DIVERSIFIED
energy

UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

H. F. Lilly 1 UIC 2D0392262 API 47-039-02262

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	Diversified Production LLC		
Existing UIC Permit ID Number	2D0392262	UIC Well API Number	4 7-039-02262

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

N/A ☐ Appendix D Public Service District Affidavit

☑ Appendix E Water Sources

☑ Appendix F Area Permit Wells

☑ Section 8 – Geological Data on Injection and Confining Zones

☑ Section 9 – Operating Requirements / Data

☑ Appendix G Wells Serviced by Injection Well

☑ Section 10 – Monitoring

☑ Section 11 – Groundwater Protection Plan (GPP)

☑ Appendix H Groundwater Protection Plan (GPP)

☑ Section 12 – Plugging and Abandonment

☑ Section 13 – Additional Bonding

☑ Section 14 – Financial Responsibility

☑ Appendix I Financial Responsibility

☑ Section 15 – Site Security Plan

☑ Appendix J Site Security for Commercial Wells

☑ Section 16 – Additional Information

☑ 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): Jeff Roberts

Reviewed by (Sign): Jeff Roberts

Date Reviewed: 1/15/2025

DIVERSIFIED
energy

Section 1, 2, 3, 4, 5

UIC 2D0392262

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 # 2D0392262 **API #** 47-039-02262 **WELL #** H. F. LILLY 1

Section I. Facility Information

Facility Name: H.F. LILLY 1

Address: Douglas Branch Road

City: Elkview State: WV Zip: 25071

County: Kanawha County District: Elk 7.5' Quad: Blue Creek

Location description:

H. F. Lilly 1 well is located near Douglas Branch Road, Elkview WV in Elk District, Kanawha County on Morris acreage at Lat: N 38.483981 Long: W 81.476419

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

Northing: 4259480.4 Easting: 458445.0

Latitude: 38.483981
Longitude: -81.476419

Environmental Contact Information:

Name: Lisa Raffle Title: EHS Manager

Phone: 724-579-2320 Email: lraffle@dgoc.com

Section 2. Operator Information

Operator Name: Diversified Production LLC

Operator ID: 494524121

Address: 414 Summer Street

City: Charleston State: WV Zip: 25301

County: Kanawha

Contact Name: Charles Shafer Contact Title: Manager Upstream Operations

Contact Phone: 304-373-3152 Contact Email: cshafer@dgoc.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:

The H. F. Lilly 1 well has been a UIC well for the injection of Class II fluids since 1995. Produced fluids are gravity fed to one of four stock tanks located at the Nytis yard on Koala Lane or hauled in by truck to one truck unloading bay. From there, water is gravity fed to a pump that discharges into the disposal well API 47-039-02262.

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.)

Diversified Production LLC

(Company Name)

2D03902262-004

(UIC Permit Number)

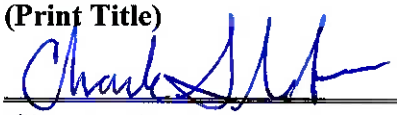
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, 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)

Charles Shafer

(Print Name)

Manager

(Print Title)



(Signature)

5-19-25

(Date)

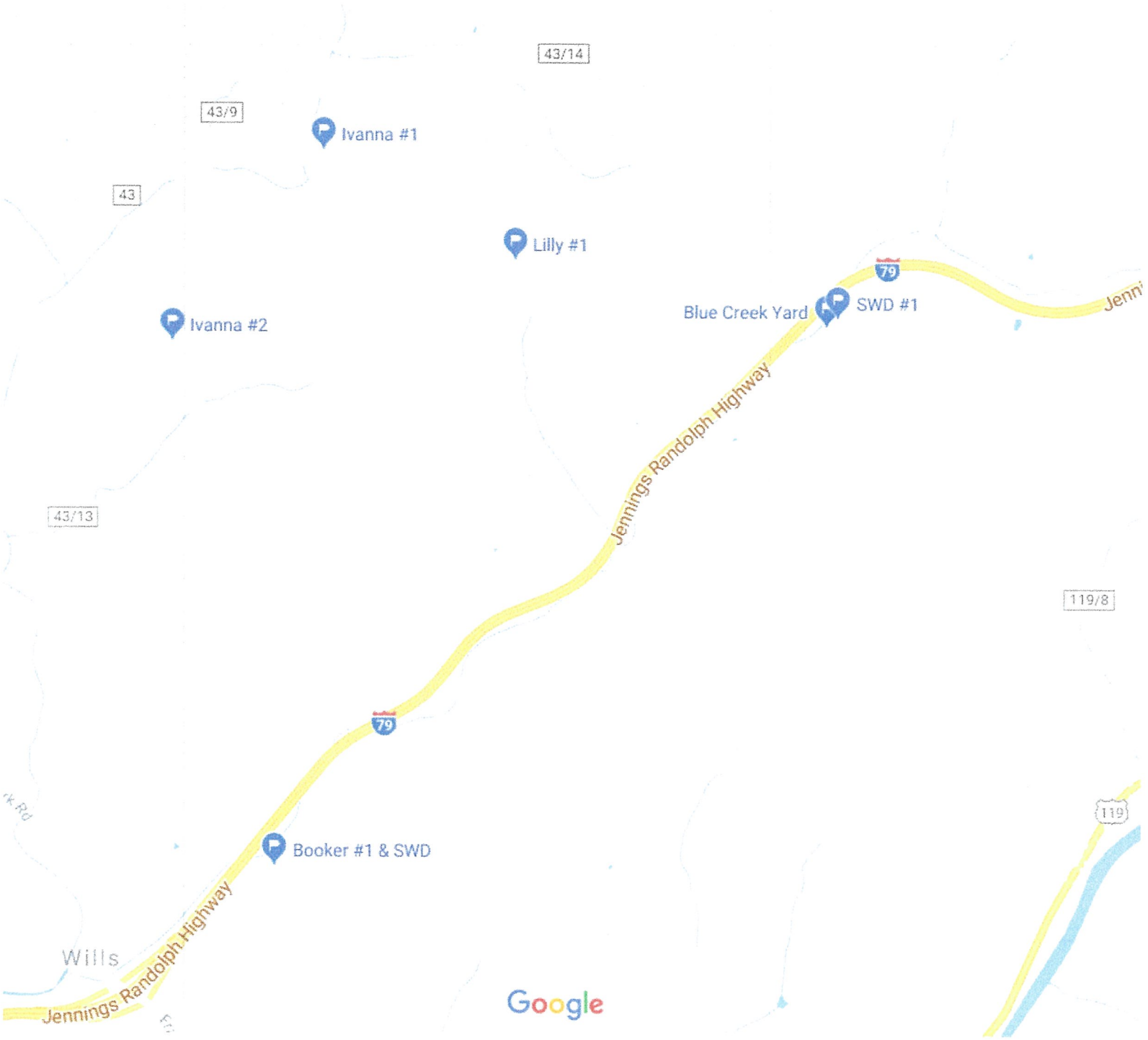
Section 6 - Construction

UIC 2D0392262

4703902262


Ivanna #1
Lilly #1
Ivanna #2
Blue Creek Yard
SWD #1
Booker #1 & SWD
Jennings Randolph Highway
Aarons Fork Rd
Willis
Google
43/14
43/9
43/10
43
43/12
43/13
79
119

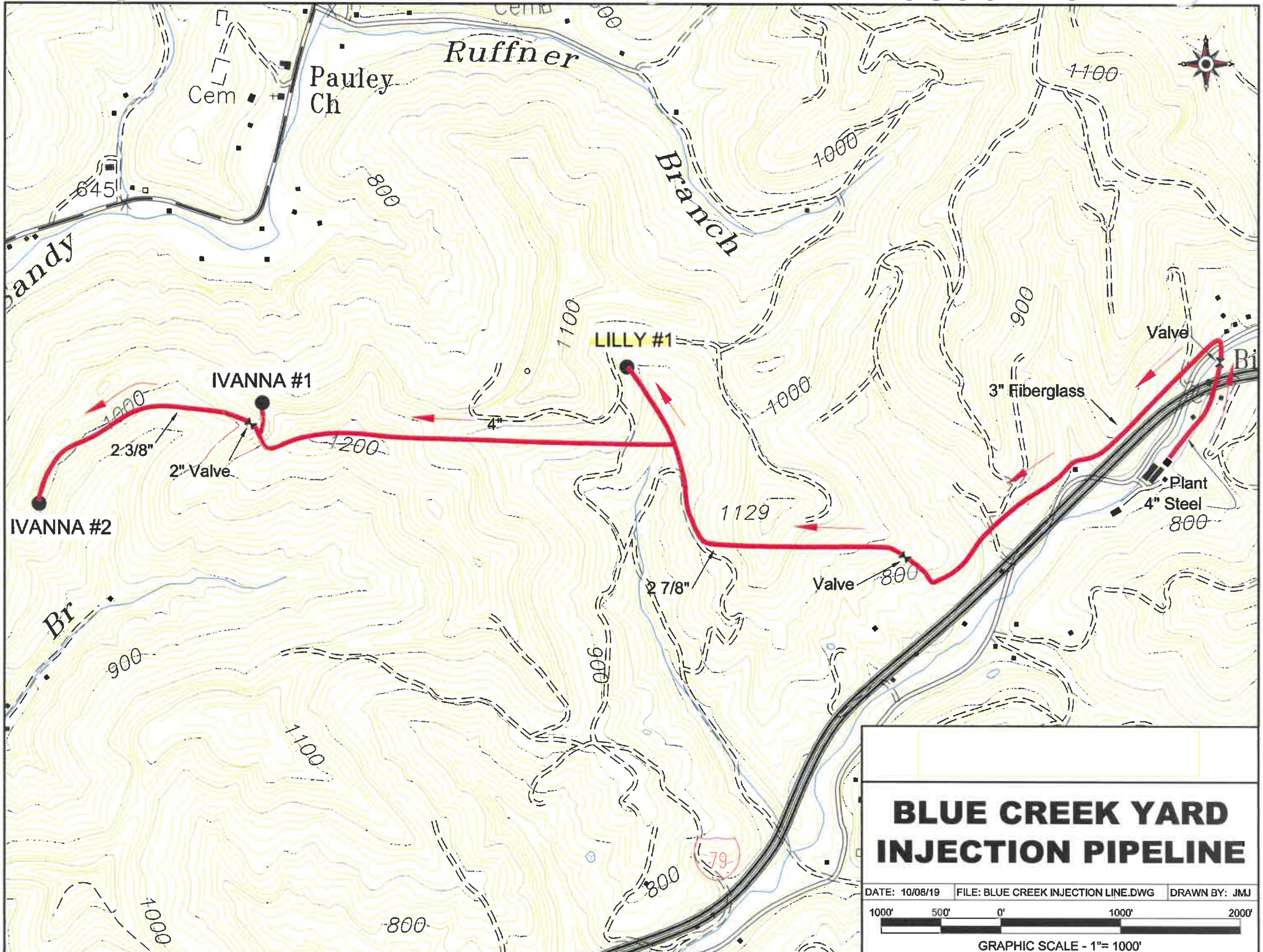
4703902262


43/14
43/9
Ivanna #1
43
Lilly #1
79
Blue Creek Yard
SWD #1
Ivanna #2
Jennings Randolph Highway
43/13
119/8
79
119
Booker #1 & SWD
Wills
Jennings Randolph Highway
Google

4703902262


Ivana 3 #1, Ivana 3 #1, H.F. Lilly 1
Legend
Blue Creek Yard UIC Tank Battery
Blue Creek Yard UIC Tank Battery
Google Earth
© 2018 Google
N
100 ft

4703902262



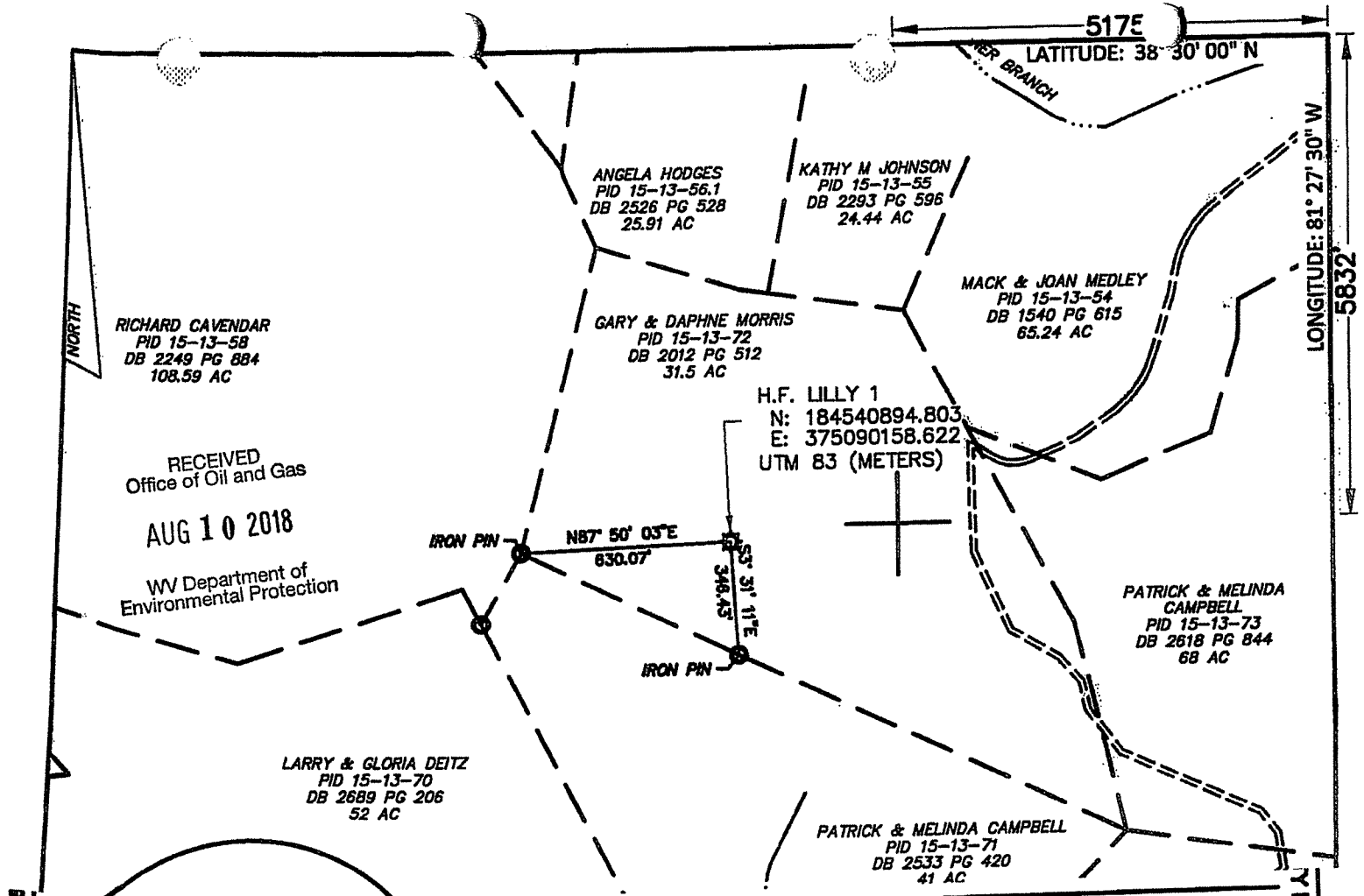
BLUE CREEK YARD INJECTION PIPELINE

DATE: 10/08/19 | FILE: BLUE CREEK INJECTION LINE.DWG | DRAWN BY: JMJ

1000' 500' 0' 1000' 2000'

GRAPHIC SCALE - 1"= 1000'

4703902262



RECEIVED
Office of Oil and Gas
AUG 10 2018
WV Department of
Environmental Protection

FORM WW-6

QUADRANGLE BLUE CREEK
SURFACE OWNER GARY & DAPHNE MORRIS ACREAGE 31.50 AC
OIL & GAS ROYALTY OWNER N/A LEASE ACREAGE N/A
LEASE NO. N/A
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) X
PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION BIG INJUN ESTIMATED DEPTH 2095
WELL OPERATOR EXCO Resources (PA), LLC DESIGNATED AGENT MIKE CHURCH-EXCO RESOURCES
ADDRESS 3000 ERICSSON DRIVE, SUITE 200 WARRENDALE, PA 15086 ADDRESS P.O. BOX 8 RAVENSWOOD, WV 26164

Y NAME
PERMIT

API No.: 4703902262

APPENDIX A
Injection Well Form

1) GEOLOGIC TARGET FORMATION: Big Injun Sandstone

Depth: 1938 Feet (top) 1976 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 2095 Feet

3) Approximate water strata depths: Fresh ~200 Feet Salt ~1200 Feet

4) Approximate coal seam depths: N/A

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

6) Virgin reservoir pressure in target formation N/A psig Source Estimated form wells in the area

7) Estimated reservoir fracture pressure 2200 estimated psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour): 10

Injection volume (bbl/day): 240

Injection pressure (psig): 631

Bottom hole pressure (psig): 1600 est.

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

Produced Big Injun brine

Temperature of injected fluid: (°F) 60 Varies with season

10) FILTERS (IF ANY)

10 micron at the well and at the injection plant

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

Corrosion inhibitor in annular fluid

API No.: 4703902262

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	H-40	23#	210	210	CTS
Coal							
Intermediate 1							
Intermediate 2							
Production	4 1/2	New	J-55	9.5#	2089	2089	150 sks
Tubing	2 3/8	New	J-55	Sealtite		1900.7	
Liners							

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

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

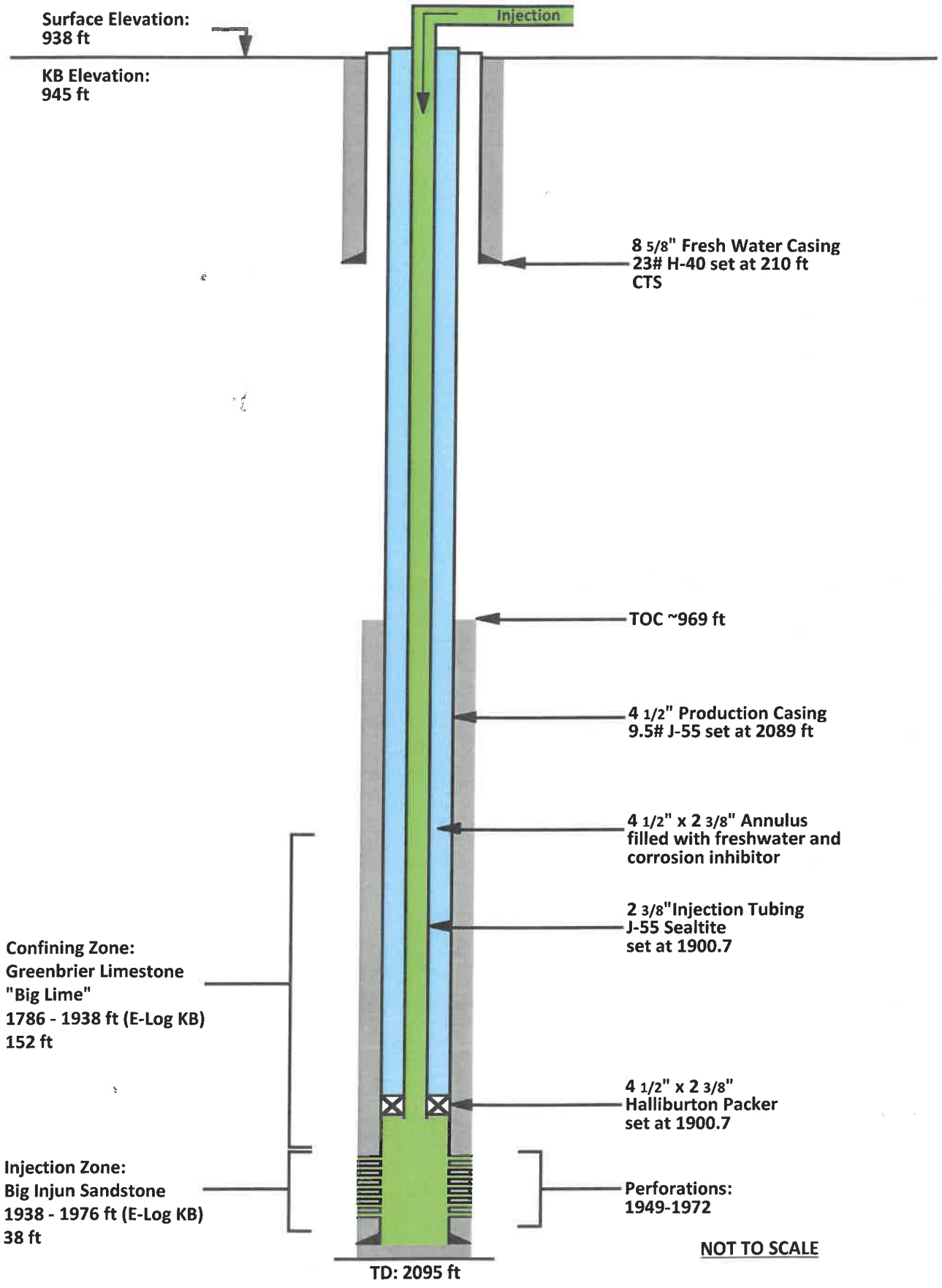
Well Bore Diagram

H.F. Lilly No.1

API 47-039-02262

Diversified Production LLC

UIC 2D03902262-004



4703902262

"Pipeline"

Select County: (039) Kanawha Select datatypes: ☐ (Check All)

Enter Permit #: 02262

☑ Location ☑ Production ☑ Plugging

☑ Owner/Completion ☑ Stratigraphy ☑ Sample

☑ Pay/Show/Water ☑ Logs ☑ Btm Hole Loc

Get Data | Reset

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

WV Geological & Economic Survey:

Well: County = 39 Permit = 02262

Report Time: Friday, August 09, 2019 1:53:17 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703902262	Kanawha	2262	Elk	Blue Creek	Clendenin	38.482692	-81.476445	458445	4259480.4

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
4703902262	7/8/1968	Original Loc	Completed	H F Lilly	1				H F Lilly	Mareve Oil Corp.			
4703902262	-/-/-	Worked Over	Completed	H F Lilly	1					Quaker State Oil Refining Co.			

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_B
4703902262	7/8/1968	7/4/1968	938	Ground Level	Blue Ck(Flg Rk)	Price Fm & equivs	Big Injun (Price&eq)	Development Well	Development Well	Oil	Rotary	Fractured	2095		2095		
4703902262	-/-/-	-/-/-	938	Ground Level	Blue Ck(Flg Rk)	Price Fm & equivs	Big Injun (Price&eq)	Service Well	Unsuccessful	Salt Water Disp	unknown	unknown	2095		0		

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703902262	7/8/1968	Pay	Oil	Vertical			1937	Big Injun (Price&eq)	0	0			
4703902262	-/-/-	Horizon	Injection	Vertical	1949	Big Injun (Price&eq)	1972	Big Injun (Price&eq)					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	Quaker State Oil Refining Co.	1981	394	25	24	36	21	29	76	26	0	11	39	56	51
4703902262	Quaker State Oil Refining Co.	1982	310	38	33	32	33	45	63	0	0	0	0	19	47
4703902262	Quaker State Oil Refining Co.	1983	240	40	40	40	42	49	30	0	0	0	0	0	0
4703902262	Quaker State Oil Refining Co.	1984	712	52	57	49	38	70	56	32	120	46	51	83	58
4703902262	Quaker State Oil Refining Co.	1985	600	89	5	60	56	72	72	58	33	72	24	28	31
4703902262	Quaker State Oil Refining Co.	1986	631	26	31	72	43	48	43	47	64	63	108	84	2
4703902262	Quaker State Oil Refining Co.	1987	1,121	49	120	129	61	134	119	135	78	81	83	63	69
4703902262	Quaker State Oil Refining Co.	1988	828	49	70	68	60	60	52	42	37	51	41	125	173
4703902262	Quaker State Oil Refining Co.	1989	5,043	393	297	313	229	348	382	574	592	424	378	567	546
4703902262	Quaker State Oil Refining Co.	1990	4,752	399	242	252	200	230	345	478	404	571	578	565	488
4703902262	Quaker State Oil Refining Co.	1991	4,757	448	425	416	384	345	335	408	375	442	478	393	308
4703902262	Quaker State Oil Refining Co.	1992	3,097	260	252	242	269	305	274	206	159	0	303	493	334
4703902262	Quaker State Oil Refining Co.	1993	3,385	321	350	235	235	339	345	322	254	356	209	213	206
4703902262	Quaker State Oil Refining Co.	1994	2,457	303	206	142	238	208	236	221	153	107	249	172	222
4703902262	Peake Energy, Inc.	1996	1,242	88	99	109	120	138	112	140	110	86	100	86	54
4703902262	North Coast Energy Eastern	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	Quaker State Oil Refining Co.	1981	398	42	37	38	38	35	15	0	0	0	76	64	52
4703902262	Quaker State Oil Refining Co.	1982	479	51	35	41	38	42	50	47	40	41	25	45	25
4703902262	Quaker State Oil Refining Co.	1983	417	35	35	35	38	28	34	36	35	33	35	31	42
4703902262	Quaker State Oil Refining Co.	1984	356	36	35	36	35	33	34	33	0	64	0	32	18
4703902262	Quaker State Oil Refining Co.	1985	409	40	32	33	31	32	32	38	9	32	54	38	38
4703902262	Quaker State Oil Refining Co.	1986	484	45	37	35	34	42	41	43	43	43	39	40	42
4703902262	Quaker State Oil Refining Co.	1987	446	41	37	38	38	38	35	36	27	52	28	36	40
4703902262	Quaker State Oil Refining Co.	1988	1,236	25	19	22	19	19	20	25	211	230	223	216	207
4703902262	Quaker State Oil Refining Co.	1989	1,814	176	135	164	192	191	156	117	158	177	134	133	81
4703902262	Quaker State Oil Refining Co.	1990	1,224	108	97	95	104	69	18	114	143	126	115	132	103
4703902262	Quaker State Oil Refining Co.	1991	903	98	83	109	38	14	46	105	77	109	78	71	75
4703902262	Quaker State Oil Refining Co.	1992	590	60	53	52	21	14	13	76	69	62	62	37	71
4703902262	Quaker State Oil Refining Co.	1993	584	24	17	97	58	57	53	48	38	35	30	31	96
4703902262	Quaker State Oil Refining Co.	1994	296	24	25	27	28	26	23	18	29	13	36	24	23
4703902262	Peake Energy, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2017	0	0											
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703902262	Original Loc	Salt Sands (undiff)	Well Record	1068	Reasonable	737	Reasonable	938	Ground Level
4703902262	Original Loc	Greenbrier Group	Well Record	1805	Reasonable	132	Reasonable	938	Ground Level
4703902262	Original Loc	Big Lime	Well Record	1805	Reasonable	132	Reasonable	938	Ground Level
4703902262	Original Loc	Big Injun (Price&eq)	Well Record	1937	Reasonable	38	Reasonable	938	Ground Level

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

There is no Plugging data for this well

There is no Sample data for this well

4703902262

Form OG-10

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

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

Quadrangle Clendenin
Permit No. KAN-2262
Oil or Gas Well OIL (KINO)

Company Mareve Oil Corp.
Address P. O. Box 1228, Parkersburg, W. Va.
Farm H. F. Lilly Acres 29
Location (waters) Wills Creek
Well No. 1 Elev. 938
District Elk County Kanawha
The surface of tract is owned in fee by H. F. Lilly
Address Elkview, W.Va.
Mineral rights are owned by H. F. Lilly
Address Elkview, W.Va.
Drilling commenced 7/4/68
Drilling completed 7/8/68
Date Shot From To
With
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) 41,500 # sand and 41,500 gallons gelled fresh water.

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10			Size of
8¼ 8-5/8	210	210	
6¼	Circ. Cement		Depth set
5 3/16			
4½	2089	2089	
3			Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

Attach copy of cementing record.
CASING CEMENTED 4½" SIZE 2089 No. Ft. 7/8/68 Date
Amount of cement used (bags) 150 sx
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.) 38 BOPD
ROCK PRESSURE AFTER TREATMENT HOURS
Fresh Water Feet Salt Water Feet
Producing Sand Big Injun Depth 1937 to 1975

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Surface & Rock			0	75			
Sandy Shale			75	90			
Shale			90	210			
Shale w/sand streaks			210	500			
Shale & Sand			500	1068			
Salt Sand			1068	1805			
Lime			1805	1937			
Big Injun			1937	1975			
Shale			1975	2095	(T.D.)		

SEP 1968
RECEIVED
West Virginia
Dept. of Mines

4703902262

COMPLETION REPORT

H. F. LILLY # 1 2262

July 29, 1968 J&B rigged up and swabbed down to 1500'.

July 30, 1968 McCullough perforated:

1949-54	13 Holes
1964-66	2 Holes
1972	1 Hole

Gamma Ray Measurements - GRTD = 2068

Halliburton frac as follows:

45000# 20-40 sand
710 barrels water
I.S.I.P. - 1600 psi
30 BPM @ 2033 psi
B.D.P. - 1800 psi
Overflush - 10 barrels

Left well shut in until pressure bled to 400 psi.. Opened to back flow to remove frac head. Installed valve and left to flow back. Well went on vacuum. Large amount of sand flowed back.

July 31, 1968 Vandals removed equipment from rig engine. No work.

August 1, 1968 Started swabbing at noon. Much sand. Show of gas. Trace of oil. Started sand pumping. 120' of fill up.

August 2, 1968 Started swabbing. Good gas show, trace of oil. Stactic fluid level @ 400'. Swabbed down to 1000'. Much sand coming in.

August 3, 1968 Swabbed and sand pumped. Good gas show, trace of oil. Much sand.

August 4, 1968 Fluid level at 400' initially. Sand pumped and swabbed. Much sand coming in.

August 5, 1968 Fluid level at 400'. Swabbed. Oil and gas increasing. Well kicking. Stopped swabbing. Sand pumped.

August 6, 1968 Finished sand pumping to GRTD. Ran tubing and rods.

Bull Plug & Collar	0.55
1 Joint	31.75
Perf Sub	2.75
Seating Collar	0.80
61 Joints 2 3/8" OD-J-Tubing	1917.11
RKB THF	6.00
Bottom of String	1958.96

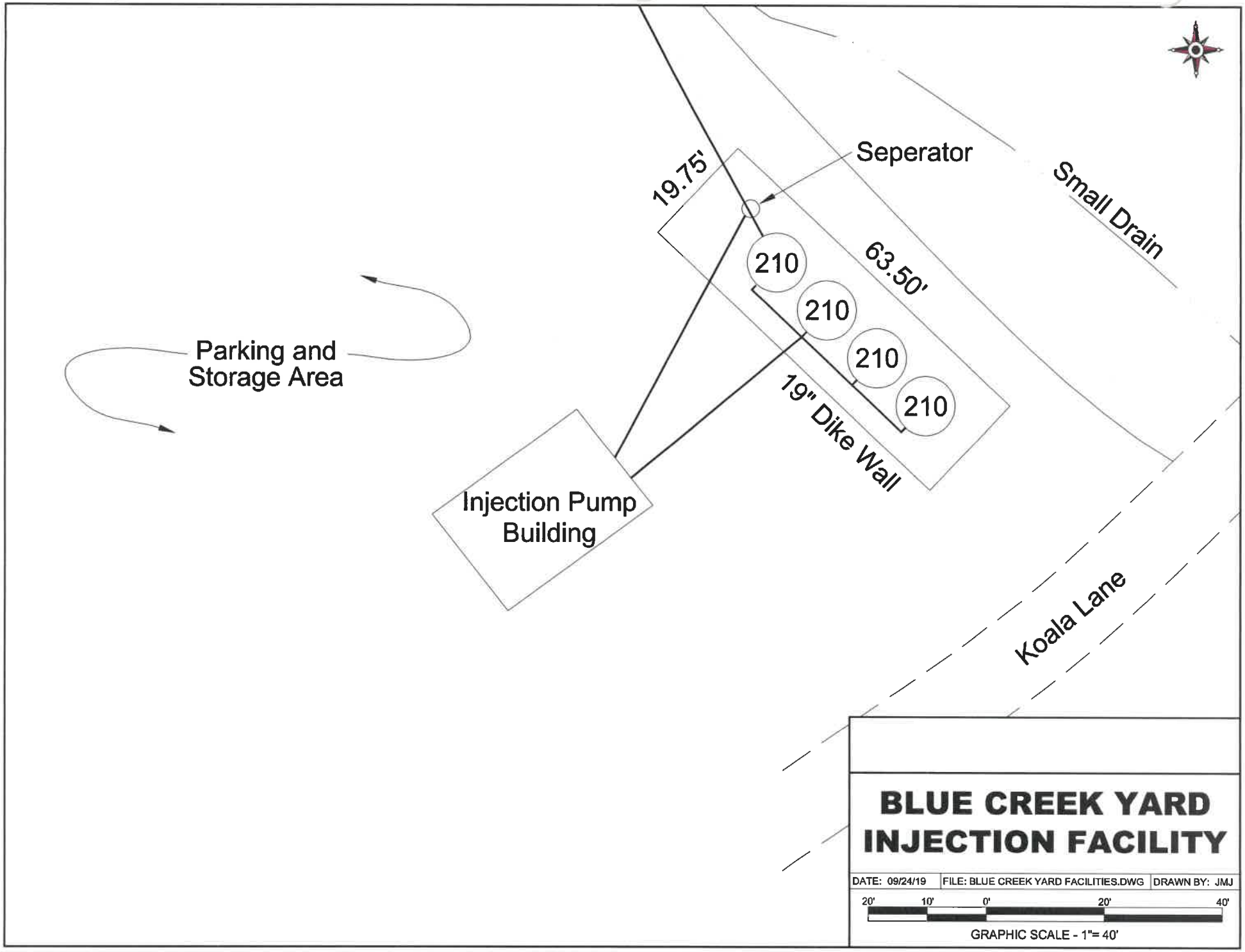
APPENDIX B

UIC Permit No. **2D03902262**

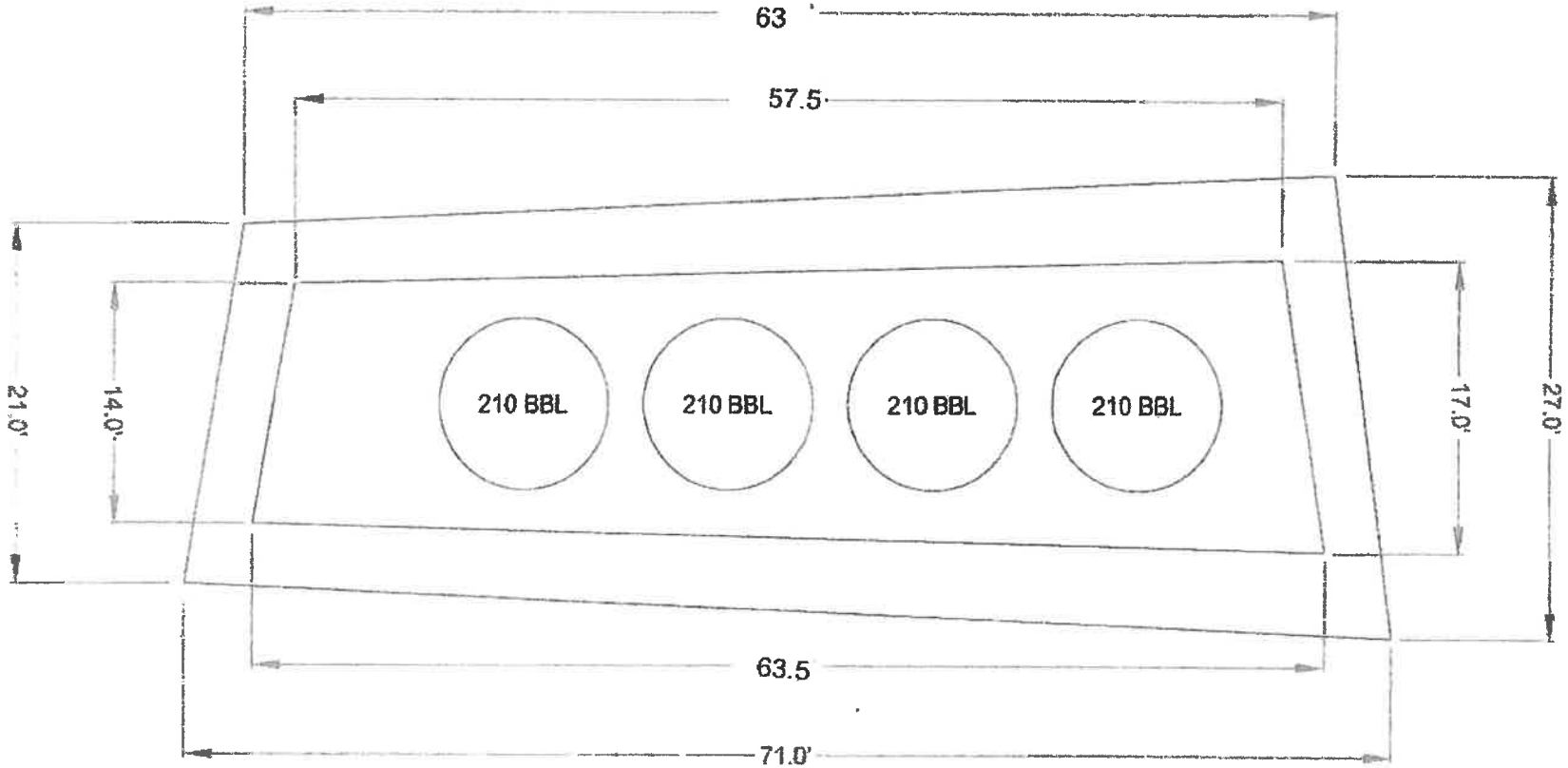
Storage Tank Inventory

Tank ID No.	AST Registration No.	Tank Location		Capacity (barrels)	Type of Fluid Stored	Construction Material (Steel, Plastic, etc.)	Tank Type (Single / Double Wall)	Installation Date	Tank Age (Months)
		Northing	Easting						
1 1651	040-00000057	4259375.88	459832.80	210	Brine	Steel	Single	1991	325
2 1652	040-00000058	4259373.93	459835.61	210	Brine	Steel	Single	1991	325
3 1653	040-00000060	4259371.40	459938.03	210	Brine	Steel	Single	1991	325
4 1654	040-00000061	4259368.63	459840.77	210	Brine	Steel	Single	1991	325

4703902262


Seperator
19.75'
Small Drain
63.50'
210
210
210
210
Parking and
Storage Area
19" Dike Wall
Injection Pump
Building
Koala Lane
BLUE CREEK YARD
INJECTION FACILITY
DATE: 09/24/19
FILE: BLUE CREEK YARD FACILITIES.DWG
DRAWN BY: JMJ
20' 10' 0' 20' 40'
GRAPHIC SCALE - 1"= 40'

4703902262



DIKE VOLUMES

	Dike Width /feet	Dike Width /feet	Dike Depth /inches	Total Volume Gallons	Usable Volume/ Gallons	Percentage of Dike Capacity
INSIDE VOLUME	60.50'	15.50'	19.00"	11107	8317	94.29%
OUTSIDE VOLUME	67.50'	24.00'	19.00"	19188	16397	185.90%
AVERAGE VOLUME	64.00'	19.75'	19.00"	14971	12181	138.10%

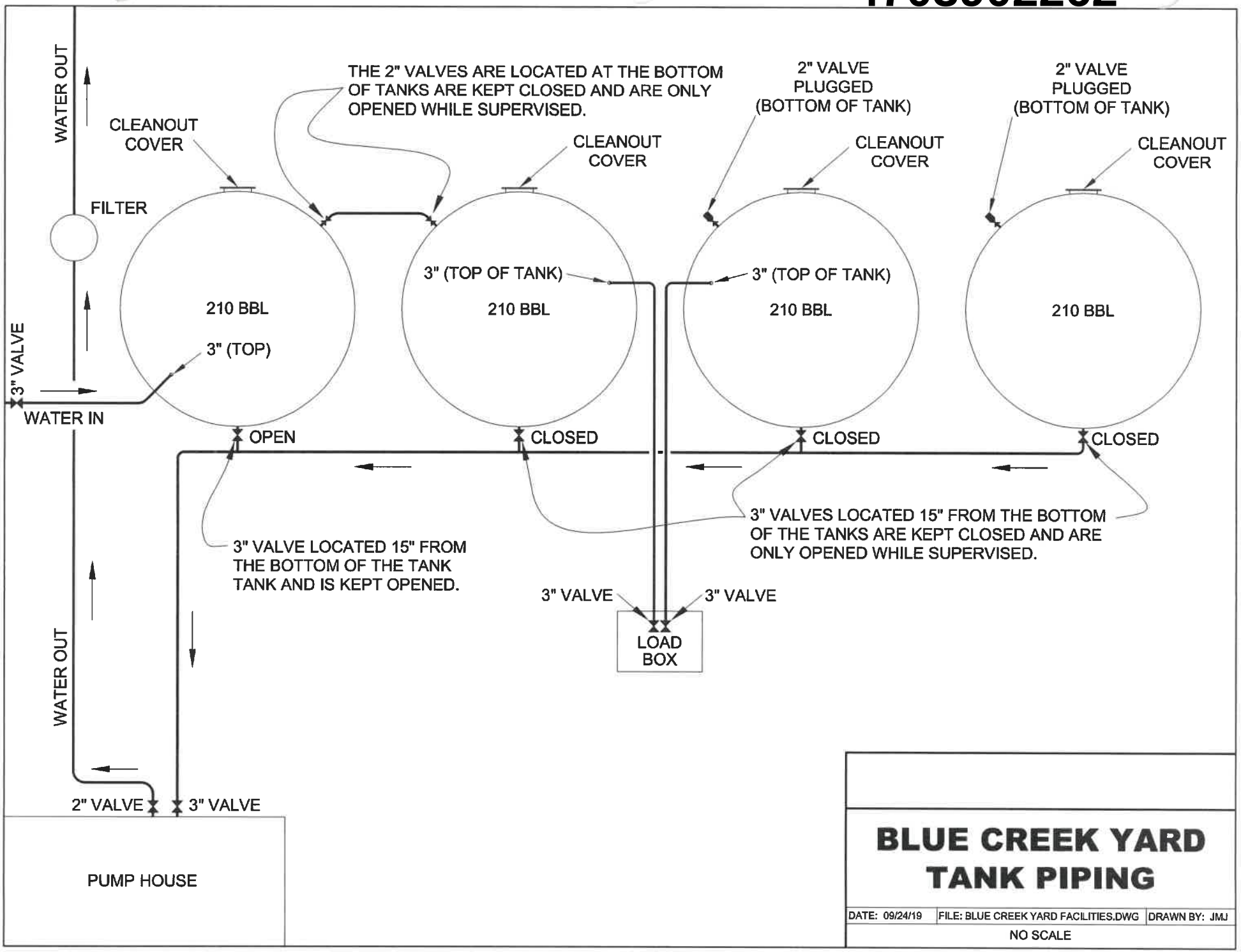
BLUE CREEK YARD DIKE CAPACITY

DATE: 09/24/19 | FILE: BLUE CREEK YARD FACILITIES.DWG | DRAWN BY: JMJ

10' 5' 0' 10' 20'

GRAPHIC SCALE - 1"= 10'

4703902262



BLUE CREEK YARD TANK PIPING

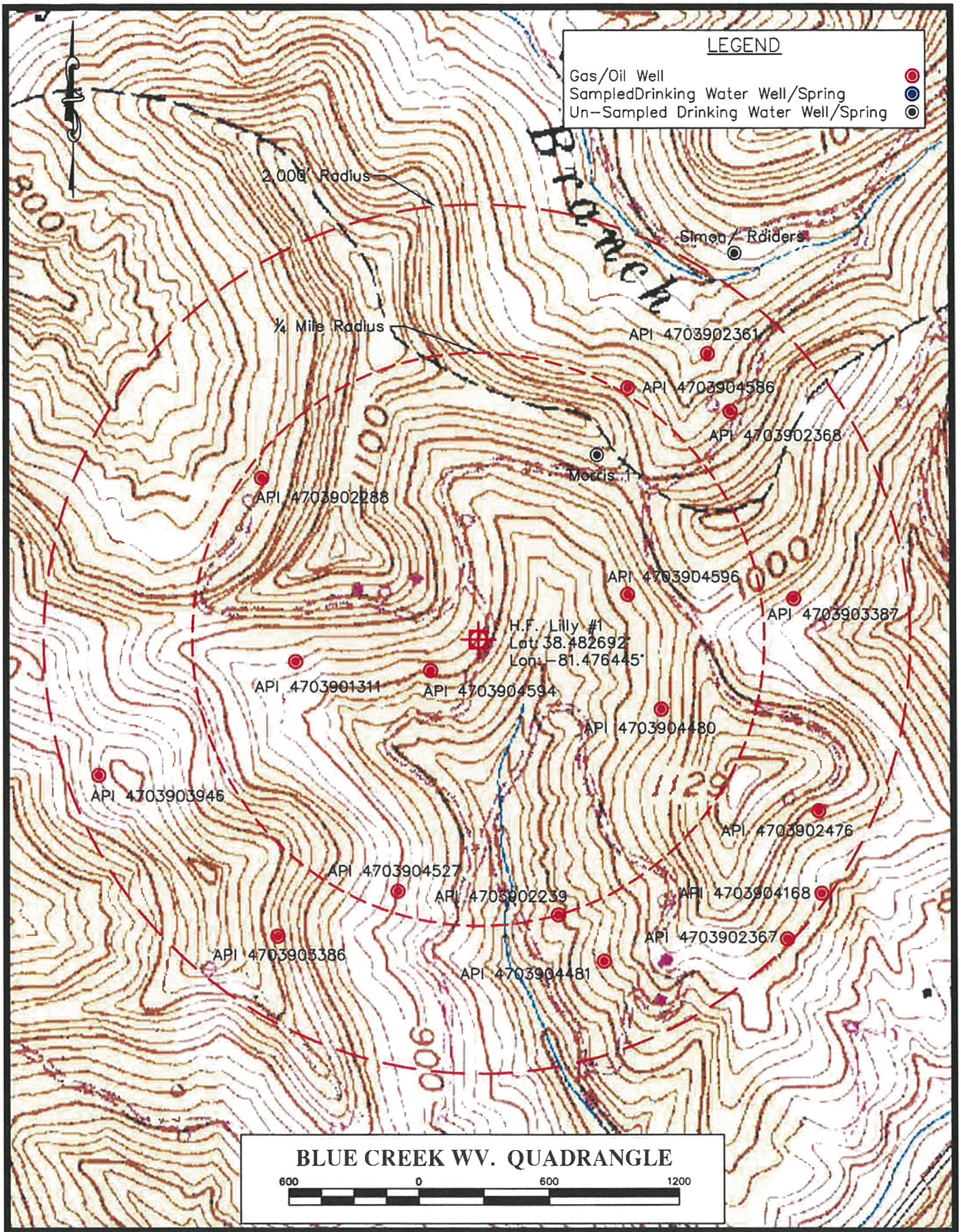
DATE: 09/24/19	FILE: BLUE CREEK YARD FACILITIES.DWG	DRAWN BY: JMJ

NO SCALE

Section 7 - Area of Review

UIC 2D0392262

There are no changes in the number of wells or sampling locations since the last application.



