JEFF LANDRY
GOVERNOR

TYLER PATRICK GRAY
SECRETARY

BENJAMIN C. BIENVENU
COMMISSIONER OF CONSERVATION

State of Louisiana

DEPARTMENT OF ENERGY AND NATURAL RESOURCES
OFFICE OF CONSERVATION

_____ __, 2024

Cody Todd
Denbury Carbon Solutions, LLC (D10126)
5851 Legacy Circle, Suite 1200
Plano, TX 75024

*** * * APPROVAL TO CONSTRUCT * * ***

RE: Stratigraphic Test Well – New Drill
Virgo IZM No. 1
Wildcat – SO LA Lafayette District
St. Helena Parish

Application No. 45195
Serial No. _____
API No. _____

Dear Mr. Todd:

The application by Denbury Carbon Solutions, LLC (Denbury) to drill a Class V stratigraphic test well has met the interim requirements for permitting such a well. The issuance of this Permit to Construct constitutes a final permit decision regarding the construction of this well. You are hereby granted approval to perform the work as described in the application. The approved work must be completed by _____ __, 2025.

Denbury is to notify the Conservation Enforcement Specialist (CES) for St. Helena Parish, Seth Henderson at (225) 342-2492, Monday through Friday, or by calling the Injection and Mining Division at (225) 342-5515 at least 72 hours prior to commencement of work. At least 48 hours before the casing test of the long string, contact the CES to schedule a witnessed casing test.

Within twenty (20) days after completion of the work, submit the documentation requested in the enclosed Reporting Requirements to the Injection and Mining Division. PLEASE READ THE ENCLOSURES CAREFULLY.

Please be reminded that for future work on the well, a work permit approval must be obtained from this office before repairing, stimulating, plugging, or otherwise working on this well.

Yours very truly,

Benjamin C. Bienvenu
Commissioner of Conservation

Stephen H. Lee, Director
Injection and Mining Division

OFFICE OF CONSERVATION

IMD REPORTING REQUIREMENTS >> Class V Stratigraphic Test

Drilling and construction of the well must be completed within one (1) year from the date of the permit approval letter, otherwise, the permit will expire. **Before the expiration of the permit, the operator must notify the Injection and Mining Division (IMD) if a time extension will be requested or if well will not be drilled.**

The approved application describes how the well is to be constructed. Changes in the approved construction, such as well surface location, well depth, or casing setting depths, will require prior written approval from IMD. Failure to obtain prior written approval will be cause for revoking the permit.

At least forty-eight (48) hours prior to commencement of work, the appropriate Conservation Enforcement Specialist (CES) identified below must be contacted. If you are unable to reach the CES, please call the Injection and Mining Division at (225) 342-5515 between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday.

Application No.	**45195**	Serial No.	
CES Name	**Seth Henderson**	CES Phone No.	**225-342-2492**

Within twenty (20) days after completion of the well, the completion documents listed below must be filed with IMD for review and approval in compliance with the regulations. Please place the well's Serial Number on the log headings.

- A Class V Well History and Work Résumé Report (Form UIC-42 STRAT TEST) with an original signature from an authorized representative of the operating company and two photocopies of the form (front and back). The Form UIC-42 can be saved, filled-out, and printed by going to www.dnr.louisiana.gov/consforms >> Injection & Mining Division >> Form UIC-42.
- Two (2) copies of the wellbore schematic depicting the completed well.
- Two (2) copies of the electric log used to identify the USDW.
- Two (2) copies of the cement bond log for each respective casing string.
- An original AFFIDAVIT OF TEST OF CASING IN WELL (Form CSG-T) signed by a company representative and witnessed by a third party for each casing. Provide a copy of the properly labeled pressure chart if the Form CSG-T does not have a witnessed signature. Include the well name, well serial number, casing size, test start time and stop time, date of test, and signature of company representative. The Form CSG-T can be downloaded from www.dnr.louisiana.gov/consforms >> Injection & Mining Division >> Form CSG-T.

Send the above required documentation together in **ONE PACKAGE** to:

Office of Conservation- 9th Floor
Injection & Mining Division
617 North 3rd Street
Baton Rouge, LA 70802

045195

Denbury

April 30, 2024

Patrick Ragan
Louisiana Department of Energy and Natural Resources
Office of Conservation, Injection & Mining Division
617 North Third Street
Baton Rouge, LA 70802

RE: Class V Stratigraphic Test Well
Well Name: VIRGO IZM
Well No: 1
Section 10, T-1S, R-6E
St. Helena Parish, LA

OFFICE OF CONSERVATION

MAY 01 2024

INJECTION & MINING DIVISION

Dear Mr. Ragan,

Denbury Carbon Solutions, LLC ("Denbury") respectfully submits the attached UIC-25 Stratigraphic Test Class V Well permit application as well as the Form IMD-1 Request for Expedited Review along with a check for $10,000.00 to replenish Denbury's expedited account. In support of this request, please find the following documentation:

- Form UIC-25 Stratigraphic Test
- Certified location plat showing the location of the Class V well
- Annotated copies of electronic well log(s) of the nearest offset well(s) showing the depths of the USDW and injection zone(s)
- Work prognosis for drilling, completing, and testing the well
- Wellbore and wellhead schematics
- P&A procedure, schematic, and a third-party estimate
- Responses to the "IT Questions"

The fluid source for the injectivity test(s) will be a water source well drilled on location treated as needed with KCl, NaCl, and/or other additives to ensure adequate density and formation compatibility. A fluid source analysis from a LELAP accredited laboratory will be provided to the Injection & Mining Division (IMD) prior to any injection.

Denbury is currently working on financial security in the form of a performance bond. Once the third-party P&A estimate is approved by IMD, the financial surety will be finalized and submitted.

Please contact me at (972) 673-2238 or by email at cody.todd@exxonmobil.com if you have any questions regarding this application.

Best Regards,

Cody Todd, P.E.
CCUS Compliance Engineer

ATTACHMENTS

- Application Fee
- Form UIC-25 STRAT TEST
- Two original Form MD-10-R-A (Not Applicable)
- Attachment 1: Certified Location Plat
- Attachment 2: Annotated USDW Log
- Attachment 3: Annotated Zone Log
- Attachment 4: Wellbore Schematic
- Attachment 5: Work Prognosis
- Attachment 6: Financial Surety
- Third Party P&A Procedure, Schematic, and Cost Estimate
- Attachment 7: IT Questions Documentation
- Attachment 8: LELAP Laboratory Analysis
- ¼ mile AoR Detailed Well Report

045195

APPLICATION FEE

- $252 application fee will be paid online once invoice is issued.

Denbury

045195

Denbury Carbon Solutions, LLC
Class V Stratigraphic Test Well Application
Virgo IZM #1
St. Helena Parish, LA

ONE FORM UIC-25 STRAT TEST WITH ORIGINAL SIGNATURE

Denbury

CLASS V STRAT TEST WELL PERMIT APPLICATION

OFFICE OF CONSERVATION
INJECTION & MINING DIVISION
617 N. Third St., 9th FLOOR
BATON ROUGE, LA 70802

Injection-Mining@la.gov
(225) 342-5515

UIC-25 STRAT TEST | **PLEASE READ APPLICATION INSTRUCTIONS** | **TYPE ONLY**

1. APPLICATION TYPE: (Check One)

☑ DRILL AND COMPLETE NEW CLASS V WELL ☐ CONVERT AN EXISTING WELL TO CLASS V

☐ OTHER (SPECIFY):

2. IDENTIFY WELL USE

Drill a stratigraphic test well to acquire site specific data and validate properties of a proposed storage complex

3. IDENTIFY FUTURE WELL USE (i.e. Conversion to Class VI, monitor well, P&A, etc.)

Monitor Well

4. OWNER/OPERATOR NAME	5. OC OPERATOR CODE
DENBURY CARBON SOLUTIONS, LLC	D10126

6. OWNER/OPERATOR MAILING ADDRESS	7. CITY, STATE, ZIP CODE
5851 LEGACY CIRCLE SUITE 1200	PLANO, TX 75024

8. TELEPHONE NO	9. E-MAIL ADDRESS
346-220-7391	cody.todd@exxonmobil.com

10. WELL NAME	11. WELL NO	12. WELL SERIAL NO (Well Conversions Only)
VIRGO IZM	1	

13. FIELD NAME	14. FIELD CODE
WILDCAT - SO LA LAFAYETTE DISTRICT	9727

15. PARISH NAME	16. SECTION	17. TOWNSHIP	18. RANGE
SAINT HELENA (46)	10	1S	6E

19. LOCATION COORDINATES (GCS, NAD 27)

LATITUDE:	30 °	58 MIN	45.66 SEC
LONGITUDE:	90 °	35 MIN	23.42 SEC

20. STATE PLANE COORDINATES (LAMBERT, NAD 27)

☐ NORTH ZONE ☐ SOUTH ZONE

X: 2,233,031.88 Y: 841,797.95

OFFICE OF CONSERVATION

21. LEGAL LOCATION DESCRIPTION (FROM LOCATION PLAT):

SURFACE LOCATION being N 50° 44' 42" E 28,386.10' from NGS Monument "Ford", located in Section 10,T1S-R6E, St. Helena Parish, Louisiana.

MAY 31 2024

INJECTION & MINING DIVISION

22. LIST PERMITS, LICENSES, OR APPROVALS THE APPLICANT HAS RECEIVED OR APPLIED FOR WHICH SPECIFICALLY AFFECT THE APPLICANT'S LEGAL OR TECHNICAL ABILITY TO CARRY OUT THE PROPOSED ACTIVITY. INCLUDE IDENTIFICATION NUMBER OF APPLICATION OR, IF ISSUED, THE IDENTIFICATION NUMBER OF THE PERMIT, LICENSE, OR OTHER APPROVALS.

Regulatory Program or Agency	Permits, Licenses, Construction, Project Approval Identification

23. WELL CASING / CEMENT DATA

CASING SIZE (OD-INCHES)	HOLE DIAMETER (INCHES)	CASING WEIGHT (LB/FT)	CASING GRADE	CASING SETTING DEPTHS		TOTAL SACKS	SACKS CEMENT (Lead/Tail)	TYPE (Lead/Tail)	YIELD (CU FT/SACK) (Lead/Tail)	CEMENT TOP
				TOP	BOTTOM					
13 3/8	13 3/8	68	J-55	0	100	Driven	Driven	NA	NA	NA
9 5/8	12 1/4	47	L-80	0	3,700	1,040	805/235	A/A	1.92/1.17	Surface
5 1/2	8 1/2	17	L-80	0	4,992	SEE LAST LINE	SEE LAST LINE	SEE LAST LINE	SEE LAST LINE	SEE LAST LINE
5 1/2	8 1/2	23	22Cr125	4,992	8,800	SEE LAST LINE	SEE LAST LINE	SEE LAST LINE	SEE LAST LINE	SEE LAST LINE
5 1/2	8 1/2	17	L-80	8,800	10,000	2,050	895/1,155	A/CO2 COMP.	1.58/1.5	Surface

ALL WELL DEPTHS SHOULD BE GIVEN IN MD

24. BASE OF USDW (FT): 3,580

REFERENCE E-LOG (SERIAL NUMBER): 185280

25. HEIGHT OF KB FOR PROPOSED WELL (FT): 30

26. ELEVATION OF GL FOR PROPOSED WELL (FT): 312

27. WELL TOTAL DEPTH (FT):	28. PLUGBACK DEPTH (FT):	29. TUBING SIZE & DEPTH:	30. PACKER SIZE & DEPTH:
10,000	6,930	NA	NA

INJECTIVITY TEST INFORMATION (IF APPLICABLE)

31. INJECTION ZONE DEPTHS

Top: 5,766 **Bottom:** 8,920

32. COMPLETION/PERFORATION DEPTHS

Top: 6,960 **Bottom:** 8,700

33. WELL COMPLETION ☐ OPEN HOLE ☐ PERFORATIONS ☐ SCREEN

34. TEST MATERIAL (e.g. nitrogen, brine, etc):	35. MAXIMUM TEST PRESSURE (psi):	36. TOTAL INJECTION VOLUME (bbls):
BRINE ***CO_2 is prohibited as a Class V test material***	4,500	10,000

37. Is the Well Located on Indian Lands or Other Lands Owned by or under the Jurisdiction or Protection of the Federal Government?	☐ YES ☑ NO
38. Is the Well Located on State Water Bottoms or Other Lands Owned by or under the Jurisdiction or Protection of the State of Louisiana?	☐ YES ☑ NO
39. If the proposed well is associated with a potential Class VI geologic sequestration project, does the applicant own the mineral rights at the proposed well location?	☐ YES ☑ NO
40. If no, has written notification been provided to the mineral owner(s)?	☑ YES ☐ NO

OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

41. AGENT OR CONTACT AUTHORIZED TO ACT ON BEHALF OF THE APPLICANT DURING THE PROCESSING OF THIS APPLICATION

NAME: Cody Todd, P.E.

COMPANY: Denbury Carbon Solutions, LLC

MAILING ADDRESS: 5851 Legacy Circle, Suite 1200 Plano, TX 75024

TELEPHONE NUMBER: 346-220-7391

E-MAIL ADDRESS: cody.todd@exxonmobil.com

42. CERTIFICATION BY WELL OWNER/OPERATOR

I certify that as the owner/operator of the injection well, the person identified in Item No. 37 above is authorized to act on my behalf during the processin of this application, to submit additional information as requested, and to give oral statements in support of this application. I will grant an authorized agent c the Office of Conservation entry onto the property to inspect the injection well and related appurtenances as per LSA-R.S. 30:4. I agree to operate the well i accordance with Office of Conservation guidelines. I further certify under penalty of law that I have examined and am familiar with the information submitte in this document and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe tha the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibilit of fine or imprisonment or both (LSA-R.S. 30:17).

