Jay-Bee Companies
Emily Potesta
Regulatory Agent

304-203-0665
epotesta1@jaybeeoil.com

November 1, 2023

UIC Permitting
WV DEP Office of Oil & Gas
601 57th St SE
Charleston, WV 25304

Re: UIC # 2D08510284001 – Pluto 1A Renewal and Water Sources Appendix D

To Whom It May Concern,

Enclosed with this letter is the Jay-Bee Oil & Gas, Inc Pluto 1A Permit Renewal and Exhibits, an As-Drilled Mylar, and a check for permit fee for $500.00. I have also included information from the original permit and modification, as most exhibits and information have not changed.

Regarding Appendix D, contact was attempted to local PSD through mail and phone call with negative response back to our office. Furthermore, it was found during surveying that the water wells that were originally named in Jay-Bees initial permit are either no longer available for use or are located outside of the ¼ mile radius, therefore no longer requiring testing. We did include the sample results for stream water testing and injectate testing.

If you have any further concerns or questions, please don't hesitate to contact me by email at epotesta@jaybeeoil.com, or by phone at 304-933-3878 or 304-203-0665.

Sincerely,

Emily Potesta
Regulatory Agent

CK # 68007
$ 500.00
11/1/2023

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

Underground Injection Control - Class 2 and 3 UIC Wells

Permit Application Package Instructions and Guidance

Procedural explanation to be used to supplement the permit application package.

Table of Contents

Place Holder

UIC-1 Form Sections 1-5

CHECKLIST FOR FILING A UIC PERMIT APPLICATION

Please utilize this checklist to ensure you have prepared, completed, and enclosed all required documentation and payment to ensure a timely review of your submittal.

Operator	Jay-Bee Oil & Gas, Inc.		
Existing UIC Permit ID Number	2D08510284	UIC Well API Number	47-085-10284

Office of Oil and Gas Office Use Only	
Permit Reviewer	
Date Received	
Administratively Complete Date	
Approved Date	
Permit Issued	

Please check the fees and payment included.

Fees		Payment Type	
UIC Permit Fee: $500	✓	Check	✓
Groundwater Protection Plan (GPP) Fee: $50.00		Electronic	
		Other	

Please check the items completed and enclosed.

- ✓ Checklist
- ✓ UIC-1
  - ✓ Section 1 – Facility Information
  - ✓ Section 2 – Operator Information
  - ✓ Section 3 – Application Information
  - ✓ Section 4 – Applicant/Activity Request and Type
  - ✓ Section 5 – Brief description of the Nature of the Business
  - ✓ CERTIFICATION
- ✓ Section 6 – Construction
  - ✓ Appendix A Injection Well Form
  - ✓ Appendix B Storage Tank Inventory
- ✓ Section 7 – Area of Review
  - ✓ Appendix C Wells Within the Area of Review

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- [x] Appendix D Public Service District Affidavit
- [x] Appendix E Water Sources
- [x] Appendix F Area Permit Wells
- [x] Section 8 – Geological Data on Injection and Confining Zones
- [x] Section 9 – Operating Requirements / Data
  - [x] Appendix G Wells Serviced by Injection Well
- [x] Section 10 – Monitoring
- [x] Section 11 – Groundwater Protection Plan (GPP)
  - [x] Appendix H Groundwater Protection Plan (GPP)
- [x] Section 12 – Plugging and Abandonment
- [x] Section 13 – Additional Bonding
- [x] Section 14 – Financial Responsibility
  - [x] Appendix I Financial Responsibility
- [x] Section 15 – Site Security Plan
  - [x] Appendix J Site Security for Commercial Wells
- [x] Section 16 – Additional Information
  - [x] Appendix K Other Permit Approvals

NOTE: For all 2D wells an additional bond in the amount of $5,000 is required.

Reviewed by (Print Name): Emily Potesta

Reviewed by (Sign): Emily Potesta

Date Reviewed: 11/2/23

UIC-1
(4/25)

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
www.dep.wv.gov/oil-and-gas

UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

UIC PERMIT ID # 2D085100284 API # 47-085-10284 WELL # Pluto 1A

Section I. Facility Information

Facility Name: **Pluto 1A Injection Well**

Address: **429 Simonton Rd.**

City: **Ellenboro** State: **WV** Zip: **26346**

County: **Ritchie** **District: Clay**
7.5' Quad: Ellenboro

Location description:
Location is approximately 7,500' west x southwest, at the peak of a hill next to WV State Rt 50

Location of well(s) or approximate center of field/project in UTM NAD 83 (meters):
Northing: **4,345809.6** Easting: **492,939.9**
Latitude: 39.2615922
Longitude: -81.0818354

Environmental Contact Information:
Name: **Emily Potesta** Title: **Regulatory Agent**
Phone: **304-203-0665** Email: **epotesta@jaybeeoil.com**

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Section 2. Operator Information

Operator Name: **Jay-Bee Oil & Gas, Inc.**
Operator ID: **24610**

Address: **429 Simonton Rd.**
City: **Ellenboro** State: **WV** Zip: **26346**
County: **Ritchie**

Contact Name: **Emily Potesta** Contact Title: **Regulatory Agent**
Contact Phone: **304-203-0665** Contact Email: **epotesta@jaybeeoil.com**

Section 3. Applicant Information

Ownership Status: ■ PRIVATE ☐ PUBLIC ☐ FEDERAL ☐ STATE
☐ OTHER (explain):

SIC code: ■ 1311 (2D, 2H, 2R) ☐ 1479 (3S) ☐ OTHER (explain):

Section 4. Applicant / Activity Request and Type:

A. Apply for a new UIC Permit: ☐ 2D ☐ 2H ☐ 2R ☐ 3S
B. Reissue existing UIC Permit: ■ 2D ☐ 2H ☐ 2R ☐ 3S
C. Modify existing UIC Permit: ☐ 2D ☐ 2H ☐ 2R ☐ 3S
(Submit only documentation pertaining to the modification request)
2D COMMERCIAL FACILITY: ☐ YES ☐ NO

Section 5. Briefly describe the nature of business and the activities to be conducted:

Jay-Bee Oil & Gas, Inc. requests the renewal of permit for API # 47-085-10284 for a produced fluid injection well, to dispose of produced water from our local wells. This well is currently in operation. Since this is a private operation, we only inject fluids that are produced from wells that Jay-Bee owns and operates. We manage these operations in house, as well as monitoring and reporting. The facilities that house the fluids to be injected are approximately 2100' northeast of the injection well.

APPLICATION CERTIFICATION

In accordance with WV Code 47CSR13.13.11, all UIC permit applications must be signed by one of the following:

1. For a corporation: by a principle corporate officer of at least the level of vice-president;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: by either a principle executive officer or ranking elected official;
4. Or a duly authorized representative in accordance with 47CSR13.13.11.b.
   (A person may be duly authorized by one of the primary entities (1-3) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

Jay-Bee Oil & Gas, Inc.

(Company Name)

2D8510284

(UIC Permit Number)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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. (47CSR13.13.11.d)

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Emily Potesta

(Print Name)

Regulatory Agent

(Print Title)

Emily Potesta

(Signature)

11/1/2023

(Date)

Place Holder

Section 6 - Construction

(4/25)

4708510284

APPENDIX A

Injection Well Form

Pluto 1A

1) GEOLOGIC TARGET FORMATION: Salina Formation

Depth: 6846 Feet (top) 7476 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 7877 Feet

3) Approximate water strata depths: Fresh 90 - 134 Feet Salt 964 Feet

4) Approximate coal seam depths: N/A

5) Is coal being mined in the area? Yes ☐ No ☑

6) Virgin reservoir pressure in target formation 3000 psig Source Based on Newburg

7) Estimated reservoir fracture pressure Unknown psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour): 85 bbl Avg

Injection volume (bbl/day): 650 bbl/day Avg

Injection pressure (psig): 4024

Bottom hole pressure (psig): 6897 est.

9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES:

Class 2 compliant fluids, acid sticks at 1 stick per 1000 bbls or as needed. See attached sample analysis.

Temperature of injected fluid: (°F): ambient

10) FILTERS (IF ANY)

60 micron filter system

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

Insulated Hammer Union at top of well.

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APPENDIX A (cont.) Pluto 1A

12. 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	18 5/8"	New	H40	N/A	30	30"	Grout
Fresh Water	13 3/4"	New	J55	40#	310	310	310cf CTS
Coal	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 1	8 5/8"	New	J55	24#	2064	2064	621cf CTS
Intermediate 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Production	5 1/2"	New	P110	20#	7718	7718	1558cf 770ft
Tubing	2 7/8"	New	L80	6.5#	6800	6800	None
Liners	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor	20"	18 5/8"	.495	3000 lbs	Class A	N/A	Y
Fresh Water	17 1/2"	13 3/8"	.333	1500 lbs	Class A	1.20	Y
Coal	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 1	11"	8 5/8"	.264	2950 lbs	Class A	1.19	Y
Intermediate 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Production	7 7/8"	5 1/2"	.304	15000 lbs	Class A	1.17	N
Tubing		2 7/8"	.217	7260 lbs	N/A	N/A	N/A
Liners	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	Mechanical / Hornet			
Sizes:	5 1/2" x 2 7/8"			
Depths Set:	6800			

Cast Iron Bridge Plug over Newburg set at 7460

Well Bore Diagram

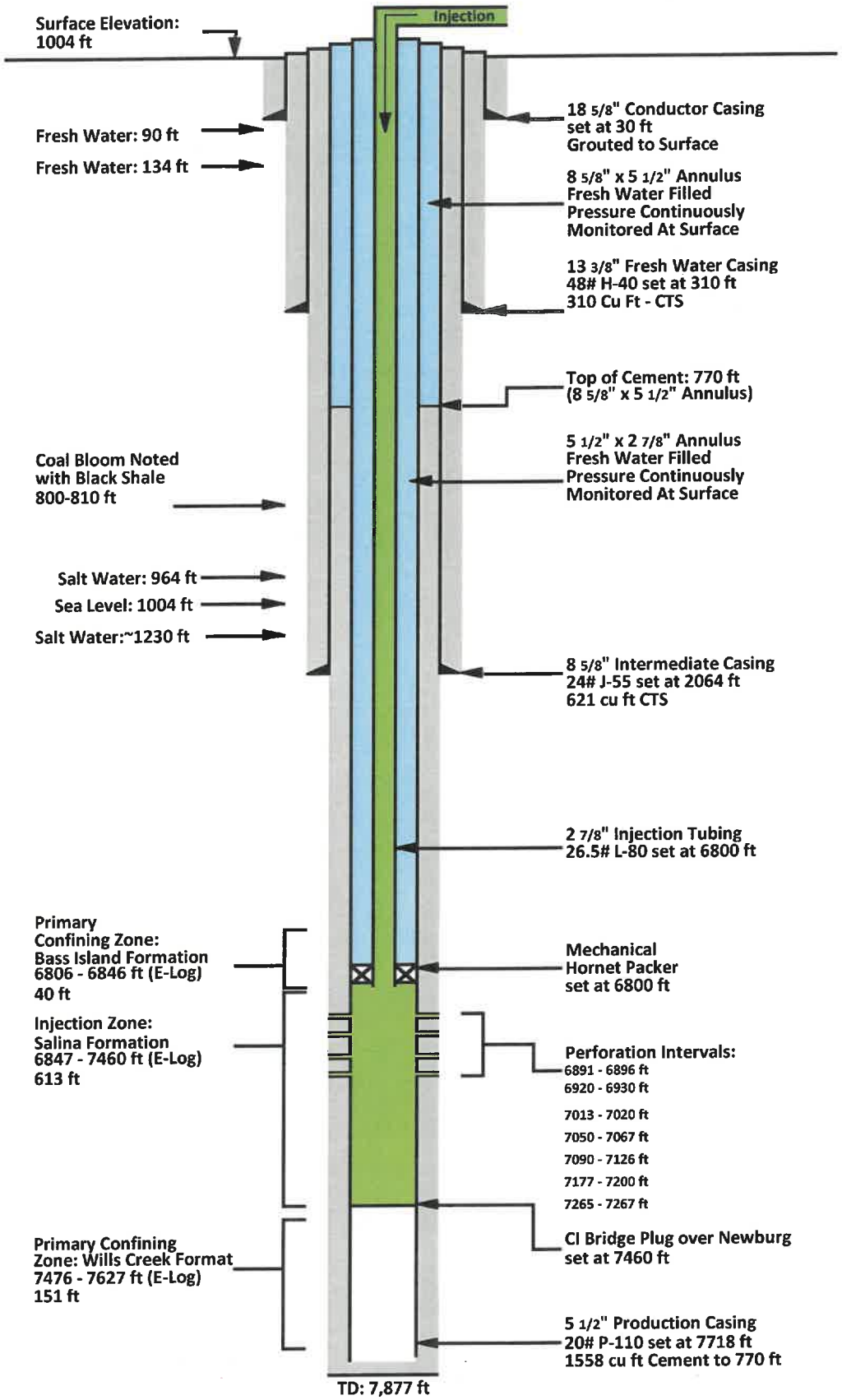
Pluto #1A

API 47-085-10284

Jay Bee Oil & Gas, Inc.

UIC 2D08510284001

(Well Drilled: July 18, 2020)



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WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 085 - 10284 County Ritchie District Clay
Quad Ellenboro 7.5" Pad Name Pluto Field/Pool Name
Farm name Jay Bee Yard LLC Well Number Pluto 1A
Operator (as registered with the OOG) 24610
Address 429 Simonton Road City Ellenboro State WV Zip 26346

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4345809.6 Easting 492939.9
Landing Point of Curve Northing n/a Easting n/a
Bottom Hole Northing n/a Easting n/a

Elevation (ft) 1,004' GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal □ Horizontal 6A ■ Vertical Depth Type ■ Deep □ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework □ Stimulate

Well Type ■ Brine Disposal □ CBM □ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single ■ Multiple Fluids Produced □ Brine □Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole ■ Air □ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Soap, Shale Inhibitor, Clay Stabilizer, Water (misted)

Date permit issued 5/31/19 Date drilling commenced 6/17/20 Date drilling ceased 7/18/20
Date completion activities began 8/6/20 Date completion activities ceased 4/8/21
Verbal plugging (Y/N) N Date permission granted n/a Granted by n/a

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 90' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,230' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 800'-810' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

4708510284

WR-35
Rev. 8/23/13

API 47- 085 - 10284 Farm name Jay Bee Yard LLC Well number Pluto 1A

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	20"	18.625"	30'	New	n/a	n/a	Grouted
Surface	17.5"	13.375"	310'	New	48# H-40	42'-268'	Yes
Coal							
Intermediate 1	11"	8.625"	2,064'	New	24# J-55	43'-2,022'	Yes
Intermediate 2							
Intermediate 3							
Production	7.875"	5.5"	7,718'	New	20# P-110	124,2154,6045,7040	Yes
Tubing		2 7/8"	6,800'	New	6.5# L-80		Packer
Packer type and depth set		Mechanical Hornet Packer set @ 6,800'					

Comment Details Surface CTS with 20% OH excess / Intermediate CTS with 30% OH excess / Production CTS with 5% OH excess

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ^{3}/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	n/a	n/a	n/a	n/a	CTS	8 hours
Surface	Class A	257	15.6	1.2051	310	CTS	8 hours
Coal							
Intermediate 1	Class A	621	15.6	1.1924	621	CTS	8 hours
Intermediate 2							
Intermediate 3							
Production	Class A	1327	14.5	1.1740	1558	770'	8 hours
Tubing							

Drillers TD (ft) 7,877' Loggers TD (ft) 7,770'
Deepest formation penetrated Newburg Plug back to (ft) n/a
Plug back procedure n/a

Kick off depth (ft) n/a

Check all wireline logs run ■ caliper ■ density □ deviated/directional □ induction
■ neutron ■ resistivity ■ gamma ray ■ temperature □sonic

Well cored □ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes □ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING
Surface- Centralizing Beiskets 42,168,268
Intermediate- Centralizers at 516,1032,1494 Centralizing Baskets at 43,2022
Production- Bow Spring Centralizer Every 500' TD to Surface, Centralizing Baskets at 124,2154,6045,7040

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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Rev. 8/23/13

API 47- 085 - 10284 Farm name Jay Bee Yard LLC Well number Pluto 1A

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	8/6/20	7,634'	7,717	60	Newburg
2	12/15/20	7,460'	7,460'	0	Cast Iron Bridge Plug over Newburg
3	12/15/20	7,265'	6,891'	120	Salina
					See attached wellbore diagram

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)

Please insert additional pages as applicable.

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Rev. 8/23/13

API 47- 085 - 10284 Farm name Jay Bee Yard LLC Well number Pluto 1A

PRODUCING FORMATION(S)	DEPTHS	
n/a	n/a TVD	n/a MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface n/a psi Bottom Hole n/a psi DURATION OF TEST n/a hrs

OPEN FLOW Gas n/a mcfpd Oil n/a bpd NGL n/a bpd Water n/a bpd GAS MEASURED BY ☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
SEE ATTACHED	0		0		SEE ATTACHED

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MAY 16 2024
WV Department of
Environmental Protection

Please insert additional pages as applicable.

Drilling Contractor Jay-Bee Oil & Gas thru Int. / Decker Prod Hole
Address 11565 OH 676 City Vincent State OH Zip 45784

Logging Company Appalachian Well Surveys
Address 10291 Ohio Ave. City Cambridge State OH Zip 43725

Cementing Company BJ Services
Address 3415 Millennium Blvd. SE City Massillon State OH Zip 44646

Stimulating Company N/A
Address _____ City _____ State _____ Zip _____
Please insert additional pages as applicable.

Completed by Andrew Neill, filed by Emily Potesta - Regulatory Agent Telephone (740) 885-9635
Signature Emily Potesta Title Drilling Manager Date 05/08/2024

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

4708510284

APPENDIX B
Storage Tank Inventory

API #	Tank ID	Tank Location (UTM NAD 83 Meters)		Installation Date	Tank Age (Months)	Construction Material (Steel, plastic, etc.)	Capacity (gallons)	Type of Fluid Stored	Volume of Fluid Stored (gallons)	Tank Type Single/Double Wall
		Northing	Easting							
043-00004018	Tank12	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004019	Tank5	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004020	Tank8	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004021	Tank10	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004022	Tank11	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004023	Tank13	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004024	Tnk14	39.262641	81.074876	06/2020		Steel	11760	Brine		Single
043-00004025	Tank15	39.262785	81.074623	06/2020		Steel	8820	Petroleum Oil		Single
043-00004026	Tank6	39.262641	81.074876	06/2020		Steel	16800	Brine		Single
043-00004027	Tank9	39.262641	81.074876	06/2020		Steel	11760	Brine		Single
043-00004028	Tank3	39.262352	81.074623	06/2020		Steel	8820	Brine		Single
043-00004029	Tank4	39.262352	81.074623	06/2020		Steel	8820	Brine		Single
043-00004030	Tank1	39.262352	81.074623	06/2020		Steel	8820	Brine		Single
043-00004031	Tank2	39.262352	81.074623	06/2020		Steel	8820	Brine		Single
043-00004032	Tank7	39.262641	81.074876	06/2020		Steel	16800	Brine		Single

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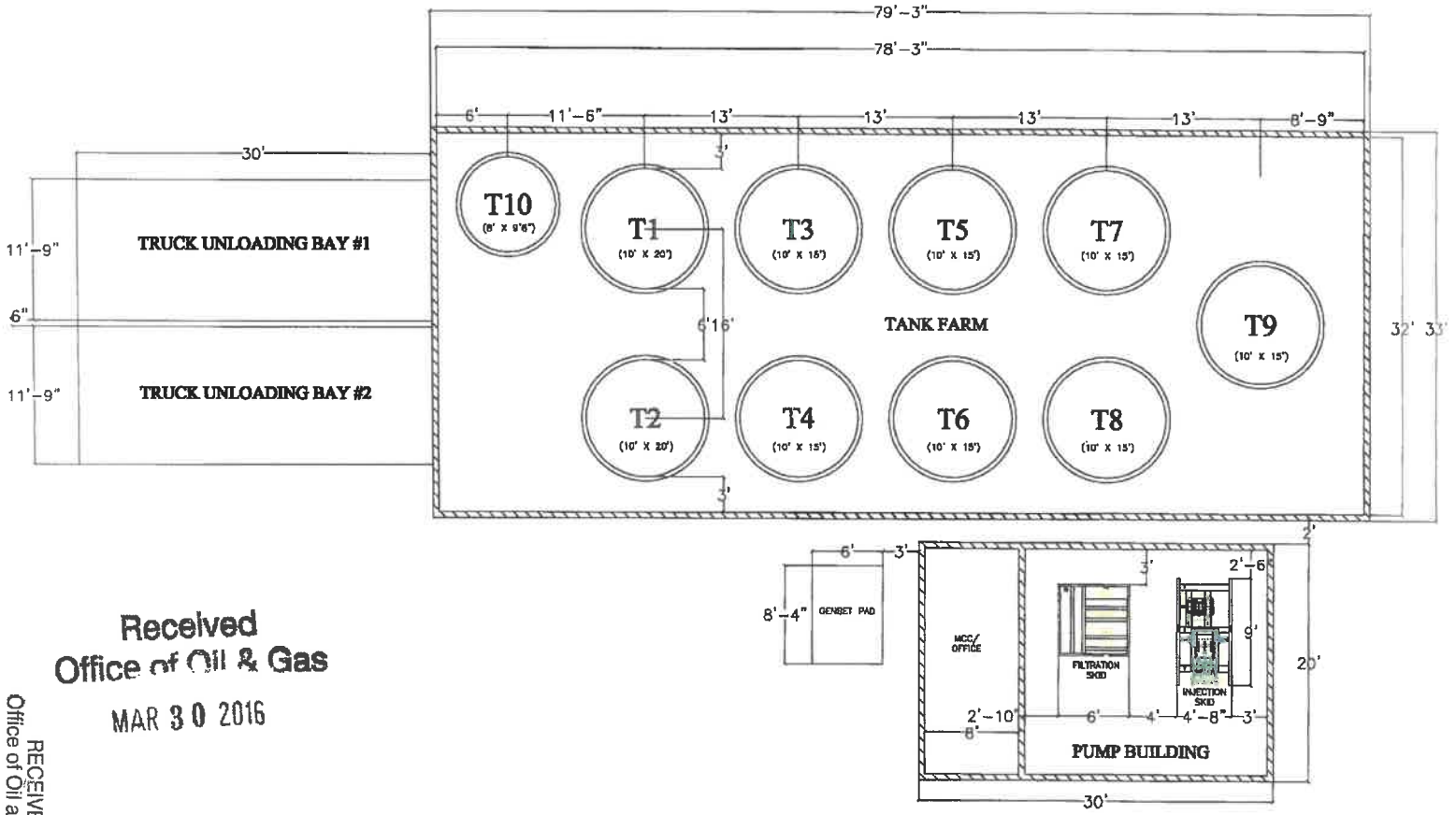

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GENERAL NOTES

1. REQUIRED CONTAINMENT VOLUME 7,781.85 CU FT
2. ACTUAL CONTAINMETN VOLUME 8,100.00 CU FT
3. PRELIMINARY SITE LAYOUT – FOR DISCUSSION

REFERENCE DRAWINGS | REFERENCE DRAWINGS | DRAWING STATUS | REVISIONS

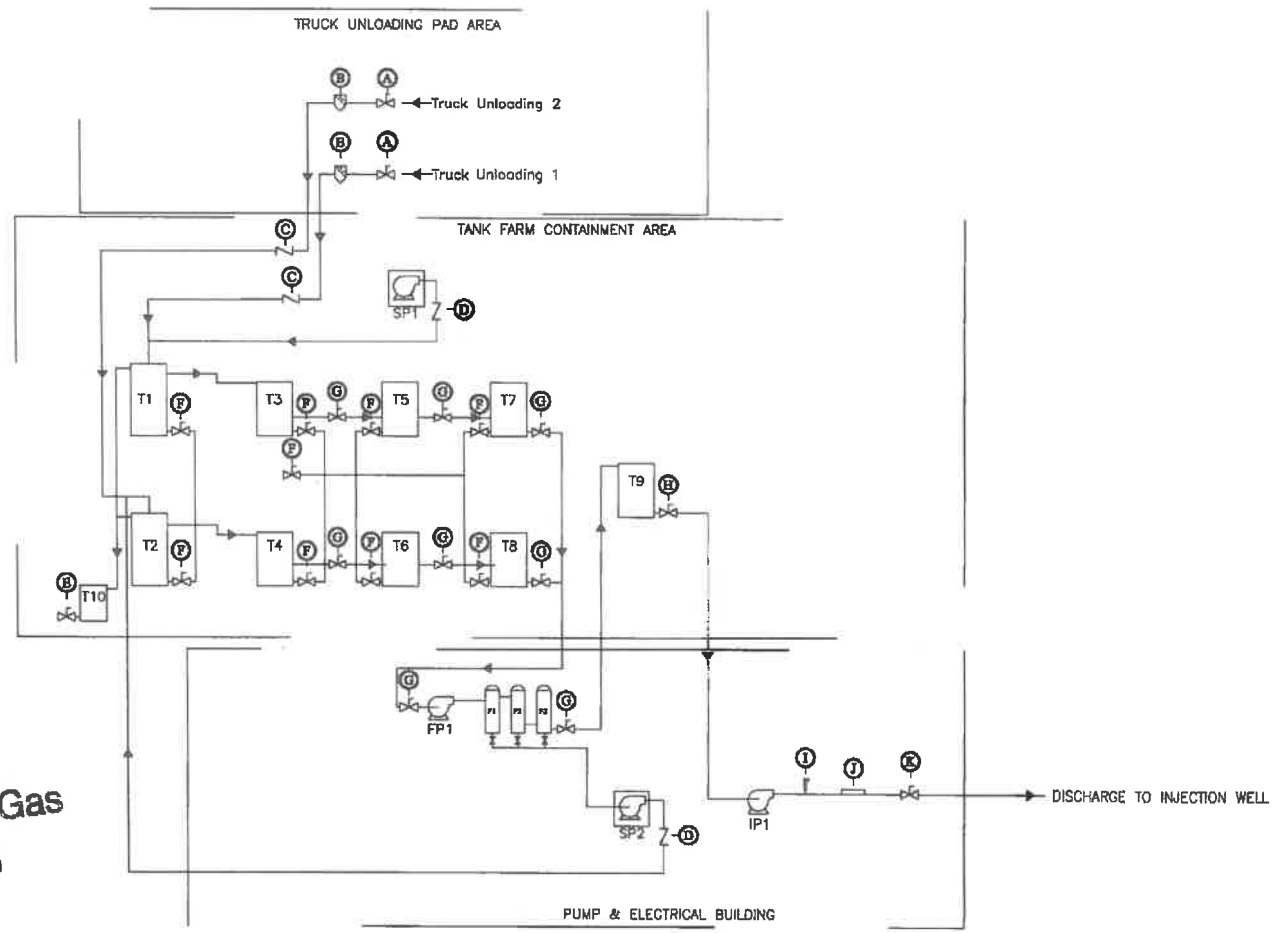
723 Oak Hill Road
Evansville, IN 47711
Ph: 812/431-7314

Jay Bee Oil & Gas

PROPOSED Site Overview

D-410003-A | A

4708510284



GENERAL NOTES

1. BILL OF MATERIALS ON D-410002-A

REFERENCE DRAWINGS | REFERENCE DRAWINGS | DRAWING STATUS | REVISIONS

Jay Bee Oil & Gas

PROPOSED PROCESS FLOW DIAGRAM

D-410001-A A

4708510284

BILL OF MATERIALS – FITTINGS		
ITEM #	QTY	DESCRIPTION
A	2	3" BALL VALVE, THRD, FULL PORT
B	2	STRAINER BASKET, 3", CI HSG, SST SCREEN, 9/16 PERF
C	2	3" CHECK VALVE, FLAP TYPE, THRD
D	2	2" CHECK VALVE, FLAP TYPE, THRD
E	1	2" BALL VALVE, THRD, FULL PORT * SEE NOTE
F	8	3" BUTTERFLY VALVE, LUG TYPE, 150#
G	8	4" BUTTERFLY VALVE, LUG TYPE, 150#
H	1	6" BUTTERFLY VALVE, LUG TYPE, MANUAL, 150#
I	1	RELIEF VALVE, BAIRD, MECHANICAL, SET AT 20% OVR PRESSURE
J	1	FLOW METER, TURBINE TYPE, 2", W/DIGITAL MONITOR
K	1	2" GATE VALVE, FLGD, 1500#, CI/SST

* NOTE: 2" BALL VALVES WILL BE USED FOR DRAINS ON EACH TANK.

BILL OF MATERIALS – TANKS		
ITEM 3	QTY	DESCRIPTION
T1	1	280 BBL GUN BARREL, 10' X 20', STEEL, LINED
T2	1	280 BBL GUN BARREL, 10' X 20', STEEL, LINED
T3	1	210 BBL RAW (DIRTY) WATER TANK, 12' X 15', STEEL, LINED
T4	1	210 BBL RAW (DIRTY) WATER TANK, 12' X 15', STEEL, LINED
T5	1	210 BBL RAW (DIRTY) WATER TANK, 12' X 15', STEEL, LINED
T6	1	210 BBL RAW (DIRTY) WATER TANK, 12' X 15', STEEL, LINED
T7	1	210 BBL RAW (DIRTY) WATER TANK, 10' x 15', STEEL, LINED
T8	1	210 BBL RAW (DIRTY) WATER TANK, 10' X 15', STEEL, LINED
T9	1	210 BBL CLEAN WATER TANK, 10' X 15', STEEL, LINED
T10	1	100 BBL OIL TANK, 8' X 9' 6", STEEL

BILL OF MATERIALS – FILTERS		
ITEM #	QTY	DESCRIPTION
FP1	1	LAROS MODEL ILS CENTRIFUGAL SEPARATOR
FP2	2	BAG FILTER, SIZE 2, SST, OVER-THE-TOP
FP3	1	NOWATA FILTER VESSEL, CARTRIDGE TYPE, SST TRIM, EPOXY

BILL OF MATERIALS – PUMPS		
ITEM #	QTY	DESCRIPTION
SP1	1	SUMP PUMP, SST, 1HP, ELECTRIC, W/FLOAT
SP2	1	SUMP PUMP, SST, 1HP, ELECTRIC, W/FLOAT
IP1	1	INJECTION PUMP, NOV 1001-4M, 1400 BPD @ 2500 PSI
FP	1	FILTRATION PUMP, CENTRIFUGAL, ANSI

GENERAL NOTES

REFERENCE DRAWINGS

REFERENCE DRAWINGS

DRAWING STATUS

REVISIONS

FMS
Ph: 812/431-7314

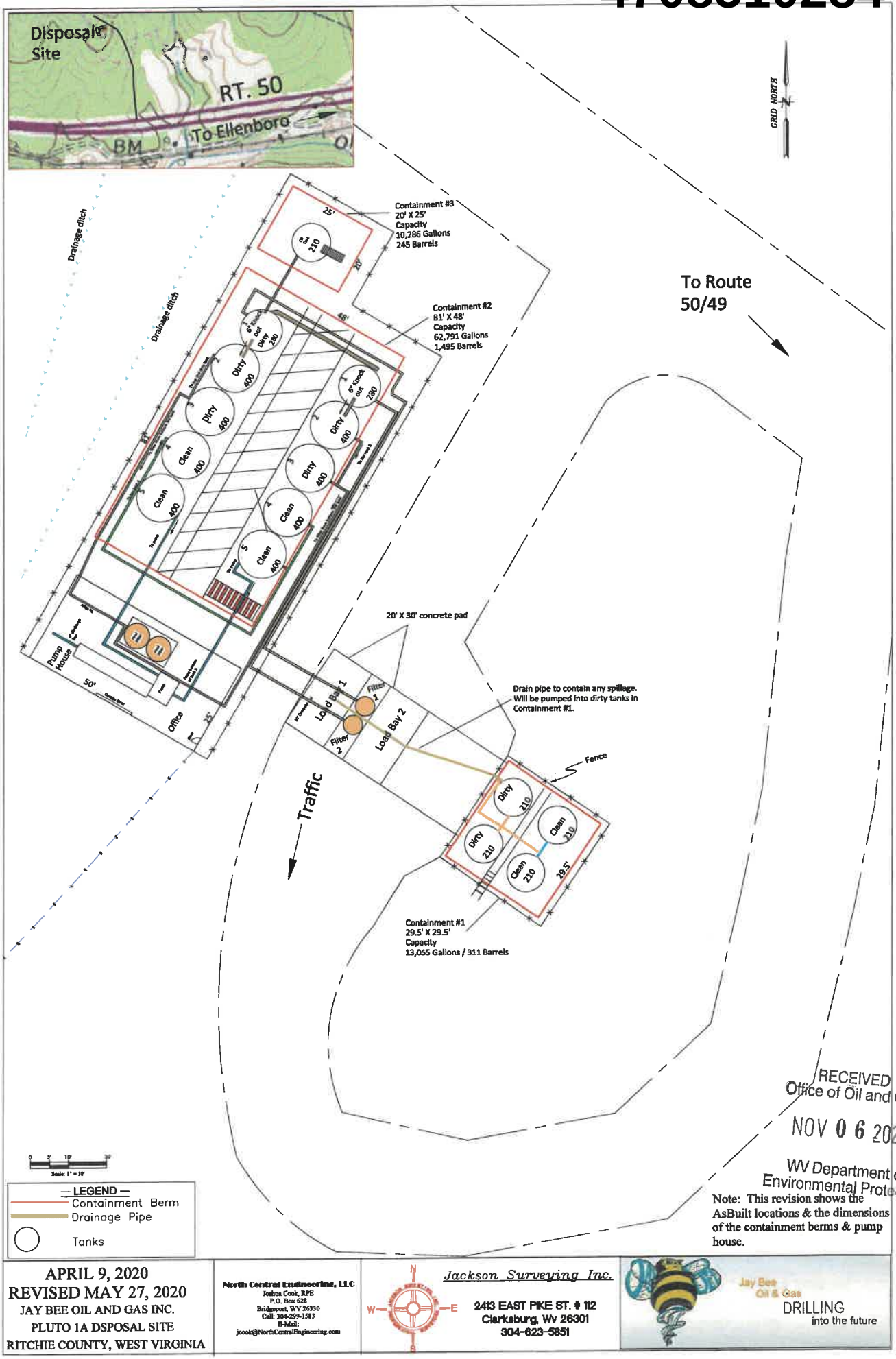
Jay Bee Oil & Gas

BILL OF MATERIALS
INJECTION SYSTEM

D-410002-A

A

4708510284



RECEIVED
Office of Oil and Gas
NOV 06 2023
WV Department of Environmental Protection

Note: This revision shows the AsBuilt locations & the dimensions of the containment berms & pump house.