KENVIRONS, INC.
FRANKFORT, KENTUCKY

Project:	2018160
Checked By:	BTB
Date:	Sept. 2018
Scale:	As Shown

NYTIS EXPLORATION COMPANY, LLC
H. F. LILLY #1 AOR
KANAWHA COUNTY, WEST VIRGINIA

N:\P\2018160\MISCELLANEOUS\HF LILLY QTRMILE-V2.dwg, 3/11/2019 2:00:37 PM, pth, iR-ADV C5535.pc3

4703902262

UIC Permit No. **2D03902262**

APPENDIX C
Wells within the Area of Review

	API No.	Well Type	Well Status	Northing	Easting	Surface Elevation	Total Vertical Depth	Penetrate Confining Zone (Y or N)	Penetrate Injection Zone (Y or N)
1	4703901311	Unknown	Never Drilled	4259449.58	458187.32	925	Unknown	N	N
2	4703902239	Oil Prod	Active	4259093.58	458555.74	759	1811	Y	Y
3	4703902262	040-0000005	Active	4259480.40	458445.00	938	2095	Y	Y
4	4703902288	040-0000005	Active	4259707.26	458140.34	1040.1	2090	Y	Y
5	4703904480	040-0000006	Active	4259382.56	458702.02	934.8	2078	Y	Y
6	4703904527	040-0000006	Active	4259126.93	458330.61	925.7	2063	Y	Y
7	4703904594	Oil Prod	Active	4259436.83	458376.88	883.9	2000	Y	Y
8	4703904596	Gas Prod	Plugged	4259543.70	458654.53	947	2035	Y	Y
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

NYITS UIC Application

H.F. Lilly #1

UIC2D0392262

Unknown/Abandoned Well API # 4703901311

West Virginia Division of Oil & Gas records indicated well API # 4070391311 to possibly be within the ¼ mile Area of Review (AOR) radius for Injection Well H.F. Lilly #1, UIC2D0392262. WV records were reviewed for this well. A Notice of Proposed Location and Well Location Map were available indicating well location coordinates of latitude 38° 30', longitude -81° 25' (no second notation). This location is outside the AOR. However the WV Oil & Gas online database has the well coordinates at 38.482402, -81.479397. This location is within the ¼ mile AOR for the H.F. Lilly injection well. In order to determine if this well was present within the AOR a site investigation was conducted.

Bobby Alexander, DR Consulting Services, and Bobby Webb, NYTIS, conducted on site reconnaissance on September 21st, 2018. The well coordinates obtained from the WV Oil & Gas Online database were input into a handheld GPS unit to facilitate on-site visual inspection of the potential well location. After a thorough investigation, no active or abandoned well was found in the area. The nearest well in the vicinity was the plugged H.F. Lilly #2 well, API # 4703904596, located at latitude 38.483272, longitude -81.474046. No other wells or indications of wells were found in the area. On-site reconnaissance and lack of drilling records indicate that this well was not drilled and therefore will not affect the H.F. Lilly injection well.

4703901311

"Pipeline"

Select County: (039) Kanawha
Enter Permit #: 1311
Get Data | Reset

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

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

WV Geological & Economic Survey:

Well: County = 039 Permit = 1311 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:41:27 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703901311	Kanawha	1311	Elk	Blue Creek	Clendenin	38.482402	-81.479397	458187.3	4259449.6

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
4703901311	-/-/-	Original Loc	Completed	L V Huffman	1					Metzner, E. C.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4703901311	-/-/-	-/-/-			Blue Ck(Flg Rk)	undetermined unit	undetermined unit	unclassified	unclassified	not available	unknown	unknown			0		0	0

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

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

* There is no Scanned or Digital Logs available for download

There is no Plugging data for this well

There is no Sample data for this well

Possible Never Drilled

WV Geological & Economic Survey:

Well: County = 39 Permit = 2239 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:43:06 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703902239	Kanawha	2239	Elk	Blue Creek	Clendenin	38.479211	-81.475152	458555.7	4259093.6

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
4703902239	5/-/1968	Original Loc	Completed	C C Dodd	1					Mareve Oil Corp.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_A
4703902239	5/-/1968	-/-/-	759	Ground Level	Blue Ck(Flg Rk)	Big Injun (Price&eq)	Big Injun (Price&eq)	Development Well	Development Well	Oil	Rotary	Fractured	1881		1881		0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703902239	5/-/1968	Pay	Oil	Vertical			1750	Big Injun (Price&eq)	0	0			

Production Gas Information: (Volumes in Mcf) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902239	Quaker State Oil Refining Co.	1981	580	65	65	56	54	52	61	49	0	18	28	50	82
4703902239	Quaker State Oil Refining Co.	1982	182	25	39	45	20	3	43	0	0	0	0	0	7
4703902239	Quaker State Oil Refining Co.	1983	212	34	34	34	30	32	47	0	0	0	0	0	0
4703902239	Quaker State Oil Refining Co.	1984	116	6	6	0	4	2	2	2	4	4	28	30	28
4703902239	Quaker State Oil Refining Co.	1985	406	10	12	40	47	61	61	34	40	61	32	8	0
4703902239	Quaker State Oil Refining Co.	1986	399	0	0	42	38	49	39	41	21	54	60	46	9
4703902239	Quaker State Oil Refining Co.	1987	1,261	26	43	41	53	65	59	33	28	73	277	295	268
4703902239	Quaker State Oil Refining Co.	1988	1,721	222	204	117	169	149	136	139	160	143	60	139	83
4703902239	Quaker State Oil Refining Co.	1989	1,689	81	89	138	145	121	194	145	157	157	158	141	163
4703902239	Quaker State Oil Refining Co.	1990	1,853	176	178	186	107	123	159	127	143	123	124	121	286
4703902239	Quaker State Oil Refining Co.	1991	2,328	263	199	195	180	201	166	202	188	181	196	179	178
4703902239	Quaker State Oil Refining Co.	1992	2,316	193	188	176	179	174	191	192	188	191	214	213	217
4703902239	Quaker State Oil Refining Co.	1993	2,470	209	161	125	220	205	229	224	260	242	206	194	195
4703902239	Quaker State Oil Refining Co.	1994	1,914	188	156	133	195	173	189	188	142	57	190	145	158
4703902239	Peake Energy, Inc.	1995	1,405	79	126	124	128	114	112	75	207	139	116	86	99
4703902239	Peake Energy, Inc.	1996	1,154	114	100	92	98	100	94	115	96	72	93	88	92
4703902239	Peake Energy, Inc.	1997	1,069	81	83	90	70	90	93	106	92	107	86	88	83
4703902239	Peake Energy, Inc.	1998	869	75	76	83	72	61	68	57	67	70	60	95	85
4703902239	Peake Energy, Inc.	1999	625	67	68	80	71	8	0	74	85	81	57	14	20
4703902239	North Coast Energy Eastern	2000	13,390	1,219	1,160	1,264	1,102	1,145	1,055	1,124	1,088	1,059	1,128	1,033	1,013
4703902239	North Coast Energy Eastern	2001	679	29	50	50	43	40	79	56	76	65	72	62	57
4703902239	North Coast Energy Eastern	2002	673	56	47	32	41	67	63	71	64	63	71	42	56
4703902239	North Coast Energy Eastern	2003	585	40	40	50	52	59	40	49	52	58	50	53	42
4703902239	North Coast Energy Eastern	2004	519	38	38	53	55	46	40	52	48	39	35	41	34
4703902239	North Coast Energy Eastern	2005	528	35	37	44	44	55	47	53	54	44	41	38	36
4703902239	North Coast Energy Eastern	2006	409	22	23	27	26	31	45	39	47	28	47	42	32
4703902239	EXCO - North Coast Energy Eastern, Inc.	2007	369	40	26	30	29	30	31	6	21	40	43	42	31
4703902239	EXCO Resources (WV), Inc.	2008	402	47	32	31	31	33	33	29	27	30	41	38	30
4703902239	EXCO Resources (WV), Inc.	2009	328	26	21	30	26	32	28	24	28	28	30	24	31
4703902239	EXCO Resources (WV), Inc.	2010	325	21	19	28	22	26	30	35	29	28	32	27	28
4703902239	EXCO Resources (PA), LLC	2011	300	21	19	14	34	27	27	24	28	31	28	21	26
4703902239	EXCO Resources (PA), LLC	2012	291	23	21	24	28	28	29	25	24	25	21	20	23
4703902239	EXCO Resources (PA), LLC	2013	240	20	15	17	21	14	17	21	23	20	24	26	22
4703902239	EXCO Resources (PA), LLC	2014	230	18	18	19	19	20	20	19	21	18	17	21	20
4703902239	EXCO Resources (PA), LLC	2015	201	19	19	15	8	17	17	18	20	18	18	18	14
4703902239	Nytis Exploration Co., LLC	2016	114	18	6	8	0	0	5	8	4	9	23	16	16
4703902239	Nytis Exploration Co., LLC	2017	162	16	15	6	14	14	13	13	12	10	17	16	16
4703902239	Nytis Exploration Co., LLC	2018	88	10	15	17	16	12	9	9	0	0	0	0	0
4703902239	Nytis Exploration Co., LLC	2019	9	0	0	0	9	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2022	121	16	18	0	0	14	13	14	13	15	15	0	0
4703902239	Diversified Production, LLC	2023	260	21	19	26	28	25	19	21	22	17	17	22	23

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902239	Quaker State Oil Refining Co.	1981	697	60	56	58	56	59	56	60	64	59	57	56	55
4703902239	Quaker State Oil Refining Co.	1982	718	59	52	50	49	34	68	72	70	67	68	66	63
4703902239	Quaker State Oil Refining Co.	1983	654	55	55	55	58	53	51	49	67	49	55	51	55
4703902239	Quaker State Oil Refining Co.	1984	578	51	46	49	51	50	46	50	0	95	45	40	55
4703902239	Quaker State Oil Refining Co.	1985	398	54	55	52	60	27	27	41	55	27	0	0	0
4703902239	Quaker State Oil Refining Co.	1986	687	73	59	59	51	53	7	83	67	59	61	60	55
4703902239	Quaker State Oil Refining Co.	1987	1,600	57	55	74	62	64	66	185	233	209	212	188	195
4703902239	Quaker State Oil Refining Co.	1988	1,257	124	102	90	126	106	86	94	99	135	123	66	106
4703902239	Quaker State Oil Refining Co.	1989	1,754	193	223	213	143	159	156	123	112	108	84	109	131
4703902239	Quaker State Oil Refining Co.	1990	1,239	116	117	116	101	64	89	97	75	119	149	106	90
4703902239	Quaker State Oil Refining Co.	1991	853	87	69	73	47	79	68	69	75	71	75	69	71
4703902239	Quaker State Oil Refining Co.	1992	700	69	63	56	64	63	57	50	68	65	66	46	33
4703902239	Quaker State Oil Refining Co.	1993	557	27	70	41	68	56	55	53	50	43	45	42	7
4703902239	Quaker State Oil Refining Co.	1994	430	74	42	37	33	30	16	20	39	34	36	32	37
4703902239	Peake Energy, Inc.	1995	264	36	33	46	0	35	30	0	31	28	0	25	0
4703902239	Peake Energy, Inc.	1996	265	24	25	41	22	22	22	23	21	10	24	13	18
4703902239	Peake Energy, Inc.	1997	205	27	0	29	0	31	0	28	30	0	31	0	29
4703902239	Peake Energy, Inc.	1998	167	0	0	53	0	0	30	25	27	0	0	32	0
4703902239	Peake Energy, Inc.	1999	138	26	0	27	0	28	0	0	29	0	28	0	0
4703902239	North Coast Energy Eastern	2000	170	0	30	0	28	0	27	0	27	0	29	0	29
4703902239	North Coast Energy Eastern	2001	115	0	0	29	0	0	29	0	28	0	0	29	0
4703902239	North Coast Energy Eastern	2002	117	0	28	0	0	29	0	29	0	0	31	0	0
4703902239	North Coast Energy Eastern	2003	90	0	0	0	29	0	29	0	0	0	0	0	32
4703902239	North Coast Energy Eastern	2004	87	30	0	0	0	29	0	0	28	0	0	0	0
4703902239	North Coast Energy Eastern	2005	144	28	0	29	0	0	0	29	29	0	0	0	29
4703902239	North Coast Energy Eastern	2006	57	0	0	0	0	0	28	0	0	0	29	0	0
4703902239	EXCO - North Coast Energy Eastern, Inc.	2007	89	28	0	0	0	34	0	0	27	0	0	0	0
4703902239	EXCO Resources (WV), Inc.	2008	92	0	33	0	0	32	0	0	27	0	0	0	0
4703902239	EXCO Resources (WV), Inc.	2009	94	33	0	0	0	31	0	0	0	0	30	0	0
4703902239	EXCO Resources (WV), Inc.	2010	75	0	0	0	33	10	0	0	0	0	32	0	0
4703902239	EXCO Resources (PA), LLC	2011	62	0	0	0	35	0	0	0	0	27	0	0	0
4703902239	EXCO Resources (PA), LLC	2012	64	0	0	0	32	0	0	0	0	0	0	32	0
4703902239	EXCO Resources (PA), LLC	2013	29	0	0	0	29	0	0	0	0	0	0	0	0
4703902239	EXCO Resources (PA), LLC	2014	77	0	0	0	31	0	0	0	14	32	0	0	0
4703902239	EXCO Resources (PA), LLC	2015	71	0	0	0	29	0	0	0	12	0	0	0	30
4703902239	Nytis Exploration Co., LLC	2016	0												
4703902239	Nytis Exploration Co., LLC	2017	32	0					32						
4703902239	Nytis Exploration Co., LLC	2018	45	0	0	0	15	30	0	0	0	0	0	0	0
4703902239	Nytis Exploration Co., LLC	2019	9	0	0	0	9	0	0	0	0	0	0	0	0

4703902239

4703902239	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2022	17	0	17	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2023	1	0	0	0	1	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902239	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	EXCO Resources (PA), LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	EXCO Resources (PA), LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Nytis Exploration Co., LLC	2016	0												
4703902239	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902239	Nytis Exploration Co., LLC	2016	0												
4703902239	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902239	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703902239	Original Loc	1st Salt Sand	Well Record	540	Reasonable	597	Reasonable	759	Ground Level
4703902239	Original Loc	2nd Salt Sand	Well Record	1137	Reasonable	454	Reasonable	759	Ground Level
4703902239	Original Loc	Pencil Cave	Well Record	1591	Reasonable	9	Reasonable	759	Ground Level
4703902239	Original Loc	Greenbrier Group	Well Record	1600	Reasonable	150	Reasonable	759	Ground Level
4703902239	Original Loc	Big Lime	Well Record	1600	Reasonable	150	Reasonable	759	Ground Level
4703902239	Original Loc	Big Injun (Price&eq)	Well Record	1750	Reasonable	30	Reasonable	759	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	IN(
4703902239	Regular Entry	230	1882		G,D,C,I,S,*	Y	964	1869	974	1882			230	1877			1000	1873	964	1882	Y	Y

Scanned/Raster Comment: *logs: caliper,formation factor,CCL,perforation,perf.depth; log analysis

* 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
4703902239gcdo.tif
4703902239gdisl_a.tif
4703902239gpo.tif
4703902239ilz.tif
4703902239s.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

4703902239

Form OG-10

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

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

Quadrangle Clendenin
Permit No. KAN-2239
Oil or Gas Well Oil (KIND)

Company Mareve Oil Corp.
Address P. O. Box 1228, Parkersburg, W.Va.
Farm C. C. Dodd Acres 41
Location (waters) Wills Creek
Well No. 1 Elev. 759
District Elk County Kanawha
The surface of tract is owned in fee by C. C. Dodd
Address Spencer, W.Va.
Mineral rights are owned by C. C. Dodd
Address Spencer, W.Va.
Drilling commenced 5-5-68
Drilling completed 5-9-68
Date Shot From To
With
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Cu. Ft.
Rock Pressure lbs. hrs.
Oil bbls., 1st 24 hrs.
WELL ACIDIZED (DETAILS)
WELL FRACTURED (DETAILS) 40,000 #20/40 Sand & 40,000 gallons gelled fresh water.

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10			Size of
8 5/8	232	232	
6 5/8	Cement	Circulated	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 1871 No. Ft. 5-9-68 Date
Amount of cement used (bags) 150
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.) 30 BBPD
ROCK PRESSURE AFTER TREATMENT HOURS
Fresh Water Feet Salt Water Feet
Producing Sand Big Injun Depth 1750-1780

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Rock			0	99			
Sand			99	112			
Rock			112	232			
Shale			232	280			
Shale w/S	dy lime	streaks	280	540			
Salt Sand			540	1137			
Salt Sand			1137	1591			
Pencil Cave			1591	1600			
Big Lime			1600	1750			
Big Injun			1750	1780			
Shale			1780	1881			

RECEIVED
JUN 1968
West Virginia
Dept. of Mines

4703902262

"Pipeline"

Select County: (039) Kanawha Select datatypes: ☐ (Check All)

Enter Permit #: 02262

☑ Location ☑ Production ☑ Plugging

☑ Owner/Completion ☑ Stratigraphy ☑ Sample

☑ Pay/Show/Water ☑ Logs ☑ Btm Hole Loc

Get Data | Reset

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

WV Geological & Economic Survey:

Well: County = 39 Permit = 02262

Report Time: Friday, August 09, 2019 1:53:17 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703902262	Kanawha	2262	Elk	Blue Creek	Clendenin	38.482692	-81.476445	458445	4259480.4

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
4703902262	7/8/1968	Original Loc	Completed	H F Lilly	1				H F Lilly	Mareve Oil Corp.			
4703902262	-/-/-	Worked Over	Completed	H F Lilly	1					Quaker State Oil Refining Co.			

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_B
4703902262	7/8/1968	7/4/1968	938	Ground Level	Blue Ck(Flg Rk)	Price Fm & equivs	Big Injun (Price&eq)	Development Well	Development Well	Oil	Rotary	Fractured	2095		2095		
4703902262	-/-/-	-/-/-	938	Ground Level	Blue Ck(Flg Rk)	Price Fm & equivs	Big Injun (Price&eq)	Service Well	Unsuccessful	Salt Water Disp	unknown	unknown	2095		0		

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703902262	7/8/1968	Pay	Oil	Vertical			1937	Big Injun (Price&eq)	0	0			
4703902262	-/-/-	Horizon	Injection	Vertical	1949	Big Injun (Price&eq)	1972	Big Injun (Price&eq)					

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	Quaker State Oil Refining Co.	1981	394	25	24	36	21	29	76	26	0	11	39	56	51
4703902262	Quaker State Oil Refining Co.	1982	310	38	33	32	33	45	63	0	0	0	0	19	47
4703902262	Quaker State Oil Refining Co.	1983	240	40	40	40	42	49	30	0	0	0	0	0	0
4703902262	Quaker State Oil Refining Co.	1984	712	52	57	49	38	70	56	32	120	46	51	83	58
4703902262	Quaker State Oil Refining Co.	1985	600	89	5	60	56	72	72	58	33	72	24	28	31
4703902262	Quaker State Oil Refining Co.	1986	631	26	31	72	43	48	43	47	64	63	108	84	2
4703902262	Quaker State Oil Refining Co.	1987	1,121	49	120	129	61	134	119	135	78	81	83	63	69
4703902262	Quaker State Oil Refining Co.	1988	828	49	70	68	60	60	52	42	37	51	41	125	173
4703902262	Quaker State Oil Refining Co.	1989	5,043	393	297	313	229	348	382	574	592	424	378	567	546
4703902262	Quaker State Oil Refining Co.	1990	4,752	399	242	252	200	230	345	478	404	571	578	565	488
4703902262	Quaker State Oil Refining Co.	1991	4,757	448	425	416	384	345	335	408	375	442	478	393	308
4703902262	Quaker State Oil Refining Co.	1992	3,097	260	252	242	269	305	274	206	159	0	303	493	334
4703902262	Quaker State Oil Refining Co.	1993	3,385	321	350	235	235	339	345	322	254	356	209	213	206
4703902262	Quaker State Oil Refining Co.	1994	2,457	303	206	142	238	208	236	221	153	107	249	172	222
4703902262	Peake Energy, Inc.	1996	1,242	88	99	109	120	138	112	140	110	86	100	86	54
4703902262	North Coast Energy Eastern	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	Quaker State Oil Refining Co.	1981	398	42	37	38	38	35	15	0	0	0	76	64	52
4703902262	Quaker State Oil Refining Co.	1982	479	51	35	41	38	42	50	47	40	41	25	45	25
4703902262	Quaker State Oil Refining Co.	1983	417	35	35	35	38	28	34	36	35	33	35	31	42
4703902262	Quaker State Oil Refining Co.	1984	356	36	35	36	35	33	34	33	0	64	0	32	18
4703902262	Quaker State Oil Refining Co.	1985	409	40	32	33	31	32	32	38	9	32	54	38	38
4703902262	Quaker State Oil Refining Co.	1986	484	45	37	35	34	42	41	43	43	43	39	40	42
4703902262	Quaker State Oil Refining Co.	1987	446	41	37	38	38	38	35	36	27	52	28	36	40
4703902262	Quaker State Oil Refining Co.	1988	1,236	25	19	22	19	19	20	25	211	230	223	216	207
4703902262	Quaker State Oil Refining Co.	1989	1,814	176	135	164	192	191	156	117	158	177	134	133	81
4703902262	Quaker State Oil Refining Co.	1990	1,224	108	97	95	104	69	18	114	143	126	115	132	103
4703902262	Quaker State Oil Refining Co.	1991	903	98	83	109	38	14	46	105	77	109	78	71	75
4703902262	Quaker State Oil Refining Co.	1992	590	60	53	52	21	14	13	76	69	62	62	37	71
4703902262	Quaker State Oil Refining Co.	1993	584	24	17	97	58	57	53	48	38	35	30	31	96
4703902262	Quaker State Oil Refining Co.	1994	296	24	25	27	28	26	23	18	29	13	36	24	23
4703902262	Peake Energy, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	North Coast Energy Eastern	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2017	0	0											
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902262	Nytis Exploration Co. LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703902262	Original Loc	Salt Sands (undiff)	Well Record	1068	Reasonable	737	Reasonable	938	Ground Level
4703902262	Original Loc	Greenbrier Group	Well Record	1805	Reasonable	132	Reasonable	938	Ground Level
4703902262	Original Loc	Big Lime	Well Record	1805	Reasonable	132	Reasonable	938	Ground Level
4703902262	Original Loc	Big Injun (Price&eq)	Well Record	1937	Reasonable	38	Reasonable	938	Ground Level

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

There is no Plugging data for this well

There is no Sample data for this well

Injector

4703902262

Form OG-10

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Rotary XX
Spudder ☐
Cable Tools ☐
Storage ☐

Quadrangle Clendenin
Permit No. KAN-2262
Oil or Gas Well OIL (KIND)

Company Mareve Oil Corp.
Address P. O. Box 1228, Barkersburg, W. Va.
Farm H. F. Lilly Acres 29
Location (waters) Wills Creek
Well No. 1 Elev. 938
District Elk County Kanawha
The surface of tract is owned in fee by H. F. Lilly
Address Elkview, W.Va.
Mineral rights are owned by H. F. Lilly
Address Elkview, W.Va.
Drilling commenced 7/4/68
Drilling completed 7/8/68
Date Shot From To
With

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10			Size of
~~8~~ 8-5/8	210	210	
6¼	Circ. Cement		Depth set
5 3/16			
4½	2089	2089	
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) 41,500 # sand and 41,500 gallons gelled fresh water.

Attach copy of cementing record.
CASING CEMENTED 4½" SIZE 2089 No. Ft. 7/8/68 Date
Amount of cement used (bags) 150 sx
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.) 38 BOPD
ROCK PRESSURE AFTER TREATMENT HOURS
Fresh Water Feet Salt Water Feet
Producing Sand Big Injun Depth 1937 to 1975

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Surface & Rock			0	75			
Sandy Shale			75	90			
Shale			90	210			
Shale w/sand streaks			210	500			
Shale & Sand			500	1068			
Salt Sand			1068	1805			
Lime			1805	1937			
Big Injun			1937	1975			
Shale			1975	2095	(T.D.)		

SEP 1968
RECEIVED
West Virginia
Dept. of Mines

4703902262

COMPLETION REPORT

H. F. LILLY # 1 2262

July 29, 1968 J&B rigged up and swabbed down to 1500'.

July 30, 1968 McCullough perforated:

1949-54	13 Holes
1964-66	2 Holes
1972	1 Hole

Gamma Ray Measurements - GRTD = 2068

Halliburton frac as follows:

45000# 20-40 sand
710 barrels water
I.S.I.P. - 1600 psi
30 BPM @ 2033 psi
B.D.P. - 1800 psi
Overflush - 10 barrels

Left well shut in until pressure bled to 400 psi.. Opened to back flow to remove frac head. Installed valve and left to flow back. Well went on vacuum. Large amount of sand flowed back.

July 31, 1968 Vandals removed equipment from rig engine. No work.

August 1, 1968 Started swabbing at noon. Much sand. Show of gas. Trace of oil. Started sand pumping. 120' of fill up.

August 2, 1968 Started swabbing. Good gas show, trace of oil. Stactic fluid level @ 400'. Swabbed down to 1000'. Much sand coming in.

August 3, 1968 Swabbed and sand pumped. Good gas show, trace of oil. Much sand.

August 4, 1968 Fluid level at 400' initially. Sand pumped and swabbed. Much sand coming in.

August 5, 1968 Fluid level at 400'. Swabbed. Oil and gas increasing. Well kicking. Stopped swabbing. Sand pumped.

August 6, 1968 Finished sand pumping to GRTD. Ran tubing and rods.

Bull Plug & Collar	0.55
1 Joint	31.75
Perf Sub	2.75
Seating Collar	0.80
61 Joints 2 3/8" OD-J-Tubing	1917.11
RKB THF	6.00
Bottom of String	1958.96

4703902288

WVGES GEOLOGY UNDERLIES IT ALL
"Pipeline"

Select County: (039) Kanawha
Enter Permit #: 2288
Get Data | Reset

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

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

WV Geological & Economic Survey:

Well: County = 39 Permit = 2288 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:42:10 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703902288	Kanawha	2288	Elk	Blue Creek	Clendenin	38.484722	-81.479951	458140.3	4259707.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4703902288	8/-/1968	Original Loc	Completed	W L Pauley	1					Mareve Oil Corp.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_A
4703902288	8/-/1968	-/-/-	1040	Ground Level	Blue Ck(Flg Rk)	Big Injun (Price&eq)	Big Injun (Price&eq)	Development Well	Development Well	Oil	Rotary	Fractured	2090		2090		0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703902288	8/-/1968	Pay	Oil	Vertical			1948	Big Injun (Price&eq)	0	0			

Production Gas Information: (Volumes in Mcf) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902288	Quaker State Oil Refining Co.	1981	1,003	92	102	84	105	100	90	74	0	36	88	105	127
4703902288	Quaker State Oil Refining Co.	1982	561	61	42	85	89	88	111	0	0	0	0	19	71
4703902288	Quaker State Oil Refining Co.	1983	442	77	77	77	66	72	74	0	0	0	0	0	0
4703902288	Quaker State Oil Refining Co.	1984	994	55	61	91	86	90	75	84	92	109	99	90	62
4703902288	Quaker State Oil Refining Co.	1985	776	56	68	52	19	80	80	75	83	80	76	72	35
4703902288	Quaker State Oil Refining Co.	1986	314	0	10	57	40	20	21	24	24	40	37	41	0
4703902288	Quaker State Oil Refining Co.	1987	782	36	26	31	32	61	103	81	94	90	73	33	122
4703902288	Quaker State Oil Refining Co.	1988	1,178	113	117	70	106	74	57	105	110	141	73	105	107
4703902288	Quaker State Oil Refining Co.	1989	658	80	52	58	64	76	40	48	50	55	97	13	25
4703902288	Quaker State Oil Refining Co.	1990	1,074	103	132	137	217	249	104	33	0	0	0	0	99
4703902288	Quaker State Oil Refining Co.	1991	748	91	85	83	77	102	37	45	0	0	0	118	110
4703902288	Quaker State Oil Refining Co.	1992	1,054	48	46	54	55	70	119	73	130	133	113	120	93
4703902288	Quaker State Oil Refining Co.	1993	2,970	89	39	33	85	77	75	46	1,225	1,040	81	99	81
4703902288	Quaker State Oil Refining Co.	1994	445	92	80	28	2	32	51	43	0	0	0	40	77
4703902288	Peake Energy, Inc.	1995	656	30	57	75	45	64	9	30	95	86	48	20	97
4703902288	Peake Energy, Inc.	1996	851	100	88	55	35	54	37	39	98	102	77	73	93
4703902288	Peake Energy, Inc.	1997	722	77	58	87	42	48	78	103	69	72	31	36	21
4703902288	Peake Energy, Inc.	1998	706	40	104	99	74	52	67	47	28	23	16	133	23
4703902288	Peake Energy, Inc.	1999	630	20	71	105	45	0	0	0	93	69	98	24	105
4703902288	North Coast Energy Eastern	2000	4,217	342	352	335	360	358	322	350	350	345	386	352	365
4703902288	North Coast Energy Eastern	2001	581	46	56	37	36	70	55	30	51	40	54	44	62
4703902288	North Coast Energy Eastern	2002	661	84	54	50	7	75	75	64	51	46	67	28	60
4703902288	North Coast Energy Eastern	2003	605	29	67	33	48	60	24	27	20	54	93	70	80
4703902288	North Coast Energy Eastern	2004	486	36	37	89	22	46	53	53	31	50	2	29	38
4703902288	North Coast Energy Eastern	2005	259	40	0	2	20	3	1	0	9	25	68	20	71
4703902288	North Coast Energy Eastern	2006	520	58	48	29	39	53	58	31	33	15	63	38	55
4703902288	EXCO - North Coast Energy Eastern, Inc.	2007	740	51	26	57	77	79	78	61	14	80	87	89	41
4703902288	EXCO Resources (WV), Inc.	2008	755	53	45	92	47	51	92	110	64	35	47	72	47
4703902288	EXCO Resources (WV), Inc.	2009	608	32	37	47	45	61	62	39	62	57	86	51	29
4703902288	EXCO Resources (WV), Inc.	2010	654	29	36	52	45	78	34	78	68	50	68	54	62
4703902288	EXCO Resources (PA), LLC	2011	595	56	47	28	32	61	66	51	58	49	45	59	43
4703902288	EXCO Resources (PA), LLC	2012	551	43	42	52	46	49	43	52	50	54	48	43	29
4703902288	EXCO Resources (PA), LLC	2013	417	53	33	36	34	54	30	51	37	15	20	23	31
4703902288	EXCO Resources (PA), LLC	2014	307	25	27	22	28	32	31	40	27	22	42	10	1
4703902288	EXCO Resources (PA), LLC	2015	440	21	25	6	1	66	69	52	58	56	51	35	0
4703902288	Nytis Exploration Co., LLC	2016	398	3	31	23	19	22	37	27	31	57	56	27	64
4703902288	Nytis Exploration Co., LLC	2017	286	64	70	29	0	0	0	0	0	0	38	34	51
4703902288	Nytis Exploration Co., LLC	2018	394	31	48	52	56	71	42	41	0	0	21	19	13
4703902288	Nytis Exploration Co., LLC	2019	19	14	0	0	0	0	0	0	0	0	0	0	5
4703902288	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2021	50	0	0	0	0	0	0	0	0	0	0	0	50
4703902288	Diversified Production, LLC	2022	378	90	86	96	92	12	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2023	320	0	0	33	32	11	11	20	27	44	49	47	46

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902288	Quaker State Oil Refining Co.	1981	229	23	21	22	21	21	17	17	21	22	18	18	10
4703902288	Quaker State Oil Refining Co.	1982	250	23	20	22	19	22	23	21	19	18	19	25	18
4703902288	Quaker State Oil Refining Co.	1983	193	19	19	19	18	21	17	20	17	16	18	8	0
4703902288	Quaker State Oil Refining Co.	1984	225	0	25	27	24	20	19	23	0	36	12	15	24
4703902288	Quaker State Oil Refining Co.	1985	162	20	0	18	18	18	18	18	17	18	16	0	1
4703902288	Quaker State Oil Refining Co.	1986	178												
4703902288	Quaker State Oil Refining Co.	1987	171	15	14	14	19	16	17	14	0	0	24	18	20
4703902288	Quaker State Oil Refining Co.	1988	176	18	13	16	10	19	18	23	12	15	15	6	11
4703902288	Quaker State Oil Refining Co.	1989	195	20	15	16	18	15	9	15	16	5	0	42	24
4703902288	Quaker State Oil Refining Co.	1990	184	17	16	20	18	11	0	0	10	34	22	16	20
4703902288	Quaker State Oil Refining Co.	1991	172	16	18	17	15	0	0	0	7	34	24	21	20
4703902288	Quaker State Oil Refining Co.	1992	230	19	19	21	20	15	21	19	20	18	18	16	24
4703902288	Quaker State Oil Refining Co.	1993	208	16	18	24	19	18	16	14	14	14	21	19	15
4703902288	Quaker State Oil Refining Co.	1994	103	10	0	0	2	0	0	0	0	32	24	19	16
4703902288	Peake Energy, Inc.	1995	161	0	0	84	0	0	0	0	0	0	0	77	0
4703902288	Peake Energy, Inc.	1996	146	13	15	13	5	0	0	0	35	12	22	11	20
4703902288	Peake Energy, Inc.	1997	156	0	0	74	0	1	0	0	0	81	0	0	0
4703902288	Peake Energy, Inc.	1998	83	0	0	0	83	0	0	0	0	0	0	0	0
4703902288	Peake Energy, Inc.	1999	173	89	0	0	0	0	0	0	0	84	0	0	0
4703902288	North Coast Energy Eastern	2000	170	0	87	0	0	0	0	0	0	83	0	0	0
4703902288	North Coast Energy Eastern	2001	86	0	0	86	0	0	0	0	0	0	0	0	0
4703902288	North Coast Energy Eastern	2002	171	0	90	0	0	0	0	0	81	0	0	0	0
4703902288	North Coast Energy Eastern	2003	166	0	0	0	0	0	85	0	0	0	0	0	81
4703902288	North Coast Energy Eastern	2004	85	0	0	0	0	85	0	0	0	0	0	0	0
4703902288	North Coast Energy Eastern	2005	133	0	0	0	0	0	0	0	0	0	0	0	133
4703902288	North Coast Energy Eastern	2006	86	0	0	0	0	86	0	0	0	0	0	0	0
4703902288	EXCO - North Coast Energy Eastern, Inc.	2007	193	96	0	0	0	97	0	0	0	0	0	0	0
4703902288	EXCO Resources (WV), Inc.	2008	283	0	97	0	0	94	0	0	0	0	0	0	92
4703902288	EXCO Resources (WV), Inc.	2009	169	0	0	0	0	72	0	0	0	0	0	0	97
4703902288	EXCO Resources (WV), Inc.	2010	73	0	0	0	0	73	0	0	0	0	0	0	0
4703902288	EXCO Resources (PA), LLC	2011	136	0	96	0	0	0	0	0	0	40	0	0	0
4703902288	EXCO Resources (PA), LLC	2012	96	0	0	0	96	0	0	0	0	0	0	0	0
4703902288	EXCO Resources (PA), LLC	2013	181	0	0	0	95	0	0	0	0	0	86	0	0
4703902288	EXCO Resources (PA), LLC	2014	55	0	0	0	0	0	0	0	55	0	0	0	0
4703902288	EXCO Resources (PA), LLC	2015	153	0	0	0	91	0	0	0	62	0	0	0	0
4703902288	Nytis Exploration Co., LLC	2016	0												
4703902288	Nytis Exploration Co., LLC	2017	0	0											
4703902288	Nytis Exploration Co., LLC	2018	169	0	0	0	75	0	0	94	0	0	0	0	0
4703902288	Nytis Exploration Co., LLC	2019	46	0	0	0	46	0	0	0	0	0	0	0	0

4703902288

4703902288	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2021	61	0	0	0	0	0	0	0	0	0	61	0	0
4703902288	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2023	62	0	0	0	0	0	0	0	0	0	0	0	62

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902288	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	EXCO Resources (PA), LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	EXCO Resources (PA), LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Nytis Exploration Co., LLC	2016	0												
4703902288	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703902288	Nytis Exploration Co., LLC	2016	0												
4703902288	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703902288	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703902288	Original Loc	Salt Sands (undiff)	Well Record	1220	Reasonable	540	Reasonable	1040	Ground Level
4703902288	Original Loc	Greenbrier Group	Well Record	1760	Reasonable	188	Reasonable	1040	Ground Level
4703902288	Original Loc	Big Lime	Well Record	1760	Reasonable	188	Reasonable	1040	Ground Level
4703902288	Original Loc	Big Injun (Price&eq)	Well Record	1948	Reasonable	52	Reasonable	1040	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	IN
4703902288	Regular Entry	14	2090		G,D,C,I,*	Y	14	2076	996	2090			1000	2085					1000	2090	Y	Y

Scanned/Raster Comment: *logs: caliper,CCL,perf.depth,perforation,spon.pot.,laterolog,hydrocarbon ID; log analysis

* 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
4703902288gcd.tif
4703902288gpo.tif
4703902288ilz.tif
4703902288ilzo_a.tif
4703902288_a.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 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

Form OG-10

4703902288

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Rotary ☒
Spudder ☐
Cable Tools ☐
Storage ☐

Quadrangle Clendenin
Permit No. KAN-2288
Oil or Gas Well OIL (KIND)

Company Mareve Oil Corp.
Address P. O. Box 1228, Parkersburg, W.Va.
Farm W. L. Pauley Acres 124
Location (waters) Little Sandy
Well No. 1 Elev. 1040
District Elk County Kanawha
The surface of tract is owned in fee by W. L. Pauley
Address Dunbar, W.Va.
Mineral rights are owned by Pauley Heirs
Address
Drilling commenced 7/30/68
Drilling completed 8/3/68
Date Shot From To
With
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)

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10			Size of
xx 8-5/8"	227	227	
6¾	Circ. Cement		Depth set
5 3/16			
4½		2076	
3			Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

Attach copy of cementing record.
CASING CEMENTED 4½" SIZE 2076 No. Ft. 8/3/68 Date
Amount of cement used (bags) 150 sx
Name of Service Co. Howco
COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

WELL FRACTURED (DETAILS) 41,500 # 20/40 Sand and 41,500 gallon gelled fresh water.