Print Name of Well Owner/Operator	Print Title of Company Official (as applicable)
Denbury Carbon Solutions, LLC	Randy Robichaux - Vice President of HSE

Signature of Well Owner/Operator	Date
Randy J Robichaux	05/22/24

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MAY 31 2024

INJECTION & MINING DIVISION

TWO ORIGINAL FORM MD-1O-R-A FOR EACH EXISTING WELL TO BE CONVERTED (IF CONVERSION IS PROPOSED)

- Not applicable – New Drill

Attachment 1

ONE ORIGINAL CERTIFIED LOCATION PLAT SHOWING THE LOCATION OF THE CLASS V WELL LOCATION

Denbury

045195

Denbury Carbon Solutions, LLC- Virgo IZM No. 1 Well
Surveyed January 18, 2024 as follows:
SURFACE LOCATION being N 50° 44' 42" E 28,386.10'
from NGS Monument "Ford", located in Section 10,
T1S-R6E, St. Helena Parish, Louisiana.

NOTE: This plat is not a property boundary survey and as such does not comply with the "Standards of Practice for Property Boundary Surveys" as adopted by the Louisiana Professional Engineering and Land Surveying Board; it is however in compliance with Statewide Order 29-B and 29-E. (Title 43 of the Louisiana Administrative Code)

There are no residential or commercial structures, not owned by the applicant, his lessor, or other predecessor in interest, within a 500' radius of the proposed location as of January 18, 2024.

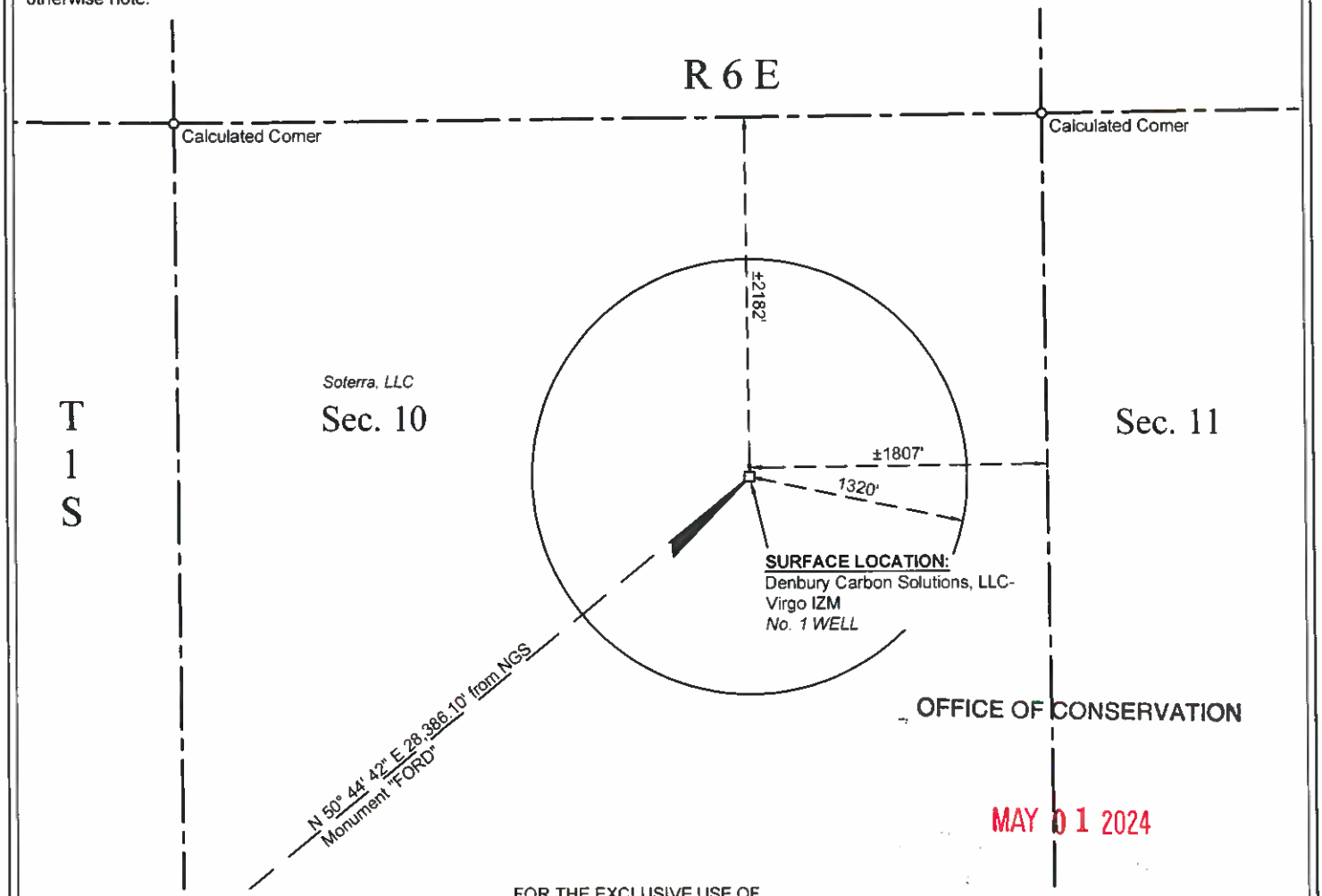
All bearings, distance, areas and coordinates refer to the North American Datum of 1927, Louisiana South Zone, US survey feet. Elevations refer to the North American Vertical Datum of 1988 and are derived from static and kinematic GPS observations unless otherwise note.

VIRGO IZM NO. 1 WELL
X = 2,233,031.88' (NAD27 La S)
Y = 841,797.95'
LAT. 30° 58' 45.66" N (NAD27)
LONG. 90° 35' 23.42" W
X = 3,513,829.21' (NAD83/2011 La S)
Y = 902,508.22'
LAT. 30° 58' 46.30" N (NAD83/2011)
LONG. 90° 35' 23.77" W
ELEV. +311.5' (NAVD88)

LEGEND
☐ Proposed Well

NAD 27 LA. SOUTH ZONE

SCALE: 1"= 1000'
0' 500' 1000'



OFFICE OF CONSERVATION

MAY 01 2024

INJECTION & MINING DIVISION

FOR THE EXCLUSIVE USE OF
DENBURY CARBON SOLUTIONS, LLC.
I, Danielle B. McMath, Professional Land Surveyor, certify that the well location depicted and described in this plat was staked and surveyed in the field by me or under my direction with accuracy and precision to the nearest foot. I have properly examined this plat and have determined that it complies with existing local Louisiana codes, and has been properly site adapted to use in this area.

STATE OF LOUISIANA
02/27/24
DANIELLE B. MCMATH
License No. 5297
PROFESSIONAL
LAND SURVEYOR

Danielle B. McMath
Registration No. 5297

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq.
Lafayette, LA. 70508
Ph. 337-237-
Fax. 337-2 5299

REVISIONS	

DRAWN BY:DBM	PROJ. MGR.:DBM
DATE:02/11/24	
JOB#:2247258.00C	SHEET 1 OF 1

T:\2024\2247258\DWG\VIRGO IZM NO 1.dwg

WELL LOCATION PLAT
VIRGO IZM
NO. 1 WELL
DENBURY CARBON SOLUTIONS, LLC.
SITUATED IN
SECTION 10, T1S-R6E
ST. HELENA PARISH, LOUISIANA

Attachment 2 and Attachment 3

AN ANNOTATED COPY OF AN ELECTRIC WELL LOG OF THE NEAREST OFFSET WELL THAT SHOWS THE UNDERGROUND SOURCE OF DRINKING WATER (USDW)

AN ANNOTATED COPY OF AN ELECTRIC WELL LOG OF THE NEAREST OFFSET WELL THAT SHOWS THE PROPOSED INJECTION ZONE

- See attached marked well log of the Natalbany Lumber Co. LTD #1 – SN 185280

185280

Schlumberger

LSN15631600000185280

DUAL INDUCTION-SFL-SONIC

WITH LINEAR CORRELATION LOG

COUNTY ST. HELENA
FIELD WILDCAT
LOCATION
WELL NATALBANY LUMBER CO. LTD. NO. 1
COMPANY SABINE PRODUCTION COMPANY

COMPANY SABINE PRODUCTION COMPANY

BR

WELL NATALBANY LUMBER CO. LTD. NO. 1

FIELD WILDCAT

COUNTY ST. HELENA STATE LOUISIANA

LOCATION F 8W/C SEC. 10, go N 400' & E 1300'
TO LOC.

Other Services:
ST
XOPS

SERIAL NO	SEC	TWP	RANGE
	10 15	1S	6E

Permanent Datum: BHF ; Elev.: 328.7
Log Measured From RKB 17.3 Ft. Above Perm. Datum
Drilling Measured From SAME

Elev.: K.B. 346.0
D.F. 345.0
G.L. 328.7

Date	7/6/83			
Run No.	ONE(DIL/SFL/LSS/GR)			
Depth—Driller	12400			
Depth—Logger	12391			
Btm. Log Interval	12387			
Top Log Interval	2239			
Casing—Driller	10 3/4@ 2235	@	@	@
Casing—Logger	2239			
Bit Size	9 7/8			
Type Fluid in Hole	LIGNOSULF.			
Dens. / Visc.	10.5 / 57.0			
pH / Fluid Loss	10.0 / 5.3 ml	ml	ml	ml
Source of Sample	PIT			
Rm @ Meas. Temp.	1.32 @ 93 F	@ F	@ F	@ F
Rmf @ Meas. Temp.	1.34 @ 80 F	@ F	@ F	@ F
Rmc @ Meas. Temp.	1.98 @ 93 F	@ F	@ F	@ F
Source: Rmf / Rmc	M / C			
Rm @ BHT	.60 @ 204 F	@ F	@ F	@ F
TIME Circulation Stopped	1500 7/6			
TIME Logger on Bottom	2130 7/6			
Max. Rec. Temp.	204 F	F	F	F
Equip. / Location	8183 / OPEL			
Recorded By	HOLLEY			
Witnessed By	MESSRS. RAINE/OPALKA/JOLLY/GEDDES			

FOLD HERE CC/JW The well name, location and borehole reference data were furnished by the customer.

RUN NO.	ONE			
Service Order No.	148772			
Fluid Level	FULL			
Salinity, PPM CL.	1200			

EQUIPMENT DATA

Ind. Panel No.	BD-66			
Mem. Panel No.	CPU-2208			
Ind. Cart. No.	DA-1054			
Ind. Sonde No.	EC-1226			
Sonic Panel No.	DA-1549			
Oscil Panel No.				
Sonic Cart. No.	FA-1584			
Sonic Sonde No.	SC-216			
G. R. Cart. No.	JC-3235			
G. R. Panel No.	BC-82			
Caliper No.				
TTR No.				
DRE No.				
CPW No.				
Centralizer Device	CMF7			

CALIBRATION DATA

Surf. ILD S.E.				
Surf. ILM S.E.				
ILD S.E. Corrected				
ILM S.E. Corrected				
Depth ILD & ILM Zero Set				
G. R. BKGD CPS.				
G. R. Source CPS.				
G. R. Cal. Sens.				
G. R. T. C. CAL.				

LOGGING DATA

SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

REMARKS:
SONIC SPACINGS=8'-10'; 10'-12'.

Marked USDW and Injection Zone Log

Well SN 185280 ~3,030' away

OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

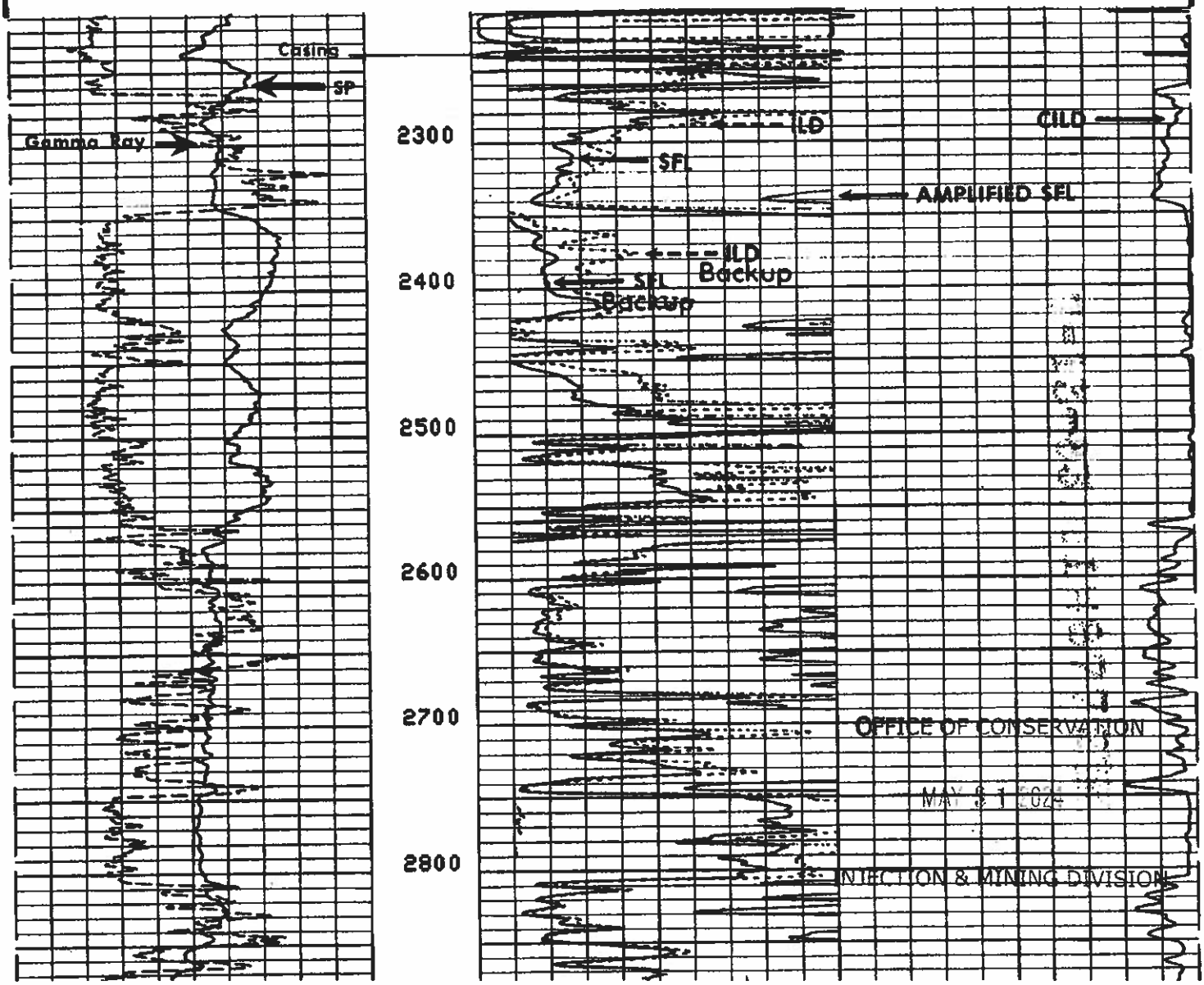
Speed-R.P.M.

