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**west virginia** department of environmental protection

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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

August 20, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-9502191, issued to JAY-BEE OIL & GAS, 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: DOC 1  
Farm Name: GASTON, WA & IDA / TUSTIN, ST  
**API Well Number: 47-9502191**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 08/20/2014

**Promoting a healthy environment.**

**08/22/2014**

## PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

### CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

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

1) Well Operator: Jay-Bee Oil & Gas, Inc 24610 Tyler McElroy Shirley 7.5'  
Operator ID County District Quadrangle

95 5 607

2) Operator's Well Number: Doc 1 Well Pad Name: Doc Pad

3) Farm Name/Surface Owner: Stanley H. Tustin & WA & Ida Gaston Public Road Access: Indian Creek Rd

4) Elevation, current ground: 1,060' Elevation, proposed post-construction: 1,036'

5) Well Type (a) Gas  Oil  Underground Storage

Other

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
Marcellus, 6,940', 3500#

MAG  
5/14/14

8) Proposed Total Vertical Depth: 6,940'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17,580'

11) Proposed Horizontal Leg Length: 10,640'

12) Approximate Fresh Water Strata Depths: 289'

13) Method to Determine Fresh Water Depths: API 47-095-00010 for salt and coal. Freshwater was closest creek at 747' elevation.

14) Approximate Saltwater Depths: 1,257'

15) Approximate Coal Seam Depths: 239', 378', 472', 631', 694'

16) Approximate Depth to Possible Void (coal mine, karst, other): N/A

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

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_



18)

**CASING AND TUBING PROGRAM**

| TYPE         | Size   | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling | INTERVALS: Left in Well | CEMENT: Fill-up (Cu. Ft.) |
|--------------|--------|-------------|-------|------------------------|-----------------------|-------------------------|---------------------------|
| Conductor    | 16     | New         | J55   | 40                     | 30                    | 30                      | 8.22 CTS                  |
| Fresh Water  | 11 3/4 | New         | J55   | 32                     | 350                   | 350                     | 165.96 CTS                |
| Coal         | N/A    |             |       |                        |                       |                         |                           |
| Intermediate | 8 5/8  | New         | J55   | 23/24                  | 2,000                 | 2,000                   | 508.43 CTS                |
| Production   | 5 1/2  | New         | P110  | 17/20                  | 17,580                | 17,580                  | 2872.56                   |
| Tubing       | N/A    |             |       |                        |                       |                         |                           |
| Liners       | N/A    |             |       |                        |                       |                         |                           |

*MAG  
5/14/14*

Cement up to 1000' from Surface

| TYPE         | Size   | Wellbore Diameter | Wall Thickness | Burst Pressure | Cement Type    | Cement Yield (cu. ft./k) |
|--------------|--------|-------------------|----------------|----------------|----------------|--------------------------|
| Conductor    | 16     | 17 1/2            | .495           | 3,000          | Class A Cement | 1.19                     |
| Fresh Water  | 11 3/4 | 15                | .333           | 1,500          | Class A Cement | 1.26                     |
| Coal         | N/A    |                   |                |                |                |                          |
| Intermediate | 8 5/8  | 11                | .264           | 2,500          | Class A Cement | 1.45                     |
| Production   | 5 1/2  | 7 7/8             | .304           | 15,000         | Type 1 Cement  | 1.34                     |
| Tubing       | N/A    |                   |                |                |                |                          |
| Liners       | N/A    |                   |                |                |                |                          |

**PACKERS**

|             |     |  |  |  |
|-------------|-----|--|--|--|
| Kind:       | N/A |  |  |  |
| Sizes:      | N/A |  |  |  |
| Depths Set: | N/A |  |  |  |

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Environmental Protection

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

Drill and Stimulate a new Horizontal Well. Using a top hole rig, we will drill top hole to kick off point by drilling the conductor, freshwater and intermediate holes. Using a directional rig we will drill the production holes.

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

300-350' per stage 8,500bbls of water, 150,000-400,000lbs of sand, friction reducer, 1# per gallon, scale inhibitor and bacteria prevention 1/4# per gallon 2000 gallons 15% vol acid.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc.. (acres): 20

22) Area to be disturbed for well pad only, less access road (acres): 2.8

23) Describe centralizer placement for each casing string:

Vertical - Every 500' Bow Centralizer, and 50' from top of ground. Horizontal every 42' Spiral Centralizer, Curve - Every 84' Spiral Centralizer.

