UIC PERMIT RENEWAL APPLICATION

SYNERGY OIL & GAS, INC.

2019

UIC PERMIT#

2D0392803

SMITH #1 DISPOSAL WELL

Prepared by:Blake Jones

Precision Oil and Gas, INC.

2/11/19

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FEB 19 2019

WV Department of
Environmental Protection

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	SYNERGY OIL & GAS, INC.		
Existing UIC Permit ID Number	2D0392803	UIC Well API Number	4703902803

Office of Oil and Gas Office Use Only	
Permit Reviewer	DAN
Date Received	3/12/19
Administratively Complete Date	3/25/19
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. Check # 31729 $550.00 received 3/4/19

- ☑ 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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dep

- [x] Appendix D Public Service District Affidavit - Will be provided when received from PSD
- [NA] Appendix E Water Sources - Not Applicable
- [NA] Appendix F Area Permit Wells - Not Applicable
- [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
- [NA] Section 13 – Additional Bonding - Not Applicable
- [x] Section 14 – Financial Responsibility
  - [x] Appendix I Financial Responsibility
- [NA] Section 15 – Site Security Plan - Not Applicable
  - [NA] Appendix J Site Security for Commercial Wells - Not Applicable
- [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): Blake E. Jones

Reviewed by (Sign): Blake E. Jones

Date Reviewed: 2/11/19

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 1-5

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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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 # 2D0392803 API # 4703902803 WELL # SMITH #1

Section I. Facility Information

Facility Name: SYNERGY OIL AND GAS, INC.

Address: **625 Jakes Run Road**

City: ELKVIEW State: WV Zip: 25071

County: KANAWHA

District: Elk
7.5 Quad: Kettle

Location description:

Along I79, Exit 9, Take ramp right for CR 43 toward Elkview, Turn right onto Frame Rd, turn right onto Jakes Run Road: 625 Jakes Run Road, Elkview, WV 25071

Location of well(s) or approximate center of field/project in UTM NAD 83 (meters):

Northing: 4262150.5N Easting: 460717.6E

Latitude: 38.506845
Longitude: -81.450552

Environmental Contact Information:

Name: Blake Jones Title: GIS Specialist

Phone: 304-709-8382 Email: bjones42@gmail.com

Section 2. Operator Information

Operator Name: SYNERGY OIL & GAS, INC

Operator ID: **494498802**

Address: P.O. Box 190

City: Chloe State: WV Zip: 25235

County: Calhoun

Contact Name: Harold Hamrick Contact Title: OWNER

Contact Phone: 304-982-2522 Contact Email: n/a

Promoting a healthy environment.

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:

Water produced from Big Injun formation from wells within the area to be disposed into the Big Injun formation between 1808ft(top) to 1820ft(bottom)

This is a Non-Commercial Disposal Well and disposes of Class II compliant fluids.

CERTIFICATION

All permit applications must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, or by a principal executive or ranking elected official for a public agency, or a [1]duly authorized representative in accordance with 47CSR13-13.11.b.

A. Name and title of person applying for permit:

Print Name: Harold Hamrick

Print Title: Owner

B. Signature and Date.

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.

Signature: Harold Hamrick

Date: 2/6/19

[1] A person is a duly authorized representative if:

The authorization is made in writing by a person described in subdivision 47CSR13-13.11.a.

The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of the plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility.

The written authorization is submitted to the Director.

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 6

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

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WV Department of
Environmental Protection

SYNERGY OIL & GAS, INC.

UIC PERMIT# 2D0392803

SECTION 6

1. SEE ATTACHED MAP - The attached Figure No. 4 is an aerial map showing the well site of the Smith #1 disposal well. The site map shows the injection well, storage tank, containment areawith dimensions, and well access road.

2. See the attached well schematic, Figure No. 5

3. SEE ATTACHED APPENDIX A and APPENDIX B.

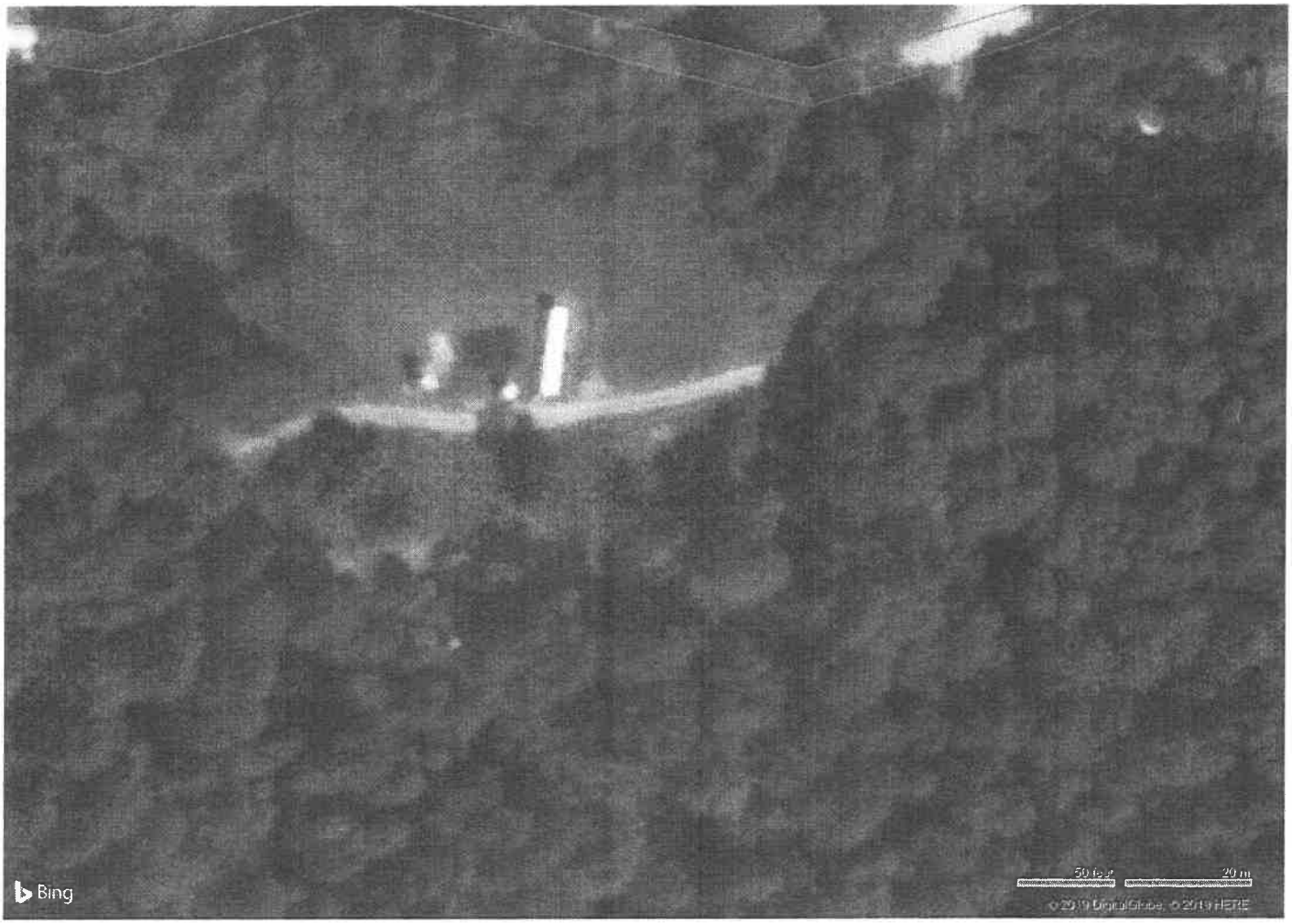
4. Unfortunately after extensive research no drilling logs could be found for the subject disposal well, Smith #1.

bing maps

Notes

SYNERGY OIL AND GAS, INC.
UIC#: 2D0392803
AERIAL VIEW OF DISPOSAL WELL

625 JAKES RUN RD.
ELKVIEW, WV 25071



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(4/25)

APPENDIX A
Injection Well Form

1) GEOLOGIC TARGET FORMATION: BIG INJUN

Depth: 1808 Feet (top) 1820 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 2278 Feet

3) Approximate water strata depths: Fresh 95 Approx. Feet Salt NONE 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 1000 psig Source Est. from current reservoir pressure

7) Estimated reservoir fracture pressure _____ psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour): 5 Bbl/hr

Injection volume (bbl/day): _____

Injection pressure (psig): 350

Bottom hole pressure (psig): 1200

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

SALT WATER/BRINE
FORMATION WATER

Temperature of injected fluid: (°F): AMBIENT

10) FILTERS (IF ANY)

None

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

APPENDIX A (cont.)

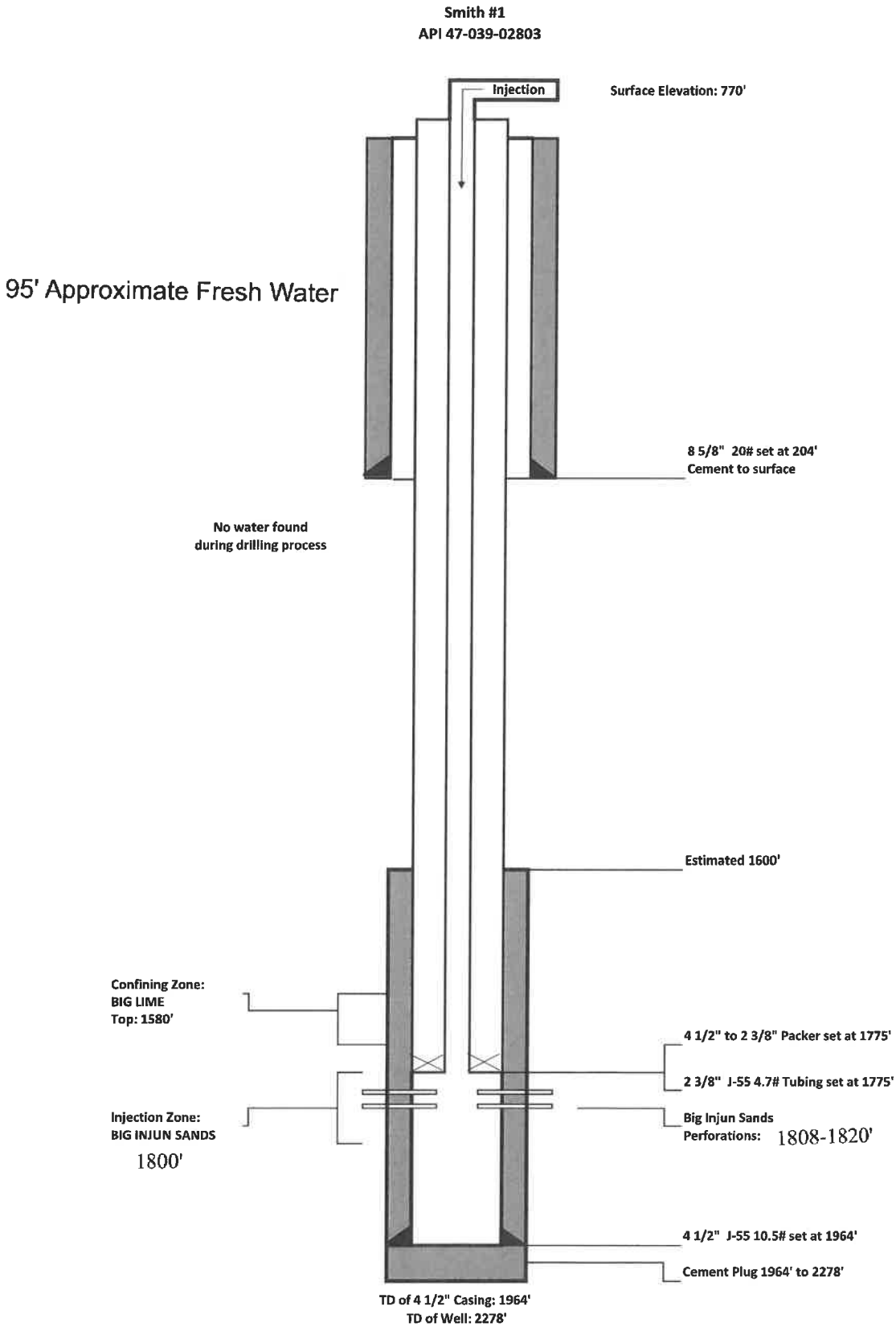
12. Casing and Tubing Program

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor							
Fresh Water	8 5/8"	NEW		20lbs	204'	204'	TO SURFACE
Coal							
Intermediate 1							
Intermediate 2							
Production	4 1/2"	NEW		9.9lbs	1964'	1964'	EST. to 1600'
Tubing	2 3/8	NEW		4.7lbs	1757'	1775'	
Liners							

TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor							
Fresh Water							
Coal							
Intermediate 1							
Intermediate 2							
Production							
Tubing							
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	HALIBURTON			
Sizes:	4-1/2 x 2-3/8			
Depths Set:	1775			

Figure No. 5



OG-10
Rev. - 9-71

2803

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Kettle 7 1/2
Quadrangle Walton
Permit No. KAN-2803

Rotary X Oil ____
Cable ____ Gas ____
Recycling ____ Comb. X
Water Flood ____ Storage ____
Disposal ____ ____ (Kind)

Company Franklin '76
Address 1814 Seventh St., Parkersburg, WV
Farm Woodrow Smith Acres 154
Location (waters) Jakes Fork
Well No. 1 Elev. 770'
District Elk County Kanawha
The surface of tract is owned in fee by
Woodrow Smith
Address Frame, W. Va.
Mineral rights are owned by C.B.Canterbury et al
____ Address Charleston, WV
Drilling Commenced Nov. 14, 1977
Drilling Completed Nov. 18, 1977
Initial open flow ____ cu. ft. ____ bbls.
Final production ____ cu. ft. per day 30 bbls.
Well open ____ hrs. before test 300# RP.
Well treatment details:

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	204	204	To surface
7			
5 1/2			
4 1/2	1964	1964	To 1600' est.
3			
2			
Liners Used			

Attach copy of cementing record.

Fractured 5-12-78: 610 bbl. water: 30,000# 20/40 mesh sand; 500 gal Hcl Acid.

Coal was encountered at -- Feet -- Inches
Fresh water -- Feet -- Salt Water -- Feet ____
Producing Sand Big Injun Depth 1808-1820

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Surface			0	20		
Sand			20	60		
Shale			60	90		
Sand-Shale			90	180		
Shale			180	200		
Sand-Shale			200	260		
Shale			260	340		
Sand			340	480		
Shale-Sand			480	640		
Sand			640	780		
Shale-Sand			780	1120		
Sand			1120	1470		
Sand-Shale			1470	1580		
Limestone			1580	1800		
Sand			1800	1830		
Sandy Shale			1830	2278		
Berea Top at 2220 (No sand)						

(over)

* Indicates Electric Log tops in the remarks section.

2803

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
0						

Date August 4, 1978

APPROVED Franklin '76

By Dennis L. Ratliff
(Title) Agent

"Pipeline"

Select County: (039) Kanawha | Enter Permit #: 2803 | 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 = 39 Permit = 2803

Report Time: Friday, February 22, 2019 12:58:55 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703902803	Kanawha	2803	Elk	Kettle	Walton	38.506809	-81.451026	460675.1	4262145.3

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
4703902803	11/18/1977	Original Loc	Completed	Woodrow Smith	1				C B Canterbury et al	Franklin 76			
4703902803	-/-/-	Worked Over	Completed	Woodrow Smith	1					Beech, Inc.		Big Injun (Price&eq)	

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_E
4703902803	11/18/1977	11/14/1977	770	Ground Level	Blue Ck(Flg Rk)	Sunbury Sh	Big Injun (Price&eq)	Development Well	Development Well	Oil w/ Gas Show	Rotary	Acid+Frac	2278		2278		
4703902803	-/-/-	-/-/-	770	Ground Level	Blue Ck(Flg Rk)	Sunbury Sh	Big Injun (Price&eq)	Service Well	Unsuccessful	Salt Water Disp	unknown	unknown	2278		0		

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703902803	-/-/-	Horizon	Injection	Vertical	1808	Big Injun (Price&eq)	1820	Big Injun (Price&eq)					
4703902803	11/18/1977	Pay	Oil	Vertical	1808	Big Injun (Price&eq)	1820	Big Injun (Price&eq)					

Production Gas Information: (Volumes in Mcf) * 2018 data are incomplete at this time

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902803	Trinity Oil and Gas Corp.	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Trinity Oil and Gas Corp.	1983	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Trinity Oil and Gas Corp.	1985													
4703902803	Status Oil Wells, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2006	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 * 2018 data are incomplete at this time

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902803	Trinity Oil and Gas Corp.	1982	2,994	574	162	191	177	245	559	206	190	125	283	137	145
4703902803	Trinity Oil and Gas Corp.	1983	7,760	873	709	683	665	665	631	573	788	469	582	582	539
4703902803	Trinity Oil and Gas Corp.	1985	410	39	39	33	19	45	26	52	25	32	27	46	27
4703902803	Status Oil Wells, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902803	Status Oil Wells, Inc.	2006	0	0	0	0	0	0	0	0	0	0	0	0	0

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

Stratigraphy Information:

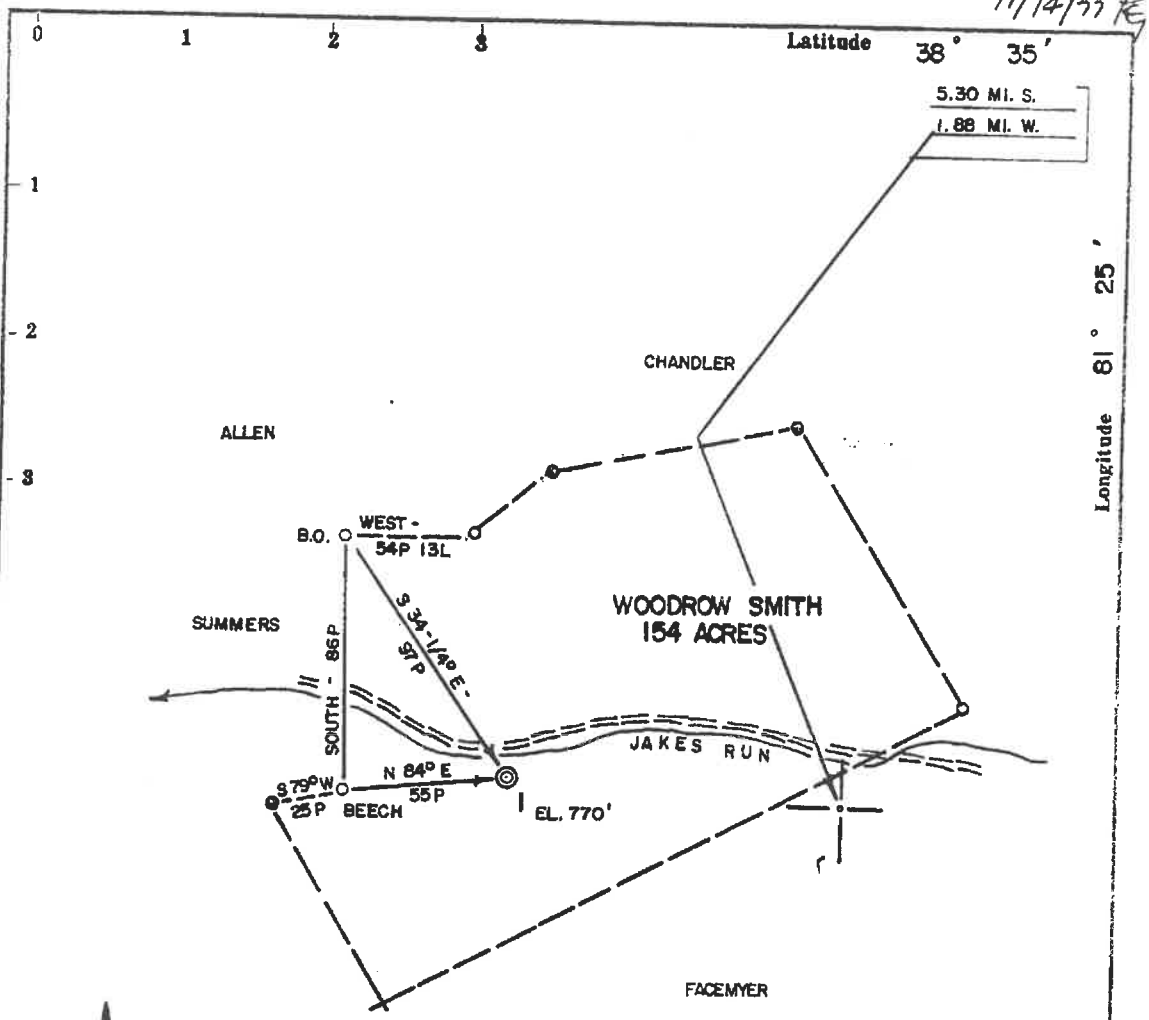
API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703902803	Original Loc	Greenbrier Group	Well Record	1580	Reasonable	230	Reasonable	770	Ground Level
4703902803	Original Loc	Big Lime	Well Record	1580	Reasonable	220	Reasonable	770	Ground Level
4703902803	Original Loc	Big Injun (Price&eq)	Well Record	1800	Reasonable	30	Reasonable	770	Ground Level
4703902803	Original Loc	Sunbury Sh	Well Record	2220	Reasonable			770	Ground Level

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

11/14/77 KG 2803



ACCURACY: 1P/ 200P

Source of Elevation LITTLE SANDY (681')

New Location ■
Drill Deeper □
Abandonment □
Fracture □
Redrill □

I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia.

Chet Waterman

Company FRANKLIN '76
Address 30 ROCKEFELLER PLAZA, N.Y.C.
Farm WOODROW SMITH
Tract ___ Acres 154 Lease No. ___
Well (Farm) No. 1 Serial No. ___
Elevation (Spirit Level) 770'
Quadrangle WALTON
County KANAWHA District ELK
Engineer CHET WATERMAN
Engineer's Registration No. 3788
File No. 77003-481 Drawing No. ___
Date 11/9/77 Scale 1" = 50P

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

WELL LOCATION MAP

FILE NO. KAN-2803

Denotes location of well on United States Topographic Maps, scale 1 to 62,500, latitude and longitude lines being represented by border lines as shown.

— Denotes one inch spaces on border line of original tracing.

47-039

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							
	47-039-02803	#6	4262143.00	460675.10	11/18/1977	492	Steel	7140	Water	3360 est.	Double
1	47-039-02803	12035	4262140.00	460675.28	11/18/1977	492	Steel	4200	Water	1000 est.	Double
2	47-039-02803	114650	4262140.00	460675.27	11/18/1977	492	Steel	4200	Water	1000 est.	Double
	47-039-02803	#3	4262140.00	460675.26	11/18/1977	492	Steel	4200	Water	1000 est.	Double
4	47-039-02803	11917	4262140.00	460675.22	11/18/1977	492	Steel	8820	Oil/Water	500 est.	Double

Synergy Oil & Gas, Inc.
2D0392803 Disposal Well
#6 Storage Tank - 170bbl
3/4/19

UIC#2D0392803 Containment Area 3/4/19

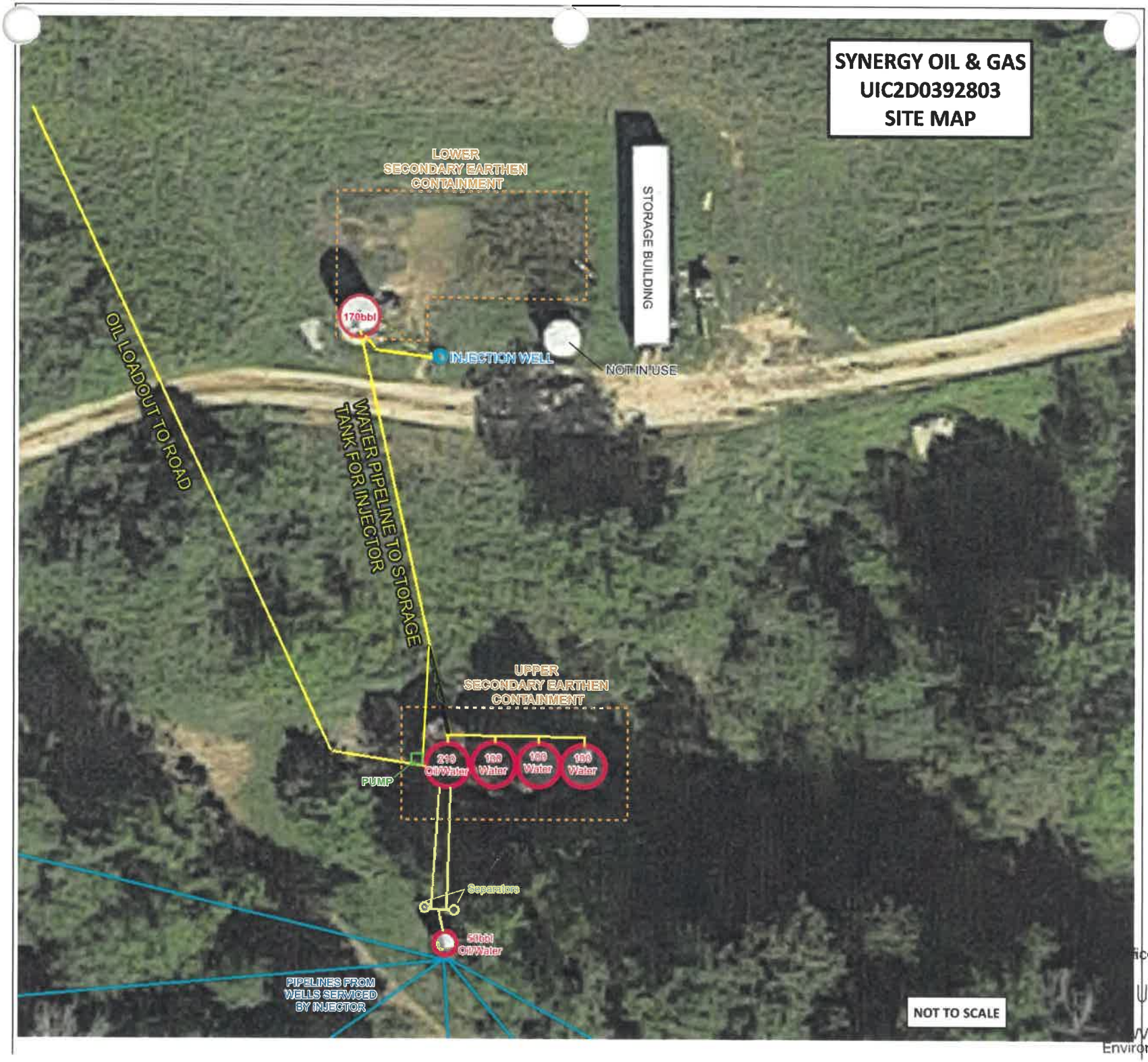
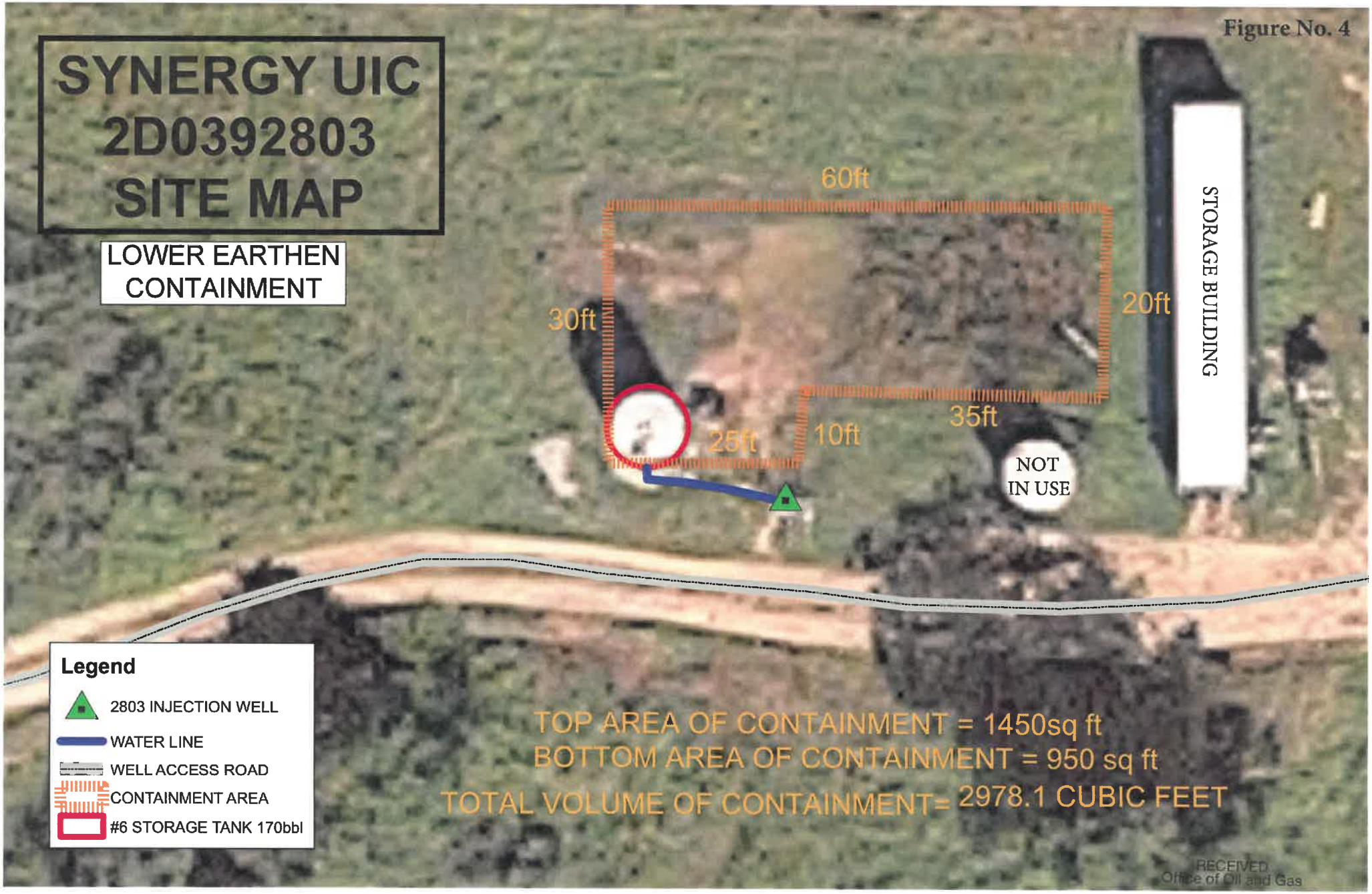


