Check# 3898
12/22/2020
$550.00

DRILCO OIL AND GAS
—drilcooilgas.com—

BOX 385 GRANTSVILLE, WV 26147 304-354-9516

DrilcoOilGas.com

December 22, 2020

ANDREW L. LOCKWOOD
GEOLOGIST III
WV DEP OFFICE OF OIL & GAS
304-719-9802
Andrew.L.Lockwood@wv.gov

Hello Andrew,
Attached is the entire PERMIT APPLICATION RENEWAL for
UIC WELL 2D08701623 (SUMMERS 7)

I believe everything is complete, and as accurate, as possible.
If you have any questions, please contact me at 304-354-9516, or hugh@drilcooilgas.com.

Thank you,

Hugh D. Dale, Jr., President

Drilco Oil & Gas Corporation

by Dec 28, 2020

west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

By Email Transmission

October 1, 2020

Mr. Hugh Dale
David Dale, DBA DD Oil Company
P.O. Box 406.
Spencer, WV 25276

RE: Reapplication for UIC Permit 2D08701623 (Summers 7)

Mr. Dale:

This letter is being sent to you as a courtesy to inform you that your current UIC permit for the Summers 7 injection well in Roane County will expire June 28, 2021. If you wish to reapply for this permit, you must submit your application documents 180 days prior to the permit expiration date which is December 30, 2020. The permit application package can be downloaded from the WVDEP website. Please contact us if you have questions or need assistance.

Sincerely,

Andrew L. Lockwood
Geologist III
Office of Oil and Gas
Phone: 304-719-9802
Andrew.L.Lockwood@wv.gov

Cc: Joe Taylor (Inspector)-(by email)

UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION PACKAGE CLASS 2 & 3

RECEIVED
Office of Oil and Gas

DEC 28 2020

WV Department of
Environmental Protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0450

"Promoting a healthy environment"

INSTRUCTIONS/GUIDANCE TO COMPLETE A CLASS 2 and CLASS 3 UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

A. GENERAL INSTRUCTIONS

The Office of Oil and Gas (OOG) has developed a comprehensive permit package and instruction/guidance document to assist in the preparation of a UIC permit application. Where possible, standardized forms have been created and identified as Appendices to the UIC application package. **NOTE** the instruction/guidance document identifies additional requirements to be submitted with the application.

B. FEES

The application fee for a UIC permit is $500.00. There will be an additional $50.00 fee for a groundwater protection plan (GPP).

C. SUBMITTAL

Please submit an original and a complete copy of the UIC permit application package along with the application fee of $550.00 to:

West Virginia Department of Environmental Protection
Office of Oil and Gas
Underground Injection Control (UIC)
601 57th Street, SE
Charleston, WV 25304

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	David Dale DBA DD Oil Company		
Existing UIC Permit ID Number	2D08701623	UIC Well API Number	4708701623

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

Please check the fees and payment included.

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

Please check the items completed and enclosed.

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

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

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

Reviewed by (Print Name): Hugh Dale - DD Oil Company

Reviewed by (Sign): 

Date Reviewed: 1-24-2024

Section 1 – 5

UIC-1 Form

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 # 200871623 API # 47-087-01623 WELL # SUMMERS #7

Section I. Facility Information

Facility Name: DD OIL WALTON DISPOSAL

Address: **7845 Charleston Road (Rt 119)**

City: SPENCER State: WV Zip: **25286**

County: **WALTON** **District: Walton**

Location description:
OFF ROUTE 119. TAKE EXISTING ROAD THRU ONE GATE 2.2 MILES TO WELL.
TANK BATTERY 100' OFF ROUTE 119. EXISTING TANKS AT MOUTH OF McKOWNS CREEK. ALL WATER PUMPED TO WELL ABOVE.

Location of well(s) or approximate center of field/project in UTM NAD 83 (meters):
Northing: **4276910** Easting: **466837.7**
Latitude: 38.640116
Longitude: -81.38105

Environmental Contact Information:
Name: DAVID DALE Title: OWNER
Phone: 304-927-1147 (O) 304-532-1147 (M) Email: ddoilcompany@suddenlink.net

RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of
Environmental Protection

Section 2. Operator Information

Operator Name: DAVID DALE DBA DD OIL CO
Operator ID: 308509

Address: PO BOX 406
City: SPENCER State: WV Zip: 25276
County: ROANE

Contact Name: HUGH D DALE DRILCO OIL CORP Contact Title: OPERATOR
Contact Phone: 304-354-9516 (O) 304-550-0978 Contact Email: hugh@drilcooilgas.com

Section 3. Applicant Information

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

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

Section 4. Applicant / Activity Request and Type:

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

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

WE HAVE 49 PRODUCING OIL WELLS AND ONE INJECTION WELL.

THIS FIELD PRODUCES @15 bbls PER DAY OIL. AND 57 barrels OF WATER PER DAY.

ALL WATER IS RE-INJECTED IN THE SAME FORMATION / BIG INJUN FORMATION.

APPLICATION CERTIFICATION

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

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

DD Oil Company

(Company Name)

2D08701623

(UIC Permit Number)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (47CSR13.13.11.d)

Hugh Dale

(Print Name)

Hugh Dale

(Print Title)

(Signature)

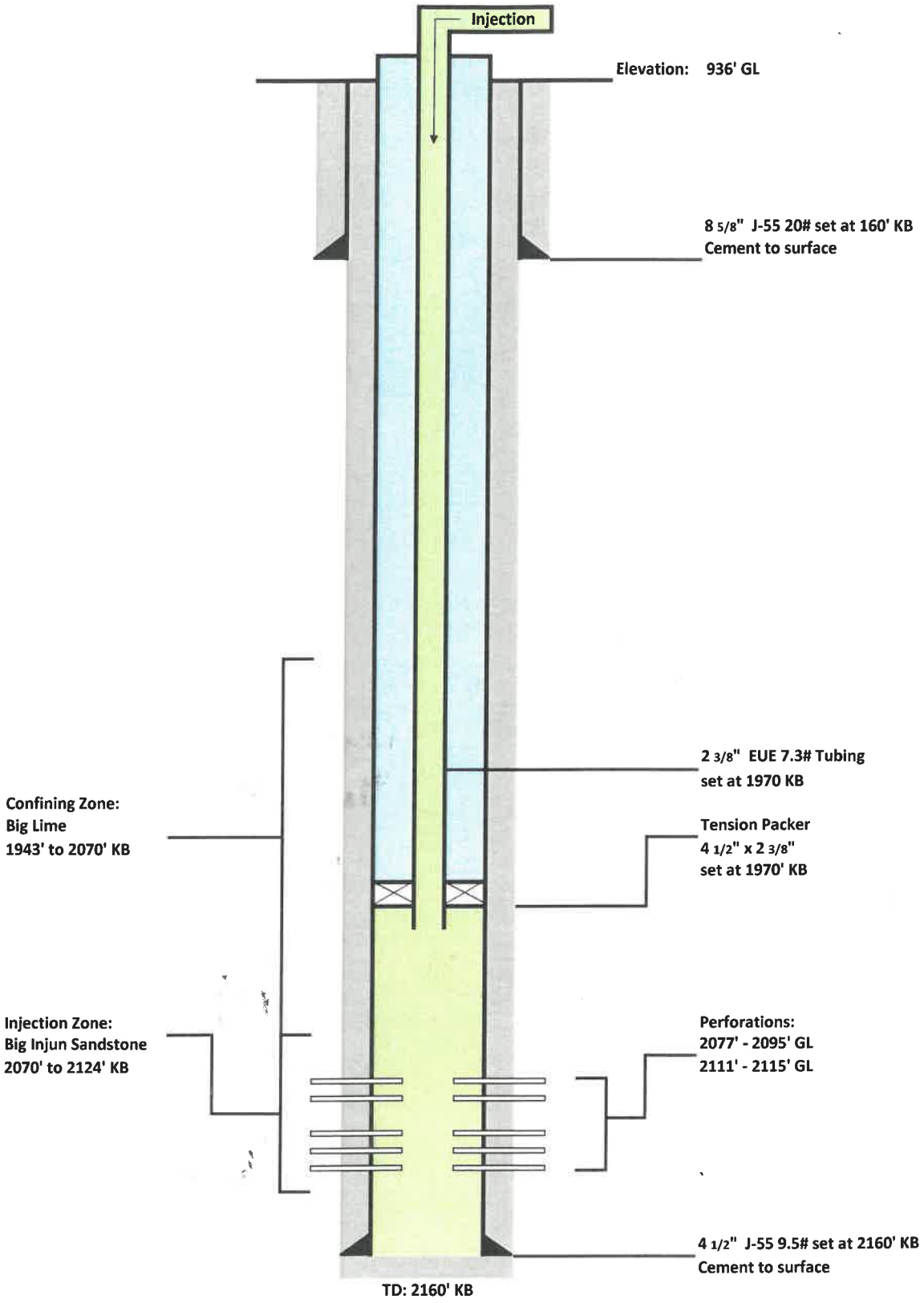
1-24-2024

(Date)

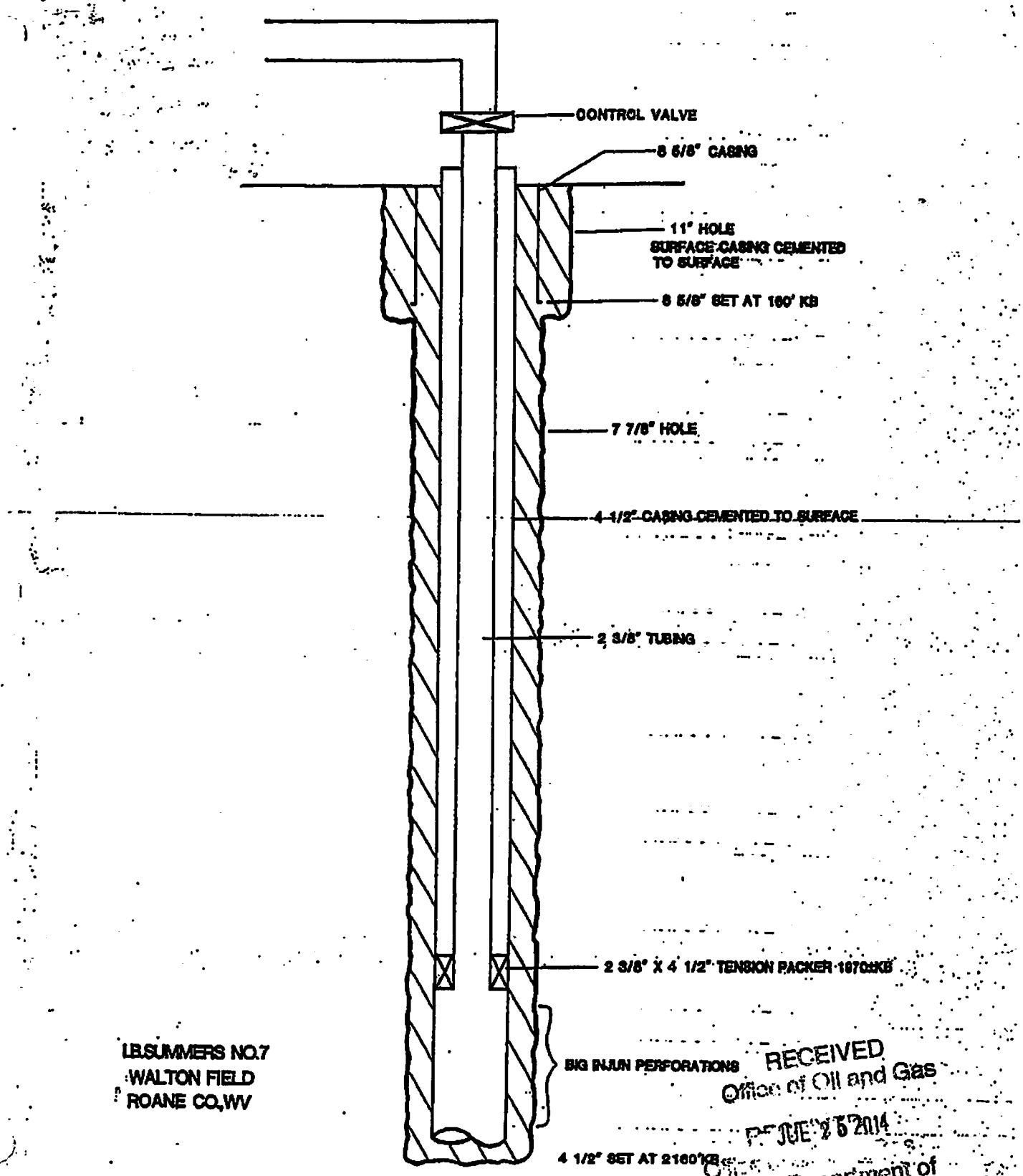
Section 6

Construction

David Dale DBA DD Oil Company
Summers No. 7
47-087-01623



2D0871623



L.B.SUMMERS NO.7
WALTON FIELD
ROANE CO,WV

(4/25)

4708701623

APPENDIX A
Injection Well Form

1) GEOLOGIC TARGET FORMATION BIG INJUN SAND

Depth 2077' Feet (top) 2115' Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 2150' Feet

3) Approximate water strata depths: Fresh 120' Feet Salt 1650' Feet

4) Approximate coal seam depths: NONE

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

6) Virgin reservoir pressure in target formation 500 psig Source WV GEO SURVEY BLUE BOOK CIN 1909

7) Estimated reservoir fracture pressure 2000 PS LB psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour) 2.375 BBL/HOUR

Injection volume (bbl/day) 57 BBL/DAY

Injection pressure (psig) 475-500 PSI832

Bottom hole pressure (psig) 8.32 THRU 4.5 BUT THROUGH 2 7/8 ' TUBING - 416 PSI

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

PRODUCED SW ACID STICK TO KEEP IRON DOWN LO

RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of
Environmental Protection

Temperature of injected fluid: (°F) 60 DEGREES

10) FILTERS (IF ANY)

10 MICROS 30 INCHES LONG (7 OF THEM)
NO WATER FILTERS

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

CHANGED TO STAINLESS STEEL AND FIBERSPOR 2011 - NOV 23 FINISHED

4708701623

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		20 LB FT	160'	160'	CTS
Coal							
Intermediate 1							
Intermediate 2							
Production	4.5	NEW	J55	9.5 LB FT	2160'	2160'	CTS
Tubing	2 7/8	NEW	EUE	7.3 LB FT	1970'	1970'	
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	11'	8 5/8			CLASS A	CTS	CTS
Coal							
Intermediate 1							
Intermediate 2							
Production	7 7/8	4.5			CLASS A		CTS
Tubing							
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	TENSION 2 3/8 X 4 1/2			
Sizes:				
Depths Set:	1970 KB			

Form OG-10

4708701623

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
14
WELL RECORD

Rotary ☒
Spudder ☐
Cable Tools ☐
Storage ☐

Quadrangle Walton
Permit No. ROA-1623

Oil or Gas Well Injection (KIND)

Company Joseph S. Gruss
Address Box 471, Spencer, W. Va.
Farm I. B. Summers Acres 105
Location (waters) McKown
Well No. 7 Elev. 936
District Walton County Roane
The surface of tract is owned in fee by George Moffatt
Address Walton, W. Va.
Mineral rights are owned by I. B. Summers, et al
Address Spencer, W. Va.
Drilling commenced 7-20-67
Drilling completed 7-29-67
Date Shot From To
With
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Cu. Ft.
Rock Pressure lbs. hrs.
Oil Injection Well bbls., 1st 24 hrs.
WELL ACIDIZED (DETAILS)
WELL FRACTURED (DETAILS) 30,000# 20/40 Sand and 30,000 Gallons Gelled Salt Water
RESULT AFTER TREATMENT (Initial open Flow or bbls.) Injection Test - 8 B/M @ 1250 PSL
ROCK PRESSURE AFTER TREATMENT HOURS
Fresh Water Feet Salt Water Feet
Injection Sand Big Injun Depth 2077-2095 and 2111-2115

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10			Size of
8¼	150	150	
6⅝			Depth set
5 3/16			
4½			
3			Perf. top
2			Perf. bottom
Liners Used.			Perf. top
			Perf. bottom

Attach copy of cementing record.
CASING CEMENTED 4½ SIZE 2150 No. Ft. 7-30-67 Date
Amount of cement used (bags) 455 (Circulated)
Name of Service Co. Howco
COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
			"ATTACHED"				

RECEIVED
SEP 11 1967
Dept. of Mines

SEP 11 1967

4708701623

DRILLER'S LOG

14

Joseph S. Gruss
Attn: Mr. Hiekox
Spencer, West Virginia

I. B. SUMMERS #7 - ROANE COUNTY, WEST VIRGINIA

0	To	75	shaley sand shells
75	To	152	sand & shells
152	To	165	shale
165	To	400	shale, sandy shale & shells
400	To	490	sand
490	To	540	shale
540	To	657	sandy shale
657	To	667	lime
667	To	870	sandy shale & shale
870	To	1020	sand, shale & lime shells
1020	To	1175	sand, shaley and sand
1175	To	1244	shaley sand
1244	To	1350	shaley sand
1350	To	1510	shaley sand & shale
1510	To	1555	shaley sand
1555	To	1620	shaley lime w/sand streaks
1620	To	1635	salt sand
1635	To	1885	salt sand
1885	To	1923	shale
1923	To	1927	shaley sand & sand
1927	To	1933	sand
1933	To	1965	lime
1965	To	2009	lime
2009	To	2054	lime & dolomite
2054	To	2066	dolomite
2066	To	2092	sand
2092	To	2110	sandy shale
2110	To	2117	shaley sand
2117	To	2150	silty shale
2150 T.D.			

AFFIDAVIT

STATE OF WEST VIRGINIA }
COUNTY OF WOOD } ss

I hereby certify that the Driller's Log is correct according to the Daily Drilling Report.

MITCHELL & MITCHELL DRILLING CONTRACTORS

WVGES GEOLOGY UNDERLIES IT ALL
"Pipeline"

Select County: (087) Roane
Enter Permit #: 1623
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 Explanations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus"

WV Geological & Economic Survey:

Well: County = 087 Permit = 1623 Link to all digital records for well

Report Time: Monday, September 18, 2023 4:48:22 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4708701623	Roane	1623	Walton	Walton	Walton	38.640344	-81.382614	466701.7	4276935.8

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
4708701623	7/29/1967	Original Loc	Completed	George Moffatt	7		I B Summers		I B Summers et al	Gruss, Joseph S.			

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
4708701623	7/29/1967	7/20/1967	936	Ground Level	Walton(Rock Ck)	Undf PRICE blw INJN	Big Injun (Price&eq)	Service Well	Unsuccessful	Salt Water Disp	Rotary	Fractured	2150		2150		

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
4708701623	7/29/1967	Horizon	Injection	Vertical	2077	Big Injun (Price&eq)	2095	Big Injun (Price&eq)					
4708701623	7/29/1967	Horizon	Injection	Vertical	2111	Big Injun (Price&eq)	2115	Big Injun (Price&eq)					

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4708701623	Original Loc	1st Salt Sand	Well Record	1620	Reasonable	15	Reasonable	936	Ground Level
4708701623	Original Loc	2nd Salt Sand	Well Record	1635	Reasonable	250	Reasonable	936	Ground Level
4708701623	Original Loc	Big Lime	Past WVGES Staff Geologst	1933	Reasonable	133	Reasonable	936	Ground Level
4708701623	Original Loc	Big Injun (Price&eq)	Well Record	2066	Reasonable	26	Reasonable	936	Ground Level

Wireline (E-Log) Information:
* Scanned/Raster Log Information:

API	STATUS	LOG_TOP	LOG_BOT	DEEPEST_FML	LOGS_AVAIL	SCAN	GR_TOP	GR_BOT	D_TOP	D_BOT	N_TOP	N_BOT	I_TOP	I_BOT	T_TOP	T_BOT	S_TOP	S_BOT	O_TOP	O_BOT	INCH2
4708701623	Regular Entry	0	2150	Big Injun (Price&eq)	G,I	Y	0	2150					1600	2150							Y

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

Downloadable Log Images/Data: We advise you to save the scanned log or digitized log file(s) to your PC for viewing. To do so, right-click the file of interest and select the save option. Then you can direct the file to a location of your choice. Please note the scanned log images vary in size and some may take several minutes to download.

Scanned/Raster Logs

FILENAME
4708701623gi.tif
4708701623go.tif

Quick Reference Guide for Log File Names For more info about WVGES scanned logs click here

geologic log types:
- d density (includes bulk density, compensated density, density, density porosity, grain density, matrix density, etc.)
- e photoelectric adsorption (PE or Pe, etc.)
- g gamma ray
- i induction (includes dual induction, medium induction, deep induction, etc.)
- l laterolog
- m dipmeter
- n neutron (includes neutron porosity, sidewall neutron--SWN, etc.)
- o other[1]
- s sonic or velocity
- t temperature (includes borehole temperature, BHT, differential temperature, etc.)
- z spontaneous potential or potential

mechanical log types:
- b cement bond
- c caliper
- o other[1]
- p perforation depth control or perforate

[1]other logs may include, but are not limited to, such curves as audio, bit size, CCL--casing collar locator, continuous meter, directional survey, gas detector, guard, NCTL--Nuclear Cement Top Locator, radioactive tracer, tension

There is no Plugging data for this well

There is no Sample data for this well

APPENDIX B
Storage Tank Inventory

Tank Registration Numbers 044-00000431
044-00000432

API #	Tank ID	Tank Location (UTM NAD 83 Meters) Northing	Tank Location (UTM NAD 83 Meters) Easting	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
PLASTIC										
TANKS	1+2	(see attached)		2011	9 yrs	Plastic	8,400	BRINE		

Operator: DD Oil Company
UIC Permit No.: 2D08701623

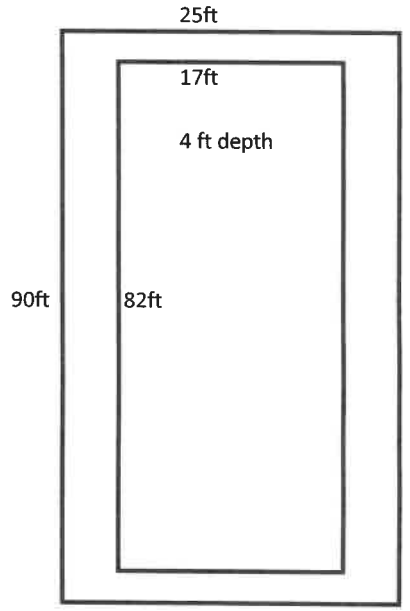
Secondary Containment Calculations
Earth Berm Containment
(Input Measurements In Blue Cells)

Tank	Tank Dimensions		Capacity		
	Height (Ft)	Dia (Ft)	Barrels	Gallons	Cu Ft
1	14.55	9.917	200.2	8407.1	1123.9
2	14.55	9.917	200.2	8407.1	1123.9
3			0.0	0.0	0.0
4			0.0	0.0	0.0
5			0.0	0.0	0.0
6			0.0	0.0	0.0
7			0.0	0.0	0.0
8			0.0	0.0	0.0
9			0.0	0.0	0.0
10			0.0	0.0	0.0
		Total	**400.3**	**16,814.1**	**2,247.7**

Enter largest tank as Tank 1.

Tank	Tank Base Exclusions		
	Dia (Ft)	Depth (Ft)	Vol (CuFt)
1	0	4.00	0.0
2	9.917	4.00	309.0
3	0	4.00	0.0
4	0	4.00	0.0
5	0	4.00	0.0
6	0	4.00	0.0
7	0	4.00	0.0
8	0	4.00	0.0
9	0	4.00	0.0
10	0	4.00	0.0
Total Tank Base Exclusions			**309.0**

Tank 1 entered as "0" diameter to exclude it from the tank base exclusion calculations.



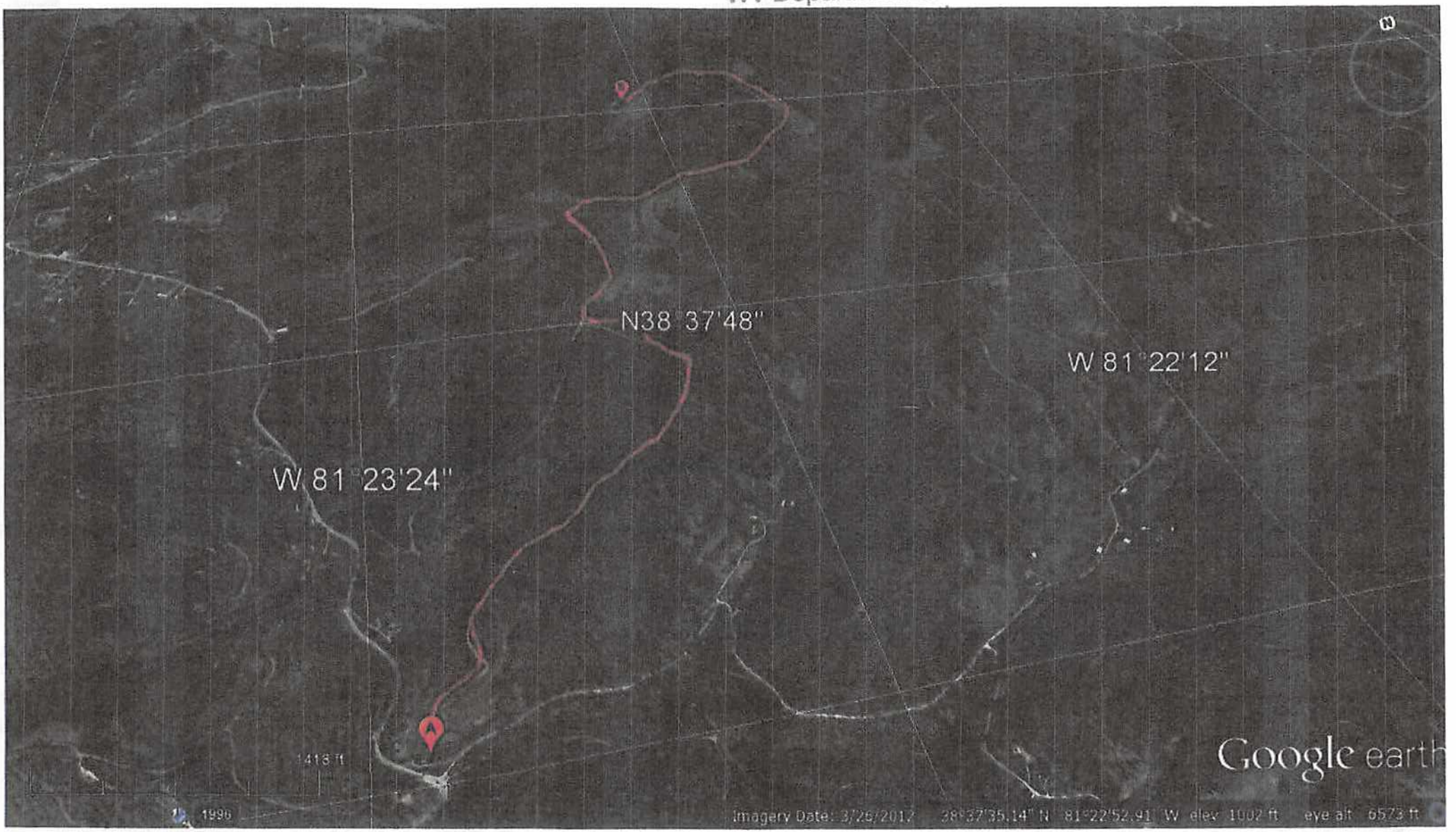
Containment Dimensions	
Top Interior Perimeter	
Length (Ft)	Width (Ft)
90.00	25.00
Bottom Interior Perimeter	
Length (Ft)	Width (Ft)
82.00	17.00
Depth (Ft)	
4.00	
Total Containment Volume (CuFt)	7220.0

All containment measurements must be interior dimensions.

