



west virginia department of environmental protection

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

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Monday, January 23, 2017
WELL WORK PERMIT
Horizontal / Drilling Deeper

HARD ROCK EXPLORATION, INC. (A)
2034 MARTINS BRANCH ROAD

CHARLESTON, WV 25312

Re: Permit approval for HR-503A
47-087-04743-00-00

This well work permit 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 any additional specific 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 of 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.

Per 35 CSR 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- 0450.



James A. Martin
Chief

Operator's Well Number: HR-503A
Farm Name: JARVIS, DAVID
U.S. WELL NUMBER: 47-087-04743-00-00
Horizontal / Drilling Deeper
Date Issued: 1/23/2017

Promoting a healthy environment.

01/27/2017

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, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

47087047430 Drill Deeper

ck 321
1300

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

2) Operator's Well Number: HR-503 3) Elevation: 981'

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

5) Proposed Target Formation(s): Lower Huron Proposed Target Depth: 4623'

6) Proposed Total Depth: 7563' 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-4023' Land curve-4973'MD/ 4623'TVD , 3200'VS, 7563' 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 | <u>13 3/8"</u> | <u>LS</u> | <u>37</u> | <u>30'</u> | <u>30'</u> | <u>NA</u> | COMPLETE |
| Fresh Water | <u>9 5/8"</u> | <u>LS</u> | <u>26</u> | <u>870'</u> | <u>870'</u> | <u>430cuft CTS</u> | COMPLETE |
| Coal | | | | | | | |
| Intermediate | <u>7"</u> | <u>MC50</u> | <u>19</u> | <u>2330'</u> | <u>2330'</u> | <u>505cuft CTS</u> | |
| Production | <u>4 1/2"</u> | <u>M80</u> | <u>11.6</u> | <u>7563'</u> | <u>7563'</u> | <u>130cuft</u> | |
| Tubing | | | | | | | |
| Liners | | | | | | | |

Packers: Kind: Hydraulic set open hole packers
Sizes: 4.5" X 6 5/8" 10k diff Seal

[Signature]
10-3-16
Office of Oil and Gas
Department of Environmental Protection
OCT 04 2016

01/27/2017

WR-35
Rev (5-01)

DATE: 6-22-16
API #: 47-08704743

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: David Jarvis Operator Well No.: HR 503
 LOCATION: Elevation: 981' Quadrangle: Reedy WV 7.5'
 District: Reedy County: Roane
 Latitude: 4801' Feet South of 38 Deg. 55 Min. 00 Sec.
 Longitude 4974' Feet West of 82 Deg. 25 Min. 00 Sec.

Company: Hard Rock Exploration

| | Casing & Tubing | Used in drilling | Left in well | Cement fill up Cu. Ft. |
|---|--|------------------|--------------|------------------------|
| Address: 1244 Martins Branch Road Charleston WV, 25312 | 13 3/8" | 30' | 30' | NA |
| Agent: Marc Scholl | 9.5/8" | 881' | 881' | 392cuft CTS |
| Inspector: Joe Taylor | | | | |
| Date Permit Issued: 9-30-14 | Squeeze cmt from 280'kb to surface (4 perfs) | | | |
| Date Well Work Commenced: 11/9/15 | | | | |
| Date Well Work Completed: 11/12/15 | | | | |
| Verbal Plugging: | | | | |
| Date Permission granted on: | | | | |
| Rotary x Cable Rig | | | | |
| Total Depth (feet): 915' | | | | |
| Fresh Water Depth (ft.): 250' | | | | |
| Salt Water Depth (ft.): | | | | |
| Is coal being mined in area (N/Y)? N | | | | |
| Coal Depths (ft.): <u>N/A</u> | | | | |

OPEN FLOW DATA

Producing formation _____ Pay zone depth (ft) _____
 Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
 Final open flow _____ MMCF/d Final open flow _____ Bbl/d
 Time of open flow between initial and final tests _____ Hours
 Static rock Pressure_no test _____ psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____
 Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
 Final open flow _____ MCF/d Final open flow _____ Bbl/d
 Time of open flow between initial and final tests _____ Hours
 Static rock Pressure _____ psig (surface pressure) after _____ Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: [Signature]
 By: James L Stephens
 Date: 7/1/2016

WV Department of
 Environmental Protection

DEC 5 2016

Office of Oil and Gas

Formation: Top: Bottom:

Soil/Sand/Shale 0 915'

RECEIVED
Office of Oil and Gas

DEC 5 2016

WV Department of
Environmental Protection

WW-2A
(Rev. 6-14)

1). Date: June 29, 2016
2.) Operator's Well Number HR-503
State County Permit
3.) API Well No.: 47- 087 - 04743

**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 Tonev Rhodes & Dawanna Romine ✓
Address 378 Liverpool Road ✓
Reedy, WV 25270
(b) Name David Jarvis ✓ W
Address 1685 Ripley Road ✓
Spencer, WV 25276
(c) Name _____
Address _____
6) Inspector Joe Taylor
Address 1478 claylick Rd
Ripky WV 25271
Telephone 304-8380-7469
5) (a) Coal Operator
Name None
Address _____
(b) Coal Owner(s) with Declaration
Name Tonev Rhodes & Dawanna Romine W ✓
Address 378 Liverpool Road
Reedy, WV 25270
Name David Jarvis ✓ W
Address 1685 Ripley Road
Spencer, WV 25276
(c) Coal Lessee with Declaration
Name None
Address _____

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)

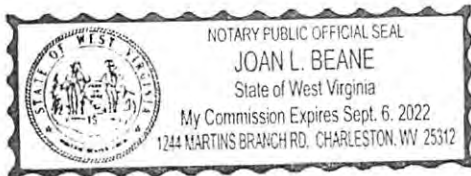
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

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

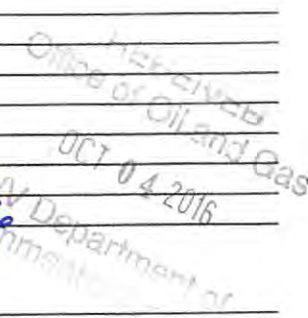
I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

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 kuman
Its: 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 30th day of September, 2016

Joan L. Beane Notary Public
Sept. 6, 2022

My Commission Expires
Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply

WW-2A Surface Waiver
(4/16)

SURFACE OWNER WAIVER

County 087

Operator _____

Operator well number HR-503

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 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, WW-9, 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.