Figure No. 4

SYNERGY UIC 2D0392803 SITE MAP

LOWER EARTHEN CONTAINMENT



Synergy UIC# 2D0392803 Storage Tank #6 Containment Volume
LOWER CONTAINMENT

Calculations for Earthen Wall Containment	2:1 Side Slope
H = Containment depth:	2.5 ft
A1 = Area of containment top: (30 ft x 25 ft) + (35 ft x 20 ft)	1450 square ft
A2 = Area of containment bottom: (25 ft x 20 ft) + (30 ft x 15 ft)	950 square ft
Total volume of containment: H x (A1 + A2 + sqrt(A1 x A2)) / 3 2.5 ft x (1450 sf + 950 sf + sqrt(1450 sf x 950 sf)) / 3	2978.1 cubic ft
Volume of one 170 bbl tank (Tank 1): (170 bbl x 42 gal/bbl x 0.1337 cf/gal)	954.618 cubic ft
Volume of 110% of one 170 bbl tank: (954.618 cf x 1.10)	1050.07 cubic ft
Ratio of effective containment volume to 110% tank volume: (1050.07 cf / 2978.1 cf)	**284%**

After calculating the volume of the earthen wall containment for the subject injection well's storage tank, it is found that the containment area is capable of containing **284%** of the 170bbl storage tank.

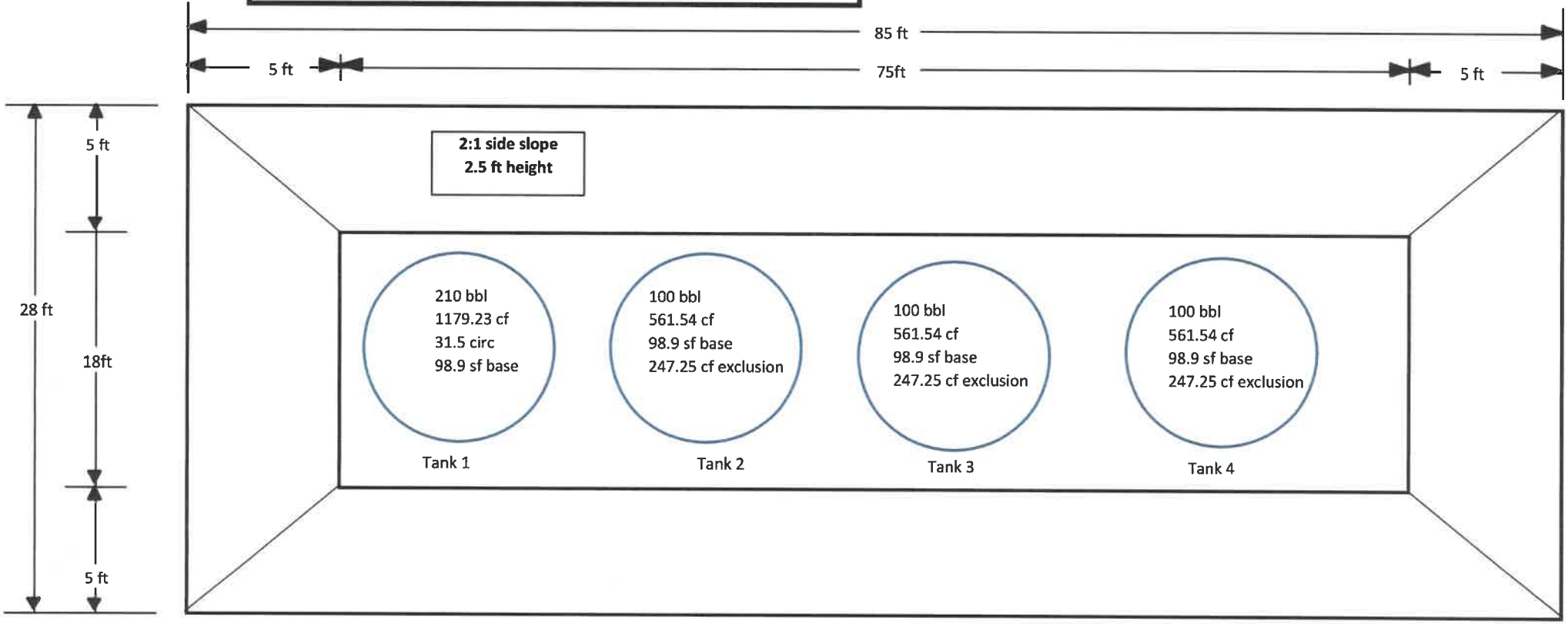
Storage tank #6 has been properly registered with the WVDEP

Compute V = (h)*(A1 + A2 +sqrt(A1*A2))/3

A1	A2	A1 * A2	sqrt(A1*A2)	V1+V2 +sqrt(V1*V2)	Depth (H)	*(H)	/3	Tank Ex	110%	Cont Vol	%
1450	950	1377500	1173.7	3573.7	2.5	8934.2	2978.1	0	1050.08	2978.1	**284%**

Synergy Oil & Gas, Inc.
Upper Secondary Earthen Wall Containment
UIC2D0392803

Earth Containment 2:1 Slope (scale approximate)



Synergy Oil & Gas, Inc.
2D0392803 UPPER CONTAINMENT

Calculations for Earthen Wall Containment	2:1 Side Slope
H = Containment depth:	2.5 ft
A1 = Area of containment top: (85 ft x 28 ft)	2380 square ft
A2 = Area of containment bottom: (75ft) + (18 ft)	1350 square ft
Total volume of containment: H x (A1 + A2 + sqrt(A1 x A2)) / 3 2.5 ft x (2380 sf + 1350 sf + sqrt(2380 sf x 1350 sf)) / 3	4602.1 cubic ft
Volume of one 210 bbl tank (Tank 1): (210 bbl x 42 gal/bbl x 0.1337 cf/gal)	1179.23 cubic ft
Volume of 110% of one 170 bbl tank: (1179.234 cf x 1.10)	1297.16 cubic ft
Base area of three 100 bbl tanks 3 x 3.14 x (31.5): (Tanks in containment not connected to subject tank) (Tank 2 +Tank 3+Tank 4) or (98.9 sf + 98.9 sf + 98.9)	296.73 square ft
Volume excluded by Tank 2 + Tank 3 + Tank 4: (296.73 sf x 2.5 ft)	741.83 cubic ft
Total containment volume minus non-connected tanks: (4602.1 cf - 741.83)	3860.27 cubic ft
Ratio of effective containment volume to 110% tank volume: (1297.16 cf / 3860.2 cf)	**298%**

It is found that the largest tank in the upper containment area is 210bbl. After calculating the volume of the upper earthen wall containment for the subject injection well's storage tanks, it is found that the containment area is capable of containing **298%** of the 210bbl storage tank. All AST have been properly registered with the WVDEP

Compute V = (h)*(A1 + A2 +sqrt(A1*A2))/3

				V1+V2 +sqrt(V1*V2)							
A1	A2	A1 * A2	sqrt(A1*A2)		Depth (H)	*(H)	/3	Tank Ex	110%	Cont Vol	%
2380	1350	3213000	1792.5	5522.5	2.5	13806.2	4602.1	741.83	1297.16	3860.2	**298%**

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 7

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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WV Department of
Environmental Protection

SYNERGY OIL & GAS, INC.

UIC PERMIT# 2D0392803

Section 7

2. SEE ATTACHED FIGURE No. 1 and Figure No. 1-A in Section 6 - See the topographic maps with all recognized wells located within the general vicinity of the subject disposal well, Smith #1 (Producing, Plugged, Injection, etc.). Figure No. 1 map is shown with a 1/4 mile AOR buffer and Figure No. 1-A has a 1 mile buffer around subject injection well. All permit numbers are shown.

   Attached herein (Can be found in back of Permit) is also all available well records (WR-35, OG-10, IV-35, Drillers Log, and/or Well Completion Record) for all wells drilled within the AOR. No wells have been reported as "Plugged."

   SEE ATTACHED APPENDIX C

   There were no publically recorded water sources found within a 1 mile buffer of the proposed injection wells. APPENDIX D- Public Service District Affidavit will be provided when received from PSD.

3. No USDW's have been found in AOR.

4. No USDW's have been found in AOR.

5. No USDW's have been found in AOR.

6. There is no immediate threat of fluid migration from the subject disposal well as no USDW's have been found in AOR.

7. Not applicable

Figure No. 1

SYNERGY OIL & GAS UIC PERMIT - 2D0392803 SMITH #1

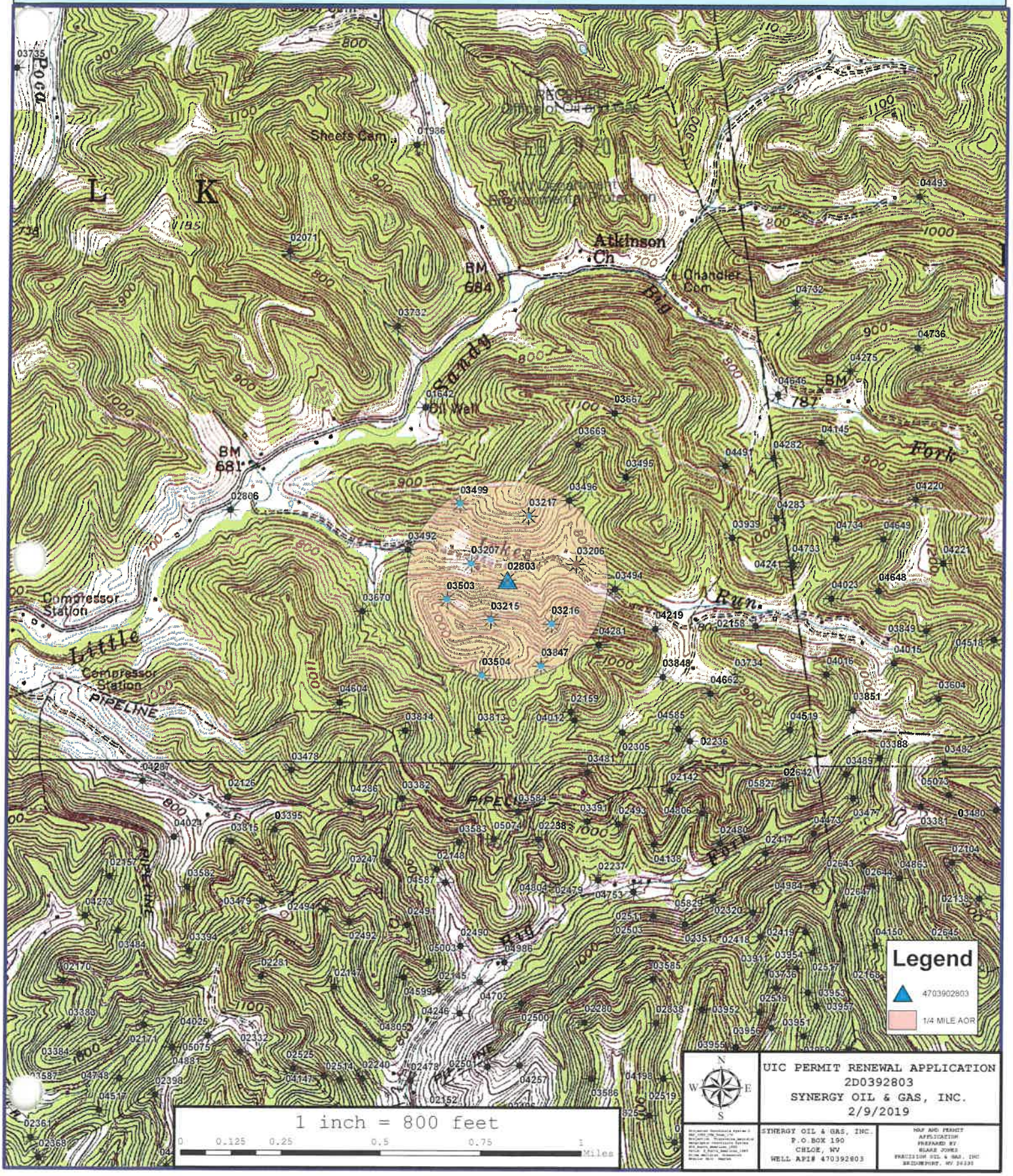
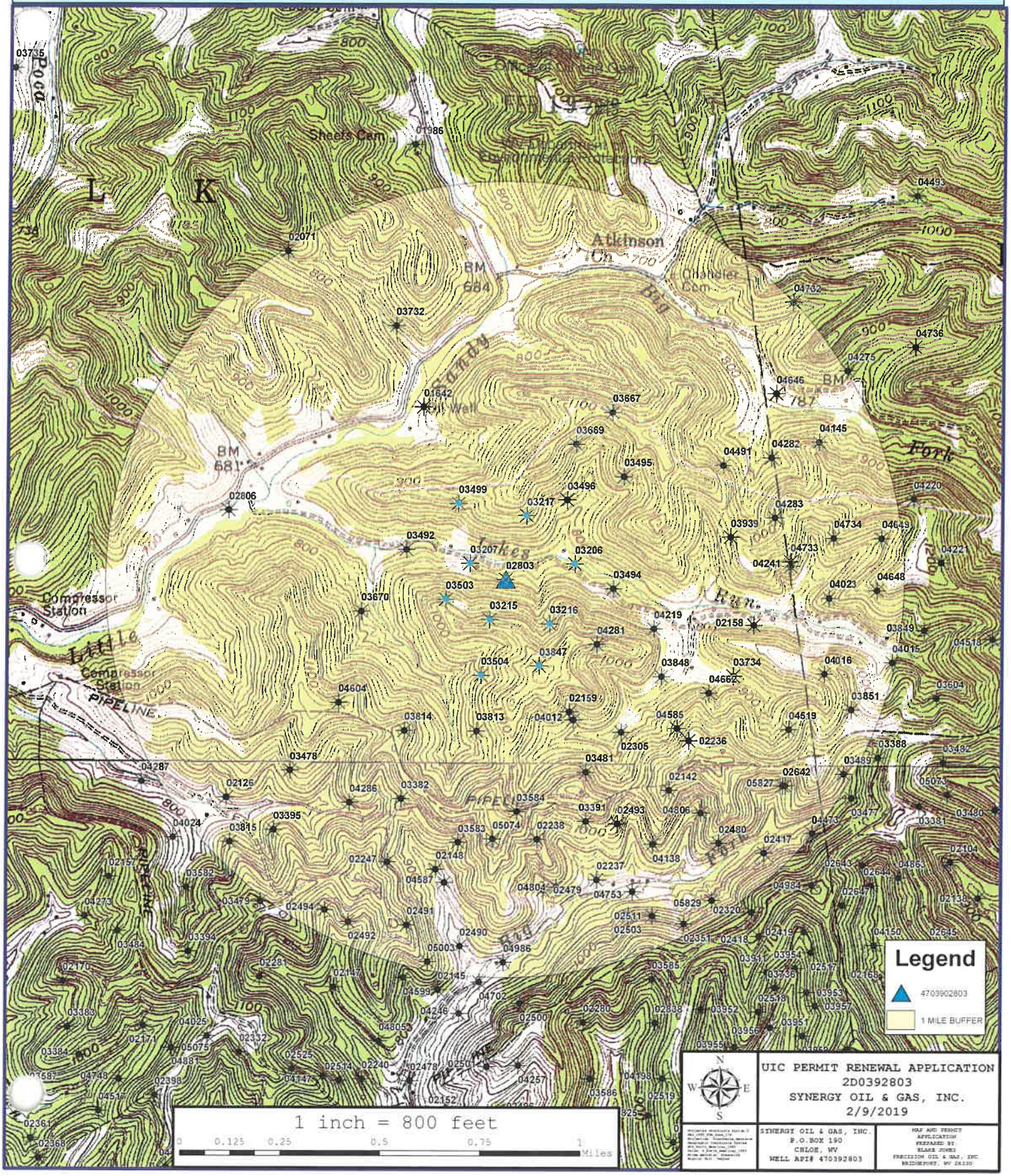


Figure No. 1-A

SYNERGY OIL & GAS UIC PERMIT - 2D0392803 SMITH #1



APPENDIX C

Wells within the Area of Review

API #	Well Type	Well Status (Active, Abandoned, Shut-in, Plugged)	Northing (UTM NAD 83 Meters)	Easting (UTM NAD 83 Meters)	Penetrate Injection Zone (Y or N)	Penetrate Confining Zone (Y or N)	Total Vertical Depth	Surface Elevation
47-039-03499	OIL PRODUCTION	ACTIVE	4262452	460483.3	Y	Y	2031	UNKNOWN
47-039-03217	GAS PRODUCTION	ACTIVE	4262402.4	460756.7	Y	Y	2082	964
47-039-03206	OIL PRODUCTION	ACTIVE	4262208.3	460949	N	Y	1851	760
47-039-03216	OIL PRODUCTION	ACTIVE	4261967.4	460851.3	Y	Y	2092	963
47-039-03847	OIL PRODUCTION	ACTIVE	4261795	460807.7	Y	Y	2292	1153
47-039-03215	OIL PRODUCTION	ACTIVE	4261984.7	460610	Y	Y	2085	1030
47-039-3504	GAS PRODUCTION	ACTIVE	4261759.5	460576.8	Y	Y	2086	931
47-039-03503	OIL PRODUCTION	ACTIVE	4262066	460433.3	Y	Y	2065	962
47-039-03207	OIL PRODUCTION	ABANDONED	4262210.4	460530.5	Y	Y	1853	817
47-039-2803	WASTE DISPOSAL	ACTIVE	4262143	460675.1	Y	Y	2278	770

Make as many copies as necessary and include page numbers as appropriate.

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

WELL RECORDS AND SUPPLEMENTAL INFO

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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3499

WR-3

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API # 47-039-3499

State of West Virginia
Division of Oil and Gas

Well Operator's Report of Well Work

Name: Smith #10 Operator Well No. NA

LOCATION: Elevation: 931.28' Quadrangle: Kettle 7.5'
District: Elk County: Kanawha
Latitude: 11650 Feet South of 38 Deg. 32 Min.30 Sec.
Longitude: 10640 Feet West of 81 Deg. 25 Min. 00 Sec.

Company: Trinity Oil & Gas Corp.
Suite 565 55 W., 42nd St.,
New York, NY 10036
Agent: Ed Clark
PO Box 422, Sutton, WV 26601
Inspector: Mr. Fred Burdette
Permit Issued:
Well work Commenced: 10-11-79
Well work Completed: 10-15-79
Verbal Plugging
Permission granted on:
Rotary X Cable Rig
Total Depth (feet) 2031'
Fresh water depths (ft)

Salt water depths (ft)

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill up Cu.Ft.
Size			
8 5/8"	+-260'	+-260'	
4 1/2"	--	+-2031	

Is coal being mined in area (Y/N)?
Coal Depths (ft): No

OPEN FLOW DATA

Producing formation Injun Pay zone depth (ft) 1973-1988'
Gas: Initial open flow MCF/D Oil: Initial open flow Yes 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

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:

BY:
DATE:

No Fucther Information Available
KB
8-13-90

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Environmental Protection

STIMULATION SUMMARY

	0-8'
Rock & Shale	8-40'
	40-260'
	260-460'
Shale	460-830'
Shale	830-1135'
Shale	1135-1380'
Salt Sand	1380-1505'
	1505-1690'
Salt Sand	1690-1803'
	1803-1812'
Big Lime	1812-1966'
Injun Sand	1966-1994'
Shale	1994-TD
	TD-2031'

Well logged by N/A

5916

3217

OG-10
Rev. - 9-71

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OIL & GAS DIVISION
DEPT. OF MINES

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Rotary X Oil ____
Cable ____ Gas ____
Recycling ____ Comb. X
Water Flood ____ Storage ____
Disposal ____ (Kind)

Quadrangle Kettle 7.5

Permit No. KAN 3217
49-039

Company Franklin Petroleum Corp., Texas
Address c/o 1814 7th St., Parkersburg, WV 26101
Farm Woodrow Smith Acres 154
Location (waters) Jakes Fork
Well No. 11 Elev. 964.13
District Elk County Kanawha
The surface of tract is owned in fee by W. Smith
Address Frame, W. Va.
Mineral rights are owned by C. Canterbury et al
Address Charleston, W. Va.
Drilling Commenced 8-7-78
Drilling Completed 8-10-78
Initial open flow ____ cu. ft. ____ bbls.
Final production 25 M cu. ft. per day 15 bbls.
Well open ____ hrs. before test 260# RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	214	214	To surface
7			
5 1/2			
4 1/2	2073	2073	To 1600'
3			
2			
Liners Used			

Attach copy of cementing record.

Well treatment details:
Fractured by Halliburton 10-24-78.
500 bbls. water, 500 gal. acid, 20,000 lb. 20-40 mesh sand.

Coal was encountered at None Feet ____ Inches
Fresh water None Feet ____ Salt Water ____ Feet ____
Producing Sand Big Inlun Depth 2004-2018

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Sand			0	20		
Shale			20	50		
Sand			50	150		
Shale			150	300		
Sandy shale			300	600		
Sand			600	820		
Shale			820	860		
Sand			860	900		
Shale			900	1120		
Sand			1120	1680		
Shale			1680	1750		
Lime			1750	2000		
Sand			2000	2020		
Shale			2020	2082	Total Depth	

(over)

* Indicates Electric Log tops in the remarks section.

3217

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

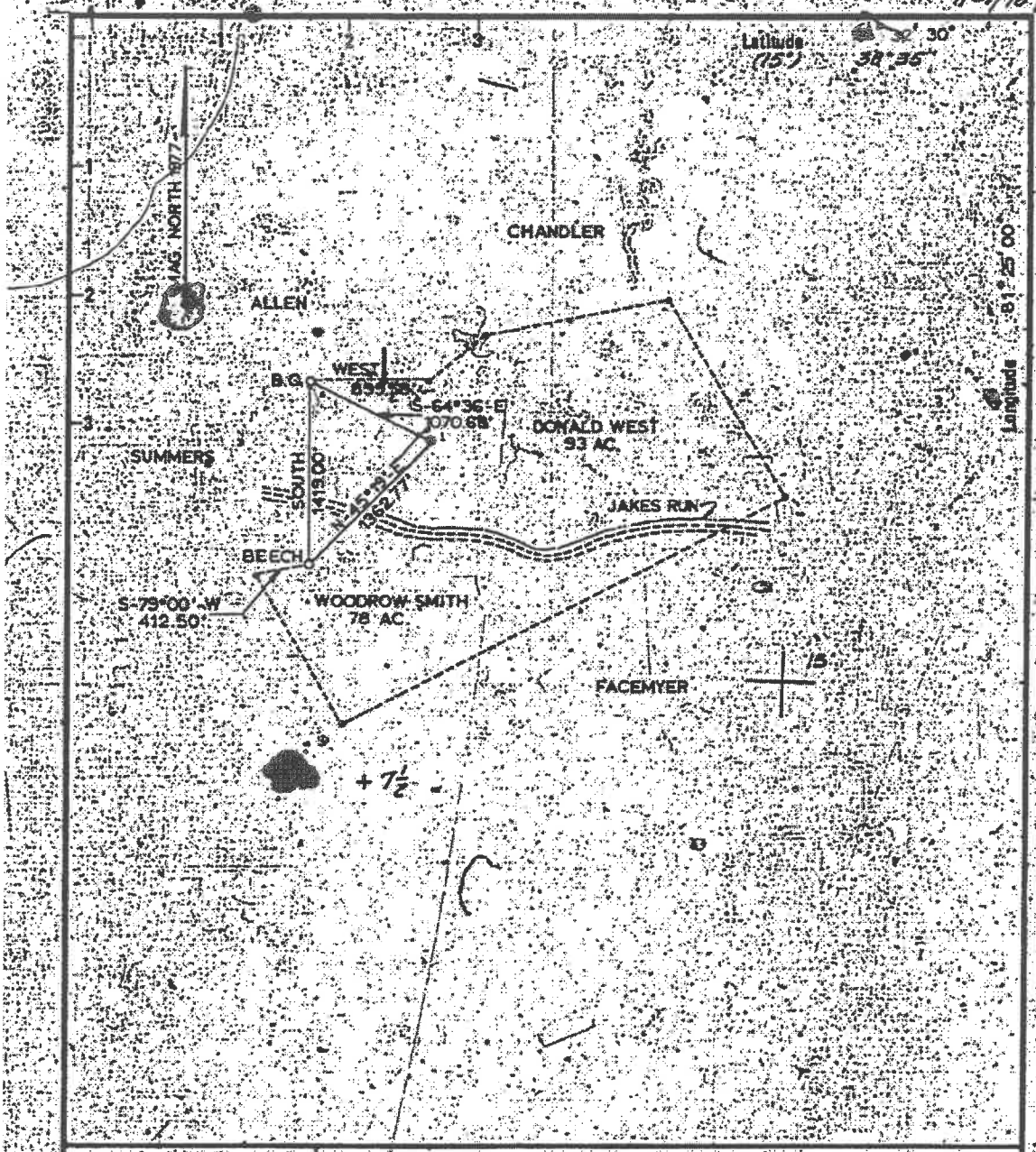
Date January 12, 19 79

FRANKLIN PETROLEUM CORP., TEXAS

APPROVED Denzil L. Prather Owner

By .... Agent (Title)

7/24/18 B 3217



New Location ■
Drill Deeper □
Abandonment □

Minimum Error of Closure 1" in 200'
Source of Elevation LITTLE SANDY (GBI)

"I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia."