Tank Containment Volume (CuFt)	7220.0
Minus Tank Base Exclusions (CuFt)	309.0
Net Containment Volume (CuFt)	6911.1
Largest Tank Volume (CuFt)	1123.9
Available Containment Volume (CuFt)	**614.9%**

Section 7

Area of Review

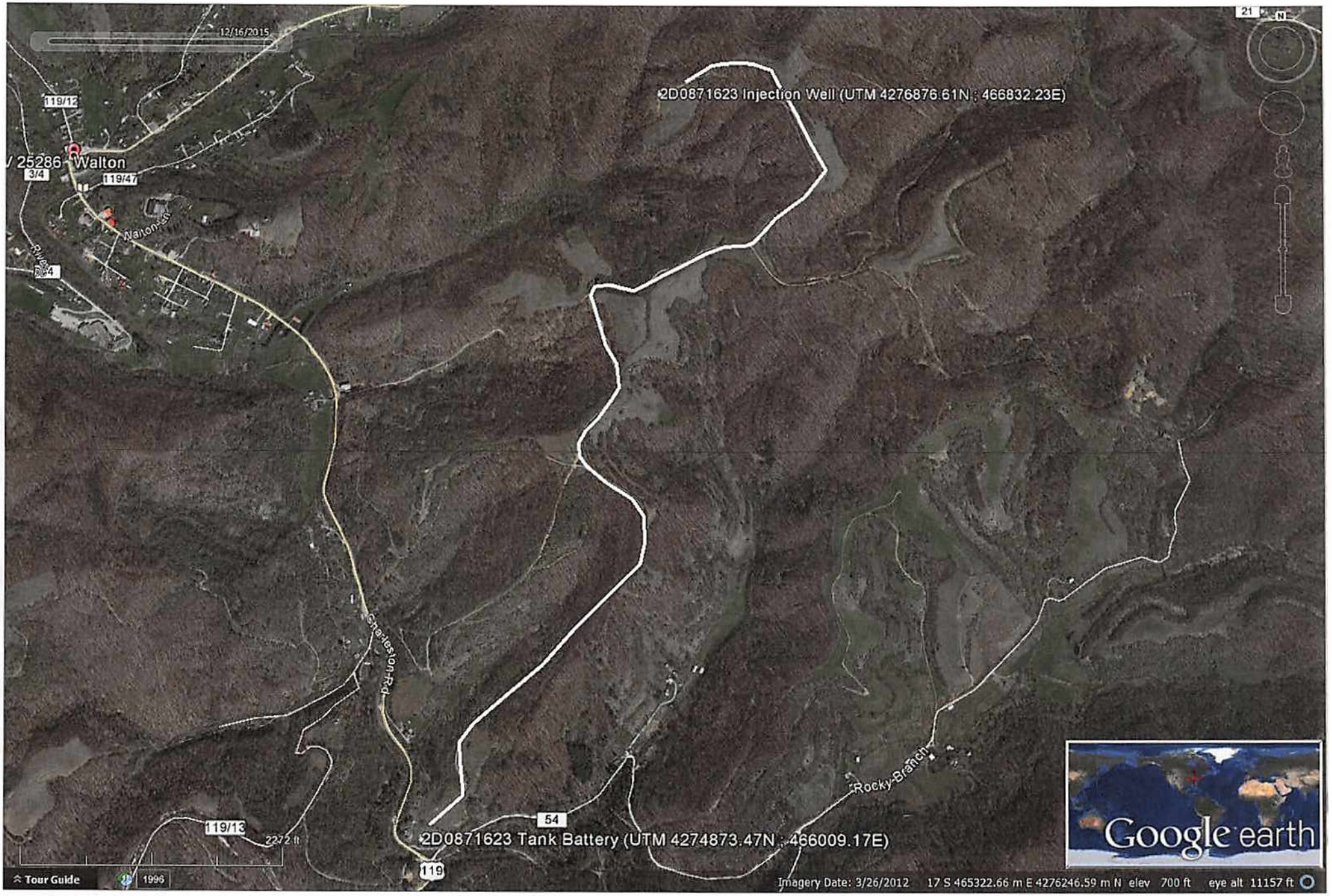


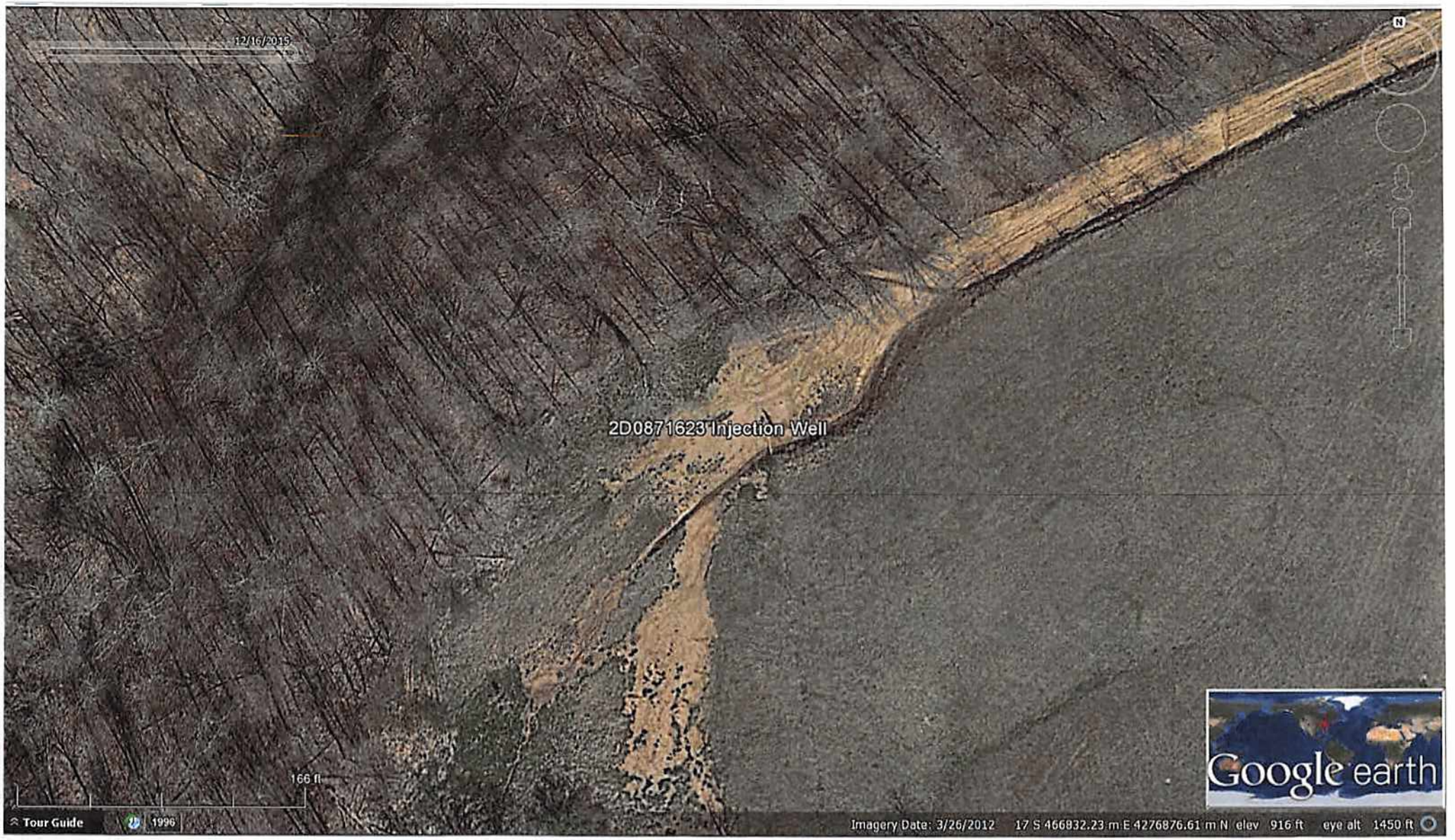
(A): intake and discharge structures, Storage, groundwater supply sources, Pump, Valves, tank, Secondary containment

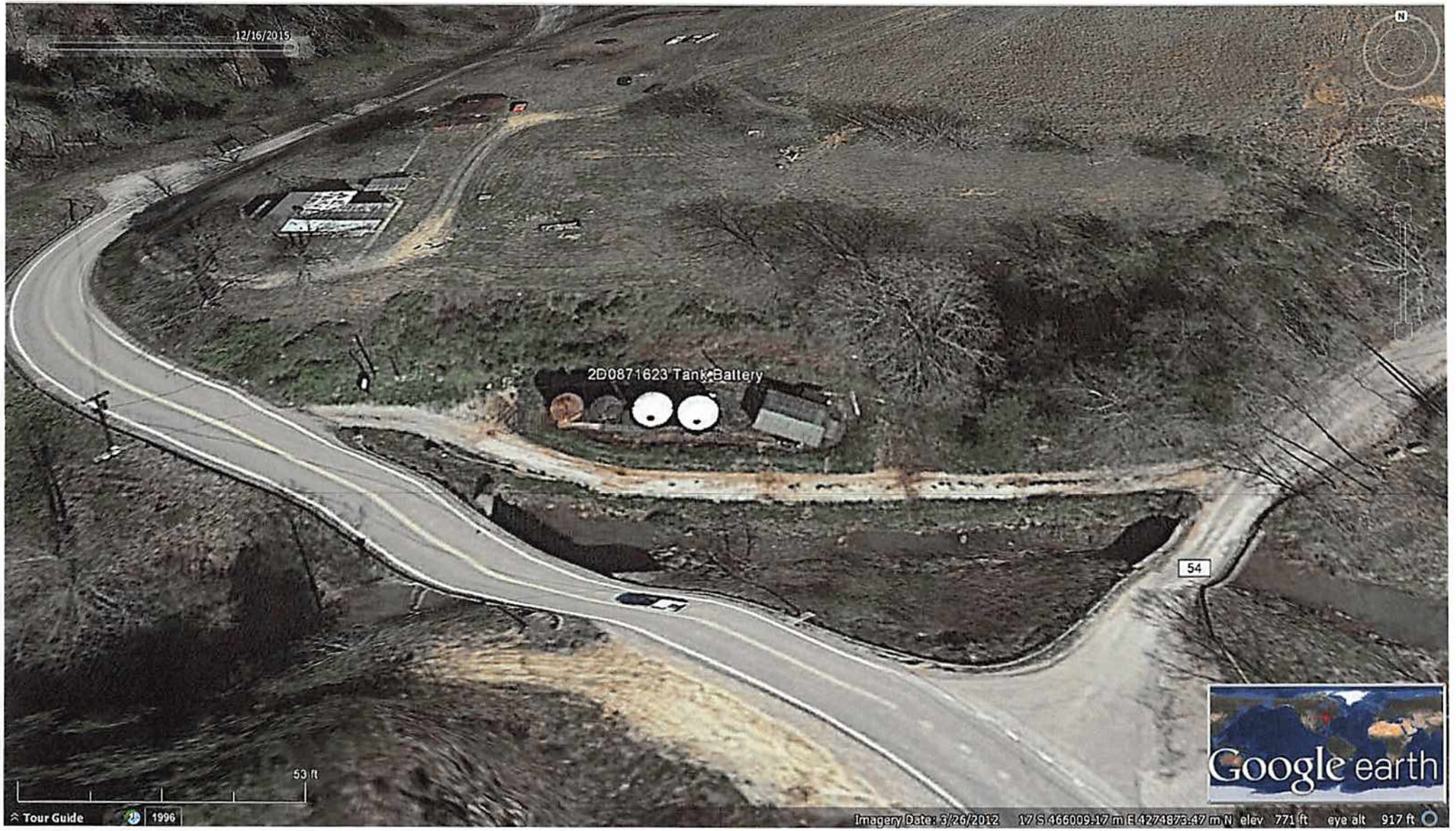
(B): Well

— : Pipeline


DMS
Measurement Result
Longitude: -81°22'51"
Latitude: 38°38'24"
8701623
466837.6640E, 4276910.0360N, UTM17
NAD83
20m
60ft


12/16/2015
2D0871623 Injection Well (UTM 4276876.61N ; 466832.23E)
119/12
25286 Walton
3/4
119/47
Walton-Dr
Charleston-Rd
Rocky-Branch
54
119
119/13
2272 ft
2D0871623 Tank Battery (UTM 4274873.47N ; 466009.17E)
Google earth
Tour Guide
1996
Imagery Date: 3/26/2012 17 S 465322.66 m E 4276246.59 m N elev 700 ft eye alt 11157 ft


12/16/2015
2D0871623 Injection Well
166 ft
Tour Guide
1996
Imagery Date: 3/26/2012 17 S 466832.23 m E 4276876.61 m N elev 916 ft eye alt 1450 ft
Google earth


12/16/2015
N
2D0871623 Tank Battery
54
53 ft
Google earth
Tour Guide
1996
Imagery Date: 3/26/2012 17 S 466009.17 m E 4274873.47 m N elev 771 ft eye alt 917 ft

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
4708701623	Injection	Active	4276910	466837.7	Yes	Yes	2150	936
4708701493	Unknown	Plugged	4276692.7	467087.2	Yes	Yes	2143	948

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

4708701493

Form OG-10

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Rotary [X]
Spudder [ ]
Cable Tools [ ]
Storage [ ]

Quadrangle Walton
Permit No. ROA-1493
Oil or Gas Well Oil (KIND)

Company Joseph S. Gruss
Address 30 Broad St. N.Y., N.Y.
Farm I.B. Summers Acres 105
Location (waters) Johnson
Well No. 6 Elev. 948
District Walton County Roane
The surface of tract is owned in fee by George Moffatt
Address
Mineral rights are owned by I.B. Summers Heirs
Address
Drilling commenced 10-11966
Drilling completed 10-15-66
Date Shot From To
With

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10			Size of
8¼	155	155	
6⅝			Depth set
5 3/16			
4½			
3			Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Cu. Ft.
Rock Pressure lbs. hrs.
Oil Show bbls., 1st 24 hrs.
WELL ACIDIZED (DETAILS)
WELL FRACTURED (DETAILS)

Attach copy of cementing record.
CASING CEMENTED 4½ SIZE 2140 No. Ft. 10-15-66 Date
Amount of cement used (bags) 100
Name of Service Co. Howco
COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

RESULT AFTER TREATMENT (Initial open Flow or bbls.) 15 BBls.
ROCK PRESSURE AFTER TREATMENT HOURS
Fresh Water Feet Salt Water Feet
Producing Sand Big Injun Depth

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
surface			0	5			
rock & clay			5	75			
shale & rock			75	135			
shale & rock			135	160			
red bed rock			160	213			
rock & sand			213	534			
shale & sand			534	815			
sand shale			815	1067			
sand with shale			1067	1322			
sand			1322	1535			
sand			1535	1616			
salt sand			1616	1690			
salt sand			1690	1855			
sand			1855	1875			

RECEIVED
NOV 1966
West Virginia
Dept. of Mines

4708701493

Formation	Color	Hard or Soft	Top 31	Bottom	Oil, Gas or Water	Depth Found	Remarks
limey sand			1875	1896			
lime			1896	1955			
lime			1955	2051			
injun sand			2051	2090			
injun			2090	2093			
shale			2093	2143			

Date October 28, 1966

APPROVED Joseph S. Gruss, Owner

By _____
(Title)

4708701493

FORM OG-8

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

RECEIVED
APR 15 1971
OIL & GAS DIVISION
DEPT. OF MINES

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE MADE IN TRIPLICATE, ONE COPY MAILED TO THE DEPARTMENT, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD COPY (AND EXTRA COPIES IF REQUIRED) SHOULD BE MAILED TO EACH COAL OPERATOR AT THEIR RESPECTIVE ADDRESSES.

No Coal

COAL OPERATOR OR OWNER
ADDRESS
COAL OPERATOR OR OWNER
ADDRESS
LEASE OR PROPERTY OWNER
ADDRESS

MAREVE OIL CORP.
P. O. Box 1228 OPERATOR
Parkersburg, W. Va. 26101
COMPLETE ADDRESS

April 13, 1971

WELL AND LOCATION

Walton District
Roane County
Well No. 6
I. B. Summers Farm

STATE INSPECTOR SUPERVISING PLUGGING Fred B. Burdette, Sissonville, W.Va. 25185

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Roane } ss:

L. A. Poya and W. C. Weske

being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by Mareve Oil Corp., well operator, and participated in the work of plugging and filling the above well, that said work was commenced on the 9th day of April, 1971, and that the well was plugged and filled in the following manner:

SAND OR ZONE RECORD FORMATION	FILLING MATERIAL	PLUGS USED SIZE & KIND	CASING CSG PULLED	CASING CSG LEFT IN
			-0-	8 5/8" 155'
	1750 - 1550	Cement	1050'	4½" 1090'
	1550 - 1000	Mud Laden Fluid		
	1000 - 950	Cement		
	950 - 180	Mud Laden Fluid		
	180 - 130	Cement		
	130 - 20	Mud Laden Fluid		
	20 - 0	Cement		

COAL SEAMS	DESCRIPTION OF MONUMENT
(NAME)	4½" 30" above G.L. inscribed:
(NAME)	Mareve Oil Corp.
(NAME)	ROA-1493
(NAME)	P & A: 4/9/71

and that the work of plugging and filling said well was completed on the 9th day of April, 1971

And further deponents saith not.

L. A. Poya (L.A.Poya)
W. C. Weske (W.C.Weske)

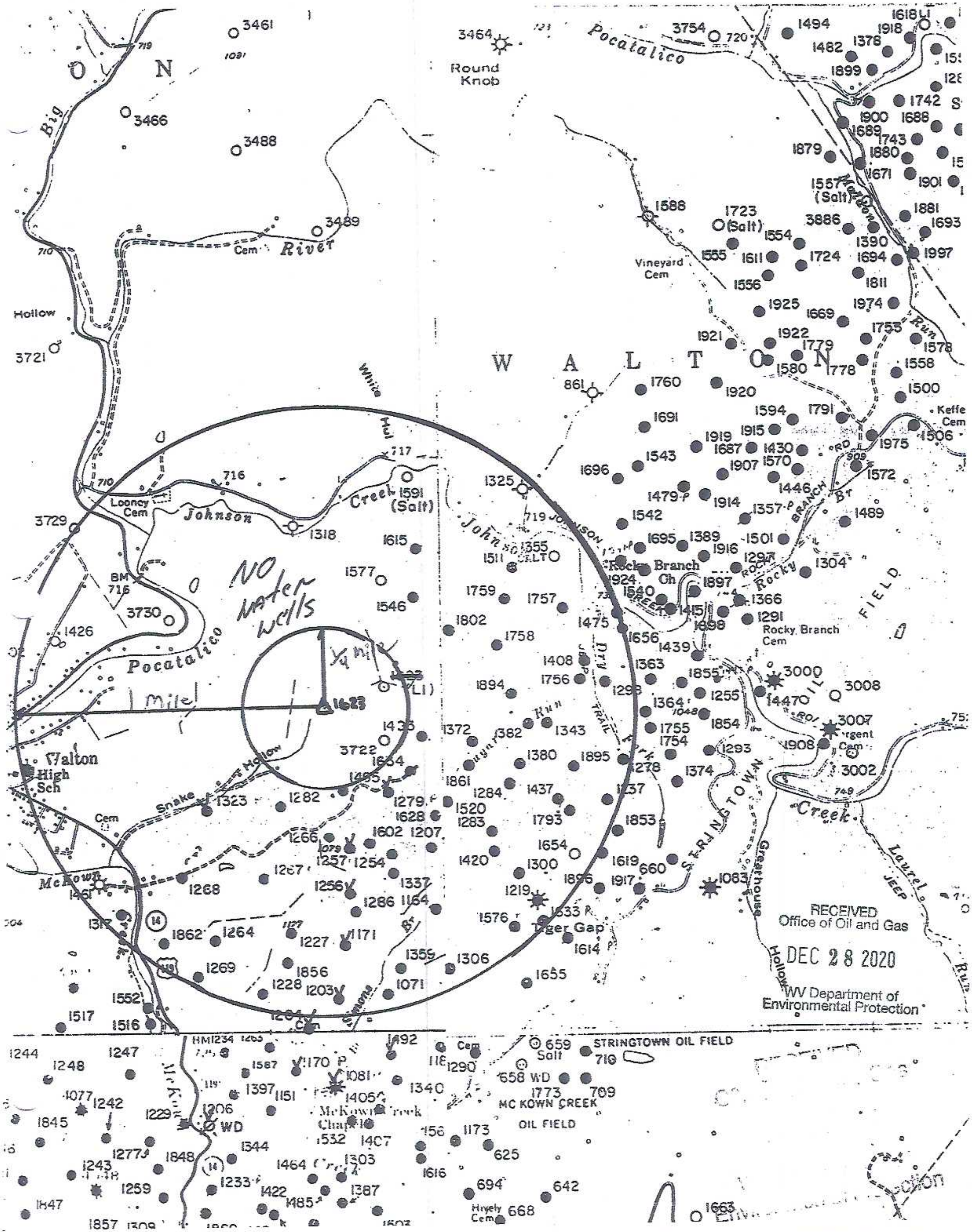
Sworn to and subscribed before me this 12th day of April, 1971

I. N. Hickox (I.N.Hickox)
Notary Public.

My commission expires:
11-13-77

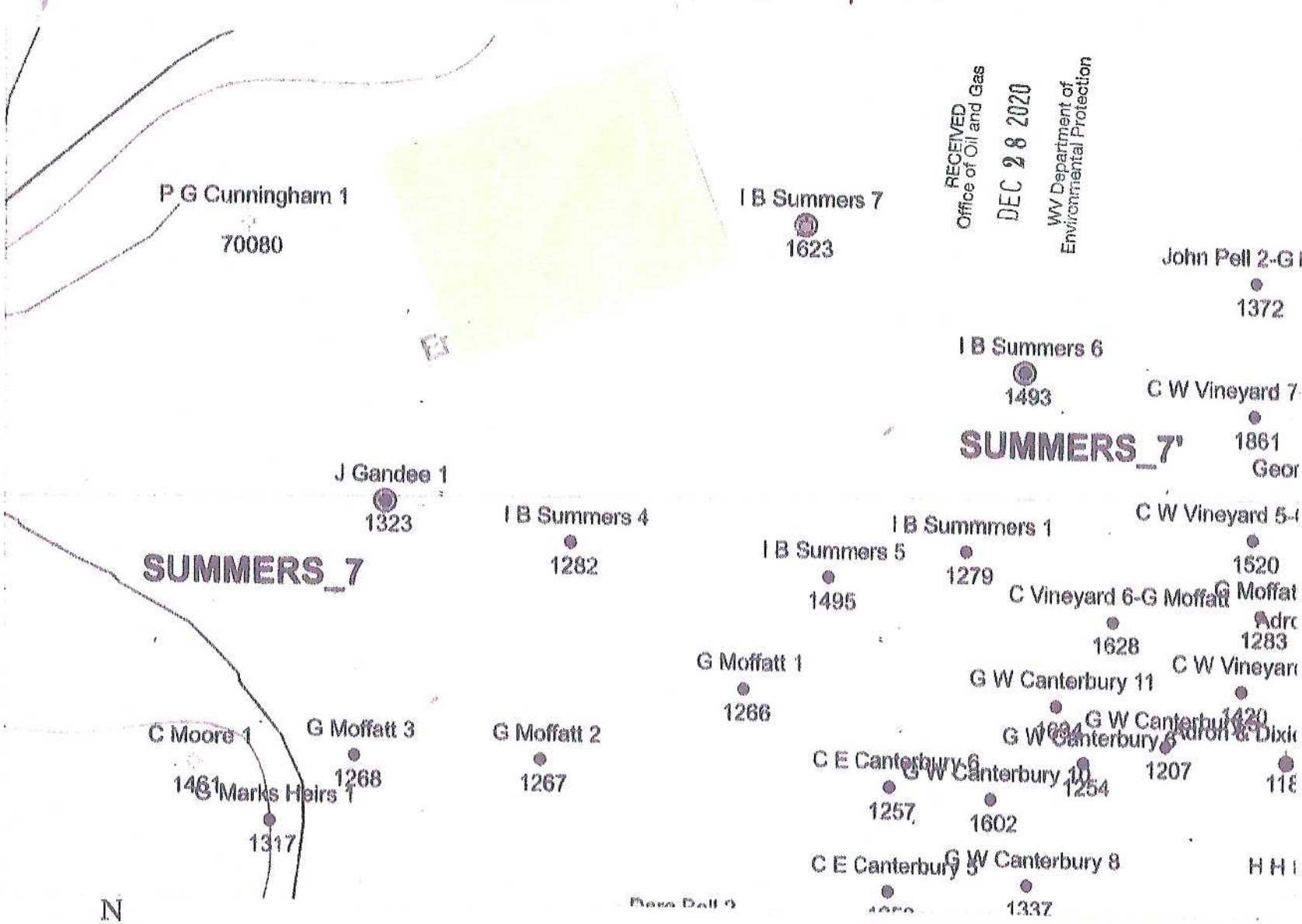
Permit No. ROA-1493

APPENDIX C



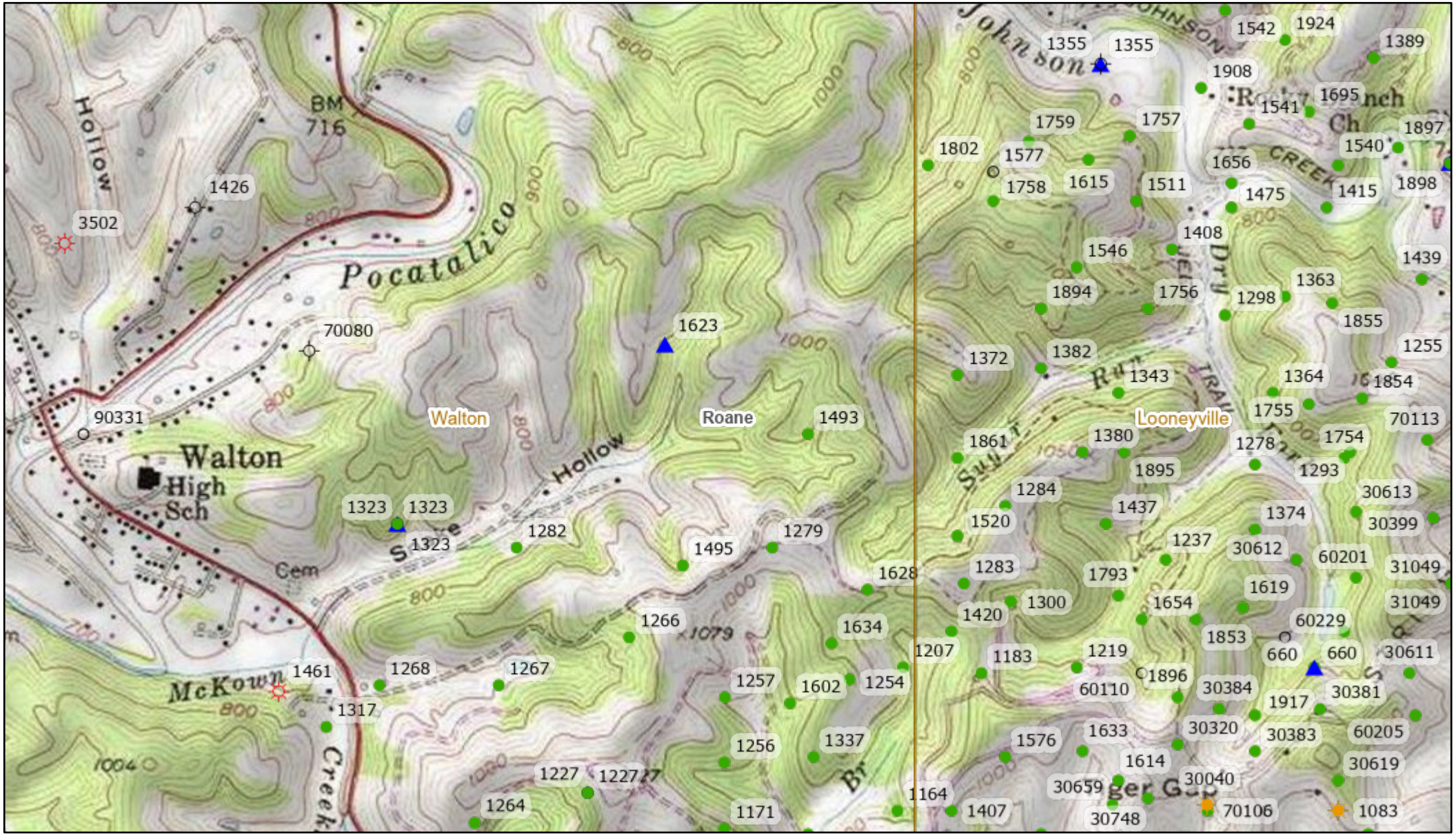
Pocatalico
Round Knob
Big
River
Cem
Hollow
WALTON
White
Johnson Creek
(Salt)
Looney Cem
BM 716
NO water wells
1/4 mile
1 Mile
Snake Hollow
Walton High Sch
McKown
Rocky Branch Ch
Rocky Branch Cem
Vineyard Cem
Dry Fork
Sugar Run
Tiger Gap
STRINGTOWN
OIL FIELD
Creek
Laurel
Greathouse Hollow
STRINGTOWN OIL FIELD
MC KOWN CREEK OIL FIELD
McKown Creek Chapel
Hively Cem
RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of Environmental Protection

APPENDIX C



D D OIL COMPANY		
I B SUMMERS CROSS SECTION LOCATION WALTON DISTRICT, ROANE COUNTY, W.VA.		
Author: MCB		Date: 24 July, 2014
	Scale: See scatcher	

WV Oil & Gas Wells (WVOG)



9/19/2023, 1:51:30 PM

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Labels (7.5' Quadrangles)

7.5' Quadrangles

State Boundary

Counties

County Labels

WV Oil and Gas All Individual Wells

Gas

Oil

Combination Oil & Gas

Dry

Service

Other (including permits)

APPENDIX D

Public Service District Affidavit

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

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

DD OIL COMPANY

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

J B Greathouse Walton PSD - Field Supervisor

that there are no such publically recorded sources.

