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west virginia department of environmental protection

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

Earl Ray Tomblin , Governor  
Randy C. Huffman , Cabinet Secretary  
www.dep.wv.gov

Wednesday, August 31, 2016  
WELL WORK PERMIT  
Vertical / Plugging - 2

EXCO RESOURCES (PA), LLC  
260 EXECUTIVE DRIVE

CRANBERRY TOWNSHIP, PA 16066

Re: Permit approval for H-1129  
47-085-04984-00-00

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: H-1129  
Farm Name: DEEM, EDWIN LEE  
U.S. WELL NUMBER: 47-085-04984-00-00  
Vertical / Plugging - 2  
Date Issued: 8/31/2016

Promoting a healthy environment.

## 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

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1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. 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.
3. Well work activities shall not constitute a hazard to the safety of persons.
4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

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WW-4B  
20  
Rev. 2/01

1) Date 5/1/2016  
2) Operator's  
Well No. Deem H 1129  
API Well No. 47- 085 04984

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil \_\_\_ / Gas X / Liquid injection \_\_\_ / Waste disposal \_\_\_ /  
(If "Gas, Production X or Underground storage \_\_\_) Deep \_\_\_ / Shallow h

5) Location: Elevation 1184 Watershed Bee Run  
District Union Quad Pullman

6) Well Operator EXCO Resources (PA), LLC 7) Designated Agent Diana Stampler/C.T.Corp.  
Address PO Box 8. Address 5400 D Big Tyler Road  
Ravenswood, WV 26164 Charleston, WV 25301

Oil and Gas Inspector to be notified  
Name Mike Goff  
Address PO Box 134, Pullman WV 26421  
PHONE 304 549 9823

9) Plugging Contractor  
Name R & R WELL SERVICE  
Address 42 LYNCH RIDGE  
WALTON, WV 25286

10) Work Order: The work order for the manner of plugging this well is as follows:  
Check Rock pressure

- Remove all equipment used to produce well
- Gel hole TD 5361
- Cement 5361 to 5261
- Gel 5261 to 4785
- Cement 4785 to 3468 over 4 1/2 seat and perfs
- Freepoint, cut and pull 4 1/2 csg
- Gel to 50' below cut
- Cement 100' across cut
- Gel hole to 1232
- Cement 1232 to 1132 over 8 5/8 seat and elevation
- Gel hole to 200'
- Cement 200' to surface
- Set monument with proper API

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Signature Michael Goff Date 6/24/16

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

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FORM 1 (Obverse) [08-79]

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APR 12 1982

OIL AND GAS DIVISION WV DEPARTMENT OF MINES

STATE OF WEST VIRGINIA DEPARTMENT OF MINES, OIL AND GAS DIVISION

Date: April 9, 1982 Operator's Well No. H-1129 APD Well No. 67-085-4984

WELL OPERATOR'S REPORT

DRILLING, FRACTURING AND/OR STIMULATION, OR PHYSICAL CHANGE

WELL TYPE: Oil / Gas XX / Liquid Injection / Waste Disposal (If "Gas", Production XX) Undergound storage / Deep / Shallow XX LOCATION: Elevation: 1184' Watershed: Bee Run District: Union County: Ritchie Quadrangle: Pullman, WV 7 1/2' WELL OPERATOR: Hought, Inc. Edwin Deem H-1129 DESIGNATED AGENT: Warren R. Haught Address: 5825 Emerson Ave. Parkersburg, WV 26101

PERMITTED WORK: Drill XX / Convert / Drill deeper / Redrill / Fracture or stimulate / Plug off old formation / Perforate new formation / Other physical change in well (specify)

PERMIT ISSUED ON November 5, 1981, OIL & GAS INSPECTOR FOR THIS WORK: Deo Mace Name: Deo Mace Address: Rt. 1, Box 5 Sandridge, WV 25274

GEOLOGICAL TARGET FORMATION: Shale Depth: 3490 - 5361 feet Depth of completed well: 5361 feet Rotary XX Cable Tools Water strata depth: Fresh, salt, Coal seam depths: None Is coal being mined in the area: No Work was commenced May 1, 1981, and completed December 23, 1981

CASING AND TUBING PROGRAM

Table with columns: CASING OR TUBING TYPE, SPECIFICATIONS (Size, Grade, Weight, New/Used), FOOTAGE INTERVALS (For drilling, Left in well), CEMENT PILLING OR SACKS (Cubic feet), PACKERS. Rows include Conductor, Fresh water, Coal, Intermediate, Production, Tubing, Liners.