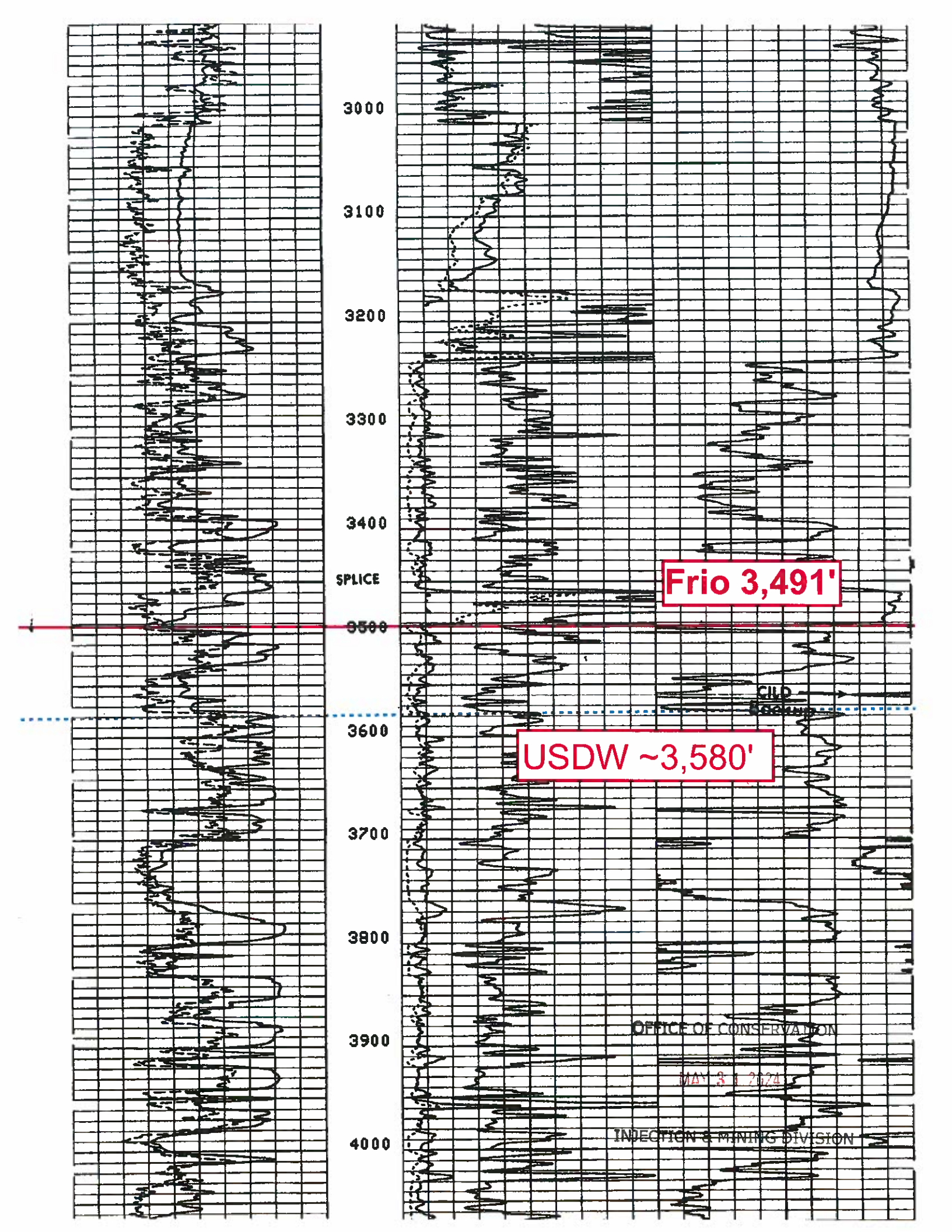
SENSOR MEASURE POINT TO TENSION REFERENCE POINT

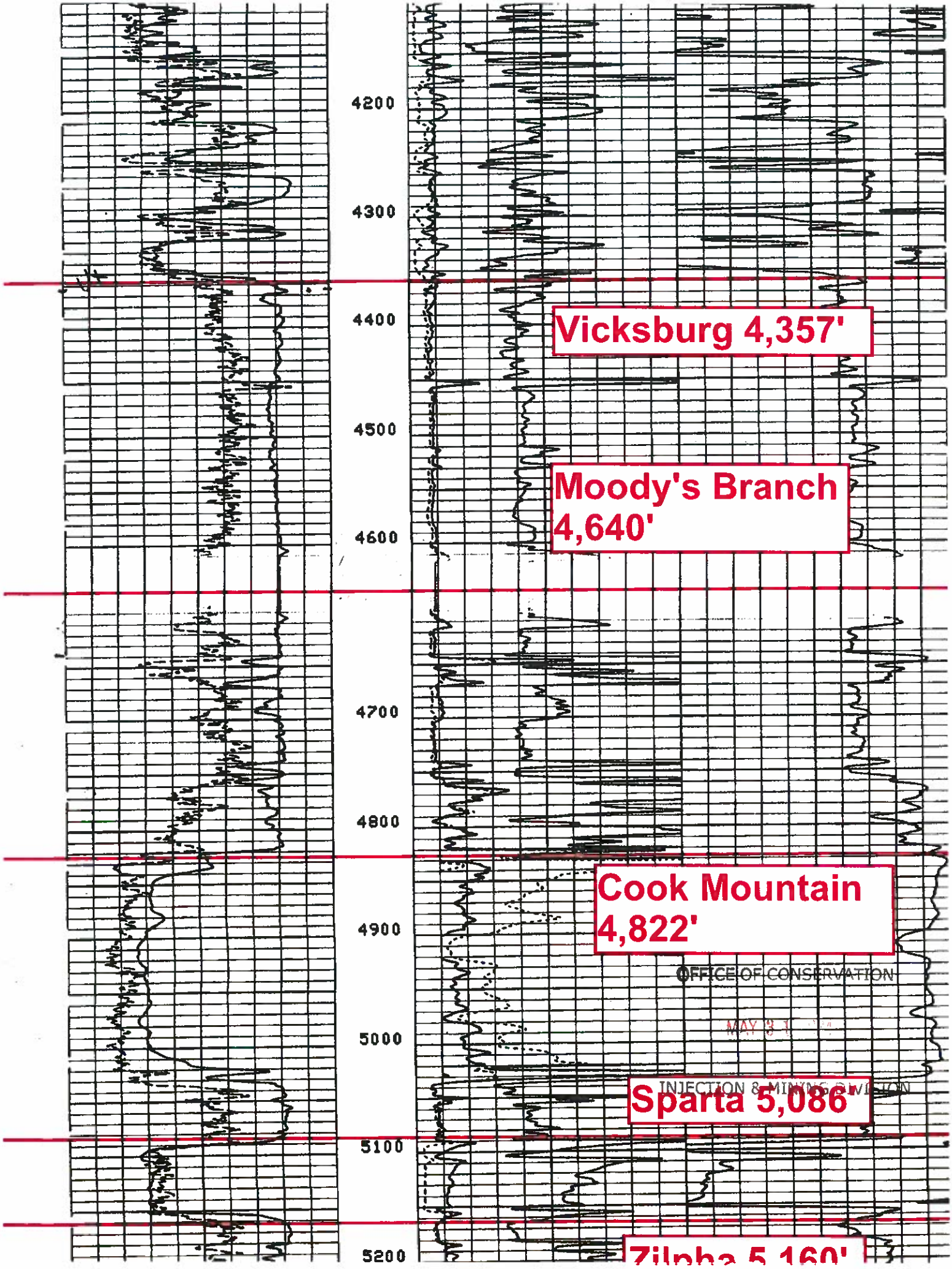
CBL	37.6	FEET	AMPL	37.6	FEET
TT3	37.6	FEET	TT4	36.6	FEET
TT1	38.6	FEET	TT2	37.6	FEET
GR	58.2	FEET	SRAT	42.6	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NOIS	26.3	FEET			

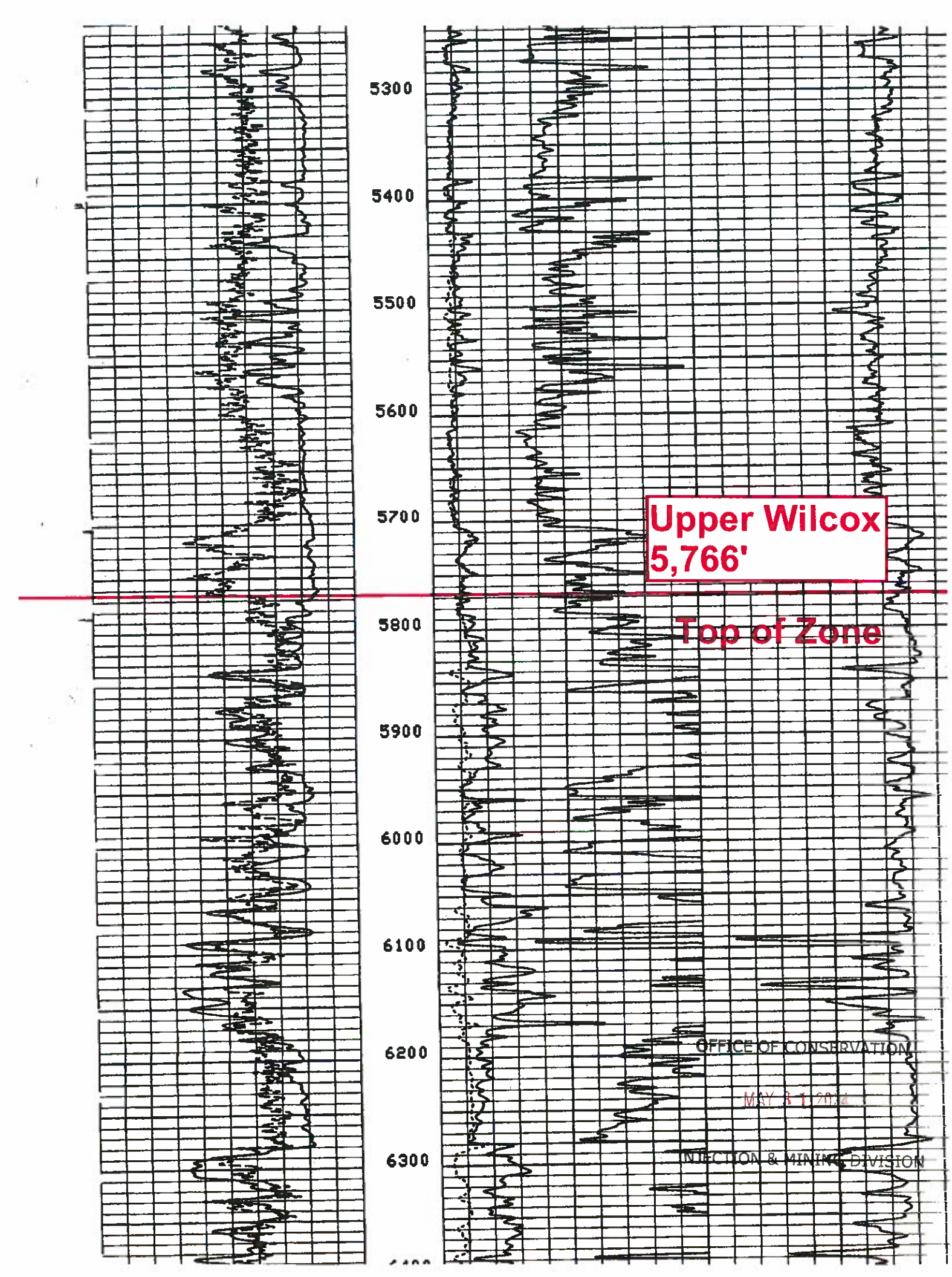
GR (GAPI)		ILD (OHMM)		
0.0	150.00	0.0	10.000	
SP (MV)		SFLA(OHMM)		
-160.0	40.000	0.0	2.0000	
		SFLA(OHMM)		CILD(MMHO)
		0.0	10.000	4000.0 0.0

