Class II – Saltwater Disposal, Enhanced Recovery, and Annular Disposal Wells

Presented on behalf of
the Injection and Mining Division
Baton Rouge, Louisiana

Topics of Discussion

Saltwater Disposal Wells (Conversions)
Form UIC 2-SWD Conversion

Enhanced Recovery (ER) Wells
Form UIC 2-ER

Annular Disposal Wells
Form UIC-9

Community Saltwater Disposal Wells
Form UIC-13

Commercial Wells
Form UIC-2 COM SWD

Class II Saltwater Disposal Wells (Form UIC-2 SWD Conversion)

- The UIC-2 SWD Conversion Application (Application) has been revised. We are making additional minor changes to the form to accommodate requests and comments from our test group, therefore the final version may differ slightly from the version shown in this presentation. Eventually all UIC forms will be revised and updated.

- The following sample Application will illustrate each component of the revised Class II SWD Conversion Application and how to successfully complete the form.

- A saltwater disposal well conversion application is being used during this presentation as an example since applications to convert wells for use as saltwater disposal wells are more complicated in nature than Class II SWD Applications to drill new wells.

Form UIC-2 SWD Conversion

OFFICE OF CONSERVATION
SALTWATER DISPOSAL WELL PERMIT APPLICATION

MAILING ADDRESS
OFFICE OF CONSERVATION
P.O. Box 94275-Capitol Station
Baton Rouge, LA 70804-9275

UIC-2 SWD Conversion

APPLICATION NO.
(FOR OFFICE USE ONLY)

OPERATOR INFORMATION

The information in boxes 1-12 must match the Form MD-10-R-A or MD-10-R-A-1

1. OPERATOR NAME			2. OPERATOR CODE
3. OPERATOR MAILING ADDRESS	4. CITY	5. STATE	6. ZIP CODE
7. TELEPHONE NUMBER	8. FAX NUMBER	9. EMAIL ADDRESS	
10. PROPOSED WELL NAME AND NUMBER	11. API NUMBER		12. SERIAL NUMBER

WELL INFORMATION

The information in boxes 13-22 must match the current Location Plat (Attachment 2) exactly.

13. FIELD NAME	14. FIELD CODE	15. SEC	TWN	RNG
16. PARISH NAME	17. PARISH CODE			
18. LOCATION DESCRIPTION				

19. GEOGRAPHIC COORDINATE SYSTEM (NAD 27)						20. STATE PLANE COORDINATES (LAMBERT, NAD 27)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

21. GEOGRAPHIC COORDINATE SYSTEM (NAD 83)						22. STATE PLANE COORDINATES (LAMBERT, NAD 83)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

PROPOSED WELL CONSTRUCTION INFORMATION

The information in boxes 23-38 must match the information reported on Attachment 4C (Proposed Wellbore Schematic) Im

23. CASING SIZE (IN.)	24. HOLE SIZE (IN.)	25. CASING WEIGHT	26. DEPTH SET		27. SACKS CEMENT	2	
			TOP (FT.)	BOTTOM (FT.)			

PROPOSED WELL CONSTRUCTION INFORMATION

30. TUBING TYPE	31. TUBING SIZE (IN.)	32. TUBING DEPTH (FT.)
☐ STEEL ☐ OTHER (IDENTIFY):		

33. PACKER	34. DEPTH SET (FT.)
☐ TENSIONAL ☐ PERMANENT ☐ COMPRESSIONAL	
35. PLUGGED-BACK DEPTH (FT.)	**36. TOTAL DEPTH OF WELL (FT.)**

PROPOSED INJECTION INTERVAL INFORMATION

The information in boxes 39 and 42 should come from the electric log of the well to be permitted or the closest offset well that w
zone. If the top and bottom of the zone are not shown on the same log, two different logs can be used. Copies of the log(s) must b

PROPOSED INJECTION INTERVAL INFORMATION

37. INJECTION ZONE (FT)	38. PERFORATED/OPEN-HOLE INTERVAL WIT
TOP BOTTOM	TOP BOTTOM
39. INJECTION FORMATION NAME	**40. INJECTION THROUGH:**
	☐ PERFORATIONS ☐ SCREEN ☐ OPEN-HOLE

Form UIC-2 SWD Conversion cont'd

PRESSURE CALCULATION DATA

41. INJECTION RATE (BARRELS/MINUTE):

NORMAL (BPM) MAXIMUM (BPM)

42. INJECTION FORMATION PROPERTIES:

POROSITY (%) PERMEABILITY (MILLIDARCYS) HOW WERE THE PROPERTIES ATTAINED:

43. HOW WOULD YOU PREFER THE INJECTION AND MINING DIVISION CALCULATE THE MAXIMUM ALLOWABLE SURFACE INJECTION PRESSURE (MASIP) FOR THIS WELL:

(Please note: Eaton's Fracture Gradient (Louisiana Gulf Coast) will be used to calculate the MASIP if one of the preferred methods below is not selected.)

☐ **BASED ON THE FRACTURE GRADIENT OF THE INJECTION FORMATION (STEP-RATE / FALL OFF TEST, SONIC LOG OR OTHER ACCEPTABLE LOG)**

☐ **BASED ON THE FRACTURE GRADIENT OF THE CONFINING FORMATION (FOR GUIDANCE REFER TO ATTACHMENT 9, MASIP CALCULATION REQUEST IN THE INSTRUCTIONS)**

As described in Intra-Office Policy Statement No. IMD-GS-09 at http://dnr.louisiana.gov/assets/docs/memo20090324-imd-gs-09.pdf.

PRESSURE CALCULATION DATA

OTHER INFORMATION

44. DESCRIBE CONTINGENCY PLANS FOR SALTWATER DISPOSAL WHEN THE WELL IS INOPERABLE:

45. IS THE PROPOSED WELL LOCATED ON INDIAN LANDS OR OTHER LANDS OWNED BY OR UNDER THE JURISDICTION OR PROTECTION OF THE FEDERAL GOVERNMENT? ☐ YES ☐ NO

46. IS THE PROPOSED WELL LOCATED ON STATE WATER BOTTOMS OR OTHER LANDS OWNED BY OR UNDER JURISDICTION OF THE STATE? ☐ YES ☐ NO

OTHER INFORMATION

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

CHECK BOXES FOR ATTACHMENTS

☐ **FILING FEE**

☐ **ATTACHMENT 1 – PUBLIC NOTICE**

☐ **ATTACHMENT 2 – LOCATION PLAT**

☐ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT**

ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS

- ☐ 4A - CURRENT WELLBORE SCHEMATIC
- ☐ 4B - PROPOSED WELLHEAD DIAGRAM
- ☐ 4C - PROPOSED WELLBORE SCHEMATIC
- ☐ 4D - WORK PROGNOSIS

ATTACHMENT 5 – LOGS

- ☐ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW (W/ ORDER, IF APPLICABLE)
- ☐ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS (W/ ORDER, IF APPLICABLE)
- ☐ 5C – CEMENT BOND LOG (CBL)

ATTACHMENT 6 – AREA OF REVIEW (AOR)

- ☐ 6A- AREA OF REVIEW MAP
- ☐ 6B- AREA OF REVIEW WELL LIST
- ☐ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
- ☐ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
- ☐ 6E- FRESHWATER LABORATORY ANALYSES

☐ **ATTACHMENT 7 – FACILITY DIAGRAM**

ATTACHMENT 8 – INJECTION FLUID SOURCE

- ☐ 8A - INJECTION FLUID SOURCE LIST
- ☐ 8B - INJECTION FLUID SOURCE ANALYSES

ATTACHMENT 9 – MASIP CALCULATION REQUEST

- ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
- ☐ 9B – GROUNDWATER MONITORING PLAN

☐ **DUPLICATE COPY OF THE APPLICATION**

AUTHORIZED AGENT

AUTHORIZED AGENT

47. AGENT OR CONTACT AUTHORIZED TO ACT FOR THE OPERATOR DURING PROCESSING OF THIS APPLICATION.

THE SIGNATURE OF THE OPERATOR CERTIFYING THIS APPLICATION WILL AUTHORIZE THIS AGENT OR CONTACT TO SUBMIT ADDITIONAL INFORMATION AS REQUESTED AND TO GIVE ORAL STATEMENTS IN SUPPORT OF THIS APPLICATION DURING THE APPLICATION REVIEW PROCESS. ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX. THE FINAL WRITTEN DECISION ON THIS APPLICATION WILL BE SENT TO THE OPERATOR NOTED IN BOX 1 OF THIS FORM.

NAME:

COMPANY:

ADDRESS:

PHONE:

EMAIL:

CERTIFICATION BY OPERATOR

CERTIFICATION BY OPERATOR

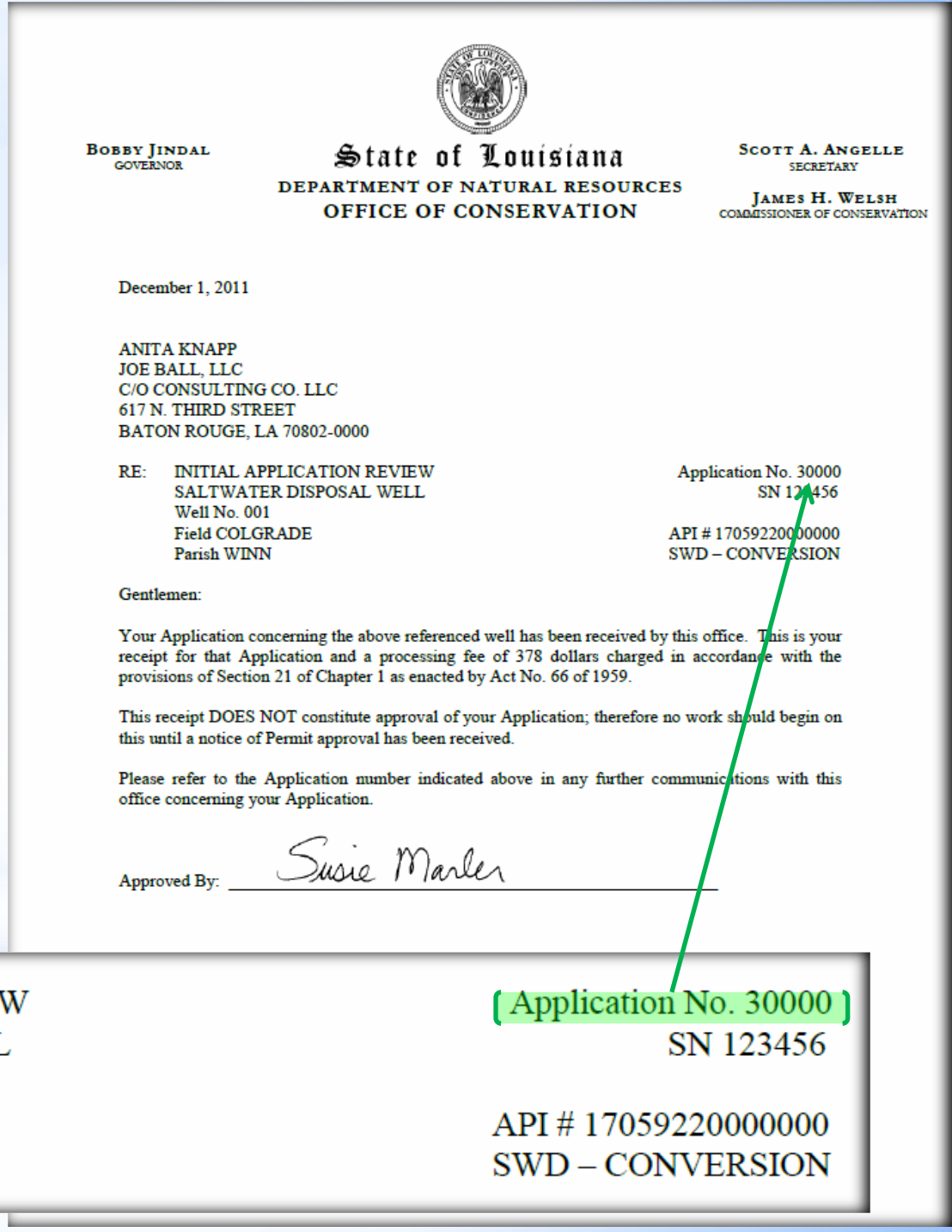
The signature below must be obtained from a duly appointed employee of the operating company.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my personal knowledge or 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 (LSA-RS 30:17).

48. NAME (PRINT)	49. TITLE (PRINT)
50. SIGNATURE	51. DATE

Note: Upon receipt of the original Application submittal, an Initial Application Review letter will be sent to the Authorized Agent noting the assigned **Application Number**, missing or incorrect information and acknowledgement of fee payment.

As shown in our example, the Application number is found in the reference section of the letter.



BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

SCOTT A. ANGELLE
SECRETARY

JAMES H. WELSH
COMMISSIONER OF CONSERVATION

December 1, 2011

ANITA KNAPP
JOE BALL, LLC
C/O CONSULTING CO. LLC
617 N. THIRD STREET
BATON ROUGE, LA 70802-0000

RE: INITIAL APPLICATION REVIEW
SALTWATER DISPOSAL WELL
Well No. 001
Field COLGRADE
Parish WINN

Application No. 30000
SN 123456

API # 17059220000000
SWD – CONVERSION

Gentlemen:

Your Application concerning the above referenced well has been received by this office. This is your receipt for that Application and a processing fee of 378 dollars charged in accordance with the provisions of Section 21 of Chapter 1 as enacted by Act No. 66 of 1959.

This receipt DOES NOT constitute approval of your Application; therefore no work should begin on this until a notice of Permit approval has been received.

Please refer to the Application number indicated above in any further communications with this office concerning your Application.

Approved By: Susie Marler

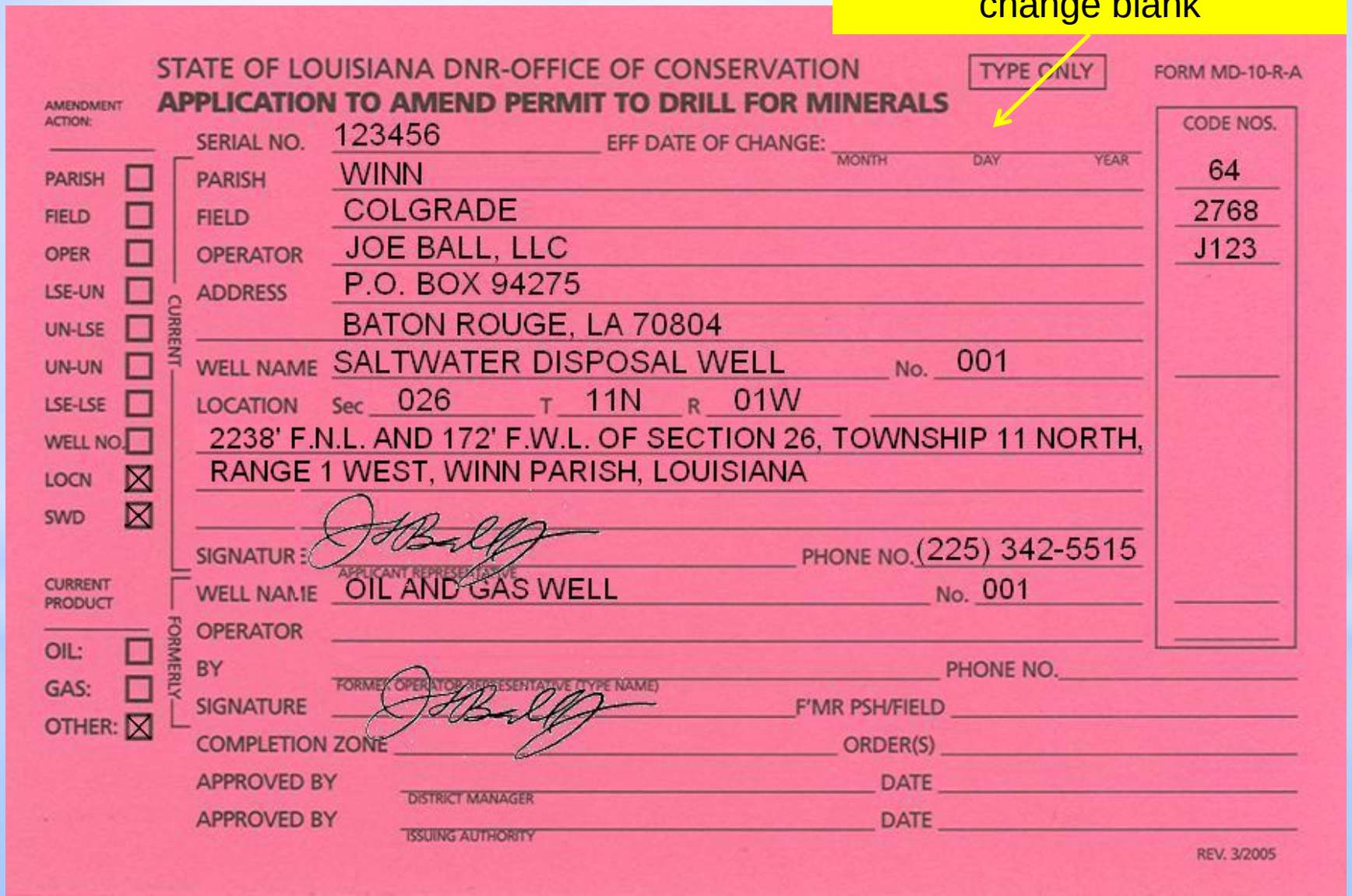
RE: INITIAL APPLICATION REVIEW
SALTWATER DISPOSAL WELL
Well No. 001
Field COLGRADE
Parish WINN

Application No. 30000
SN 123456

API # 17059220000000
SWD – CONVERSION

Complete and submit two (2) completed copies of Form MD-10-R-A (Pink Card) with original signatures.

Leave the effective date of change blank



STATE OF LOUISIANA DNR-OFFICE OF CONSERVATION — TYPE ONLY — FORM MD-10-R-A

APPLICATION TO AMEND PERMIT TO DRILL FOR MINERALS

AMENDMENT ACTION:

PARISH ☐ FIELD ☐ OPER ☐ LSE-UN ☐ UN-LSE ☐ UN-UN ☐ LSE-LSE ☐ WELL NO. ☐ LOCN ☒ SWD ☒

CURRENT PRODUCT

OIL: ☐ GAS: ☐ OTHER: ☒

CURRENT

SERIAL NO. 123456 EFF DATE OF CHANGE: MONTH DAY YEAR

PARISH WINN

FIELD COLGRADE

OPERATOR JOE BALL, LLC

ADDRESS P.O. BOX 94275

BATON ROUGE, LA 70804

WELL NAME SALTWATER DISPOSAL WELL No. 001

LOCATION Sec 026 T 11N R 01W

2238' F.N.L. AND 172' F.W.L. OF SECTION 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA

SIGNATURE: J H Ball — APPLICANT REPRESENTATIVE — PHONE NO. (225) 342-5515

FORMERLY

WELL NAME OIL AND GAS WELL No. 001

OPERATOR

BY — FORMER OPERATOR REPRESENTATIVE (TYPE NAME) — PHONE NO.

SIGNATURE J H Ball — F'MR PSH/FIELD

COMPLETION ZONE — ORDER(S)

APPROVED BY — DISTRICT MANAGER — DATE

APPROVED BY — ISSUING AUTHORITY — DATE

CODE NOS.

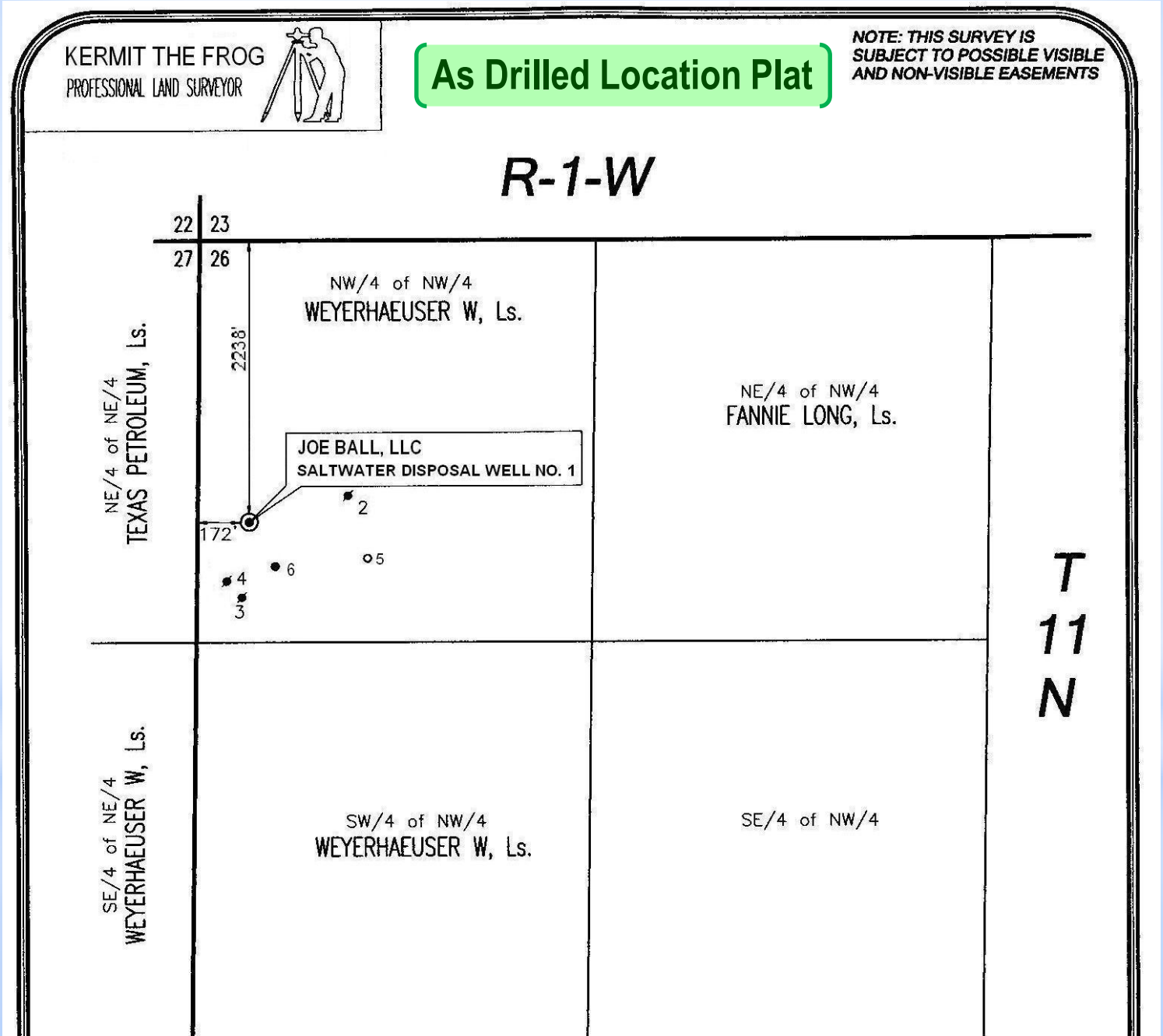
64

2768

J123

REV. 3/2005

A Certified Plat is required to be submitted with the Application



NOTE: THERE ARE NO DWELLINGS OR STRUCTURES LOCATED WITHIN 500' RADIUS OF ABOVE LOCATION.

STATE PLANE NORTH

WELL LOCATION PLAT

OPERATOR: JOE BALL, LLC

WELL NAME: SALTWATER DISPOSAL WELL No.1
SN 123456

LOCATION:

2238' F.N.L. AND 172' F.W.L. OF SECTION 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA.

LEGEND

- ● = EXISTING WELL
- ○ = WATER WELL
- ◉ = LOCATION STAKE
- ⊗ = P & A WELL

WELL COORDINATES:

LAT = 31°54'38.1" N
LONG = 092°26'55.4" W (NAD27)

LAT = 31°54'38.6" N
LONG = 092°26'55.9" W (NAD83)

X= 2015912.93
Y =452469.07 (STATE PLANE NAD27)

X=3296701.49
Y=513175.52 (STATE PLANE NAD83)

GROUND ELEVATION: 173.7 FEET NAVD 88
(COMPUTED USING GEIOD09)

SCALE: 1" = 500'

DATE: 10/30/2010

DRAWN: MISS PIGGY

FILE NAME: C:\CAD\98460-2

I KERMIT THE FROG, 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 ON THE 30th DAY OF OCTOBER, 2010. I HAVE PROPERLY EXAMINED THE SURVEY AND PLAT AND HAVE DETERMINED THAT IT MEETS THE MINIMUM STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF LOUISIANA.

STATE OF LOUISIANA
KERMIT THE FROG
REG. No. XYZ
REGISTERED PROFESSIONAL
LAND SURVEYOR

11-09-2010

Kermit the Frog P.L.S. # XYZ

KERMIT THE FROG
PROFESSIONAL LAND SURVEYOR

As Drilled Location Plat

NOTE: THIS SURVEY IS SUBJECT TO POSSIBLE VISIBLE AND NON-VISIBLE EASEMENTS

R-1-W

22 23
27 26

NW/4 of NW/4
WEYERHAEUSER W, Ls.

NE/4 of NW/4
FANNIE LONG, Ls.

NE/4 of NE/4
TEXAS PETROLEUM, Ls.

2238'

JOE BALL, LLC
SALTWATER DISPOSAL WELL NO. 1

172'

T 11 N

SW/4 of NW/4
WEYERHAEUSER W, Ls.

SE/4 of NW/4

SE/4 of NE/4
WEYERHAEUSER W, Ls.

NOTE: THERE ARE NO DWELLINGS OR STRUCTURES LOCATED WITHIN 500' RADIUS OF ABOVE LOCATION.

STATE PLANE NORTH

WELL LOCATION PLAT

OPERATOR: JOE BALL, LLC
WELL NAME: SALTWATER DISPOSAL WELL No.1
SN 123456

LOCATION:
2238' F.N.L. AND 172' F.W.L. OF SECTION 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA.

LEGEND
• = EXISTING WELL
○ = WATER WELL
◉ = LOCATION STAKE
= P & A WELL

WELL COORDINATES:
LAT = 31°54'38.1" N
LONG = 092°26'55.4" W (NAD27)
LAT = 31°54'38.6" N
LONG = 092°26'55.9" W (NAD83)
X= 2015912.93
Y =452469.07 (STATE PLANE NAD27)
X=3296701.49
Y=513175.52 (STATE PLANE NAD83)
GROUND ELEVATION: 173.7 FEET NAVD 88
(COMPUTED USING GEIOD09)

SCALE: 1" = 500'
DATE: 10/30/2010
DRAWN: MISS PIGGY
FILE NAME: C:\CAD\98460-2

I KERMIT THE FROG, 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 ON THE 30th DAY OF OCTOBER, 2010. I HAVE PROPERLY EXAMINED THE SURVEY AND PLAT AND HAVE DETERMINED THAT IT MEETS THE MINIMUM STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF LOUISIANA.

STATE OF LOUISIANA
KERMIT THE FROG
REG. No. XYZ
REGISTERED PROFESSIONAL
LAND SURVEYOR

11-09-2010

Kermit the Frog P.L.S. # XYZ

Submit a copy of the Certified Plat for the well to be converted. Verify that the plat information matches information on the Pink card.

STATE OF LOUISIANA DNR-OFFICE OF CONSERVATION — TYPE ONLY — FORM MD-10-R-A

APPLICATION TO AMEND PERMIT TO DRILL FOR MINERALS

AMENDMENT ACTION:
PARISH ☐
FIELD ☐
OPER ☐
LSE-UN ☐
UN-LSE ☐
UN-UN ☐
LSE-LSE ☐
WELL NO. ☐
LOCN ☒
SWD ☒

SERIAL NO. 123456 EFF DATE OF CHANGE: MONTH DAY YEAR

CODE NOS.

CURRENT
PARISH WINN — 64
FIELD COLGRADE — 2768
OPERATOR JOE BALL, LLC — J123
ADDRESS P.O. BOX 94275
BATON ROUGE, LA 70804
WELL NAME SALTWATER DISPOSAL WELL No. 001
LOCATION Sec 026 T 11N R 01W
2238' F.N.L. AND 172' F.W.L. OF SECTION 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA
SIGNATURE (APPLICANT REPRESENTATIVE) PHONE NO. (225) 342-5515

CURRENT PRODUCT
OIL: ☐
GAS: ☐
OTHER: ☒

FORMERLY
WELL NAME OIL AND GAS WELL No. 001
OPERATOR
BY (FORMER OPERATOR REPRESENTATIVE (TYPE NAME)) PHONE NO.
SIGNATURE F'MR PSH/FIELD
COMPLETION ZONE ORDER(S)
APPROVED BY (DISTRICT MANAGER) DATE
APPROVED BY (ISSUING AUTHORITY) DATE

REV. 3/2005

Information must be transferred from the Pink Card to Item numbers **1 – 18** of the Application.

OPERATOR INFORMATION

The information in boxes 1-12 must match the Form MD-10-R-A or MD-10-R-A-1

1. OPERATOR NAME			2. OPERATOR CODE
JOE BALL, LLC			J123
3. OPERATOR MAILING ADDRESS	**4. CITY**	**5. STATE**	**6. ZIP CODE**
P.O. BOX 94275	BATON ROUGE	LA	70804
7. TELEPHONE NUMBER	**8. FAX NUMBER**	**9. EMAIL ADDRESS**	
(225) 342-5515	(225) 342-3094	sample@yahoo.com	
10. PROPOSED WELL NAME AND NUMBER	**11. API NUMBER**		**12. SERIAL NUMBER**
SALTWATER DISPOSAL WELL 001	17059220000000		123456

WELL INFORMATION

The information in boxes 13-22 must match the current Location Plat (Attachment 2) exactly.

13. FIELD NAME	14. FIELD CODE	15. SEC	TWN	RNG
COLGRADE	2768	026	11N	01W
16. PARISH NAME	**17. PARISH CODE**			
WINN	64			

18. LOCATION DESCRIPTION

2238' FNL & 172' FWL OF SEC 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA

STATE OF LOUISIANA DNR-OFFICE OF CONSERVATION — TYPE ONLY — FORM MD-10-R-A

APPLICATION TO AMEND PERMIT TO DRILL FOR MINERALS

AMENDMENT ACTION:

PARISH ☐ FIELD ☐ OPER ☐ LSE-UN ☐ UN-LSE ☐ UN-UN ☐ LSE-LSE ☐ WELL NO. ☐ LOCN ☒ SWD ☒

CURRENT PRODUCT — OIL: ☐ GAS: ☐ OTHER: ☒

SERIAL NO. 123456 EFF DATE OF CHANGE: MONTH DAY YEAR

CURRENT:
PARISH WINN
FIELD COLGRADE
OPERATOR JOE BALL, LLC
ADDRESS P.O. BOX 94275
BATON ROUGE, LA 70804
WELL NAME SALTWATER DISPOSAL WELL No. 001
LOCATION Sec 026 T 11N R 01W
2238' F.N.L. AND 172' F.W.L. OF SECTION 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA
SIGNATURE (APPLICANT/REPRESENTATIVE) PHONE NO. (225) 342-5515

FORMERLY:
WELL NAME OIL AND GAS WELL No. 001
OPERATOR
BY (FORMER OPERATOR/REPRESENTATIVE (TYPE NAME)) PHONE NO.
SIGNATURE F'MR PSH/FIELD
COMPLETION ZONE ORDER(S)
APPROVED BY (DISTRICT MANAGER) DATE
APPROVED BY (ISSUING AUTHORITY) DATE

CODE NOS.: 64 / 2768 / J123

REV. 3/2005

Public Notice

(SWD Well Associated with Oil and Gas Production)

(Attachment 1)

- At least **15 days** prior to filing an application (but no more than 6 months prior), a notice of the Application must be published in the legal advertisement section of the official state journal, *The Advocate* (in Baton Rouge).
- *The Advocate* will send the operator a notarized Proof of Publication, which must be labeled, **Attachment 1**, and included as part of the Application.
- The Operator will be billed by *The Advocate* for the publication.
- If the Proof of Publication has not been received when the Application is sent to the IMD, it may be sent later provided that you write the Application Number and **Attachment 1** on the Proof of Publication.

ATTACHMENT 1 - PUBLIC NOTICE
SWD WELL ASSOCIATED WITH OIL AND GAS PRODUCTION

In accordance with the laws of the State of Louisiana and the particular reference to the provisions of LA R. S. 30:4, and the provisions of Statewide Order No. 29-B as amended and adopted by the Office of Conservation of the State of Louisiana,

Operator Name (Operator Code)

Address

City, State Zip

Phone Number

is applying to the Injection and Mining Division of the Office of Conservation for a permit to dispose of produced fluids generated from oil and gas production by means of an injection well, which is identified as the **(Well Name)** SWD Well No. **(Well No.)**, Serial Number **(Serial No.)** with the injection zone from an approximate depth of **(Top of Zone)** feet to **(Bottom of Zone)** feet. The well location is Section **(Section)**, Township **(Township)**, Range **(Range)**, **(Field)** Field, **(Parish)** Parish, Louisiana.

All interested parties are hereby given an opportunity to submit written comments no later than fifteen (15) days from the date of this publication. Identify the well when corresponding. Direct comments to:

Office of Conservation
Injection & Mining Division
P.O. Box 94275
Baton Rouge, LA 70804-9275
Re: Comments for SWD Application

Public Notice

(SWD Well Associated with Salt Cavern Projects)

(Attachment 1)

- If the proposed SWD well is associated with any type of SALT CAVERN PROJECT, then the applicant must publish a notice that an application has been filed with the Office of Conservation within **30 days** of the receipt of the Initial Application Review letter.

- The notice must be published one time in the legal advertisement section of the official state journal, *The Advocate* (in Baton Rouge), and the official journal of the parish in which the proposed activity is to occur.

- The Operator will be billed by each journal for the publication.

ATTACHMENT 1 - PUBLIC NOTICE
SWD WELL ASSOCIATED WITH SALT CAVERN PROJECTS

In accordance with the laws of the State of Louisiana and the particular reference to the provisions of La R.S. 30:4, and the provisions of Statewide Order No. 29-B (LAC 43:XIX.Subpart 1) as amended and adopted by the Office of Conservation of the State of Louisiana,

Operator Name (Operator Code)

Address

City, State Zip

Phone Number

has applied to the Office of Conservation, Injection and Mining Division for a permit to operate a subsurface injection well to dispose of saltwater generated through the creation of a solution-mined salt cavern. The assigned application number is **(Application No).**

The well is proposed to be in Section **(Section No.)**, Township **(Township)**, Range **(Range)**, **(Field Name)**Field, **(Parish Name)**Parish, Louisiana. The proposed well is identified as the **(Well Name)** SWD Well No. **(Well No.)**, Serial Number **(Serial Number)**.

Subsurface disposal of saltwater is proposed to occur within an injection zone from approximately **(Top of Zone)** feet to **(Bottom of Zone)** feet. Initial perforations are proposed from approximately **(Top of Perforations)** feet to **(Bottom of Perforations)** feet. The saltwater for disposal will be generated from the solution mining of salt in the **(Name of Salt Dome)** salt dome.

The application is available for inspection from 8:00 a.m. to 4:15 p.m., Monday through Friday in the Injection and Mining Division Office, Rm. 817, LaSalle Building, 617 North Third Street, Baton Rouge, LA.

Interested parties may request a public hearing or submit written comments on the application. Such requests must be received in the Injection and Mining Division by 4:30 p.m., no later than 15 days from the date of this publication. Please reference the application number on all correspondence. Correspondence may be submitted by e-mail to injection-mining@la.gov, by fax to 225-242-3441, or by mail to:

Office of Conservation
Injection & Mining Division
P.O. Box 94275
Baton Rouge, LA 70804-9275

Information concerning the application may be obtained by calling 225-342-5515 or by the methods stated above.

The notarized Proof of Publication s st be labeled, **Attachment 1**, and must be submitted to the Injection a D) upon receipt by the Applicant.

CAPITAL CITY PRESS

Publisher of
THE ADVOCATE

PROOF OF PUBLICATION

The hereto attached notice was published in THE ADVOCATE, a daily newspaper of general circulation published in Baton Rouge, Louisiana, and the Official Journal of the State of Louisiana, City of Baton Rouge, and Parish of East Baton Rouge, in the following issues:

12/1/11

Shelley Calloni, Public Notice Clerk

Sworn and subscribed before me by the person whose signature appears above

December 1, 2011

M. Monic McChristian,
Notary Public ID# 88293
State of Louisiana
My Commission Expires: Indefinite

JOE BALL, LLC **4476491**
ANITA KNAPP
617 N. THIRD STREET
BATON ROUGE, LA 70802

PUBLIC NOTICE
SWD WELL ASSOCIATED WITH OIL AND GAS PRODUCTION

In accordance with the laws of the laws of the State of Louisiana and the particular reference to the provisions of LA R. S. 30:4, and the provisions of Statewide Order No. 29-B as amended and adopted by the Office of Conservation of the State of Louisiana,

JOE BALL, LLC (J123)
P.O. BOX 94275
BATON ROUGE, LA 70804
225-342-5515

is applying to the Injection and Mining Division of the Office of Conservation for a permit to dispose of produced fluids generated from oil and gas production by means of an injection well, which is identified as the SALTWATER DISPOSAL WELL No. 001, Serial Number 123456 with the Injection Interval at an approximate depth of 2980 feet to 3090 feet. The well location is Section 26, Township 11N, Range 01W, COLGRADE Field, Winn Parish, Louisiana.

All interested parties are hereby given an opportunity to submit written comments no later than fifteen (15) days from the date of this publication. Identify the well when corresponding. Direct comments to:

Office of Conservation
Injection and Mining Division
P.O. Box 94275
Baton Rouge, LA 70804-9275
Re: Comments for
SWD Application

4476237-december 1-lt

APPLICATION NO. 30000

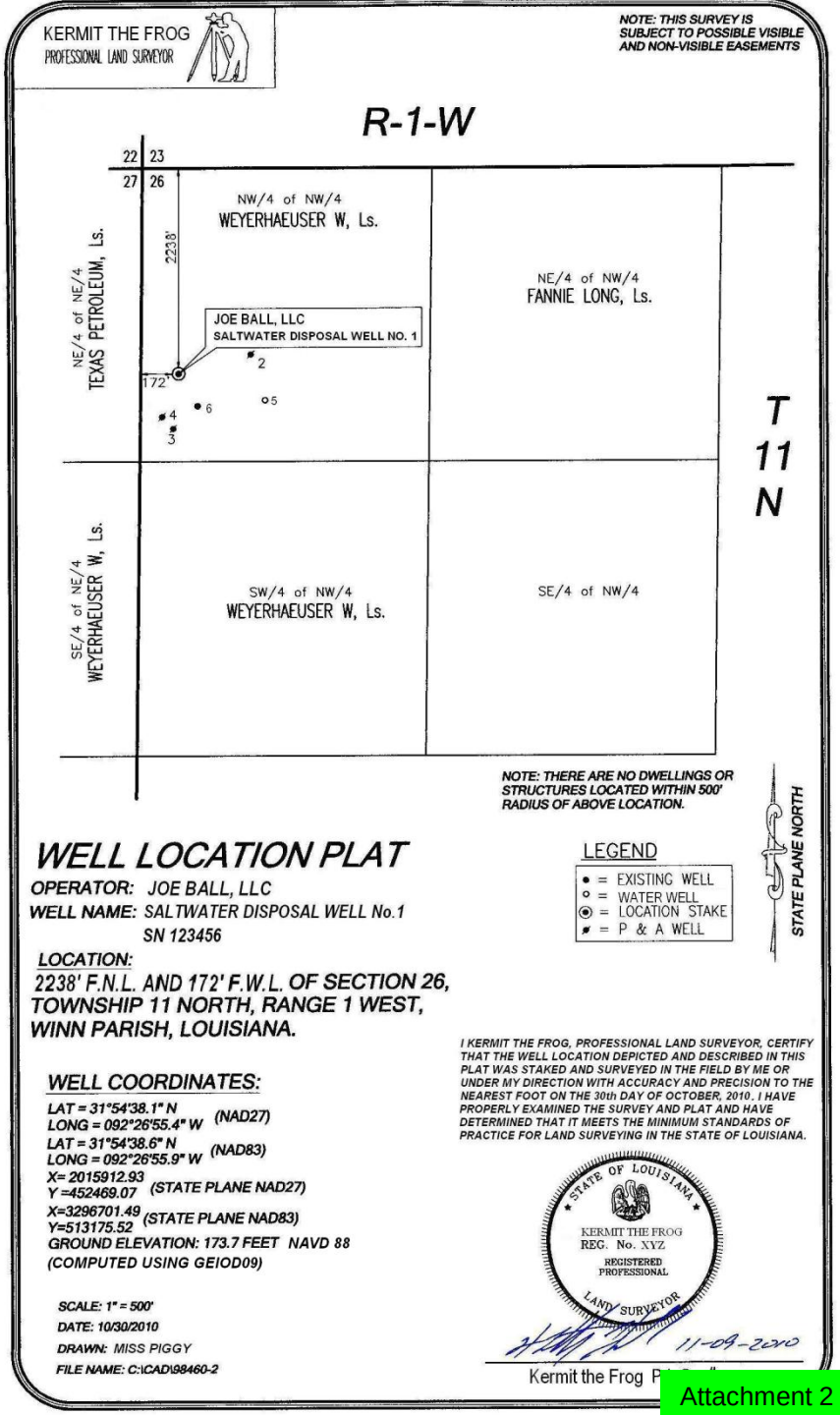
The **Application number** should be written on the upper right corner of each page of any revisions or submittals.