OPEN FLOW DATA

Producing formation: Devonian Shale Pay zone depth: 3518 to 4676 feet Gas: Initial open flow, Final open flow, 415 Mcf/d, Time of open flow between initial and final tests, 8 hours Static rock pressure, 860 psig (surface measurement after 12 hours shut in)

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FORM IV-35  
(Reverse)

108-78

DETAILS OF PERFORATED INTERVALS, FRACTURING OF COORDINATIONS, PHYSICAL CHANGE, ETC.  
 Hydrafraced by Halliburton 1500 Gal. Acid & 1410 bbl Water  
 24,000 Lbs. 80-100 Sand -- 80,000 Lbs. 20-40 Sand

Perforations: 16 -- 3518 - 3570  
 18 -- 3956 - 4006  
 15 -- 4391 - 4676

FORMATION	Color	Hard or Soft	T - Feet	Bottom Feet	Remarks Including indication of all gases and salt water, soap, etc. and tag
Top Soil			0	20	
Shale			20	60	
Sand			60	85	
Shale			85	210	
Red rock			210	240	
Shale			240	570	
Sand			570	610	
Shale			610	945	
Red Rock			945	960	
Shale			960	1175	
Sand			1175	1215	
Shale			1215	1470	
Sand			1470	1520	
Shale			1520	1580	
Sand			1580	1630	
Shale			1630	1660	
Sand			1660	1730	
Shale			1730	1925	
Sand			1925	2100	
Lime			2100	2160	
Big Injun Sand			2160	2230	
Shale			2230	2430	
Sand			2430	2540	
Shale			2540	2805	
Sand			2805	2820	
Shale			2820	3490	
Sandy Shale			3490	3610	
Shale			3610	4390	
Sand			4390	4395	
Shale			4395	5361	T.D.

Attach separate sheets if complete as necessary.

Haight, Inc.  
 Well Operator  
 By: Nathan P. Haight  
 Title: President

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# Jayne Fleet



Form (OI-8)

Date 20 Oct 1980

Well No. H-1129

API No. 47 State 085 County 4984 Permit

STATE OF WEST VIRGINIA  
OFFICE OF OIL AND GAS

Company Name HAUGHT, INC.  
Address SMITHVILLE, WVA 26178  
Telephone 477-3333  
Landowner EDWIN LEE DEEM

Designated Agent WARREN R. HAUGHT  
Address SMITHVILLE, WVA 26178  
Telephone 477-3333  
Soil Cons. District LITTLE KANAWHA

Revegetation to be carried out by WARREN R. HAUGHT (Agent)  
This plan has been reviewed by Little Kanawha S.C.D. All corrections and additions become a part of this plan. 10-29-80 Janet Newland (SCD Agent)

Access Road	Location
Structure <u>Cross Drain</u> (A)	Structure <u>DIVERSION DITCH</u> (1)
Spacing _____	Material <u>SOIL</u>
Page Ref. Manual <u>1.3</u>	Page Ref. Manual <u>1.9</u>
Structure <u>Rp-Rop</u> (B)	Structure <u>Rp-Rop</u> (2)
Spacing _____	Material <u>Rock-Stone-Brush</u>
Page Ref. Manual <u>N/A</u>	Page Ref. Manual <u>N/A</u>
Structure _____ (C)	Structure _____
Spacing _____	Material _____
Page Ref. Manual _____	Page Ref. Manual _____

All structures should be inspected regularly and repaired if necessary.



### Revegetation

OIL & GAS DIVISION  
DEPT. OF MINES

Treatment Area I		Treatment Area II	
Lime or correct to pH <u>6.5</u> Tons/acre	Lime or correct to pH <u>6.5</u> Tons/Acre		
Fertilizer <u>500</u> lbs/acre (10-20-20 or equivalent)	Fertilizer <u>500</u> lbs/acre (10-20-20 or equivalent)		
Mulch <u>HAY</u> 2 Tons/Acre	Mulch <u>HAY</u> 2 Tons/Acre		
Seed: <u>KY 31 FESCUE</u> 35 lbs/acre	Seed: <u>KY 31 FESCUE</u> 35 lbs/acre		
<u>RED TOP</u> 5 lbs/acre	<u>RED TOP</u> 5 lbs/acre		

\*Inoculate all legumes such as vetch, trefoil and clovers with the proper bacterium. Inoculate with 3X recommended amount.