APRIL 9, 2020
REVISED MAY 27, 2020
JAY BEE OIL AND GAS INC.
PLUTO 1A DSPOSAL SITE
RITCHIE COUNTY, WEST VIRGINIA

North Central Engineering, LLC
Joshua Cook, RPE
P.O. Box 628
Bridgeport, WV 26330
Cell: 304-299-1583
E-Mail:
jcook@NorthCentralEngineering.com

Jackson Surveying Inc.
2413 EAST PIKE ST. # 112
Clarksburg, Wv 26301
304-623-5851

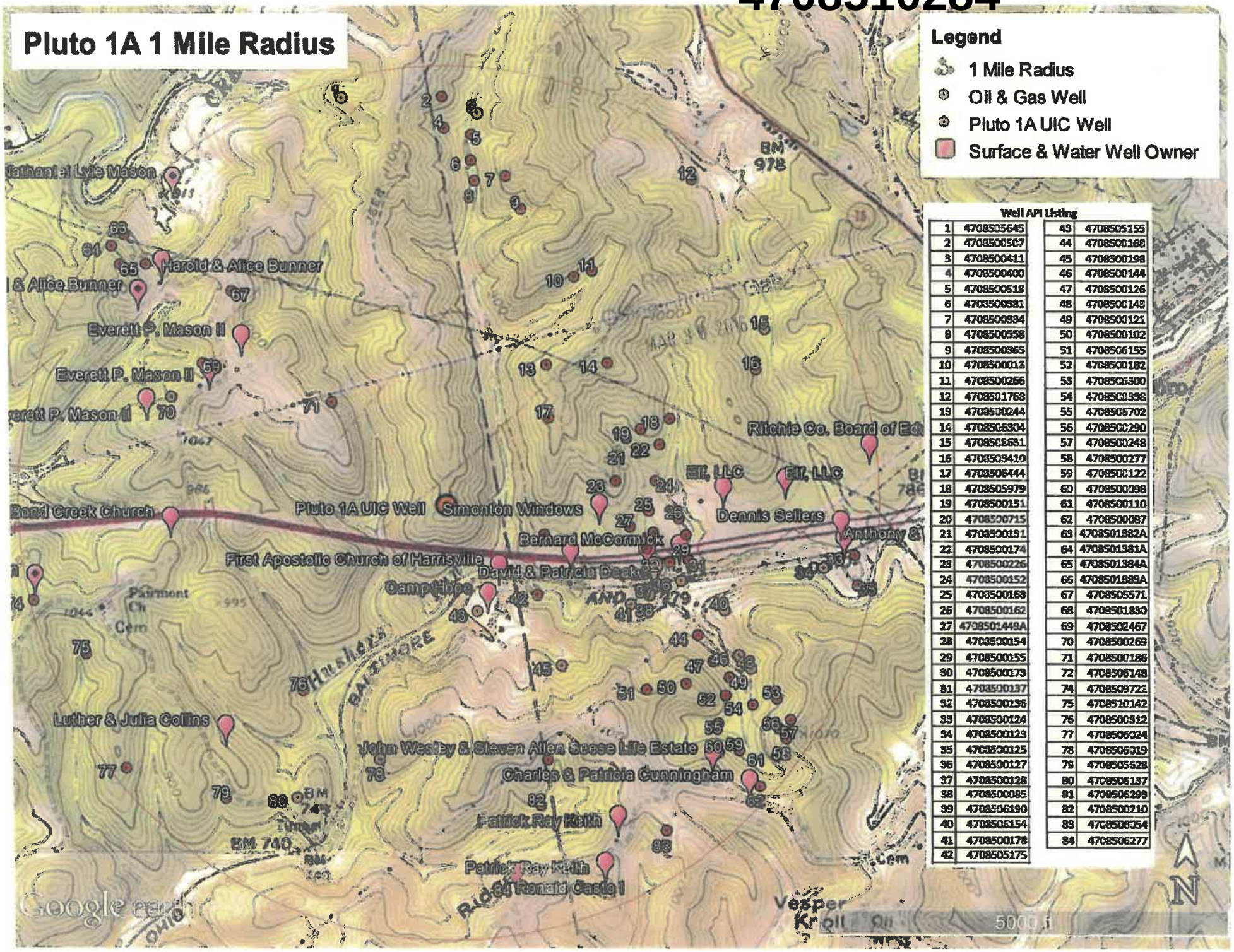
Jay Bee Oil & Gas
DRILLING
into the future

Place Holder

Section 7 - Area of Review

4708510284

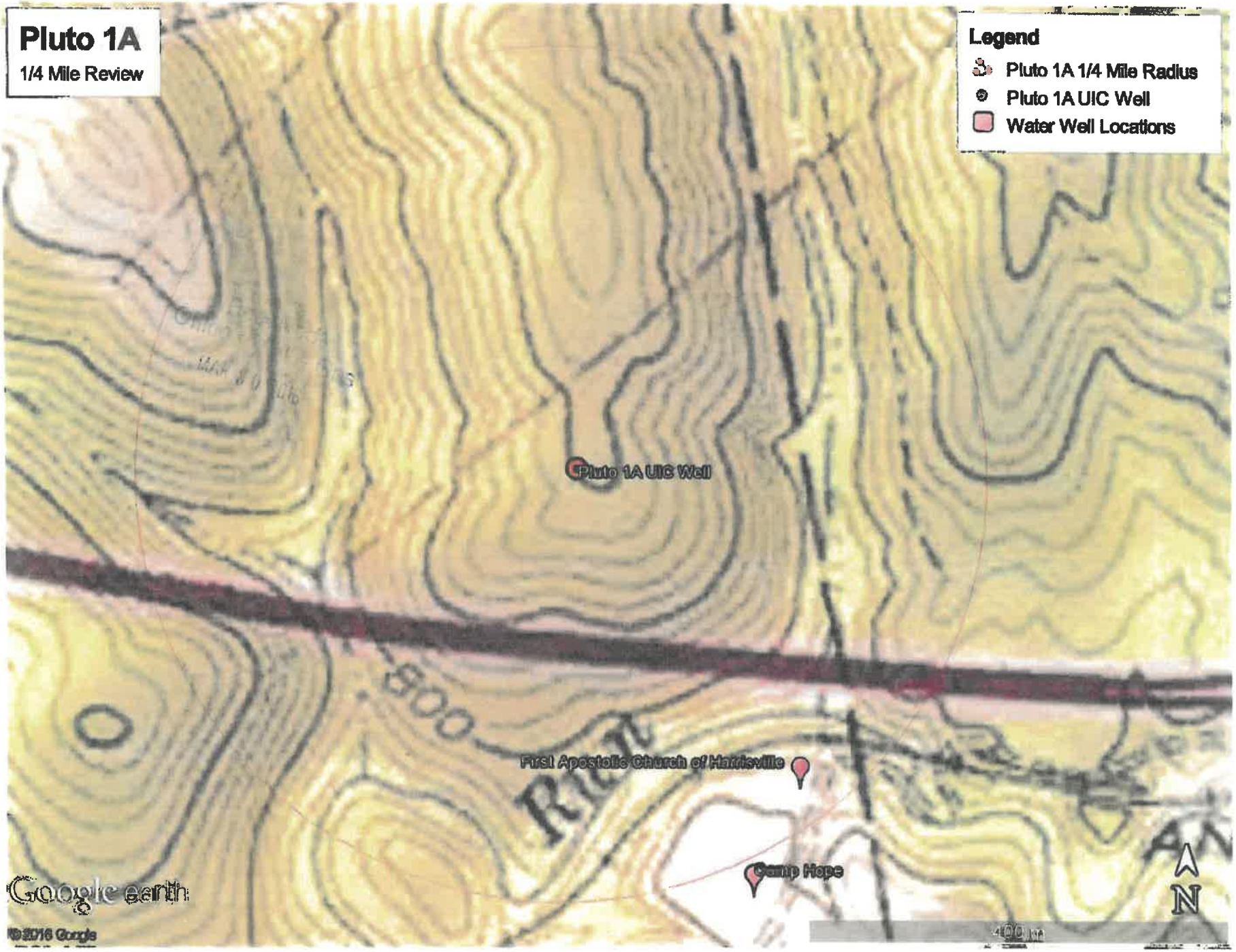
Pluto 1A 1 Mile Radius



Well API Listing

1	4708505645	43	4708505155
2	4708500507	44	4708500168
3	4708500411	45	4708500198
4	4708500400	46	4708500144
5	4708500519	47	4708500126
6	4708500381	48	4708500148
7	4708500334	49	4708500121
8	4708500558	50	4708500102
9	4708500365	51	4708506155
10	4708500013	52	4708500182
11	4708500266	53	4708506300
12	4708501768	54	4708500398
13	4708500244	55	4708506702
14	4708506304	56	4708500290
15	4708506681	57	4708500248
16	4708509410	58	4708500277
17	4708506444	59	4708500122
18	4708505979	60	4708500098
19	4708500151	61	4708500110
20	4708500715	62	4708500087
21	4708500191	63	4708501382A
22	4708500174	64	4708501381A
23	4708500226	65	4708501384A
24	4708500152	66	4708501389A
25	4708500163	67	4708505571
26	4708500162	68	4708501830
27	4708501449A	69	4708502467
28	4708500154	70	4708500269
29	4708500155	71	4708500186
30	4708500173	72	4708506148
31	4708500137	74	4708509722
32	4708500196	75	4708510142
33	4708500124	76	4708500312
34	4708500123	77	4708506024
35	4708500125	78	4708506019
36	4708500127	79	4708505528
37	4708500128	80	4708506137
38	4708500085	81	4708506299
39	4708506190	82	4708500210
40	4708506154	83	4708506354
41	4708500178	84	4708506277
42	4708505175		

4708510284


Pluto 1A
1/4 Mile Review
Legend
Pluto 1A 1/4 Mile Radius
Pluto 1A UIC Well
Water Well Locations
Pluto 1A UIC Well
First Apostolic Church of Hattiesville
Camp Hope
Google earth
© 2016 Google
400 m
N

Appendix C - 1/4 Mile AOR 4708510284

	API #	Name / No.	Easting	Northing	Well Status	Well Type	Penetrate Injection Zone	Penetrate Confining Zone	Surface Elevation	Total Verticle Depth
1	4708505755	Hissem Ball 1	493044.5	4345426.9	Plugged	Gas	N	N	805	5580
2	4708506148	Hosea Grimes 1	492567.2	4345596.5	Active	Gas	N	N	940	5784
3	4708570061	Fox Biddie 1	493007.9	4345583.0	Unknown	Unknown	N	N	Unknown	Unknown
4	4708591223	Unknown	492824.7	4345452.7	Unknown	Unknown	N	N	Unknown	Unknown
5	4708591224	Unknown	492880.4	4346080.8	Unknown	Unknown	N	N	Unknown	Unknown

"Pipeline"

Select County: (085) Ritchie
Enter Permit #: 70061
Get Data Reset

Select datatypes: (Check All)
Location, Production, Plugging, Owner/Completion, Stratigraphy, Sample, Pay/Show/Water, Logs, Btm Hole Loc

Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus" New

WV Geological & Economic Survey:

Well: County = 85 Permit = 70061 Link to all digital records for well

Report Time: Friday, March 29, 2024 1:56:56 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4708570061	Ritchie	70061	Clay	Ellenboro	St. Marys	39.259551	-81.081045	493007.9	4345583

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4708570061	-/-/1922	Original Loc	Completed	Fox Biddie 1						Findley, Frank			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AF
4708570061	-/-/1922	-/-/-						unclassified	unclassified	not available	unknown	unknown								

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

Wireline (E-Log) Information:
* There is no Scanned/Raster Log data for this well

* There is no Digitized/LAS Log data for this well

* There is no Scanned or Digital Logs available for download

There is no Plugging data for this well

There is no Sample data for this well

"Pipeline"

Select County: (085) Ritchie
Enter Permit #: 91222
Get Data Reset

Select datatypes: (Check All)
Location, Production, Plugging, Owner/Completion, Stratigraphy, Sample, Pay/Show/Water, Logs, Btm Hole Loc

Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus" New

WV Geological & Economic Survey:

Well: County = 85 Permit = 91222 Link to all digital records for well

Report Time: Friday, March 29, 2024 2:29:31 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4708591222	Ritchie	91222	Grant	Ellenboro	St. Marys	39.257795	-81.081408	492976.4	4345388.1

There is no Bottom Hole Location data for this well

There is no Owner/Completion data for this well

There is no Owner/Completion data for this well

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

Wireline (E-Log) Information:
* There is no Scanned/Raster Log data for this well

* There is no Digitized/LAS Log data for this well

* There is no Scanned or Digital Logs available for download

There is no Plugging data for this well

There is no Sample data for this well

"Pipeline"

Select County: (085) Ritchie
Enter Permit #: 91223
Get Data Reset

Select datatypes: (Check All)
Location, Production, Plugging, Owner/Completion, Stratigraphy, Sample, Pay/Show/Water, Logs, Btm Hole Loc

Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus" New

WV Geological & Economic Survey:

Well: County = 85 Permit = 91223 Link to all digital records for well

Report Time: Friday, March 29, 2024 2:30:19 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4708591223	Ritchie	91223	Grant	Ellenboro	St. Marys	39.258375	-81.083167	492824.7	4345452.7

There is no Bottom Hole Location data for this well

There is no Owner/Completion data for this well

There is no Owner/Completion data for this well

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

Wireline (E-Log) Information:
* There is no Scanned/Raster Log data for this well

* There is no Digitized/LAS Log data for this well

* There is no Scanned or Digital Logs available for download

There is no Plugging data for this well

There is no Sample data for this well

"Pipeline"

Select County: (085) Ritchie
Enter Permit #: 91224
Get Data Reset

Select datatypes: (Check All)
Location, Production, Plugging, Owner/Completion, Stratigraphy, Sample, Pay/Show/Water, Logs, Btm Hole Loc

Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus" New

WV Geological & Economic Survey:

Well: County = 85 Permit = 91224 Link to all digital records for well

Report Time: Friday, March 29, 2024 2:32:25 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4708591224	Ritchie	91224	Grant	Ellenboro	St. Marys	39.264036	-81.082528	492880.4	4346080.8

There is no Bottom Hole Location data for this well

There is no Owner/Completion data for this well

There is no Owner/Completion data for this well

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

Wireline (E-Log) Information:
* There is no Scanned/Raster Log data for this well

* There is no Digitized/LAS Log data for this well

* There is no Scanned or Digital Logs available for download

There is no Plugging data for this well

There is no Sample data for this well

WR-38
Rev. 5/08

API # 47-085-05755

4708505755

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

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Department, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Hissem-Ball Operator Well No.: 1

LOCATION: Elevation: 804.2 Quadrangle: Ellenboro 7.5
District: Grant County: Ritchie
Latitude: 39.258145 Feet South of NA Deg. NA Min. NA Sec.
Longitude: -81.080619 Feet West of NA Deg. NA Min. NA Sec.

RECEIVED
Office of Oil & Gas
OCT 19 2022
WV Department of
Environmental Protection

Well Type: OIL X GAS X

Company: Haught Energy Corporation
12864 Staunton TPKE
Smithville, WV 26178

Agent: Brian Haught
Permit Issued Date: 6-17-2021

Coal Operator or Owner: NA

Coal Operator or Owner: NA

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Ritchie ss:

Brian Haught and Mike Goff being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well say that said work was commenced on the 21st day of July, 2022, and the well was plugged and filled in the following manner:

SEE ATTACHED AFFIDAVIT

TYPE	FROM	TO	PIPE REMOVED	LEFT
Brine Water	5560	3917	Set Bridge Plugs at 4362' & 3917	4-1/2" Casing
Class A Cement Plug	3917	3290	NA	4-1/2" Casing & 2-3/8 tubing - filled in
Bentonite Gel Spacer	3290	1348	2-3/8" tubing	4-1/2" Casing
Class A Cement Plug	1348	960	4-1/2" Casing	8-5/8" Casing (CTS)
Bentonite Gel Spacer	960	840	4-1/2" Casing	8-5/8" Casing (CTS)
Class A Cement Plug	840	740	4-1/2" Casing	8-5/8" Casing (CTS)
Bentonite Gel Spacer	740	240	4-1/2" Casing	8-5/8" Casing (CTS)
Class A Cement Plug	240	Surface	4-1/2" Casing	8-5/8" Casing (CTS)

Description of monument: 7' Casing with Stamped Aluminum Signage and that the work of plugging and filling said well was completed on the 11th day of August, 2022.

And further deponents saith not.

Sworn and subscribe before me this 5 day of October, 2022

My commission expires: 10/18/2023

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Hannah M Weiford
PO Box 22
Smithville, WV 26178
My Commission Expires October 18, 2023

Hannah M Weiford
Notary Public

Affidavit reviewed by the Office of Oil and Gas: Stephen Mccoy Digitally signed by Stephen Mccoy Date: 2022.10.07 08:14:11 -04'00' Title: WV Oil and Gas Inspector

4708505755

IV-35
(Rev 8-81)

Date December 8, 1982
Operator's
Well No. ONE (#1)
Farm HISSEM - BALL
API No. 47- 085 - 5755

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 805' Watershed HUSHERS RUN
District: Grant County Ritchie Quadrangle Ellenboro 7.5'

COMPANY PANTHER FUEL COMPANY
ADDRESS P. O. Box 850, Bridgeport, WV 26330
DESIGNATED AGENT DONNALLY VILLERS
ADDRESS P. O. Box 647, Weston, WV 26452
SURFACE OWNER Claude C. Hissem
ADDRESS Box 263, Ellenboro, WV 26346
MINERAL RIGHTS OWNER C. C. Hissem
ADDRESS Box 263, Ellenboro, WV 26346
OIL AND GAS INSPECTOR FOR THIS WORK Samuel N. Hersman ADDRESS P. O. Box 66 Smithville, WV 26178
PERMIT ISSUED July 6, 1982
DRILLING COMMENCED September 29, 1982
DRILLING COMPLETED October 6, 1982
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1,010	1,010	to surface
7			
5 1/2			
4 1/2		5,560	600 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Depth 5,950 feet
Depth of completed well 5,580 feet Rotary X / Cable Tools ___
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: ___ Is coal being mined in the area? ___

OPEN FLOW DATA
Producing formation Hamilton Shale Pay zone depth 5,150 to 5,580 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow -0- Bbl/d
Final open flow 500 Mcf/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests 72 hours
Static rock pressure 1,450 psig (surface measurement) after 4 hours shut in
(If applicable due to multiple completion--)
Second producing formation Brallier Shale Pay zone depth 3,950 to 4,200 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow Show Bbl/d
Final open flow 300 Mcf/d Oil: Final open flow Show Bbl/d
Time of open flow between initial and final tests 72 hours
Static rock pressure 650 psig (surface measurement) after 4 hours shut in

(Continue on reverse side)

RITCHIE 5755

4708505755

FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Halliburton 1,018,000 N_2 ? per stage Seven (7) High Volume

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Big Lime	1,648	1,820	
Big Injun	1,830	1,870	Oil and Gas
Berea Cap	2,232		
Gordon Sand	2,445	2,470	Gas
Fifth Sand	2,635	2,645	Gas
Brallier Shale	2,860	4,075	Oil and Gas
Harrell Shale	4,075	5,120	Gas
Hamilton Shale	5,120	5,580	Gas

(Attach separate sheets as necessary)

PANTHER FUEL COMPANY
Well Operator

By:

Date:

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708506148

RECEIVED
SEP 1 1983
OIL & GAS DIVISION
DEPT. OF

IV-35
(Rev 8-81)

Date September 1, 1983
Operator's
Well No. One (1)
Farm Grimes
API No. 47 - 085 - 6148

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 940 Watershed Hushers Run
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Panther Fuel Co.
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
DESIGNATED AGENT Dave Harmer
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
SURFACE OWNER Grimes Heirs
ADDRESS Ellenboro, W.Va.
MINERAL RIGHTS OWNER Grimes Heirs
ADDRESS Ellenboro, W.Va.
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Smithville, W.Va.
PERMIT ISSUED
DRILLING COMMENCED March 23, 1983
DRILLING COMPLETED March 30, 1983
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1,157	1,157	to surface
7			
5 1/2			
4 1/2		5,726	650 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5,990 feet
Depth of completed well 5,784 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 70 feet; Salt 900 feet
Coal seam depths: -- Is coal being mined in the area? --

OPEN FLOW DATA
Producing formation Hamilton Shale Pay zone depth 5,710 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow -0- Bbl/d
Final open flow 470 Mcf/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 880 psig (surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation Harrell Shale Pay zone depth 4,780 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow show Bbl/d
Final open flow 380 Mcf/d Oil: Final open flow show Bbl/d
Time of open flow between initial and final tests -- hours
Static rock pressure -- psig (surface measurement) after -- hours shut in

FORM IV-35
(REVERSE)

4708506148

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

4 stages: Nowsco 750 mscf of N_2 per stage, approximately 40 holes.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Big Lime			1,822	1,870	
Keener Sand			870	1,912	Gas show
Big Injun			1,920	2,032	Show oil & gas
Weir Sandy-Shale			2,122	2,220	Show gas
Gantz Sand			2,260	2,470	
Gordon Sand			2,510	2,550	Show gas
Fifth Sand			2,810	2,820	Show oil & gas
Brallier Shale Top			2,990		
Warren Shale			3,400	3,565	Oil & gas
Brallier Shale Bottom				4,050	Oil & gas
Harrell Shale Top			4,050		Oil & gas
Benson Horizon			4,710	4,780	Gas
Harrell Shale Bottom				5,122	
Hamilton Shale			5,122	5,784	Gas

(Attach separate sheets as necessary)

Panther Fuel Co.
Well Operator

By: _____, Vice President

Date: January 7, 1983

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

Appendix C - Special Condition Wells

	API #	Name / No.	Easting	Northing	Well Status	Well Type	Penetrate Injection Zone	Penetrate Confining Zone	Surface Elevation	Total Verticle Depth
1	4708505571	Everett Mason 2	492149.4	4346579.5	Abandoned	Oil	N	N	1050	4296
2	4708505628	Maxine & Foster Smith	492050.9	4344727.3	Abandoned	Gas	N	N	860	5926
3	4708505645	Everett Mason 1	492601.0	4347319.9	Active	Gas	N	N	950	4514
4	4708505978	EPI 1	493359.8	4345660.3	Abandoned	Gas	N	N	825	Unknown
5	4708505979	EPI 2	493762.8	4346110.9	Active	Oil	N	N	852	6095
6	4708506019	Cross 1	492695.3	4344855.5	Active	Gas	N	N	895	4980
7	4708506024	Smith 2	491680.6	4344824.3	Active	Gas	N	N	930	5059
8	4708506054	Benjamin McVay 2	493761.6	4344580.8	Active	Gas	N	N	1030	3130
9	4708506137	A.J. Rexroad 1-A	492324.7	4344662.6	Abandoned	House Gas	N	N	850	5722
10	4708506148	Hosea Grimes 1	492567.2	4345596.5	Active	Gas	N	N	940	5784
11	4708506154	EPI-7	493955.5	4345418.2	Active	Gas	N	N	858	5021
12	4708506155	EPI-8	493649.3	4345112.4	Active	Gas	N	N	1004	5108
13	4708506190	Russel Richards 1	493649.5	4345434.5	Active	Gas	N	N	770	5520
14	4708506277	H-1378	493203.4	4344402.8	Abandoned	Gas	N	N	1059	4288
15	4708506293	Benjamin McVay 1	493278.6	4344887.2	Active	Gas	N	N	985	5839
16	4708506304	EPI-13	493553.6	4346336.6	Active	Gas	N	N	1039	5010
17	4708506444	EPI-12	493295.8	4346111.3	Abandoned	Gas	N	N	1024	5007
18	4708508631	Dawson-Fox 3	494133.4	4346416.6	Active	Gas	N	N	830	1698

4708505571

RECEIVED

OCT 19 1982

OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

IV-35
(Rev 8-81)

State of West Virginia
Department of Mines
Oil and Gas Division

Date Oct 18, 1982
Operator's
Well No. 2B
Farm Everett Mason
API No. 47 - 085 - 5571

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow X /)

LOCATION: Elevation: 1050 Watershed Bonds Creek
District: Grant County Ritchie Quadrangle Ellenboro

COMPANY Kober Oil, Inc.
ADDRESS Rt. 1, Box 51A, Cairo, WV 26337
DESIGNATED AGENT Durl Fluharty
ADDRESS 425 S. Spring St., Harrisville, WV 26362
SURFACE OWNER Everett Mason - B Farm
ADDRESS Linn, West Virginia 26344
MINERAL RIGHTS OWNER Everett Mason - B Farm
ADDRESS Linn, West Virginia 26344
OIL AND GAS INSPECTOR FOR THIS WORK Sam Hersman ADDRESS Smithville, WV 26178
PERMIT ISSUED April 19, 1982
DRILLING COMMENCED 8-7-82
DRILLING COMPLETED 8-11-82
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
~~13-10"~~ 11-3/4"	216'	216'	Cement to surface
9 5/8			
8 5/8			
7			
5 1/2			
4 1/2	4209'	4209'	600 CTS
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Ohio Shale Depth 2380-4250 feet
Depth of completed well 4209 feet Rotary X / Cable Tools ___
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: ___ Is coal being mined in the area? NO

OPEN FLOW DATA
Producing formation Devonian Ohio Shale 3610-3620 Pay zone depth 3686-3696 feet
Gas: Initial open flow 50 Mcf/d Oil: Initial open flow 0 Bbl/d
Final open flow 25 Mcf/d Final open flow 5 Bbl/d
Time of open flow between initial and final tests 24 hours
Static rock pressure 300 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

(Continue on reverse side)

RIT-5571

FORM IV-35
(REVERSE)

4708505571

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Stage One 3686-3696 1,000,000 scf N2

3610-3620 Stress Frac

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Soil			0	15	
Sandstone & Shale			15	50	
Sandstone & Shale			50	100	
Sandstone & Shale			100	200	
Sandstone & Shale			200	300	
Sandstone & Shale			300	400	
Sandstone & Shale			400	500	
Sandstone & Shale			500	600	
Shale & Sandstone			600	700	
Shale			700	800	
Shale & Sandstone			800	900	
Shale & Sandstone			900	1000	
Shale & Sandstone			1000	1100	
Sandy Siltstone & Shale			1100	1200	
Shale & Sandstone			1200	1300	
Sandstone & Shale			1300	1400	
Sandstone & Shale			1400	1500	
Sandstone & Shale			1500	1600	
Shale & Sandstone			1600	1700	
Sandstone & Shale			1700	1800	
Shale & Sandstone			1800	1850	
Greenbrier Is			1850	1972	
Big Injun			1972	2092	
Siltstone & Shale			2072	2200	
Sandy Siltstone & Shale			2200	2300	
Shale			2300	2374	
Berea			2374	2377	
Devonian Shale			2377	4296	

(Attach separate sheets as necessary)

Kober Oil, Inc.
Well Operator

By: Ronnie E. Kober

Date: October 15, 1982

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708505628

** Please note: this IV-35 will replace original submitted dated 10/18/82.

IV-35
(Rev 8-81)

Date April 4, 1983
Operator's
Well No. #1
Farm Maxine & Foster Smith
API No. 47 - 085 - 5628 Rev.

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil XX / Gas XX / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production XX / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 860' Watershed Hushers Run
District: Grant County Ritchie Quadrangle Ellenboro 7½'

COMPANY Petroleum Development Corporation
ADDRESS P.O. Box 26, Bridgeport, WV 26330
DESIGNATED AGENT Michael L. Edwards
ADDRESS P.O. Box 26, Bridgeport, WV 26330
SURFACE OWNER Alfred Blizzard etal
ADDRESS 735 Westview Dr., Belpre, Ohio 45714
MINERAL RIGHTS OWNER Maxine & Foster Smith
ADDRESS 25 G Cape Shores Dr., Cape Canaveral, FL 32920
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Box 66, Smithville, WV
PERMIT ISSUED
DRILLING COMMENCED 6/28/82
DRILLING COMPLETED 07/11/82
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.	30'	30'	
13-10"	208'	208'	160 sks.
9 5/8			
8 5/8	1848'	1848'	480 sks.
7			
5 1/2			
4 1/2	5891'	5891'	752 sks.
3			
2			
Liners used			

RECEIVED
APR 7 - 1983
OIL AND GAS DIVISION
DEPARTMENT OF MINES

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5900 feet
Depth of completed well 5960 feet Rotary XX / Cable Tools
Water strata depth: Fresh 42 feet; Salt 1076 feet
Coal seam depths: None Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Devonian Shale Pay zone depth 5184-5910 feet
Gas: Initial open flow 800 Mcf/d Oil: Initial open flow 200 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 965 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

Ritchie 5628 Rev.

FORM IV-35
(REVERSE)

4708505628

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

		N_2	CO_2
1st Stage	48 perfs (5184-5910)	795,000 scf	—
2nd Stage	32 perfs (4143-4890)	680,000 scf	20 tons
3rd Stage	36 perfs (2613-3872)	480,000 scf	20 tons

** Frac job completed September 30, 1982.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
K.B.-G.L.			0	10	
Sand, shale, red rock			10	1990	1076' salt water
Squaw			1990	2073	
Sand, shale			2073	2173	
Weir			2173	2240	
Sand, shale			2240	2359	
Sunbury Shale			2359	2371	
Berea			2371	2409	
Sand, shale			2409	2474	
Gantz			2474	2490	
Sand, shale 30'			2490	2502	
Sand, shale 50'			2502	2530	
Sand, shale			2530	2554	
Gordon Stray			2554	2618	
Sand, shale			2618	2640	
Gordon			2640	2652	
Sand, shale			2652	2661	
Huron Shale			2661	2680	
Java			2680	3279	
Angola			3279	4404	
Rhinestreet			4404	4804	
Sonyea			4804	5128	
Genessee			5128	5626	
Marcellus Shale			5626	5739	
			5739	5833	
			5833	5926 T.D.	

(Attach separate sheets as necessary)

Petroleum Development Corporation
Well Operator

By: M. C. Dwarf

Date: April 4, 1983

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4 copies

4708505645

4

IV-35
(Rev 8-81)

Date August 19, 1982
Operator's
Well No. 1-C
Farm Everett Mason
API No. 47 - 085 - 5645

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /).

LOCATION: Elevation: 950'GL Watershed Bonds Creek
District: Grant County Ritchie Quadrangle Ellensboro

COMPANY Kober Oil, Inc.
ADDRESS Route 1 - Box 51A, Cairo, WV 26337
DESIGNATED AGENT Mike Strickland
ADDRESS Rt. 1, Box 51A. Cairo, WV 26337
SURFACE OWNER Everett Mason
ADDRESS Linn, West Virginia
MINERAL RIGHTS OWNER Everett Mason
ADDRESS Linn, West Virginia
OIL AND GAS INSPECTOR FOR THIS WORK Doe Mase ADDRESS Rt. 1, Box 65, Sandridge, WV
PERMIT ISSUED May 11, 1982
DRILLING COMMENCED June 10, 1982
DRILLING COMPLETED June 13, 1982
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
11-3/4 13 3/0"	330'	330'	to surface
9 5/8			
8 5/8	330	330	to sur-face
7			
5 1/2			
4 1/2	4450	4450	1725 KB
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Ohio Shale Depth 4514 feet
Depth of completed well 4514 TD feet Rotary X / Cable Tools ___
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: Pittsburgh Coal 518-522' Is coal being mined in the area? ___

OPEN FLOW DATA
Producing formation Ohio Shale Pay zone depth 3609 feet
Gas: Initial open flow 500 Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow 175 Mcf/d Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure 1200 psig (surface measurement) after 24 hours shut in
(If applicable due to miltiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

PIT 5645

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708505645

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Perforation Intervals 3604 - 3614'KB (40 holes)

Stress frac 10 foot. Nitrogen frac 1,000,000 cubic feet

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Unconsolidated sand, gravel & clay	0	185	
Waynesburg Sand	185	290	
Pittsburgh Coal	518	522	
Murphey Sand	806	835	
First Cow Run	953	962	
Dunkard Sand	1050	1080	
Horseneck Sand	1301	1361	
Second Cow Run Sand	1398	1423	
First Salt Sand	1608	[illegible]50	
Second Salt Sand	1683	1720	
Third Salt Sand	1804	185[illegible]	
Maxton Sand	1866	1902	
Greenbrier Limestone	1910	1923	
Big Injun Sand	1956	2046	
Berea Sandstone	2526	2534	
Ohio Shale	2534	4514	
Total Depth		4514 KB	

(Attach separate sheets as necessary)

KORER Oil, Inc.
Well Operator

By: James E. Hyde

Date: 5-24-82

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including [illegible], encountered in the drilling of a well."

WR-38
Rev. 5/08

API # 47-085-05755

4708505755

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

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Department, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Hissem-Ball Operator Well No.: 1

LOCATION: Elevation: 804.2 Quadrangle: Ellenboro 7.5
District: Grant County: Ritchie
Latitude: 39.258145 Feet South of NA Deg. NA Min. NA Sec.
Longitude: -81.080619 Feet West of NA Deg. NA Min. NA Sec.

RECEIVED
Office of Oil & Gas
OCT 19 2022
WV Department of
Environmental Protection

Well Type: OIL X GAS X

Company: Haught Energy Corporation
12864 Staunton TPKE
Smithville, WV 26178

Agent: Brian Haught
Permit Issued Date: 6-17-2021

Coal Operator or Owner: NA

Coal Operator or Owner: NA

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Ritchie ss:

Brian Haught and Mike Goff being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well say that said work was commenced on the 21st day of July, 2022, and the well was plugged and filled in the following manner:

SEE ATTACHED AFFIDAVIT

TYPE	FROM	TO	PIPE REMOVED	LEFT
Brine Water	5560	3917	Set Bridge Plugs at 4362' & 3917	4-1/2" Casing
Class A Cement Plug	3917	3290	NA	4-1/2" Casing & 2-3/8 tubing - filled in
Bentonite Gel Spacer	3290	1348	2-3/8" tubing	4-1/2" Casing
Class A Cement Plug	1348	960	4-1/2" Casing	8-5/8" Casing (CTS)
Bentonite Gel Spacer	960	840	4-1/2" Casing	8-5/8" Casing (CTS)
Class A Cement Plug	840	740	4-1/2" Casing	8-5/8" Casing (CTS)
Bentonite Gel Spacer	740	240	4-1/2" Casing	8-5/8" Casing (CTS)
Class A Cement Plug	240	Surface	4-1/2" Casing	8-5/8" Casing (CTS)

Description of monument: 7' Casing with Stamped Aluminum Signage and that the work of plugging and filling said well was completed on the 11th day of August, 2022.

And further deponents saith not.