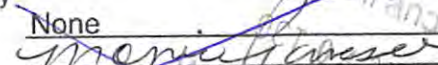
FOR EXECUTION BY A NATURAL PERSON

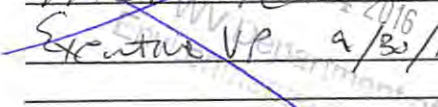
FOR EXECUTION BY A CORPORATION, ETC.


Signature

Date 9/3/16

David P. Jones
Print Name

Company Name None
By 
Its Executive VP Date 9/3/16


Signature Date

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Roane
Operator Hard Rock Exploration, Inc. Operator's Well Number HR-503

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

[Signature] Date 9/3/16
Signature

FOR EXECUTION BY A CORPORATION, ETC.

~~Company Name Hard Rock Exploration
By Monica Hancock
Its Executive VP Date 9/30/16
[Signature] Date 9/30/16~~

4708704743P

WW-2A Surface Waiver

SURFACE OWNER WAIVER

County

Roane

Operator

Operator well number

Hard Rock Exploration, Inc
HR-502 + HR503

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
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Charleston, Wv 25304
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- 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.

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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.

Dianne L. Roane
Signature

Date 11-3-16

Company Name

By

Its

Date

Toney E Rhoads

Signature

Date

01/27/2017

RECEIVED
Office of Oil and Gas

NOV 03 2016

WV Department of
Environmental Protection

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Roane
Operator Hard Rock Exploration, Inc Operator's Well Number HR 502+HR 503

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

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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

Dawna L. Roman _____ Date _____
Signature
Toney E. Rhoads

FOR EXECUTION BY A CORPORATION, ETC.

Company Name _____
By _____ Date _____
Its _____
Signature _____ Date _____

RECEIVED
Office of Oil and Gas
01/27/2017

NOV 03 2016

WV Department of
Environmental Protection

**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 Guthrie | Reserve Oil and Gas, Inc. | % of 1/8 | 491/740 |
| James and Margaret Slingerland | Reserve Oil and Gas, Inc. | % of 1/8 | 247/671 |
| Richard R. Perrin | Reserve Oil and Gas, Inc. | % of 1/8 | 247/692 |
| Robert II and Anna E Bates Flint | Reserve Oil and Gas, Inc. | % of 1/8 | 247/702 |
| George M. Scott | Hard Rock Exploration, Inc. | % of 1/8 | 248/206 |
| Wallace J. Board | Hard Rock Exploration, Inc. | % of 1/8 | 248/316 |
| Nancy L. Wilson | Hard Rock Exploration, Inc. | % of 1/8 | 248/314 |
| Emeline S. Guess | Hard Rock Exploration, Inc. | % of 1/8 | 248/85 |
| Margaret Ellen Bates Platt (See Attached) | Reserve Oil and Gas, Inc. (See Attached) | % of 1/8 (See Attached) | 247/699 (See Attached) |

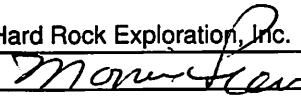
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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

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

RECORDED
 OCT 04 2016
 01/27/2017

87047430

WW-9
(5/16)

API Number 47 - 087
Operator's Well No. HR-503

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 494484205

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

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: Drill Cuttings

Will a synthetic liner be used in the pit? Yes No If so, what ml.? 10 or greater 20 ml.

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number UIC2D0190460, 3416729685)
- Reuse (at API Number Well will be noted in DMR)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: No

Drilling medium anticipated for this well (vertical and horizontal)? 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) Cement or Lime

-Landfill or offsite name/permit number? _____

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, 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.

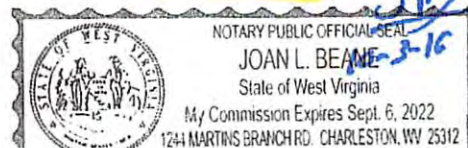
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is 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

Subscribed and sworn before me this 4th day of October, 2016 OCT 6
Joan L. Beane Notary Public



01/27/2017

Proposed Revegetation Treatment: Acres Disturbed 0.96 Prevegetation pH 5.5

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type _____

Fertilizer amount 500 lbs/acre

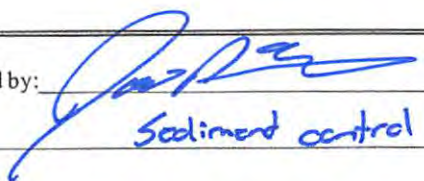
Mulch Hay/Straw/Paper (Paper at 1600 lbs/acre) Tons/acre

Seed Mixtures

| Temporary | | Permanent | |
|--|----------|--|----------|
| 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:
Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