The **Attachment number** should be written on the lower right corner of each page of any revisions or submittals.

ATTACHMENT 1

Location Plat
(Attachment 2)

- The IMD has issued an Intra-Office Policy Statement, Policy No. IMD-GS-10 (Policy), regarding Location Plat Requirements. All location plats submitted with this Application must meet the requirements of the Policy.
- The Policy can be downloaded from the DNR website: Go to **www.dnr.louisiana.gov**, click on the ***Conservation*** tab at the top of the page **>>** click on ***Injection and Mining*** (under *Divisions* at the bottom of the page) **>>** click on ***IMD-GS-10*** (under the *Injection and Mining Policy Statements* tab at the bottom of the page).
- The certified Location Plat must be labeled, **Attachment 2**, and included as part of the Application.
- The Location Plat, **Attachment 2** and the Area of Review Map, **Attachment 6A** can be combined and submitted as one document if the scale is such that all wells are clearly labeled and legible.



Items **13-22** of the Application should be completed using the Location Plat and current well location information.

WELL INFORMATION

The information in boxes 13-22 must match the current Location Plat (Attachment 2) exactly.

13. FIELD NAME	14. FIELD CODE	15. SEC	TWN	RNG
COLGRADE	2768	026	11N	01W

16. PARISH NAME	17. PARISH CODE
WINN	64

18. LOCATION DESCRIPTION

2238' FNL & 172' FWL OF SEC 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA

19. GEOGRAPHIC COORDINATE SYSTEM (NAD 27) — 20. STATE PLANE COORDINATES (LAMBERT, NAD 27)

LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	
DEG	MIN	SEC	DEG	MIN	SEC			
31	54	38.1	92	26	55.4	2,015,912.93	452,469.07	☒ NORTH ZONE ☐ SOUTH ZONE

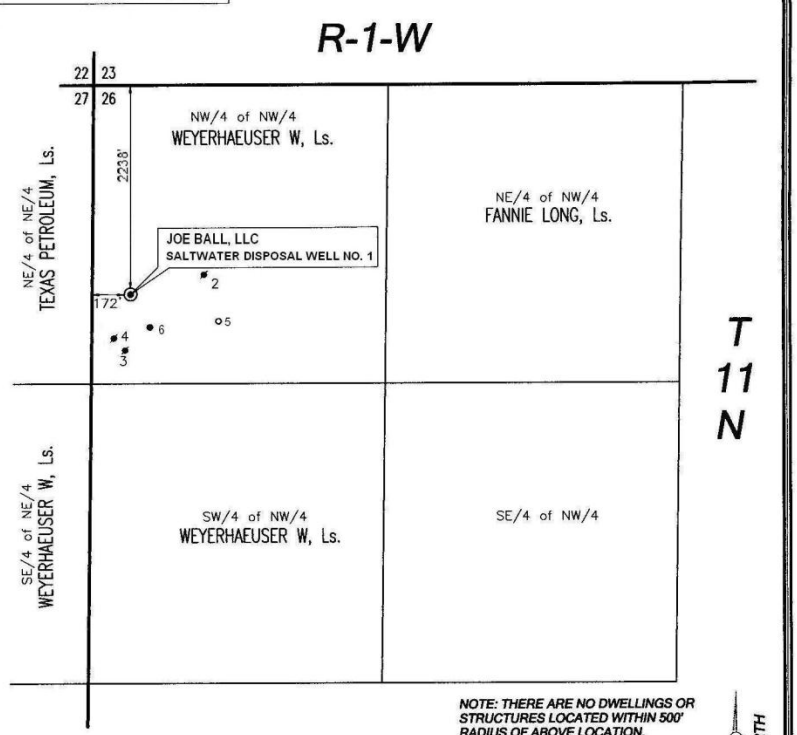
21. GEOGRAPHIC COORDINATE SYSTEM (NAD 83) — 22. STATE PLANE COORDINATES (LAMBERT, NAD 83)

LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	
DEG	MIN	SEC	DEG	MIN	SEC			
31	54	38.6	92	26	55.9	3,296,701.49	513,175.52	☒ NORTH ZONE ☐ SOUTH ZONE

KERMIT THE FROG
PROFESSIONAL LAND SURVEYOR

As Drilled Location Plat

NOTE: THIS SURVEY IS SUBJECT TO POSSIBLE VISIBLE AND NON-VISIBLE EASEMENTS



NOTE: THERE ARE NO DWELLINGS OR STRUCTURES LOCATED WITHIN 500' RADIUS OF ABOVE LOCATION.

STATE PLANE NORTH

WELL LOCATION PLAT

OPERATOR: JOE BALL, LLC
WELL NAME: SALTWATER DISPOSAL WELL No.1
SN 123456

LOCATION:
2238' F.N.L. AND 172' F.W.L. OF SECTION 26, TOWNSHIP 11 NORTH, RANGE 1 WEST, WINN PARISH, LOUISIANA.

LEGEND
- • = EXISTING WELL
- ○ = WATER WELL
- ◉ = LOCATION STAKE
- ✱ = P & A WELL

WELL COORDINATES:
LAT = 31°54'38.1" N
LONG = 092°26'55.4" W (NAD27)
LAT = 31°54'38.6" N
LONG = 092°26'55.9" W (NAD83)
X= 2015912.93
Y =452469.07 (STATE PLANE NAD27)
X=3296701.49
Y=513175.52 (STATE PLANE NAD83)
GROUND ELEVATION: 173.7 FEET NAVD 88
(COMPUTED USING GEIOD09)

SCALE: 1" = 500'
DATE: 10/30/2010
DRAWN: MISS PIGGY
FILE NAME: C:\CAD\98460-2

I KERMIT THE FROG, 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 ON THE 30th DAY OF OCTOBER, 2010. I HAVE PROPERLY EXAMINED THE SURVEY AND PLAT AND HAVE DETERMINED THAT IT MEETS THE MINIMUM STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF LOUISIANA.

STATE OF LOUISIANA
KERMIT THE FROG
REG. No. XYZ
REGISTERED PROFESSIONAL
LAND SURVEYOR

11-09-2010

Kermit the Frog

Attachment 2

Attachment 3 - Well History and Work Resume Reports (Form WH-1)

- A photocopy of each Well History and Work Resume Report (Form WH-1) that has previously been filed with the Office of Conservation for the well being converted must be labeled, **Attachment 3** and included as part of the Application.

OFFICE OF CONSERVATION
WELL HISTORY AND WORK RESUME REPORT

FIELD: • COLGRADE
SERIAL NUMBER: • **123456**
PRODUCING INTERVAL (INJECTION PERFORATIONS): • 5,080-5,130 & 5,150-5,170
RESERVOIR (INJECTION ZONE): 5100 FT SAND

Three type-written copies of this report must be filed with the District Office of the Office of Conservation in which the well is located within twenty (20) days of the date of completion. NOTE: If not properly completed and signed, this report will be returned.

CHECK APPROPRIATE BOXES: ☑ NEW WELL ☐ RECOMPLETION ☐ P & A
☐ 31 INACTIVE DRY HOLE FUT. UTIL. ☐ 32 INACTIVE DRY HOLE NO FUT. UTIL. ☐ 36 INACTIVE WAITING ON PIPELINE ☐ 37 INACTIVE WAITING ON MARKET
PRODUCT: ☑ OIL ☐ GAS ☐ OTHER
IF RECOMPLETION: ☐ SAME RESERVOIR ☐ DIFFERENT RESERVOIR
DATE COMP., RECOMP., OR P&A (MM/DD/YYYY): • **01/13/1999**

OPERATOR: • JOE BALL, LLC
CODE: • J123
ADDRESS (ADDRESS, CITY, STATE, ZIP CODE): • P.O. BOX 94275

WELL NAME: • OIL AND GAS WELL
WELL NO.: • 001

PARISH: • WINN
• SEC 026 TWP. 11N RGE. 01W
DATE PERMIT ISSUED (MM/DD/YYYY): • 11/04/1998

DATE SPUDDED: 11/10/1998
DATE READY TO PRODUCE*: 01/15/1999
TOTAL DEPTH (FT.): • 10,700
PBTD (FT.): • 10,381

GROUND ELEVATION (FT.): 51.0
CASING HEAD FLANGE ELEVATION (FT.): 51.0
DISTANCE FROM RKB TO CHF (FT.): 72.0

DATE WELL TURNED ON TANKS: 07/31/1983
SINGLE, DUAL, OR TRIPLE COMPLETION?: SINGLE
NOTE: IF THIS IS A MULTIPLE COMPLETION, FURNISH A SEPARATE REPORT FOR EACH COMPLETION.

WELL WAS DIRECTIONALLY DRILLED? ☐ YES ☑ NO
WAS DIRECTIONAL SURVEY MADE? ☑ YES ☐ NO
WERE 3 COPIES FILED WITH THE OFFICE OF CONSERVATION? ☑ YES ☐ NO
DATE FILED: 01/15/1999

TYPE OF ELECTRICAL OR OTHER LOGS RUN (CIRCLE LOGS FILED WITH OFFICE OF CONSERVATION): TRIPLE COMBO, CBL
DATE FILED: 01/15/1999

CASING, LINER AND TUBING RECORD

• CASING SIZE	HOLE SIZE	CASING WEIGHT	DEPTH SET FROM	DEPTH SET TO	SACKS OF CEMENT	TEST PRESSURE	HOURS UNDER PRESSURE	DATE TESTED (MM/DD/YYYY)	NAME OF TEST WITNESS- STATE IF CONSERVATION AGENT OR OFFSET OPERATOR
16		3/8"WT	0	84	DRIVEN	N/A	N/A		N/A
10-3/4	14-3/4	40.5	0	3500	2380	1000	.5	11/15/1998	W. HUDSON
7-5/8	9-7/8	29.7	0	10700	655	1013	.5	12/07/1998	W. HUDSON

TUBING SIZE: • 2-7/8	DEPTH OF TUBING (FT.): • 10145	DEPTH OF PACKER(S) (FT.): • 10100

INITIAL COMPLETION OR RE-COMPLETION DATA

INITIAL PRODUCTION	GAS VOLUME	GOR	CHOKE SIZE	PRODUCING METHOD
164 BOPD	2175 MCF/DAY	12261 CF/BBL	10 /64"	
FLOWING TUBING PRESSURE	**SHUT-IN TUBING PRESSURE**	**CASING PRESSURE**	**WATER PRODUCTION**	**BS&W**
6189 psig	7300 psig	825	179 BPD	52 %
GRAVITY	**BHP (SHUT-IN)**	**COMPANY REPRESENTATIVE**		**DATE GAUGED**
52.8 °API @ 60°F	8346 psig	JOE BALL, JR.		01/15/1999

PLUG AND ABANDON (P & A) DATA

CASING SIZE	AMOUNT PULLED	CEMENT PLUGS FROM	CEMENT PLUGS TO	CEMENT PLUGS SACKS	CEMENT PLUGS HOW PLACED	DATE WORK PERFORMED (MM/DD/YYYY)	NAME OF TEST WITNESS- STATE IF CONSERVATION AGENT OR OFFSET OPERATOR

• CERTIFICATE: I, the undersigned, state: That I am employed by JOE BALL, LLC and that I am authorized to make this report, and that this report was prepared under my supervision and direction and that all facts stated herein are true. correct and complete to the best of my knowledge.

• Signature: _____ • Title: OPERATOR

Attachment 3

• WORK RESUME

List below all work performed under Office of Conservation Work Permits while drilling and completing well.

WORK PERMIT NO.	DATE WORK PERFORMED (MM/DD/YYYY)	SERVICE COMPANY	DESCRIPTION OF WORK
32-11	11/10/1998	C & C	SPUD WELL. 16" 3/8" WT CASING DRIVEN TO REFUSAL. DRILLED TO 3520 FT. RAN TRIPLE COMBO LOGS. RAN 3500 FT OF 40.5#/FT 10 3/4" CASING AND CEMENTED WITH 2380 SACKS OF CLASS A CEMENT. YIELD 1.18 FT3/SACK.
	11/15/1998	C&C	PRESSURE TESTED TO 1000 PSI WITH NO PRESSURE DROP AFTER 30 MINUTES.
	12/6/1998	C&C	DRILLED TO 10700 FT. RAN 10700 FT OF 29.7# 7 5/8" CASING AND CEMENTED WITH 655 SACKS OF CLASS A CEMENT. YIELD 1.18 FT3/SACK. RAN CBL FROM TD TO SURFACE CASING SHOE.
	12/7/1998	C&C	PRESSURE TESTED TO 1013 PSI WITH NO PRESSURE DROP AFTER 72 HOURS.
	01/10/1999	C&C	PERFORATE FOR PRODUCTION FROM 10,208 - 10,212 FT
	01/11/1999	C&C	PERFORATE FOR PRODUCTION FROM 10,185 - 10,189 FT. SET PACKER AT 10,100 FT.
	01/13/1999	C&C	READY TO PRODUCE.

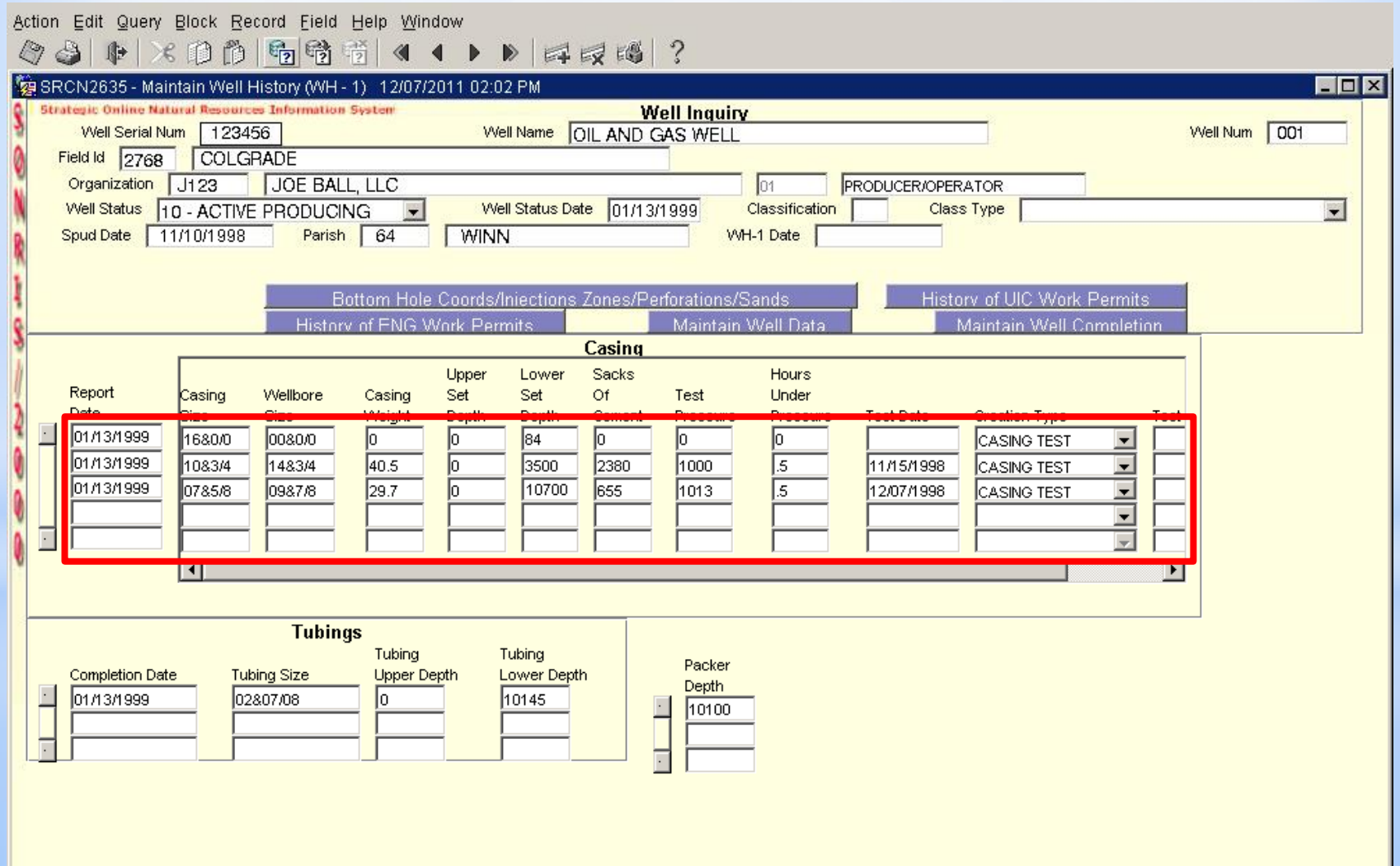
List below all important Paleofaunal or Geological Formation tops, Cap Rock and Salt Overhang bottoms.

FORMATION	DEPTH	FORMATION	DEPTH

Attachment 3

- If the well is currently constructed in a manner that is contradictory to information in SONRIS then the Well History Reports, driller‘s logs, cement tickets or other information substantiating the well‘s current configuration should be included in the Application.

- The Current Wellbore Schematic, **Attachment 4A** must reflect information in SONRIS and previous WH-1s.



In this Example, casing information from the WH-1

CASING, LINER AND TUBING RECORD

CASING SIZE	HOLE SIZE	CASING WEIGHT	DEPTH SET FROM	DEPTH SET TO	SACKS OF CEMENT	TEST PRESSURE	HOURS UNDER PRESSURE	DATE TESTED (MM/DD/YYYY)	NAME OF TEST WITNESS- STATE IF CONSERVATION AGENT OR OFFSET OPERATOR
16		3/8"WT	0	84	DRIVEN	N/A	N/A		N/A
10-3/4	14-3/4	40.5	0	3500	2380	1000	.5	11/15/1998	W. HUDSON
7-5/8	9-7/8	29.7	0	10700	655	1013	.5	12/07/1998	W. HUDSON

matches information found in SONRIS

Casing

Report Date	Casing Size	Wellbore Size	Casing Weight	Upper Set Depth	Lower Set Depth	Sacks Of Cement	Test Pressure	Hours Under Pressure	Test Date	Creation Type	Test
01/13/1999	16&0/0	00&0/0	0	0	84	0	0	0		CASING TEST	
01/13/1999	10&3/4	14&3/4	40.5	0	3500	2380	1000	.5	11/15/1998	CASING TEST	
01/13/1999	07&5/8	09&7/8	29.7	0	10700	655	1013	.5	12/07/1998	CASING TEST	

Attachment 4 - Wellhead Diagram, Well Schematic(s) and Work Prognosis

The application must include the following:

- Attachment 4A - Current Wellbore Schematic
- Attachment 4B - Wellhead Diagram
- Attachment 4C - Proposed Wellbore Schematic and
- Attachment 4D - Work Prognosis

Current Wellbore Schematic
(Attachment 4A)

- This schematic should reflect the current configuration of the well including all sidetracks.

- It must also reflect information reported on all Well History and Work Resume Reports (Form WH-1) included as part of **Attachment 3** of this Application, driller‘s logs, cement tickets or other information substantiating the well‘s current configuration.

- Ensure that all information provided on the schematic corresponds to information found in SONRIS.

- If the well was drilled horizontally, please indicate it as such on the existing wellbore schematic.

The Current Wellbore Schematic **(Attachment 4A)** should include the following:

1. **All casing strings:**
   Diameter, Weight (per foot), Depth set (top and bottom)

2. **Hole (drill bit) diameters**

3. **Cement Specifications:**
   Type or Class, Yield (cu.ft/sack), Number of sacks, Top of cement in each string of casing.

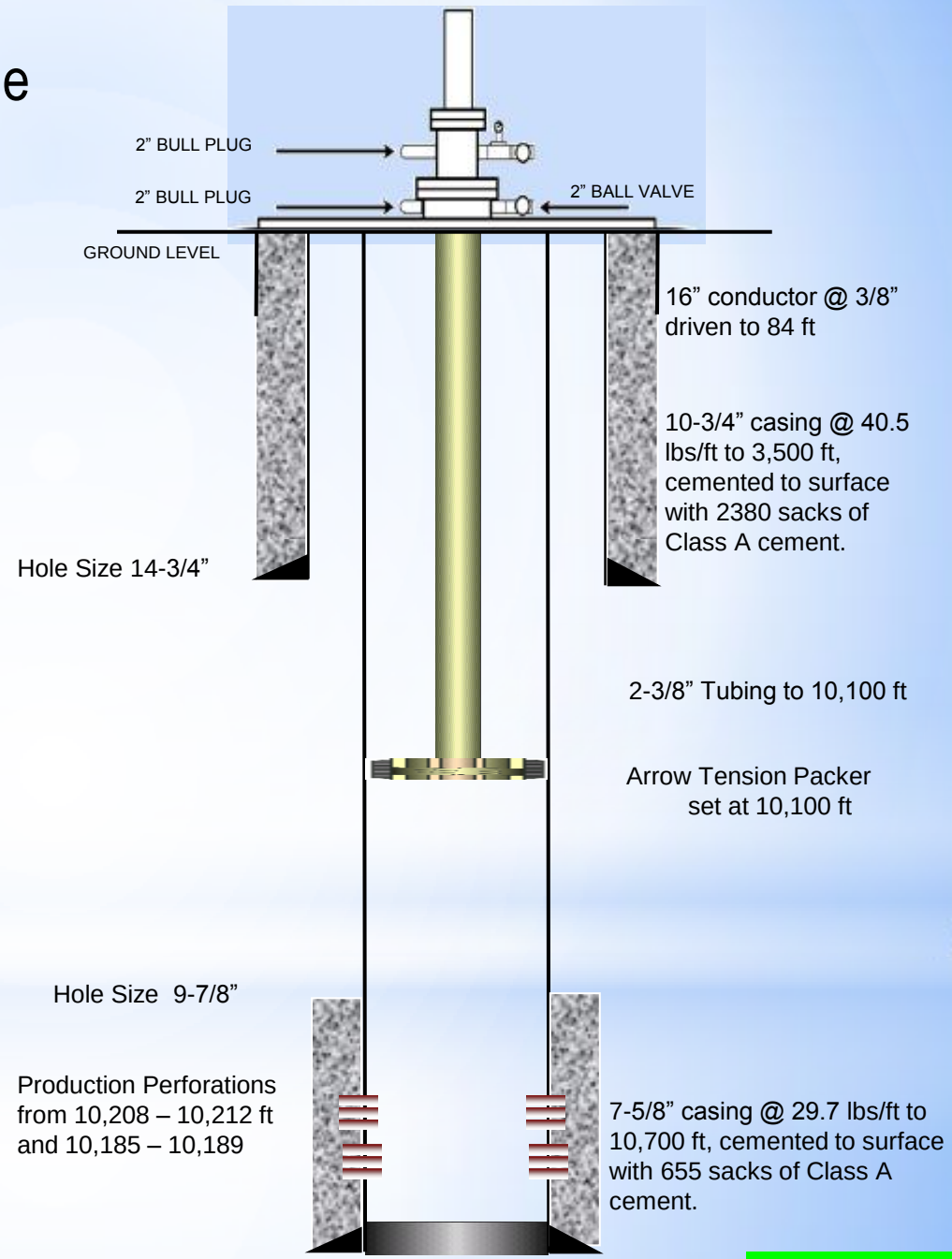
4. **Existing cement squeeze(s), if any:**
   Type or class, Yield (cu.ft/sack), Number of sacks, Top of cement.

5. **Tubing:**
   Diameter, Type or material, Top and bottom Depths

6. **Packer:**
   Type, Depth set

7. **Existing production perforated, open-hole, or screened interval:**
   Top, Bottom

8. **Depths:**
   Total Depth, Plugged-back depth



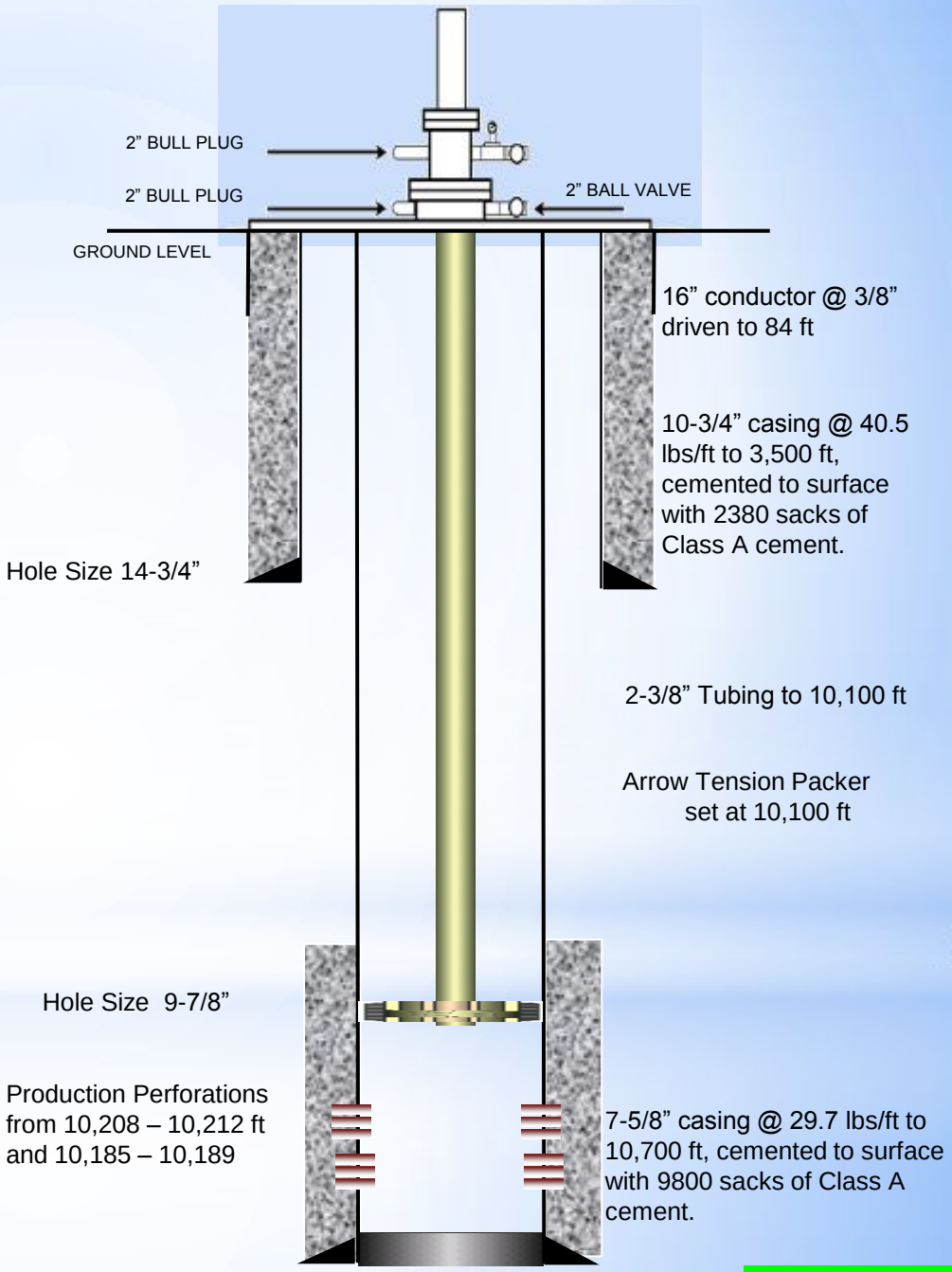
Attachment 4A

Proposed Wellhead Schematic
(Attachment 4B)

This schematic should, at a minimum, include the following surface equipment:

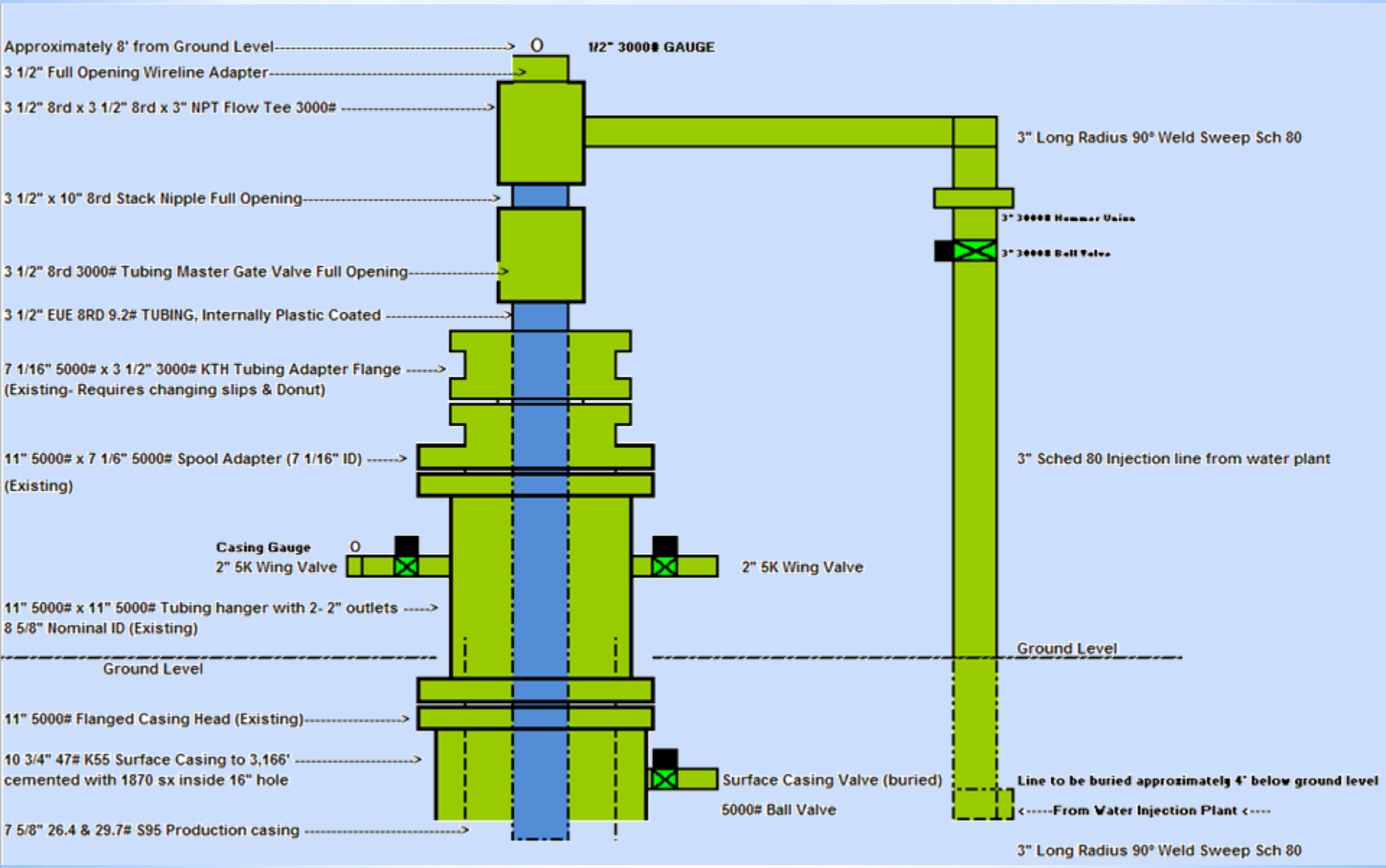
1. Well head
2. Pressure gauges
3. Flow line diameters at wellhead
4. Monitoring equipment, if used

The Wellhead Schematic, **Attachment 4B** and the Proposed Schematic, **Attachment 4C** can be combined if both are legible, otherwise a separate schematic should be submitted.



Attachment 4B

Sample Wellhead Schematic (shown as a separate attachment)
(Attachment 4B)



Attachment 4B

Proposed Wellbore Schematic
(Attachment 4C)

- **Proposed** Wellbore Schematic should include all of the details provided in the ***—Proposed*** *Well Construction Information* section of the Application Item numbers **23 – 38**.

23. CASING SIZE (IN.)	24. HOLE SIZE (IN.)	25. CASING WEIGHT	26. DEPTH SET		27. SACKS CEMENT	28. YIELD CU.FT/SACK	29. TOP OF CEMENT DEPTH *(Indicate if the depth is from a CBL or Calculated)*
			TOP (FT.)	BOTTOM (FT.)			
16	N/A	3/8"WT	0	84	DRIVEN	N/A	N/A
10-3/4	14-3/4	40.5#/FT	0	3500	2,380	1.18	SURFACE
7-5/8	9-7/8	29.7#/FT	0	10,700	655	1.18	SURFACE

30. TUBING TYPE	31. TUBING SIZE (IN.)	32. TUBING DEPTH (FT.)
☒ STEEL ☐ OTHER (IDENTIFY):	4-1/2"	4,100

33. PACKER	34. MAKE	35. MODEL	36. DEPTH SET (FT.)
☒ TENSIONAL ☐ PERMANENT ☐ COMPRESSIONAL	ARROW	G	4,100

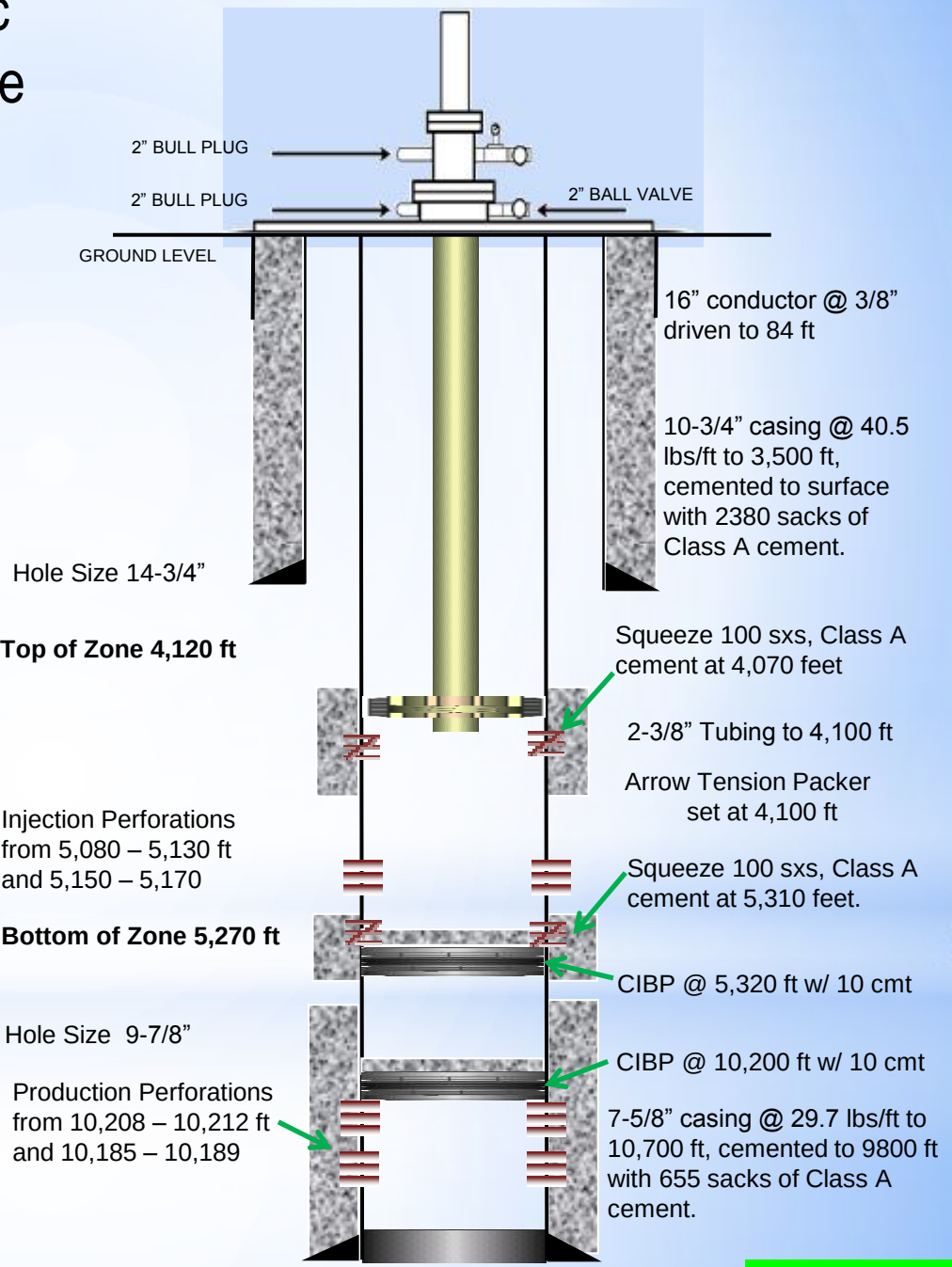
37. PLUGGED-BACK DEPTH (FT.)	38. TOTAL DEPTH OF WELL (FT.)
5,310	10,700

- If the well was drilled horizontally, please indicate it as such on the proposed wellbore schematic.

- Ensure that all information provided on the Proposed Wellbore Schematic reflects the current wellbore configuration as well as the proposed method to convert the well ensuring that details on the schematic correlates to the procedure outlined in the Work Prognosis, **Attachment 4D**.