Attach or photocopy section of involved Topographic map. Quadrangle PULLMAN

Legend: Well Site  
 Access Road

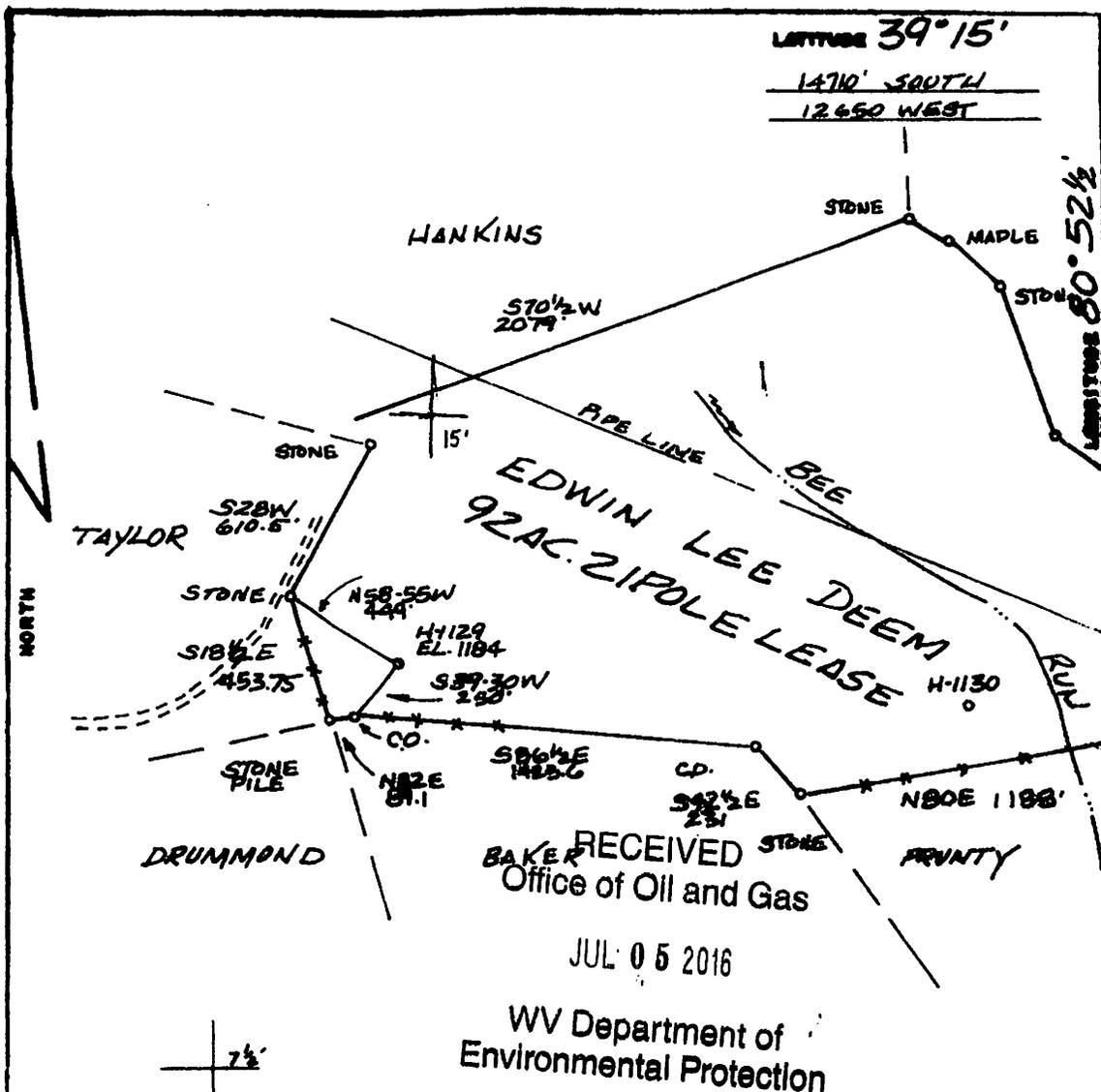


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85-4984

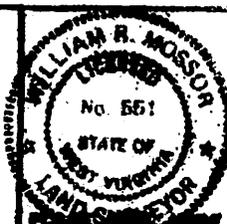
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FILE NO. \_\_\_\_\_  
DRAWING NO. \_\_\_\_\_  
SCALE 1"=500'  
MINIMUM DEGREE OF ACCURACY 1:200  
PROVEN SOURCE OF ELEVATION HIGH PT. 1856'