RESULT AFTER TREATMENT (Initial open Flow or bbls.) 45 BOPD
ROCK PRESSURE AFTER TREATMENT HOURS
Fresh Water Feet Salt Water Feet
Producing Sand Big Injun Depth 1948' to 2000'

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Rock & Shale			0	476			
Shale			476	757			
Sand & Shale			757	1000			
Sand & Shale			1000	1220			
Salt Sand			1220	1760			
Lime			1760	1948			
Big Injun			1948	2000			
Shale			2000	2090	(T.D.)		

RECEIVED
NOV 1968
West Virginia
Dept. of Mines

4703902288

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

Perf: 1935 - 1970 w/ 36 holes

Frac: 373 Bbls water, 16,000# sd
BD @ 1500 psi, Treated @ 1410 psi, Avg rate 32.4 BPM
I.S.I.P 1100 psi

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Salt sands	1248	1598	Salt water
Shale	1598	1683	
Maxton sand	1683	1745	Salt water
Little Lime	1745	1777	
Shale	1777	1782	
Big Lime	1782	1934	
Big Injun	1934	1977	Oil
Shale	1977	2078	TOTAL DEPTH

(Attach separate sheets as necessary)

Quaker State Corporation
(fka QUAKER STATE OIL REFINING CORPORATION)
Well Operator

By: [signature] Jeffrey W. Hill,
Date: August 24, 1987 Geologist

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

WVGES GEOLOGY UNDERLIES IT ALL

"Pipeline"

Select County: (039) Kanawha | Select datatypes: (Check All)

Enter Permit #: 4480

Location | Production | Plugging

Owner/Completion | Stratigraphy | Sample

Pay/Show/Water | Logs | Btm Hole Loc

Get Data | Reset

4703904480

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

WV Geological & Economic Survey:

Well: County = 39 Permit = 4480 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:44:09 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703904480	Kanawha	4480	Elk	Blue Creek	Clendenin	38.481822	-81.473492	458702	4259382.5

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
4703904480	5/29/1987	Original Loc	Completed	Chester Dodd Jr	2					Quaker State Oil Refining Co.			

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
4703904480	5/29/1987	5/26/1987	935	Ground Level	Blue Ck(Flg Rk)	Big Injun (Price&eq)	Big Injun (Price&eq)	Development Well	Development Well	Oil w/ Gas Show	Rotary	Fractured	2078		2078		

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
4703904480	5/29/1987	Water	Salt Water	Vertical			1248						0
4703904480	5/29/1987	Show	Gas	Vertical	1935	Big Injun (Price&eq)	1970	Big Injun (Price&eq)	0	15			
4703904480	5/29/1987	Pay	Oil	Vertical	1935	Big Injun (Price&eq)	1970	Big Injun (Price&eq)	0	15			
4703904480	5/29/1987	Show	Oil	Vertical			1977	Big Injun (Price&eq)	0	0			

Production Gas Information: (Volumes in Mcf) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904480	Quaker State Oil Refining Co.	1987	974	0	0	0	0	0	0	33	28	73	277	295	268
4703904480	Quaker State Oil Refining Co.	1988	1,721	222	204	117	169	149	136	139	160	143	60	139	83
4703904480	Quaker State Oil Refining Co.	1989	1,689	81	89	138	145	121	194	145	157	157	158	141	163
4703904480	Quaker State Oil Refining Co.	1990	1,853	176	178	186	107	123	159	127	143	123	124	121	286
4703904480	Quaker State Oil Refining Co.	1991	2,328	263	199	195	180	201	166	202	188	181	196	179	178
4703904480	Quaker State Oil Refining Co.	1992	2,316	193	188	176	179	174	191	192	188	191	214	213	217
4703904480	Quaker State Oil Refining Co.	1993	2,470	209	161	125	220	205	229	224	260	242	206	194	195
4703904480	Quaker State Oil Refining Co.	1994	1,914	188	156	133	195	173	189	188	142	57	190	145	158
4703904480	Peake Energy, Inc.	1995	1,405	79	126	124	128	114	112	75	207	139	116	86	99
4703904480	Peake Energy, Inc.	1996	1,154	114	100	92	98	100	94	115	96	72	93	88	92
4703904480	Peake Energy, Inc.	1997	1,069	81	83	90	70	90	93	106	92	107	86	88	83
4703904480	Peake Energy, Inc.	1998	869	75	76	83	72	61	68	57	67	70	60	95	85
4703904480	Peake Energy, Inc.	1999	625	67	68	80	71	8	0	74	85	81	57	14	20
4703904480	North Coast Energy Eastern	2000	4,329	253	347	231	285	204	375	367	380	351	409	655	472
4703904480	North Coast Energy Eastern	2001	679	29	50	50	43	40	79	56	76	65	72	62	57
4703904480	North Coast Energy Eastern	2002	673	56	47	32	41	67	63	71	64	63	71	42	56
4703904480	North Coast Energy Eastern	2003	585	40	40	50	52	59	40	49	52	58	50	53	42
4703904480	North Coast Energy Eastern	2004	519	38	38	53	55	46	40	52	48	39	35	41	34
4703904480	North Coast Energy Eastern	2005	528	35	37	44	44	55	47	53	54	44	41	38	36
4703904480	North Coast Energy Eastern	2006	409	22	23	27	26	31	45	39	47	28	47	42	32
4703904480	EXCO - North Coast Energy Eastern, Inc.	2007	369	40	26	30	29	30	31	6	21	40	43	42	31
4703904480	EXCO Resources (WV), Inc.	2008	402	47	32	31	31	33	33	29	27	30	41	38	30
4703904480	EXCO Resources (WV), Inc.	2009	328	26	21	30	26	32	28	24	28	28	30	24	31
4703904480	EXCO Resources (WV), Inc.	2010	325	21	19	28	22	26	30	35	29	28	32	27	28
4703904480	EXCO Resources (PA), LLC	2011	300	21	19	14	34	27	27	24	28	31	28	21	26
4703904480	EXCO Resources (PA), LLC	2012	291	23	21	24	28	28	29	25	24	25	21	20	23
4703904480	EXCO Resources (PA), LLC	2013	240	20	15	17	21	14	17	21	23	20	24	26	22
4703904480	EXCO Resources (PA), LLC	2014	230	18	18	19	19	20	20	19	21	18	17	21	20
4703904480	EXCO Resources (PA), LLC	2015	201	19	19	15	8	17	17	18	20	18	18	18	14
4703904480	Nytis Exploration Co., LLC	2016	114	18	6	8	0	0	5	8	4	9	23	16	16
4703904480	Nytis Exploration Co., LLC	2017	162	16	15	6	14	14	13	13	12	10	17	16	16
4703904480	Nytis Exploration Co., LLC	2018	88	10	15	17	16	12	9	9	0	0	0	0	0
4703904480	Nytis Exploration Co., LLC	2019	9	0	0	0	9	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2022	121	16	18	0	0	14	13	14	13	15	15	0	0
4703904480	Diversified Production, LLC	2023	260	21	19	26	28	25	19	21	22	17	17	22	23

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904480	Quaker State Oil Refining Co.	1987	1,222	0	0	0	0	0	0	185	233	209	212	188	195
4703904480	Quaker State Oil Refining Co.	1988	1,257	124	102	90	126	106	86	94	99	135	123	66	106
4703904480	Quaker State Oil Refining Co.	1989	1,754	193	223	213	143	159	156	123	112	108	84	109	131
4703904480	Quaker State Oil Refining Co.	1990	1,239	116	117	116	101	64	89	97	75	119	149	106	90
4703904480	Quaker State Oil Refining Co.	1991	853	87	69	73	47	79	68	69	75	71	75	69	71
4703904480	Quaker State Oil Refining Co.	1992	700	69	63	56	64	63	57	50	68	65	66	46	33
4703904480	Quaker State Oil Refining Co.	1993	557	27	70	41	68	56	55	53	50	43	45	42	7
4703904480	Quaker State Oil Refining Co.	1994	430	74	42	37	33	30	16	20	39	34	36	32	37
4703904480	Peake Energy, Inc.	1995	264	36	33	46	0	35	30	0	31	28	0	25	0
4703904480	Peake Energy, Inc.	1996	268	25	26	42	21	22	22	24	21	10	24	13	18
4703904480	Peake Energy, Inc.	1997	205	27	0	29	0	31	0	28	30	0	31	0	29
4703904480	Peake Energy, Inc.	1998	167	0	0	53	0	0	30	25	27	0	0	32	0
4703904480	Peake Energy, Inc.	1999	138	26	0	27	0	28	0	0	29	0	28	0	0
4703904480	North Coast Energy Eastern	2000	170	0	30	0	28	0	27	0	27	0	29	0	29
4703904480	North Coast Energy Eastern	2001	115	0	0	29	0	0	29	0	28	0	0	29	0
4703904480	North Coast Energy Eastern	2002	117	0	28	0	0	29	0	29	0	0	31	0	0
4703904480	North Coast Energy Eastern	2003	90	0	0	0	29	0	29	0	0	0	0	0	32
4703904480	North Coast Energy Eastern	2004	87	30	0	0	0	29	0	0	28	0	0	0	0
4703904480	North Coast Energy Eastern	2005	144	28	0	29	0	0	0	29	29	0	0	0	29
4703904480	North Coast Energy Eastern	2006	57	0	0	0	0	0	28	0	0	0	29	0	0
4703904480	EXCO - North Coast Energy Eastern, Inc.	2007	89	28	0	0	0	34	0	0	27	0	0	0	0
4703904480	EXCO Resources (WV), Inc.	2008	92	0	33	0	0	32	0	0	27	0	0	0	0
4703904480	EXCO Resources (WV), Inc.	2009	94	33	0	0	0	31	0	0	0	0	30	0	0
4703904480	EXCO Resources (WV), Inc.	2010	75	0	0	0	33	10	0	0	0	0	32	0	0
4703904480	EXCO Resources (PA), LLC	2011	62	0	0	0	35	0	0	0	0	27	0	0	0
4703904480	EXCO Resources (PA), LLC	2012	64	0	0	0	32	0	0	0	0	0	0	32	0
4703904480	EXCO Resources (PA), LLC	2013	29	0	0	0	29	0	0	0	0	0	0	0	0
4703904480	EXCO Resources (PA), LLC	2014	77	0	0	0	31	0	0	0	14	32	0	0	0
4703904480	EXCO Resources (PA), LLC	2015	71	0	0	0	29	0	0	0	12	0	0	0	30
4703904480	Nytis Exploration Co., LLC	2016	0												
4703904480	Nytis Exploration Co., LLC	2017	32	0					32						
4703904480	Nytis Exploration Co., LLC	2018	45	0	0	0	15	30	0	0	0	0	0	0	0
4703904480	Nytis Exploration Co., LLC	2019	9	0	0	0	9	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2023	1	0	0	0	1	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904480	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

4703904480

4703904480	EXCO Resources (PA), LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	EXCO Resources (PA), LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Nytis Exploration Co., LLC	2016	0												
4703904480	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904480	Nytis Exploration Co., LLC	2016	0												
4703904480	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904480	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703904480	Original Loc	unidentified coal	Electric Log	671		2		935	Ground Level
4703904480	Original Loc	unidentified coal	Electric Log	770		2		935	Ground Level
4703904480	Original Loc	unidentified coal	Electric Log	898		3		935	Ground Level
4703904480	Original Loc	unidentified coal	Electric Log	954		1		935	Ground Level
4703904480	Original Loc	Salt Sands (undiff)	Well Record	1248	Reasonable	350	Reasonable	935	Ground Level
4703904480	Original Loc	Miss/Penn boundary	Electric Log	1599				935	Ground Level
4703904480	Original Loc	Maxton	Well Record	1683	Reasonable	62	Reasonable	935	Ground Level
4703904480	Original Loc	Little Lime	Well Record	1745	Reasonable	32	Reasonable	935	Ground Level
4703904480	Original Loc	Big Lime	Well Record	1782	Reasonable	152	Reasonable	935	Ground Level
4703904480	Original Loc	Big Injun (Price&eq)	Well Record	1934	Reasonable	43	Reasonable	935	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	INC
4703904480	Regular Entry	48	2076		G,D,C,*	Y	48	2076	431	2076									48	2076	Y	Y

Scanned/Raster Comment: *logs: caliper, perf depth, ccl, tension

* 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
4703904480cdgo.tif
4703904480gpo.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 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

4703904480

WR-35

Date August 24, 1987
Operator's
Well No. #2
Farm C.C. DODD
API No. 47 - 039 - 4480

State of West Virginia
DEPARTMENT OF ENERGY
Oil and Gas Division

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

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

LOCATION: Elevation: 935' Watershed Wills Creek of Little Sandy Creek
District: Elk County Kanawha Quadrangle Blue Creek 7.5'

COMPANY QUAKER STATE OIL REFINING CORPORATION
ADDRESS P.O. Box 1327; Parkersburg, WV 26101
DESIGNATED AGENT Samuel F. Barber
ADDRESS 1226 Putnam Howe Dr; Belpre, OH 45714
SURFACE OWNER Chester Dodd, Jr. etal
ADDRESS Box 47; Spencer, W.V.
MINERAL RIGHTS OWNER Same as above
ADDRESS " " "
OIL AND GAS INSPECTOR FOR THIS WORK
Carlos Hively ADDRESS Elkview, WV
PERMIT ISSUED April 28, 1987
DRILLING COMMENCED May 26, 1987
DRILLING COMPLETED May 29, 1987
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	401'	401'	125 Sx
7			
5 1/2			
4 1/2	2049'	2049'	175 Sx
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Big Injun Depth 1934 - 1977 feet
Depth of completed well 2078' feet Rotary XX / Cable Tools
Water strata depth: Fresh N/A feet; Salt 1248' feet
Coal seam depths: N/A Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Big Injun Pay zone depth 1934- feet
Gas: Initial open flow --- Mcf/d Oil: Initial open flow Show Bbl/d
Final open flow 15 Mcf/d Final open flow 15 Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure psig (surface measurement) after hours shut in
(If applicable due to multiple completion--)
Second producing formation Pay zone depth feet
Gas: Initial open flow Mcf/d Oil: Initial open flow Bbl/d
Final open flow Mcf/d Oil: Final open flow Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure psig (surface measurement) after hours shut in

KAN. 4480

(Continue on reverse side)

4703904480

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

Perf: 1935 - 1970 w/ 36 holes

Frac: 373 Bbls water, 16,000# sd
BD @ 1500 psi, Treated @ 1410 psi, Avg rate 32.4 BPM
I.S.I.P 1100 psi

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Salt sands	1248	1598	Salt water
Shale	1598	1683	
Maxton sand	1683	1745	Salt water
Little Lime	1745	1777	
Shale	1777	1782	
Big Lime	1782	1934	
Big Injun	1934	1977	Oil
Shale	1977	2078	TOTAL DEPTH

(Attach separate sheets as necessary)

Quaker State Corporation
(fka QUAKER STATE OIL REFINING CORPORATION)
Well Operator

By: Jeffrey W. Hill
Date: August 24, 1987
Geologist

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

WVGES
GEOLOGY UNDERLIES IT ALL
"Pipeline"

Select County: (039) Kanawha
Enter Permit #: 4527
Get Data | Reset

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

4703904527

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

WV Geological & Economic Survey:

Well: County = 39 Permit = 4527 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:42:40 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703904527	Kanawha	4527	Elk	Blue Creek	Clendenin	38.479501	-81.477735	458330.6	4259126.9

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
4703904527	9/17/1987	Original Loc	Completed	James Huffman	4					Quaker State Oil Refining Co.			

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
4703904527	9/17/1987	9/14/1987	925	Ground Level	Blue Ck(Flg Rk)	Big Injun (Price&eq)	Big Injun (Price&eq)	Development Well	Development Well	Oil w/ Gas Show	Rotary	Fractured	2063		2063		

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
4703904527	9/17/1987	Water	Salt Water	Vertical			1268						0
4703904527	9/17/1987	Show	Gas	Vertical	1935	Big Injun (Price&eq)	1955	Big Injun (Price&eq)	0	20			
4703904527	9/17/1987	Pay	Oil	Vertical	1935	Big Injun (Price&eq)	1955	Big Injun (Price&eq)	0	15			
4703904527	9/17/1987	Show	Oil	Vertical	1928	Big Injun (Price&eq)	1976	Big Injun (Price&eq)	0	0			

Production Gas Information: (Volumes in Mcf) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904527	Quaker State Oil Refining Co.	1987	162	0	0	0	0	0	0	0	0	0	24	40	98
4703904527	Quaker State Oil Refining Co.	1988	1,687	116	196	208	196	159	196	133	154	111	32	92	94
4703904527	Quaker State Oil Refining Co.	1989	1,178	97	72	70	36	107	139	110	119	102	105	113	108
4703904527	Quaker State Oil Refining Co.	1990	1,147	109	94	98	92	106	88	105	89	96	97	95	78
4703904527	Quaker State Oil Refining Co.	1991	1,281	72	123	120	111	115	109	132	88	95	103	88	125
4703904527	Quaker State Oil Refining Co.	1992	1,129	81	79	93	101	103	110	98	89	91	95	104	85
4703904527	Quaker State Oil Refining Co.	1993	381	82	38	25	29	28	29	28	29	27	27	22	17
4703904527	Quaker State Oil Refining Co.	1994	740	84	74	51	58	78	75	52	50	37	55	52	74
4703904527	Peake Energy, Inc.	1995	548	28	38	27	25	40	72	26	86	54	44	54	54
4703904527	Peake Energy, Inc.	1996	1,232	127	109	86	78	110	91	103	83	63	87	151	144
4703904527	Peake Energy, Inc.	1997	920	85	61	91	65	66	88	96	80	99	48	80	61
4703904527	Peake Energy, Inc.	1998	907	63	63	64	92	72	80	92	67	64	63	91	96
4703904527	Peake Energy, Inc.	1999	662	79	78	69	79	11	2	96	56	54	44	48	46
4703904527	North Coast Energy Eastern	2000	4,060	306	309	333	1,046	306	244	259	250	273	181	277	276
4703904527	North Coast Energy Eastern	2001	615	38	41	50	48	48	65	62	54	44	60	58	47
4703904527	North Coast Energy Eastern	2002	556	48	41	42	49	53	32	42	36	60	67	36	50
4703904															

4703904527

WR-35

RECEIVED
JAN 21 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
DEPARTMENT OF ENERGY
Oil and Gas Division

Date 1-12-88
Operator's
Well No. #4
Farm W. W. Holdren
API No. 47 - 039 - 4527

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

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

LOCATION: Elevation: 925.7 Watershed Wills Creek of Little Sandy Creek
District: Elk County Kanawha Quadrangle Blue Creek

COMPANY Quaker State Corporation
ADDRESS P.O. Box #189 Belpre, Ohio 45714
DESIGNATED AGENT Samuel F. Barber
ADDRESS P.O. Box #189 Belpre, Ohio
SURFACE OWNER James Huffman, et al
ADDRESS Elkview, W.Va.
MINERAL RIGHTS OWNER George Confere, Jr.
ADDRESS Kimberly, W.Va.
OIL AND GAS INSPECTOR FOR THIS WORK Carlos Hively ADDRESS Elkview, W.Va.
PERMIT ISSUED 9-8-87
DRILLING COMMENCED 9-14-87
DRILLING COMPLETED 9-17-87
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	362	362	140 sx. cmt.
7			
5 1/2			
4 1/2	2036	2036	190 sx cmt
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Big Injun Depth 1928 feet
Depth of completed well 2063 feet Rotary XX / Cable Tools ___
Water strata depth: Fresh N/A feet; Salt 1268 feet
Coal seam depths: N/A Is coal being mined in the area? no

OPEN FLOW DATA
Producing formation Big Injun Pay zone depth 1935-1955 feet
Gas: Initial open flow -- Mcf/d Oil: Initial open flow show Bbl/d
Final open flow 20 Mcf/d Final open flow 15 Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

KAN. 4527

(Continue on reverse side)

4703904527

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

Perf: 1935 - 1955 with 3 shots
Frac: 390 Bbl water, 16M# sand
BD at 1997 psi, Treated at 1630 psi, 30 BPM
ISIP 1298 psi

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Salt Sands	1268	1608	
Silt and Shale	1608	1676	
Maxton Sand	1676	1736	
Little Lime.	1736	1766	
Pencil Cave	1766	1772	
Big Lime	1772	1928	
Big Injun	1928	1976	Oil
Silt and Shale	1976	2063	TD

(Attach separate sheets as necessary)

Quaker State Corporation
Well Operator

By: Jeff Hill, Geologist

Date: 1-12-88

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

WV Geological & Economic Survey:

Well: County = 39 Permit = 4594 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:45:06 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703904594	Kanawha	4594	Elk	Blue Creek	Clendenin	38.482296	-81.477223	458376.9	4259436.9

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
4703904594	6/16/1988	Original Loc	Completed	Chester Dodd Jr	3					Quaker State Oil Refining Co.			

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
4703904594	6/16/1988	6/13/1988	883	Ground Level	Blue Ck(Flg Rk)	Big Injun (Price&eq)	Big Injun (Price&eq)	Development Well	Development Well	Oil w/ Gas Show	Rotary	Fractured	2000		2000		

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
4703904594	6/16/1988	Water	Fresh Water	Vertical			322						0
4703904594	6/16/1988	Water	Salt Water	Vertical			1230						0
4703904594	6/16/1988	Show	Gas	Vertical	1886	Big Injun (Price&eq)	1918	Big Injun (Price&eq)	0	10			
4703904594	6/16/1988	Pay	Oil	Vertical	1886	Big Injun (Price&eq)	1918	Big Injun (Price&eq)	0	8			
4703904594	6/16/1988	Show	Oil & Gas	Vertical			1930	Big Injun (Price&eq)	0	0			

Production Gas Information: (Volumes in Mcf) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904594	Quaker State Oil Refining Co.	1988	1,721	222	204	117	169	149	136	139	160	143	60	139	83
4703904594	Quaker State Oil Refining Co.	1989	1,689	81	89	138	145	121	194	145	157	157	158	141	163
4703904594	Quaker State Oil Refining Co.	1990	1,853	176	178	186	107	123	159	127	143	123	124	121	286
4703904594	Quaker State Oil Refining Co.	1991	2,328	263	199	195	180	201	166	202	188	181	196	179	178
4703904594	Quaker State Oil Refining Co.	1992	2,316	193	188	176	179	174	191	192	188	191	214	213	217
4703904594	Quaker State Oil Refining Co.	1993	2,470	209	161	125	220	205	229	224	260	242	206	194	195
4703904594	Quaker State Oil Refining Co.	1994	1,914	188	156	133	195	173	189	188	142	57	190	145	158
4703904594	Peake Energy, Inc.	1995	1,403	79	126	124	128	114	111	75	207	140	114	86	99
4703904594	Peake Energy, Inc.	1996	1,154	114	100	92	98	100	94	115	96	72	93	88	92
4703904594	Peake Energy, Inc.	1997	1,069	81	83	90	70	90	93	106	92	107	86	88	83
4703904594	Peake Energy, Inc.	1998	869	75	76	83	72	61	68	57	67	70	60	95	85
4703904594	Peake Energy, Inc.	1999	625	67	68	80	71	8	0	74	85	81	57	14	20
4703904594	North Coast Energy Eastern	2000	2,832	222	196	225	200	222	281	222	249	239	252	223	301
4703904594	North Coast Energy Eastern	2001	687	30	51	50	44	41	79	56	77	65	73	63	58
4703904594	North Coast Energy Eastern	2002	673	56	47	32	41	67	63	71	64	63	71	42	56
4703904594	North Coast Energy Eastern	2003	585	40	40	50	52	59	40	49	52	58	50	53	42
4703904594	North Coast Energy Eastern	2004	519	38	38	53	55	46	40	52	48	39	35	41	34
4703904594	North Coast Energy Eastern	2005	528	35	37	44	44	55	47	53	54	44	41	38	36
4703904594	North Coast Energy Eastern	2006	409	22	23	27	26	31	45	39	47	28	47	42	32
4703904594	EXCO - North Coast Energy Eastern, Inc.	2007	369	40	26	30	29	30	31	6	21	40	43	42	31
4703904594	EXCO Resources (WV), Inc.	2008	402	47	32	31	31	33	33	29	27	30	41	38	30
4703904594	EXCO Resources (WV), Inc.	2009	328	26	21	30	26	32	28	24	28	28	30	24	31
4703904594	EXCO Resources (WV), Inc.	2010	325	21	19	28	22	26	30	35	29	28	32	27	28
4703904594	EXCO Resources (PA), LLC	2011	300	21	19	14	34	27	27	24	28	31	28	21	26
4703904594	EXCO Resources (PA), LLC	2012	291	23	21	24	28	28	29	25	24	25	21	20	23
4703904594	EXCO Resources (PA), LLC	2013	240	20	15	17	21	14	17	21	23	20	24	26	22
4703904594	EXCO Resources (PA), LLC	2014	230	18	18	19	19	20	20	19	21	18	17	21	20
4703904594	EXCO Resources (PA), LLC	2015	201	19	19	15	8	17	17	18	20	18	18	18	14
4703904594	Nytis Exploration Co., LLC	2016	114	18	6	8	0	0	5	8	4	9	23	16	16
4703904594	Nytis Exploration Co., LLC	2017	162	16	15	6	14	14	13	13	12	10	17	16	16
4703904594	Nytis Exploration Co., LLC	2018	88	10	15	17	17	11	9	9	0	0	0	0	0
4703904594	Nytis Exploration Co., LLC	2019	9	0	0	0	9	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2022	121	16	18	0	0	14	13	14	13	15	15	0	0
4703904594	Diversified Production, LLC	2023	260	21	19	26	28	25	19	21	22	17	17	22	23

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904594	Quaker State Oil Refining Co.	1988	1,257	124	102	90	126	106	86	94	99	135	123	66	106
4703904594	Quaker State Oil Refining Co.	1989	1,754	193	223	213	143	159	156	123	112	108	84	109	131
4703904594	Quaker State Oil Refining Co.	1990	1,239	116	117	116	101	64	89	97	75	119	149	106	90
4703904594	Quaker State Oil Refining Co.	1991	853	87	69	73	47	79	68	69	75	71	75	69	71
4703904594	Quaker State Oil Refining Co.	1992	700	69	63	56	64	63	57	50	68	65	66	46	33
4703904594	Quaker State Oil Refining Co.	1993	557	27	70	41	68	56	55	53	50	43	45	42	7
4703904594	Quaker State Oil Refining Co.	1994	430	74	42	37	33	30	16	20	39	34	36	32	37
4703904594	Peake Energy, Inc.	1995	264	36	33	46	0	35	30	0	31	28	0	25	0
4703904594	Peake Energy, Inc.	1996	265	25	25	41	21	23	22	22	21	11	23	14	17
4703904594	Peake Energy, Inc.	1997	205	27	0	29	0	31	0	28	30	0	31	0	29
4703904594	Peake Energy, Inc.	1998	167	0	0	53	0	0	30	25	27	0	0	32	0
4703904594	Peake Energy, Inc.	1999	138	26	0	27	0	28	0	0	29	0	28	0	0
4703904594	North Coast Energy Eastern	2000	87	0	30	0	28	0	0	0	0	0	0	0	29
4703904594	North Coast Energy Eastern	2001	115	0	0	29	0	0	29	0	28	0	0	29	0
4703904594	North Coast Energy Eastern	2002	117	0	28	0	0	29	0	29	0	0	31	0	0
4703904594	North Coast Energy Eastern	2003	90	0	0	0	29	0	29	0	0	0	0	0	32
4703904594	North Coast Energy Eastern	2004	87	30	0	0	0	29	0	0	28	0	0	0	0
4703904594	North Coast Energy Eastern	2005	144	28	0	29	0	0	0	29	29	0	0	0	29
4703904594	North Coast Energy Eastern	2006	57	0	0	0	0	0	28	0	0	0	29	0	0
4703904594	EXCO - North Coast Energy Eastern, Inc.	2007	89	28	0	0	0	34	0	0	27	0	0	0	0
4703904594	EXCO Resources (WV), Inc.	2008	92	0	33	0	0	32	0	0	27	0	0	0	0
4703904594	EXCO Resources (WV), Inc.	2009	94	33	0	0	0	31	0	0	0	0	30	0	0
4703904594	EXCO Resources (WV), Inc.	2010	75	0	0	0	33	10	0	0	0	0	32	0	0
4703904594	EXCO Resources (PA), LLC	2011	62	0	0	0	35	0	0	0	0	27	0	0	0
4703904594	EXCO Resources (PA), LLC	2012	64	0	0	0	32	0	0	0	0	0	0	32	0
4703904594	EXCO Resources (PA), LLC	2013	29	0	0	0	29	0	0	0	0	0	0	0	0
4703904594	EXCO Resources (PA), LLC	2014	77	0	0	0	31	0	0	0	14	32	0	0	0
4703904594	EXCO Resources (PA), LLC	2015	71	0	0	0	29	0	0	0	12	0	0	0	30
4703904594	Nytis Exploration Co., LLC	2016	0												
4703904594	Nytis Exploration Co., LLC	2017	32	0					32						
4703904594	Nytis Exploration Co., LLC	2018	45	0	0	0	15	30	0	0	0	0	0	0	0
4703904594	Nytis Exploration Co., LLC	2019	9	0	0	0	9	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2022	17	0	17	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2023	1	0	0	0	1	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904594	EXCO Resources (PA), LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	EXCO Resources (PA), LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0

4703904594

4703904594	EXCO Resources (PA), LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Nytis Exploration Co., LLC	2016	0												
4703904594	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904594	Nytis Exploration Co., LLC	2016	0												
4703904594	Nytis Exploration Co., LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Nytis Exploration Co., LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2021	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2022	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904594	Diversified Production, LLC	2023	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703904594	Original Loc	unidentified coal	Electric Log	706	Reasonable	1	Reasonable	893	Kelly Bushing
4703904594	Original Loc	Salt Sands (undiff)	Well Record	1230	Reasonable	468	Reasonable	883	Ground Level
4703904594	Original Loc	Miss/Penn boundary	Electric Log	1555	Reasonable		Qstnble Pick	893	Kelly Bushing
4703904594	Original Loc	Little Lime	Well Record	1698	Reasonable	31	Reasonable	883	Ground Level
4703904594	Original Loc	Pencil Cave	Well Record	1729	Reasonable	5	Reasonable	883	Ground Level
4703904594	Original Loc	Big Lime	Well Record	1734	Reasonable	149	Reasonable	883	Ground Level
4703904594	Original Loc	Big Injun (Price&eq)	Well Record	1883	Reasonable	47	Reasonable	883	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	INC
4703904594	Regular Entry	30	1998		G,C,D,*	Y	30	1990	385	1998									385	1998	Y	Y

Scanned/Raster Comment: *logs: caliper, CCL, perf

* 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
4703904594gd.tif
4703904594gpo.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

WR-35 **4703904594** API # 47- 39-04594

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

Well Operator's Report of Well Work

Farm name: DODD, CHESTER C. JR. Operator Well No.: C.C. DODD 3

LOCATION: Elevation: 883.90 Quadrangle: BLUE CREEK

District: ELK County: KANAWHA
Latitude: 6480 Feet South of 38 Deg. 30Min. 0 Sec.
Longitude 5450 Feet West of 81 Deg. 27 Min. 30 Sec.

Company: QUAKER STATE OIL REFINING
1226 PUTNAM HOWE DR. P.O B189
BELPRE, OH

Agent: FRANK R. ROTUNDA

Inspector: CARLOS W. HIVELY
Permit Issued: 06/03/88
Well work Commenced: 06/13/88
Well work Completed: 06/16/88
Verbal Plugging
Permission granted on:
Rotary XX Cable ____ Rig
Total Depth (feet) 2000
Fresh water depths (ft) 322

Salt water depths (ft) 1230

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

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size			
8 5/8"	421'	421'	150 sx.
4 1/2"	1980'	1980'	180 sx.

RECEIVED
OCT 14 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

OPEN FLOW DATA

Producing formation Big Injun Pay zone depth (ft) 1886-1918
Gas: Initial open flow ____ MCF/d Oil: Initial open flow show Bbl/d
Final open flow 10 MCF/d Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure ____ psig (surface pressure) after ____ Hours

Second producing formation ____ Pay zone depth (ft) ____
Gas: Initial open flow ____ MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow ____ MCF/d Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure ____ psig (surface pressure) after ____ Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Samuel F Barber OCT 24 1988

For: QUAKER STATE OIL REFINING CORP.

By: Samuel F. Barber, District Manager
Date: 10-11-88

4703904594

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

Perf.: 1886 - 1918
Frac.: 416 Bbl. water, 160 sx. sand, B.D. at 1500 PSI
Treated at 32 B.P.M., 1820 PSI
ISIP 1420 PSI

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
sand and shale			0	1230	
salt sands			1230	1698	
Little Lime			1698	1729	
Pencil Cave			1729	1734	
Big Lime			1734	1883	
Big Injun			1883	1930	show oil and gas
silt and shale			1930	2000	T.D.

RECEIVED
OCT 14 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

7127

WV Geological & Economic Survey:

Well: County = 39 Permit = 4596 Link to all digital records for well

Report Time: Tuesday, May 13, 2025 1:44:38 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703904596	Kanawha	4596	Elk	Blue Creek	Clendenin	38.483272	-81.474046	458654.5	4259543.7

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
4703904596	6/19/1988	Original Loc	Completed	Gary Morris/Lilly	2					Quaker State Oil Refining Co.			
4703904596	6/7/2006	Plugging	Completed	Gary W Morris	2				Herman F Lilly	North Coast Energy Eastern			

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
4703904596	6/19/1988	6/16/1988	937	Ground Level	Blue Ck(Flg Rk)	Big Injun (Price&eq)	Big Injun (Price&eq)	Development Well	Development Well	Oil w/ Gas Show	Rotary	Fractured	2035		2035	
4703904596	6/7/2006	6/6/2006						unclassified	unclassified	not available	unknown	unknown				

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
4703904596	6/19/1988	Water	Fresh Water	Vertical			327						0
4703904596	6/19/1988	Water	Salt Water	Vertical			1254						0
4703904596	6/19/1988	Pay	Oil	Vertical	1936	Big Injun (Price&eq)	1970	Big Injun (Price&eq)	0	12			
4703904596	6/19/1988	Show	Gas	Vertical	1936	Big Injun (Price&eq)	1970	Big Injun (Price&eq)	0	15			

Production Gas Information: (Volumes in Mcf) *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904596	Quaker State Oil Refining Co.	1988	828	49	70	68	60	60	52	42	37	51	41	125	173
4703904596	Quaker State Oil Refining Co.	1989	5,043	393	297	313	229	348	382	574	592	424	378	567	546
4703904596	Quaker State Oil Refining Co.	1990	4,752	399	242	252	200	230	345	478	404	571	578	565	488
4703904596	Quaker State Oil Refining Co.	1991	4,757	448	425	416	384	345	335	408	375	442	478	393	308
4703904596	Quaker State Oil Refining Co.	1992	3,097	260	252	242	269	305	274	206	159	0	303	493	334
4703904596	Quaker State Oil Refining Co.	1993	3,385	321	350	235	235	339	345	322	254	356	209	213	206
4703904596	Quaker State Oil Refining Co.	1994	2,457	303	206	142	238	208	236	221	153	107	249	172	222
4703904596	Peake Energy, Inc.	1995	1,753	141	76	109	108	196	206	91	245	178	166	146	91
4703904596	Peake Energy, Inc.	1996	1,241	88	99	109	120	138	112	139	110	86	100	86	54
4703904596	Peake Energy, Inc.	1997	548	42	32	35	29	81	69	78	53	46	31	26	26
4703904596	Peake Energy, Inc.	1998	276	29	42	50	45	36	44	20	2	0	0	2	6
4703904596	Peake Energy, Inc.	1999	54	15	14	19	0	0	0	0	0	0	0	6	0
4703904596	North Coast Energy Eastern	2000	5,099	394	388	464	380	427	455	405	475	364	513	465	369
4703904596	North Coast Energy Eastern	2001	299	0	50	8	22	5	40	29	30	23	28	34	30
4703904596	North Coast Energy Eastern	2002	360	22	26	28	38	38	36	30	33	27	37	16	29
4703904596	North Coast Energy Eastern	2003	365	18	30	30	39	39	22	33	44	33	31	28	18
4703904596	North Coast Energy Eastern	2004	207	8	11	32	1	33	33	32	12	9	8	15	13
4703904596	North Coast Energy Eastern	2005	118	2	25	16	16	16	31	0	0	3	7	2	0
4703904596	North Coast Energy Eastern	2006	104	3	20	13	31	31	6	0	0	0	0	0	0
4703904596	EXCO - North Coast Energy Eastern, Inc.	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	EXCO Resources (WV), Inc.	2009	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil *** 2024 data for H6A wells only. Other wells are incomplete at this time.**

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703904596	Quaker State Oil Refining Co.	1988	1,236	25	19	22	19	19	20	25	211	230	223	216	207
4703904596	Quaker State Oil Refining Co.	1989	1,814	176	135	164	192	191	156	117	158	177	134	133	81
4703904596	Quaker State Oil Refining Co.	1990	1,224	108	97	95	104	69	18	114	143	126	115	132	103
4703904596	Quaker State Oil Refining Co.	1991	903	98	83	109	38	14	46	105	77	109	78	71	75
4703904596	Quaker State Oil Refining Co.	1992	590	60	53	52	21	14	13	76	69	62	62	37	71
4703904596	Quaker State Oil Refining Co.	1993	584	24	17	97	58	57	53	48	38	35	30	31	96
4703904596	Quaker State Oil Refining Co.	1994	296	24	25	27	28	26	23	18	29	13	36	24	23
4703904596	Peake Energy, Inc.	1995	221	0	0	48	0	0	51	0	78	0	44	0	0
4703904596	Peake Energy, Inc.	1996	321	24	28	28	31	33	29	36	32	17	29	32	2
4703904596	Peake Energy, Inc.	1997	85	0	0	0	0	0	0	85	0	0	0	0	0
4703904596	Peake Energy, Inc.	1998	166	0	0	85	0	0	0	81	0	0	0	0	0
4703904596	Peake Energy, Inc.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	North Coast Energy Eastern	2006	20	0	0	0	0	0	0	20	0	0	0	0	0
4703904596	EXCO - North Coast Energy Eastern, Inc.	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4703904596	EXCO Resources (WV), Inc.	2009	0	0	0	0	0	0	0	0	0	0	0	0	0

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703904596	Original Loc	Salt Sands (undiff)	Well Record	1254	Reasonable	492	Reasonable	937	Ground Level
4703904596	Original Loc	Miss/Penn boundary	Electric Log	1595				937	Ground Level
4703904596	Original Loc	Little Lime	Well Record	1746	Reasonable	30	Reasonable	937	Ground Level
4703904596	Original Loc	Pencil Cave	Well Record	1776	Reasonable	8	Reasonable	937	Ground Level
4703904596	Original Loc	Big Lime	Well Record	1784	Reasonable	148	Reasonable	937	Ground Level
4703904596	Original Loc	Big Injun (Price&eq)	Well Record	1932	Reasonable	40	Reasonable	937	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	INC
4703904596	Regular Entry	10	2040		G,D,C,*	Y	10	2018	70	2040									70	2034	Y	Y

Scanned/Raster Comment: *logs: caliper, perf depth, ccl

* 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
4703904596cdg.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

4703904596gpo.tif

4703904596

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

Plugging Information:

API	PLG_DT	DEPTH_PBT
4703904596	6/7/2006	0

There is no Sample data for this well

WR-35

RECEIVED
OCT 05 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

08-Jun-88
API # 47- 39-04596

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

4703904596

Well Operator's Report of Well Work

Farm name: MORRIS, GARY W. Operator Well No.: LILLY 2

LOCATION: Elevation: 937.70 Quadrangle: BLUE CREEK

District: ELK County: KANAWHA
Latitude: 6020 Feet South of 38 Deg. 30Min. 0 Sec.
Longitude 4550 Feet West of 81 Deg. 27 Min. 30 Sec.