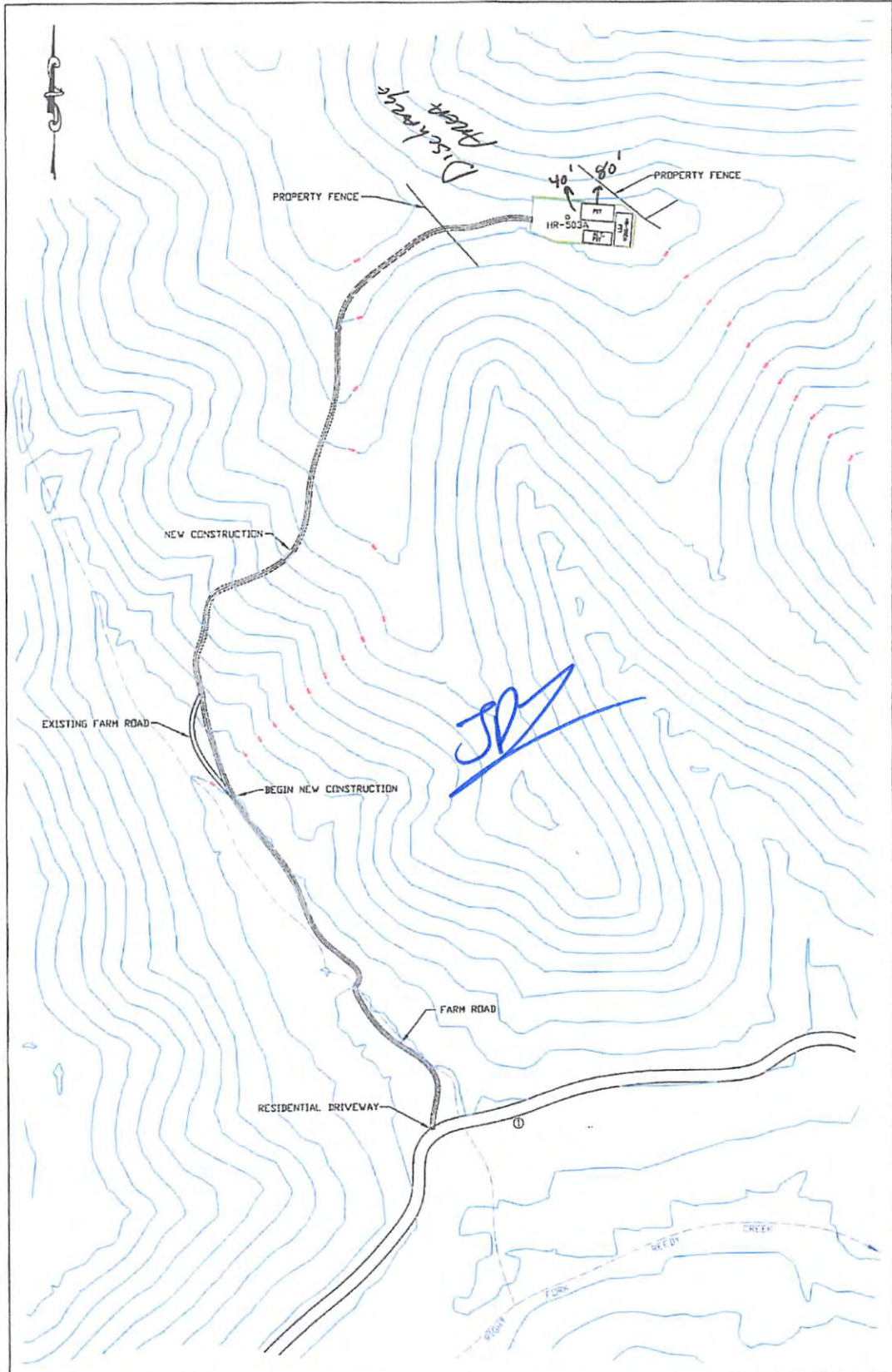
Plan Approved by: 

Comments: Sediment control in place at All times!!

Title:  Date: 10-3-16

Field Reviewed? () Yes () No

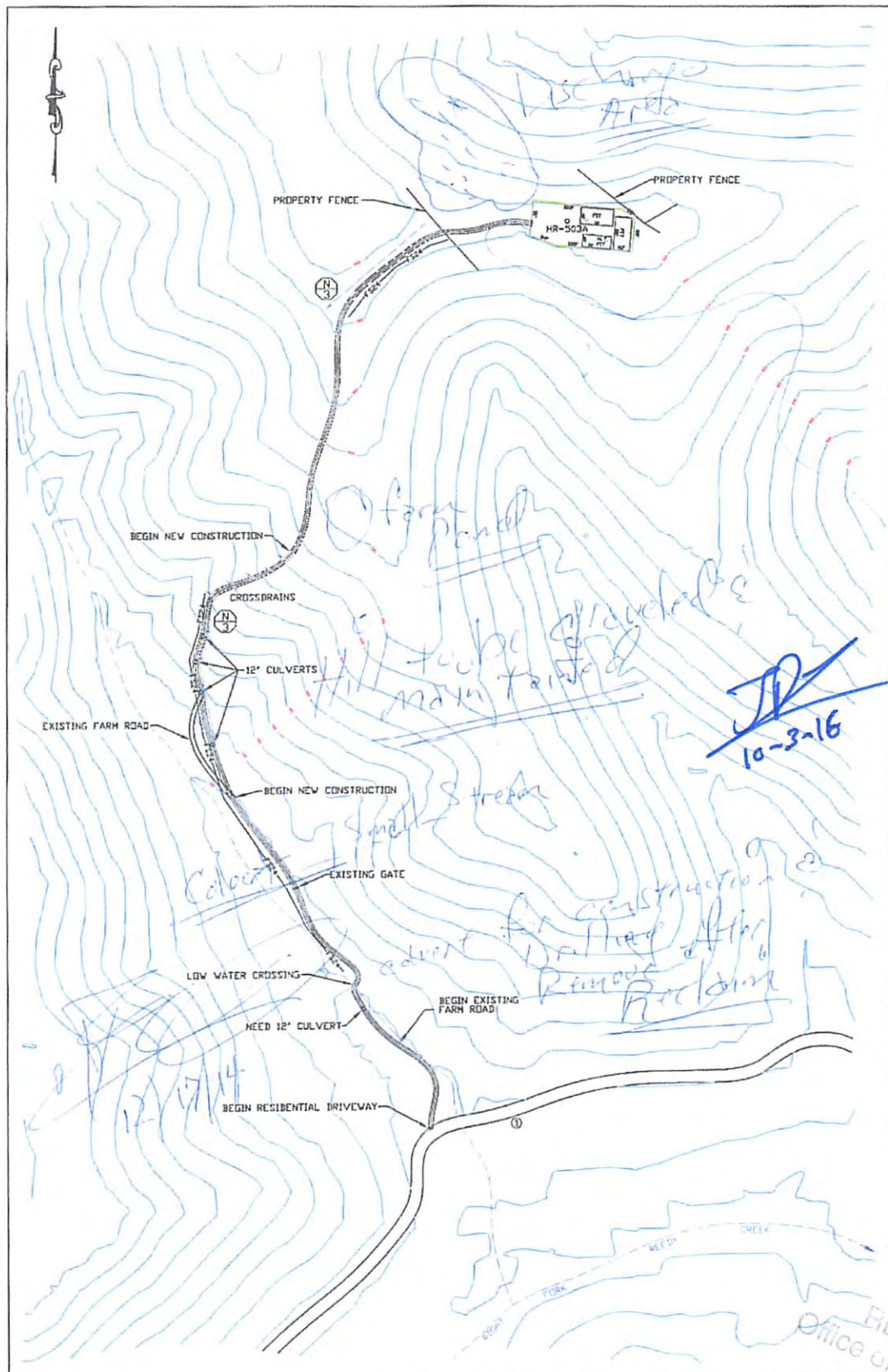
D10415-11



| DISTURBED AREAS | |
|------------------------------|----------|
| WELL PAD CONSTRUCTION | 0.58 AC. |
| NEW ACCESS ROAD CONSTRUCTION | 0.74 AC. |
| ADDITIONAL CLEARING | |

| LEGEND | |
|--------|---------------|
| | STREAM |
| | PROPERTY LINE |
| | SLOPE AREA |
| | WETLAND |

| SITE PLAN | |
|---|--|
| HARD ROCK EXPLORATION PROPOSED WELL # HR-503A REEDY DISTRICT, RDANE COUNTY REEDY QUAD, WV 7.5' | |
| DECEMBER 11, 2014 | |
| TRUE LINE SURVEYING 6211 FAIRVIEW DR. | |