Sworn and subscribe before me this 5 day of October, 2022

My commission expires: 10/18/2023

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Hannah M Weiford
PO Box 22
Smithville, WV 26178
My Commission Expires October 18, 2023

Hannah M Weiford
Notary Public

Affidavit reviewed by the Office of Oil and Gas: Stephen Mccoy Digitally signed by Stephen Mccoy Date: 2022.10.07 08:14:11 -04'00' Title: WV Oil and Gas Inspector

4708505755

IV-35
(Rev 8-81)

Date December 8, 1982
Operator's
Well No. ONE (#1)
Farm HISSEM - BALL
API No. 47- 085 - 5755

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 805' Watershed HUSHERS RUN
District: Grant County Ritchie Quadrangle Ellenboro 7.5'

COMPANY PANTHER FUEL COMPANY
ADDRESS P. O. Box 850, Bridgeport, WV 26330
DESIGNATED AGENT DONNALLY VILLERS
ADDRESS P. O. Box 647, Weston, WV 26452
SURFACE OWNER Claude C. Hissem
ADDRESS Box 263, Ellenboro, WV 26346
MINERAL RIGHTS OWNER C. C. Hissem
ADDRESS Box 263, Ellenboro, WV 26346
OIL AND GAS INSPECTOR FOR THIS WORK Samuel N. Hersman ADDRESS P. O. Box 66 Smithville, WV 26178
PERMIT ISSUED July 6, 1982
DRILLING COMMENCED September 29, 1982
DRILLING COMPLETED October 6, 1982
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1,010	1,010	to surface
7			
5 1/2			
4 1/2		5,560	600 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Depth 5,950 feet
Depth of completed well 5,580 feet Rotary X / Cable Tools ___
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: ___ Is coal being mined in the area? ___

OPEN FLOW DATA
Producing formation Hamilton Shale Pay zone depth 5,150 to 5,580 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow -0- Bbl/d
Final open flow 500 Mcf/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests 72 hours
Static rock pressure 1,450 psig (surface measurement) after 4 hours shut in
(If applicable due to multiple completion--)
Second producing formation Brallier Shale Pay zone depth 3,950 to 4,200 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow Show Bbl/d
Final open flow 300 Mcf/d Oil: Final open flow Show Bbl/d
Time of open flow between initial and final tests 72 hours
Static rock pressure 650 psig (surface measurement) after 4 hours shut in

(Continue on reverse side)

RITCHIE 5755

4708505755

FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Halliburton 1,018,000 N_2 ? per stage Seven (7) High Volume

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Big Lime	1,648	1,820	
Big Injun	1,830	1,870	Oil and Gas
Berea Cap	2,232		
Gordon Sand	2,445	2,470	Gas
Fifth Sand	2,635	2,645	Gas
Brallier Shale	2,860	4,075	Oil and Gas
Harrell Shale	4,075	5,120	Gas
Hamilton Shale	5,120	5,580	Gas

(Attach separate sheets as necessary)

PANTHER FUEL COMPANY
Well Operator

By:

Date:

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

WVGES GEOLOGY UNDERLIES IT ALL "Pipeline"

Select County: (085) Ritchie
Enter Permit #: 5978
Get Data | Reset

Select datatypes: (Check All)
Location | Production | Plugging
Owner/Completion | Stratigraphy | Sample
Pay/Show/Water | Logs | Btm Hole Loc

Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus" New

WV Geological & Economic Survey:

Well: County = 085 Permit = 5978 Link to all digital records for well

Report Time: Wednesday, April 03, 2024 8:45:13 AM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4708505978	Ritchie	5978	Clay	Ellenboro	St. Marys	39.260276	-81.076941	493362	4345663.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4708505978	-/-/-	Original Loc	Completed	Westvaco		EPI-1				Highland Resources, Inc.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT	O_E
4708505978	-/-/-	-/-/-	825	Ground Level	Gooseneck			unclassified	unclassified	not available	unknown	unknown			0		0	0	

There is no Pay data for this well

Production Gas Information: (Volumes in Mcf) *** 2023 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4708505978	Highland Resources, Inc.	1984	6,529	568	504	551	514	836	438	402	704	647	477	316	572
4708505978	Highland School, The	1987	420	0	27	0	0	0	0	0	0	45	62	185	101
4708505978	Highland School, The	1988	2,171	31	98	123	160	180	216	318	320	277	165	192	91
4708505978	Highland Resources, Inc.	1999	88	21	19	20	0	16	2	1	2	2	2	2	1
4708505978	Highland Resources, Inc.	1999	1,064	91	120	85	101	96	86	106	102	105	82	52	38
4708505978	Highland Resources, Inc.	1999	4	1	2	1	0	0	0	0	0	0	0	0	0
4708505978	Highland School, The	2001	22	1	0	1	0	1	0	7	0	0	3	9	0
4708505978	Mountain State Well Tending	2003	44	0	4	3	2	5	4	6	4	7	6	1	2
4708505978	Mountain State Well Tending	2013	339	15	58	32	44	25	49	17	20	23	20	13	23
4708505978	Mountain State Well Tending	2014	289	18	39	23	14	26	16	6	1	47	37	34	28
4708505978	Mountain State Well Tending	2016	338	34	21	32	14	33	20	26	38	39	39	29	13
4708505978	Mountain State Well Tending	2018	85	0	0	0	7	0	0	0	23	23	0	25	7
4708505978	Mountain State Well Tending	2019	60	5	5	5	5	5	5	5	5	5	5	5	5
4708505978	Mountain State Well Tending	2020	78	23	12	10	9	8	4	3	3	3	3	0	0
4708505978	Mountain State Well Tending	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2023 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4708505978	Highland Resources, Inc.	1984	584	50	48	93	97	0	94	18	0	92	0	0	92
4708505978	Highland School, The	1987	106	0	57	0	0	0	0	0	0	49	0	0	0
4708505978	Highland School, The	1988	162	0	0	37	31	0	0	51	0	43	0	0	0
4708505978	Highland Resources, Inc.	1999	5	5	0	0	0	0	0	0	0	0	0	0	0
4708505978	Highland Resources, Inc.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Highland Resources, Inc.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Highland School, The	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2013	12	0	0	12	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2014	10	0	0	10	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2016	11							11					
4708505978	Mountain State Well Tending	2018	33	21	0	0	0	12	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2020	33	21	0	0	0	12	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2023 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4708505978	Mountain State Well Tending	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2016	0												
4708505978	Mountain State Well Tending	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) *** 2023 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4708505978	Mountain State Well Tending	2016	0												
4708505978	Mountain State Well Tending	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4708505978	Mountain State Well Tending	2021	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4708505978	Original Loc	Conemaugh rdbds (ud)	Geolog	830	Reasonable	30	Reasonable	825	Ground Level
4708505978	Original Loc	Allegheny coal (udf)	Geolog	1192	Reasonable	2	Reasonable	825	Ground Level
4708505978	Original Loc	Pottsville coal (ud)	Geolog	1300	Reasonable	2	Reasonable	825	Ground Level
4708505978	Original Loc	Pottsville coal (ud)	Geolog	1509	Reasonable	3	Reasonable	825	Ground Level
4708505978	Original Loc	Miss/Penn boundary	Geolog	1783				825	Ground Level
4708505978	Original Loc	Big Lime	Geolog	1783	Reasonable	0	Reasonable	825	Ground Level
4708505978	Original Loc	Berea Ss	Electric Log	2358	Reasonable	4	Reasonable	835	Kelly Bushing
4708505978	Original Loc	UDev undf:Ber/LoHURN	Electric Log	2362	Reasonable	1095	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Lower Huron	Electric Log	3457	Reasonable	1149	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Java Fm	Electric Log	4606	Reasonable	222	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Angola Sh Mbr	Electric Log	4828	Reasonable	288	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Rhinestreet Sh	Electric Log	5116	Reasonable	493	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Cashaqua Sh Mbr	Electric Log	5609	Reasonable	136	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Middlesex Sh	Electric Log	5745	Reasonable	38	Reasonable	835	Kelly Bushing
4708505978	Original Loc	West River Sh Mbr	Electric Log	5783	Reasonable	62	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Geneseo Sh Mbr	Electric Log	5845	Reasonable	0	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Lo Mahantango	Electric Log	5875	Reasonable	5	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Marcellus Fm	Electric Log	5880	Reasonable	27	Reasonable	835	Kelly Bushing
4708505978	Original Loc	Onondaga Ls	Electric Log	5907	Reasonable	0	Reasonable	835	Kelly Bushing

Wireline (E-Log) Information:
* There is no Scanned/Raster Log data for this well

* There is no Digitized/LAS Log data for this well

* There is no Scanned or Digital Logs available for download

There is no Plugging data for this well

Sample Information:

API	CUT1_TOP	CUT1_BOT	CUT2_TOP	CUT2_BOT	CORE1_TOP	CORE1_BOT	FM1_TOP	FM1_BOT	CORE2_TOP	CORE2_BOT	FM2_TOP	FM2_BOT	SMPL	THN_SEC1	SCAN1	SLAB1	PERM1	THN_SEC
4708505978	240	5930																

4708505979

IV-35
(Rev 8-81)

RECEIVED
OCT 27 1987
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date July 6, 1987
Operator's Well No. #2 - EPF
Farm G. Murphy
API No. 47 - 085 - 5979

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 852.5 Watershed Clay's Run
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Highland Resources, Inc.
ADDRESS P.O. Box 56 Ellenboro, WV
DESIGNATED AGENT T. Stephen Landvoigt
ADDRESS Same
SURFACE OWNER George P. Murphy
ADDRESS Ellenboro, WV
MINERAL RIGHTS OWNER Same
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK
ADDRESS
PERMIT ISSUED 11-82
DRILLING COMMENCED 12-82
DRILLING COMPLETED 1-12-83
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	350	352	70 Sxs
9 5/8			
8 5/8	2100	2100	450 sks
7			
5 1/2			
4 1/2	6050	6050	2 stage, to 2200'
3			
2	4850	4850	
Liners used			

GEOLOGICAL TARGET FORMATION Onondaga Limestone Depth 6195 feet
Depth of completed well 6195 feet Rotary XX / Cable Tools
Water strata depth: Fresh 252 feet; Salt feet
Coal seam depths: Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Squaw, Speechley, Balltown Pay zone depth 1994-2199 feet
Gas: Initial open flow 71 Mcf/d Oil: Initial open flow 26 Bbl/d
Final open flow 67 Mcf/d Final open flow 22 Bbl/d
Time of open flow between initial and final tests 60 hours Days
Static rock pressure 1500 psig(surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation Pay zone depth feet
Gas: Initial open flow Mcf/d Oil: Initial open flow Bbl/d
Final open flow Mcf/d Oil: Final open flow Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure psig(surface measurement) after hours shut in

R.T. 5979

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708505979

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

4999 TO 4230' 395,000 SCF NITROGEN, 13.25 TONS CO_2

4230 TO 3610 425,000 SCF NITROGEN, 20 TONS CO_2

3610 TO 2694 455,000 SCF NITROGEN, 22 TONS CO_2

87 HOLES .39 ENTRY

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SAND	200	230	FRESH WATER
SHALE SILTSTONE	230	1350	
SALT SAND	1350	1380	
SHALE	1380	1600	
2ND SALT SAND	1600	1620	
3RD SALT SAND	1710	1770	
BIG LIME SAND	1870	1960	SHOW OIL/GAS
LIME	2010	2060	
5TH SAND	2640	2660	
UPPER SPEECHLEY	3300	3350	SHOW OIL/GAS
LOWER SPEECHLEY	3420	3490	
1ST BRADFORD	3970	3990	SHOW O/G
2ND BRADFORD	4100	4150	
BENSON	4600	4620	
ELK	5250	5275	
MARCELLUS	5820	5990	SHOW O/G
T.D.	6095		

RECEIVED
OCT 27 1987.
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Well Operator
By: [signature] President
Date: 10/19/87

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

3430

4708506019

IV-35
(Rev 8-81)

RECEIVED
JUL 9 - 1985
OIL & GAS DIVISION
DEPT. OF MINES

State of West Virginia
Department of Mines
Oil and Gas Division

Date July 3, 1985
Operator's
Well No. Cross #1
Farm Cross
API No. 47 - 085 - 6019

WELL OPERATOR'S REPORT OF DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow X /)

LOCATION: Elevation: 895 Watershed Hushers Run
District: Grant County Ritchie Quadrangle Ellenboro 7.5

COMPANY Wayman W. Buchanan
ADDRESS 444 Petroleum Commerce Bldg. San Antonio, TX 78205
DESIGNATED AGENT David Smith
ADDRESS Box 207C, Red House, WV 25168
SURFACE OWNER Ray Cross
ADDRESS 3246 Cliffside Dr. Cincinnati, Ohio 45239
MINERAL RIGHTS OWNER same as above
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hershman ADDRESS Smithville, WV 26178
PERMIT ISSUED 11/18/82
DRILLING COMMENCED 11-26-82
DRILLING COMPLETED 12-31-82
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8		350	Circ.
8 5/8			
7		2000	Circ.
5 1/2			
4 1/2		4700	470 sks.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 4600 feet
Depth of completed well 4980 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 150 feet; Salt 1800 feet
Coal seam depths: none Is coal being mined in the area? no

OPEN FLOW DATA
Producing formation Devonian Shale Pay zone depth 4885-3376' feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow 30 Mcf/d Final open flow 1 Bbl/d
Time of open flow between initial and final tests 24 hours
Static rock pressure 220 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation none Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

(Continue on reverse side)

RIT 6019

FORM IV-35
(REVERSE)

4708506019

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Perforated 4523' - 4885', 34 holes, treated w/22,000# 20/40 sand, used 90 quality foam, total of 92 bbls fluid, 689,000 SCF nitrogen.

Perforated 4007' - 4334', 29 holes, treated w/22,500# 20/40 sand, total of 94 bbls fluid, 674,000 SCF nitrogen.

Perforated 3376' - 3891', 36 holes, treated w/22,500# 20/40 sand, total of 91 bbls fluid, 536,000 SCF nitrogen.

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Red rock & shale	0	372	
Sand	372	415	
Shale	415	675	
Sand	675	752	
Shale	752	896	
Sand	896	934	
Shale	934	1290	
Sand	1290	1315	
Shale	1315	1440	
Sand	1440	1512	
Shale	1512	1600	
Sand	1600	1650	
Shale	1650	1674	
Big Lime	1674	1779	
Big Injun	1779	1804	
Break	1804	1816	
Squaw	1816	1839	
Shale	1839	2185	
Coffee Shale	2185	2208	
Berea	2208	2227	
Shale	2227	4268	
Huron Shale	4268	4567	
Devonian Shale	4567	4980	

(Attach separate sheets as necessary)

WAYMAN W. BUCHANAN
Well Operator

By: D. R. Buchanan

Date: July 3, 1985

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708506024

RECEIVED

FEB 23 1983

OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

IV-35
(Rev 8-81)

Date January 10, 1983
Operator's
Well No. #2
Farm Smith
API No. 47 - 085 - 6024

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil XX / Gas ___ / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 930' Watershed Hushers Run
District: Grant County Ritchie Quadrangle Ellenboro

COMPANY Petroleum Development Corporation
ADDRESS P.O. Box 26, Bridgeport, WV 26330
DESIGNATED AGENT John R. Mitchell
ADDRESS P.O. Box 26, Bridgeport, WV 26330
SURFACE OWNER Alfred Blizzard et al
ADDRESS 735 Westview Dr., Belpre, OH 45714
MINERAL RIGHTS OWNER Maxim & Foster Smith
ADDRESS 2-G Cape Shoren Dr. N., Cape Canavaral, FL 23920
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS P.O. Box 66, Smithville, WV 26178
PERMIT ISSUED 11/18/82
DRILLING COMMENCED November 26, 1982
DRILLING COMPLETED December 3, 1982
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	30	30	Cement to surface
9 5/8			
8 5/8"			
7 5/8	1104	1104	400 sks.
5 1/2			
4 1/2	4992	4992	315 sks.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5900 feet
Depth of completed well 5060 feet Rotary XX / Cable Tools ___
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: None Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Devonian Shale Pay zone depth 2499-4962 feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow 39 Mcf/d Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure 665 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

RIT 6024

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708506024

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

	Perforations	CO_2	N_2	acid
1ST STAGE	4004039-4962)		610,000scf	11bbls
2ND STAGE	25(3473-4017)	19tons	500,000scf	8bbls
3RD STAGE	18(2499-2935)	18.5 tons	500,000scf	17bbls

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
KB-GL			0	10	
sand, shale, Red Rock			10	1808	
Big Lime			1808	1893	
Big Injun			1893	1975	
Squaw			1975	2024	
Sand, shale			2024	2118	
Weir			2118	2192	
sand, shale			2192	2350	
Sunbury Shale			2350	2377	gas check @ 3000' 14/10 thru 1" H_2O
Berea			2377	2398	
Sand, shale			2398	2482	
Gantz			2482	2528	
Sand, shale			2528	2741	
Gordon			2802	3412	gas check @ 4500 14/10 thru 1 H_2O
Huron			3412	4532	
Java			4532	4926	
Angola			4926	5059 TD	

(Attach separate sheets as necessary)

Petroleum Development Corporation
Well Operator

By: John R. Mitchell

Date: February 18, 1983

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708506054

IV-35
(Rev 8-81)

Date June 7, 1983
Operator's
Well No. Two(2)
Farm McVey
API No. 47 - 085 - 6054

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow X /)

LOCATION: Elevation: 1,030 Watershed Hushers Run of Hughes River
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Panther Fuel Co.
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
DESIGNATED AGENT Dave Hamner
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
SURFACE OWNER Bennie McVey
ADDRESS Ellenboro, W.Va.
MINERAL RIGHTS OWNER Bennie McVey et.al.
ADDRESS Ellenboro, W.Va.
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Smithville, W.Va.
PERMIT ISSUED
DRILLING COMMENCED February 17, 1983
DRILLING COMPLETED February 22, 1983
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	30'		
9 5/8			
8 5/8	1,235	1,235	to surface
7			
5 1/2			
4 1/2			
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5,990 feet
Depth of completed well 3,130 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 60 feet; Salt 750 feet
Coal seam depths: -- Is coal being mined in the area? --

OPEN FLOW DATA
Producing formation Brallier Shale Pay zone depth 3,130 feet
Gas: Initial open flow 1.1 Mcf/d Oil: Initial open flow 25 Bbl/d
Final open flow -- Mcf/d Final open flow -- Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 850 psig (surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

(Continue on reverse side)

RT. - 6054

FORM IV-35
(REVERSE)

4708506054

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Natural

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Big Lime	2,005	2,055	
Big Injun	2,075	2,105	Gas
Gantz Sand	2,565	2,595	Gas
Gordon Sand	2,745	2,790	Gas
Fifth Sand	2,863	2,873	Gas
Brallier Shale	2,975	3,130	Gas & Oil
			Natural

(Attach separate sheets as necessary)

Panther Fuel Co.
Well Operator

By:

Date:

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

WR-35

28-Apr-88
API # 47- 85-06137

State of West Virginia
DEPARTMENT OF ENERGY
Division of Oil and Gas

4708506137

Well Operator's Report of Well Work

Farm name: REXROAD, ALAH & JOHN Operator Well No.: 1-A

LOCATION: Elevation: 850.00 Quadrangle: ELLENBORO

District: GRANT County: RITCHIE
Latitude: 14700 Feet South of 39 Deg. 17Min. 30 Sec.
Longitude 1510 Feet West of 81 Deg. 5 Min. 0 Sec.

Company: ENERGEX OIL & GAS CO.
P. O. BOX 905
MARIETTA, OH

Agent: GERALD TOWNSEND

Inspector: SAMUEL HERSMAN
Permit Issued: 01/03/83
Well work Commenced: 01/83
Well work Completed: 01/25/83
Verbal Plugging
Permission granted on: _____
Rotary X Cable _____ Rig
Total Depth (feet) ~~5699'~~ 5722
Fresh water depths (ft) 40'

Salt water depths (ft) 1700'

Is coal being mined in area (Y/N)? N
Coal Depths (ft): _____

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size 11 3/4"	200'	200'	surface 100 sks.
8 5/8"	1524'	1524'	135 sks.
4 1/2"	5689'	5689'	840 cu.ft 555 sks.

RECEIVED
OCT 07 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

OPEN FLOW DATA

Producing formation Dual Completion Pay zone depth (ft) 5270-5678
Gas: Initial open flow -- MCF/d Oil: Initial open flow -- Bbl/d
Final open flow 340 MCF/d Final open flow none Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 1550 psig (surface pressure) after 48 Hours

Second producing formation Java Pay zone depth (ft) 4685-5162
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.

For: ENERGEX OIL & GAS CO. Robert D. Johnson / President

By: _____

Date: 10/3/88

4708506137

22 perfs from 5270 - 5678'
10 perfs from 4685 - 5162'

Nitrogen 2 stage frac with 1500 mcf @ 40 mcf/min.

Sand, Shale, Redrock	0	1700'	
Injun Sand	1700'	1790'	Saltwater - 1725'
Shale	1790'	1830'	
Squaw	1830'	1900'	
Sand, Shale	1900'	2360'	
Berea Sand	2360'	2372'	
Sand, Shale	2372'	2650'	
Gordon Sand	2650'	2680'	
Upper Devonian	2680'	4120'	
Alexander	4120'	4130'	
Devonian	4130'	5430'	
Rhinestreet	5430'	5460'	
Middle Devonian	5460'	5530'	
Marcellus	5530'	5670'	
Shale	5670'	5722'	TD

3708

4708506148

RECEIVED
SEP 1 1983
OIL & GAS DIVISION
DEPT. OF

IV-35
(Rev 8-81)

Date September 1, 1983
Operator's
Well No. One (1)
Farm Grimes
API No. 47 - 085 - 6148

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 940 Watershed Hushers Run
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Panther Fuel Co.
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
DESIGNATED AGENT Dave Harmer
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
SURFACE OWNER Grimes Heirs
ADDRESS Ellenboro, W.Va.
MINERAL RIGHTS OWNER Grimes Heirs
ADDRESS Ellenboro, W.Va.
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Smithville, W.Va.
PERMIT ISSUED
DRILLING COMMENCED March 23, 1983
DRILLING COMPLETED March 30, 1983
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1,157	1,157	to surface
7			
5 1/2			
4 1/2		5,726	650 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5,990 feet
Depth of completed well 5,784 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 70 feet; Salt 900 feet
Coal seam depths: -- Is coal being mined in the area? --

OPEN FLOW DATA
Producing formation Hamilton Shale Pay zone depth 5,710 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow -0- Bbl/d
Final open flow 470 Mcf/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 880 psig (surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation Harrell Shale Pay zone depth 4,780 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow show Bbl/d
Final open flow 380 Mcf/d Oil: Final open flow show Bbl/d
Time of open flow between initial and final tests -- hours
Static rock pressure -- psig (surface measurement) after -- hours shut in

FORM IV-35
(REVERSE)

4708506148

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

4 stages: Nowsco 750 mscf of N_2 per stage, approximately 40 holes.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Big Lime			1,822	1,870	
Keener Sand			870	1,912	Gas show
Big Injun			1,920	2,032	Show oil & gas
Weir Sandy-Shale			2,122	2,220	Show gas
Gantz Sand			2,260	2,470	
Gordon Sand			2,510	2,550	Show gas
Fifth Sand			2,810	2,820	Show oil & gas
Brallier Shale Top			2,990		
Warren Shale			3,400	3,565	Oil & gas
Brallier Shale Bottom				4,050	Oil & gas
Harrell Shale Top			4,050		Oil & gas
Benson Horizon			4,710	4,780	Gas
Harrell Shale Bottom				5,122	
Hamilton Shale			5,122	5,784	Gas

(Attach separate sheets as necessary)

Panther Fuel Co.
Well Operator

By: _____, Vice President

Date: January 7, 1983

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708506154

IV-35
(Rev 8-81)

RECEIVED
OCT 27 1987
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date Aug 6, 1987
Operator's
Well No. EE-7
Farm Wm. McFarland
API No. 47 - 085 - 6154

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Wast - Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 858.27 Watershed Cuny's Run
District: Cuny County Ritchie Quadrangle Ellenboro 7.5

COMPANY Heritage Resources, Inc
ADDRESS P.O. Box 56 Ellenboro, WV
DESIGNATED AGENT T. Scott Conner
ADDRESS Same
SURFACE OWNER Wm. McFarland
ADDRESS Ellenboro, WV
MINERAL RIGHTS OWNER Same
ADDRESS ___
OIL AND GAS INSPECTOR FOR THIS WORK ___
ADDRESS ___
PERMIT ISSUED 1/10/83
DRILLING COMMENCED 6/11/83
DRILLING COMPLETED 6/17/83
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON ___

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	352	352	To Surface
9 5/8			
8 5/8	1910	1910	1000'
7			
5 1/2			
4 1/2	5021	5021	1200'
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Depth 5021 feet
Depth of completed well 5021 feet Rotary XX / Cable Tools ___
Water strata depth: Fresh 752 feet; Salt ___ feet
Coal seam depths: ___ Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Warren Pay zone depth 2022 - 1776 feet
Gas: Initial open flow 70 Mcf/d Oil: Initial open flow ½ Bbl/d
Final open flow 60 Mcf/d Final open flow ½ Bbl/d
Time of open flow between initial and final tests 6 hours
Static rock pressure 520 psig (surface measurement) after 48 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

R-T. 6154

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708506154

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

3513 TO 3530 34 HOLES .39 ENTRY
F/W 90 QUALITY FOAM 2000 GALLONS DIESEL FUEL 100,000 SCF N2 15000 20/40 SAND
RE-FRACED W/ 1,320,000 SCF N2
PLUG BACK TO 3510' PERMANENT PLUG
2062 TO 2786 16 HOLES .39 ENTRY 1,000,000 SCF N2

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SAND	250	270	FRESH WATER
SHALE/SILTSTONE UNDIVIDED	270	1800	
INJUN	1800	1910	
WEIR	2560	2690	SHOW GAS
UPPER SPEECHLEY	3410	3470	
LOWER SPEECHLEY	3520	3550	
1ST BALLTOWN	4110	4152	
2ND BALLTOWN	4252	4300	
~~GORDON~~ BRADFORD	4610	4650	

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DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Well Operator
By: [signature], President
Date: 7/9/87

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

3417

4708506155

IV-35
(Rev 8-81)

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DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date July 6, 1987
Operator's Well No. EPI-2
Farm Wm. McFarland
API No. 47-085-6155

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection __ / Waste Disposal __ /
(If "Gas," Production __ / Underground Storage __ / Deep __ / Shallow __ /)

LOCATION: Elevation: 1004 Watershed Clay's Cr.
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Highland Resources, Inc
ADDRESS P.O. Box 56 Ellenboro, WV
DESIGNATED AGENT T. Stephen Lindeviet
ADDRESS Same
SURFACE OWNER Wm. McFarland
ADDRESS Ellenboro, WV
MINERAL RIGHTS OWNER Same
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK
ADDRESS
PERMIT ISSUED 1/18/83
DRILLING COMMENCED 1/10/83
DRILLING COMPLETED 1/20/83
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	350	350	To Surf
9 5/8			
8 5/8	2100	2100	1200'
7			
5 1/2			
4 1/2	5078	5078	2E.78
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Bradford, Speechley, Balltown Depth 5012-2580 feet
Depth of completed well 5109 feet Rotary X / Cable Tools
Water strata depth: Fresh ____ feet; Salt ____ feet
Coal seam depths: ____ Is coal being mined in the area? NO

OPEN FLOW DATA
Producing formation Bradford Speechley Balltown Pay zone depth 5012-2580 feet
Gas: Initial open flow 12 Mcf/d Oil: Initial open flow ½ Bbl/d
Final open flow 2 Mcf/d Final open flow 16 Bbl/d
Time of open flow between initial and final tests 6 hours
Static rock pressure 1250 psig (surface measurement) after 96 hours shut in
(If applicable due to multiple completion--)
Second producing formation ____ Pay zone depth ____ feet
Gas: Initial open flow ____ Mcf/d Oil: Initial open flow ____ Bbl/d
Final open flow ____ Mcf/d Oil: Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ hours
Static rock pressure ____ psig (surface measurement) after ____ hours shut in

RIT. 6155

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708506155

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

3535 TO 5018 88 HOLES .39 ENTRY
THREE STAGES
STAGE 1 - 5018 - 4360' 343,000 SCF N_2 & 10 TONS CO_2
" 2 - 4360 - 3850' 255,000 SCF N_2 & 14 TONS CO_2
" 3 - 3850 - 3535' 300,000 SCF N_2 & 12 TONS CO_2
RE-FRAC-
4360-3850 - 350,000 SCF N_2 & 10 TONS CO_2

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SAND	250	275	FRESH WATER
SHALE & SILTSTONE	275	1950	
INJUN	1950	2100	SHOW GAS
SHALE	2100	2510	
WEIR	2510	2600	
SHALE	2600	2870	
FIFTH SAND	2870	2830	
SHALE	2830	3290	
UPPER SPEECHLEY	3290	3320	
SHALE	3320	3480	
LOWER SPEECHLEY	3480	3540	
SHALE	3540	3620	
SHALE	3620	4200	
BALLTOWN	4200	4300	
SHALE	4300	5000	
BRADFORD	5000	5030	
T.D.	5108		

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OCT 27 1987
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Well Operator
By: [signature], President
Date: 4/9/87

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

3418

4708506190

IV-35
(Rev 8-81)

Date Jun. 1, 1983
Operator's
Well No. One (1)
Farm Richards
API No. 47 - 085 - 6190

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 770 G.L. Watershed Hushers Run of Hughes River
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Panther Fuel Co.
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
DESIGNATED AGENT Dave Hamner
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
SURFACE OWNER Richards Heirs
ADDRESS Ellenboro, W.Va.
MINERAL RIGHTS OWNER Richards Heirs
ADDRESS Ellenboro, W.Va.
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Smithville, W.Va.
PERMIT ISSUED
DRILLING COMMENCED February 20, 1983
DRILLING COMPLETED February 28, 1983
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1,041	1,041	to surface
7			
5 1/2			
4 1/2		5,472	650 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5,990 feet
Depth of completed well 5,446 feet Rotary X / Cable Tools
Water strata depth: Fresh 80 feet; Salt 980 feet
Coal seam depths: -- Is coal being mined in the area? --

OPEN FLOW DATA
Producing formation Hamilton Shale Pay zone depth 5,446 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow -0- Bbl/d
Final open flow - 575 Mcf/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 965 psig (surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation Harrell Shale Pay zone depth 5,098 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow show Bbl/d
Final open flow 350 Mcf/d Oil: Final open flow show Bbl/d
Time of open flow between initial and final tests -- hours
Static rock pressure -- psig (surface measurement) after -- hours shut in

(Continue on reverse side)

IV-35 - 6190

4708506190

FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

3 stage stimulation: 750,000 mscf of N2 per stage. Forty holes per stage.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water; coal, oil and gas
Big Lime			1,663	1,769	
Big Injun			1,769	1,817	Show oil & gas
Weir Horizon			1,910	2,112	Show gas
Gantz Sand			2,127	2,140	
Gordon Sand			2,386	2,420	
Fifth Sand			2,580	2,690	Show gas
Brallier Shale Top			2,973		Show gas
Warren Shale			3,246	3,312	Show gas & oil
Brallier Shale Bottom				3,976	Show oil & gas
Harrell Shale Top			4,976		Show oil & gas
Benson Horizon			4,532	4,556	Show gas
Harrell Shale Bottom				4,900	
Hamilton Shale			4,900	5,526	Show gas

(Attach separate sheets as necessary)

Panther Fuel Co.
Well Operator

By: Robert Cook

Date:

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708506277

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OIL & GAS DIVISION
DEPT. OF MINES

IV-35
(Rev 8-81)

Date Jar. 27, 1984
Operator's
Well No. H-1378
Farm Francis Seese
API No. 47 - 085 - 6277,

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X/ Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow X /)

LOCATION: Elevation: 1059' Watershed Hushers Run
District: Grant County Ritchie Quadrangle Harrisville, WV

COMPANY Haught, Inc.
ADDRESS Smithville, WV 26178
DESIGNATED AGENT Warren R. Haught
ADDRESS Smithville, WV 26178
SURFACE OWNER Francis & Barbara Seese
ADDRESS Ellenboro, WV 26346
MINERAL RIGHTS OWNER Same
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK Sam Hensman ADDRESS Smithville, WV
PERMIT ISSUED February 21, 1983
DRILLING COMMENCED May 4, 1983
DRILLING COMPLETED
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8		1160	175 sacks
7			
5 1/2			
4 1/2		4182	330 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 3500-4288 feet
Depth of completed well 4288' feet Rotary X / Cable Tools
Water strata depth: Fresh feet; Salt feet
Coal seam depths: None Is coal being mined in the area? NO

OPEN FLOW DATA
Producing formation Devonian Shale Pay zone depth 3872-4100 feet
Gas: Initial open flow 120 Mcf/d Oil: Initial open flow Bbl/d
Final open flow 60 Mcf/d Final open flow 15 Bbl/d
Time of open flow between initial and final tests 24 hours
Static rock pressure 480 psig(surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation Pay zone depth feet
Gas: Initial open flow Mcf/d Oil: Initial open flow Bbl/d
Final open flow Mcf/d Oil: Final open flow Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure psig(surface measurement) after hours shut in

(Continue on reverse side)

RT 6277

FORM IV-35
(REVERSE)

4708506277

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Nitrogen fraced by Nowsco
720,000 SCF Nitrogen
510 Gal. 15% Acid

Perforatons: 21--3872--4100

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Red Rock	Red	Soft	0	32	Hole dusted all the way to T.D.
Slate	Gray	Soft	32	47	
Red Rock	Red	Soft	47	63	
Slate	Gray	Soft	63	109	
Red Rock	Red	Soft	109	138	
Slate	Gray	Soft	138	152	
Red Rock	Red	Soft	152	163	
Slate	Gray	Soft	163	220	
Sand	Gray	Med.	220	288	
Slate	Gray	Soft	288	316	
Sand	Gray	Med.	316	350	
Red Rock	Red	Soft	350	359	
Slate	Gray	Soft	359	460	
Red Rock	Red	Soft	460	501	
Slate	Gray	Soft	501	534	
Sand	Gray	Hard	534	583	
Red Rock	Red	Soft	583	600	
Slate	Gray	Soft	600	680	
Sand	Gray	Hard	680	726	
Red Rock	Red	Soft	726	800	
Slate	Gray	Soft	800	875	
Sand	Gray	Hard	875	910	
Slate	Gray	Soft	910	965	
Sand	Gray	Hard	965	984	
Big Red Rock	Red	Soft	984	1005	
Sand	Gray	Hard	1005	1036	
Slate	Gray	Soft	1036	1055	
Little Dunkard	Gray	Hard	1055	1069	
Slate	Gray	Soft	1069	1084	
Big Dunkard	Gray	Hard	1084	1132	
Slate	Gray	Soft	1132	1156	
Sand	Gray	Hard	1156	1172	
Slate	Gray	Soft	1172	1200	
1st Gas Sand	Gray	Hard	1200	1241	
Slate	Gray	Soft	1241	1288	
2nd Gas Sand	Gray	Hard	1288	1314	
Slate	Gray	Soft	1314	1432	
1st Salt Sand	Gray	Hard	1432	1457	
Slate	Gray	Soft	1457	1624	

(Attach separate sheets as necessary)

Haught, Inc.
Well Operator

By: Warren R. Haught

Date: January 27, 1984

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

FORM IV-35
Page two - Well Log Continued

4708506277

Well No. H-1378
API No. 47-085-6277

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
2nd Salt Sand	Gray	Hard	1624	1649	Gas show @1800'
Shale	Gray	Soft	1649	1829	1949'
Maxon Sand	Gray	Hard	1829	1865	2103'
Lime			1865	1921	3100'
Big Injun	Gray	Hard	1921	2082	4228'
Slate	Gray	Soft	2082	2720	
Berea	Gray	Hard	2720	2754	
Slate	Gray	Soft	2754	3410	
Warren Sand	Gray	Hard	3410	3500	
Devonian Shale	Gray	Soft	3500	4288	T.D.

Haught, Inc.
Well Operator

By: Warren R. Haught, Pres.

Date: Jan. 27, 1984

RIT 6277

4708506293

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IV-35
(Rev 8-81)

Date September 1, 1983
Operator's
Well No. One (1)
Farm McVay
API No. 47 - 085 - 6293

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 985 G.L. Watershed Husher's Run
District: Clay County Ritchie Quadrangle Ellenboro 7.5

COMPANY Panther Fuel Co.
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
DESIGNATED AGENT Dave Harmer
ADDRESS P.O. Box 850, Bridgeport, W.Va. 26330
SURFACE OWNER Bennie McVay
ADDRESS Ellenboro, W.Va.
MINERAL RIGHTS OWNER Bennie McVay
ADDRESS Ellenboro, W.Va.
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Smithville, W.Va.
PERMIT ISSUED
DRILLING COMMENCED March 3, 1983
DRILLING COMPLETED March 11, 1983
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	30		
9 5/8			
8 5/8	1,211	1,211	to surface
7			
5 1/2			
4 1/2		5,766	650 sacks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5,090 feet
Depth of completed well 5,700 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 70 feet; Salt 900 feet
Coal seam depths: -- Is coal being mined in the area? --

OPEN FLOW DATA
Producing formation Hamilton Shale Pay zone depth 5,700 - feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow -0- Bbl/d
Final open flow 475 Mcf/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 925 psig (surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation Harrell Shale Pay zone depth 4,680 feet
Gas: Initial open flow show Mcf/d Oil: Initial open flow show Bbl/d
Final open flow 520 Mcf/d Oil: Final open flow show Bbl/d
Time of open flow between initial and final tests -- hours
Static rock pressure -- psig (surface measurement) after -- hours shut in

(Continue on reverse side)

RIT. 6293

4708506293

FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

4 stages: Nowsco 750 mscf of N_2 per stage, approximately 40 holes.