Company: QUAKER STATE OIL REFINING
1226 PUTNAM HOWE DR. P.O B189
BELPRE, OH

Agent: FRANK R. ROTUNDA

Inspector: CARLOS W. HIVELY
Permit Issued: 06/06/88
Well work Commenced: 06/16/88
Well work Completed: 06/19/88
Verbal Plugging
Permission granted on:
Rotary ____ Cable ____ Rig
Total Depth (feet) 2035
Fresh water depths (ft) 327

Salt water depths (ft) 1254

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

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size			
8 5/8"	465'	465'	160 sx.
4 1/2"	2020'	2020'	180 sx.

RECEIVED
SEP 21 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

OPEN FLOW DATA

Producing formation Big Injun Pay zone depth (ft) 1932
Gas: Initial open flow ____ MCF/d Oil: Initial open flow show Bbl/d
Final open flow 15 MCF/d Final open flow 12 Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure ____ psig (surface pressure) after ____ Hours

Second producing formation ____ Pay zone depth (ft) ____
Gas: Initial open flow ____ MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow ____ MCF/d Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure ____ psig (surface pressure) after ____ Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Samuel F. Barber

For: QUAKER STATE OIL REFINING CORP.

By: Samuel F. Barber, District Manager
Date: 9/19/88

4703904596

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

Perf.: 1936 - 1970
Frac.: 418 Bbl. water, 160 sx. sand, BD at 1262
Treated at 36 BPM, 1344 PSI
ISIP 1009

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
sand and shale	0	1254	
salt sands	1254	1746	
Little Lime	1746	1776	
Pencil Cave	1776	1784	
Big Lime	1784	1932	
Big Injun	1932	1972	
silt and shale	1972	2035	

RECEIVED
OCT 05 1988
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

7146

4703904596

Rev (5-01)
WR-38
DATE: 06/13/06

API# - 47-039-04596

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

AFFIDAVIT OF PLUGGING AND FILLING WELL

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

Farm name: Morris, Gary W. Operator Well No.: H.F. Lilly #2

LOCATION: Elevation: 947' Quadrangle: Blue Creek
District: Elk County: Kanawha
Location 81 Degrees 27' 30" South
Location 38 Degrees 30' West

Well Type: OIL ____ GAS x

Company: North Coast Energy, Inc.
P.O. Box 8
Ravenswood, WV 26164

Coal Operator or Owner: NA

Coal Operator or Owner: NA

Agent: Dave Cox

Permit Issued Date: 02/23/2006

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha ss:

Jon Ullom and Paul Francis being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hively Oil and Gas Inspector representing the Secretary, say that said work was commenced on the 6th day of June, 2006 and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
6% Gel	1990'	1920'	None	
Class A Cement	1920'	1770'	None	
6% Gel	1770'	950'	None	
Class A Cement	950'	800'	950' of 4-1/2" Casing	1070' of 4-1/2" Casing
6% Gel	800'	515'	None	
Class A Cement	515'	365'	None	
6% Gel	365'	102'	None	
Class A Cement	102'	Surface	None	

Description of monument: 4' of 4-1/2" Casing Above Ground Level With A.P.I. Number and that the work of plugging and filling of said well was completed on the 7th day of June, 2006

And further deponents saith not. Jon Ullom Paul Francis

Sworn and subscribe before me this 30th day of June 2006
My commission expires: 4/15/2012

Kathryn Casto
Notary Public

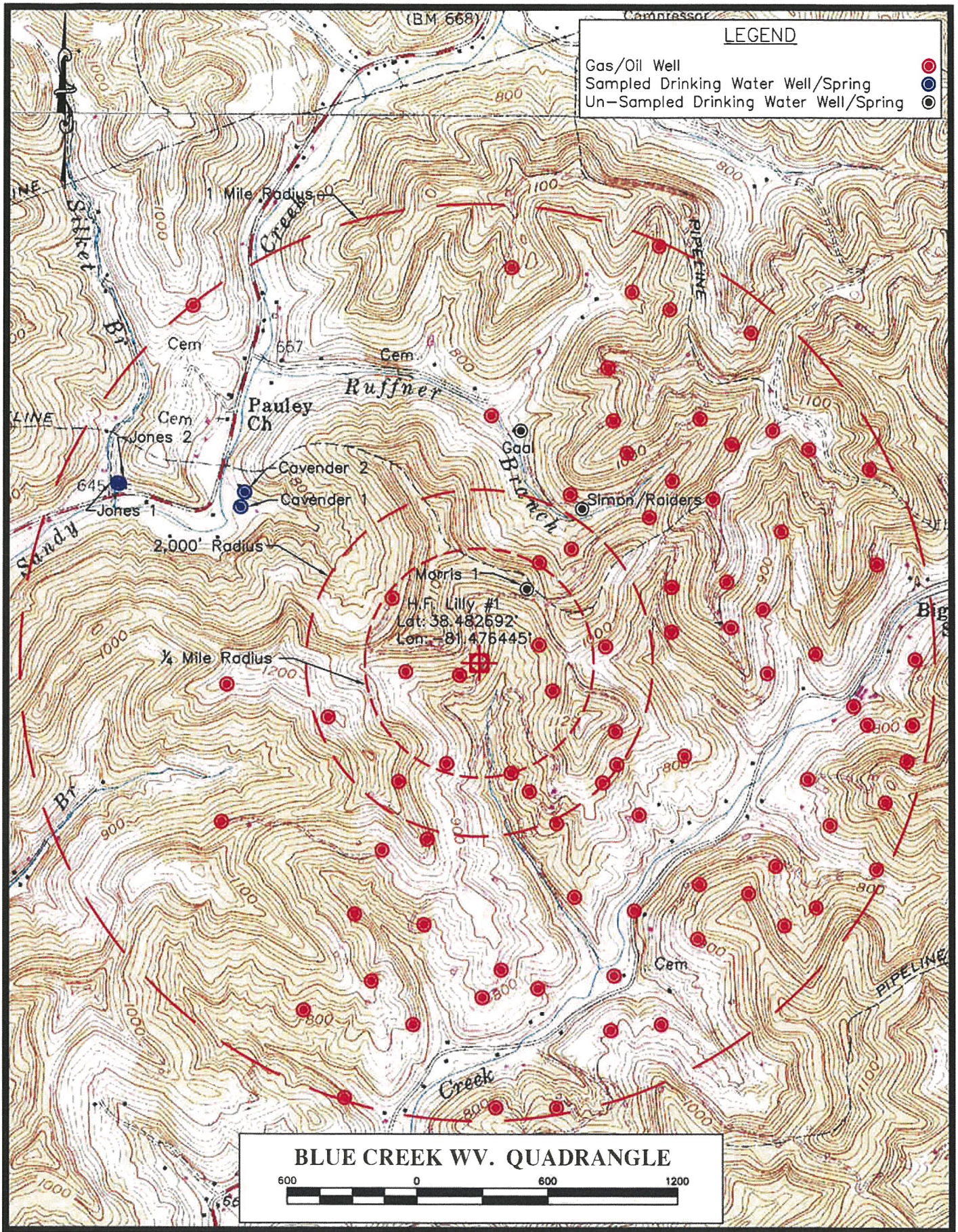
Oil and Gas Inspector: Carlos W. Hively

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
KATHRYN CASTO
HC 80, BOX 1368
RIPLEY, WV 25271
My commission expires April 15, 2012

RECEIVED
Office of Oil & Gas
Office of Chief
JUL 12 2006
WV Department of Environmental Protection

JUL 14 2006

KAN 4596



KENVIRONS, INC. FRANKFORT, KENTUCKY	Project: 2018160 Checked By: BTB Date: Sept. 2018 Scale: As Shown	NYTIS EXPLORATION COMPANY, LLC H. F. LILLY #1 KANAWHA COUNTY, WEST VIRGINIA

N:\P\2018160\MISCELLANEOUS\HF LILLY 1MILE-V2.dwg, 3/11/2019 1:53:24 PM, pth, iR-ADV C5535.pc3

4703902262

4703902262

UIC Section 7 Water Wells and Springs Sampling Summary H. F. Lilly #1 UIC2D0392262

Injection Well	Well Name	Lat	Long	Estimated Distance (miles)	Sampled	Notes
H. F. Lilly #1	Cavender 1	38.488048	-81.485992	0.63/0.41	Y	Well at house. Sampled from spigot
	Cavender 2	38.487579	-81.486073	0.61/0.38	Y	Open pit well with cover. Very clear/clean
	Cavender 3	38.487795	-81.485746	0.63/0.41	Y	Pond near house.
	Clark 1	38.490044	-81.474804	0.43	N	Owner does not want well sampled.(wellhead is buried)
	Johnson 1	38.487586	-81.472315	0.33	N	Unable to establish contact. Home appears vacant. Suspected well.
	Morris 1 (cistern)	38.485034	-81.474541	0.12	N	Owner not home, unable to contact.(rain cistern)
	Gaal	38.493410	-81.477291	0.65	N	Owner did not want well to be sampled. Use city water.
	Simon/Raiders	38.492048	-81.478138	0.57	N	Owner did not want well to be sampled. Use city water.
	Multiple			<0.25	N	Owners at 1065 Douglas Branch, 9 Ravina Rd.,306 Ravina Rd.,78 & 129 Carte Dr.said they had no wells. Remainder of houses on Douglas Branch and Ravina Rd. could not be contacted; posted No Tresspassing; or appeared vacant. Addresses include 790, 939, and 1491 Douglas Branch, 81 Ravina Rd., 605 Carte Dr.

4703902262

APPENDIX E

Water Sources

Operator: Diversified Gas & Oil Year 2024 UIC Permit # UIC2D0392262

		Source #1	Source #2	Source #3	Source #4
Water Source Name		Cavender 1 (well)	Cavender 2(dug well)	Cavender 3 (pond)	
Northing		4260021.51	4260079.06	4260050.9	
Easting		457612.41	457621.61	457636.72	
Parameter	**Units**				
Chloride	mg/L	18.80	7.31	5.34	
Bromide	mg/L	Not Detected	Not Detected	Not Detected	
Strontium	mg/L	0.0343	0.0719	0.305	
Barium	mg/L	0.0195	0.0754	0.126	
Iron	mg/L	1.05	0.0959	0.353	
Total Dissolved Solids (TDS)	mg/L	300	120	84	
pH	SU	8.04	5.66	6.64	
Manganese	mg/L	0.0443	0.0155	0.0588	
Aluminum	mg/L	0.708	0.0636	Not Detected	
Arsenic	mg/L	Not Detected	Not Detected	Not Detected	
Sodium	mg/L	2.09	2.82	93.6	
Calcium	mg/L	5.30	11.2	13.8	
Sulfate	mg/L	0.400	8.62	8.51	
MBAS	mg/L	Not Detected	Not Detected	Not Detected	

Domestic Water Analyses

09-Jan-2025

Jeff Burke
Diversified Gas & Oil Corporation
PO Box 6070
Charleston, WV 25362

Re: **UIC Water Well** Work Order: **24120491**

Dear Jeff,

ALS Environmental received 4 samples on 19-Dec-2024 11:51 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - South Charleston and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 12.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 1740 Union Carbide Drive, South Charleston, WV, USA
PHONE: +1 (304) 356-3168 FAX: +1 (304) 205-6262

Sincerely,

Rebecca Kiser

Electronically approved by: Briana Lothes

Rebecca Kiser
Project Manager

Report of Laboratory Analysis

Certificate No: WV: 385

ALS Group, USA

Date: 09-Jan-25

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Work Order: **24120491**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24120491-01	C.Pritt 2 (Pond) Grab	Water		12/19/2024 10:02	12/19/2024 11:51	☐
24120491-01	C.Pritt 2 (Pond) Grab	Water		12/19/2024 10:02	12/20/2024 10:00	☐
24120491-02	Cavender 1 Grab	Water		12/19/2024 09:04	12/19/2024 11:51	☐
24120491-02	Cavender 1 Grab	Water		12/19/2024 09:04	12/20/2024 10:00	☐
24120491-03	Cavender 2 (duglopan well) Grab	Water		12/19/2024 09:11	12/19/2024 11:51	☐
24120491-03	Cavender 2 (duglopan well) Grab	Water		12/19/2024 09:11	12/20/2024 10:00	☐
24120491-04	Cavender 3 (pond)	Water		12/19/2024 09:18	12/19/2024 11:51	☐
24120491-04	Cavender 3 (pond)	Water		12/19/2024 09:18	12/20/2024 10:00	☐

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Work Order: 24120491

Case Narrative

Samples for the above noted Work Order were received on 12/19/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
Batch R416402, Method A4500-H B-11, Samples 24120491-01C, -02C, -03C, -04C: Samples were received and analyzed outside of the holding time at the request of the client. Results should be considered estimated. pH

Client:	Diversified Gas & Oil Corporation
Project:	UIC Water Well
WorkOrder:	**24120491**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg MBAS/L	Milligrams Methylene Blue Active Substances per Liter
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: C.Pritt 2 (Pond) Grab
Collection Date: 12/19/2024 10:02 AM

Work Order: 24120491
Lab ID: 24120491-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**6.66**	H	**0**	**0.020**	**s.u.**	1	12/19/2024 19:25
Temperature	**21.0**	Hn	**0**		**s.u.**	1	12/19/2024 19:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: Cavender 1 Grab
Collection Date: 12/19/2024 09:04 AM

Work Order: 24120491
Lab ID: 24120491-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**8.04**	H	**0**	**0.020**	**s.u.**	1	12/19/2024 19:25
Temperature	**21.0**	Hn	**0**		**s.u.**	1	12/19/2024 19:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: Cavender 2 (duglopan well) Grab
Collection Date: 12/19/2024 09:11 AM

Work Order: 24120491
Lab ID: 24120491-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**5.66**	H	**0**	**0.020**	**s.u.**	1	12/19/2024 19:25
Temperature	**21.2**	Hn	**0**		**s.u.**	1	12/19/2024 19:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: Cavender 3 (pond)
Collection Date: 12/19/2024 09:18 AM

Work Order: 24120491
Lab ID: 24120491-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**6.64**	H	**0**	**0.020**	**s.u.**	1	12/19/2024 19:25
Temperature	**21.2**	Hn	**0**		**s.u.**	1	12/19/2024 19:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 09-Jan-25

Client: Diversified Gas & Oil Corporation

Work Order: 24120491

Project: UIC Water Well

QC BATCH REPORT

Batch ID: **R416402** Instrument ID **STC-WC** Method: **A4500-H B-11**

LCS Sample ID: **LCS-R416402-R416402** Units: **s.u.** Analysis Date: **12/19/2024 07:25 PM**

Client ID: Run ID: **STC-WC_241219E** SeqNo: **11324450** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	4.04	0	0.020	4	0	101	90-110	0			

DUP Sample ID: **24120489-05D DUP** Units: **s.u.** Analysis Date: **12/19/2024 07:25 PM**

Client ID: Run ID: **STC-WC_241219E** SeqNo: **11324452** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.97	0	0.020	0	0	0	0-0	7.96	0.126	20	H
Temperature	21.4	0	0	0	0	0		21.1	1.41		H

The following samples were analyzed in this batch: 24120491-01C 24120491-02C 24120491-03C 24120491-04C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

☒ **ALS**
1740 Union Carbide Drive
South Charleston, WV 25303
(Tel) 304.356.3168
(Fax) 304.205.6262

Chain of Custody Form

Page ____ of ____

16029

☐ **ALS**
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	UIC Water Well	A	
Work Order		Project Number		B	
Company Name	Diversified Gas & Oil	Bill To Company		C	
Send Report To	Lisa Ratcliffe / Jeff Burke	Invoice Attn.		D	
Address	P.O. Box 6070	Address		E	
				F	
City/State/Zip	Charleston WV 25362	City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address	lratcliffe@dgoc.com / jeffersonburke123@gmail.com.			J	

No.	Sample Description	Comp / Grab	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	Id
1	C. Pritt 2 (pond)	Grab	12/19/24	10:02AM	W		3								pH 6.2
2	Cavender 1	Grab	12/19/24	9:04AM	W		3								pH 7.2
3	Cavender 2 (drug/open well)	Grab	12/19/24	9:11AM	W		3								pH 6.2
4	Cavender 3 (pond)	Grab	12/19/24	9:12AM	W		3								pH 6.8
5															
6															
7															
8															
9															
10															

24120491
DIVERSIFIED: Diversified Gas & Oil Corporation
Project: Water Well

Sampler(s): Please Print & Sign
Jeff Burke Jeff Burke

Shipment Method:

Turnaround Time in Business Days (BD): ☐ Other ____
☐ 10 BD(STD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD

Re

Relinquished by:	Date:	Time:	Received by:	Temp:	Notes:
Jeff Burke	12/19/2024	11:57AM	Michelle Holmes	ALS#2 L6	
Relinquished by:	Date:	Time:	Received by:		
Relinquished by:	Date:	Time:	Received by:	Temp:	QC Package: (Check Box Below)
Relinquished by:	Date:	Time:	Received by (Laboratory):		Level II: Standard QC Level III: Standard QC + Raw Data Level IV: SW846 Methods/CLP Other:
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS

ALS Environmental

1740 Union Carbide Drive
South Charleston, WV 25303

Sample Receiving Checklist

Received by:	MLH
Date/Time:	12.19.24 1151
Carrier Name:	Client
Shipping container/cooler in good condition?	(Yes) / No / Not Present
Custody seals intact on shipping container/cooler?	Yes / No / (Not Present)
Custody seals intact on sample bottles?	Yes / No / (Not Present)
Chain of Custody present?	(Yes) / No
COC signed when relinquished and received?	(Yes) / No
COC agrees with sample labels?	(Yes) / No
Samples in proper container/bottle?	(Yes) / No
Sample containers intact?	(Yes) / No
Sufficient sample volume for indicated test?	(Yes) / No
All samples received within holding time?	(Yes) / No
All sample temperatures verified to be in compliance?	(Yes) / No
Temperature(s) (°C):	<6°c
Thermometer(s):	IR-Gun
Sample(s) received on ice?	(Yes) / No
Matrix/Matrices:	Water
Cooler(s)/Kit(s):	
Date/Time sample(s) sent to storage:	
Trip Blanks included? (for volatile analysis only)	Yes / (No) / N/A
Water – VOA vials have zero headspace?	Yes / No / (No Vials)
Water – pH acceptable upon receipt?	Yes / No / (N/A)
pH strip lot #: _____	
pH adjusted (note adjustments below)?	Yes / No / (N/A)
pH adjusted by:	

Login Notes:

24120491

DIVERSIFIED: Diversified Gas & Oil Corporation
Project: Water Well

09-Jan-2025

Jeff Burke
Diversified Gas & Oil Corporation
PO Box 6070
Charleston, WV 25362

Re: **UIC Water Well** Work Order: **24120491**

Dear Jeff,

ALS Environmental received 4 samples on 20-Dec-2024 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 18.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Rebecca Kiser

Electronically approved by: Briana Lothes

Rebecca Kiser
Project Manager

ALS Group, USA

Date: 09-Jan-25

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Work Order: **24120491**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24120491-01	C.Pritt 2 (Pond) Grab	Water		12/19/2024 10:02	12/19/2024 11:51	☐
24120491-01	C.Pritt 2 (Pond) Grab	Water		12/19/2024 10:02	12/20/2024 10:00	☐
24120491-02	Cavender 1 Grab	Water		12/19/2024 09:04	12/19/2024 11:51	☐
24120491-02	Cavender 1 Grab	Water		12/19/2024 09:04	12/20/2024 10:00	☐
24120491-03	Cavender 2 (duglopan well) Grab	Water		12/19/2024 09:11	12/19/2024 11:51	☐
24120491-03	Cavender 2 (duglopan well) Grab	Water		12/19/2024 09:11	12/20/2024 10:00	☐
24120491-04	Cavender 3 (pond)	Water		12/19/2024 09:18	12/19/2024 11:51	☐
24120491-04	Cavender 3 (pond)	Water		12/19/2024 09:18	12/20/2024 10:00	☐

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Work Order: 24120491

Case Narrative

Samples for the above noted Work Order were received on 12/20/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:
No other deviations or anomalies were noted.

Wet Chemistry:
No other deviations or anomalies were noted.

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
WorkOrder: **24120491**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg MBAS/L	Milligrams Methylene Blue Active Substances per Liter
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: C.Pritt 2 (Pond) Grab
Collection Date: 12/19/2024 10:02 AM

Work Order: 24120491
Lab ID: 24120491-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-AES		Method: **E200.7**			Prep: CEM-NPDES / 12/27/24		Analyst: **ABL**
Aluminum	**0.435**		**0.010**	**0.010**	**mg/L**	1	1/6/2025 13:05
Arsenic	U		0.0016	0.0050	mg/L	1	1/8/2025 12:42
Barium	**0.0256**		**0.0043**	**0.0050**	**mg/L**	1	1/6/2025 13:05
Calcium	**8.44**		**0.39**	**0.50**	**mg/L**	1	1/6/2025 13:05
Iron	**0.663**		**0.079**	**0.080**	**mg/L**	1	1/6/2025 13:05
Manganese	**0.0561**		**0.0023**	**0.0050**	**mg/L**	1	1/6/2025 13:05
Sodium	**4.04**		**0.26**	**0.50**	**mg/L**	1	1/6/2025 13:05
Strontium	**0.0487**		**0.0012**	**0.0050**	**mg/L**	1	1/6/2025 13:05
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **QTN**
Bromide	U		0.032	0.20	mg/L	1	12/31/2024 01:56
Chloride	**9.23**		**0.31**	**1.0**	**mg/L**	1	12/31/2024 01:56
Sulfate	**7.87**		**0.19**	**1.0**	**mg/L**	1	12/31/2024 01:56
MBAS, AS LAS, MOL WT 348		Method: **A5540C-11**					Analyst: **JNV**
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	12/20/2024 14:13
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-15**			Prep: FILTER / 12/26/24		Analyst: **SRN**
Total Dissolved Solids	**86**		**22**	**30**	**mg/L**	1	12/30/2024 17:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: Cavender 1 Grab
Collection Date: 12/19/2024 09:04 AM

Work Order: 24120491
Lab ID: 24120491-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-AES		Method: **E200.7**			Prep: CEM-NPDES / 12/27/24		Analyst: **ABL**
Aluminum	**0.708**		**0.010**	**0.010**	**mg/L**	1	1/6/2025 13:11
Arsenic	U		0.0016	0.0050	mg/L	1	1/8/2025 12:48
Barium	**0.0195**		**0.0043**	**0.0050**	**mg/L**	1	1/6/2025 13:11
Calcium	**5.30**		**0.39**	**0.50**	**mg/L**	1	1/6/2025 13:11
Iron	**1.05**		**0.079**	**0.080**	**mg/L**	1	1/6/2025 13:11
Manganese	**0.0443**		**0.0023**	**0.0050**	**mg/L**	1	1/6/2025 13:11
Sodium	**2.09**		**0.26**	**0.50**	**mg/L**	1	1/6/2025 13:11
Strontium	**0.0343**		**0.0012**	**0.0050**	**mg/L**	1	1/6/2025 13:11
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **QTN**
Bromide	U		0.032	0.20	mg/L	1	12/31/2024 02:06
Chloride	**18.8**		**5.0**	**16**	**mg/L**	16	12/20/2024 21:09
Sulfate	**0.400**	J	**0.19**	**1.0**	**mg/L**	1	12/31/2024 02:06
MBAS, AS LAS, MOL WT 348		Method: **A5540C-11**					Analyst: **JNV**
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	12/20/2024 14:13
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-15**			Prep: FILTER / 12/24/24		Analyst: **SRN**
Total Dissolved Solids	**300**		**37**	**50**	**mg/L**	1	12/26/2024 17:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: Cavender 2 (duglopan well) Grab
Collection Date: 12/19/2024 09:11 AM

Work Order: 24120491
Lab ID: 24120491-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-AES		Method: **E200.7**			Prep: CEM-NPDES / 12/27/24		Analyst: **ABL**
Aluminum	**0.0636**		**0.010**	**0.010**	**mg/L**	1	1/6/2025 13:17
Arsenic	U		0.0016	0.0050	mg/L	1	1/8/2025 12:54
Barium	**0.0754**		**0.0043**	**0.0050**	**mg/L**	1	1/6/2025 13:17
Calcium	**11.2**		**0.39**	**0.50**	**mg/L**	1	1/6/2025 13:17
Iron	**0.0959**		**0.079**	**0.080**	**mg/L**	1	1/6/2025 13:17
Manganese	**0.0155**		**0.0023**	**0.0050**	**mg/L**	1	1/6/2025 13:17
Sodium	**2.82**		**0.26**	**0.50**	**mg/L**	1	1/6/2025 13:17
Strontium	**0.0719**		**0.0012**	**0.0050**	**mg/L**	1	1/6/2025 13:17
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **QTN**
Bromide	U		0.51	3.2	mg/L	16	12/20/2024 21:18
Chloride	**7.31**	J	**5.0**	**16**	**mg/L**	16	12/20/2024 21:18
Sulfate	**8.62**	J	**3.0**	**16**	**mg/L**	16	12/20/2024 21:18
MBAS, AS LAS, MOL WT 348		Method: **A5540C-11**					Analyst: **JNV**
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	12/20/2024 14:13
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-15**			Prep: FILTER / 12/24/24		Analyst: **SRN**
Total Dissolved Solids	**120**		**22**	**30**	**mg/L**	1	12/26/2024 17:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *09-Jan-25*

Client: Diversified Gas & Oil Corporation
Project: UIC Water Well
Sample ID: Cavender 3 (pond)
Collection Date: 12/19/2024 09:18 AM

Work Order: 24120491
Lab ID: 24120491-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-AES		Method: **E200.7**			Prep: CEM-NPDES / 12/27/24		Analyst: **ABL**
Aluminum	U		0.010	0.010	mg/L	1	1/6/2025 13:23
Arsenic	U		0.0016	0.0050	mg/L	1	1/8/2025 13:00
Barium	**0.126**		**0.0043**	**0.0050**	**mg/L**	1	1/6/2025 13:23
Calcium	**13.8**		**0.39**	**0.50**	**mg/L**	1	1/6/2025 13:23
Iron	**0.353**		**0.079**	**0.080**	**mg/L**	1	1/6/2025 13:23
Manganese	**0.0588**		**0.0023**	**0.0050**	**mg/L**	1	1/6/2025 13:23
Sodium	**93.6**		**0.26**	**0.50**	**mg/L**	1	1/6/2025 13:23
Strontium	**0.305**		**0.0012**	**0.0050**	**mg/L**	1	1/6/2025 13:23
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **QTN**
Bromide	U		0.51	3.2	mg/L	16	12/20/2024 21:26
Chloride	**5.34**	J	**5.0**	**16**	**mg/L**	16	12/20/2024 21:26
Sulfate	**8.51**	J	**3.0**	**16**	**mg/L**	16	12/20/2024 21:26
MBAS, AS LAS, MOL WT 348		Method: **A5540C-11**					Analyst: **JNV**
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	12/20/2024 14:13
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-15**			Prep: FILTER / 12/24/24		Analyst: **SRN**
Total Dissolved Solids	**84**		**22**	**30**	**mg/L**	1	12/26/2024 17:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **251727** Instrument ID **ICP2** Method: **E200.7**

MBLK	Sample ID: **MBLK-251727-251727**					Units: **mg/L**			Analysis Date: **1/6/2025 12:53 PM**			
Client ID:		Run ID: **ICP2_250106A**				SeqNo: **11350806**			Prep Date: **12/27/2024**		DF: **1**	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.01	0.010								
Barium	U	0.0043	0.0050								
Calcium	U	0.39	0.50								
Iron	U	0.079	0.080								
Manganese	U	0.0023	0.0050								
Sodium	U	0.26	0.50								
Strontium	U	0.0012	0.0050								

MBLK	Sample ID: **MBLK-251727-251727**					Units: **mg/L**			Analysis Date: **1/8/2025 12:30 PM**			
Client ID:		Run ID: **ICP2_250108A**				SeqNo: **11356359**			Prep Date: **12/27/2024**		DF: **1**	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0016	0.0050								

LCS	Sample ID: **LCS-251727-251727**					Units: **mg/L**			Analysis Date: **1/6/2025 12:59 PM**			
Client ID:		Run ID: **ICP2_250106A**				SeqNo: **11350807**			Prep Date: **12/27/2024**		DF: **1**	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09713	0.01	0.010	0.1	0	97.1	85-115	0			
Barium	0.1041	0.0043	0.0050	0.1	0	104	85-115	0			
Calcium	9.862	0.39	0.50	10	0	98.6	85-115	0			
Iron	10.08	0.079	0.080	10	0	101	85-115	0			
Manganese	0.09713	0.0023	0.0050	0.1	0	97.1	85-115	0			
Sodium	10.03	0.26	0.50	10	0	100	85-115	0			
Strontium	0.09856	0.0012	0.0050	0.1	0	98.6	85-115	0			

LCS	Sample ID: **LCS-251727-251727**					Units: **mg/L**			Analysis Date: **1/8/2025 12:36 PM**			
Client ID:		Run ID: **ICP2_250108A**				SeqNo: **11356360**			Prep Date: **12/27/2024**		DF: **1**	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0979	0.0016	0.0050	0.1	0	97.9	85-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Diversified Gas & Oil Corporation
Work Order: 24120491
Project: UIC Water Well

QC BATCH REPORT

Batch ID: **251727** Instrument ID **ICP2** Method: **E200.7**

MS Sample ID: **24120491-04BMS** Units: **mg/L** Analysis Date: **1/6/2025 01:30 PM**
Client ID: **Cavender 3 (pond)** Run ID: **ICP2_250106A** SeqNo: **11350812** Prep Date: **12/27/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09735	0.01	0.010	0.1	0.003234	94.1	70-130	0			
Barium	0.2208	0.0043	0.0050	0.1	0.126	94.7	70-130	0			
Calcium	22.65	0.39	0.50	10	13.79	88.6	70-130	0			
Iron	9.938	0.079	0.080	10	0.3527	95.9	70-130	0			
Manganese	0.1518	0.0023	0.0050	0.1	0.05885	92.9	70-130	0			
Sodium	101.4	0.26	0.50	10	93.58	78.7	70-130	0			EO
Strontium	0.3894	0.0012	0.0050	0.1	0.3049	84.5	70-130	0			

MS Sample ID: **24120491-04BMS** Units: **mg/L** Analysis Date: **1/8/2025 01:07 PM**
Client ID: **Cavender 3 (pond)** Run ID: **ICP2_250108A** SeqNo: **11356365** Prep Date: **12/27/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09757	0.0016	0.0050	0.1	0.0006743	96.9	70-130	0			

MSD Sample ID: **24120491-04BMSD** Units: **mg/L** Analysis Date: **1/6/2025 01:36 PM**
Client ID: **Cavender 3 (pond)** Run ID: **ICP2_250106A** SeqNo: **11350813** Prep Date: **12/27/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.08564	0.01	0.010	0.1	0.003234	82.4	70-130	0.09735	12.8	20	
Barium	0.2221	0.0043	0.0050	0.1	0.126	96	70-130	0.2208	0.593	20	
Calcium	22.81	0.39	0.50	10	13.79	90.1	70-130	22.65	0.693	20	
Iron	9.825	0.079	0.080	10	0.3527	94.7	70-130	9.938	1.15	20	
Manganese	0.1498	0.0023	0.0050	0.1	0.05885	91	70-130	0.1518	1.31	20	
Sodium	102	0.26	0.50	10	93.58	84.1	70-130	101.4	0.531	20	EO
Strontium	0.3949	0.0012	0.0050	0.1	0.3049	90	70-130	0.3894	1.4	20	

MSD Sample ID: **24120491-04BMSD** Units: **mg/L** Analysis Date: **1/8/2025 01:13 PM**
Client ID: **Cavender 3 (pond)** Run ID: **ICP2_250108A** SeqNo: **11356366** Prep Date: **12/27/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09691	0.0016	0.0050	0.1	0.0006743	96.2	70-130	0.09757	0.679	20	

The following samples were analyzed in this batch:

24120491-01B	24120491-02B	24120491-03B
24120491-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Diversified Gas & Oil Corporation
Work Order: 24120491
Project: UIC Water Well

QC BATCH REPORT

Batch ID: **251676** Instrument ID **TDS** Method: **A2540 C-15**

MBLK Sample ID: **MBLK-251676-251676** Units: **mg/L** Analysis Date: **12/26/2024 05:33 PM**
Client ID: Run ID: **TDS_241226D** SeqNo: **11334679** Prep Date: **12/24/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	22	30								

LCS Sample ID: **LCS-251676-251676** Units: **mg/L** Analysis Date: **12/26/2024 05:33 PM**
Client ID: Run ID: **TDS_241226D** SeqNo: **11334678** Prep Date: **12/24/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	510	22	30	495	0	103	85-109	0			

DUP Sample ID: **24120564-01A DUP** Units: **mg/L** Analysis Date: **12/26/2024 05:33 PM**
Client ID: Run ID: **TDS_241226D** SeqNo: **11334673** Prep Date: **12/24/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	710	37	50	0	0	0	0-0	700	1.42	10	

DUP Sample ID: **24120564-02A DUP** Units: **mg/L** Analysis Date: **12/26/2024 05:33 PM**
Client ID: Run ID: **TDS_241226D** SeqNo: **11334675** Prep Date: **12/24/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	663.3	37	50	0	0	0	0-0	646.7	2.54	10	

The following samples were analyzed in this batch: 24120491-02A 24120491-03A 24120491-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Diversified Gas & Oil Corporation
Work Order: 24120491
Project: UIC Water Well

QC BATCH REPORT

Batch ID: **251711** Instrument ID **TDS** Method: **A2540 C-15**

MBLK Sample ID: **MBLK-251711-251711** Units: **mg/L** Analysis Date: **12/30/2024 05:09 PM**
Client ID: Run ID: **TDS_241230A** SeqNo: **11341610** Prep Date: **12/26/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	22	30								

LCS Sample ID: **LCS-251711-251711** Units: **mg/L** Analysis Date: **12/30/2024 05:09 PM**
Client ID: Run ID: **TDS_241230A** SeqNo: **11341609** Prep Date: **12/26/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	496	22	30	495	0	100	85-109	0			

DUP Sample ID: **24120551-03A DUP** Units: **mg/L** Analysis Date: **12/30/2024 05:09 PM**
Client ID: Run ID: **TDS_241230A** SeqNo: **11341589** Prep Date: **12/26/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1167	74	100	0	0	0	0-0	1173	0.569	10	

DUP Sample ID: **24120564-04A DUP** Units: **mg/L** Analysis Date: **12/30/2024 05:09 PM**
Client ID: Run ID: **TDS_241230A** SeqNo: **11341601** Prep Date: **12/26/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1087	74	100	0	0	0	0-0	1087	0	10	

The following samples were analyzed in this batch: 24120491-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Diversified Gas & Oil Corporation
Work Order: 24120491
Project: UIC Water Well

QC BATCH REPORT

Batch ID: **R416436** Instrument ID **WETCHEM** Method: **A5540C-11**

MBLK Sample ID: **MB-R416436-R416436** Units: **mg MBAS/L** Analysis Date: **12/20/2024 02:13 PM**
Client ID: Run ID: **WETCHEM_241220D** SeqNo: **11325595** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants as MBAS	U	0.12	0.40								

LCS Sample ID: **LCS-R416436-R416436** Units: **mg MBAS/L** Analysis Date: **12/20/2024 02:13 PM**
Client ID: Run ID: **WETCHEM_241220D** SeqNo: **11325596** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants as MBAS	0.4	0.12	0.40	0.5	0	80	75-125	0			

DUP Sample ID: **24120491-01A DUP** Units: **mg MBAS/L** Analysis Date: **12/20/2024 02:13 PM**
Client ID: **C.Pritt 2 (Pond) Grab** Run ID: **WETCHEM_241220D** SeqNo: **11325598** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants as MBAS	U	0.12	0.40	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch:

24120491-01A	24120491-02A	24120491-03A
24120491-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Diversified Gas & Oil Corporation
Work Order: 24120491
Project: UIC Water Well

QC BATCH REPORT

Batch ID: **R416759** Instrument ID **IC5** Method: **E300.0**

MBLK Sample ID: **MBLK-R416759** Units: **mg/L** Analysis Date: **12/20/2024 08:18 PM**
Client ID: Run ID: **IC5_241220A** SeqNo: **11339912** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.032	0.20								
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

MBLK Sample ID: **MBLK-R416759** Units: **mg/L** Analysis Date: **12/20/2024 10:27 PM**
Client ID: Run ID: **IC5_241220A** SeqNo: **11340604** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.032	0.20								
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

LCS Sample ID: **MLCCV-A-R416759** Units: **mg/L** Analysis Date: **12/20/2024 08:09 PM**
Client ID: Run ID: **IC5_241220A** SeqNo: **11339913** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.01	0.032	0.20	2	0	100	90-110	0			
Chloride	9.727	0.31	1.0	10	0	97.3	90-110	0			
Sulfate	10.01	0.19	1.0	10	0	100	90-110	0			

LCS Sample ID: **LCS-R416759** Units: **mg/L** Analysis Date: **12/20/2024 10:18 PM**
Client ID: Run ID: **IC5_241220A** SeqNo: **11340605** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.01	0.032	0.20	2	0	100	90-110	0			
Chloride	9.727	0.31	1.0	10	0	97.3	90-110	0			
Sulfate	10.01	0.19	1.0	10	0	100	90-110	0			

MS Sample ID: **24120401-03B MS** Units: **mg/L** Analysis Date: **12/20/2024 08:35 PM**
Client ID: Run ID: **IC5_241220A** SeqNo: **11339920** Prep Date: DF: **40**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	632.3	12	40	400	261.5	92.7	90-110	0			

MSD Sample ID: **24120401-03B MSD** Units: **mg/L** Analysis Date: **12/20/2024 08:43 PM**
Client ID: Run ID: **IC5_241220A** SeqNo: **11339921** Prep Date: DF: **40**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	631.4	12	40	400	261.5	92.5	90-110	632.3	0.146	10	

The following samples were analyzed in this batch: 24120491-01A 24120491-02A 24120491-03A 24120491-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Diversified Gas & Oil Corporation
Work Order: 24120491
Project: UIC Water Well

QC BATCH REPORT

Batch ID: **R416821C** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-C-R416821C** Units: **mg/L** Analysis Date: **12/31/2024 01:07 A**
Client ID: Run ID: **IC3_241230A** SeqNo: **11342517** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.032	0.20								
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

LCS Sample ID: **LCS-C-R416821C** Units: **mg/L** Analysis Date: **12/31/2024 12:57 A**
Client ID: Run ID: **IC3_241230A** SeqNo: **11342516** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.001	0.032	0.20	2	0	100	90-110	0			
Chloride	9.838	0.31	1.0	10	0	98.4	90-110	0			
Sulfate	10.68	0.19	1.0	10	0	107	90-110	0			

MS Sample ID: **24120463-01C MS** Units: **mg/L** Analysis Date: **12/31/2024 01:36 A**
Client ID: Run ID: **IC3_241230A** SeqNo: **11342520** Prep Date: DF: **40**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	84	1.3	8.0	80	0	105	90-110	0			
Chloride	390.2	12	40	400	9.404	95.2	90-110	0			
Sulfate	494.4	7.6	40	400	74.96	105	90-110	0			

MSD Sample ID: **24120463-01C MSD** Units: **mg/L** Analysis Date: **12/31/2024 01:46 A**
Client ID: Run ID: **IC3_241230A** SeqNo: **11342521** Prep Date: DF: **40**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	85.24	1.3	8.0	80	0	107	90-110	84	1.47	10	
Chloride	391	12	40	400	9.404	95.4	90-110	390.2	0.216	10	
Sulfate	495.4	7.6	40	400	74.96	105	90-110	494.4	0.206	10	

The following samples were analyzed in this batch: 24120491-01A 24120491-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Subcontractor:
ALS Environmental - Holland
3352 128th Avenue
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

Salesperson: ALSHN Account

24120491

DIVERSIFIED: Diversified Gas & Oil Corporation
Project: UIC Water Well

Date: 19-Dec-24
COC ID: 27677
Due Date: 27-Dec-24

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	24120491	A	Total Dissolved Solids (A2540 C-15)
Work Order		Project Number		B	MBAS, as LAS, mol wt 348 (A5540C-11)
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp	C	Metals by ICP-AES (E200.7)
Send Report To	Rebecca Kiser	Inv Attn	Accounts Payable	D	Anions by Ion Chromatography (E300.0)
Address	1740 Union Carbide Dr.	Address	1740 Union Carbide Dr.	E	
				F	
City/State/Zip	So. Charleston, WV 25303	City/State/Zip	So. Charleston, WV 25303	G	
Phone	(304) 356-3168	Phone	(304) 356-3168	H	
Fax		Fax		I	
eMail Address	rebecca.kiser@alsglobal.com	eMail CC		J	

ALS Sample ID	Client Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
24120491-01A	C.Pritt 2 (Pond) Grab	Water	19/Dec/2024 10:02	(1) 500PNeat	X	X		X						
24120491-01B	C.Pritt 2 (Pond) Grab	Water	19/Dec/2024 10:02	(1) 125PHNO3			X							
24120491-02A	Cavender 1 Grab	Water	19/Dec/2024 9:04	(1) 500PNeat	X	X		X						
24120491-02B	Cavender 1 Grab	Water	19/Dec/2024 9:04	(1) 125PHNO3			X							
24120491-03A	Cavender 2 (duglopan well) Grab	Water	19/Dec/2024 9:11	(1) 500PNeat	X	X		X						
24120491-03B	Cavender 2 (duglopan well) Grab	Water	19/Dec/2024 9:11	(1) 125PHNO3			X							
24120491-04A	Cavender 3 (pond)	Water	19/Dec/2024 9:18	(1) 500PNeat	X	X		X						
24120491-04B	Cavender 3 (pond)	Water	19/Dec/2024 9:18	(1) 125PHNO3			X							

Comments:

WV Samples Sampler: J.B.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
Michelle Holmes	12.19.24 1400	[signature]	12-20-24 10:10	4.0c	Std
Relinquished by:	Date/Time	Received by:	Date/Time	JRE	
				p439	

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **DIVERSIFIED** Date/Time Received: **19-Dec-24 11:51**

Work Order: **24120491** Received by: **CMK**

Checklist completed by Caleb Koetje (eSignature) 20-Dec-24 (Date) Reviewed by: Briana Lothes (eSignature) 23-Dec-24 (Date)

Matrices: Water
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	<6.0c	IR6	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	12/20/2024 12:02:35 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: pH Check <2

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

APPENDIX F

Area Permit Wells

Not Applicable

API #	Well Type (Injection, Production, Observation, Monitoring)	Well Status (Active, Abandoned, Shut-in, Plugged)	Northing (UTM NAD 83 Meters)	Easting (UTM NAD 83 Meters)
N/A				
Not for area permit wells				

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

UIC Permit No.
2D03902262

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
	This is a commercial facility	
	and can accept material from	
	any qualified supplier.	
	A complete list of wells	
	serviced is on file with	
	the WVDEP-OOG.	

