



**APPLICATION FOR AUTHORIZATION TO INJECT**

I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance  Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval?  Yes \_\_\_\_\_ No

II. OPERATOR: COG OPERATING LLC

ADDRESS: 2208 W. Main Street, ARTESIA, NM 88210

CONTACT PARTY: BRIAN COLLINS PHONE: 575-748-6940

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? \_\_\_\_\_ Yes  No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

\*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

\*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

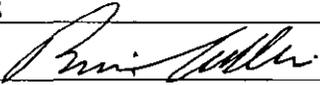
\*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: BRIAN COLLINS TITLE: Senior Operations Engineer

SIGNATURE:  DATE: 26 Mar 13

E-MAIL ADDRESS: bcollins@concho.com

\* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: \_\_\_\_\_

C-108 Application for Authorization to Inject  
GETTYSBURG 16 STATE SWD #1  
1980' FSL, 1980' FEL  
Unit J, Sec 16 T23S R34E  
Lea County, NM  
API 30-025-34258

COG Operating, LLC, proposes to reenter the captioned well, clean out to approximately 6750', spot an open hole cement plug at 6750', dress plug off to 6550', and put well in SWD service in the Delaware Sand from 5025' to 6550' as an open hole disposal well. We are drilling a well to the Bone Spring in the north portion of this section and it has no mud log shows in the proposed Delaware Sand injection zone. A drilling permit will be submitted upon approval of this C-108.

- V. Map is attached.
- VI. No wells within the ½ mile radius area of review penetrate the proposed injection zone. We are drilling the Gettysburg State Com 2H just outside the AOR. We plan to place cement across the Delaware section and overlap into the 9-5/8" intermediate casing on any wells we drill on the Gettysburg lease.
- VII.
  - 1. Proposed average daily injection rate = 5000 BWPD  
Proposed maximum daily injection rate =10000 BWPD
  - 2. Closed system
  - 3. Proposed maximum injection pressure = 1005 psi  
(0.2 psi/ft. x 5025' ft.)
  - 4. Source of injected water will be Delaware Sand and Bone Spring Sand produced water. No compatibility problems are expected. Analyses of Delaware and Bone Spring waters from analogous source wells are attached.
- VIII. The injection zone is the Delaware Sandstone, a fine-grained sandstone from 5025' to 6550'. Any underground water sources will be shallower than 1250' (surface casing setting depth for new wells).
- IX. The Delaware sand injection interval might be acidized with approximately 20 gal/ft of 7 ½ % HCl acid.
- X. Well logs are filed with the Division. A section of the neutron-density porosity log showing the injection interval is attached.
- XI. There is one fresh water well within a mile of the proposed SWD well. This well is located in the SW/4 SW/4 SE/4 of Sec 15-23s-34e. A water analysis is attached.
- XII. After examining the available geologic and engineering data, no evidence was found of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Proof of Notice is attached.

# **III.**

## **WELL DATA**

INJECTION WELL DATA SHEET

OPERATOR: COG Operating, LLC (Operator For COG Production, LLC)

WELL NAME & NUMBER: Gettysburg 16 State SWD'1 (Formerly Gazelle 16 State 1)

WELL LOCATION: 1980' FSL 1980' FEL J 16 23s 34e  
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17 1/2" Casing Size: 13 3/8" @ 665'  
Cemented with: 700 sx. or - ft<sup>3</sup>  
Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: \_\_\_\_\_ Casing Size: \_\_\_\_\_  
Cemented with: \_\_\_\_\_ sx. or \_\_\_\_\_ ft<sup>3</sup>  
Top of Cement: \_\_\_\_\_ Method Determined: \_\_\_\_\_

Production Casing

Hole Size: 12 1/4" Casing Size: 9 5/8" @ 5025'  
Cemented with: 2275 sx. or - ft<sup>3</sup>  
Top of Cement: Surface Method Determined: Circulated  
Total Depth: 8830'

Injection Interval

5025' feet to 6550'

(Perforated or Open Hole, indicate which)

Wellbore Schematics Attached

INJECTION WELL DATA SHEET

Tubing Size: 4 1/2" Lining Material: Dvoline 20/ Glassbore  
Type of Packer: Nickel plated double grip retrievable  
Packer Setting Depth: ±4975'  
Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection?        Yes X No  
If no, for what purpose was the well originally drilled? Oil & Gas  
\_\_\_\_\_
2. Name of the Injection Formation: Delaware Sand
3. Name of Field or Pool (if applicable): Bell Lake, Antelope Ridge area
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No -  
Drilled & abandoned
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: \_\_\_\_\_  
Overlying: None  
Underlying: Delaware ±6750-7850' (Sec 10, 11, 21, 22), Bone Spring ±8500-10800',  
Strawn ±11,950-12,100', Atoka ±12,100-13,050'  
Morrow ±13,050-13,550', Devonian ±14,550-14,850'