10-3-16

| LEGEND | | EROSION AND SEDIMENT CONTROL PLAN | |
|--------|---|--|---------------|
| | PROVIDE FLEXTEK HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES | | STREAM |
| | LEVEL SPREADER | | PROPERTY LINE |
| | DIVERSION DITCH | | SLOPE AREA |
| | | | WETLAND |
| | | HARD ROCK EXPLORATION PROPOSED WELL # HR-503A REEDY DISTRICT, HDANE COUNTY REEDY QUAD, WV 7.5' DECEMBER 11, 2014 TRUE LINE SURVEYING 6211 FAIRVIEW DR. | |

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Office of Oil and Gas
OCT 04 2016

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
GROUNDWATER PROTECTION PLAN**

Operator Name: Hard Rock Exploration, Inc.
Watershed (HUC 10): Fork of Reedy Creek Quad: Reedy, WV 7.5'
Farm Name: Jarvis, David

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

All pit fluids will be tested and if necessary it will be treated with additives or dilution to bring parameters to acceptable limits for discharge according to the WV DEP. Discharge area is to be closely monitored during the discharge operation. While drilling through groundwater intervals only freshwater fluids or air is to be used as a drilling medium. Fresh water intervals are to be cased and cemented according to WV DEP cementing and casing standards.

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

While drilling through groundwater intervals only freshwater fluids or air is to be used as a drilling medium. Freshwater intervals are to be cased and cemented according to WV DEP cementing and casing standards. All materials are to be properly transported and stored.

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

Reedy Creek is approximately 3000' from the wellsite. Discharge area is noted on topo map. Coordinates to wellsite are : (see PLAT)

4. Summarize all activities at your facility that are already regulated for groundwater protection.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

Analysis on water wells within 2000' of the well site has been conducted.

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material is to be used for deicing or fill material on the property.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

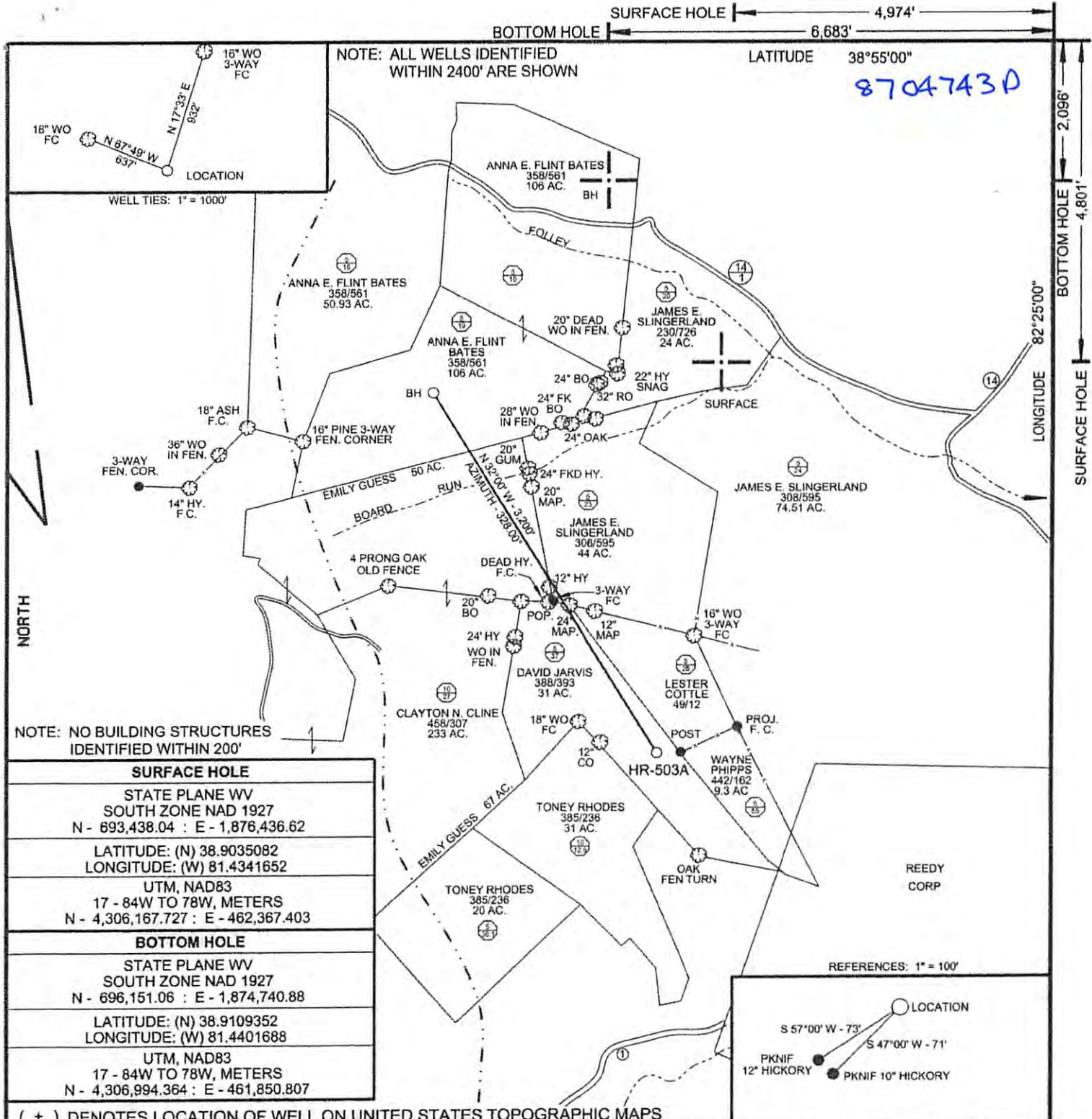
Ground water protection is to be emphasized to all employees and contract workers involved in the operations at this site. Wellbore construction will be in accordance with the WV DEP cementing and casing standards. Materials used during drilling and completion of the well are to be transported and stored properly so as to minimize the risk of an unintentional event.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

Site is to be inspected each day of operations by Company Representatives or Supervisor on location.