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

Section 8 – Geological Data

UIC 2D0392262

SECTION 8-Geological data on the Injection and Confining Zone:

Well Name: Lilly #1

API: 47-039-02262

UIC: UIC2D0392262

The subject UIC well is located in Kanawha County, West Virginia in the northeast corner of the Blue Creek quadrangle (Figure 1). The Lilly #1 and 3 other active UIC wells have been used to dispose water into the Injun Sandstone.

DESCRIPTION OF INJECTION ZONES

INJUN SANDSTONE

Formation Description

The Injun Sandstone is an injection zone for the subject well. This formation sits beneath the Greenbrier Limestone "Big Lime" at the top of the Lower Mississippian section. This predominately fine-grained, quartz rich sandstone exceeds 50' in thickness in the area of interest and is 54' in the subject well (Figure 2). Grains are generally subangular to subrounded, moderate to well sorted, and fine to very fine sand. Primary porosity in the subject well and adjacent Blue Creek oil field can exceed 20% in the Injun Sandstone, and the subject well has 40' of Injun Sandstone with porosity over 12% (Figure 3). Like gross thickness, primary porosity in the areas is greatest in the adjacent Blue Creek oil field that lies to the east of the subject wells but decreases significantly outside of the field.

Stratigraphic Description

In northwestern Kanawha County, the Injun Sandstone is overlain unconformably by the Greenbrier Limestone and sits above the Pocono Shale.

Structural Mapping

Structural mapping on the Injun Sandstone top indicates that the subject well is located updip from a local syncline (Figure 4). The adjacent structural low forms the outline of the Blue Creek oil field, and as mapped, this local syncline also has the thickest Injun Sandstone in the area (Figure 2).

Faulting

Structure maps (Figure 4) on the Injun Sandstone top do not have any indication of faulting in this injection interval throughout the area of interest.

DESCRIPTION OF CONFINING ZONES

GREENBRIER LIMESTONE (BIG LIME)

Confining Layer for: Injun Sandstone

Formation Description

The Big Lime is 130-170' (Figure 5) thick throughout the area of interest and is predominately composed of dense limestone. Porous zones are uncommon, isolated, and <5' when observed. This limestone has been mapped throughout the area of interest and there is no evidence of faulting. Low porosity, high density, and massive thickness of the Big Lime in northwestern Kanawha County make it an excellent confining layer.

Primary Lithology: Limestone

Log Description:

This limestone has a very low gamma ray signature (20 API), low density ~2.7 g/cc, and porosity in most wells is below 2%. In the subject well, the Big Lime has a gross thickness of 146'.

EARTHQUAKES AND INDUCED SEISMICITY

From 1824 to 2016 West Virginia has experienced nearly 100 earthquakes within state boundaries (Figure 6). These earthquakes have magnitudes ranging from .3 to 4.7 using both historical and instrumental measurements. The closest recorded earthquakes to the subject well are in Jackson and Kanawha counties and are 10 and 20 miles from the subject well respectively. As stated above, the subject well has been used as an injection well since the mid 1990's, and the closest recorded seismic event is over 10 miles away. Furthermore, no evidence of faulting in the area at the injection level exists at Blue Creek.

The subject well has two decades of injection history and there have not been any pressure issues, containment problems, or induced seismicity in the area, and the subject well remains an excellent candidate for fluid injection.

WATER MIGRATION MODEL

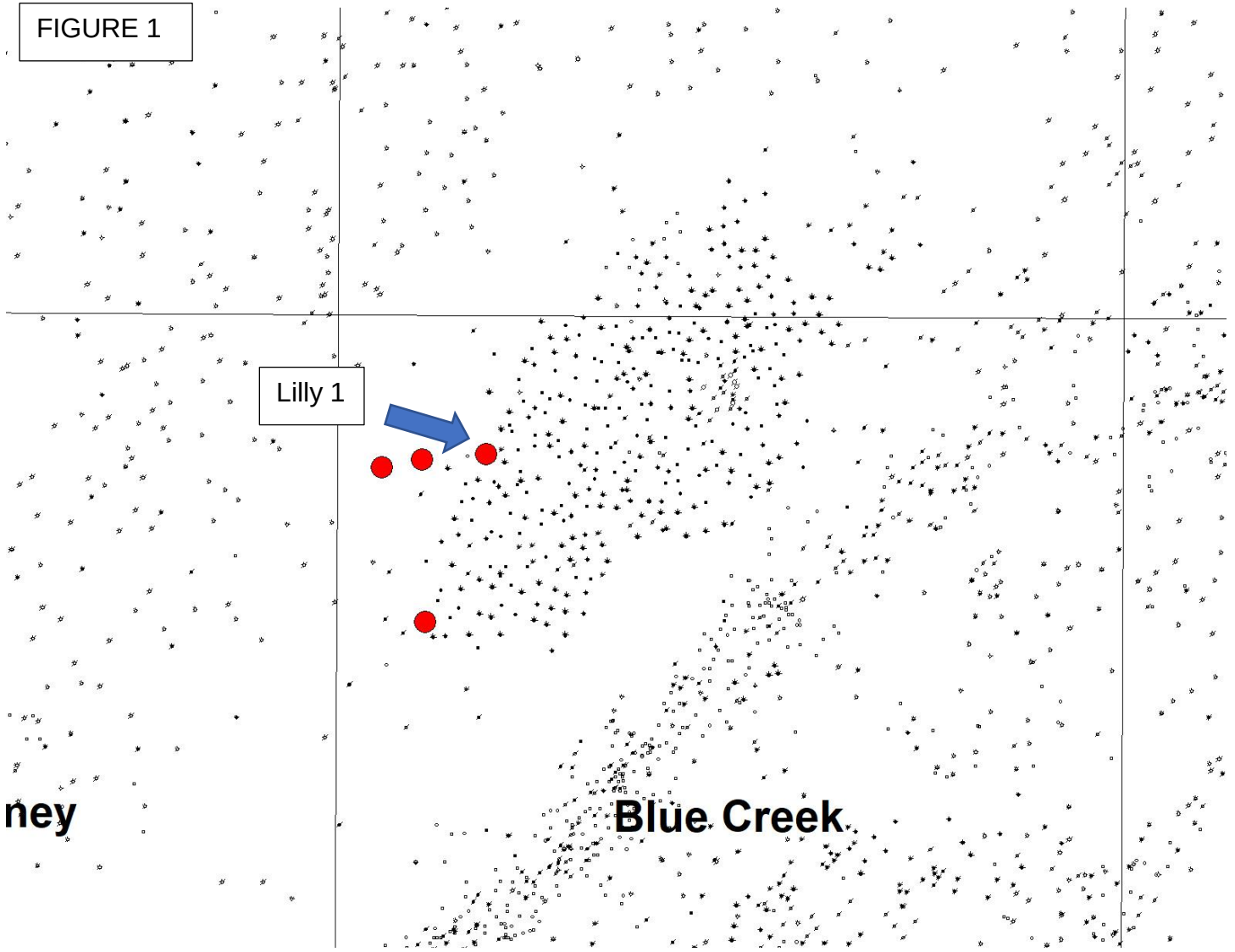
A schematic depicting the likely migration path for injected fluids is included in this report (Figure 7).

INJUN SAND

As alluded to earlier, structure maps on the Injun Sand (Figure 4) indicate that the subject well is directly adjacent to and west of a local syncline. Furthermore, gross thickness (Figure 2) and porosity mapping (Figure 3) are greatest within this syncline. Pumped fluids would preferentially migrate downdip into the Blue Creek oil field where the Injun Sand has much better porosity than the surrounding areas.

4703902262

FIGURE 1



4500 0 4500 ft

Blue Creek UIC Well
Hydrocarbon Well

N

carbon

Blue Creek Field

Author: ClayWilcox
Date: 12 February, 2019
Horizontal Scale:1"=1 Mile
Contour Interval:N/A

4703902262

FIGURE 2

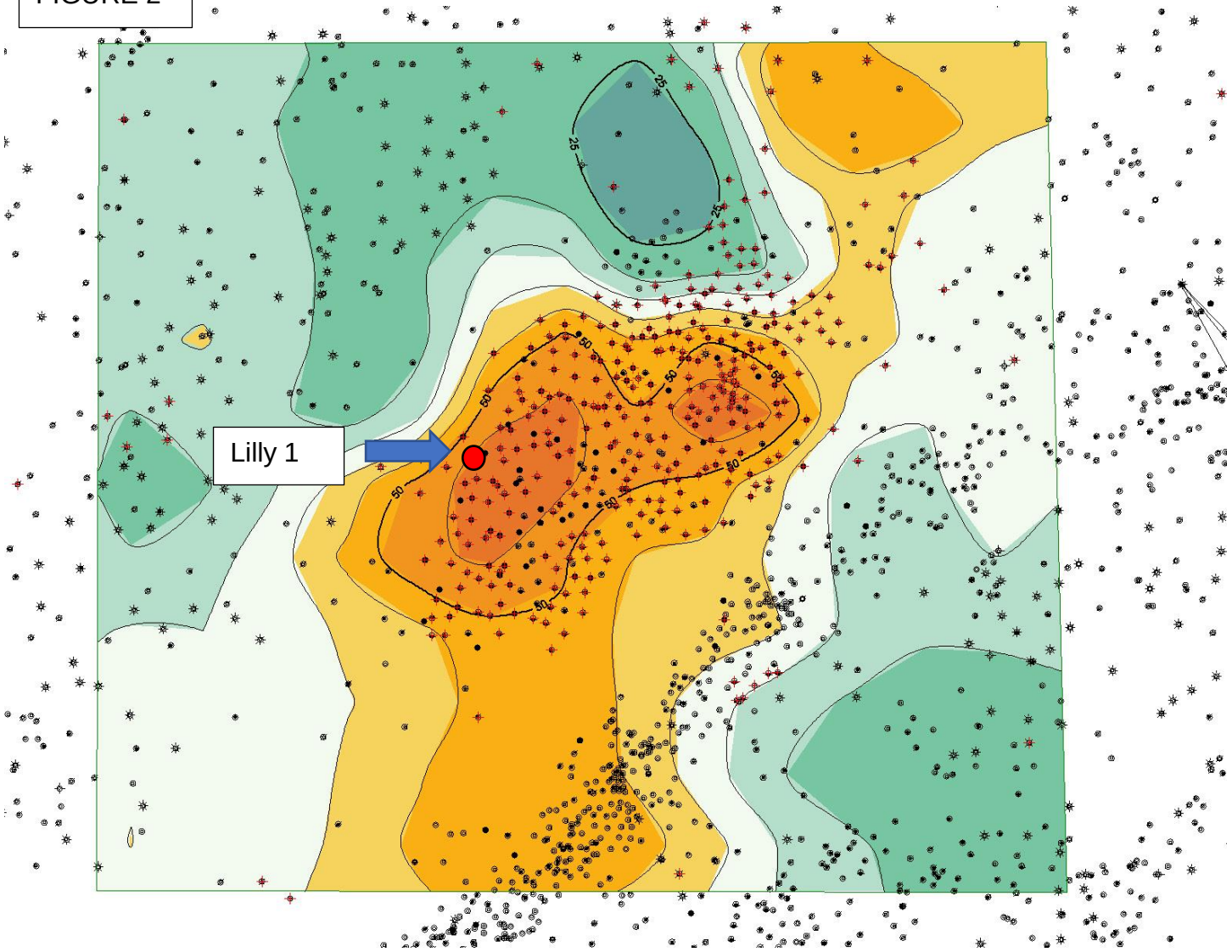


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FIGURE 3

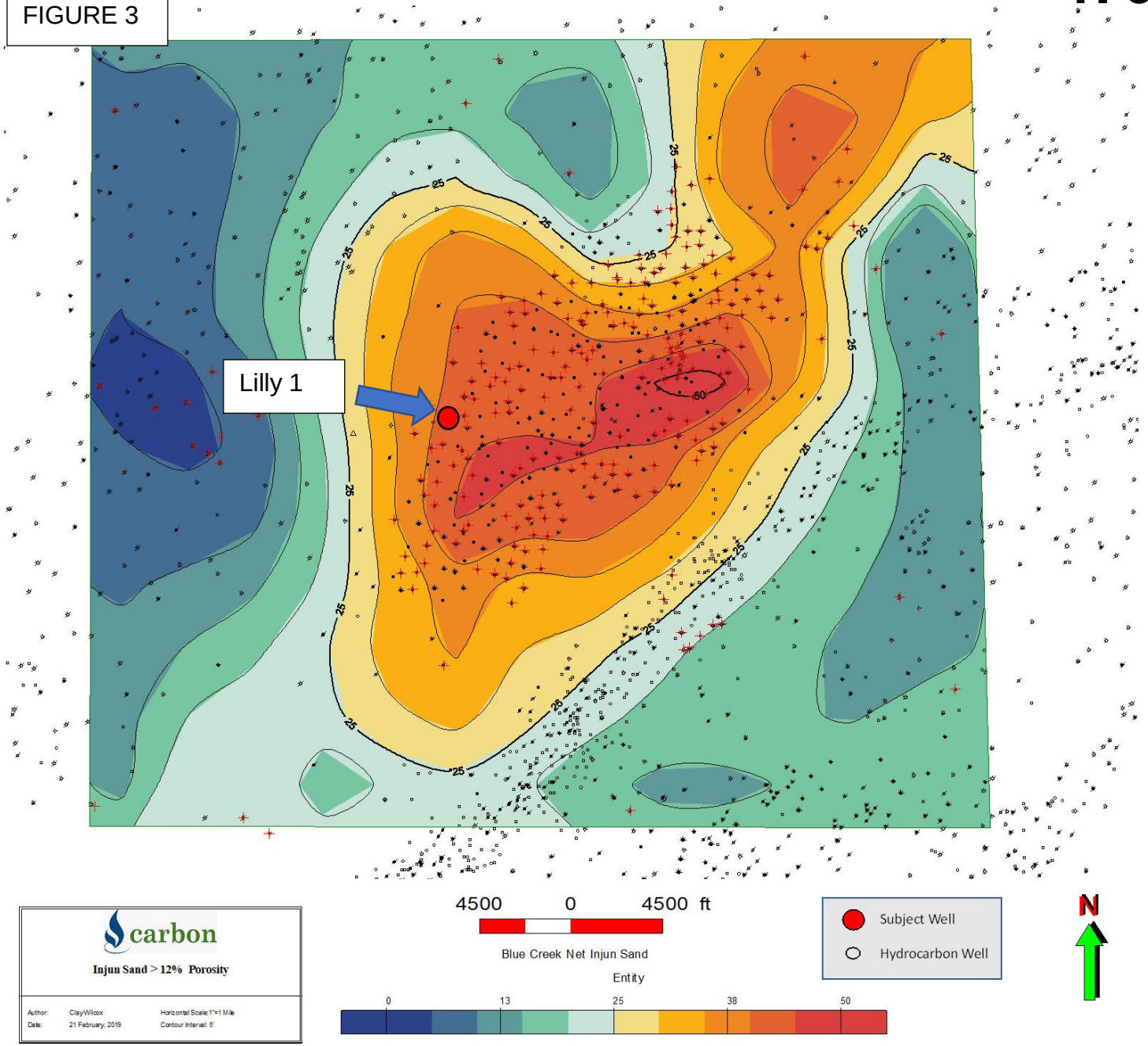

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FIGURE 4

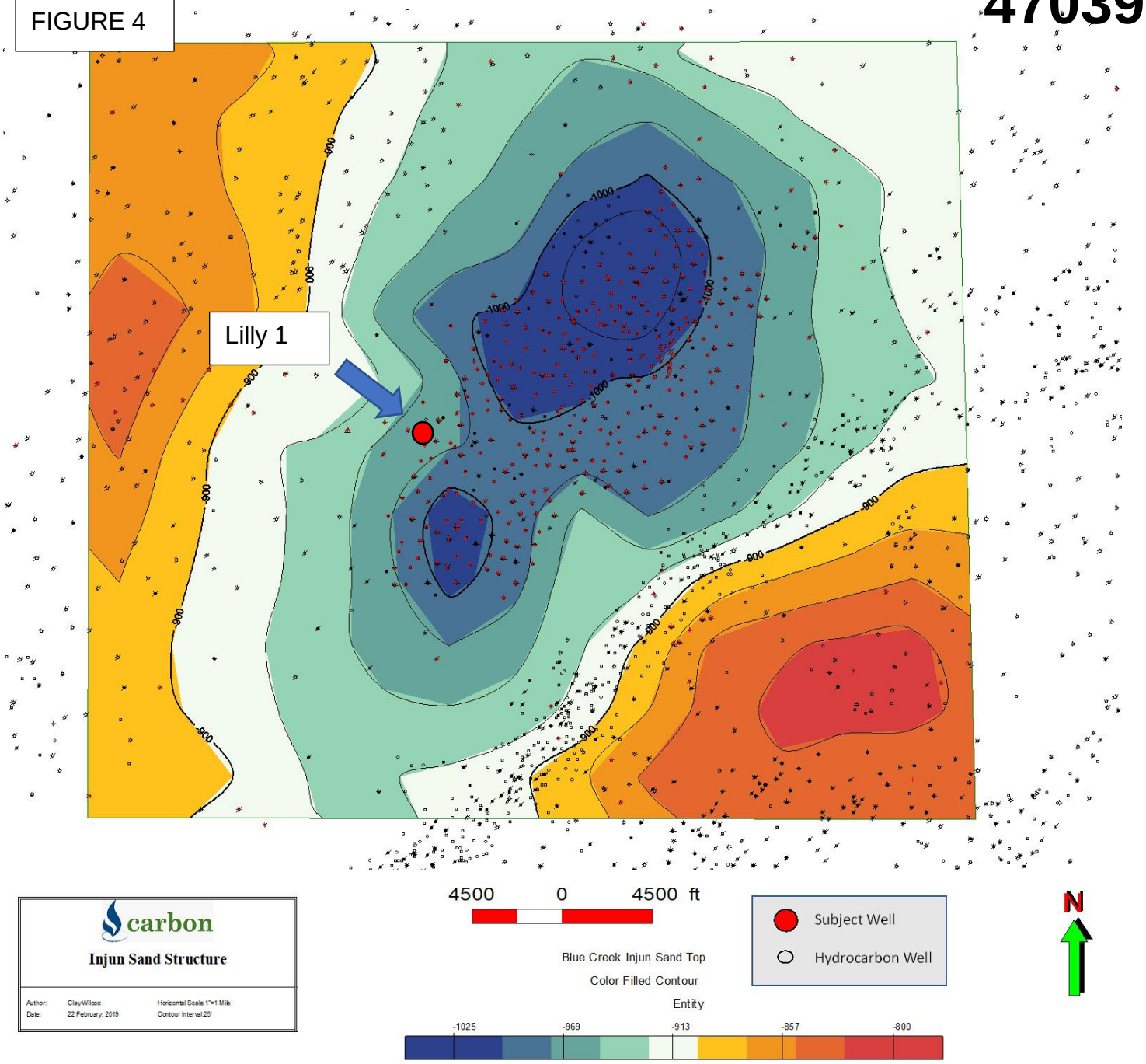

FIGURE 5

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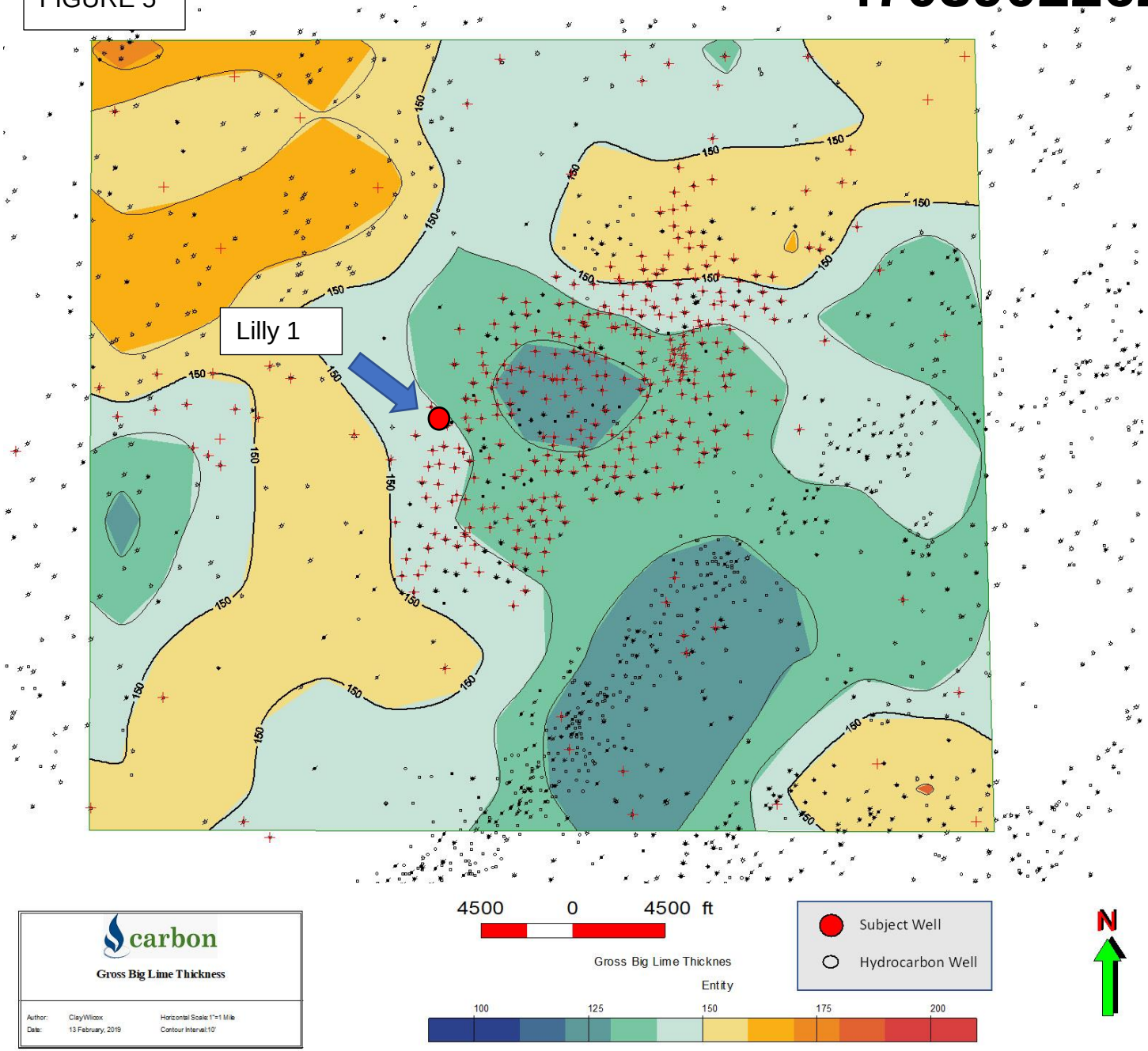

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Kanawha County Brine Disposal Wells

Brine Disposal Wells

WellUse

- Brine Disposal
- Greenbrier Thickness (ft)
- Greenbrier Lmst Elev
- PreCambrian_Faults
- Surface Structure

Scale: 1:60,000

5,000 0 5,000 10,000 Feet

Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOA

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FIGURE 6

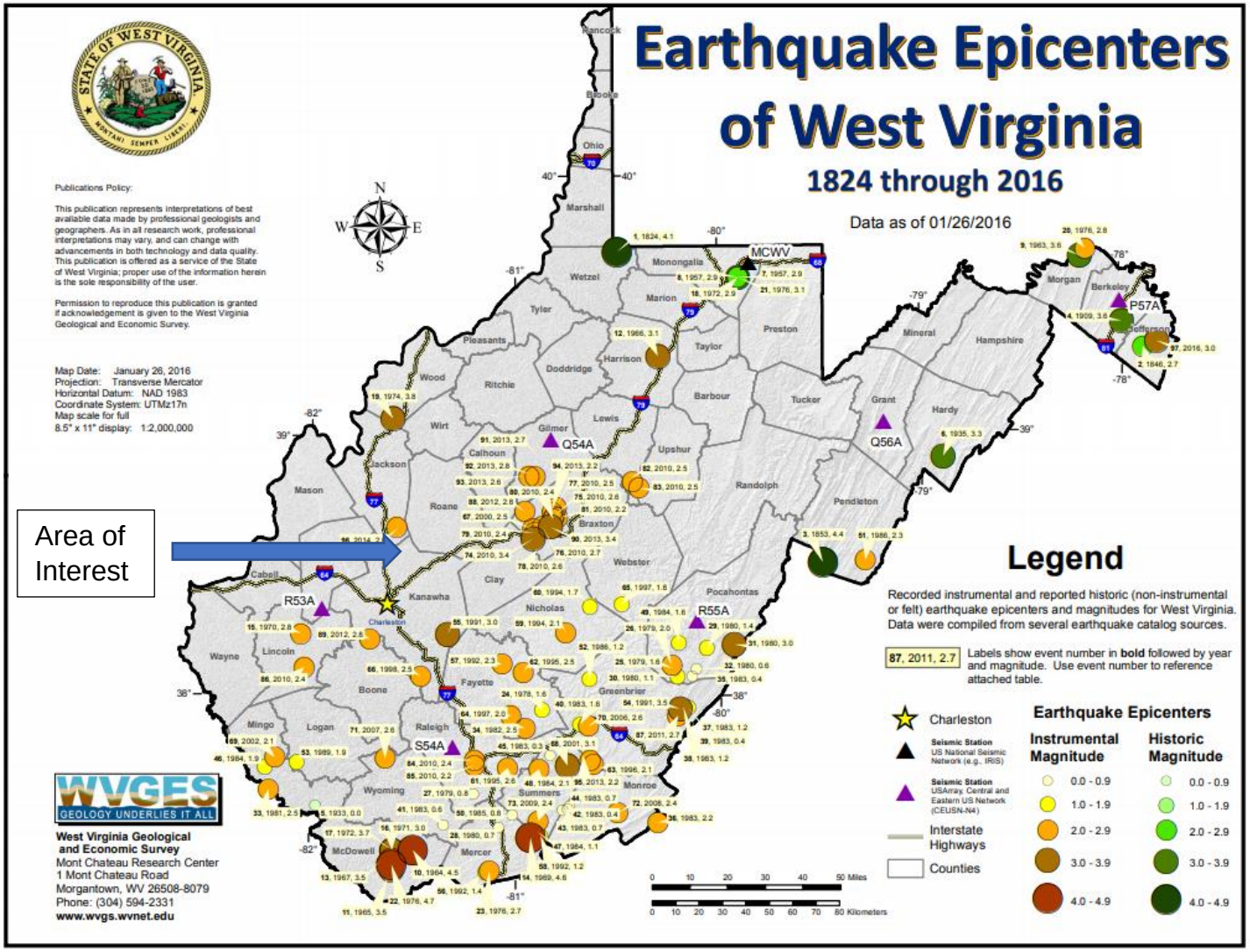

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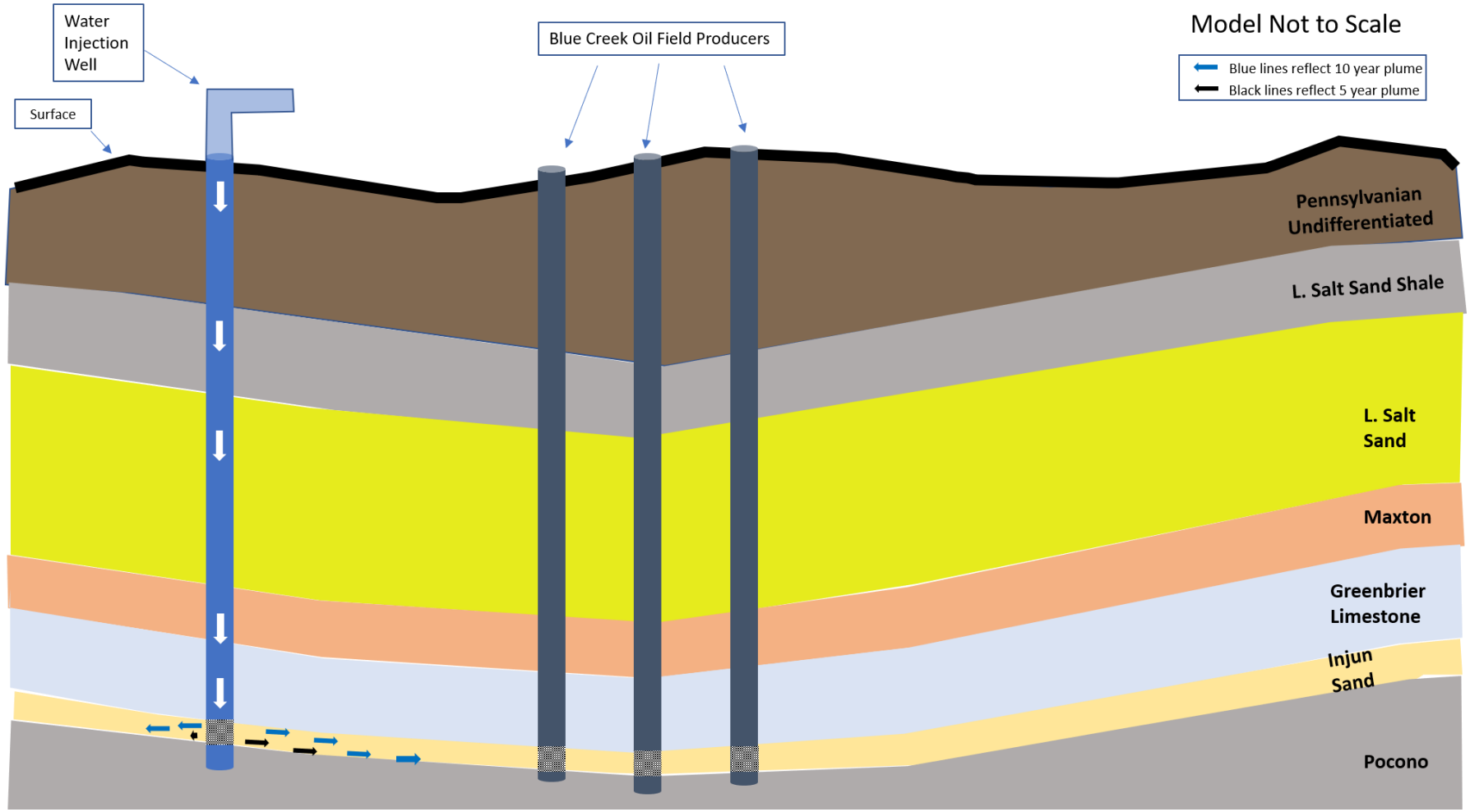
FIGURE 7



Diversified Production, LLC
UIC 2D03902262
H. F. Lily No.1

Estimation of Fluid Migration - Big Injun Sandstone

The following is an estimation of the injection fluid migration over time at the H. F. Lily No.1 (API 4703902262) using the volumetric method. Parameters used in the calculation are cumulative volume, porosity percent, reservoir height, and saturation displacement percent. Below is the formula used for the calculation and the parameter inputs.

$$R = \sqrt{Q \times V / 3.14 \times P \times H \times Sd}$$

		Input		
Q =	Cumulative injection volume (bbls)	(356,064 bbl)		(as of 12/30/2024)
V =	Volume of one barrel of liquid (cf/bbl)	(5.615 cf/bbl)		
P =	Average porosity (%)	(0.27)	27%	
H =	Reservoir height (ft)	(38 ft)	Big Injun Sandstone	
Sd =	Saturation displacement (%)	(0.20)	20%	
R =	Estimated radial distance from wellbore	(557 ft)		

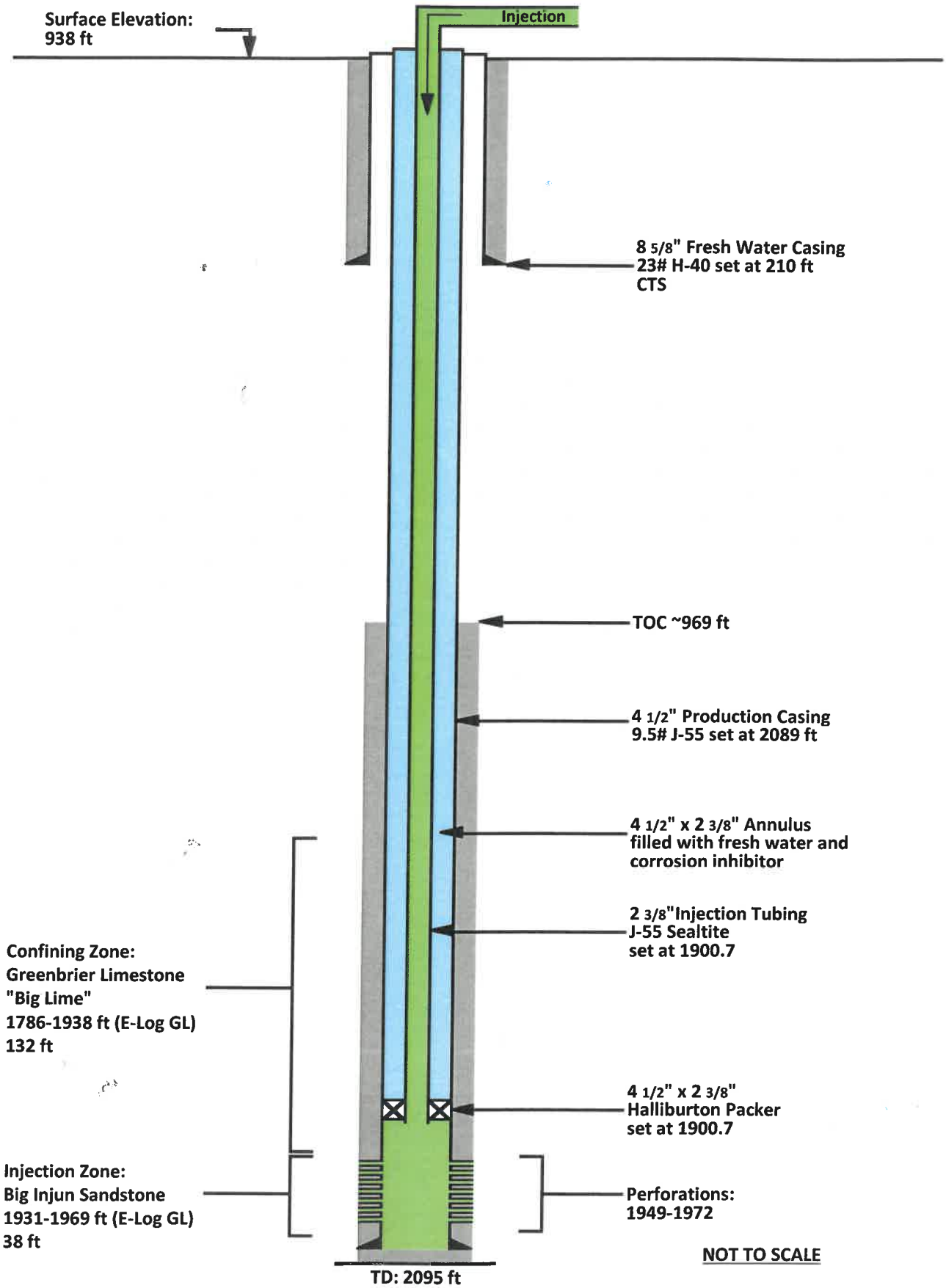
Well Bore Diagram

H.F. Lilly No.1

API 47-039-02262

Diversified Production LLC

UIC 2D03902262004



4703902262

Lilly #1 (Formation Density)

SCHLUMBERGER

COMPENSATED FORMATION DENSITY LOG

Gamma-Gamma

COUNTY
FIELD or LOCATION
WELL
COMPANY

COMPANY MAREVE OIL CORPORATION

WELL H. F. LILLY #1

FIELD BLUECREEK

COUNTY KANAWHA STATE WEST VIRGINIA

Location:
ELK DISTRICT
Sec. Twp. Rge.

Other Services:
SLC
DIL

Permanent Datum: GROUND LEVEL ; Elev.: 938
Log Measured From K.B., 7 Ft. Above Perm. Datum
Drilling Measured From K.B.