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Big Lime	1,808	1,942	
Big Injun	1,960	2,050	Show oil & gas
Weir Sandy Shale	2,150	2,240	Show gas
Gantz Sand	2,410	2,422	
Gordon Sand	2,520	2,550	Show gas
Fifth Sand	2,816	2,826	Show oil & gas
Brallier Shale Top	2,970		
Warren Shale	3,475	3,550	Oil & gas
Brallier Shale Bottom		4,070	Oil & gas
Harrell Shale Top	4,070		Oil & gas
Benson Horizon	4,646	4,695	Gas
Harrell Shale Bottom		5,132	
Hamilton Shale	5,132	5,839	Gas

(Attach separate sheets as necessary)

Panther Fuel Co.
Well Operator

By: [signature], Vice President

Date: March 1, 1983

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including

WR-38
Rev. 5/08

API # 47-085-06300

4708506300

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

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Department, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Seese, Harley J Operator Well No.: EPI-004

LOCATION: Elevation: 882' Quadrangle: Ellenboro

District: Clay County: Ritchie

Latitude: ______ Feet South of ______ Deg. ______ Min. ______ Sec.

Longitude: ______ Feet West of ______ Deg. ______ Min. ______ Sec.

Well Type: OIL ______ GAS X

Company WV DEP
601 57th Street, SE
Charleston, WV 25304

Coal Operator or Owner ______

Coal Operator or Owner ______

Agent Kenneth Vannoy

Permit Issued Date 1-10-22

AFFIDAVIT

STATE OF ~~WEST VIRGINIA~~, KY
County of Floyd ss:

Rodney Osborne and Estill Johnson being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well say that said work was commenced on the 14 day of Jan, 2022, and the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
115 sks CAC	4737'	2997'		
20 sks CAC	2058'	1776'	1231' of 4 1/2"	350' of 13 3/8"
50 sks CAC	1309'	1100'		1950' of 8 5/8" (Attempted to pull)
45 sks CAC	907'	750'		3661' of 4 1/2"
160 sks CAC	416'	Surace		
				Perf'd @ 2022, 1917', 1815', 1246',
				406', 319', 222', and 100'

Description of monument: 7" casing w/ API # 36" above ground and that the work of plugging and filling said well was completed on the 8 day of Feb, 2022.

And further deponents saith not. Rodney Osborne (signature)

Estill Johnson (signature)

Sworn and subscribe before me this 9 day of February, 2022

My commission expires: 2/4/26

Stella M Slone (signature)
Notary Public

STELLA M. SLONE
Notary ID # [illegible]
NOTARY PUBLIC
My Comm. Exp. 02-04-2026
STATE AT LARGE, KENTUCKY

Affidavit reviewed by the Office of Oil and Gas: Douglas Newlon Title: Oil & Gas Inspector supervisor

4708506300

4708506300P

IV-35
(Rev 8-81)

RECEIVED
OCT 27 1987
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date July 6, 1987
Operator's
Well No. EH-4
Farm Hailey J. Seese
API No. 47 - 085 - 6300

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 822 Watershed Clays Run
District: Clay County Doddridge Quadrangle Ellenboro 7.5

COMPANY Highland Resources, Inc.
ADDRESS P.O. Box 56 Ellenboro, WV
DESIGNATED AGENT T. Stephen Maxwell
ADDRESS Same
SURFACE OWNER Hailey J. Seese
ADDRESS Ellenboro, WV
MINERAL RIGHTS OWNER Same
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK ___
ADDRESS
PERMIT ISSUED 3/7/83
DRILLING COMMENCED 11/2/83
DRILLING COMPLETED 11/19/83
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	350	350	B Surf
9 5/8			
8 5/8	1950	1950	1200'
7			
5 1/2			
4 1/2	4400	4400	2650'
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Benson Depth 5850 feet
Depth of completed well 5922 feet Rotary X / Cable Tools ___
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: ___ Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Benson, Riley, Alexander Pay zone depth 4660-5474 feet
Gas: Initial open flow 200 Mcf/d Oil: Initial open flow 10 Bbl/d
Final open flow 175 Mcf/d Final open flow 5 Bbl/d
Time of open flow between initial and final tests 5 hours
Static rock pressure 1300 psig (surface measurement) after 48 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

(Continue on reverse side)

4708506300

FORM IV-35
(REVERSE)

4708506300P

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

THREE STAGE -
1ST STAGE - 4666 TO 4370 . 23 Holes .39 Entry 1,000,000 SCF N_2 20 TONS CO_2
2ND STAGE - 4215 TO 3904 21 Holes .39 Entry 962,000 SCF N_2 20 TONS CO_2
3RD STAGE - 3798 TO 3474 23 Holes .35 Entry 1,113,000 SCF N_2 23 TONS CO_2

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SAND	225	235	FRESH WATER
SAND AND SHALE	235	1825	
INJUN	1825	1950	OIL/GAS
SHALE & SILTSTONE	1950	2450	
WEIR	2450	2510	
SHALE & SILTSTONE	2510	2700	
5TH SAND	2700	2715	
SHALE & SILTSTONE	2715	3470	
UPPER SPEECHLEY	3470	3550	
SHALE & SILTSTONE	3550	3600	
LOWER SPEECHLEY	3600	3750	
SHALE & SILTSTONE	3750	3850	
UPPER BALLTOWN	3850	3900	
SHALE & SILTSTONE	3900	4000	
LOWER BALLTOWN	4000	4100	
SHALE & SILTSTONE	4100	4300	
STRAY SAND (?)	4300	4320	
SHALE & SILTSTONE	4320	4625	
BRADFORD	4625	4666	
SHALE & SILTSTONE	4666	5000	
T.D.	5000		

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DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Well Operator
By: Stephen [illegible], President
Date: 7/9/87

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

338°

4708506304

IV-35
(Rev 8-81)

RECEIVED
FEB 16 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date 2/8/88
Operator's
Well No. EPI-13
Farm GEO. MURPHY
API No. 47 - 085 - 6304

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil XX / Gas XX / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 1039 Watershed HUSHER'S RUN
District: CLAY County RITCHIE Quadrangle ___

COMPANY Eagle Production, Inc / Highland Resources
ADDRESS Rt. 83 Box 56 Ellenboro WV 26346
DESIGNATED AGENT T. Stephen Landvoigt
ADDRESS Same
SURFACE OWNER George Murphy
ADDRESS Ellenboro, WV 26346
MINERAL RIGHTS OWNER Same
ADDRESS ___
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hickman ADDRESS Cairo, WV
PERMIT ISSUED 3-07-83
DRILLING COMMENCED 10-25-83
DRILLING COMPLETED 10-28-83
IF APPLICABLE: PLUGGING OF DRY HOLE OR CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON ___

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	350	350	SURF.
9 5/8			
8 5/8	1980	1980	SURF.
7			
5 1/2			
4 1/2			
3-2 7/8	3660	3660	2000 FT.
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 2100 - 5010 feet
Depth of completed well 5010 feet Rotary. X / Cable Tools ___
Water strata depth: Fresh 250 feet; Salt NA feet
Coal seam depths: NA Is coal being mined in the area? ___

OPEN FLOW DATA
Producing formation Devonian Shale Pay zone depth open 3660-Hole 5010 feet
Gas: Initial open flow 100 Mcf/d Oil: Initial open flow 1 Bbl/d
Final open flow 200 Mcf/d Final open flow 10 Bbl/d
Time of open flow between initial and final tests 48 hours
Static rock pressure 1375 psig (surface measurement) after 48 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

RIT 6304

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708506304

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

WELL WAS OPEN HOLE FRACED FROM 3660' – 5010'
W/ 1,250,000 SCF NITROGEN

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DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SURFACE, SANDS & SHALE	0	1880	
BIG LIME	1880	1950	SHOW GAS
BIG INJUN	1980	2070	SHOW OIL/GAS
WEIR SAND	2170	2200	
BEREA SAND	2330	2340	
GANTZ SAND	2430	2450	
GORDON	2635	2650	
DEVONIAN SHALE	2850	5010	VARIOUS SHOWS OIL/GAS

(Attach separate sheets as necessary)

HIGHLAND RESOURCES, INC.
Well Operator
By: Thelma Ludwick, President
Date: 2/8/88

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

4708506444

IV-35
(Rev 8-81)

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DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date 2/8/88
Operator's
Well No. EPI-12
Farm WESTVACO
API No. 47 - 085 - 6444

WELL OPERATOR'S REPORT OF DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil XX / Gas XX / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow ___ /)

LOCATION: Elevation: 1024' Watershed HUGHES RUN
District: CLAY County PRESTON Quadrangle ELLENBORO 7.5

COMPANY EXXON PRODUCTION, INC / HIGHLAND RESOURCES
ADDRESS RT. 88 BOX 56 ELLENBORO, WV 26346
DESIGNATED AGENT T. STEPHEN CANNIOT
ADDRESS SAME
SURFACE OWNER WESTVACO
ADDRESS PARKERSBURG, WV 26101
MINERAL RIGHTS OWNER JOHN BALL
ADDRESS HARMONY ACRES, ST MARYS, WV 26170
OIL AND GAS INSPECTOR FOR THIS WORK SAMUEL HERSHMAN ADDRESS CHICO, WV
PERMIT ISSUED 5-06-83
DRILLING COMMENCED ~~5-29-83~~ 10-29-83
DRILLING COMPLETED 12-7-83
IF APPLICABLE: PLUGGING OF DRY HOLE OR CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON ___

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	255	255	SURF.
9 5/8			
8 5/8	2111	2111	SURF.
7			
5 1/2			
4 1/2	4980	4980	600 SKS.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION DEVONIAN SHALE Depth 2150 - 5007 feet
Depth of completed well 5007 feet Rotary. X / Cable Tools ___
Water strata depth: Fresh 100 feet; Salt NA feet
Coal seam depths: NA Is coal being mined in the area? ___

OPEN FLOW DATA
Producing formation DEVONIAN SHALE Pay zone depth 4340 - 4620 feet
Gas: Initial open flow 10 Mcf/d Oil: Initial open flow ½ Bbl/d
Final open flow 100 Mcf/d Final open flow 10 Bbl/d
Time of open flow between initial and final tests 48 hours
Static rock pressure 1050 psig (surface measurement) after 48 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after: ___ hours shut in

RT 6444

(Continue on reverse side)

FORM IV-35
(REVERSE)

4708506444

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

4290 - 4685 - 23 HOLES .49 ENTRY
FRACED WITH 1,100,000 SCF N_2

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DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SURFACE, SANDS & SHALE	0	1922	
KEENER	1922	1950	SHOW GAS
BIG LIME	ABSENT 1970	2065	SHOW GAS & OIL
BIG INJUN	2160	2200	
WEIR SAND	2330	2340	
BEREA SAND	2440	2450	
GANTZ SAND	2830	2845	SHOW GAS
GORDON SAND	2845	3007	VARIOUS SHOWS OIL & GAS
DEVONIAN SHALE			

(Attach separate sheets as necessary)

HIGHLAND RESOURCES, INC.
Well Operator
By: [signature] President
Date: 2/8/88

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."
3315

WR-35 Revised 10-23-00

4708508631 Revised See back page.

17-Aug-99

API # 47- 85-08631

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

Farm name: FOX, R. E. & M. A. S. Operator Well No.: DAWSON-FOX 3

LOCATION: Elevation: 830.00 Quadrangle: ELLENBORO

District: CLAY County: RITCHIE
Latitude: 9000 Feet South of 39 Deg. 17Min. 30 Sec.
Longitude 7520 Feet West of 81 Deg. 2 Min. 30 Sec.

Company: TERM ENERGY CORP.
713 EAST MAIN STREET
HARRISVILLE, WV 26362-0000

Agent: LEROY BAKER

Inspector: JERRY TEPHABOCK
Permit Issued: 08/17/99
Well work Commenced: 08/24/99
Well work Completed: 01/14/00
Verbal Plugging
Permission granted on: _____
Rotary _____ Cable X Rig
Total Depth (feet) 1698
Fresh water depths (ft) 35'

Salt water depths (ft) None

Is coal being mined in area (Y/N)? N
Coal Depths (ft): _____

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size 10 3/4"	291	291	12osks to surface
7"	1493	1493	63.5 cu. ft.

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Permitting
JUL 12 2000
WV Division of
Environmental Protection

OPEN FLOW DATA

Producing formation Maxon Pay zone depth (ft) 1635-1639
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

Comingled
Second producing formation 3rd salt Pay zone depth (ft) 1524-1543
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 51 MCF/d Final open flow Slow 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.

For: TERM ENERGY CORP.
By: _____ Designated Agent
Date: 8-9-2000 10-23-00

LB 8-25-04

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Office of Chief
AUG 26 2004
WV Department of
Environmental Protection

Well was stimulated as follows:

6 ft Gas gun	1524 - 1530
10ft Gas gun	1533 - 1543
4 ft Gas gun	1635 - 1639

Well Log	Top	Bottom	Water
Sand,shale & RR	0	1218	20' - 1/2" stream
Sand	1218	1285	30' - 2" stream
Slate & shells	1285	1470	
Sand	1470	1479	
Slate & shells	1479	1489	
Sand	1489	1542	
Lime	1542	1564	
Slate & shells	1564	1576	
Lime	1576	1625	
Sand	1625	1649	
Lime	1649	1698	

Geophysical Log	Top	Bottom
3 rd salt	1525	1560
Maxon	1622	1654

Well was reshot on 8-18-2000 as follows:

400# Iremix 664 3.5 X 33.3 1623' - 1654.5

Results of 1/2 BO/day, 50 MCF/day

Rock pressure 120 psig in 20 hours.

4708509721

WR-38
Rev. 5/08

API # 47-085-09721 P

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

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Department, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Mary Mason Operator Well No.: W-1590

LOCATION: Elevation: 1057' Quadrangle: Ellenboro

District: Grant County: Ritchie

Latitude: 12050 Feet South of 39 Deg. 17 Min. 30 Sec.

Longitude: 4460 Feet West of 81 Deg. 05 Min. _____ Sec.

Well Type: OIL _____ GAS _____ INJECTION X

Company FQ Energy Services
28407 SR 7
Marietta, Oh 45750

Agent _____

Permit Issued Date _____

Coal Operator or Owner N/A

Coal Operator or Owner N/A

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of _____ ss:

_____ and _____ being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well say that said work was commenced on the _____ day of _____, 20__, and the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
6% Gel	Spacers	between	Plugs	

Description of monument: _____ and that the work of plugging and filling said well was completed on the _____ day of _____, 20___.

And further deponents saith not. _____

_____

Sworn and subscribe before me this _____ day of _____, 20____

My commission expires: _____

_____
Notary Public

Affidavit reviewed by the Office of Oil and Gas: Michael Daff Title: Oil & Gas Inspector

4708509721

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 4-13-12
API #: 47-085-09721

Farm name: Everett Mason Operator Well No.: W-1598

LOCATION: Elevation: 1057' Quadrangle: Ellenboro

District: Grant County: Ritchie
Latitude: 12050 Feet South of 39 Deg. 17 Min. 30 Sec.
Longitude 4460 Feet West of 81 Deg. 05 Min. 00 Sec.

Company: Haught Energy Corporation

Address: 12864 Staunton TPKE	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Smithville, WV 26178				
Agent: Warren R. Haught	13-3/8"	31'	31'	Existing
Inspector: David Cowan	9-5/8"	321'	321'	Existing
Date Permit Issued: April 6, 2011	7"	2050'	2050'	Existing
Date Well Work Commenced: 2/07/2012	4-1/2"	6103'	6103'	Existing
Date Well Work Completed: 04/13/2012	2 7/8"		5,970'	NA
Verbal Plugging:				
Date Permission granted on:				
Rotary ☐ Cable ☐ Rig ☑				
Total Vertical Depth (ft):				
Total Measured Depth (ft):				
Fresh Water Depth (ft.):				
Salt Water Depth (ft.):				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): NA				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Conversion 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

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

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Office of Oil & Gas
Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

Signature Date 4-13-12

4708509721
85-09721

Were core samples taken? Yes_____ No X Were cuttings caught during drilling? Yes_____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Existing Well

NOTE: IN THE AREA BELOW 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 THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Existing 6044' - 6068'

Packer @ 5,970'

Plug Back Details Including Plug Type and Depth(s): 6,140' to 6,068 - Class A Cement

Formations Encountered: Top Depth / Bottom Depth

Surface:

Existing

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APR 16 2014
WV Department of
Environmental Protection

APPENDIX D

Public Service District Affidavit

Underground Injection Control Permit applicants must identify all publically recorded drinking water sources within a one (1) mile radius of the proposed injection well facility. If no drinking water sources are present within this radius a written affidavit shall be supplied by the local Public Service District (PSD) as ample verification.

"I certify under penalty of law that (state name of business)

Jay-Bee Oil & Gas, Inc.

has verified with the public service district (state name of PSD)

N/A - SEE COVER LETTER

that there are no such publically recorded sources.

_____

(Signature of Authorized Representative)

Sworn and subscribed to before me this _____ day of _____, 20____.

_____, my commission expires _____

(Notary Signature)

_____.

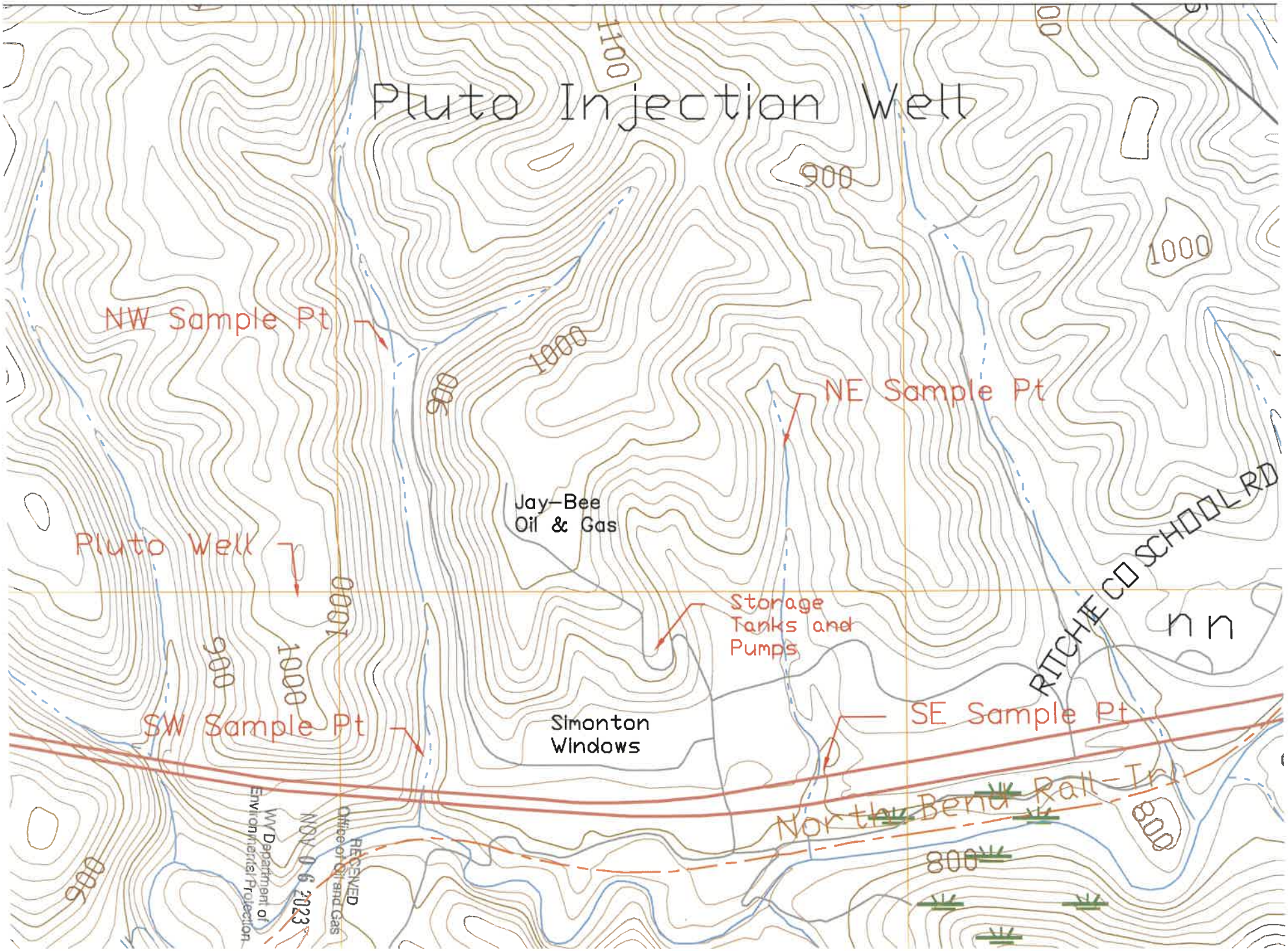
(4/25)

APPENDIX E
Water Sources

Operator: Jay-Bee Oil & Gas, Inc. Year 2023 UIC Permit # 2D08510284001

		Source # 1	Source # 2	Source #	Source #
Water Source Name		Michael Lamb	Camp Hope		
Northing		4,345,498.07	4,345,411.76		
Easting		493,124.61	493,101.14		
Parameter	Units				
TPH - GRO	mg/L	SEE ATTACHED DOCUMENTS			
TPH - DRO	mg/L				
TPH - ORO	mg/L				
BTEX	mg/L				
Chloride	mg/L				
Sodium	mg/L				
Total Dissolved Solids (TDS)	mg/L				
Aluminum	mg/L				
Arsenic	mg/L				
Barium	mg/L				
Iron	mg/L				
Manganese	mg/L				
pH	SU				
Calcium	mg/L				
Sulfate	mg/L				
MBAS	mg/L				
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100mL				

Name	Address	Phone	TM/P
Pearl Everett II & Nathaniel Lyle Mason, or Tenants	P O BOX 235 ELLENBORO WV 26346 0235	304-869-3892	M13 P31, 37.1, 37.2, 38
Harold & Alice Bunner	723 Dogwood Lane	304-869-3710	M13 P37
Bonds Creek Church	Bonds Creek Rd, Ellenboro, WV 26346	304-869-3542	M18 P4
Bonds Creek Youth Center	Bonds Creek Rd, Ellenboro, WV 26346	304-684-7457	M18 P11
Green Hunter	122 Lonesome Pine Rd. Ellenboro, WV 26346	304-374-2251	M18 P11
Fairmont Ridge Church	Bonds Creek & Fairmont Ridge Rd, Ellenboro, WV 26346	none listed	M18 P10
Luther & Julia Collins	RT1 OX 21 KERMIT WV 25674 9703	540-912-9101	M18 P20.3
Ronald L Casto	136 Casto Dr. Ellenboro, WV 26346	304-869-3353	M28 P29.2
Patrick Ray Keith	78 VALLEY MANOR LN WILLIAMSTOWN WV 26187 9781	none listed	M28 P29
Jacob Paul & Donna Griffith	264 Lost Run Rd. Ellenboro, WV 26346	304-869-3514	M28 P5
Steven Allen & John Wesley Seese Life Estate	RT 1 BOX 42 HARRISVILLE WV 26362 9707	none listed	M28 P15
Charles W Cunningham	P O BOX 116 ELLENBORO WV 26346 0235	none listed	M28 P30.1
Camp Hope	601 E MAIN ST HARRISVILLE WV 26362 6313	304-643-2878	M19 P1.1
First Apostolic Church of Harrisville	601 E MAIN ST HARRISVILLE WV 26362 6313	304-643-2878	M28 P1.3
Charles & Penny Copeland	P O BOX 163 ELLENBORO WV 26346 0235	304-869-3053	M28 P61
C&W Logs & Veneer	250 HEBRON RD. ST MARYS. WV. 26170	304-684-9974	M28 P59
David & Patricia Deak	498 Pike Rd. Ellenboro, WV 26346	304-869-3462	M28 P1.2
Bernard McCormick	97 Sellers Lane. Ellenboro, WV 26346	304-869-3329	M28 P2
Simonton Building Products, Inc	1 COCHRANE AVE PENNSBORO WV 26415 9404	304-659-2901	M28 P3
Gerald & Teresa Hall	P O BOX 399 RT 50 W ELLENBORO WV 26346 0399	304-643-2242	M28 P4
Trenton Energy	RT 50, Ellenboro, WV 26346	304-869-3799	M28 P4
Dennis Sellers	303 FIRST ST PENNSBORO WV 26415 1123	304-659-2255	M28 P4.3
Anthony & Anissa Sellers	P O BOX 247 ELLENBORO WV 26346 0235	none listed	M28 P5.1
Kevin & Kathy Jones	PO BOX 334 ELLENBORO WV 26346	none listed	M28 P5
RITCHIE CO BD OF EDUCATION	217 W MAIN ST HARRISVILLE WV 26362 0001	304-643-4136	M2 P86


Pluto Injection Well
NW Sample Pt
NE Sample Pt
SW Sample Pt
SE Sample Pt
Pluto Well
Jay-Bee
Oil & Gas
Storage
Tanks and
Pumps
Simonton
Windows
RITCHIE CO SCHOOL RD
Northbend Rail-In
1100
900
1000
800
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Office of Oil and Gas
NOV 06 2023
WV Department of
Environmental Protection

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

Stream Samples

September 20, 2023

Mr. Joshua Cook
North Central Engineering, LLC
56 Angler Drive
PO Box 628
Bridgeport, WV 26330

RE: Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Dear Mr. Cook:

Enclosed are the analytical results for sample(s) received by the laboratory on September 01, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Beaver
- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nikayla M. Yasurek
nikayla.yasurek@pacelabs.com
(724)850-5600
Project Manager

Enclosures

cc: Mr. Dennis Fisher, North Central Engineering, LLC

Stream Sample

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
ANABISO/IEC 17025:2017 Rad Cert#: L24170
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 2950
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA010
Louisiana DEQ/TNI Certification #: 04086
Maine Certification #: 2023021
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572023-03
New Hampshire/TNI Certification #: 297622
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-015
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN02867
Texas/TNI Certification #: T104704188-22-18
Utah/TNI Certification #: PA014572223-14
USDA Soil Permit #: 525-23-67-77263
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad

Pace Analytical Services Beaver
225 Industrial Park Road, Beaver, WV 25813
Virginia VELAP 460148
West Virginia DEP 060
West Virginia DHHR 00412CM
North Carolina DEQ 466
Kentucky Wastewater Certification KY90039
Pennsylvania DEP 68-00839

REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30618854001	**NW**	Water	09/01/23 09:15	09/01/23 16:25
30618854002	**SW**	Water	09/01/23 09:40	09/01/23 16:25
30618854003	**NE**	Water	09/01/23 10:00	09/01/23 16:25
30618854004	**SE**	Water	09/01/23 10:30	09/01/23 16:25

REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30618854001	**NW**	EPA 200.7	MFC	8	PASI-BV
		SM 2540C-2015	BM1	1	PASI-PA
		SM 4500H+B-2011	CMT	1	PASI-PA
		300.0 Rev.2.1, 1993	JLM	3	PASI-PA
30618854002	**SW**	EPA 200.7	MFC	8	PASI-BV
		SM 2540C-2015	BM1	1	PASI-PA
		SM 4500H+B-2011	CMT	1	PASI-PA
		300.0 Rev.2.1, 1993	JLM	3	PASI-PA
30618854003	**NE**	EPA 200.7	MFC	8	PASI-BV
		SM 2540C-2015	BM1	1	PASI-PA
		SM 4500H+B-2011	CMT	1	PASI-PA
		300.0 Rev.2.1, 1993	JLM	3	PASI-PA
30618854004	**SE**	EPA 200.7	MFC	8	PASI-BV
		SM 2540C-2015	BM1	1	PASI-PA
		SM 4500H+B-2011	CMT	1	PASI-PA
		300.0 Rev.2.1, 1993	JLM	3	PASI-PA

PASI-BV = Pace Analytical Services - Beaver
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Sample: NW **Lab ID: 30618854001** Collected: 09/01/23 09:15 Received: 09/01/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Beaver								
Aluminum	**61.6**	ug/L	20.0	17.7	1	09/11/23 12:39	09/13/23 03:36	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	09/11/23 12:39	09/13/23 03:36	7440-38-2	
Barium	**45.2**	ug/L	5.0	1.4	1	09/11/23 12:39	09/13/23 03:36	7440-39-3	
Calcium	**16000**	ug/L	500	83.1	1	09/11/23 12:39	09/13/23 03:36	7440-70-2	
Iron	**70.2**	ug/L	50.0	34.6	1	09/11/23 12:39	09/13/23 03:36	7439-89-6	
Manganese	**32.1**	ug/L	5.0	2.7	1	09/11/23 12:39	09/13/23 03:36	7439-96-5	
Sodium	**6340**	ug/L	500	345	1	09/11/23 12:39	09/13/23 03:36	7440-23-5	
Strontium	**123**	ug/L	10.0	1.3	1	09/11/23 12:39	09/13/23 03:36	7440-24-6	N2
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2015 Pace Analytical Services - Greensburg								
Total Dissolved Solids	**139**	mg/L	10.0	10.0	1		09/06/23 15:18		
4500H+ pH, Electrometric	Analytical Method: SM 4500H+B-2011 Pace Analytical Services - Greensburg								
pH at 25 Degrees C	**7.6**	Std. Units	2.0	2.0	1		09/08/23 07:53		H3,H6
300.0 IC Anions 28 Days	Analytical Method: 300.0 Rev.2.1, 1993 Pace Analytical Services - Greensburg								
Bromide	ND	mg/L	0.50	0.28	1		09/08/23 18:54	24959-67-9	
Chloride	**7.5**	mg/L	0.50	0.48	1		09/08/23 18:54	16887-00-6	
Sulfate	**8.4**	mg/L	0.50	0.45	1		09/08/23 18:54	14808-79-8	

Sample: SW **Lab ID: 30618854002** Collected: 09/01/23 09:40 Received: 09/01/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Beaver								
Aluminum	**64.2**	ug/L	20.0	17.7	1	09/11/23 12:39	09/13/23 03:42	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	09/11/23 12:39	09/13/23 03:42	7440-38-2	
Barium	**59.5**	ug/L	5.0	1.4	1	09/11/23 12:39	09/13/23 03:42	7440-39-3	
Calcium	**29400**	ug/L	500	83.1	1	09/11/23 12:39	09/13/23 03:42	7440-70-2	
Iron	**58.4**	ug/L	50.0	34.6	1	09/11/23 12:39	09/13/23 03:42	7439-89-6	
Manganese	**6.0**	ug/L	5.0	2.7	1	09/11/23 12:39	09/13/23 03:42	7439-96-5	
Sodium	**6160**	ug/L	500	345	1	09/11/23 12:39	09/13/23 03:42	7440-23-5	
Strontium	**170**	ug/L	10.0	1.3	1	09/11/23 12:39	09/13/23 03:42	7440-24-6	N2
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2015 Pace Analytical Services - Greensburg								
Total Dissolved Solids	**129**	mg/L	10.0	10.0	1		09/06/23 15:18		

REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Sample: SW **Lab ID: 30618854002** Collected: 09/01/23 09:40 Received: 09/01/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric	Analytical Method: SM 4500H+B-2011 Pace Analytical Services - Greensburg								
pH at 25 Degrees C	**7.6**	Std. Units	2.0	2.0	1		09/08/23 07:54		H3,H6
300.0 IC Anions 28 Days	Analytical Method: 300.0 Rev.2.1, 1993 Pace Analytical Services - Greensburg								
Bromide	ND	mg/L	0.50	0.28	1		09/08/23 19:28	24959-67-9	
Chloride	**6.4**	mg/L	0.50	0.48	1		09/08/23 19:28	16887-00-6	
Sulfate	**12.5**	mg/L	2.5	2.3	5		09/08/23 19:45	14808-79-8	

Sample: NE **Lab ID: 30618854003** Collected: 09/01/23 10:00 Received: 09/01/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Beaver								
Aluminum	**570**	ug/L	20.0	17.7	1	09/11/23 12:39	09/13/23 03:44	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	09/11/23 12:39	09/13/23 03:44	7440-38-2	
Barium	**136**	ug/L	5.0	1.4	1	09/11/23 12:39	09/13/23 03:44	7440-39-3	
Calcium	**92400**	ug/L	500	83.1	1	09/11/23 12:39	09/13/23 03:44	7440-70-2	
Iron	**1330**	ug/L	50.0	34.6	1	09/11/23 12:39	09/13/23 03:44	7439-89-6	
Manganese	**727**	ug/L	5.0	2.7	1	09/11/23 12:39	09/13/23 03:44	7439-96-5	
Sodium	**8110**	ug/L	500	345	1	09/11/23 12:39	09/13/23 03:44	7440-23-5	
Strontium	**520**	ug/L	10.0	1.3	1	09/11/23 12:39	09/13/23 03:44	7440-24-6	N2
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2015 Pace Analytical Services - Greensburg								
Total Dissolved Solids	**316**	mg/L	10.0	10.0	1		09/06/23 15:18		
4500H+ pH, Electrometric	Analytical Method: SM 4500H+B-2011 Pace Analytical Services - Greensburg								
pH at 25 Degrees C	**8.1**	Std. Units	2.0	2.0	1		09/08/23 07:55		H3,H6
300.0 IC Anions 28 Days	Analytical Method: 300.0 Rev.2.1, 1993 Pace Analytical Services - Greensburg								
Bromide	ND	mg/L	0.50	0.28	1		09/08/23 20:02	24959-67-9	
Chloride	**7.7**	mg/L	0.50	0.48	1		09/08/23 20:02	16887-00-6	
Sulfate	**4.4**	mg/L	0.50	0.45	1		09/08/23 20:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Stream Sample

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Sample: SE **Lab ID: 30618854004** Collected: 09/01/23 10:30 Received: 09/01/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Beaver								
Aluminum	**156**	ug/L	20.0	17.7	1	09/11/23 12:39	09/13/23 03:46	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	09/11/23 12:39	09/13/23 03:46	7440-38-2	
Barium	**123**	ug/L	5.0	1.4	1	09/11/23 12:39	09/13/23 03:46	7440-39-3	
Calcium	**111000**	ug/L	500	83.1	1	09/11/23 12:39	09/13/23 03:46	7440-70-2	
Iron	**420**	ug/L	50.0	34.6	1	09/11/23 12:39	09/13/23 03:46	7439-89-6	
Manganese	**1170**	ug/L	5.0	2.7	1	09/11/23 12:39	09/13/23 03:46	7439-96-5	
Sodium	**20500**	ug/L	500	345	1	09/11/23 12:39	09/13/23 03:46	7440-23-5	
Strontium	**480**	ug/L	10.0	1.3	1	09/11/23 12:39	09/13/23 03:46	7440-24-6	N2
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2015 Pace Analytical Services - Greensburg								
Total Dissolved Solids	**425**	mg/L	10.0	10.0	1		09/06/23 15:18		
4500H+ pH, Electrometric	Analytical Method: SM 4500H+B-2011 Pace Analytical Services - Greensburg								
pH at 25 Degrees C	**8.0**	Std. Units	2.0	2.0	1		09/08/23 07:57		H3,H6
300.0 IC Anions 28 Days	Analytical Method: 300.0 Rev.2.1, 1993 Pace Analytical Services - Greensburg								
Bromide	ND	mg/L	0.50	0.28	1		09/08/23 20:36	24959-67-9	
Chloride	**24.9**	mg/L	5.0	4.8	10		09/08/23 20:53	16887-00-6	
Sulfate	**40.3**	mg/L	5.0	4.5	10		09/08/23 20:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