Company FRANKLIN ■ Petroleum Corp., Texas
Address 30 ROCKEFELLER PLAZA, NEW YORK, N.Y.
Farm WOODROW SMITH
Tract ____ Acres ____ Lease No. ____
Well (Farm) No. 11 Serial No. ____
Elevation (Spirit Level) 964.13
Quadrangle KETTLE 7.5 MIN. Walton 15'
County KANAWHA District E&K
Engineer ____
Engineer's Registration No. 3576
File No. ____ Drawing No. ____
Date 7-7-78 Scale 1" = 1000'

2400' Berea

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

WELL LOCATION MAP
FILE NO. KAN-3217

+ Denotes location of well on United States Topographic Maps, scale 1" to 62,500 latitude and longitude lines being represented by border lines as shown.

— Denotes one inch spaces on border line of original tracing.

47-039

3206

OG-10
Rev. - 9-71

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JAN 15 1979
OIL & GAS DIVISION
DEPT. OF MINES

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Rotary X Oil ____
Cable ____ Gas ____
Recycling ____ Comb. X
Water Flood ____ Storage ____
Disposal ____ (Kind)

Quadrangle Kettle 7.5

Permit No. KAN 3206
47-039

Company FRANKLIN PETROLEUM CORP., TEXAS
Address c/o 1814 7th St., Parkersburg, WV 26101
Farm Woodrow Smith (West) Acres 154
Location (waters) Lakes Fork
Well No. Two Elev. 760'
District Elk County Kanawha
The surface of tract is owned in fee by
Donald West
Address Pipestem, W. Va.
Mineral rights are owned by G. Canterbury et al
Address Charleston, W. Va.
Drilling Commenced 7-19-78
Drilling Completed 7-23-78
Initial open flow ____ cu. ft. ____ bbls.
Final production 50 Mcu. ft. per day 15 bbls.
Well open ____ hrs. before test ____ RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	214	214	To surface
7			
5 1/2			
4 1/2	1850	1850	To 1550'
3			
2			
Liners Used			

Attach copy of cementing record.

Well treatment details:
Fractured by Halliburton 10-27-78
420 bbls. water; 20,000 lb. 20-40 sand.

Coal was encountered at None Feet ____ Inches
Fresh water None Feet ____ Salt Water ____ Feet ____
Producing Sand Big Injun Depth 1782-1798

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Sand			0	260		
Shale			260	310		
Sandy Shly			310	360		
Sand			360	440		
Shale, Sdy			440	540		
Sand			540	570		
Shale			570	610		
Sand			610	700		
Shly Sand			700	810		
Sand			810	830		
Shale			830	860		
Sand			860	880		
Shale			880	940		
Shale			940	1030		
Sand			1030	1445		
Shale			1445	1510		
Sand			1510	1520		
Limestone			1520	1732		
Dol. Limestone			1732	1780		
Sand			1780	1810		
Shale, Silty			1810	1851	Total Depth	

(over)

* Indicates Electric Log tops in the remarks section.

3206

Formation	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks

Date January 12, 19 79

FRANKLIN PETROLEUM CORP., TEXAS

APPROVED Denzil D. Walker Owner

By Agent

(Title)

3216

OG-30
Rev. 7-9-71

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DEPT. OF MINES

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
Oil and Gas Division
WELL RECORD

Rotary X Oil
Cable Gas
Recycling Comb. X
Water Flood Storage
Disposal (Kind)

Quadrangle Kettle 7.5
Permit No. KAN-3216
47-039

Company FRANKLIN PETROLEUM CORP., TEXAS
Address c/o 1814 7th St., Parkersburg, WV 26101
Farm Woodrow Smith Acres 154
Location (waters) Lakes Fork
Well No. 5 Elev. 963.2
District Elk County Kanawha
The surface of tract is owned in fee by
Woodrow Smith
Address Frame, W. Va.
Mineral rights are owned by C. Canterbury et al
Address Charleston, W. Va.
Drilling Commenced 8-2-78
Drilling Completed 8-6-78
Initial open flow ____ cu. ft. ____ bbls.
Final production 20 Mcf. ft. per day 15 bbls.
Well open ____ hrs. before test 250# RP.
Well treatment details:
Well fractured by Halliburton 10-27-78
500bbl. water; 500 gas acid; 20,000 lb. 20-40 mesh sand

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"			
9 5/8"			
8 5/8"	214	214	To surface
7			
5 1/2			
4 1/2	2090	2090	To 1600'
3			
2			
Liners Used			

Attach copy of cementing record.

Coal was encountered at None Feet ____ Inches
Fresh water None Feet ____ Salt Water ____ Feet ____
Producing Sand Big Injun Depth 2016-2030

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Surface (Shale Silt)			0	40		
Sand			40	85		
Shale			85	130		
Shale			130	185		
Sand			185	210		
Shale			210	425		
Sand			425	470		
Shale (Sandy)			470	600		
Sand			600	700		
Shale			700	840		
Sand			840	940		
Shale			940	1030		
Sand			1030	1070		
Shale			1070	1095		
Sand			1095	1125		
Shale (Sandy)			1125	1270		
Sand			1270	1310		
Shale			1310	1330		
Sand			1330	1680		
Shale			1680	1720		
Shale			1720	1740		

(over)

* Indicates Electric Log tops in the remarks section.

3216

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Limestone			1740	[illegible]		
Dol. Lime			1970	2010		
Sand			2010	2040		
Shale	X		2040	2092	Total Depth	

Date January 12, 1979

FRANKLIN PETROLEUM CORP., TEXAS
(Owner)

APPROVED Denzil L. Chalker

By ______ Agent
(Title)

3847

IV-35
(Rev 8-81)

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OCT 1 - 1982
OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

State of West Virginia
Department of Mines
Oil and Gas Division

Date September 29, 1982
Operator's
Well No. #1
Farm OPAL DICK
API No. 47 - 039 - 3847

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: 1153 Watershed Jake's Run of Little Sandy Creek
District: Elk County Kanawha Quadrangle Kettle 7.5'

COMPANY QUAKER STATE OIL REFINING CORPORATION
ADDRESS P.O. Box 1327, Parkersburg, WV 26102-1327
DESIGNATED AGENT Carl J. Carlson
ADDRESS Same as above.
SURFACE OWNER Woodrow Smith
ADDRESS Frame, WV
MINERAL RIGHTS OWNER Opal Dick, etal
ADDRESS 129 Ida, Apt.#3, Las Vegas, NV 89109
OIL AND GAS INSPECTOR FOR THIS WORK Martin Nichols ADDRESS P.O.Box 554 Clendenin, WV 25045
PERMIT ISSUED 4/12/82
DRILLING COMMENCED 5/14/82
DRILLING COMPLETED 5/18/82
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			
8 5/8	560	560	cts
7			
5 1/2			
4 1/2	2271	2271	150 sx
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Big Injun Depth 2198 - 2228 feet
Depth of completed well 2292 feet Rotary xx / Cable Tools ___
Water strata depth: Fresh na feet; Salt 1407 feet
Coal seam depths: none Is coal being mined in the area? no

OPEN FLOW DATA
Producing formation Big Lime & Big Injun Pay zone depth 2189 - 2211 feet
Gas: Initial open flow --- Mcf/d Oil: Initial open flow --- Bbl/d
Final open flow 28 Mcf/d Final open flow 14 Bbl/d
Time of open flow between initial and final tests --- hours
Static rock pressure --- psig(surface measurement) after -- 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)

Man. 3847

FORM IV-35
(REVERSE)

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

Perforated from 2189 - 2211 with 12 shots.

Frac'd with 706 bbl. water, 236 sx. sand. Breakdown at 1400 psi, treated at 2570 psi, 28 BPM average rate. I.S.I.P. - 1100 psi.

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Sandstone	0	179	
Shale	179	242	
Sandstone	242	308	
Shale	308	605	
Sandstone	605	664	
Shale	664	728	
Sandstone	728	878	
Shale & Siltstone	878	1407	
Salt Sands	1407	1806	
Shale	1806	1894	
Sandstone	1894	1986	
Little Lime	1986	2024	
Pencil Cave	2024	2034	
Big Lime	2034	2198	
Big Injun	2198	2228	
Shale	2228	2292 LTD	

(Attach separate sheets as necessary)

QUAKER STATE OIL REFINING CORPORATION
Well Operator

By: Michael C. Brannock

Date: Michael C. Brannock - September 29, 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."

3215

OG-10
Rev. 8-71

RECEIVED
JAN 19 1979
OIL & GAS DIVISION
DEPT. OF MINES

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Rotary X Oil
Cable Gas
Recycling Comb. X
Water Flood Storage
Disposal (Kind)

Quadrangle Kettle 7.5

Permit No. KAN-3215
47-039

Company FRANKLIN PETROLEUM CORP., TEXAS
Address c/o 1814 7th St., Parkersburg, WV 26101
Farm Woodrow Smith Acres 154
Location (waters) Jacks Fork
Well No. 4 Elev. 1030.2
District Elk County Kanawha
The surface of tract is owned in fee by
Woodrow Smith
Address Frame, W. Va.
Mineral rights are owned by C. Canterbury et al
Address Charleston, W. Va.
Drilling Commenced 7-28-78
Drilling Completed 8-1-78
Initial open flow ____ cu. ft. ____ bbls.
Final production 40 M cu. ft. per day 15 bbls.
Well open ____ hrs. before test 250# RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"	80		
9 5/8			
8 5/8	212	212	To surface
7			
5 1/2			
4 1/2	2062	2062	To 1600'
3			
2			
Liners Used			

Well treatment details:
Fractured by Halliburton 10-27-78
500 gal. acid; 500 bbl. water; 20,000 lb. 20-40 sand

Attach copy of cementing record.

Coal was encountered at None Feet ____
Fresh water None Feet ____ Salt Water ____ Feet ____
Producing Sand Big Injun Depth 2007-2021'

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Sand			0	10		
Shale			10	40		
Sand			40	120		
Shale			120	300		
Sand			300	470		
Shale			470	555		
Sand			555	750		
Shale			750	860		
Sand			860	940		
Shale			940	1030		
Sand			1030	1065		
Shale			1065	1095		
Sand			1095	1120		
Shale			1120	1140		
Sand			1140	1160		
Shale			1160	1260		
Sand			1260	1670		
Shale			1670	1720		
Sand			1720	1750		
Lime			1750	1980		
Dol. Lm.			1980	2010		

(over)

• Indicates Electric Log tops in the remarks section.

3215

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Sand			2010	2035		
Shale			2035	2085	Total Depth	

Date January 12, 19 79

FRANKLIN PETROLEUM CORP., TEXAS

APPROVED Denzil L. Radcliff

By Agent

(Title)

3504

WR-35

API # 47-039-3504

State of West Virginia
Division of Oil and Gas

Well Operator's Report of Well Work

Name: Smith Operator Well No. 12

LOCATION: Elevation: 931.43' Quadrangle: Kettle 7.5'
District: Elk County: Kanawha
Latitude: 13,900 Feet South of 38 Deg. 32 Min. 30 Sec.
Longitude: 10,100 Feet West of 81 Deg. 25 Min. 00 Sec.

Company: Trinity Oil & Gas Corp.
Suite 565 55 W., 42nd St.,
New York, NY 10036
Agent: Ed Clark
PO Box 422, Sutton, WV 26601
Inspector: Mr. Fred Burdette
Permit Issued:
Well work Commenced: 10-27-79
Well work Completed: 10-30-79
Verbal Plugging
Permission granted on:
Rotary X Cable Rig
Total Depth (feet) 2086'
Fresh water depths (ft)

Salt water depths (ft)

Is coal being mined in area (Y/N)?
Coal Depths (ft): No

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill up Cu.Ft.
Size			
8 5/8"	250'	250'	
4 1/2"	--	1995'	

OPEN FLOW DATA

Producing formation Injun 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

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:

BY:

DATE:

No Further Information Available.

8-13-90

3504

STIMULATION SUMMARY

	0-8'
	8-130'
	13`-240'
	240-540'
Shale	540-950'
Shale	950-1245'
Shale	1245-1344'
Salt Sand	1344-1694'
Shale	1694-1722'
Maxton	1722-1754'
Shale	1754-1796'
Sand	1796-1818'
Little Lime	1818-1852'
Pencil Cave	1852-1868'
Big Lime	1868-2024'
Injun	2024-2042'
Shale	2042-TD
	TD-2086'

Well logged by Schlumberger

5357

3503

WR-35

API # 47-039-3503

State of West Virginia
Division of Oil and Gas

Well Operator's Report of Well Work

Name: Smith #7 Operator Well No. N/A

LOCATION: Elevation: 962.65 Quadrangle: Kettle 7.5'
District: Elk County: Kanawha
Latitude: 13,275 Feet South of 38 Deg. 32 Min. 30 Sec.
Longitude: 10,825 Feet West of 81 Deg. 25 Min. 00 Sec.

Company: Trinity Oil & Gas Corp.
Suite 565 W. 42nd St.
New York, NY 10036
Agent: Ed Clark
PO Box 422, Sutton, WV 26601
Inspector: Mr. Fred Burdette
Permit Issued:
Well work Commenced: 10-22-79
Well work Completed: 10-26-79
Verbal Plugging
Permission granted on:
Rotary X Cable Rig
Total Depth (feet) 2055'
Fresh water depths (ft)

Salt water depths (ft)

Is coal being mined in area (Y/N)?
Coal Depths (ft): No

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill up Cu.Ft.
Size			
8 5/8"	278'	278'	
4 1/2"	--	+-2064'	

OPEN FLOW DATA

Producing formation Injun Pay zone depth (ft) 2007-2028'
Gas: Initial open flow MCF/D Oil: Initial open flow Yes 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

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:

BY:
DATE:

No Further Information Available
AS
8-13-90

3503

STIMULATION SUMMARY

1st Stage- 2007-2028' (42 holes) 65 Quality foam frac; lbs 80/100, lbs 20/40, gal 15% HCL, Bbls TWTR, Mscf N2, BKDN psi, ATP- psi, AIR- BPM, ISI- psi;

2nd Stage- - ' (-- holes) 65 Quality foam frac: .000 lbs 20/40, gal 15% HCl, Bbls TWTR, Mscf N2, BKDN- .si, ATP- psi, AIR- BPM, ISI- psi

3rd Stage- - ' (holes) 75 Quality foam frac; lbs 20/40, gal 15% HCl, Bbls TWTR, Mscf N2, BKDN- psi, ATP- psi, AIR- BPM, ISI- psi

4th Stage- - (holes) 75 Quality foam frac: .000 lbs. 20/40, gal 15% HCL, Bbls TWTR, Mscf N2, BKDN- psi, ATP- psi, AIR - BPM, ISI- psi

KB-GL	0-8'
Rock & Shale	8-75'
Rock & Shale	75-280'
Shale	280-490'
Shale	490-870'
Shale	870-1180'
Shale	1180-1343'
Salt Sand	1343-1678'
Shale	1678-1716'
Maxton	1716-1730'
Shale	1730-1744'
Little Lime	1744-1834'
Pencil Cave	1834-1844'
Big Lime	1844-2000'
Injun	2000-2028'
Shale	2028-TD
	TD-2065'

Well logged by Schlumberger

5393

3207

OG-10
Rev. - 9-71

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
Oil and Gas Division

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JAN 16 1979
OIL & GAS DIVISION
DEPT. OF MINES

WELL RECORD

Rotary X Oil ____
Cable ____ Gas ____
Recycling ____ Comb. X
Water Flood ____ Storage ____
Disposal ____ (Kind)

Quadrangle Kettle 7.5
Permit No. KAN 3207
47-039

Company FRANKLIN PETROLEUM CORP., TEXAS
Address P/o 1814 7th St., Parkersburg, WV 26101
Farm Woodrow Smith Acres 154
Location (waters) Takes Fork
Well No. 3 Elev. 817'
District Elk County Kanawha
The surface of tract is owned in fee by
Woodrow Smith
Address Frame, W. Va.
Mineral rights are owned by C. Canterbury et al
Address Charleston, W. Va.
Drilling Commenced 7-24-78
Drilling Completed 7-27-78
Initial open flow ____ cu. ft. ____ bbls.
Final production 30 M cu. ft. per day 15 bbls.
Well open ____ hrs. before test ____ RP.
Well treatment details:
Fractured by Halliburton 10-20-78.
500 gal acid; 500 bbl. water; 20,000 lb. 20-40 sand.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	212	212	To surface
7			
5 1/2			
4 1/2	1844	1844	To 1600'
3			
2			
Liners Used			

Attach copy of cementing record.

Coal was encountered at None Feet ____ Inches
Fresh water None Feet ____ Salt Water ____ Feet ____
Producing Sand Big Injun Depth 1759-1773

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Shale (Sandy)			0	150		
Shale			150	200		
Sand			200	230		
Shale			230	320		
Sand			320	470		
Shale			470	620		
Sand			620	710		
Shale			710	850		
Sand			850	940		
Shale			940	1030		
Sand			1030	1450		
Shale			1450	1495		
Lime			1495	1740		
Dol. Lm.			1740	1780		
Sand			1780	1800		
Shale			1800	1820		
Sand			1820	1830		
Shale			1830	1853	Total Depth	

(over)

* Indicates Electric Log tops in the remarks section.

3207

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks

Date January 12, 1979

FRANKLIN PETROLEUM CORP., TEXAS

APPROVED Denzil L. Crocker, Owner

By Agent

(Title)

Water Company Affidavit

I certify under penalty of law that Synergy Oil and Gas, Inc. has contacted West Virginia American Water Co. in regard to their Underground Injection Control Permit application. West Virginia American Water was provided maps of the injection wells which identified a one mile radius from the proposed wells. Based on the maps provided, West Virginia American Water provides public water service within the areas identified on these maps. Based on the maps provided, West Virginia American Water does not have a drinking water source within the one mile radius.

Erica N. Pauken

Source Water Protection State Lead

Sworn and subscribed to before me this 24 day of April, 2019.

Patricia E Lee, my commission expires April 20, 2023

Pat E L.

(Notary Signature)

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
PATRICIA E LEE
RR 1 Box 194 St RT 10 Salt Rock WV 25559
MY COMMISSION EXPIRES APRIL 20, 2023

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 8

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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FEB 19 2019

WV Department of
Environmental Protection

SYNERGY OIL & GAS, INC.

UIC PERMIT# 2D0392803

Section 8

A. Injection Zone - Injun Sand

1. General Description - The Injun Sand is part of the Mississippian Pocono Series.

The Injun Sand immediately underlies the Big Lime and consist of red, hematitic siltstone and shale with no grain element coarser than fine sand.

The Injun must be fracked, usually by hydro-fracturing and results have been good in certain areas. The Injun has a strong production history in this area of WV and production began in the early 1900's.

2. Permeability - Injun Sand

a. Permeability for the Injun Sand in this area can be estimated to be in the range from less than 0.1 to 2.0 millidarcy's. This is a typical permeability range for a producing sandy siltstone.

b. Permeability of the Injun Sand in this area is caused by the pore space characteristics of the pores themselves and also the pore interconnections. The interconnections determine the passageway thickness and thus the permeability.

3. Porosity - As seen on electric logs from wells in the surrounding area, the porosity of the Injun interval ranges from 0% to 14%.

4. Water Saturation - The water saturation can be assumed to be low due to the production history of this particular area.

B. Confining Zone - Big Lime

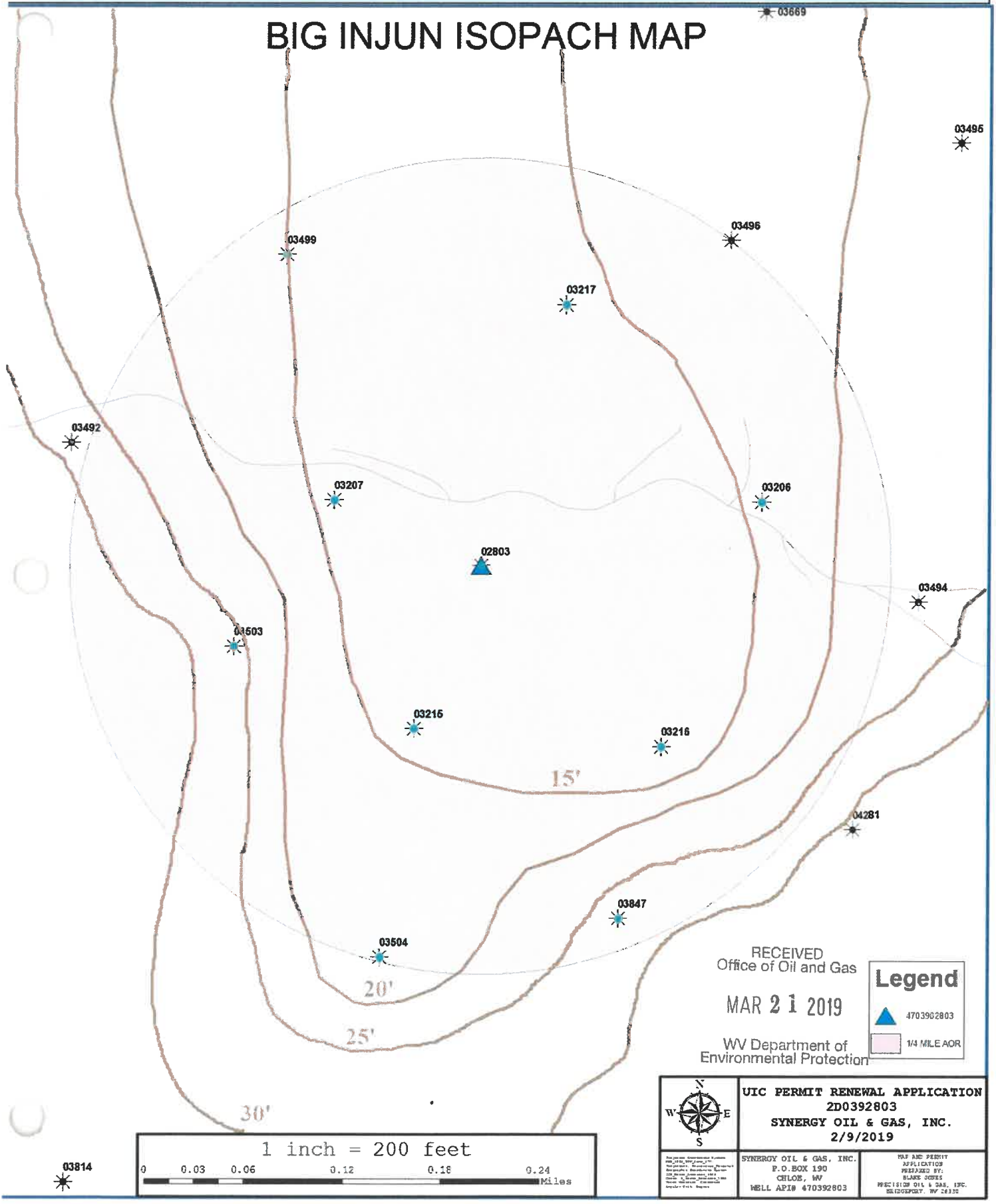
1. The Big Lime is the confining layer which prevents the upward migration of injected fluids out of the Injun Sand disposal zone. The Big Lime is an excellent formation to have as a cap formation primarily due to its low permeability. There is an unconformity between the Big Lime and Injun Sands. This unconformity creates a permeability barrier by utilizing its very distinct facies change.

Drilling logs could only be found for 47-039-3847

Earthquake History - Research has found that since 1824, there have only been two recorded seismic events in Kanawha Co., where the subject well is located. The largest event happened on 6/28/1991 with a magnitude of 3.2. This seismic event occured over 25 miles away from the subject injection well. As the subject injection well is only servicing 15 producing wells, the chances of a resulting earthquake are extremely low. According to the USGS, there is a 0.67% chance of a major earthquake within 50km of Kanawha County, WV within the next 50 years.