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

Superior Well Services - 15" hole for the 11 3/4 fresh water case, Class A Cement, 2% Calcium Chloride, 1/4# flake.  
Superior Well Services - 11" hole for the 8 5/8 intermediate base, Class A Cement, 2% Calcium Chloride  
Baker Hughes - 7 7/8" hole for the 5 1/2 production case, Type 1 Cement, Fly Ash, Barite, Finetol 300L, R-3 Celio Flake, Sugar, CD-32, FL-62

25) Proposed borehole conditioning procedures:

Air Hole: 15" hole for the 11 3/4 fresh water case - Circulate until clean with air. If soaping, slug then dry.  
Air Hole: 11" hole for the 8 5/8 intermediate base - Circulate until clean with air. If soaping, slug then dry.  
7 7/8" hole for the 5 1/2 production case - Circulate with mud and sweeps for two times bottoms up.  
If needed weight up mud until no cuttings retrieved, then circulate with mud and sweeps for two times bottoms up.

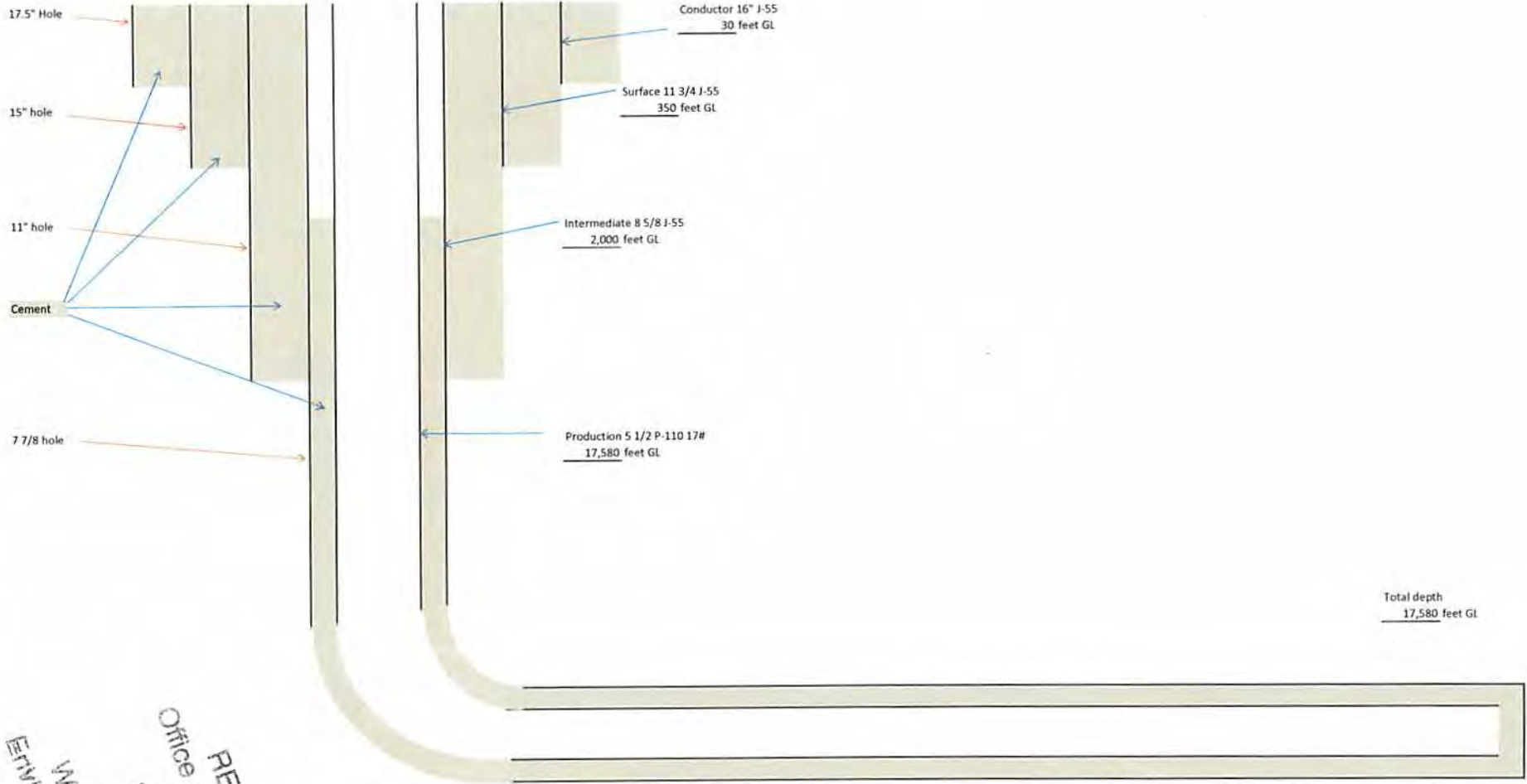
\*Note: Attach additional sheets as needed.