Signature: _____

Date: _____



NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN

WELL TIES: 1" = 1000'

NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

| SURFACE HOLE | |
|------------------------------------|-----------------------------------|
| STATE PLANE WV SOUTH ZONE NAD 1927 | N - 693,438.04 : E - 1,876,436.62 |
| LATITUDE: (N) 38.9035082 | LONGITUDE: (W) 81.4341652 |
| UTM, NAD83 | 17 - 84W TO 78W, METERS |
| N - 4,306,167.727 | E - 462,367.403 |
| BOTTOM HOLE | |
| STATE PLANE WV SOUTH ZONE NAD 1927 | N - 696,151.06 : E - 1,874,740.88 |
| LATITUDE: (N) 38.9109352 | LONGITUDE: (W) 81.4401688 |
| UTM, NAD83 | 17 - 84W TO 78W, METERS |
| N - 4,306,994.364 | E - 461,850.807 |

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

| | |
|----------------------------|-------------------|
| FILE NO. | HR-503A.DGN |
| DRAWING NO. | HR-503A |
| 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>JULY 22</u> , 20 <u>14</u> |
| WELL TYPE: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> | OPERATOR'S WELL NO. <u>HR-503A</u> |
| (IF "GAS,") PRODUCTION <input checked="" type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> | API WELL NO. <u>47 087 04743 D</u> |
| LOCATION: ELEVATION <u>981'</u> WATER SHED <u>FORK OF REEDY CREEK</u> | STATE <u>47</u> COUNTY <u>087</u> PERMIT <u>04743 D</u> |
| DISTRICT <u>REEDY</u> COUNTY <u>ROANE</u> | |
| QUADRANGLE <u>REEDY, WV 7.5'</u> | |
| SURFACE OWNER <u>DAVID JARVIS</u> ACREAGE <u>31</u> | |
| OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____ | |
| 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 _____ | |
| 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> | |

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OCT 04 2016

Environmental Protection

FORM WW-6

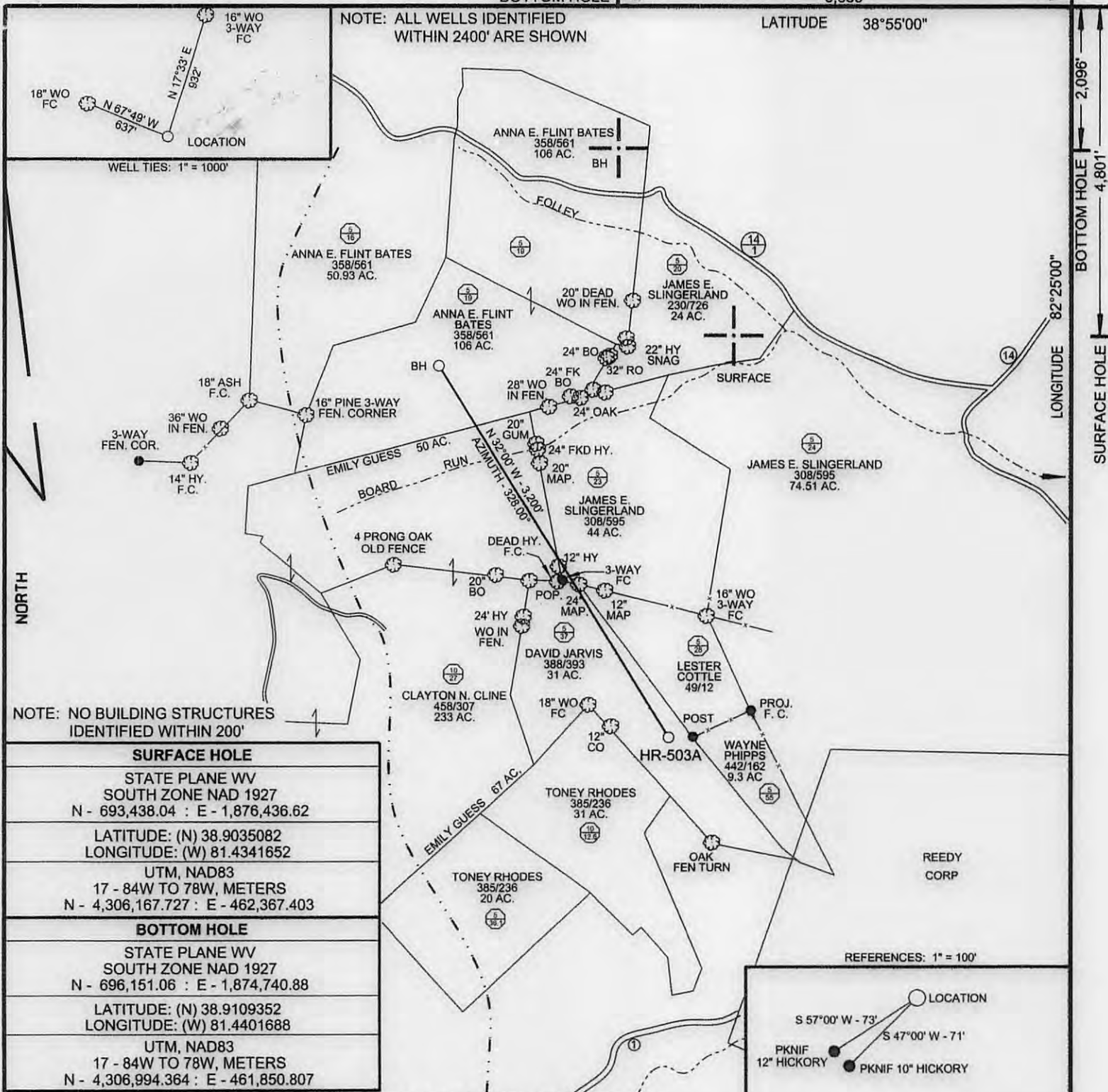
COUNTY NAME

PERMIT

BOTTOM HOLE 6,683'