Gettysburg 16 State SWD 1  
 (Formerly Gazelle 16 State 1)  
 1980' FSL, 1980' FEL  
 J-16-23s-34e  
 Lea, NM

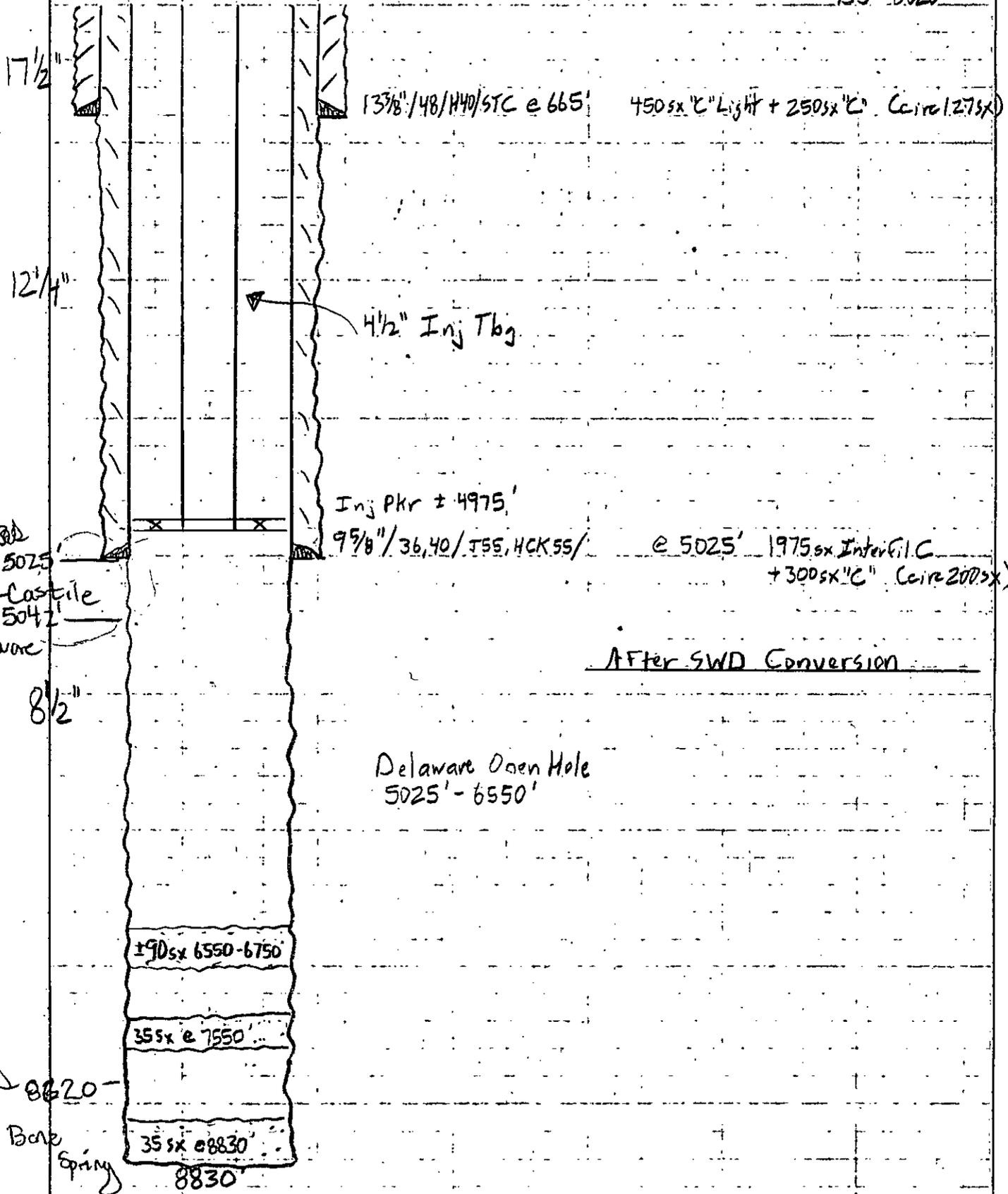
30-025-34258

Bell Cnyn. 5133'  
 Cherry Cnyn. 5919'  
 Brushy Cnyn. 7276'  
 135 8620'



5025'  
 Castile  
 5042'  
 Delaware

8620'  
 Base  
 Spring  
 8830'



After SWD Conversion

Delaware Open Hole  
 5025' - 6550'

30-025-34258

(Formerly Gazette. 16 Stake 1)