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Office of Oil and Gas  
MAY 16 2014  
WV Department of  
Environmental Protection  
Page 3 of 3  
MDE  
5/14/14  
08/22/2014

Jay-Bee Oil & Gas Inc.  
Well Name Doc 1  
GL Elevation 1,036  
KB 14 feet

Date 5/14/2014  
District McElroy  
County Tyler  
State West Virginia

Input by: Shane Dowell



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MAY 16 2014  
WV Department of  
Environmental Protection

4709502191



WW-9  
(9/13)

API Number 47 - 4709502191  
Operator's Well No. Doc 1

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Jay-Bee Oil & Gas, Inc OP Code 24610

Watershed (HUC 10) Outlet Middle Island Creek Quadrangle Shirey 7.5'

Elevation 1,036' County Tyler District McElroy

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 - Air Drilling Top Hole

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? 60

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 47-085-09721 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Using Contract Haulers Norte/CES (API's 47-085-05151))

Will closed loop system be used? If so, describe: Yes, Centrifuge System (Boss, Newalta) Possible, directional

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air Vertical/Water Based Horizontal

-If oil based, what type? Synthetic, petroleum, etc. Brine Base Drilling Mud on horizontal

Additives to be used in drilling medium? Bentonite, Salt, Soda Ash

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

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

-Landfill or offsite name/permit number? Meadowfill/Permit 101219WV

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature [Signature]

Company Official (Typed Name) Shane Dowell

Company Official Title Office Manager

Subscribed and sworn before me this 14 day of May, 2014

[Signature] Notary

My commission expires 10/23/2020

MDC  
5/14/14

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MAY 16 2014  
WV Department of Environmental Protection

OFFICIAL SEAL  
STATE OF WEST VIRGINIA  
NOTARY PUBLIC  
DANIELLE L. BUTLER  
125 ASH TREE LANE  
ST. MARYS, WV 26170  
MY COMM. EXP. OCTOBER 23, 2020

08/22/2014

Form WW-9

Operator's Well No. Doc 1

Jay-Bee Oil & Gas, Inc

Proposed Revegetation Treatment: Acres Disturbed 20.0 Prevegetation pH 6.8

Lime 3 Tons/acre or to correct to pH 6.8

Fertilizer type 10-20-20

Fertilizer amount 750 lbs/acre

Mulch Hay 2000 Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type lbs/acre  
Annual Ryegrass 40

Seed Type lbs/acre  
KY-31 20

Creeping Red Fescue 30

Lathco Flat Pea/Perennial Ryegrass 30

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Michael A. Hoff

Comments: Preseed & Mulch any disturbed areas per WVDOP Regulations. Maintain & upgrade E & S as necessary.