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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 MINES.  
(SIGNED) William R. Mossor  
R.P.E. \_\_\_\_\_ L.L.S. 561



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
FORM IV-6  
(8-78)



DATE 30 OCT. 19 82  
OPERATOR'S WELL NO. H-1130  
API WELL NO. 47-085-4984  
STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION

WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_  
(IF "GAS", PRODUCTION  STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW   
LOCATION: ELEVATION 1184' WATER SHED BEE RUN  
DISTRICT UNION COUNTY RITCHIE  
QUADRANGLE PULLMAN, W.VA. 7 1/2' QUAD HOLBROOK 15'  
SURFACE OWNER EDWIN LEE DEEM ACREAGE 92 AC. 21 POLE  
OIL & GAS ROYALTY OWNER EDWIN LEE DEEM LEASE ACREAGE 92 AC. 21 P.  
LEASE NO. \_\_\_\_\_  
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 ALEXANDER ESTIMATED DEPTH 5500'  
WELL OPERATOR LAUGHT, INC. DESIGNATED AGENT WARREN B. LAUGHT  
ADDRESS SANDYVILLE, W.VA. 26178 ADDRESS SANDYVILLE, W.VA. 26178



WW-9  
(5/13)

8504984 P

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 085 - 04984  
Operator's Well No. Deem H-1129

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name EXCO Resources (PA), LLC OP Code 307860

Watershed (HUC 10 Bee Run \_\_\_\_\_) Quadrangle Pullman

Elevation 1184 County Ritchie District Union \_\_\_\_\_

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

Will a pit be used for drill cuttings? Yes \_\_\_\_\_ No

If so, please describe anticipated pit waste: \_\_\_\_\_

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

Proposed Disposal Method For Treated Pit Wastes:

\_\_\_\_ Land Application

\_\_\_\_ Underground Injection ( UIC Permit Number \_\_\_\_\_ )

\_\_\_\_ Reuse (at API Number \_\_\_\_\_)

\_\_\_\_ Off Site Disposal (Supply form WW-9 for disposal location)

Other (Explain no fluids are expected in return any return will be captured)

ALL WELL EFFLUENT WILL BE  
CONTAINED IN TANKS & HAULED  
OFF SITE AND DISPOSED OF PROPERLY.

g.v.v.

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Will closed loop system be used? \_\_\_\_\_

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

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

AUG 31 2016

Additives to be used in drilling medium? \_\_\_\_\_

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

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

-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 under this permit 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 Randall Sheets

Company Official (Typed Name) Randall Sheets

Company Official Title Supervisor

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Subscribed and sworn before me this 31<sup>st</sup> day of August, 2016

Kathryn Shafer Notary Public

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My commission expires May 9 2024



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Proposed Revegetation Treatment: Acres Disturbed 0.5 Prevegetation Ph 6.0

Lime 2 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KENTUCKY FESCUE	<u>40</u>	SAME	
ALSIKE CLOVER	<u>5</u>		
ANNUAL RYE	<u>16</u>		

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 Luff

Comments: Reclaimed disturbed areas.