QC Batch: 614511
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: BVR 200.7 Metals, Total
Laboratory: Pace Analytical Services - Beaver
Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

METHOD BLANK: 2991936 Matrix: Water
Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	ND	20.0	17.7	09/13/23 03:08	
Arsenic	ug/L	ND	20.0	6.4	09/13/23 03:08	
Barium	ug/L	ND	5.0	1.4	09/13/23 03:08	
Calcium	ug/L	ND	500	83.1	09/13/23 03:08	
Iron	ug/L	ND	50.0	34.6	09/13/23 03:08	
Manganese	ug/L	ND	5.0	2.7	09/13/23 03:08	
Sodium	ug/L	ND	500	345	09/13/23 03:08	
Strontium	ug/L	ND	10.0	1.3	09/13/23 03:08	N2

LABORATORY CONTROL SAMPLE: 2991937

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	2000	2150	107	85-115	
Arsenic	ug/L	2000	2100	105	85-115	
Barium	ug/L	2000	2150	108	85-115	
Calcium	ug/L	40000	42400	106	85-115	
Iron	ug/L	2000	2170	109	85-115	
Manganese	ug/L	2000	2160	108	85-115	
Sodium	ug/L	20000	21300	107	85-115	
Strontium	ug/L	2000	2170	109	85-115	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2991985 2991986

Parameter	Units	30618640002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	2000	2000	4180	3850	136	119	70-130	8	20	M1
Arsenic	ug/L	ND	2000	2000	2020	2010	98	97	70-130	0	20	
Barium	ug/L	1220000	2000	2000	1320000	1250000	5160	1490	70-130	6	20	E,M1
Calcium	ug/L	15100000	40000	40000	15600000	14700000	1210	-909	70-130	6	20	M1
Iron	ug/L	170000	2000	2000	177000	168000	335	-144	70-130	6	20	M1
Manganese	ug/L	5660	2000	2000	8000	7590	117	97	70-130	5	20	
Sodium	ug/L	46200000	20000	20000	50900000	48400000	23500	11400	70-130	5	20	E,M1
Strontium	ug/L	5030000	2000	2000	4860000	4660000	-8580	-18500	70-130	4	20	E,M1, N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
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(724)850-5600

QUALITY CONTROL DATA

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2991987 2991988

Parameter	Units	30620093001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	82.5	2000	2000	2280	2320	110	112	70-130	2	20	
Arsenic	ug/L	<6.4	2000	2000	2180	2210	109	110	70-130	1	20	
Barium	ug/L	86.4	2000	2000	2220	2260	107	109	70-130	2	20	
Calcium	ug/L	101000	40000	40000	138000	143000	93	105	70-130	3	20	
Iron	ug/L	<34.6	2000	2000	2170	2200	108	110	70-130	2	20	
Manganese	ug/L	6.7	2000	2000	2140	2180	107	109	70-130	2	20	
Sodium	ug/L	44000	20000	20000	63500	65600	97	108	70-130	3	20	
Strontium	ug/L	611	2000	2000	2750	2810	107	110	70-130	2	20	N2

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REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

QC Batch: 613415
QC Batch Method: SM 2540C-2015
Analysis Method: SM 2540C-2015
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

METHOD BLANK: 2986014 Matrix: Water
Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/06/23 15:18	

LABORATORY CONTROL SAMPLE: 2986015

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	980	98	85-115	

SAMPLE DUPLICATE: 2986016

Parameter	Units	30618086001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	607	621	2	5	

SAMPLE DUPLICATE: 2986017

Parameter	Units	30619035001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1150	1160	1	5	

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REPORT OF LABORATORY ANALYSIS

Stream Sample

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QUALITY CONTROL DATA

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

QC Batch: 614079
QC Batch Method: SM 4500H+B-2011
Analysis Method: SM 4500H+B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

SAMPLE DUPLICATE: 2989873

Parameter	Units	30618640004 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.0	6.0	0	10	H3,H6

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REPORT OF LABORATORY ANALYSIS

Stream Sample

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

QC Batch: 613489
QC Batch Method: 300.0 Rev.2.1, 1993
Analysis Method: 300.0 Rev.2.1, 1993
Analysis Description: 300.0 IC Anions 28day
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

METHOD BLANK: 2986340 Matrix: Water
Associated Lab Samples: 30618854001, 30618854002, 30618854003, 30618854004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Bromide	mg/L	ND	0.50	0.28	09/08/23 13:03	
Chloride	mg/L	ND	0.50	0.48	09/08/23 13:03	
Sulfate	mg/L	ND	0.50	0.45	09/08/23 13:03	

LABORATORY CONTROL SAMPLE: 2986341

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	2	2.0	99	90-110	
Chloride	mg/L	2	1.9	93	90-110	
Sulfate	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 2990344

Parameter	Units	30618548001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5.0 U	20	20.3	90	90-110	
Chloride	mg/L	730	1000	1620	89	90-110	ML
Sulfate	mg/L	532	1000	1450	91	90-110	

SAMPLE DUPLICATE: 2990345

Parameter	Units	30618548001 Result	Dup Result	RPD	Max RPD	Qualifiers
Bromide	mg/L	5.0 U	ND		20	D3
Chloride	mg/L	730	728	0	20	
Sulfate	mg/L	532	534	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H3	Sample was received or analysis requested beyond the recognized method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
ML	Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Stream Sample

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JB/Pluto Injection Well
Pace Project No.: 30618854

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30618854001	NW	EPA 200.7	614511	EPA 200.7	615009
30618854002	SW	EPA 200.7	614511	EPA 200.7	615009
30618854003	NE	EPA 200.7	614511	EPA 200.7	615009
30618854004	SE	EPA 200.7	614511	EPA 200.7	615009
30618854001	NW	SM 2540C-2015	613415		
30618854002	SW	SM 2540C-2015	613415		
30618854003	NE	SM 2540C-2015	613415		
30618854004	SE	SM 2540C-2015	613415		
30618854001	NW	SM 4500H+B-2011	614079		
30618854002	SW	SM 4500H+B-2011	614079		
30618854003	NE	SM 4500H+B-2011	614079		
30618854004	SE	SM 4500H+B-2011	614079		
30618854001	NW	300.0 Rev.2.1, 1993	613489		
30618854002	SW	300.0 Rev.2.1, 1993	613489		
30618854003	NE	300.0 Rev.2.1, 1993	613489		
30618854004	SE	300.0 Rev.2.1, 1993	613489		

WO# : 30618854

30618854

Stream Sample

Company Name/Address:	Billing Information:
North Central Engineering, LLC P.O. Box 628 Bridgeport, WV 26330	Same
Report to: Joshua Cook	Email To: Jcook@northcentralengineering.com
Project Description: JB/Pluto Injection Well	City/State Collected: Ritchie/ WV — Please Circle: ET
Phone: 3042991583	Client Project # JB — Lab Project #
Collected by (print): Joshua Cook	Site/Facility ID # — P.O. #
Collected by (signature): Immediately Packed on Ice N ___ Y x	Rush? (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day — Date Results Needed — Quote #

Pres Chk

Analysis / Container / Pres

- Chloride
- Bromide
- Strontium
- Barium
- Iron
- Manganese
- Aluminum
- Arsenic
- Sodium
- Calcium
- Sulfate
- PH
- Total Dissolved Solids (TDS)

PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG #
Table #
Acctnum:
Template:
Prelogin:
PM:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
NW	Grab	W		9-1-23	9:15	3		001
SW	"	"		"	9:40	3		002
NE	"	"		"	10:00	3	all	003
SE	"	"		"	10:30	3		004

Received by Pace Greensburg 9-6-23
Therm ID 10 Corr Factor +0.5
Receipt Temp 13
Corrected Temp 13
Correct Preservation Y / N

Received by Pace Beaver
Therm ID 9 Corr Factor +/- 0
Receipt Temp 14
Corrected Temp 14
Correct Preservation Y / N

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ___

Remarks:

pH ___ Temp ___
Flow ___ Other ___

Samples returned via: ___ UPS ___ FedEx ___ Courier ___
Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		X Y N

Relinquished by: (Signature)	Date: 9-1-23	Time: 12:17	Received by: (Signature) JSMM / PACE	9/1/23 12:33
Relinquished by: (Signature) JSMM / PACE	Date: 9/1/23	Time: 15:00	Received by: (Signature) Pace	9/1/23 15:00
Relinquished by: (Signature) Pace	Date: 9/1/23	Time: 16:25	Received for lab by: (Signature) Andy Nicole Pace	Date: 9-1-23 Time: 16:25

Trip Blank Received: Yes / No HCL / MeoH TBR
Temp: 1.5 °C Bottles Received:
If preservation required by Login: Date/Time
Hold: Condition: NCF / OK

RECEIVED Office of Oil & Gas SEP 06 2023 WV Department of Environmental Protection

Nicely's Del. Service 9-5-23 17cc

Nicely's Del. Service 9-5-23 23cc

Nicely's Del. Service 9-6-23 0000

Page 1 of 1

Stream Sample

DC#_Title: ENV-FRM-GBUR-0088 v05_Sample Condition Upon Receipt-Pittsburgh

Effective Date: 07/06/2023

WO# : 30618854

PM: NMY Due Date: 09/26/23

CLIENT: NORTHCENENG

Client Name: North Central Engineering

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ Other

Tracking Number: Drop Off

Initial / Date

Examined By: LA 9-5-23

Labeled By: LA 9-5-23

Temped By: LA 9-5-23

Custody Seal on Cooler/Box Present: ☐ Yes ☒ No Seals Intact: ☐ Yes ☒ No

Thermometer Used: 14 Type of Ice: (Wet) Blue None

Cooler Temperature: Observed Temp 1.3 °C Correction Factor: +0.0 °C Final Temp: 1.3 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	NA	pH paper Lot# 10D083 / D.P.D. Residual Chlorine Lot #
Chain of Custody Present	X			1.
Chain of Custody Filled Out:	X			2.
-Were client corrections present on COC		X		
Chain of Custody Relinquished	X			3.
Sampler Name & Signature on COC:	X			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	X			5.
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):	X			7. 3 days remaining on 9DS
Rush Turn Around Time Requested:		X		8.
Sufficient Volume:	X			9.
Correct Containers Used:	X			10.
-Pace Containers Used		X		BP2V/BP1V=Pace
Containers Intact:	X			11.
Orthophosphate field filtered:			X	12.
Hex Cr Aqueous samples field filtered:			X	13.
Organic Samples checked for dechlorination			X	14:
Filtered volume received for dissolved tests:			X	15:
All containers checked for preservation: exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix	X			16.
All containers meet method preservation requirements:	X			Initial when completed: LA / Date/Time of Preservation / Lot# of added Preservative
8260C/D: Headspace in VOA Vials (> 6mm)			X	17.
624.1: Headspace in VOA Vials (0mm)			X	18.
Trip Blank Present:			X	Trip blank custody seal present? YES or NO
Rad Samples Screened <0.5 mrem/hr.	X			Initial when completed: LA / Date: 9-1-23 / Survey Meter SN: 1563

Comments:

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.
PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.

Qualtrax ID: 55680

Coffman Unit

Tract	Lessors	Map	Parcel	Net AC per JB	Net AC per Antero	Differences	Notes:
D301	Seese Family	11	14	21.3000	21.300	-	We found no discrepanies between JB and Antero Net AC.
D304B1A	Charles Dennison Trust	11	7	13.0000	13.000	-	We found no discrepanies between JB and Antero Net AC.
D302	Hammett Land and Minerals, LLC	11	15,16,32	6.5625	21.966	-15.4035	JB found that the Hammett Land LLC is being overcredited by Antero on Net AC.
D302	Keith C. and Phyllis J. Smith	11	15,16,32	4.1667	6.2505	-2.0838	Jb found that the Smiths are being overcredited by Antero on Net AC.
D302	Ronald Smith	11	15,16,32	1.3889	1.0417	0.3472	JB found Mr. Smith is being under credited by Antero on Net AC.
D302	Roger Smith	11	15,16,32	1.3889	1.0417	0.3472	JB found Mr. Smith is being under credited by Antero on Net AC.
D302	Rhonda Johnson	11	15,16,32	1.3889	1.0417	0.3472	JB found Mrs. Johnson is being under credited by Antero on Net AC.
D302	Alta Boyce	11	15,16,32	1.0417	0	1.0417	Missing from Antero Assignment.
D302	Gordon Myers	11	15,16,32	4.1667	0	4.1667	Missing from Antero Assignment.
D302	Peggy Jo Criss	11	15,16,32	2.0830	2.0287	0.0543	JB Leased in 2023: Held by CHK
D302	Dorothy Oldham Harrison	11	15,16,32	0.0000	1.375	-1.375	Needing documentation showing interest in tract.
D302	Rosanna Gail Criner	11	15,16,32	0.0000	-	-	Needing documentation showing interest in tract
D302	Teresa S. Oldham	11	15,16,32	0.0000	-	-	Needing documentation showing interest in tract.
D302	Sonja Lee Kokosky	11	15,16,32	0.0000	-	-	needing documentation showing interest in tract.
D302	Carole Oldham Hyre	11	15,16,32	0.0000	-	-	Needing documentation showing interest in tract.
D302	Edward Troy Oldham	11	15,16,32	0.0000	-	-	Needing documentation showing interest in tract.
W237	Phyllis C. Greathouse	11	5	0.0340	0	0.034	Tract missing from Antero Assignment and JOA Termination.
W237	Norma Jean Dotson	11	5	0.0340	0	0.034	Tract missing from Antero Assignment and JOA Termination.
W237	Mary C. Dotson	11	5	0.0340	0	0.034	Tract missing from Antero Assignment and JOA Termination.
W237	Kenneth D. Fowler	11	5	0.0340	0	0.034	Tract missing from Antero Assignment and JOA Termination.
W237	Dianna Lauer	11	5	0.0340	0	0.034	Tract missing from Antero Assignment and JOA Termination.
			TOTALS:	**56.6573**	**69.045**		Governing Docs from JB says we should be assigned 56.657 from Antero for JOA to be accurately terminated.

Place Holder

Section 8 - Geological Data on the Injection and Confining Zone

EXHIBITS FROM ORIGINAL APP

DESCRIPTION OF INJECTION ZONES

WELL NAME: Pluto #1A
PERMIT: 47- 85-XXXXX (new permit)
COUNTY: Ritchie
DISTRICT: Clay
QUADRANGLE: Ellenboro 7.5 minute

POTENTIAL ZONE ONE

ORISKANY SAND:

Formation Description:

Oriskany Sandstone. Lower Devonian. Oriskany Series. A prominent ridge-forming sandstone in eastern West Virginia and an important producer of natural gas across the state. It is a target for gas exploration in many parts of the state. Some of the largest gas fields in West Virginia, including Elk-Poca in Jackson County and South Burns Chapel in Monongalia and Preston counties. Sand may be altered by secondary dolomitization of the limestone post deposition. This is where it will appear brown to gray. It can be calcareous to with a small amount of calcium carbonate. It is a quartz-rich sandstone known as an arenite. The sand will be fine to medium grained. In some locations, it can be cherty in the top and may also contain some glauconite at the top of the formation with traces of pyrite throughout. laces it can be all quartz with secondary quartz cementing the grains. However, on some rare occasions the sand grains of the Oriskany are often held only loosely together. It can be productive when discovered needs on a structural high. This makes the Oriskany useful as a source of silica for glass making as well as a natural gas reservoir.

Stratigraphic Description:

The Oriskany Sandstone was deposited about 300 feet below the top of the Onondaga Limestone, which consists of a limestone (Onondaga) and a cherty-limestone or chert (Huntersville). The Oriskany is near the base of the Devonian Era. It was deposited on top of the Helderberg Formation, the basal Devonian. There is no evidence of faulting from the existing data available at this time.

Log Description:

This sandstone will have a low gamma ray, less than 40 units, with a low density and a low neutron density. The formation porosity is likely to peak at 5%, while the permeability is anticipated not to exceed 30 milidarcy.

Depositional Environment:

Deposited early in the Devonian Period, 400 million to 345 million years ago. Close observation of the Oriskany reveals layers of crossbedding, as well as thin interbedded layers of limestone. One of its most recognizable feature may be thin layers containing fossil molds.

DESCRIPTION OF INJECTION ZONES

WELL NAME: Pluto #1A
PERMIT: 47- 85-XXXXX (new permit)
COUNTY: Ritchie
DISTRICT: Clay
QUADRANGLE: Ellenboro 7.5 minute

POTENTIAL ZONE TWO

HELDERBERG FORMATION:

Formation Description:

Helderberg Formation. Basal Devonian. This formation is from 200 to 460 feet thick and is composed of several gradational formations, which are difficult to distinguish from one another due to gradational boundaries:

Licking Creek Limestone Member - Medium gray, medium-grained, medium-bedded limestone, interbedded with chert; fossiliferous; these series of named and unnamed formation range in thickness 15 to 30 feet:

New Creek Limestone Member - Medium gray, thick-bedded, coarse-grained limestone; fossiliferous; thickness 9 to 10 feet. Medium gray, medium-grained limestone near top; bedded black chert and thin-bedded limestone in middle; silty argillaceous limestone and shale near base; contains tongues of Shriver and Mandata; The overall thickness of this interval can be 110 feet:

Mandata Shale Member - Dark brown to black, thin-bedded shale; fossiliferous; thickness 20 to 30 feet in the study region:

Corriganville Limestone Member (Head) - Limestone can grade to a calcarous sandstone; thickness 10 to 18 feet.; and,

Keyser Limestone - Dark gray, irregular bedding from thin to thick intervals, fine- to coarse-grained calcarenite; contains nodular limestone, dolomitic limestone, and calcarous shale; cherty near top; fossiliferous.

Stratigraphic Description:

The top of this formation was deposited directly under the base of the Oriskany Sandstone. Since it is a limey deposit within a limestone sequence it may contain several different formations, including but not limited to New Creek Limestone, Mandata Shale, Corriganville Limestone, and the Keyser Limestone. Therefore, because of the common characteristics and appearance of these formations range in thickness from about 200 feet to almost 460 feet thick. The Helderberg

Formation was deposited on the Tonoloway Formation from the Salina Group. There is no evidence of faulting from the existing data available at this time.

Log Description:

This series of limestones and shale will have a low gamma ray, less than 30 units, with a low density and a low neutron density. The conglomerate of all of these formations, it is likely that the highest porosity to be 4%, while the highest anticipated permeability is unlikely to exceed 20 milidarcy. Intervals of porosities and permeabilities are created or enhanced by natural occurring fractures.

Depositional Environment:

These formations were deposited in a deep water environment with a limited amount of fine grained sediments. The result was mostly limestones with a few shaly intervals.

DESCRIPTION OF INJECTION ZONES

WELL NAME: Pluto #1A
PERMIT: 47- 85-XXXXX (new permit)
COUNTY: Ritchie
DISTRICT: Clay
QUADRANGLE: Ellenboro 7.5 minute

POTENTIAL ZONE THREE

NEWBERG SAND (WILLIAMSPORT SANDSTONE):

Formation Description:

Newberg Sandstone (Williamsport Sandstone). Middle to Upper Silurian; The Bloomsburg Group; This formation is a resistant quartz-rich sandstone or a granular to vuggy dolomite, which weathers light brown. Eroded surface is greenish-brown, while fresh surfaces may be white or chalky. The formation is composed of carbonate or quartz sand along an erosional surface and later lithified to porous and permeable sandstone; Be aware of sour gas while drilling through interval.

Stratigraphic Description:

This sandstone was deposited at the base of the "Big Lime" Sequence, which begins with Onondaga Limestone. The sandstone was deposited on top of the Niagara Group with almost always begins with a shale. There is no evidence of faulting from the existing data available at this time.

Log Description:

This sandstone will have a low gamma ray, less than 40 units, with a low density and a low neutron density. The highest anticipated porosity is about 7% with an anticipated permeability of at most 50 millidarcy. A fracture-induced porosity along thrust faults developed during the Allegheniun orogeny;

Depositional Environment:

This sand deposit reflects a brief raise to a relatively shallow depositional environment before it slowly reseeds back down. At some localities a zone of ostracods can be found at the base but more often the formation contains dissolution of fossils within Silurian reef complexes;

DESCRIPTION OF CONFINING ZONE

WELL NAME:	Pluto #1A
PERMIT:	47- 85-XXXXX (New Permit)
COUNTY:	Ritchie
DISTRICT:	Clay
QUADRANGLE:	Ellenboro 7.5 minute

ONONDAGA FORMATION

Confining Layer for: Oriskany Sandstone

Formation Description:

This formation is likely between 180 feet to 280 feet thick. It is composed of limestone and/or a cherty-lime or limestone. Lower Devonian carbonate platform facies, this limestone sequence can also be gray or grayish-blue compact crystalline or crinoidal limestone. May also have some calcareous fine-grained sandstone at its base grading into the Oriskany readily recognized by peculiar mineral characters and fossils. The formation may also have some of fine-grained, dark gray arenaceous rock with well developed slaty cleavage. There is no evidence of faulting from the existing data available at this time. This is an excellent confining layer.

Primary Rock Type: Limestone

Secondary Rock Type: Chert

Log Description:

This limestone will have a low gamma ray, less than 30 units, with a low density and a low neutron density. The formation porosity is likely to peak at 2%, while the permeability is anticipated not to exceed 10 millidarcy.

Depositional Environment:

Lower Devonian. This formation was deposited as a calcarenitic to cherty to argillaceous limestones and minor shales deposited in a shallow epicontinental sea.

DESCRIPTION OF CONFINING ZONE

WELL NAME: Pluto #1A
PERMIT: 47- 85-XXXXX (New Permit)
COUNTY: Ritchie
DISTRICT: Clay
QUADRANGLE: Ellenboro 7.5 minute

HELDERBERG FORMATION:

Bottom Confining Layer for: Oriskany Sandstone and Helderberg Formation

Formation Description:

Helderberg Formation. Basal Devonian. This is an excellent confining layer. This group has a total in interval thickness 200 to 460 feet and is composed of several gradational formations, described as follows:

Licking Creek Limestone Member - Medium gray, medium-grained, medium-bedded limestone, interbedded with chert; fossiliferous; these series of named and unnamed formation range in thickness 15 to 30 feet:

New Creek Limestone Member – The formation is 9 to 10 feet thick, composed medium gray, thick-bedded, medium to coarse-grained limestone; fossiliferous; Medium gray, limestone near top; bedded black chert and thin-bedded limestone in middle; silty argillaceous limestone and shale near base; contains tongues of Shriver and Mandata. Total interval thickness is 110 feet:

Mandata Shale Member – It is anticipated this formation is thickness 20 to 30 feet in west, dark brown to black, thin-bedded shale and fossiliferous can be within the New Creek Limestone:

Corriganville Limestone Member - This formation is anticipate to be about 10 to 18 feet thick. Predominately a limestone with a fine to medium grain calcareous limestone:

Keyser Limestone - Dark gray, irregular bedding thickness, fine to coarse-grained calcareous, contains nodular limestone, dolomitic limestone, and calcareous shale; cherty near top fossiliferous.

There is no evidence of faulting from the existing data available at this time. This is an excellent confining layer.

Primary Rock Type: Limestone

Secondary Rock Type: None

Stratigraphic Description:

The Siluro-Devonian Helderberg Group is a carbonate interval stratigraphically between these two units. It has minor interbedded silici-clastics and chert with minor interbedded. The top of this formation was deposited directly under the base of the Oriskany Sandstone. Since it is a limey deposit within a limestone sequence consisting of several different formations, including but not limited to New Creek Limestone, Mandata Shale, Corriganville Limestone, and the Keyser Limestone. The Helderberg Formation was deposited on the Tonoloway Formation or formation within the Salina Group.

Log Description:

This series of limestones and shale will have a low gamma ray, less than 30 units, with a low density and a low neutron density. The conglomerate of all of these formations, it is likely that the highest porosity to be 5%, which could be a completed interval for injection. Most of the interval will have porosities of less than 3%. The highest anticipated permeability is unlikely to exceed 20 millidarcy, even in the area of completion.

Depositional Environment:

These formations were deposited in a deep water environment with varying sediments. The result was mostly limestones with a few shaly intervals. The Helderberg was deposited in an ancient epeiric sea.

CONFINING LAYER

WELL NAME: Pluto #1A
PERMIT: 47- 85-XXXXX (New Permit)
COUNTY: Ritchie
DISTRICT: Clay
QUADRANGLE: Ellenboro 7.5 minute

SALINA LIMESTONE

Top Confining Layer for: Newberg Sandstone

Formation Description:

Salina Group (Silurian): This group is composed of a series of formations, including limestone, calicites, dolomites to anhydrites. In some cases, there is even includes some minable salts deposited between the dolomites and the anhydrites. It should be noted that these salts can be very plastic within the rocks resulting in the formation acting as a sealant zone. It is unlikely that the salt beds were deposited this far southwest. These formations will vary from dolomitic, gray, yellow-gray to olive-gray, sometimes can be very dark almost black. Formations can be laminated to thin bedded; occasional thin bed and laminae of dark gray shale and anhydrite and/or gypsum; brecciated zones in part. There is no evidence of faulting from the existing data available at this time. This is an excellent confining layer.

Besides the Salina formations there are two Keyser and Tonoloway Formations, undivided - In descending order: Keyser Formation is a medium-gray, crystalline to nodular, fossiliferous limestone; and, the Tonoloway Formation is a medium-gray, laminated, mud-cracked limestone containing some medium-dark- or olive-gray shale interbeds. The lower part passes into Wills Creek Formation east and south.

Primary Rock Type: Limestone

Secondary Rock Type: Dolomite and Anhydrites

Depositional Environment:

These formations were deposited in a continuous deep sea, leaving many of them easily identified and relatively continuous across the basin, and they contain beds of dark gray to black shale and (or) black argillaceous limestone and dolomite.

Stratigraphic Description:

The uppermost 60 feet of the Silurian, Salina Group contains a variety of limestones. Lower most is in direct contact with the Wills Creek which is probably conformable. Upper contact is conformable and undulatory, occurring at the base of the "calico" limestone of the Keyser Formation. This section of the Silurian contains Upper Silurian, Salina Group, including Wills Creek Formation and Tonoloway Limestone.

Log Description:

This series of limestones and shale will have a low gamma ray, less than 30 units, with a low density and a low neutron density. The conglomerate of all of these formations, it is likely that the highest porosity to be 3%, while the highest anticipated permeability is unlikely to exceed 20 millidarcy.

CONFINING LAYER

WELL NAME: Pluto #1A
PERMIT: 47- 85-XXXXX (New Permit)
COUNTY: Ritchie
DISTRICT: Clay
QUADRANGLE: Ellenboro 7.5 minute

NIAGARA SERIES

Bottom Confining Layer for: Newberg Sandstone

Formation Description:

Lockport Group – Lockport Dolomite: Silurian Era, Niagara Series, Eramosa Member

The Niagara Series is composed of a group of formations, including limestone, calicites, dolomites to anhydrites. In some cases there is even salts deposited between the dolomites and the anhydrites. Dolomite, gray, yellow-gray to olive-gray, sometimes can be very dark almost black. Formation can be laminated to thin bedded; occasional thin bed and laminae of dark gray shale and anhydrite and/or gypsum; brecciated zones in part. There is no evidence of faulting from the existing data available at this time. This is an excellent confining layer.

Primary Rock Type: Limestone

Secondary Rock Type: Shale

Depositional Environment:

These formations were deposited in a continuous deep sea, leaving many of them easily identified and relatively continuous across the basin,

Stratigraphic Description:

The revised Lockport or Eramosa consists of massive, pale brownish-weathering, vuggy, nearly pure biostromal dolomite at the top with intervals of sparsely fossiliferous, medium-bedded, flaggy-weathering, brownish-gray, bituminous dolomite and stromatolite bioherms. This formation grades from calcareous shales to thin beds of limestone or dolomites. There can be some coarse crystalline intervals with the middle to lower sections. This formation can be divided into six informal units:

Unit A is about 8 feet thick, massive, biostromal dolomite characterized by thickets of ramose tabulate coral and abundant white chert nodules.

Unit B is about 20 feet thick, fine-grained, sparsely fossiliferous and bituminous dolomite that weathers medium-bedded to flaggy.

Unit C is similar to unit A, consists of tabulate coral biostromes and masses of stromatolites. It is massive or thick-bedded, brownish-weathering, saccroidal dolomite with large vugs.

Unit D is about 17 feet thick flaggy, it is weathered, dark brownish-gray, non-fossiliferous, saccroidal dolomite with a middle massive interval that contains coral.

Unit E is about 2 feet thick marker bed of light-gray, laminar, stromatolitic dolomite.

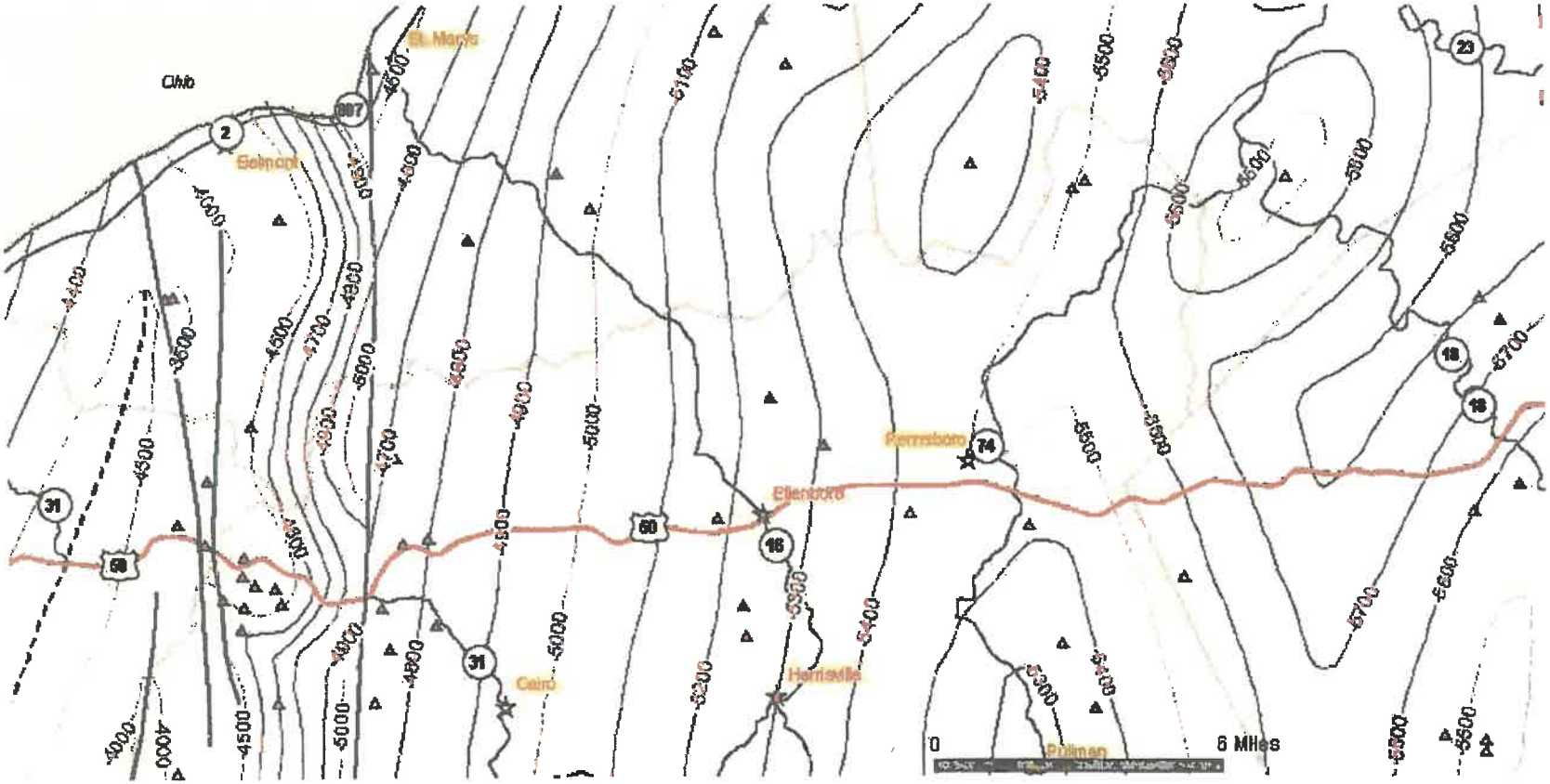
Unit F is similar to unit D, is about 8 feet thick composed of medium-grained, olive-gray dolomite that locally contains scattered oolites and corals.

The total thickness of the Eramosa is about 50 feet.

Log Description:

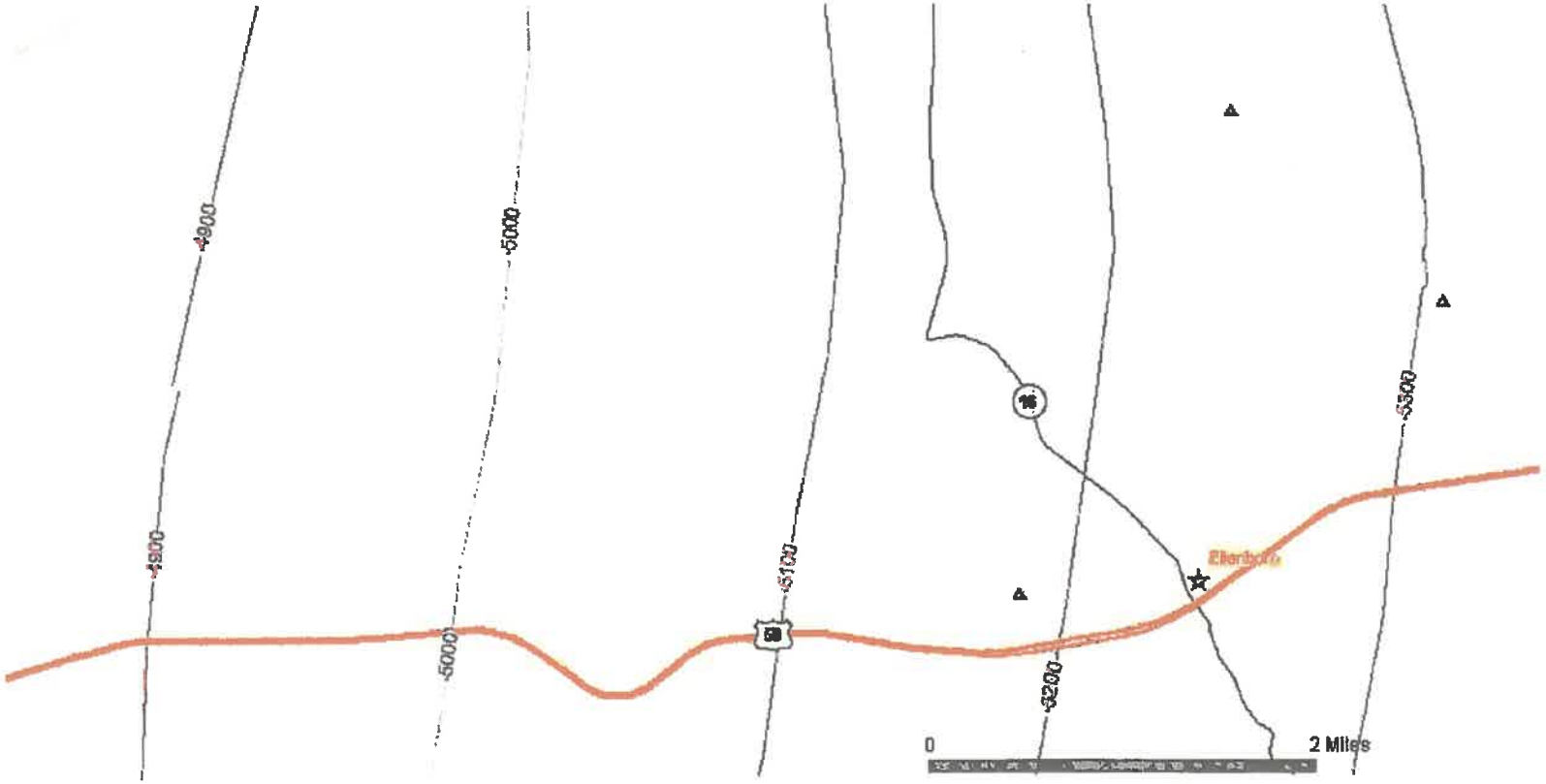
This series of limestones and shale will have a low gamma ray, less than 50 units, with a low density and a low neutron density. The conglomerate of all of these formations, it is likely that the highest porosity to be 4%, while the highest anticipated permeability is unlikely to exceed 20 milidarcy.