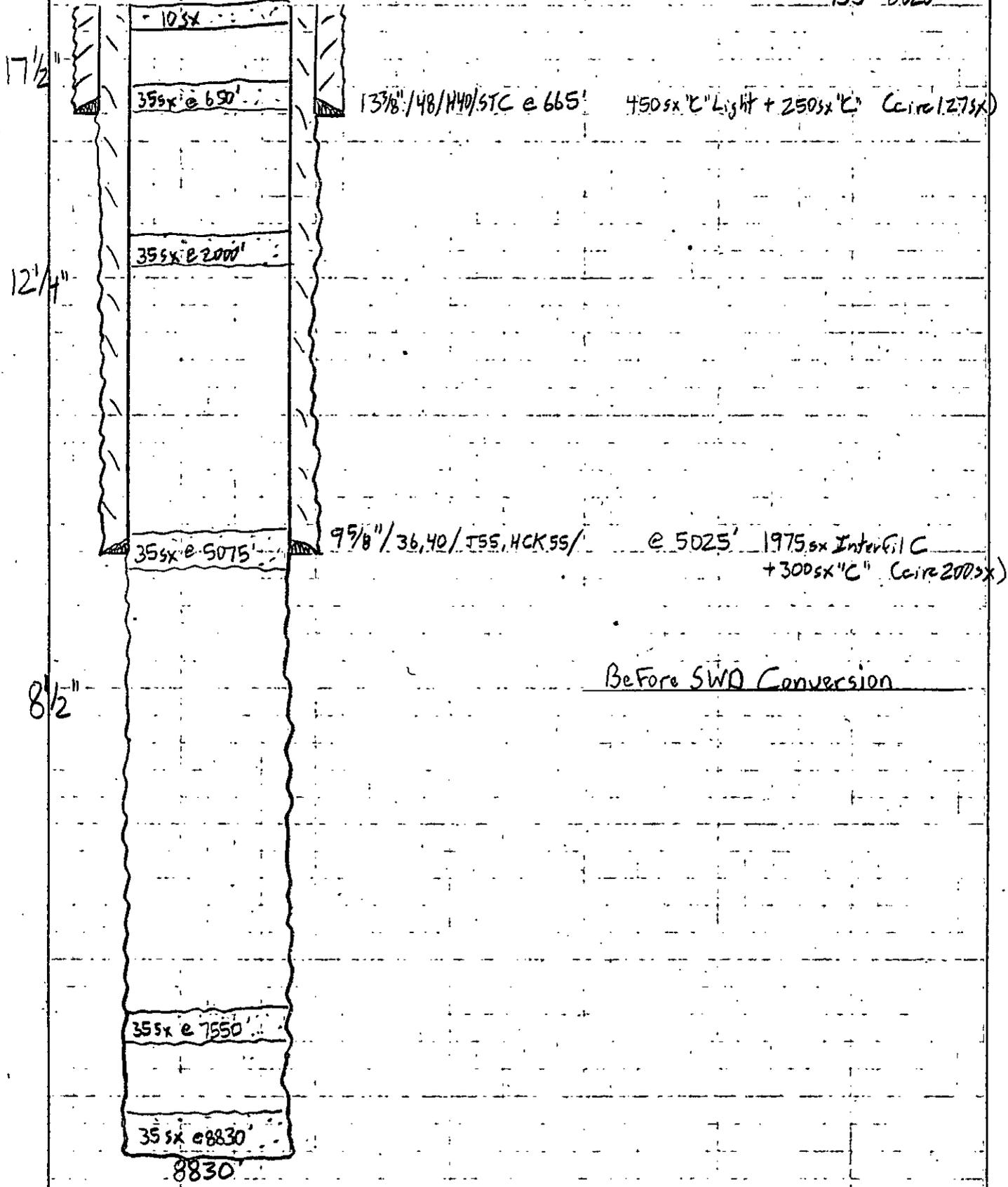
1980' FSL, 1980' FEL

J-16-23s-34e

Lea, NM

Del 5042'

135 8620'



**District I**  
 1623 N. French Dr., Hobbs, NM 88340  
 Phone: (505) 393-6161 Fax: (505) 393-6720  
**District II**  
 811 E. First St., Arroyo, NM 88210  
 Phone: (505) 748-1243 Fax: (505) 748-9720  
**District III**  
 1000 Rio Hondo Rd., Aztec, NM 87410  
 Phone: (505) 334-6178 Fax: (505) 334-6170  
**District IV**  
 1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone: (505) 476-3470 Fax: (505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

Form C-101  
 August 1, 2011  
 Permit 136688

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

1. Operator Name and Address COG OPERATING LLC One Concho Center Midland, TX 79701		2. OORID Number 229137
		3. API Number 30-023-40874
4. Property Code 39564	5. Property Name GETTYSBURG STATE	6. Well No. 002H

**7. Surface Location**

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
C	16	23S	34E	C	330	N	1980	W	LEA

**8. Proposed Bottom Hole Location**

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
F	21	23S	34E	F	2310	N	1980	W	Lea

**9. Pool Information**

ANTELOPE RIDGE, BONE SPRING, WEST	2209
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**Additional Well Information**