The Proposed Wellbore Schematic **(Attachment 4C)** should include the following:

1. **All casing strings (including any proposed new strings of casing):**
   Diameter, Weight (per foot), Depth set (top and bottom)
2. **Hole (drill bit) diameters**
3. **Cement Specifications:**
   Type or Class, Yield (cu.ft/sack), Number of sacks, Top of cement in each string of casing (Indicate whether calculated, logged, or to be logged)
4. **Proposed plugging procedure***:*
   Of the abandoned producing interval and isolating the proposed injection zone
5. **Proposed cement squeeze(s), if any:**
   Type or Class, Yield (cu.ft/sack), Number of sacks, Top of cement (Indicate whether calculated or logged)
6. **Injection tubing:**
   Diameter, Type or material, Top and bottom Depths
7. **Packer:**
   Type, Depth set
8. **Proposed injection zone:**
   Top, Bottom
9. **Proposed initial perforated, open-hole, *or screened interval:***
   Top, Bottom
10. **Depths:**
    Total Depth, Plugged-back depth

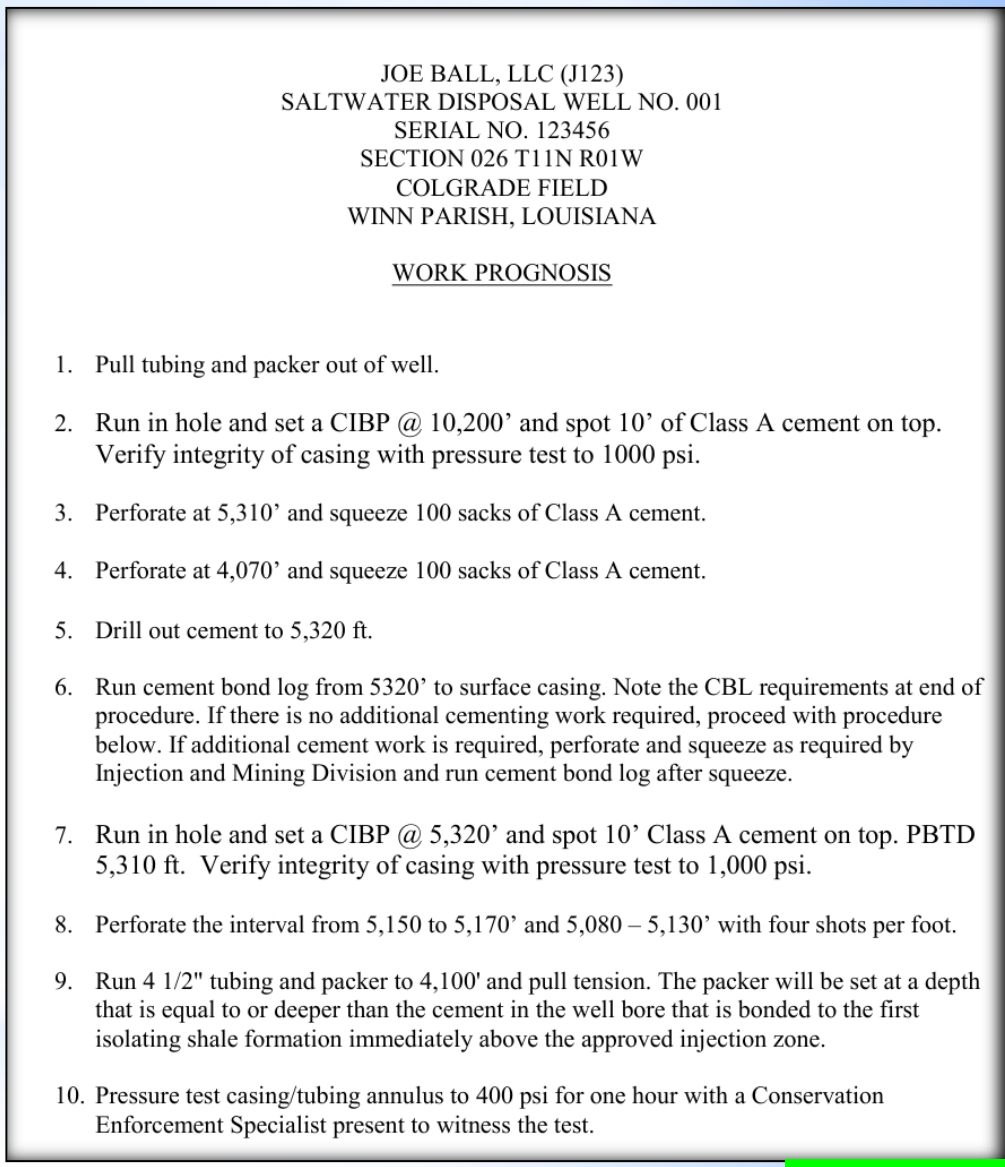


Attachment 4C

Work Prognosis **(Attachment 4D)**

The Work Prognosis should describe the sequence of work to be performed and include (but is not limited to) the following:

1. running any required Electric Logs (e-logs) for sidetracks, deepening the well, etc.
2. Sufficient plugs must be used to adequately isolate each perforated producing pool from one another.
3. Any new string of casing or liner that is cemented in an existing well must be pressure tested before drilling out the casing shoe and reported on the Affidavit of Test of Casing in Well (Form-CSG T).
4. Prove Isolation of the Proposed Injection Zone, ie block squeeze and run a CBL.
5. Perforating the Proposed Injection Zone
6. The packer must be set at a depth that is deeper than the cement in the wellbore that is bonded to the first confining shale formation immediately above the proposed injection zone.
7. A Mechanical Integrity Pressure Test (MIPT) must be performed under the supervision of the appropriate Conservation Enforcement Specialist (CES).
8. If required—an inspector-witnessed Static Fluid Level (SFL), or running a Radioactive Tracer Survey (RTS), Temperature Log or similar log capable of detecting fluid movement between the well casing and borehole.
9. If an injectivity test is to be performed, indicate how much water will be injected, duration of the test and test pressure.

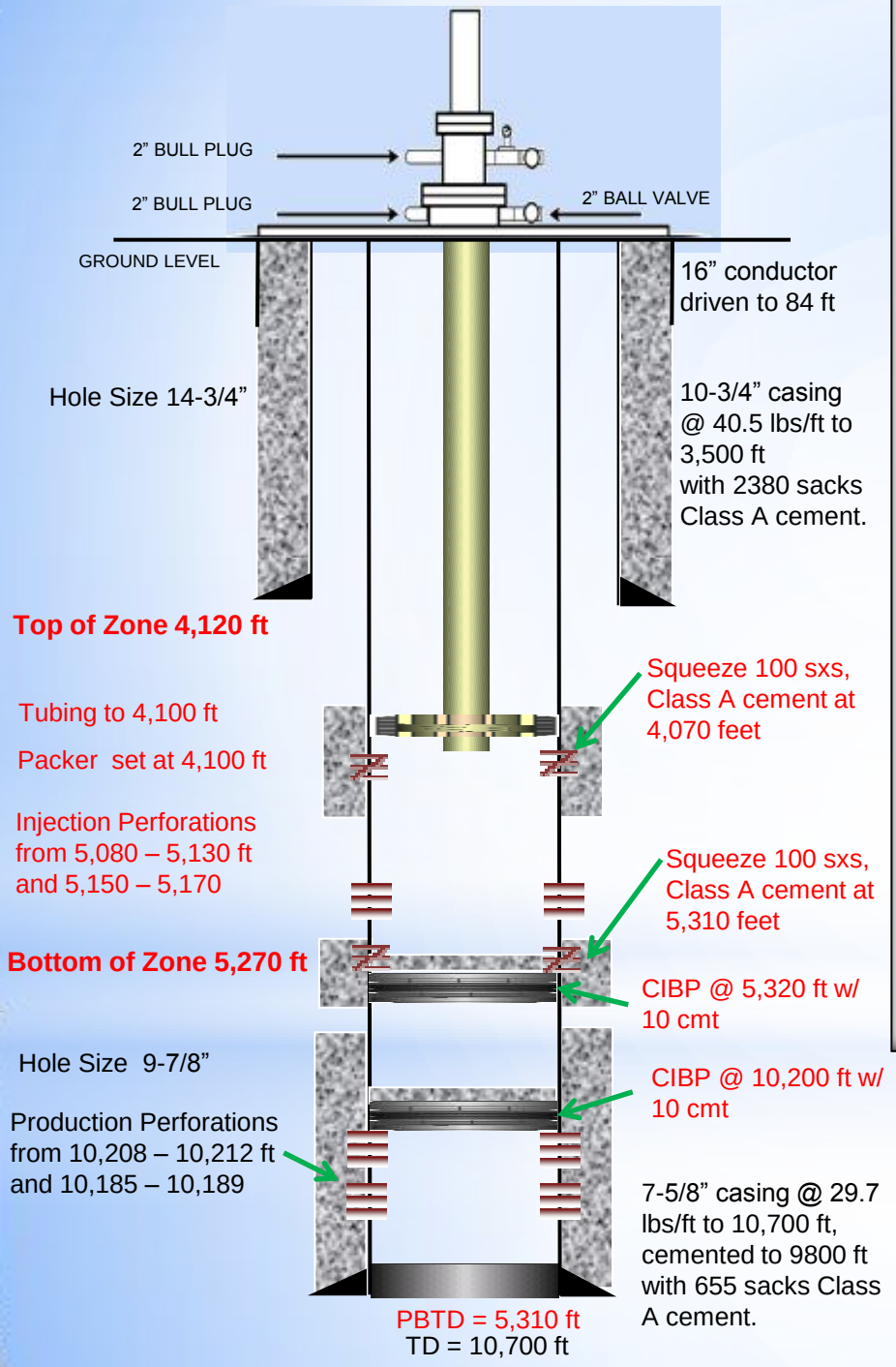


JOE BALL, LLC (J123)
SALTWATER DISPOSAL WELL NO. 001
SERIAL NO. 123456
SECTION 026 T11N R01W
COLGRADE FIELD
WINN PARISH, LOUISIANA

WORK PROGNOSIS

1. Pull tubing and packer out of well.
2. Run in hole and set a CIBP @ 10,200’ and spot 10’ of Class A cement on top. Verify integrity of casing with pressure test to 1000 psi.
3. Perforate at 5,310’ and squeeze 100 sacks of Class A cement.
4. Perforate at 4,070’ and squeeze 100 sacks of Class A cement.
5. Drill out cement to 5,320 ft.
6. Run cement bond log from 5320’ to surface casing. Note the CBL requirements at end of procedure. If there is no additional cementing work required, proceed with procedure below. If additional cement work is required, perforate and squeeze as required by Injection and Mining Division and run cement bond log after squeeze.
7. Run in hole and set a CIBP @ 5,320’ and spot 10’ Class A cement on top. PBTD 5,310 ft. Verify integrity of casing with pressure test to 1,000 psi.
8. Perforate the interval from 5,150 to 5,170’ and 5,080 – 5,130’ with four shots per foot.
9. Run 4 1/2" tubing and packer to 4,100' and pull tension. The packer will be set at a depth that is equal to or deeper than the cement in the well bore that is bonded to the first isolating shale formation immediately above the approved injection zone.
10. Pressure test casing/tubing annulus to 400 psi for one hour with a Conservation Enforcement Specialist present to witness the test.

Attachment 4D



JOE BALL, LLC (J123)
SALTWATER DISPOSAL WELL NO. 001
SERIAL NO. 123456
SECTION 026 T11N R01W
COLGRADE FIELD
WINN PARISH, LOUISIANA

WORK PROGNOSIS

1. Pull tubing and packer out of well.
2. Run in hole and set a CIBP @ 10,200' and spot 10' of Class A cement on top. Verify integrity of casing with pressure test to 1000 psi.
3. Perforate at 5,310' and squeeze 100 sacks of Class A cement.
4. Perforate at 4,070' and squeeze 100 sacks of Class A cement.
5. Drill out cement to 5,320 ft.
6. Run cement bond log from 5320' to surface casing. Note the CBL requirements at end of procedure. If there is no additional cementing work required, proceed with procedure below. If additional cement work is required, perforate and squeeze as required by Injection and Mining Division and run cement bond log after squeeze.
7. Run in hole and set a CIBP @ 5,320' and spot 10' Class A cement on top. PBTD 5,310 ft. Verify integrity of casing with pressure test to 1,000 psi.
8. Perforate the interval from 5,150 to 5,170' and 5,080 – 5,130' with four shots per foot.
9. Run 4 1/2" tubing and packer to 4,100' and pull tension. The packer will be set at a depth that is equal to or deeper than the cement in the well bore that is bonded to the first isolating shale formation immediately above the approved injection zone.
10. Pressure test casing/tubing annulus to 400 psi for one hour with a Conservation Enforcement Specialist present to witness the test.

How to properly plug back the well

- **A Cement plug of at least 100 feet** placed no higher than 50 feet above the uppermost perforated interval as long as at least 100 feet of cement extends above the uppermost perforation; or
- **A Bridge plug with at least 10 feet of cement** on top placed no higher than 50 feet above the uppermost perforated interval; or
- **A Cement retainer with at least 20 feet of cement** on top placed no higher than 50 feet above the uppermost perforated interval.

Proposed Injection Interval Information

Items 39 – 42

PROPOSED INJECTION INTERVAL INFORMATION *The information in boxes 39 & 42 should come from the electric log of the well to be permitted or the closest offset well that was logged across the proposed injection zone. If the top and bottom of the zone are not shown on the same log, two different logs can be used. Copies of the log(s) must be attached and labeled as Attachment 5B.*	
39. INJECTION ZONE (FT) TOP BOTTOM	**40. PERFORATED/OPEN-HOLE INTERVAL WITHIN ZONE (FT)** TOP BOTTOM
41. INJECTION FORMATION NAME	**42. INJECTION THROUGH:** ☐ PERFORATIONS ☐ SCREEN ☐ OPEN-HOLE

This Section should match information marked on **Attachment 5B** and consists of:

- Top and bottom of the proposed injection zone

  <u>Injection Zone definition:</u> a geological formation, group of formations or part of a formation receiving fluids through a well..

- Top and bottom of the proposed injection interval

  <u>Injection Interval definition:</u> the part of the injection zone in which the well is screened, or in which the waste is otherwise directly emplaced. (It may also be referred to as the perforated interval, open-hole interval or screened interval).

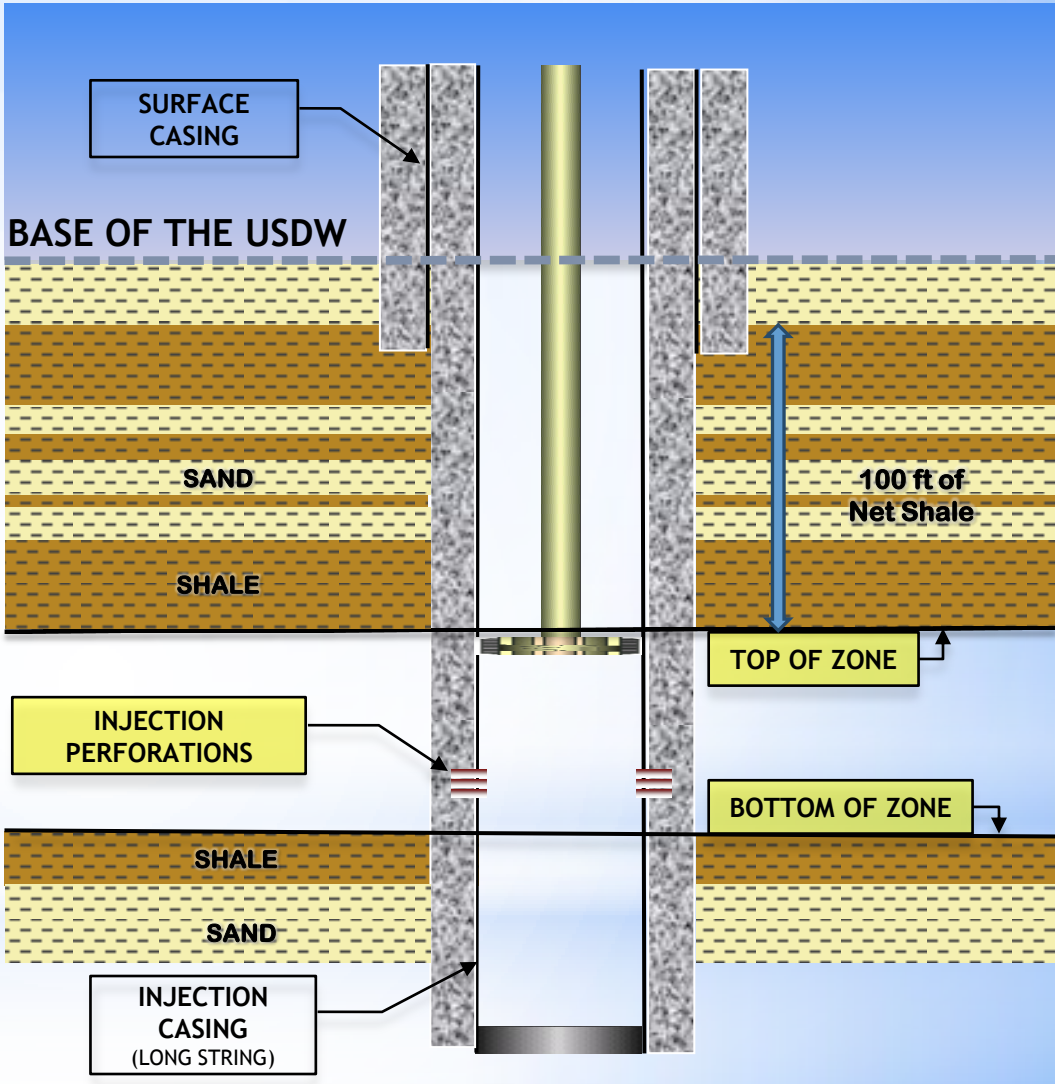
- Injection Formation Name
- Proposed Method of Injection

Rules of Thumb for Establishing the Proposed Injection Zone

- 100 feet of net shale must exist between the top of the proposed injection zone and the base of the USDW.
- 100 feet of net shale must exist between the proposed injection zone and any productive intervals.
- A sufficient shale must confine the top and bottom of the proposed injection zone. As a rule of thumb, IMD defines a sufficient shale as approximately 30 feet thick.
- Multiple sands can be permitted
  - ❖ The proposed injection zone may contain more than one sand unit, provided that the base of the USDW and productive intervals are isolated.
  - ❖ Permitting a zone of multiple sand units will allow for future perforations within the permitted injection zone by only applying for a Work Permit (Form UIC-17).

Establishing the Proposed Injection Zone

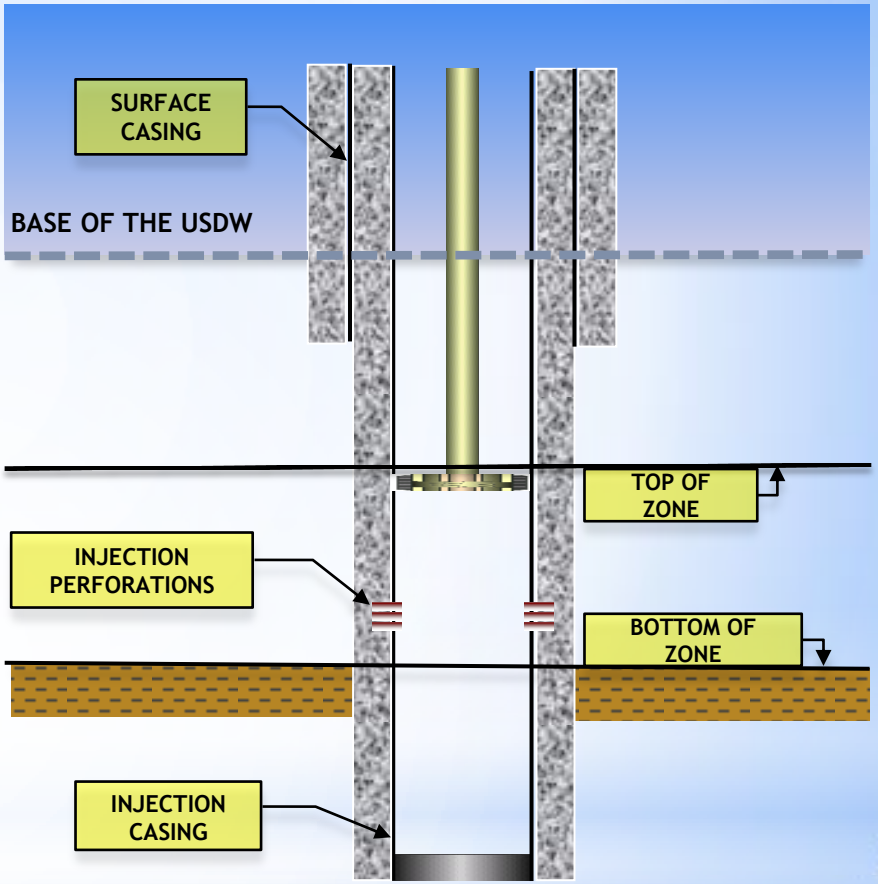
- Establish the base of the USDW.
- Select a proposed top and bottom of zone with sufficient confining shales.
- Check for 100 feet of net shale separation between the base of the USDW and the top of the proposed zone.
- Check for 100 feet of net shale separation from productive intervals.



Review of Interpreting an Underground Source of Drinking Water (USDW) on Electric Logs

USDW means an aquifer or its portion:

1. which supplies any public water system; or
2. which contains a sufficient quantity of ground water to supply a public water system; and
   a) currently supplies drinking water for human consumption; or
   b) contains fewer than 10,000 mg/l total dissolved solids; and
3. which is not an exempted aquifer.

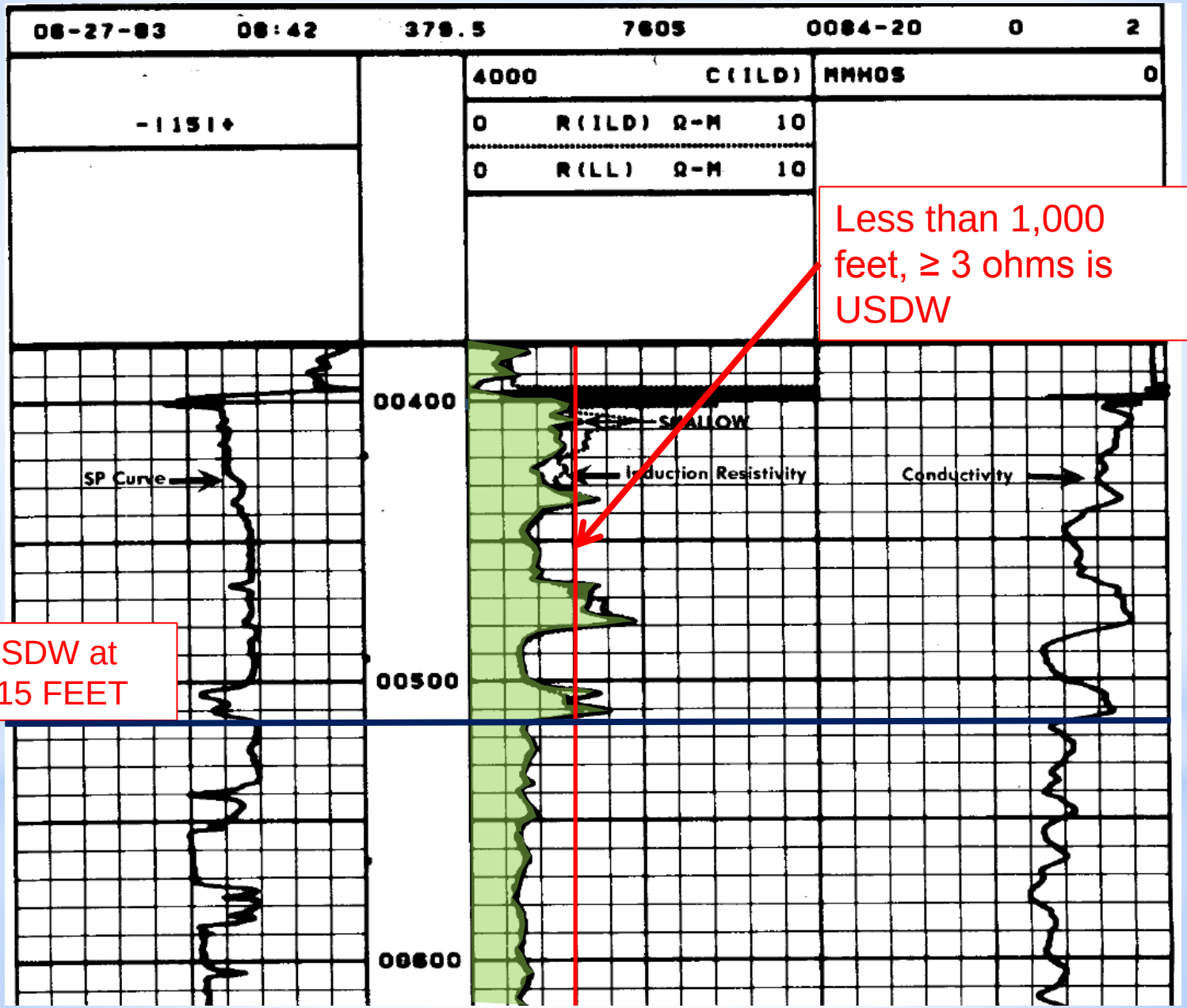


The base of the USDW can be determined from the deep induction curve, generally the dotted curve, on the e-log. Resistivity changes with temperature and depth, therefore the guidelines below are used to approximate the lowermost USDW in sands at the following depths:

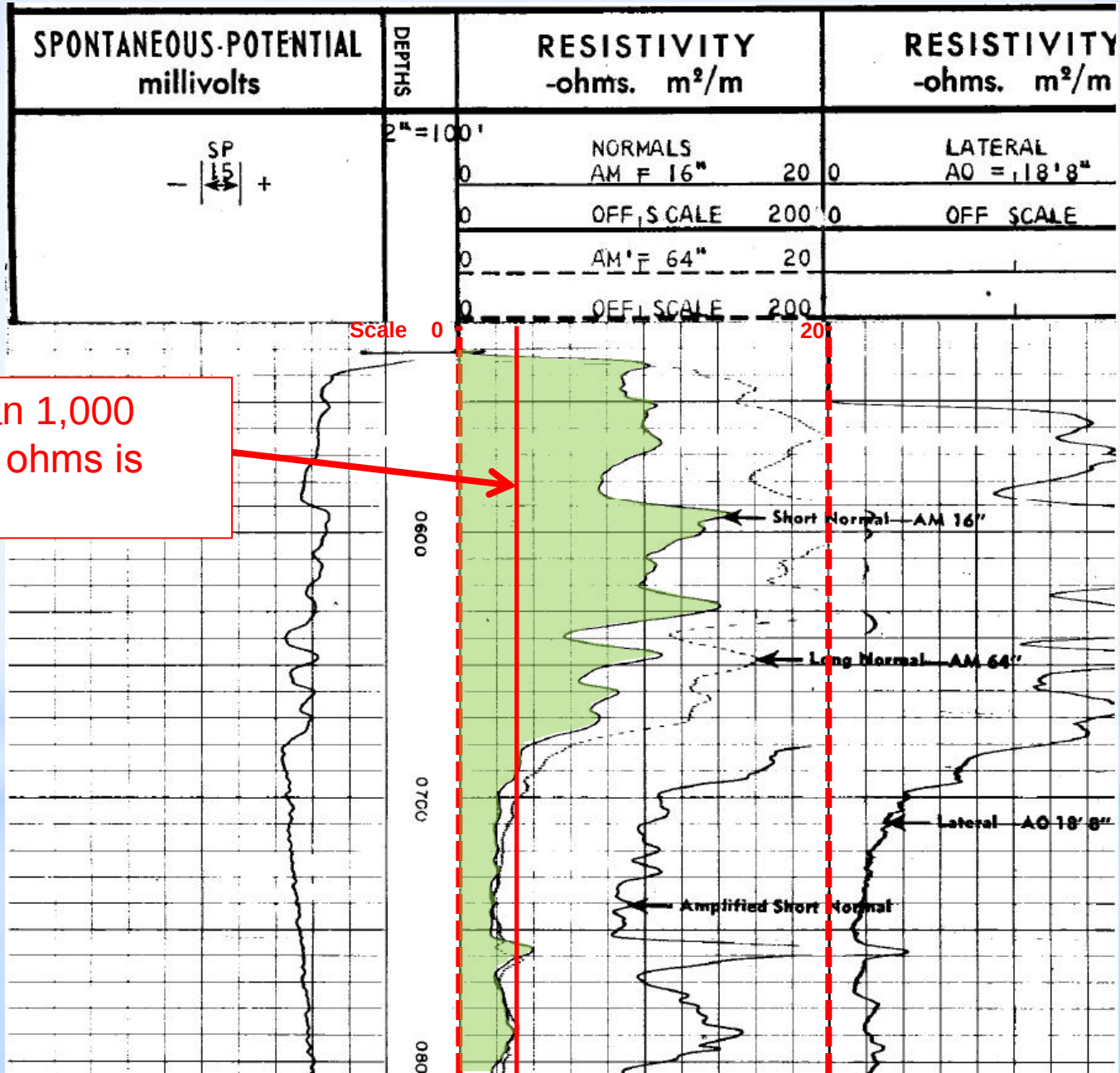
1. **Ground surface to 1,000 feet: 3 ohms or higher is considered USDW;**
2. **1,000 feet to 2,000 feet: 2 ½ ohms or higher is considered USDW; and**
3. **2,000 feet and deeper: 2 ohms or higher is considered USDW.**

***Remember:** The base of the USDW is typically established at the base of the sand unit that contains the lowermost USDW. Clay or shale intervals with resistivities higher than those listed above are not considered USDW.

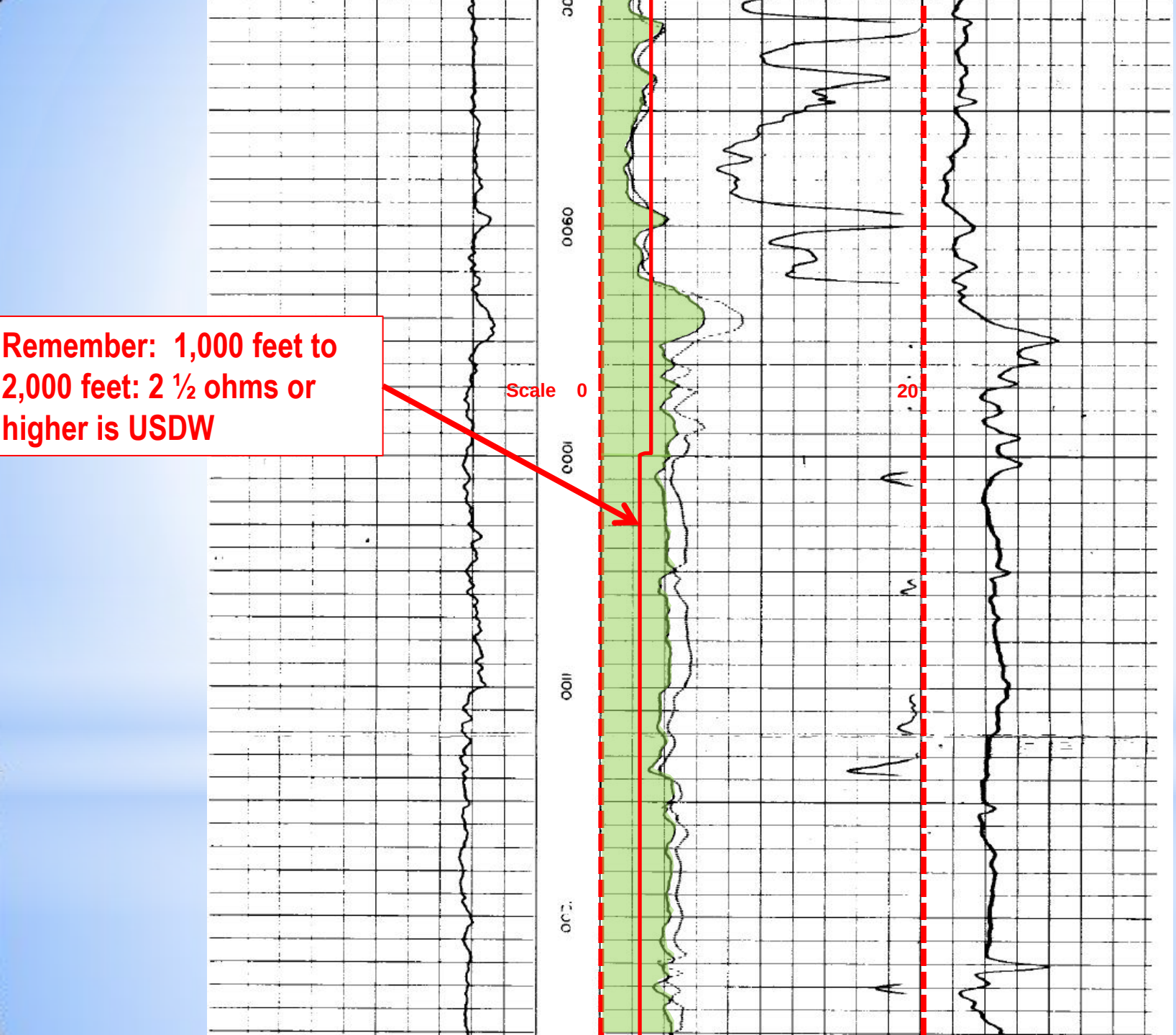
Exercises in Determining USDW on Electric Logs – **Example #1**

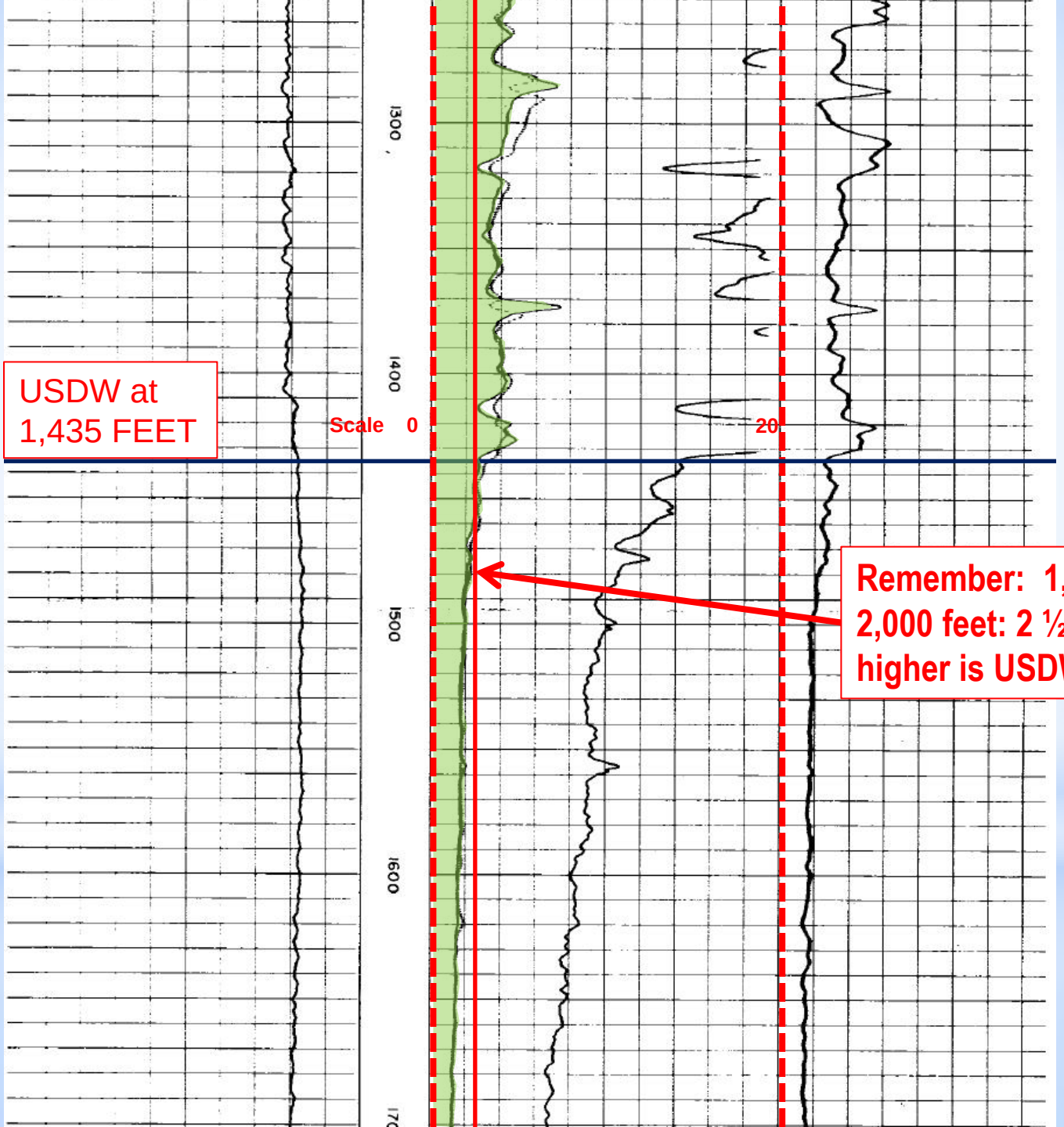


Determining USDW on Electric Logs – **Example #2**



Less than 1,000 feet, ≥ 3 ohms is USDW


Remember: 1,000 feet to 2,000 feet: 2 ½ ohms or higher is USDW
Scale 0
20
900
1000
1100

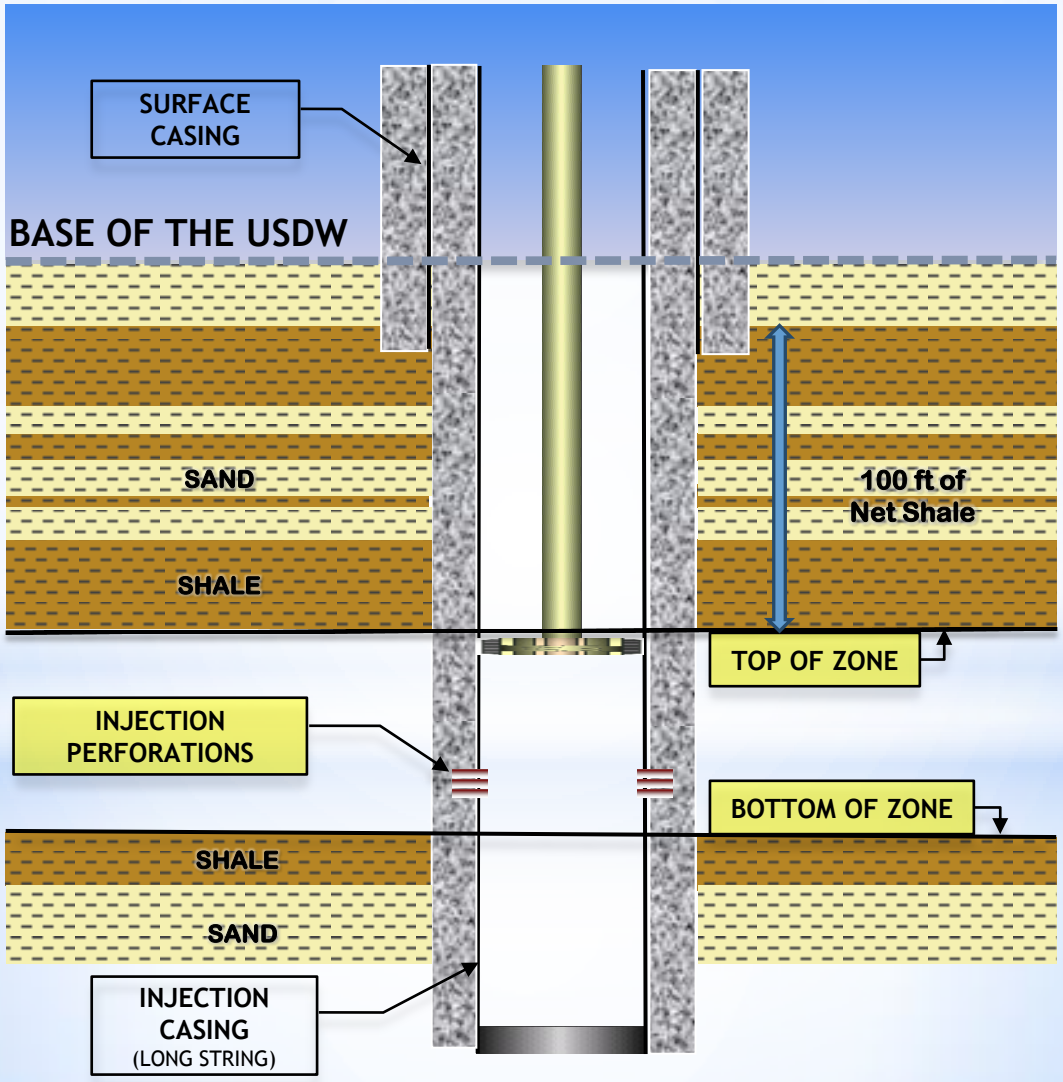

USDW at
1,435 FEET
Scale 0
20
1300
1400
1500
1600
Remember: 1,000 feet to 2,000 feet: 2 ½ ohms or higher is USDW

If the log of the well proposed for conversion shows the base of the USDW, mark the depth of the base of the USDW on the log and label the log as **Attachment 5A**.

If the e-log of the proposed well does not show the base of the USDW, then the applicant should expand the search to the e-logs of the closest wells to the proposed well until an e-log is located that shows the base of the USDW. Once an e-log is found, mark the depth of the base of the USDW and label the log as **Attachment 5A** and include as part of the Application.

Determining the Proposed Injection Interval

Applicants should conduct a search of available e-logs in the project area to identify the closest well with an e-log that shows the top and bottom of the proposed injection zone.