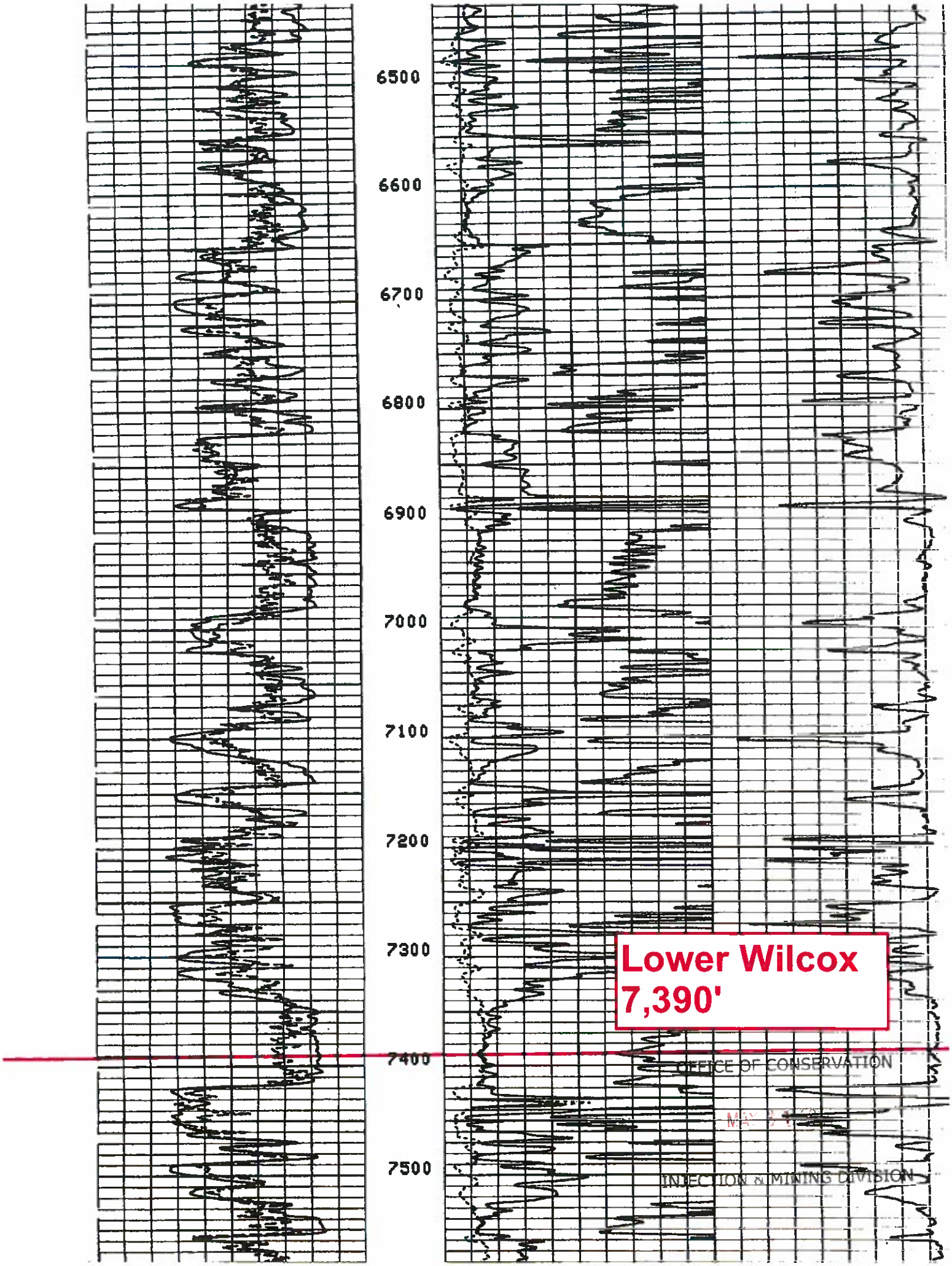
FILE 4

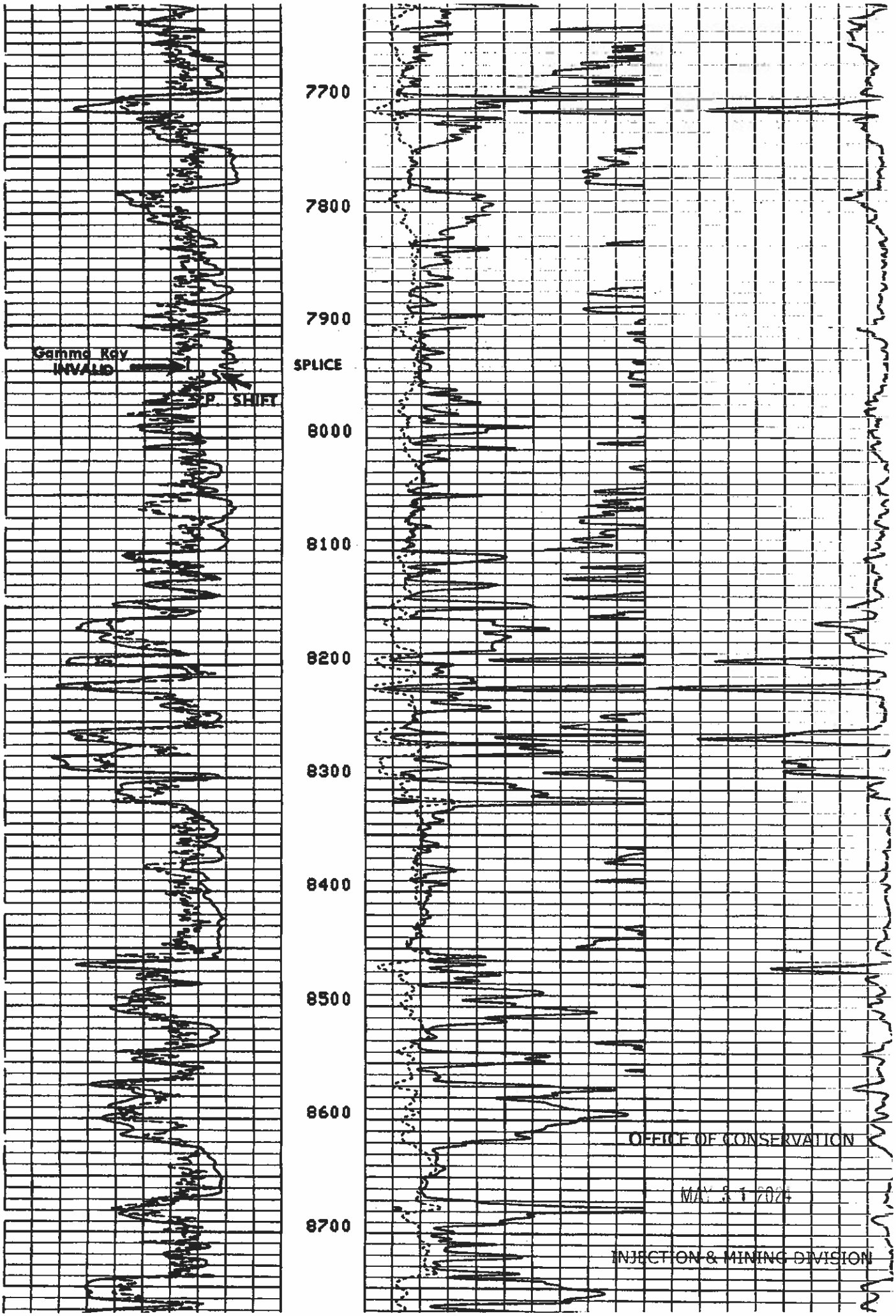


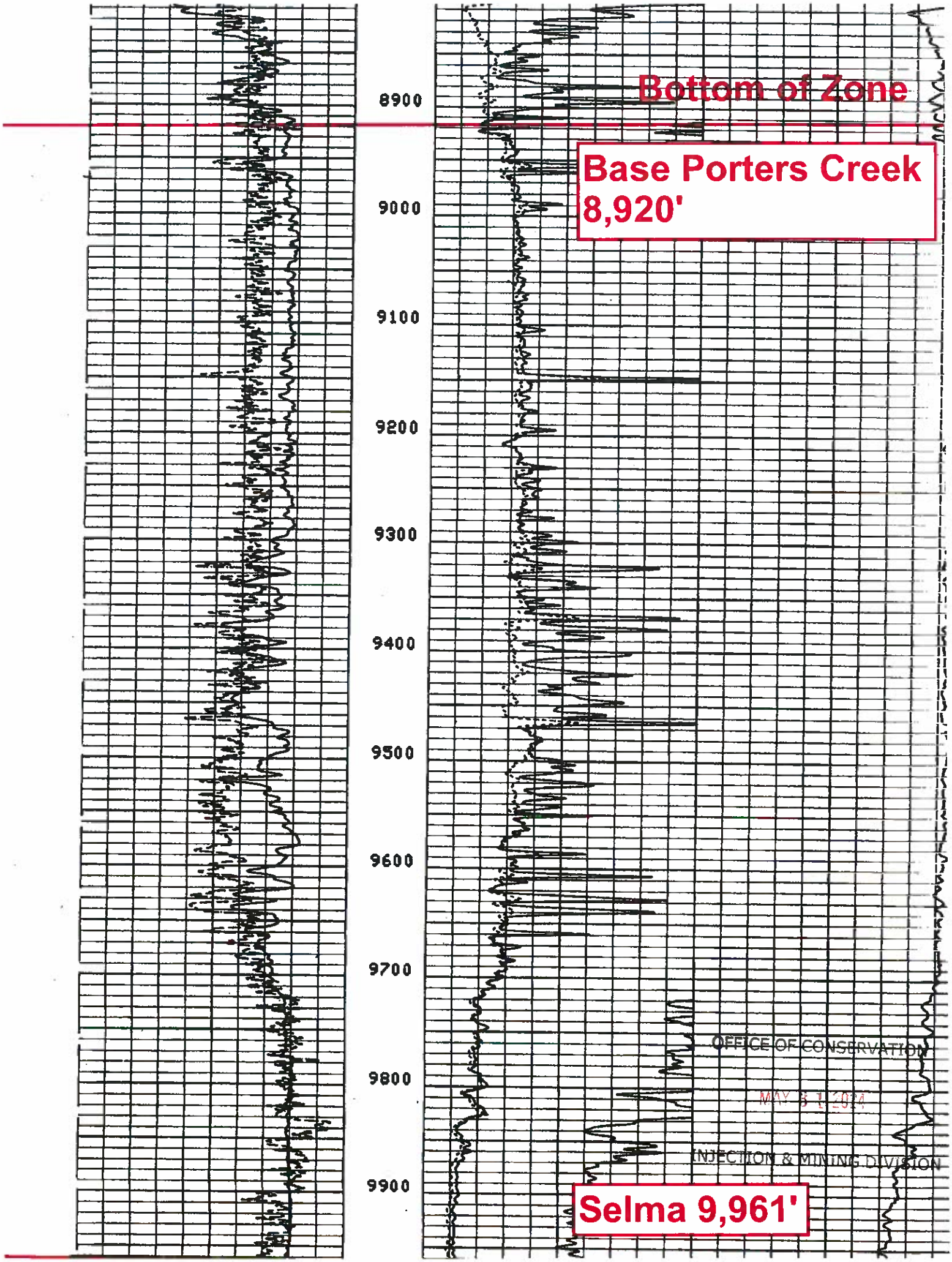

3000
3100
3200
3300
3400
SPLICE
3500
3600
3700
3800
3900
4000
Frio 3,491'
USDW ~3,580'
OFFICE OF CONSERVATION
MAY 31 2024
INJECTION & MINING DIVISION