11. Well Type New Well	13. Well Type OIL	11. Casing Rotary	14. Lease Type State	15. Ground Level Elevation 3420
16. Shaltpits N	17. Proposed Depth	18. Formation 2nd Bone Spring Sand	19. Connector	20. Spud Date 12-5-2012
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

**21. Proposed Casing and Cement Program**

Type	Hole Size	Casing Type	Casing Weight ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	1250	875	
Int 1	12.25	9.625	36	4930	1570	
Prod	7.875	5.5	17	17355	2290	4650

**Casing/Cement Program: Additional Comments**

Drill 17-1/2" hole to -1250' w/ fresh water spud mud. Run 13-3/8" 54.5# J55 STC casing to TD and cement to surface in one stage. Will use 1" tubing and Class C or 2% CaCl2 to cement to surface, if necessary. Drill 12-1/4" hole to -4930' with saturated brine water. Run 9-5/8" 36# J55 & 40# N80 BTC casing to TD and cement to surface in one stage. Drill 7-7/8" pilot hole to 11550', log and plug back with cement plug F 9600' - 10500'. Drill curve and lateral to 17355' with cut brine. Run 5-1/2" 17# P110 LTC casing to TD and cement to 4650' (280' overlap) in one stage.

**22. Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000	3000	Cameron

I, _____, hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify I have complied with 19.16.14.9 (A) NMAC 19 and/or 19.16.14.9 (B) NMAC 19, if applicable. Signature: Printed Name: Electronically filed by Diana Kuykendall Title: Production Reporting Mgr Email Address: dkuykendall@conchoresources.com Date: 11-29-2012	<b>OIL CONSERVATION DIVISION</b>	
	Approved By: ELIDIO GONZALES	
	Title: HOBBS STAFF MANAGER	
	Approved Date: 12-3-2012	Expiration Date: 12-3-2014
	Phone: 432-683-7443	Conditions of Approval Attached

*On-Lease Well, Outside 1/2 Mile Radius ADR*

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**  
1000 Rio Rancho Rd., Aztec, NM 87410  
Phone:(505) 334-4178 Fax:(505) 334-6170

**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

Form C-101  
August 1, 2011  
Permit 160418

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

1. Operator Name and Address COG OPERATING LLC One Concho Center Midland, TX 79701		2. OGRID Number 229137
		3. API Number 30-025-40916
4. Property Code 39622	5. Property Name GETTYSBURG STATE COM	6. Well No. 003H

**7. Surface Location**

TL - Lot	Section	Township	Range	Lot Loc	Foot From	N-S Line	Foot From	E-W Line	County
B	16	23S	34E	B	160	N	2040	E	LEA

**8. Proposed Bottom Hole Location**

TL - Lot	Section	Township	Range	Lot Loc	Foot From	N-S Line	Foot From	E-W Line	County
G	21	23S	34E	G	2310	N	1980	E	Lea

**9. Pool Information**

ANTELOPE RIDGE, BONE SPRING, WEST	2209
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**Additional Well Information**

11. Well Type New Well	12. Well Type OIL	13. Casing Entry	14. Lease Type State	15. Ground Level Elevation 3415
16. Multiple N	17. Proposed Depth 17526	18. Formation 2nd Bone Spring Sand	19. Contractor	20. Spud Date 1/20/2013
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest potable water

**21. Proposed Casing and Cement Program**

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.25	13.375	54.5	1250	875	
Int1	12.25	9.625	36	4950	1575	
Prod	7.875	5.5	17	17526	2315	4630

**Casing/Cement Program: Additional Comments**

Drill 17-1/2" hole to ~1250' w/ fresh water spud mod. Run 13-3/8" 54.5# J55 STC casing to TD and cement to surface in one stage. Will use 1" tubing and Class C w/ 2% CaCl2 to cement to surface, if necessary. Drill 12-1/4" hole to ~4940' with saturated brine water. Run 9-5/8" 36# J55 & 40# N80 BTC casing to TD and cement to surface in one stage. Drill 7-7/8" vertical hole, curve, and lateral to 17526' with cut being. Run 5-1/2" 17# P110 LTC casing to TD and cement to 4650' (290' overlap) in one stage.

**22. Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
DoubleRam	3000	3000	Cameron

I, I hereby certify that the information given above is true and complete to the best of my knowledge and belief.  
I further certify I have complied with 19.18.14.9 (A) NMAC and/or 19.18.14.9 (B) NMAC, if applicable.