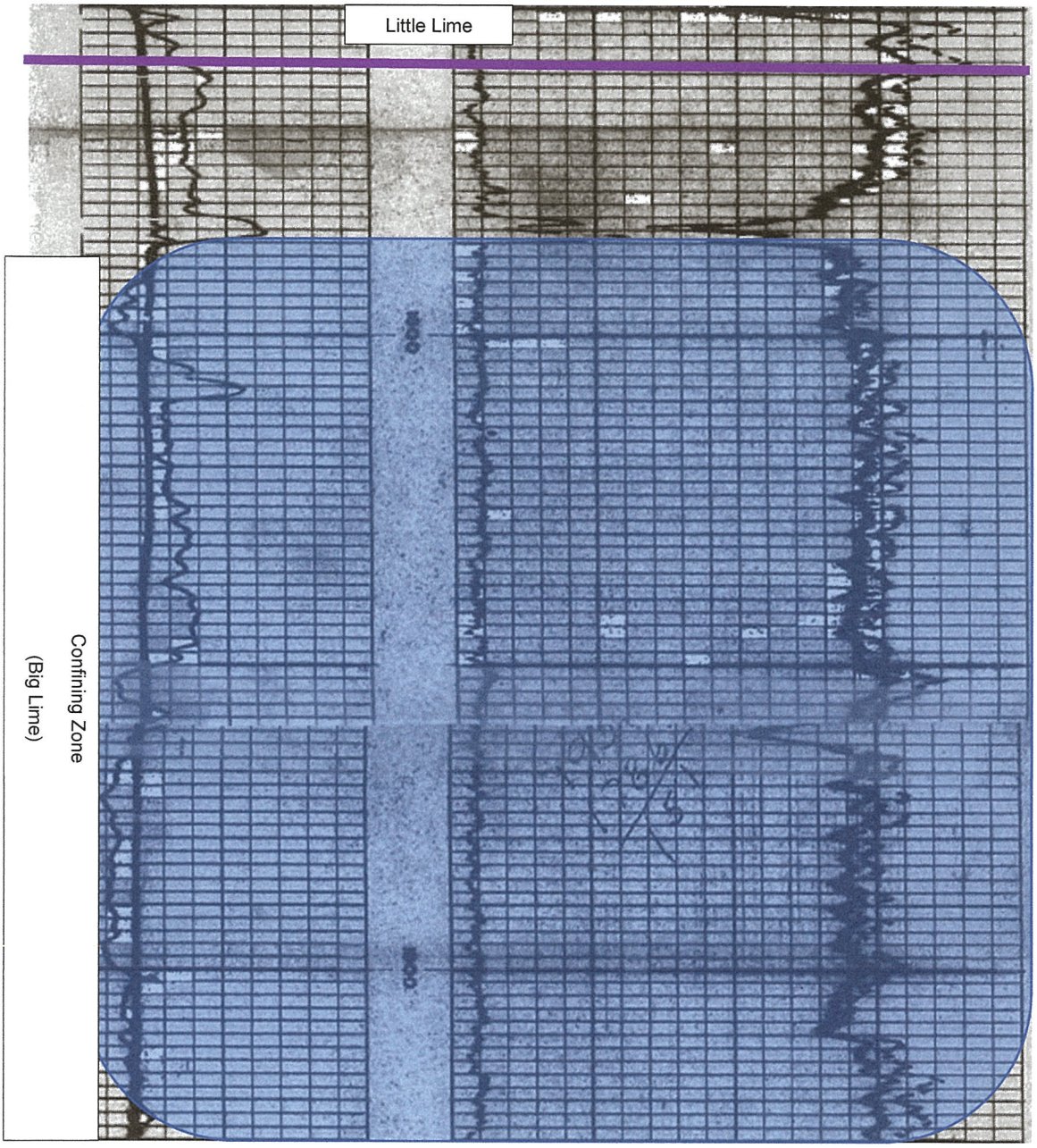
Elev.: K.B. 945
D.F. 944
G.L. 938

Date	7-8-68
Run No.	ONE
Type Log	FDC-GR
Depth—Driller	2095
Depth—Logger	2089
Bottom logged interval	2088
Top logged interval	1700
Type fluid in hole	GEL
Salinity, PPM Cl.	-
Density	-
Level	FULL
Max rec. temp., deg F.	85°
Operating rig time	2 HOURS
Recorded by	MITCHELL
Witnessed by	HICKOX

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
1	6 3/4"	CSG.	TD	8 5/8"	-	SURF.	210

BWS-1513-A

4703902262



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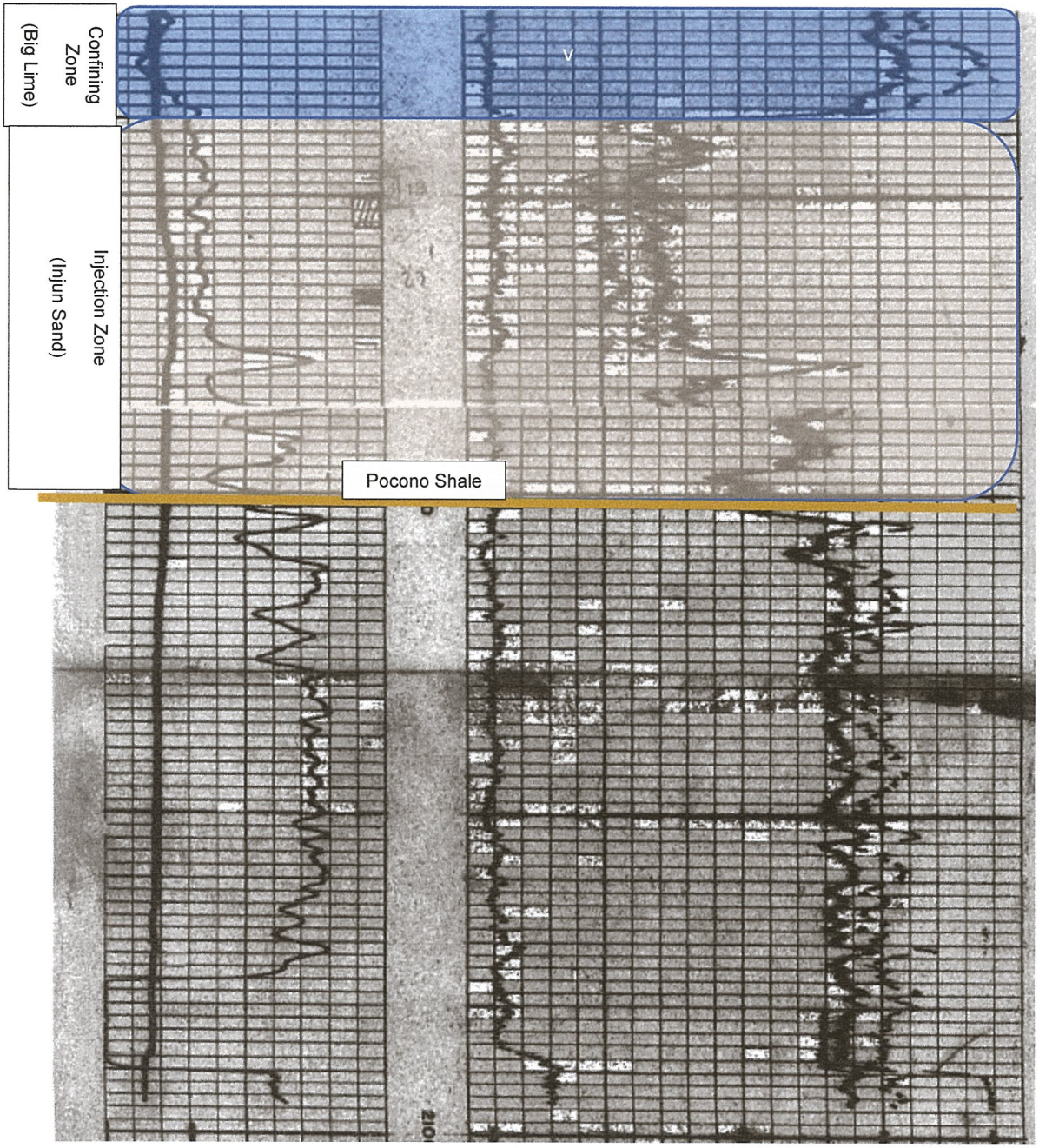

Confining Zone (Big Lime)
Injection Zone (Injun Sand)
Pocono Shale

SCHLUMBERGER

COMPENSATED FORMATION DENSITY LOG

Gamma-Gamma

COUNTY / FIELD or LOCATION / WELL / COMPANY

COMPANY MAREVE OIL CORPORATION

4703902262

WELL H. F. LILLY #1

FIELD BLUECREEK

COUNTY KANAWHA STATE WEST VIRGINIA

Location: ELK DISTRICT

Sec. Twp. Rge.

Other Services: SLC DIL

Permanent Datum: GROUND LEVEL ; Elev.: 938

Log Measured From K.B., 7 Ft. Above Perm. Datum

Drilling Measured From K.B.

Elev.: K.B. 945 D.F. 944 G.L. 938

Date	7-8-68		
Run No.	ONE		
Type Log	FDC-GR		
Depth—Driller	2095		
Depth—Logger	2089		
Bottom logged interval	2088		
Top logged interval	1700		
Type fluid in hole	GEL		
Salinity, PPM Cl.	-		
Density	-		
Level	FULL		
Max rec. temp., deg F.	85°		
Operating rig time	2 HOURS		
Recorded by	MITCHELL		
Witnessed by	HICKOX		

RUN	BORE-HOLE RECORD			CASING RECORD			
No.	Bit	From	To	Size	Wgt.	From	To
1	6 3/4"	CSG.	TD	8 5/8"	-	SURF.	210

EQUIPMENT DATA

Run No.	PG P- D	PDH-A	PGH-A	PGS- E	Source No.	SFT-106	SGH E	Logging Unit	Loc
1	187	152	140	187	2519	196	31	3003	HUNT I N
2									
3									

CALIBRATION DATA

Run No.	Gamma Ray API Scale	Gamma Ray Background CPS	Gamma Ray Total CPS	FDC Before Log P_1	FDC Before Log P_2	FDC — After Log P_1	FDC — After Log P_2
1	0–200	160	320	410	920	410	
2							
3							

LOGGING DATA

Run No.	General Depths From	General Depths To	Speed Ft./Min.	To	Gamma Ray API Scale	FDC Selectors Liquid Density	Grain Density	Hole Fluid	

MUD DATA

Run No.	Rm @ F	% Solids by Vol	% Oil by Vol	% Water by Vol	Viscosity Sec/Qt @ F	Solids, Av. Sp. Gr.
1	@ F				@ F	
2	@ F				@ F	
3	@ F				@ F	

Remarks:

CALIPER

DEP

30 20 10

POROSITY

0 25

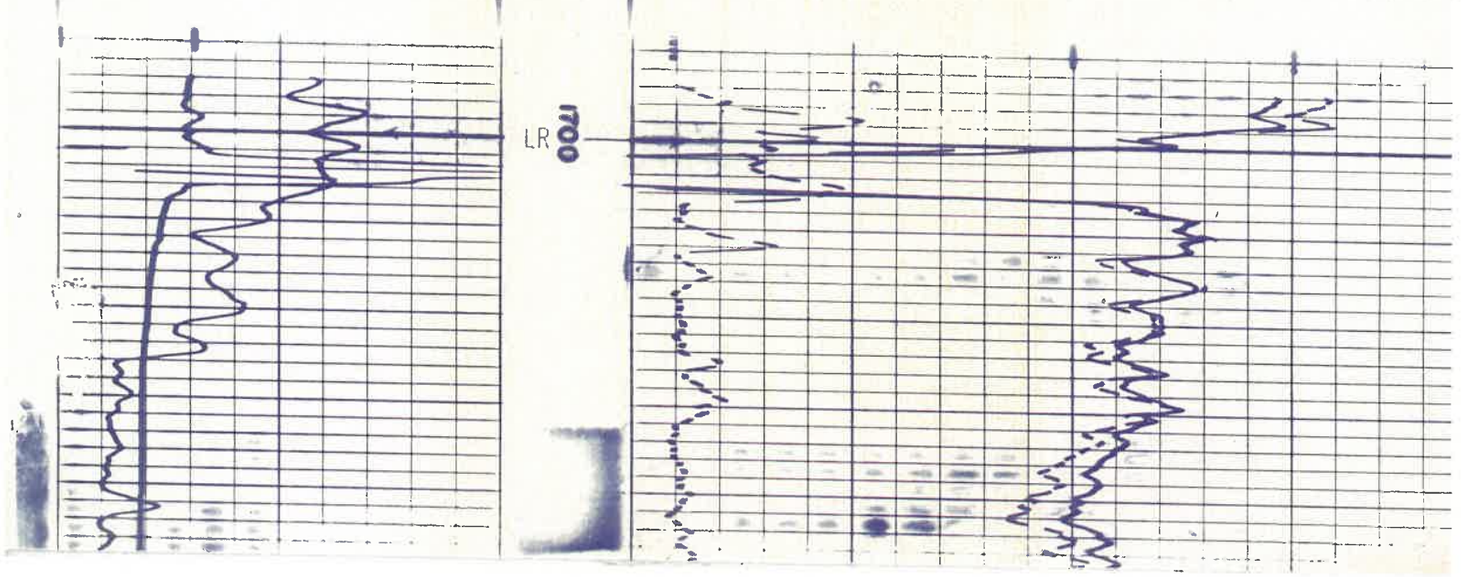
CORRECTION
GRAMS CC.

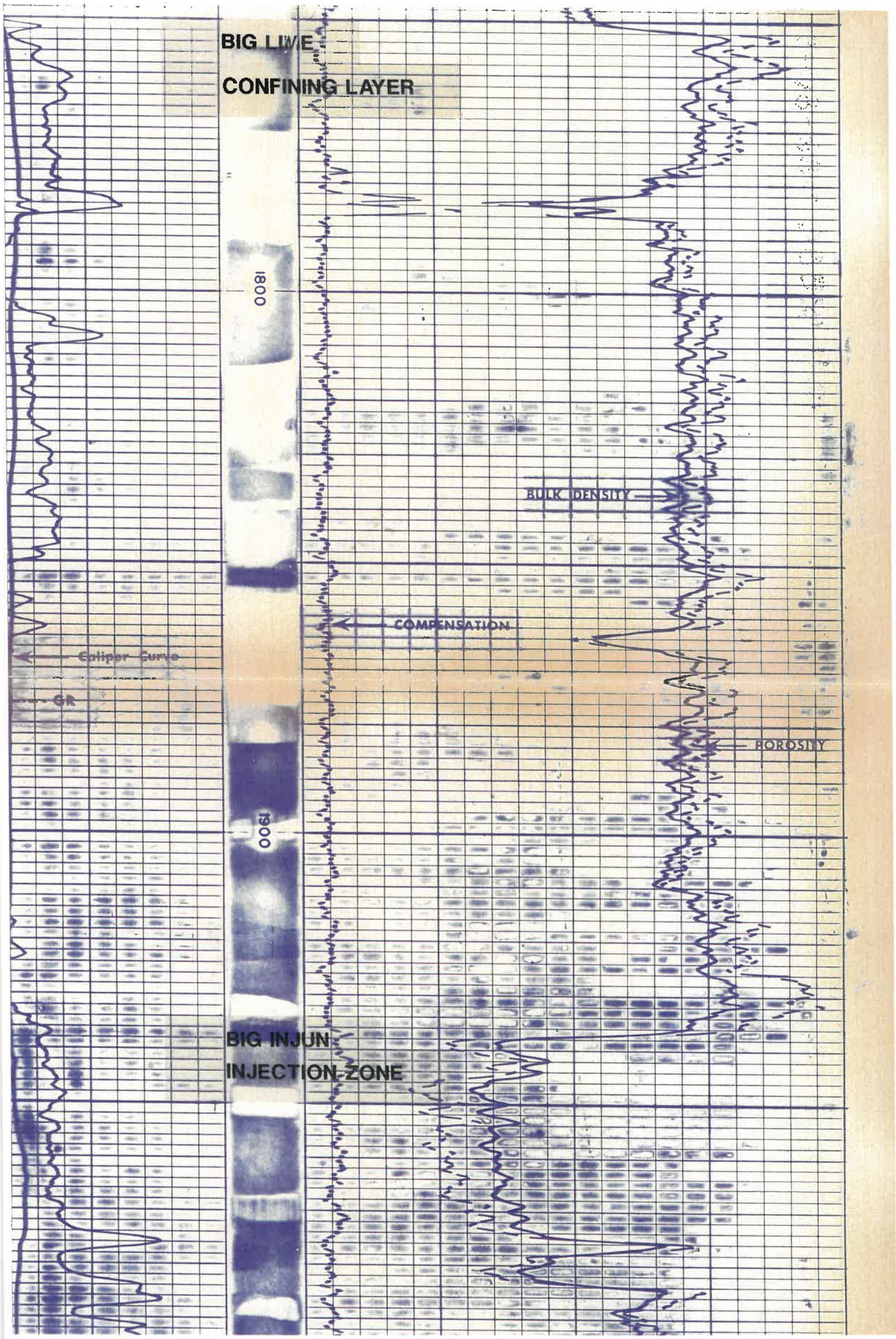
GAMMA RAY
API UNITS

BULK DENSITY
GRAMS CC

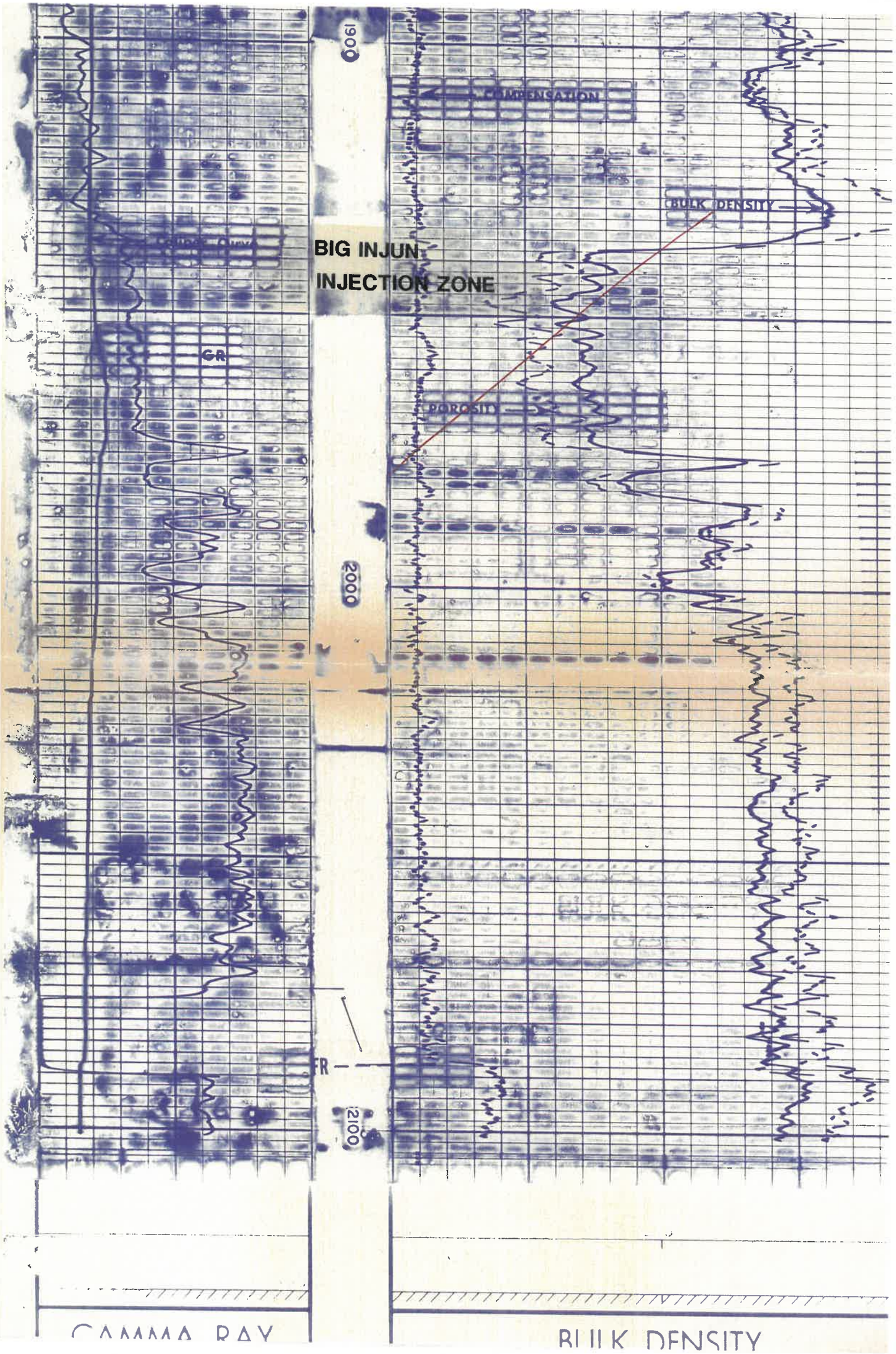
2.0 2.5

LR 1100




BIG LIME
CONFINING LAYER
1800
BULK DENSITY
COMPENSATION
Caliper Curve
GR
POROSITY
1900
BIG INJUN
INJECTION ZONE

00
2100
1800
REPEAT SECTION


1900
BIG INJUN
INJECTION ZONE
GR
COMPENSATION
BULK DENSITY
POROSITY
2000
FR
2100
GAMMA RAY
BULK DENSITY

API UNITS

GRAMS CC.

0 +.25

CORRECTION
GRAMS/CC.

CALIPER
HOLE DIAM. IN INCHES

DEPTHS

COMPANY _____ Rm ____ @ ____ F
BHT _____ F

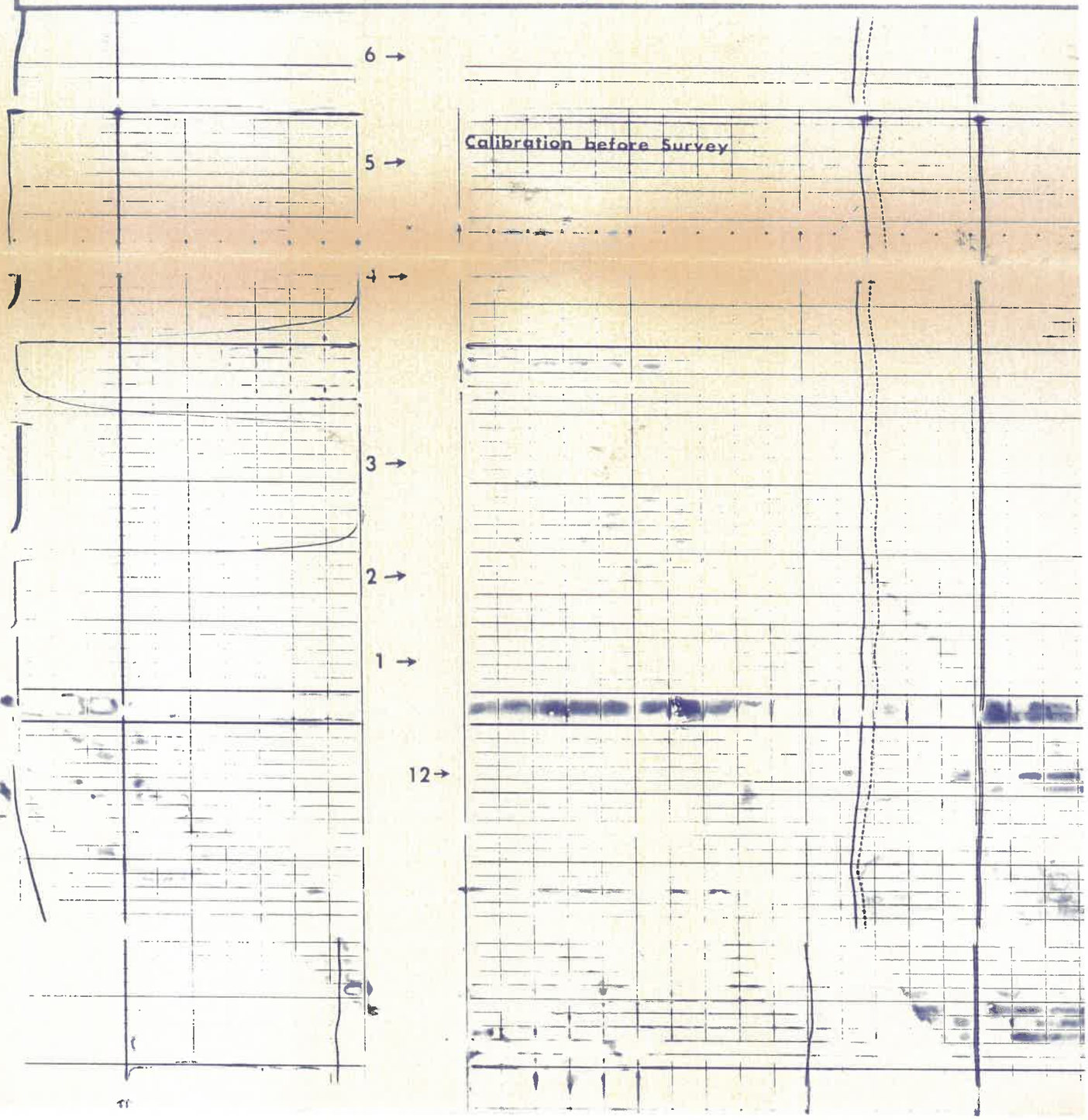
SCHL. FR _____
SCHL. TD _____
DRLR TD _____
Elev:
KB _____
DF _____
GL _____

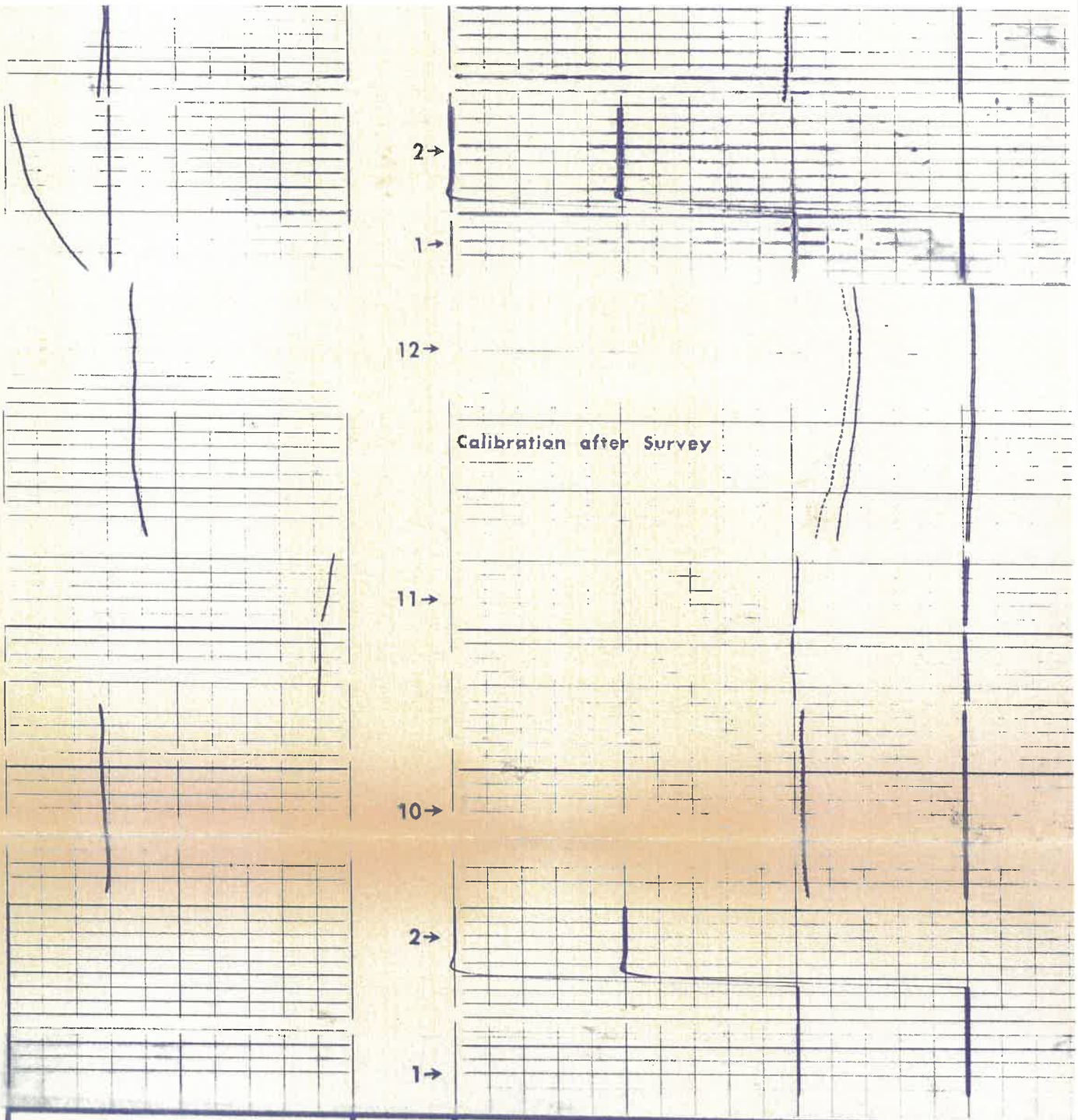
WELL _____

FIELD _____

COUNTY _____ STATE _____

CALIBRATION DATA





CALIPER

HOLE DIAM. IN INCHES

5 15

DEPTHS

GAMMA RAY

API UNITS

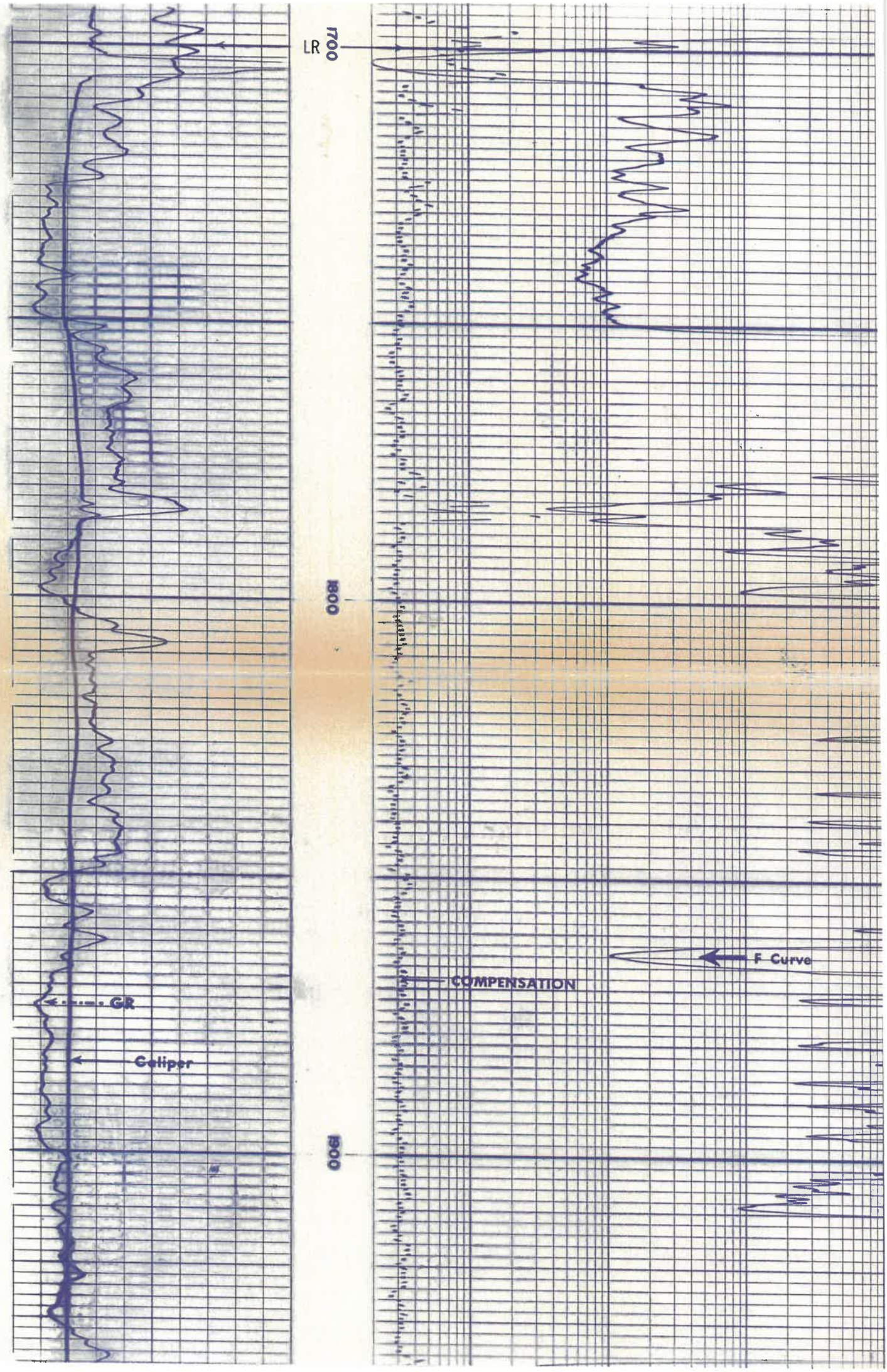
0 200

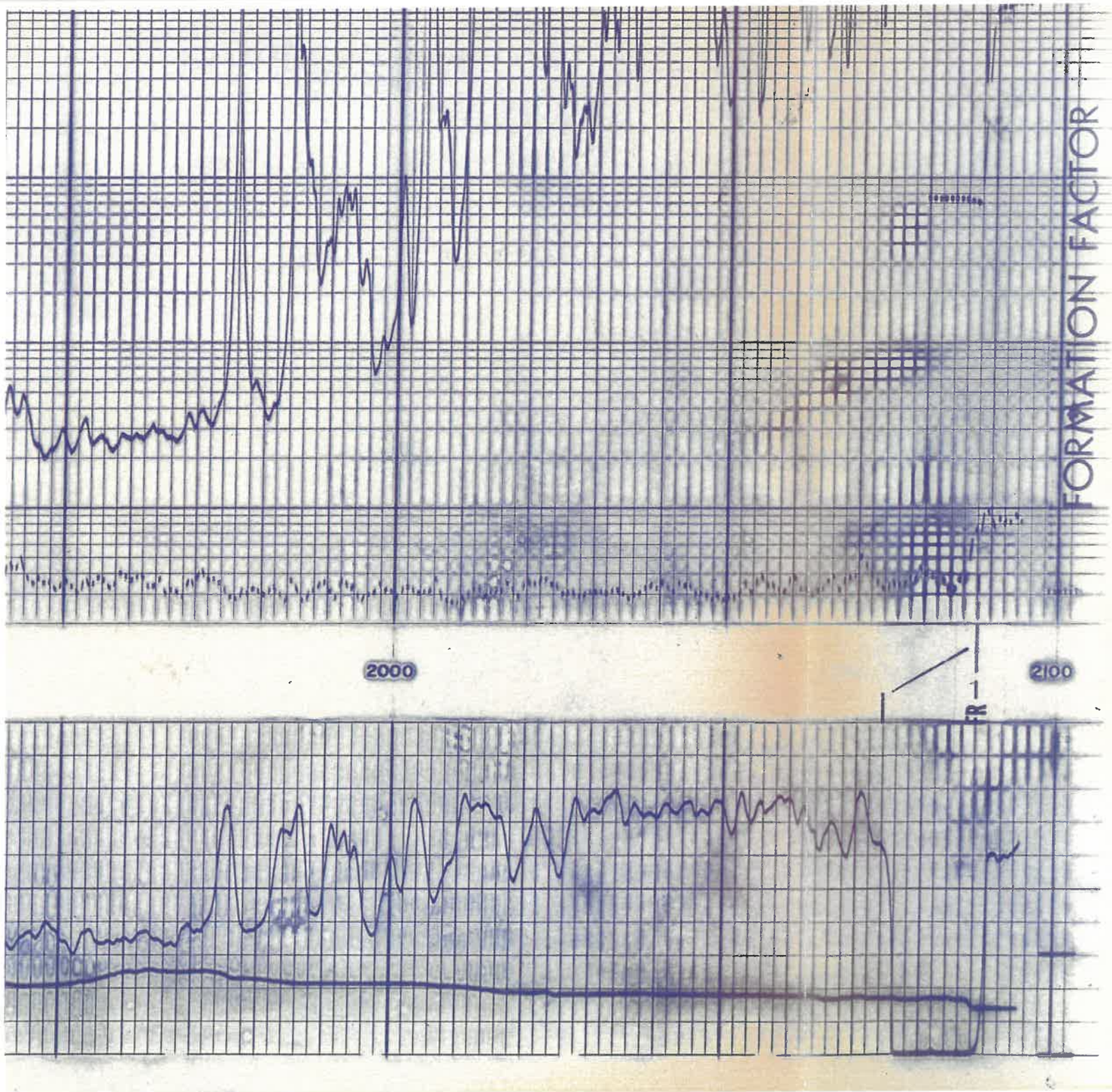
200 400

FORMATION FACTOR

F F from Density

2 10 100 1000 10


LR
1700
1800
1900
F Curve
COMPENSATION
GR
Caliper


FORMATION FACTOR
2000
2100
FR

4703902262

Hitwell Surveys, Inc.

GAMMA RAY CEMENT BOND
VARIABLE DENSITY
CCL

COUNTY:KANAWHA W.V.
FIELD:BLUECREEK
LOCATION:ELK DISTRICT
WELL:H.F. LILLY #1
COMPANY:PEAKE ENERGY
BELDEN & BLAKE

COMPANY PEAKE ENERGY
WELL H.F. LILLY #1
FIELD BLUECREEK
COUNTY KANAWHA STATE W.V.

LOCATION
ELK DISTRICT

Sec. Twp. Rge.

Other Services

Permanent datum G.L. Elev. 938
Log Measured From TOP 4.50 CSG. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 945
D.F. 944
G.L. 938

Date	08-08-95	Type Fluid in Hole	WATER
Job Tkt | Run No.	8467 ONE	Dens. | Visc.	N/A N/A
Depth-Driller	N/A	Est. Cement Top	1000
Depth-Logger	1932	Max. Rec. Temp.	N/A
Btm. Log Interval	1931	Equip. | Location	114 PKB.
Top Log Interval	900	Recorded By	FIKES
Open Hole Size	N/A	Witnessed By	T. KNOBLOCH

CASING REC.	Size	Wt/Ft	Grade	Type Joint	Top	Bottom
Surface String	N/A					
Prot. String	N/A					
Prod. String	4.50	10.50	J55	8RD	SURF	2066
Liner						

PRIMARY CEMENTING DATA

STRING	Surface	Protection	Production	Liner
Vol. of Cement				
Type of Cement				
Additive				
Additive by %				
Retarder				
Retarder by %				
Wt. of Slurry				
Water Loss				
Drill. mud type				
Drilling mud wt.				

Fold Here

CWP DRS 2.00I

REFERENCE LITERATURE: N/A

REMARKS:

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

HITWELL SURVEYS, INC

COMPANY PEAKE ENERGY
BELDEN & BLAKE
WELL H.F. LILLY #1
FIELD BLUECREEK
COUNTY KANAWHA STATE W.V.

Logger FR 1931
Logger TD 1932
DRLR TD N/A

Elev.
KB 945
DF 944
GL 938

TOTAL TRAVEL TIME
380 MILLIVOLTS 280

GAMMA RAY
200.0 API 400.0
0.0 200.0

Depths
5"/100'