YNERGY OIL & GAS UIC PERMIT – 2D0392803 SMITH #1

BIG INJUN ISOPACH MAP



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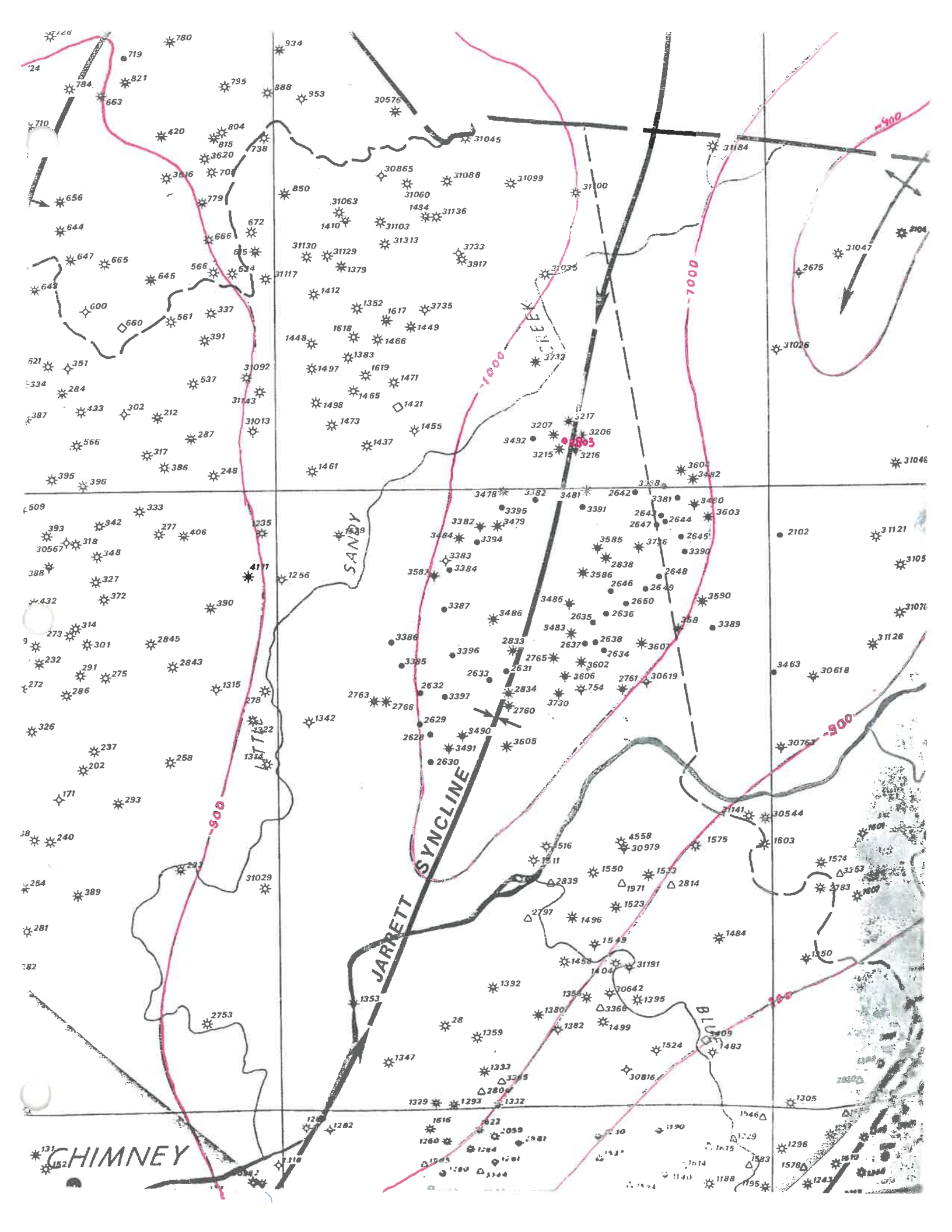
Office of Oil and Gas
MAR 21 2019
WV Department of
Environmental Protection

Legend
- 4703902803
- 1/4 MILE AOR

UIC PERMIT RENEWAL APPLICATION
2D0392803
SYNERGY OIL & GAS, INC.
2/9/2019

SYNERGY OIL & GAS, INC.
P.O.BOX 190
CHLOE, WV
WELL API# 470392803

MAP AND PERMIT APPLICATION PREPARED BY:
BLAKE JONES
PRECISION OIL & GAS, INC.
BRIDGEPORT, WV 26330


SANDY
JARRETT SYNCLINE
BLUE
-900
-1000
-7000
CHIMNEY

3847

DRILLING LOGS

KAN 3847

GEARHART

COMPENSATED DENSITY LOG

FILING NO.

COMPANY QUAKER STATE OIL REFINING CORPORATION

WELL OPAL DICK NO. 1

FIELD BLUE CREEK

COUNTY KANAWHA STATE WEST VIRGINIA

Location: PERMIT NO. 47-039-3847

QUADRANGLE: KETTLE 7.5'

Sec. _____ Twp. _____ Rge. _____

Other Services: IEL

Elev.: K.B. 1164'
D.F. 1163'
G.L. 1153'

Permanent Datum: GL Elev.: 1153'
Log Measured from KB 11 Ft. Above Perm. Datum
Drilling Measured From KB

Date	5-18-82
Run No.	ONE
Depth-Driller	2292'
Depth-Logger	2292'
Bottom logged interval	2290'
Top logged interval	50'
Type fluid in hole	WATER
Density	
pH	NA
Fluid Loss	
Source of Samples	NA
Rm @ Meas. Temp.	@ °F
Rmf @ Meas. Temp.	NA @ °F
Rmc @ Meas. Temp.	NA @ °F
Source Rmf	NA Source Rmc
Max rec. temp., deg F.	NA °F
Time	3:00 AM
End Circulation	
Logger on Bottom	5:45 AM
Recorded By	BERT WEBB
Witnessed By	JACK SUTHERLAND, M. BRANNOCK

Run No.	Level	Bit From	Bit To	Size	Wgt.	Casing Record From	Casing Record To
ONE		10-1/2" SURFACE	570'	8-5/8"	24	SURFACE	570'
		7-7/8" 570'	1867'				
		6-3/4" 1867'	2292'				

Bore Hole Record

EQUIPMENT DATA

Run No.	Logging Unit	Location	Gamma Ray Tool No.	Compensated Density Tool No.	Source No.	Source Type	Source Stg.
ONE	7105	21-092	2363	2363	CSV-381	CS-137	2 CI

CALIBRATION DATA

Run No.	Gamma Ray Bkg. cps	Gamma Ray Std. cps	Compensated Density Magnesium LS	Magnesium SS	Aluminum LS	Aluminum SS	Test Block A1 LS	Test Block A1 SS	Caliper L. Ring	Caliper S. Ring
ONE	90		1053	674	230	455	230	455	12"	6"

LOGGING DATA

Run No.	General Depth From	General Depth To	Speed FPM	Gamma Ray TC	Gamma Ray API PER LOG DIV.	Compensated Density TC	Compensated Density Matrix Density	Compensated Density Fluid Density	Salinity PPM NaCL
ONE	2292'	SURFACE	25	3	20	3	2.67	1.00	
							2.71	SEE LOG	

REMARKS:

NEUTRON RUN FROM 1950' TO T. D.

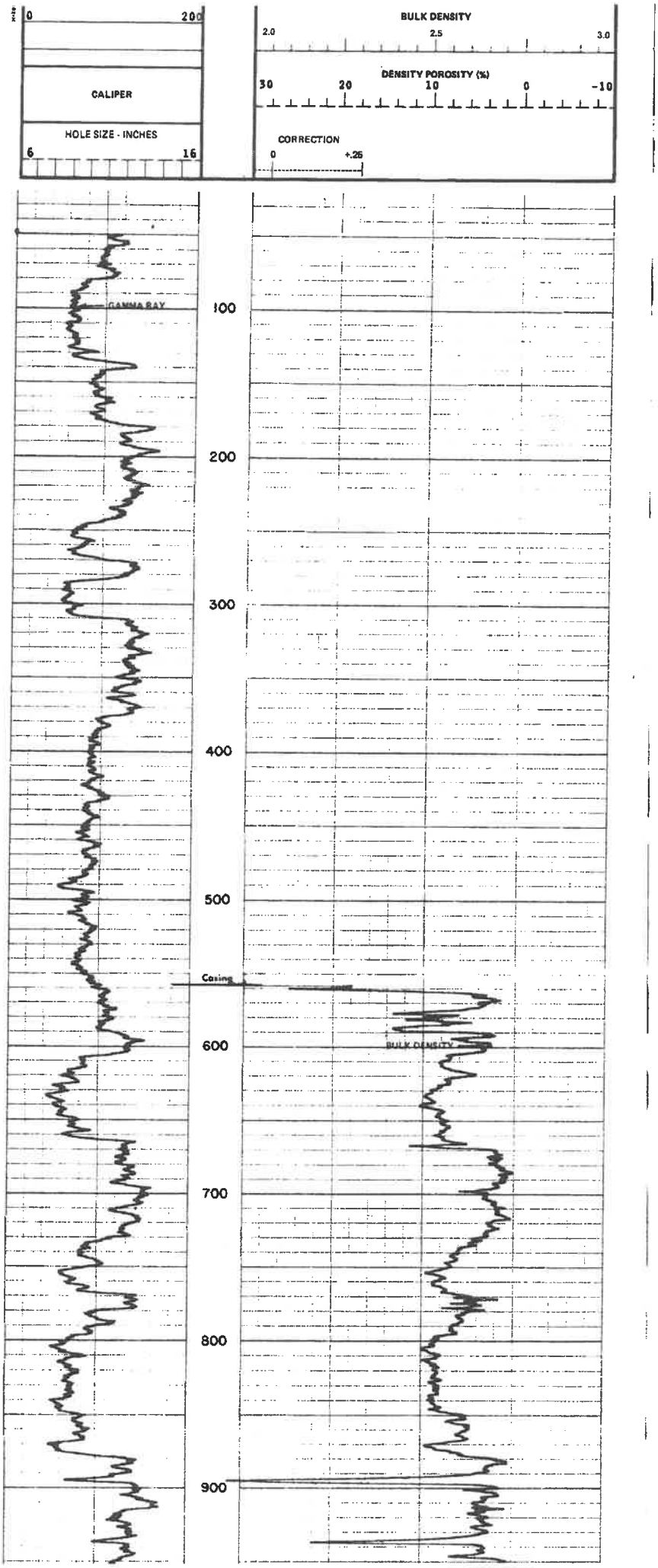
NOTICE: All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by one of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.

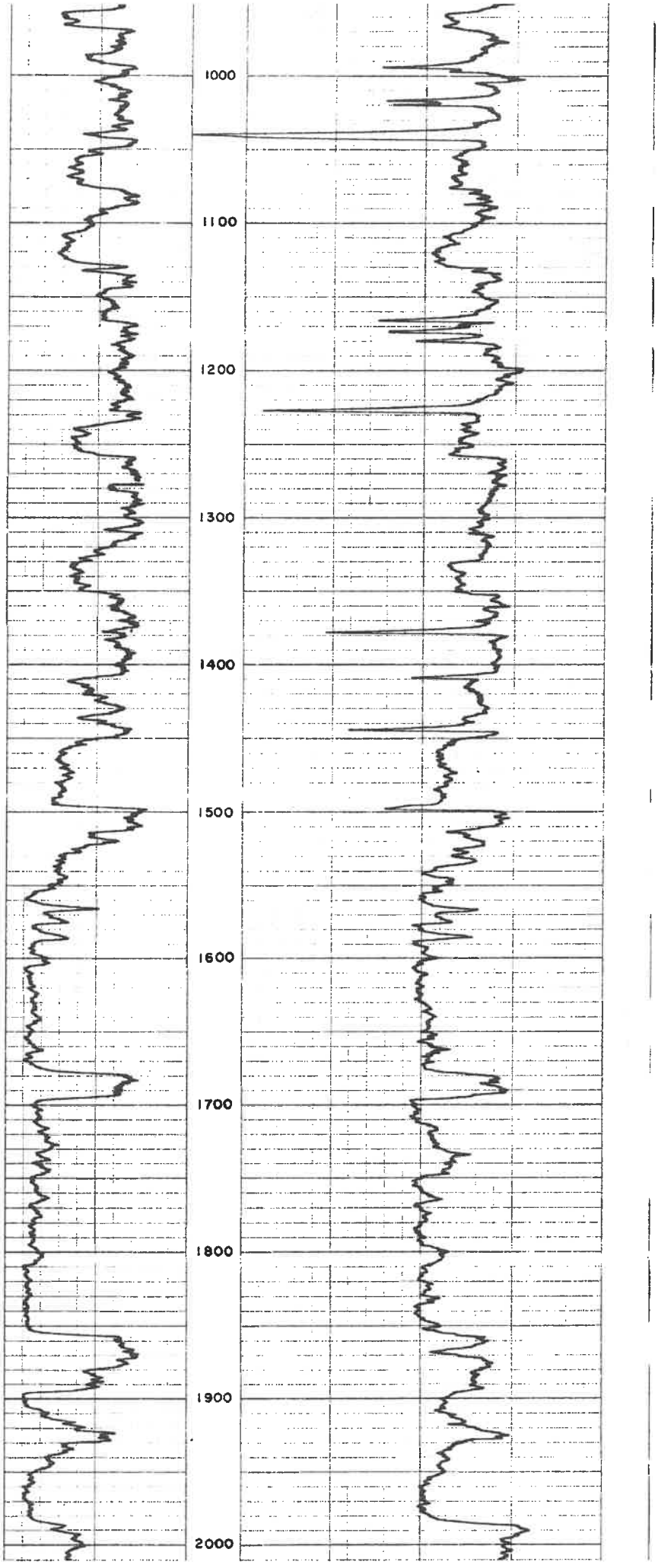
GEARHART INDUSTRIES, INC.

GAMMA RAY API UNITS	DEPTHS	BULK DENSITY GRAMS/CC

FORM 1

3847





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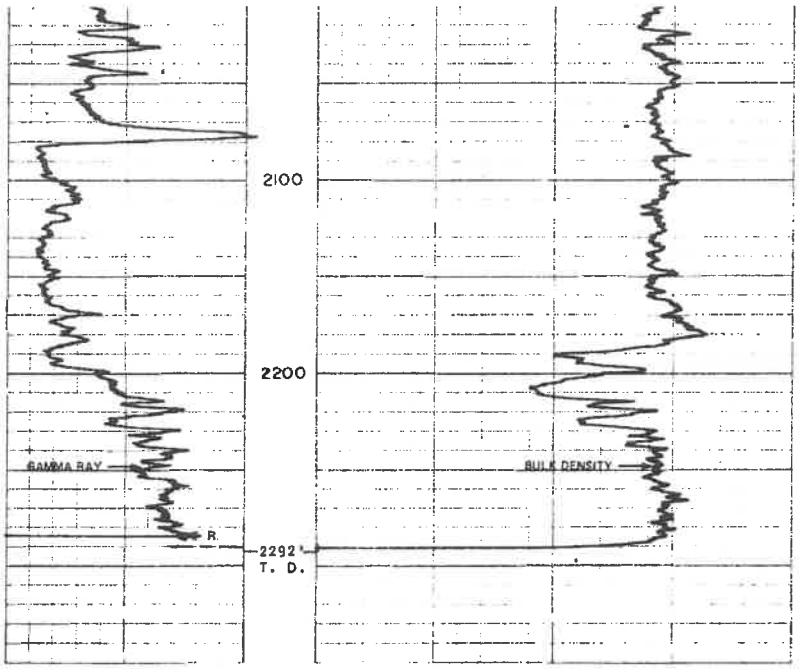

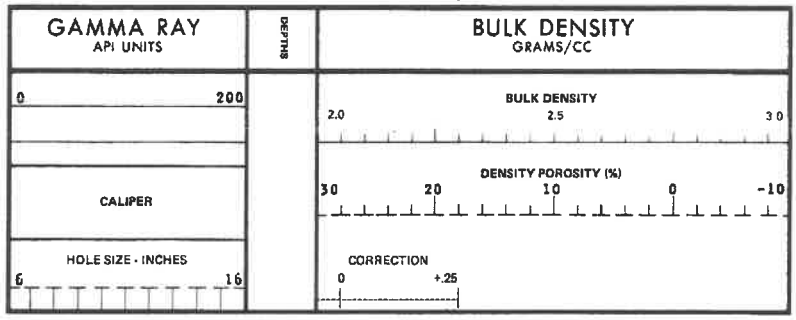

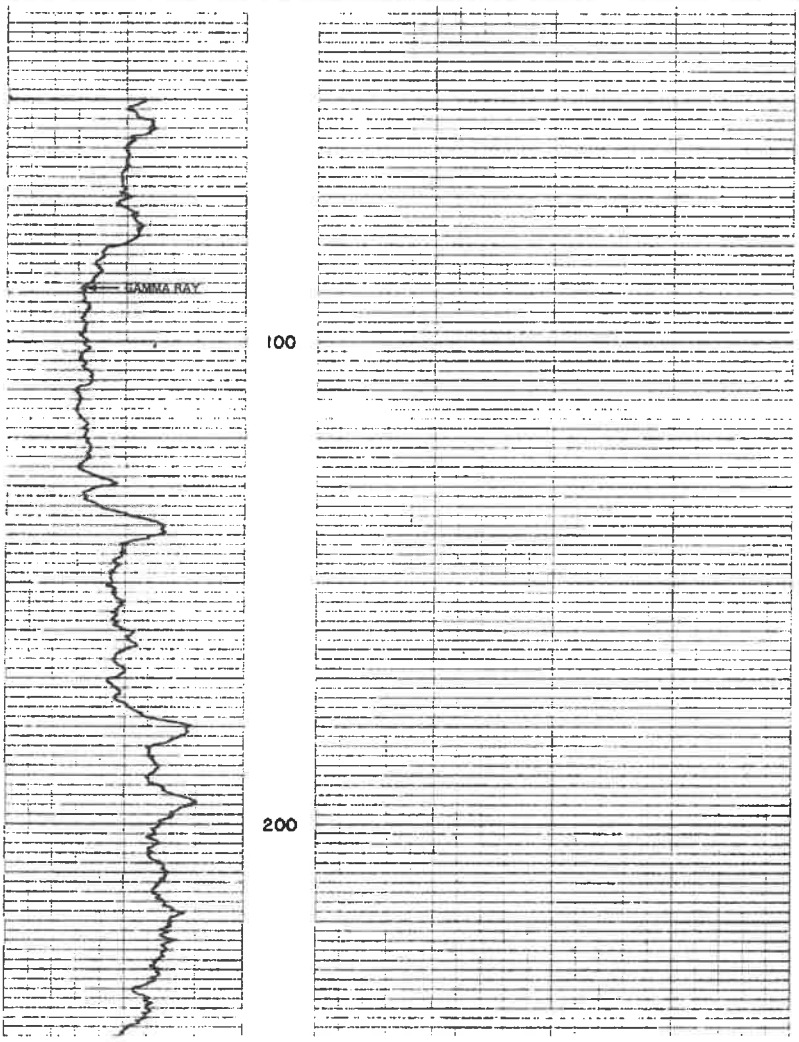

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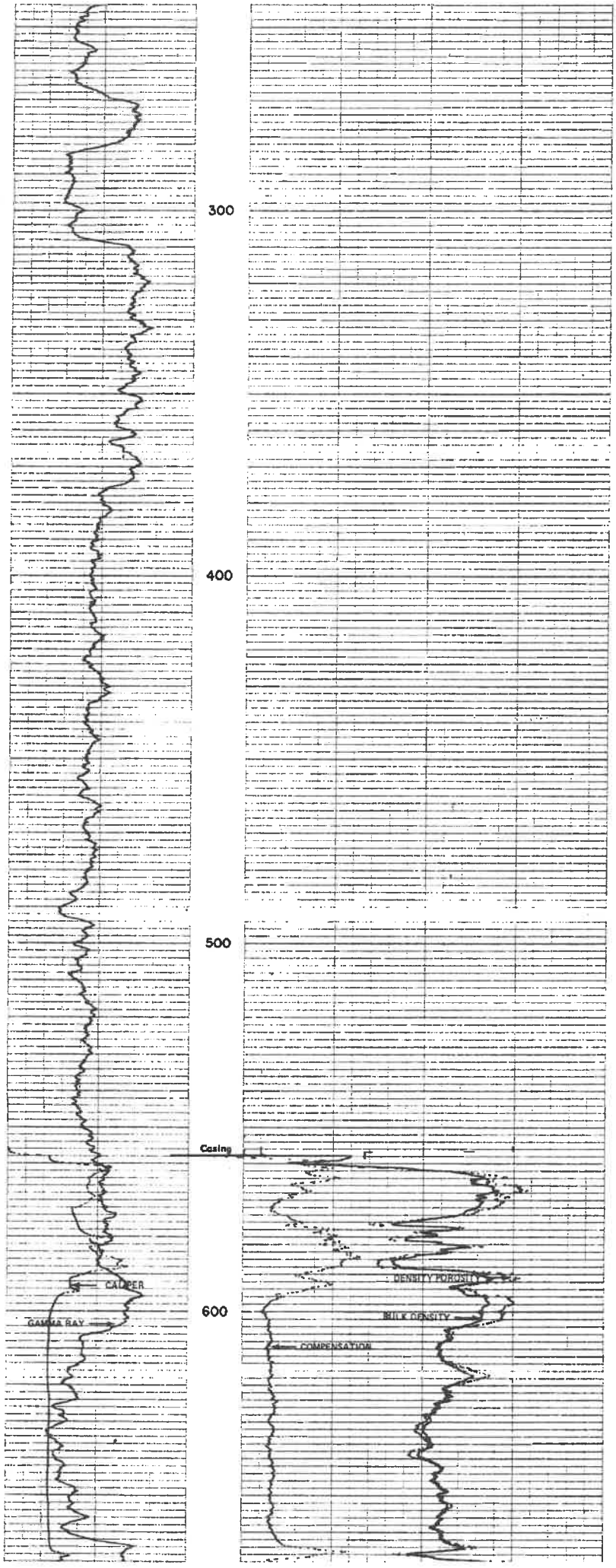

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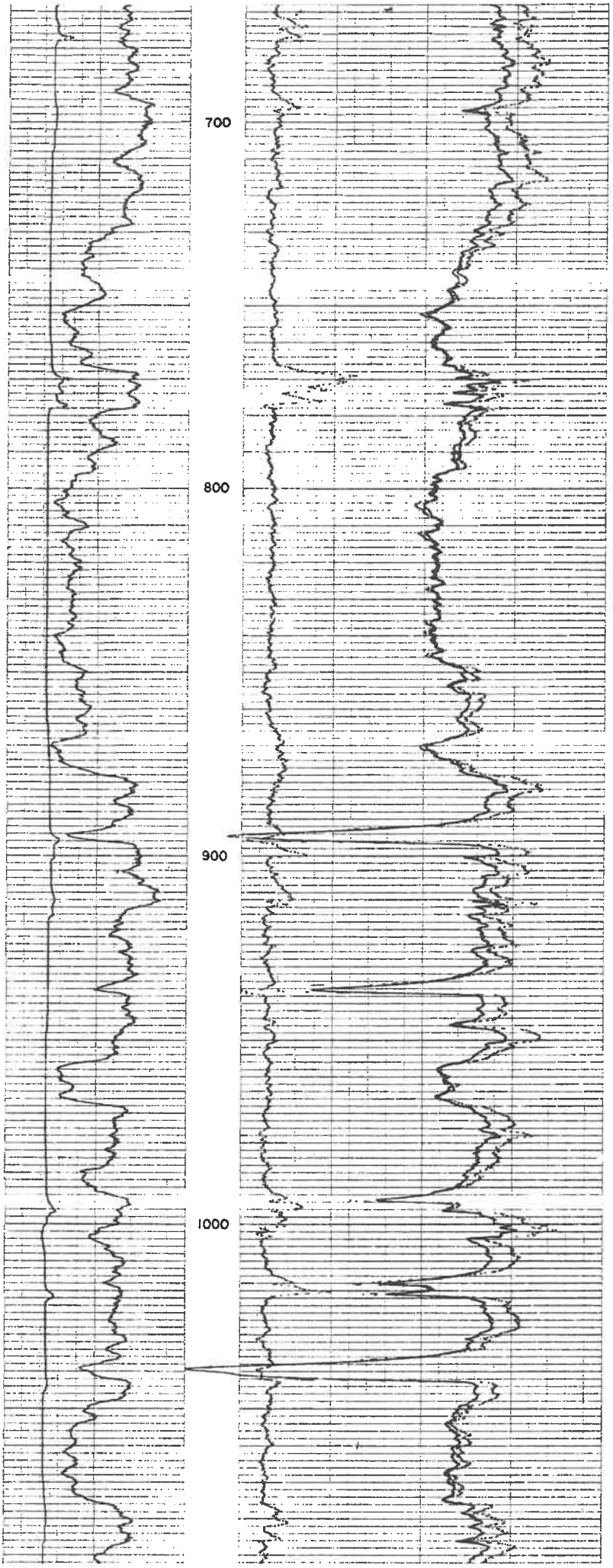

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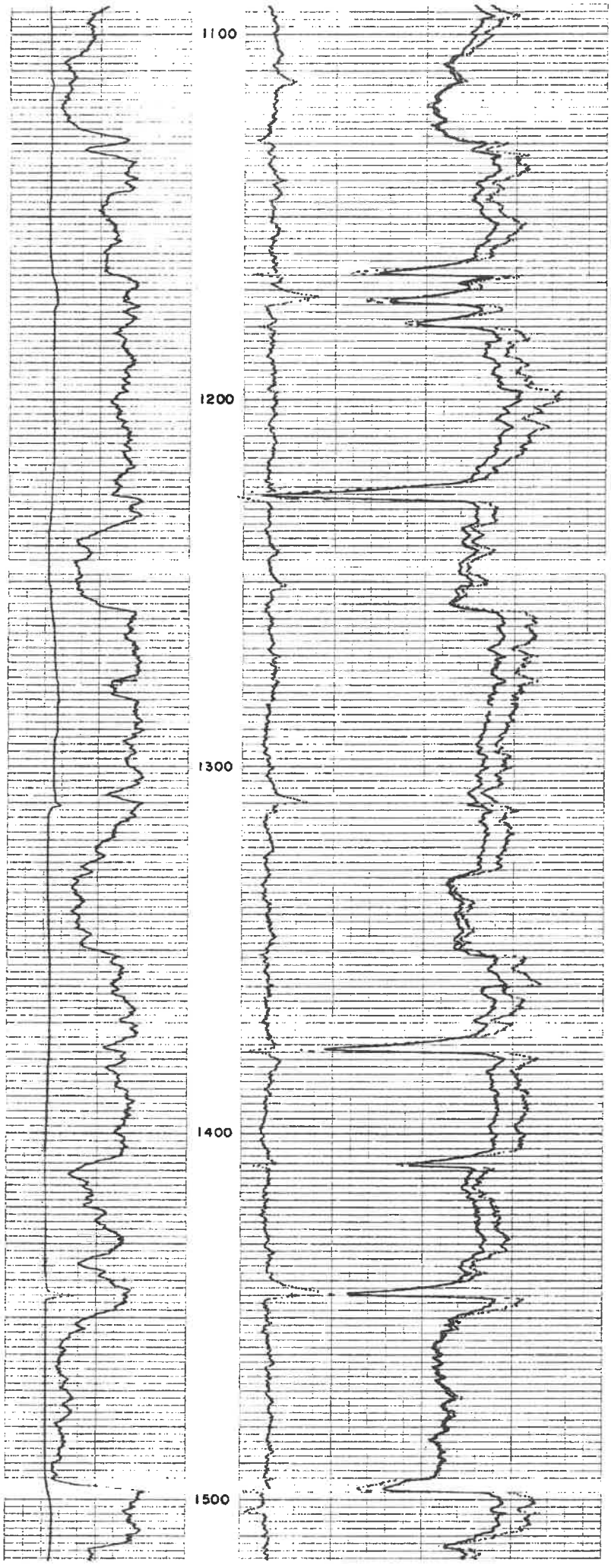