(Signature of Authorized Representative)

Sworn and subscribed to before me this 23rd day of December, 20 2020

_____, my commission expires 10/19/2023

(Notary Signature)

Kimberly D Butler

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Kimberly D. Butler
PO Box 414
Glenville, WV 26351
My Commission Expires Oct. 19, 2023

RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of
Environmental Protection

APPENDIX E
Water Sources

Operator: DD Oil Company Year 2023 UIC Permit # 2D08701623

		Source # ___	Source # ___	Source # ___	Source # ___
Water Source Name					
Northing					
Easting					
Parameter	Units				
TPH - GRO	mg/L				
TPH - DRO	mg/L				
TPH - ORO	mg/L				
BTEX	mg/L				
Chloride	mg/L				
Sodium	mg/L				
Total Dissolved Solids (TDS)	mg/L				
Aluminum	mg/L				
Arsenic	mg/L				
Barium	mg/L				
Iron	mg/L				
Manganese	mg/L				
pH	SU				
Calcium	mg/L				
Sulfate	mg/L				
MBAS	mg/L				
Dissolved Methane	mg/L				
Dissolved Ethane	mg/L				
Dissolved Butane	mg/L				
Dissolved Propane	mg/L				
Bacteria (Total Coliform)	c/100ml				

There are no domestic water sources within the 1/4 mile AOR

APPENDIX F

Area Permit Wells

API #	Well Type (Injection, Production, Observation, Monitoring)	Well Status (Active, Abandoned, Shut-in, Plugged)	Northing (UTM NAD 83 Meters)	Easting (UTM NAD 83 Meters)

Not Applicable

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

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-087-1300	DD OIL CO	BIG INJUN SAND
47-087-1219	DD OIL CO	BIG INJUN SAND
47-087-1183	DD OIL CO	BIG INJUN SAND
47-087-1245	DD OIL CO	BIG INJUN SAND
47-087-1422	DD OIL CO	BIG INJUN SAND
47-087-1860	DD OIL CO	BIG INJUN SAND
47-087-1382	DD OIL CO	BIG INJUN SAND
47-087-1307	DD OIL CO	BIG INJUN SAND
47-087-1309	DD OIL CO	BIG INJUN SAND
47-087-1310	DD OIL CO	BIG INJUN SAND
47-087-1558	DD OIL CO	BIG INJUN SAND
47-087-1857	DD OIL CO	BIG INJUN SAND
47-087-1311	DD OIL CO	BIG INJUN SAND
47-087-1859	DD OIL CO	BIG INJUN SAND
47-087-1421	DD OIL CO	BIG INJUN SAND
47-087-1420	DD OIL CO	BIG INJUN SAND
47-087-1520	DD OIL CO	BIG INJUN SAND
47-087-1861	DD OIL CO	BIG INJUN SAND
47-087-1283	DD OIL CO	BIG INJUN SAND
47-087-1284	DD OIL CO	BIG INJUN SAND
47-087-1552	DD OIL CO	BIG INJUN SAND
47-087-1242	DD OIL CO	BIG INJUN SAND
47-087-1243	DD OIL CO	BIG INJUN SAND
47-087-1259	DD OIL CO	BIG INJUN SAND
47-087-1847	DD OIL CO	BIG INJUN SAND
47-087-1848	DD OIL CO	BIG INJUN SAND
47-087-4048	DD OIL CO	BIG INJUN SAND

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

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-087-1516	DD OIL CO	BIG INJUN SAND
47-087-1517	DD OIL CO	BIG INJUN SAND
47-087-3969	DD OIL CO	BIG INJUN SAND
47-087-1227	DD OIL CO	BIG INJUN SAND
47-087-1228	DD OIL CO	BIG INJUN SAND
47-087-1229	DD OIL CO	BIG INJUN SAND
47-087-1234	DD OIL CO	BIG INJUN SAND
47-087-1263	DD OIL CO	BIG INJUN SAND
47-087-1856	DD OIL CO	BIG INJUN SAND
47-087-1862	DD OIL CO	BIG INJUN SAND
47-087-1264	DD OIL CO	BIG INJUN SAND
47-087-1247	DD OIL CO	BIG INJUN SAND
47-087-1248	DD OIL CO	BIG INJUN SAND
47-087-1244	DD OIL CO	BIG INJUN SAND
47-087-1246	DD OIL CO	BIG INJUN SAND
47-087-1277	DD OIL CO	BIG INJUN SAND
47-087-1845	DD OIL CO	BIG INJUN SAND
47-087-1515	DD OIL CO	BIG INJUN SAND
47-087-1846	DD OIL CO	BIG INJUN SAND
47-087-4077	DD OIL CO	BIG INJUN SAND
47-087-1372	DD OIL CO	BIG INJUN SAND
47-087-1380	DD OIL CO	BIG INJUN SAND
47-087-1269	DD OIL CO	BIG INJUN SAND
47-087-1397	DD OIL CO	BIG INJUN SAND

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

APPENDIX B

Office

Project

10 November 2015

INPUT	OUTPUT
Geographic, NAD83	UTM, NAD83 17 - 84W to 78W, Meters

WELL

SUMMERS 7

1/2

Latitude: 38 38.407
Longitude: 81 22.863

Northing/Y: 4276910.036
Easting/X: 466837.664

Convergence: -0 14 16.58378
Scale Factor: 0.999613542

TANKS

MCKOWN CREEK

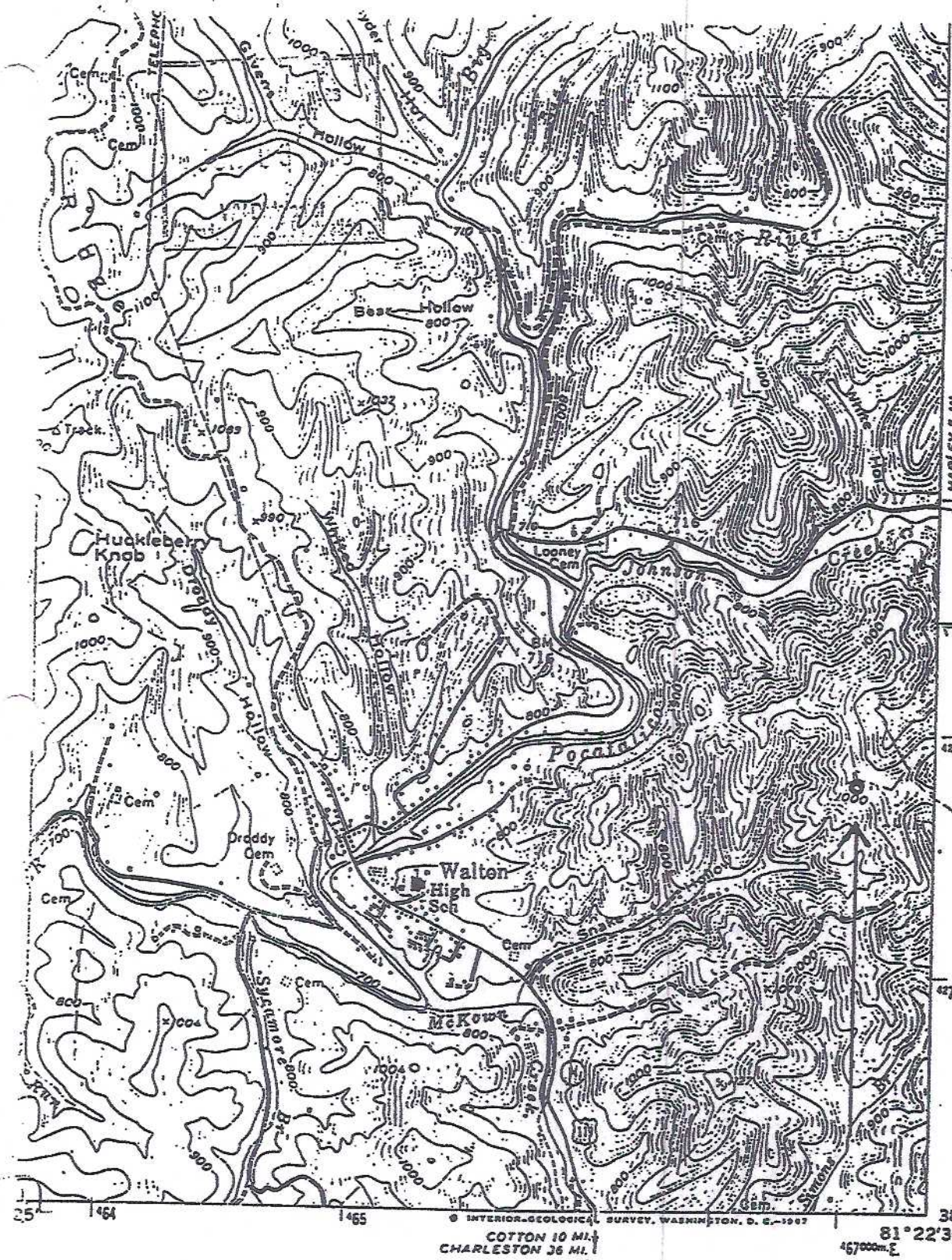
2/2

Latitude: 38 37.232
Longitude: 81 23.329

Northing/Y: 4274739.814
Easting/X: 466152.531

Convergence: -0 14 33.66949
Scale Factor: 0.999614108

Remark:



ROAD CLASSIFICATION

Heavy-duty _____ Light-duty _____

Medium-duty _____ Location Map For

U.S. Route

UIC Permit No. UIC2D0871623

WALTON, W. VA.

NW/4 WALTON 15' QUADRANGLE

W. VA.

QUADRANGLE LOCATION

RECEIVED
Office of Oil & Gas
NOV 20 2015
WV Department of
Environmental Protection

RECEIVED
Office of Oil and G
DEC 28 2020
WV Department of
Environmental Protect

Summers
7

2,0,600
1"

2" rod
1"

Section 8

Geological Data Injection and Confining Zones

To Gene Smith W.V DEP

2-12-2016

D&D Oil Well Summers 7

API Number 2D0871623

Section 8 Geological Data and Confining Zones.

Section 8 Continued

Deficiency C

The Big Lime confining layer is covering the Big Injun Sand so fluid ~~with~~ will not migrate vertically. The Big Lime depth is 1943'-2070', 127 Feet, See Brannock Resources attached dated 7-24-2014 complete geological description of Walton oil field.

Deficiency D attached is contour map of the Big Lime formation in the Walton oil field.

Deficiency E, All residents rely on city water and the Walton public service district no water wells used in the area.

BRANNOCK RESOURCES

Michael C. Brannock
Petroleum Geologist
A.A.P.G. Cert. #2878

July 24, 2014

Mr. Hugh Dale, Vice President
D D Oil Company
P.O. Box 406
Spencer, West Virginia

Re: I. B. Summers #7

Dear Hugh:

I have marked the location of your I. B. Summers #7 well on the maps that you emailed to me. Those maps are part of Bulletin 43 that covers the Rock Creek Field located in Roane County. Comparing the well spot maps with the digital data from the West Virginia Geological Survey, I feel very confident of the location of your well with regards to those shown on Figure 17, page 25. I am enclosing a map generated from the data in the survey's data base for comparison. The pattern of the well spots and well types from the bulletin maps and my digitally derived map match up very well.

I downloaded log copies from the survey's library and constructed a cross section through the Summers #7 well to show the formations directly above the Big Injun sandstone per your request. Only a gamma ray/induction open hole log was run on the Summers #7. Comparing this log with 2 other gamma ray/density logs adjacent to your well (see attached map), the log tops for the Summers #7 are:

Little Lime: 1891'-1938' (47')
Pencil Cave: 1938'-1943' (5')
Big Lime: 1943'-2070' (127')
Big Injun: 2070'-2124' (54')

The Little Lime, Big Lime and Big Injun appear to be very consistent in thickness and lithology in this area with a few minor changes at the formation contacts. The Pencil Cave sometimes does not show up very well due to pinchouts between wells. Based upon this cross section it would be reasonable to assume that there is sufficient barrier between the Big Injun and overlying formations to prevent the migration of fluids provided there is good mechanical integrity of the well and proper operational practices are followed.

If you need additional information, please feel free to call me at my office.

Sincerely yours,

Michael C. Brannock

Michael C. Brannock, Owner
BRANNOCK RESOURCES
P.O. Box 1764
Parkersburg, WV 26102
V: 304-485-2878
E: brannockres@suddenlink.net

To Gene Smith W.V. DEP

2-12-2016

API Number 2D0871623

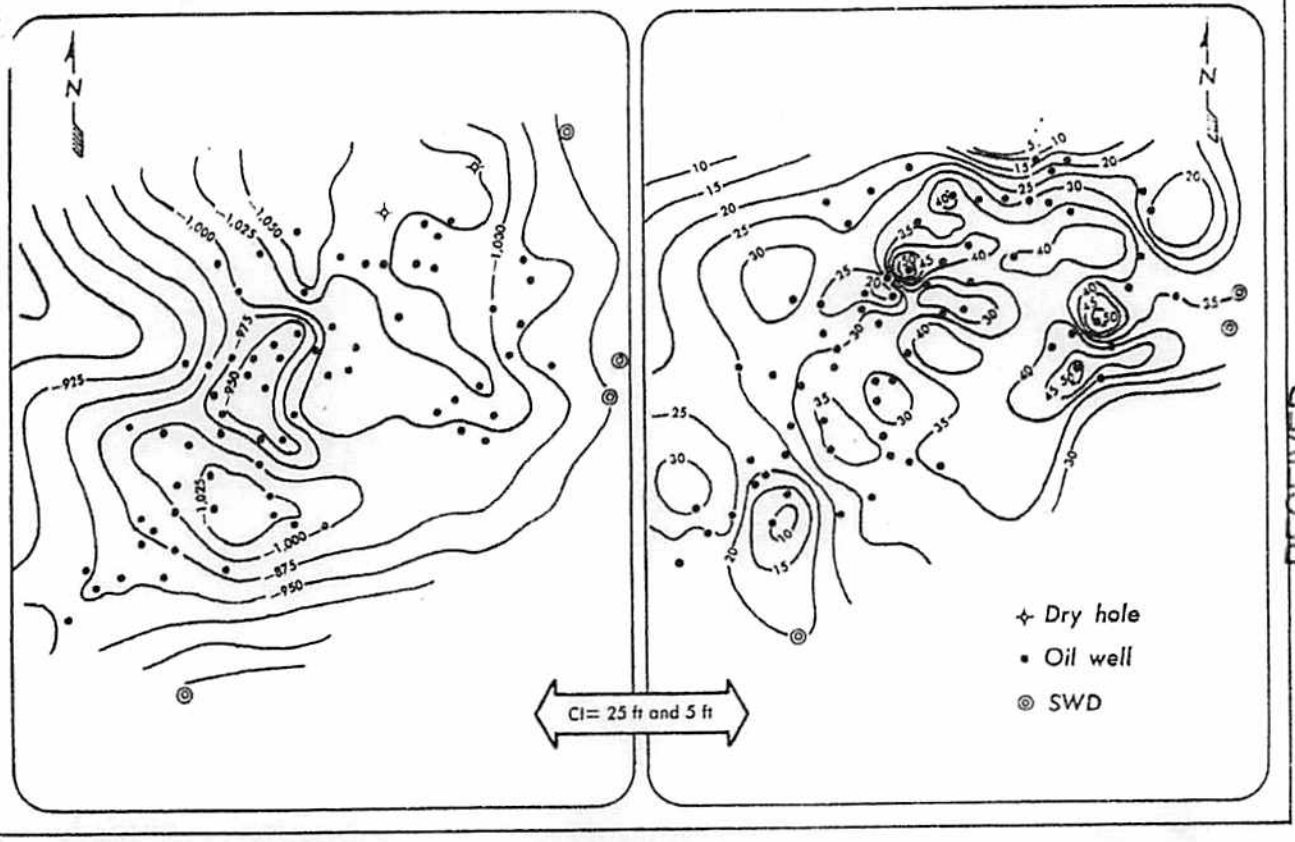
Section 8 Geological Data and Confining Zones.

Deficiency F

The Hydrostatic Fluid Level is at 2077 Feet.

Fig. 2

Structure and Isopach map on Big Injun sand



2. Primary reserves will justify the development and investment, and a good possibility that secondary may contribute as much as primary.

3. To be successful in finding reserves of more than 5 million bbl, investigation of known blanket sands is essential, and then the method of determination of the new production limits must be established.

4. A reliable and economical method for determining relative permeabilities within Blue Creek was developed and used to great success.

5. Good production practices and methods are a must, and contribute in every way to the ultimate success of the program.

Walton field. Walton field is located in Harper, Walton, and Smithfield districts, Roane County, W.Va.

The field was discovered in 1907, and approximately 9,000 acres had been developed up until 1966. Since 1966, approximately 300 wells have been drilled on 5,500 acres for an erage spacing of 18 acres per well.

Almost all the production in this field is from the Big Injun at an average depth of 1,940 ft. Fig. 1 shows this trend, old and new development, and its relation to Blue Creek field.

Blue Creek. Blue Creek field is located in Big Sandy and Elk districts of Kanawha County, W.Va.

There were eight to 10 producing wells drilled about 1920, three or four of which were still producing in the Big Injun sand in 1967.

There have been 78 wells drilled since the spring of 1967 to the summer of 1969. There now have been 67 leases validated which comprise 5,200 acres. All production from this field is from Big Injun sand at an average depth of 1,870 ft.

There is presently room for approximately 250 additional wells to be drilled on 20-acre spacing.

Reservoir and structural condition. The field is basically a syncline laying between the intersection of two major anticlines.

One anticline trending northeast-southwest known as the Arches Fork and the other trending north-south known as the Milliken.

The trap is formed by a lithology change on the north side of the field where the Big Injun sand thickness grades from 20 to 0 ft over a distance of less than 800 ft.

Within the syncline, the sand characteristics are such that shale content within the sand is less than 10% of the pore space, with permeabilities averaging 20 md, porosity 21%, and thickness greater than 35 ft.

On the other three sides of the syncline, sand thickness remains essentially constant, (about 35 ft) but as structure approaches −950 ft subsea, shale content reaches 25% of the pore space and reduces the permeability to less than 5 md., thereby effecting a permeability trap for the nonmovement of oil beyond that point of permeability reduction. The proven producible area of this field has now been determined to be 7,200 acres.

As a result of this development, application of the disposal systems, hydraulic fracturing, the concept that movable oil can be produced downdip from nonmovable oil—provided that a dispersed clay system is available to effectively reduce permeability—major reservoirs can now be found whenever reevaluation in these areas are made.

The ability, through logging-coring analysis, to determine where permeability reduction occurs can set the limits of a producible oil reserve located structurally below and connected directly to an updip movable

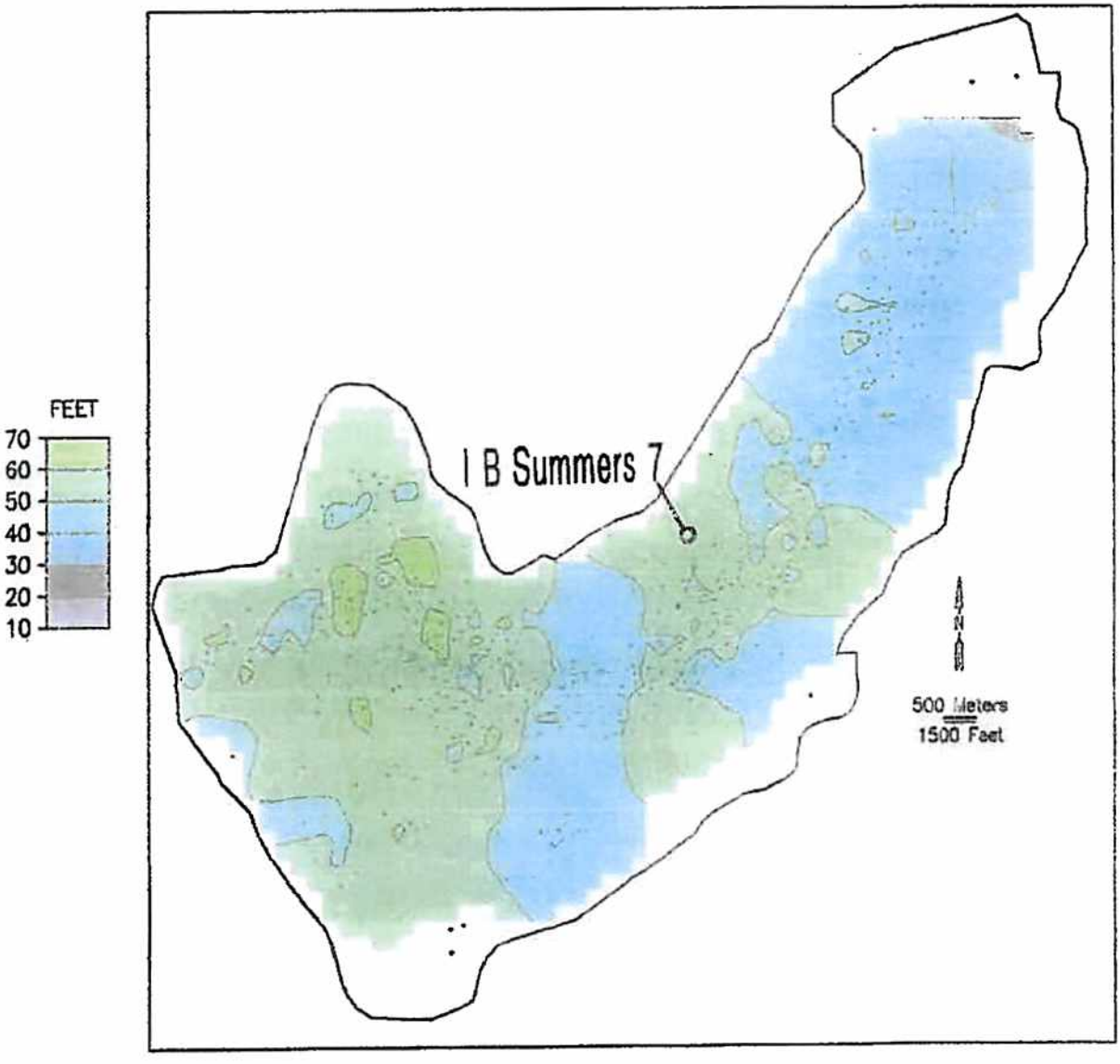


Figure 20a

Figures 20a-b. 20a. An isopach map of the stratigraphic Big Injun sandstone based on wireline log picks. Contour interval is 10 feet. 20b. An isopach map of the reservoir Big Injun sandstone based on wireline logs. Contour interval is 10 feet.

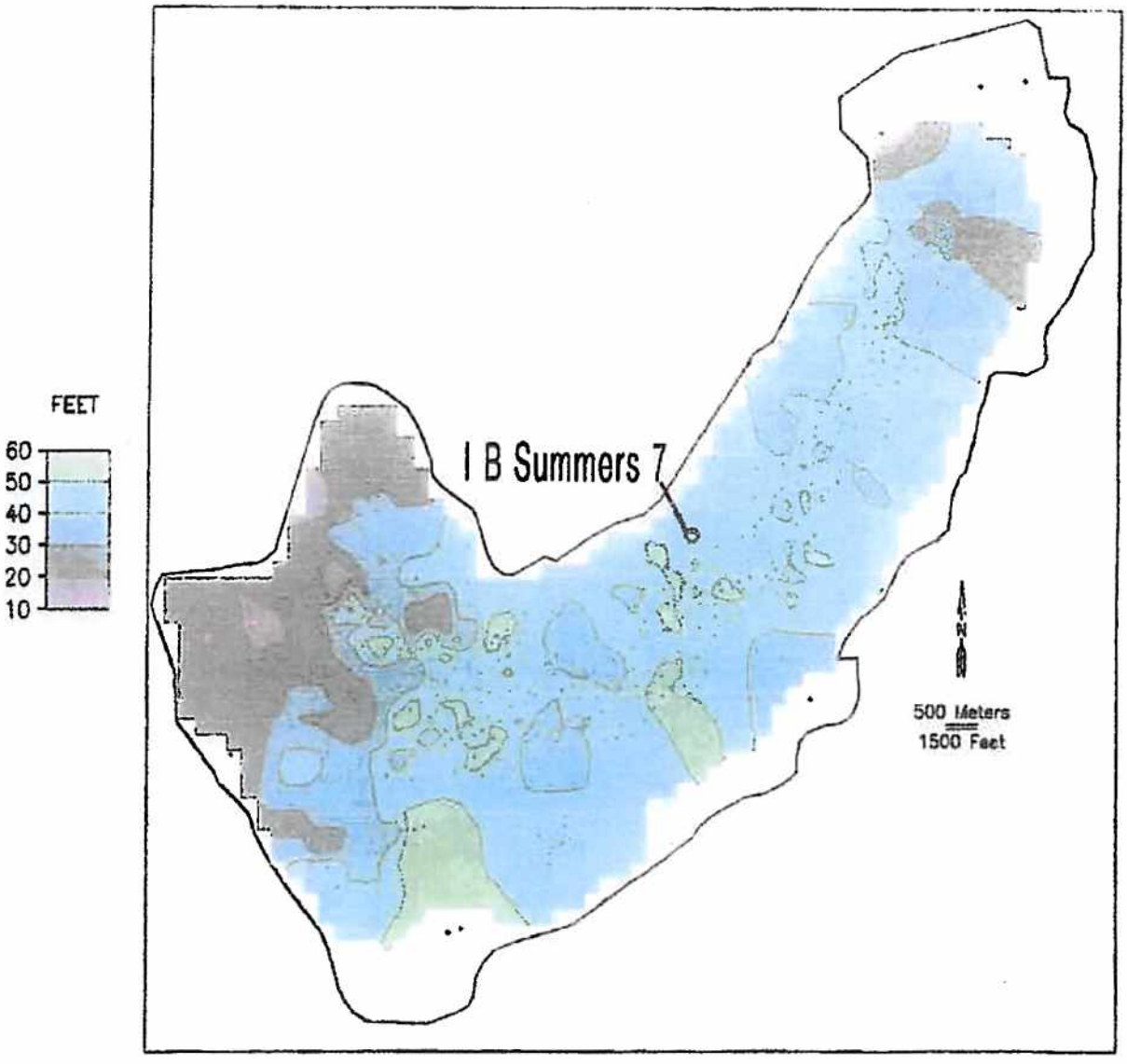


Figure 20b

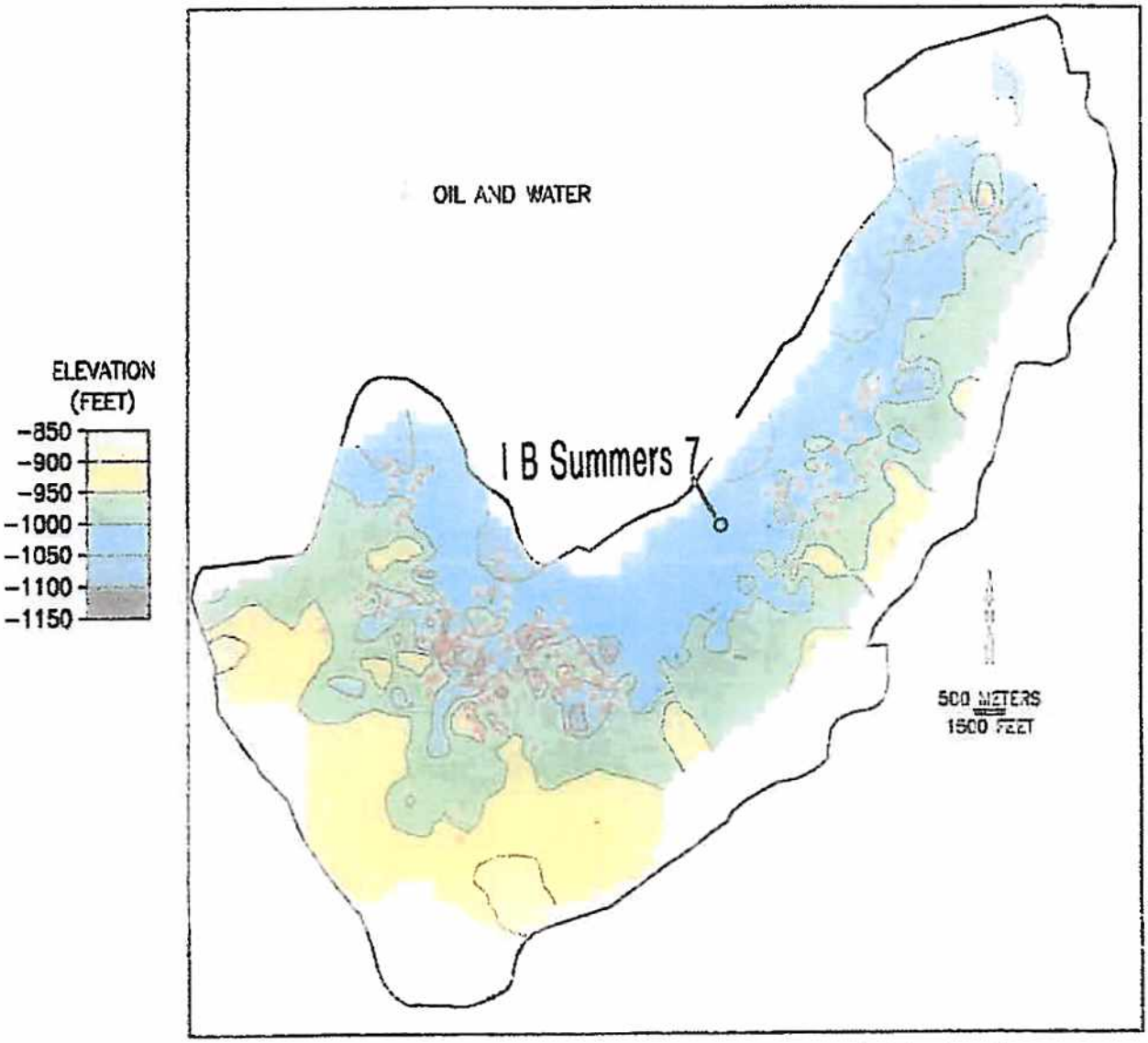


Figure 16. Geologic structure map for Rock Creek field. Datum is the top of the Loyalhanna limestone (as identified by drillers). Distribution of wells that produce oil and water parallel the field structure. Outliers may represent wells drilled into former oil-bearing strata into which water has encroached. Absence of wells reporting oil and water production in north-center of field is probably due to incomplete drillers' records. Wells in this area have produced significant amounts of water (M. Brannock, Quaker State, personal communication, 1993). Contour interval is 50 feet.