AMPLIFED AMPLITUDE
0 Millivolts 2000

AMPLITUDE
0 Millivolts 100

CCL
-2500.0 Millivolts 800.0

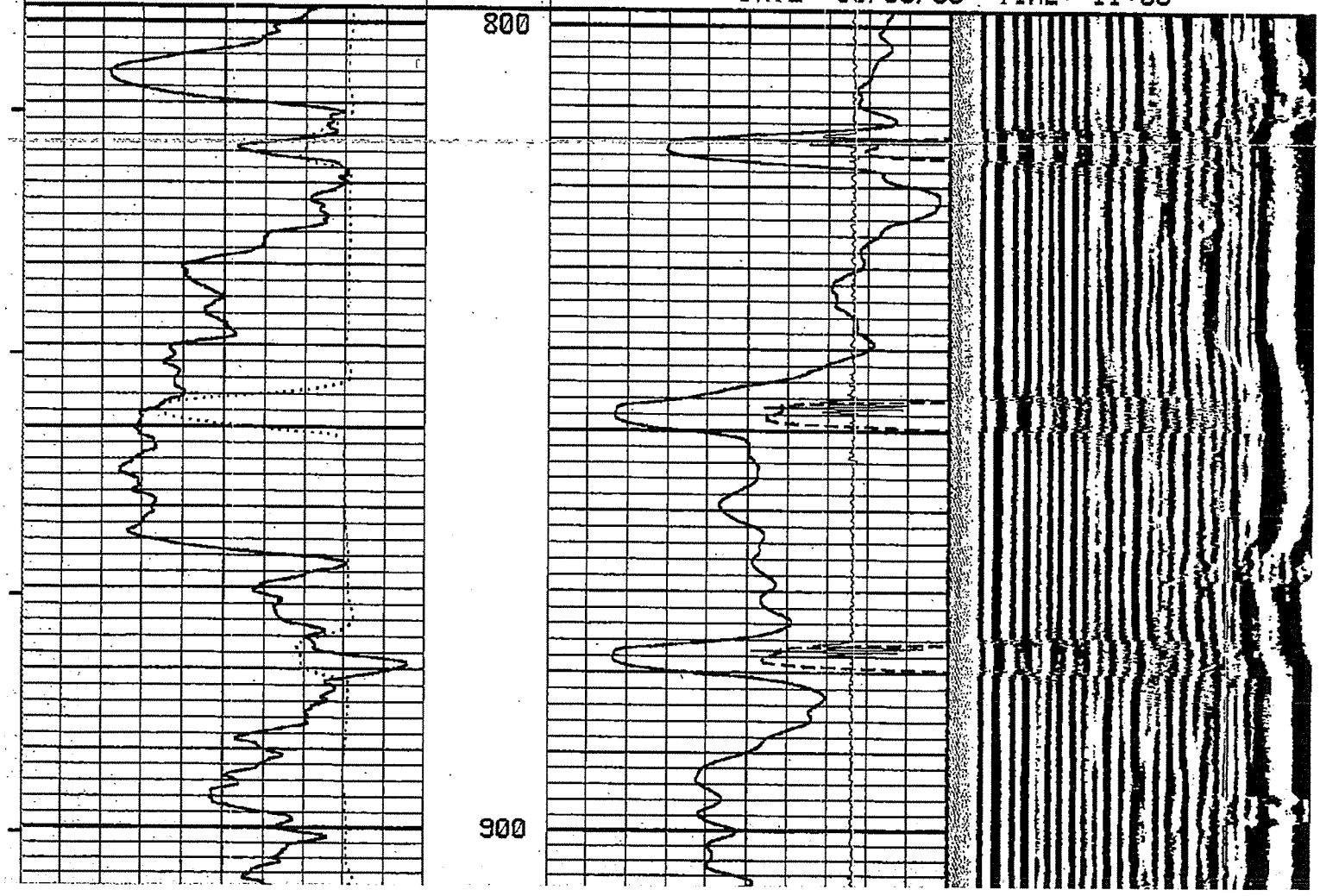
VDL
200 Microseconds 1

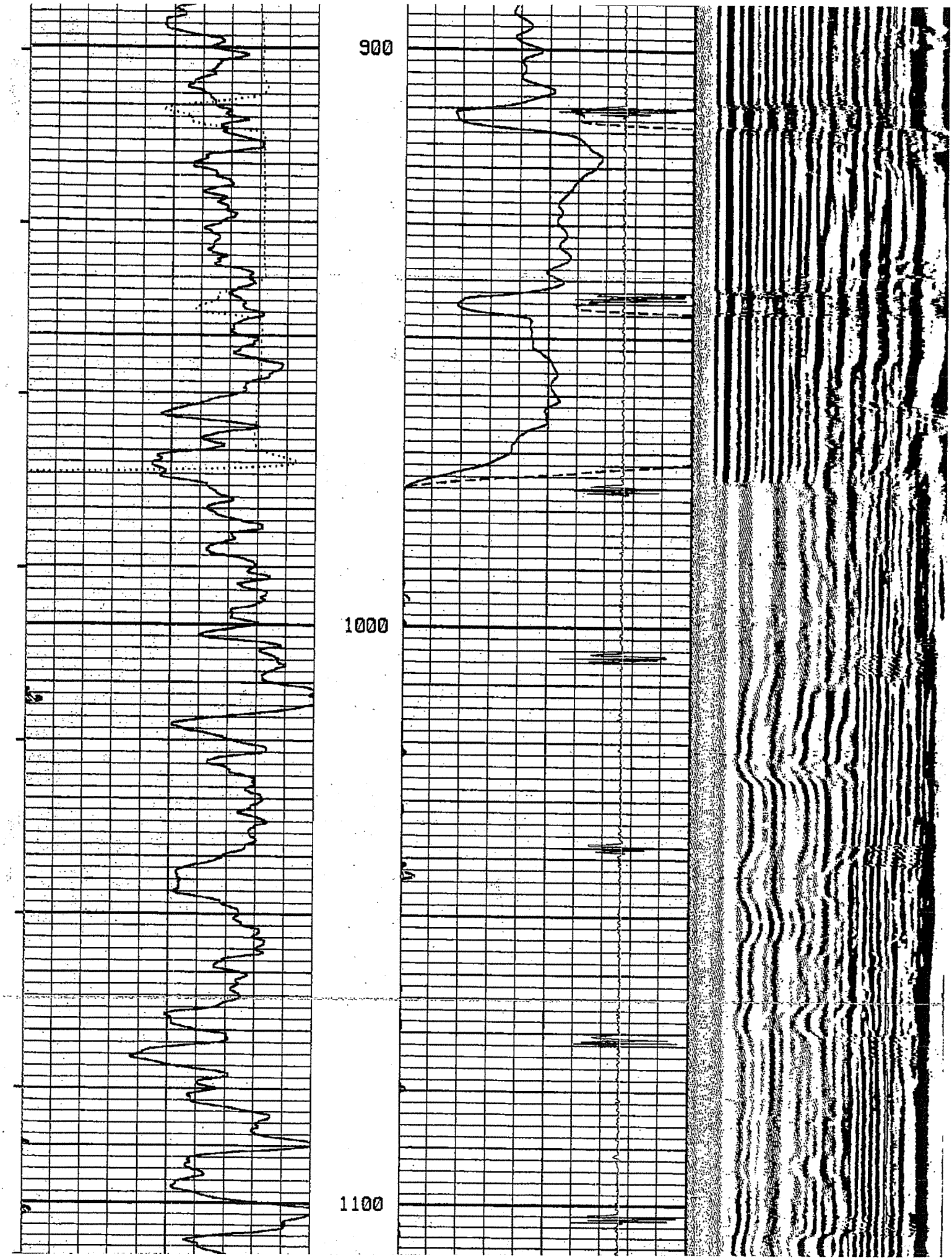
STOP: 796 FT

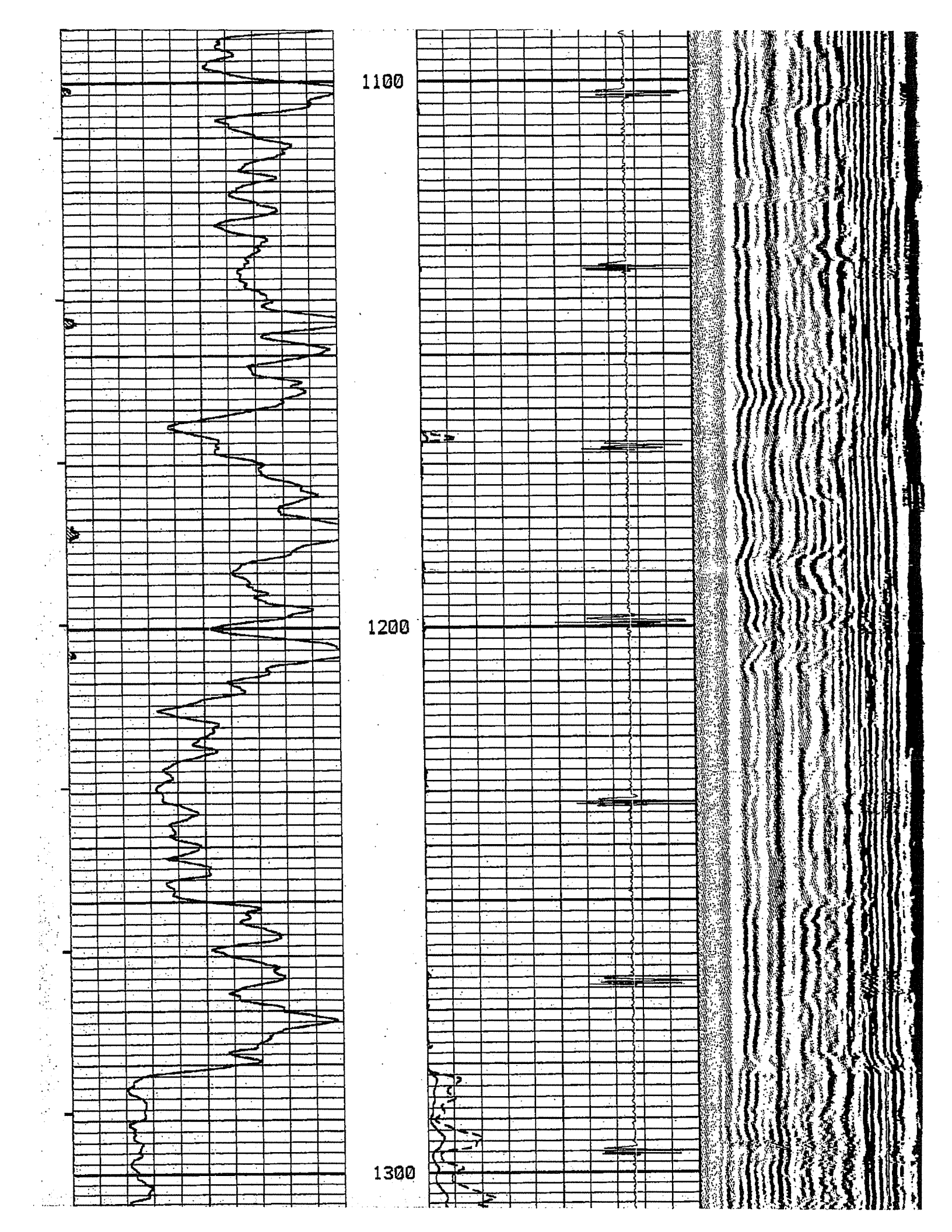
DATE: 08/08/95 TIME: 11:06

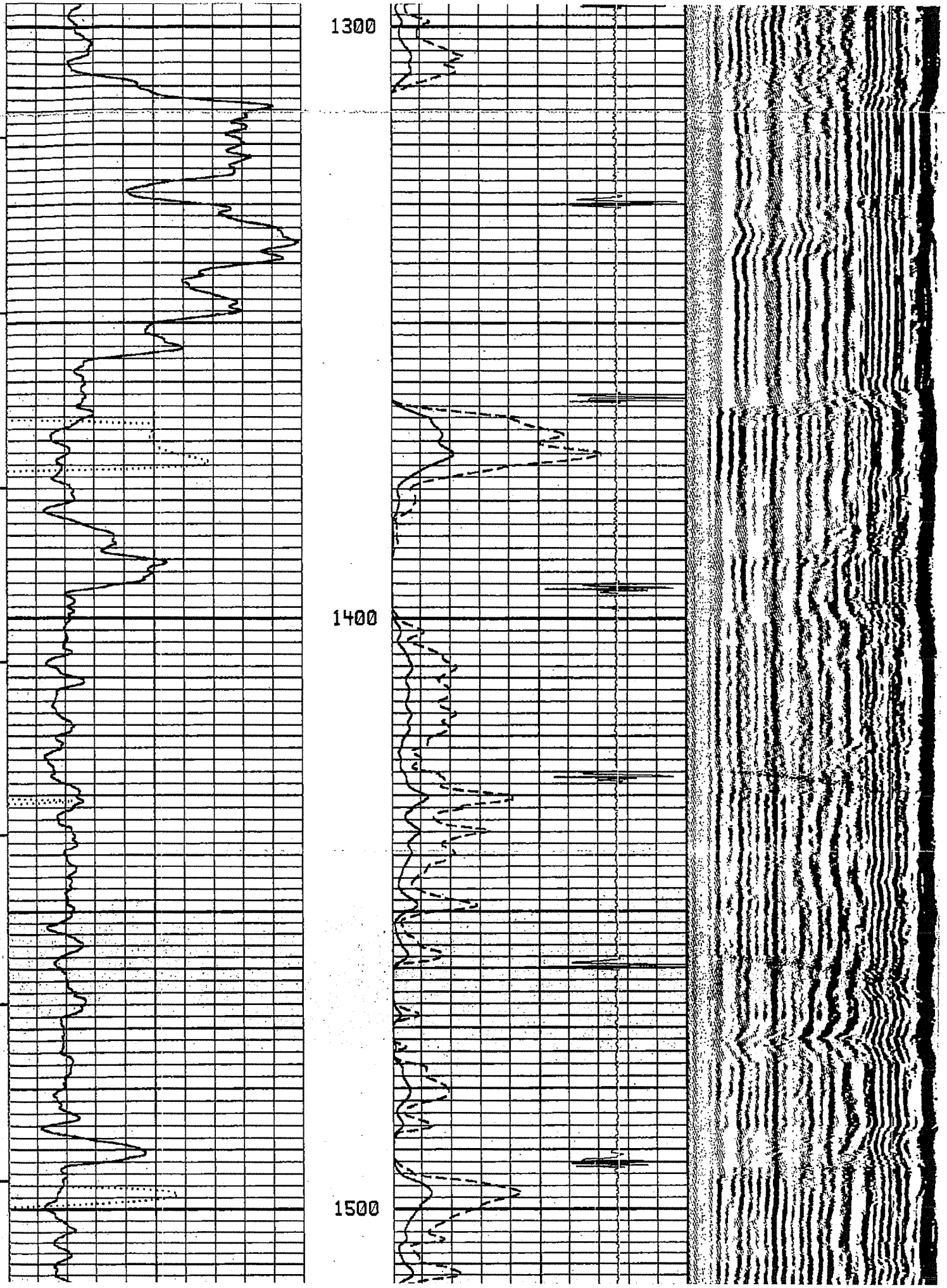
800

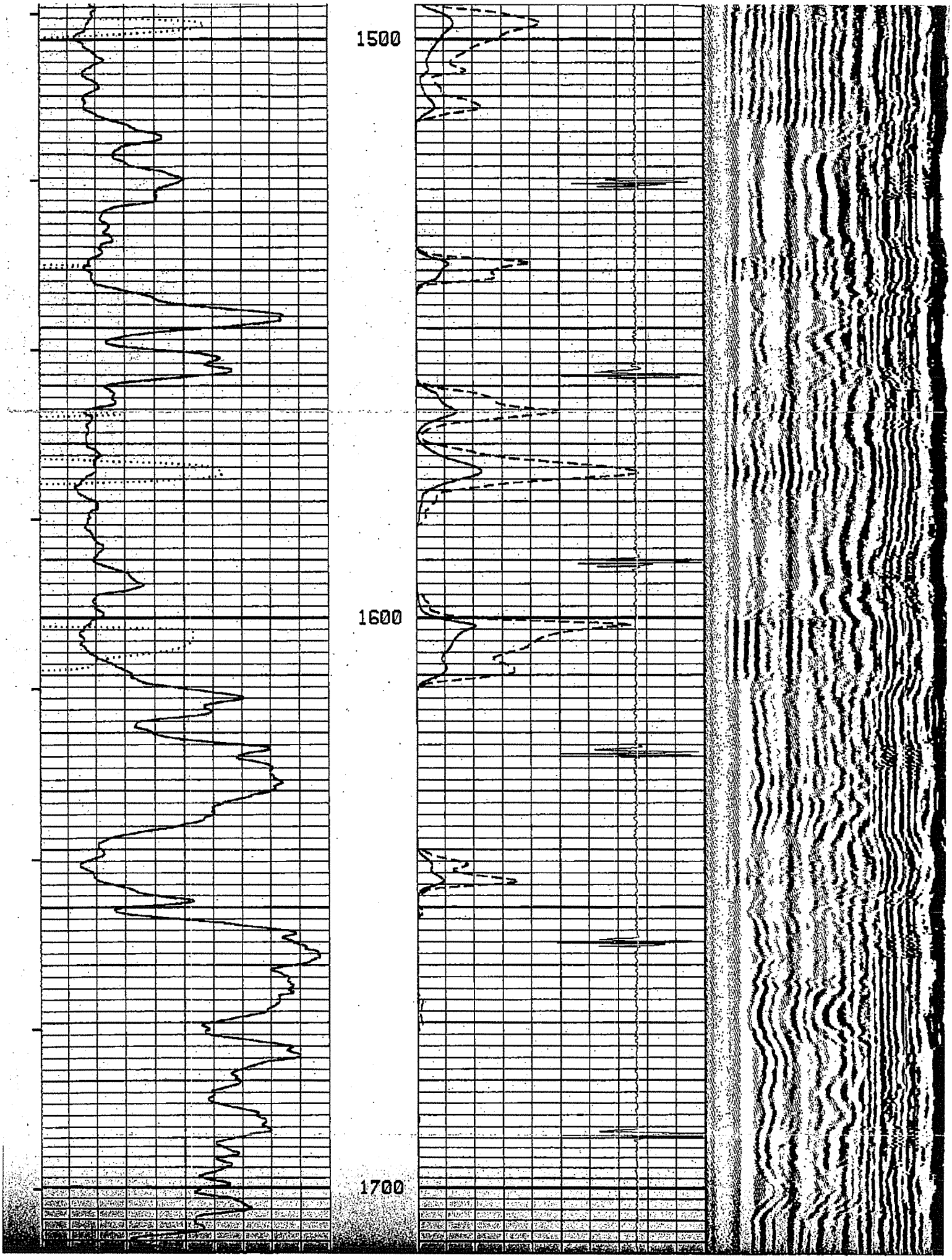
900

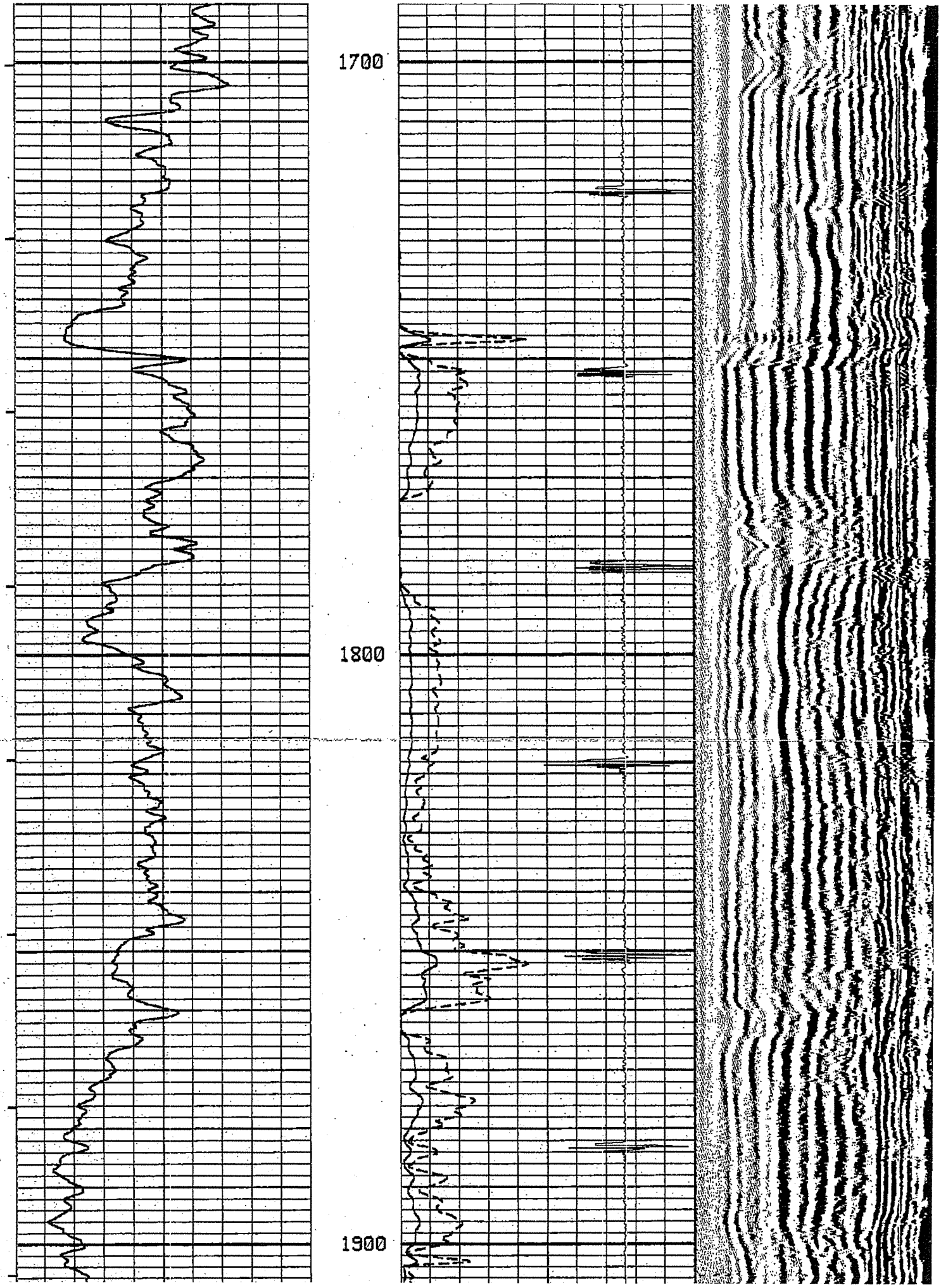


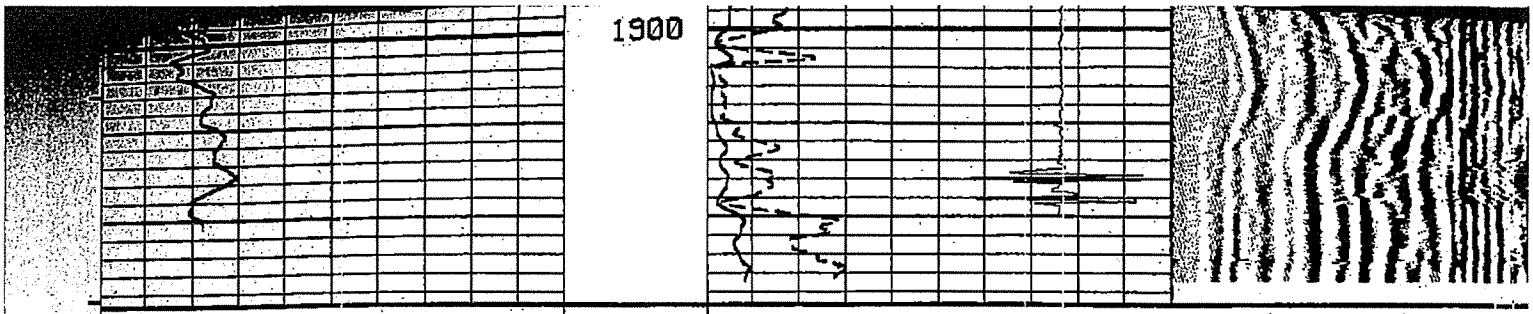

900
1000
1100


1100
1200
1300


1300
1400
1500


1500
1600
1700


1700
1800
1900



START: 1927 FT

DATE: 08/08/95 TIME: 10:43

TOTAL TRAVEL TIME		AMPLIFED AMPLITUDE	
380 MILLIVOLTS 280		0 Millivolts 2000	
GAMMA RAY		AMPLITUDE	
200.0 API 400.0		0 Millivolts 100	
0.0 200.0	Depths 5"/100'	CCL -2500.0 Millivolts 800.0	VDL 200 Microseconds

ST-250 Rev 3.00 07/31/89 P3P4 MULTISCAN ON

8/8/95 Bridge Plug @ 1932

1940 - 1972
29 holes (added 14 New)

Section 9 – Operating Requirements

UIC 2D0392262

Section 9 - Operating Requirements/Data:

The H. F. Lilly 1 has previously been permitted as a UIC Class 2D injection facility. Production casing of 4 1/2" 9.5# was run to a depth of 2089' with 2 3/8 Sealtite EUE tubing and R-4 Halliburton 4 1/2 x 2 3/8 packer set at 1900'. Injection fluid makeup is brine water with no corrosion inhibitor and with 0 psig as an annular pressure. Corrosion inhibitor was added during the sealtite installation type or brand were not found in the records. Historical volumes injected at this location are approximately 10 BPH at an average of 300 psig. Bottom hole psig is 1560#. The projected future use is expected to be the same.

The facility utilizes two filtration units both using 10-micron filters, one at the plant and one at the well.

A list of API wells by API number to be serviced by a brine disposal well(s) are listed on APPENDIX G

MIT inspections shall be performed a minimum of every five years or anytime service work is performed to the well or anytime routine inspections show the possibility of an integrity problem. Casing and tubing pressures are monitored during operational hours. Routine inspections are performed for monitoring for corrosion, potential leaks and plant maintenance. Inspection check points include wellhead, tanks, containments, equipment including connections and location access.
All routine inspections and tests shall be recorded, logged and filed in the local office until transferred to and filed in the office of the company's regulatory analyst. In the event of any suspect well or pipeline integrity problem the well will be immediately shut in and injection activities shall cease with proper notifications being made. In the event of any well integrity problem the well will be made
"static" and evaluation of data shall be performed and remedial work will begin once a plan of action has been put into place. Any injection fluids shall be transported and disposed of in an alternated state approved disposal facility or permitted UIC Class 2D well.

A copy of the current mechanical integrity test is included.

MIT

4703902262

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: 5/24/23
Operator's Well Name / #: Lilly
API#: 47- 039 - 02262
UIC Permit #: 2D03902262003
Field Name (2R only):

WELL OPERATOR Diversified Production
Address: 414 Summers Street, Charleston, WV 25301

DESIGNATED AGENT Chuck Shafer
Address: 414 Summers Street, Charleston, WV 25301

INJECTION FORMATION Big Injun Depth 1937 feet (top) to 1975 feet (bottom)
Perforation Interval 1805'-1975' 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.) Alpha 3207 corrosion inhibitor

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								
FRESH WATER	8 5/8	H-40	23	new		210	210	circ. cement
COAL								
INTERMEDIATE								
PRODUCTION	4 1/2	J-55	9.5	new		2089	2089	150sks
TUBING	2 3/8	J-55	sealtite	new		1452		
LINERS								

PACKER	TYPE: R-4 Halliburton	SIZE: 4 1/2" x 2 3/8"	DEPTH: 1900.7

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

MAXIMUM PERMITED WELLHEAD INJECTION PRESSURE 631 psi **MIT PRESSURE** 1050 psi

MECHANICAL INTEGRITY TEST DESCRIPTION
Casing was filled with water and nitrogen and tested at 1050 psi for 30 minutes and verified with a chart recorder.

(2R Area Permits: If multiple pump lines are tested together, please list wells serviced by the tested pump lines.)

4703902262

WR-37
12/23/19

API#: 47- 039 - 02262

NOTE:

- If the well and the pump line are tested together 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 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 5/24/23
The well and/or pump line:
☑ demonstrated mechanical integrity or ☐ failed to demonstrate mechanical integrity.

The MIT was witnessed by Terry Urban, Inspector WVDEP - Office of Oil and Gas.

Diversified Production
Permit Holder Company Name

6/14/23
Date

Chuck Shafer
Agent or Responsible Party (Print Name)

Signature

Manager-Production
Title

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

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

Special Conditions:

_____

_____

_____

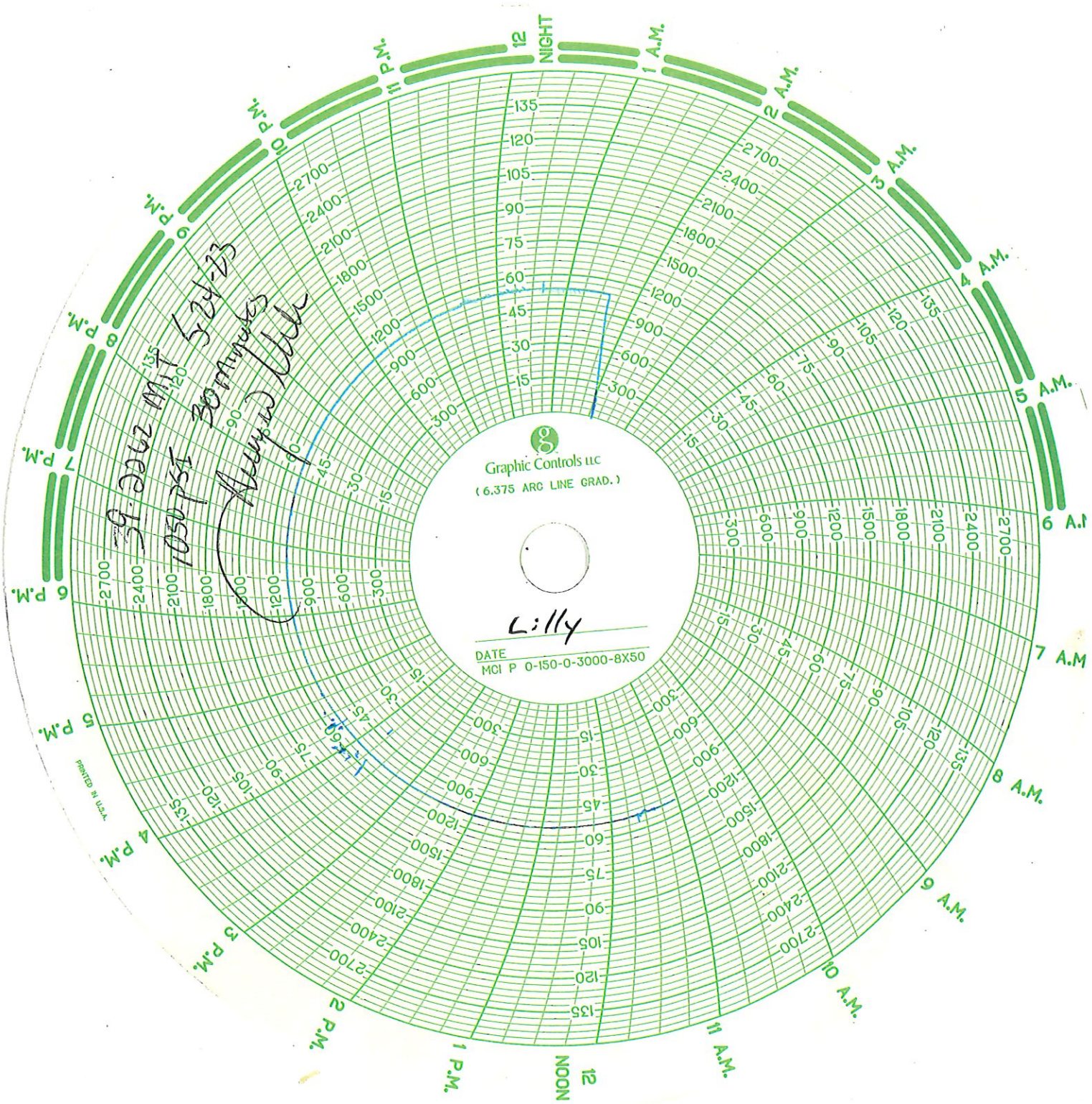
_____

_____

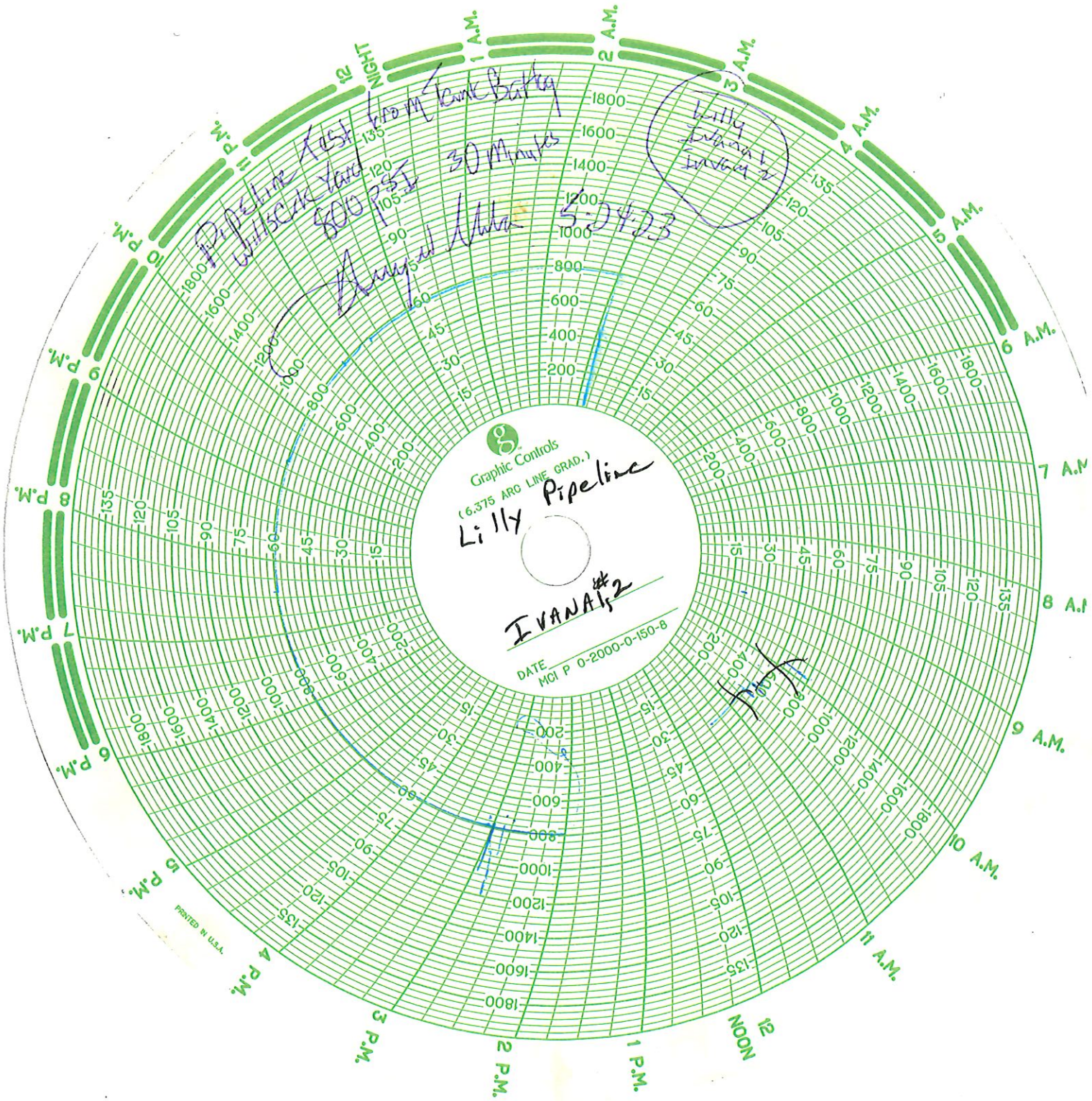
_____
UIC Program Manager
WVDEP-Office of Oil and Gas

_____
Date

4703902262


Graphic Controls LLC
(6.375 ARC LINE GRAD.)
DATE
MCI P 0-150-0-3000-8X50
PRINTED IN U.S.A.
NIGHT
NOON

4703902262


Graphic Controls
(6.375 ARC LINE GRAD.)
Lilly Pipeline
IVANA #2
DATE
MCI P 0-2000-0-150-8
PRINTED IN U.S.A.
NIGHT
NOON

~~7005 2570 0002 3125 3550~~

9502 1126 3461 4170 1702 02

DIVERSIFIED energy

June 18, 2024

WV Dept. of Environmental Protection
Office of Oil & Gas
Mr. James Martin, Chief
Mr. Andrew Lockwood
601 57th Street, SE
Charleston, WV 25304

RE: May 2024 Site Injectate Sampling Analyses
Station 1: Permits 2D0394892 2D0394844 2D0392262

Diversified Production LLC.
101 McQuiston Drive
Jackson Center, PA 16133

Dear Gentlemen,

On behalf of Diversified Production LLC, please find the May 2024 injectate sampling analyses performed and submitted in compliance with Rule 47 CSR 13 and W Va Code §22-11 & 12 and per the parameters of the individual permits listed above. The sampling was conducted on May 15, 2024 at Diversified Production LLC Station 1 facility located in Kanawha County WV facilitating Permit 2D0394892, 2D0394844, and 2D0392262. The analysis was performed by the ALG Group USA – Pace Analytical Services, LLC, a WV DEP authorized laboratory and documents the chain of custody of the sampling.

If you have any questions, or require any additional information, please contact me per the signature contact information below.

Sincerely,

Kim Christian
Diversified Gas & Oil
kchrisitan@dgoc.com
(681) 230-4886
(304) 532-7332
EHS Regulatory Analyst

Injectate Analyses

Diversified Production LLC

101 McQuiston Drive
Jackson Center, PA 16133

2024 Annual Injectate Sample

UIC Site: Station 1 Wills Creek, Elkview, WV

UIC PERMIT #2D03902262 003
HF LILLY #1
KANAWHA COUNTY, WEST VIRGINIA

UIC PERMIT #2D03902262 003
HF LILLY #1
KANAWHA COUNTY, WEST VIRGINIA

UIC PERMIT #2D03902262 003
HF LILLY #1
KANAWHA COUNTY, WEST VIRGINIA

13-Jun-2024

JL Rhudy
Envirocheck of Virginia
375 Mountain Lane
Tazewell, VA 24651

Re: **WV UIC Wells near Charleston, WV** Work Order: **24050999**

Dear JL,

ALS Environmental received 1 sample on 15-May-2024 02:46 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - South Charleston and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 1740 Union Carbide Drive, South Charleston, WV, USA
PHONE: +1 (304) 356-3168 FAX: +1 (304) 205-6262

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

ALS Group, USA

Date: 13-Jun-24

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
Work Order: **24050999**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24050999-01	IVANNA #2, IVANNA #1, HF Lilly #1 Composite	Liquid		5/15/2024 09:45	5/15/2024 13:06	☐
24050999-01	IVANNA #2, IVANNA #1, HF Lilly #1 Composite	Liquid		5/15/2024 09:45	5/17/2024 08:00	☐

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
Work Order: 24050999

Case Narrative

Samples for the above noted Work Order were received on 05/15/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
Batch R403803, Method A4500-H B-11, Sample 24050999-01C: Sample was received and analyzed outside of the holding time at the request of the client. Results should be considered estimated. pH

Subcontracted analytical data has been appended to this report in its entirety.

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
WorkOrder: **24050999**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
as noted	
mg/L	Milligrams per Liter
none	
s.u.	Standard Units

ALS Group, USA

Date: *13-Jun-24*

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
Sample ID: IVANNA #2, IVANNA #1, HF Lilly #1 Composite
Collection Date: 5/15/2024 09:45 AM

Work Order: 24050999
Lab ID: 24050999-01
Matrix: LIQUID

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**5.53**	H	**0**	**0.020**	**s.u.**	1	5/15/2024 16:53
Temperature	**21.2**	Hn	**0**		**s.u.**	1	5/15/2024 16:53
SUBCONTRACTED ANALYSES		Method: **SUBCONTRACT**					Analyst: **PACE**
Subcontracted Analyses	**See attached**		**0**		**as noted**	1	6/12/2024

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Jun-24

Client: Envirocheck of Virginia

QC BATCH REPORT

Work Order: 24050999

Project: WV UIC Wells near Charleston, WV

Batch ID: **R403803** Instrument ID **STC-WC** Method: **A4500-H B-11**

LCS Sample ID: **LCS-R403803-R403803** Units: **s.u.** Analysis Date: **5/15/2024 04:53 PM**

Client ID: Run ID: **STC-WC_240515E** SeqNo: **10764132** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	4.12	0	0.020	4	0	103	90-110	0			

DUP Sample ID: **24050983-01C DUP** Units: **s.u.** Analysis Date: **5/15/2024 04:53 PM**

Client ID: Run ID: **STC-WC_240515E** SeqNo: **10764134** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	5.18	0	0.020	0	0	0	0-0	5.17	0.193	20	H
Temperature	21.8	0	0	0	0	0		21.8	0		H

The following samples were analyzed in this batch: 24050999-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental
1740 Union Carbide Drive
Laboratory location:
South Charleston, WV 25303
(Tel) 304.356.3168
(Fax) 304.205.6262

Chain of Custody Form

Page 1 of 1

ALS Project Manager: | **Work Order #:**

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	**WV UIC Wells near Charleston, WV**	A	**Al, As, Ba, Ca, Fe, Mn, Na, Sr**
Work Order		Project Number		B	**Br, Cl, SO4**
Company Name	Envirocheck of Virginia, Inc.	Bill To Company	**Envirocheck of Virginia, Inc.**	C	**TDS, pH**
Send Report To	JL Rhudy III	Invoice Attn.	**JL Rhudy III**	D	**Specific Gravity**
Address	375 Mountian Lane	Address	**120 Lovelane St.**	E	**Ra226/228**
				F	**Gross alpha/beta**
City/State/Zip	Tazewell/VA/24651	City/State/Zip	**Bluefield/VA/24605**	G	
Phone	276-701-3093	Phone	**276-701-3093**	H	
Fax		Fax		I	
e-Mail Address	jl@e2cofvirginia.com	e-Mail Address	jl@e2cofvirginia.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	**IVANNA #2 47-039-04892 UIC2D03904892002**	**05/15/24**	9:45			8	X	X	X	X	X	X					
2	**IVANNA #1 47-039-04844 UIC2D03904844002**		9:45				X	X	X	X	X	X					
3	**HF Lilly #1 47-039-02262 UIC2D03902262003**		9:45				X	X	X	X	X	X					
4																	
5																	
6																	
7																	
8																	
9																	
10																	

24050999
ENVIROCHECK- VA: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV

Sampler(s): Please Print & Sign
Chris Catron Chris Catron

Shipment Method:

Required Turnaround Time:
☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by: Chris Catron	**Date:** 5/15/24	**Time:** 1:00	**Received by:**	**Notes:**
Relinquished by:	**Date:**	**Time:**	**Received by (Laboratory):**	**Cooler Temp.**
Logged by (Laboratory):	**Date:**	**Time:**	**Checked by (Laboratory):**	

QC Package: (Check Box Below)

	Level II: Standard QC		TRRP-Checklist
	Level III: Std QC + Raw Data		TRRP Level IV
	Level IV: SW846 CLP-Like		
	Other: _____		

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

ALS Environmental

1740 Union Carbide Drive
South Charleston, WV 25303

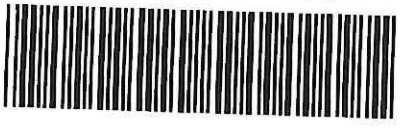
Sample Receiving Checklist

Received by:	ZW
Date/Time:	5.15.24 1306
Carrier Name:	Client
Shipping container/cooler in good condition?	(Yes) / No / Not Present
Custody seals intact on shipping container/cooler?	Yes / No / (Not Present)
Custody seals intact on sample bottles?	Yes / No / (Not Present)
Chain of Custody present?	(Yes) / No
COC signed when relinquished and received?	(Yes) / No
COC agrees with sample labels?	(Yes) / No
Samples in proper container/bottle?	(Yes) / No
Sample containers intact?	(Yes) / No
Sufficient sample volume for indicated test?	(Yes) / No
All samples received within holding time?	(Yes) / No
All sample temperatures verified to be in compliance?	(Yes) / No
Temperature(s) (°C):	<6°C
Thermometer(s):	IR Gun
Sample(s) received on ice?	(Yes) / No
Matrix/Matrices:	Water
Cooler(s)/Kit(s):	
Date/Time sample(s) sent to storage:	
Trip Blanks included? (for volatile analysis only)	Yes / (No) / N/A
Water – VOA vials have zero headspace?	Yes / No / (No Vials)
Water – pH acceptable upon receipt?	Yes / No / (N/A)
pH strip lot #:	
pH adjusted (note adjustments below)?	Yes / No / (N/A)
pH adjusted by:	

Login Notes:

24050999

ENVIROCHECK- VA: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV



13-Jun-2024

JL Rhudy
Envirocheck of Virginia
375 Mountain Lane
Tazewell, VA 24651

Re: **WV UIC Wells near Charleston, WV** Work Order: **24050999**

Dear JL,

ALS Environmental received 1 sample on 17-May-2024 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

ALS Group, USA

Date: 13-Jun-24

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
Work Order: **24050999**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24050999-01	IVANNA #2, IVANNA #1, HF Lilly #1 Composite	Liquid		5/15/2024 09:45	5/15/2024 13:06	☐
24050999-01	IVANNA #2, IVANNA #1, HF Lilly #1 Composite	Liquid		5/15/2024 09:45	5/17/2024 08:00	☐

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
Work Order: 24050999

Case Narrative

Samples for the above noted Work Order were received on 05/17/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:
Batch 240950, Method SW6020B, Sample 24050999-01A: The reporting limit is elevated due to dilution for high concentrations of non-target analytes. Al

Wet Chemistry:
Batch R404425A, Method E300.0, Sample 24050999-01B: The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Bromide

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
WorkOrder: **24050999**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
as noted	
mg/L	Milligrams per Liter
none	
s.u.	Standard Units

ALS Group, USA

Date: *13-Jun-24*

Client: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV
Sample ID: IVANNA #2, IVANNA #1, HF Lilly #1 Composite
Collection Date: 5/15/2024 09:45 AM

Work Order: 24050999
Lab ID: 24050999-01
Matrix: LIQUID

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020B**		Prep: SW3015A / 5/28/24			Analyst: **STP**
Aluminum	U		0.057	0.10	mg/L	10	5/29/2024 01:57
Arsenic	**0.29**		**0.0019**	**0.050**	**mg/L**	10	5/29/2024 01:57
Barium	**410**		**0.57**	**5.0**	**mg/L**	1000	5/29/2024 17:53
Calcium	**21,000**		**220**	**500**	**mg/L**	1000	5/29/2024 17:53
Iron	**88**		**0.47**	**0.80**	**mg/L**	10	5/29/2024 01:57
Manganese	**4.8**		**0.017**	**0.050**	**mg/L**	10	5/29/2024 01:57
Sodium	**61,000**		**130**	**200**	**mg/L**	1000	5/29/2024 17:53
Strontium	**730**		**0.39**	**5.0**	**mg/L**	1000	5/29/2024 17:53
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **CLJ**
Bromide	U		1,300	8,000	mg/L	40000	5/23/2024 13:14
Chloride	**171,000**		**12,000**	**40,000**	**mg/L**	40000	5/23/2024 13:14
Sulfate	U		30	160	mg/L	160	5/22/2024 16:40
SPECIFIC GRAVITY		Method: **D5057-90**					Analyst: **MTK**
Specific Gravity	**1.17**		**0**		**none**	1	5/23/2024 10:15
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-15**		Prep: FILTER / 5/21/24			Analyst: **LAD**
Total Dissolved Solids	**220,000**		**1,100**	**1,500**	**mg/L**	1	5/24/2024 11:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **240950** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-240950-240950** Units: **mg/L** Analysis Date: **5/29/2024 01:21 AM**