LATITUDE 38°55'00"

NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN



NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

SURFACE HOLE

STATE PLANE WV SOUTH ZONE NAD 1927
N - 693,438.04 : E - 1,876,436.62

LATITUDE: (N) 38.9035082
LONGITUDE: (W) 81.4341652

UTM, NAD83
17 - 84W TO 78W, METERS
N - 4,306,167.727 : E - 462,367.403

BOTTOM HOLE

STATE PLANE WV SOUTH ZONE NAD 1927
N - 696,151.06 : E - 1,874,740.88

LATITUDE: (N) 38.9109352
LONGITUDE: (W) 81.4401688

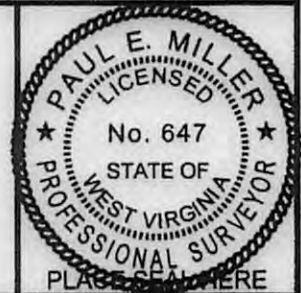
UTM, NAD83
17 - 84W TO 78W, METERS
N - 4,306,994.364 : E - 461,850.807

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

FILE NO. HR-503A.DGN
 DRAWING NO. HR-503A
 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-503A
 API WELL NO. _____

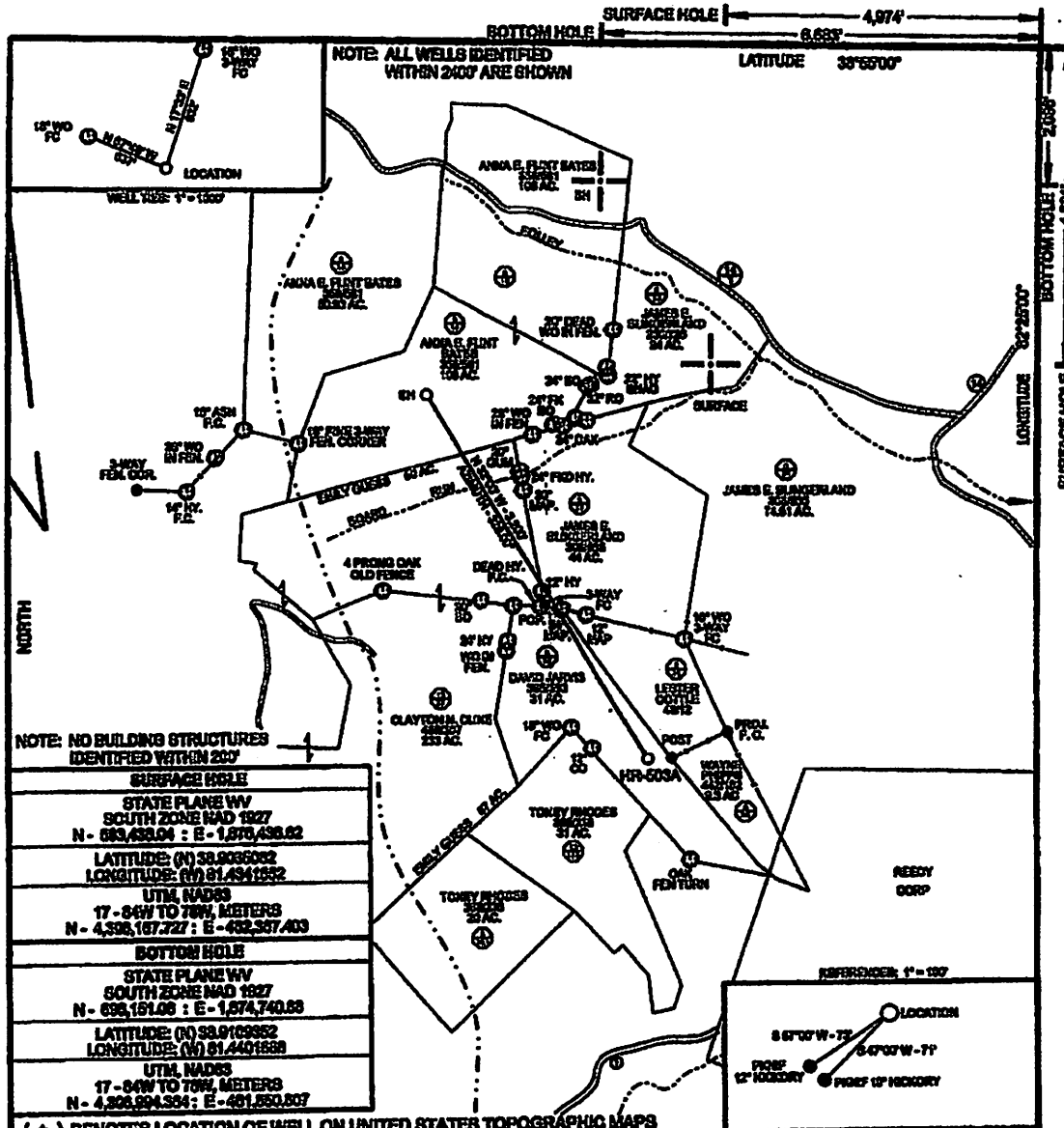
WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 LOCATION: ELEVATION 981' WATER SHED FORK OF REEDY CREEK
 DISTRICT REEDY COUNTY ROANE
 QUADRANGLE REEDY, WV 7.5'
 SURFACE OWNER DAVID JARVIS ACREAGE 31
 OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____

LEASE NO. _____
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR
 STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW
 FORMATION X 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

01/27/2017

COUNTY NAME PERMIT



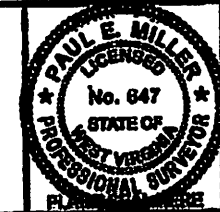
| | |
|-------------------------------------|--|
| SURFACE HOLE | |
| STATE PLANE WV SOUTH ZONE NAD 1927 | |
| N - 683,438.04 : E - 1,875,438.62 | |
| LATITUDE: (N) 38.9036052 | |
| LONGITUDE: (W) 81.4341552 | |
| UTM, NADES | |
| 17 - 84W TO 78W, METERS | |
| N - 4,328,187.727 : E - 482,537.403 | |
| BOTTOM HOLE | |
| STATE PLANE WV SOUTH ZONE NAD 1927 | |
| N - 638,181.08 : E - 1,874,740.88 | |
| LATITUDE: (N) 38.9103952 | |
| LONGITUDE: (W) 81.4401888 | |
| UTM, NADES | |
| 17 - 84W TO 78W, METERS | |
| N - 4,308,894.534 : E - 481,850.807 | |