Title: Oil & Gas Inspector

Date: 6/24/16

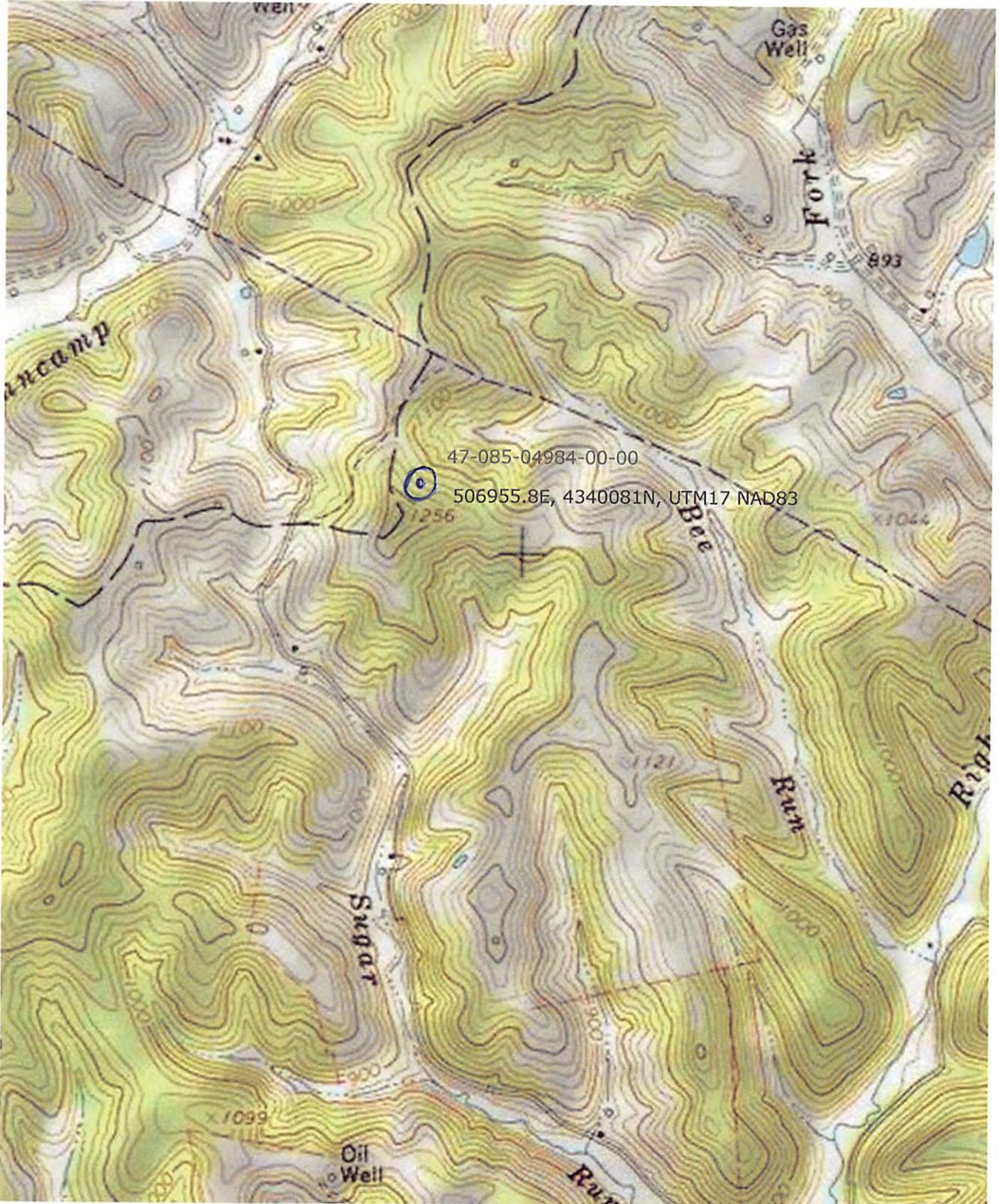
Field Reviewed? (  ) Yes (  ) No

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WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas

**WELL LOCATION FORM: GPS**

API: 4708504984 WELL NO.: DEEM 1129  
 FARM NAME: EDWARD LEE DEEM  
 RESPONSIBLE PARTY NAME: EXCO RESOURCES (PA) LLC  
 COUNTY: RITCHIE DISTRICT: UNION  
 QUADRANGLE: PULLMAN  
 SURFACE OWNER: JEFFREY WOODS  
 ROYALTY OWNER: JEFFREY WOODS  
 UTM GPS NORTHING: 4340081  
 UTM GPS EASTING: 0506955.79 GPS ELEVATION: 1144

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS \_\_\_\_: Post Processed Differential \_\_\_\_

Real-Time Differential \_\_\_\_

Mapping Grade GPS : Post Processed Differential \_\_\_\_

Real-Time Differential \_\_\_\_

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4. **Letter size copy of the topography map showing the well location.**

I the undersigned, hereby certify this data 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 Office of Oil and Gas.

Randall White  
Signature

Supervisor  
Title

8/3/16  
Date