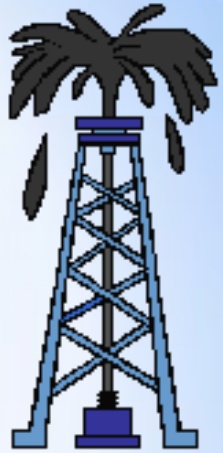
Begin by looking at the log of the well proposed for conversion. If the log of the well proposed for conversion shows the proposed injection zone, mark the depths of the top and bottom of the proposed injection zone on the log and label it as **Attachment 5B.**

If the e-log of the proposed well does not show the top and bottom of the proposed injection zone, then the applicant should expand the search to the e-logs of the closest wells to the proposed well until an e-log is located that shows the proposed injection zone.

It may be necessary to submit more than one e-log to show both the top and bottom of the proposed injection zone, if both do not occur on the same log. One e-log may show the top of the injection zone, but not the bottom; and, another e-log may show the bottom of the proposed injection zone, but not the top.

If more than one log is required to be submitted, mark the depth of the top or bottom of the proposed injection zone and the proposed completion interval (initial perforations, screen or open hole). Label the log(s) as **Attachment 5B** and include them as part of the Application.

Productive Interval Search



- Why is this needed? Injection into a productive zone is prohibited unless authorized by the Commissioner per LAC 43:XIX.303.D

- An injection zone of multiple sands may be permitted provided that the sands capable of hydrocarbon production are isolated. Please conduct a **one-mile** radius search from the proposed well location to locate productive wells.

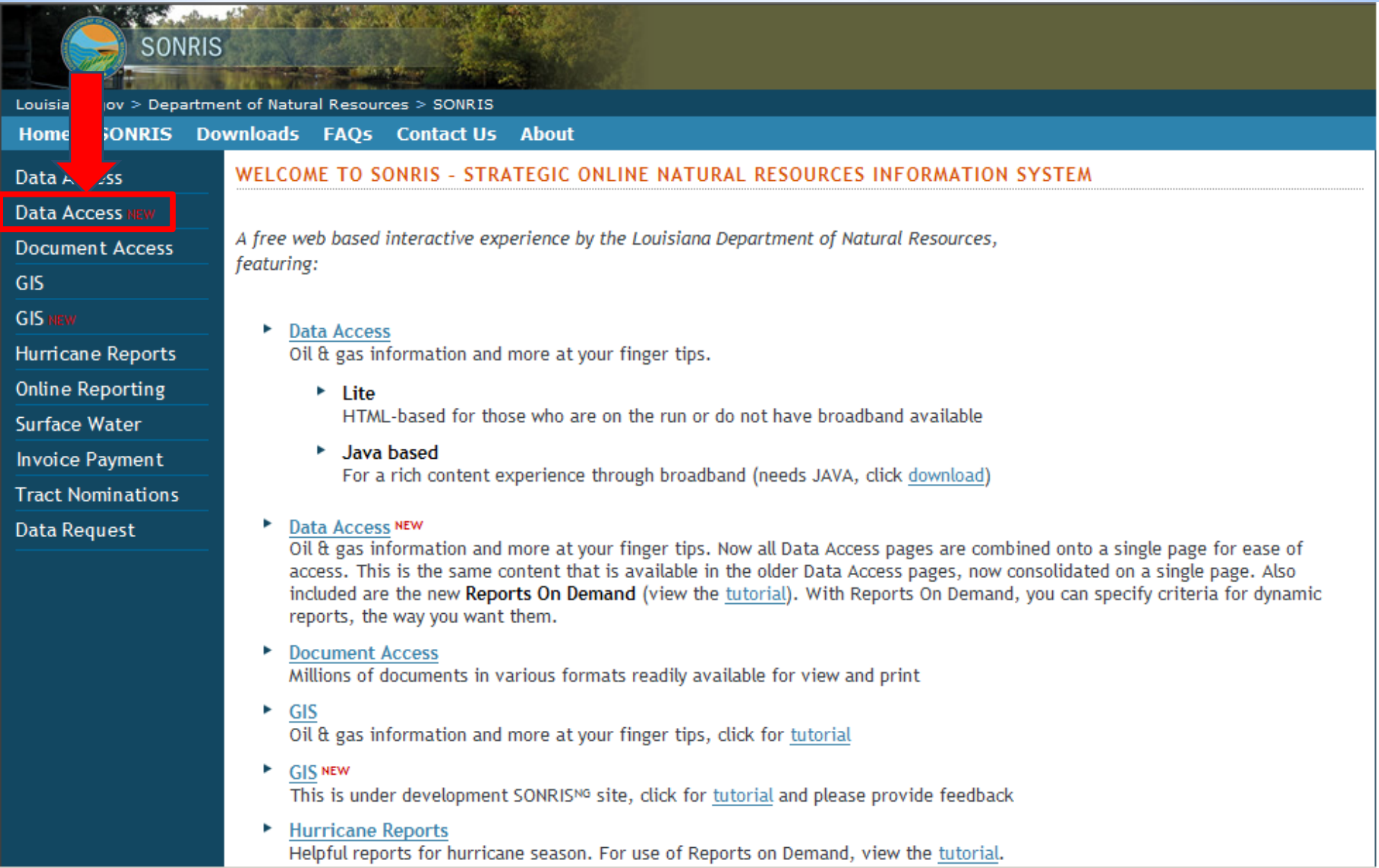
- If productive wells are located within a one-mile radius, evidence of at least **100 feet** of net shale between the proposed injection zone and any productive intervals must be provided.

Steps to conduct a Productive Interval Search

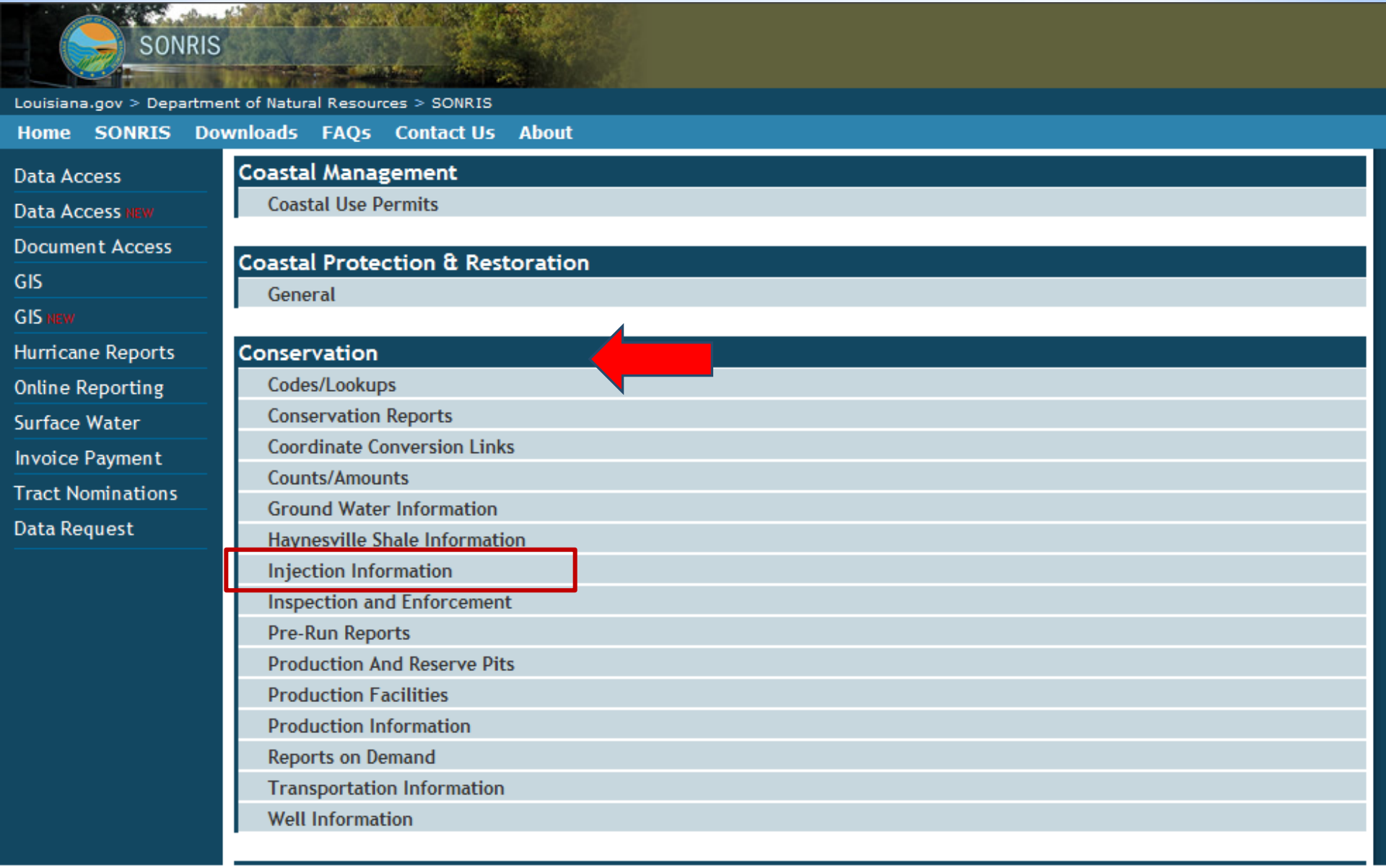
Step 1: Go to the DNR homepage at http://dnr.louisiana.gov/

Step 2: Select the SONRIS button

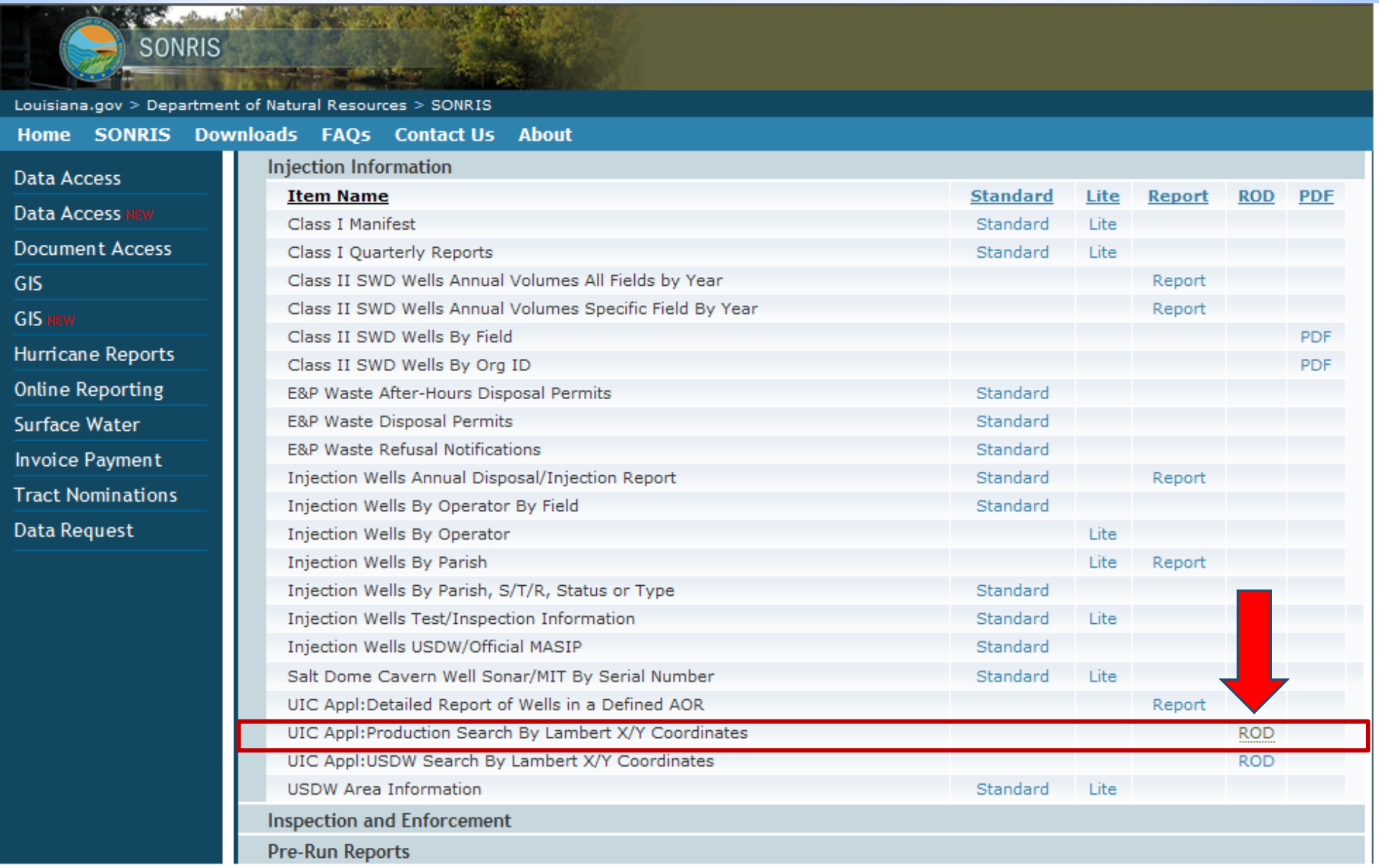
Step 3: Select the Data Access New button



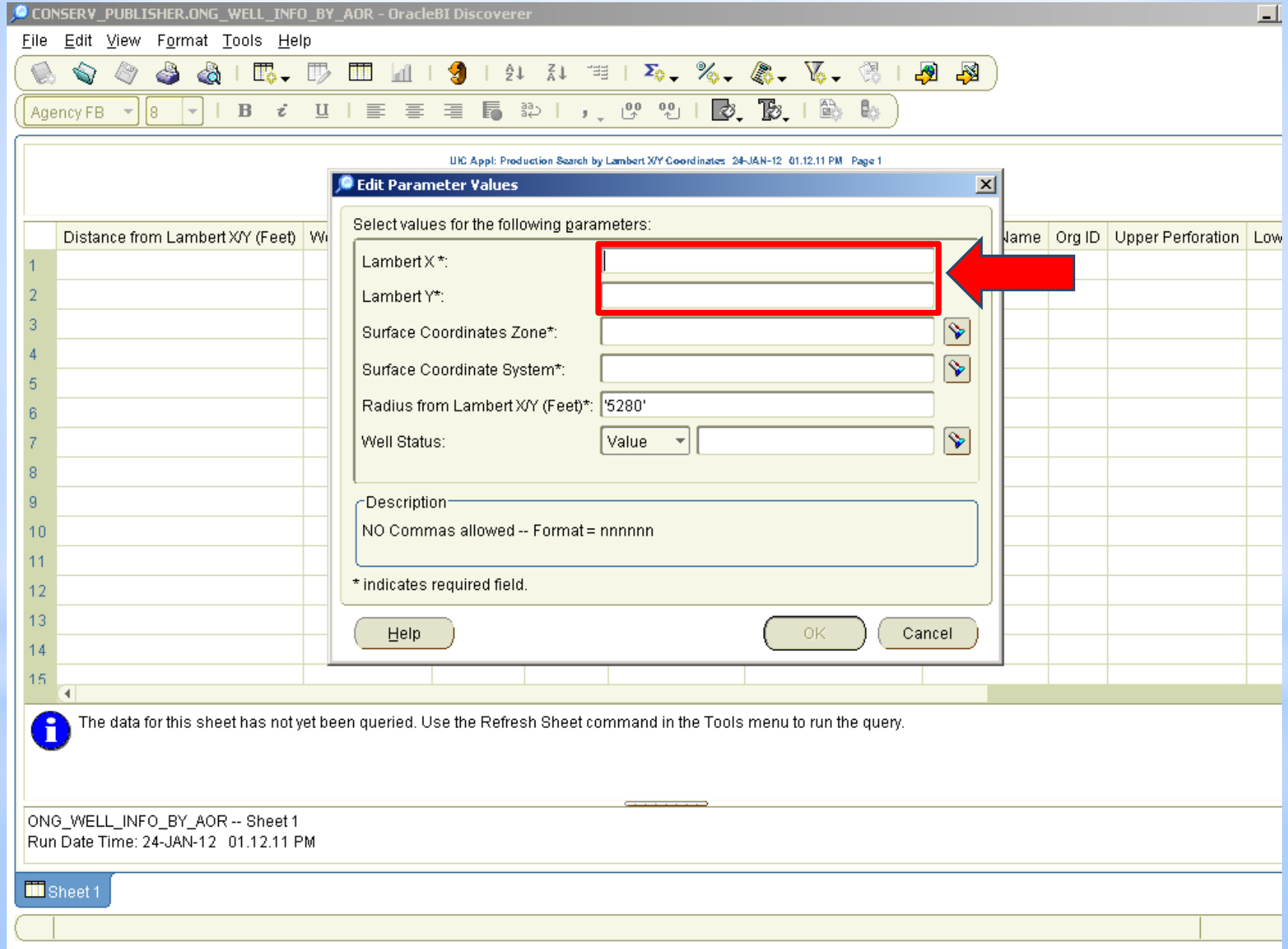
Step 4: Under the Conservation tab, select Injection Information



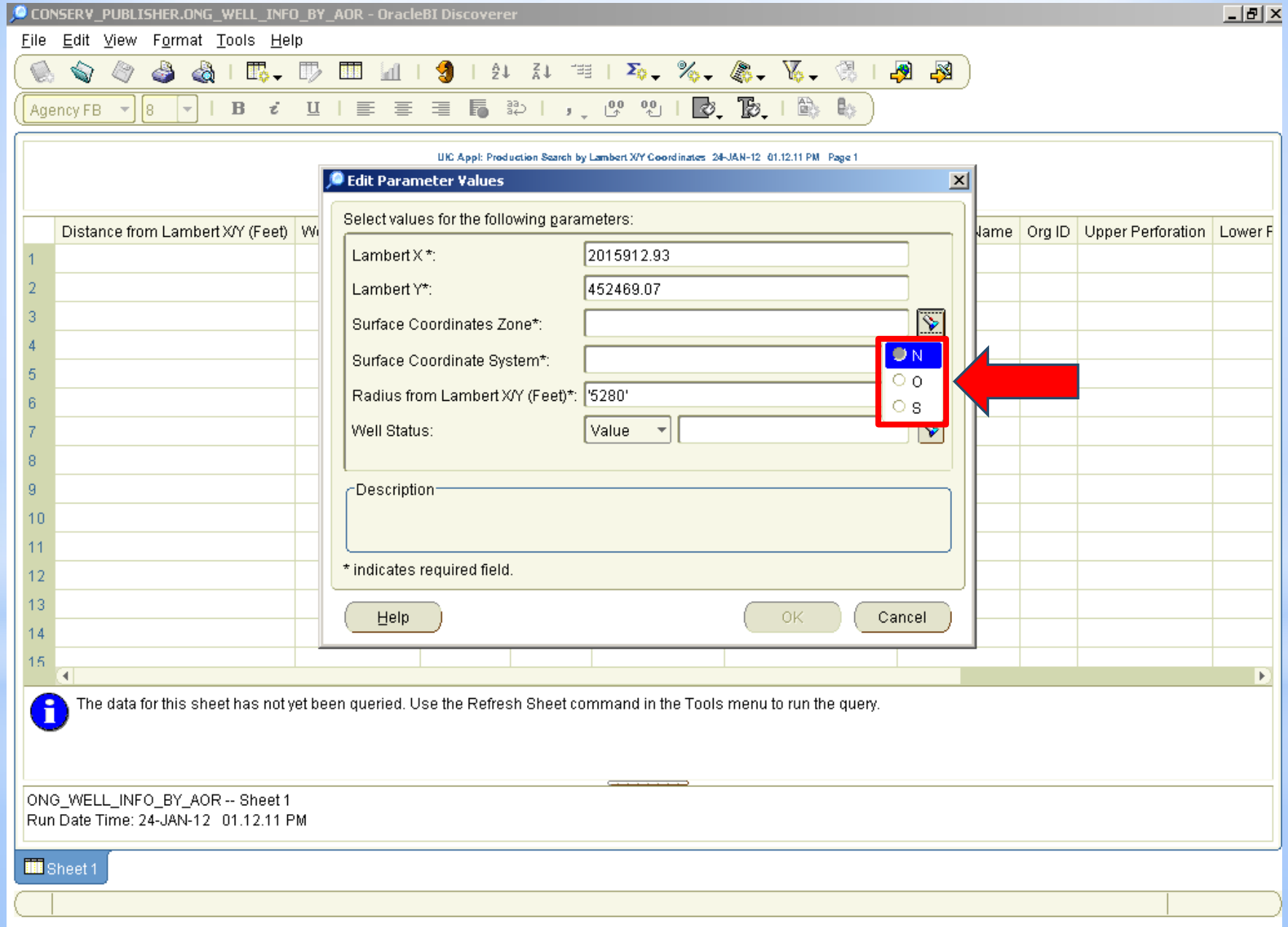
Step 5: Scroll down to UIC Appl: Production Search By Lambert X/Y Coordinates & select Reports on Demand (ROD) link



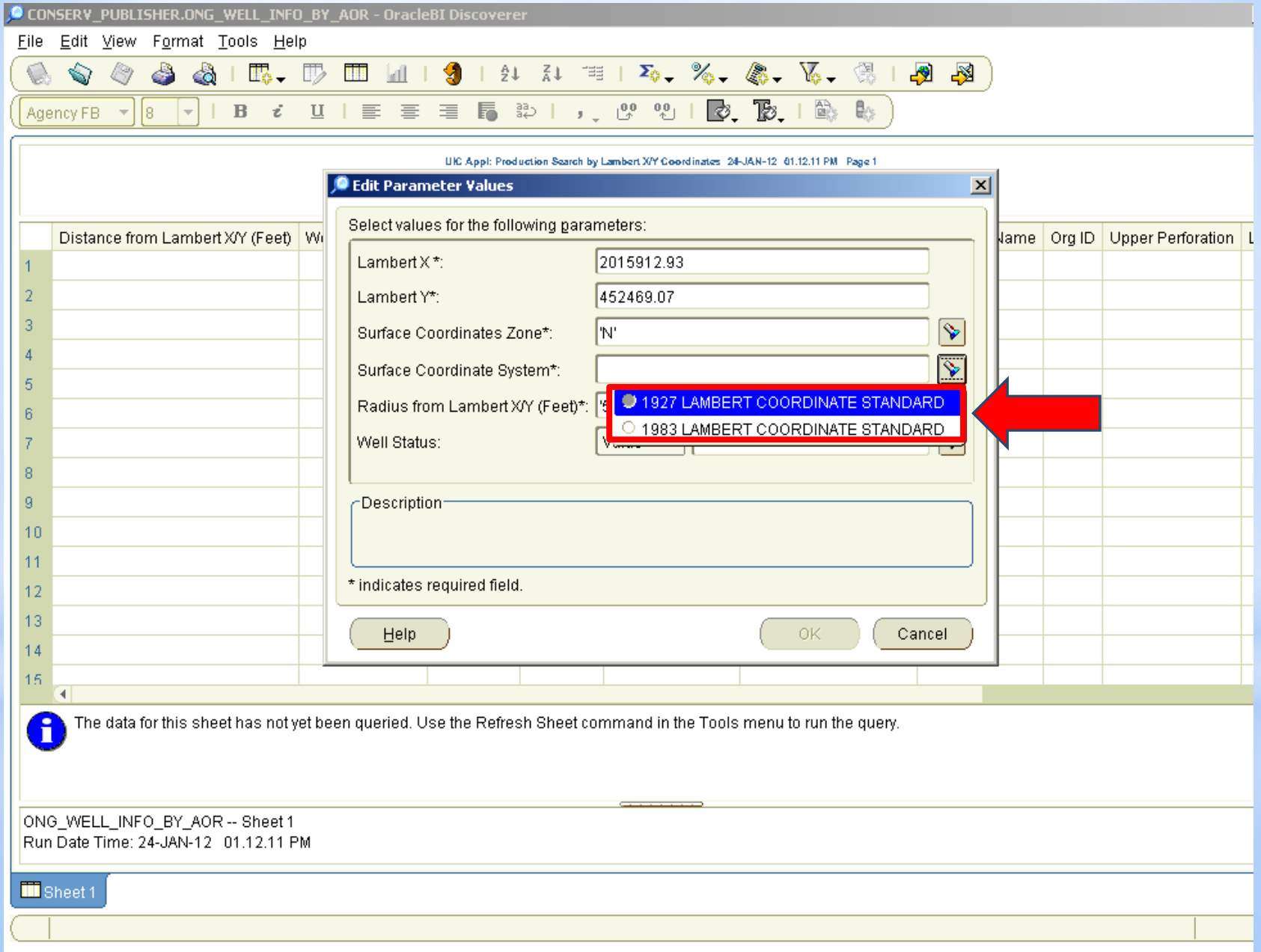
Step 6: In the Edit Parameter Values box enter the Lambert X and Y coordinates of the well



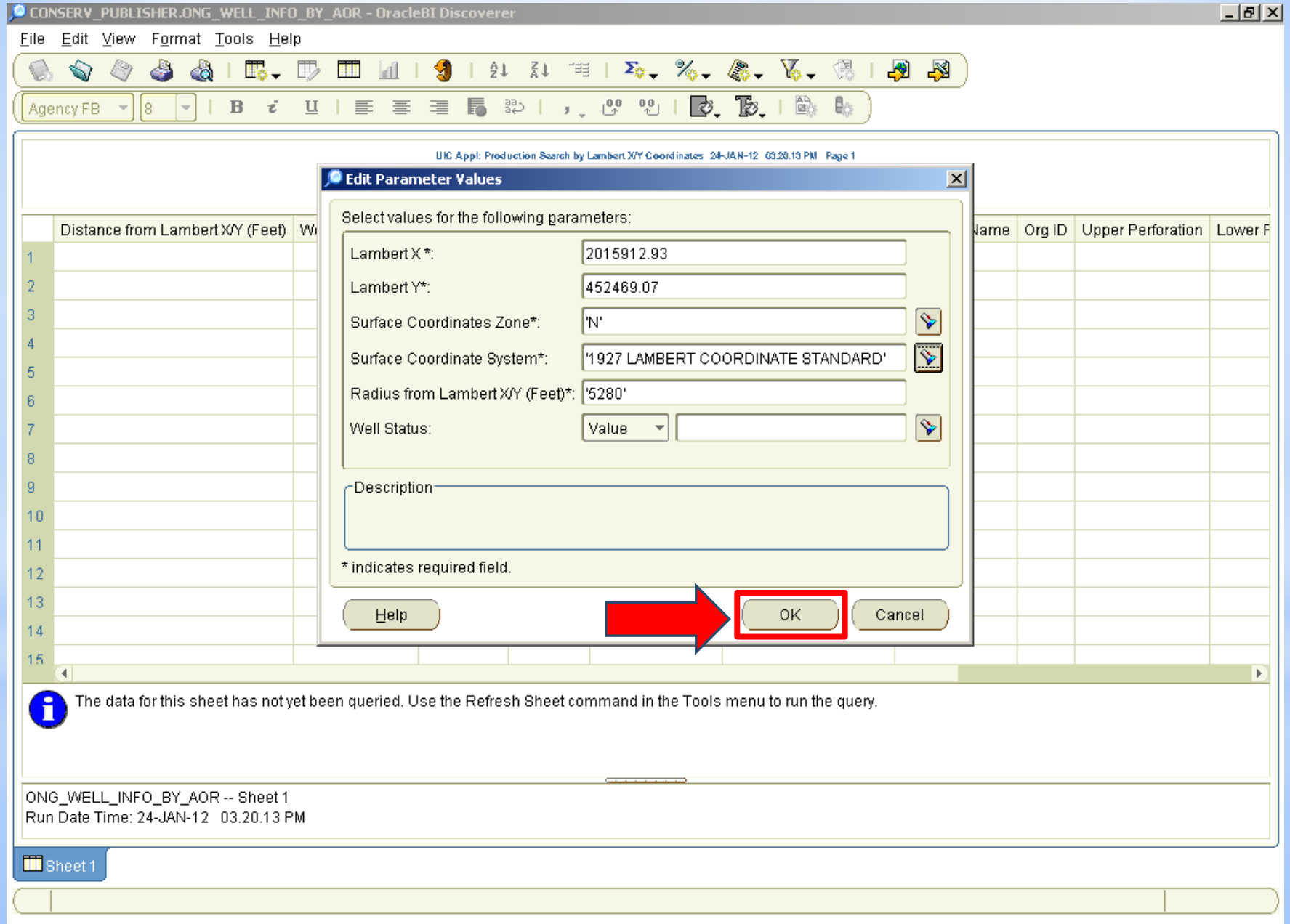
Step 7: Use the drop down box to select the Surface Coordinates Zone



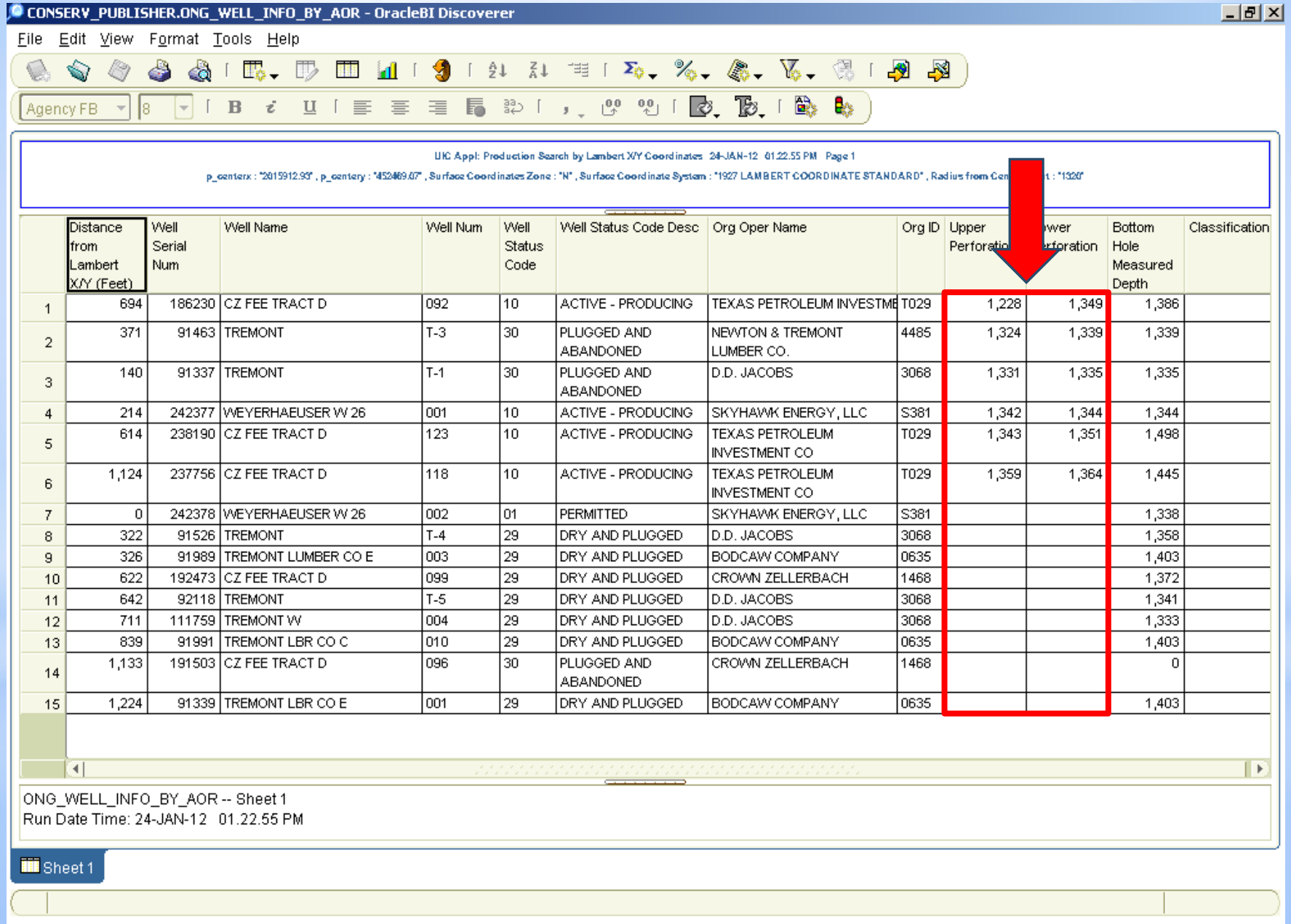
Step 8: Use the drop down box to select the Surface Coordinate System



Step 9: To conduct a **one-mile** radius search from the proposed well location to locate productive wells, press the OK button



Step 10: The resulting Production Search is shown in spreadsheet format



CONSERV_PUBLISHER.ONG_WELL_INFO_BY_AOR - OracleBI Discoverer

File Edit View Format Tools Help

UIC Appl: Production Search by Lambert X/Y Coordinates 24-JAN-12 01.22.55 PM Page 1

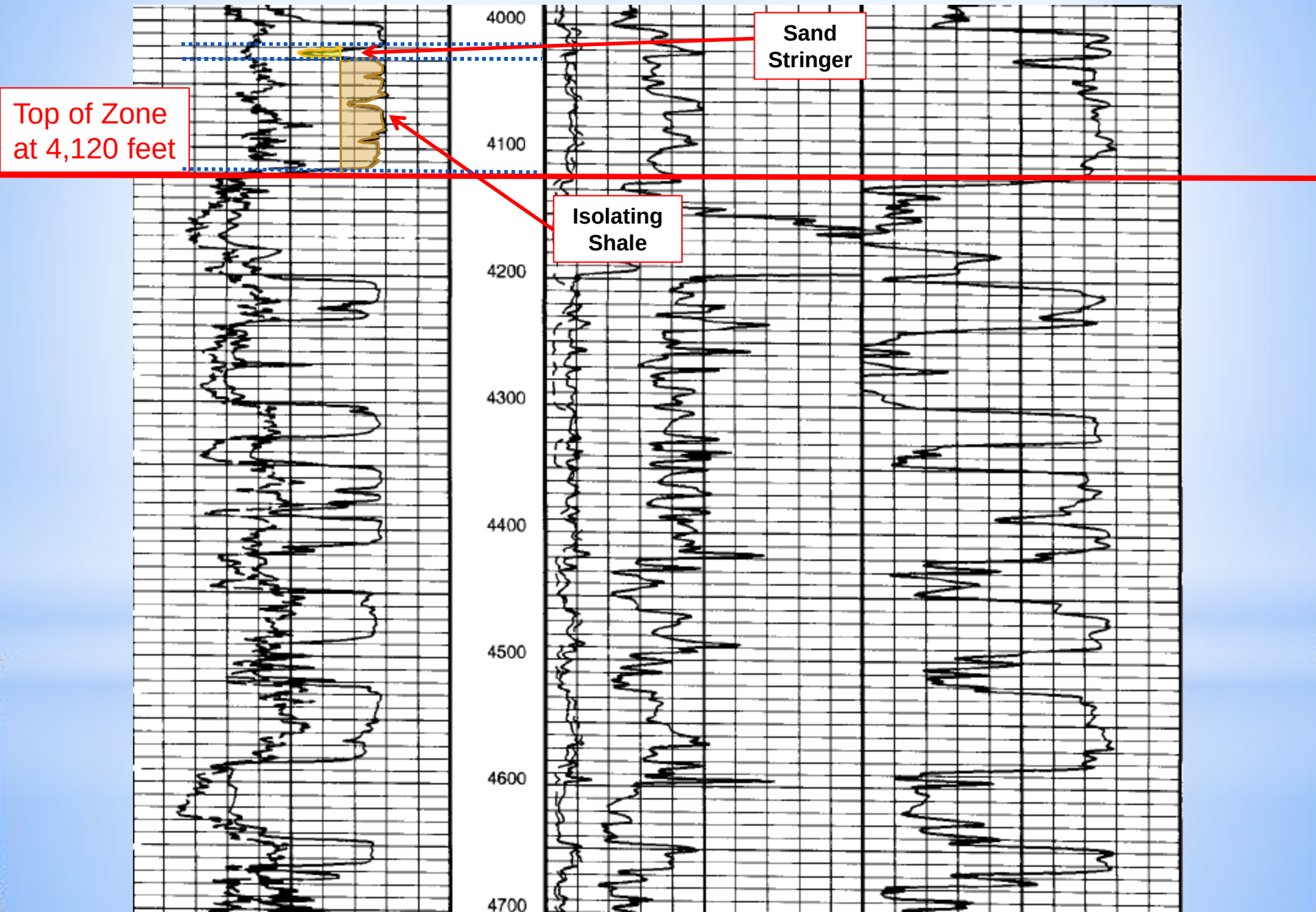
p_centerx : "2015912.93" , p_centery : "452469.07" , Surface Coordinates Zone : "N" , Surface Coordinate System : "1927 LAMBERT COORDINATE STANDARD" , Radius from Cen t : "1320"

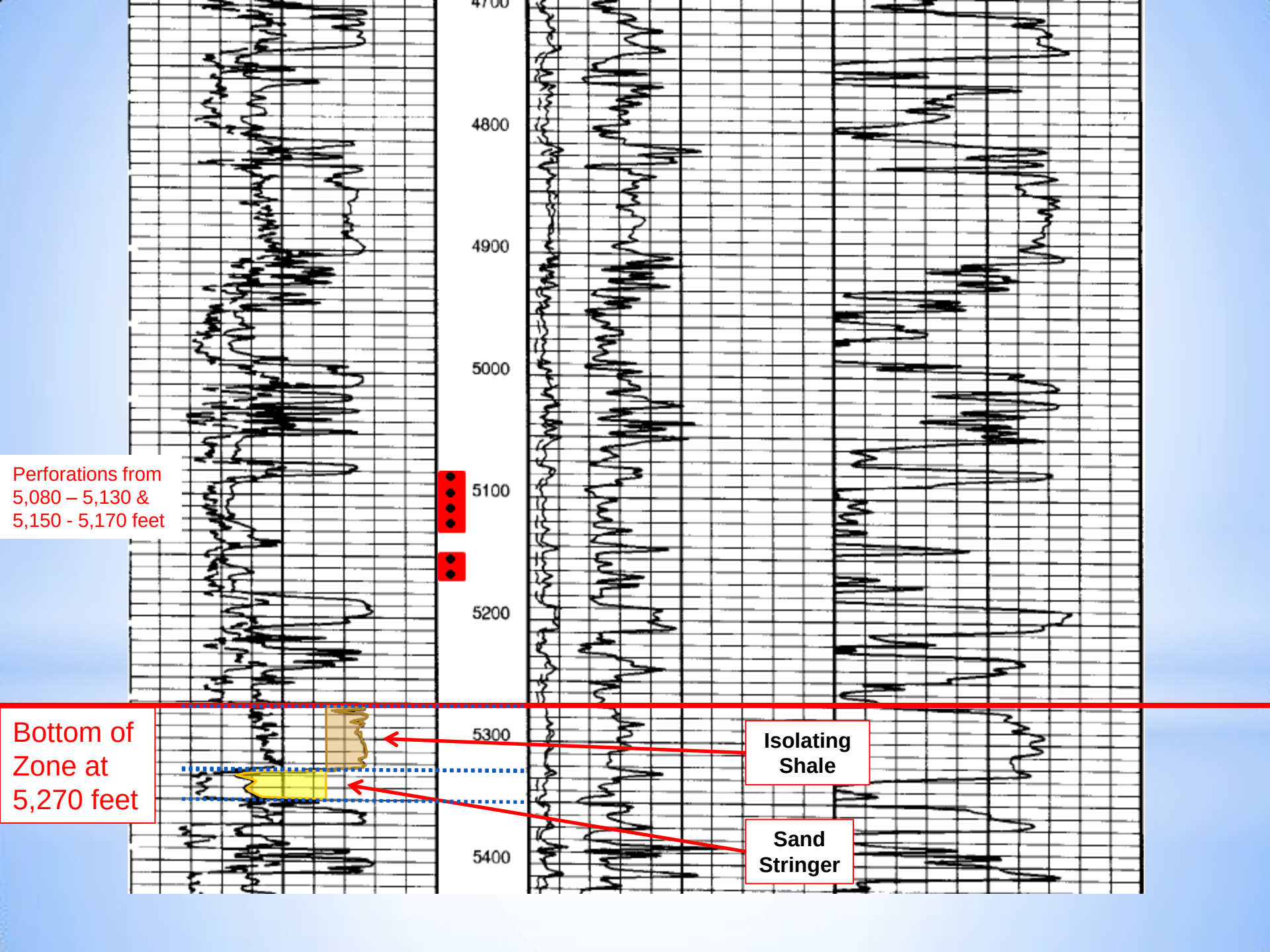
	Distance from Lambert X/Y (Feet)	Well Serial Num	Well Name	Well Num	Well Status Code	Well Status Code Desc	Org Oper Name	Org ID	Upper Perforation	Lower Perforation	Bottom Hole Measured Depth	Classification
1	694	186230	CZ FEE TRACT D	092	10	ACTIVE - PRODUCING	TEXAS PETROLEUM INVESTME	T029	1,228	1,349	1,386	
2	371	91463	TREMONT	T-3	30	PLUGGED AND ABANDONED	NEWTON & TREMONT LUMBER CO.	4485	1,324	1,339	1,339	
3	140	91337	TREMONT	T-1	30	PLUGGED AND ABANDONED	D.D. JACOBS	3068	1,331	1,335	1,335	
4	214	242377	WEYERHAEUSER W 26	001	10	ACTIVE - PRODUCING	SKYHAWK ENERGY, LLC	S381	1,342	1,344	1,344	
5	614	238190	CZ FEE TRACT D	123	10	ACTIVE - PRODUCING	TEXAS PETROLEUM INVESTMENT CO	T029	1,343	1,351	1,498	
6	1,124	237756	CZ FEE TRACT D	118	10	ACTIVE - PRODUCING	TEXAS PETROLEUM INVESTMENT CO	T029	1,359	1,364	1,445	
7	0	242378	WEYERHAEUSER W 26	002	01	PERMITTED	SKYHAWK ENERGY, LLC	S381			1,338	
8	322	91526	TREMONT	T-4	29	DRY AND PLUGGED	D.D. JACOBS	3068			1,358	
9	326	91989	TREMONT LUMBER CO E	003	29	DRY AND PLUGGED	BODCAW COMPANY	0635			1,403	
10	622	192473	CZ FEE TRACT D	099	29	DRY AND PLUGGED	CROWN ZELLERBACH	1468			1,372	
11	642	92118	TREMONT	T-5	29	DRY AND PLUGGED	D.D. JACOBS	3068			1,341	
12	711	111759	TREMONT W	004	29	DRY AND PLUGGED	D.D. JACOBS	3068			1,333	
13	839	91991	TREMONT LBR CO C	010	29	DRY AND PLUGGED	BODCAW COMPANY	0635			1,403	
14	1,133	191503	CZ FEE TRACT D	096	30	PLUGGED AND ABANDONED	CROWN ZELLERBACH	1468			0	
15	1,224	91339	TREMONT LBR CO E	001	29	DRY AND PLUGGED	BODCAW COMPANY	0635			1,403	

ONG_WELL_INFO_BY_AOR -- Sheet 1
Run Date Time: 24-JAN-12 01.22.55 PM

Sheet 1

Here's the marked e-Log of our example




4700
4800
4900
5000
5100
5200
5300
5400
Perforations from 5,080 – 5,130 & 5,150 - 5,170 feet
Bottom of Zone at 5,270 feet
Isolating Shale
Sand Stringer

Cement Bond Log (CBL)

Sufficient external cement isolation is required as per the requirements of LAC XIX.43:419 and should prevent upward fluid migration.