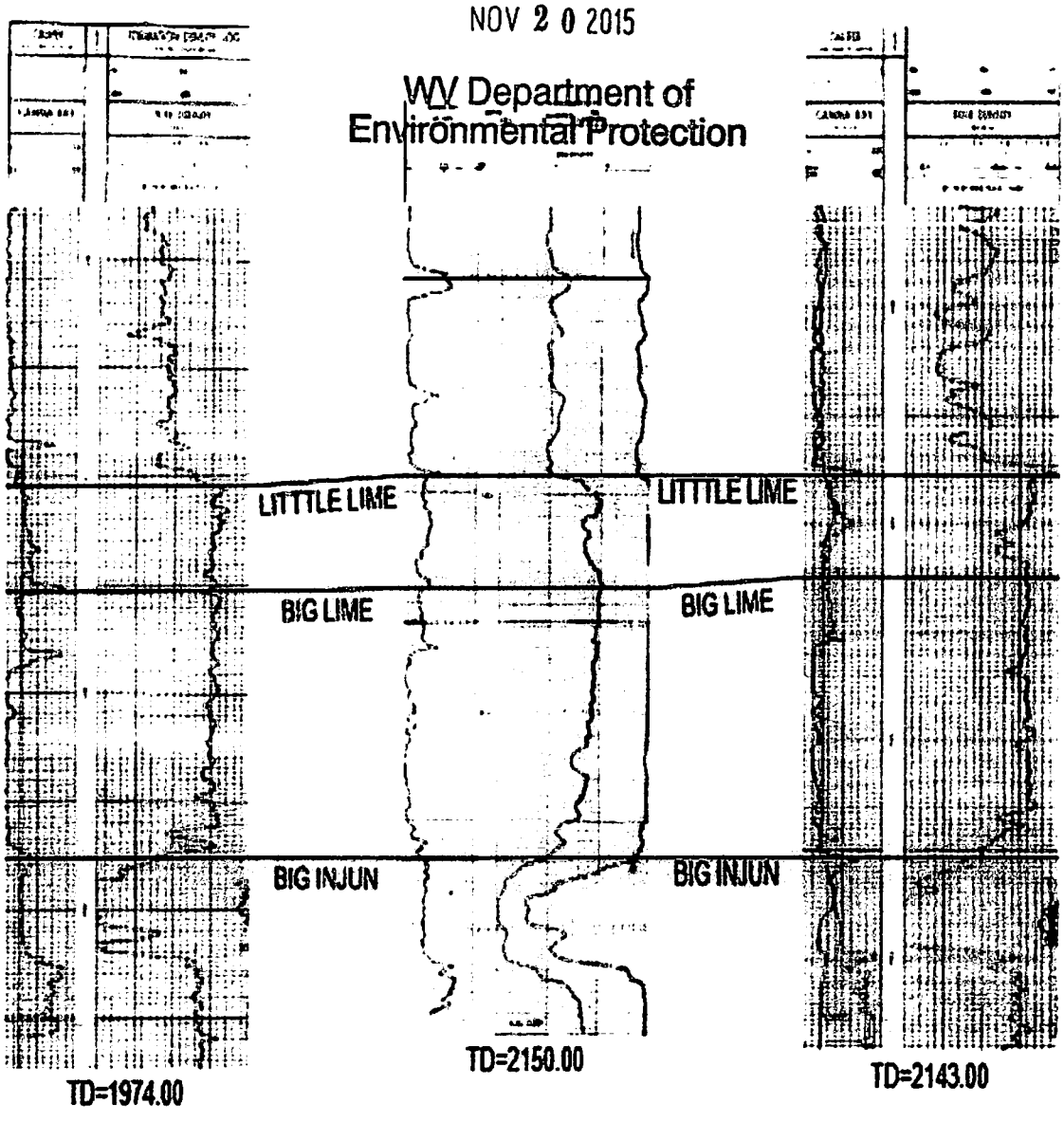
Stratigraphic Cross Section "SUMMERS_7" : Equally Spaced Logs

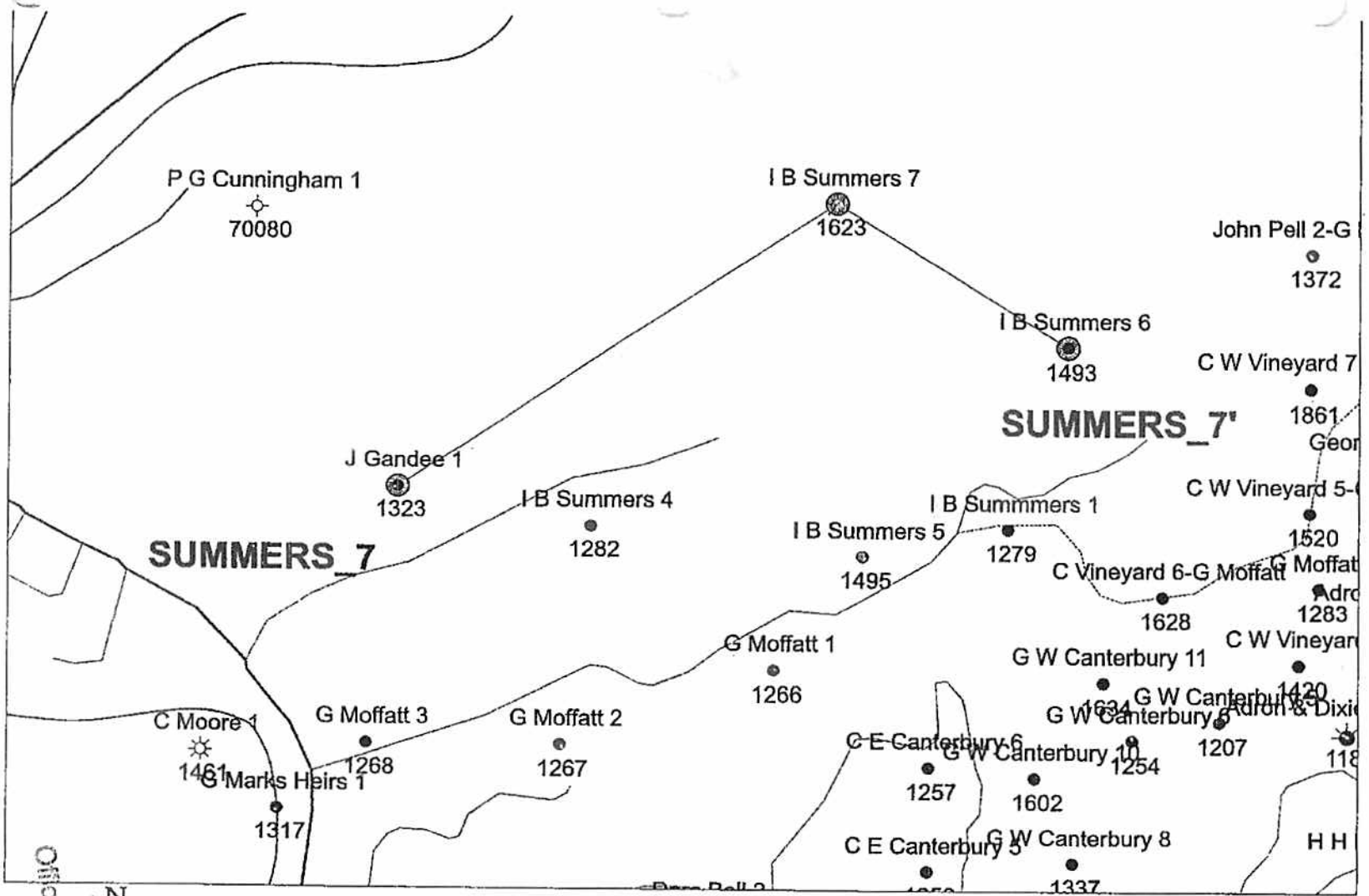
Datum = BIG INJUN

Vertical Scale = 1 in per 100 ft

SUMMERS_7.xsd; 07/23/14

SUMMERS_7	4708701323	2859 ft	4708701623	1496 ft	4708701493	SUMMERS_7'
	Gruss Joseph S J Gandee 1 County=Roane District=Walton		Gruss Joseph S I B Summers 7 County=Roane District=Walton		Gruss Joseph S I B Summers 6 County=Roane District=Walton	





D D OIL COMPANY		
I B SUMMERS CROSS SECTION LOCATION WALTON DISTRICT, ROANE COUNTY, W.VA.		
Author: MCB		Date: 24 July, 2014
	Scale: See scalebar	

SCHLUMBERGER PERFORATING

COUNTY
FIELD or LOCATION
WELL
COMPANY

COMPANY JOSEPH S. GRUS

WELL I. B. SUMMERS

FIELD WALTON

COUNTY ROANE ST

Location WALTON DIST.

Sec. Twp. Rge.

Permanent Datum: GROUND LEVEL ; Elev.
Log Measured From K.B. , * Ft. Above P
Drilling Measured From K.B.

Date	8/5/67	
Run No.	ONE	
Type Log	PDC-GR	
Depth — Driller	2150	
Depth — Logger	2141	
Bottom logged interval	2138	
Top logged interval	1850	
Type fluid in hole	FRESH WATER	
Salinity, PPM Cl.	-	
Density	-	
Level	FULL	
Max. rec. temp., deg F.	-	
Operating rig time	1/2 HOUR	
Recorded By	MALONE	
Witnessed By	WESHE	

BORE-HOLE RECORD

Bit Size	From	To	Size	W
7 7/8	N/A	T.D.	4 1/2	-

4708701623

DEPTH CONTROL

SS

#7

TATE WEST VIRGINIA

Other Services:
SCH-H

.: 936
erm. Datum

Elev.: K.B. N/A
D.F. -
G.L. 936

BEST COPY available

CASING RECORD

gt.	From	To
	SURF.	T.D.

FOLD HERE

The well name, location and borehole reference data were furnished by the customer.

EQUIPMENT DATA

Gamma Ray

Run No.	ONE
Tool Model No.	G
Diameter	3 5/8
Det'r Model No.	G
Type	SCINT.
Length	8"

General

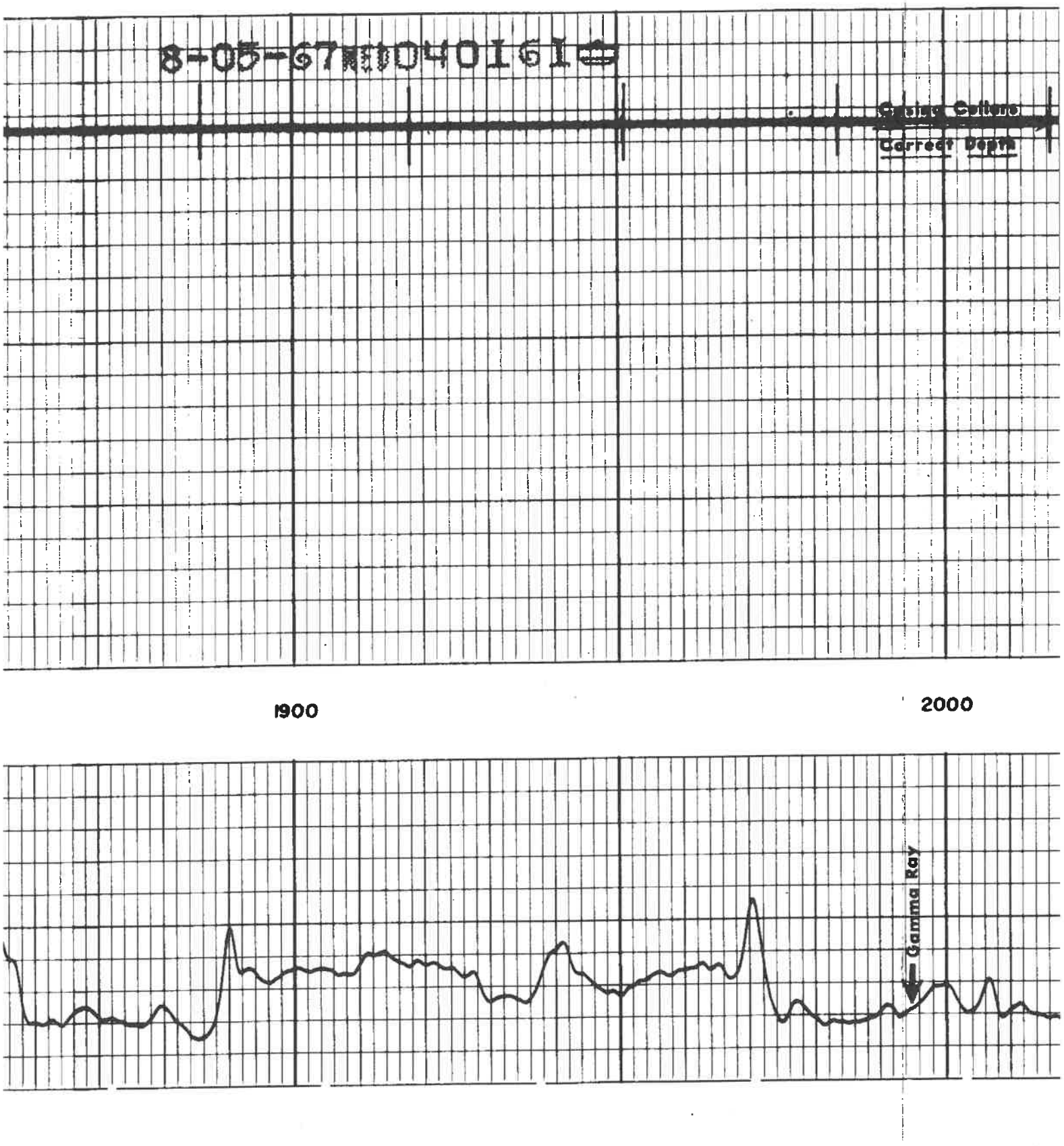
Hoist Truck No.	3016
Inst. Truck No.	3016
Tool Serial No.	240
Location	HNTG.

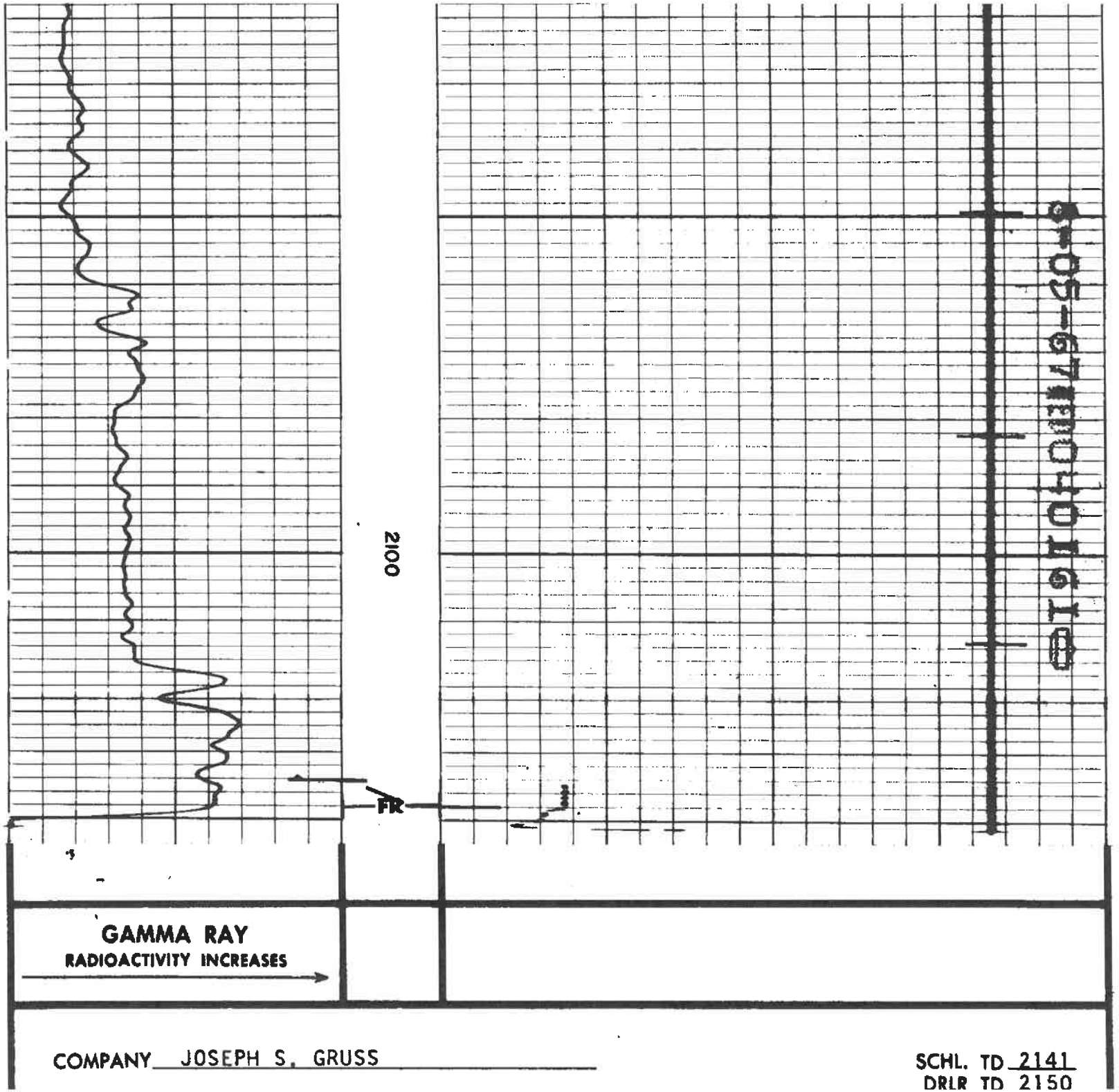
Remarks:

WELL PERFORATED FROM 2077'-2095' 19 SHOTS
2111'-2115' 5 SHOTS
PERFORATED WITH 3 3/8" HYPER-JETS.

* K.B. TO GROUND LEVEL WAS NOT AVAILABLE FROM OPEN HOLE LOG.

GAMMA RAY
RADIOACTIVITY INCREASES


8-05-67 10401 61
Correct Depth
1900
2000
Gamma Ray


2100
FR
GAMMA RAY
RADIOACTIVITY INCREASES
COMPANY JOSEPH S. GRUSS
SCHL. TD 2141
DRLR TD 2150

WELL I. B. SUMMERS #7

FIELD WALTON

COUNTY ROANE STATE WEST VIRGINIA

Elev:
KB N/A
DF -
GL 936

Birdwell

PERMIT # ROA. 1623

COMPANY

WELL

FIELD

COUNTY

LOCATION:

SEC.

PERMANENT DATUM GROUN

LOG MEASURED FROM K.B.

DRILLING MEASURED FROM

DATE	7-29-67
RUN NO.	1
DEPTH—DRILLER	2150'
DEPTH—LOGGER	2153'
BTM. LOG INTER.	2140'
TOP LOG INTER.	0'
CASING—DRILLER	@
CASING—LOGGER	N/A
BIT SIZE	7 7/8"
TYPE FLUID IN HOLE	MUD
DENS. | VISC.	N/A
pH | FLUID LOSS	
SOURCE OF SAMPLE	N/A
R_m @ MEAS. TEMP.	@
R_{mf} @ MEAS. TEMP.	@
R_{mc} @ MEAS. TEMP.	@
SOURCE R_{mf} | R_{mc}	
R_m @ B.H.T.	@
TIME SINCE CIRC.	4 HOURS
MAX. REC. TEMP.	
EQUIP. | LOCATION	1944 | #7
RECORDED BY	RUGH
WITNESSED BY	PERRIN

4708701623

Birdwell

EGR | *Induction*

JOSEPH S. GRUSS

I.B. SUMMERS #7

WALTON

ROANE STATE W.VA.

TWP. RGE.

OTHER SERVICES:

LEVEL ELEV. 936'

FT. ABOVE PERM. DATUM

K.B.

ELEV. K.B.

D.F.

G.L. 936'

7-29-67			
2150'	BEST COPY available		
2153'			
2110'			
1600'			
@	@	@	
N/A			
7 7/8"			
MUD			
N/A			
CC	CC	CC	CC
N/A			
°F @ °F	°F @ °F	°F @ °F	°F @ °F
°F @ °F	°F @ °F	°F @ °F	°F @ °F
°F @ °F	°F @ °F	°F @ °F	°F @ °F
°F @ °F	°F @ °F	°F @ °F	°F @ °F
°F °F	°F	°F	°F

SSC-657-1

REMARKS NA-NOT AVAILABLE

CHANGES IN MUD TYPE OR ADDITIONAL SAMPLES

DATE	SAMPLE NO.					
DEPTH—DRILLER						
TYPE FLUID IN HOLE						
DENS. / VISC.						
pH / FLUID LOSS						
		CC	CC			
SOURCE OF SAMPLE						
R_m @ MEAS. TEMP.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
R_{mf} @ MEAS. TEMP.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
R_{mc} @ MEAS. TEMP.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
SOURCE R_{mf} / R_{mc}						
R_m @ B.H.T.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
R_{mf} @ B.H.T.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
R_{mc} @ B.H.T.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F

SCALE CHANGES

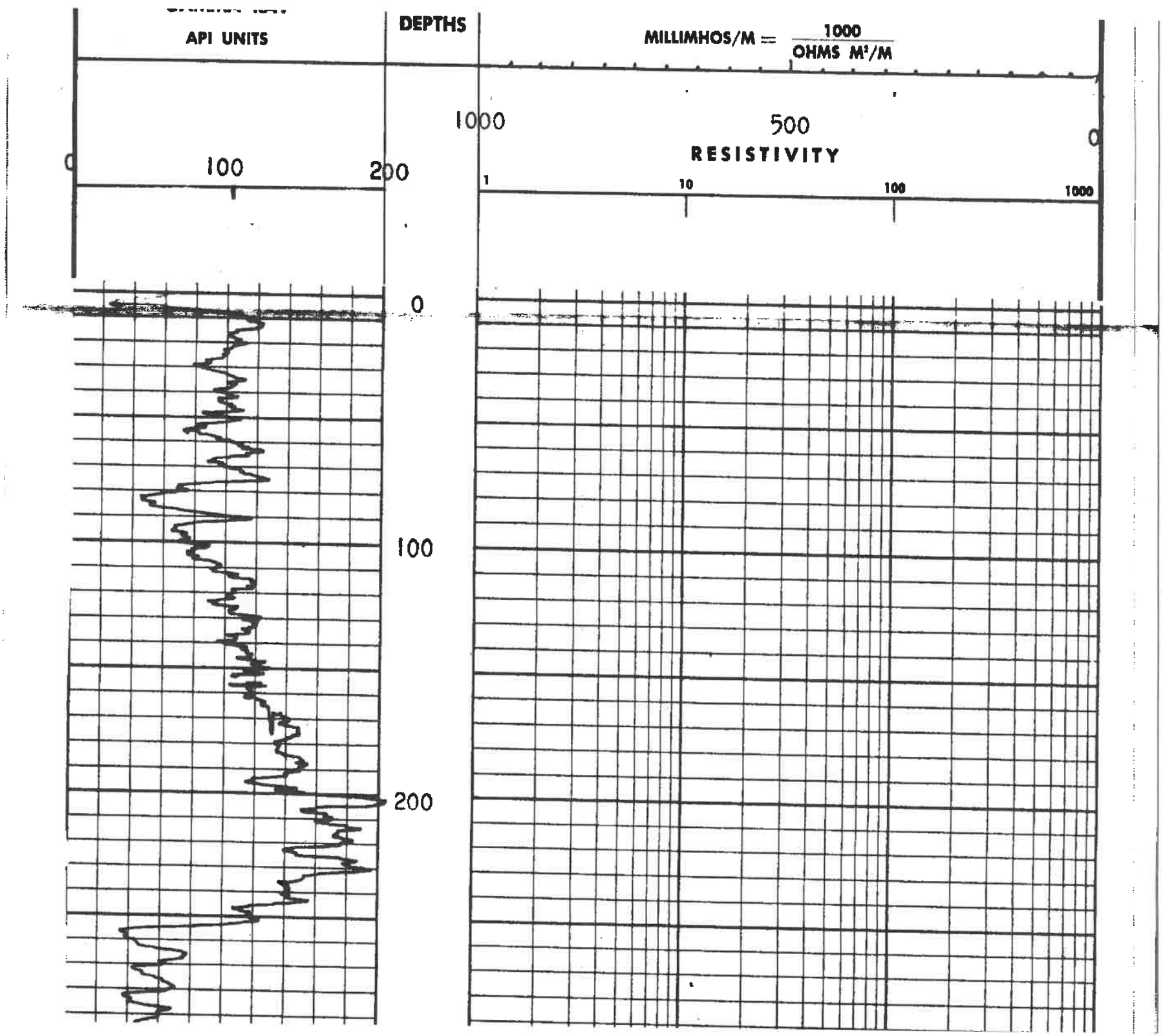
	TYPE LOG	DEPTH	SCALE UP HOLE	SCALE DOWN HOLE