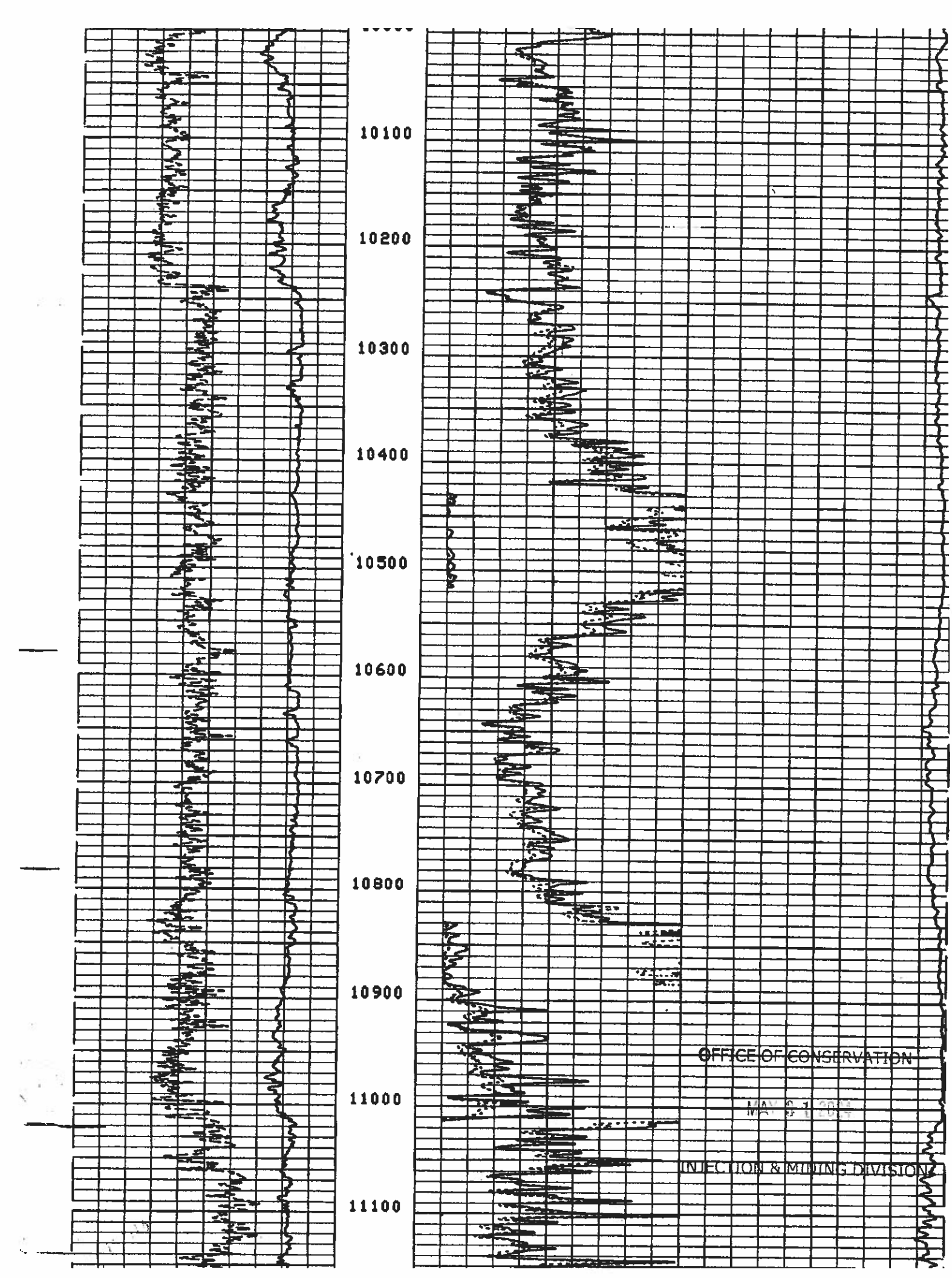


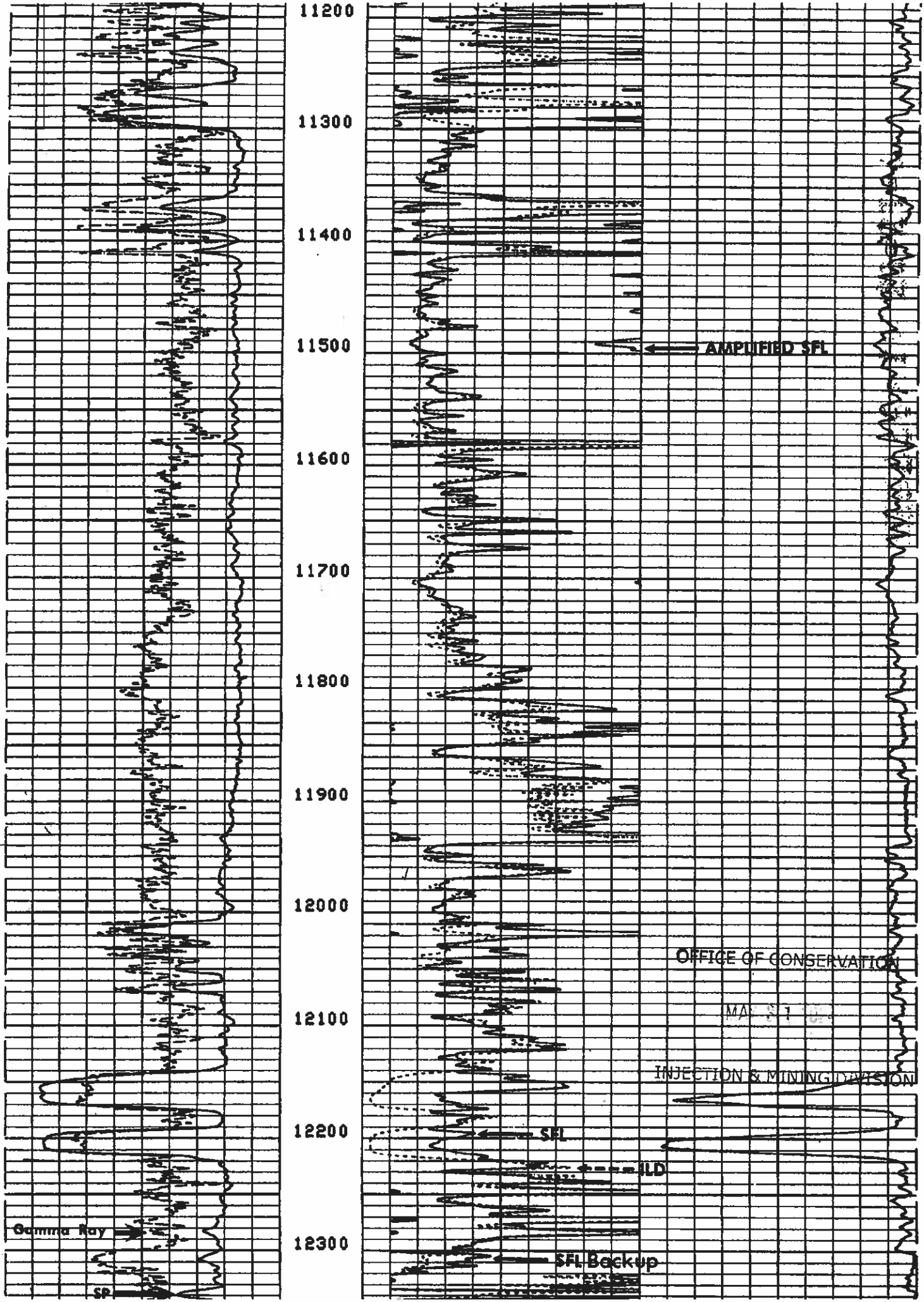







Bottom of Zone
Base Porters Creek
8,920'
8900
9000
9100
9200
9300
9400
9500
9600
9700
9800
9900
OFFICE OF CONSERVATION
MAY 8 1 2014
INJECTION & MINING DIVISION
Selma 9,961'





12400

FILE

4

GR (GAPI)		ILD (OHMM)	CILD(MMHO)
0.0 150.00		0.0 10.000	
SP (MV)		SFLA(OHMM)	
-160.0 40.000		0.0 2.0000	
		SFLA(OHMM)	
		0.0 10.000	4000.0 0.0

COMPANY SABINE PRODUCTION COMPANY

WELL NATALBANY LUMBER CO. LTD. NO. 1

FIELD WILDCAT

COUNTY ST. HELENA STATE LOUISIANA

SCHL. FR 12387
SCHL. TD 12391
DRLR. TD 12400

Elev: KB 346.0
DF 345.0
GL 328.7

RWA (OHMM)		TENS(LB)	
0.0 0.5000		12000. 2000.0	
GR (GAPI)		DTL (US/F)	
0.0 150.00		150.00 50.000	
SP (MV)		DT (US/F)	
-160.0 40.000		150.00 50.000	
		ILD (OHMM)	
		0.2000 2000.0	
		ILM (OHMM)	
		0.2000 2000.0	
		SFLU(OHMM)	
		0.2000 2000.0	

Attachment 4

SCHEMATIC OF THE CLASS V-WELL SHOWING:

1. Casing diameter, specifications, material (PVC, steel, etc.) and depth,

2 Screen type, length, material, slot or opening size,

3. Injection tubing size inside casing (if any)'

4. Hole diameter (bit size),

5. Amount and type of cement used and depths to top and bottom of cement,

6. Wellhead showing all fittings,

7. Discharge line diameter and connection to wellhead,

8. Well house (if any).

The schematics are stamped and signed by a Louisiana-registered Professional Engineer (PE)

Three schematics are included:

1. Wellbore with initial perforations
2. Wellbore with secondary perforations
3. Wellbore after injectivity testing is complete

PROPOSED WELLBORE DIAGRAM

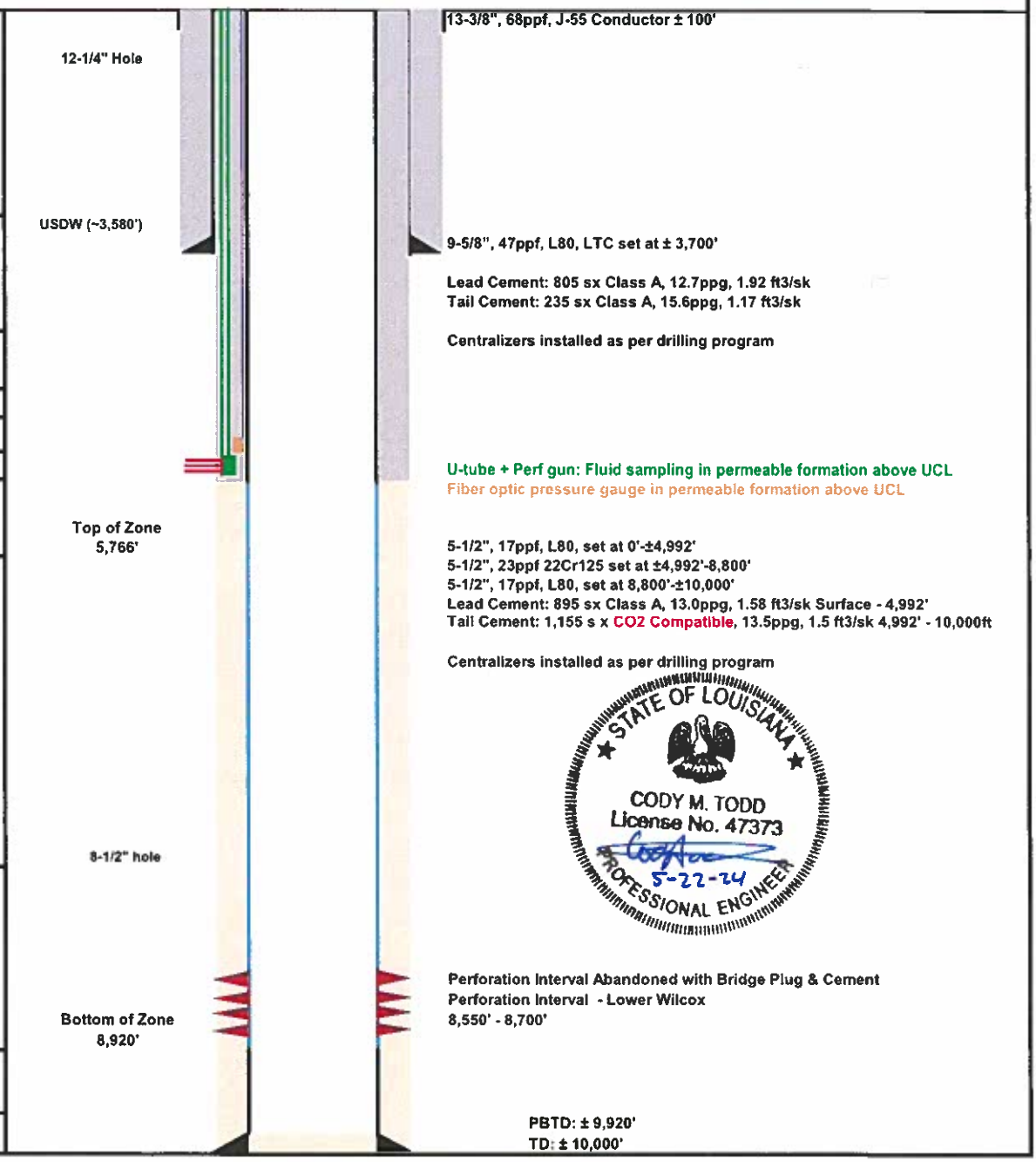
FIELD: Wildcat - So LA Lafayette District
WELL: Virgo IZM #1
OPERATOR: Denbury Carbon Solutions, LLC
PARISH: Saint Helena
STATE: LA
STATUS: Class V (To be Permitted)
PERMIT NO. TBD
WELL TYPE: Stratigraphic Test Well
SECTION: 10
TOWNSHIP 1S
RANGE: 6E

DATE SPUDDED:
COMPLETED:

Location:
Latitude (Y): 30°58'45.66"N
Longitude (X): 90°35'23.42"W

(Drawing: Not to scale)

Formation Tops



Frio (3,491')
Vicksburg (4,357')
Moodys Branch (4,640')
Cook Mountain (4,822')
Kosciusko/Sparta (5,086')
Zilpha Shale (5,160')
Upper Wilcox (5,766')
Lower Wilcox (7,390')
Base Porters Creek (8,920')
Selma (9,961')

STATE OF LOUISIANA
CODY M. TODD
License No. 47373
5-22-24
PROFESSIONAL ENGINEER

OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

PROPOSED WELLBORE DIAGRAM

Location:
Latitude (Y): 30°58'45.66"N
Longitude (X): 90°35'23.42"W

FIELD: Wildcat - So LA Lafayette District
WELL: Virgo IZM #1
OPERATOR: Denbury Carbon Solutions, LLC
PARISH: Saint Helena
STATE: LA
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WELL TYPE: Stratigraphic Test Well
SECTION: 10
TOWNSHIP: 1S
RANGE: 6E

DATE SPUDDED:
COMPLETED:

(Drawing: Not to scale)