STRUCTURE MAP BASED ON THE TOP OF THE ONONDAGA FROM WVGS WEBSITE



REGIONAL STRUCTURE MAP

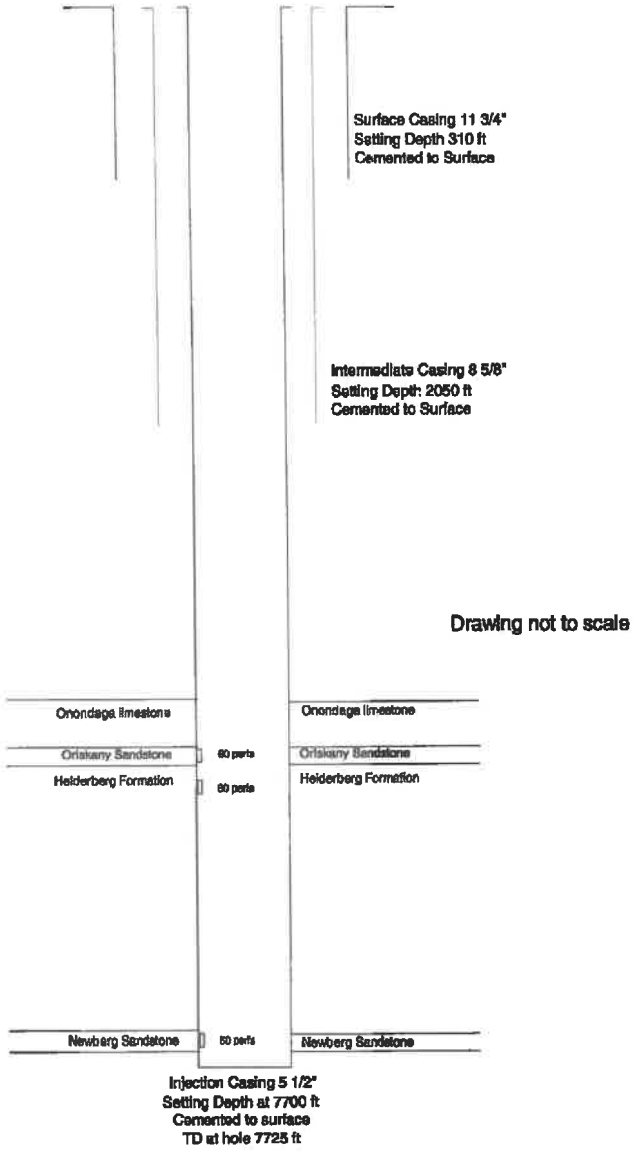
STRUCTURE MAP BASED ON THE TOP OF THE ONONDAGA FROM WVGS WEBSITE



LOCALIZED STRUCTURE MAP

WELL SCHEMATIC

Jay Bee Oil & Gas, Inc. Pluto 1A
Ritchie County Ellenboro 7.5' Quad
Clay District 47- 85-XXXXX New Permit



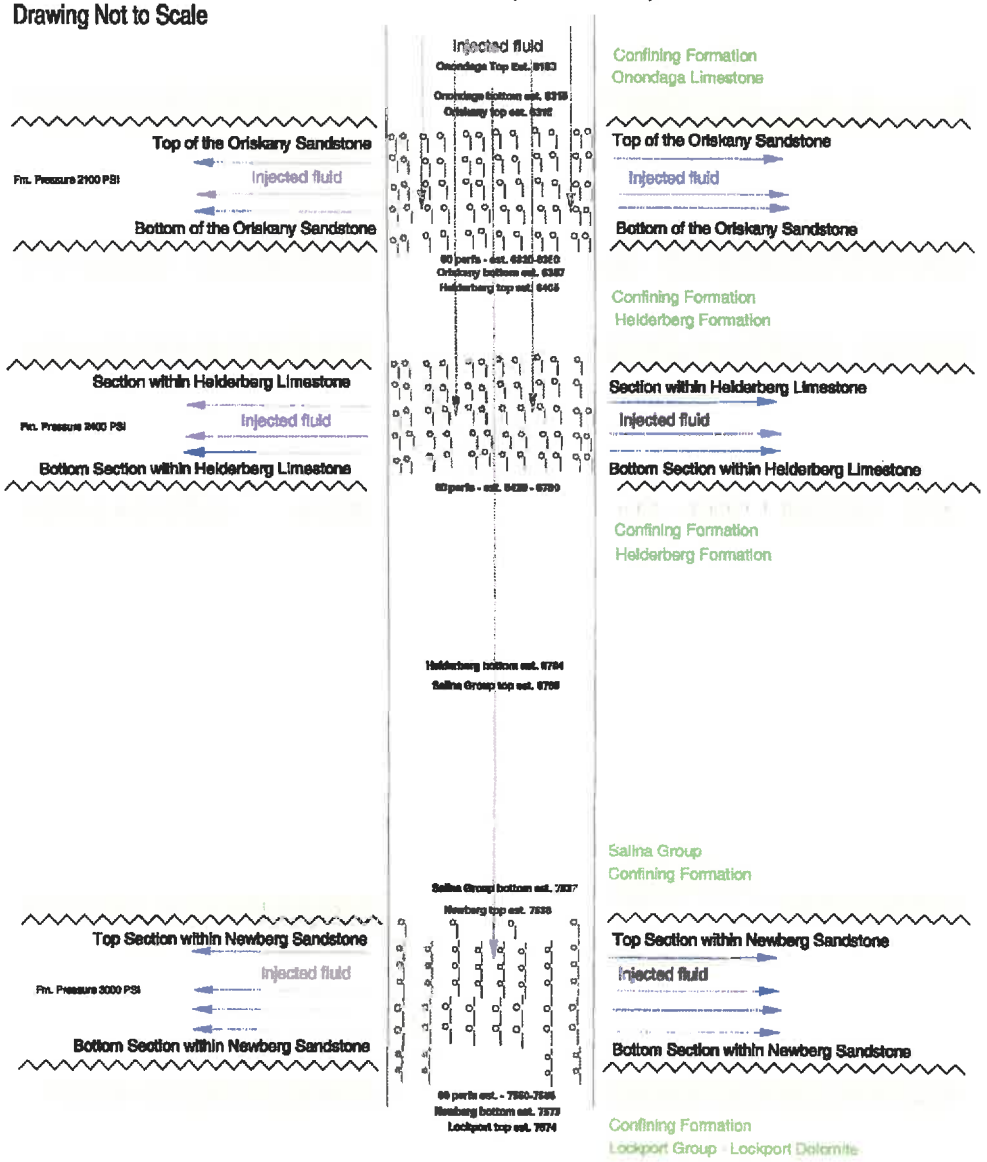
WELL SCHEMATIC

Jay Bee Oil & Gas, Inc.

Pluto 1A Injection Well

47- 85-XXXXX (New Permit)

Drawing Not to Scale



WELL SCHEMATIC

Jay Bee Oil & Gas, Inc.

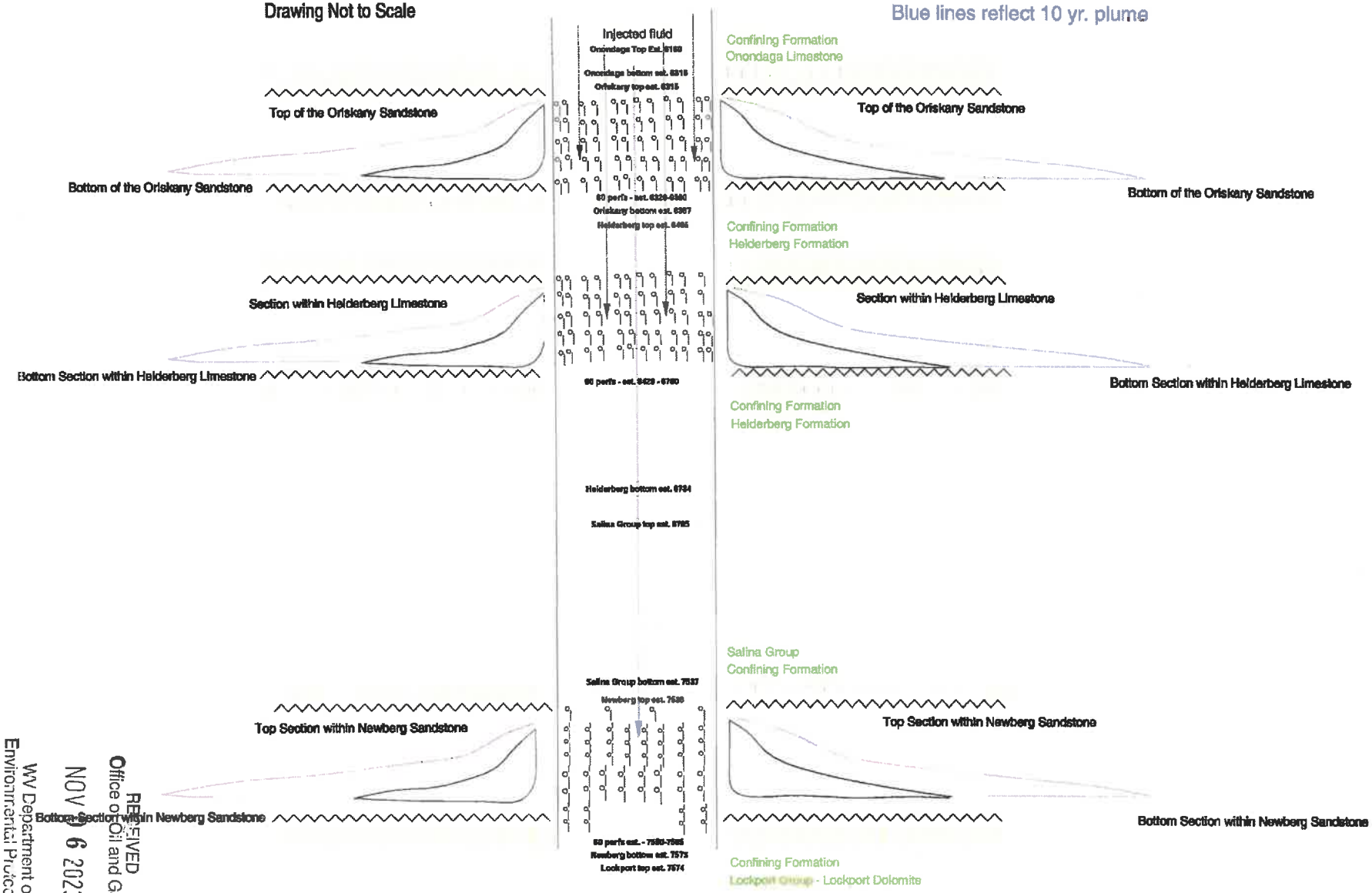
Pluto 1A Injection Well

47- 85-XXXXX (New Permit)

Drawing Not to Scale

Black lines reflect 5 yr. plume

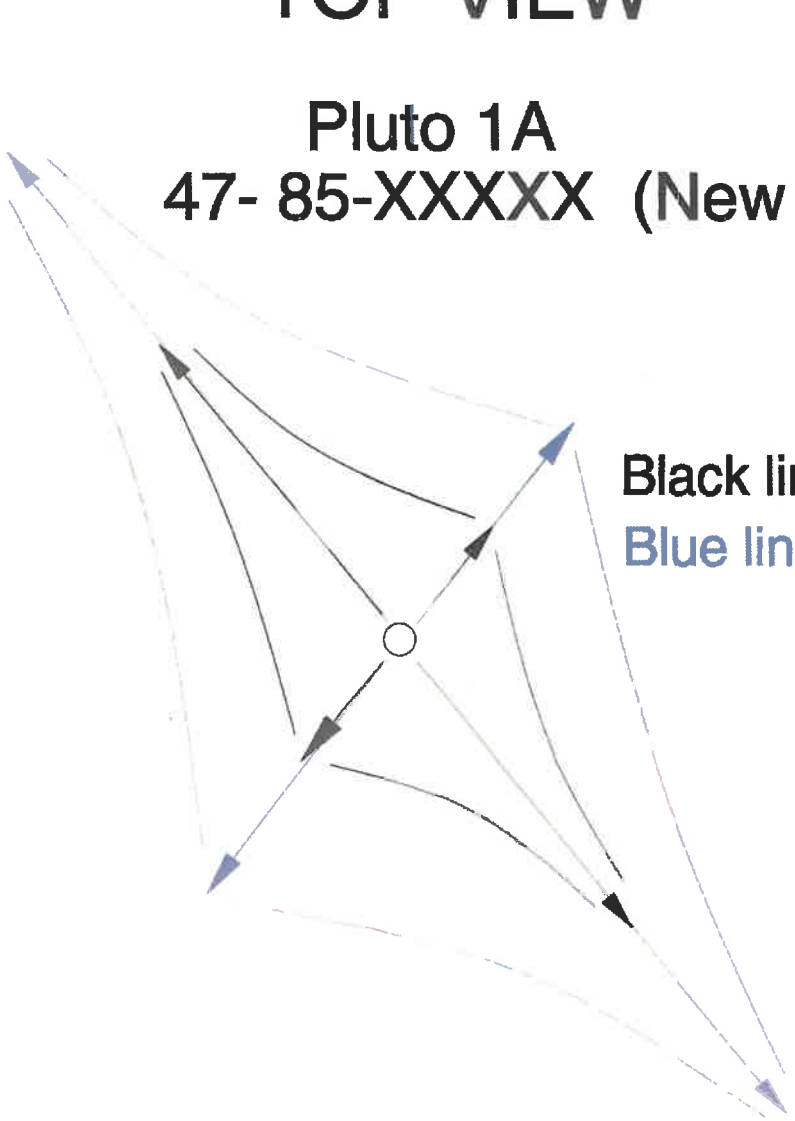
Blue lines reflect 10 yr. plume



ESTIMATED PLUME MAP

TOP VIEW

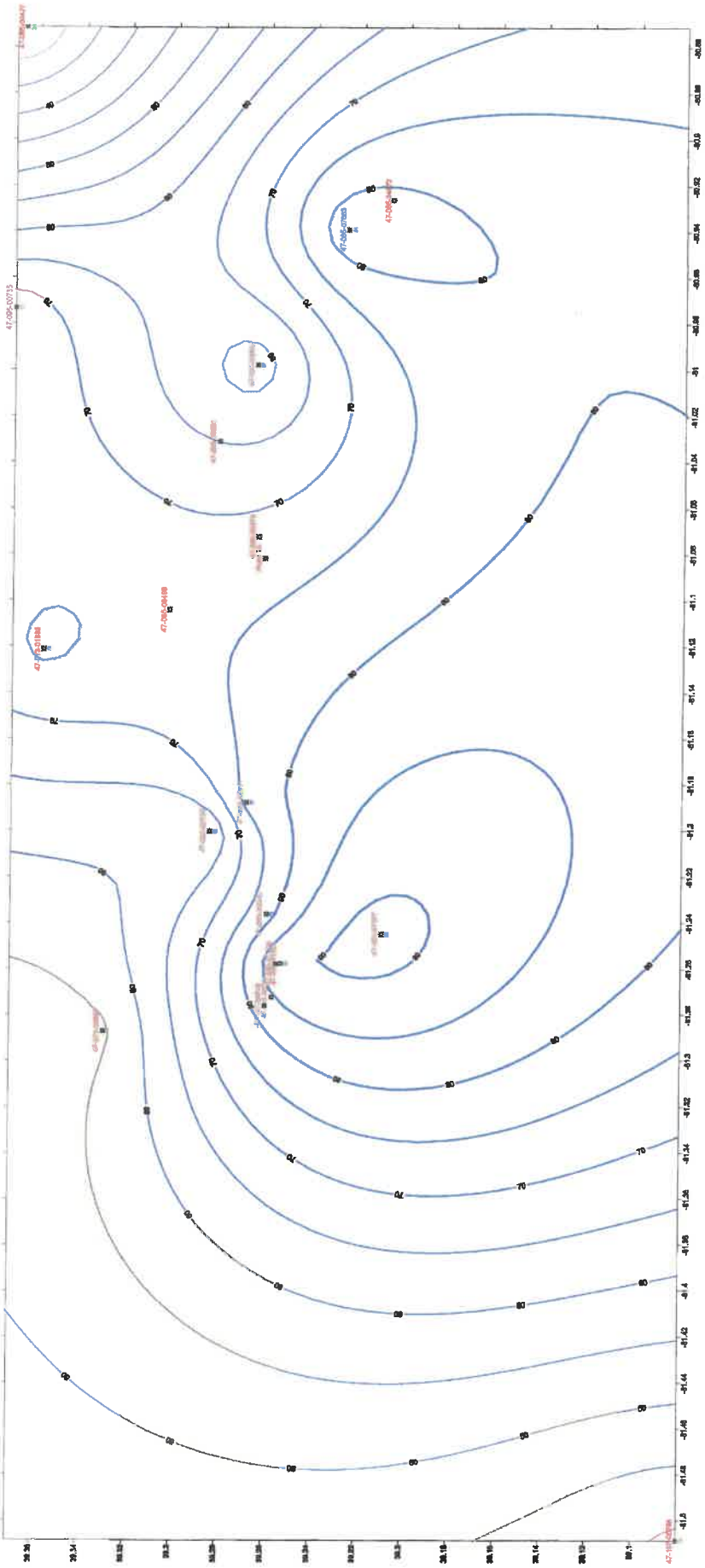
Pluto 1A
47- 85-XXXXX (New Permit)



Black lines reflect 5 yr. plume
Blue lines reflect 10 yr. plume

STRUCTURE MAP BASED ON THE TOP OF THE ONONDAGA LIMESTONE

STRUCTURE MAP BASED ON THE TOP OF THE ORISKANY SANDSTONE



ISOPACH MAP BASED ON THE ORISKANY SANDSTONE

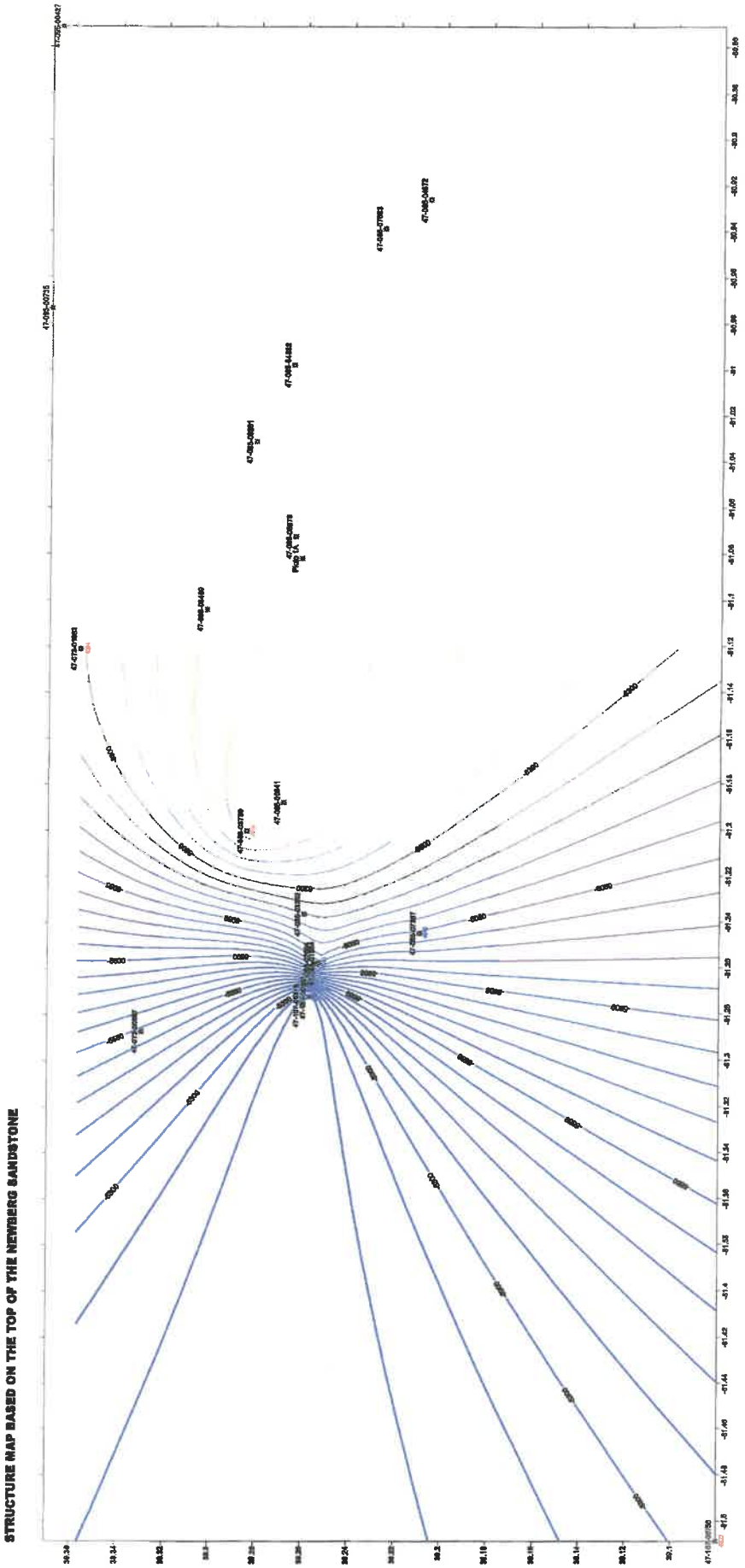
STRUCTURE MAP BASED ON THE TOP OF THE HELDERBERG FORMATION

RECEIVED
Office of Oil and Gas

NOV 06 2023

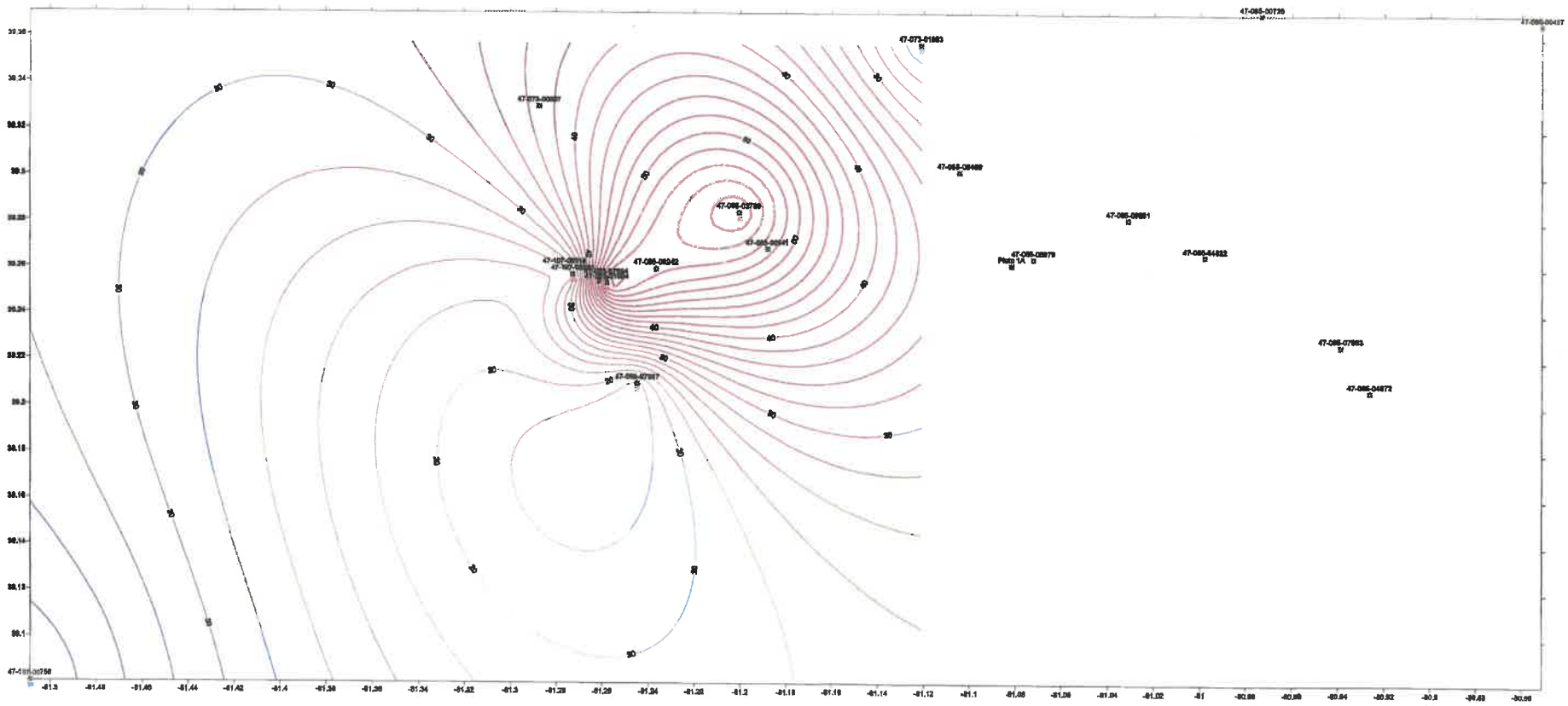
WV Department of
Environmental Protection

ISOPACH MAP BASED ON THE HELDERBERG FORMATION



STRUCTURE MAP BASED ON THE TOP OF THE NEWBERG SANDSTONE

ISOPACH MAP BASED ON THE NEWBERG SANDSTONE



Jay Bee - Deep Well Data for Class II UIC Injection Well

		API	WELL	OWNER	ELEV	BIG LIME	SS BL	ONON	SS ONON	TOP ORISK	Bot ORISK	SS ORISK	Th ORISK	TOP Helder	Bot Helder	SS Helder	Th Helder	TOP Newburg (Williamsport)	Bot Newburg	SS Newburg	Th Newburg	Onon to Newburg	Trent/Bl Rvr	SS T/BR	TD	ORIS-TD	SS TD	
-81.2871	39.3298	47-073-00667	Kerns	Commonwealth	1072	850	222	4437	-3365	4606	4660	-3534	54	4660		-3588										6862	2425	-5790	Logs, 2 Oriskany
-81.1212	39.3569	47-073-01893	Hart	Techwell	967	1790	-823	5876	-4909	6062	6158	-5115	76	6158	6620	-5191	462	7261	7283	-6294	22	-1385			8562	2686	-7586	
-81.1879	39.2585	47-085-00941	L J Rinehart	Benedum Trees	530	1597	-767	5644	-4814	5834	5911	-5004	77	5911		-5081										7331	1687	-6801	No Logs
-81.2578	39.2533	47-085-01894	Elliott	Hope Gas	944	1225	-281	5277	-4333	5480	5570	-4536	90	5570	5810	-4626	240	6985	7023	-6021	58	-1888			7448	2189	-6502	Logs hard to read
-81.2363	39.2596	47-085-03242	Metz	Westrans	824.3	1586	-761.7	5520	-4695.7	5704	5782	-4879.7	78	5782		-4957.7										8200	2680	-7375.7	Logs not identified
-81.2003	39.2843	47-085-03789	Starr	Ohio L & M	1080	1810	-730	5854	-4774	5980	6110	-4970	80	6110	6333	-5030	223	7614	7674	-6534	60	-1760			7800	1946	-6720	Logs
-80.9977	39.2658	47-085-04832	Mahaney	Chase	1003	1885	-882	6177	-5174	6445	6502	-5442	57	6502		-5499										6800	623	-5797	Logs
-80.9262	39.2071	47-085-04872	Hall	Carnegie	1060	1948	-888	6445	-5385																	6501	56	-5441	Logs
-81.0724	39.2843	47-085-05979	Westvaco	Highland	852.5	NA	NA	6008	-5155.5																	6095	87	-5242.5	Logs
-81.1041	39.3023	47-085-06499	Lipscomb	Dart	1026	1830	-804	6009	-4983																	6179	170	-5153	No Logs
-81.2447	39.2098	47-085-07387	Wyatt	Techwell	920	1668	-748	5627	-4707	5819	5911	-4899	92	5911	6216	-4991	304	6965	6982	-6045	17	-1338			7500	1873	-6580	Logs - Good
-80.9388	39.2268	47-085-07583	Primm	EAE	954	1750	-796	6210	-5256	6450	6634	-5496	84	6634		-5680										6676	466	-5722	Logs
-81.2579	39.2565	47-085-07894	Elliott	CNG	863.7																								Plugged no logs
-81.031225	39.281615	47-095-09281	Smith	PetroEdge	1047	1863	-836	6220	-5173																	6322	102	-5275	NA
-80.8513	39.3664	47-095-00427	Cottrill	Quaker State	968	1870	-916	6432	-5478	6586	6710	-5730	24	6686		-5730										6818	384	-5860	Log
-80.9734	39.3704	47-095-00735	Dillon	DAC	798	1870	-872	6106	-6308	6331	6404	-5533	73	6404		-5606										6533	427	-5735	Logs
-81.2724	39.257	47-107-00351	Power Oil	Hope	1039	226	813	3992	-2953	4307								6190	6215	-5151	25		9528	-8489	13331	9339	-12292	
-81.276	39.2599	47-107-00518	Hope Gas	Phillips	930	1012	-82	5526	-4596														9356	-8426	11905	6379	-10975	
-81.5088	39.0804	47-107-00756	Deem #1	Exxon	694	1728	-1034	5013	-4319	5164	5203	-4470	39	5203	5400	-4509	197	6016	6054	-5322	38	-1003	8540	-7832	13266	8253	-12572	

Place Holder

Section 9 - Operating Requirements/Data

PLAN FOR WELL FAILURES

The following summarizes the plan to address failure of any well to protect the surface environment and prevent migration of injected fluids into any USDW:

Disposal Well Contingency Plan

1. Monitoring and periodic routine investigative procedures will be performed on the injection wells as required by applicable laws, permits and regulations. Pertinent data will be reviewed regularly by qualified operators and forwarded to the agencies as required. Monitoring and testing will be designed to assure-well integrity and safe operation.
2. If a well fails required continuous monitoring or periodic testing standards, the well will be shut-in and the agency notified according to applicable regulations and permit conditions. After investigation into the cause for the failure, work plans will be prepared and reviewed with the regulators for repairing the problem.
3. If a workover is performed on a well, mechanical integrity testing will be conducted as required by applicable regulations before the well is returned to service. Copies of all work reports and logs will be forwarded to the regulatory agencies per applicable requirements.
4. During the period of time required for a well workover or for shut-ins due to MIT failure, the contingency plans of the facility will include the following:

a. If shut-in period is sufficiently brief, the fluids accumulated during this period of time will be routed to another well or held in storage at the facility.

aa. Facilities we will dispose at API 47-085-09721 in Ellenboro, Ritchie County, WV.

MONITORING PROGRAM

The monitoring program proposed for injection operations at this site focuses on the active injection wells themselves. A variety of data will be collected to monitor the injection well operations. This monitoring will take place through utilizing both periodic and continuous techniques.

Mechanical Integrity Testing

Testing of the annulus will be completed as determined by concern of well failure. Casing inspection logs may be conducted to investigate corrosion if it is determined to be necessary due to operational or regulatory concerns when tubing is already removed from the borehole during a workover or stimulation.

STEP RATE TEST

1. Should the 0.8 psi/ft. gradient not allow for sufficient injection pressure for injection operations, a higher pressure may be approved based upon a step-rate test. The Office would then approve up to 90% of the determined formation parting pressure or the maximum pressure reached during the step-rate test in which formation parting does not occur.
2. In order that step-rate test data is valid and supplies the required information needed for the Office to approve a higher injection pressure, the following procedures and equipment should be utilized for testing.

a. The test should be shut-in at least seventy-two (72) hours prior to testing to allow bottom-hole pressure to approach the formation pressure.

b. Test consists of a series of constant-rate injections which increase in a stepwise fashion. Rates should center around the proposed injection rate.

c. Injection periods should last sixty minutes for formations having a permeability of less than ten millidarcies and thirty minutes for formations having a permeability of greater than ten millidarcies.

d. Test should consist of at least six injection periods.

e. Injection rates should be controlled with a constant flow-rate regulator.

f. Flow rates should be measured with a turbine flowmeter and rate meter. A stopwatch should be used to check flow rates.

g. Calibrated pressure gages should be used for observing pressure at each rate at the surface on the flowing string and all annulus. Measurement of bottom-hole pressures is preferable but not necessary.

h. Test procedures along with injection rates and pressures are to be recorded and submitted to the Office along with a plot of the data.

3. Should there be a need to vary from this test procedure substantially; the Office should be contacted first for agreement of the test procedure.

4. Please notify the Office forty-eight (48) hours prior to testing to allow the Office the opportunity to witness the test.

Continuous and Operational Monitoring

The proposed wells will have one long string protective casing extending into the injection interval with cement isolating all permeable intervals. The annulus pressure is to be continually monitored to detect any leaks in the tubing or casing. If leaks develop during injection, pressurized annulus fluid would be injected into the permitted injection interval, and injected fluids would not be able-to contact the production string casing above the permitted injection zone. Injectate should therefore have no potential for leakage into un-permitted formations.

Monitoring of physical parameters associated with injection operations will be conducted pursuant to state regulations. At a minimum the monitoring will include, injection pressure, annulus pressure, injection rate, injection volume, annulus level, and injectate characteristics. Details regarding this monitoring follow. Automatic shutdown capability will be operated to ensure that maximum pressure or minimum annulus differential requirements are not exceeded.

Annulus and Injection Pressure

Both the injection pressure and the annulus pressure are to be recorded continuously for each well. Electronic pressure transducers will be placed in pressure taps on the annulus system and injection flow lines. A signal will be sent from these transducers to a digital recorder and/or a chart recorder. The automated control system data will be visually inspected a minimum of once daily for anomalies when the well is operating. As part of the process and controls, the monitoring system will record maximum, minimum and average information. Differential pressures are to be obtained by comparison of simultaneous readings of the annulus and injection pressure transducer readings obtained for the wells.

Injection Rate and Volume

The flow rate to each well will be determined by a liquid flow meter designed for continuous monitoring. Flow rate is to be measured in the flow line to each well. The instrument will send signals to the process control system that calculates cumulative volume.

Annulus Tank Levels

The annulus tank in each well system will have sufficient reservoir capacity to accommodate the anticipated volume fluctuations due to operating temperature and pressure limitations. The annulus tank is to be equipped with an armored reflex sight glass, pressure relief valve and independent liquid fill nozzle. If any annulus fluid is added, it will be recorded by the well operators on an operator log sheet. Annulus tank level is to be recorded a minimum of weekly when injection occurs.