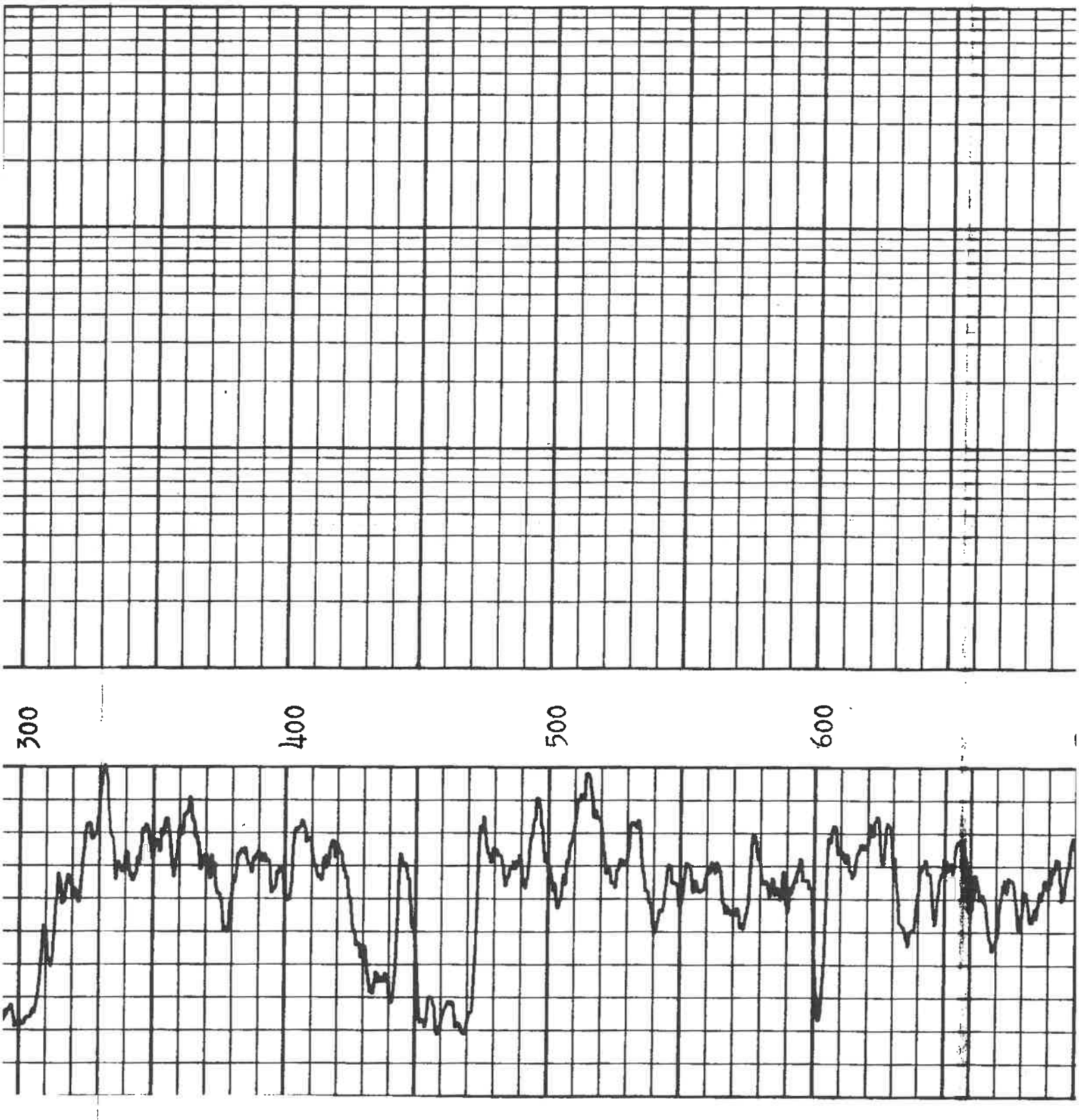
EQUIPMENT DATA

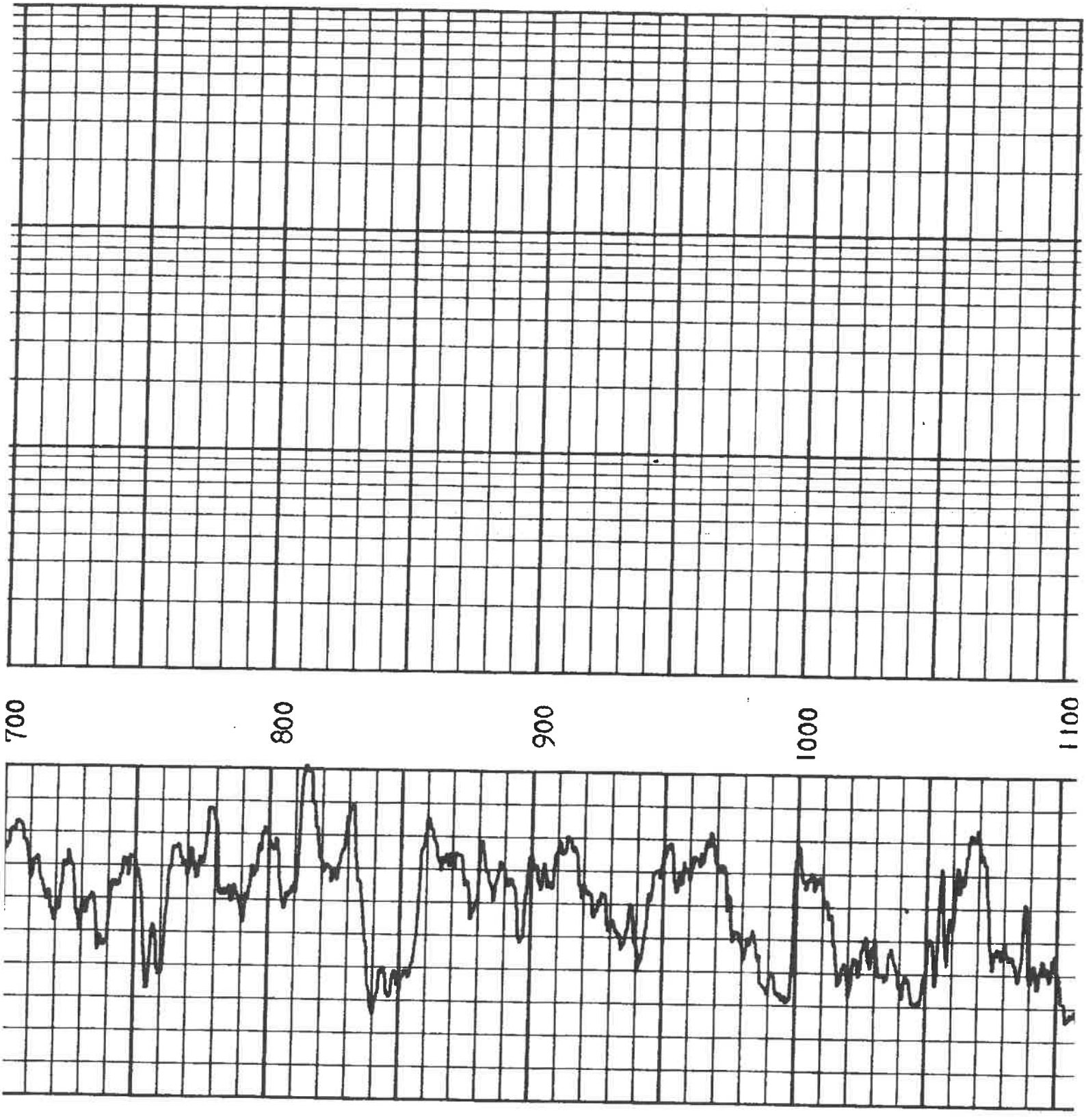
	RUN NO.	TOOL TYPE	TOOL POSITION	OTHER
		GAMMA RAY	FREE	
		INDUCTION	FREE	

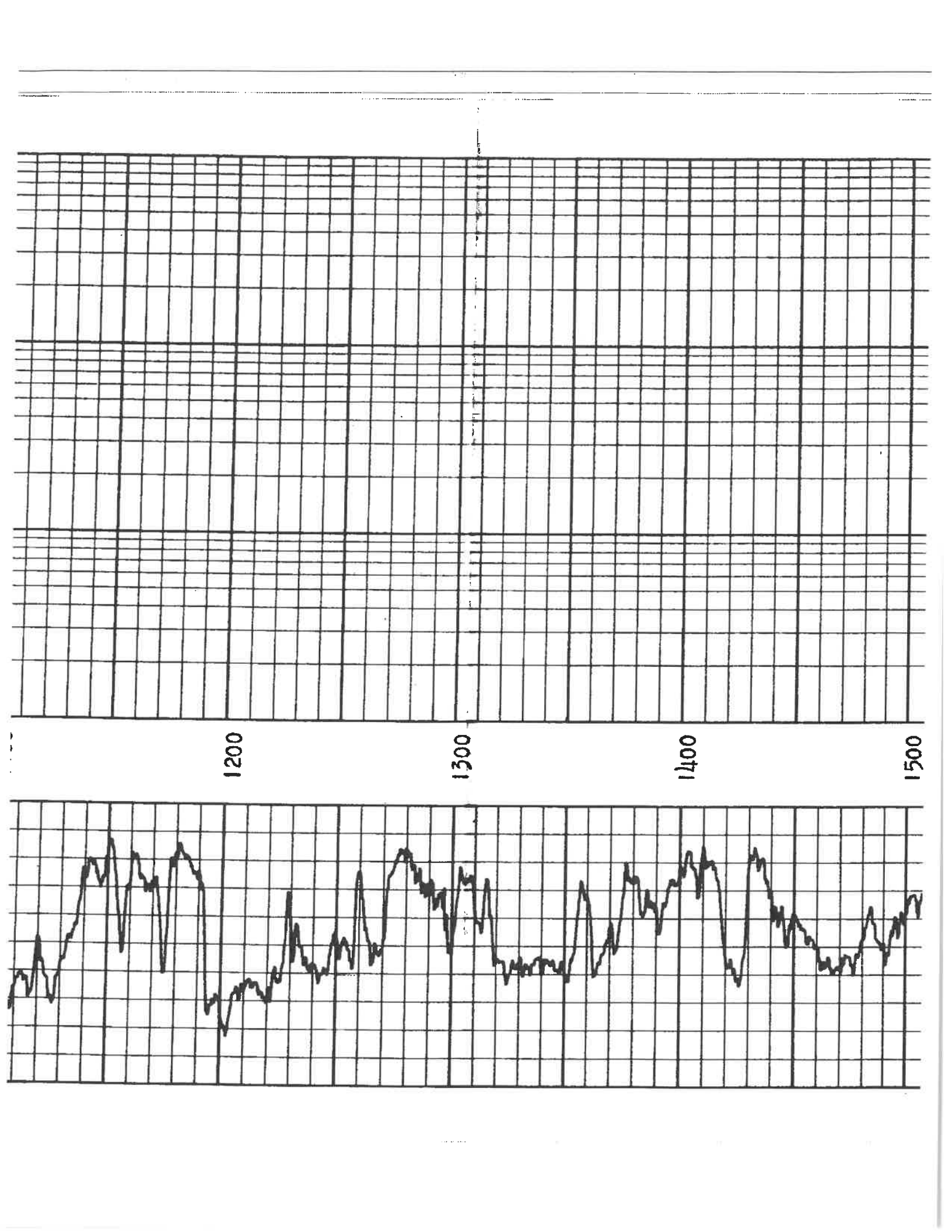
CONDUCTIVITY

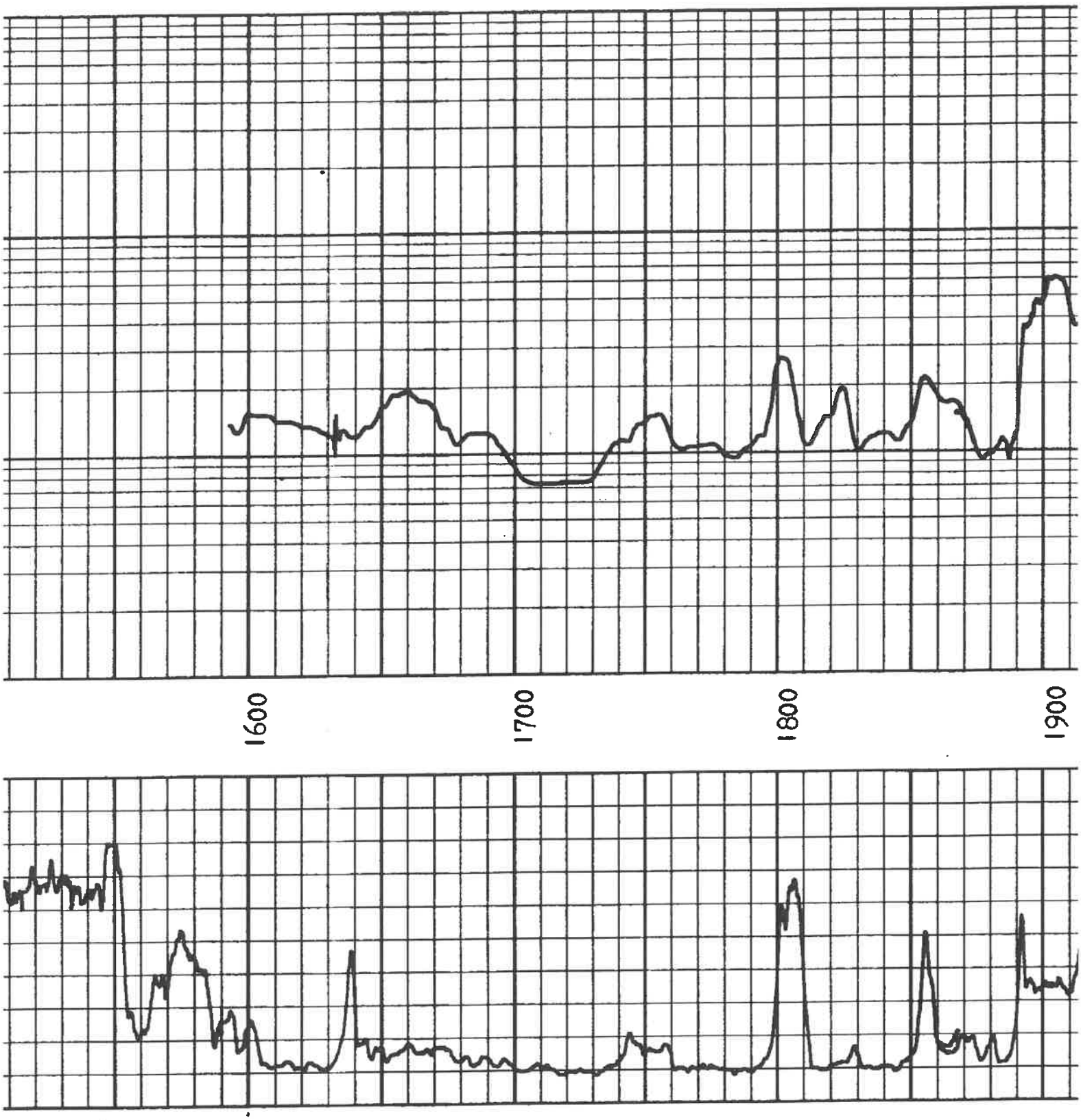
GAMMA RAY

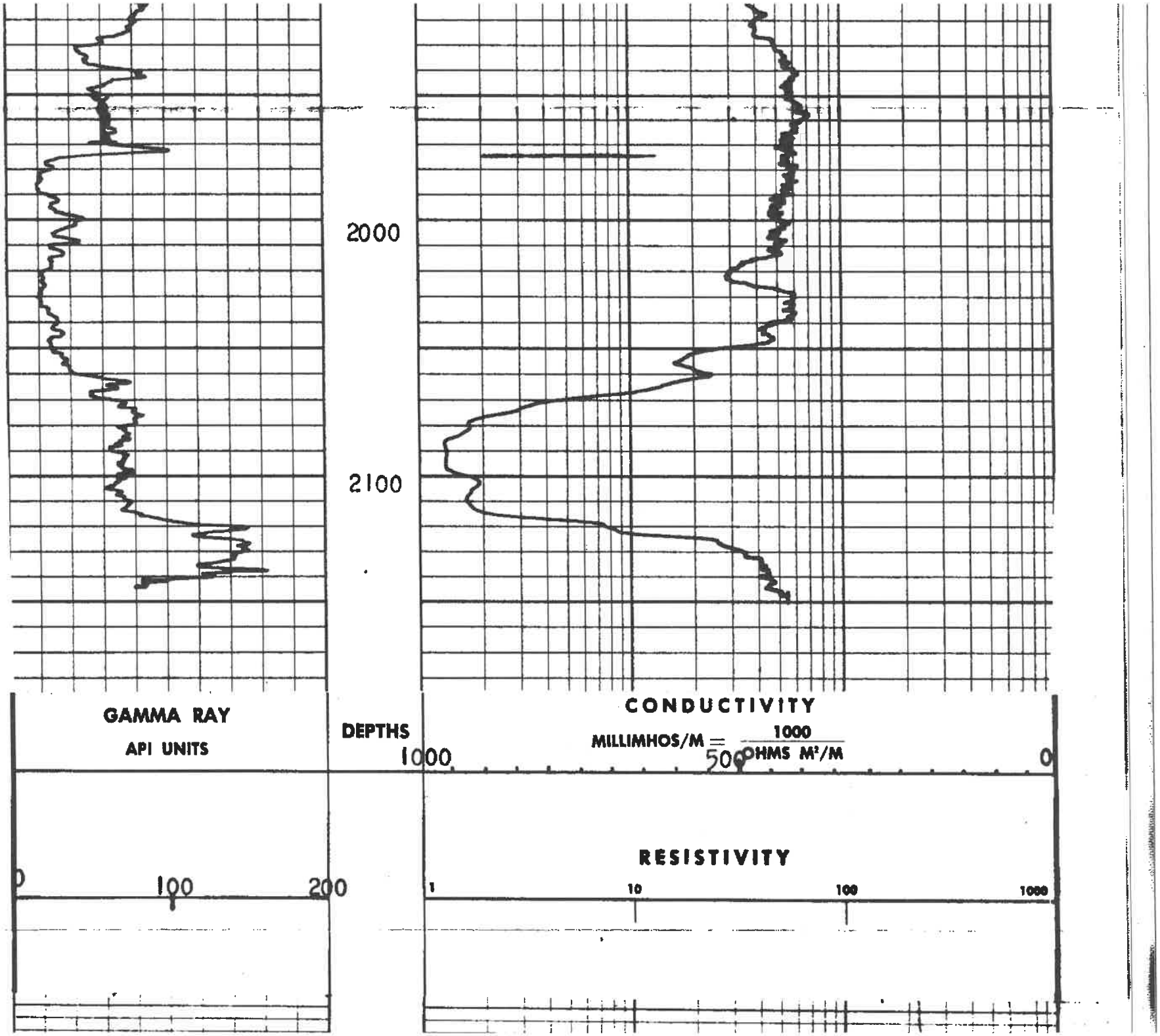

API UNITS
DEPTHS
MILLIMHOS/M = 1000 / OHMS M²/M
0
100
200
1000
500
0
RESISTIVITY
1
10
100
1000
0
100
200

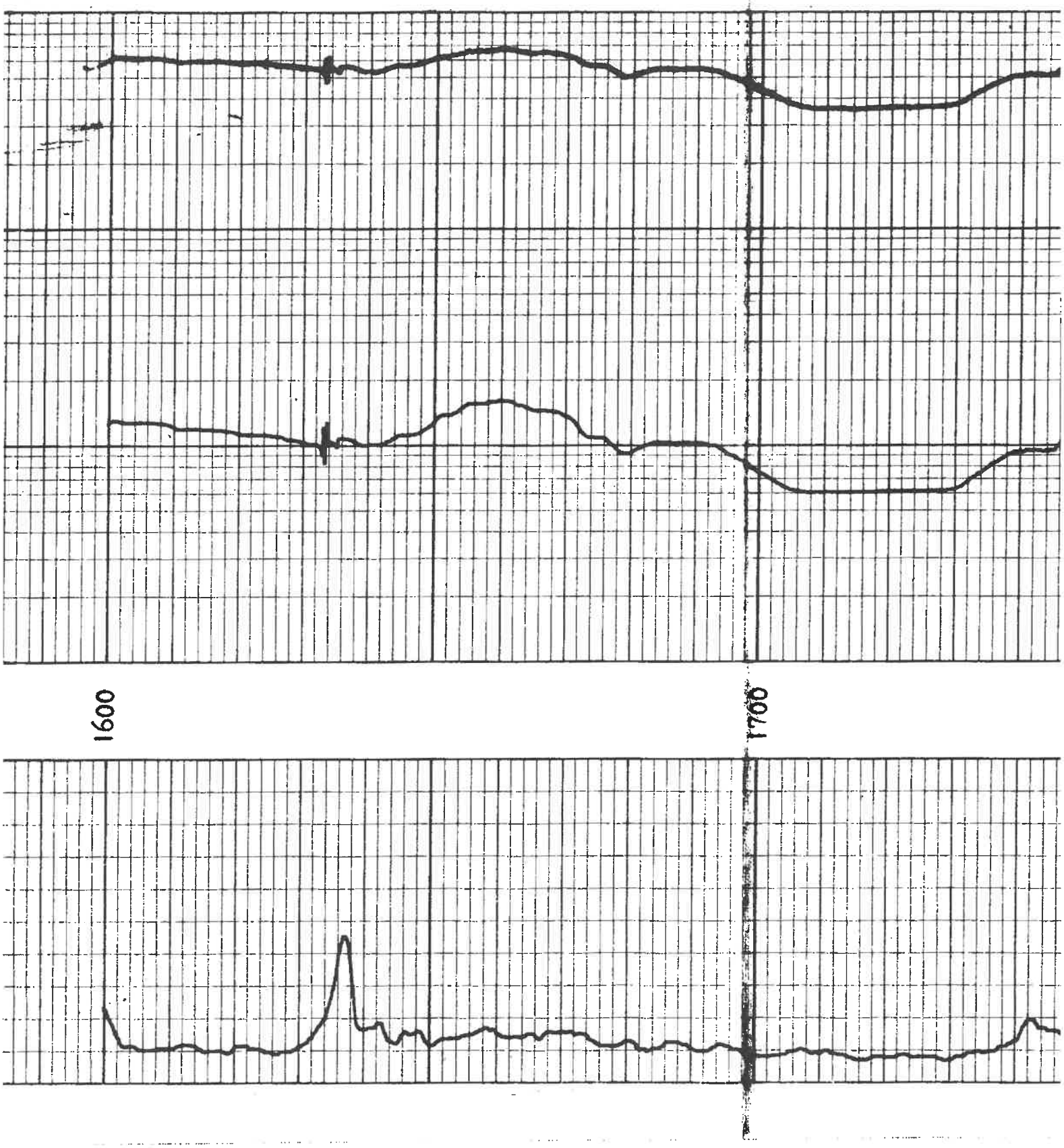

300
400
500
600

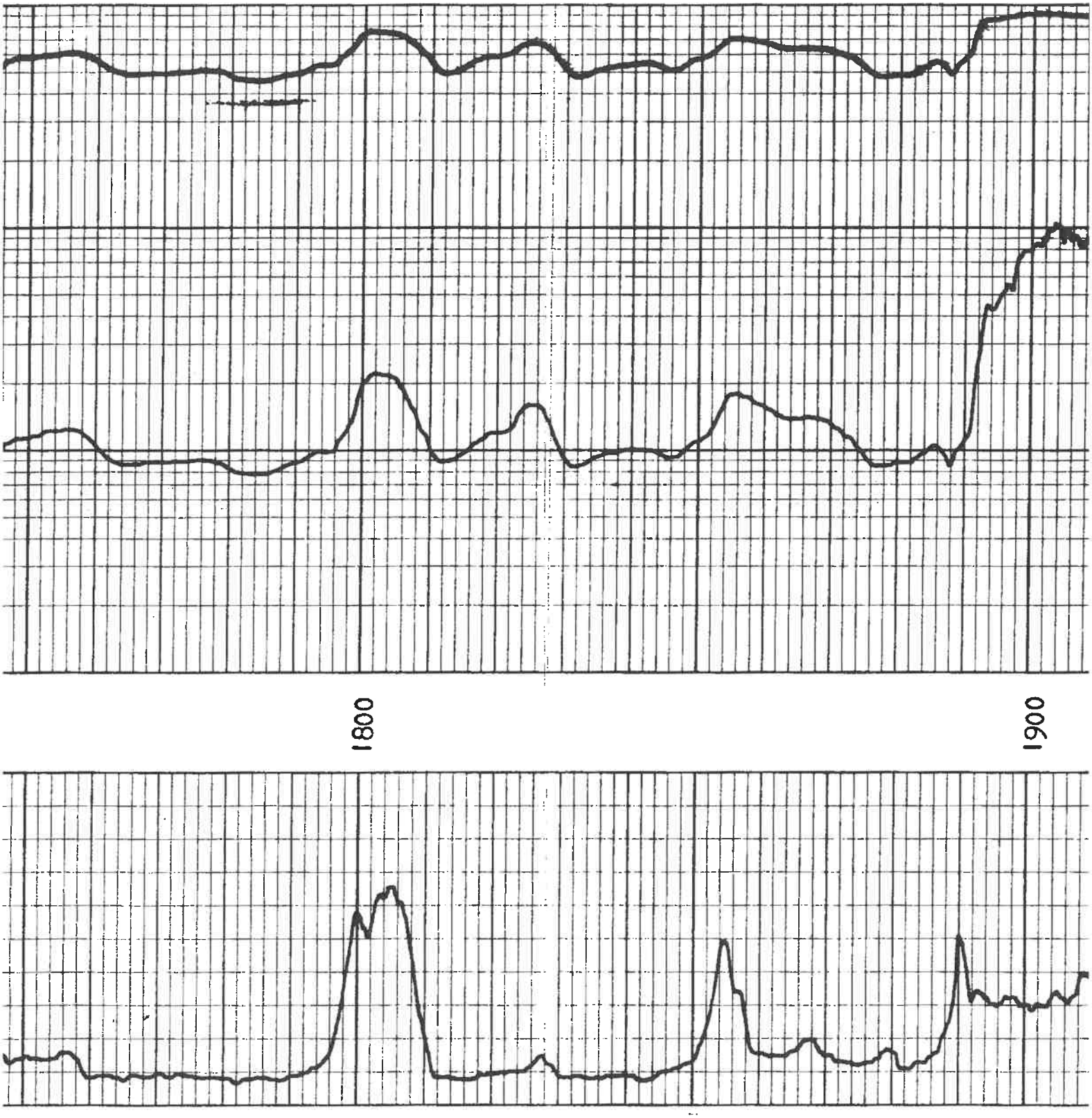

700
800
900
1000
1100

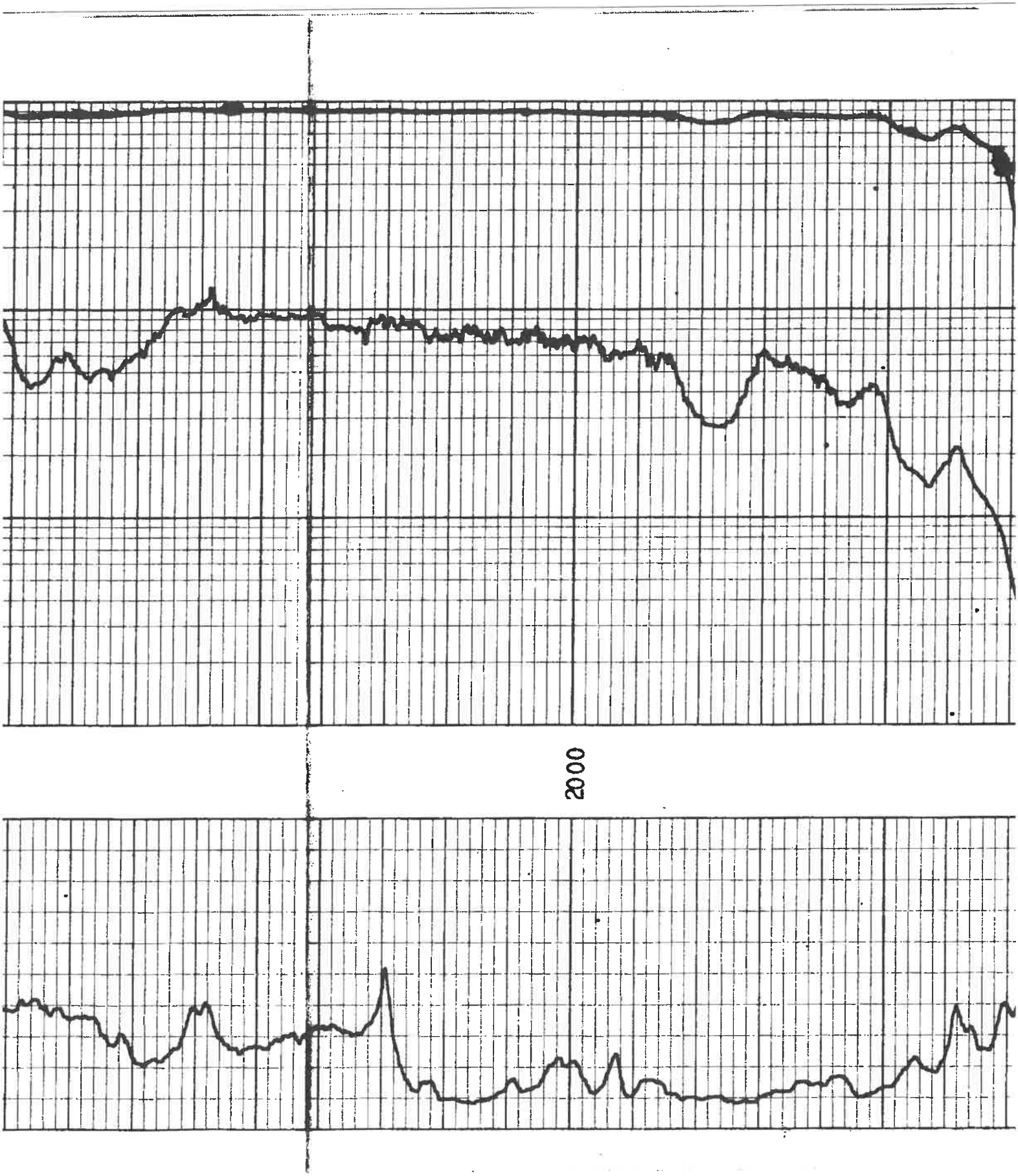

1200
1300
1400
1500

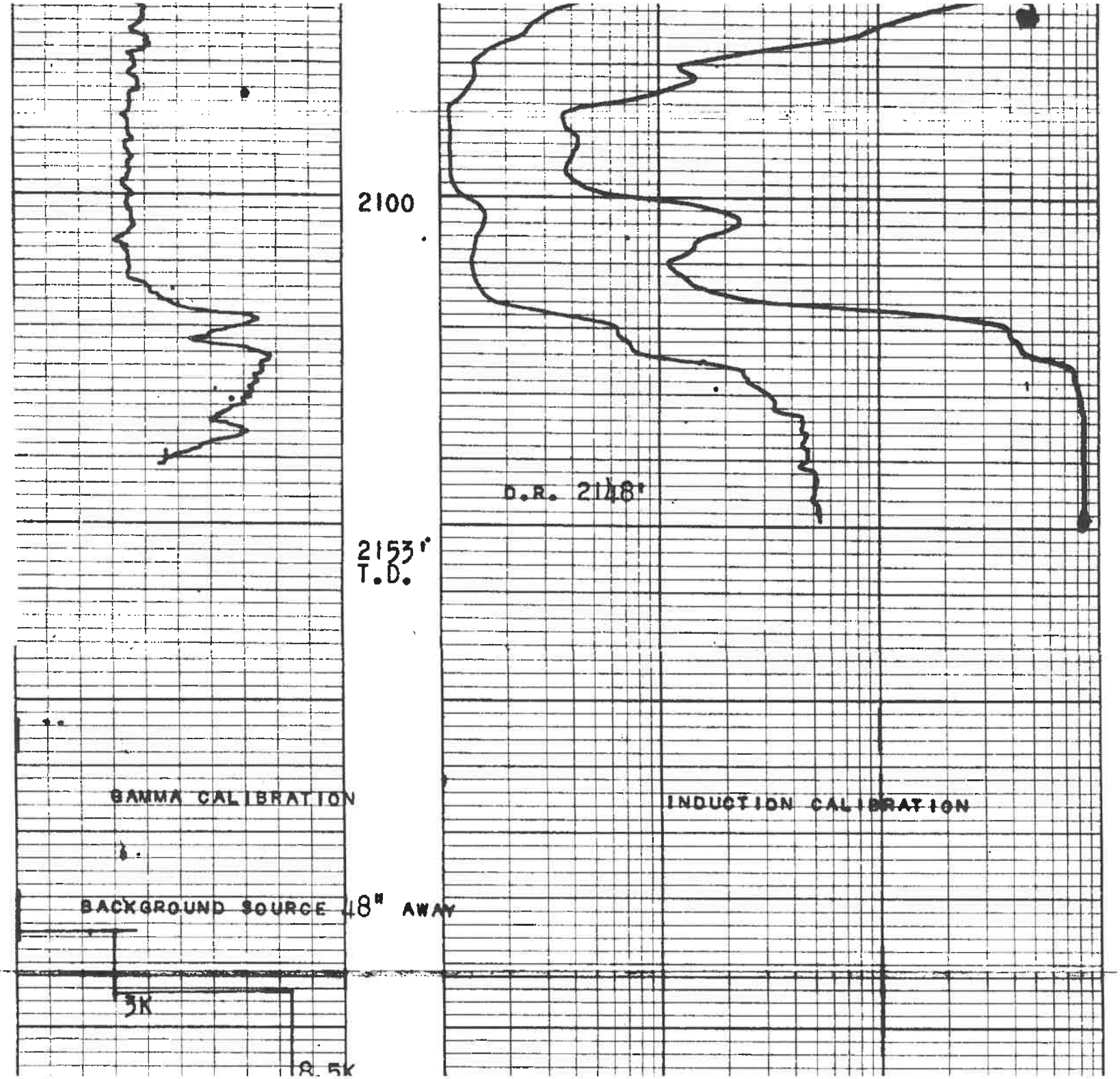

1600
1700
1800
1900

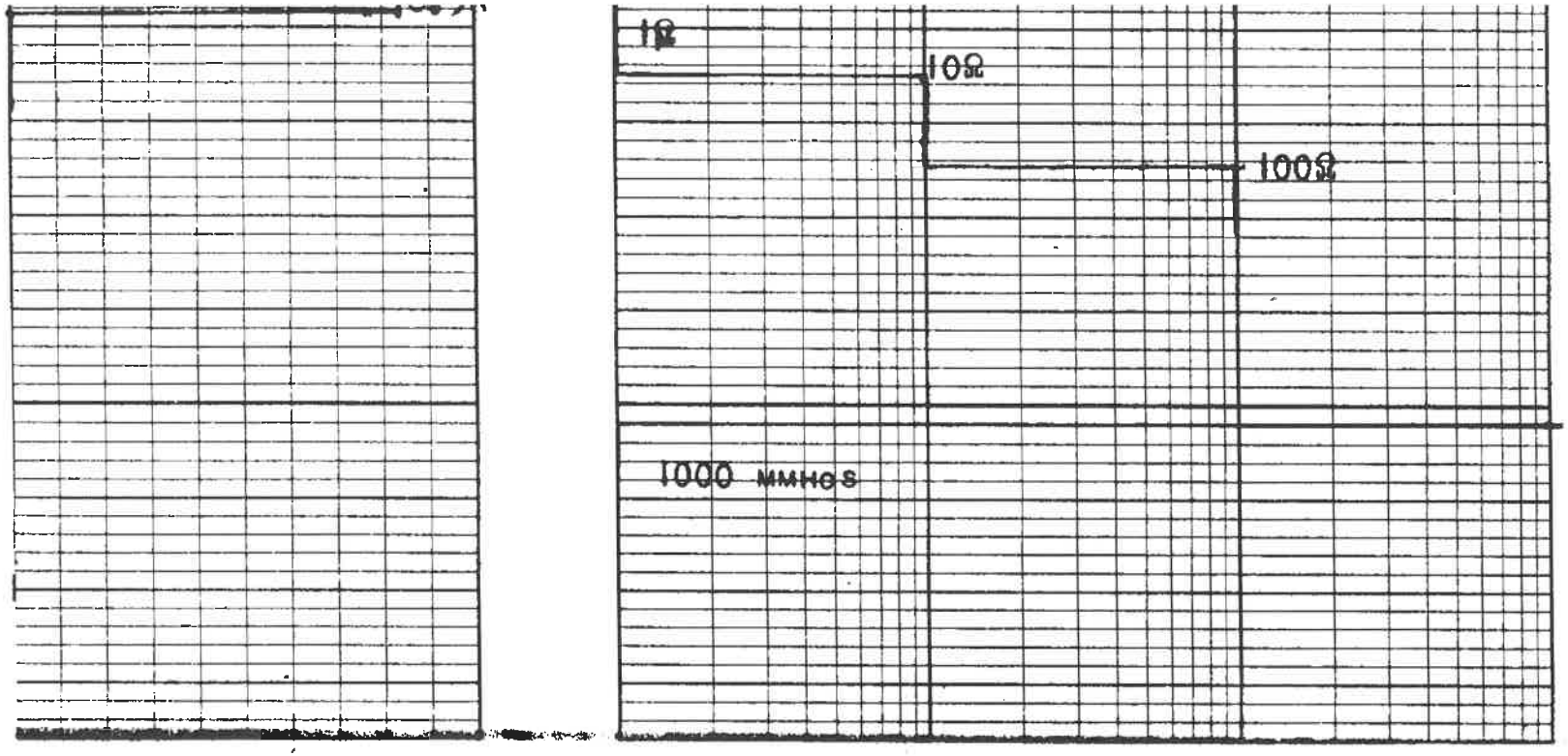

2000
2100
GAMMA RAY
API UNITS
0
100
200
DEPTHS
CONDUCTIVITY
MILLIMHOS/M = 1000 / OHMS M²/M
1000
500
0
RESISTIVITY
1
10
100
1000


1600
1700


1800
1900


2000


2100
D.R. 2148'
2153'
T.D.
GAMMA CALIBRATION
INDUCTION CALIBRATION
BACKGROUND SOURCE 48" AWAY
5K
8.5K



COMPANY JOSEPH S. GRUSS

WELL I.B. SUMMERS #7

FIELD WALTON

LOCATION SEC. TWP. RGE

COUNTY ROANE STATE W.VA.