Signature:	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Electronically filed by Diana Krykrendall	Approved By: Paul Kautz	
Title: Production Reporting Mgr	Approved Date: 1/14/2013	Expiration Date: 1/14/2015
Email Address: dkrykrendall@conchoresources.com		
Date: 1/10/2013	Phone: 432-683-7443	Conditions of Approval Attached

On-Lease Well, outside 1/2 Mile Radius ADR

**V.**

**MAP**



COG Operating



The Allar Company  
735 Elm St.  
Graham, TX 76450

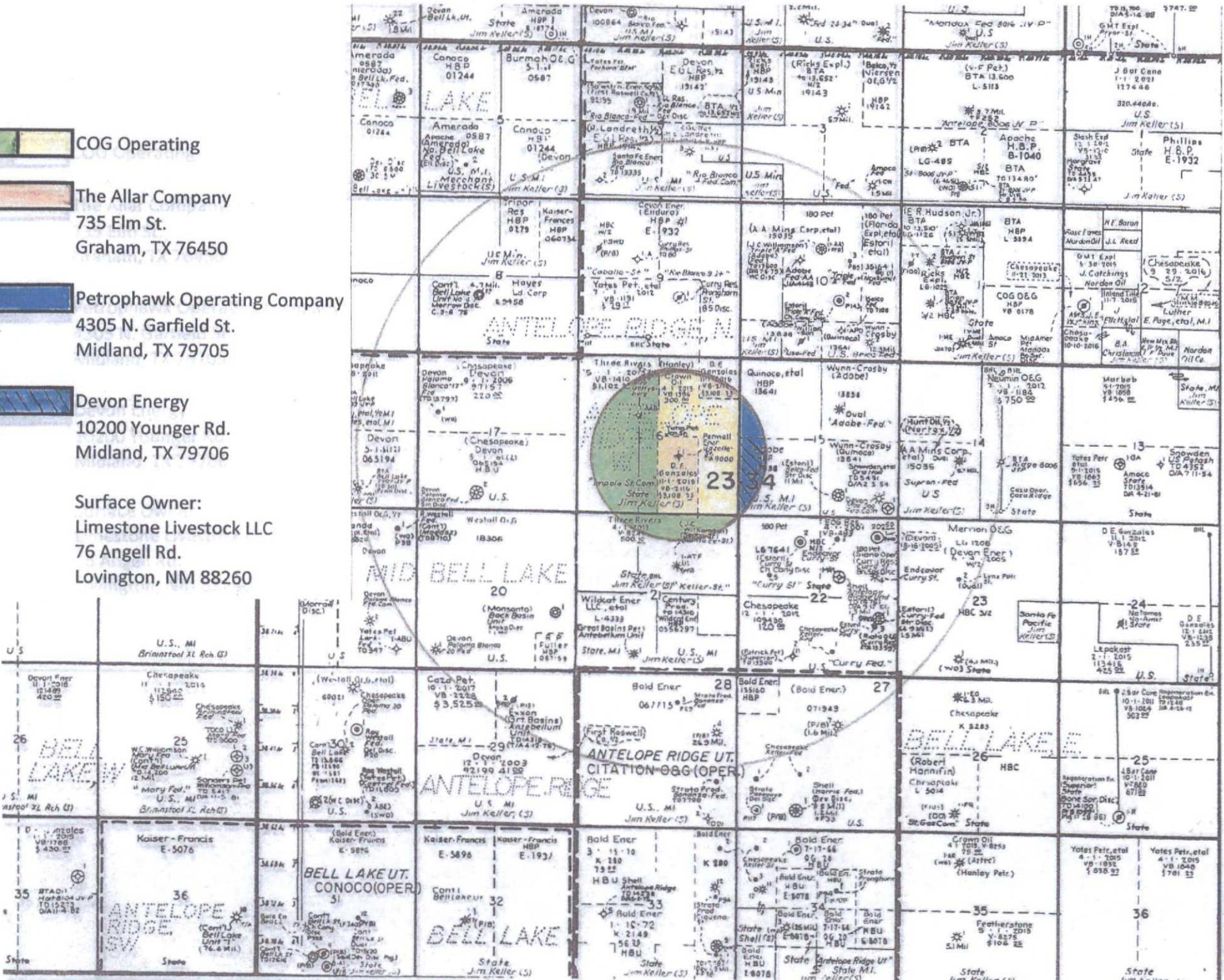


Petrohawk Operating Company  
4305 N. Garfield St.  
Midland, TX 79705



Devon Energy  
10200 Younger Rd.  
Midland, TX 79706

Surface Owner:  
Limestone Livestock LLC  
76 Angell Rd.  
Lovington, NM 88260





# **VII.**

## **Water Analysis Produced and Receiving Formation Water**

# Bone Spring Produced Water Sample

Analytical Laboratory Report for:

**MARBOB ENERGY CORPORATION**



**Chemical Services**

Account Representative:  
Poli, Bill

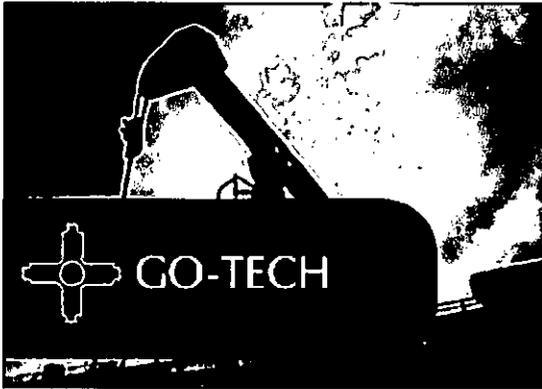
## Production Water Analysis

Listed below please find water analysis report from: LPC 31 FED, 1

Lab Test No: 2006151411      Sample Date: 12/13/2006  
Specific Gravity: 1.135

TDS: 206426  
pH: 6.49

Cations:	mg/L	as:
Calcium	11067	(Ca <sup>++</sup> )
Magnesium	1751	(Mg <sup>++</sup> )
Sodium	64721	(Na <sup>+</sup> )
Iron	53.20	(Fe <sup>++</sup> )
Potassium	1164.0	(K <sup>+</sup> )
Barium	0.83	(Ba <sup>++</sup> )
Strontium	407.00	(Sr <sup>++</sup> )
Manganese	1.35	(Mn <sup>++</sup> )
Anions:	mg/L	as:
Bicarbonate	220	(HCO <sub>3</sub> <sup>-</sup> )
Sulfate	1400	(SO <sub>4</sub> <sup>-</sup> )
Chloride	126800	(Cl)
Gases:		
Carbon Dioxide	170	(CO <sub>2</sub> )
Hydrogen Sulfide	17	(H <sub>2</sub> S)



- ~ Home
- ~ Production Data ▶
- ~ Well Data ▶
- ~ NM Pricsheet
- ~ Water Data ▶
- ~ Projects ▶
- ~ Software ▶
- ~ Archive ▶
- ~ Other Links ▶
- ~ Help ▶

North American Oil and Gas News  
 IEA claims global warming may lead to 'Miami Beach in Boston' situation unless urgent action is taken

Enbridge reports second quarter adjusted earnings of \$277 million

Imperial Resources; SWDF full disposal test to commence

Drako Capital announces update on Stolberg well

Source: Oil Voice

**NYMEX LS Crude** 88.73

**Navajo WTXI** 0

**Henry Hub** 3.01

Updated : 8/1/2012

State Land Office Data Access

OCD well/log image files

PRRC NM-TECH NM-BGMR

*Delaware Sample Representative of Produced and Receiving Formations*

- ⊖ NM WAIDS
  - ⊕ Data
    - Produced Water
    - Ground Water
    - Conversion Tools
  - ⊕ Scale
    - Scale details
    - Stiff
    - Oddo
    - Probable Mineral Composition mix
  - ⊕ Corrosion
    - ⊕ Theory
      - Uniform
      - Galvanic
      - Crevice
      - Hydrogen Damage
      - EIC
      - Erosion
  - ⊕ Equipment

General Information About: Sample 4412			
HANAGAN B FEDERAL			
API	3002508151	Sample Number	
Unit/Section/Township/Range	O / 15 / 24S / 32E	Field	DOUBLE X
County	Lea	Formation	DEL
State	NM	Depth	
Lat/Long	32.21178 , -103.66422	Sample Source	UNKNOWN
TDS (mg/L)	229709	Water Type	
Sample Date (MM/DD/YYYY)		Analysis Date (MM/DD/YYYY)	
Remarks/Description			
Cation Information (mg/L)		Anion Information (mg/L)	
Potassium (K)		Sulfate (SO)	491
Sodium (Na)		Chloride (Cl)	142100

Artificial
Casing and Tubing
Surface
Enhanced
Gases
O2
CO2
H2S
Microbes
Prevention
References
Maps
Trend Maps
GW
PW
Geology
PLSS
Help
Online Map

Calcium (Ca)		Carbonate (CO <sub>3</sub> )	
Magnesium (Mg)		Bicarbonate (HCO <sub>3</sub> )	168
Barium (Ba)		Hydroxide (OH)	
Manganese (Mn)		Hydrogen Sulfide (H <sub>2</sub> S)	
Strontium (Sr)		Carbon Dioxide (CO <sub>2</sub> )	
Iron (Fe)		Oxygen (O)	

PETROLEUM RECOVERY RESEARCH CENTER, SOCORRO, NM-87801

**X.**

**Log Across Proposed  
Delaware Sand  
Injection Interval**

# Gazelle "16" State No. 1

## PLATFORM EXPRESS Compensated Neutron Log Three Detector Density / GR

### Schlumberger

Location: 1980' FSL & 1980' FEL  
Well: Gazelle "16" State No. 1  
Company: Penwell Energy, Inc.