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

FILE NO. HR-603A.DON
 DRAWING NO. HR-603A
 SCALE 1" = 100'
 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. LLS 647



DATE JUNE 29, 2016
 OPERATOR'S WELL NO. HR-603A
 API WELL NO. 47 087 04743H
 STATE 47 COUNTY 087 PERMIT 04743H

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OIL AND GAS DIVISION

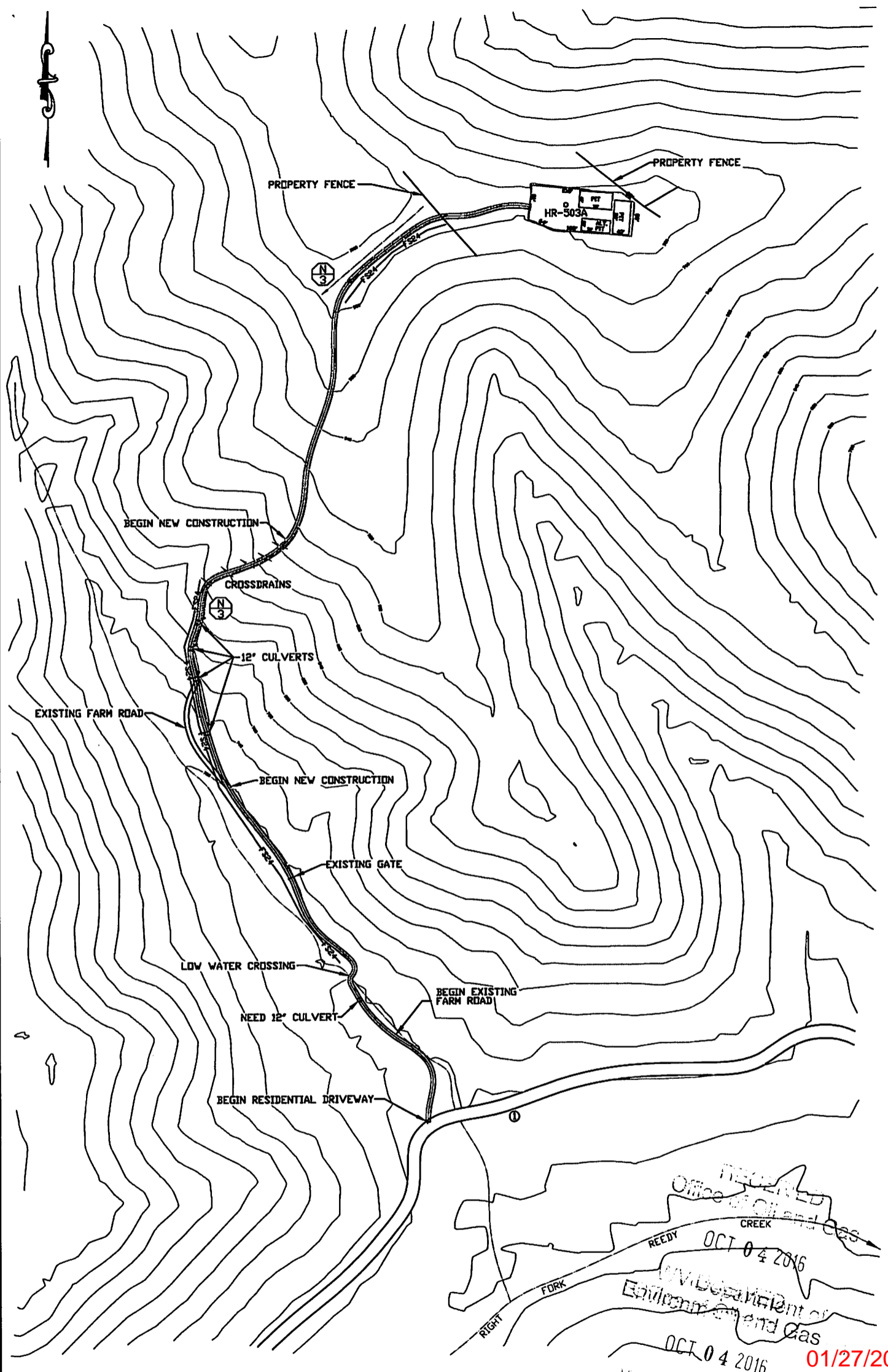
WELL TYPE: OIL X GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X