SSC-705

4708701623

PERMIT # ROA. 1623

COMPANY JOSEPH S. GRUSS
WELL I.B. SUMMERS #7
FIELD WALTON
COUNTY ROANE STATE W. VA.
LOCATION:
SEC. TWP. RGE.
OTHER SERVICES:

GR | Induction

Birdwell

PERMANENT DATUM GROUND LEVEL	ELEV. 936'	ELEV. K.B.	
LOG MEASURED FROM K.B.	FT. ABOVE PERM. DATUM	D.F.	
DRILLING MEASURED FROM K.B.		G.L. 936'	

DATE	7-29-67	7-29-67	
RUN NO.	1	1	
DEPTH—DRILLER	2150'	2150'	
DEPTH—LOGGER	2153'	2153'	
BTM. LOG INTER.	2140'	2140'	
TOP LOG INTER.	0'	1600'	
CASING—DRILLER	@	@	
CASING—LOGGER	N/A @	N/A @	
BIT SIZE	7 7/8"	7 7/8"	
TYPE FLUID IN HOLE	MUD	MUD	
DENS. / VISC.	N/A	N/A	
pH / FLUID LOSS	CC	CC	
SOURCE OF SAMPLE	N/A	N/A	
R_m @ MEAS. TEMP.	@ °F	@ °F	
R_{mf} @ MEAS. TEMP.	@ °F	@ °F	
R_{mc} @ MEAS. TEMP.	@ °F	@ °F	
SOURCE R_{mf} / R_{mc}			
R_m @ B.H.T.	@ °F	@ °F	
TIME SINCE CIRC.	4 HOURS		
MAX. REC. TEMP.	°F	°F	
EQUIP. / LOCATION	1901 / #7		
RECORDED BY	RUGH		
WITNESSED BY	PERRIN		

BEST COPY available

RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of Environmental Protection

SSC—857-1

REMARKS NA-NOT AVAILABLE

CHANGES IN MUD TYPE OR ADDITIONAL SAMPLES		
DATE / SAMPLE NO.		
DEPTH—DRILLER		
TYPE FLUID IN HOLE		
DENS. / VISC.		
pH / FLUID LOSS	CC	CC
SOURCE OF SAMPLE		
R_m @ MEAS. TEMP.	@ °F	@ °F
R_{mf} @ MEAS. TEMP.	@ °F	@ °F
R_{mc} @ MEAS. TEMP.	@ °F	@ °F
SOURCE R_{mf} / R_{mc}		
R_m @ B.H.T.	@ °F	@ °F
R_{mf} @ B.H.T.	@ °F	@ °F
R_{mc} @ B.H.T.	@ °F	@ °F

SCALE CHANGES			
TYPE LOG	DEPTH	SCALE UP HOLE	SCALE DOWN HOLE

EQUIPMENT DATA			
RUN NO.	TOOL TYPE	TOOL POSITION	OTHER
1	GAMMA RAY	FREE	
1	INDUCTION	FREE	

4708701623

SCHLUMBERGER

PERFORATING DEPTH CONTROL

COMPANY JOSEPH S. GRUSS

WELL I. B. SUMMERS #7

FIELD WALTON

COUNTY ROANE STATE WEST VIRGINIA

Location WALTON DIST.

Sec. Twp. Rge.

Other Services: SCH-H

Elev.: K.B. N/A
D.F. -
G.L. 936

COUNTY

FIELD or LOCATION

WELL

COMPANY

Permanent Datum: GROUND LEVEL Elev.: 936
Log Measured From K.B. * Ft. Above Perm. Datum
Drilling Measured From K.B.

Date	8/5/67
Run No.	ONE
Type Log	PDC-GR
Depth — Driller	2150
Depth — Logger	2141
Bottom logged interval	2138
Top logged interval	1850
Type fluid in hole	FRESH WATER
Salinity, PPM Cl.	-
Density	-
Level	FULL
Max. rec. temp., deg F.	-
Operating rig time	1/2 HOUR
Recorded By	MALONE
Witnessed By	WESHE

BEST COPY available

BORE-HOLE RECORD

Bit Size	From	To
7 7/8	N/A	T.D.

CASING RECORD

Size	Wgt.	From	To
4 1/2	-	SURF.	T.D.

FOLD HERE

The well name, location and borehole reference data were furnished by the customer.

EQUIPMENT DATA
Gamma Ray

Run No.	ONE
Tool Model No.	G
Diameter	3 5/8
Det'r Model No.	G
Type	SCINT.
Length	8"

WELL PERFORATED FROM 2077'-2095' 19 SHOTS
2111'-2115' 5 SHOTS
PERFORATED WITH 3 3/8" HYPER-JETS.

RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of
Environmental Protection

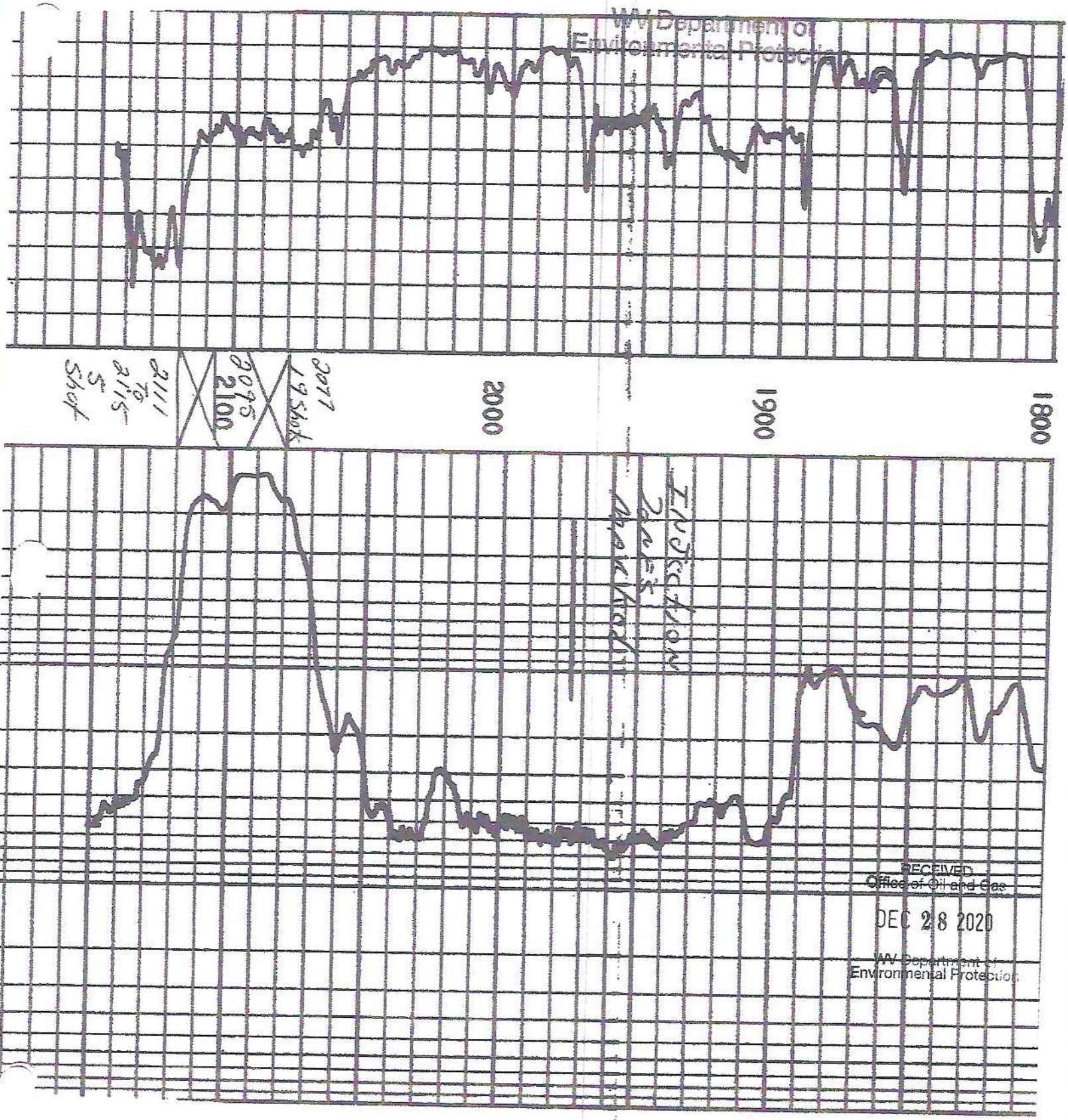
General

Hoist Truck No.	3016
Inst. Truck No.	3016
Tool Serial No.	240
Location	HNTG.

Remarks:

* K.B. TO GROUND LEVEL WAS NOT AVAILABLE FROM OPEN HOLE LOG.

4708701623



4708701623

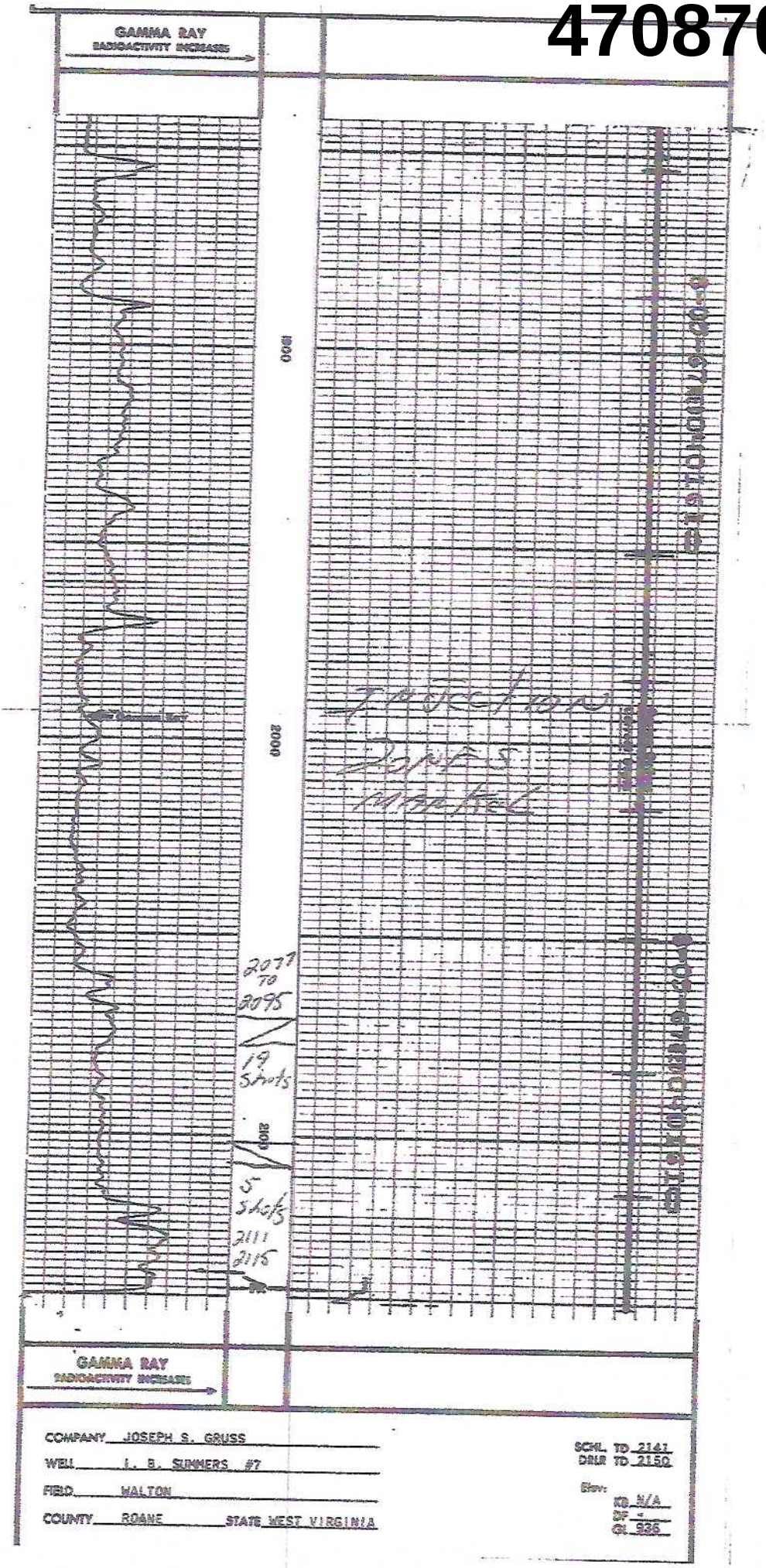
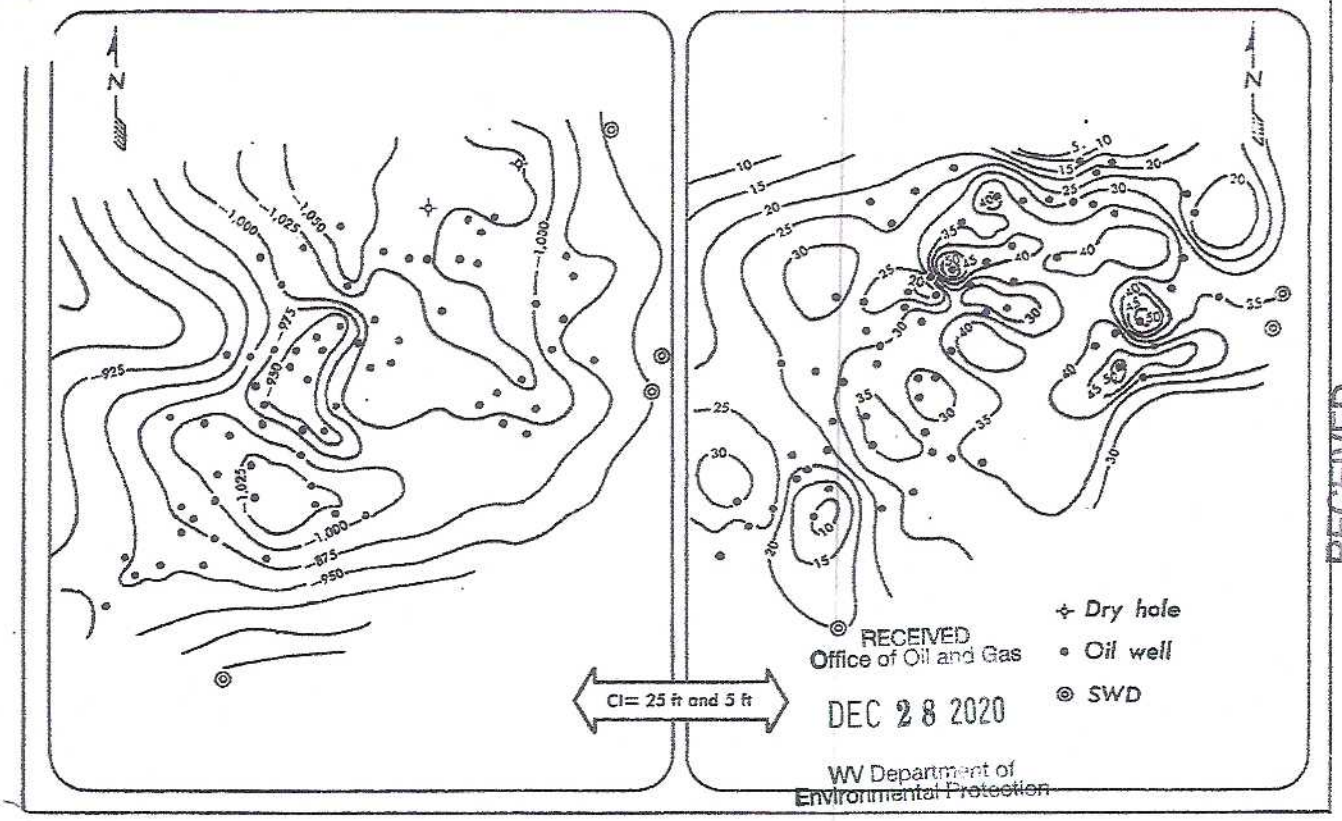


Fig. 2

Structure and Isopach map on Big Injun sand



2. Primary reserves will justify the development and investment, and a good possibility that secondary may contribute as much as primary.

3. To be successful in finding reserves of more than 5 million bbl, investigation of known blanket sands is essential, and then the method of determination of the new production limits must be established.

4. A reliable and economical method for determining relative permeabilities within Blue Creek was developed and used to great success.

5. Good production practices and methods are a must, and contribute in every way to the ultimate success of the program.

Walton field. Walton field is located in Harper, Walton, and Smithfield districts, Roane County, W.Va.

The field was discovered in 1907, and approximately 9,000 acres had been developed up until 1966. Since 1966, approximately 300 wells have been drilled on 5,500 acres for an average spacing of 18 acres per well.

Almost all the production in this field is from the Big Injun at an average depth of 1,940 ft. Fig. 1 shows this trend, old and new development, and its relation to Blue Creek field.

Blue Creek. Blue Creek field is located in Big Sandy and Elk districts of Kanawha County, W.Va.

There were eight to 10 producing wells drilled about 1920, three or four of which were still producing in the Big Injun sand in 1967.

There have been 78 wells drilled since the spring of 1967 to the summer of 1969. There now have been 67 leases validated which comprise 5,200 acres. All production from this field is from Big Injun sand at an average depth of 1,870 ft.

There is presently room for approximately 250 additional wells to be drilled on 20-acre spacing.

Reservoir and structural condition. The field is basically a syncline laying between the intersection of two major anticlines.

One anticline trending northeast-southwest known as the Arches Fork and the other trending north-south known as the Milliken.

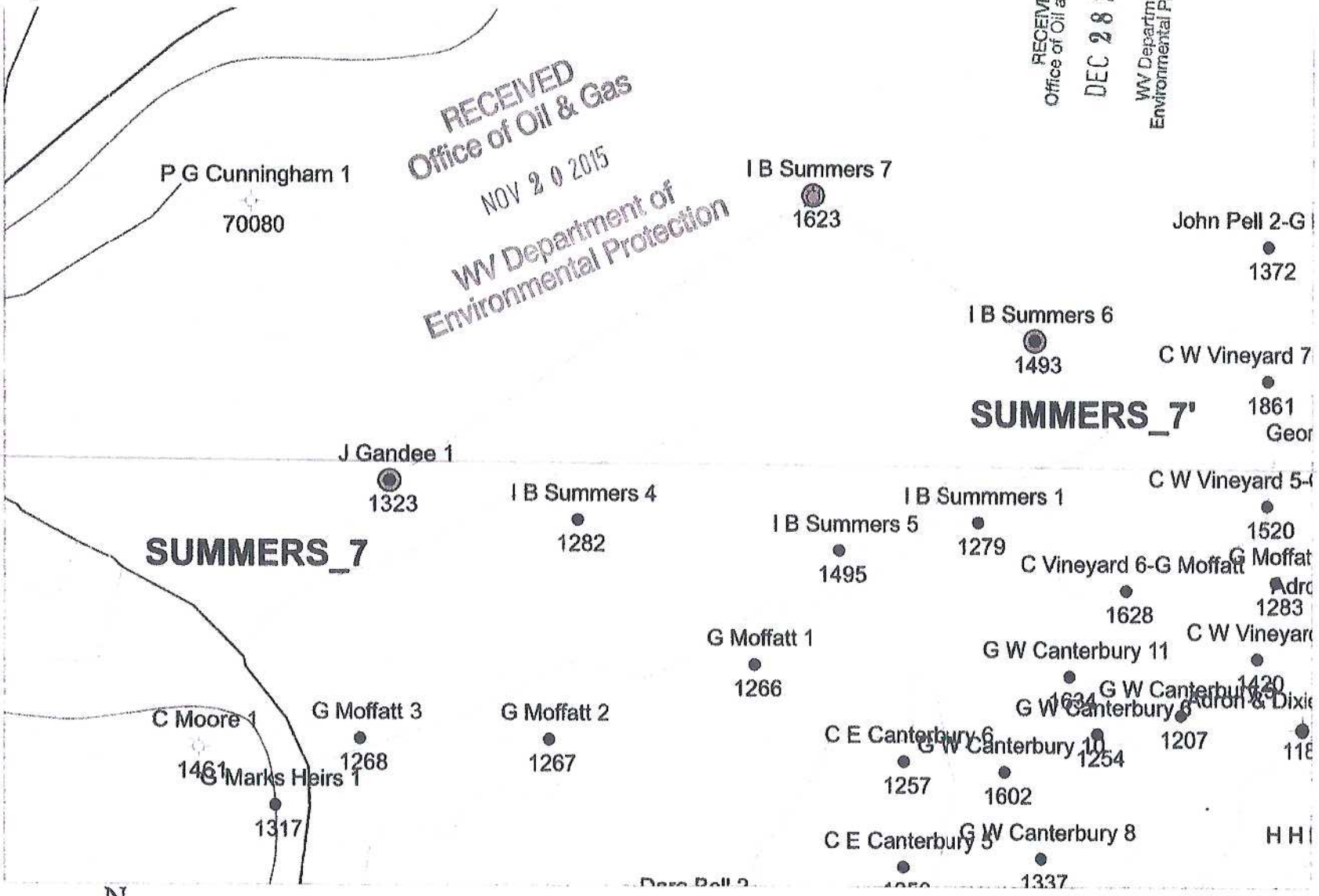
The trap is formed by a lithology change on the north side of the field where the Big Injun sand thickness grades from 20 to 0 ft over a distance of less than 800 ft.

Within the syncline, the sand characteristics are such that shale content within the sand is less than 10% of the pore space, with permeabilities averaging 20 md, porosity 21%, and thickness greater than 35 ft.

On the other three sides of the syncline, sand thickness remains essentially constant, (about 35 ft) but as structure approaches —950 ft subsea, shale content reaches 25% of the pore space and reduces the permeability to less than 5 md., thereby effecting a permeability trap for the nonmovement of oil beyond that point of permeability reduction. The proven producible area of this field has now been determined to be 7,200 acres.

As a result of this development, application of the disposal systems, hydraulic fracturing, the concept that movable oil can be produced downdip from nonmovable oil—provided that a dispersed clay system is available to effectively reduce permeability—major reservoirs can now be found whenever reevaluation in these areas are made.

The ability, through logging-coring analysis, to determine where permeability reduction occurs can set the limits of a producible oil reserve located structurally below and connected directly to an updip movable



D D OIL COMPANY		
I B SUMMERS CROSS SECTION LOCATION WALTON DISTRICT, ROANE COUNTY, W.VA.		
Author: MCB		Date: 24 July, 2014
	Scale: See scalebar	

Stratigraphic Cross Section "SUMMERS_7" : Equally Spaced Logs

Datum = BIG INJUN

Vertical Scale = 1 in per 100 ft

SUMMERS_7.xsd; 07/23/14

SUMMERS_7

4708701323
Gruss Joseph S
J Gandee 1
County=Roane
District=Walton

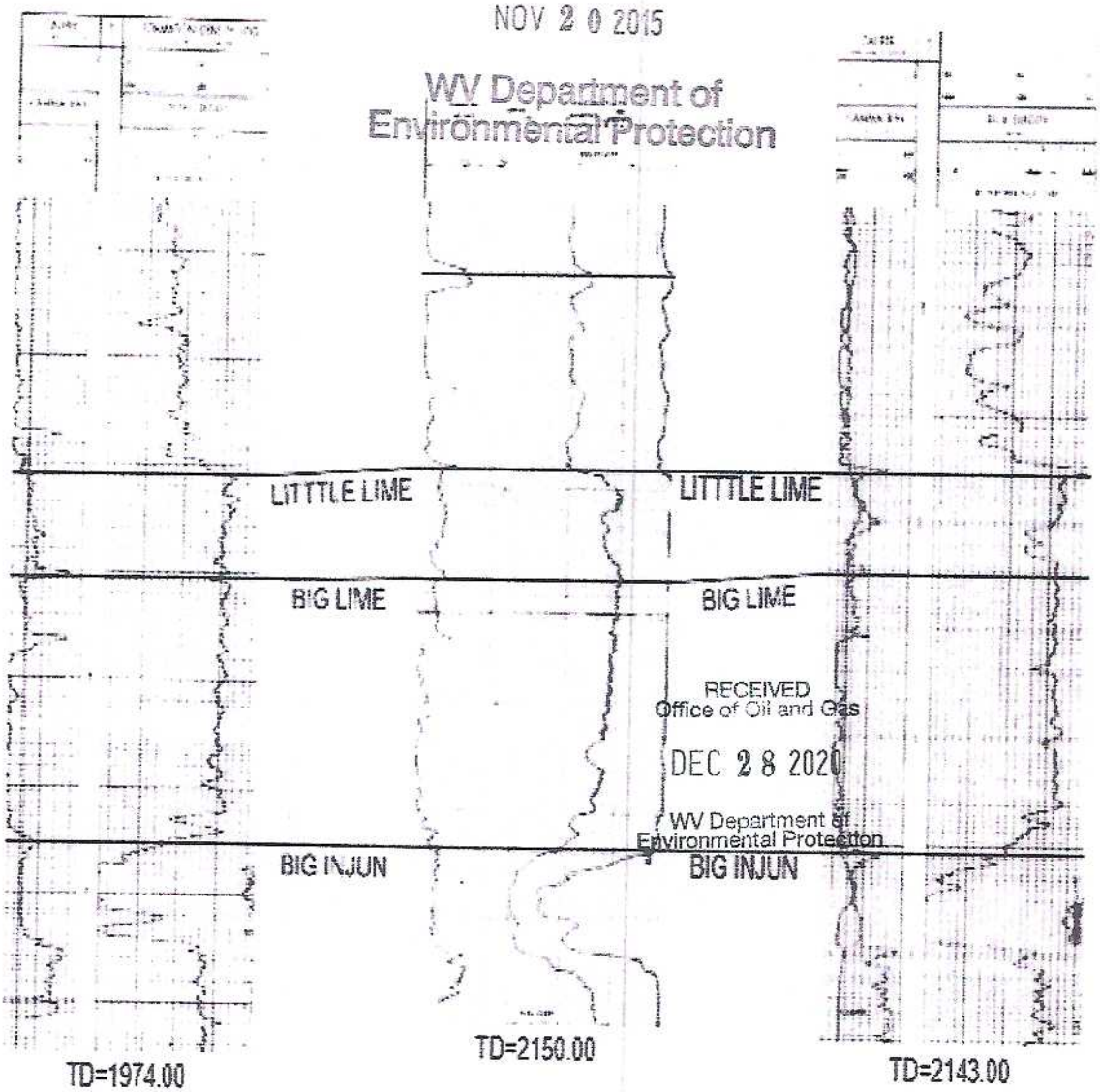
2859 ft

4708701623
Gruss Joseph S
I B Summers 7
County=Roane
District=Walton

1496 ft

4708701493
Gruss Joseph S
I B Summers 6
County=Roane
District=Walton

SUMMERS_7'



Section 9

Operating Requirements

To Gene Smith W.V DEP

2-12-2016

D&D Well Summers 7

API Number 2D0871623

D&D Oil

Deficiency 2D0871623

Section 9

Operating Requirements Data

Section A

The fluid between in the 4 ½ casing annulus and tubing is filled with fresh water to conduct the mechanical integrity test.

Section B

D&D Oil is operating this well and fully intend to continue operating this well in compliance with rules, regulations and with the permit. Will continue to daily monitor the injection pressure, annulus pressure and record the volume. Data will be recorded on form wr-40 and continue to be submitted to the Office of Oil and Gas monthly.