LOCATION

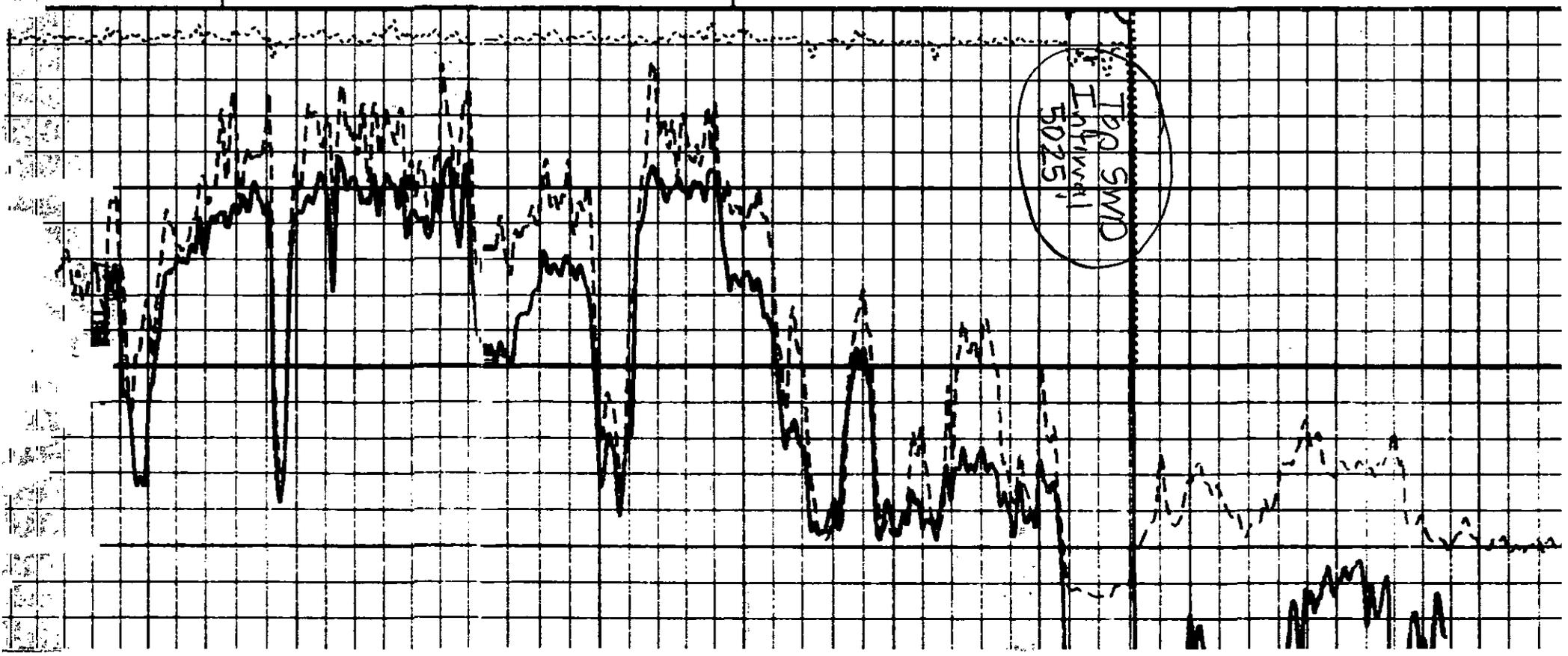
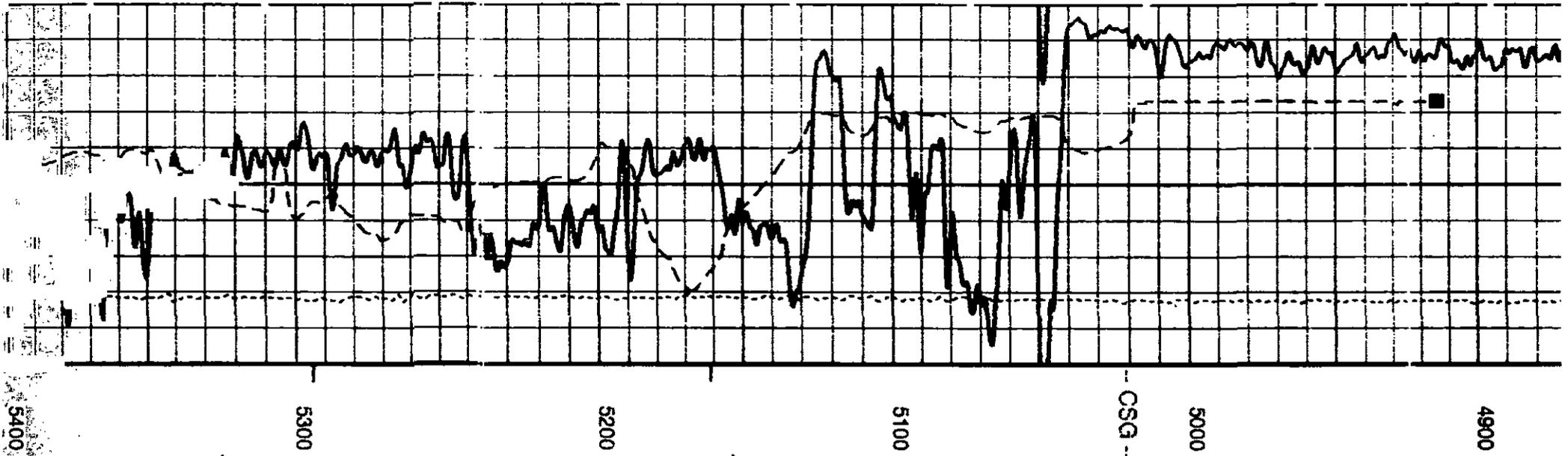
1980' FSL & 1980' FEL  
Section 16, Township 23S, Range 34E  
Elev.: K.B. 3440.7 F  
G.L. 3425 F  
D.F. 3439.7 F  
Permanent Datum: Ground Level Elev.: 3425 F  
Log Measured From: Kelly Bushing 15.7 F above Perm. Datum  
Drilling Measured From: Kelly Bushing