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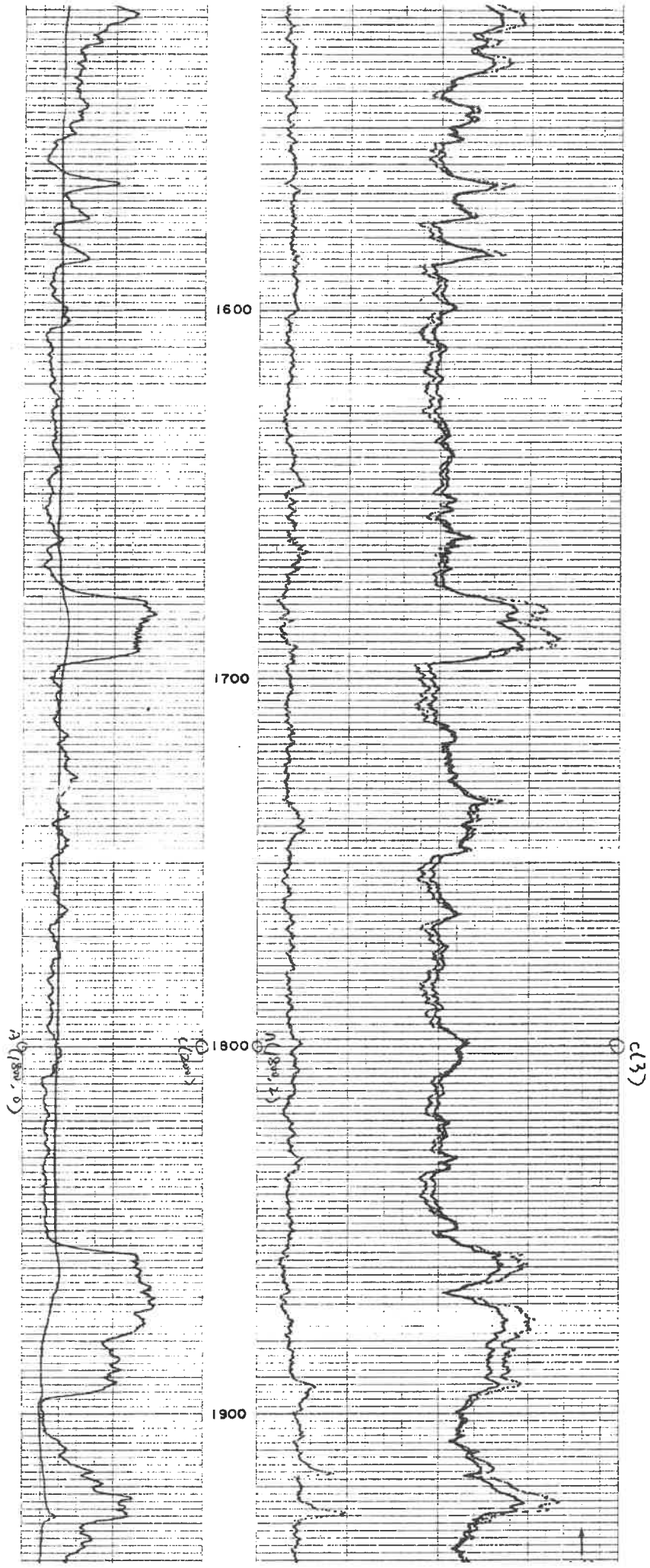

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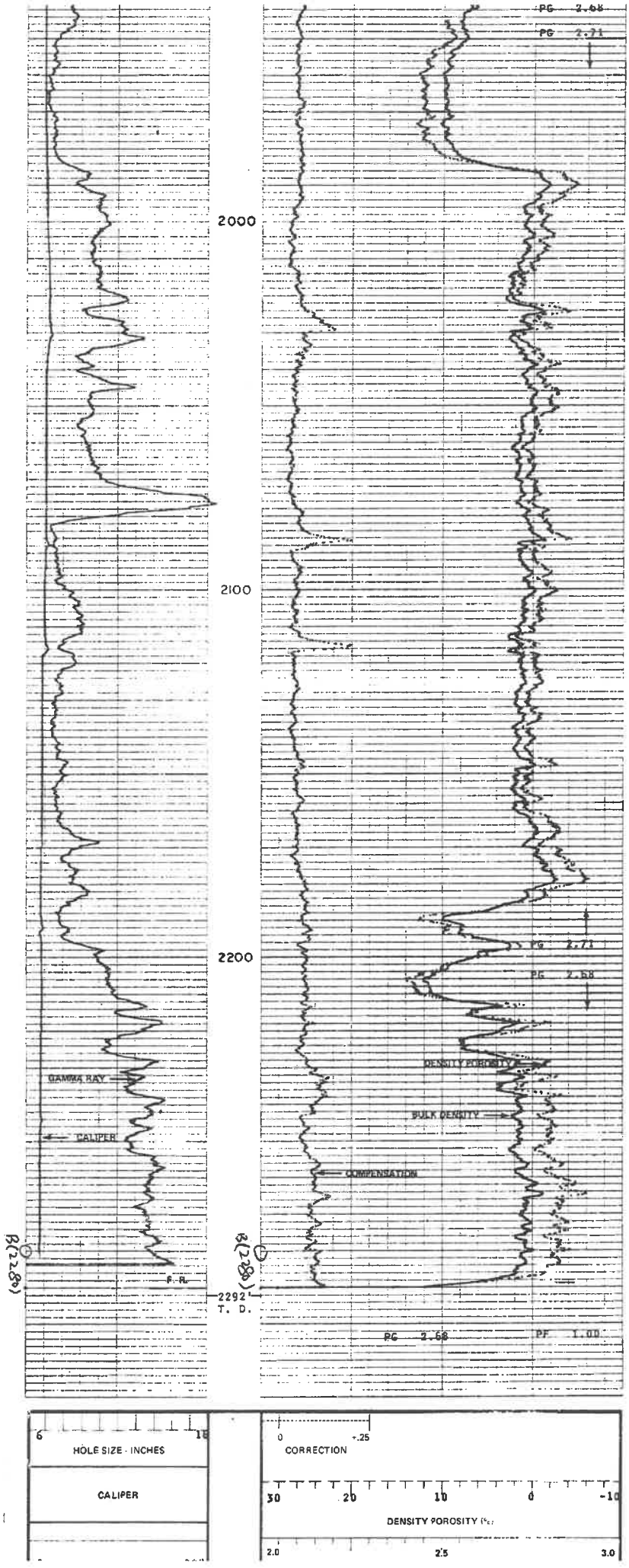

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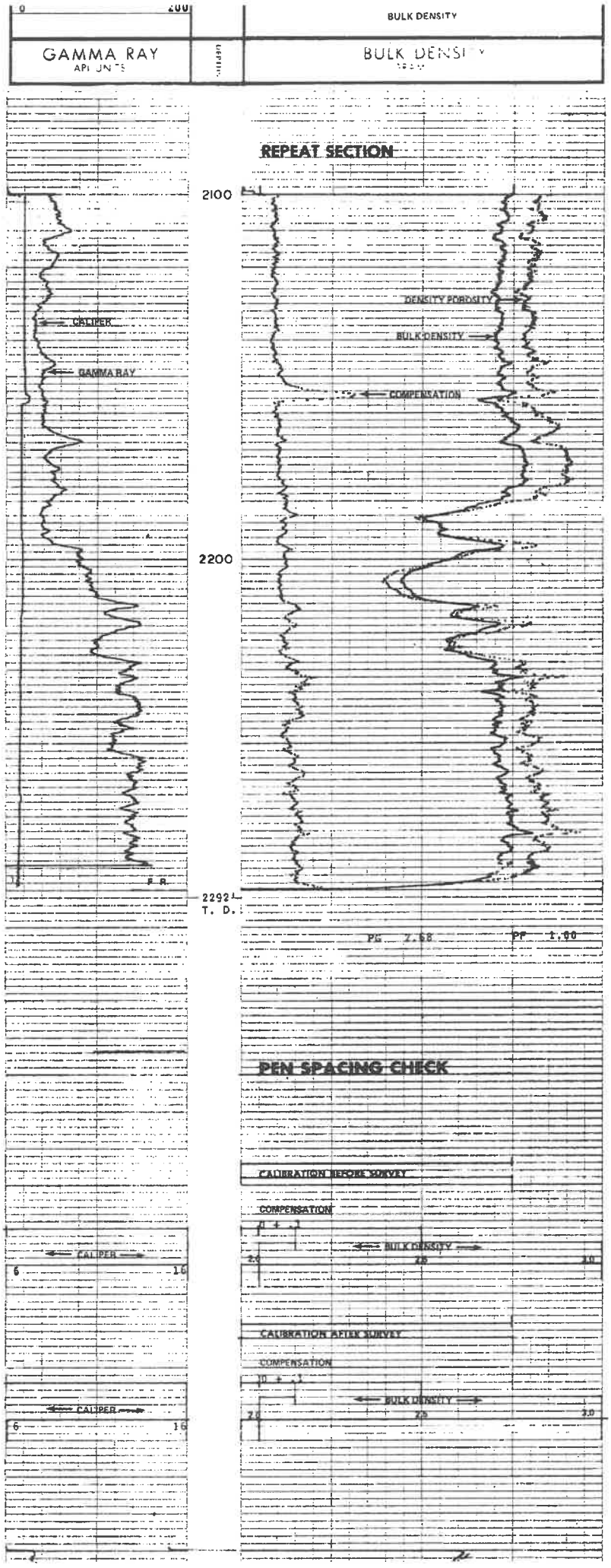

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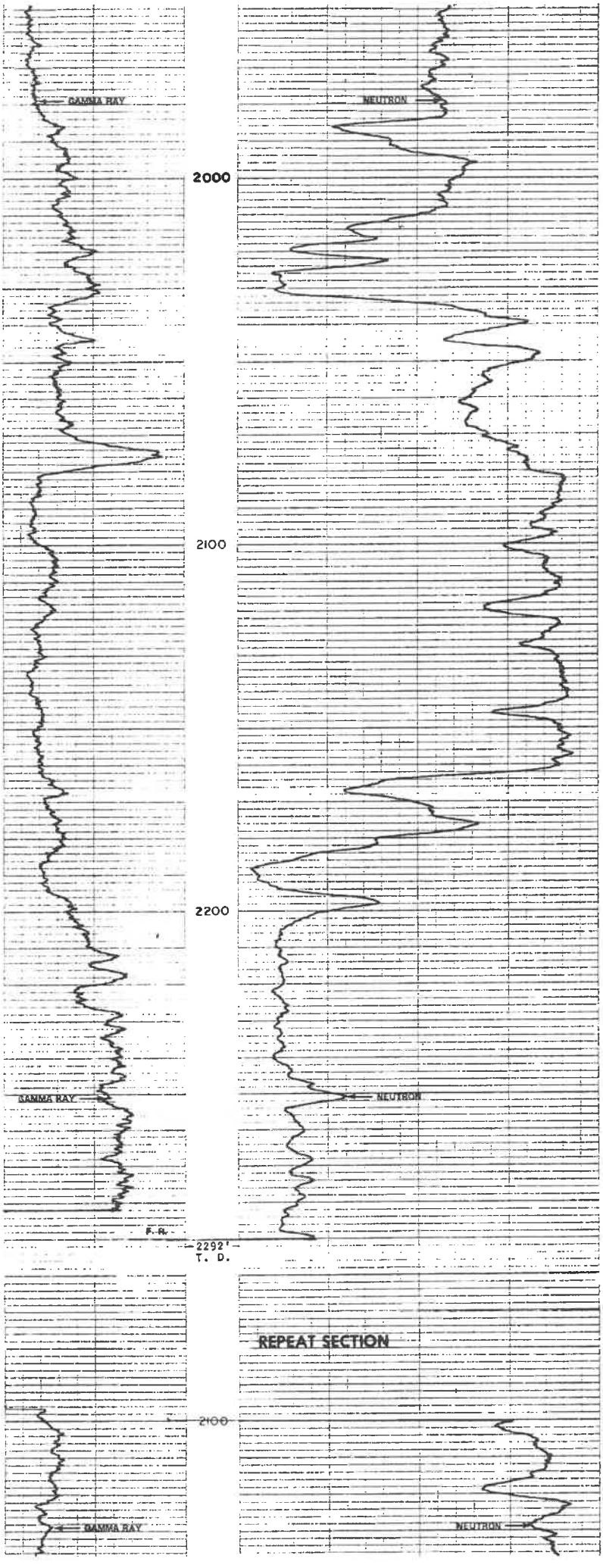

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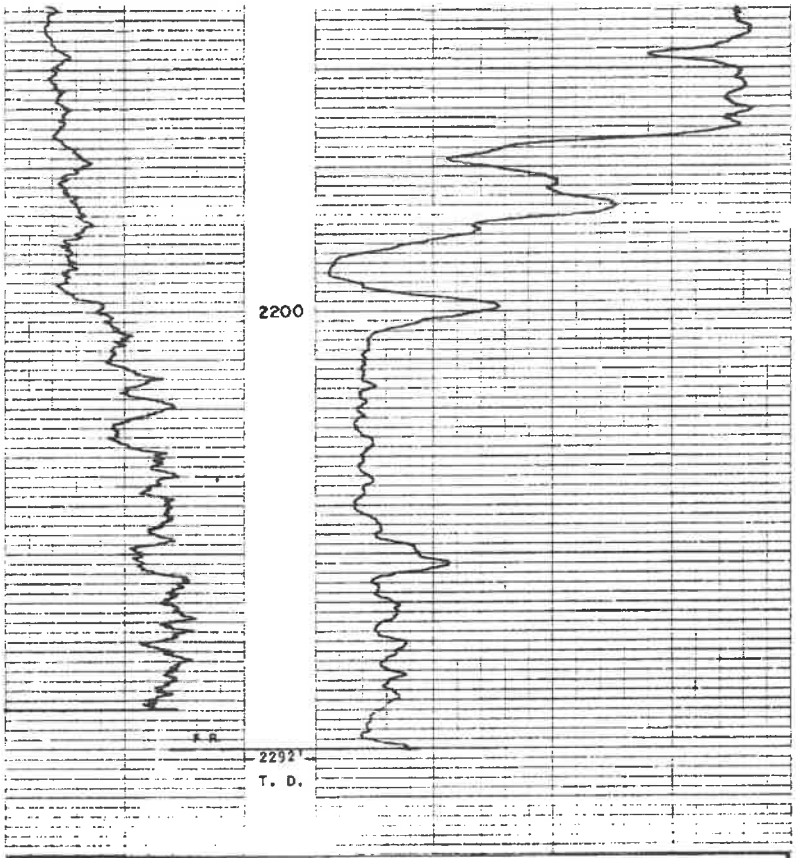

Company QUAKER STATE OIL REFINING CORPORATION

Well OPAL DICK NO. 1

Field BLUE CREEK

County KANAWHA State WEST VIRGINIA

GO FR 2290'
GO TD 2292'
DRLR TD 2292'
Elev:
KB 1164'
DF 1163'
GL 1153'

KAN 3847

3847

GEARHART

INDUCTION ELECTRICAL LO

FILING NO.

BEST COPY available

COMPANY QUAKER STATE OIL REFINING CORPO

WELL OPAL DICK NO. 1

FIELD BLUE CREEK

COUNTY KANAWHA STATE WEST VIR

LOCATION: PERMIT NO. 47-039-3847

QUADRANGLE: KETTLE 7.5'

SEC _____ TWP _____ RGE _____

Permanent Datum GL Elev. 1153'

Log Measured from KB , 11 Ft. Above Perm. Datum

Drilling Measured from KB

Elev.:

Date	5-18-82		
Run No.	TWO		
Depth—Driller	2292'		
Depth—Logger	2292'		
Bottom Logged Interval	2285'		
Top Logged Interval	2100'		
Casing—Driller	8-5/8" @ 570'	@	@
Casing—Logger	558'		
Bit Size	7-7/8"		
Type Fluid in Hole	WATER		
Density / Viscosity	NA		
pH / Fluid Loss	NA cc	cc	cc
Source of Sample	NA		
Rm @ Meas. Temp.	NA @ °F	@ °F	@ °F
Rmf @ Meas. Temp.	NA @ °F	@ °F	@ °F
Rmc @ Meas. Temp.	NA @ °F	@ °F	@ °F
Source of Rmf / Rmc	NA		
Rm @ BHT	NA @ °F	@ °F	@ °F
Time: End Circulation	3:00 AM		
Time: Logger on bottom	7:15 AM		
Max. Rec. Temp. Deg. F.	NA °F	°F	°F
Equip. No. / Location	7105 / 21-092		
Recorded By	BERT WEBB		
Witnessed By	J. SUTHERLAND, M. BRANNOCK		

K.B. 1164'
D.F. 1163'
G.L. 1153'

CDL

Other Services

GINIA

RATION

OG

FOLD HERE

Changes in Mud Type or Additional Samples					Scale Changes			
Date Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller								
Type Fluid in Hole								
Dens. Visc.					EQUIPMENT DATA			
pH Fluid Loss		cc		cc	Run No.	Tool No.	Tool Type	Tool Position	S. O.	Gamma Ray Tool No.
Source of Sample					TWO	5-50	III	FREE		4445
Rm @ Meas. Temp.	@ °F		@ °F							
Rmf @ Meas. Temp.	@ °F		@ °F							
Rmc @ Meas. Temp.	@ °F		@ °F		CALIBRATION DATA								
Source Rmf Rmc					Run No.	S. N. Zero	S. N. Int. Cal.	Loop Cal.	Tool Zero	Int. Cal.	GAMMA RAY API SCALE	GAMMA RAY BKG. CPS.	GAMMA RAY STD. CPS.
Rm @ BHT	@ °F		@ °F		TWO			400	464	476	0-200	100	
Rmf @ BHT	@ °F		@ °F										
Rmc @ BHT	@ °F		@ °F										

Remarks: _____

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GEARHART INDUSTRIES, INC.

	DEPTHS	RESISTIVITY ohms - m2 /m	CONDUCTIVITY millimhos/m = 1000 / ohms m2 /m
		0 — 100	40" INDUCTION
		0 — 1000	100 — 0
		40" INDUCTION	
GAMMA RAY			

FORM M10-H

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Office of Oil and Gas
FEB 19 2019
WV Department of
Environmental Protection

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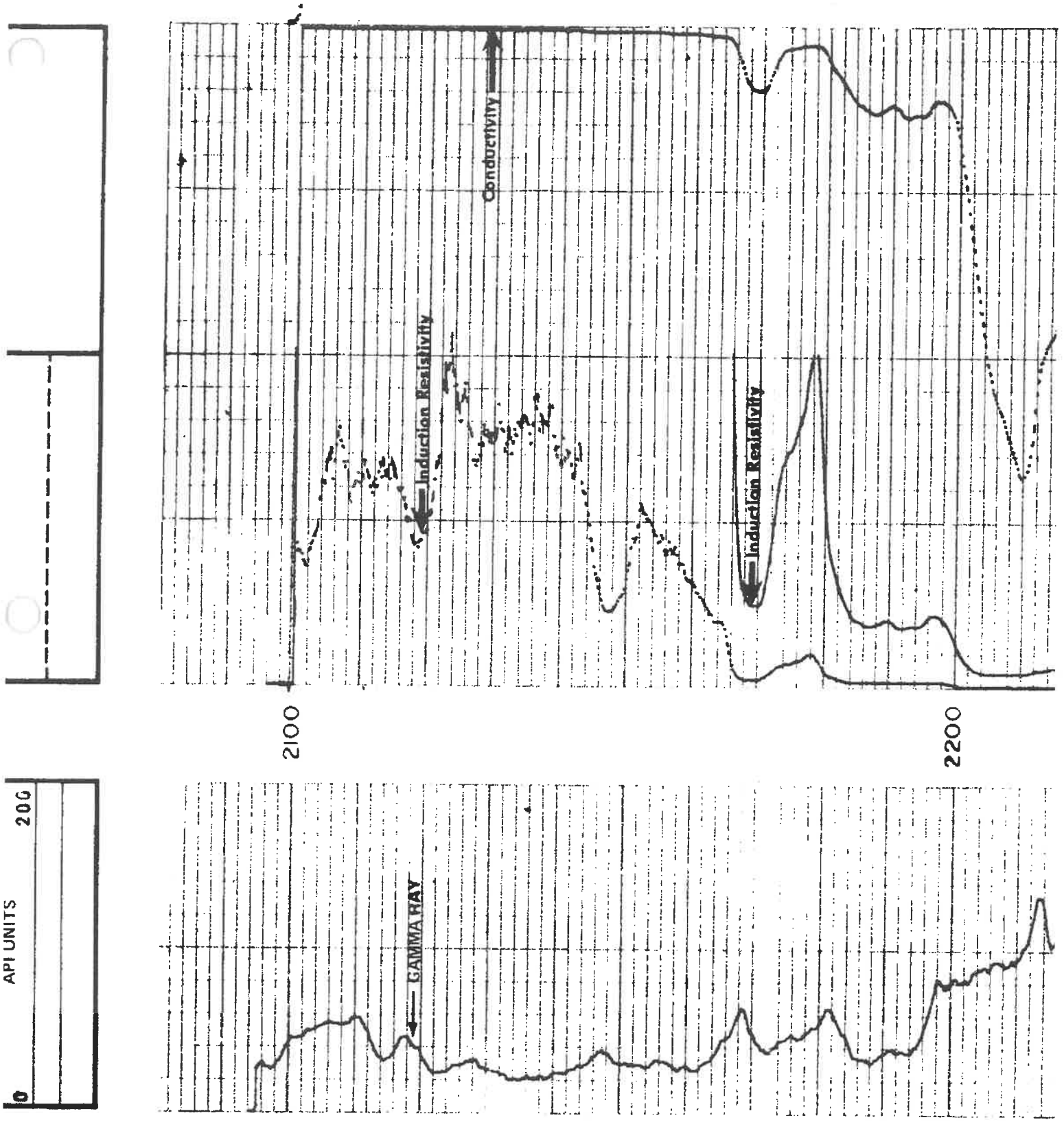

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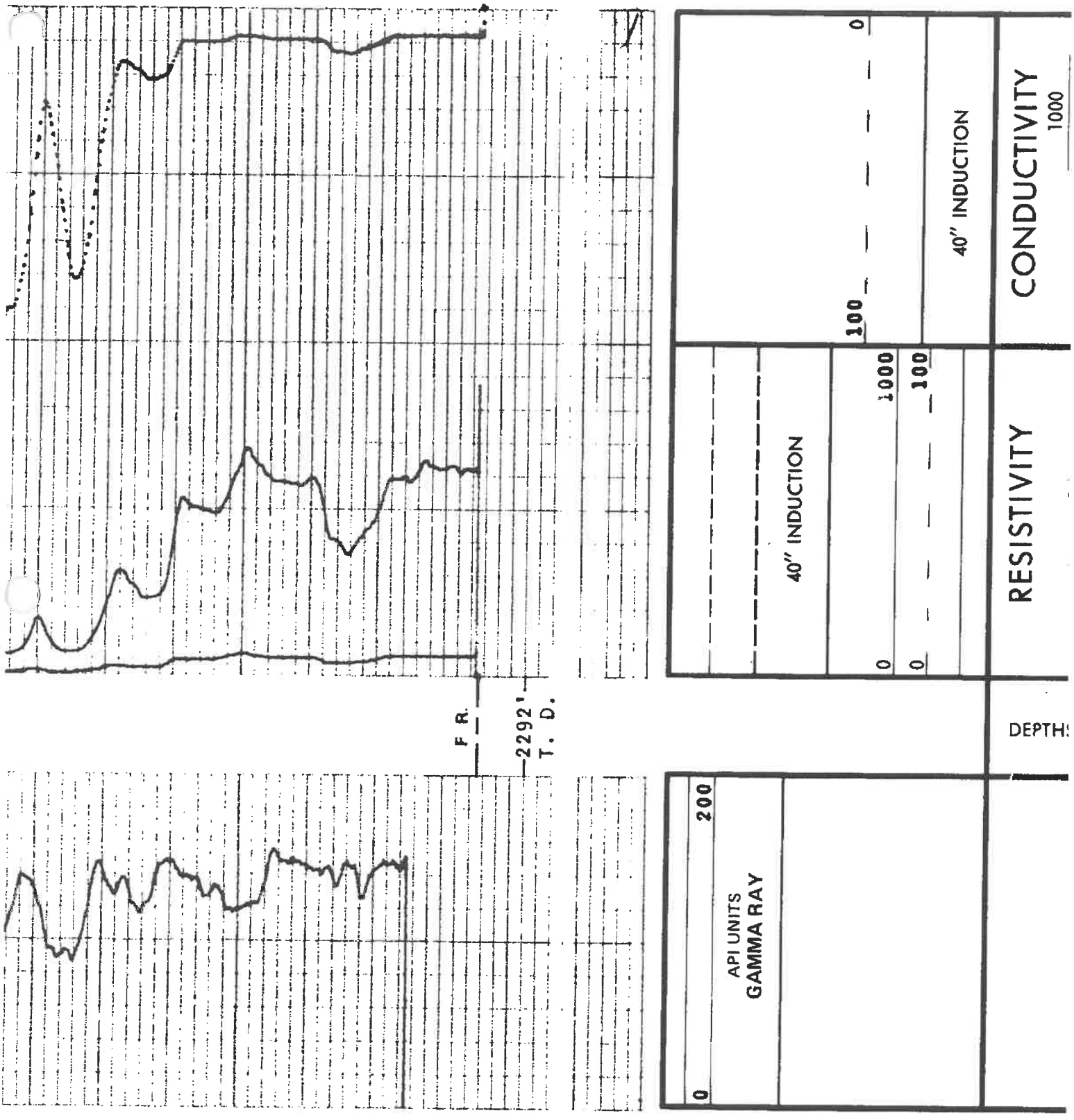