Formation Tops

- Frio (3,491')
- Vicksburg (4,357')
- Moodys Branch (4,640')
- Cook Mountain (4,822')
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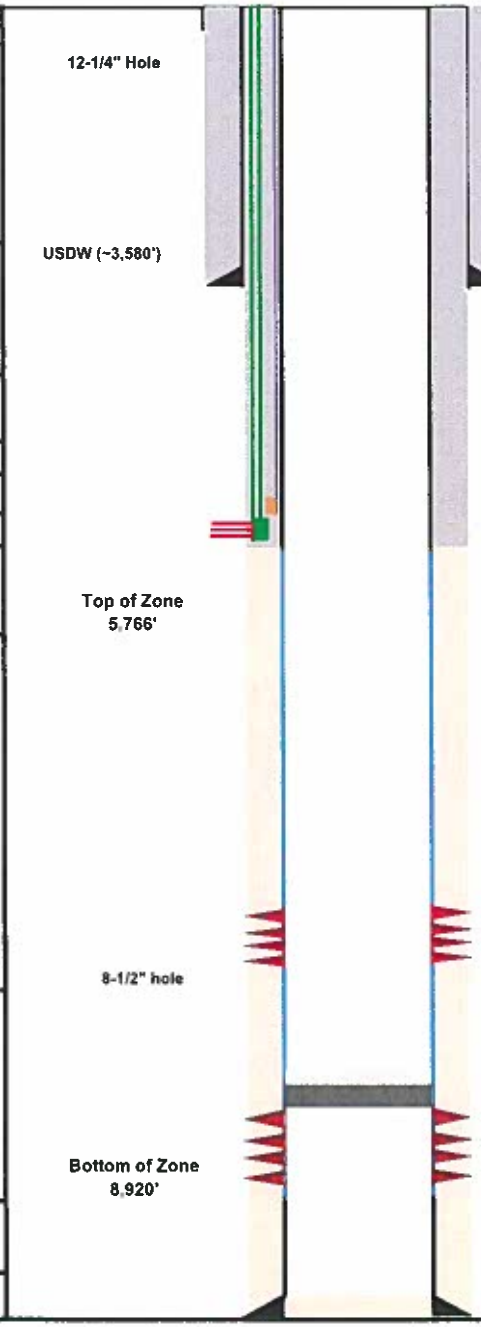


13-3/8", 68ppf, J-55 Conductor ± 100'

9-5/8", 47ppf, L80, set at ± 3,700'

Lead Cement: 805 sx Class A, 12.7ppg, 1.92 ft3/sk
Tail Cement: 235 sx Class A, 15.6ppg, 1.17 ft3/sk

Centralizers installed as per drilling program

U-tube + Perf gun: Fluid sampling in permeable formation above UCL
Fiber optic pressure gauge in permeable formation above UCL

5-1/2", 17ppf, L80, set at 0'-±4,992'
5-1/2", 23ppf 22Cr125 set at ±4,992'-8,800'
5-1/2", 17ppf, L80, set at 8,800'-±10,000'
Lead Cement: 895 sx Class A, 13.0ppg, 1.58 ft3/sk Surface - 4,992'
Tail Cement: 1,155 s x CO2 Compatible, 13.5ppg, 1.5 ft3/sk 4,992' - 10,000ft

Centralizers installed as per drilling program

Perforation Interval Abandoned with Bridge Plug & Cement
Perforation Interval - Upper Wilcox
6,960' - 7,160'

New PBTD 8,520'
Cast Iron Bridge Plug @ ~8,530' with 10' of cement
Perforation Interval Abandoned with Bridge Plug & Cement
Perforation Interval - Lower Wilcox
8,550' - 8,700'

TD: ± 10,000'

STATE OF LOUISIANA
CODY M. TODD
License No. 47373
5-22-24
PROFESSIONAL ENGINEER

OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

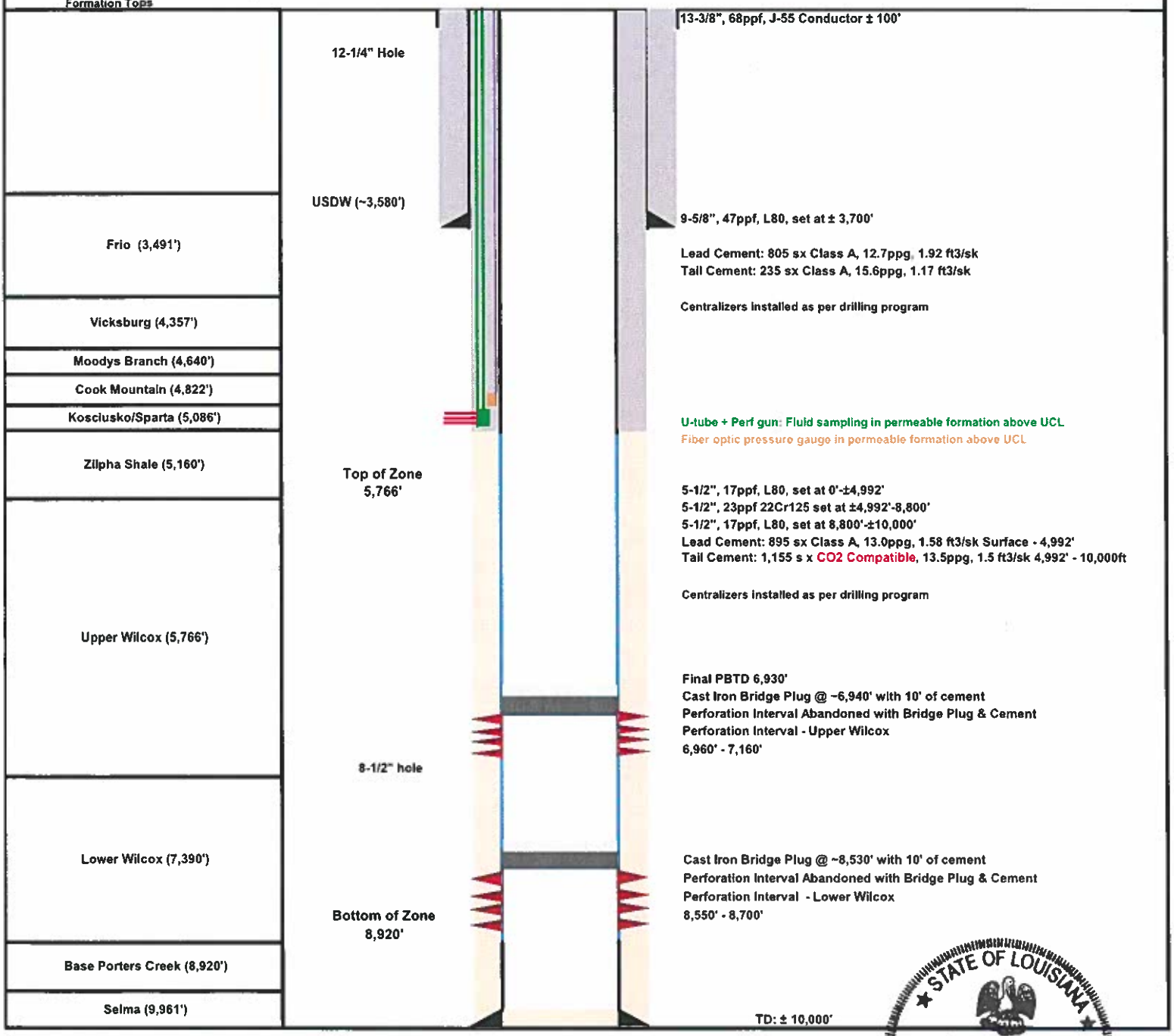
PROPOSED WELLBORE DIAGRAM

FIELD: Wildcat - So LA Lafayette District
WELL: Virgo IZM #1
OPERATOR: Denbury Carbon Solutions, LLC
PARISH: Saint Helena
STATE: LA
STATUS: Class V (To be Permitted)
PERMIT NO. TBD
WELL TYPE: Stratigraphic Test Well
SECTION: 10
TOWNSHIP 1S
RANGE: 6E

DATE SPUDDED:
COMPLETED:

Location:
Latitude (Y): 30°58'45.66"N
Longitude (X): 90°35'23.42"W

(Drawing: Not to scale)



STATE OF LOUISIANA
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5-22-24
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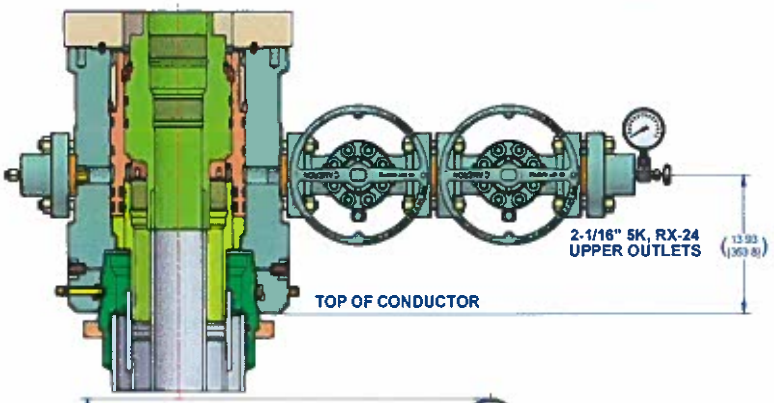
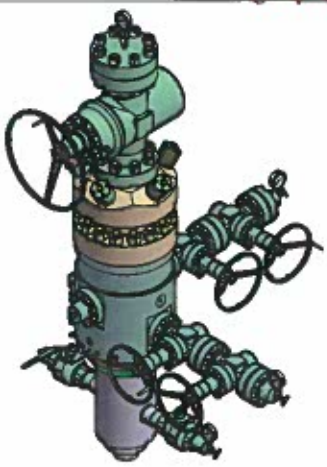
OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

045195





ISOMETRIC VIEW

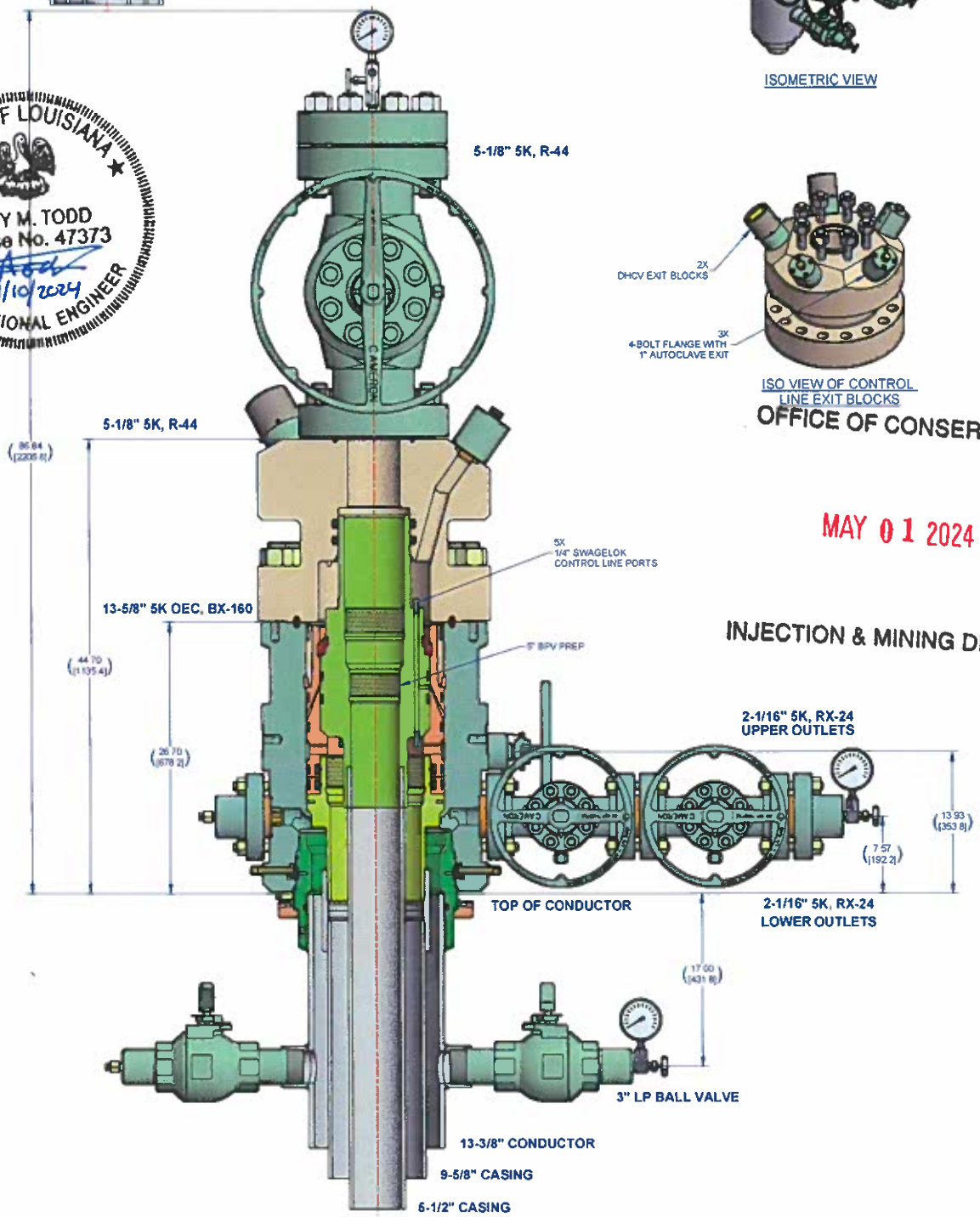
ISO VIEW OF CONTROL LINE EXIT BLOCKS

STATE OF LOUISIANA
CODY M. TODD
License No. 47373
4/10/2024
PROFESSIONAL ENGINEER

OFFICE OF CONSERVATION

MAY 01 2024

INJECTION & MINING DIVISION



STANDARD

CONFIDENTIAL

DO NOT SCALE		sb	SURFACE SYSTEMS
A. MONASTERE	5 Feb 24		
A. MONASTERE	5 Feb 24	ADAPT NST 2S WELLHEAD 13-3/8" X 9-5/8" X 5-1/2"	
A. MONASTERE	5 Feb 24		
		SHEET 1 of 2	SD-054562-01-36-01 REV 03

NOTES:
1: THIS IS A PROPOSAL DRAWING AND DIMENSIONS SHOWN ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PROCESS.
2: DIGITALLY ENABLED SOLUTIONS, CHOKES AND ESD'S ARE AVAILABLE ON REQUEST.