The applicant must submit any available CBLs of the proposed well to demonstrate that the annulus between the injection casing and the wellbore has sufficient cement isolation of the proposed injection zone.

If a CBL was performed prior to submission of the Application, please submit a copy with the Application and label it as **Attachment 5C**.

When the CBL is performed on the well, it must show a minimum continuous interval of 60% bonded cement between the injection casing and the wellbore, which is bonded to the first confining shale formation immediately above the proposed injection zone and indicate evidence of cement at or below the bottom of the proposed injection zone.

The *Cement Bond Log (CBL) Interpretation Guide* must be used in order to determine the minimum continuous interval of bonded cement that is required to isolate the proposed injection zone. The CBL Interpretation Guide is located on the DNR website at the following link:

Go to www.dnr.louisiana.gov, click on the ***Conservation*** tab at the top of the page **>>** click on ***Forms*** (on the left side of the page) **>>** scroll down to ***Cement Bond Logging Guidelines*** under the Injection and Mining tab and click the PDF link.

If the CBL does not prove cement isolation of the proposed injection zone, the IMD will require perforating and squeezing cement above and or below the zone and subsequent logging.

Review of LOGS to be included in **Attachment 5**

Logs must be provided to indicate the base of the lowermost USDW, the proposed injection zone, and prove cement isolation.

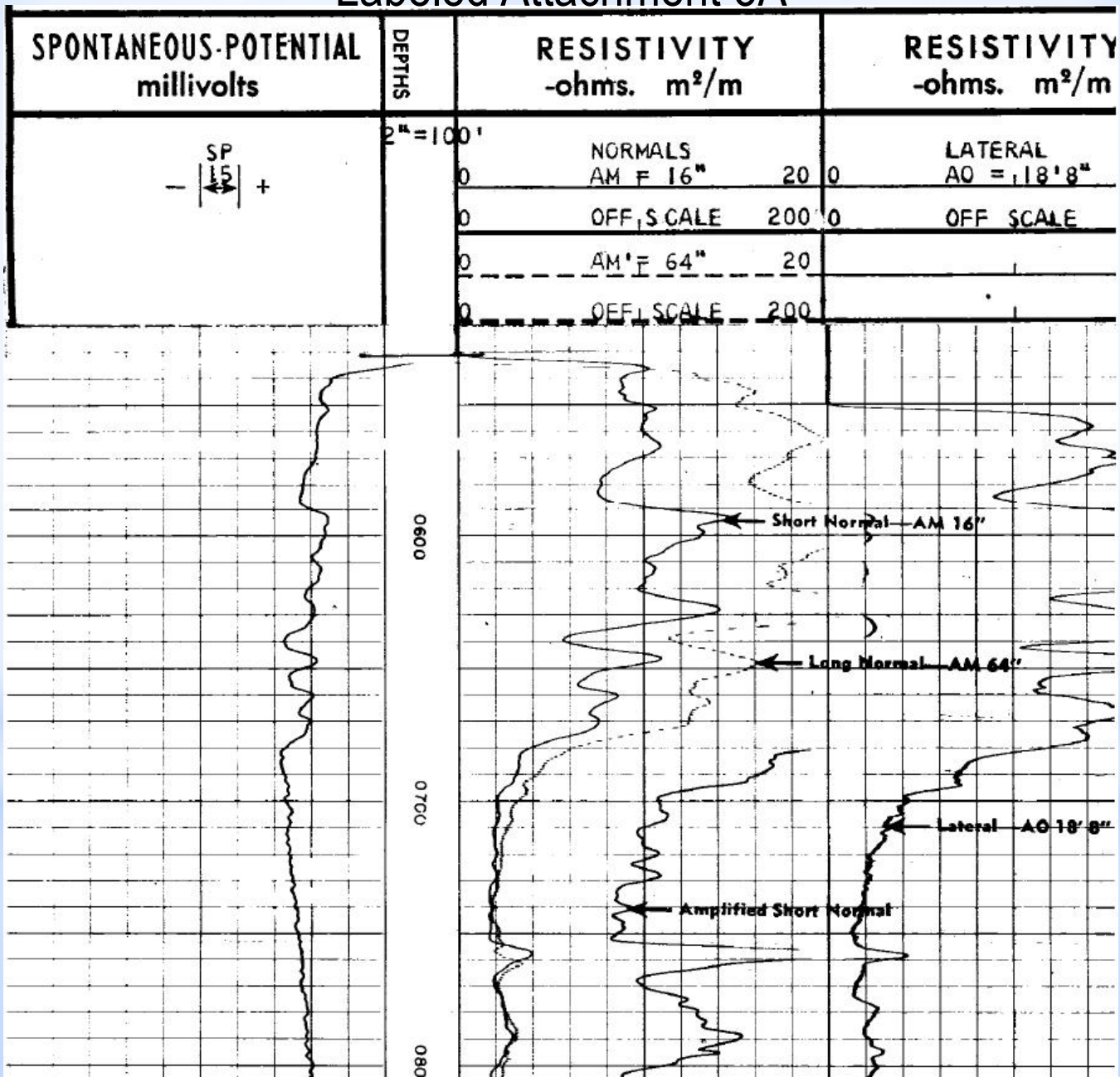
The Application must include electric logs (e-logs), preferably with a one or two inch scale, that show the proposed injection zone, the base of the USDW and, if available, a Cement Bond Log.

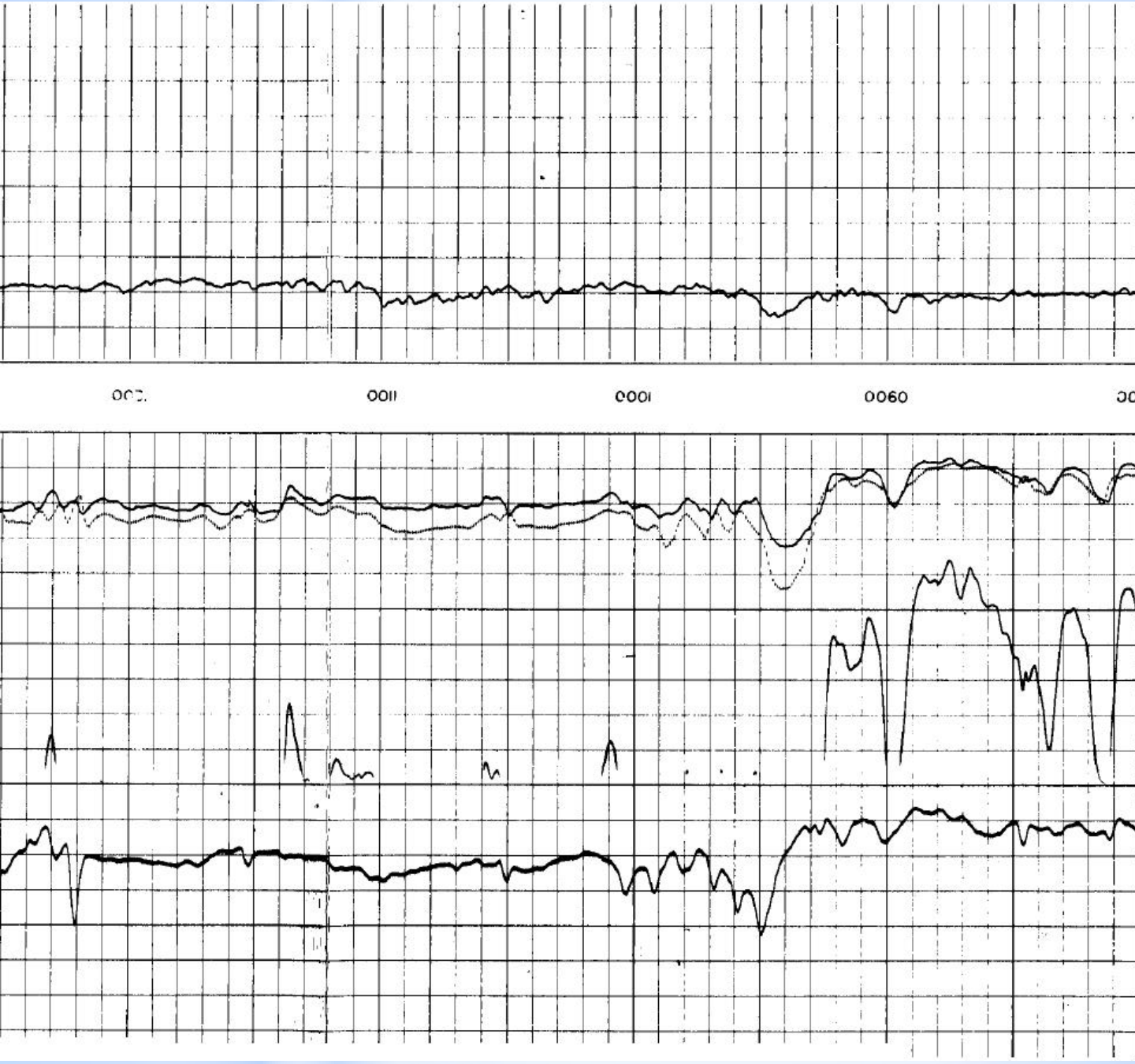
Mark each log with the Serial Number of the well, and ensure that it includes the header with scale and that the e-logs include at least 1,000 feet below the bottom of the proposed injection zone or the TD. (Photocopies of the logs are acceptable).

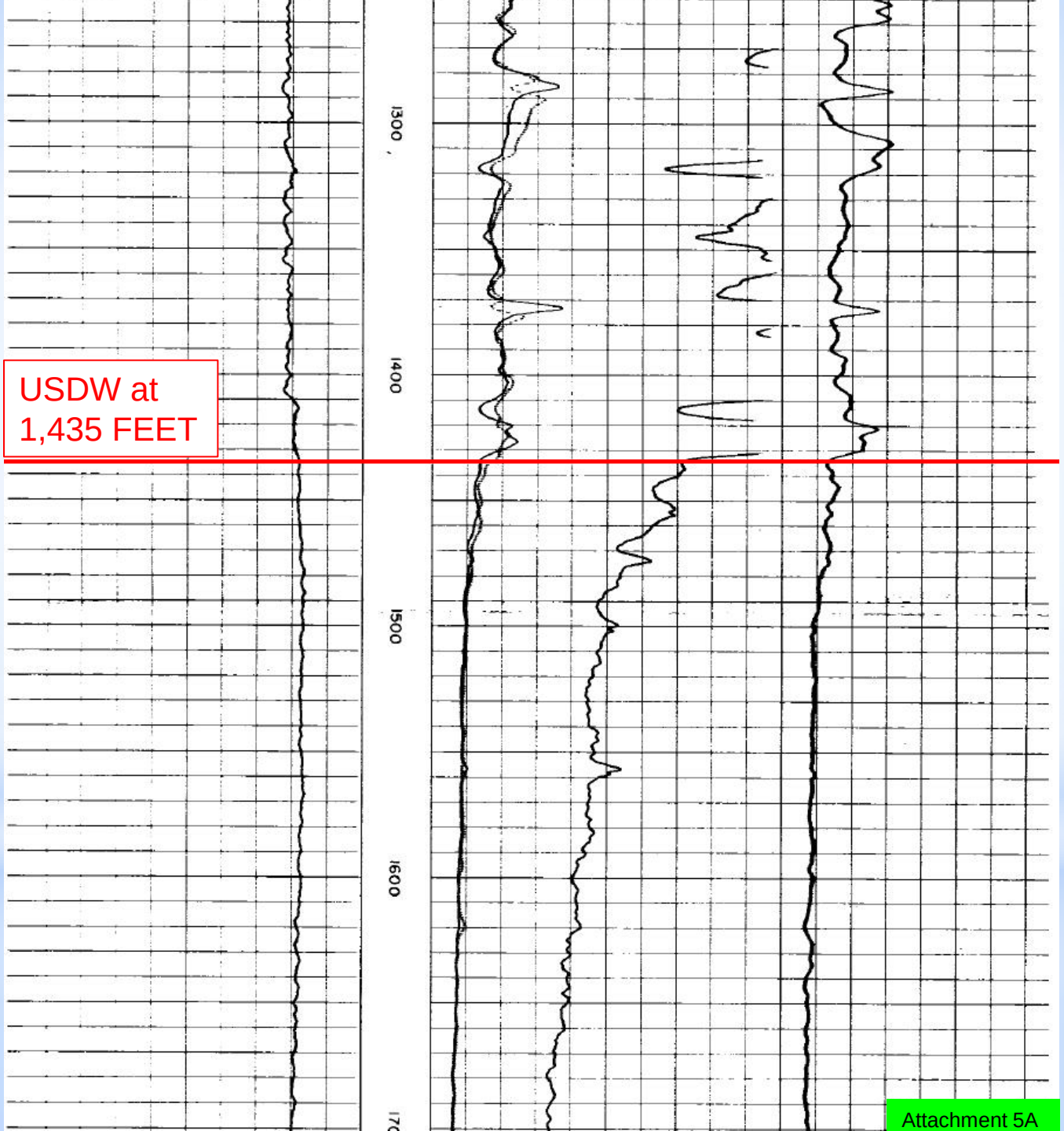
An e-log of the well itself, if available, should always be included as part of the Application.

Below are examples of portions of our marked e-logs.

So just to review, here's our marked example USDW Log, Labeled Attachment 5A

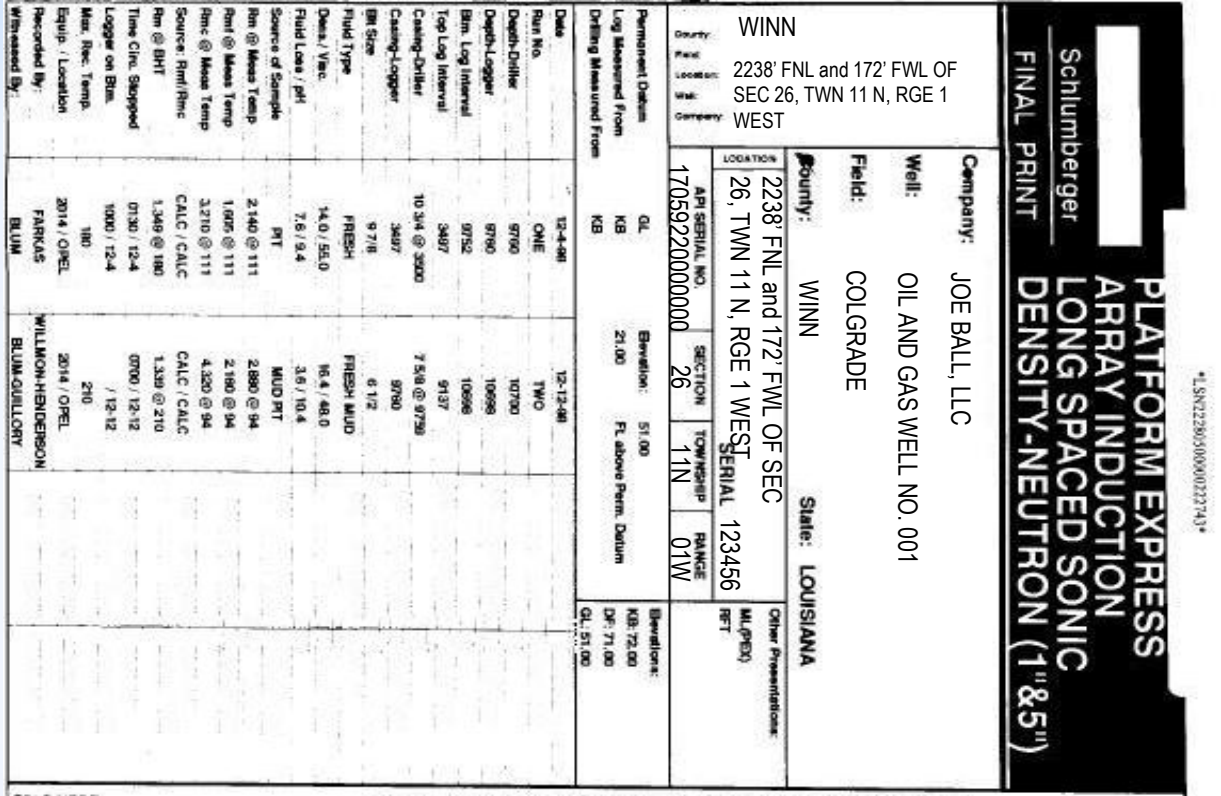






Attachment 5A

And our marked example log Indicating the proposed zone, labeled **Attachment 5B**.



Schlumberger

FINAL PRINT

PLATFORM EXPRESS ARRAY INDUCTION LONG SPACED SONIC DENSITY-NEUTRON (1"&5")

LSN222905000022743

Company: JOE BALL, LLC

Well: OIL AND GAS WELL NO. 001

Field: COLGRADE

County: WINN State: LOUISIANA

Location: 2238' FNL and 172' FWL OF SEC 26, TWN 11 N, RGE 1 WEST

API SERIAL NO. 17059220000000

SECTION 26

TOWNSHIP 11N

RANGE 01W

SERIAL 123456

Other Services: MI,(PEX) RFT

Elevations: KB: 72.00 DF: 71.00 GL: 51.00

Permanent Datum: GL Elevation: 51.00

Log Measured From: KB 21.00 Ft. above Perm. Datum

Drilling Measured From: KB

Date	12-4-98	12-12-98
Run No.	ONE	TWO
Depth-Driller	9760	10700
Depth-Logger	9760	10698
Btm. Log Interval	9752	10696
Top Log Interval	3497	9137
Casing-Driller	10 3/4 @ 3500	7 5/8 @ 9759
Casing-Logger	3497	9760
Bit Size	9 7/8	6 1/2
Fluid Type	FRESH	FRESH MUD
Dens. / Visc.	14.0 / 55.0	16.4 / 48.0
Fluid Loss / pH	7.6 / 9.4	3.6 / 10.4
Source of Sample	PIT	MUD PIT
Rm @ Meas Temp	2.140 @ 111	2.880 @ 94
Rmf @ Meas Temp	1.605 @ 111	2.160 @ 94
Rmc @ Meas Temp	3.210 @ 111	4.320 @ 94
Source: Rmf/Rmc	CALC / CALC	CALC / CALC
Rm @ BHT	1.349 @ 180	1.339 @ 210
Time Circ. Stopped	07:30 / 12-4	07:00 / 12-12
Logger on Btm.	10:00 / 12-4	/ 12-12
Max. Rec. Temp.	180	210
Equip. / Location	2014 / OPEL	2014 / OPEL
Recorded By:	FARKAS	WILLMON-HENDERSON
Witnessed By:	BLUM	BLUM-GUILLORY

FOLD HERE

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

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

REMARKS: RUN NUMBER 1 (AIT/LSS/CAL/GR)

Utilized first run depth control.

Greyed out curves are invalid due to pulls.

Excerpts from downlog presented to elucidate poor sonic data.

Sonic repeat off of down log due to poor sonic data on bottom of up log.

No sonic casing check as entire cased section is cemented.

Down log did not elucidate data btn. 4250' & 4150'.

SERVICE ORDER #: 6028781
PROGRAM VERSION: 8C1-205
FLUID LEVEL: 0 F

LOGGED INTERVAL	START	STOP

REMARKS: RUN NUMBER 2 (AIT/DENS/NEUT(PEX)

Tied into SWS log dated 12-4-1998.

The AITH, SP, and Density curves were turned off in casing as per clients request.

The High Resolution pass was turned off at casing as per clients request.

Crew: M. Founier/ C. Fountenot

SERVICE ORDER #: 1287717
PROGRAM VERSION: 8C1-205
FLUID LEVEL: 0 F

LOGGED INTERVAL	START	STOP

Output DLIS Files

DEFAULT	AITH .011	FN:9	FIELD	04-Dec-1998 10:13	9774.0 FT	3329.2 FT

OP System Version: 8C1-205

MCM

AIT-H	APCW-98Q3	SDT-C	APCW-98Q3
MLT-AA	8C1-205	SGT-L	APCW-98Q3
TCC-BF	APCW-98Q3		

PIP SUMMARY

Time Mark Every 60 S

Shallow Resistivity (AHF10) 0 (OHMM) 10

SP (SP) -160 (MV) 40

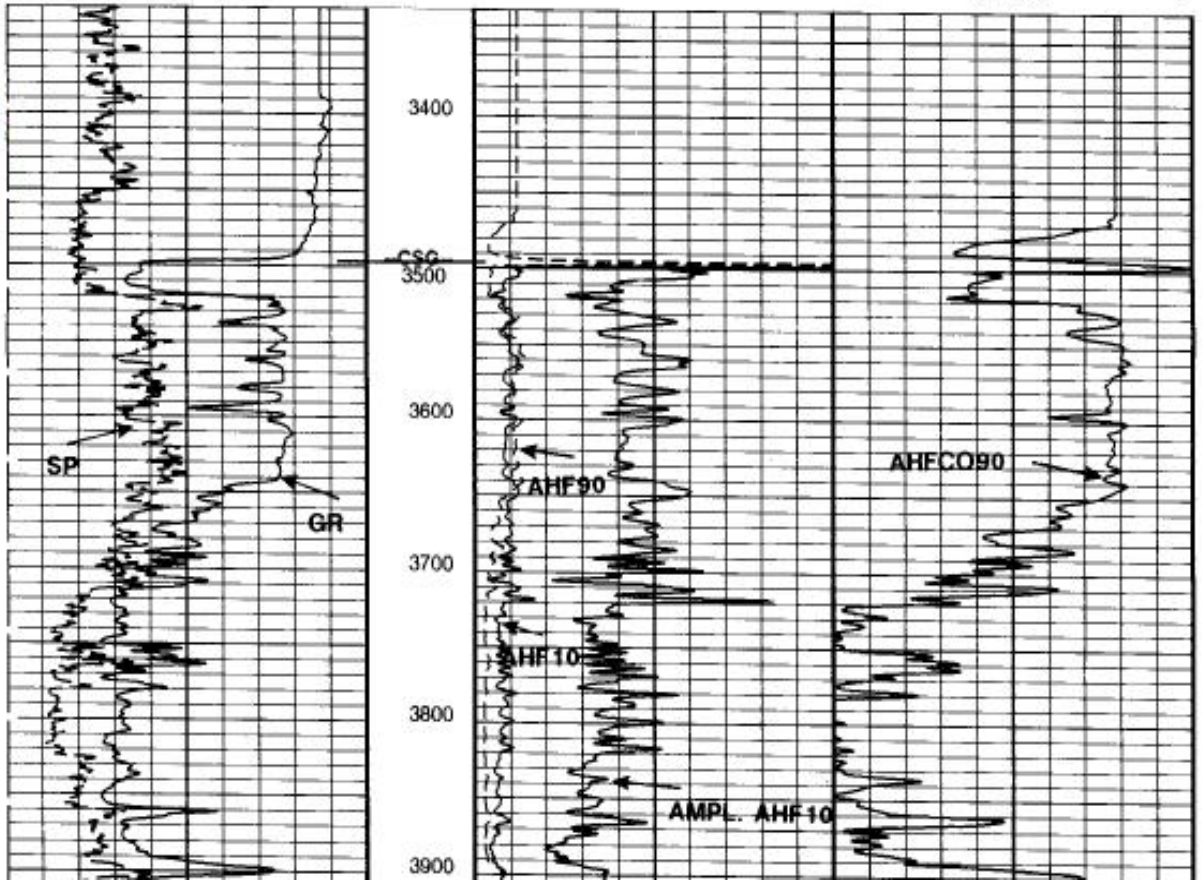
Deep Resistivity (AHF90) 0 (OHMM) 10

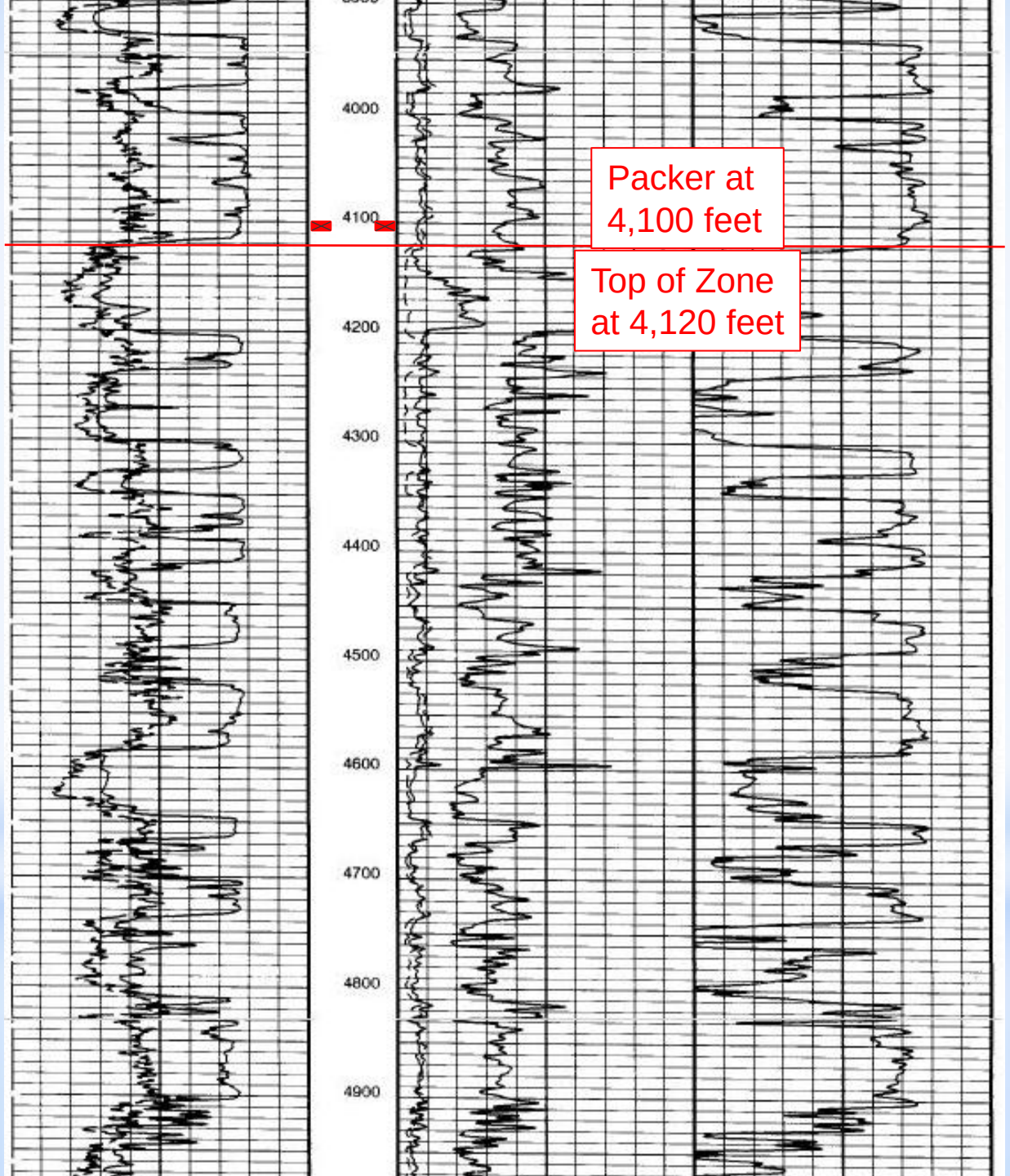
1" CORRELATION LOG

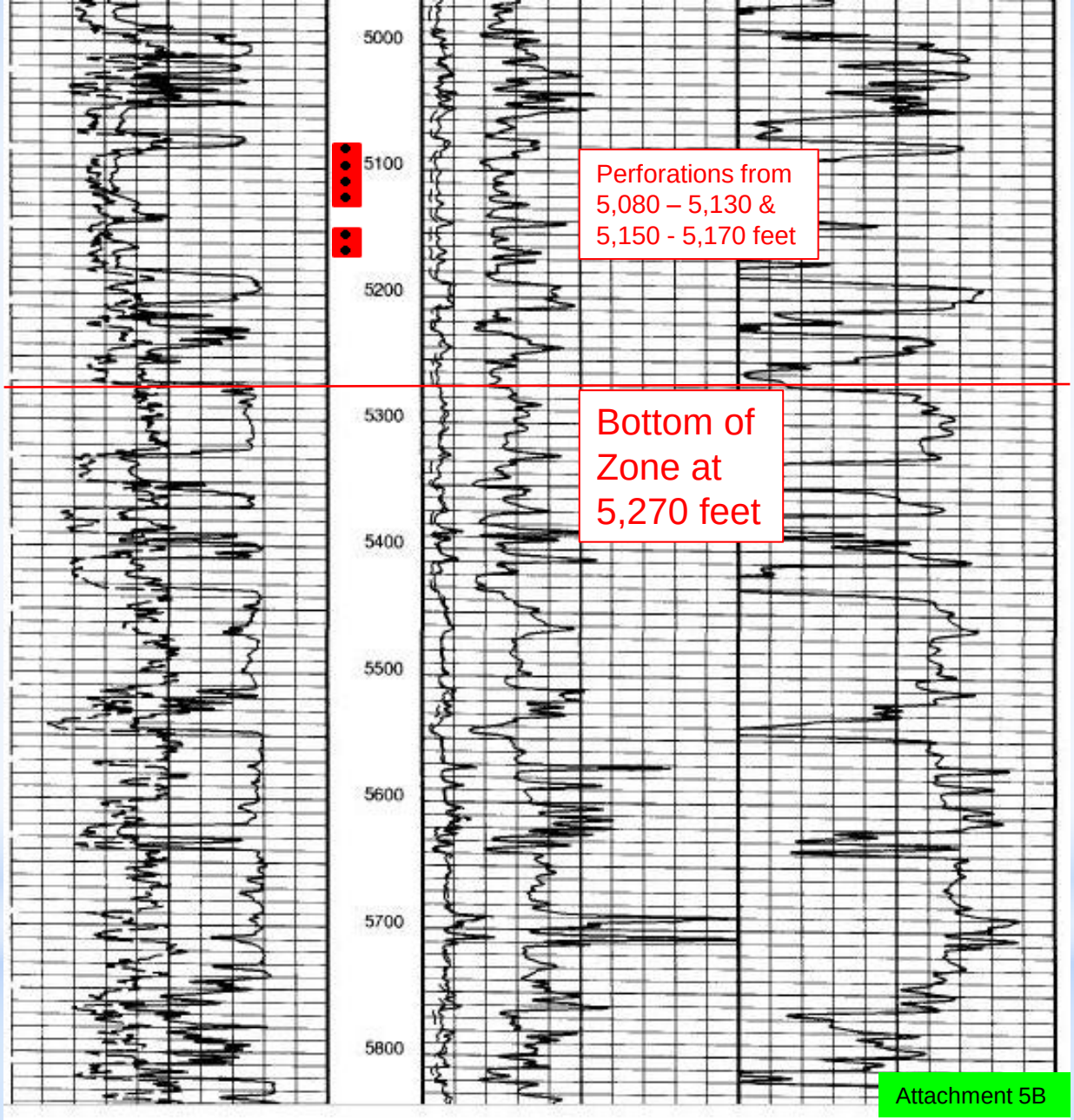
Gamma Ray (GR) 0 (GAPI) 150

Amplified Shallow Resistivity (AHF10) 0 (OHMM) 2

AIT-H 90 Inch Investigation Conductivity (AHFCO90) 4000 (MM/M) 0




4000
4100
4200
4300
4400
4500
4600
4700
4800
4900
Packer at
4,100 feet
Top of Zone
at 4,120 feet



A CBL is not included. Item 6 on the Work Prognosis indicates that a CBL will be run during the conversion procedure.

Here is our completed Proposed Injection Interval Information from the Example logs

PROPOSED INJECTION INTERVAL INFORMATION

The information in boxes 39 & 42 should come from the electric log of the well to be permitted or the closest offset well that was logged across the proposed injection zone. If the top and bottom of the zone are not shown on the same log, two different logs can be used. Copies of the log(s) must be attached and labeled as Attachment 5B.

39. INJECTION ZONE (FT)		40. PERFORATED/OPEN-HOLE INTERVAL WITHIN ZONE (FT)	
TOP	BOTTOM	TOP	BOTTOM
4,120	5,270	5,080	5,170
41. INJECTION FORMATION NAME		**42. INJECTION THROUGH:**	
5100 FT SAND		☒ PERFORATIONS	☐ SCREEN ☐ OPEN-HOLE

This information consists of:

- Top and bottom of the proposed injection zone
- Top and bottom of the proposed injection interval.
- Injection formation name
- Proposed method of injection.

Pressure Calculation Data

Items 43 – 46

PRESSURE CALCULATION DATA

43. INJECTION RATE (BARRELS/MINUTE):
NORMAL (BPM) .97 MAXIMUM (BPM) 1.45

44. INJECTION FLUID EXPECTED TEMPERATURE (°F):
SUMMER (°F) 85 WINTER (°F) 80

45. INJECTION FORMATION PROPERTIES:
POROSITY (%) 35 PERMEABILITY (MILLIDARCYS) 1500 HOW WERE THE PROPERTIES ATTAINED: ESTIMATED

46. HOW WOULD YOU PREFER THE INJECTION AND MINING DIVISION CALCULATE THE MAXIMUM ALLOWABLE SURFACE INJECTION PRESSURE (MASIP) FOR THIS WELL:
(Please note: Eaton's Fracture Gradient will be used to calculate the MASIP if one of the preferred methods below is not selected.)

- [x] BASED ON EATON'S FRACTURE GRADIENT CHART, LOUISIANA GULF COAST
- [ ] BASED ON THE FRACTURE GRADIENT OF THE INJECTION FORMATION (STEP-RATE / FALL OFF TEST, SONIC LOG OR OTHER ACCEPTABLE LOG)
- [ ] BASED ON THE FRACTURE GRADIENT OF THE CONFINING FORMATION (FOR GUIDANCE REFER TO ATTACHMENT 9, MASIP CALCULATION REQUEST IN THE INSTRUCTIONS)

As described in Intra-Office Policy Statement No. IMD-GS-09 at http://dnr.louisiana.gov/assets/docs/memo20090324-imd-gs-09.pdf.

- Injection Rate in Barrels per Minute
- Injection Fluid Expected Temperature
- Injection Formation Properties (Porosity and Permeability)
- MASIP Calculation Basis:
  - ❖ Eaton's Fracture Gradient Chart, Louisiana Gulf Coast
  - ❖ Step rate fall off test
  - ❖ Based on the fracture gradient of the confining formation

MASIP CALCULATION BASIS

Eaton's Fracture Gradient Chart, Louisiana Gulf Coast

The MASIP will be calculated not to exceed 90% of the fracture pressure of the injection zone as predicted by Ben Eaton's 9 pounds per gallon (ppg) pore pressure curve. The specific gravity (weight) of the injection fluid is required to complete the calculation.

Or……

Step Rate - Fall Off Test

A Fall Off Test is a pressure transient test that consists of shutting in an injection well and measuring the pressure fall off. It is impacted by the magnitude, length, and rate fluctuations of the injection period. A properly conducted Step Rate and/or Fall Off Test can prove bottom hole fracture pressure. Falloff testing analysis can also provide transmissibility, skin factor, and well flowing and static pressures. Contact an Engineer with this Division for guidelines pertaining to step rate fall off tests.

Or…..

MASIP CALCULATION BASIS, Cont'd

Fracture gradient of the confining formation

Under the directive of Intra-Office Policy Statement No. IMD-GS-09, the MASIP can be calculated by limiting the pressure at the depth of injection to 75% of the pressure needed to fracture the confining formation.

The Policy Statement requires the applicant comply with additional control measures to assure protection of the lowermost USDW.

The following information must be provided:

- Geomechanical data of the confining zone above the proposed injection zone, labeled **Attachment 9A**
- An area of review (AOR) of one-half mile must be conducted
- If the top of the proposed injection zone is within 1,000 feet of the base of the USDW, the MASIP cannot exceed 0.25 psi/ft.
- The surface casing must be set at least 100 feet below the base of the USDW.
- A monitor well Application (UIC-25) along with a Groundwater Monitoring plan, labeled **Attachment 9B** will be required.

Item numbers **47 through 49** requests additional information relevant to the permitting process.

OTHER INFORMATION	
47. DESCRIBE CONTINGENCY PLANS FOR SALTWATER DISPOSAL WHEN THE WELL IS DOWN:	
SHUT DOWN THE PRODUCING WELL(S) OR TRANSFER THE PRODUCED WATER BY PUMP TO ANOTHER PERMITTED FACILITY OWNED AND OPERATED BY JOE BALL, LLC.	
48. IS THE PROPOSED WELL LOCATED ON INDIAN LANDS OR OTHER LANDS OWNED BY OR UNDER THE JURISDICTION OR PROTECTION OF THE FEDERAL GOVERNMENT?	☐ YES ☒ NO
49. IS THE PROPOSED WELL LOCATED ON STATE WATER BOTTOMS OR OTHER LANDS OWNED BY OR UNDER JURISDICTION OF THE STATE?	☐ YES ☒ NO

PLEASE ENSURE THAT ALL ATTACHMENTS BELOW ARE INCLUDED WITH THIS APPLICATION

A checklist has been added to the Application to ensure all Attachments are included.