LOCATION: ELEVATION 881 WATER SHED FORK OF REEDY CREEK
 DISTRICT REEDY COUNTY ROANE
 QUADRANGLE REEDY, WV 7 P ACREAGE 31

SURFACE OWNER DAVID JARVIS
 OIL & GAS ROYALTY OWNER LEASE ACREAGE

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

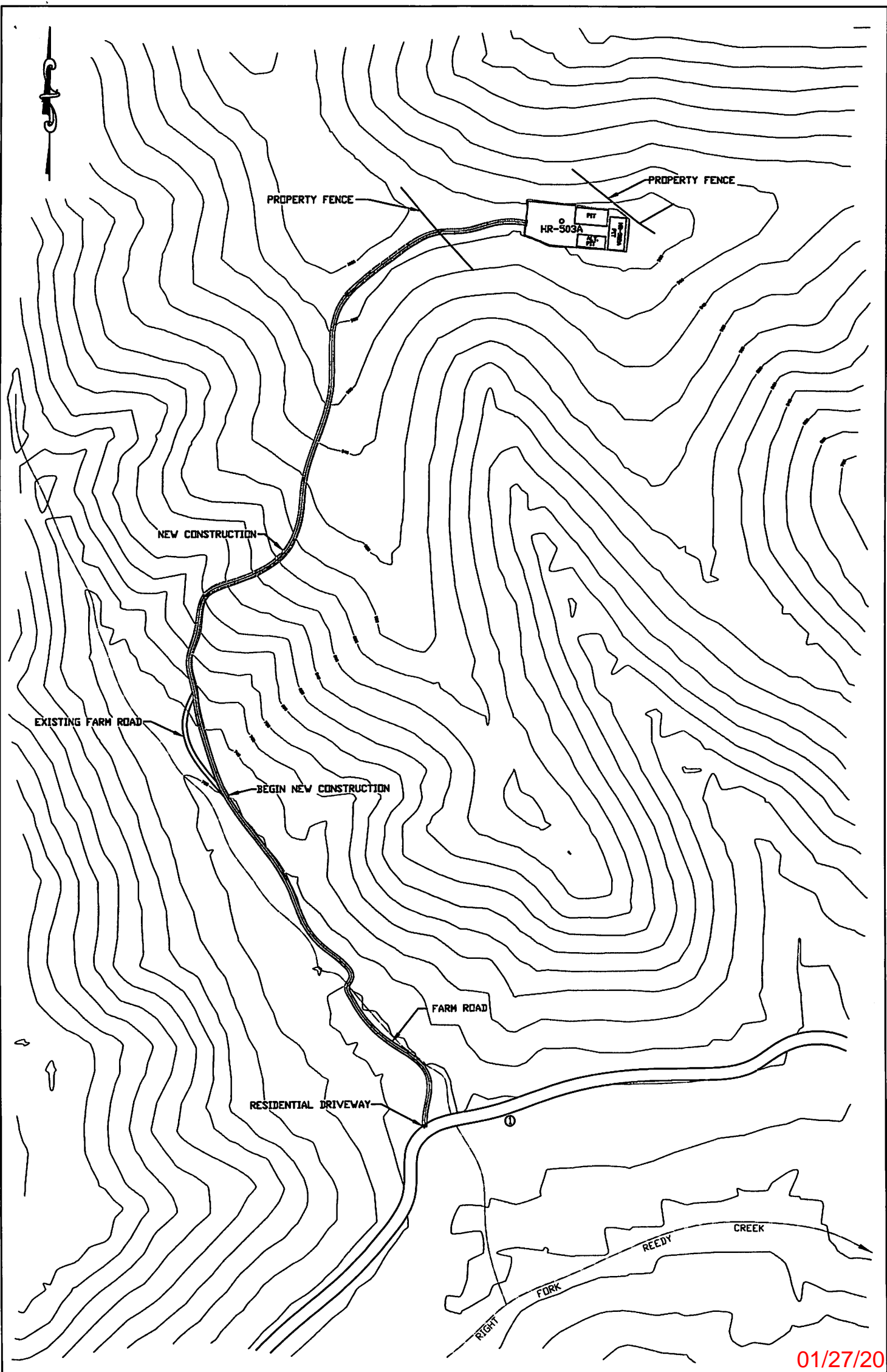
PLUG AND ABANDON CLEAN OUT AND REPLUG
 TARGET FORMATION LOWER HURON ESTIMATED DEPTH
 WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS



Office of Oil and Gas
 REEDY CREEK
 OCT 04 2016
 WV Department of Environment and Gas
 OCT 04 2016

01/27/2017

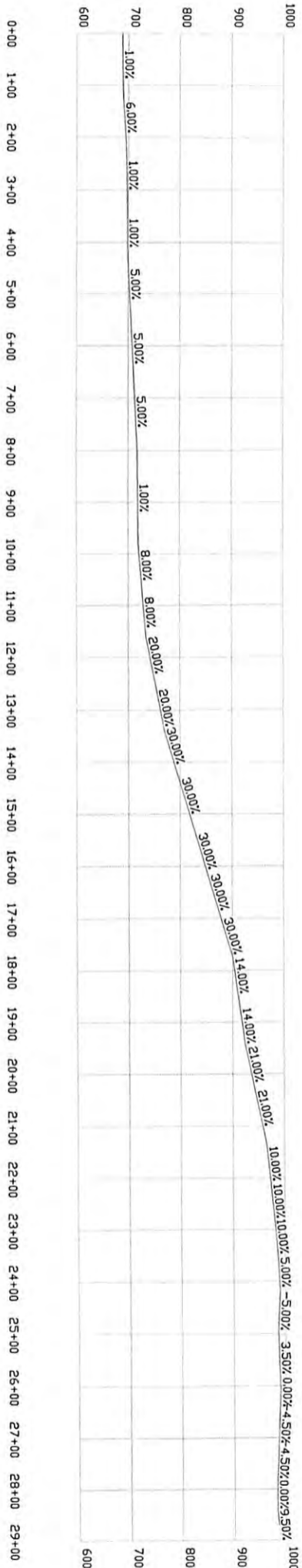
| LEGEND | | EROSION AND SEDIMENT CONTROL PLAN | |
|--------|---|-----------------------------------|---|
| | PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES | | STREAM |
| | LEVEL SPREADER | | PROPERTY LINE |
| | DIVERSION DITCH | | SLOPE AREA |
| | BERM OUTLET | | WETLAND |
| | | | 24" COMPOST FILTER SOCK AS REQUIRED |
| | | | HARD ROCK EXPLORATION PROPOSED WELL # HR-503A REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.8/7 |
| | | | DECEMBER 11, 2014 |
| | | | TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705 |
| | | | PAGE 1 OF 1 |



01/27/2017

| DISTURBED AREAS | | LEGEND | | SITE PLAN | |
|------------------------------|----------|--------|---------------|--|--|
| WELL PAD CONSTRUCTION | 0.58 AC. | | STREAM | HARD ROCK EXPLORATION PROPOSED WELL # HR-503A | |
| NEW ACCESS ROAD CONSTRUCTION | 0.74 AC. | | PROPERTY LINE | REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5' | |
| ADDITIONAL CLEARING | | | SLOPE AREA | DECEMBER 11, 2014 | |
| | | | WETLAND | TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705 | |
| TOTAL DISTURBED AREA | 1.32 AC | | BUFFER AREA | PAGE 1 OF 1 | |

8704743P



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 OCT 04 2015
 WV Department of
 Environmental Protection

ROAD PROFILE

HARD ROCK EXPLORATION
 PROPOSED WELL # HR-503A
 REEDY DISTRICT, ROANE COUNTY
 REEDY QUAD, VV 75'

DECEMBER 12, 2014

TRUE LINE SURVEYING
 6211 FAIRVIEW DR.
 HUNTINGTON, WV 25705

