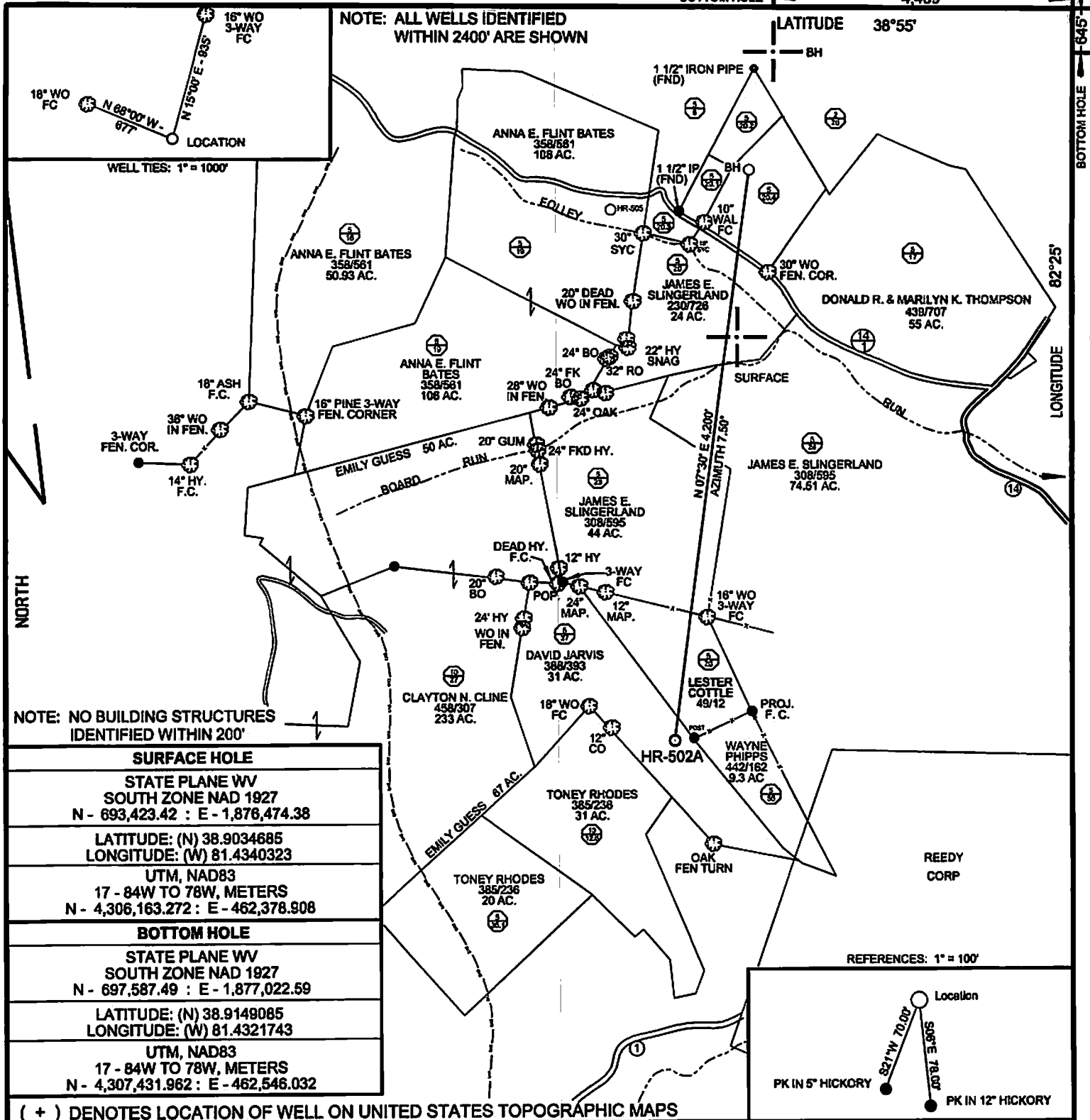


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 Zoom Level: 14-0 Datum: NAD27

Scale 1 : 24,000
 1" = 2,000 ft



10/03/2014



SURFACE HOLE
STATE PLANE WV SOUTH ZONE NAD 1927 N - 693,423.42 : E - 1,876,474.38
LATITUDE: (N) 38.9034685 LONGITUDE: (W) 81.4340323
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,306,163.272 : E - 462,378.908
BOTTOM HOLE
STATE PLANE WV SOUTH ZONE NAD 1927 N - 697,587.49 : E - 1,877,022.59
LATITUDE: (N) 38.9149085 LONGITUDE: (W) 81.4321743
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,307,431.962 : E - 462,546.032

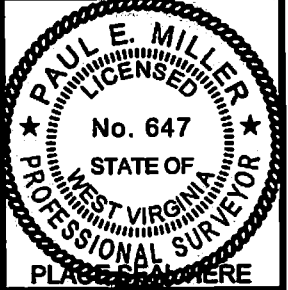
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NO.	HR-502A.DGN
DRAWING NO.	HR-502A
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 JULY 22, 20 14
OPERATOR'S WELL NO. HR-502A
API WELL NO. _____

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS,") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 981' WATER SHED FORK OF REEDY CREEK
DISTRICT REEDY COUNTY ROANE
QUADRANGLE REEDY, WV 7.5'

SURFACE OWNER DAVID JARVIS ACREAGE 31
OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____
LEASE NO. 10/03/2014

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

PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION LOWER HURON ESTIMATED DEPTH _____
WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS
ADDRESS 1244 MARTINS BR. RD., CHARLESTON, WV 25312 ADDRESS SAME

FORM WW-6

COUNTY NAME
PERMIT

Hard Rock Consulting, LLC



Hard Rock Land Services, LLC

August 6, 2014

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

RE: Permit for well HR-502

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.

Received

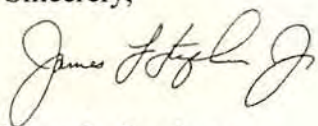
AUG 29 2014

- (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

Received

AUG 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

10/03/2014