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

INJECTATE

November 10, 2023

Mr. Hugh Dale
Drilco Oil and Gas Corp
PO Box 385
Grantsville, WV 26147

RE: Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

Dear Mr. Dale:

Enclosed are the analytical results for sample(s) received by the laboratory on October 19, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

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

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

Sincerely,

Skyler C. Richmond
skyler.richmond@pacelabs.com
(724)850-5600
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

CERTIFICATIONS

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

SAMPLE SUMMARY

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30632478001	WELL	Water	10/19/23 08:00	10/19/23 14:35

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

SAMPLE ANALYTE COUNT

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30632478001	WELL	EPA 200.7	MFC	8	PASI-BV
		EPA 300.0, Rev 2.1	SMG	3	PASI-BV
		SM 4500-H+ B-11	KLD	1	PASI-BV
		EPA 900.0	REH1	2	PASI-PA
		EPA 903.1	MAR1	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA

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

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

Sample: WELL **Lab ID: 30632478001** Collected: 10/19/23 08:00 Received: 10/19/23 14:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver									
Aluminum	**1.2J**	mg/L	2.0	0.92		100	10/30/23 13:45	11/03/23 17:38	7429-90-5	
Arsenic	ND	mg/L	2.0	0.52		100	10/30/23 13:45	11/03/23 17:38	7440-38-2	
Barium	**313**	mg/L	0.50	0.18		100	10/30/23 13:45	11/03/23 17:38	7440-39-3	
Calcium	**20100**	mg/L	50.0	8.6		100	10/30/23 13:45	11/03/23 17:38	7440-70-2	
Iron	**84.8**	mg/L	5.0	0.65		100	10/30/23 13:45	11/03/23 17:38	7439-89-6	
Manganese	**3.1**	mg/L	0.50	0.15		100	10/30/23 13:45	11/03/23 17:38	7439-96-5	
Sodium	**58400**	mg/L	500	476		1000	10/30/23 13:45	11/03/23 17:40	7440-23-5	
Strontium	**329**	mg/L	1.0	0.16		100	10/30/23 13:45	11/03/23 17:38	7440-24-6	N2
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver									
Bromide	**1300**	mg/L	500	155		5000		11/09/23 12:25	24959-67-9	
Chloride	**130000**	mg/L	5000	1000		5000		11/09/23 12:25	16887-00-6	
Sulfate	ND	mg/L	25000	5000		5000		11/09/23 12:25	14808-79-8	D3
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-11 Pace Analytical Services - Beaver									
pH at 25 Degrees C	**6.5**	Std. Units				1		11/03/23 11:22		H6,N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL DATA

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

QC Batch: 625739
QC Batch Method: EPA 200.2
Analysis Method: EPA 200.7
Analysis Description: BVR 200.7 Metals, Total
Laboratory: Pace Analytical Services - Beaver

Associated Lab Samples: 30632478001

METHOD BLANK: 3050005 Matrix: Water
Associated Lab Samples: 30632478001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	mg/L	ND	0.020	0.0092	11/02/23 15:37	
Arsenic	mg/L	ND	0.020	0.0052	11/02/23 15:37	
Barium	mg/L	ND	0.0050	0.0018	11/02/23 15:37	
Calcium	mg/L	ND	0.50	0.086	11/02/23 15:37	
Iron	mg/L	ND	0.050	0.0065	11/02/23 15:37	
Manganese	mg/L	ND	0.0050	0.0015	11/02/23 15:37	
Sodium	mg/L	ND	0.50	0.48	11/02/23 15:37	
Strontium	mg/L	ND	0.010	0.0016	11/02/23 15:37	N2

LABORATORY CONTROL SAMPLE: 3050006

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	mg/L	2	2.0	102	85-115	
Arsenic	mg/L	2	2.2	109	85-115	
Barium	mg/L	2	2.1	105	85-115	
Calcium	mg/L	40	42.1	105	85-115	
Iron	mg/L	2	2.2	109	85-115	
Manganese	mg/L	2	2.2	108	85-115	
Sodium	mg/L	20	20.5	102	85-115	
Strontium	mg/L	2	2.1	104	85-115	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3050031 3050032

Parameter	Units	30633377001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	mg/L	0.048	2	2	2.2	2.1	108	105	70-130	2	20	
Arsenic	mg/L	ND	2	2	2.2	2.2	111	109	70-130	2	20	
Barium	mg/L	0.046	2	2	2.2	2.1	105	103	70-130	2	20	
Calcium	mg/L	26.1	40	40	67.3	66.8	103	102	70-130	1	20	
Iron	mg/L	0.74	2	2	2.5	2.5	89	86	70-130	2	20	
Manganese	mg/L	0.053	2	2	2.2	2.2	107	105	70-130	2	20	
Sodium	mg/L	64.7	20	20	84.2	84.8	97	101	70-130	1	20	
Strontium	mg/L	0.27	2	2	2.4	2.3	105	103	70-130	2	20	N2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL DATA

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3050033 3050034

Parameter	Units	30633755001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	mg/L	113 ug/L	2	2	2.3	2.3	109	109	70-130	0	20	
Arsenic	mg/L	ND	2	2	2.3	2.3	113	113	70-130	0	20	
Barium	mg/L	9.8 ug/L	2	2	2.2	2.2	107	107	70-130	0	20	
Calcium	mg/L	21000 ug/L	40	40	64.2	64.5	108	109	70-130	0	20	
Iron	mg/L	160 ug/L	2	2	2.4	2.4	111	111	70-130	0	20	
Manganese	mg/L	26.8 ug/L	2	2	2.2	2.2	110	110	70-130	0	20	
Sodium	mg/L	53700 ug/L	20	20	76.6	77.8	114	120	70-130	2	20	
Strontium	mg/L	124 ug/L	2	2	2.3	2.3	107	107	70-130	0	20	N2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL DATA

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

QC Batch: 628497
QC Batch Method: EPA 300.0, Rev 2.1
Analysis Method: EPA 300.0, Rev 2.1
Analysis Description: BVR 300.0 IC Anions
Laboratory: Pace Analytical Services - Beaver
Associated Lab Samples: 30632478001

METHOD BLANK: 3063897 Matrix: Water
Associated Lab Samples: 30632478001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Bromide	mg/L	ND	0.10	0.031	11/09/23 22:05	
Chloride	mg/L	ND	1.0	0.20	11/09/23 22:05	
Sulfate	mg/L	ND	5.0	1.0	11/09/23 22:05	

LABORATORY CONTROL SAMPLE: 3063898

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	1	1.0	103	90-110	
Chloride	mg/L	25	23.9	96	90-110	
Sulfate	mg/L	50	47.3	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3063902 3063903

Parameter	Units	30633808001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	<0.031	1	1	1.0	1.1	102	107	90-110	5	20	
Chloride	mg/L	0.40J	25	25	24.4	25.0	96	99	90-110	3	20	
Sulfate	mg/L	2.9J	50	50	51.1	51.5	96	97	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3063904 3063905

Parameter	Units	30633811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	<0.031	1	1	1.1	1.0	110	103	90-110	7	20	
Chloride	mg/L	0.42J	25	25	25.0	24.3	98	95	90-110	3	20	
Sulfate	mg/L	3.0J	50	50	51.0	50.1	96	94	90-110	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL DATA

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

QC Batch: 626957
QC Batch Method: SM 4500-H+ B-11
Analysis Method: SM 4500-H+ B-11
Analysis Description: 4500H+BBV pH, BV
Laboratory: Pace Analytical Services - Beaver

Associated Lab Samples: 30632478001

SAMPLE DUPLICATE: 3056208

Parameter	Units	30632478001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	5.5	5.5	0	20	H6,N2

SAMPLE DUPLICATE: 3056209

Parameter	Units	30633378003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	0	20	H6,N2

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

Sample: WELL **Lab ID: 30632478001** Collected: 10/19/23 08:00 Received: 10/19/23 14:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	**3,116 ± 1,102 (1,379) C:NA T:NA**	pCi/L	11/08/23 18:45	12587-46-1	
Gross Beta	EPA 900.0	**1,481 ± 703 (1,061) C:NA T:NA**	pCi/L	11/08/23 18:45	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**968 ± 123 (12.0) C:NA T:92%**	pCi/L	10/31/23 12:00	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**896 ± 162 (9.00) C:70% T:81%**	pCi/L	10/30/23 16:20	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL - RADIOCHEMISTRY

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

QC Batch: 624342
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30632478001

METHOD BLANK: 3043621 Matrix: Water
Associated Lab Samples: 30632478001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0562 ± 0.291 (0.605) C:NA T:95%	pCi/L	10/31/23 11:25	

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
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL - RADIOCHEMISTRY

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

QC Batch: 626018
QC Batch Method: EPA 900.0
Analysis Method: EPA 900.0
Analysis Description: 900.0 Gross Alpha/Beta
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30632478001

METHOD BLANK: 3051393 Matrix: Water
Associated Lab Samples: 30632478001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.059 ± 0.624 (1.75) C:NA T:NA	pCi/L	11/09/23 08:34	
Gross Beta	0.706 ± 0.784 (1.66) C:NA T:NA	pCi/L	11/09/23 08:34	

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.

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL - RADIOCHEMISTRY

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

QC Batch: 624343
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30632478001

METHOD BLANK: 3043628 Matrix: Water

Associated Lab Samples: 30632478001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.436 ± 0.406 (0.823) C:71% T:79%	pCi/L	10/30/23 16:22	

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
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALIFIERS

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

Act - Activity

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

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: DW 47 - 87 - 1623
Pace Project No.: 30632478

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30632478001	**WELL**	EPA 200.2	625739	EPA 200.7	626873
30632478001	**WELL**	EPA 300.0, Rev 2.1	628497		
30632478001	**WELL**	SM 4500-H+ B-11	626957		
30632478001	**WELL**	EPA 900.0	626018		
30632478001	**WELL**	EPA 903.1	624342		
30632478001	**WELL**	EPA 904.0	624343		

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Wo

WO# : 30632478

30632478

ALL SHAI

Company: DD Oil Company	Billing Information: DD Oil Company PO Box 406 Spencer, WV 25276
Address: Box 406 Spencer WV	
Report To: Hugh David DALE	Email To:
Copy To: above	Site Collection Info/Address: MS Kocurr Station
Customer Project Name/Number: DW 47-87-1623	State: WV County/City: Roane Time Zone Collected: [ ] PT [ ] MT [ ] CT [X] ET
Phone: 304 377 1147 Email:	Site/Facility ID #: 47-87-1623
Collected By (print): David DALE	Purchase Order #: Quote #:
Collected By (signature): David Dale	Turnaround Date Required:
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [ ] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Container Preservative Type

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

RECEIVED
Office of Oil and Gas
DEC 01 2023
WV Department of Environmental Protection

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
Well	W		10/19	800				

NON-CONFORMANCE
No Analyses, Pres. Type # of Ctns.

Customer Remarks / Special Conditions / Possible Hazards:

David Dale

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2774321

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

See Sam

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Relinquished by/Company: (Signature)	Date/Time: 1005 10/19/23	Received by/Company: (Signature)	Date/Time: ~~Hold~~
Relinquished by/Company: (Signature)	Date/Time: 1005 10/19/23	Received by/Company: (Signature) 10-19-23	Date/Time: 1152
Relinquished by/Company: (Signature) 10-19-23	Date/Time: 1435	Received by/Company: (Signature)	Date/Time: 1435 10-19-23

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Non Conformance YES / NO

Client _____ Profile # 20852

Site _____ Notes Log everything on line # 1

Sample Line Item	Matrix	AG1H	AG1U	AG2S	AG3S	AG4U	BP1N	BP1U	BP1Z	BP2N	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	BP4N	CG3H	WGKU	WGFU	CG1U	AG74	DG9H	DG9S	DH9U	VG9A	VG9B	VG9H	VG9U	GN	SP5T	ZPLC				
1							4	1		1						1																				
2																																				
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

RECEIVED
Office of Oil & Gas
DEC 01 2023
WV Department of
Environmental Protection

Glass

DG9H	40mL HCl amber voa vial	GBOD	300mL BOD Glass Stopper
DG9M	40mL MeOH clear vial	WGKU	8oz clear soil jar
DG9P	40mL TSP amber vial	WGFU	4oz clear soil jar
DG9S	40mL H_2SO_4 amber vial	BJFU	4oz unpreserved amber wide
DG9T	40mL Na Thio amber vial	CG3H	250mL clear glass HCl
DG9U	40mL amber unpreserved	AG1H	1L HCl amber glass
VG9A	40mL Asc Acid glass	AG1S	1L H_2SO_4 amber glass
VG9B	40mL Sodium Bisulfate glass	AG1U	1liter unpres amber glass
VG9C	40mL NaOH clear vial	AG2S	500mL H_2SO_4 amber glass
VG9H	40mL HCl clear vial	AG3S	250mL H_2SO_4 amber glass
VG9T	40mL Na Thio. clear vial	AG3U	250mL unpres amber glass
VG9U	40mL unpreserved clear vial	AG74	60mL amber glass NH4Cl
		AG4U	100mL unpres amber glass

Plastic

BP1N	1L HNO_3 plastic
BP1S	1L H_2SO_4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn Acetate
BP2A	500mL NaOH,Asc Acid plastic
BP2N	500mL HNO_3 plastic
BP2S	500mL H_2SO_4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Acetate
BP3C	250mL NaOH plastic
BP3N	250mL HNO_3 plastic
BP3U	250mL unpreserved plastic
BP3S	250mL H_2SO_4 plastic
BP4N	125mL HNO_3 plastic

Misc.

I	Wipe/Swab
SP5T	120mL Coliform Na Thiosulfate
ZPLC	Ziploc Bag
GN	General Unpreserved
GNN	General Nitric
GNS	General Sulfuric

Matrix

WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe
DW	Drinking Water

LIMS30 Lab Sample Condition Upon Receipt (West Virginia

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ 3rd Party Courier ☑ Pace ☐ Other _____

Tracking #: _____

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

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

Cooler Temperature Observed Temp 3.5 °C Correction Factor: 1.0 °C Final Temp: 3.5 °C

Thermal Preservation Requirement Met Yes ☑ No ☐

pH paper Lot#	Date and Initials of person examining contents:
226322	CDW 10-20-23

	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:		✓		2. Missing Analyses, Pres Type, #of Ctns.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT		✓		5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous sample field filtered: -pH adjusted within 24 hours? (If yes, indicate acid lot #)			✓ ✓	13.
Filtered volume received for Dissolved tests:			✓	14.
All containers have been checked for chemical preservation: exceptions: VOA, coliform, O&G, LLMercury, Non-aqueous matrix	✓			15.
All containers meet method/chemical preservation requirements:	✓			Initial when completed: CDW Date: 10-20-23
				Tests not preserved:
Headspace in VOA Vials:			✓	16.
Trip Blank Present:			✓	17.
				Initial when completed: CDW Date: 10-20-23

RECEIVED
Office of Oil and Gas
DEC 01 2023
WV Department of Environmental Protection

Comments: _____

*PM review is documented electronically in LIMS, when the Project Manager closes the SRF Review schedule in LIMS. The status may be reviewed in the Status section of the Workorder Edit Screen.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Wo

ALL SHA

WO# : 30632478

30632478

Company: DD Oil Company	Billing Information: DD Oil Company PO Box 606 Spencer, WV 25276
Address: Box 606 Spencer, WV	
Report To: Hugh David DALE	Email To:
Copy To: above	Site Collection Info/Address: McKown Station
Customer Project Name/Number: DW 47-87-1623	State: WV County/City: Roane Time Zone Collected: [ ]PT [ ]MT [ ]CT [X]ET
Phone: 304 [illegible] 1147 Email:	Site/Facility ID #: 47-87-1623 Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): DAVID DALE	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature): David Dale	Turnaround Date Required: Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
Well	W		10/19	500				

Container Preservative Type

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

NON-CONFORMANCE
No Analysis, Pres Type
Ref Ctns

RECEIVED
Office of Oil and Gas
DEC 01 2023
WV Department of Environmental Protection

Customer Remarks / Special Conditions / Possible Hazards:

David Dale

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2774321

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

See Sam

Relinquished by/Company: (Signature)	Date/Time: 1005 10/19/23	Received by/Company: (Signature)	Date/Time: [illegible]	MTJL LAB USE ONLY
Relinquished by/Company: (Signature)	Date/Time: 1005 10/19/23	Received by/Company: (Signature) 10-19-23	Date/Time: 1152	Table #: Acctnum: Template: Prelogin: PM: PB:
Relinquished by/Company: (Signature) 10-19-23	Date/Time: 1435	Received by/Company: (Signature)	Date/Time: 1435 10.19.23	

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 2

Page 19 of 33

Pace

Pace® Location Requested (City/State):

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Contact/Report To:
Street Address:	Phone #:
	E-Mail:
	Cc E-Mail:
Customer Project #:	Invoice to:
Project Name:	Invoice E-mail:
Site Collection Info/Facility ID (as applicable):	Purchase Order # (if applicable):
	Quote #:
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET	County / State origin of sample(s):

Data Deliverables:

[ ] Level II [ ] Level III [ ] Level IV

[ ] EQUIS

[ ] Other

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: / AcctNum / Client ID: / Table #: / Profile / Template: / Prelog / Bottle Ord. ID:

*Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Plastic	Glass	Sample Comment	Preservation non-conformance identified for sample.

RECEIVED
DEC 01 2023
Office of Oil and Gas

Received by Pace Greensburg
Therm ID___ Corr Factor +/- ___
Receipt Temp___
Corrected Temp___
Correct Preservation Y/N
Res. Chlorine - Y/N - Lot#
Rad Samples Screened <0.05 mrem/hr Y/N
Survey Meter 25014368

Customer Remarks / Special Conditions / Possible Hazards:

Collected By:
Printed Name
Signature

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C):	Corrected Temp. (°C):

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	
[signature]	10/4/2023 1536			Tracking Number:
				Delivered by: [ ] In-Person [ ] Courier
				[ ] FedEx [ ] UPS [ ] Other
Nicely's Del. Service	10-20-23 23:45	[signature] Pace	10-20-23 23:45	Page: 2 of 2

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123

Client _____

Site _____

Profile # 20852

Notes Log everything on line @ 1

Sample Line Item	Matrix	AG1H	AG1U	AG2S	AG3S	AG4U	BP1N	BP1U	BP1Z	BP2N	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	BP4N	CG3H	WGKU	WGFU	CG1U	AG74	DG9H	DG9S	DH9U	VG9A	VG9B	VG9H	VG9U	GN	SP5T	ZPLC				
1							1	1		1						1																				
2																																				
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

Environmental Chain
DEC 01 2021
REDEMED
Office of Oil and Gas

Glass

DG9H	40mL HCl amber voa vial	GBOD	300mL BOD Glass Stopper
DG9M	40mL MeOH clear vial	WGKU	8oz clear soil jar
DG9P	40mL TSP amber vial	WGFU	4oz clear soil jar
DG9S	40mL H_2SO_4 amber vial	BJFU	4oz unpreserved amber wide
DG9T	40mL Na Thio amber vial	CG3H	250mL clear glass HCl
DG9U	40mL amber unpreserved	AG1H	1L HCl amber glass
VG9A	40mL Asc Acid glass	AG1S	1L H_2SO_4 amber glass
VG9B	40mL Sodium Bisulfate glass	AG1U	1liter unpres amber glass
VG9C	40mL NaOH clear vial	AG2S	500mL H_2SO_4 amber glass
VG9H	40mL HCl clear vial	AG3S	250mL H_2SO_4 amber glass
VG9T	40mL Na Thio. clear vial	AG3U	250mL unpres amber glass
VG9U	40mL unpreserved clear vial	AG74	60mL amber glass NH4Cl
		AG4U	100mL unpres amber glass

Plastic

BP1N	1L HNO_3 plastic
BP1S	1L H_2SO_4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn Acetate
BP2A	500mL NaOH,Asc Acid plastic
BP2N	500mL HNO_3 plastic
BP2S	500mL H_2SO_4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Acetate
BP3C	250mL NaOH plastic
BP3N	250mL HNO_3 plastic
BP3U	250mL unpreserved plastic
BP3S	250mL H_2SO_4 plastic
BP4N	125mL HNO_3 plastic

Misc.

I	Wipe/Swab
SP5T	120mL Coliform Na Thiosulfate
ZPLC	Ziploc Bag
GN	General Unpreserved
GNN	General Nitric
GNS	General Sulfuric

Matrix

WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe
DW	Drinking Water

WO# : 30632478

PM: SCR Due Date: 11/10/23
CLIENT: BV-DRILCO

LIMS30 Lab Sample Condition Upon Receipt (West Virginia

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ 3rd Party Courier ☑ Pace ☐ Other _____

Tracking #: _____

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

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

Cooler Temperature Observed Temp 3.5 °C Correction Factor: .0 °C Final Temp: 3.5 °C

Thermal Preservation Requirement Met Yes ☑ No ☐

pH paper Lot#	Date and Initials of person examining contents:
226322	CDW 10-20-23

	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:		✓		2. Missing Analyses, Pres Type, #of Ctns.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT		✓		5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous sample field filtered: -pH adjusted within 24 hours? (If yes, indicate acid lot #)			✓ ✓	13.
Filtered volume received for Dissolved tests:			✓	14.
All containers have been checked for chemical preservation: exceptions: VOA, coliform, O&G, LLMercury, Non-aqueous matrix	✓			15.
All containers meet method/chemical preservation requirements:	✓			Initial when completed: CDW Date: 10-20-23
				Tests not preserved:
Headspace in VOA Vials:			✓	16.
Trip Blank Present:			✓	17.
				Initial when completed: CDW Date: 10-20-23

RECEIVED
Office of Oil and Gas
DEC 01 2023
WV Department of
Environmental Protection

Comments: _____

*PM review is documented electronically in LIMS, when the Project Manager closes the SRF Review schedule in LIMS. The status may be reviewed in the Status section of the Workorder Edit Screen.

GEOCHEMICAL TESTING
Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

814/443-1671
814/445-6666
FAX: 814/445-6729

Tuesday, October 31, 2023

Skyler Richmond
PACE ANALYTICAL
1638 ROSEYTOWN ROAD
SUITES 2, 3, & 4
GREENSBURG, PA 15601

Order No.: G2310E26

Dear Skyler Richmond:

Geochemical Testing received 1 sample(s) on 10/24/2023 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, nd laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Joelle Streczywilk
Environmental Laboratory Manager

Report(s) To:
Penny Westrick

Geochemical Testing **Date:** *31-Oct-23*

CLIENT: PACE ANALYTICAL
Project:
Lab Order: G2310E26

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Under West Virginia's Laboratory Certification Program, Geochemical Testing's Laboratory Certificate I.D. is 141.

Glossary:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.
B - Analyte detected in the associated Method Blank
Q1 - See case narrative ND - Not Detected
MCL - Contaminant Limit J - Indicates an estimated value.
Q - Qualifier QL -Quantitation Limit DF - Dilution Factor
S - Surrogate Recovery outside accepted recovery limits
T - Sample received above required temperature and is not compliant with 40CFR136 Table II.
T1 - Sample received above required temperature
MDA - Minimum Detectable Activity.
** - Value exceeds Action Limit
TICs - Tentatively Identified Compounds.
E - Value above quantitation range

Glossary (continued)

1 Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor of four or greater.

B Dilution water blank exceeded method criterion.

C1 CCV recovery above the acceptance limits. Results may be biased high.

C2 CCV recovery below the acceptance limits. Results may be biased low.

C3 ICV recovery above the acceptance limits. Results may be biased high.

C4 ICV recovery below the acceptance limits. Results may be biased low.

C5 Positive values verified by second column confirmation.

C6 Confirmation analysis by another detector or chromatographic column was not performed.

D1 The analysis did not meet the minimum DO depletion of at least 2 mg/L.

D2 The analysis did not meet the minimum residual DO of at least 1 mg/L.

D3 Sample required dilution due to a matrix interference.

D4 Sample was diluted in the extraction steps due to marked matrix interferences.

D5 Sample required dilution due to a chloride interference.

D6 Sample was diluted and the reporting limits were raised to achieve method compliant internal standard recovery.

D7 Sample was digested at a dilution due to the formation of a post-digestion precipitate.

D8 Sample was digested at a dilution to achieve method compliant matrix spike recovery.

D9 Sample was digested at a dilution to meet method compliant digestion criteria.

E2 Unable to obtain a stable weight within specified limits due to sample matrix. Value is estimated.

F1 Fecal sample tested positive for residual chlorine.

H1 Due to under-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.

H2 Due to over-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.

H3 Sample was re-analyzed outside of hold time due to error during original analysis.

H4 The Nitrite result used to report Nitrate was analyzed past the 48-hour holding time.

I1 Internal standard recovery above method acceptance limits. Results are estimated.

I2 Internal standard recovery was below method acceptance limits. Results are estimated.

IP One of the instrument performance checks ( ) did not meet the acceptance criteria.

L1 LCS above the acceptance limits. Result may be biased high.

L2 LCS below the acceptance limits. Result may be biased low.

L3 Analyte was spiked into the LCS, but was not recovered.

M1 Matrix Spike recovery above the acceptance limits.

M2 Matrix Spike recovery below the acceptance limits.

M4 The matrix spike failed high for the surrogate.

M5 The matrix spike failed low for the surrogate.

M6 The reporting limits were raised due to sample matrix interference.

M7 Recovery for matrix spike could not be quantified due to matrix interference.

M8 Analyte was spiked into the MS, but was not recovered.

M9 Analyte concentration was determined by the method of standard addition (MSA).

N1 The lab does not hold accreditation from PA-DEP for this parameter by this method

N2 PADEP does not accredit labs for this analyte by this method.

N3 The lab is accredited for this method in West Virginia, but not in PA (its primary accrediting body).

N4 PADEP does not accredit labs for this analyte by this method in drinking water.

O1 The flashpoint tester cannot detect below 50 degrees F.

O2 Result is temperature of the sample when flame observed. No flash observed. Result qualified.

O3 The reporting limits were raised due to the high concentration of non-target compounds.

O4 Sample was received with headspace.

O5 Sample was received in incorrect container and is not compliant with 40CFR136 Table II.

O6 Insufficient sample volume was received to comply with the method.

P1 The pH of the sample was >2 and is not compliant with 40CFR136 Table II.

P2 Sample contained residual chlorine and is not compliant with 40CFR136 Table II

P3 The pH of the sample was <10 and is not compliant with 40CFR136 Table II.

P4 Field preservation does not meet EPA or method recommendations for this analysis.

P5 Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.

P6 Sample required additional preservative upon receipt.

P7 The sample was received unpreserved.

P8 The pH of the sample was < 9 and is not compliant with 40 CFR136 Table II.

R Relative Percent Difference (RPD) was above the control limit.

R1 RPD above control limits between matrix spike and MS duplicates.

R2 RPD above the control limit between duplicates.

R3 RSD above the control limit between replicates.

R4 RPD above control limits between Inorganic Carbon check and spike.

R5 RPD above control limits between control sample and control sample duplicates.

S2 Surrogate recovery in the blank was below the control limit.

S3 Surrogate recovery in the blank was above the control limit.

S4 Surrogate recovery in the LCS is above the control limit.

S5 Surrogate recovery in the LCS is below the control limit.

SR Analyte recovery was outside the accepted recovery limits and above the control limit for RPD.

T3 Target analyte found in trip/field blank.

TC The MS tune check (tailing factor) did not meet the acceptance criteria.

Laboratory Results

Geochemical Testing

Date: *31-Oct-23*

CLIENT:	PACE ANALYTICAL	**Client Sample ID:**	30632478001
Lab Order:	G2310E26		Well
Project:		**Collection Date:**	10/19/2023 8:00:00 AM
Lab ID:	G2310E26-001	**Sampled By:**	Pace
Matrix:	AQUEOUS	**DateReceived:**	10/24/2023 11:11:46 AM

Analyses	Result	Q	MDL	PQL	Units	DF	Date Prepared	Date Analyzed
SPECIFIC GRAVITY			Analyst: **MAG**					**ASTM D1429-08 2011**
Specific Gravity	1.156		0.3000	0.300		1		10/30/23 7:45 AM

GEOCHEMICAL TESTING

Environmental and Energy Analysis

Quality Assurance Project Report
Prepared for
PACE ANALYTICAL
10/31/2023

David M. Glessner
Quality Assurance Coordinator

Analytical QC Summary Report

Explanatory Notes

1. Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor of four or greater.
2. Matrix Spike and MS Duplicates are sample specific controls and are not used to evaluate the analytical batch.
3. Laboratory duplicate. If one or both of the values is less than 5 times the PQL, the allowed difference is +/- the PQL.
4. "R" indicates a relative percent difference (RPD) was above the acceptance limit between duplicate QC samples or sample specific duplicates.