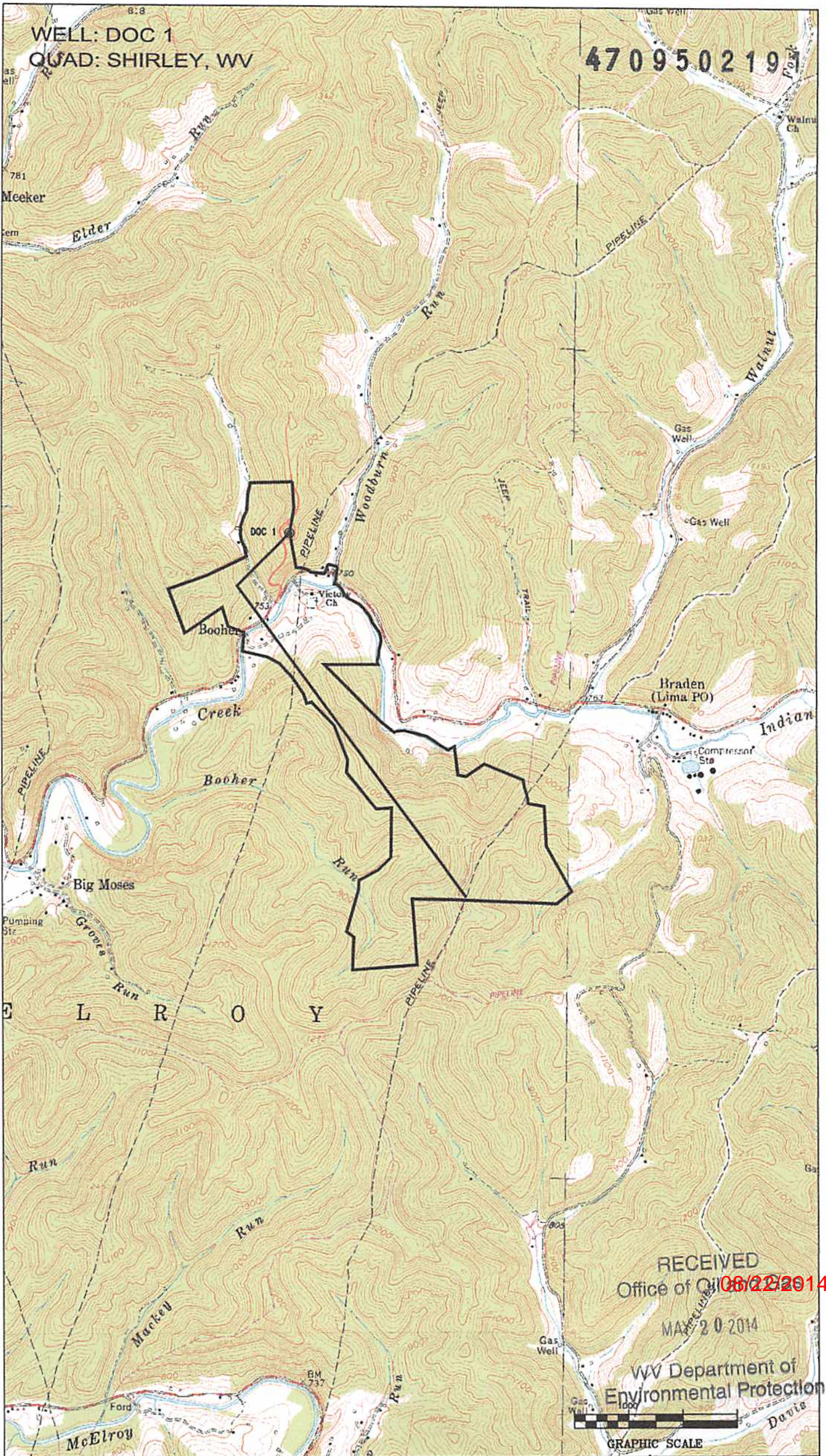
Title: Oil & Gas Inspector Date: 5/12/14

Field Reviewed?  Yes  No



WELL: DOC 1  
QUAD: SHIRLEY, WV

4709502191



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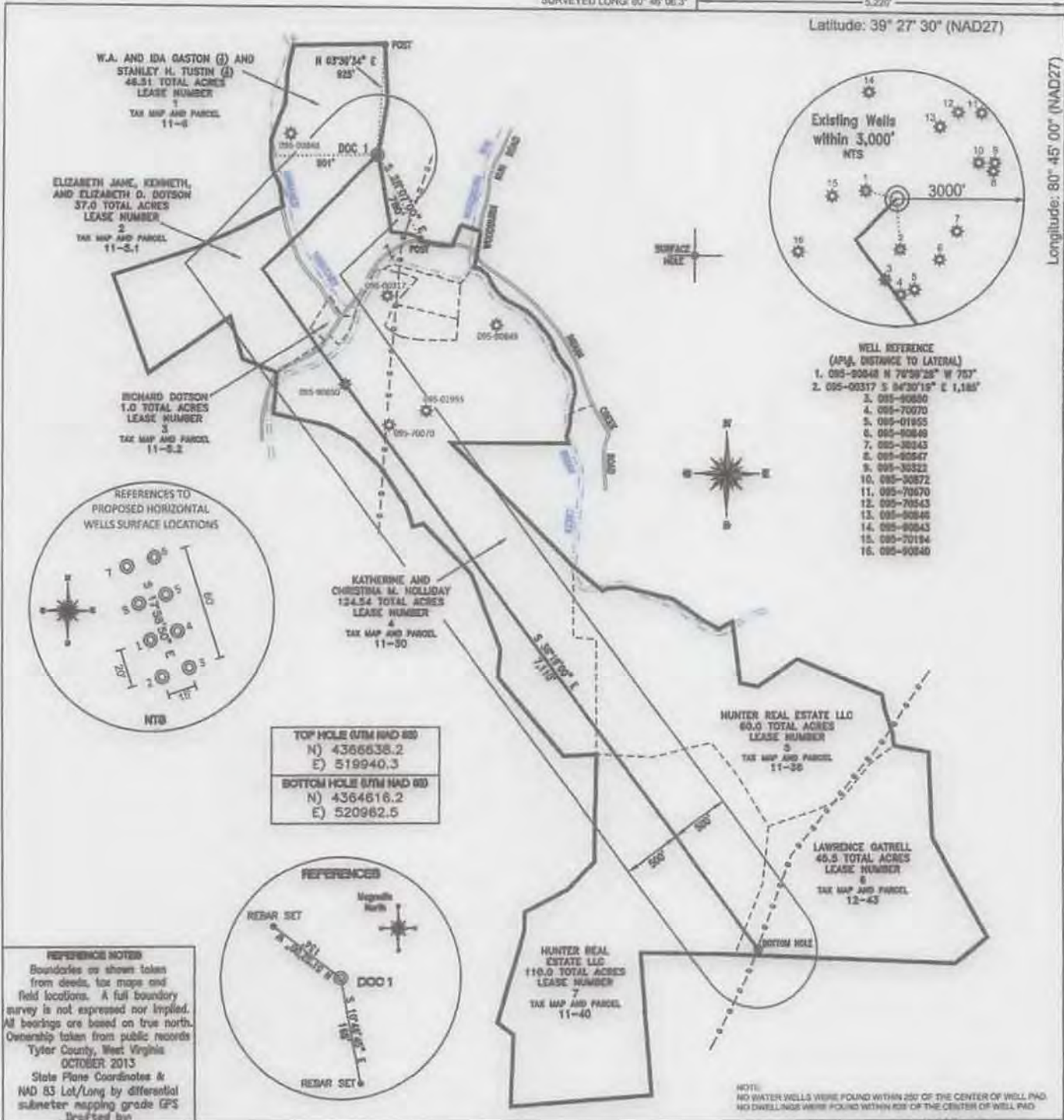
MAY 20 2014