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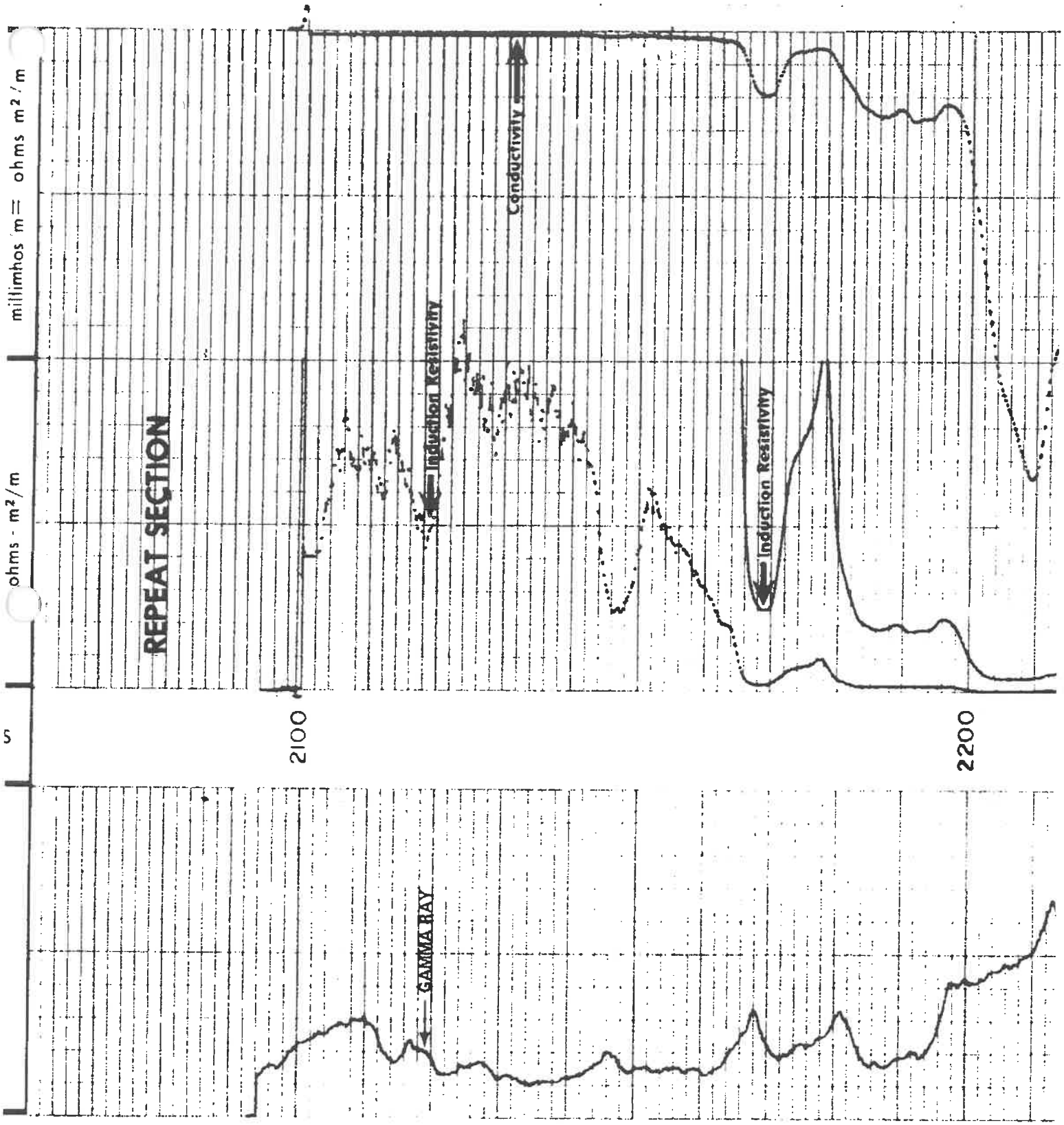

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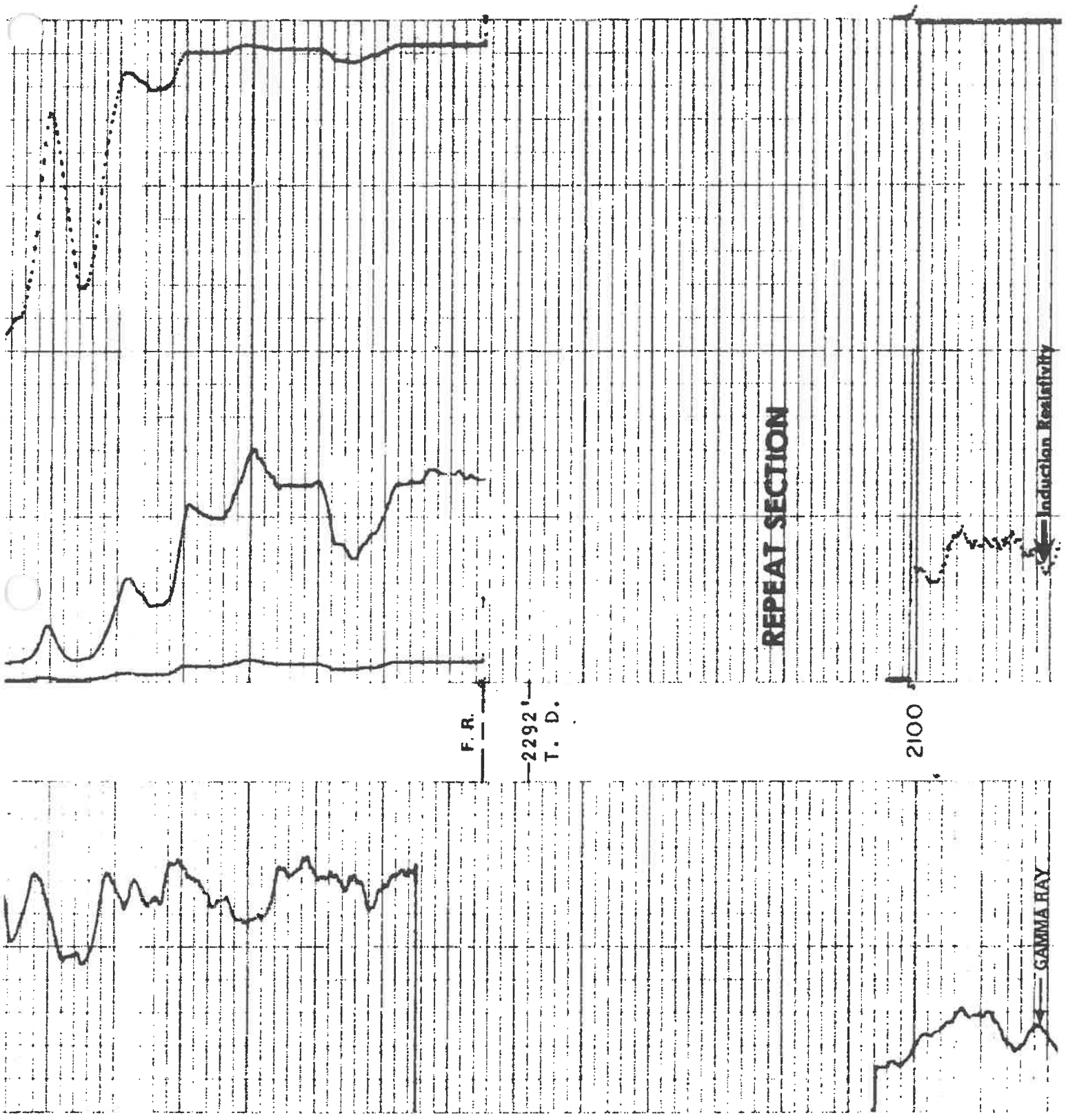

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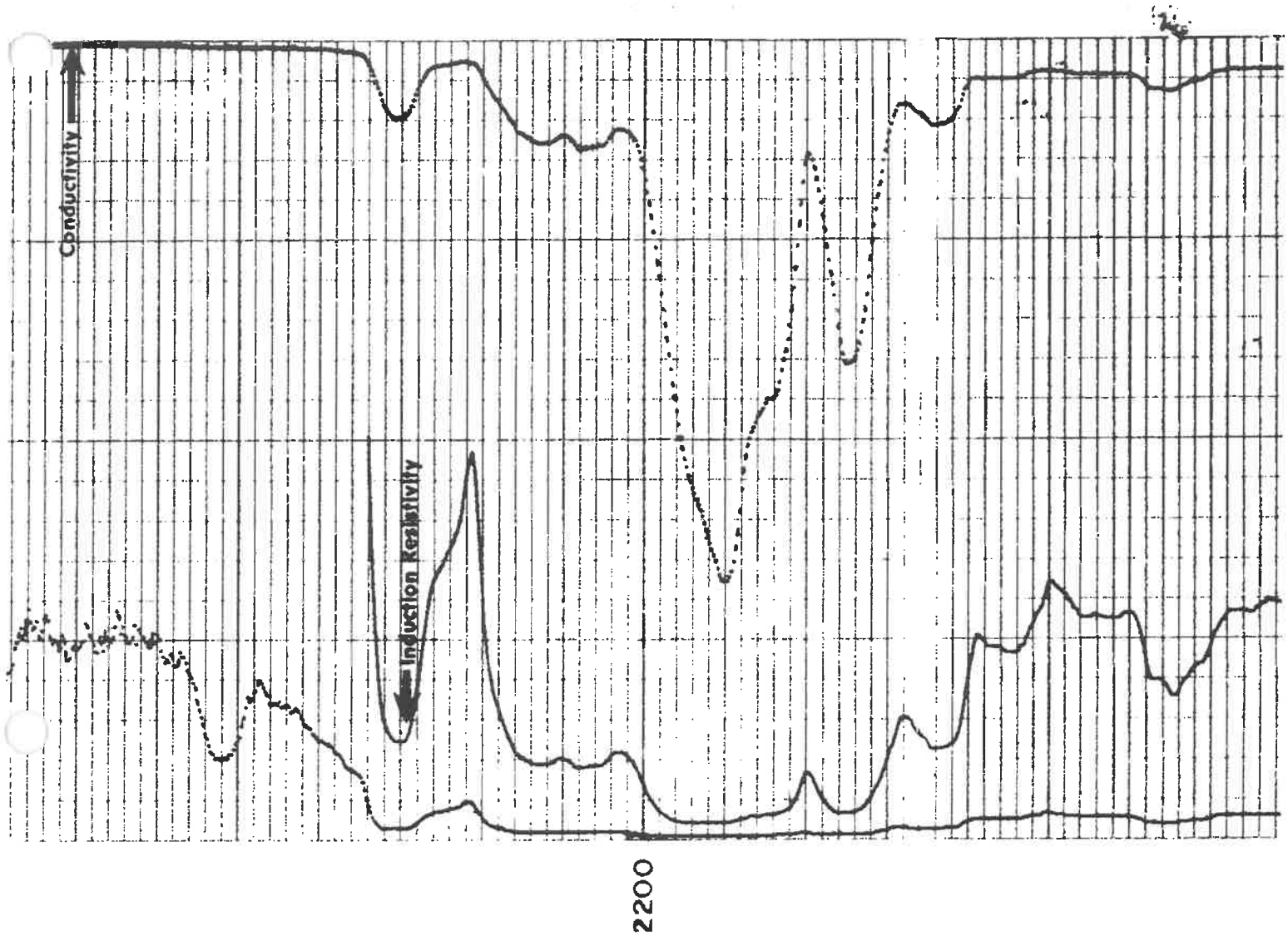
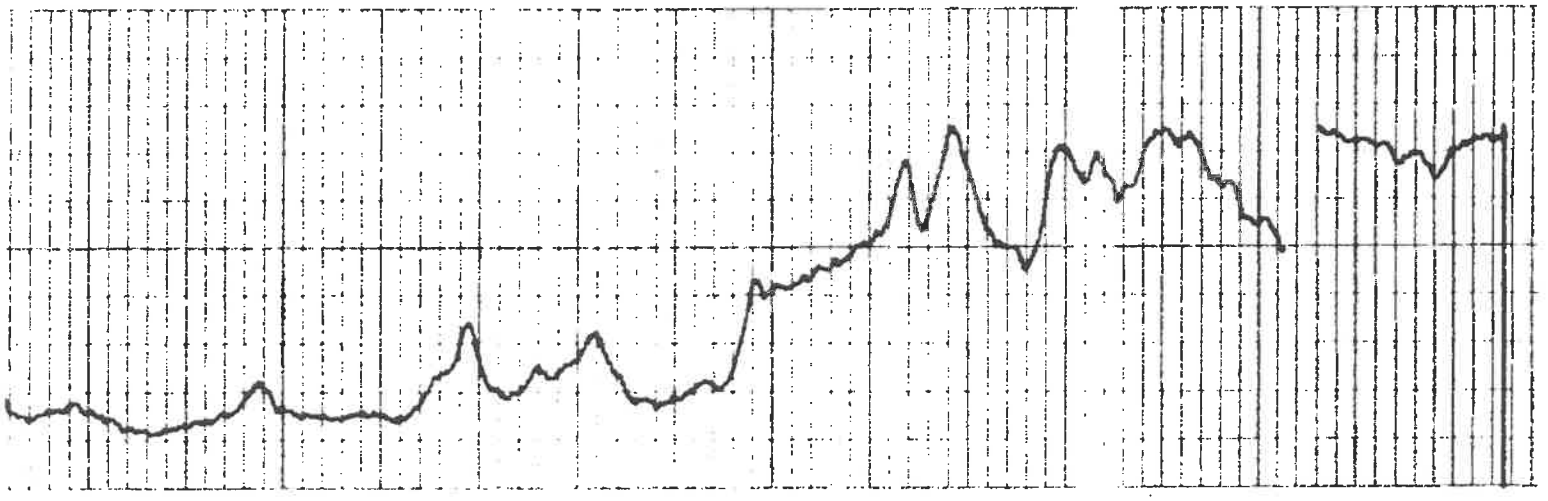
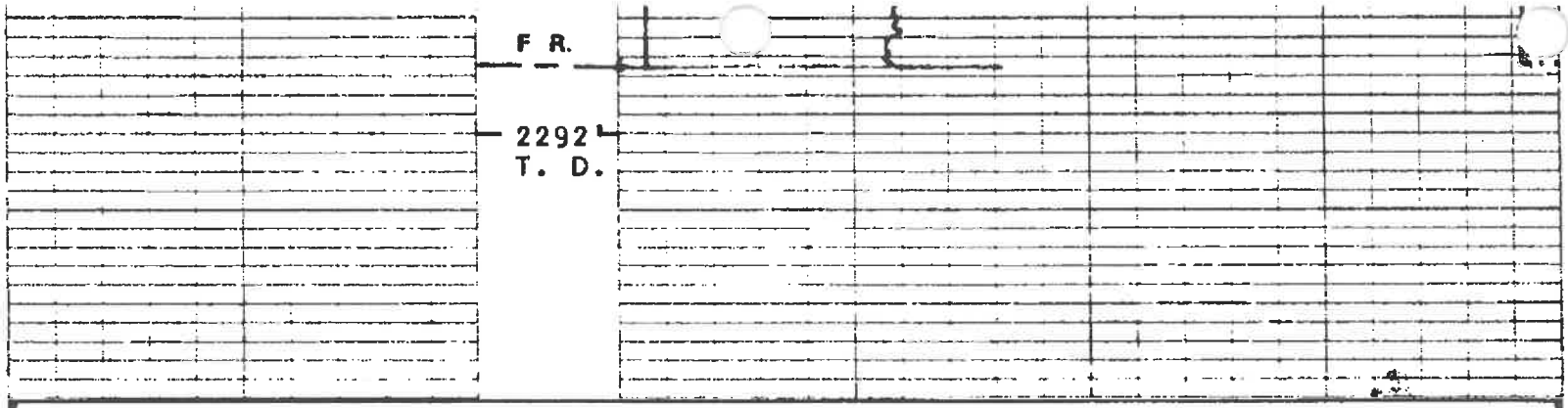






Company QUAKER STATE OIL REFINING CORPORATION

Well OPAL DICK NO. 1

Field BLUE CREEK

County KANAWHA State WEST VIRGINIA

GO FR 2285'
GO TD 2292'
DRLR TD 2292'
Elev:
KB 1164'
DF 1163'
GL 1153'

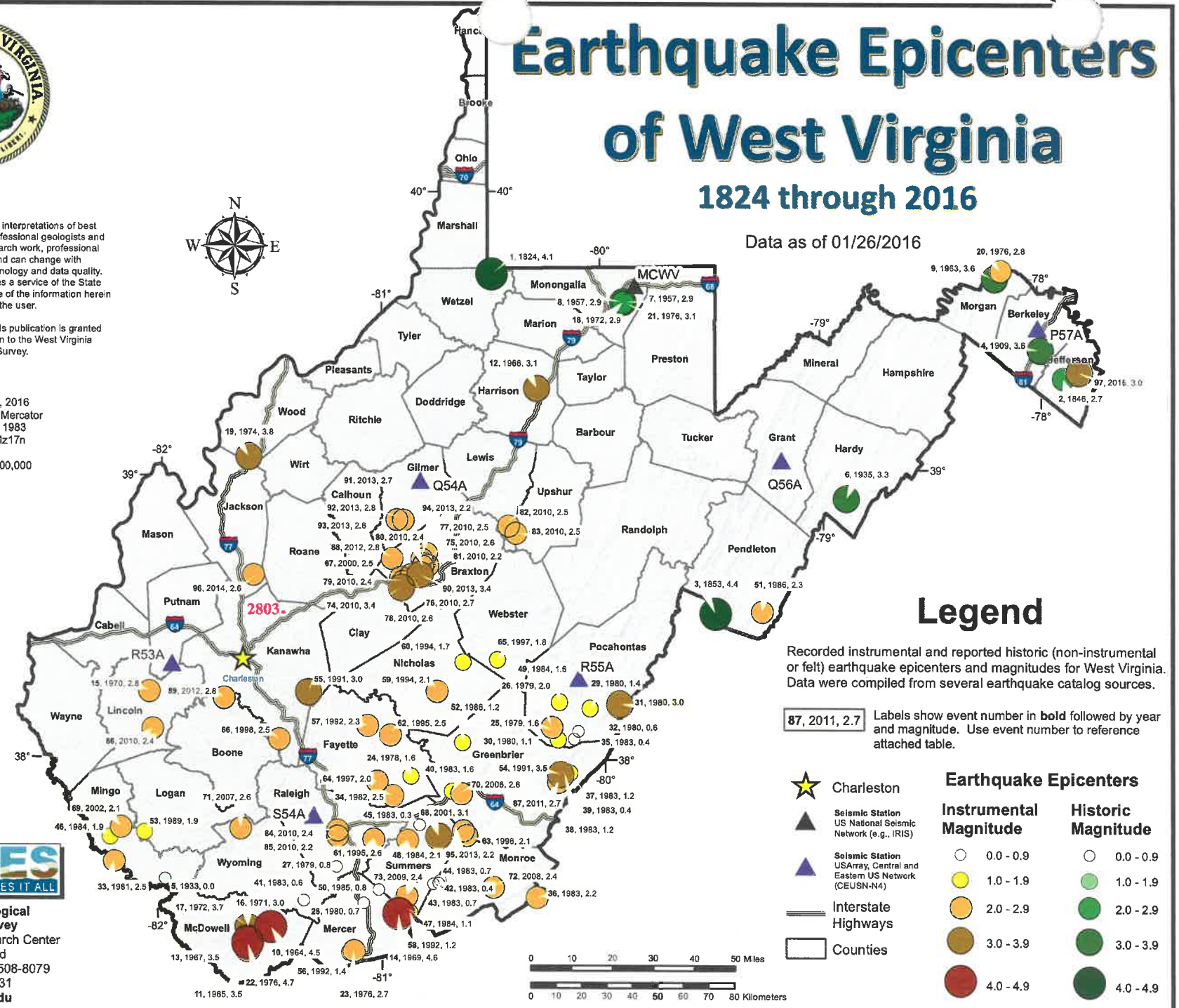
3847

Figure No. 6

Earthquake Epicenters of West Virginia

1824 through 2016

Data as of 01/26/2016



Publications Policy:

This publication represents interpretations of best available data made by professional geologists and geographers. As in all research work, professional interpretations may vary, and can change with advancements in both technology and data quality. This publication is offered as a service of the State of West Virginia; proper use of the information herein is the sole responsibility of the user.

Permission to reproduce this publication is granted if acknowledgement is given to the West Virginia Geological and Economic Survey.

Map Date: January 26, 2016
Projection: Transverse Mercator
Horizontal Datum: NAD 1983
Coordinate System: UTMz17n
Map scale for full 8.5" x 11" display: 1:2,000,000

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Office of Oil and Gas
MAR 12 2019
WV Department of Environmental Protection

Legend

Recorded instrumental and reported historic (non-instrumental or felt) earthquake epicenters and magnitudes for West Virginia. Data were compiled from several earthquake catalog sources.

87, 2011, 2.7 Labels show event number in **bold** followed by year and magnitude. Use event number to reference attached table.

- Charleston
- Seismic Station US National Seismic Network (e.g., IRIS)
- Seismic Station USArray, Central and Eastern US Network (CEUSN-N4)
- Interstate Highways
- Counties

Earthquake Epicenters

Instrumental Magnitude	Historic Magnitude
0.0 - 0.9	0.0 - 0.9
1.0 - 1.9	1.0 - 1.9
2.0 - 2.9	2.0 - 2.9
3.0 - 3.9	3.0 - 3.9
4.0 - 4.9	4.0 - 4.9

0 10 20 30 40 50 Miles
0 10 20 30 40 50 60 70 80 Kilometers

WVGES GEOLOGY UNDERLIES IT ALL
West Virginia Geological and Economic Survey
Mont Chateau Research Center
1 Mont Chateau Road
Morgantown, WV 26508-8079
Phone: (304) 594-2331
www.wvgs.wvnet.edu

Event Num	WVQID	County	UTC Year	UTC Month	UTC Day	UTC HH	UTC MM	UTC SS	Latitude (N)	Longitude (W)	Magnitude	Recorded	MMI	Magnitude Type	Source 1	Source 2	Link
1	18240715160	Wood	1824	7	15	16	20	0.00	39.70000	-80.50000	4.1	Historic	4.0	Mb	VTSO	NCEER	
2	18461019020	Jefferson	1846	10	19	2	0	0.00	39.30000	-77.90000	2.7	Historic	3.0	<NULL>	VTSO	<NULL>	
3	18530502140	Pendleton	1853	5	2	14	20	0.00	38.50000	-79.50000	4.4	Historic	5.5	<NULL>	NCEER	Wheeler I-2737	
4	19090402070	Berkeley	1909	4	2	7	25	0.00	39.40000	-78.00000	3.6	Historic	5.0	Mb	VTSO	Wheeler I-2737	
5	19330615010	Mingo	1933	6	15	1	14	36.80	37.56800	-81.97300	0.0	Historic	0.0	<NULL>	VTSO	<NULL>	
6	19351101080	Hardy	1935	11	1	8	30	0.00	38.90000	-78.90000	3.3	Historic	4.0	<NULL>	VTSO	NCEER	
7	19570307210	Monongalia	1957	3	7	21	5	9.00	39.60000	-79.90000	2.9	Historic	3.0	Mb	VTSO	<NULL>	
8	19570313210	Monongalia	1957	3	13	21	0	41.00	39.60000	-79.90000	2.9	Historic	3.0	Mb	VTSO	<NULL>	
9	19631010000	Morgan	1963	10	10	0	0	0.00	39.65500	-78.19700	3.6	Historic	0.0	<NULL>	Wheeler I-2737	<NULL>	
10	19641125020	McDowell	1964	11	25	2	50	5.00	37.40000	-81.50000	4.5	Instrumental	0.0	Mb	ANSS	<NULL>	
11	19650426150	McDowell	1965	4	26	15	26	19.70	37.32500	-81.60200	3.5	Instrumental	0.0	MbLg	VTSO	NCEER	
12	19660928000	Harrison	1966	9	28	0	0	0.00	39.30000	-80.30000	3.1	Instrumental	4.0	<NULL>	NCEER	<NULL>	
13	19671216120	McDowell	1967	12	16	12	23	33.40	37.36000	-81.60400	3.5	Instrumental	0.0	Mb	VTSO	NCEER	
14	19691120010	Mercer	1969	11	20	1	0	9.30	37.44900	-80.93200	4.6	Instrumental	6.0	MbLg	VTSO	NCEER	
15	19700811060	Lincoln	1970	8	11	6	14	25.50	38.23000	-82.05000	2.8	Instrumental	4.0	MbLg	VTSO	NCEER	
16	19710401050	McDowell	1971	4	1	5	5	11.00	37.40000	-81.60000	3.0	Instrumental	0.0	Mb	NCEER	ANSS	
17	19720109230	McDowell	1972	1	9	23	24	29.00	37.40000	-81.60000	3.7	Instrumental	0.0	MbLg	NCEER	ANSS	
18	19720912150	Monongalia	1972	9	12	15	17	13.70	39.60000	-79.90000	2.9	Historic	3.0	Mb	VTSO	NCEER	
19	19741020150	Wood	1974	10	20	15	13	55.60	39.06000	-81.60900	3.8	Instrumental	5.0	Mb	VTSO	NCEER	Further Info
20	19760130180	Morgan	1976	1	30	18	58	49.80	39.68300	-78.17000	2.8	Instrumental	0.0	Lg	USGS	ANSS	Further Info
21	19760506180	Monongalia	1976	5	6	18	46	8.10	39.60000	-79.90000	3.1	Historic	4.0	Mb	VTSO	NCEER	
22	19760619050	McDowell	1976	6	19	5	54	13.40	37.34400	-81.60200	4.7	Instrumental	5.0	Mb	VTSO	NCEER	Further Info
23	19760703200	Mercer	1976	7	3	20	53	45.80	37.32000	-81.13000	2.7	Instrumental	0.0	MbLg	VTSO	<NULL>	
24	19780814040	Fayette	1978	8	14	4	50	5.40	37.93900	-80.87400	1.6	Instrumental	0.0	Mc	VTSO	ANSS	
25	19790916090	Pocahontas	1979	9	16	9	39	22.60	38.09900	-80.24000	1.6	Instrumental	0.0	Mc	ANSS	<NULL>	
26	19790919000	Pocahontas	1979	9	19	0	45	57.40	38.11000	-80.24300	2.0	Instrumental	0.0	Mc	ANSS	<NULL>	
27	19791031080	Raleigh	1979	10	31	8	32	47.30	37.61700	-81.20700	0.8	Instrumental	0.0	Mc	ANSS	<NULL>	
28	19800410220	Mercer	1980	4	10	22	33	15.70	37.48700	-81.08600	0.7	Instrumental	0.0	Mc	VTSO	ANSS	
29	19800921100	Pocahontas	1980	9	21	10	2	46.30	38.17500	-80.07000	1.4	Instrumental	0.0	Mc	VTSO	ANSS	
30	19801016030	Pocahontas	1980	10	16	3	48	7.60	38.06600	-80.21500	1.1	Instrumental	0.0	Mc	VTSO	ANSS	
31	19801105210	Pocahontas	1980	11	5	21	48	14.20	38.18800	-79.93600	3.0	Instrumental	0.0	ML	ANSS	<NULL>	
32	19801125070	Pocahontas	1980	11	25	7	44	4.00	38.09500	-80.12300	0.6	Instrumental	0.0	Md	VTSO	ANSS	
33	19811130170	Mingo	1981	11	30	17	33	11.00	37.63000	-82.20000	2.5	Instrumental	0.0	Mc	VTSO	ANSS	
34	19820623160	Fayette	1982	6	23	16	17	34.10	37.87000	-80.95700	2.5	Instrumental	0.0	Md	VTSO	ANSS	
35	19830121050	Pocahontas	1983	1	21	5	33	20.40	38.06700	-80.14400	0.4	Instrumental	0.0	Md	VTSO	ANSS	
36	19830526010	Monroe	1983	5	26	1	4	44.80	37.50600	-80.31600	2.2	Instrumental	0.0	Md	VTSO	ANSS	
37	19830610000	Greenbrier	1983	6	10	0	18	40.40	37.94800	-80.16300	1.2	Instrumental	0.0	Md	VTSO	ANSS	
38	19830610001	Greenbrier	1983	6	10	0	24	57.00	37.95100	-80.18900	1.2	Instrumental	0.0	Md	VTSO	ANSS	
39	19830610002	Greenbrier	1983	6	10	0	31	8.30	37.93800	-80.16800	0.4	Instrumental	0.0	Md	VTSO	ANSS	
40	19830720040	Greenbrier	1983	7	20	4	41	40.90	37.88500	-80.69100	1.6	Instrumental	0.0	Md	VTSO	ANSS	
41	19830725030	Wyoming	1983	7	25	3	27	0.20	37.49600	-81.35200	0.6	Instrumental	0.0	Md	VTSO	ANSS	
42	19831113160	Summers	1983	11	13	16	51	6.70	37.55600	-80.77500	0.4	Instrumental	0.0	Md	VTSO	ANSS	
43	19831113170	Monroe	1983	11	13	17	50	50.10	37.55900	-80.75300	0.7	Instrumental	0.0	Md	VTSO	ANSS	
44	19831125160	Monroe	1983	11	25	16	27	47.80	37.56800	-80.74500	0.7	Instrumental	0.0	Md	VTSO	<NULL>	
45	19831223100	Summers	1983	12	23	10	51	21.90	37.76600	-80.83700	0.3	Instrumental	0.0	Md	VTSO	ANSS	
46	19840202050	Mingo	1984	2	2	5	10	19.70	37.71700	-82.21800	1.9	Instrumental	0.0	Md	VTSO	ANSS	
47	19840311040	Summers	1984	3	11	4	1	38.90	37.47400	-80.90000	1.1	Instrumental	0.0	Md	VTSO	ANSS	
48	19841009050	Summers	1984	10	9	5	33	31.50	37.71300	-80.89100	2.1	Instrumental	0.0	Md	VTSO	ANSS	
49	19841221130	Pocahontas	1984	12	21	13	12	21.90	38.19800	-80.20800	1.6	Instrumental	0.0	Md	VTSO	ANSS	
50	19850614070	Mercer	1985	6	14	7	57	10.20	37.53400	-81.02000	0.8	Instrumental	0.0	Md	VTSO	ANSS	
51	19860226210	Pendleton	1986	2	26	21	53	20.80	38.50700	-79.29200	2.3	Instrumental	0.0	Md	VTSO	ANSS	
52	19861220080	Greenbrier	1986	12	20	8	13	12.80	38.05800	-80.64300	1.2	Instrumental	0.0	Md	VTSO	ANSS	
53	19890319100	Logan	1989	3	19	10	7	55.80	37.73500	-82.06400	1.9	Instrumental	0.0	Md	VTSO	ANSS	
54	19910422010	Greenbrier	1991	4	22	1	1	20.20	37.94200	-80.20500	3.5	Instrumental	0.0	Md	VTSO	ANSS	Further Info