Waste Characterization and Analysis

Injectate characteristics will be monitored by collecting samples per the approved waste analysis plan entered as part of the administrative record for this permit. The waste analysis to be conducted is intended to provide representative data regarding average injectate chemical constituents.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

INJECTATE SAMPLE

February 20, 2024

Mr. Joshua Cook
North Central Engineering, LLC
56 Angler Drive
PO Box 628
Bridgeport, WV 26330

RE: Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Dear Mr. Cook:

Enclosed are the analytical results for sample(s) received by the laboratory on January 29, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Beaver
- Pace Analytical Services - Greensburg

The samples were subcontracted to Pace Williamsport, 2829 Reach Rd, Williamsport, PA 17701 for specific gravity analysis. The results of this analysis are reported on the Pace Williamsport data tables attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nikayla Yasurek

Nikayla M. Yasurek
nikayla.yasurek@pacelabs.com
(724)850-5600
Project Manager

Enclosures

cc: Mr. Dennis Fisher, North Central Engineering, LLC

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

INJECTATE SAMPLE

CERTIFICATIONS

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
ANABISO/IEC 17025:2017 Rad Cert#: L24170
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 2950
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA010
Louisiana DEQ/TNI Certification #: 04086
Maine Certification #: 2023021
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572023-03
New Hampshire/TNI Certification #: 297622
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-015
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN02867
Texas/TNI Certification #: T104704188-22-18
Utah/TNI Certification #: PA014572223-14
USDA Soil Permit #: 525-23-67-77263
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad

Pace Analytical Services Beaver
225 Industrial Park Road, Beaver, WV 25813
Virginia VELAP 460148
West Virginia DEP 060
West Virginia DHHR 00412CM
North Carolina DEQ 466
Kentucky Wastewater Certification KY90039
Pennsylvania DEP 68-00839

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

INJECTATE SAMPLE

SAMPLE SUMMARY

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30656888001	**SE**	Water	01/26/24 09:45	01/29/24 17:25
30656888002	**NE**	Water	01/26/24 10:09	01/29/24 17:25
30656888003	**NW**	Water	01/26/24 10:31	01/29/24 17:25
30656888004	**SW**	Water	01/26/24 10:55	01/29/24 17:25
30656888005	**INJECTATE**	Water	01/26/24 11:10	01/29/24 17:25

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

INJECTATE SAMPLE

SAMPLE ANALYTE COUNT

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30656888001	**SE**	EPA 200.7	AGB	8	PASI-BV
		SM 2540C-2015	TMB	1	PASI-BV
		EPA 300.0, Rev 2.1	SMG	3	PASI-BV
		SM 4500-H+ B-11	KLD	1	PASI-BV
30656888002	**NE**	EPA 200.7	AGB	8	PASI-BV
		SM 2540C-2015	TMB	1	PASI-BV
		EPA 300.0, Rev 2.1	SMG	3	PASI-BV
		SM 4500-H+ B-11	KLD	1	PASI-BV
30656888003	**NW**	EPA 200.7	AGB	8	PASI-BV
		SM 2540C-2015	TMB	1	PASI-BV
		EPA 300.0, Rev 2.1	SMG	3	PASI-BV
		SM 4500-H+ B-11	KLD	1	PASI-BV
30656888004	**SW**	EPA 200.7	AGB	8	PASI-BV
		SM 2540C-2015	TMB	1	PASI-BV
		EPA 300.0, Rev 2.1	SMG	3	PASI-BV
		SM 4500-H+ B-11	KLD	1	PASI-BV
30656888005	**INJECTATE**	EPA 200.7	AGB	8	PASI-BV
		SM 2540C-2015	TMB	1	PASI-BV
		EPA 300.0, Rev 2.1	SMG	3	PASI-BV
		SM 4500-H+ B-11	KLD	1	PASI-BV
		EPA 900.0	REH1	2	PASI-PA
		EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-BV = Pace Analytical Services - Beaver
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Sample: SE **Lab ID: 30656888001** Collected: 01/26/24 09:45 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2								
	Pace Analytical Services - Beaver								
Aluminum	**236**	ug/L	20.0	18.3	1	01/31/24 02:04	02/01/24 11:55	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	01/31/24 02:04	02/01/24 11:55	7440-38-2	
Barium	**53.1**	ug/L	5.0	2.0	1	01/31/24 02:04	02/01/24 11:55	7440-39-3	
Calcium	**33500**	ug/L	500	86.0	1	01/31/24 02:04	02/01/24 11:55	7440-70-2	
Iron	**248**	ug/L	50.0	47.7	1	01/31/24 02:04	02/01/24 11:55	7439-89-6	
Manganese	**55.6**	ug/L	5.0	2.7	1	01/31/24 02:04	02/01/24 11:55	7439-96-5	
Sodium	**11800**	ug/L	500	399	1	01/31/24 02:04	02/01/24 11:55	7440-23-5	
Strontium	**160**	ug/L	10.0	1.3	1	01/31/24 02:04	02/01/24 11:55	7440-24-6	N2
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C-2015								
	Pace Analytical Services - Beaver								
Total Dissolved Solids	**170**	mg/L	10.0	5.0	1		01/30/24 09:36		
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1								
	Pace Analytical Services - Beaver								
Bromide	ND	mg/L	0.10	0.034	1		02/08/24 22:28	24959-67-9	
Chloride	**22.8**	mg/L	1.0	0.25	1		02/08/24 22:28	16887-00-6	
Sulfate	**12.6**	mg/L	5.0	1.2	1		02/08/24 22:28	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-11								
	Pace Analytical Services - Beaver								
pH at 25 Degrees C	**7.7**	Std. Units			1		01/30/24 11:07		H6,N2

Sample: NE **Lab ID: 30656888002** Collected: 01/26/24 10:09 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2								
	Pace Analytical Services - Beaver								
Aluminum	**241**	ug/L	20.0	18.3	1	01/31/24 02:04	02/01/24 11:57	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	01/31/24 02:04	02/01/24 11:57	7440-38-2	
Barium	**74.9**	ug/L	5.0	2.0	1	01/31/24 02:04	02/01/24 11:57	7440-39-3	
Calcium	**40800**	ug/L	500	86.0	1	01/31/24 02:04	02/01/24 11:57	7440-70-2	
Iron	**269**	ug/L	50.0	47.7	1	01/31/24 02:04	02/01/24 11:57	7439-89-6	
Manganese	**82.6**	ug/L	5.0	2.7	1	01/31/24 02:04	02/01/24 11:57	7439-96-5	
Sodium	**4500**	ug/L	500	399	1	01/31/24 02:04	02/01/24 11:57	7440-23-5	
Strontium	**209**	ug/L	10.0	1.3	1	01/31/24 02:04	02/01/24 11:57	7440-24-6	N2
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C-2015								
	Pace Analytical Services - Beaver								
Total Dissolved Solids	**167**	mg/L	10.0	5.0	1		01/30/24 09:44		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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INJECTATE SAMPLE

ANALYTICAL RESULTS

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Sample: NE **Lab ID: 30656888002** Collected: 01/26/24 10:09 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Bromide	ND	mg/L	0.10	0.034	1		02/08/24 23:31	24959-67-9	
Chloride	**9.0**	mg/L	1.0	0.25	1		02/08/24 23:31	16887-00-6	
Sulfate	**13.2**	mg/L	5.0	1.2	1		02/08/24 23:31	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-11 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**7.8**	Std. Units			1		01/30/24 11:09		H6,N2

Sample: NW **Lab ID: 30656888003** Collected: 01/26/24 10:31 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**193**	ug/L	20.0	18.3	1	01/31/24 02:04	02/01/24 11:59	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	01/31/24 02:04	02/01/24 11:59	7440-38-2	
Barium	**20.9**	ug/L	5.0	2.0	1	01/31/24 02:04	02/01/24 11:59	7440-39-3	
Calcium	**5120**	ug/L	500	86.0	1	01/31/24 02:04	02/01/24 11:59	7440-70-2	
Iron	**141**	ug/L	50.0	47.7	1	01/31/24 02:04	02/01/24 11:59	7439-89-6	
Manganese	**14.7**	ug/L	5.0	2.7	1	01/31/24 02:04	02/01/24 11:59	7439-96-5	
Sodium	**1760**	ug/L	500	399	1	01/31/24 02:04	02/01/24 11:59	7440-23-5	
Strontium	**32.9**	ug/L	10.0	1.3	1	01/31/24 02:04	02/01/24 11:59	7440-24-6	N2
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C-2015 Pace Analytical Services - Beaver								
Total Dissolved Solids	**50.0**	mg/L	10.0	5.0	1		01/30/24 09:44		
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Bromide	ND	mg/L	0.10	0.034	1		02/08/24 23:52	24959-67-9	
Chloride	ND	mg/L	1.0	0.25	1		02/08/24 23:52	16887-00-6	
Sulfate	**6.8**	mg/L	5.0	1.2	1		02/08/24 23:52	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-11 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**7.2**	Std. Units			1		01/30/24 11:11		H6,N2

REPORT OF LABORATORY ANALYSIS

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INJECTATE SAMPLE

ANALYTICAL RESULTS

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Sample: SW **Lab ID: 30656888004** Collected: 01/26/24 10:55 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2								
	Pace Analytical Services - Beaver								
Aluminum	**184**	ug/L	20.0	18.3	1	01/31/24 02:04	02/01/24 12:01	7429-90-5	
Arsenic	ND	ug/L	20.0	6.4	1	01/31/24 02:04	02/01/24 12:01	7440-38-2	
Barium	**24.4**	ug/L	5.0	2.0	1	01/31/24 02:04	02/01/24 12:01	7440-39-3	
Calcium	**8100**	ug/L	500	86.0	1	01/31/24 02:04	02/01/24 12:01	7440-70-2	
Iron	**128**	ug/L	50.0	47.7	1	01/31/24 02:04	02/01/24 12:01	7439-89-6	
Manganese	**13.2**	ug/L	5.0	2.7	1	01/31/24 02:04	02/01/24 12:01	7439-96-5	
Sodium	**2170**	ug/L	500	399	1	01/31/24 02:04	02/01/24 12:01	7440-23-5	
Strontium	**48.5**	ug/L	10.0	1.3	1	01/31/24 02:04	02/01/24 12:01	7440-24-6	N2
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C-2015								
	Pace Analytical Services - Beaver								
Total Dissolved Solids	**43.0**	mg/L	10.0	5.0	1		01/30/24 09:46		
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1								
	Pace Analytical Services - Beaver								
Bromide	ND	mg/L	0.10	0.034	1		02/09/24 00:13	24959-67-9	
Chloride	**2.0**	mg/L	1.0	0.25	1		02/09/24 00:13	16887-00-6	
Sulfate	**8.3**	mg/L	5.0	1.2	1		02/09/24 00:13	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-11								
	Pace Analytical Services - Beaver								
pH at 25 Degrees C	**7.2**	Std. Units			1		01/30/24 11:14		H6,N2

Sample: INJECTATE **Lab ID: 30656888005** Collected: 01/26/24 11:10 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2								
	Pace Analytical Services - Beaver								
Aluminum	ND	ug/L	10000	9160	500	01/31/24 02:04	02/01/24 12:21	7429-90-5	M1
Arsenic	ND	ug/L	10000	3210	500	01/31/24 02:04	02/01/24 12:21	7440-38-2	M1
Barium	**1360000**	ug/L	2500	989	500	01/31/24 02:04	02/01/24 12:21	7440-39-3	M1
Calcium	**15700000**	ug/L	250000	43000	500	01/31/24 02:04	02/01/24 12:21	7440-70-2	M1
Iron	**104000**	ug/L	25000	23900	500	01/31/24 02:04	02/01/24 12:21	7439-89-6	M1
Manganese	**5380**	ug/L	2500	1340	500	01/31/24 02:04	02/01/24 12:21	7439-96-5	M1,R1
Sodium	**49100000**	ug/L	250000	199000	500	01/31/24 02:04	02/01/24 12:21	7440-23-5	M1
Strontium	**4800000**	ug/L	50000	6430	5000	01/31/24 02:04	02/01/24 13:07	7440-24-6	M1,N2
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C-2015								
	Pace Analytical Services - Beaver								
Total Dissolved Solids	**232000**	mg/L	1000	500	1		01/30/24 09:46		1c,E

REPORT OF LABORATORY ANALYSIS

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INJECTATE SAMPLE

ANALYTICAL RESULTS

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Sample: INJECTATE **Lab ID: 30656888005** Collected: 01/26/24 11:10 Received: 01/29/24 17:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Bromide	**1260**	mg/L	100	33.8	1000		02/09/24 00:34	24959-67-9	
Chloride	**121000**	mg/L	1000	246	1000		02/09/24 00:34	16887-00-6	
Sulfate	ND	mg/L	5000	1210	1000		02/09/24 00:34	14808-79-8	D3
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-11 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**6.1**	Std. Units			1		01/30/24 11:16		H6,N2

REPORT OF LABORATORY ANALYSIS

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INJECTATE SAMPLE

QUALITY CONTROL DATA

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 645465
QC Batch Method: EPA 200.2
Analysis Method: EPA 200.7
Analysis Description: BVR 200.7 Metals, Total
Laboratory: Pace Analytical Services - Beaver
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

METHOD BLANK: 3144987 Matrix: Water
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	ND	20.0	18.3	01/31/24 20:53	
Arsenic	ug/L	ND	20.0	6.4	01/31/24 20:53	
Barium	ug/L	ND	5.0	2.0	01/31/24 20:53	
Calcium	ug/L	ND	500	86.0	01/31/24 20:53	
Iron	ug/L	ND	50.0	47.7	01/31/24 20:53	
Manganese	ug/L	ND	5.0	2.7	01/31/24 20:53	
Sodium	ug/L	ND	500	399	01/31/24 20:53	
Strontium	ug/L	ND	10.0	1.3	01/31/24 20:53	N2

LABORATORY CONTROL SAMPLE: 3144988

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	2000	2030	102	85-115	
Arsenic	ug/L	2000	2050	103	85-115	
Barium	ug/L	2000	2060	103	85-115	
Calcium	ug/L	40000	39200	98	85-115	
Iron	ug/L	2000	2020	101	85-115	
Manganese	ug/L	2000	2070	104	85-115	
Sodium	ug/L	20000	20400	102	85-115	
Strontium	ug/L	2000	2100	105	85-115	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3144989 3144990

Parameter	Units	30656778001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	0.33 mg/L	2000	2000	2520	2520	110	110	70-130	0	20	
Arsenic	ug/L	ND	2000	2000	2070	2080	104	104	70-130	0	20	
Barium	ug/L	0.017 mg/L	2000	2000	2100	2110	104	105	70-130	0	20	
Calcium	ug/L	1.5 mg/L	40000	40000	41200	41300	99	99	70-130	0	20	
Iron	ug/L	0.34 mg/L	2000	2000	2390	2400	103	103	70-130	0	20	
Manganese	ug/L	0.033 mg/L	2000	2000	2140	2140	105	105	70-130	0	20	
Sodium	ug/L	0.63 mg/L	20000	20000	21100	21100	102	102	70-130	0	20	
Strontium	ug/L	0.0088J mg/L	2000	2000	2120	2140	106	106	70-130	1	20	N2

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QUALITY CONTROL DATA

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3144991 3144992

Parameter	Units	30656888005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	2000	2000	ND	10600	117	459	70-130		20	M1
Arsenic	ug/L	ND	2000	2000	ND	ND	61	61	70-130		20	M1
Barium	ug/L	1360000	2000	2000	1420000	1490000	3220	6520	70-130	5	20	M1
Calcium	ug/L	15700000	40000	40000	16400000	17200000	1880	3910	70-130	5	20	M1
Iron	ug/L	104000	2000	2000	110000	126000	307	1080	70-130	13	20	M1
Manganese	ug/L	5380	2000	2000	7860	11100	124	287	70-130	34	20	M1,R1
Sodium	ug/L	49100000	20000	20000	51000000	53000000	9530	19800	70-130	4	20	M1
Strontium	ug/L	4800000	2000	2000	4460000	5180000	-17000	19400	70-130	15	20	M1,N2

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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INJECTATE SAMPLE

QUALITY CONTROL DATA

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 645276
QC Batch Method: SM 2540C-2015
Analysis Method: SM 2540C-2015
Analysis Description: BVR 2540C Total Dissol. Solids
Laboratory: Pace Analytical Services - Beaver
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

METHOD BLANK: 3144108 Matrix: Water
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	5.0	01/30/24 09:35	

LABORATORY CONTROL SAMPLE: 3144109

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	50	46.0	92	80-118	

SAMPLE DUPLICATE: 3144110

Parameter	Units	30656840001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2030	1990	2	10	

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REPORT OF LABORATORY ANALYSIS

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INJECTATE SAMPLE

QUALITY CONTROL DATA

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 647427
QC Batch Method: EPA 300.0, Rev 2.1
Analysis Method: EPA 300.0, Rev 2.1
Analysis Description: BVR 300.0 IC Anions
Laboratory: Pace Analytical Services - Beaver
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

METHOD BLANK: 3154572 Matrix: Water
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Bromide	mg/L	ND	0.10	0.034	02/08/24 22:07	
Chloride	mg/L	ND	1.0	0.25	02/08/24 22:07	
Sulfate	mg/L	ND	5.0	1.2	02/08/24 22:07	

LABORATORY CONTROL SAMPLE: 3154573

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	1	0.97	97	90-110	
Chloride	mg/L	25	25.9	104	90-110	
Sulfate	mg/L	50	52.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3154576 3154577

Parameter	Units	30658461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	<0.034	1	1	0.99	0.99	98	98	90-110	0	20	
Chloride	mg/L	2.7	25	25	28.9	28.8	105	104	90-110	0	20	
Sulfate	mg/L	33.7	50	50	83.3	83.3	99	99	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3154578 3154579

Parameter	Units	30658889001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	<0.034	1	1	0.98	0.98	97	97	90-110	0	20	
Chloride	mg/L	0.64J	25	25	26.9	26.9	105	105	90-110	0	20	
Sulfate	mg/L	265	50	50	287	287	44	44	90-110	0	20	M1

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REPORT OF LABORATORY ANALYSIS

INJECTATE SAMPLE

QUALITY CONTROL DATA

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 645232
QC Batch Method: SM 4500-H+ B-11
Analysis Method: SM 4500-H+ B-11
Analysis Description: 4500H+BBV pH, BV
Laboratory: Pace Analytical Services - Beaver
Associated Lab Samples: 30656888001, 30656888002, 30656888003, 30656888004, 30656888005

SAMPLE DUPLICATE: 3143968

Parameter	Units	30656306011 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.0	8.0	0	20	H6,N2

SAMPLE DUPLICATE: 3143969

Parameter	Units	30656320001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.6	7.6	1	20	H6,N2

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REPORT OF LABORATORY ANALYSIS

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INJECTATE SAMPLE

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Sample: INJECTATE **Lab ID: 30656888005** Collected: 01/26/24 11:10 Received: 01/29/24 17:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	**1,449 ± 663 (909) C:NA T:NA**	pCi/L	02/01/24 19:43	12587-46-1	
Gross Beta	EPA 900.0	**1,390 ± 735 (1,191) C:NA T:NA**	pCi/L	02/01/24 19:43	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**1,623 ± 271 (16.5) C:NA T:89%**	pCi/L	02/19/24 13:01	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1,148 ± 220 (58.9) C:88% T:82%**	pCi/L	02/15/24 15:29	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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INJECTATE SAMPLE

QUALITY CONTROL - RADIOCHEMISTRY

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 645674
QC Batch Method: EPA 900.0
Analysis Method: EPA 900.0
Analysis Description: 900.0 Gross Alpha/Beta
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30656888005

METHOD BLANK: 3146067 Matrix: Water
Associated Lab Samples: 30656888005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.015 ± 0.625 (1.77) C:NA T:NA	pCi/L	02/02/24 08:40	
Gross Beta	0.373 ± 0.637 (1.44) C:NA T:NA	pCi/L	02/02/24 08:40	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 647673
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30656888005

METHOD BLANK: 3156317 Matrix: Water
Associated Lab Samples: 30656888005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.350 ± 0.327 (0.464) C:NA T:88%	pCi/L	02/19/24 13:01	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

QC Batch: 647674
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30656888005

METHOD BLANK: 3156322 Matrix: Water
Associated Lab Samples: 30656888005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.628 ± 0.366 (0.672) C:87% T:81%	pCi/L	02/15/24 12:13	

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REPORT OF LABORATORY ANALYSIS

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(724)850-5600

QUALIFIERS

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1c	Conductivity recording and ratio caused the sample to be ran at a minimal volume. - TMB 2/1/24
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JB/PLUTO INJECTION WELL
Pace Project No.: 30656888

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30656888001	**SE**	EPA 200.2	645465	EPA 200.7	645709
30656888002	**NE**	EPA 200.2	645465	EPA 200.7	645709
30656888003	**NW**	EPA 200.2	645465	EPA 200.7	645709
30656888004	**SW**	EPA 200.2	645465	EPA 200.7	645709
30656888005	**INJECTATE**	EPA 200.2	645465	EPA 200.7	645709
30656888001	**SE**	SM 2540C-2015	645276		
30656888002	**NE**	SM 2540C-2015	645276		
30656888003	**NW**	SM 2540C-2015	645276		
30656888004	**SW**	SM 2540C-2015	645276		
30656888005	**INJECTATE**	SM 2540C-2015	645276		
30656888001	**SE**	EPA 300.0, Rev 2.1	647427		
30656888002	**NE**	EPA 300.0, Rev 2.1	647427		
30656888003	**NW**	EPA 300.0, Rev 2.1	647427		
30656888004	**SW**	EPA 300.0, Rev 2.1	647427		
30656888005	**INJECTATE**	EPA 300.0, Rev 2.1	647427		
30656888001	**SE**	SM 4500-H+ B-11	645232		
30656888002	**NE**	SM 4500-H+ B-11	645232		
30656888003	**NW**	SM 4500-H+ B-11	645232		
30656888004	**SW**	SM 4500-H+ B-11	645232		
30656888005	**INJECTATE**	SM 4500-H+ B-11	645232		
30656888005	**INJECTATE**	EPA 900.0	645674		
30656888005	**INJECTATE**	EPA 903.1	647673		
30656888005	**INJECTATE**	EPA 904.0	647674		

Company Name/Address:
North Central Engineering, LLC
P.O. Box 628
Bridgeport, WV 26330

Billing Information:
Same

Pres Chk

Analysis / Container / Preservative

WO# : 30656888

30656888

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Report to:
Joshua Cook

Email To:
Jcook@northcentralengineering.com

Project Description:
JB/Pluto Injection Well

City/State Collected: **Ritchie/ WV**

Please Circle: ET

INJECTATE SAMPLE

Phone: **3042991583**

Client Project #
JB

Lab Project #

SDG #

Table #

Collected by (print):
Joshua Cook

Site/Facility ID #

P.O. #

Acctnum:

Template:

Prelogin:

PM:

PB:

Collected by (signature):

Immediately Packed on Ice N ___ Y ___ x

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
SE	Grab	GW		1-26-24	9:45			
NE	Grab	GW		1-26-24	10:09			
NW	Grab	GW		1-26-24	10:31			
SW	Grab	GW		1-26-24	10:55			
INJECTATE	Grab	GW		1-26-24	11:10			

See Attached

NON-CONFORMANCE
Number of containers not filled out

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	1-29-24	11:48	BMM/PACE 1/29/24 11:48		
Relinquished by : (Signature) BMM/PACE	Date: 1/29/24	Time: 14:00	Received by: (Signature) 1400 RAS	Temp: 0.9°C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date: 1-29-24 1600	Time:	Received for lab by: (Signature) A Porter 1/29/24	Date: 1605 Time:	Hold: Condition: NCF / OK

1-29-23 1725

A Porter 11/29/24 1725

Stream Samples	Injectate
Chloride	Chloride
Bromide	Bromide
Strontium	Strontium
Barium	Barium
Iron	Iron
Manganese	Manganese
Aluminum	Aluminum
Arsenic	Arsenic
Sodium	Sodium
Calcium	Calcium
Sulfate	Sulfate
PH	Specific Gravity
Total Dissolved Solids (TDS)	PH
	Total Dissolved Solids (TDS)
	Radium-226 and Radium 228
	Gross Alpha and Gross Beta

WO# : 30656888

PM: NMY **Due Date: 02/20/24**

CLIENT: NORTHCENENG

LIMS30 Lab Sample Condition Upon Receipt (West Virgin

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ 3rd Party Courier ☑ Pace ☐ Other _____

Tracking #: _____

Custody Seal on Cooler/Box/Containers Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used #25 **Type of Ice:** (Wet) Blue None

Cooler Temperature **Observed Temp** 1.2 °C Correction Factor: 0 °C Final Temp: 1.2 °C

Thermal Preservation Requirement Met Yes ☑ No ☐

pH paper Lot#	Date and Initials of person examining contents:
226322	JC 1-29-24

	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: W	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:	✓			
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous sample field filtered:			✓	13.
-pH adjusted within 24 hours? (If yes, indicate acid lot #)			✓	
Filtered volume received for Dissolved tests:			✓	14.
All containers have been checked for chemical preservation:	✓			15.
exceptions: VOA, coliform, O&G, LLMercury, Non-aqueous matrix				
All containers meet method/chemical preservation requirements:	✓			Initial when completed JC Date: 1-29-24
				Tests not preserved:
Headspace in VOA Vials:			✓	16.
Trip Blank Present:			✓	17.
				Initial when completed: JC Date: 1-29-24

Comments: _____

***PM review** is documented electronically in LIMS, when the Project Manager closes the SRF Review schedule in LIMS. The status may be reviewed in the Status section of the Workorder Edit Screen.

Company Name/Address:
North Central Engineering, LLC
P.O. Box 628
Bridgeport, WV 26330

Billing Information:
Same

Pres Chk

Analysis / Container / Preservative

WO# : 30656888

30656888

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Report to: **Joshua Cook**

Email To: **Jcook@northcentralengineering.com**

Project Description: **JB/Pluto Injection Well**

City/State Collected: **Ritchie/ WV**

Please Circle: ET

Phone: **3042991583**

Client Project # **JB**

Lab Project #

SDG #

Collected by (print): **Joshua Cook**

Site/Facility ID #

P.O. #

Table #

Collected by (signature):

Immediately Packed on ice N ___ Y ___ x

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Acctnum:
Template:
Prelogin:
PB:
Shipped Via:

See Attached

Received by Pace Greensburg
Therm ID 16 Corr Factor +0.3
Receipt Temp 4.3
Corrected Temp 4.0
Correct Preservation - (Y) N
Res. Chlorine - Y (N) - Lot# ___
Rad Samples Screened <0.05 mrem/hr - (Y) N
Survey Meter 25043350

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
SE	Grab	GW		1-26-24	9:45			
NE	Grab	GW		1-26-24	10:09			
NW	Grab	GW		1-26-24	10:31			
SW	Grab	GW		1-26-24	10:55			
INJECTATE	Grab	GW		1-26-24	11:10			

NON-CONFORMANCE
Number of containers not filled out

INJECTATE SAMPLE

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	1-29-24	11:48	BMM/PACE 1/29/24 11:48		
Relinquished by : (Signature) BMM/PACE	Date: 1/29/24	Time: 14:00	Received by: (Signature) 1400	Temp: 0.9°C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date: 1-29-24 1600	Time:	Received for lab by: (Signature)	Date: 1/30/24	Time: 1105

Hold: | Condition: NCF / OK

1 of 2

Pace® Location Requested (City/State):

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Contact/Report To:
Street Address:	Phone #:
	E-Mail:
	Cc E-Mail:
Customer Project #:	Invoice to:
Project Name:	Invoice E-mail:
Site Collection Info/Facility ID (as applicable):	Purchase Order # (if applicable):
	Quote #:
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET	County / State origin of sample(s):
Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other_____	Regulatory Program (DW, RCRA, etc.) as applicable:
	Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____
	Date Results Requested:
	DW PWSID # or WW Permit # as applicable:
	Field Filtered (if applicable): [ ] Yes [ ] No
	Analysis:

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: | AcctNum / Client ID: | Table #: | Profile / Template: | Prelog / Bottle Ord. ID:

Preservation non-conformance identified for sample.

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Plastic	Number & Type of Containers Glass	Sample Comment

Customer Remarks / Special Conditions / Possible Hazards:

Collected By:
Printed Name
Signature

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C):	Corrected Temp. (°C):

Relinquished by/Company: (Signature) Nicely's Del. Service	Date/Time: 1-30-24 1542	Received by/Company: (Signature) Nicely's Del. Service	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature) Nicely's Del. Service	Date/Time: 1-30-24 2300	Received by/Company: (Signature)	Date/Time: 1-31-24 0900	Delivered by: [ ] In-Person [ ] Courier [ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 2 of 2

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123

INJECTATE SAMPLE

Stream Samples	Injectate
Chloride	Chloride
Bromide	Bromide
Strontium	Strontium
Barium	Barium
Iron	Iron
Manganese	Manganese
Aluminum	Aluminum
Arsenic	Arsenic
Sodium	Sodium
Calcium	Calcium
Sulfate	Sulfate
PH	Specific Gravity
Total Dissolved Solids (TDS)	PH
	Total Dissolved Solids (TDS)
	Radium-226 and Radium 228
	Gross Alpha and Gross Beta

WO# : 30656888

PM: NMY **Due Date: 02/20/24**
CLIENT: NORTHCENENG

LIMS30 Lab Sample Condition Upon Receipt (West Virgin

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ 3rd Party Courier ☑ Pace ☐ Other _____

Tracking #: _____

Custody Seal on Cooler/Box/Containers Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used #25 Type of Ice: (Wet) Blue None

Cooler Temperature **Observed Temp** 1.2 °C Correction Factor: 0 °C Final Temp: 1.2 °C

Thermal Preservation Requirement Met Yes ☑ No ☐

pH paper Lot#	Date and Initials of person examining contents:
226322	JC 1-29-24

	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix:	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:	✓			
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous sample field filtered:			✓	13.
-pH adjusted within 24 hours? (If yes, indicate acid lot #)			✓	
Filtered volume received for Dissolved tests:			✓	14.
All containers have been checked for chemical preservation: exceptions: VOA, coliform, O&G, LLMercury, Non-aqueous matrix	✓			15.
All containers meet method/chemical preservation requirements:	✓			Initial when completed: JC Date: 1-29-24
				Tests not preserved:
Headspace in VOA Vials:			✓	16.
Trip Blank Present:			✓	17.
				Initial when completed: JC Date: 1-29-24

Comments: _____

*PM review is documented electronically in LIMS, when the Project Manager closes the SRF Review schedule in LIMS. The status may be reviewed in the Status section of the Workorder Edit Screen.

INJECTATE SAMPLE

Delivering Science Better

2829 Reach Road, Williamsport, PA 17701 • Phone: (570) 326-4001 • Fax: (570) 326-0399 • www.pacelabs.com

Certificate of Analysis

February 07, 2024

Samantha Merrill

PAS, LLC - Williamsport, PA

2829 Reach Road

Williamsport, PA 17701

Work Order: 2400430

Project: General

Dear Samantha Merrill,

Enclosed is your report of analysis that contains the result(s) of the sample(s) received on 1/31/2024. Please direct any questions or comments regarding the content of this report to your Proejct Manager.

Pace Analytical Services, LLC. is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and the analytical result(s) contained in this report meet those regulation requirements, except where noted. For example, all drinking water testing and/or analysis comply with the requirements in 40 CFR part 141. All wastewater testing and/or analysis comply with the requirements in 40 CFR part 136. All Solid and Chemical Material testing and/or analysis complies with the requirements in SW-846. All quantitative solid result(s), unless otherwise indicated, are reported on a dry weight basis obtained by a percent moisture calculation.

Sample(s) that were collected by Pace Analytical Services, LLC. personnel are done in accordance with the latest revision of the laboratory's Field Sampling and Field Analysis Standard Operating Procedures. The result(s) contained within this report are representative of the sample(s) as received. Any and all information provided to us by the client was not performed by Pace Analytical Services, LLC. and is not within our scope of accreditation. Any abnormalities in how the sample(s) were received are noted in the documentation contained herein.

Please visit www.pacelabs.com for a complete list of our accredited parameters and other topics of interest.

Regards,

Pace Analytical Services, LLC.

Approved by: Rebecca E. Fink

Rebecca E. Fink, Project Manager

PA Lab ID: 41-00034 • Maryland Certificate #: 202 • Delaware Office of Drinking Water • NY State Lab ID: 12028

INJECTATE SAMPLE

Table of Contents

INJECTATE SAMPLE

Pace Analytical®

ACCREDITED IN ACCORDANCE WITH nelac

Delivering Science Better

2829 Reach Road, Williamsport, PA 17701 • Phone: (570) 326-4001 • Fax: (570) 326-0399 • www.pacelabs.com

PAS, LLC - Williamsport, PA	**Project:** General
2829 Reach Road	**Project Number:** 30656888
Williamsport, PA 17701	**Reported:** 02/07/2024 09:16

Sample Summary

Lab ID	Sample	Matrix	Sampled	Received
2400430-01	INJECTATE	Non-Potable Water	01/26/2024 11:10	01/31/2024 13:11

INJECTATE SAMPLE

Delivering Science Better

2829 Reach Road, Williamsport, PA 17701 • Phone: (570) 326-4001 • Fax: (570) 326-0399 • www.pacelabs.com

PAS, LLC - Williamsport, PA	**Project:** General
2829 Reach Road	**Project Number:** 30656888
Williamsport, PA 17701	**Reported:** 02/07/2024 09:16

Analytical Results

Sample ID: INJECTATE
Lab ID: 2400430-01
Matrix: Non-Potable Water
Sampled: 01/26/2024 11:10
Received: 01/31/2024 13:11

Analyte	Result	Units	Qualifier	Reporting Limit	Prepared	Analyzed	Method	Analyst
General Chemistry								
Specific Gravity	1.099	SU			2/5/24 15:26	2/5/24 15:36	SM 2710 F	ALK

INJECTATE SAMPLE

Delivering Science Better

2829 Reach Road, Williamsport, PA 17701 • Phone: (570) 326-4001 • Fax: (570) 326-0399 • www.pacelabs.com

PAS, LLC - Williamsport, PA	**Project:** General
2829 Reach Road	**Project Number:** 30656888
Williamsport, PA 17701	**Reported:** 02/07/2024 09:16

Quality Control

General Chemistry

Analyte	Result	Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: 4B05004 - Wet Chem Prep										
LCS (4B05004-BS1)					Prepared & Analyzed: 02/05/2024					
Specific Gravity	0.9970			SU				98.6-101		
Duplicate (4B05004-DUP1)		**Source: 2400430-01**			Prepared & Analyzed: 02/05/2024					
Specific Gravity	1.112			SU		1.099			1.18	3.64

INJECTATE SAMPLE

Delivering Science Better

2829 Reach Road, Williamsport, PA 17701 • Phone: (570) 326-4001 • Fax: (570) 326-0399 • www.pacelabs.com

PAS, LLC - Williamsport, PA	**Project:** General
2829 Reach Road	**Project Number:** 30656888
Williamsport, PA 17701	**Reported:** 02/07/2024 09:16

Notes and Definitions

Item	Definition
ND	Not Detected at or above the Minimum Reporting Limit
Reporting Limit	This value represents the minimum concentration that the target analyte can be identified and quantitated with confidence

INJECTATE SAMPLE

Chain of Custody

PASI Pittsburgh Laboratory

2400430

Workorder: 30656888 **Workorder Name:** JB/PLUTO INJECTION WELL **Results Requested By:** 2/20/2024

Report / Invoice To

Nikayla M. Yasurek
Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3,4
Greensburg, PA 15601
Phone (724)850-5600
Email: nikayla.yasurek@pacelabs.com

Subcontract To

Pace Williamsport P.O.