WV Department of  
Environmental Protection



GRAPHIC SCALE





FILE #: 201369  
DRAWING #: 2355  
SCALE: PLAT. 1" = 1200'  
TICK 1" = 2000'

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER 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: *Gary A. Covey*

L.L.S. #: 755 GARY A. COVEY



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

OFFICE OF OIL & GAS  
601 5TH STREET  
CHARLESTON, WV 25304

Well Type:  Oil  Waste Diposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: OUTLET MIDDLE ISLAND CREEK  
COUNTY/DISTRICT: TYLER / McELROY  
SURFACE OWNER: W.A. & IDA GASTON (J) AND STANLEY H. TUSTIN (J)  
OIL & GAS ROYALTY OWNER: ARNOLD SHUBERT (0411/8), SHIRLEY K. GIZ (0411/5,1,7411/5,2), PRECISION OPERATING, LLC. (0411/30), J. EXPLORATION, LLC. (0411/28), LINDA L. HODNER (0412/43), SENECA SERVICES (0411/40)

LEASE NUMBERS: 1. T3142A 2. T3143 3. T3143 4. PRE1 5. T3017 6. T3016 7. T3018

DATE: MAY 14, 2014  
OPERATOR'S WELL #: DOC 1  
API WELL #: 47 95 02191 H6A  
STATE COUNTY PERMIT

WATERSHED: ELEVATION: 1,036'  
COUNTY/DISTRICT: TYLER / McELROY QUADRANGLE: SHIRLEY, WV  
SURFACE OWNER: W.A. & IDA GASTON (J) AND STANLEY H. TUSTIN (J) ACREAGE: 46.51 +/-  
OIL & GAS ROYALTY OWNER: ARNOLD SHUBERT (0411/8), SHIRLEY K. GIZ (0411/5,1,7411/5,2), PRECISION OPERATING, LLC. (0411/30), J. EXPLORATION, LLC. (0411/28), LINDA L. HODNER (0412/43), SENECA SERVICES (0411/40) ACREAGE: 350.16 +/-

LEASE NUMBERS: 1. T3142A 2. T3143 3. T3143 4. PRE1 5. T3017 6. T3016 7. T3018

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY):

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,940'  
WELL OPERATOR: JAY BEE OIL & GAS, LLC. DESIGNATED AGENT: SHANE DOWELL  
ADDRESS: 3570 SHIELDS HILL ROAD ADDRESS: 3570 SHIELDS HILL ROAD  
CITY: CAIRO STATE: WV ZIP CODE: 26337 CITY: CAIRO STATE: WV ZIP CODE: 26337

08/22/2014