Event Num	WVQID	County	UTC Year	UTC Month	UTC Day	UTC HH	UTC MM	UTC SS	Latitude (N)	Longitude (W)	Magnitude	Recorded	MMI	Magnitude Type	Source 1	Source 2	Link
55	19910628180	Kanawha	1991	6	28	18	34	55.50	38.23100	-81.33500	3.0	Instrumental	0.0	Mb	VTSO	ANSS	
56	19920329200	Mercer	1992	3	29	20	16	48.20	37.31400	-81.14900	1.4	Instrumental	0.0	Md	VTSO	ANSS	
57	19920506210	Fayette	1992	5	6	21	20	23.90	38.11800	-81.06900	2.3	Instrumental	0.0	Md	VTSO	ANSS	
58	19921124020	Summers	1992	11	24	2	26	50.70	37.45700	-80.88400	1.2	Instrumental	0.0	Md	VTSO	ANSS	
59	19940204070	Nicholas	1994	2	4	7	40	32.40	38.23600	-80.75900	2.1	Instrumental	0.0	Md	VTSO	ANSS	
60	19940619080	Nicholas	1994	6	19	8	36	41.30	38.33900	-80.64000	1.7	Instrumental	0.0	Md	VTSO	ANSS	
61	19951115100	Raleigh	1995	11	15	10	29	24.80	37.71700	-81.04300	2.6	Instrumental	0.0	Md	VTSO	ANSS	
62	19951228230	Fayette	1995	12	28	23	48	30.40	38.08400	-80.96800	2.5	Instrumental	0.0	Md	VTSO	ANSS	
63	19960811090	Greenbrier	1996	8	11	9	11	21.30	37.73100	-80.62800	2.1	Instrumental	<NULL>	Mc	ANSS	<NULL>	
64	19970222140	Fayette	1997	2	22	14	32	33.10	37.92100	-81.02700	2.0	Instrumental	<NULL>	Mc	ANSS	<NULL>	
65	19970315050	Webster	1997	3	15	5	56	36.40	38.34700	-80.48400	1.8	Instrumental	0.0	Md	VTSO	ANSS	
66	19970315050	Kanawha	1998	10	2	10	1	6.90	38.06800	-81.46600	2.5	Instrumental	0.0	Md	VTSO	ANSS	
67	20001016170	Braxton	2000	10	16	17	56	13.80	38.63600	-80.92000	2.5	Instrumental	0.0	Md	VTSO	ANSS	
68	20011204210	Summers	2001	12	4	21	15	13.90	37.72600	-80.75200	3.1	Instrumental	0.0	Mb	VTSO	ANSS	
69	20020327080	Mingo	2002	3	27	8	25	3.30	37.75300	-82.17100	2.1	Instrumental	0.0	Md	VTSO	ANSS	
70	20060711120	Greenbrier	2006	7	11	12	1	43.10	37.87800	-80.64900	2.6	Instrumental	0.0	Mb	CERI	VTSO	
71	20070830120	Wyoming	2007	8	30	12	52	9.34	37.75300	-81.63600	2.6	Instrumental	0.0	Lg GS	CERI	USGS ENS	Further Info
72	20080129010	Monroe	2008	1	29	1	4	20.70	37.54480	-80.50980	2.4	Instrumental	<NULL>	Md	CERI	ANSS	
73	20090411180	Summers	2009	4	11	18	11	9.07	37.51330	-80.89570	2.4	Instrumental	<NULL>	Md	CERI	ANSS	
74	20100404090	Braxton	2010	4	4	9	19	14.01	38.59900	-80.91617	3.4	Instrumental	0.0	MbLg	CERI	USGS ENS	Further Info
75	20100129010	Braxton	2010	4	29	1	36	22.59	38.68567	-80.81483	2.6	Instrumental	0.0	MbLg	CERI	USGS ENS	Further Info
76	20100429120	Braxton	2010	4	29	12	38	53.43	38.64700	-80.87200	2.7	Instrumental	0.0	MbLg	USGS ENS	CERI	Further Info
77	20100429130	Braxton	2010	4	29	23	26	39.47	38.72200	-80.80300	2.5	Instrumental	0.0	Lg GS	CERI	USGS ENS	Further Info
78	20100507100	Braxton	2010	5	7	10	26	3.47	38.60650	-80.91317	2.6	Instrumental	0.0	MbLg	CERI	USGS ENS	Further Info
79	20100508030	Braxton	2010	5	8	3	3	0.62	38.62300	-80.91133	2.4	Instrumental	0.0	Md	CERI	USGS ENS	Further Info
80	20100724090	Braxton	2010	7	24	9	15	44.13	38.67533	-80.82017	2.4	Instrumental	0.0	Md	CERI	USGS ENS	Further Info
81	20100725030	Braxton	2010	7	25	3	48	70.00	38.67900	-80.79700	2.2	Instrumental	0.0	Md	USGS ENS	LDEO	
82	20100815040	Lewis	2010	8	15	4	38	47.38	38.81833	-80.42983	2.5	Instrumental	0.0	Md	CERI	USGS	Further Info
83	20100821030	Upshur	2010	8	21	3	16	21.99	38.79250	-80.39767	2.5	Instrumental	0.0	Md	USGS ENS	LDEO	Further Info
84	20100826040	Raleigh	2010	8	26	4	22	15.19	37.74833	-81.20467	2.4	Instrumental	0.0	Md	CERI	USGS	
85	20100826041	Raleigh	2010	8	26	4	24	55.39	37.72733	-81.20433	2.2	Instrumental	0.0	Md	CERI	USGS ENS	
86	20100913150	Lincoln	2010	9	13	15	8	46.47	38.10000	-82.03400	2.4	Instrumental	0.0	Md	CERI	ANSS	
87	20110825050	Greenbrier	2011	8	25	5	59	13.76	37.91600	-80.21533	2.7	Instrumental	4.0	Md	CERI	USGS	Further Info
88	20120111190	Braxton	2012	1	10	19	38	58.66	38.70400	-80.95900	2.8	Instrumental	4.0	unk	CERI	USGS	Further Info
89	20120316150	Boone	2012	3	16	15	5	55.00	38.21200	-81.71400	2.8	Instrumental	2.0	MbLg	CERI	USGS NEIC	Further Info
90	20130331140	Braxton	2013	3	31	14	1	24.03	38.64500	-80.83317	3.4	Instrumental	5.0	Mw	CERI	USGS NEIC	Further Info
91	20130720110	Gilmer	2013	7	20	11	38	46.18	38.89567	-80.88700	2.7	Instrumental	<NULL>	MbLg	CERI	USGS ENS	Further Info
92	20130730060	Gilmer	2013	7	30	6	9	4.85	38.83933	-80.90867	2.8	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
93	20130816110	Gilmer	2013	8	16	11	2	21.04	38.84150	-80.93867	2.6	Instrumental	3.0	MbLg	CERI	USGS ENS	Further Info
94	20131013090	Braxton	2013	10	13	9	20	58.55	38.70117	-80.82417	2.2	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
95	20131019080	Greenbrier	2013	10	19	8	41	57.43	37.74767	-80.64333	2.2	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
96	20140606220	Jackson	2014	6	6	22	15	40.79	38.64383	-81.58550	2.6	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
97	20160117190	Jefferson	2016	1	17	19	12	49.00	39.319	-77.828	3.0	Instrumental	5.0	Ml	LDEO	USGS ENS	

Data as of **January 26, 2016**. For a more detailed listing, please download the West Virginia Earthquake spreadsheet from WVGES at **http://www.wvgs.wvnet.edu/www/earthquakes/seismic.html**
If you view this map and data as a PDF, you can click any of the blue hyperlinked text to view further information on a web site.
Please note that USGS Links, above, are considered "beta" at the time of this publication and USGS may change destinations, pages, etc. afterward.

Definition of terms on next page.

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 9

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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Office of Oil and Gas

FEB 19 2019

WV Department of
Environmental Protection

SYNERGY OIL & GAS, INC.

UIC PERMIT# 2D0392803

Section 9

1. SEE APPENDIX A

2. SEE APPENDIX G. Also attached is document provided by Synergy, showing the wells serviced by Smith #1 Disposal Well.

3. Injection water has been sampled from the subject disposal well, API# 47-039-02803. Samples were submitted to a qualified lab, Sturm Environmental. All samples were tested for the required parameters, set forth by the WVDEP. Results are attached within packet. Although, no dissolved gasses test was available as currently there are no labs in WV that are qualified to do these tests. According to Sturm Environmental, they are in the process of updating their labs and this is only temporary. Conformation emails from the lab have been attached. (Can be found in this section).

4. No additives will be used at this time.

5. For those wells with a tubing and packer arrangement, the annulus fluid will be fresh water used to conduct the MIT.

6. After discovery of a development of mechanical integrity failure on any injection well, the problematic well will be immediately shut in. As with most wells that inject water down cemented casing that has been drilled prior to using modern day techniques, a failure is tangibly going to occur in the casing. A corrective plan will be created and submitted to the WVDEP within 30 days. In such case of failure on a newer well with 2 3/8" tubing on a packer inside 4 1/2" casing, it would also be shut in immediately. Tubing pressure would then be tested. If the tubing pressure's integrity is confirmed, a new packer will be replaced and a MIT pressure test completed. Before resuming operation, all results would be submitted to the WVDEP.

   Mechanical Integrity Tests are performed at least once every 5 years. Pressure recorder results are submitted to the WVDEP after testing. The most recently MIT is attached in the last section of the permit (Well Records and Supplemental Info).

(4/25)

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-039-03667	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03669	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03773	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03206	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03207	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03215	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03216	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03494	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03503	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03495	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03496	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03499	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03217	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03504	SYNERGY OIL & GAS, INC.	BIG INJUN
47-039-03492	SYNERGY OIL & GAS, INC.	BIG INJUN

Make as many copies as necessary and include page numbers as appropriate.

Gmail

Blake E. Jones <bjones42@gmail.com>

Re: 8181
1 message

Missy Hoops <mhoops@sturmenvironmental.com>
"Blake E. Jones" <bjones42@gmail.com>

Tue, Jan 15, 2019 at 12:56 PM

You're welcome!

On 1/15/2019 1:07 PM, Blake E. Jones wrote:

> Thank you very much!!
> Blake
>
> On Tue, Jan 15, 2019 at 1:06 PM Missy Hoops <mhoops@sturmenvironmental.com> wrote:
>
> ï¿½ï¿½ Kim said you needed a copy of this email from PACE.
>
> **X-Env-Sender:**Emma.Louis@pacelabs.com
> **X-Msg-Ref:**server-42.tower-400.messagelabs.com!1546978491112481895!1
> **X-Originating-IP:**[50.58.177.36]
> **X-SYMC-ESS-Client-Auth:**outbound-route-from=pass
> **X-StarScan-Received:**
> **X-StarScan-Version:**9.14.24; banners=-,-,-
> **X-VirusChecked:**Checked
> **Received:**(qmail 542 invoked from network); 8 Jan 2019 20:14:51 -0000
> **Received:**from v10oesgw1.pacelabs.com (HELO v10oesgw1.pacelabs.com) (50.58.177.36) by server-42.tower-400.messagelabs.com with DHE-RSA-AES256-GCM-SHA384 encrypted SMTP; 8 Jan 2019 20:14:51 -0000
> **Received:**from PACE_DOMAIN-MTA by v10oesgw1.pacelabs.com with Novell_GroupWise; Tue, 08 Jan 2019 14:14:50 -0600
> **Message-Id:**<5C3504B902000058000005CF8@v10oesgw1.pacelabs.com>
> **X-Mailer:**Novell GroupWise Internet Agent 14.2.2
> **Date:**Tue, 08 Jan 2019 14:14:49 -0600
> **From:**Emma Louis <Emma.Louis@pacelabs.com>
> **To:**mhoops@sturmenvironmental.com <mhoops@sturmenvironmental.com>
> **Subject:**8181
> **References:**<5C3504B902000058000005CF8@v10oesgw1.pacelabs.com>
> **Mime-Version:**1.0
> **Content-Type:**multipart/mixed; boundary="=__PartAC91C8A9.0__="
> **Content-Length:**5639
>
> Hello,
>
> We received the samples for the project above.ï¿½ I want to notify you that as of December 31st, 2018, RSK-175 was removed from the list of approved procedures for dissolved gas analyses for the state of WV.ï¿½ We are currently in the process of pursuing a new approved method, ASTM D8028.ï¿½ We have asked the state of WV for a list of approved labs, but we have been told there are no approved labs for the new method.ï¿½
>
> In summary, we are not able to perform the analyses due toï¿½this state of certification.ï¿½ If you have further questions, please contact the state of WV for guidance.ï¿½ Please let us know how to proceed, and if you want us to send back the samples to you.
>
> Thank you
>
> **Emma Louis**
> Project Coordinator
> Pace Analytical Energy Services, LLC
> 220 William Pitt Way
> Pittsburgh, PA 15238
> 412-826-2378 (O) | 412-826-5245 (Main)
> www.pacelabs.com

PRECISION OIL & GAS INC.

BLAKE E. JONES
GIS SPECIALIST
PERMITTING CONSULTANT
P.O. Box 884
BRIDGEPORT, WV 26330
OFFICE PHONE: 304-848-0307
CELL: 304-709-8382
EMAIL: BJONES@POANDG.COM
BJONES42@GMAIL.COM

--
Thank you,

Missy Hoops
Sturm Environmental Services
P.O. Box 650
Bridgeport, WV 26330
(304) 623-6549 Phone
(304) 623-6552 Fax

Pace Analytical Services
PO Box 286
Beaver, WV 25813
TEL: (304) 255-2500
Website: www.reiclabs.com

782 North Lee Highway
Lexington, VA 24450
TEL: 540.464.1880

16 Commerce Drive
Westover, WV 26501
TEL: 304.241.5861

Kim Krehel
STURM ENVIRONMENTAL SERVICES
P O BOX 650
BRIDGEPORT, WV 26330

Tuesday, January 15, 2019

TEL: (304) 623-6549
FAX: (304) 623-6552

RE: PRECISION OIL & GAS, INC.
Work Order #: 19010501
Dear Kim Krehel:

Pace Analytical Services received 2 sample(s) on 1/4/2019 for the analyses presented in the following report.

Sincerely,

Beth Johnson

Beth Johnson
Project Manager
(304) 250-6205

Pace Analytical Services - Case Narrative

WO#: 19010501

Date Reported: 1/15/2019
Original

Client: STURM ENVIRONMENTAL SERVICES

Project: PRECISION OIL & GAS, INC.

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP and/or VELAP requirements for parameters clearly designated as PA, VA, PA/VA, or VELAP in the column labeled NELAP.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by the Lexington and Morgantown Service Centers are designated by an annotation on the test code. All other tests were performed by Pace Analytical Services, LLC Laboratory in Beaver, WV. Subcontracted results are attached to the end of the report.

All samples are stored for a minimum of 14 days after the date of the final report. All records are stored for a minimum of 5 years. If longer sample or records retention is required, please contact your project manager for details.

DEFINITIONS:
MCL: Maximum Contaminant Level
MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix.
Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).
NA: Not Applicable
ND: Not Detected at the PQL or MDL
PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.
Qual: Qualifier that applies to the analyte reported.
TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.
Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:
X: Reported value exceeds required MCL
B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be considered estimated.
H: Holding time for preparation or analysis has been exceeded.
J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:
Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, NCDWQ 466, PADEP 68-00839, VADCLS(VELAP) 460148
Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839
Lexington, VA: VADCLS(VELAP) 460150
Morgantown, WV: WVDHHR 003112M, WVDEP 387

Pace Analytical Services - Analytical Report

WO#: 19010501

Date Reported: 1/15/2019
Original

Client:	STURM ENVIRONMENTAL SERVICES	**Collection Date:**	1/2/2019 10:30:00 AM
Project:	PRECISION OIL & GAS, INC.	**Date Received:**	1/4/2019
Lab ID:	19010501-01A	**Matrix:**	Liquid
Client Sample ID:	19000 UIC 2803	**Site ID:**	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Prep Date	Date Analyzed	NELAC
SEMI-VOLATILE RANGE ORGANICS				**Method: SW8015C**				**Analyst: MF**	
TPH (Oil Range: C20 - C40)	15.8	0.14	0.21	NA		mg/L	01/08/19 11:38AM	01/14/19 9:42PM	
TPH (Diesel Range: C10 - C28)	31.8	1.30	2.06	NA		mg/L	01/08/19 11:38AM	01/11/19 2:33AM	PA/VA
Surr: o-Terphenyl	215	NA	17.6-135	NA	S	%Rec	01/08/19 11:38AM	01/11/19 2:33AM	
Notes:									
Surrogate recovery was outside laboratory control limits due to required sample dilution and does not reflect extraction efficiency.									
VOLATILE RANGE ORGANICS				**Method: SW8015C**				**Analyst: YT**	
TPH (Gasoline Range: C6 - C10)	5.97	0.250	0.500	NA		mg/L	01/06/19 1:42AM	01/08/19 2:07AM	PA/VA
Surr: 2,5-Dibromotoluene	202	NA	41.8-138	NA	S	%Rec	01/06/19 1:42AM	01/08/19 2:07AM	
Notes:									
The surrogate recovery is outside laboratory control limits due to matrix interference.									
VOLATILE ORGANIC COMPOUNDS				**Method: SW8260B**				**Analyst: DTC**	
Benzene	135	5.00	10.0	NA		µg/L	01/06/19 1:42AM	01/08/19 6:19PM	PA/VA
Ethylbenzene	0.900	0.500	1.00	NA	J	µg/L	01/06/19 1:42AM	01/08/19 7:22PM	PA/VA
m,p-Xylene	7.16	1.00	2.00	NA		µg/L	01/06/19 1:42AM	01/08/19 7:22PM	PA/VA
o-Xylene	3.36	0.500	1.00	NA		µg/L	01/06/19 1:42AM	01/08/19 7:22PM	PA/VA
Toluene	22.6	0.500	1.00	NA		µg/L	01/06/19 1:42AM	01/08/19 7:22PM	PA/VA
Surr: 1,2-Dichloroethane-d4	99.1	NA	65-141	NA		%Rec	01/06/19 1:42AM	01/08/19 6:19PM	
Surr: 4-Bromofluorobenzene	112	NA	80-120	NA		%Rec	01/06/19 1:42AM	01/08/19 7:22PM	
Surr: Dibromofluoromethane	114	NA	80-120	NA		%Rec	01/06/19 1:42AM	01/08/19 7:22PM	
Surr: Toluene-d8	95.4	NA	80-120	NA		%Rec	01/06/19 1:42AM	01/08/19 7:22PM	

Pace Analytical Services, LLC.
PO Box 684056
Chicago, IL 60695-4056
TEL: (304)255-2500
Website: www.reiclabs.com

Sample Receipt Checklist

PRECISION OIL & GAS, INC.

Client Name:	STU001			Work Order Number:	19010501
RCPNo:	1	Date and Time Received:	1/4/2019 6:00:00 PM	Received by:	Randy Moore
Completed By:	Zach Cook		Reviewed By:	Beth Johnson	
Completed Date:	1/5/2019 12:37:35 AM		Reviewed Date:	1/7/2019 11:11 AM	

Carrier Name: Pace

1.	Chain of custody present?	Yes [x]	No [ ]	
2.	Chain of custody signed when relinquished and received?	Yes [x]	No [ ]	
3.	Are matrices correctly identified on Chain of custody?	Yes [x]	No [ ]	
4.	Is it clear what analyses were requested?	Yes [x]	No [ ]	
5.	Custody seals intact?	Yes [ ]	No [ ]	Not Present [x]
6.	Samples in proper container type and preservative?	Yes [x]	No [ ]	
7.	Were correct preservatives noted on COC?	Yes [x]	No [ ]	NA [ ]
8.	Sample containers intact?	Yes [x]	No [ ]	
9.	Sufficient sample volume for indicated test?	Yes [x]	No [ ]	
10.	Were container labels complete?	Yes [x]	No [ ]	
11.	All samples received within holding time?	Yes [x]	No [ ]	
12.	Was an attempt made to cool the samples?	Yes [x]	No [ ]	NA [ ]
13.	Sample Temp. taken and recorded upon receipt?	Yes [x]	No [ ]	To 3.2 °C
14.	Water - Were bubbles absent in VOC vials?	Yes [x]	No [ ]	No Vials [ ]
15.	Are Samples considered acceptable?	Yes [x]	No [ ]	
16.	COC filled out properly?	Yes [x]	No [ ]	

Client Notification/Response

Client Name:	STU001						Work Order Number:	19010501
Comment:								
Client Contacted:	Yes	[ ]	No	[ ]	NA	[x]	Person Contacted:	
Contact Mode:	Phone	[ ]	Fax:	[ ]	Email:	[ ]	In Person:	[ ]
Date Contacted:				Contacted By:				
Regarding:								
Client Instructions:								
Corrective Action:								

530766

CH[AIN OF] CUSTODY RECORD

19010501
STU001
STURM ENVIRONMENTAL BER
Beth Johnson

Research Environmental & Industrial Consultants, Inc.
MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 286 • 225 Industrial Park Rd, Beaver, WV 25813
800-999-0105 • 304-255-2500 • 304-255-2572/fax • www.reiclabs.com

SHENANDOAH Service Center
1557 Commerce Rd., Ste 201
Verona, VA 24482
540-248-0183

ROANOKE Service Center
3029 C Peters Creek Rd
Roanoke, VA 24019
540-777-1276

MORGANTOWN Service Center
16 Commerce Drive
Westover, WV 26501
304-241-5861

Client: Sturm Environmental
PO #: 8177
Contact Person: Kim
Phone: 304 623-6549
QUOTE #: ____ Fax: ____ Email: ____
Address: on file City: ____ State ____ Zip ____
Billing Address (if different): ____
City ____ State ____ Zip ____
Site ID & State ____ Project ID ____ Sampler: B. Jones

TURNAROUND TIME: [X] NORMAL
RUSH TURNAROUND*: [ ] 5 DAY [ ] 3 DAY [ ] 2 DAY [ ] 1 DAY
*Rush work needs prior laboratory approval and will incur additional charges

Send Results Via: [ ] Email [ ] Fax

All analytical requests are subject to REIC's Standard Terms and Conditions.

ANALYSIS & METHOD REQUESTED: BTEX; TPH-GRO, DRO, ORO

SAMPLE ID	No. & Type of Containers	Sampling Date/Time		Matrix	Sample Comp/Grab	BTEX	TPH-GRO, DRO, ORO
ENTER PRESERVATIVE CODE						1	1
19000	4/250 Glass, 4 Vials	1-2-19	1030	L	Grab	X	X
19001	" / "	"	1100	"	"	X	X

Preservative Codes:
0 None
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide/Sodium Arsenite
6 Sodium Hydroxide
7 Ascorbic Acid
8 Sodium Bisulfate/Methanol
9 Ammonium Chloride
10 Cl6 Buffer
11 Sodium Sulfite/Hydrochloric Acid
12 ____ *
*(Use blank for a preservative not listed)

COMMENTS:

CUSTODY SEALS [ ] Y [✓] N

Corrected temp at arrival 2.7 °C ICE? Y ✓ N IR# 13 Containers provided by: [✓] REIC [✓] Client Delivered by: [ ] Client [✓] REIC [ ] UPS [ ] FedEx [ ] USPS

Relinquished by	Date/Time	Received by	Date/Time	Relinquished by	Date/Time
J. Krebel	1-4-19				
Randy L. Moran	1-4-19 1119				
Carl ...	1-4-19 1415				
... 1-4-19	1600		1800		

COC Rev 4 051 219

RECEIVED
Office of Oil and Gas

FEB 19 2019

WV Department of
Environmental Protection

STURM ENVIRONMENTAL SERVICES

Main Office:
STURM ENVIRONMENTAL SERVICES
BRUSHY FORK ROAD
P.O. BOX 650
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
P.O. BOX 8337
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

RECEIVED
Office of Oil and Gas
FEB 19 2019
WV Department of
Environmental Protection

REPORT TO: Client Name: Precision Oil + Gas, INC.
Address: P.O. Box 884
City/State/Zip: Bridgeport, WV 26330
Contact Person: Blake Jones
Telephone Number: 304-848-0307 Fax No.
Email Address: bjones42@gmail.com
Sampler Name: (Print) Blake Jones
Sampler Signature: [illegible]
Project Name: Synergy UIC Permit
Special Reporting: [X] Email Results [ ] Fax Results

BILL TO: Client Name: SAME
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: X Standard
RUSH (pre-scheduled; surcharges may apply) *Please Check One* 1 DAY 2 DAY 3 DAY
Date Needed

Sample ID / Description	Composite Sample: Start Date	Start Time	End Date	End Time	Grab Sample: Date	Time	Preservative: Ice	Other	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: Big Set	# of Bottles	Flow (gpm, cfs, mgd) circle one	Field pH	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
UIC-2803					1/2	10:30	X	X			X		X	X						X	X	16 [illegible]						
UIC-3754					1/2	11 AM	X	X			X		X	X						X	X	16 [illegible]						

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
[illegible]	1-2-19	1:55 [illegible]	[illegible]	1/2/19	1355
Relinquished by:	Date	Time	Received by:	Date	Time

Laboratory Comments:
Temperature Upon Receipt: <6
Bottles Preserved? (Y) N
collilert #
1

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: PRECISION OIL & GAS, INC.