Send Invoice To: invoices@pacelabs.coupahost.com
State of Sample Origin: WV

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						Requested Analysis: Specific Gravity												LAB USE ONLY
1	INJECTATE	1/26/2024 11:10	30656888005	Water							X												
2																							
3																							
4																							
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible]	1/30/24 1330	Regan Doyle / PAS	1-31-24 1311
2				
3				

Comments

T [illegible] 1-31-24

Cooler Temperature on Receipt 1.4 °C **Custody Seal** Y or (N) **Received on Ice** (Y) or N **Samples Intact** (Y) or N

T2 — REP 2/2/24

Company Name/Address:
North Central Engineering, LLC
P.O. Box 628
Bridgeport, WV 26330

Billing Information:
Same

Pres Chk

Analysis / Container / Preservative

WO# : 30656888

30656888

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Report to: **Joshua Cook**

Email To: **Jcook@northcentralengineering.com**

Project Description: **JB/Pluto Injection Well**

City/State Collected: **Ritchie/ WV**

Please Circle: ET

Phone: **3042991583**

Client Project # **JB**

Lab Project #

Collected by (print): **Joshua Cook**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___ x

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

See Attached

SDG #

Table #

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Remarks	Sample # (lab only)
SE	Grab	GW		1-26-24	9:45		
NE	Grab	GW		1-26-24	10:09		
NW	Grab	GW		1-26-24	10:31		
SW	Grab	GW		1-26-24	10:55		
INJECTATE	Grab	GW		1-26-24	11:10		

NON-CONFORMANCE
Number of containers not filled out

INJECTATE SAMPLE

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
___ UPS ___ FedEx ___ Courier ___ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ___NP ___Y ___N
COC Signed/Accurate: ___Y ___N
Bottles arrive intact: ___Y ___N
Correct bottles used: ___Y ___N
Sufficient volume sent: ___Y ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N
RAD Screen <0.5 mR/hr: ___Y ___N

	Date:	Time:			
Relinquished by : (Signature)	1-29-24	11:48	Received by: (Signature) BMM/PACE	1/29/24 11:48	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature) BMM/PACE	1/29/24	14:00	Received by: (Signature)	1400	Temp: 0.9°C Bottles Received:
Relinquished by : (Signature)	1-29-24 1600	Time:	Received for lab by: (Signature)	Date: 1/29/24	Time: 1605

If preservation required by Login: Date/Time

Hold: Condition:

Stream Samples	Injectate
Chloride	Chloride
Bromide	Bromide
Strontium	Strontium
Barium	Barium
Iron	Iron
Manganese	Manganese
Aluminum	Aluminum
Arsenic	Arsenic
Sodium	Sodium
Calcium	Calcium
Sulfate	Sulfate
PH	Specific Gravity
Total Dissolved Solids (TDS)	PH
	Total Dissolved Solids (TDS)
	Radium-226 and Radium 228
	Gross Alpha and Gross Beta

INJECTATE SAMPLE

DC#_Title: ENV-FRM-BEAV-0058 v03_Pace WV Sample Condition Upon Receipt (SCUR)
Effective Date: 2/8/2023

WO#: 30656888

PM: NMY **Due Date: 02/20**
CLIENT: NORTHCENENG

LIMS30 Lab Sample Condition Upon Receipt (West Virgin

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ 3rd Party Courier ☑ Pace ☐ Other _____

Tracking #: _____

Custody Seal on Cooler/Box/Containers Present: ☐ yes ☑ no Seals Intact: ☐ yes ☑ no

Thermometer Used #25 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 1.2 °C Correction Factor: 0 °C Final Temp: 1.2 °C

Thermal Preservation Requirement Met Yes ☑ No ☐

pH paper Lot#	Date and Initials of person examining contents:
226322	JC 1-29-24

	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous sample field filtered: -pH adjusted within 24 hours? (If yes, indicate acid lot #)			✓ ✓	13.
Filtered volume received for Dissolved tests:			✓	14.
All containers have been checked for chemical preservation: exceptions: VOA, coliform, O&G, LLMercury, Non-aqueous matrix	✓			15.
All containers meet method/chemical preservation requirements:	✓			Initial when completed: JC Date: 1-29-24
				Tests not preserved:
Headspace in VOA Vials:			✓	16.
Trip Blank Present:			✓	17.
				Initial when completed: JC Date: 1-29-24

Comments: _____

*PM review is documented electronically in LIMS, when the Project Manager closes the SRF Review schedule in LIMS. The status may be reviewed in the Status section of the Workorder Edit Screen.

INJECTATE SAMPLE

Pace Analytical Services	DC#_Title: ENV-FRM-GBUR-0176 v01_Subcontracting Directions
	Effective Date: 6/15/2023

Subcontracting Laboratory: Pace Williamsport

Project Must Arrive at Subcontracted Laboratory by: 1/30/24

☐ Saturday delivery

Project Manager: Nikayla Yasurek

Project Number: 30656888

Today's Date: 1/30/24

Sample ID	Matrix	Send Whole Jar (size/type)	Split / Pour Off from This Jar:	Volume to Send (if split off)
005	WT		BP1U	WGFU (enough volume for
				specific gravity)

Completed by: (Initials) NMY Date/Time: 1/30/24 08:33

Reviewed by: (PM Initials) _____ Date/Time: _____

Received by SR: (Initials) _____ Date/Time: _____

Packed by:(Initial/Date) _____ Verified by:(Initial/Date) _____

Shipped Verification Stamp

Qualtrax ID: 55719

Pace Analytical®

Williamsport Lab Sample Condition Upon Receipt

INJECTATE SAMPLE

Client Name: Pace Pittsburgh Project # 2400430

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label _____

LIMS Login

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used 8 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 1.4 °C Correction Factor: ~ °C Final Temp: 1.4 °C

Temp should be above freezing to 6°C

pH paper Lot# NA Date and Initials of person examining contents: RJD 1-31-24

Comments:	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:		X		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	X			5.
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:		X		8.
Sufficient Volume:	X			9.
Correct Containers Used: -Pace Containers Used:	X X			10.
Containers Intact:	X			11.
Orthophosphate field filtered			X	12.
Hex Cr Aqueous sample field filtered			X	13.
Organic Samples checked for dechlorination:			X	14.
Filtered volume received for Dissolved tests			X	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix			X	16.
All containers meet method preservation requirements.			X	Initial when completed / Date/time of preservation / Lot # of added preservative
Headspace in VOA Vials (>6mm):			X	17.
Trip Blank Present:			X	18.
Trip Blank Custody Seals Present			X	
Rad Samples Screened < 0.5 mrem/hr			X	Initial when completed: / Date:

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

(4/25)

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-085-09276	Jay-Bee Oil & Gas, Inc.	Devonian
47-017-05717	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05389	Jay-Bee Oil & Gas, Inc.	Marcellus
47-085-02239	Jay-Bee Oil & Gas, Inc.	Injun
47-085-09699	Jay-Bee Oil & Gas, Inc.	Injun
47-085-08699	Jay-Bee Oil & Gas, Inc.	Injun
47-085-08800	Jay-Bee Oil & Gas, Inc.	Injun
47-085-09094	Jay-Bee Oil & Gas, Inc.	Injun
47-085-02279	Jay-Bee Oil & Gas, Inc.	Injun
47-085-09133	Jay-Bee Oil & Gas, Inc.	Injun
47-085-09134	Jay-Bee Oil & Gas, Inc.	Injun
47-085-09135	Jay-Bee Oil & Gas, Inc.	Injun
47-085-02280	Jay-Bee Oil & Gas, Inc.	Injun
47-085-02404	Jay-Bee Oil & Gas, Inc.	Injun
47-085-02405	Jay-Bee Oil & Gas, Inc.	Injun
47-085-02517	Jay-Bee Oil & Gas, Inc.	Injun
47-085-02550	Jay-Bee Oil & Gas, Inc.	Injun
47-085-08625	Jay-Bee Oil & Gas, Inc.	Injun
47-085-08701	Jay-Bee Oil & Gas, Inc.	Injun
47-017-05712	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05713	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05870	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05658	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05659	Jay-Bee Oil & Gas, Inc.	Gordon
47-017-05929	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05952	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05971	Jay-Bee Oil & Gas, Inc.	Marcellus

Make as many copies as necessary and include page numbers as appropriate.

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-017-05928	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05968	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06030	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05992	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05991	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05969	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05970	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05996	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-05997	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02020	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02025	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02026	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02052	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02053	Jay-Bee Oil & Gas, Inc.	Marcellus
47-103-02500	Jay-Bee Oil & Gas, Inc.	Marcellus
47-103-02502	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02051	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02082	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02081	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06022	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06023	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02085	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02084	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02083	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02092	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02094	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02091	Jay-Bee Oil & Gas, Inc.	Marcellus

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APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-095-02098	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02097	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02096	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02024	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02133	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02140	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02135	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02136	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02137	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02138	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02139	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02141	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02142	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02160	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02161	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02144	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02145	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02146	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02191	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02190	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02168	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02050	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02101	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02100	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02102	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02105	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02106	Jay-Bee Oil & Gas, Inc.	Marcellus

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APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-095-02107	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02108	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02117	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02116	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02115	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02123	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02134	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02149	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02150	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06437	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06738	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02147	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02148	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06545	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06546	Jay-Bee Oil & Gas, Inc.	Marcellus
47-017-06547	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02223	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02225	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02226	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02227	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02228	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02229	Jay-Bee Oil & Gas, Inc.	Marcellus
47-095-02230	Jay-Bee Oil & Gas, Inc.	Marcellus
Dopey 3	Jay-Bee Oil & Gas, Inc.	Marcellus Pending
Dopey 6	Jay-Bee Oil & Gas, Inc.	Marcellus Pending
Dopey 7U	Jay-Bee Oil & Gas, Inc.	Uticia Pending
RPT8-4	Jay-Bee Oil & Gas, Inc.	Marcellus Pending

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APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
RPT8-4U	Jay-Bee Oil & Gas, Inc.	Uticia Pending
Larry 2	Jay-Bee Oil & Gas, Inc.	Marcellus Pending
Larry 2U	Jay-Bee Oil & Gas, Inc.	Uticia Pending
Larry 3U	Jay-Bee Oil & Gas, Inc.	Uticia Pending
Moe 3U	Jay-Bee Oil & Gas, Inc.	Uticia Pending
Moe 4	Jay-Bee Oil & Gas, Inc.	Marcellus Pending
	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	
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	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	
	Jay-Bee Oil & Gas, Inc.	

Make as many copies as necessary and include page numbers as appropriate.

ConocoPhillips

SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION

Product identifier used on the label:

Product Name: **Produced Brine Water**

SDS Manufacturer Number: 401320

Other means of identification:

Recommended use of the chemical and restrictions on use:

Product Use/Restriction: Process Water

Chemical manufacturer address and telephone number:

Manufacturer Name: Conoco Phillips

Address: 600 N. Dairy Ashford
Houston, TX 77079-1175

Website: www.conocophillips.com

General Phone Number: 855-244-0762.....E-mail: SDS@conocophillips.com

Emergency phone number:

Emergency Phone Number: Chemtrec: 800-424-9300 (24 Hours)

SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

Signal Word: Not applicable.

GHS Class: Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200..

Hazards not otherwise classified that have been identified during the classification process:

Information related to product mixture

Carcinogenicity: Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.

Signs/Symptoms: Overexposure from ingestion can result in nausea, vomiting, diarrhea, abdominal cramps, and dehydration (thirst).

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

Chemical Name	CAS#	Ingredient Percent	EC Num.
Water (Process)	7732-18-5	> 90 %	
Sodium Chloride	7647-14-5	< 10 %	

Notes : [1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 : FIRST AID MEASURES

Description of necessary measures:

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: First aid is not normally required. However, it is good practice to wash any chemical from the skin.

Inhalation: (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion:	(Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.
Notes :	Most important symptoms and effects: None known or anticipated. None known or anticipated.

SECTION 5 : FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media:	Use extinguishing agent suitable for type of surrounding fire.

Specific hazards arising from the chemical:

Hazardous Combustion Byproducts:	None anticipated.
Unusual Fire Hazards:	No unusual fire or explosion hazards are expected. If container is not properly cooled, it can rupture in the heat of a fire.
Fire Fighting Instructions:	For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

NFPA Ratings:

NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0

Notes :	NFPA 704 Hazard Class: (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe) See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personnel Precautions:	Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental precautions:

Environmental Precautions:	Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.
Methods for cleanup:	Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations. Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

SECTION 7 : HANDLING and STORAGE

Precautions for safe handling:

Handling:	Precautions for safe handling: Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage, including any incompatibilities:

Storage:	Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Information related to product mixture :

Guideline Info:	State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Appropriate engineering controls:

Engineering Controls:	If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Individual protection measures:

Eye/Face Protection:	The use of eye protection that meets or exceeds ANSI Z.87.1 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, a face shield may be necessary.
Skin Protection Description:	The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals.
Respiratory Protection:	Emergencies or conditions that could result in significant airborne exposures may require the use of NIOSH approved respiratory protection. An industrial hygienist or other appropriate health and safety professional should be consulted for specific guidance under these situations. A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.
Notes :	Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	Appearance: Clear Form: Liquid
Odor:	Salty
Odor Threshold:	No Data
Boiling Point:	Initial: 212 deg F/100 deg C
Melting Point:	No Data
Specific Gravity:	(Water=1): 1.1 @ 68 deg F/20 deg C
Solubility:	Complete
Vapor Density:	(AIR=1): > 1
Vapor Pressure:	< 0.36 psia @ 70 deg F/21.1 deg C
Evaporation Rate:	(nBuAc=1): No data
pH:	No Data
Coefficient of Water/Oil Distribution:	(n-octanol/water) (Kow): No data
Flash Point:	Not Applicable
Lower Flammable/Explosive Limit:	(vol % in air): Not applicable
Upper Flammable/Explosive Limit:	(vol % in air): Not applicable
Auto Ignition Temperature:	No Data

9.2. Other information:

Notes :	Note: Unless otherwise stated, values are determined at 20 deg C (68 deg F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability:

Chemical Stability:	Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions:

Hazardous Polymerization:	Not known to occur.

Conditions To Avoid:

Conditions to Avoid:	None known.

Incompatible Materials:

Incompatible Materials:	Materials to Avoid: Avoid contact with materials that are incompatible with water.

Hazardous Decomposition Products:

Special Decomposition Products:	Not anticipated under normal conditions of use.

SECTION 11 : TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Information related to product mixture :

Eye:	Causes mild eye irritation.
Skin:	Acute Toxicity: Skin Absorption: Hazard: Unlikely to be harmful LD50 Data: > 2 g/kg (estimated) Not expected to be irritating.
Inhalation:	Acute Toxicity: Hazard: Unlikely to be harmful LC50 Data: > 5 mg/L (mist, estimated)
Ingestion:	Acute Toxicity: Ingestion (Swallowing): Hazard: Unlikely to be harmful LD50 Data: > 5 g/kg (estimated)
Sensitization:	Skin Sensitization: Not expected to be a skin sensitizer. Respiratory Sensitization: No information available on the mixture, however none of the components have been classified for respiratory sensitization (or are below the concentration threshold for classification).
Carcinogenicity:	Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.
Mutagenicity:	Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.
Reproductive Toxicity:	Not expected to cause reproductive toxicity.
Other Toxicological Information:	Signs and Symptoms: Overexposure from ingestion can result in nausea, vomiting, diarrhea, abdominal cramps, and dehydration (thirst).
Target Organ Single Exposures:	Not expected to cause organ effects from single exposure.
Target Organ Repeated Exposures:	Not expected to cause organ effects from repeated exposure.
Aspiration:	Not an aspiration hazard.

SECTION 12 : ECOLOGICAL INFORMATION

Information related to product mixture :

Ecotoxicity:

Ecotoxicity:	Not evaluated
Other adverse effects :	None anticipated.

SECTION 13 : DISPOSAL CONSIDERATIONS

Description of waste:

Information related to product mixture :

Waste Disposal:	The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations. This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste. Container contents should be completely used and containers should be emptied prior to discard.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name:	Shipping Description: Not regulated Note : Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable
IATA UN Number:	Not regulated
IMDG Shipping Name :	Shipping Description: Not regulated
ICAO UN Number :	Not regulated

SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

Information related to product mixture :

TSCA Inventory Status:	All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
TSCA 12(b) Export Notification:	U.S. Export Control Classification Number: EAR99

CERCLA Section 302:	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds): This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.
Section 311/312 Hazard Categories:	CERCLA/SARA - Section 311/312 (Title III Hazard Categories) Acute Health: No Chronic Health: No Fire Hazard: No Pressure Hazard: No Reactive Hazard: No
Section 313:	CERCLA/SARA - Section 313 and 40 CFR 372: This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372. EPA (CERCLA) Reportable Quantity (in pounds): This material does not contain any chemicals with CERCLA Reportable Quantities.
California PROP 65:	California Proposition 65: This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.
Other adverse effects :	None anticipated.

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:

HMIS Personal Protection:

Health Hazard	
Fire Hazard	
Reactivity	
Personal Protection	

Other Information:	SDS Number: 401320
SDS Revision Date:	October 08, 2015
MSDS Revision Notes:	Supersedes: 02-Apr-2012 Format change
Guide to Abbreviations:	ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)
Disclaimer:	The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Place Holder

Section 10 - Monitoring

PLAN FOR WELL FAILURES

The following summarizes the plan to address failure of any well to protect the surface environment and prevent migration of injected fluids into any USDW:

Disposal Well Contingency Plan

1. Monitoring and periodic routine investigative procedures will be performed on the injection wells as required by applicable laws, permits and regulations. Pertinent data will be reviewed regularly by qualified operators and forwarded to the agencies as required. Monitoring and testing will be designed to assure-well integrity and safe operation.
2. If a well fails required continuous monitoring or periodic testing standards, the well will be shut-in and the agency notified according to applicable regulations and permit conditions. After investigation into the cause for the failure, work plans will be prepared and reviewed with the regulators for repairing the problem.
3. If a workover is performed on a well, mechanical integrity testing will be conducted as required by applicable regulations before the well is returned to service. Copies of all work reports and logs will be forwarded to the regulatory agencies per applicable requirements.
4. During the period of time required for a well workover or for shut-ins due to MIT failure, the contingency plans of the facility will include the following:

a. If shut-in period is sufficiently brief, the fluids accumulated during this period of time will be routed to another well or held in storage at the facility.

aa. Facilities we will dispose at API 47-085-09721 in Ellenboro, Ritchie County, WV.

MONITORING PROGRAM

The monitoring program proposed for injection operations at this site focuses on the active injection wells themselves. A variety of data will be collected to monitor the injection well operations. This monitoring will take place through utilizing both periodic and continuous techniques.

Mechanical Integrity Testing

Testing of the annulus will be completed as determined by concern of well failure. Casing inspection logs may be conducted to investigate corrosion if it is determined to be necessary due to operational or regulatory concerns when tubing is already removed from the borehole during a workover or stimulation.

STEP RATE TEST

1. Should the 0.8 psi/ft. gradient not allow for sufficient injection pressure for injection operations, a higher pressure may be approved based upon a step-rate test. The Office would then approve up to 90% of the determined formation parting pressure or the maximum pressure reached during the step-rate test in which formation parting does not occur.
2. In order that step-rate test data is valid and supplies the required information needed for the Office to approve a higher injection pressure, the following procedures and equipment should be utilized for testing.

a. The test should be shut-in at least seventy-two (72) hours prior to testing to allow bottom-hole pressure to approach the formation pressure.

b. Test consists of a series of constant-rate injections which increase in a stepwise fashion. Rates should center around the proposed injection rate.

c. Injection periods should last sixty minutes for formations having a permeability of less than ten millidarcies and thirty minutes for formations having a permeability of greater than ten millidarcies.

d. Test should consist of at least six injection periods.

e. Injection rates should be controlled with a constant flow-rate regulator.

f. Flow rates should be measured with a turbine flowmeter and rate meter. A stopwatch should be used to check flow rates.

g. Calibrated pressure gages should be used for observing pressure at each rate at the surface on the flowing string and all annulus. Measurement of bottom-hole pressures is preferable but not necessary.

h. Test procedures along with injection rates and pressures are to be recorded and submitted to the Office along with a plot of the data.

3. Should there be a need to vary from this test procedure substantially; the Office should be contacted first for agreement of the test procedure.

4. Please notify the Office forty-eight (48) hours prior to testing to allow the Office the opportunity to witness the test.

Continuous and Operational Monitoring

The proposed wells will have one long string protective casing extending into the injection interval with cement isolating all permeable intervals. The annulus pressure is to be continually monitored to detect any leaks in the tubing or casing. If leaks develop during injection, pressurized annulus fluid would be injected into the permitted injection interval, and injected fluids would not be able-to contact the production string casing above the permitted injection zone. Injectate should therefore have no potential for leakage into un-permitted formations.

Monitoring of physical parameters associated with injection operations will be conducted pursuant to state regulations. At a minimum the monitoring will include, injection pressure, annulus pressure, injection rate, injection volume, annulus level, and injectate characteristics. Details regarding this monitoring follow. Automatic shutdown capability will be operated to ensure that maximum pressure or minimum annulus differential requirements are not exceeded.

Annulus and Injection Pressure

Both the injection pressure and the annulus pressure are to be recorded continuously for each well. Electronic pressure transducers will be placed in pressure taps on the annulus system and injection flow lines. A signal will be sent from these transducers to a digital recorder and/or a chart recorder. The automated control system data will be visually inspected a minimum of once daily for anomalies when the well is operating. As part of the process and controls, the monitoring system will record maximum, minimum and average information. Differential pressures are to be obtained by comparison of simultaneous readings of the annulus and injection pressure transducer readings obtained for the wells.

Injection Rate and Volume

The flow rate to each well will be determined by a liquid flow meter designed for continuous monitoring. Flow rate is to be measured in the flow line to each well. The instrument will send signals to the process control system that calculates cumulative volume.

Annulus Tank Levels

The annulus tank in each well system will have sufficient reservoir capacity to accommodate the anticipated volume fluctuations due to operating temperature and pressure limitations. The annulus tank is to be equipped with an armored reflex sight glass, pressure relief valve and independent liquid fill nozzle. If any annulus fluid is added, it will be recorded by the well operators on an operator log sheet. Annulus tank level is to be recorded a minimum of weekly when injection occurs.

Waste Characterization and Analysis

Injectate characteristics will be monitored by collecting samples per the approved waste analysis plan entered as part of the administrative record for this permit. The waste analysis to be conducted is intended to provide representative data regarding average injectate chemical constituents.

Place Holder

Section 11 - Groundwater Protection Plan (GPP)

(4/25)

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: Pluto 1A

County: Ritchie

Facility Location:

Postal Service Address:	429 Simonton Rd.		
Ellenboro, WV 26337			
Latitude :	39.261592	Longitude:	-81.081835

Contact Information:

Person:	Shane Dowell
Phone Number:	304-628-3111
E-mail Address:	sdowell@jaybeeoil.com

Date: 3-3-2016

1. A list of all operations that may contaminate the groundwater.

1. Injection of Brine water produced from local brine water wells, stored in tanks.
2. Diesel, engine oil, hydraulic oil from trucks on site for loading/unloading.
3. Diesel, engine oil, hydraulic oil from pumps on site for disposal.

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

Loading and unloading of trucks will occur on a concrete pad, that is diked for containment. The pumps will be permanently set in this concrete containment. The tanks storing production water will also be on the concrete containment. All fluids captured in this concrete containment will be captured in a separate tank and disposed of at facility capable of handling the material captured.

Office of Oil & Gas
MAR 30 2016

3. List procedures to be used when designing and adding new equipment or operations.

All equipment will be reviewed for containment ability first. The concrete containment will be built for expansion, in case the equipment would require containment. All equipment will be reviewed by the engineering company involved in building our facility.

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

Activities will include capturing of all fluids stored in water trucks, including but not limited to: Unloading of stored Brine Water in storage tank on truck, storage of hydraulic fluid, diesel fuel and Diesel Exhaust Fluid stored directly on the truck. Storage of engine oil for the downhole pump used for disposal.

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

N/A

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

No waste material will be used for de-icing or fill material on the property unless allowed by another state or federal rule.

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.

During the construction phase of the location, all employees will have daily communication regarding the integrity of silt fence, including proper installation. Post construction one on one employee training will include:

- Proper containment cleanup (since the facility will be concrete)
- Proper connect and disconnect of connections to unloading brine trucks.
- Proper communication of the spill hotline, in case of emergency.
- Discussion of proper pre and post trip inspections on trucks at the facility.
- Proper understanding of the loadout procedures at the facility.
- Daily inspection of the disposal well head, including pressures.
- Proper inspection and operation of the tanks and pump(s) at the facility.

8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

- Daily Inspections - Pump, Tank and Equipment inspections for leak and working ability.
- Weekly Inspections - Containment integrity at unload site. Tank integrity. Wellhead integrity.

Signature: _____

Date: 3-29-2016

Place Holder

Section 12 - Plugging and Abandonment

Jay-Bee Oil & Gas

Basic Plugging Proposal
UIC Permit Application (2D08510284)-per section 12
Well Name: Pluto # 1A
API Number: 47-085-10284-00-00

Prepared by:
Austin Clark
Date: 5/20/2024

Well Bore Diagram

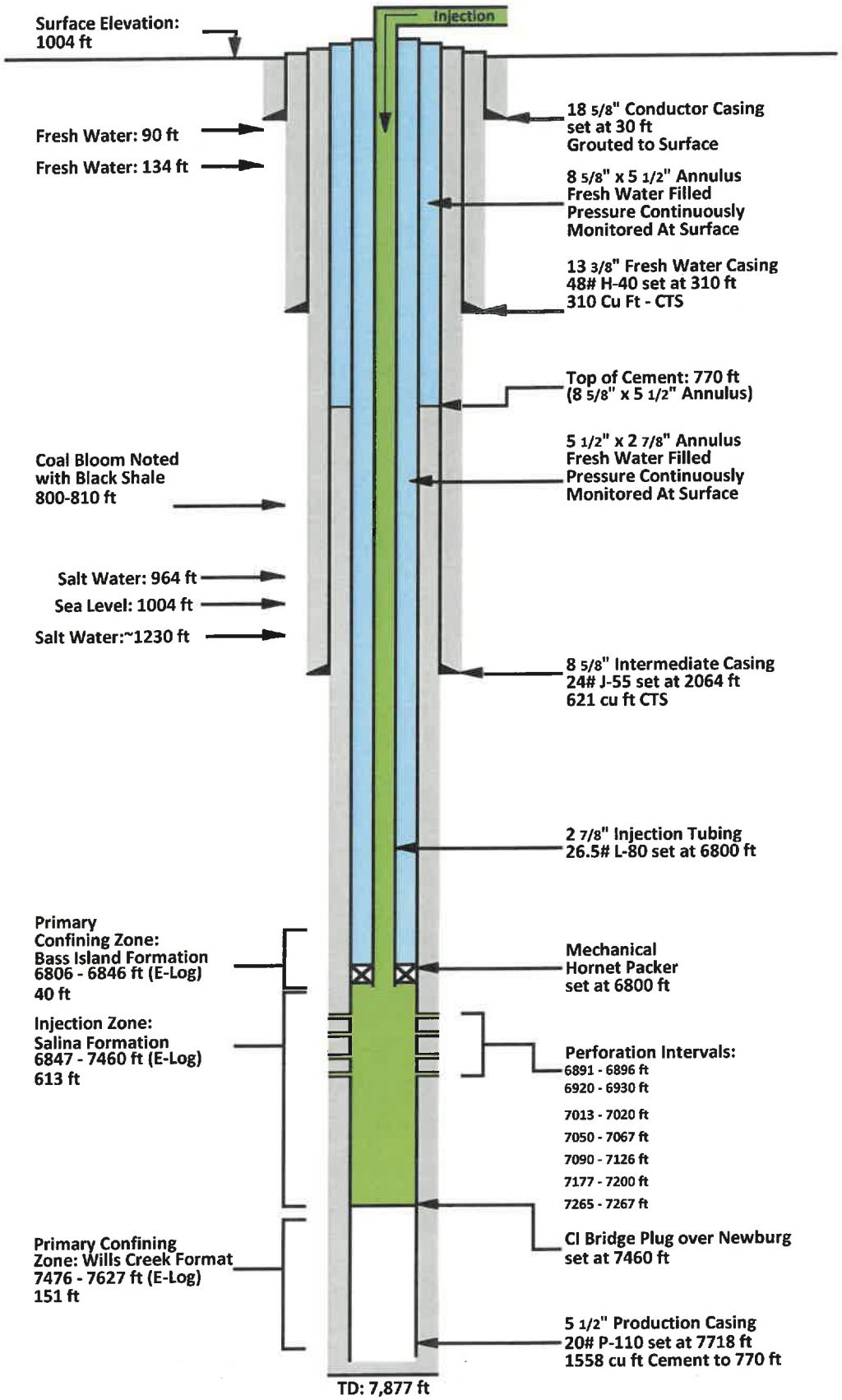
Pluto #1A

API 47-085-10284

Jay Bee Oil & Gas, Inc.

UIC 2D08510284001

(Well Drilled: July 18, 2020)



Well:	**Pluto 1A**
County:	**Ritchie**
District:	**Clay**
API:	**47-085-10284**
AFE:	**NA**
Location Coordinates:	**39.261592, 81.081835**
Address:	**429 Simonton Road Ellenboro 26346**

Date Drilled:	
Surface Elevation:	1202'
Surface Equipment:	Tubing, Valves, Tubing Head
Injection Formation:	Salina
Perforations:	6891'-7267', 7634'-7664', 7704'-7717'
8.375" TD:	7877'
16" Conductor:	30'
11.75" Surface:	310'
5.5" Production:	7700'
2.875" Injection Tubing	6800'

***Note: A 6% Bentonite Gel Spacer is to be used in-between each cement plug. All cement is to be CLASS A mixed at 15.6#*

Plugging Proposal: w/1.18 cf/sx or CLASS A w/2% CaCl

1 MIRU Workover rig. RU BOP's. Baker J-Style Packer @ 6800'. Release packer. Pull 2-7/8" Injection Tubing.
2 Set Retrievable 5.5" Plug.
3 ND Tubing head, and NU BOP's. Rig back up on well.
4 RIH and pull 5.5" Retrievable plug.
5 RIH with mill to millout 5.5' CIBP.
6 **Proceed to Cement from bottom of well to top following all current WV O&G State P&A Requiments.**
7 Rig down Service Rig and pull off of well.
8 Move off service rig and all surface equipment.
9 Begin reclamation process, seed and mulch. Check with WV if any additional work is needed.
10 Install monument per state guidelines, *"monument or marker consisting of a length of pipe (minimum diameter size six inches (6")) filled with concrete (or the equivalent thereof if approved by the Chief) shall be erected over the well. The marker shall extend no less than thirty inches (30") above the surface and not less than ten feet (10') below the surface and into the well, and shall be sealed with concrete for the purpose of making the marker permanent. The API well identification number, as described above, shall be attached or stamped in a permanent manner to the monument, and the numbering shall be no less than one half inch (1/2") in height and detectable by any interested person approaching the marker*".

Place Holder

Section 13 - Additional Bonding

CD-1
Page 2 of 2
(Rev 1/12)

API NO. 47-085-10239
(For single well bond only)

ASSIGNMENT OF CERTIFICATE OF DEPOSIT

Jay-Bee Oil & Gas, Inc. (Applicant) hereby assigns to the West Virginia Department of Environment Protection, Office of Oil and Gas (the Department), Certificate of Deposit Number 8607045199, fully assigned to the State of West Virginia, as collateral bond to satisfy requirements as provided 22-6-26 and 22-6A-15, West Virginia Code, 1931, as amended.

This assignment of Certificate of Deposit in the amount of Five Thousand Dollars and 00/100 ---------- , $ 5,000.00 , is for the purpose of assuring that Applicant shall faithfully perform all of the requirements of aforesaid statute, regulations promulgated thereunder and terms of any permit issued for the operation of its oil and gas well(s).

This assignment shall be effective so long as Applicant shall own and operate said well(s) and until such time as applicant elects to provide alternative form of bond as provided by law or until released by the Department from its obligation after Applicant has satisfactorily met all conditions provided by statute, regulations and permit terms.

The Department is authorized to charge against the above Certificate of Deposit upon the failure of Applicant to faithfully perform all requirements as set out above.

Company: Jay-Bee Oil & Gas, Inc. FEIN or SS No. 55-0738882

Executed by: X

*Title: VP

Address: 1720 Rt. 22 E, Union, NJ 07083-6126

Dated: 2/3/16 (Corporate Seal)

Subscribed and sworn to before the undersigned by DEBORAH BRIDA MORGAN, as V. P. (title) of the JAY-BEE OIL & GAS INC (Corporation) this 3rd day of FEBRUARY, 2016.

My Commission expires on 4-25-19.

Notary Public

(Notary Seal)

Bank: United Bank, Inc.

By:

Title: Market President

President or Vice-President

*If Corporation, should be signed by President or Vice-President. If executed by other official, must be accompanied by documentation of Board of Directors' authorizing such official to execute documents on behalf of the Corporation.)

Place Holder

Section 14 - Financial Responsibility

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

In accordance with WV Code 47CSR13.13.7.g, all UIC permits shall require the permittee to maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Chief. The permittee must show evidence of financial responsibility to the Chief by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Chief. This certification must be signed by one of the following:

1. For a corporation: by a principle corporate officer of at least the level of vice-president;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: by either a principle executive officer or ranking elected official;
4. Or a duly authorized representative in accordance with 47CSR13.13.11.b.
   (A person may be duly authorized by one of the primary entities (1-3) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

Jay-Bee Oil & Gas, Inc.

(Company Name)

2D8510284

(UIC Permit Number)

I certify in accordance with 47CSR13.13.7.g., that the company/permit holder cited above will maintain financial responsibility and resources to close, plug, and abandon underground injection wells(s) in a manner prescribed by the Chief of the Office of Oil and Gas and that documents to support this requirement are on record with the same.

Jonathan Morgan

(Print Name)

COO

(Print Title)

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NOV 06 2023
WV Department of
Environmental Protection

(Signature)

11/2/23

(Date)

Place Holder

Section 15 - Site Security Plan

APPENDIX J

Site Security for Commercial Facilities

Provide a detailed description of the method(s) utilized at the facility to restrict or prohibit illegal dumping of unauthorized waste or vandalism at the facility.

1. Complete enclosure of all wells, holding tank/pits and manifold assemblies within a chain link or other suitable fencing; and

2. Require that all gates and other entry points be locked when the facility is unattended; or

3. Providing tamper-proof seals for the master valve on each well (a "lock-out" or chain & padlock system would be more secure; however, these devices could create a potential safety hazard if the well needed to be quickly shut in due to an emergency); and

4. Installing locking caps on all valves and connections on holding tanks, unloading racks, and headers.

Well heads and tanks/containments are properly fenced with multiple entry points and gates with company locks.

The facility itself has multiple entry points and locking doors.

Wellhead has lockout/tagout and valve open/closure procedures in place.

All tanks and manifolds have lockable valves and tanks can be isolated.

There is a camera security system installed at the outside of facility, internal views of facility, tanks, containment and offload areas.

Facility has lockout/tagout equipment and procedures in place for all internal and external equipment.

Place Holder

Section 16 - Additional Information

APPENDIX K

Identify permit or construction approvals received or applied for under the following programs:

Permit/approvals	ID Number
Hazardous Waste Management Program under RCRA	
NPDES Program	
Prevention of Significant Deterioration (PSD)	
Nonattainment Program	
Dredge or Fill	
NPDES/NPDES – Stormwater	
WVDEP – Office of Waste Management (OWM) – Solid Waste Facility	
WVDEP – OWM – RCRA (Hazardous Waste TSD or Transporter)	
WVDEP – OWM – UST	
CERCLA – Superfund	
WV Voluntary Remediation – Brownfields	
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act	
Well Head Protection Program (WHPP)	
Underground Injection Control (UIC)	2D0851028400l - renewal app
Toxic Substances Control Act (TSCA)	
Best Management Plans	
Management of Used Oil	
Other Relevant Permits (Specify):	