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

- ☒ **FILING FEE**
- ☒ **ATTACHMENT 1 – PUBLIC NOTICE**
- ☒ **ATTACHMENT 2 – LOCATION PLAT**
- ☒ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT AND ORDERS**
- **ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS**
  - ☒ 4A - CURRENT WELLBORE SCHEMATIC
  - ☒ 4B - PROPOSED WELLHEAD DIAGRAM
  - ☒ 4C - PROPOSED WELLBORE SCHEMATIC
  - ☒ 4D - WORK PROGNOSIS
- **ATTACHMENT 5 – LOGS**
  - ☒ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW
  - ☒ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS
  - ☐ 5C – CEMENT BOND LOG (CBL)
- **ATTACHMENT 6 – AREA OF REVIEW (AOR)**
  - ☒ 6A- AREA OF REVIEW MAP
  - ☒ 6B- AREA OF REVIEW WELL LIST
  - ☒ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
  - ☒ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
  - ☒ 6E- FRESHWATER LABORATORY ANALYSES
- ☒ **ATTACHMENT 7 – FACILITY DIAGRAM**
- **ATTACHMENT 8 – INJECTION FLUID SOURCE**
  - ☒ 8A - INJECTION FLUID SOURCE LIST
  - ☒ 8B - INJECTION FLUID SOURCE ANALYSES
- **ATTACHMENT 9 – MASIP CALCULATION REQUEST**
  - ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
  - ☐ 9B – GROUNDWATER MONITORING PLAN
- ☒ **DUPLICATE COPY OF THE APPLICATION**

This section must be completed by an Agent or Contact person authorized to act for the Operator and is designated to receive correspondence regarding the application. The Operator's signature authorizes this Agent or Contact to speak with the IMD on the Operator's behalf.

AUTHORIZED AGENT

50. AGENT OR CONTACT AUTHORIZED TO ACT FOR THE OPERATOR DURING PROCESSING OF THIS APPLICATION.

THE SIGNATURE OF THE OPERATOR CERTIFYING THIS APPLICATION WILL AUTHORIZE THIS AGENT OR CONTACT TO SUBMIT ADDITIONAL INFORMATION AS REQUESTED AND TO GIVE ORAL STATEMENTS IN SUPPORT OF THIS APPLICATION DURING THE APPLICATION REVIEW PROCESS. ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX. THE FINAL WRITTEN DECISION ON THIS APPLICATION WILL BE SENT TO THE OPERATOR NOTED IN BOX 1 OF THIS FORM.

NAME:	ANITA KNAPP
COMPANY:	CONSULTING CO. LLC
ADDRESS:	617 N. THIRD STREET, BATON ROUGE, LA 70802
PHONE:	(225) 342-1234
EMAIL:	anitaknapp@bellsouth.net

ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX.

The application must contain a signature from an associate of the Operating Company which is: an Officer, Manager, General Partner, Proprietor, Operator of the Well or a direct employee in a decision-making role. A Consulting Agent's signature is not acceptable in this section of the form.

CERTIFICATION BY OPERATOR *The signature below must be obtained from a duly appointed employee of the operating company.*	
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my personal knowledge or 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 (LSA-RS 30:17).	
51. NAME (PRINT) JOE BALL, LLC	**52. TITLE (PRINT)** OWNER
53. SIGNATURE 	**54. DATE** 12/06/2011

The following section will be found in all the revised forms. By checking each item, the applicant is indicating that each item has been included with the Application.

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

- ☐ **FILING FEE**
- ☐ **ATTACHMENT 1 – PUBLIC NOTICE**
- ☐ **ATTACHMENT 2 – LOCATION PLAT**
- ☐ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT**
- **ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS**
  - ☐ 4A - CURRENT WELLBORE SCHEMATIC
  - ☐ 4B - PROPOSED WELLHEAD DIAGRAM
  - ☐ 4C - PROPOSED WELLBORE SCHEMATIC
  - ☐ 4D - WORK PROGNOSIS
- **ATTACHMENT 5 – LOGS**
  - ☐ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW (W/ ORDER, IF APPLICABLE)
  - ☐ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS (W/ ORDER, IF APPLICABLE)
  - ☐ 5C – CEMENT BOND LOG (CBL)
- **ATTACHMENT 6 – AREA OF REVIEW (AOR)**
  - ☐ 6A- AREA OF REVIEW MAP
  - ☐ 6B- AREA OF REVIEW WELL LIST
  - ☐ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
  - ☐ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
  - ☐ 6E- FRESHWATER LABORATORY ANALYSES
- ☐ **ATTACHMENT 7 – FACILITY DIAGRAM**
- **ATTACHMENT 8 – INJECTION FLUID SOURCE**
  - ☐ 8A - INJECTION FLUID SOURCE LIST
  - ☐ 8B - INJECTION FLUID SOURCE ANALYSES
- **ATTACHMENT 9 – MASIP CALCULATION REQUEST**
  - ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
  - ☐ 9B – GROUNDWATER MONITORING PLAN
- ☐ **DUPLICATE COPY OF THE APPLICATION**

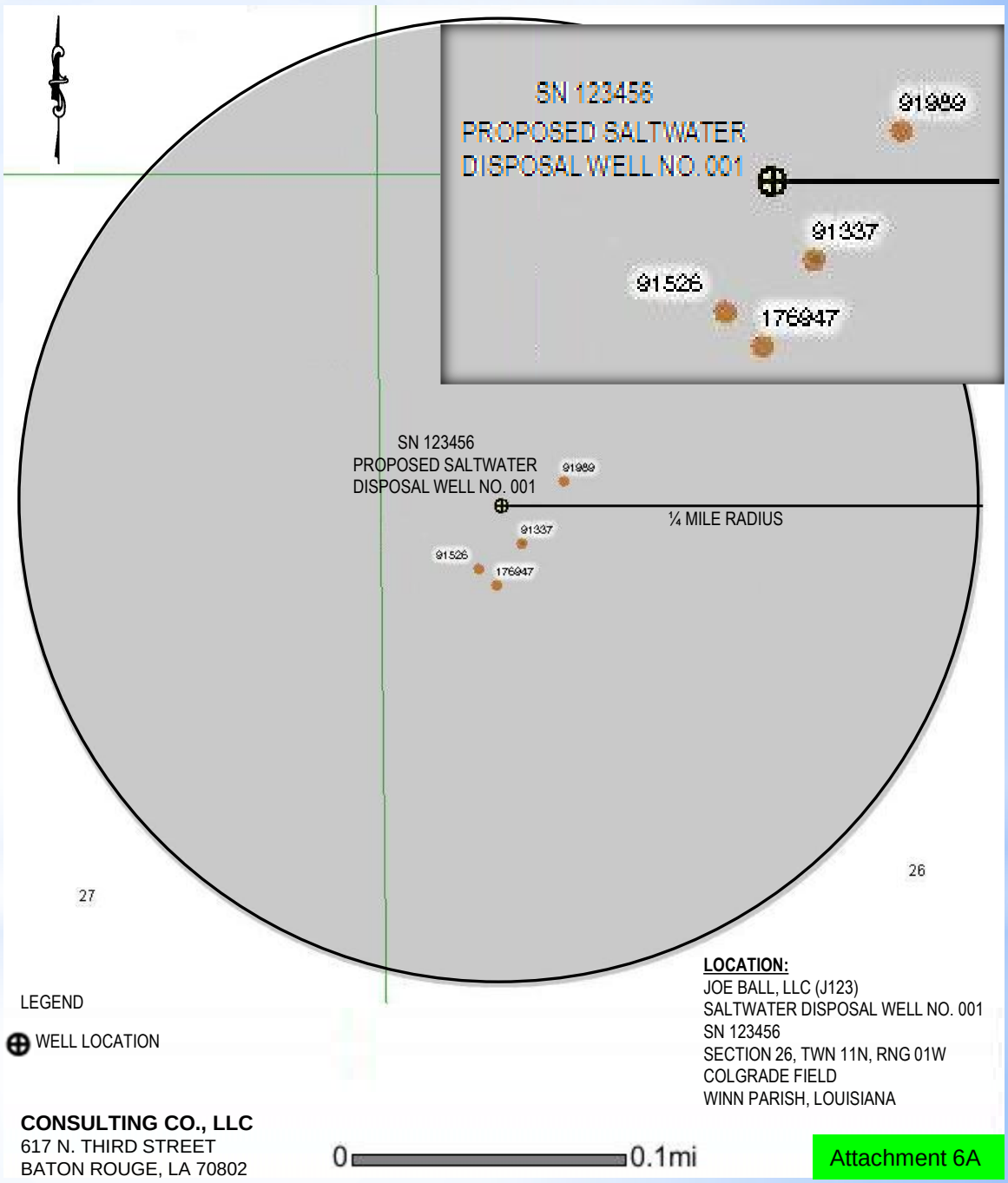
Additional Attachments Needed to Complete the Application

Area of Review Map

Attachment 6A

The AOR map must identify, within a 1,320 ft radius of the proposed injection well, the locations of the following:

1. **The proposed injection well**
2. **All producing wells**
3. **All injection wells**
4. **All shut-in wells**
5. **All plugged and abandoned wells**
6. **All dry holes**
7. **All source water wells (for enhanced recovery)**
8. **All freshwater wells unless plotted on the certified plat**



Area of Review Well List
Attachment 6B

- Searching SONRIS for wells in the DNR database; and
- Researching field maps and company files

ATTACHMENT 6B - AREA OF REVIEW WELL LIST

OPERATOR CODE	WELL NAME & NO.	SERIAL NUMBER	WELL STATUS	TOTAL DEPTH (FT.)	PERFORATED OR COMPLETED INTERVAL (FT).		
J123	OIL AND GAS WELL NO. 002	91989	10	10,900	10,700	TO	10,750
J123	OIL AND GAS WELL NO. 003	176947	30	10,720	10,160	TO	10,250
J123	OIL AND GAS WELL NO. 004	91526	30	10,810	10,200	TO	10,325
J123	OIL AND GAS WELL NO. 006	91337	30	10,900	10,700	TO	10,760
						TO	
						TO	
						TO	
						TO	
						TO	
						TO	

OFFICE OF CONSERVATION
INJECTION & MINING DIVISION

(ATTACH ADDITIONAL LISTS IF NEEDED)

UIC-2 SWD CONVERSION APPLICATION

Freshwater Well List
Attachment 6C

The Freshwater Well List, **Attachment 6C** must identify any unregistered freshwater wells within the AOR. A diligent search must be attempted to locate any unregistered freshwater wells within the AOR of the proposed injection well. The search must include:

- Conducting a foot-search of the ¼ mile AOR to identify any unregistered freshwater wells in the field; and

- Researching company files for unregistered Rig Supply wells.

IMD will not accept printouts of the DNR SONRIS database search, **Attachment 6D** in lieu of the Freshwater Well List of Unregistered Wells, **Attachment 6C**.

All wells listed on the Freshwater Well List, Attachment 6C must be plotted on the Area of Review Map, Attachment 6A, the Location Plat, Attachment 2 or both.

ATTACHMENT 6C - FRESHWATER WELL LIST OF UNREGISTERED WELLS

The freshwater well list must identify all unregistered freshwater wells in the Area of Reviwew (AOR). A diligent search must be attempted to locate any unregistered freshwater wells within the AOR of the proposed injection well. A printout of the DNR database search (Registered Freshwater Wells) in lieu of the Freshwater Well List of Unregistered Wells is not acceptable.

☐ A DILIGENT SEARCH WAS MADE TO LOCATE ANY UNREGISTERED FRESHWATER WELLS WITHIN A 1,320 FT RADIUS OF THE PROPOSED WELL AND *NO* WELLS WERE LOCATED.

☒ A DILIGENT SEARCH WAS MADE TO LOCATE ANY UNREGISTERED FRESHWATER WELLS WITHIN A 1,320 FT RADIUS OF THE PROPOSED WELL AND *THE FOLLOWING* WELLS WERE LOCATED.

OWNER	WELL NAME	TYPE*	STATUS**	TOTAL DEPTH (FT.)	LOCATION
Joe Smith	Joe Smith Freshwater Well	Domestic	Active	324 ft	Longitude: 92° 26' 51.7"
					Latitude: 31° 54' 37.2"

*Type of Well: PUBLIC SUPPLY, DOMESTIC (supplies one or a few homes), INDUSTRIAL (including commercial), LIVESTOCK, IRRIGATION (including catfish & crawfish farming), MONITORING, RIG SUPPLY, HEAT PUMP SUPPLY, OBSERVATION (by a qualified agency or company), AQUIFER DEWATERING, RECOVERY (of contaminants), other (describe).

**Status of Well: ACTIVE (used at least once a month), STANDBY, INACTIVE (but useable with minor work or effort), ABANDONED (but not plugged)

SONRIS Database Printout of DNR Registered Water Wells
Attachment 6D

A printout of the SONRIS database search for DNR registered water wells within the AOR must be included as part of the Application and labeled as **Attachment 6D**.

To search the SONRIS database, go to **www.dnr.louisiana.gov**, click on ***SONRIS*** (logo on the upper left side of the page) **>> *Data Access*** (on the upper left side of the page) **>> *Lite*** *(immediately below Data Access)* **>> *Water Wells by Latitude Longitude*** (under *Ground Water Information* at the bottom left of the page).

To search for registered water wells in the AOR of the proposed well, enter the Latitude and Longitude (NAD 83) of the proposed injection well and a search radius of 1,320 feet. All wells listed on the SONRIS Database Printout of DNR Registered Water Wells, Attachment 6D must be plotted on the Area of Review Map, **Attachment 6A**, the Location Plat, **Attachment 2**, or both.

Please label the printout **Attachment 6D** and include as part of the Application.

SONRIS Database Printout of DNR Registered Water Wells
Attachment 6D, cont'd.

Water Wells By LATITUDE / LONGITUDE Report

Latitude	Longitude	Radius Ft	MSG
31.910833333	-92.448888889	1320	Found 0 Records

Well Distance Ft	SECTION	TOWNSHIP	RANGE	PARISH_NAME	PARISH_NUM	LOCAL_WELL_NUM	WELL_USE	DESCRIPTION	WELL_STATU

Attachment 6D

Note: This search should be conducted using NAD 83 Latitude / Longitude as stated in the Instructions.

Here's a common problem encountered during application review…

Water Wells By LATITUDE / LONGITUDE Report

Latitude	Longitude	Radius Ft	MSG
30.255277778	-93.500555556	1320	Found 10 records

Well Distance Ft	SECTION	TOWNSHIP	RANGE	PARISH_NAME	PARISH_NUM	LOCAL_WELL_NUM	WELL_USE	DESCRIPTION	WELL_STATUS	OWNERS_NUM	OWNERS_NAME	DRILLERS_NAME	WELL_DEPTH	CA
403.96	028	09S	11W	CALCASIEU	019	5388Z	S	Rig Supply	Active	MOORE 6	COASTAL MINERAL	WESTRO	241	4
440.38	028	09S	11W	CALCASIEU	019	240	Z	Other	Abandoned		UNKNOWN	UNKNOWN	500	6
728.36	028	09S	11W	CALCASIEU	019	239	Z	Other	Abandoned		UNKNOWN	UNKNOWN	500	4
927.61	028	09S	11W	CALCASIEU	019	5290Z	S	Rig Supply	Plugged and Abandoned	BRIGHT 97	AMOCO PROD CO	WESTRO	242	4
936.8	021	09S	11W	CALCASIEU	019	6771Z	H	Domestic	Active		VINCENT, STEVEN	GEAREN (D. W.)	225	2
969.68	028	09S	11W	CALCASIEU	019	5747Z	S	Rig Supply	Plugged and Abandoned	BRIGHT 104	AMOCO PROD CO	WESTRO	260	4
1009.11	028	09S	11W	CALCASIEU	019	237	N	Industrial	Abandoned		MICHLA OIL	UNKNOWN	485	6
1069.9	021	09S	11W	CALCASIEU	019	6766Z	H	Domestic	Active		WHATLEY, CHESTE	GEAREN (D. W.)	250	2
1281.62	028	09S	11W	CALCASIEU	019	5066Z	S	Rig Supply	Plugged and Abandoned	BRIGHT 58	AMOCO PROD CO	WESTRO	240	
1318.98	028	09S	11W	CALCASIEU	019	15401Z	S	Rig Supply	Plugged and Abandoned	BRIGHT PENN FEE #139	ELYSIUM JENNINGS	GUICHARD OPERATING COMPANY, INC.	280	4

Attachment 6D

Water Wells By LATITUDE / LONGITUDE Report

Latitude	Longitude	Radius Ft	MSG
30.255277778	-93.500555556	1320	Found 10 records

Well Distance Ft	SECTION	TOWNSHIP	RANGE	PARISH_NAME	PARISH_NUM	LOCAL_WELL_NUM	WELL_USE	DESCRIPTION	WELL_STATUS	OWNERS_NUM	OWNERS_NAME	DRILLERS_NAME	WELL_DEPTH	CA
403.96	028	09S	11W	CALCASIEU	019	5388Z	S	Rig Supply	Active	MOORE 6	COASTAL MINERAL	WESTRO	241	4
440.38	028	09S	11W	CALCASIEU	019	240	Z	Other	Abandoned		UNKNOWN	UNKNOWN	500	6
728.36	028	09S	11W	CALCASIEU	019	239	Z	Other	Abandoned		UNKNOWN	UNKNOWN	500	4
927.61	028	09S	11W	CALCASIEU	019	5290Z	S	Rig Supply	Plugged and Abandoned	BRIGHT 97	AMOCO PROD CO	WESTRO	242	4
936.8	021	09S	11W	CALCASIEU	019	6771Z	H	Domestic	Active		VINCENT, STEVEN	GEAREN (D. W.)	225	2
969.68	028	09S	11W	CALCASIEU	019	5747Z	S	Rig Supply	Plugged and Abandoned	BRIGHT 104	AMOCO PROD CO	WESTRO	260	4
1009.11	028	09S	11W	CALCASIEU	019	237	N	Industrial	Abandoned		MICHLA OIL	UNKNOWN	485	6
1069.9	021	09S	11W	CALCASIEU	019	6766Z	H	Domestic	Active		WHATLEY, CHESTE	GEAREN (D. W.)	250	2
1281.62	028	09S	11W	CALCASIEU	019	5066Z	S	Rig Supply	Plugged and Abandoned	BRIGHT 58	AMOCO PROD CO	WESTRO	240	
1318.98	028	09S	11W	CALCASIEU	019	15401Z	S	Rig Supply	Plugged and Abandoned	BRIGHT PENN FEE #139	ELYSIUM JENNINGS	GUICHARD OPERATING COMPANY, INC.	280	4

Attachment 6D

MEMORANDUM

Date: February 17, 2012

To: Injection and Mining Geologist

From: Laurence Bland

Subject: Application No. 30000

I have conducted a ¼ mile field search around the proposed SWD and was unable to locate any freshwater wells.

Laurence Bland

Freshwater Laboratory Analyses
Attachment 6E

Laboratory analyses of a water sample from each unplugged freshwater well must be provided. Bailers or surface pumps with tubing should be used to sample the wells that no longer have pumps.

A written explanation must be submitted for all unplugged wells on the Freshwater Well List, **Attachment 6C** and SONRIS printout, **Attachment 6D** that are not sampled.

The laboratory analyses must be signed originals from a Louisiana Department of Environmental Quality (LDEQ), Louisiana Environmental Laboratory Accreditation Program (LELAP) accredited laboratory.

The analysis sheet(s) must identify the freshwater well sampled, and, at a minimum, include measurements of Chlorides (mg/l) and Total Dissolved Solids (mg/l). A PDF list of Accredited Laboratories can be found on the LDEQ website, www.deq.louisiana.gov, Under ***Divisions >> Public Participation and Permit Support >> Louisiana Laboratory Accreditation Program*** (scroll down to the Accredited Laboratories link).

Freshwater Laboratory Analyses cont'd.
Attachment 6E

Please label the analysis sheet(s) **Attachment 6E** and include as part of the Application.

Please ensure that the Sample Name or Sample Id on the chain-of-custody submitted to the laboratory identifies the location from which the sample was collected and can be correlated to a freshwater well name or DNR number listed on the Freshwater Well list, **Attachment 6C** or the SONRIS Database Printout of DNR Registered Water Wells, **Attachment 6D**. This is usually the sample name or sample ID that also appears on the laboratory report.

Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 · 800-256-6110 · 318-220-9067 · Fax 318-221-3296
LELAP CERTIFICATION # 02082

Client: Anita Knapp
Consulting Co., LLC
617 N. Third Street
Baton Rouge, LA 70802

Report Date: 11/15/2011
Sample ID: JOE SMITH FRESHWATER WELL
Project Name: JOE BALL, LLC
Collected By: CLIENT
Date Received: 11/13/2011

GSEL ID#: 67989

WET CHEMISTRY

Sample Matrix: WATER

Analyte:	Result	Units	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TDS	142	mg/L		10.0		EPA 160.1	1500 - 01/19/11	MR
CHLORIDE	64	mg/L		10.0	10	H 8225	1705 - 01/19/11	JDB

Report Approved By: R Scott Martin

ND - Not detected at the reporting limit
A - Analyte detected in the associated method blank
B - Estimated value between the detection limit and the reporting limit
C - Estimated value exceeds the calibration curve
D - Surrogate recovery outside advisable QC limits

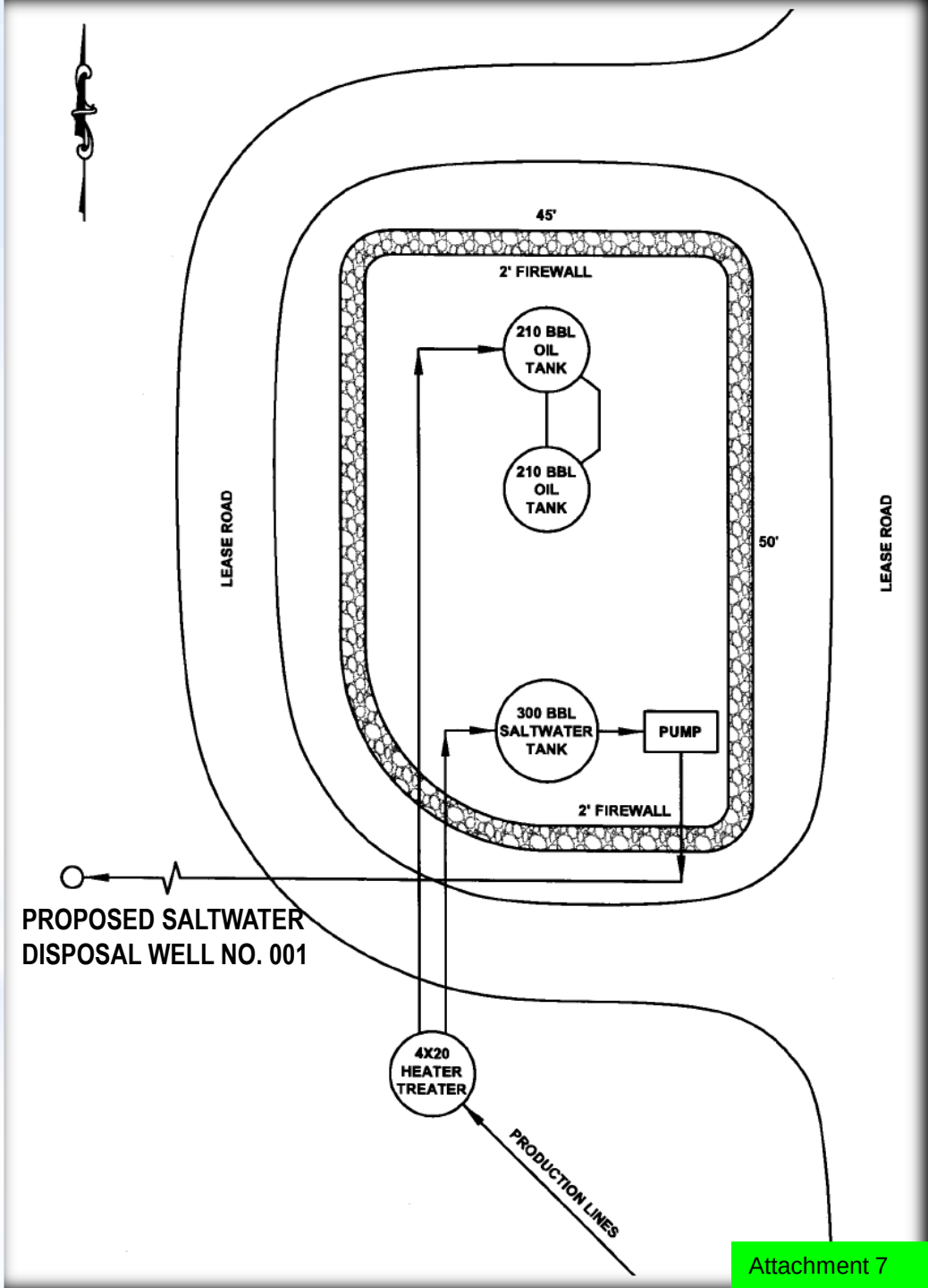
TNTC - Too numerous to count
E - Surrogate recovery unreportable due to dilution
F - Matrix interference
G - Method specific criteria not met
H - Some of the QC was outside the normal range

Attachment 6E

Facility Diagram
Attachment 7

A surface facility diagram must be included as part of the Application and labeled as **Attachment 7**. The diagram should be drawn to scale (or reasonably close) and should show the following where applicable:

1. **Proposed well**
2. **Tanks**
3. **Pits**
4. **Containment levees**
5. **Flow lines entering and leaving the facility**
6. **Rig supply well**
7. **Producing wells if located within the area shown**
8. **Pertinent buildings**
9. **Landmarks and other significant structures or features**



Attachment 7

Injection Fluid Source List
ATTACHMENT 8A

The Injection Fluid Source List must include each well that will contribute fluid to the proposed injection well and should only include wells of which the applicant is the registered operator-of-record.

Applicants must complete the Injection Fluid Source List that is included in the Form UIC-2 SWD Conversion Application package labeled as **Attachment 8A**. Printouts of the SONRIS database search in lieu of the Injection Fluid Source List (Attachment 8A) will not be accepted. Please include **Attachment 8A** as part of the Application package.

Once a well is permitted for SWD, the operator can apply to add additional wells to their fluid source list to include wells produced by a different operator by submitting a Form UIC-13 Community Saltwater Disposal System Initial Notification.

Injection Fluid Source List
ATTACHMENT 8A

ATTACHMENT 8A - INJECTION FLUID SOURCE LIST

OPERATOR CODE	WELL NAME & NO.	SERIAL NUMBER	FIELD CODE	FORMATION	TOTAL DEPTH (FT.)	PERFORATED OR COMPLETED INTERVAL (FT).		
J123	OIL AND GAS WELL NO. 006	91337	2768	10,000' Sand	10,900	10,700	TO	10,760
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	

OFFICE OF CONSERVATION
INJECTION & MINING DIVISION

(ATTACH ADDITIONAL LISTS IF NEEDED)

UIC-2 SWD CONVERSION APPLICATION

Injection Fluid Source Analyses
ATTACHMENT 8B

Laboratory analyses of a representative sample of the fluid to be injected in the proposed well should be included as part of the Application. The laboratory analyses must be **signed originals** from a LDEQ LELAP accredited laboratory. A PDF list of Accredited Laboratories can be found on the LDEQ website, **www.deq.louisiana.gov**, under ***Divisions >> Public Participation and Permit Support >> Laboratory Accreditation*** (scroll down to the Accredited Laboratories link).

The analysis sheet(s) must indicate the source of the sample and at a minimum include measurements of:

1. **Chlorides (mg/l)**
2. **Density (g/cc or ppg) or Specific gravity**
3. **Total Dissolved Solids (mg/l)**
4. **Temperature of sample when specific gravity was measured**

Injection Fluid Source Analyses
ATTACHMENT 8B cont'd.

The Sample Name or Sample ID on the analyses sheet(s) should identify the location point where the sample was collected and must correlate to a well(s) on the Injection Fluid Source List, **Attachment 8A**.

If the sample location is a tank battery or common gathering point, then a signed written statement will be needed to associate the fluid source wells with the sample location.

If the fluid source well(s) are not currently producing water, the applicant should submit a signed written statement agreeing to the submittal of the laboratory analyses as soon as fluid is available.

The Approval-to-Construct letter for this well can be issued without the analyses; however, the Permit-to-Inject will not be issued until the analyses have been received by this Office.

Please label the analyses, **Attachment 8B** or if no fluid is available, label the written statement stating such as **Attachment 8B** and include as part of the Application.

Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 · 800-256-6110 · 318-220-9067 · Fax 318-221-3296
LELAP CERTIFICATION # 02082

Client: Anita Knapp
Consulting Co., LLC
617 N. Third Street
Baton Rouge, LA 70802

Report Date: 11/15/2011
Sample ID: OIL AND GAS WELL No. 6
Project Name: JOE BALL, LLC
Collected By: CLIENT
Date Received: 11/13/2011

GSEL ID#: 67989

WET CHEMISTRY

Sample Matrix: WATER

Analyte:	Result	Units	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TDS	82,842	mg/L		10.0		EPA 160.1	1500 - 01/19/11	MR
CHLORIDE	49890.0	mg/L		10.0	10	H 8225	1705 - 01/19/11	JDB
SPECIFIC GRAVITY	1.050					SM 2710F	0819 - 01/20/11	MR
TEMPERATURE	22.3	°C				EPA 170.1	0819 - 01/20/11	MR

Report Approved By: R Scott Martin

ND - Not detected at the reporting limit
A - Analyte detected in the associated method blank
B - Estimated value between the detection limit and the reporting limit
C - Estimated value exceeds the calibration curve
D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count
E - Surrogate recovery unreportable due to dilution
F - Matrix interference
G - Method specific criteria not met
H - Some of the QC was outside the normal range

Attachment 8B

Here's another common problem encountered

during application review…

ATTACHMENT 8A - INJECTION FLUID SOURCE LIST

OPERATOR CODE	WELL NAME & NO.	SERIAL NUMBER	FIELD CODE	FORMATION	TOTAL DEPTH (FT.)	PERFORATED OR COMPLETED INTERVAL (FT).		
J123	BA BB RA SUA; SL 16587	777766	6918	BA BB RA	7850	7682	TO	7701
							TO	
							TO	
							TO	
							TO	

ATTACHMENT 8A - INJECTION FLUID SOURCE LIST

OPERATOR CODE	WELL NAME & NO.	SERIAL NUMBER	FIELD CODE	FORMATION	TOTAL DEPTH (FT.)	PERFORATED OR COMPLETED INTERVAL (FT).		
J123	BA BB RA SUA; SL 16587	777766	6918	BA BB RA	7850	7682	TO	7701
							TO	
							TO	

							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	
							TO	

☐ 109 Cleveland Street
Houma, LA 70363
(985) 868-4820

PETROLEUM LABORATORIES, INC.

CHAIN OF CUSTODY

☑ 333 E. Kaliste Saloom Rd.
Lafayette, LA 70508
(337) 234-7414

Company **Joe Ball, LLC**

Phone Number **(225) 342-5515**

Field / Sample Point **Block 3**

☑ Regulatory ☐ Non-Regulatory

Sample Date	Sample Time	Comp	Grab	Sample Location / Identification	Matrix (W = Water, SL = Sludge, S = Soil, O = Other)	Number of Containers	Bottle (P = Plastic, G = Glass, S = Sterilized, V = 40 mL Vial)	Size (1 = 1 Liter 4 = 4 oz. 6 = 6 oz. 8 = 8 oz. 16 = 16 oz.)	Preservation (0 = None, 1 = Hydrochloric, 2 = Nitric, 3 = Sulfuric, 4 = Phosphoric)	Analysis Requested: Chlorides	TDS	Specific Gravity	Temp.			FOR OFFICE USE ONLY: PLI LAB NUMBER	pH – s.u.	Temp - °C
2/17/12	10:00am		x	MP-46	W	1	P		0	X	X	X	X			HSQ-0252		23.9

CONDITION OF SAMPLES UPON RECEIPT AT LAB

Sampler (s) *(Print)*	1. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
Laurence Bland	Laurence Bland	2/18/12	9:00 am			
	3. Relinquished By:	Date:	Time:	4. Received By:	Date:	Time:
	5. Relinquished By:	Date:	Time:	6. Received for Laboratory: Tina Fanguy	Date: 02/18/12	Time: 9:01 am

Turn-Around Time

Normal Service
☑ 3 – 5 Days

Rush Service
☐ 24 Hrs. ☐ 48 Hrs.

Data Results To:
Joseph S. Ball, Jr.
(225) 342-5515

Invoice To:

Sample Remarks:

White = Lab Copy Yellow = Return with Lab Report Pink = Client Copy

PETROLEUM LABORATORIES, INC.

109 Cleveland Street
Houma, Louisiana 70363
985-868-4820

Company: JOE BALL, LLC
P.O. BOX 94275
BATON ROUGE, LA 70804

Report Date: 07/20/11

Lab No: HSQ-0252
Regulatory

Location: MP 46

Attn: JOE

Certificate #:01969

MP 46 / SWD
Sample Date: 07/17/11

MP 46 / SWD
Sample Date:

Chloride - mg/l	33,364
Total Dissolved Solids - mg/l	64,300
Specific Gravity @ 60 °F	1.0379
Temperature - °F	73

Attest: R L Bulfon

ATTACHMENT 8A

ATTACHMENT 8A - INJECTION FLUID SOURCE LIST

OPERATOR CODE	WELL NAME & NO.	SERIAL NUMBER	FIELD CODE	FORMATION	TOTAL DEPTH (FT.)	PERFORATED OR COMPLETED INTERVAL (FT).		
J123	BA BB RA SUA; SL 16587	777766	6918	BA BB RA	7850	7682	TO	7701
							TO	
							TO	

MP 46 / SWD
Sample Date: 07/17/11

The Fluid Source Analysis cannot be connected to the well on the Fluid Source List

MEMORANDUM

Date: February 17, 2012

To: Injection and Mining Geologist

From: Laurence Bland

Subject: Application No. 30000

The sample labeled MP46/SWD collected on 07/17/11 came from the MP 46 Tank in Southwest Mount Common Church Field.

The produced water from SN 777766 goes to the MP 46 Tank.

Laurence Bland

If required, please include a letter similar to this one which indicates where the sample was collected.

GROUP EXERCISES

Exercise Number 1

Determine the Base of the USDW from the following log

Remember

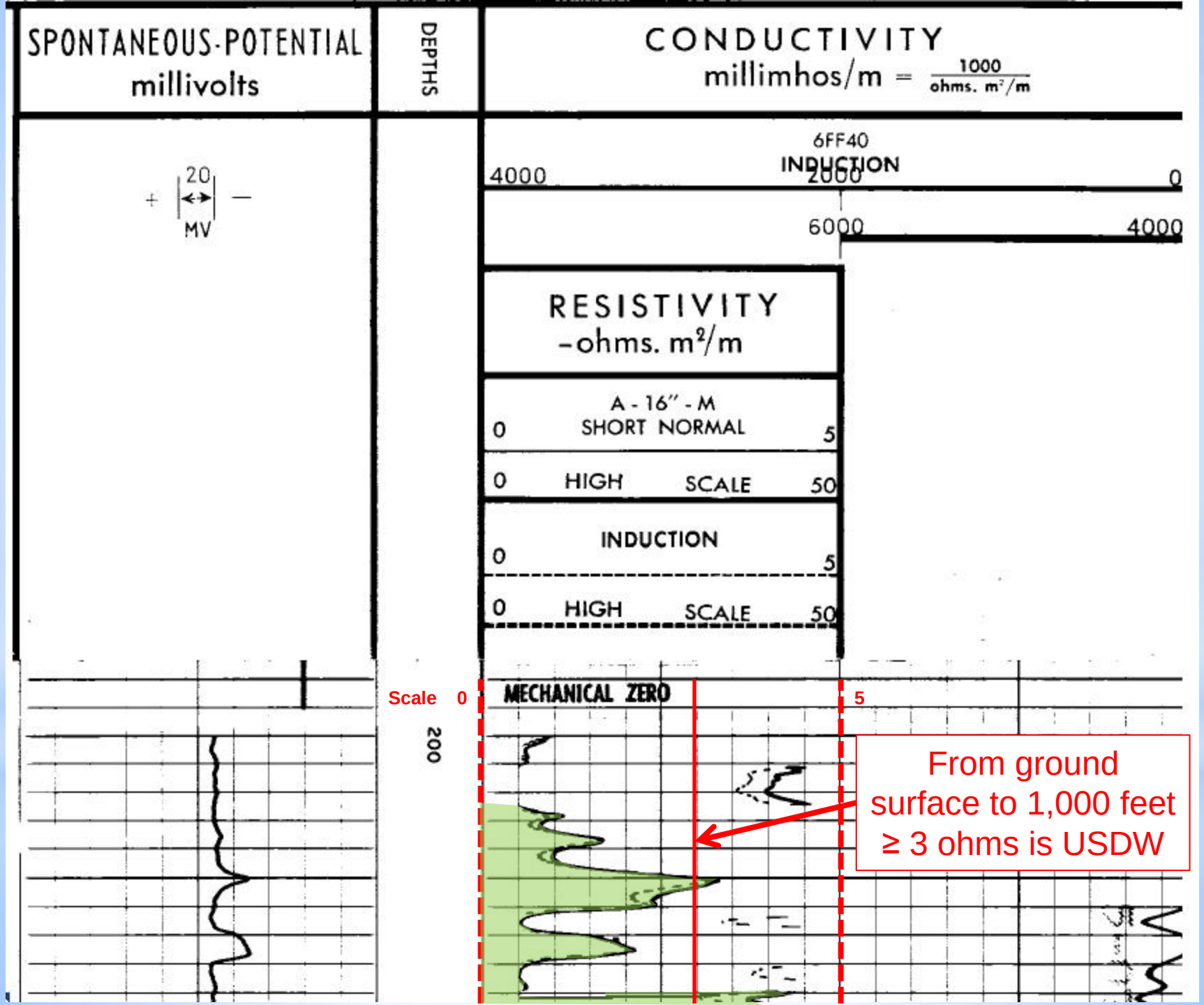
The base of the USDW can be determined from the deep induction curve, generally the dotted curve, on the e-log. Resistivity changes with temperature and depth, therefore the guidelines below are used to approximate the lowermost USDW in sands at the following depths:

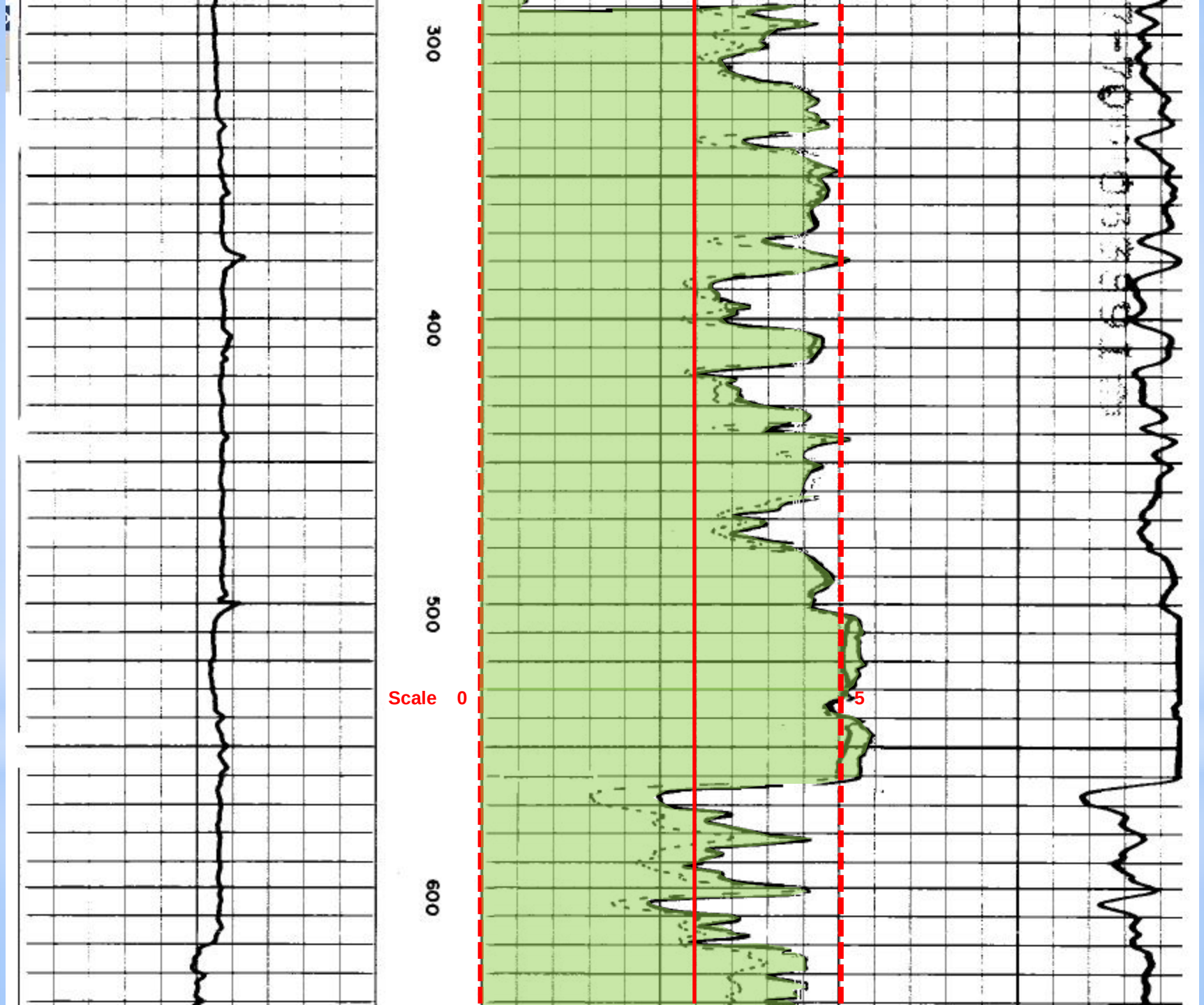
1. **Ground surface to 1,000 feet: 3 ohms or higher is considered USDW;**