SAMPLE ID: UIC-2803-1

SAMPLED BY: B. JONES

DATE/TIME SAMPLED:* 01-02-19 1030

DATE/TIME RECEIVED: 01-02-19 1355

LABORATORY ID: POG 190102-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
pH O	3.9	units	SM 22nd 4500 H B	.1	01-04-19 1419	HN
Fe	89.5	mg/L	EPA 200.7 Rev 4.4-1994	.02	01-04-19 0452	DB
Mn	2.47	mg/L	EPA 200.7 Rev 4.4-1994	.002	01-04-19 0452	DB
TSS	220	mg/L	USGS I-3765-85	4	01-03-19 1400	MRS
TDS	25470	mg/L	USGS I-1750-85	4	01-03-19 1400	MRS
MBAS	1.44	mg/L	SM22nd 5540C	.01	01-02-19 2000	SW
TOC	64.6	mg/L	SM22nd 5310B	1.0	01-15-19 1753	LM
SO_4	742.	mg/L	EPA 300.0 Rev 2.1-1993	1.0	01-10-19 1634	DC
Cl^-	152000.	mg/L	EPA 300.0 Rev 2.1-1993	.50	01-09-19 1805	DC
Al	U	mg/L	EPA 200.7 Rev 4.4-1994	2.0	01-04-19 0452	DB
As	.071	mg/L	EPA 200.9	.001	01-15-19 1417	RC
Ba	463.	mg/L	EPA 200.7 Rev 4.4-1994	.002	01-04-19 0452	DB
Ca	2198.	mg/L	EPA 200.7 Rev 4.4-1994	.10	01-04-19 0452	DB
Na	52590.	mg/L	EPA 200.7 Rev 4.4-1994	.03	01-04-19 0452	DB
SPEC GRAVITY	1.16392	calc	CALCULATION		01-08-19 2215	SW

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted:

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.
E Estimated Reported value exceeded calibration range.
J Reported value is an estimate because concentration is less than reporting limit.
PND Precision not determined.
R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and/or re-analysis is necessary.
RND Recovery not determined.
U Compound was analyzed for, but not detected.
O Out of holding. Time does not meet 40 CFR 136/141 compliance.
T This result is not supported by our certification ID.
A Does not meet 40 CFR 136/141 compliance.
C Does not meet 47 CSR 32 compliance.

Narrative:

Approved Doug H Bunto

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: PRECISION OIL & GAS, INC.

SAMPLE ID: UIC-2803-1

SAMPLED BY: B. JONES

LOG NO: W001-19

DATE/TIME SAMPLED:* 01-02-19 1030

DATE/TIME RECEIVED: 01-02-19 1355

LABORATORY ID: POG 190102-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
Total Coliform	PRESENT	P/A (Cfu)	9223 Colilert	1	01-02-19 1518	LM
E Coli	ABSENT	P/A (Cfu)	9223 Colilert	1	01-02-19 1518	LM

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Microbiological analysis results will be discarded after 5 years

Method of Analysis from "Standard Methods for the Examination of Water and Wastewater,"

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.
E Estimated Reported value exceeded calibration range.
J Reported value is an estimate because concentration is less than reporting limit.
PND Precision not determined.
R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and/or re-analysis is necessary.
RND Recovery not determined.
U Compound was analyzed for, but not detected.
O Out of holding. Time does not meet 40 CFR 136/141 compliance.
T This result is not supported by our certification ID.
A Does not meet 40 CFR 136/141 compliance.
C Does not meet 47 CSR 32 compliance.

Narrative:

Approved Doyle W Bond

CHAIN OF CUSTODY RECORD

STURM ENVIRONMENTAL SERVICES

Main Office:
STURM ENVIRONMENTAL SERVICES
BRUSHY FORK ROAD
P.O. BOX 650
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
P.O. BOX 8337
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7868

RECEIVED
Office of Oil and Gas
FEB 19 2019
WV Department of Environmental Protection

REPORT TO: Client Name: Precision Oil + Gas, INC.
Address: P.O. Box 884
City/State/Zip: Bridgeport, WV 26330
Contact Person: Blake Jones
Telephone Number: 304-848-0307 Fax No.
Email Address: bjones42@gmail.com
Sampler Name: (Print) Blake Jones
Sampler Signature: Bl. J
Project Name: Synergy UIC Permit
Special Reporting: X Email Results ____ Fax Results

BILL TO: Client Name: SAME
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: X Standard
____ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR: 35ig Set	# of Bottles	Flow (gpm, cfs, mgd) circle one	Field pH	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one	
UIC-2803-1	See below				1/2	10:30	X	X			X		XX							X	X	16							
UIC-3754-2					1/2	11 AM	X	X			X		XX							X	X	16							

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
	1-2-19	13:55 / 1300		1/2/19	1355
Relinquished by:	Date	Time	Received by:	Date	Time

Laboratory Comments:
Temperature Upon Receipt: 0 (Y) 26 N
Bottles Preserved?
collect # 1-674 18 2-437 18

Pace Analytical
www.pacelabs.com

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

January 23, 2019

Ms. Laurie Hiles
Sturm Environmental Services
P.O. Box 650
Bridgeport, WV 26330

RE: Project: 8182
Pace Project No.: 30276107
PRECISION OIL & GAS, INC.

Dear Ms. Hiles:
Enclosed are the analytical results for sample(s) received by the laboratory on January 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Samantha Bayura

Samantha Bayura
samantha.bayura@pacelabs.com
(724)850-5622
Project Manager

Enclosures

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

CERTIFICATIONS

Project: 8182
Pace Project No.: 30276107

PRECISION OIL & GAS, INC.

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
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/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
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 #: PA014572018-1
New Hampshire/TNI Certification #: 297617
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 #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30276107001	19001	Water	01/02/19 10:30	01/08/19 10:10
30276107002	19002	Water	01/02/19 11:00	01/08/19 10:10

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30276107001	19001	EPA 900.0	NEG	2
		EPA 903.1	MK1	1
		EPA 904.0	JLW	1
30276107002	19002	EPA 900.0	NEG	2
		EPA 903.1	MK1	1
		EPA 904.0	JLW	1

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Greensburg, PA 15601
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PROJECT NARRATIVE

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

Method: EPA 900.0
Description: 900.0 Gross Alpha/Beta
Client: Sturm Environmental Sevices
Date: January 23, 2019

General Information:
2 samples were analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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

PROJECT NARRATIVE

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

Method: EPA 903.1
Description: 903.1 Radium 226
Client: Sturm Environmental Sevices
Date: January 23, 2019

General Information:
2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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

PROJECT NARRATIVE

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

Method: EPA 904.0
Description: 904.0 Radium 228
Client: Sturm Environmental Sevices
Date: January 23, 2019

General Information:
2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 8182 PRECISION OIL & GAS, INC. UIC-2803
Pace Project No.: 30276107

Sample: 19001 Lab ID: 30276107001 Collected: 01/02/19 10:30 Received: 01/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample state of collection not listed on COC.
• collection date and time not listed on sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	4,972 ± 1,534 (1,393) C:NA T:NA	pCi/L	01/10/19 20:25	12587-46-1	
Gross Beta	EPA 900.0	2,064 ± 900 (1,353) C:NA T:NA	pCi/L	01/10/19 20:25	12587-47-2	
Radium-226	EPA 903.1	2,237 ± 313 (9.75) C:NA T:97%	pCi/L	01/22/19 21:10	13982-63-3	
Radium-228	EPA 904.0	1,433 ± 269 (44.6) C:77% T:86%	pCi/L	01/21/19 14:57	15262-20-1	

UIC-3754

Sample: 19002 Lab ID: 30276107002 Collected: 01/02/19 11:00 Received: 01/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample state of collection not listed on COC.
• collection date and time not listed on sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	1,582 ± 901 (1,346) C:NA T:NA	pCi/L	01/10/19 20:25	12587-46-1	
Gross Beta	EPA 900.0	1,634 ± 861 (1,436) C:NA T:NA	pCi/L	01/10/19 20:25	12587-47-2	
Radium-226	EPA 903.1	1,236 ± 196 (10.2) C:NA T:91%	pCi/L	01/22/19 21:10	13982-63-3	
Radium-228	EPA 904.0	1,276 ± 238 (41.0) C:75% T:88%	pCi/L	01/21/19 14:58	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

QC Batch: 327182 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30276107001, 30276107002

METHOD BLANK: 1592926 Matrix: Water
Associated Lab Samples: 30276107001, 30276107002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.292 ± 0.352 (0.537) C:NA T:98%	pCi/L	01/22/19 20:53	

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

QC Batch: 327230 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30276107001, 30276107002

METHOD BLANK: 1593252 Matrix: Water
Associated Lab Samples: 30276107001, 30276107002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.366 ± 0.327 (0.661) C:78% T:85%	pCi/L	01/21/19 14:55	

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

QC Batch: 326393 Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30276107001, 30276107002

METHOD BLANK: 1569288 Matrix: Water
Associated Lab Samples: 30276107001, 30276107002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.077 ± 0.219 (0.512) C:NA T:NA	pCi/L	01/10/19 20:23	
Gross Beta	-0.212 ± 0.289 (0.608) C:NA T:NA	pCi/L	01/10/19 20:23	

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: 8182 PRECISION OIL & GAS, INC.
Pace Project No.: 30276107

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.

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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

C WO#:30276107 t Document
Ti 30276107 mpleted accurately.

Page: of

1756246

Section A Required Client Information:

Company: Sturm Environmental
Address: PO Box 650
Bridgeport, WV 26330
Email To:
Phone: 304 623-6549 Fax: 304 623-6552
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Mhaggis@sturmenvironmental
Copy To:
Purchase Order No.: 8182
Project Name:
Project Number:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

RECEIVED
Office of Oil and Gas
FEB 19 2019
WV Department of Environmental Protection

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE	COLLECTED DATE	COLLECTED TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test ↓	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START: Grab														N			
1	19001	WT	G	1-2-19	1030				3			X							Gross Alpha, Gross Beta, Radium 226, Radium 228	N	001
2	19002	"	"	"	1100				3			X									002
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	K. Kabul / Sturm Environmental (mailed)	1-7-19	PM	Emily Z	1-8-19	1010	N/A	N	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: B. Jones
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Page 13 of 14

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Sturm Env. Project # # 30276107

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label MJ

LIMS Login MJ

Tracking #: 1Z 281 27103 7800 8739

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☐ yes ☑ no

Thermometer Used N/A Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot# 10D3581 — Date and initials of person examining contents: ET 1-8-19
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4. no signature
Sample Labels match COC: -Includes date/time/ID Matrix: WT		✓		5. no date or time on samples
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 Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics	✓			16. PHL2 — Initial when completed ET — Date/time of preservation — Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr			✓	Initial when completed: ET Date: 1-8-19

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.

RECEIVED
Office of Oil and Gas

FEB 19 2019

WV Department of Environmental Protection

STURM ENVIRONMENTAL SERVICES

Main Office:
STURM ENVIRONMENTAL SERVICES
BRUSHY FORK ROAD
P.O. BOX 650
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
P.O. BOX 8337
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7868

REPORT TO: Client Name: Precision Oil & Gas, INC.
Address: P.O. Box 884
City/State/Zip: Bridgeport, WV 26330
Contact Person: Blake Jones
Telephone Number: 304-848-0307 Fax No.
Email Address: bjones42@gmail.com
Sampler Name: (Print) Blake Jones
Sampler Signature:
Project Name: Synergy UIC Permit
Special Reporting: X Email Results ____ Fax Results

BILL TO: Client Name: SAME
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: X Standard
____ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY	2 DAY	3 DAY

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	ANALYZE FOR: 7Big Set	# of Bottles	Flow (ppm, cfs, mgd) circle one	Field pH	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
UIC-2803					1/2	10:30	X	X			X		X	X						X	X	16						
UIC-3754					1/2	11AM	X	X			X		X	X						X	X	16						

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
	1-2-19	13			
Relinquished by:	Date	Time	Received by:	1/2/19	1355

Laboratory Comments:
Temperature Upon Receipt: 2.6
Bottles Preserved? (Y) N
colilert #

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

January 21, 2019

M. Hoops
Sturm Environmental
PO Box 650
Bridgeport, WV 26330
PRECISION OIL & GAS, INC.

RE: LHC
Pace Workorder: *29157*

Dear M. Hoops:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, January 08, 2019. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,

Emma Louis 01/21/2019
Emma.Louis@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 13

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PRECISION OIL & GAS, INC.

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

nelac

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

Lab ID	Sample ID	Matrix	Date Collected	Date Received
291570001	19005	Water	1/2/2019 10:30	1/8/2019 12:52
291570002	19006	Water	1/2/2019 11:00	1/8/2019 12:52

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PROJECT SUMMARY

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

Workorder Comments

The container pH for samples 29157 (0001-0002) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method RSK175.

The laboratory performed the requested analyses using RSK-175, currently a WVDEP non-approved method.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

Lab ID: 291570001 Date Received: 1/8/2019 12:52 Matrix: Water
Sample ID: 19005 UIC-2803 Date Collected: 1/2/2019 10:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: EPA RSK175		Analytical Method: EPA RSK175						
Methane	110	ug/l	0.50	0.061	1	1/15/2019 11:29	MM	
Ethane	110	ug/l	0.20	0.032	1	1/15/2019 11:29	MM	
Propane	45	ug/l	0.20	0.0058	1	1/15/2019 11:29	MM	
Iso-Butane	5.5	ug/l	0.40	0.020	1	1/15/2019 11:29	MM	
n-Butane	7.8	ug/l	0.40	0.022	1	1/15/2019 11:29	MM	

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS QUALIFIERS

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quantitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).

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Pittsburgh, PA 15238
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Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

QC Batch: DISG/7320 Analysis Method: EPA RSK175

QC Batch Method: EPA RSK175

Associated Lab Samples: 291570001, 291570002

METHOD BLANK: 59351

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	
Ethane	ug/l	<0.20	0.20	
Propane	ug/l	<0.20	0.20	
Iso-Butane	ug/l	<0.40	0.40	
n-Butane	ug/l	<0.40	0.40	

LABORATORY CONTROL SAMPLE & LCSD: 59352 59353

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	44	44	42	99	96	85-115	3.7	20	
Ethane	ug/l	83	82	79	98	95	85-115	3.7	20	
Propane	ug/l	120	120	110	96	92	85-115	3.9	20	
Iso-Butane	ug/l	160	150	150	93	91	85-115	2.2	20	
n-Butane	ug/l	160	150	140	93	90	85-115	2.3	20	

SAMPLE DUPLICATE: 59356 Original: 291570001

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
RISK						
Methane	ug/l	110	110	1.5	20	
Ethane	ug/l	110	110	1.8	20	
Propane	ug/l	45	46	2.3	20	
Iso-Butane	ug/l	5.5	5.6	1.3	20	
n-Butane	ug/l	7.8	7.9	1.5	20	

SAMPLE DUPLICATE: 59357 Original: 291970001

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
RISK						

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

SAMPLE DUPLICATE: 68357 Original: 291970001

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
Methane	ug/l	110	110	1.2	20	
Ethane	ug/l	.013	.011	14	20	
Propane	ug/l	0	0	0	20	
Iso-Butane	ug/l	0	0	0	20	
n-Butane	ug/l	0	0	0	20	

Pace Analytical Energy Services LLC
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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 29157 LHC PRECISION OIL & GAS, INC.

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
291570001	19005			EPA RSK175	DISG/7320
291570002	19006			EPA RSK175	DISG/7320

Emma Louis - 8181

From: Emma Louis
To: mhoops@sturmenvironmental.com
Subject: 8181

Hello,

We received the samples for the project above. I want to notify you that as of December 31st, 2018, RSK-175 was removed from the list of approved procedures for dissolved gas analyses for the state of WV. We are currently in the process of pursuing a new approved method, ASTM D8028. We have asked the state of WV for a list of approved labs, but we have been told there are no approved labs for the new method.

In summary, we are not able to perform the analyses due to this state of certification. If you have further questions, please contact the state of WV for guidance. Please let us know how to proceed, and if you want us to send back the samples to you.

Thank you

Emma Louis
Project Coordinator
Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
412-826-2378 (O) | 412-826-5245 (Main)
www.pacelabs.com

Pace Analytical
www.pacelabs.com

220 William Pitt Way
Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

29157

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: of
Company: Sturm Environmental	Report To: B Invoice Mhoey@sturmenvironmental.com	Attention:	013453
Address: Po Box 650 Bridgeport, WV 26330	Copy To:	Company Name:	REGULATORY AGENCY
Email To:	Purchase Order No.: 8181	Address:	NPDES GROUND WATER DRINKING WATER
Phone: 304623-6549 Fax: 3046236552	Project Name:	Pace Quote Reference:	UST RCRA OTHER
Requested Due Date/TAT:	Project Number:	Pace Project Manager:	Site Location STATE: WV
		Pace Profile #:	

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WV Department of Environmental Protection

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other Na2S2O3	Y/N	Analysis Test ↓	Dissolved: Ethane	methane	Propane	n-Butane	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	19005 WT	WT	G			1/2/19	1030		3							X	X	X	X	X	N	
2	19006 WT	WT	G			"	1100		3							X	X	X	X	X	N	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	K. Knabel/Sturm Environmental	1/7/19 (Mailed)	PM	Leone PACE	1.8.19	1230	5	4	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: B. Jones

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Cooler Receipt Form

Client Name: Sturm Environ Project: EHC Lab Work Order: 29157

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx (UPS) USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 1Z781 2710 3798 0552 2

Custody Seal on Cooler/Box Present: Yes (No) Seals Intact: Yes No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 5°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by: ES Date: 1.8.19

Project Manager Review: ERJ Date: 1-8-19

F-PAE-Q-009-rev.01, 3Oct2017

STURM ENVIRONMENTAL SERVICES

Main Office:
STURM ENVIRONMENTAL SERVICES
BRUSHY FORK ROAD
P.O. BOX 650
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
P.O. BOX 8337
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

REPORT TO: Client Name: Precision Oil + Gas, INC.
Address: P.O. Box 884
City/State/Zip: Bridgeport WV 26330
Contact Person: Blake Jones
Telephone Number: 304-848-0307 Fax No.
Email Address: bjones42@gmail.com
Sampler Name: (Print) Blake Jones
Sampler Signature: [signature]
Project Name: Synergy UIC Permit
Special Reporting: [X] Email Results [ ] Fax Results

BILL TO: Client Name: SAME
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: X Standard
RUSH (pre-scheduled; surcharges may apply) *Please Check One* [ ] 1 DAY [ ] 2 DAY [ ] 3 DAY
Date Needed

Sample ID / Description	Composite: Start Date	Start Time	End Date	End Time	Grab: Date	Time	Ice	Other	Preservative: HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: Big Set		# of Bottles	Flow (gpm, cfs, mgd) circle one	Field pH	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F or C) circle one
UIC-2803					1/2	10:30	X	X			X		X	X						X	X		16/18						
UIC-3754					1/2	11AM	X	X			X		X	X						X	X		16/18						

Comments

Records retained for 5 years

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1-2-19	1355	K. Knebel	1/2/19	1355
Relinquished by:	Date	Time	Received by:	Date	Time

Laboratory Comments:
Temperature Upon Receipt: <6
Bottles Preserved? (Y) N
collilert #

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UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 10

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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Environmental Protection

SYNERGY OIL & GAS, INC.

UIC PERMIT# 2D0392803

Section 10

1. Synergy Oil and Gas, Inc. employees visit the Smith #1 well covered by this permit several times per week. They will monitor the operations on a daily basis during active operations at the facility by field employees. Injection pressure, annulus pressure, flow rate, and the volume of the injection fluid that is disposed will be monitored and documented on Form WR-40. All recorded data is submitted to the WVDEP.
2. For every barrel of disposal waste that is received at subject disposal well, a haul ticket from the trucking company is submitted to Synergy Oil and Gas, Inc. The ticket indicates from which oil or gas well the fluid was hauled from along with the quantity of the load and the date hauled.

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 11

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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Environmental Protection

SMITH #1

UIC PERMIT# UIC2D0392803

Section 11

SEE APPENDIX H - Groundwater Protection Plan

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: SYNERGY OIL & GAS, INC.

County: KANAWHA

Facility Location:

Postal Service Address:	625 JAKES RUN ROAD		
ELKVIEW, WV 25071			
Latitude :	38.506845	Longitude:	-81.450552

Contact Information:

Person:	HAROLD HAMRICK
Phone Number:	304-982-2522
E-mail Address:	N/A

Date: 2/9/18

1. A list of all operations that may contaminate the groundwater.

Waste Disposal - Injection of Brine
Transfer of water from transport truck to well

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

All truck transfers use secondary containment spill buckets. Injection well is subjected to MIT test every 5 years.

3. List procedures to be used when designing and adding new equipment or operations.

No plans for any new operations.

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

Waste Disposal is regulated for groundwater protection

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

Disposal fluid will be sampled and submitted to an approved water testing facility for analysis. If any problems arise, they will be addressed before any disposal operations take place.

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 deicing or fill material on the property unless allowed by another 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.

All Synergy Oil and Gas employees are trained in the visual inspection of tanks, pipelines, and equipment. This is for continued maintenance of the injection facility. Also, all significant employees have received training on spill response during safety training meetings.

8. **Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.**

While in operation, inspections are made on a daily basis. The inspections include visual inspection of all equipment, pipelines, and overall operations. The injection well itself is subject to MIT test every five years.

Signature: _____

Date: 2/6/19

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 12

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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Environmental Protection

SMITH #1

UIC PERMIT# UIC2D0392803

Section 12

A well work plugging permit must be obtained from the West Virginia Department of Environmental Protection Office of Oil and Gas before beginning any well plugging operation. Plan will be in compliance with all applicable plugging and abandonment regulations including 35-4-14 and 22-6-24. The guidelines provided in Oil and Gas rule and code will be followed to complete the necessary application to plug and abandon. All cement plugs will be a minimum of 100 feet in thickness. A cement plug will be set above any perforation(s) and/or shot hole(s). All casings will be free pointed and as much casing will be removed as possible. A cement plug will be used to separate oil and gas bearing formations. A cement plug will be placed across all casing cuts. An elevation plug will be placed in each. If surface casing is cemented to surface a cement plug will be placed across the shoe and at the surface. If there is no cemented surface casing then a cement plug will be placed across fresh water zone and at the surface. Gel will be used as a spacer between all cement plugs.

DEP Permit List

Wells on Synergy's "Plugging Bond"

Well Number	API #	Issue Date	Farm Name	Current Operator	Status	Type	Photo
FRAME FIELD							
ALLEN 1	039-03667	03/24/1982	HARPER, EVERETTE & CLEO	SYNERGY OIL AND GAS	Active	Oil	Yes
ALLEN 3	039-03669	03/24/1982	HARPER, EVERETTE & CLEO	SYNERGY OIL AND GAS	Active	Oil	Yes
NEWHOUSE 1	039-03773	09/20/1981	NEWHOUSE	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 1	039-02803	11/18/1977	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Disposal	Yes
SMITH 2	039-03206	07/23/1978	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 3	039-03207	07/27/1978	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 4	039-03215	08/01/1978	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 5	039-03216	08/06/1978	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 6	039-03494	09/30/1979	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Gas	Yes
SMITH 7	039-03503	10/26/1979	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 8	039-03495	10/09/1979	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 9	039-03496	10/04/1979	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Gas	Yes
SMITH 10	039-03499	10/15/1979	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Oil	Yes
SMITH 11	039-03217	08/10/1978	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Gas	Yes
SMITH 12	039-03504	10/30/1979	SMITH, WOODROW	SYNERGY OIL AND GAS	Active	Gas	No
SUMMERS 1	039-03492	09/25/1979	SUMMERS, J. C.	SYNERGY OIL AND GAS	Active	Oil	Yes
WALGROVE FIELD							
HAYES 1	039-06302	07/12/2011	UNITED BANK INC.	SYNERGY OIL AND GAS	Unkn		No
HAYES 2	039-03772	09/15/1981	GIVEN, L. E.	SYNERGY OIL AND GAS	Active		Yes
THOMAS 1	039-03745	05/17/1981	BROWN	SYNERGY OIL AND GAS	Active		Yes
THOMAS 2-A	039-03755	06/12/1981	DRENNEN HEIRS/J. F. BROWN	SYNERGY OIL AND GAS	Active	Oil	Yes
THOMAS 3	039-03754	03/15/1997	CISCO, MELISSA	SYNERGY OIL AND GAS	Active	Disposal	No
THOMAS 4	039-03757	07/08/1981	DRENNEN HEIRS	SYNERGY OIL AND GAS	Active	Gas	Yes
THOMAS 7	039-03761	08/08/1981	THOMAS (CARMICHAEL 18)	SYNERGY OIL AND GAS	Active	Gas	Yes
THOMAS 8	039-03764	08/15/1981	DRENNEN, ETAL	SYNERGY OIL AND GAS	Active	Oil	Yes

Wells NOT on Synergy's "Plugging Bond"

THOMAS 5	039-03758	7/2/1984	DRENNEN, ETAL (CARMICHAEL 17)	OPERATOR UNKNOWN	Active		Yes
THOMAS 6	039-03759	5/26/2011	DRENNAN, MELLISA CISCO	MARANATHA ENERGY	Plugged	Disposal	No

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 13

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

SMITH #1

UIC PERMIT# UIC2D0392803

Section 13

Synergy Oil and Gas, Inc. is reapplying for a Class 2D UIC well and is in full compliance with permit requirements and regulations, therefor their previous disposal well bonding is valid.

SMITH #1

UIC PERMIT# UIC2D0392803

Section 14

SEE APPENDIX I - Requirement for Financial Responsibility to Plug/ Abandon an Injection Well Form.

(4/25)

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

To: WV Department of Environmental Protection
Office of Oil and Gas
601 57th Street, SE
Charleston, West Virginia 25304-2345
ATTN: Underground Injection Control Program

From: Synergy Oil and Gas, Inc.
P.O. Box 190
Chloe, WV 25235

Date: 2/6/19

Subject: Underground Injection Control (UIC) Permit Application
2D0392803
Requirement for Financial Responsibility

I, Harold Hamrick, verify in accordance with 47CSR13-13.7.g., that I 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.

Name: Harold Hamrick
Signature: [signature]
Date: 2/6/19

Promoting a healthy environment

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WV Department of
Environmental Protection

dep

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 15

NOT APPLICABLE

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

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NOT APPLICABLE

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.

UNERGROUND INJECTION CONTROL (UIC)
PERMIT RENEWAL APPLICATION

SECTION 16

UIC#: 2D0392803

FACILITY NAME: SMITH #1

OPERATOR: SYNERGY OIL & GAS, INC.

2019

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)	2D0392803
Toxic Substances Control Act (TSCA)	
Best Management Plans	
Management of Used Oil	
Other Relevant Permits (Specify):	