045195

Denbury Carbon Solutions, LLC
Class V Stratigraphic Test Well Application
Virgo IZM #1
St. Helena Parish, LA

Attachment 5

WORK PROGNOSIS FOR DRILLING, COMPLETING, AND TESTING THE WELL

Denbury

045195

Denbury

DRILLING, COMPLETION, & TESTING PLAN

VIRGO IZM #1

Denbury Carbon Solutions, LLC

WELL INFORMATION

Location: **Lat:** 30° 58' 45.66" N (NAD 27 S) **Long:** 90° 35' 23.42" W (NAD 27 S)

(Section - 10; Township – 1S; Range – 6E; Saint Helena Parish; Louisiana)

Objective: The primary objective is a stratigraphic test of the Wilcox Group as part of Denbury's Carbon Sequestration project.

Project Sponsor: Denbury Carbon Solutions, LLC
5851 Legacy Circle, Suite 1200
Plano, Texas 75024

Denbury

GEOLOGICAL PROGNOSIS

Formation	Estimated Depth, (KB), feet
Frio	3,491
Base of Underground Source of Drinking Water	Approx. 3,580
Vicksburg	4,357
Moody's Branch	4,640
Cook Mountain	4,822
Sparta	5,086
Zilpha Shale	5,160
Upper Wilcox	5,766
Lower Wilcox	7,390
Base Porters Creek	8,920
Selma	9,961

Coring Program

Whole cores are proposed to be collected in the Zilpha, Upper Wilcox, and Lower Wilcox. Sidewall cores may be collected from selected formations as desired, as part of the data acquisition program.

Denbury

Logging and Testing Program

Cased Hole / Open Hole	Hole Size (inch)	Interval Depth (feet)	Individual Logging Tools	Interval
Open Hole	12-1/4	0 – 3,700	Gamma Ray, Resistivity, Spontaneous Potential Logs.	Surface (Open Hole).
Open Hole	8-1/2	3,700 – 10,000	Gamma Ray, Resistivity, Density Porosity,Dipole Sonic, Spectroscopy,Image Log, Fluid and pressure samples	Production (Open Hole)
Cased Hole	12-1/4	0 – 3,700	Cement Bond Log, CCL, Gamma Ray	Surface (Cased Hole)
Case Holed	8-1/2	3,700 – 10,000	Cement Bond Log, CCL, Gamma Ray	Production (Cased Hole)

Note: SP Log will be run in open hole surface section but not in remainder of hole due to Oil Based Mud

Note: Additional logs may be run for data acquisition purposes

Denbury

Drilling Procedure

1. Rig up and set 13-3/8" conductor at approximately ~100ft below ground level. Cut casing as necessary.
2. **Notify LDENR upon intent to spud the well a minimum of 48 hours before the planned spud time.**
3. Mobilize drilling rig and equipment to drilling pad.
4. Install load ring on conductor and nipple up flowline.
5. Spud and drill hole to ~3,700'.
6. Circulate the hole clean. Pull out of hole with BHA.
7. Run open hole wireline logs per the Logging and Testing Program
   - **Note: The Open-hole logs will be submitted to LDENR for USDW determination and minimum surface casing depth requirement prior to setting the surface casing to ensure adequate isolation and protection of the USDW.**
8. Run 9-5/8 in. surface casing with centralizers to ±3,700 ft.
9. Cement 9-5/8 in. casing to surface. The proposed cement slurries are presented below, but the final slurries and volumes will be based on wellbore conditions:

   Slurry Specifications:

   Lead: Class A cement with additives
   Sacks: 805 sacks
   Yield: 1.92 ft^3/sack
   Density: 12.7 ppg

   Tail: Class A cement with additives
   Sacks: 235 sacks
   Yield: 1.17 ft^3/sack
   Density:15.6 ppg

   - **Note: If the cement is not circulated to surface, cement top off job may be performed. Notify LDENR if cement is not circulated to the surface, prior to conducting cement top up.**
10. Install wellhead and BOPs. Test BOPs.
11. Wait on cement 12 hours prior to testing casing.
12. **Pressure test the casing to a minimum of 600 psi for 30 minutes per LDENR regulations.**
    - **A maximum of 5% pressure loss is allowed over the 30 minutes test period.**
    - **The pressure test will be charted and recorded on form CSG-T (Casing Test affidavit) and submitted to LDENR.**
    - **Notify LDENR-IMD at least 48 hours prior to conducting the pressure test in the event staff wishes to witness the test.**
13. Pick up 8-1/2 in. BHA and drill out shoe track, and 10ft of new formation.

Denbury

14. Perform Formation Integrity Test.
15. Drill 8-1/2 in. hole to TD, taking cores in formations listed in the Coring Program.
16. Run open hole wireline logs per the Logging and Testing Program
17. Run 9-5/8 in. cased hole wireline logs per the Logging and Testing Program
18. Run 5-1/2 in. production casing with centralizers to TD (± 10,000') and with the following equipment installed:
    - Casing mounted perforating guns, U-tube system for fluid sampling, and fiber optic pressure gauge installed to ~5,000ft.
19. Cement 5-1/2 in. production casing to surface. The proposed cement slurries are presented below, but the final slurries and volumes will be based on wellbore conditions:

    Slurry Specifications:

    Lead: Class A cement with additives
    Sacks: 895 sacks
    Yield: 1.58 ft^3/sack
    Density: 13.0 ppg

    Tail: CO2 Compatible Cement
    Sacks: 1,155 sacks
    Yield: 1.5 ft^3/sack
    Density: 13.5 ppg

- ***Note: If the cement is not circulated to surface, cement top off job may be performed. Notify LDENR if cement is not circulated to the surface, prior to conducting cement top up.***
- ***Note: If casing packer and stage tool are required, the cement program will be modified to add the equipment.***
- ***Note: The final cement slurry designs and volumes will be based on as-drilled hole conditions.***

20. Wait on cement 12 hours prior to testing casing.
21. **Pressure test the casing to a minimum of 1,000 psi for 30 minutes per LDENR regulations.**
    - **A maximum of 5% pressure loss is allowed over the 30 minutes test period.**
    - **The pressure test will be charted and recorded on form CSG-T (Casing Test affidavit) and submitted to LDENR.**
    - **Notify LDENR-IMD, at least 48 hours prior to conducting the pressure test in the event staff wishes to witness the test.**
22. Nipple down BOP and install dry hole tree.
23. Rig down and move out drilling rig.

Denbury

Completion Procedure (Rigless Ops)

24. Rig up surface pressure equipment.
25. Rig up wireline unit and PCE.
26. Run cased hole wireline logs per the Logging and Testing program
    - **The CBL will be submitted to LDENR-IMD for confirmation of good cement prior to injection into the well. The CBL must show evidence of the minimum required interval of 60% bonded cement in the isolating shale immediately above the top of zone. If CBL does not show good bond, perform squeeze and re-run CBL.**
27. Pick up guns and RIH.
28. Perforate ~ 8,690' – 8,700' of Lower Wilcox and POOH

    Note: Actual perforation depths are subject to change based on the open hole logs of the well itself
29. RIH with P/T gauge on wireline to perforation interval to take bottomhole P/T reading.
30. Rig up surface iron and pumping equipment.
31. Perform step rate test
    - The ISRT will consist of 5 to 10 minutes steps with each step holding a constant injection rate. The actual injection rates and step duration will be determined based on the downhole pressure response recorded real time, and the max rate is currently assumed to be below 25 bpm.

      Note: The fluid source for the injectivity test(s) will be a water source well drilled on location treated as needed with KCl, NaCl, and/or other additives to ensure adequate density and formation compatibility. A fluid source analysis from a LELAP accredited laboratory will be provided to the Injection & Mining Division (IMD) prior to any injection.
32. POOH with P/T gauge.
33. Pick up guns and RIH
34. Add additional Lower Wilcox perforations 8,550' – 8,690'

    Note: Actual perforation depths are subject to change based on the open hole logs of the well itself
35. RIH with P/T gauge on wireline to perforation interval to take bottomhole P/T reading.
36. Perform injection and fall off test on Lower Wilcox interval
    - The IFT will consist of a dual ramp-up followed by hard shut-ins with the second shut-in duration extending to 24 hours. The rates will be increased in 15 min increments until the max designed rate in the schedule is reached (assumed to be below 25 bpm).
37. POOH with P/T gauge.
38. Pick up 5-1/2" cast iron bridge plug and set at ~8,530' (~20' above Lower Wilcox perf interval). Pressure Test plug to minimum of 300 psi for 30 minutes without losing more than 5% pressure.
39. RIH wireline cement bailer and spot 10' of cement on top of CIBP
40. Pick up guns and RIH

Denbury

41. Perforate 7,150' – 7,160' Upper Wilcox and POOH

    Note: Actual perforation depths are subject to change based on the open hole logs of the well itself

42. RIH with P/T gauge on wireline to perforation interval.
43. Perform step rate test
    - The ISRT will consist of 5 to 10 minutes steps with each step holding a constant injection rate. The actual injection rates and step duration will be determined based on the downhole pressure response recorded real time, and the max rate is currently assumed to be below 25 bpm.
44. POOH with P/T gauge.
45. Pick up guns and RIH
46. Add additional Upper Wilcox perforations 6,960' – 7,150'

    Note: Actual perforation depths are subject to change based on the open hole logs of the well itself

47. RIH with P/T gauge on wireline to perforation interval.
48. Perform injection and fall off test on Upper Wilcox interval
    - The IFT will consist of a dual ramp-up followed by hard shut-ins with the second shut-in duration extending to 24 hours. The rates will be increased in 15 min increments until the max designed rate in the schedule is reached (assumed to be below 25 bpm).
49. POOH with P/T gauge.
50. Pick up 5-1/2" cast iron bridge plug and set at ~6,940' (~20' above Upper Wilcox perf interval). Pressure Test plug to minimum of 300 psi for 30 minutes without losing more than 5% pressure.
51. RIH wireline cement bailer and spot 10' of cement on top of CIBP
52. Rig down wireline unit.
53. Nipple up dry tree.
54. Demob equipment from location.

Attachment 6

FINANCIAL SURETY

- Financial Surety in the form of a performance bond covering the third party estimated P&A cost, once approved, will be submitted to LDENR prior to a permit to construct being issued.

Plugging Procedure, Schematic, & Cost Estimate

Denbury Carbon Solutions, LLC

WELL INFORMATION

Location: **Lat:** 30° 58' 45.66" N (NAD 27 S) **Long:** 90° 35' 23.42" W (NAD 27 S)

(Section - 10; Township – 1S; Range – 6E; Saint Helena Parish; Louisiana)

Project Sponsor: Denbury Carbon Solutions, LLC
5851 Legacy Circle, Suite 1200
Plano, Texas 75024

Plugging and Abandonment Work Prognosis:

1. Submit a UIC-17 to P&A the well and await work permit number.
2. Provide Office of Conservation a minimum of 60 day notice of intent to plug the well with the final plugging plan sealed with a P.E. certification.
3. Provide 48 hour notice prior to initiating any site activity or beginning P&A procedure.
4. Move in and rig up workover rig.
5. Nipple down tree.
6. Rig up BOP and pressure test.
7. Run in hole with workstring to 3,830 ft (~200ft below base of USDW plug).
8. Circulate with 9ppg WBM or inhibited brine.
9. Pump viscous pill as a base for balanced cement plug.
10. Pull out of hole to top of viscous pill.
11. Pump balanced cement plug from 3,530 ft to 3,630 ft.
    a. The proposed cement slurries are presented below, but the slurries, depths, and volumes will be based on as drilled logs for bottom of the plug starting in a confining shale formation below the USDW extending to a minimum of 50 ft above the base of the USDW. Plug will be a minimum of 100' extending at least 50' below the base of the USDW and 50' above.

    Slurry Specifications:

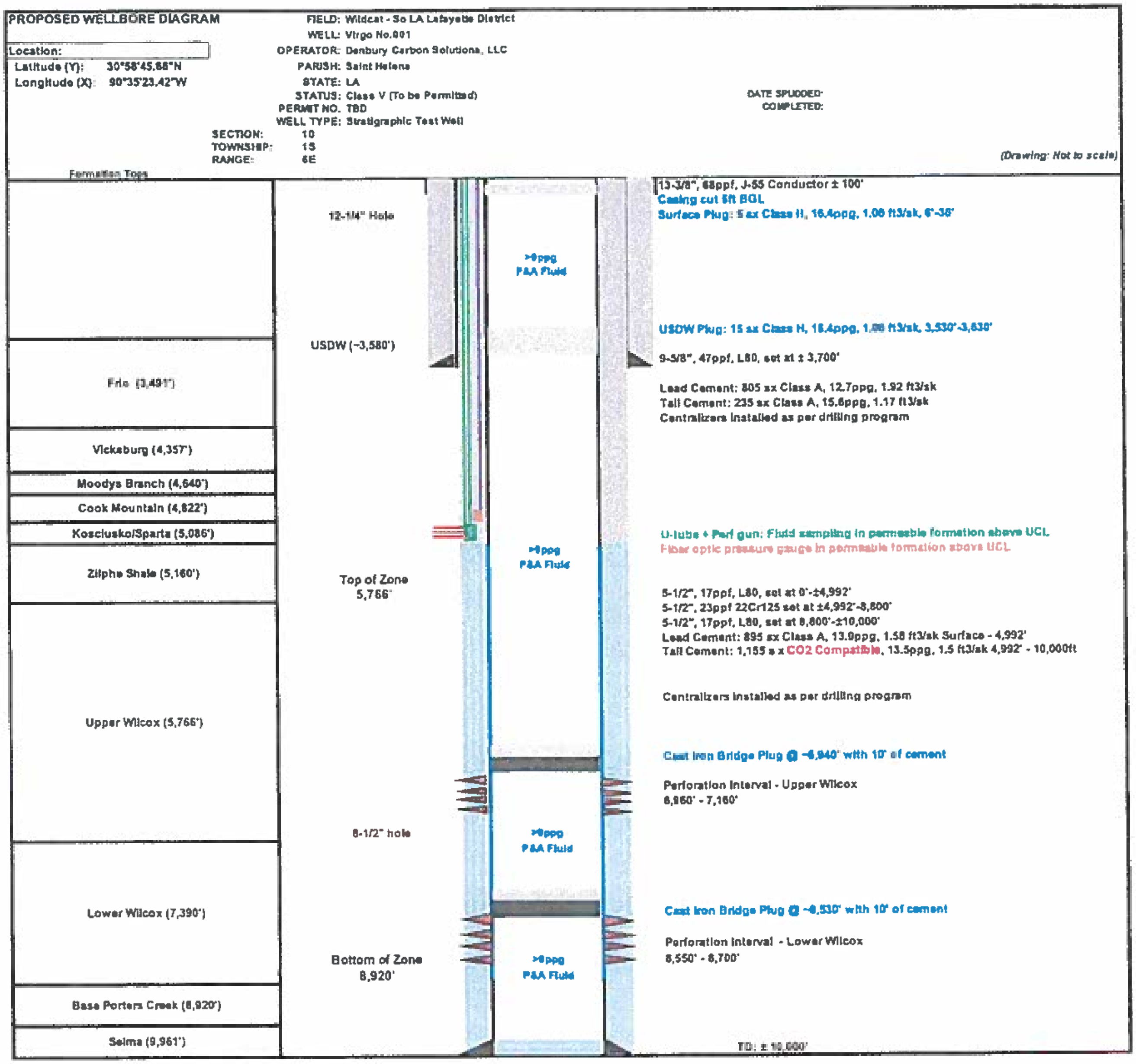
    Class H with additives
    Sacks: 15 sacks
    Yield: 1.06 ft3/sack
    Density: 16.4 ppg
12. Wait on cement.
13. Tag cement for top of plug verification.