Client ID: Run ID: **ICPMS3_240528A** SeqNo: **10808428** Prep Date: **5/28/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.005757	0.0057	0.010								J
Arsenic	U	0.00019	0.0050								
Barium	U	0.00057	0.0050								
Calcium	U	0.22	0.50								
Iron	U	0.047	0.080								
Manganese	U	0.0017	0.0050								
Sodium	0.1817	0.13	0.20								J
Strontium	U	0.00039	0.0050								

LCS Sample ID: **LCS-240950-240950** Units: **mg/L** Analysis Date: **5/29/2024 01:22 AM**

Client ID: Run ID: **ICPMS3_240528A** SeqNo: **10808429** Prep Date: **5/28/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09723	0.0057	0.010	0.1	0	97.2	80-120	0			
Arsenic	0.0975	0.00019	0.0050	0.1	0	97.5	80-120	0			
Barium	0.106	0.00057	0.0050	0.1	0	106	80-120	0			
Calcium	10.35	0.22	0.50	10	0	104	80-120	0			
Iron	9.775	0.047	0.080	10	0	97.8	80-120	0			
Manganese	0.09409	0.0017	0.0050	0.1	0	94.1	80-120	0			
Sodium	10.25	0.13	0.20	10	0	103	80-120	0			
Strontium	0.09986	0.00039	0.0050	0.1	0	99.9	80-120	0			

MS Sample ID: **24050271-01BMS** Units: **mg/L** Analysis Date: **5/29/2024 01:29 AM**

Client ID: Run ID: **ICPMS3_240528A** SeqNo: **10808433** Prep Date: **5/28/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6318	0.0057	0.010	0.1	0.4834	148	75-125	0			SO
Arsenic	0.09713	0.00019	0.0050	0.1	0.000847	96.3	75-125	0			
Barium	0.1207	0.00057	0.0050	0.1	0.0171	104	75-125	0			
Calcium	88.44	0.22	0.50	10	81.86	65.9	75-125	0			SO
Iron	21.1	0.047	0.080	10	12.03	90.7	75-125	0			
Manganese	10.11	0.0017	0.0050	0.1	10.33	-224	75-125	0			SEO
Sodium	71.89	0.13	0.20	10	65.83	60.6	75-125	0			SO
Strontium	0.3837	0.00039	0.0050	0.1	0.2979	85.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Envirocheck of Virginia
Work Order: 24050999
Project: WV UIC Wells near Charleston, WV

QC BATCH REPORT

Batch ID: **240950** Instrument ID **ICPMS3** Method: **SW6020B**

MSD Sample ID: **24050271-01BMSD** Units: **mg/L** Analysis Date: **5/29/2024 01:31 AM**

Client ID: Run ID: **ICPMS3_240528A** SeqNo: **10808434** Prep Date: **5/28/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6243	0.0057	0.010	0.1	0.4834	141	75-125	0.6318	1.2	20	SO
Arsenic	0.09515	0.00019	0.0050	0.1	0.000847	94.3	75-125	0.09713	2.06	20	
Barium	0.1181	0.00057	0.0050	0.1	0.0171	101	75-125	0.1207	2.18	20	
Calcium	87.98	0.22	0.50	10	81.86	61.3	75-125	88.44	0.52	20	SO
Iron	21.01	0.047	0.080	10	12.03	89.8	75-125	21.1	0.428	20	
Manganese	10.18	0.0017	0.0050	0.1	10.33	-149	75-125	10.11	0.735	20	SEO
Sodium	71.88	0.13	0.20	10	65.83	60.6	75-125	71.89	0.0061	20	SO
Strontium	0.3831	0.00039	0.0050	0.1	0.2979	85.2	75-125	0.3837	0.156	20	

The following samples were analyzed in this batch: 24050999-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Envirocheck of Virginia
Work Order: 24050999
Project: WV UIC Wells near Charleston, WV

QC BATCH REPORT

Batch ID: **240600** Instrument ID **TDS** Method: **A2540 C-15**

MBLK Sample ID: **MBLK-240600-240600** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10797079** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	22	30								

MBLK Sample ID: **MBLK-240600-240600** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10806952** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	22	30								

LCS Sample ID: **LCS-240600-240600** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10797078** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	494	22	30	495	0	99.8	85-109	0			

LCS Sample ID: **LCS-240600-240600** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10806953** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	494	22	30	495	0	99.8	85-109	0			

DUP Sample ID: **24050953-06A DUP** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10797062** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	676.7	37	50	0	0	0	0-0	663.3	1.99	10	

DUP Sample ID: **24051142-01B DUP** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10797075** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	3210	110	150	0	0	0	0-0	3240	0.93	10	

DUP Sample ID: **24051142-01B DUP** Units: **mg/L** Analysis Date: **5/24/2024 11:13 AM**
Client ID: Run ID: **TDS_240524B** SeqNo: **10806955** Prep Date: **5/21/2024** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	3210	110	150	0	0	0	0-0	3240	0.93	10	

The following samples were analyzed in this batch: 24050999-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Envirocheck of Virginia
Work Order: 24050999
Project: WV UIC Wells near Charleston, WV

QC BATCH REPORT

Batch ID: **R404326A** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-A-R404326A** Units: **mg/L** Analysis Date: **5/22/2024 09:26 AM**
Client ID: Run ID: **IC3_240522A** SeqNo: **10790004** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	U	0.19	1.0								

LCS Sample ID: **LCS-A-R404326A** Units: **mg/L** Analysis Date: **5/22/2024 09:16 AM**
Client ID: Run ID: **IC3_240522A** SeqNo: **10790003** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	9.855	0.19	1.0	10	0	98.6	90-110	0			

MS Sample ID: **24051056-05G MS** Units: **mg/L** Analysis Date: **5/22/2024 02:23 PM**
Client ID: Run ID: **IC3_240522A** SeqNo: **10790006** Prep Date: DF: **40**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	473.9	7.6	40	400	57.83	104	90-110	0			

MS Sample ID: **24051160-01A MS** Units: **mg/L** Analysis Date: **5/22/2024 05:00 PM**
Client ID: Run ID: **IC3_240522A** SeqNo: **10790022** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1952	19	100	1000	931.8	102	90-110	0			

MSD Sample ID: **24051056-05G MSD** Units: **mg/L** Analysis Date: **5/22/2024 02:33 PM**
Client ID: Run ID: **IC3_240522A** SeqNo: **10790007** Prep Date: DF: **40**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	474.2	7.6	40	400	57.83	104	90-110	473.9	0.0675	10	

MSD Sample ID: **24051160-01A MSD** Units: **mg/L** Analysis Date: **5/22/2024 05:10 PM**
Client ID: Run ID: **IC3_240522A** SeqNo: **10790023** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1949	19	100	1000	931.8	102	90-110	1952	0.146	10	

The following samples were analyzed in this batch: 24050999-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Envirocheck of Virginia
Work Order: 24050999
Project: WV UIC Wells near Charleston, WV

QC BATCH REPORT

Batch ID: **R404414** Instrument ID **WETCHEM** Method: **D5057-90**

DUP	Sample ID: **24051181-01A DUP**				Units: **none**			Analysis Date: **5/23/2024 10:15 AM**			
Client ID:		Run ID: **WETCHEM_240523J**			SeqNo: **10794305**			Prep Date:		DF: **1**	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Gravity	1.005	0	0	0	0	0	0-0	1.005	0.01	20	

The following samples were analyzed in this batch: 24050999-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Envirocheck of Virginia
Work Order: 24050999
Project: WV UIC Wells near Charleston, WV

QC BATCH REPORT

Batch ID: **R404425A** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-A-R404425A** Units: **mg/L** Analysis Date: **5/23/2024 10:54 AM**
Client ID: Run ID: **IC3_240523A** SeqNo: **10794619** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.032	0.20								
Chloride	U	0.31	1.0								

LCS Sample ID: **LCS-A-R404425A** Units: **mg/L** Analysis Date: **5/23/2024 10:45 AM**
Client ID: Run ID: **IC3_240523A** SeqNo: **10794618** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.106	0.032	0.20	2	0	105	90-110	0			
Chloride	9.918	0.31	1.0	10	0	99.2	90-110	0			

MS Sample ID: **24051070-01B MS** Units: **mg/L** Analysis Date: **5/23/2024 01:33 PM**
Client ID: Run ID: **IC3_240523A** SeqNo: **10794628** Prep Date: DF: **400**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	805.6	13	80	800	0	101	90-110	0			
Chloride	3870	120	400	4000	88.52	94.5	90-110	0			

MS Sample ID: **24051246-01A MS** Units: **mg/L** Analysis Date: **5/23/2024 03:21 PM**
Client ID: Run ID: **IC3_240523A** SeqNo: **10794639** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	20.24	0.32	2.0	20	0	101	90-110	0			
Chloride	125.6	3.1	10	100	30.27	95.3	90-110	0			

MSD Sample ID: **24051070-01B MSD** Units: **mg/L** Analysis Date: **5/23/2024 01:43 PM**
Client ID: Run ID: **IC3_240523A** SeqNo: **10794629** Prep Date: DF: **400**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	811.5	13	80	800	0	101	90-110	805.6	0.727	10	
Chloride	3875	120	400	4000	88.52	94.6	90-110	3870	0.124	10	

MSD Sample ID: **24051246-01A MSD** Units: **mg/L** Analysis Date: **5/23/2024 03:30 PM**
Client ID: Run ID: **IC3_240523A** SeqNo: **10794640** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	20.11	0.32	2.0	20	0	101	90-110	20.24	0.654	10	
Chloride	125.5	3.1	10	100	30.27	95.3	90-110	125.6	0.0374	10	

The following samples were analyzed in this batch: 24050999-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Subcontractor:
ALS Environmental - Holland
3352 128th Avenue
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

24050999

ENVIROCHECK- VA: Envirocheck of Virginia
Project: WV UIC Wells near Charleston, WV

CHAIN OF CUSTODY RECORD

Date: 15-May-24
COC ID: 25817
Due Date: 24-May-24

Salesperson: ALSHN Account

Customer Information		Project Information	
Purchase Order		Project Name	24050999
Work Order		Project Number	
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp
Send Report To	Rebecca Kiser	Inv Attn	Accounts Payable
Address	1740 Union Carbide Dr.	Address	1740 Union Carbide Dr.
City/State/Zip	So. Charleston, WV 25303	City/State/Zip	So. Charleston, WV 25303
Phone	(304) 356-3168	Phone	(304) 356-3168
Fax		Fax	
eMail Address	rebecca.kiser@alsglobal.com	eMail CC	

	Parameter/Method Request for Analysis
A	Total Dissolved Solids (A2540 C-15)
B	Specific Gravity (D5057-90)
C	Anions by Ion Chromatography (E300.0)
D	Metals by ICP-MS (SW6020B)
E	
F	
G	
H	
I	
J	

ALS Sample ID	Client Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
24050999-01A	IVANNA #2 #3 HF Lilly #1 Grab	Liquid	15/May/2024 9:45	(1) 250PHNO3				X						
24050999-01B	IVANNA #2 #3 HF Lilly #1 Grab	Liquid	15/May/2024 9:45	(1) 125PNEAT			X							
24050999-01D	IVANNA #2 #3 HF Lilly #1 Grab	Liquid	15/May/2024 9:45	(1) 125PNEAT		X								
24050999-01C	IVANNA #2 #3 HF Lilly #1 Grab	Liquid	15/May/2024 9:45	(2) 250PNEAT	X									

Comments:
WV Samples Sampler: C.C.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
Michelle Holmes	5.16.24 1400	[signature]	5-17-24 8:00	6.0C ALSHW pH 3?	Std
Relinquished by:	Date/Time	Received by:	Date/Time		

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **ENVIROCHECK- VA** Date/Time Received: **15-May-24 14:46**

Work Order: **24050999** Received by: **CMK**

Checklist completed by Caleb Koetje (eSignature) 18-May-24 (Date) Reviewed by: Rebecca Kiser (eSignature) 20-May-24 (Date)

Matrices: Water
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	<6.0c	Df2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/18/2024 8:20:09 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: pH check <2

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

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

June 10, 2024

Ms. Rebecca Kiser
ALS Environmental
1740 Union Carbide Drive
Charleston, WV 25303

RE: Project: 24050999
Pace Project No.: 30685737

Dear Ms. Kiser:

Enclosed are the analytical results for sample(s) received by the laboratory on May 17, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Greensburg

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

Sincerely,

Carla Cmar
carla.cmar@pacelabs.com
(724)850-5600
Project Manager

Enclosures

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

CERTIFICATIONS

Project: 24050999
Pace Project No.: 30685737

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

SAMPLE SUMMARY

Project: 24050999
Pace Project No.: 30685737

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30685737001	**24050999-01E**	Water	05/15/24 09:45	05/17/24 09:15

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 24050999
Pace Project No.: 30685737

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30685737001	**24050999-01E**	EPA 900.0	KET	2	PASI-PA
		EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 24050999
Pace Project No.: 30685737

Method: **EPA 900.0**
Description: 900.0 Gross Alpha/Beta
Client: ALS Life Sciences Division | Environmental
Date: June 10, 2024

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

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

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

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

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

Additional Comments:

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

PROJECT NARRATIVE

Project: 24050999
Pace Project No.: 30685737

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: ALS Life Sciences Division | Environmental
Date: June 10, 2024

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

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

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

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

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

Additional Comments:

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

PROJECT NARRATIVE

Project: 24050999
Pace Project No.: 30685737

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: ALS Life Sciences Division | Environmental
Date: June 10, 2024

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

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

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

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

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

Additional Comments:

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

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 24050999
Pace Project No.: 30685737

Sample: 24050999-01E **Lab ID: 30685737001** Collected: 05/15/24 09:45 Received: 05/17/24 09:15 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	**6,860 ± 1,674 (1,220) C:NA T:NA**	pCi/L	06/06/24 18:40	12587-46-1	
Gross Beta	EPA 900.0	**2,572 ± 832 (984) C:NA T:NA**	pCi/L	06/06/24 18:40	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**2,258 ± 362 (123) C:NA T:97%**	pCi/L	06/02/24 15:51	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**1,040 ± 199 (50.8) C:83% T:88%**	pCi/L	05/31/24 12:40	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: 24050999
Pace Project No.: 30685737

QC Batch: 670510
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: 30685737001

METHOD BLANK: 3265294 Matrix: Water
Associated Lab Samples: 30685737001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.123 ± 0.282 (0.167) C:NA T:83%	pCi/L	06/02/24 15:26	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: 24050999
Pace Project No.: 30685737

QC Batch: 671212
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: 30685737001

METHOD BLANK: 3268536 Matrix: Water
Associated Lab Samples: 30685737001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.066 ± 1.04 (2.69) C:NA T:NA	pCi/L	06/07/24 08:18	
Gross Beta	-0.505 ± 1.06 (2.75) C:NA T:NA	pCi/L	06/07/24 08:18	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: 24050999
Pace Project No.: 30685737

QC Batch: 670511
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: 30685737001

METHOD BLANK: 3265295 Matrix: Water
Associated Lab Samples: 30685737001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.581 ± 0.437 (0.858) C:74% T:78%	pCi/L	05/31/24 12:37	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 24050999
Pace Project No.: 30685737

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.

Subcontractor:
Pace Analytical Services, Inc.
1638 Roseytown Rd
Suites 2,3 & 4
Greensburg, PA 15601
TEL: (724) 850-5600
FAX:
Acct #:

Salesperson: ALSHN Account

CHAIN-OF-CUSTODY RECORD

Date: 16-May-24
COC ID: 25826
Due Date:

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	24050999	A Ra226/228, Gross alpha/beta
Work Order		Project Number		B
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp	C
Send Report To	Rebecca Kiser	Inv Attn	Accounts Payable	D
Address	3352 128th Ave	Address	3352 128th Ave	E
				F
City/State/Zip	Holland, Michigan 49424	City/State/Zip	Holland, Michigan 49424	G
Phone	(616) 399-6070	Phone	(616) 399-6070	H
Fax	(616) 399-6185	Fax	(616) 399-6185	I
eMail Address	rebecca.kiser@alsglobal.com	eMail CC		J

ALS Sample ID	Client Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
24050999-01E	IVANNA #2, IVANNA #1, HF Lilly #1 Composite	Liquid	15/May/2024 9:45	(4) 1LPHNO3	X									

001

WO# : 30685737

30685737

Received by Pace Greensburg
Therm ID ___ Corr Factor +/- ___
Receipt Temp ___
Corrected Temp ___
Correct Preservation (Y) N

Comments:
WV Sample. Sampler: C. Catron

5/16/24 14:32 5/17/24 915

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		

DC#_Title: ENV-FRM-GBUR-0088 v07_Sample C... Within Upon Receipt-Greensburg

Effective Date: 01/04/2024

WO# : 30685737

PM: CMC Due Date: 06/10/24

CLIENT: ALS-WV

Client Name: ALS P

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

Tracking Number: 7764 2004 9074

Initial / Date

Examined By: EJS-17-24

Labeled By: EJS-17-24

Temped By: —

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

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

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

Temp should be above freezing to 6°C

Comments:	Yes	No	NA	pH paper Lot# 10DZ931 / D.P.D. Residual Chlorine Lot # —
Chain of Custody Present	✓			1.
Chain of Custody Filled Out:	✓			2.
-Were client corrections present on COC		✓		
Chain of Custody Relinquished	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC:	✓			5.
-Includes date/time/ID Matrix: WT				
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used		✓		
Containers Intact:	✓			11.
Orthophosphate field filtered:			✓	12.
Hex Cr Aqueous samples field filtered:			✓	13.
Organic Samples checked for dichlorination			✓	14:
Filtered volume received for dissolved tests:			✓	15:
All containers checked for preservation:	✓			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix				pH<2
All containers meet method preservation requirements:	✓			Initial when completed EJS / Date/Time of Preservation / Lot# of added Preservative
8260C/D: Headspace in VOA Vials (> 6mm)			✓	17.
624.1: Headspace in VOA Vials (0mm)			✓	18.
Radon: Headspace in RAD Vials (0mm)			✓	19.
Trip Blank Present:			✓	Trip blank custody seal present? YES or NO
Rad Samples Screened <.05 mrem/hr.	✓			Initial when completed RS / Date: 5/17/24 / Survey Meter SN: 25014380

Comments:

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

Qualtrax ID: 55680

Client ALS

Site 24050999

Page ____ of ____

Profile/EZ Login Number 5573

Notes

Sample Line Item	Matrix	Amber Glass					Plastic								Vials					Other									
		AG1H	AG3S	AG3U	AG5U	AG5T	BP1N	BP1U	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	DG9S	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC	GCUB	GJN	12GN	AG1U	BG1U	BP2N	
001	WT						4																						

Container Codes

Glass

GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosulfate
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar
AG1H	1L amber glass HCl	WGFU	4oz wide jar unpreserved
AG1T	1L amber glass NA Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved
AG3U	250mL amber glass unpreserved	GN	General

Plastic/Misc.

GCUB	1 gallon cubitainer
12GN	1/2
SP5T	120
BP1N	1L
BP1U	1L
BP3S	250
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3B	250mL plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved

EZL 5g Encore

le Solid

ab

ag

SL	Solid
OL	Non-Aq Liquid
WP	Wipe

WO#: 30685737

PM: CMC Due Date: 06/10/24

CLIENT: ALS-WV

Section 10 – Monitoring

UIC 2D0392262

Section 10 – Monitoring

Monitoring of all injection parameters shall be logged during manned site activity and with the assistance of on-site monitoring devices.

Monitoring consists of all parameters necessary to record and report the state required records. These parameters include:

- Disposal station records to ensure the integrity of all tanks, containment, equipment, and manifolds/lines including
  - Filter maintenance
  - Walk around inspections conducted during on-site presents
- Well monitoring
  - Operating hours
  - Injection fluid volumes for total and cumulative injected fluid and flow rate
  - Annulus injection pressures for operational and shut in activity
  - Date specific walk around inspection activity

Documentation of thorough tank inspections exist per the company's scheduled tank inspection procedures.

WR-40s shall be completed and filed in accordance with state regulations and kept on file at the district office to be made available upon request.

Fluid manifest shall be completed documenting every load of fluid delivered to the facility for disposal. These manifests will be kept on file at the district office to be made available upon request and shall report the following:

- Operator
- Date
- Hauler's name with signature
- Receiver's name and signature / initials
- Source well name and API identification
- Amount of fluid in barrel units

Manifest signature acknowledges that responsible person certifies that the contents of each shipment are Class II fluids that were brought to the surface in connection with oil or natural gas production.

Injectate sampling is performed in accordance with the requirements and parameters set forth in the permit.

Section 11 – Groundwater Protection Plan

UIC 2D0392262

(4/25)

4703902262

APPENDIX H

GROUNDWATER PROTECTION

PLAN Facility Name: H. F. Lilly 1

County: Kanawha

Facility Location:

Postal Service Address:	588 Equine Dr, Elkview, WV 25071
Latitude: 38.48249650	Longitude: -81.47644470

Contact Information:

Person:	Lisa Raffle
Phone Number:	724-579-2320
E-mail Address:	lraffle@dgoc.com

Date: 10/29/2024

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

CONTAMINATION WOULD MOST LIKELY OCCUR FROM A LEAK OR FAILURE OF THE UIC. SPILLS ON-SITE WOULD MOST LIKELY BE THE RESULT OF THE FAILURE OF TANKS OR LIQUIDS UNLOADING OPERATIONS. SECONDARY CONTAINMENT STRUCTURES ARE IN PLACE TO LIMIT THE IMPACTED AREA. INSPECTIONS AND CONTINUED MAINTENANCE ARE ON-GOING AND UTILIZED TO ENSURE THE RISK OF GROUNDWATER CONTAMINATION IS MINIMAL.

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

QUARTERLY INSPECTIONS ARE CONDUCTED TO ENSURE THE FACILITY IS PROPERLY MAINTAINED TO PREVENT GROUNDWATER CONTAMINATION. ANNULUS MONITORING IS OBSERVED AS WELL AS SECONDARY CONTAINMENT INSPECTIONS QUARTERLY.

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

IF NEW EQUIPMENT IS ADDED TO THE SITE, SECONDARY CALCULATIONS AND DESIGN WILL BE CONDUCTED IN ORDER TO ENSURE THAT TANKS HAVE APPROPRIATE CONTAINMENT. FURTHERMORE, RECORDS OF INJECTION WILL BE MAINTAINED, AS WELL AS QUARTERLY INSPECTIONS CONDUCTED TO ENSURE THE WELL IS MAINTAINED PROPERLY.

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

THE FACILITY IS REGULATED UNDER THE UIC PROGRAM, SPCC REGULATIONS, AND WVDEP AST REGULATIONS.

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

See Section 7 of this permit.

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

NO WASTE MATERIAL WILL BE USED FOR DEICING OR FILL MATERIAL AT THE SITE.

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.

DIVERSIFIED MAINTAINS A FORMAL WRITTEN PROCEDURE AND CONDUCTS ROUTINE TRAINING ON GROUNDWATER CONTAMINATION PREVENTION.

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

QUARTERLY INSPECTIONS ARE CONDUCTED ON-SITE IN ORDER TO FULFILL GPP REQUIREMENTS. THE INSPECTIONS INCLUDE EVALUATIONS OF THE SECONDARY CONTAINMENT, AST'S, AND INJECTION WELL INSPECTIONS ARE RECORDED AND MAINTAINED BY DIVERSIFIED

Signature: Lisa Raffle

Date: 10/29/2024

Section 12 – Plugging and Abandonment UIC

UIC 2D0392262

4703902262

Plugging Prognosis
API #: 47-039-02262
HF Lilly #1
West Virginia, Kanawha County, Elk District, Clendenin 15' Quadrangle, Blue Creek 7.5' Quadrangle
Lat/Long – 38.482692, -81.476445
Nearest ER: Charleston Area Medical Center: Emergency Room – 501 Morris St, Charleston, WV 25301

Casing Schedule

8-5/8", 23 ppf, H-40 @ 210' – CTS
4-1/2", 9.5 ppf, J-55 @ 2089' – Cemented w/ 150 sks – Schematic in old permit shows TOC @ 976'+/-
2-3/8", Sealtite, J-55 @ 1900.7' – 4-1/2" x 2-3/8" R-4 Halliburton Packer @ 1900.7'
TD @ 2095'

Completion: Big Injun – 13 Perfs 1949'-1954', 2 Perfs 1964'-1966', 1 Perf 1972' – 710 bbls gelled H2O, 450 sks sand

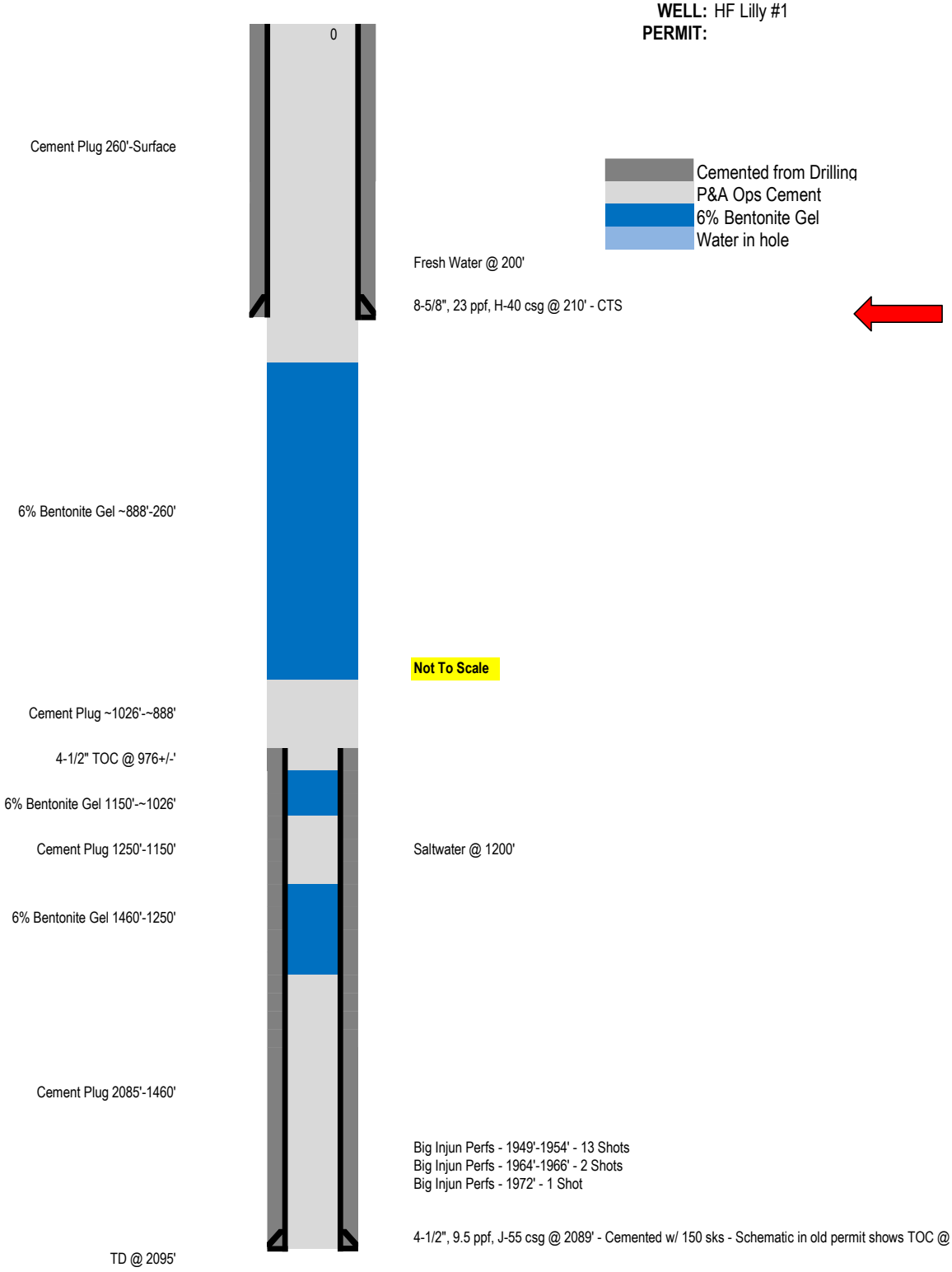
Fresh Water: 200'
Salt Water: 1200'
Gas Shows: None Reported
Oil Shows: None Reported
Coal: None Reported
Open None Reported
Elevation: 938'

1. Notify Inspector Terry Urban @ 304-549-5915, 48 hrs prior to commencing operations.
2. Check and record pressures on csg/tbg.
3. Pump 6% Bentonite Gel between each plug.
4. If necessary, blow down and kill well with fluid.
5. Unset 4-1/2" x 2-3/8" R-4 Halliburton Packer @ 1900.7' and TOOH w/ 2-3/8" tbg & packer.
6. Check TD w/ sandline/tbg.
7. TIH w/ tbg to 2085'. Kill well as needed with 6% bentonite gel and fill rat hole with gel. Pump at least 10 bbls gel. Pump 625' Class L/Class A cement plug from **2085' to 1460' (Completion Plug – Big Injun Plug).** Approximately 50 sks @ 1.14 yield. WOC. Tag TOC. Top off as needed. Do not omit any plugs listed below. Perforate as needed.
8. TOOH w/ tbg to 1250'. Pump 100' Class L/Class A cement plug from **1250' to 1150' (Saltwater Plug)**. Approximately 8 sks @ 1.14 yield. Tag TOC. Top off as needed. Do not omit any plugs listed below. Perforate as needed.
9. Free point 4-1/2" csg. Cut and TOOH. Set 100' Class L/Class A cement plug across csg cut. 50' in/out of cut. Approximately 14 sks @ 1.14 yield. Do not omit any plugs listed below. Perforate as needed. **Can be combined and set with Elevation Plug if feasible.**
10. TOOH w/ tbg to 988'. Pump 100' Class L/Class A cement plug from **988' to 888' (Elevation Plug).** Approximately 20 sks @ 1.14 yield. WOC. Tag TOC. Top off as needed. Do not omit any plugs listed below. Perforate as needed. **Can be combined and set with 4-1/2" Csg Cut Plug if feasible.**

11. TOOH w/ tbg to 260'. Pump 260' Class L/Class A cement plug from **260' to Surface (8-5/8" Csg Shoe, Fresh Water, & Surface Plug).** Approximately 78 sks @ 1.14 yield. Top off as needed. Perforate as needed.
12. Reclaim location and well road to WV DEP specifications and erect P&A well monument.

4703902262

API: 37-039-02262
WELL: HF Lilly #1
PERMIT:



Section 13 – Additional Bonding

UIC 2D0392262

OP-7
Rev. 1/12

BOND NUMBER 612409930
OPERATOR CODE _____

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS BOND FOR SINGLE OIL OR GAS WELL,
SINGLE LIQUID INJECTION WELL OR SINGLE WASTE DISPOSAL WELL

KNOWN ALL MEN BY THESE PRESENTS:

(1) That we, Diversified Production LLC
(2) 1600 Corporate Drive, Birmingham, AL 35242
As Principal, and **(3)** United States Fire Insurance Company
(4) 305 MADISON AVENUE, MORRISTOWN, NJ 07960

a firm and/or a corporation authorized to do business in the State of West Virginia, as Surety, are held and firmly bound unto the State of West Virginia in the just and full sum of **(5)** Five thousand and No/100 dollars ($ 5,000.00) to the payment whereof well and truly to make, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bound Principal in pursuance of the provisions of Chapter 22, Article 6 and 6A of the Code of West Virginia, 1931, as amended, and the regulations promulgated thereunder, has made or intends to make application to the Chief of the Office of Oil and Gas, Department of Environmental Protection, the State of West Virginia for a permit to drill, redrill, deepen, fracture, stimulate, plug, pressure, convert, combine, physically change, partially plug, case and/or reclaim, purchase or acquire, a single oil or gas well or liquid injection well or waste disposal well, located on the waters of **(6)** _____, in **(7)** _____ District, **(8)** Kanawha County, West Virginia, assigned by said Department of Environmental Protection, **(9)** API Well No. 47- 039 - 02262 ; and

WHEREAS, THE Obligee as a condition precedent to the issuance of such Permit or release of other obligation has required the Principal to furnish a SURETY BOND acceptable to the Obligee guaranteeing the performance of said provisions of Chapter 22, Article 6 and/or 6A, of the Code of West Virginia, 1931, as amended, and the regulations promulgated thereunder;

NOW THEREFORE, the condition of this obligation is such that if the Principal, its personal representatives, successors, heirs and assigns shall either (1) in drilling, redrilling, deepening, fracturing, stimulating, plugging, pressuring, converting, combining, physically changing, partiallly plugging, casing, and reclaiming, and furnish all reports, information and affidavits as may be required by the Department of Environmental Protection, Office of Oil and Gas, documenting that said well has been plugged and abandoned in accordance with Chapter 22, Article 6, of the Code of West Virginia, 1931, as amended, and the regulations promulgated thereunder, or (2) deposit with the Chief cash from the sale of the oil and gas or bond in the amount of **(10)** Five Thousand and No/100 dollars ($ 5,000.00) then this obligation to be void; otherwise to remain in full force and effect.

This bond shall be effective from the **(11)** 31st day of July , 2024 , until released by the Department of Environmental Protection.

IN WITNESS WHEREOF the said Principal has hereunder set his or its hand and affixed his or its seal, and the said surety has caused its corporate name to be signed hereto and its corporate seal to be hereunto affixed by its duly authorized officer or agent this instrument this **(12)** 31st day of July , 2024 .

(15) Principal Corporate Seal

(13) Diversified Production LLC (Seal)
(Principal)
(14) By: _____ SVP
(Title)
(Must be President or V. President)

(18) Surety Corporate Seal

(16) United States Fire Insurance Company
_____ (Seal)
(Surety)
Mark W. Edwards, II, Attorney-in-Fact

(REVERSE)

ACKNOWLEDGMENTS

Acknowledgment by Principal if Individual or Partnership

1. STATE OF _____

2. County of _____ to-wit:

3. I, _____, a Notary Public in and for the

4. county and state aforesaid, do hereby certify that _____

whose name is signed to the foregoing writing, has this day acknowledged the same before me in my said county.

5. Given under my hand this _____ day of _____ 20_____.

6. Notary Seal 7. _____

(Notary Public)

8. My commission expires on the _____ day of _____ 20 ____.

Acknowledgment by Principal if Corporation or Limited Liability Company

9. STATE OF Oklahoma

10. County of Oklahoma to-wit:

11. I, Desiree Morain, a Notary Public in and for the

12. county and state aforesaid, do hereby certify that John Crain

13. who as, SVP + Treasurer signed the foregoing writing for

14. Diversified Production LLC a corporation/LLC,

has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corp/LLC.

15. Given under my hand this 25 day of July 2024.

DESIREE MORAIN
Notary Public
State of Oklahoma
Commission #24008392
My Comm. Expires July 1, 2028

16. Notary Seal 17. _____

(Notary Public)

18. My commission expires on the 1st day of July 2028.

Acknowledgment by Surety

19. STATE OF Alabama

20. County of Jefferson to-wit:

21. I, Tyler Joseph Tucker, a Notary Public in and for the

22. county and state aforesaid, do hereby certify that Mark W. Edwards, II

23. who as, Attorney-in-Fact signed the foregoing writing for

24. United States Fire Insurance Company a corporation

has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.

25. Given under my hand this 31st day of July 20 24

26. Notary Seal

27. Tyler Joseph Tucker

(Notary Public)

28. My commission expires on the 3rd day of May 20 26

Sufficiency In Form and Manner Of Execution Approved

This _____ day of _____ 20 ___

Attorney General

By _____
(Assistant Attorney General)

POWER OF ATTORNEY
UNITED STATES FIRE INSURANCE COMPANY
PRINCIPAL OFFICE - MORRISTOWN, NEW JERSEY

KNOW ALL MEN BY THESE PRESENTS: That United States Fire Insurance Company, a corporation duly organized and existing under the laws of the state of Delaware, has made, constituted and appointed, and does hereby make, constitute and appoint:

Mark W. Edwards, II; Jeffrey M. Wilson; Anna Childress; William M. Smith; Alisa B. Ferris; Richard H. Mitchell; Robert R. Freel

each, its true and lawful Attorney(s)-In-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver: Any and all bonds and undertakings of surety and other documents that the ordinary course of surety business may require, and to bind United States Fire Insurance Company thereby as fully and to the same extent as if such bonds or undertakings had been duly executed and acknowledged by the regularly elected officers of United States Fire Insurance Company at its principal office, in amounts or penalties: **One Hundred Twenty Five Million Eight Hundred Thousand Dollars ($125,800,000)**

This Power of Attorney limits the act of those named therein to the bonds and undertakings specifically named therein, and they have no authority to bind United States Fire Insurance Company except in the manner and to the extent therein stated.

This Power of Attorney revokes all previous Powers of Attorney issued on behalf of the Attorneys-In-Fact named above.

This Power of Attorney is granted pursuant to Article IV of the By-Laws of United States Fire Insurance Company as now in full force and effect, and consistent with Article III thereof, which Articles provide, in pertinent part:

Article IV, Execution of Instruments - Except as the Board of Directors may authorize by resolution, the Chairman of the Board, President, any Vice-President, any Assistant Vice President, the Secretary, or any Assistant Secretary shall have power on behalf of the Corporation:

(a) to execute, affix the corporate seal manually or by facsimile to, acknowledge, verify and deliver any contracts, obligations, instruments and documents whatsoever in connection with its business including, without limiting the foregoing, any bonds, guarantees, undertakings, recognizances, powers of attorney or revocations of any powers of attorney, stipulations, policies of insurance, deeds, leases, mortgages, releases, satisfactions and agency agreements;
(b) to appoint, in writing, one or more persons for any or all of the purposes mentioned in the preceding paragraph (a), including affixing the seal of the Corporation.

Article III, Officers, Section 3.11, Facsimile Signatures. The signature of any officer authorized by the Corporation to sign any bonds, guarantees, undertakings, recognizances, stipulations, powers of attorney or revocations of any powers of attorney and policies of insurance issued by the Corporation may be printed, facsimile, lithographed or otherwise produced. In addition, if and as authorized by the Board of Directors, dividend warrants or checks, or other numerous instruments similar to one another in form, may be signed by the facsimile signature or signatures, lithographed or otherwise produced, of such officer or officers of the Corporation as from time to time may be authorized to sign such instruments on behalf of the Corporation. The Corporation may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Corporation, notwithstanding the fact that he may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, United States Fire Insurance Company has caused these presents to be signed and attested by its appropriate officer and its corporate seal hereunto affixed this 28th day of September, 2021.

UNITED STATES FIRE INSURANCE COMPANY

Matthew E. Lubin, President

State of New Jersey}
County of Morris }

On this 28th day of September, 2021, before me, a Notary public of the State of New Jersey, came the above named officer of United States Fire Insurance Company, to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seal of United States Fire Insurance Company thereto by the authority of his office.

MELISSA H. D'ALESSIO
NOTARY PUBLIC OF NEW JERSEY
Commission # 50125833
My Commission Expires 4/7/2025

Melissa H. D'Alessio (Notary Public)

I, the undersigned officer of United States Fire Insurance Company, a Delaware corporation, do hereby certify that the original Power of Attorney of which the foregoing is a full, true and correct copy is still in force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of United States Fire Insurance Company on the 31st day of July, 20 24.

UNITED STATES FIRE INSURANCE COMPANY

Michael C. Fay, Senior Vice President

*For verification of the authenticity of the Power of Attorney, please contact SuretyInquiries@amyntagroup.com

Section 14 – Financial Responsibility

UIC 2D0392262

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

In accordance with WV Code 47CSR13.13.7.g, all UIC permits shall require the permittee to maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Chief. The permittee must show evidence of financial responsibility to the Chief by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Chief. This certification must be signed by one of the following:

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

Diversified Production LLC

(Company Name)

UIC 200392262

(UIC Permit Number)

I certify in accordance with 47CSR13.13.7.g., that the company/permit holder cited above will maintain financial responsibility and resources to close, plug, and abandon underground injection wells(s) in a manner prescribed by the Chief of the Office of Oil and Gas and that documents to support this requirement are on record with the same.

Travis Cooke

(Print Name)

VP Upstream Operations

(Print Title)

Travis H. Cooke

(Signature)

12/12/24

(Date)

DIVERSIFIED
energy

Section 15 – Site Security Plan

UIC 2D0392262

The H.F. Lilly No.1 well (4703902262) is operated out of the Blue Creek facility that also pumps to Ivana TR3 No.1 (4703904844) and Ivana TR3 No.2 (4703904892). All three of these wells are operated under commercial status and may accept Class 2 fluids from any qualified supplier. The pump facility automatically but is checked manually every day. The operations building, front gate, and storage tanks are securely locked when not in operation.

DIVERSIFIED
energy

Section 16 – Additional Information

UIC 2D0392262

APPENDIX K 4703902262

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

Permit/approvals	ID Number
Hazardous Waste Management Program under RCRA	N/A
NPDES Program	N/A
Prevention of Significant Deterioration (PSD)	N/A
Nonattainment Program	N/A
Dredge or Fill	N/A
NPDES/NPDES – Stormwater	N/A
WVDEP – Office of Waste Management (OWM) – Solid Waste Facility	N/A
WVDEP – OWM – RCRA (Hazardous Waste TSD or Transporter)	N/A
WVDEP – OWM – UST	N/A
CERCLA – Superfund	N/A
WV Voluntary Remediation – Brownfields	N/A
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act	N/A
Well Head Protection Program (WHPP)	N/A
Underground Injection Control (UIC)	UIC2D0292327
Toxic Substances Control Act (TSCA)	N/A
Best Management Plans	N/A
Management of Used Oil	N/A
Other Relevant Permits (Specify):	
AST ACT	Tanks registered