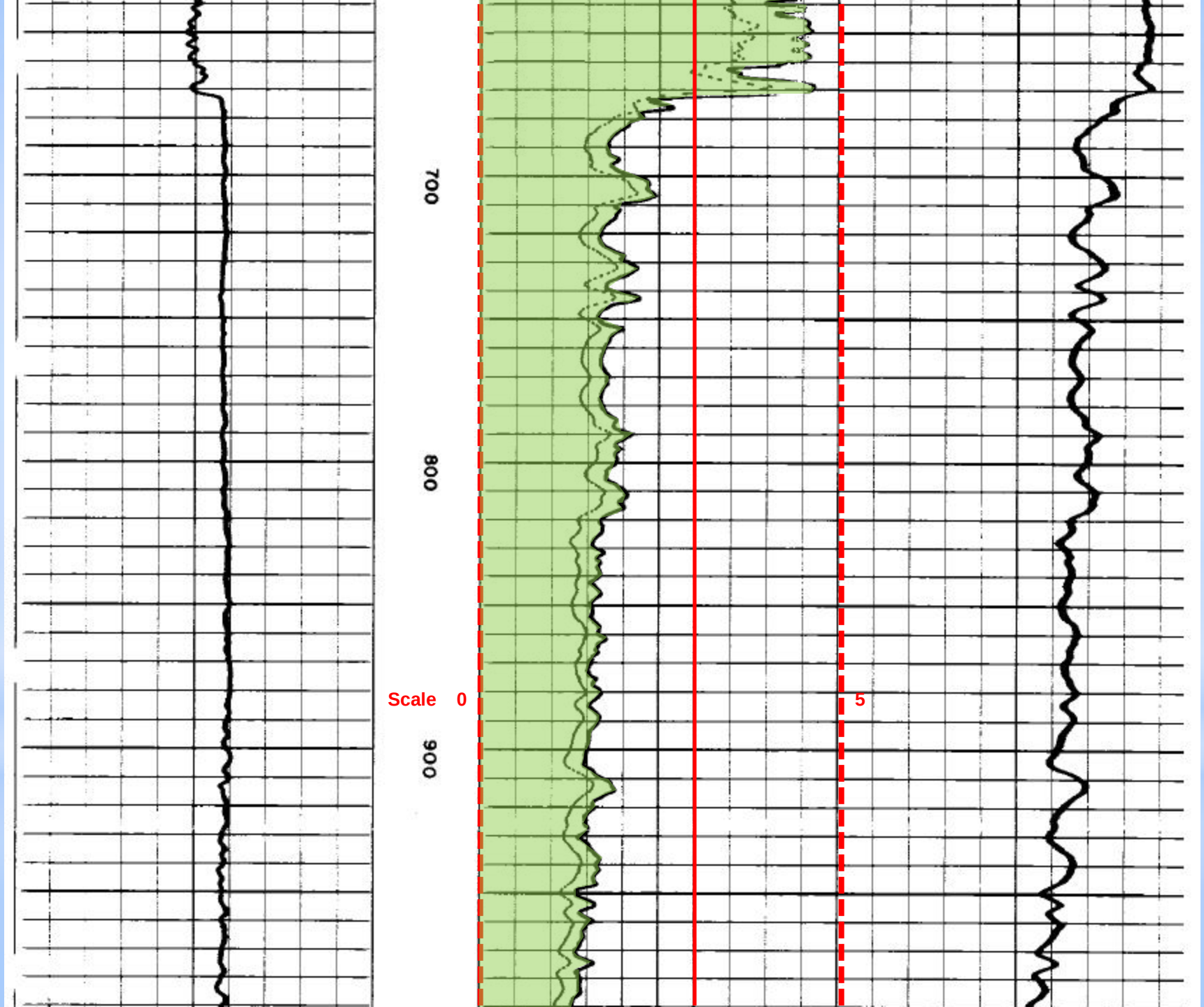
2. **1,000 feet to 2,000 feet: 2 ½ ohms or higher is considered USDW; and**

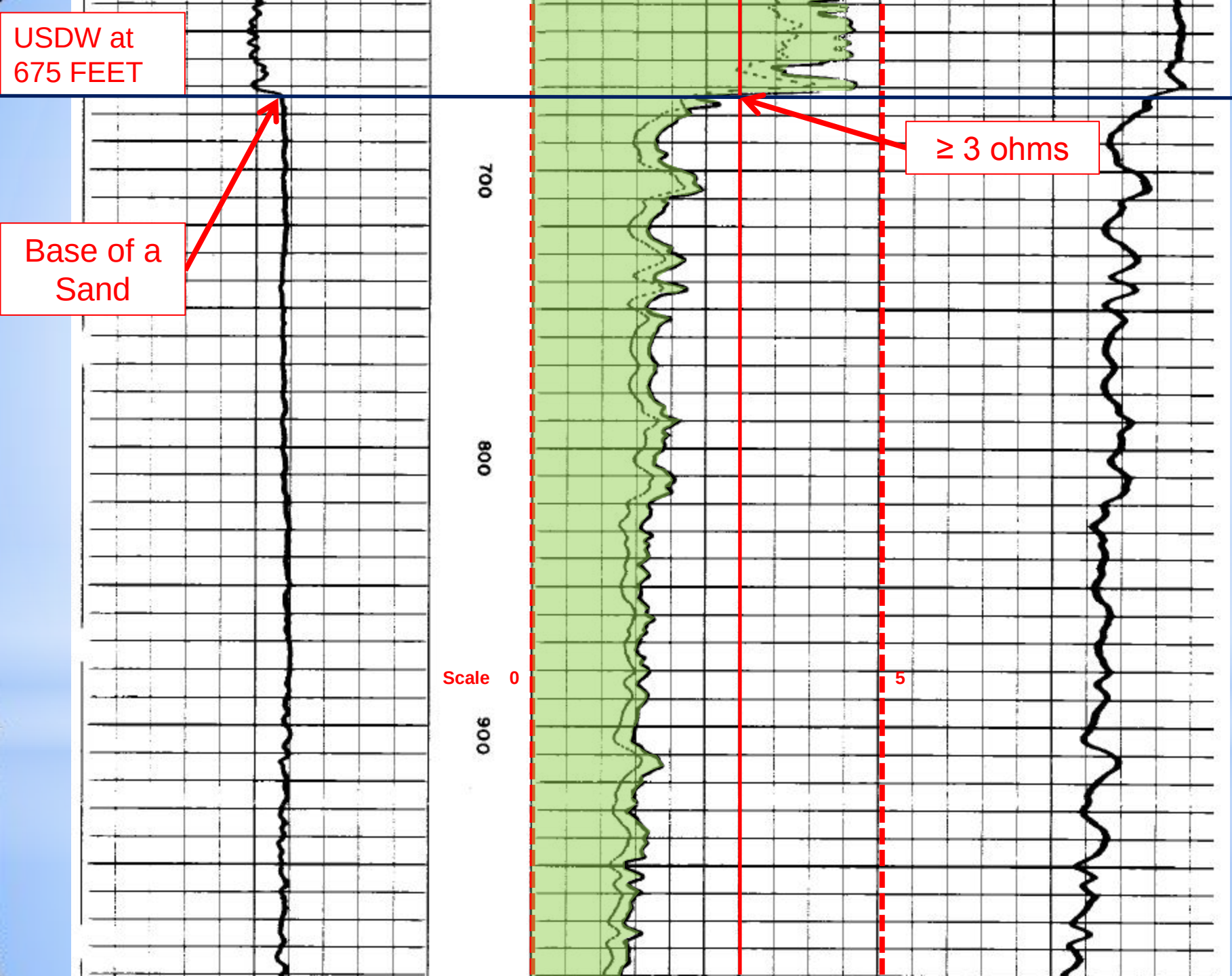
3. **2,000 feet and deeper: 2 ohms or higher is considered USDW.**

The base of the USDW is typically established at the base of the sand unit that contains the lowermost USDW. Clay or shale intervals with resistivities higher than those listed above are not considered USDW.


SPONTANEOUS-POTENTIAL
millivolts
+ 20 MV −
DEPTHS
CONDUCTIVITY
millimhos/m = 1000 / ohms. m²/m
6FF40
INDUCTION
4000
2000
0
6000
4000
RESISTIVITY
-ohms. m²/m
A - 16" - M
SHORT NORMAL
0
5
0
HIGH
SCALE
50
INDUCTION
0
5
0
HIGH
SCALE
50
Scale 0
MECHANICAL ZERO
5
200
From ground surface to 1,000 feet ≥ 3 ohms is USDW


300
400
500
600
Scale 0
5


700
800
900
Scale 0
5


USDW at
675 FEET
Base of a
Sand
≥ 3 ohms
700
800
900
Scale
0
5

If your answer is 675 feet, you are correct!

LET’S TRY ANOTHER ONE…

Exercise Number 2

What's wrong with these sections of the Application?

AUTHORIZED AGENT

50. AGENT OR CONTACT AUTHORIZED TO ACT FOR THE OPERATOR DURING PROCESSING OF THIS APPLICATION.

THE SIGNATURE OF THE OPERATOR CERTIFYING THIS APPLICATION WILL AUTHORIZE THIS AGENT OR CONTACT TO SUBMIT ADDITIONAL INFORMATION AS REQUESTED AND TO GIVE ORAL STATEMENTS IN SUPPORT OF THIS APPLICATION DURING THE APPLICATION REVIEW PROCESS. ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX. THE FINAL WRITTEN DECISION ON THIS APPLICATION WILL BE SENT TO THE OPERATOR NOTED IN BOX 1 OF THIS FORM.

NAME:	ANITA KNAPP
COMPANY:	CONSULTING CO. LLC
ADDRESS:	617 N. THIRD STREET, BATON ROUGE, LA 70802
PHONE:	(225) 342-1234
EMAIL:	anitaknapp@bellsouth.net

CERTIFICATION BY OPERATOR

The signature below must be obtained from a duly appointed employee of the operating company.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application an that, based on my personal knowledge or inquiry of those individuals immediately responsible for obtaining the information, I believ is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the imprisonment (LSA-RS 30:17).

51. NAME (PRINT) ANITA KNAPP	52. TITLE (PRINT) AGENT
53. SIGNATURE Anita Knapp	54. DATE 12/06/2011

Exercise Number 3

Determine the following from the following log:

Base of the USDW

Select the Top of the Injection Zone between 3,000 and 3,200 feet

Select the Bottom of the Injection Zone between 4,300 and 4,800 feet

SCHLUMBERGER

WELL SURVEYING CORPORATION

COMPOSITE LOG

FORM 154.0

Location of Well

Start at cor. Sec. 41 go 2733' SE alg Sec. line, th 3720' to Sec. 7-12s-8e

31068

Elevation: D.F.:
or G.L.:

COMPANY: HUMBLE OIL & REF. PSUN

WELL: HARRY BASS #7

RUN NO.: COMPOSITE (1-2)

FIELD: GOODHOPE

SURVEY: SEC. 7-12s-8e

COUNTY: ST. CHARLES

STATE: LOUISIANA

FILING No. 1-120

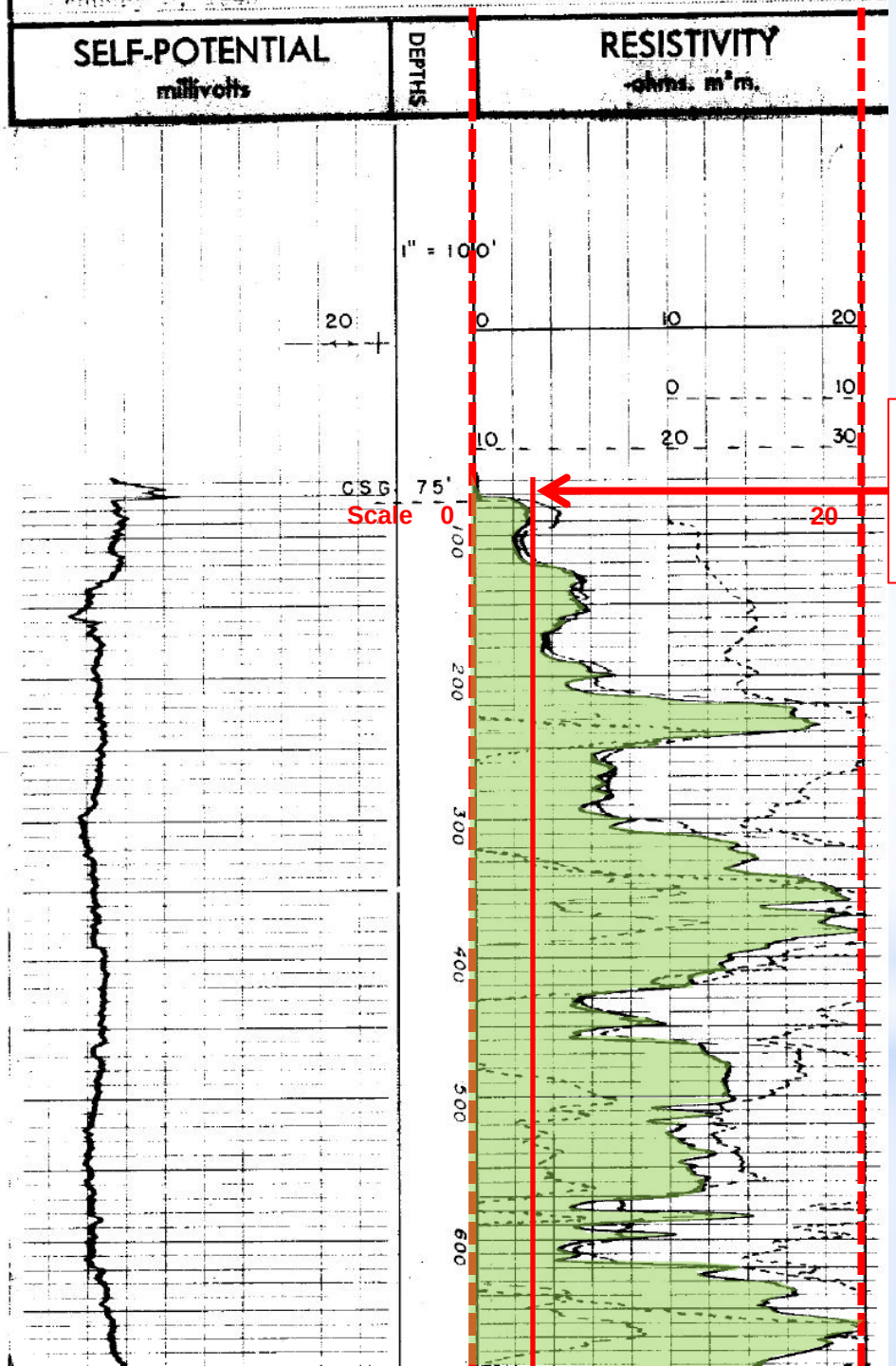
COMPANY:
WELL:
SURVEY:
FIELD OR
COUNTY:

RUN	1	2
Date	12/10/45	12/22-23
First Reading	1646	8750
Last Reading	75	1646
Footage Measured	1571	7104
Csg Shoe Schlum.	75	1617
Csg Shoe Driller	76	1617
Max. Depth Reached	1646	8750
Bottom Driller	1648	8750
Depth Datum	Measurements from 1' above rotary.	
Mud Nature	Aquagel	Chemical
" Resistivity	2.7 @ 70	2.9 @ 62
" Weight	9.6	10.3
" Viscosity	56	44
Hole Size	12 1/4"	9 7/8"
Bottom Temp.	---	162
Spacings		
AM	16"	16"
AM'	64"	62"
OA	24'	24'
Observers	[illegible]n	Freeman

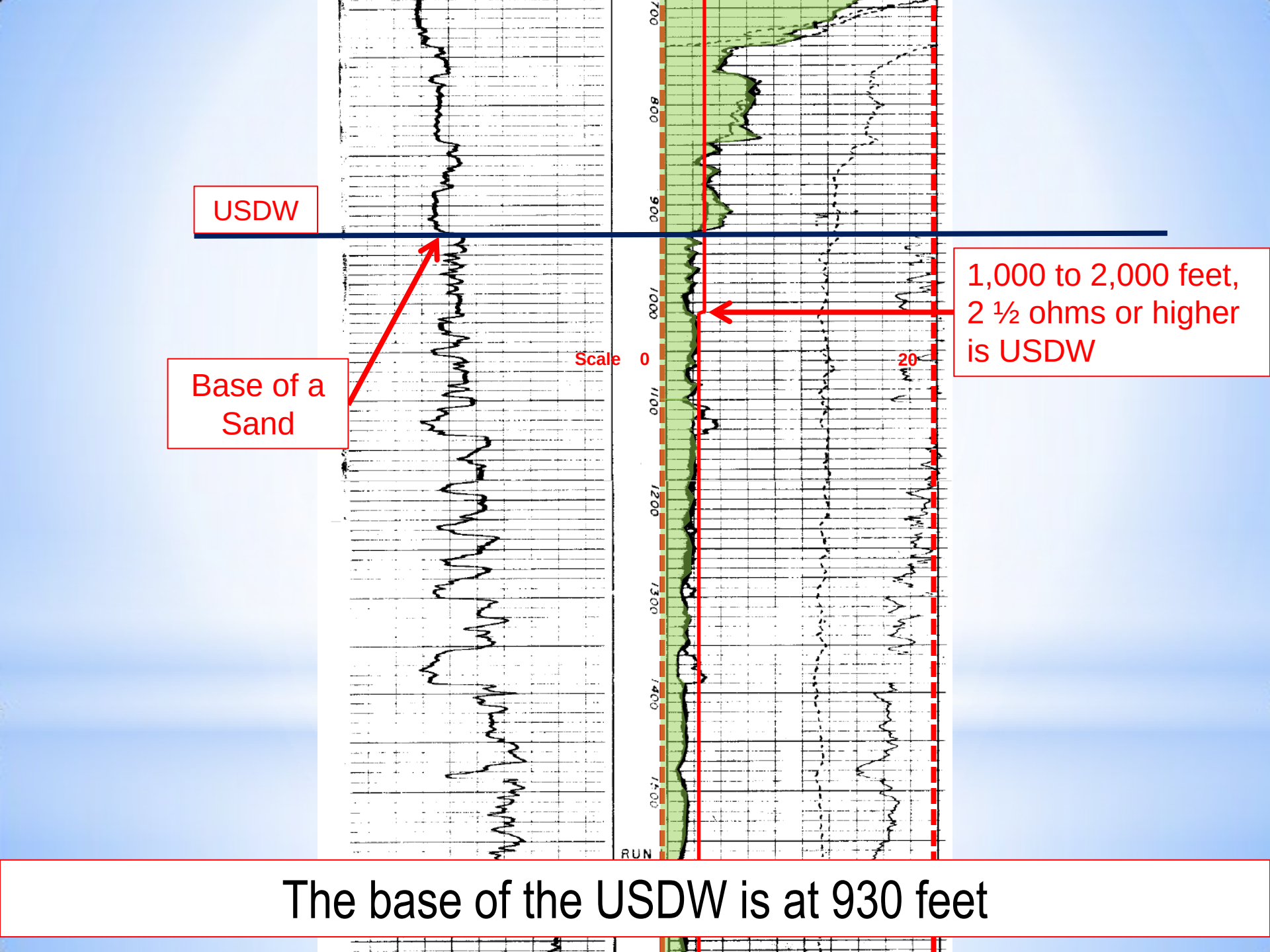
RECEIVED JAN 18 19[illegible] LOUISIANA GEOLOGICAL SURVEY

REMARKS

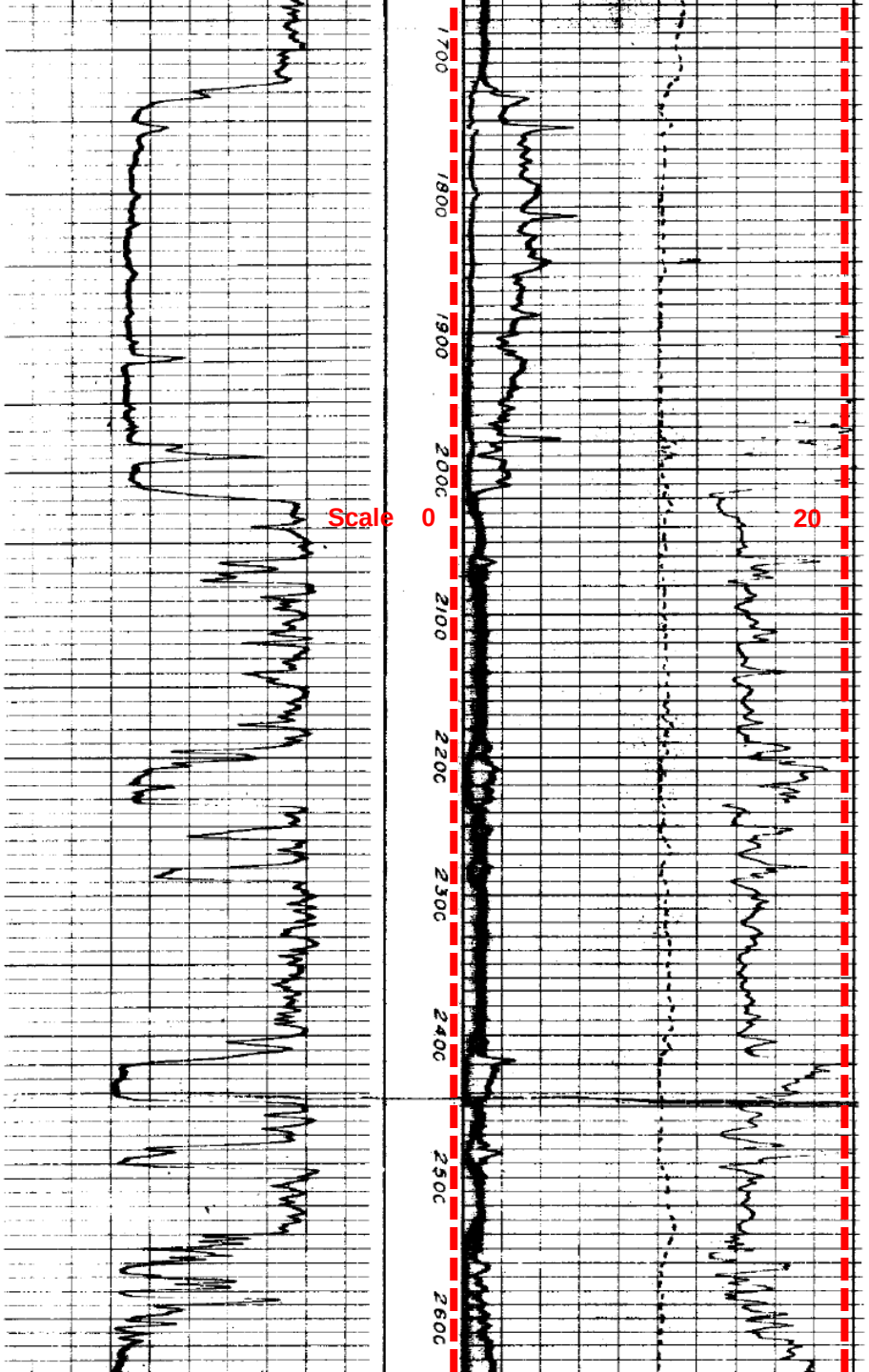
LSN33990500000031068



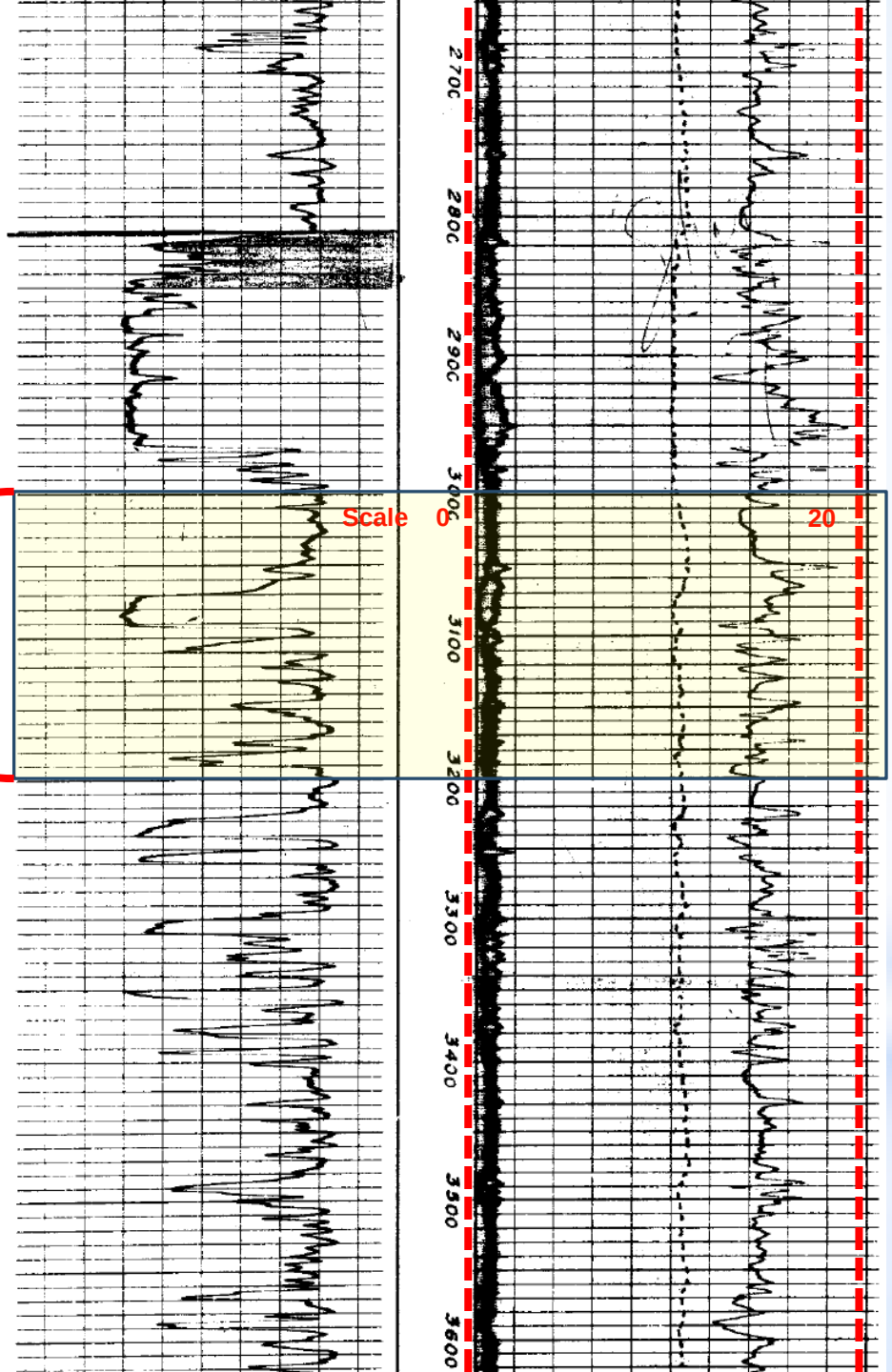
Less than 1,000 feet, ≥ 3 ohms is USDW



The base of the USDW is at 930 feet

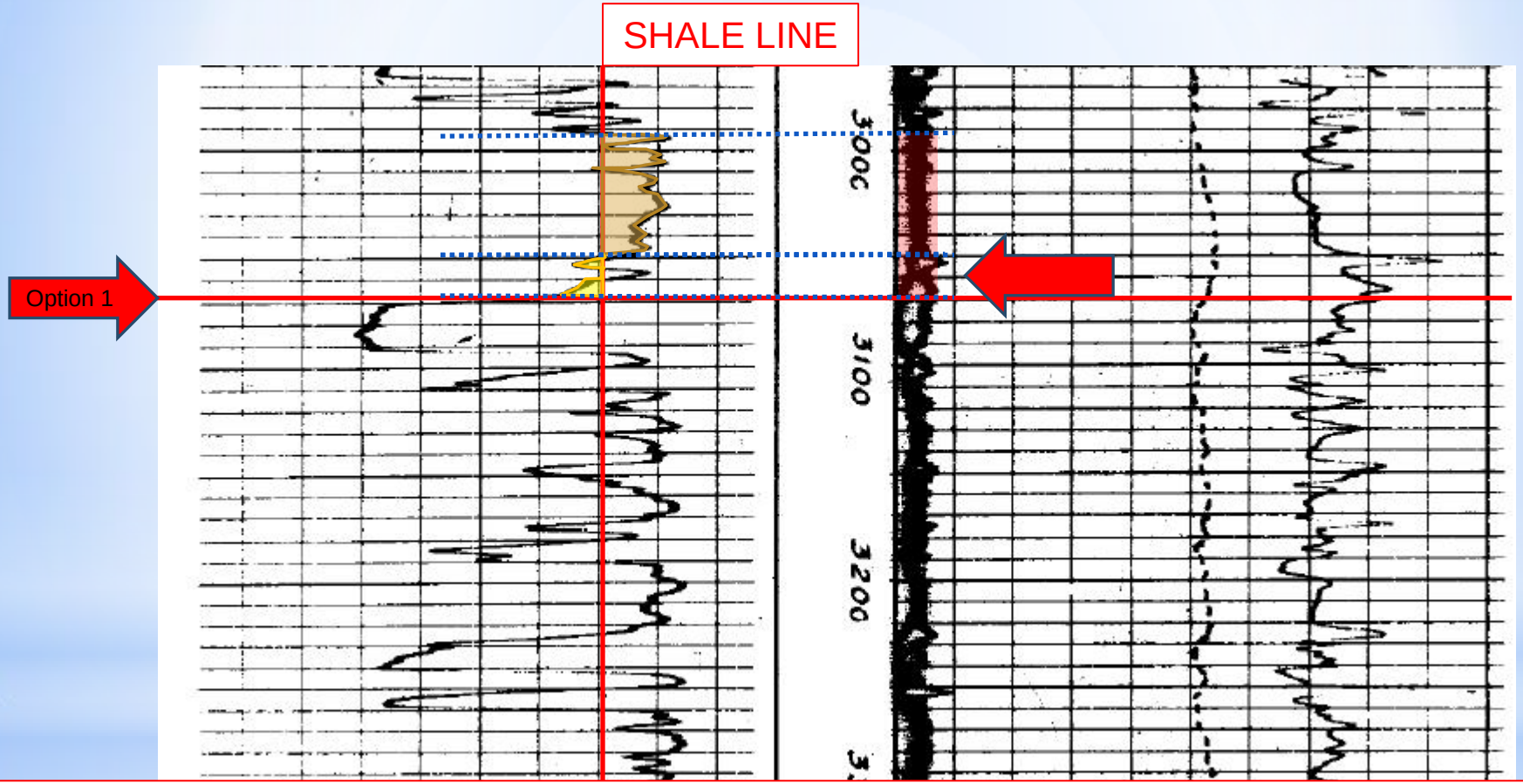

1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
Scale 0
20

Find a possible Top of Injection Zone between the depths of 3,000 and 3,200 feet



Top of the Injection Zone between 3,000 and 3,200 feet

Option 1

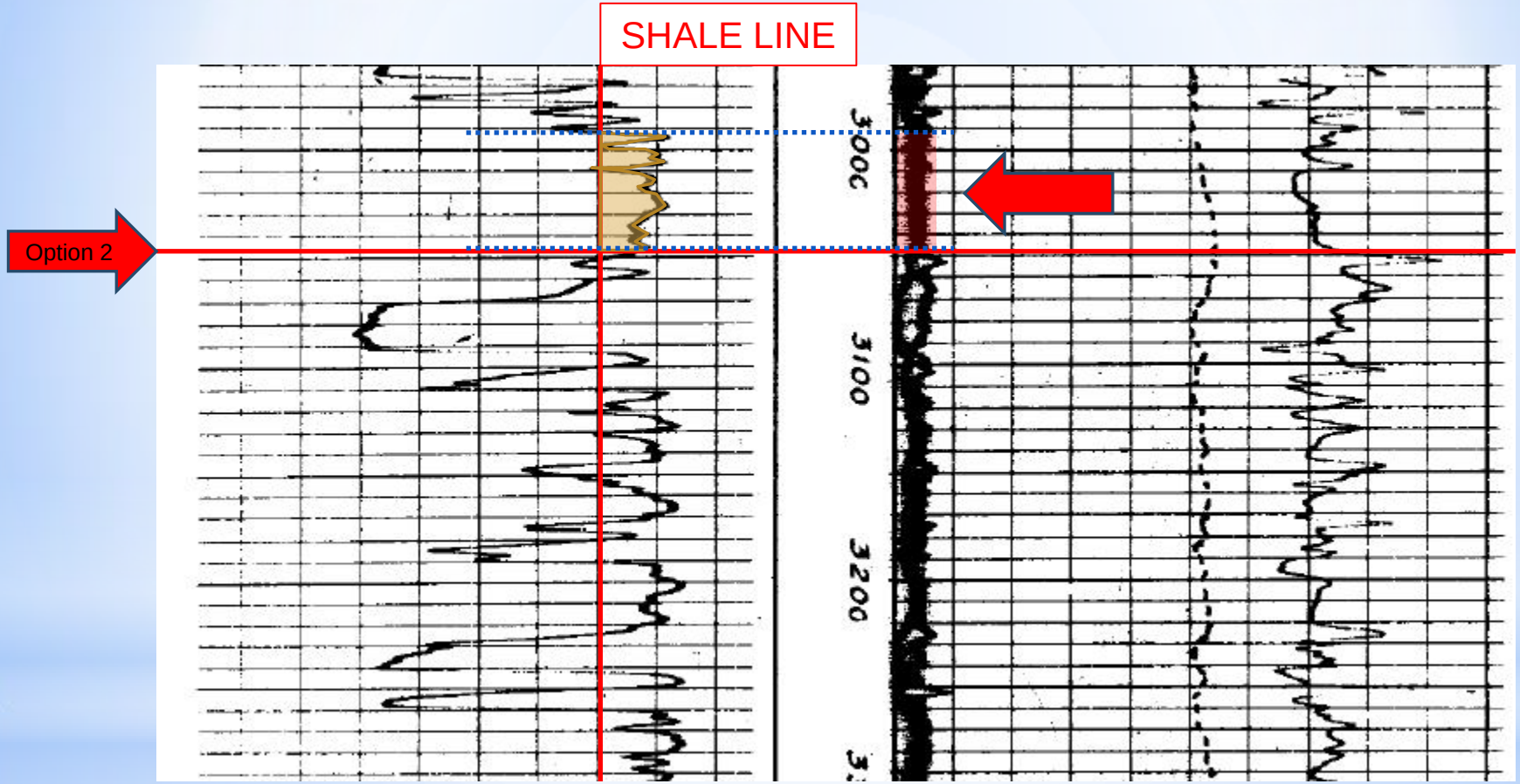


Notice the slight separation on the resistivity curves

And here's the isolating shale but let's try another possible top of zone.