    Note: The bottom plug immediately above top perfs will have been set and tested to 300 psi for 30 minutes without losing more than 5% pressure under the Permit to Construct.
14. Pull out of hole to base of surface cement plug.
15. Pump balanced cement plug from 6ft to 36ft BGL.

    The proposed cement slurries are presented below but the slurries, depths, and volumes will ensure that the surface plug is 30ft or greater and allows for the casing to be cut at least 5ft below ground level.

    Slurry Specifications:

    Class H with additives
    Sacks: 5 sacks
    Yield: 1.06 ft3/sack
    Density: 16.4 ppg
16. Rig down BOP.
17. Cut wellhead at least 5 ft below ground level.
18. Weld 1/2in steel plate across all annuli and include well serial number and P&A date.
19. Within 30 days after plugging, a plugging report (Form UIC-P&A) shall be submitted to LDENR.



STATE OF LOUISIANA

OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

Cost Estimate

Closure and Post-Closure Cost Estimate		
Description		**Cost Estimate ($)**
Rig Mob/Demob with Trucking	2 @ $6,500/day	13,000
Plug & Abandon (P&A) Rig	3 @ $6500/day	19,500
2 3/8 Workstring Rental	3 days @ $4,200/day	12,600
Rental Equipment & Tanks	3 days @ $1,000/day	3,000
Miscellaneous Trucking	2 loads @ $1,500/load	3,000
Plug Mud & Trucking & Disposal		14,000
Class H Cement	$35/SX	1,750
Cement Pumping Services	2 jobs @ $5,000/job	10,000
Forklift Rental / Delivery & Pickup	3 days	3,250
Pipe Rack / Catwalk / + PU & Delivery	3 days	2,500
Welding/Casing Cutting	1 @ $5,000	5,000
Waste Management/Disposal/Vacuum Trucks	1 @ $4500	4,500
Surface Restoration/Remediation	5%	4,605
Field Supervision Expenses	3 days@ $1,500	4,500
Project Management and Report	Job	4,000
	Subtotal	105,205
Project Contingency	10%	10,521
	Project Total	**115,726**

May 23, 2024

OFFICE OF CONSERVATION

MAY 31 2024

INJECTION & MINING DIVISION

045195

Denbury Carbon Solutions, LLC
Class V Stratigraphic Test Well Application
Virgo IZM #1
St. Helena Parish, LA

Attachment 7

IT QUESTIONS DOCUMENTATION

Denbury

Denbury

1. **Have the potential and real adverse environmental effects of the proposed project been avoided to the maximum extent possible?**

The potential and real adverse environmental effects of the Class V stratigraphic test well proposed by Denbury Carbon Solutions, LLC (Denbury) have been minimized or avoided to the maximum extent possible. After evaluation, Denbury has determined that there are no "real adverse environmental effects" from the proposed project. Nevertheless, Denbury evaluated the potential adverse environmental effects of the proposed project throughout the development process. (These are discussed further in Denbury's response to IT Question No. 2.) Denbury implemented mitigation measures to minimize or avoid, to the maximum extent possible, these potential adverse environmental effects, as evidenced by Denbury's commitment to the following activities:

1. Protecting the underground sources of drinking water (USDW) by setting surface casing in a shale at least 100' below the lowermost USDW formation and cementing the casing to surface in accordance with all applicable policies and regulations.

    a. The appropriate open-hole logs will be run and submitted to LDENR-IMD for a USDW determination prior to setting surface casing.

2. Ensuring injectivity testing will not cause movement of fluids into a USDW formation behind pipe by cementing the long string casing to surface.

    a. A cement bond log will be run and submitted to LDENR-IMD for review to verify cement isolation prior to injectivity testing.

3. Ensuring injectivity testing will not cause movement of fluids into a USDW formation through any improperly completed or abandoned wellbore within the ¼-mile Area of Review (AoR).

4. Mitigating any environmental pollution from stormwater runoff by filing a Notice of Intent for coverage under the Storm Water General Permit for Large Construction Activities with the Louisiana Department of Environmental Quality (LDEQ), which also requires the submission of a Stormwater Pollution Prevention Plan.

5. Implementing a closed-loop drilling system with waste disposal occurring at an appropriate disposal facility. A closed-loop drilling system will retain all drilling fluids, drilling mud, and drill cuttings, which will be collected for offsite disposal by a licensed and permitted third-party waste collection service. Denbury will also apply for any required LDEQ approvals if Denbury is deemed a generator or transporter of such waste.

6. Based on review of the USFWS IPaC report, no effect is anticipated on T&E species. The only listed species in the area of interest is the Northern Long-eared Bat. Based on the current silviculture operations in the area, the trees are not a suitable habitat for the species.

Denbury Carbon Solutions, LLC 5851 Legacy Circle, Suite 1200 • Plano, Texas 75024 • Tel: 972.673.2000 • denbury.com

2. **Does a cost benefit analyses of the environmental impact costs versus the social and economic benefits of the proposed project demonstrate that the latter outweighs the former?**

Yes. A cost benefit analysis demonstrates that the social and economic benefits of the proposed project outweigh the environmental impact costs. Identifying potential locations for geologic sequestration of carbon dioxide will benefit society by enabling carbon capture and sequestration projects to reduce the emission of greenhouse gases into the atmosphere, as well as allowing for the continued development of low-carbon industrial and energy sites. Encouraging the development of sequestration sites will provide economic benefits to Louisiana in the form of continued job and tax growth, as well as sustaining existing infrastructure in the energy sector. Identifying and studying potential locations for sequestration is a necessary first step in the development of this critical tool to reduce greenhouse gas emissions.

The primary, potential environmental impact costs associated with the Class V well include (1) potential USDW endangerment and (2) potential pollution from drilling activities. Both of these potential impact costs have been minimized or avoided to the maximum extent possible by proposing a surface casing setting depth in the Class V well below the lowermost USDW and cementing to surface and implementing a closed-loop drilling system with waste disposal occurring at an appropriate disposal facility, among other things. (These are discussed further in Denbury's response to IT Question No. 1).

The fundamental purpose and benefit of the proposed Class V well is to collect geologic data required to fully evaluate the feasibility of the geologic sequestration of carbon dioxide in the vicinity of this location. (A Class V permit will not authorize the use of the well for the injection of carbon dioxide, and the permit will not authorize any waste disposal via injection using this well.) Denbury has already completed preliminary assessments utilizing all publicly available data; however, site-specific data is not currently available. The proposed Class V well will serve the purpose of gathering the required site-specific data by collecting cores, logs, fluid samples, pressure measurements, and reservoir conductivity via injectivity testing, none of which can be acquired via other means. The drilling and subsequent data collection and testing through this proposed Class V well is necessary for an adequate assessment of a potential future carbon sequestration project, which is a type of project that the Louisiana Legislature has expressly and unambiguously determined to be favored as a matter of Louisiana public policy. See La. R.S. 30:1102(A) ("It is declared to be in the public interest for a public purpose and the policy of Louisiana that . . . [t]he geologic storage of carbon dioxide will benefit the citizens of the state and the state's environment by reducing greenhouse gas emissions.")..

3. **Are there alternative projects which would offer more protection to the environment than the proposed project without unduly curtailing non-environmental benefits?**

The proposed project has been carefully planned to evaluate the feasibility of developing a carbon sequestration project within a particular subsurface geology. Because the intent of the proposed Class V well is to assess the suitability of the geology in the area of interest, there are no alternative projects which would offer more protection to the environment than the proposed Class V project without unduly curtailing non-environmental benefits. The Class V test well must be sited within the area of interest to study the subsurface geology particular to that area.

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4. **Are there alternative sites which would offer more protection to the environment than the proposed site without unduly curtailing non-environmental benefits?**

The site location for the proposed Class V well has been selected to acquire the required site-specific subsurface information needed to perform a proper feasibility assessment for developing a carbon sequestration project in the immediate vicinity of the proposed Class V well. The site has also been selected to avoid impacts to wetlands.

Denbury's plan for the future utility of the well, as outlined in the application, is to convert the well to a monitoring well if the data and test results obtained from the proposed well demonstrate that the site would be suitable for geologic sequestration of carbon dioxide. Any such conversion would be subject to future regulatory approval(s) of a carbon sequestration project and Class VI injection well. Therefore, the well location within the area of interest was also selected as an appropriate monitoring well location based upon initial reservoir modeling results. In so doing, Denbury hopes to minimize the number of additional wells that may be needed to support a possible future sequestration project. Due to the foregoing reasons for the specific site selection, there are no alternative sites which would offer more protection to the environment than the proposed site without unduly curtailing non-environmental benefits and otherwise compromising the purpose of this proposed Class V well.

5. **Are there mitigating measures which would offer more protection to the environment than the proposed project without unduly curtailing non-environmental benefits?**

As outlined in Denbury's response to IT Question No. 1 and re-iterated here, the potential and real adverse environmental effects of Denbury's proposed Class V well have been minimized or avoided to the maximum extent possible. Denbury evaluated the potential adverse environmental effects of the proposed project throughout the development process and mitigation measures are evident in Denbury's commitment to the following activities:

1. Protecting the USDW by setting surface casing in a shale at least 100' below the lowermost USDW formation and cementing the casing to surface in accordance with all applicable policies and regulations.
    a. The appropriate open-hole logs will be run and submitted to LDENR-IMD for a USDW determination prior to setting surface casing.
2. Ensuring injectivity testing will not cause movement of fluids into a USDW formation behind pipe by cementing the long string casing to surface.
    a. A cement bond log will be run and submitted to LDENR-IMD for review to verify cement isolation prior to injectivity testing.
3. Ensuring injectivity testing will not cause movement of fluids into a USDW formation through any improperly completed or abandoned wellbore ¼-mile AOR.
4. Mitigating any environmental pollution from stormwater runoff by filing a Notice of Intent for coverage under the Storm Water General Permit for Large Construction

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Activities with the LDEQ, which also requires submission of a Stormwater Pollution Prevention Plan.

5. Implementing a closed-loop drilling system with waste disposal occurring at an appropriate disposal facility. A closed-loop drilling system will retain all drilling fluids, drilling mud, and drill cuttings, which will be collected for offsite disposal by a licensed and permitted third-party waste collection service. Denbury will also apply for any required LDEQ approvals if Denbury is deemed a generator or transporter of such waste.

6. Based on review of the USFWS IPaC report, no effect is anticipated on T&E species. The only listed species in the area of interest is the Northern Long-eared Bat. Based on the current silviculture operations in the area, the trees are not a suitable habitat for the species.

Based upon the aforementioned, there are no mitigating measures which would offer more protection to the environment than the Class V well as proposed, without unduly curtailing the non-environmental benefits.

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Attachment 8

LABORATORY ANALYSIS OF INJECTION TEST FLUID

- The fluid source for the injectivity test(s) will be a water source well drilled on location treated as needed with KCl, NaCl, and/or other additives to ensure adequate density and formation compatibility. A fluid source analysis from a LELAP accredited laboratory will be provided to the Injection & Mining Division (IMD) prior to any injection.

045195

Denbury Carbon Solutions, LLC
Class V Stratigraphic Test Well Application
Virgo IZM #1
St. Helena Parish, LA

¼ MILE AOR DETAIL WELL REPORT

Denbury

Louisiana Department of Energy and Natural Resources (DENR)

SONRIS/2000

Report run on: Mar 21, 2024 4:24 PM

SRCN4188_WELLS -- WELLS IN AREA OF REVIEW (AOR)

No wells within AoR

OFFICE OF CONSERVATION

MAY 01 2024

INJECTION & MINING DIVISION

Note: Wellbore sizes with an asterisk symbol (*) next to it are assumed values based on the casing size and these assumed values have been substituted in place of a null (or zero) value everywhere a null (or zero) value previously existed as the wellbore size.

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