Analytical QC Summary Report

SampleID: BLANK **SampType:** BLANK **TestNo:** ASTM D1429-08 **Prep Date:** **RunNo:** 294828
BatchID: R294828 **Analysis Date:** 10/30/2023 **SeqNo:** 7696790

Analyte	Calc Val	Units	PQL	Spk Val	SPKrefval	REC	Low Limit	High Limit	RPDrefval	RPD	RPDlimit	Qual
Specific Gravity	1		0.3									

SampleID: G2310E26-001ADUP **SampType:** DUP **TestNo:** ASTM D1429-08 **Prep Date:** **RunNo:** 294828
BatchID: R294828 **Analysis Date:** 10/30/2023 **SeqNo:** 7696793

Analyte	Calc Val	Units	PQL	Spk Val	SPKrefval	REC	Low Limit	High Limit	RPDrefval	RPD	RPDlimit	Qual
Specific Gravity	1.156		0.3						1.156		20	

SampleID: LCS **SampType:** LCS **TestNo:** ASTM D1429-08 **Prep Date:** **RunNo:** 294828
BatchID: R294828 **Analysis Date:** 10/30/2023 **SeqNo:** 7696791

Analyte	Calc Val	Units	PQL	Spk Val	SPKrefval	REC	Low Limit	High Limit	RPDrefval	RPD	RPDlimit	Qual
Specific Gravity	1.046		0.3	1.039		100.7%	85	115				

Analytical QC Summary Report

Table I ON Qualifiers

Qualifier	Description
1	Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor of four or greater.
B	Analyte detected in the associated method Blank.
B1	Dilution water blank exceeded method criterion.
C1	CCV recovery above the acceptance limits. Results may be biased high.
C2	CCV recovery below the acceptance limits. Results may be biased low.
C3	ICV recovery above the acceptance limits. Results may be biased high.
C4	ICV recovery below the acceptance limits. Results may be biased low.
C5	Positive values verified by second column confirmation.
C6	Confirmation analysis by another detector or chromatographic column was not performed.
D1	The analysis did not meet the minimum DO depletion of at least 2 mg/L.
D2	The analysis did not meet the minimum residual DO of at least 1 mg/L.
D3	Sample required dilution due to a matrix interference.
D4	Sample was diluted in the extraction steps due to marked matrix interferences.
D5	Sample required dilution due to a chloride interference.
D6	Sample was diluted and the reporting limits were raised to achieve method compliant internal standard recovery.
D7	Sample was digested at a dilution due to the formation of a post-digestion precipitate.
D8	Sample was digested at a dilution to achieve method compliant matrix spike recovery.
D9	Sample was digested at a dilution to meet method compliant digestion criteria.
E	Value above quantitation range.
E2	Unable to obtain a stable weight within specified limits due to sample matrix. Value is estimated.
F1	Fecal sample tested positive for residual chlorine.
H	Method Hold Time exceeded and is not compliant with 40CFR136 Table II.
H1	Due to under-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.
H2	Due to over-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.
H3	Sample was re-analyzed outside of hold time due to error during original analysis.
H4	The Nitrite result used to report Nitrate was analyzed past the 48-hour holding time.
I1	Internal standard recovery above method acceptance limits. Results are estimated.
I2	Internal standard recovery was below method acceptance limits. Results are estimated.
IP	One of the instrument performance checks ( ) did not meet the acceptance criteria.
J	Indicates an estimated value.

L1	LCS above the acceptance limits. Result may be biased high.
L2	LCS below the acceptance limits. Result may be biased low.
L3	Analyte was spiked into the LCS, but was not recovered.
M1	Matrix Spike recovery above the acceptance limits.
M2	Matrix Spike recovery below the acceptance limits.
M4	The matrix spike failed high for the surrogate.
M5	The matrix spike failed low for the surrogate.
M6	The reporting limits were raised due to sample matrix interference.
M7	Recovery for matrix spike could not be quantified due to matrix interference.
M8	Analyte was spiked into the MS, but was not recovered.
M9	Analyte concentration was determined by the method of standard addition (MSA).
N1	The lab does not hold accreditation from PA-DEP for this parameter by this method
N2	PADEP does not accredit labs for this analyte by this method.
N3	The lab is accredited for this method in West Virginia, but not in PA (its primary accrediting body).
N4	PADEP does not accredit labs for this analyte by this method in drinking water.
ND	Not Detected.
O1	The flashpoint tester cannot detect below 50 degrees F.
O2	Result is temperature of the sample when flame observed. No flash observed. Result qualified.
O3	The reporting limits were raised due to the high concentration of non-target compounds.
O4	Sample was received with headspace.
O5	Sample was received in incorrect container and is not compliant with 40CFR136 Table II.
O6	Insufficient sample volume was received to comply with the method.
P1	The pH of the sample was >2 and is not compliant with 40CFR136 Table II.
P2	Sample contained residual chlorine and is not compliant with 40CFR136 Table II
P3	The pH of the sample was <10 and is not compliant with 40CFR136 Table II.
P4	Field preservation does not meet EPA or method recommendations for this analysis.
P5	Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.
P6	Sample required additional preservative upon receipt.
P7	The sample was received unpreserved.
P8	The pH of the sample was < 9 and is not compliant with 40 CFR136 Table II.
Q1	Qualified Data See Case Narrative.
R	Relative Percent Difference (RPD) was above the control limit.
R1	RPD above control limits between matrix spike and MS duplicates.

R2	RPD above the control limit between duplicates.
R3	RSD above the control limit between replicates.
R4	RPD above control limits between Inorganic Carbon check and spike.
R5	RPD above control limits between control sample and control sample duplicates.
S	Recovery for the spiked control sample outside accepted limits.
S2	Surrogate recovery in the blank was below the control limit.
S3	Surrogate recovery in the blank was above the control limit.
S4	Surrogate recovery in the LCS is above the control limit.
S5	Surrogate recovery in the LCS is below the control limit.
SR	Analyte recovery was outside the accepted recovery limits and above the control limit for RPD.
T	Sample temperature received outside the regulatory limit and is not compliant with 40CFR Part136 Table II (for NPW samples).
T1	Sample temperature received outside the regulatory limit. (Primarily for SCM samples).
T3	Target analyte found in trip/field blank.
TC	The MS tune check (tailing factor) did not meet the acceptance criteria.
U	The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

Note 1: Other comments to clarify test results may be used. Examples include MCL (Contaminant Limit), and MDA (minimum detectable activity). The Q1 code requires additional qualifier information be described in the Case Narrative.

Note 2: NA is used in the Laboratory QC report as "Not Applicable."

G2310E26

Chain of Custody

PASI Pittsburgh Laboratory

Pace

Workorder: 30632478 **Workorder Name:** DW 47 - 87 - 1623 **Results Requested By:** 11/10/2023

Report / Invoice To	Subcontract To
Skyler C. Richmond Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3,4 Greensburg, PA 15601 Phone (724)850-5600 Email: skyler.richmond@pacelabs.com	geochemical P.O. _____

Send Invoice To: invoices@pacelabs.coupahost.com
State of Sample Origin: WV

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Requested Analysis: Specific Gravity ASTM D1429-08	LAB USE ONLY
1	WELL	10/19/2023 08:00	30632478001	Water		X	001
2							
3							
4							
5							

RECEIVED Office of Oil & Gas DEC 01 2023 WV Department of Environmental Protection

Transfers	Released By	Date/Time	Received By	Date/Time
1				
2				
3				

Comments

Cooler Temperature on Receipt 4 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

gw

west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
Phone (304) 926-0450

Harold D. Ward, Cabinet Secretary
dep.wv.gov

January 23, 2023

DD Oil Company
Attn: Hugh Dale
P.O. Box 406
Spencer, WV 25276

Re: Mechanical Integrity Test Approval and Authorization for Injection
UIC Permit 2D08701623 (Summers No.7)

Dear Mr. Dale:

The mechanical integrity tests performed August 19, 2022, on well API 47-087-011623 and the associated pump line August 19, 2022, have been approved. Authorization is granted for injection. The maximum permitted injection pressure for this well is set at 500 psi. If you have any questions, please to contact Andrew L. Lockwood via email at Andrew.L.Lockwood@wv.gov or by phone at (304) 926-0499 ext. 41104.

Respectfully,

Jason Harmon
Deputy Chief
WVDEP Office of Oil & Gas

WR-37
12/23/19

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
PRE-OPERATION CERTIFICATE FOR LIQUID INJECTION
MECHANICAL INTEGRITY TEST RECORD

MIT Date: AUGUST 19, 2022
Operator's Well Name / #: SUMMERS #7
API#: 47- 087 - 01623
UIC Permit #: 2D08701623
Field Name (2R only): SUMMERS #7

WELL OPERATOR DD OIL CO.
Address:

DESIGNATED AGENT HUGH D DALE
Address: PO BOX 406
SPENCER, WV 25276

INJECTION FORMATION BIG INJUN SAND Depth 2070 feet (top) to 2124 feet (bottom)
Perforation Interval 2115-2150 or Open Hole Interval

INJECTION PERMIT TYPE
☐ 2D Commercial Disposal ☑ 2D Non-Commercial Disposal ☐ 2R Area Permit (EOR) ☐ 3S Solution Mining

INJECTATE TYPE (Check all that apply):
☑ Produced Water ☐ Fresh Water ☐ Completion Flowback Water ☐ Tank & Pipeline Residuals
☐ Drilling Waste Liquids ☐ Solution Mining Waste ☐ Gas (2R) ☐ Other (Specify)
Additives (ie. biocides, inhibitors, etc.) Scale Inhibitors, Biocides for bacteria control

WELL CONSTRUCTION / CASING PROGRAM

CASING OR TUBING TYPE	SIZE	GRADE	WEIGHT PER FT.	NEW	USED	FOOTAGE USED IN DRILLING	FOOTAGE LEFT IN WELL	CEMENT USED
CONDUCTOR	11 3/4	H40	42	X		15 FT	NONE	NONE
FRESH WATER	8 5/8	J55	24	X		160 FT	160 FT	CTS
COAL								
INTERMEDIATE								
PRODUCTION	4 1/2	J55	9.5	X		2160 FT	2160 FT	CTS (455 saks)
TUBING	2 7/8	EUE	7.3	X		2068 FT	2068 FT	
LINERS								

PACKER	TYPE: TENSION R4 HALLIBURTON	SIZE: N80 2 7/8	DEPTH: 2268

MECHANICAL INTEGRITY TEST TYPE
☑ Standard Annulus Pressure Test
Is Test Annulus Filled? ☑ Yes ☐ No If Yes, Specify Fluid Type? WATER
☐ Pump Line Test ☐ Other (Specify)

MAXIMUM PERMITED WELLHEAD INJECTION PRESSURE 500 psi **MIT PRESSURE** 750 psi
675 WELL

MECHANICAL INTEGRITY TEST DESCRIPTION
FILLED ANNULUS WITH WATER. PRESSURE TESTED THE ANNULUS TO 750 POUNDS.JOE TAYLOR WITNESSED TEST. CHART WAS GIVEN TO HIM. THEN A SEPERATE TEST ON PIPELINE. PRESSURED PIPELINE WAS ALSO 750 POUNDS AND WITNESSED BY JOE TAYLOR ON AUG 19, 2022.
(2R Area Permits: If multiple pump lines are tested together, please list wells serviced by the tested pump lines.)

WR-37
12/23/19

API#: 47- 087 -01623

NOTE:

- If the well and the pump line are tested together the MIT pressure must be ~~1.5~~ 1.1 times the maximum permitted injection pressure held for a minimum of 20 minutes with no more than a 5% loss.
- If the well is tested separately, the MIT pressure must be 1.5 times the maximum permitted injection pressure held for a minimum of 20 minutes with no more than a 5% loss.
- If the pump line is tested separately, the MIT pressure shall be the maximum permitted injection pressure plus 100 psi held for a minimum of 20 minutes with no more than a 5% loss. Multiple pump lines can be tested together.
- All MITs must be witnessed by a state inspector. A valid recording chart containing the inspector's signature must accompany this completed form.
- All MITs that fail must be submitted using this form and chart.
- Submit all MIT required documentation to OOG within 30 days of test.
- The mechanical integrity of this well must be demonstrated at least 5 years from this test date and each time work is completed on the well or pump line to continue injection.

The undersigned certify:

The MIT was performed on AUGUST 19, 2022
The well and/or pump line:
☑ demonstrated mechanical integrity or ☐ failed to demonstrate mechanical integrity.

The MIT was witnessed by JOE TAYLOR, Inspector WVDEP - Office of Oil and Gas.

DD OIL COMPANY
Permit Holder Company Name

12/15/2022
Date

HUGH DALE
Agent or Responsible Party (Print Name)

Signature

OPERATOR
Title

----------Office of Oil and Gas Use Only:----------

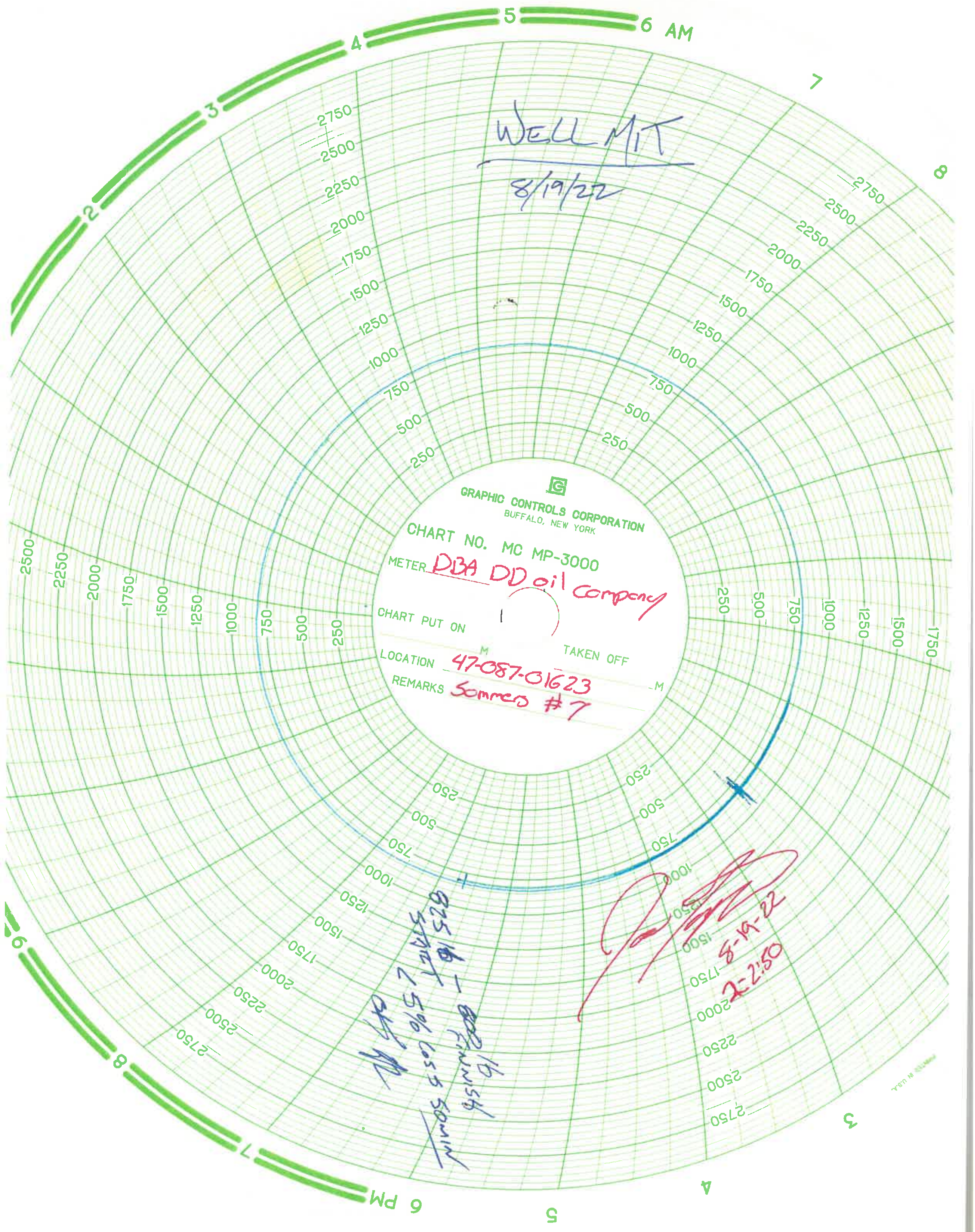
THIS WELL IS AUTHORIZED FOR INJECTION
UP TO A MAXIMUM WELLHEAD INJECTION PRESSURE OF 500 psi

Special Conditions:

NONE - TEST TESTS PASSED

UIC Program Manager
WVDEP-Office of Oil and Gas

Date

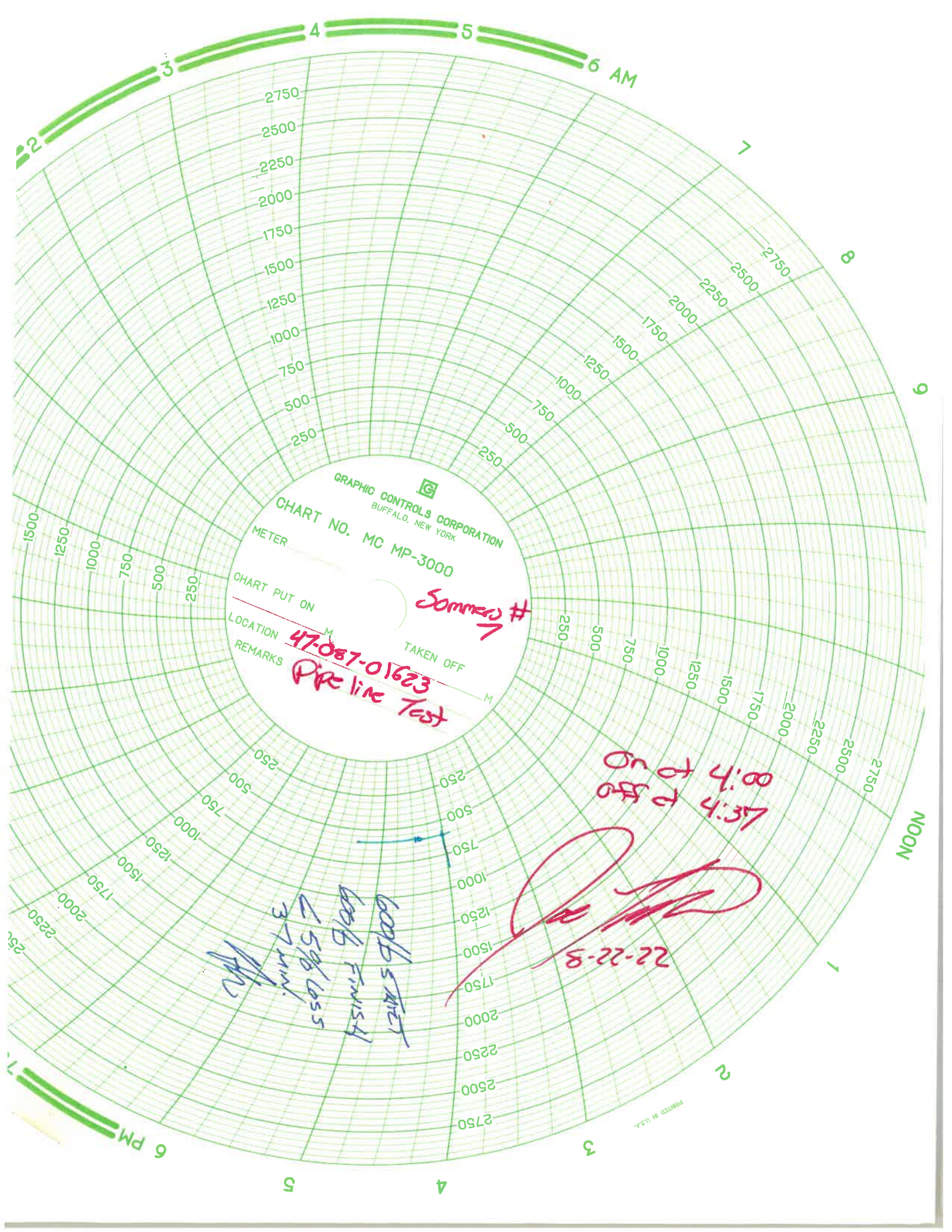

WELL MIT
8/19/22
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
CHART NO. MC MP-3000
METER DBA DD oil Company
CHART PUT ON
M
TAKEN OFF
M
LOCATION 47-087-01623
REMARKS Sommers #7
8-19-22
6 AM
6 PM

Well MIT
8/19/22

Clock
Set
ON
1 Hour
Rotation

D+D oil
Sammons T Injection Well
MIT Test
8-19-2022
Started
2:00 PM
2:50 PM

Witnessed
Randy Holbert
Texas Mets
Ronnie Hannah
David Pale


GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
CHART NO. MC MP-3000
METER
Sommers #7
CHART PUT ON
LOCATION 47-087-01623
TAKEN OFF
REMARKS Pipeline Test
On @ 4:00
Off @ 4:37
8-22-22
Good Start
Good Finish
Slight Loss
Min
NOON
6 AM
6 PM
PRINTED IN U.S.A.

PITELINE MIT
8/22/22

D+D Oil Company
Summers 7 Mit Test
Injection Line Test
API 47-087-1623
UIC Permit 20087 1623

Date 8-22-2022
Witnessed
David Dalic
Hugh Dalic
Randy Holbert
Donnie Hannah

Section 10

Monitoring

To Gene Smith W.V DEP

2-12-2016

D&D Well Summers 7

API Number 2D0871623

D&D Oil

Deficiency 2D0871623

Section 9

Operating Requirements Data

Section A

The fluid between in the 4 ½ casing annulus and tubing is filled with fresh water to conduct the mechanical integrity test.

Section B

D&D Oil is operating this well and fully intend to continue operating this well in compliance with rules, regulations and with the permit. Will continue to daily monitor the injection pressure, annulus pressure and record the volume. Data will be recorded on form wr-40 and continue to be submitted to the Office of Oil and Gas monthly.

Section 11

Groundwater Protection Plan

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: DD OIL WALTON FIELD DISPOSAL

County: ROANE

Facility Location:

Postal Service Address:	PO BOX 406		
SPENCER WV 25276			
Latitude :	81* 22' 30"	Longitude:	38* 38' 00"

Contact Information:

Person:	HUGH D DALE
Phone Number:	304-550-0978
E-mail Address:	hugh@drilcooilgas.com

Date: 12/18/2020

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

PUMPS, PIPELINE, TANK LEAK AT WELL LOCATION, EQUIPMENT FAILURE

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

ALL PUMPS/TANKS ARE NEW PUMPS, NEW PIPELINE.
NO EQUIPMENT IS OLDER THAN 10 YEARS. ALL SOURCES OF STORAGE ARE INSIDE DIKES AND ARE IN CONTAINMENT DIKE AND CHECKED DAILY.

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

ALL SYSTEMS ARE NEWER. NOTHING PLANNED BUT ALL FLUID IN TANKS/LINES/PUMPS MAY REQUIRE FLUID REMOVAL BY VACUUM TRUCK.

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

ALL ACTIVITIES ARE RAN WITH FULL COMPLIANCE WITH ALL RULE GUIDELINES OF PERMIT OF UIC WELL GUIDELINES

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

ALL WATER SOURCES HAVE BEEN TAKEN FOR ALL CREEKS, RIVERS. ALL GROUND WATER SOURCES ON ADJACENT PROPERTY.

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

THE SUMMERS 7 WELL, DD OIL COMPANY, API 047-087-01623 IS USED ONLY FOR BRINE DISPOSAL OF BRINE PRODUCED FOR DD OIL WELLS IN WALTON FIELD.

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 EMPLOYEES HAVE RECEIVED TRAINING BY QUALIFIED ENVIRONMENTAL ENGINEERING FIRM.

ALL WERE TRAINED TO FOLLOW RULES/PERMIT CONDITIONS OF UIC PERMIT AND TANK STORAGE, AS WELL AS SPILL TRAINING.

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

ALL TANKS/PUMPS/PIPELINE AND DISPOSAL WELL ARE CHECKED DAILY.

Signature: _____

Date: 12/18/2020

Section 12

Plugging and Abandonment

To Gene Smith W.V DEP

2-12-2016

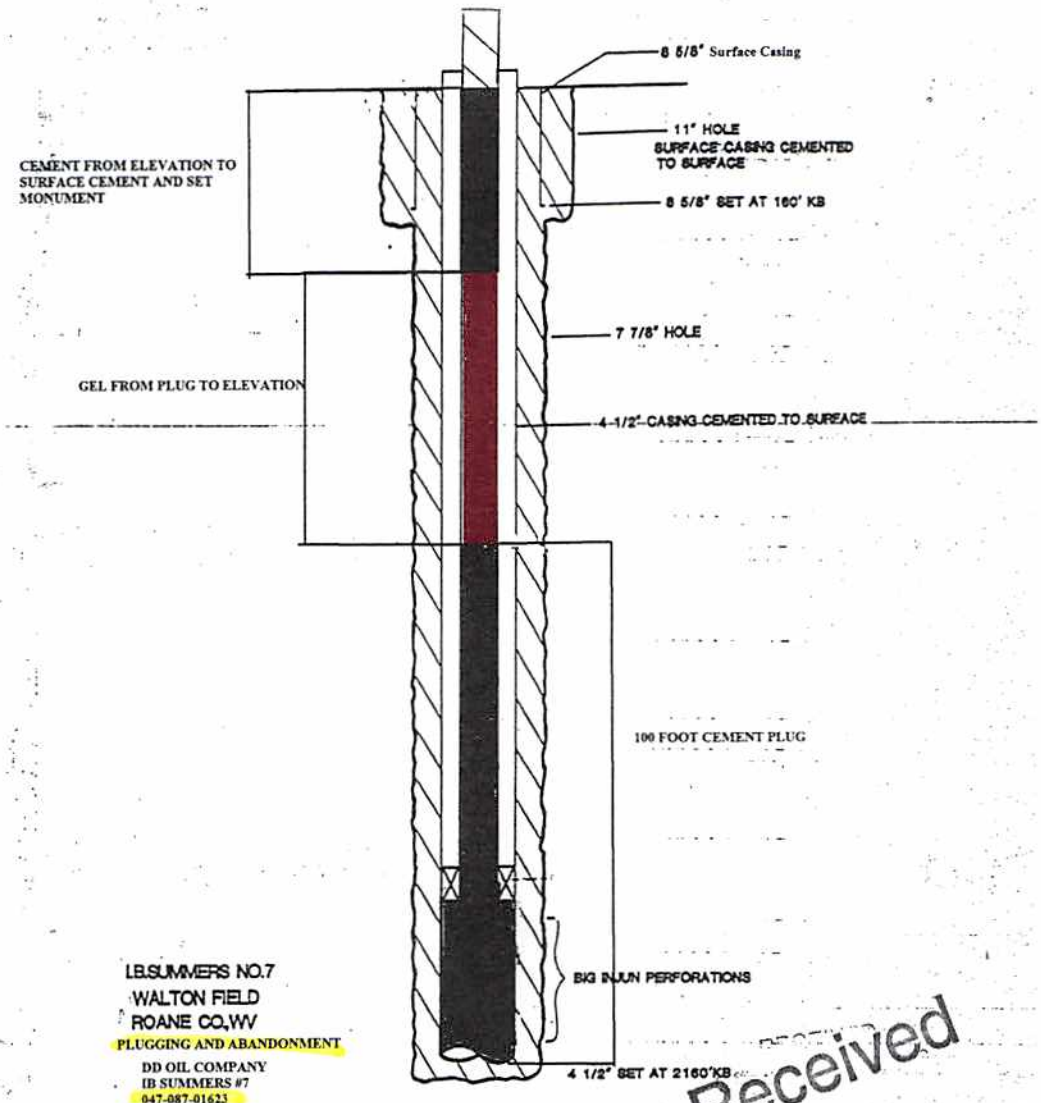
API Number 2D0871623

D&D Oil Summons 7

6- Deficiency No. 6

Attached is plugged Schematic plug and adbandment.

Procedure, fist move in service rig and all necessary equipment to preform work. First, rig up on well, and pull all injection string tubing. 2 7/8 in well, set on tension release packer and pull tubing to surface. Remove packer from tubing then run tubing back in well within 100 foot of total depth. Displace bottom plug, on perforations 100 feet at last perforation at 2077 plus A 100 plug above 2077 wait 24 hours for plug to set then pull tubing up and displace Bentonite Gel to elevation to 936 Feet. Then spot a 100 Foot cement plug. Then, pull tubing used to displace Cement Gel, wait 4 hours then set a 100 foot plug to surface set monument attach API number to monument and reclaim land and location to state spec's. Turn in to DEP plugging permit, sign Affidarit to release well from operations bond.



LB.SUMMERS NO.7
WALTON FIELD
ROANE CO,WV
PLUGGING AND ABANDONMENT

DD OIL COMPANY
IB SUMMERS #7
047-087-01623

Section 13

Additional Bonding

Place Holder

This facility has all required bonds including individual well bond and UIC Bond

Section 14

Financial Responsibility

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: DD OIL CO
PO BOX 385
GRANTSVILLE, WV 26147

Date: 12/18/2020

Subject: Underground Injection Control (UIC) Permit Application
UIC 2D0871623
Requirement for Financial Responsibility

I, HUGH D DALE, 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.

RECEIVED
Office of Oil and Gas
DEC 28 2020
WV Department of
Environmental Protection

Name: HUGH D DALE

Signature:

Date: 12/18/2020

Section 15

Site Security Plan

APPENDIX J

Site Security for Commercial Facilities

Provide a detailed description of the method(s) utilized at the facility to restrict or prohibit illegal dumping of unauthorized waste or vandalism at the facility.

1. Complete enclosure of all wells, holding tank/pits and manifold assemblies within a chain link or other suitable fencing; and

2. Require that all gates and other entry points be locked when the facility is unattended; or

3. Providing tamper-proof seals for the master valve on each well (a "lock-out" or chain & padlock system would be more secure; however, these devices could create a potential safety hazard if the well needed to be quickly shut in due to an emergency); and

4. Installing locking caps on all valves and connections on holding tanks, unloading racks, and headers.

SUMMERS 7 WELL IS IN COMPLIANCE WITH ALL OF THE ABOVE CRITERIA 1-4.

Section 16

Additional Information

APPENDIX K

Identify permit or construction approvals received or applied for under the following programs:

Permit/approvals	ID Number
Hazardous Waste Management Program under RCRA	NONE
NPDES Program	NONE
Prevention of Significant Deterioration (PSD)	NONE
Nonattainment Program	NONE
Dredge or Fill	NONE
NPDES/NPDES – Stormwater	NONE
WVDEP – Office of Waste Management (OWM) – Solid Waste Facility	NONE
WVDEP – OWM – RCRA (Hazardous Waste TSD or Transporter)	NONE
WVDEP – OWM – UST	NONE
CERCLA – Superfund	NONE
WV Voluntary Remediation – Brownfields	NONE
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act	NONE
Well Head Protection Program (WHPP)	NONE
Underground Injection Control (UIC)	#UIC 2D0871623
Toxic Substances Control Act (TSCA)	NONE
Best Management Plans	NONE
Management of Used Oil	NONE
Other Relevant Permits (Specify):	
N/A	