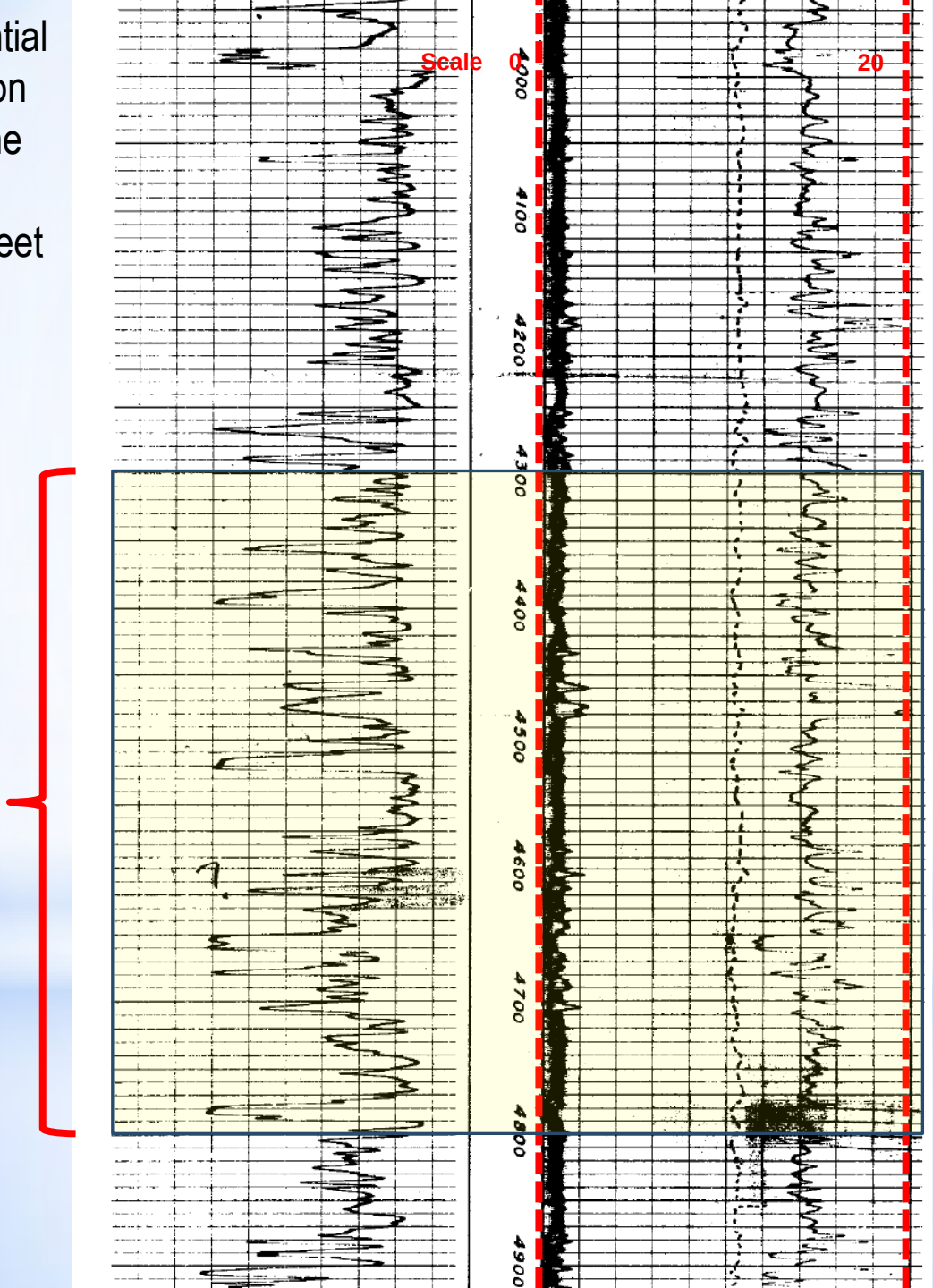
Top of the Injection Zone between 3,000 and 3,200 feet

Option 2

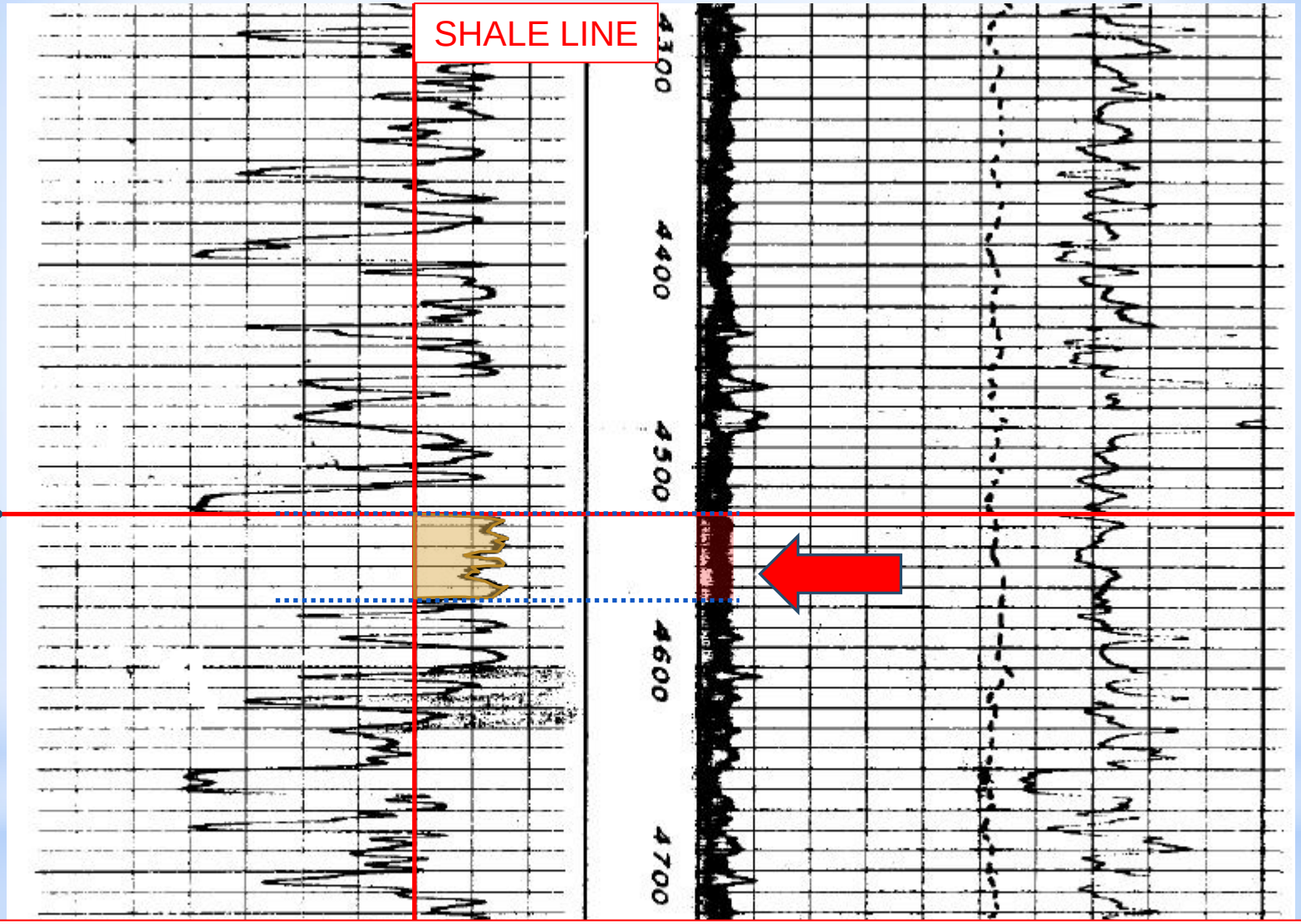


There is less separation on the resistivity curves and sufficient confining shale therefore Option 2 is preferable. The proposed top of zone is **3,050 feet.**

Determine a potential Bottom of Injection Zone between the depths of 4,300 and 4,800 feet



Bottom of the Injection Zone between 4,300 and 4,800 feet



There is sufficient shale to isolate our selection, therefore we should select **4,525 feet** as our proposed bottom of zone.

Class II Enhanced Recovery (ER) Wells (Form UIC -2 ER)

OFFICE OF CONSERVATION

ENHANCED RECOVERY WELL PERMIT APPLICATION

UIC-2 ER Conversion

MAILING ADDRESS
OFFICE OF CONSERVATION
P.O. Box 94275-Capitol Station
Baton Rouge, LA 70804-9275

APPLICATION NO.
(FOR OFFICE USE ONLY)

ER TYPE
☐ GAS ☐ WATER ☐ OTHER:

CONSERVATION ORDER NO.

OPERATOR INFORMATION

The information in boxes 1-12 must match the Form MD-10-R-A or MD-10-R-A-1

1. OPERATOR NAME			2. OPERATOR CODE
3. OPERATOR MAILING ADDRESS	4. CITY	5. STATE	6. ZIP CODE
7. TELEPHONE NUMBER	8. FAX NUMBER	9. EMAIL ADDRESS	
10. PROPOSED WELL NAME AND NUMBER	11. API NUMBER		12. SERIAL NUMBER

WELL INFORMATION

The information in boxes 13-22 must match the current Location Plat (Attachment 2) exactly.

13. FIELD NAME	14. FIELD CODE	15. SEC	TWN	RNG
16. PARISH NAME	17. PARISH CODE			
18. LOCATION DESCRIPTION				

19. GEOGRAPHIC COORDINATE SYSTEM (NAD 27)						20. STATE PLANE COORDINATES (LAMBERT, NAD 27)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

21. GEOGRAPHIC COORDINATE SYSTEM (NAD 83)						22. STATE PLANE COORDINATES (LAMBERT, NAD 83)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

PROPOSED WELL CONSTRUCTION INFORMATION

The information in boxes 23-38 must match the information reported on Attachment 4C (Proposed Wellbore Schematic) and Attachment 4D (Work Prognosis).

23. CASING SIZE (IN.)	24. HOLE SIZE (IN.)	25. CASING WEIGHT	26. DEPTH SET TOP (FT.)	26. DEPTH SET BOTTOM (FT.)	27. SACKS CEMENT	28. CEMENT CLASS or YIELD (CU.FT/SACK)	29. TOP OF CEMENT DEPTH (Indicate if the depth is from a CBL or Calculated)

30. TUBING TYPE ☐ STEEL ☐ OTHER (IDENTIFY):	31. TUBING SIZE (IN.)	32. TUBING DEPTH (FT.)
33. PACKER ☐ TENSIONAL ☐ PERMANENT ☐ COMPRESSIONAL	34. DEPTH SET (FT.)	
35. PLUGGED-BACK DEPTH (FT.)	36. TOTAL DEPTH OF WELL (FT.)	

PROPOSED INJECTION INTERVAL INFORMATION

The information in boxes 39 and 42 should come from the electric log of the well to be permitted or the closest offset well that was logged across the proposed injection zone. If the top and bottom of the zone are not shown on the same log, two different logs can be used. Copies of the log(s) must be attached and labeled as Attachment 5B.

37. INJECTION ZONE (FT) TOP	BOTTOM	38. PERFORATED/OPEN-HOLE INTERVAL WITHIN ZONE (FT) TOP	BOTTOM
39. INJECTION FORMATION NAME		40. INJECTION THROUGH: ☐ PERFORATIONS ☐ SCREEN ☐ OPEN-HOLE	

PRESSURE CALCULATION DATA

41. INJECTION RATE (BARRELS/MINUTE):

NORMAL (BPM) MAXIMUM (BPM)

42. INJECTION FORMATION PROPERTIES:

POROSITY (%) PERMEABILITY (MILLIDARCYS) HOW WERE THE PROPERTIES ATTAINED:

43. HOW WOULD YOU PREFER THE INJECTION AND MINING DIVISION CALCULATE THE MAXIMUM ALLOWABLE SURFACE INJECTION PRESSURE (MASIP) FOR THIS WELL:
(Please note: Eaton's Fracture Gradient (Louisiana Gulf Coast) will be used to calculate the MASIP if one of the preferred methods below is not selected.)

☐ **BASED ON THE FRACTURE GRADIENT OF THE INJECTION FORMATION (STEP-RATE / FALL OFF TEST, SONIC LOG OR OTHER ACCEPTABLE LOG)**

☐ **BASED ON THE FRACTURE GRADIENT OF THE CONFINING FORMATION (FOR GUIDANCE REFER TO ATTACHMENT 9, MASIP CALCULATION REQUEST IN THE INSTRUCTIONS)**
As described in Intra-Office Policy Statement No. IMD-GS-09 at http://dnr.louisiana.gov/assets/docs/memo20090324-imd-gs-09.pdf

OTHER INFORMATION

44. DESCRIBE CONTINGENCY PLANS FOR WHEN THE WELL IS INOPERABLE:

45. IS THE PROPOSED WELL LOCATED ON INDIAN LANDS OR OTHER LANDS OWNED BY OR UNDER THE JURISDICTION OR PROTECTION OF THE FEDERAL GOVERNMENT?	☐ YES ☐ NO
46. IS THE PROPOSED WELL LOCATED ON STATE WATER BOTTOMS OR OTHER LANDS OWNED BY OR UNDER JURISDICTION OF THE STATE?	☐ YES ☐ NO

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

☐ **FILING FEE**

☐ **ATTACHMENT 1 – OFFICE OF CONSERVATION ORDER FOR ER PROJECT**

☐ **ATTACHMENT 2 – LOCATION PLAT**

☐ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT**

ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS

- ☐ 4A - CURRENT WELLBORE SCHEMATIC
- ☐ 4B - PROPOSED WELLHEAD DIAGRAM
- ☐ 4C - PROPOSED WELLBORE SCHEMATIC
- ☐ 4D - WORK PROGNOSIS

ATTACHMENT 5 – LOGS

- ☐ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW (W/ ORDER, IF APPLICABLE)
- ☐ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS (W/ ORDER, IF APPLICABLE)
- ☐ 5C – CEMENT BOND LOG (CBL)

ATTACHMENT 6 – AREA OF REVIEW (AOR)

- ☐ 6A- AREA OF REVIEW MAP
- ☐ 6B- AREA OF REVIEW WELL LIST
- ☐ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
- ☐ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
- ☐ 6E- FRESHWATER LABORATORY ANALYSES

☐ **ATTACHMENT 7 – FACILITY DIAGRAM**

ATTACHMENT 8 – INJECTION FLUID SOURCE

- ☐ 8A - INJECTION FLUID SOURCE LIST
- ☐ 8B - INJECTION FLUID SOURCE ANALYSES

ATTACHMENT 9 – MASIP CALCULATION REQUEST

- ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
- ☐ 9B – GROUNDWATER MONITORING PLAN

☐ **ATTACHMENT 10 – CROSS SECTIONS**

☐ **DUPLICATE COPY OF THE APPLICATION**

AUTHORIZED AGENT

47. AGENT OR CONTACT AUTHORIZED TO ACT FOR THE OPERATOR DURING PROCESSING OF THIS APPLICATION.

THE SIGNATURE OF THE OPERATOR CERTIFYING THIS APPLICATION WILL AUTHORIZE THIS AGENT OR CONTACT TO SUBMIT ADDITIONAL INFORMATION AS REQUESTED AND TO GIVE ORAL STATEMENTS IN SUPPORT OF THIS APPLICATION DURING THE APPLICATION REVIEW PROCESS. ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX. THE FINAL WRITTEN DECISION ON THIS APPLICATION WILL BE SENT TO THE OPERATOR NOTED IN BOX 1 OF THIS FORM.

NAME:

COMPANY:

ADDRESS:

PHONE:

EMAIL:

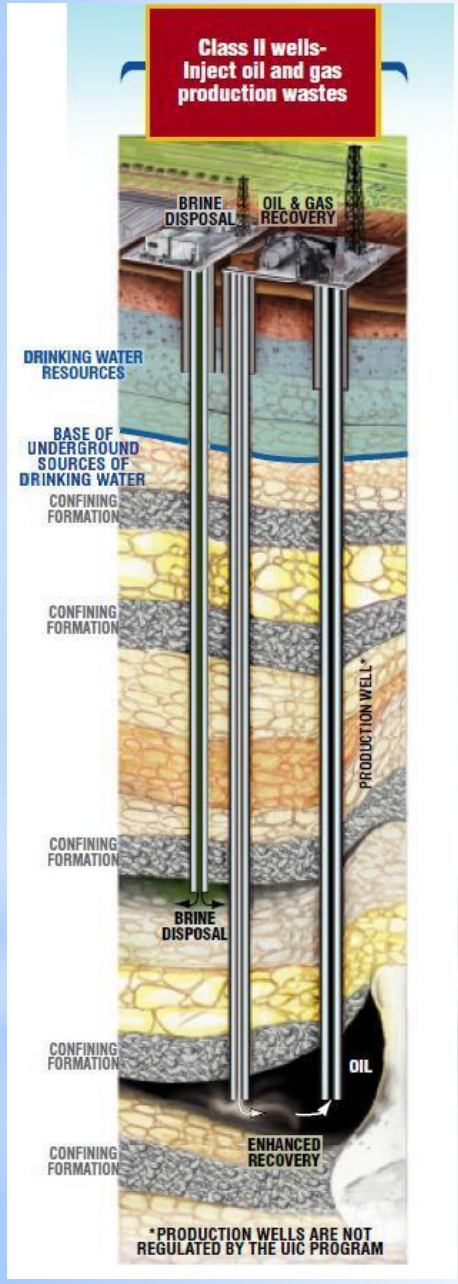
CERTIFICATION BY OPERATOR

The signature below must be obtained from a duly appointed employee of the operating company.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my personal knowledge or 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 (LSA-RS 30:17).

48. NAME (PRINT)	**49. TITLE (PRINT)**
50. SIGNATURE	**51. DATE**

Enhanced Recovery (ER) Wells



Use Form UIC-2 ER

The application process is the same as with Class II UIC-2 SWDs except for the following:

- An Order creating a Secondary Recovery or Enhanced Recovery (ER) project, signed by the Commissioner of Conservation must exist before a permit can be issued for an ER well.
- ER projects and Orders associated with them are under the jurisdiction of the Engineering and Geological Divisions of Conservation.
- Pilot projects must first have approval through the Engineering and Geological Divisions of Conservation before the Injection and Mining Division can approve the permit.

Checklist for Attachments to be included in an ER Application

A copy of the Order creating the Secondary Recovery or Enhanced Recovery (ER) project, signed by the Commissioner of Conservation must be submitted with the ER Application.

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

- ☐ **FILING FEE**
- ☐ **ATTACHMENT 1 – OFFICE OF CONSERVATION ORDER FOR ER PROJECT**
- ☐ **ATTACHMENT 2 – LOCATION PLAT**
- ☐ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT**
- **ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS**
  - ☐ 4A - CURRENT WELLBORE SCHEMATIC
  - ☐ 4B - PROPOSED WELLHEAD DIAGRAM
  - ☐ 4C - PROPOSED WELLBORE SCHEMATIC
  - ☐ 4D - WORK PROGNOSIS
- **ATTACHMENT 5 – LOGS**
  - ☐ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW (W/ ORDER, IF APPLICABLE)
  - ☐ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS (W/ ORDER, IF APPLICABLE)
  - ☐ 5C – CEMENT BOND LOG (CBL)
- **ATTACHMENT 6 – AREA OF REVIEW (AOR)**
  - ☐ 6A- AREA OF REVIEW MAP
  - ☐ 6B- AREA OF REVIEW WELL LIST
  - ☐ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
  - ☐ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
  - ☐ 6E- FRESHWATER LABORATORY ANALYSES
- ☐ **ATTACHMENT 7 – FACILITY DIAGRAM**
- **ATTACHMENT 8 – INJECTION FLUID SOURCE**
  - ☐ 8A - INJECTION FLUID SOURCE LIST
  - ☐ 8B - INJECTION FLUID SOURCE ANALYSES
- **ATTACHMENT 9 – MASIP CALCULATION REQUEST**
  - ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
  - ☐ 9B – GROUNDWATER MONITORING PLAN
- ☐ **ATTACHMENT 10 – CROSS SECTIONS**
- ☐ **DUPLICATE COPY OF THE APPLICATION**

Class II Annular Disposal Wells (Form UIC-9)

OFFICE OF CONSERVATION

ANNULAR SALTWATER DISPOSAL APPLICATION

MAILING ADDRESS
OFFICE OF CONSERVATION
P.O. Box 94275-Capitol Station
Baton Rouge, LA 70804-9275

UIC-9 Permit

APPLICATION NO.
(FOR OFFICE USE ONLY)

OPERATOR INFORMATION

The information in boxes 1-12 must match the Form MD-10-R-A or MD-10-R-A-1

1. OPERATOR NAME			2. OPERATOR CODE
3. OPERATOR MAILING ADDRESS	4. CITY	5. STATE	6. ZIP CODE
7. TELEPHONE NUMBER	8. FAX NUMBER	9. EMAIL ADDRESS	
10. PROPOSED WELL NAME AND NUMBER	11. API NUMBER		12. SERIAL NUMBER

WELL INFORMATION

The information in boxes 13-22 must match the current Location Plat (Attachment 2) exactly.

13. FIELD NAME	14. FIELD CODE	15. SEC	TWN	RNG
16. PARISH NAME	17. PARISH CODE			
18. LOCATION DESCRIPTION				

19. GEOGRAPHIC COORDINATE SYSTEM (NAD 27)						20. STATE PLANE COORDINATES (LAMBERT, NAD 27)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

21. GEOGRAPHIC COORDINATE SYSTEM (NAD 83)						22. STATE PLANE COORDINATES (LAMBERT, NAD 83)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

PROPOSED WELL CONSTRUCTION INFORMATION

The Top of Zone is defined at the shoe of the surface casing. The Bottom of Zone is defined at the top of cement of the casing set below the surface casing.

23. CASING SIZE (IN.)	24. HOLE SIZE (IN.)	25. CASING WEIGHT	26. DEPTH SET		27. SACKS CEMENT	28. CEMENT CLASS or YIELD (CU.FT/SACK)	29. TOP OF CEMENT DEPTH *(Indicate if the depth is from a CBL or Calculated)*
			TOP (FT.)	BOTTOM (FT.)			

30. METHOD OF PRODUCTION: ☐ FLOWING ☐ BEAM PUMP ☐ SUBMERSIBLE PUMP ☐ OTHER

31. CURRENT PRODUCING INTERVAL (MD IN FEET)		32. PROPOSED INJECTION ZONE (MD IN FEET)	
TOP PERFORATION	BOTTOM PERFORATION	TOP OF ZONE	BOTTOM OF ZONE

33. HAVE WELLS WITHIN 1 MILE OF THE PROPOSED WELL EVER PRODUCED FROM A DEPTH WITHIN THE PROPOSED INJECTION ZONE? ☐ YES ☐ NO

WELL ECONOMICS

34. HYDROCARBON PRODUCTION PER DAY (LAST TEST/REPORT TO DNR)				35. SALT WATER PRODUCTION PER DAY (LAST TEST/OPER RECORD)			
OIL (BBL/DAY)		GAS (MCFD)		SALTWATER (BBL/DAY)		SALTWATER STORAGE CAPACITY ON-SITE (BBLS)	

ALTERNATIVE METHODS

36. COST OF TRANSPORTATION FOR OFF-SITE DISPOSAL		37. COST OF OFF-SITE DISPOSAL	
TRANSPORTATION RATE ($/HOUR)	TOTAL COST (PER MONTH)	INJECTION RATE ($/BBL)	TOTAL COST (PER MONTH)

ALTERNATIVE METHODS

38. DISTANCE FROM THE WELL SITE TO NEAREST DISPOSAL FACILITY (MILES)

39. NAME OF NEAREST DISPOSAL FACILITY

40. ARE THERE ANY WELLS ON THE LEASE THAT COULD BE CONVERTED FOR SALTWATER DISPOSAL (SWD)? ☐ YES ☐ NO

IF "YES", COST OF RECOMPLETING AS AN SWD WELL (ATTACH AFE TO SUBSTANTIATE COST)

COST OF DRILLING A NEW ON-SITE SALTWATER DISPOSAL WELL (ATTACH AFE TO SUBSTANTIATE COST)

ADDITIONAL INFORMATION

41. ARE THERE POTENTIALLY PRODUCTIVE ZONES IN THIS WELL THAT HAVE NOT BEEN TESTED OR PRODUCED? "IF YES, PLEASE IDENTIFY"	☐ YES ☐ NO
42. IS THE WELL LOCATED WITHIN THE COSTAL ZONE? "IF YES, PLEASE IDENTIFY"	☐ YES ☐ NO
43. DO YOU OPERATE ANY OTHER PRODUCING WELLS IN THE FIELD?	☐ YES ☐ NO
44. IS DEVELOPMENT DRILLING PLANNED BY YOUR COMPANY IN THIS FIELD DURING THE NEXT YEAR?	☐ YES ☐ NO
45. IS THE WELL LOCATED OVER WATER?	☐ YES ☐ NO
46. IS THE WELL LOCATED IN THE ATACHAFALAYA BASIN OR IN A WILDLIFE REFUGE?	☐ YES ☐ NO
47. WOULD A CORP OF ENGINEERS DREDGING PERMIT BE REQUIRED TO DRILL OR CONVERT A WELL FOR SALWATER DISPOSAL?	☐ YES ☐ NO
48. ARE THERE ADJACENT SWD WELL OPERATORS WHO WOULD BE WILLING TO CONSIDER COMMUNITY SALTWATER DISPOSAL?	☐ YES ☐ NO

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

- ☐ **FILING FEE**
- ☐ **ATTACHMENT 1 – PUBLIC NOTICE**
- ☐ **ATTACHMENT 2 – LOCATION PLAT**
- ☐ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT**
- **ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS**
  - ☐ 4A - CURRENT WELLBORE SCHEMATIC
  - ☐ 4B - PROPOSED WELLHEAD DIAGRAM
  - ☐ 4C - PROPOSED WELLBORE SCHEMATIC
  - ☐ 4D - WORK PROGNOSIS
- **ATTACHMENT 5 – LOGS**
  - ☐ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW (W/ ORDER, IF APPLICABLE)
  - ☐ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS (W/ ORDER, IF APPLICABLE)
  - ☐ 5C – CEMENT BOND LOG (CBL)
- **ATTACHMENT 6 – AREA OF REVIEW (AOR)**
  - ☐ 6A- AREA OF REVIEW MAP
  - ☐ 6B- AREA OF REVIEW WELL LIST
  - ☐ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
  - ☐ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
  - ☐ 6E- FRESHWATER LABORATORY ANALYSES
- ☐ **ATTACHMENT 7 – FACILITY DIAGRAM**
- **ATTACHMENT 8 – INJECTION FLUID SOURCE**
  - ☐ 8A - INJECTION FLUID SOURCE LIST
  - ☐ 8B - INJECTION FLUID SOURCE ANALYSES
- **ATTACHMENT 9 – MASIP CALCULATION REQUEST**
  - ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
  - ☐ 9B – GROUNDWATER MONITORING PLAN
- ☐ **DUPLICATE COPY OF THE APPLICATION**

AUTHORIZED AGENT

49. AGENT OR CONTACT AUTHORIZED TO ACT FOR THE OPERATOR DURING PROCESSING OF THIS APPLICATION.

THE SIGNATURE OF THE OPERATOR CERTIFYING THIS APPLICATION WILL AUTHORIZE THIS AGENT OR CONTACT TO SUBMIT ADDITIONAL INFORMATION AS REQUESTED AND TO GIVE ORAL STATEMENTS IN SUPPORT OF THIS APPLICATION DURING THE APPLICATION REVIEW PROCESS. ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX. THE FINAL WRITTEN DECISION ON THIS APPLICATION WILL BE SENT TO THE OPERATOR NOTED IN BOX 1 OF THIS FORM.

NAME:

COMPANY:

ADDRESS:

PHONE:

EMAIL:

CERTIFICATION BY OPERATOR

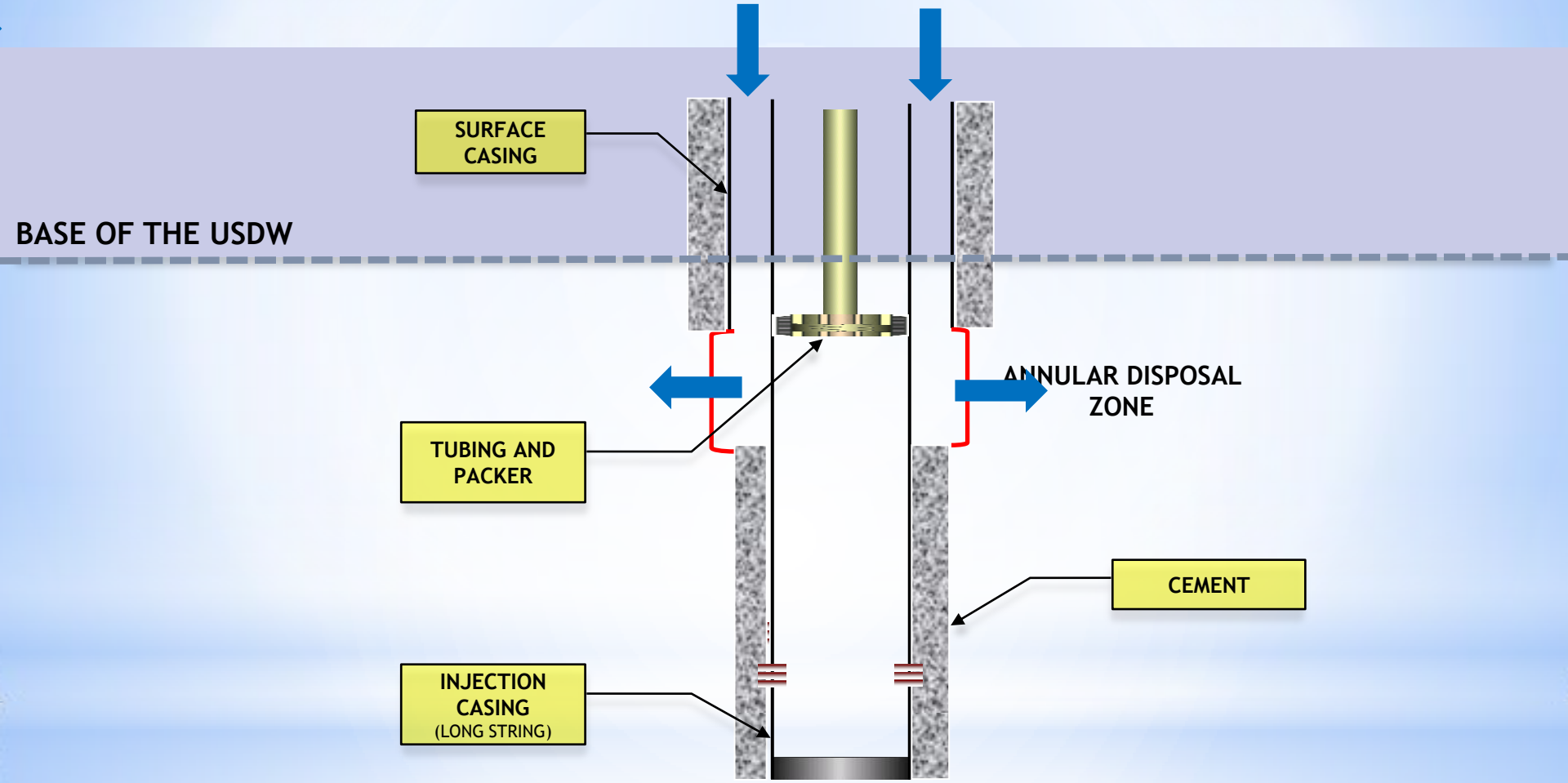
The signature below must be obtained from a duly appointed employee of the operating company.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my personal knowledge or 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 (LSA-RS 30:17).

50. NAME (PRINT)	51. TITLE (PRINT)
52. SIGNATURE	53. DATE

Class II Annular Disposal Wells

Form UIC-9



The Annular Injection Zone is defined from the surface casing shoe to the top of cement of the long string casing

To qualify for Annular Disposal, economic hardship must be proven

- The intent for annular disposal is for marginal wells where disposal costs would be prohibitive.
- Annular Class II permits are only valid for 12 months and must be renewed annually.
- Only water from the well itself can be disposed into an annular disposal well.
- There must be a minimum of 100 feet of net shale between the base of the USDW and the surface casing shoe.
- Production reported on the UIC-9 will be compared to production reported to the Production Audit Division during the review process.
- An MIPT cannot be performed on an Annular Injection Well. Wells of this type are tested by means of Radioactive Tracer Survey (RTS) only.

Community Saltwater Disposal Wells (Form UIC-13)

Community VS. Commercial

- **Community Saltwater Disposal Well**
  - Saltwater disposal well within an oil or gas field which is operated by one operator of record for disposal of E&P Waste fluids and used by other operators of record in the same field or adjacent fields for noncommercial disposal of their produced water
  - Such operators share in the costs of operating the well/system
  - Specific definition for “adjacent fields”
- **Commercial Saltwater Disposal Well**
  - A legally permitted E&P Waste storage, treatment and/or disposal facility which receives, treats, reclaims, stores, and/or disposes of E&P Waste for a fee or other consideration

Form UIC-13

Community Saltwater Disposal System Application

- **Instructions**
  - Operator and well information
  - Fluid Source List
    Operator of record's well(s) and other operator's well(s)
  - Certification by Operator
- **Community Disposal Well Working Agreement**
  - Agreement must contain:
    - Non-profit and non-commercial statement
    - Pro-rata share of the disposal well's operating expenses
    - Pro-rata share calculated and billed monthly
  - [PRO-RATA SHARE] =
    [TOTAL MONTLY MAINTENANCE EXPENSES] x [(BBLS DISPOSED BY OTHER OPERATORS EACH MONTH) / (TOTAL BBLS OF SALTWATER DISPOSED OF IN THE SAME MONTH)]

Commercial Class II Applications (Form UIC-2 COM SWD)

OFFICE OF CONSERVATION

COMMERCIAL SALTWATER DISPOSAL WELL PERMIT APPLICATION

MAILING ADDRESS
OFFICE OF CONSERVATION
P.O. Box 94275-Capitol Station
Baton Rouge, LA 70804-9275

UIC-2 COM SWD

APPLICATION NO.
(FOR OFFICE USE ONLY)

CONSERVATION ORDER NO. _____ THIS BOX ONLY NEEDS COMPLETING IF THERE IS AN EXISTING FACILITY

OPERATOR INFORMATION

The information in boxes 1-12 must match the Form MD-10-R-A or MD-10-R-A-1

1. OPERATOR NAME			2. OPERATOR CODE
3. OPERATOR MAILING ADDRESS	4. CITY	5. STATE	6. ZIP CODE
7. TELEPHONE NUMBER	8. FAX NUMBER	9. EMAIL ADDRESS	
10. PROPOSED WELL NAME AND NUMBER	11. API NUMBER		12. SERIAL NUMBER

WELL INFORMATION

The information in boxes 13-22 must match the current Location Plat (Attachment 2) exactly.

13. FIELD NAME	14. FIELD CODE	15. SEC	TWN	RNG
16. PARISH NAME	17. PARISH CODE			
18. LOCATION DESCRIPTION				

19. GEOGRAPHIC COORDINATE SYSTEM (NAD 27)						20. STATE PLANE COORDINATES (LAMBERT, NAD 27)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

21. GEOGRAPHIC COORDINATE SYSTEM (NAD 83)						22. STATE PLANE COORDINATES (LAMBERT, NAD 83)		
LATITUDE			LONGITUDE			LAMBERT-X	LAMBERT-Y	☐ NORTH ZONE
DEG	MIN	SEC	DEG	MIN	SEC			☐ SOUTH ZONE

PROPOSED WELL CONSTRUCTION INFORMATION

The information in boxes 23-38 must match the information reported on Attachment 4C (Proposed Wellbore Schematic) and Attachment 4D (Work Prognosis).

23. CASING SIZE (IN.)	24. HOLE SIZE (IN.)	25. CASING WEIGHT	26. DEPTH SET		27. SACKS CEMENT	28. CEMENT CLASS *or* YIELD (CU.FT/SACK)	29. TOP OF CEMENT DEPTH *(Indicate if the depth is from a CBL or Calculated)*
			TOP (FT.)	BOTTOM (FT.)			

30. TUBING TYPE	31. TUBING SIZE (IN.)	32. TUBING DEPTH (FT.)
☐ STEEL ☐ OTHER (IDENTIFY):		
33. PACKER ☐ TENSIONAL ☐ PERMANENT ☐ COMPRESSIONAL	**34. DEPTH SET (FT.)**	
35. PLUGGED-BACK DEPTH (FT.)	**36. TOTAL DEPTH OF WELL (FT.)**	

PROPOSED INJECTION INTERVAL INFORMATION

The information in boxes 39 and 42 should come from the electric log of the well to be permitted or the closest offset well that was logged across the proposed injection zone. If the top and bottom of the zone are not shown on the same log, two different logs can be used. Copies of the log(s) must be attached and labeled as Attachment 5B.

37. INJECTION ZONE (FT)	38. PERFORATED/OPEN-HOLE INTERVAL WITHIN ZONE (FT)
TOP BOTTOM	TOP BOTTOM
39. INJECTION FORMATION NAME	**40. INJECTION THROUGH:** ☐ PERFORATIONS ☐ SCREEN ☐ OPEN-HOLE

PRESSURE CALCULATION DATA

41. INJECTION RATE (BARRELS/MINUTE):

NORMAL (BPM) MAXIMUM (BPM)

42. INJECTION FORMATION PROPERTIES:

POROSITY (%) PERMEABILITY (MILLIDARCYS) HOW WERE THE PROPERTIES ATTAINED:

43. HOW WOULD YOU PREFER THE INJECTION AND MINING DIVISION CALCULATE THE MAXIMUM ALLOWABLE SURFACE INJECTION PRESSURE (MASIP) FOR THIS WELL:

(Please note: Eaton's Fracture Gradient (Louisiana Gulf Coast) will be used to calculate the MASIP if one of the preferred methods below is not selected.)

☐ **BASED ON THE FRACTURE GRADIENT OF THE INJECTION FORMATION (STEP-RATE / FALL OFF TEST, SONIC LOG OR OTHER ACCEPTABLE LOG)**

☐ **BASED ON THE FRACTURE GRADIENT OF THE CONFINING FORMATION (FOR GUIDANCE REFER TO ATTACHMENT 9, MASIP CALCULATION REQUEST IN THE INSTRUCTIONS)**

As described in Intra-Office Policy Statement No. IMD-GS-09 at http://dnr.louisiana.gov/assets/docs/memo20090324-imd-gs-09.pdf.

OTHER INFORMATION

44. DESCRIBE CONTINGENCY PLANS FOR SALTWATER DISPOSAL WHEN THE WELL IS INOPERABLE:

45. IS THE PROPOSED WELL LOCATED ON INDIAN LANDS OR OTHER LANDS OWNED BY OR UNDER THE JURISDICTION OR PROTECTION OF THE FEDERAL GOVERNMENT?	☐ YES ☐ NO
46. IS THE PROPOSED WELL LOCATED ON STATE WATER BOTTOMS OR OTHER LANDS OWNED BY OR UNDER JURISDICTION OF THE STATE?	☐ YES ☐ NO

PLEASE CHECK EACH BOX THAT CORRESPONDS TO ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS APPLICATION

☐ **FILING FEE**

☐ **ATTACHMENT 1 – PUBLIC NOTICE**

☐ **ATTACHMENT 2 – LOCATION PLAT**

☐ **ATTACHMENT 3 – WELL HISTORY & WORK RESUME REPORT**

ATTACHMENT 4 – WELLHEAD DIAGRAM, WELL SCHEMATIC(S) AND WORK PROGNOSIS

- ☐ 4A - CURRENT WELLBORE SCHEMATIC
- ☐ 4B - PROPOSED WELLHEAD DIAGRAM
- ☐ 4C - PROPOSED WELLBORE SCHEMATIC
- ☐ 4D - WORK PROGNOSIS

ATTACHMENT 5 – LOGS

- ☐ 5A - ELECTRIC LOG FOR THE BASE OF THE USDW (W/ ORDER, IF APPLICABLE)
- ☐ 5B – LOG(S) OF THE INJECTION ZONE & INJECTION PERFORATIONS (W/ ORDER, IF APPLICABLE)
- ☐ 5C – CEMENT BOND LOG (CBL)

ATTACHMENT 6 – AREA OF REVIEW (AOR)

- ☐ 6A- AREA OF REVIEW MAP
- ☐ 6B- AREA OF REVIEW WELL LIST
- ☐ 6C- FRESHWATER WELL LIST OF UNREGISTERED WELLS
- ☐ 6D- SONRIS PRINTOUT OF REGISTERED WATER WELLS
- ☐ 6E- FRESHWATER LABORATORY ANALYSES

☐ **ATTACHMENT 7 – FACILITY DIAGRAM**

ATTACHMENT 8 – INJECTION FLUID SOURCE

- ☐ 8A - INJECTION FLUID SOURCE LIST
- ☐ 8B - INJECTION FLUID SOURCE ANALYSES

ATTACHMENT 9 – MASIP CALCULATION REQUEST

- ☐ 9A – PROCEDURE TO DETERMINE GEOMECHANICAL DATA
- ☐ 9B – GROUNDWATER MONITORING PLAN

☐ **ATTACHMENT 10 – CROSS SECTIONS**

☐ **ATTACHMENT 11 – OFFICE OF CONSERVATION ORDER (IF APPLICABLE)**

☐ **DUPLICATE COPY OF THE APPLICATION**

AUTHORIZED AGENT

47. AGENT OR CONTACT AUTHORIZED TO ACT FOR THE OPERATOR DURING PROCESSING OF THIS APPLICATION.

THE SIGNATURE OF THE OPERATOR CERTIFYING THIS APPLICATION WILL AUTHORIZE THIS AGENT OR CONTACT TO SUBMIT ADDITIONAL INFORMATION AS REQUESTED AND TO GIVE ORAL STATEMENTS IN SUPPORT OF THIS APPLICATION DURING THE APPLICATION REVIEW PROCESS. ANY CORRESPONDENCE (INCLUDING NOTICES OF DEFICIENCIES) GENERATED DURING THE REVIEW PROCESS OF THIS APPLICATION WILL BE SENT TO WHOMEVER IS LISTED IN THIS BOX. THE FINAL WRITTEN DECISION ON THIS APPLICATION WILL BE SENT TO THE OPERATOR NOTED IN BOX 1 OF THIS FORM.

NAME:

COMPANY:

ADDRESS:

PHONE:

EMAIL:

CERTIFICATION BY OPERATOR

The signature below must be obtained from a duly appointed employee of the operating company.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my personal knowledge or 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 (LSA-RS 30:17).

48. NAME (PRINT)	**49. TITLE (PRINT)**
50. SIGNATURE	**51. DATE**

Commercial Class II Applications
(Form UIC-2 COM SWD)

A Commercial Class II Disposal Well is a legally permitted Exploration and Production (E&P) Waste storage, treatment and/or disposal facility which receives, treats, reclaims, stores, and/or disposes of E&P Waste for a fee or other consideration.

Same permitting process as the UIC 2 SWD with the following exceptions:

- A representative sample of the fluid proposed to be injected must be submitted with the application.
- The operator must provide North – South / East – West geologic cross sections across a 2 mile radius with the Application.
- The AOR is ¼ mile. If a deficient well is located within the ¼ mile AOR, corrective action will be necessary.
- The MASIP can be calculated based on the fracture gradient of the injection formation or based on the fracture gradient of the confining formation. The AOR becomes ½ mile if the MASIP is to be based on the fracture gradient of the confining formation (IMD-GS-09).
- A closure plan for plugging and abandoning the well and a cost estimate to implement the closure plan must be included with the Application.

QUESTIONS?