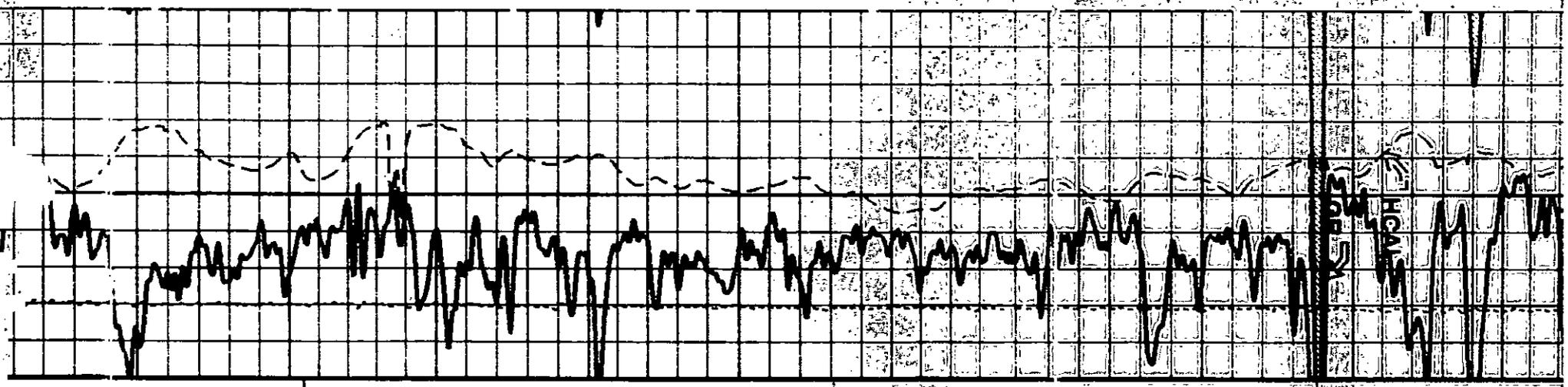
API Serial No. 30-025-34258  
SECTION 16 TOWNSHIP 23S RANGE 34E

Logging Date	21-MAY-1998		
Run Number	One		
Depth Driller	8830 F		
Schlumberger Depth	8830 F		
Bottom Log Interval	8812 F		
Top Log Interval	5019 F		
Casing Driller Size @ Depth	9.625 IN @ 5034 F		@
Casing Schlumberger	5019 F		
Bit Size	8.750 IN		
Type Fluid In Hole	Cut Brine		
Density Viscosity	8.9 LB/G 29 S		
Fluid Loss PH	7 CC 10		
Source Of Sample	Circulation Pit		
RM @ Measured Temperature	0.162 OHMM @ 83 DEGF		@
RMF @ Measured Temperature	0.162 OHMM @ 83 DEGF		@
RMC @ Measured Temperature	@		@
Source RMF RMC			
RM @ MRT RMF @ MRT	0.114 @ 121 0.114 @ 121		@ @
Maximum Recorded Temperatures	121 DEGF		
Circulation Stopped Time	21-MAY-1998 11:15		
Logger On Bottom Time	21-MAY-1998 11:26		
Unit Number Location	3043 H-1005		
Recorded By	Jason Mullins		
Witnessed By	Corky Stewart		

MUD

Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth			@
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
Density Viscosity			
Fluid Loss PH			
Source Of Sample			
RM @ Measured Temperature			@
RMF @ Measured Temperature			@
RMC @ Measured Temperature			@
Source RMF RMC			
RM @ MRT RMF @ MRT		@	@ @
Maximum Recorded Temperatures			
Circulation Stopped Time			
Logger On Bottom Time			
Unit Number Location			
Recorded By			
Witnessed By			





5900

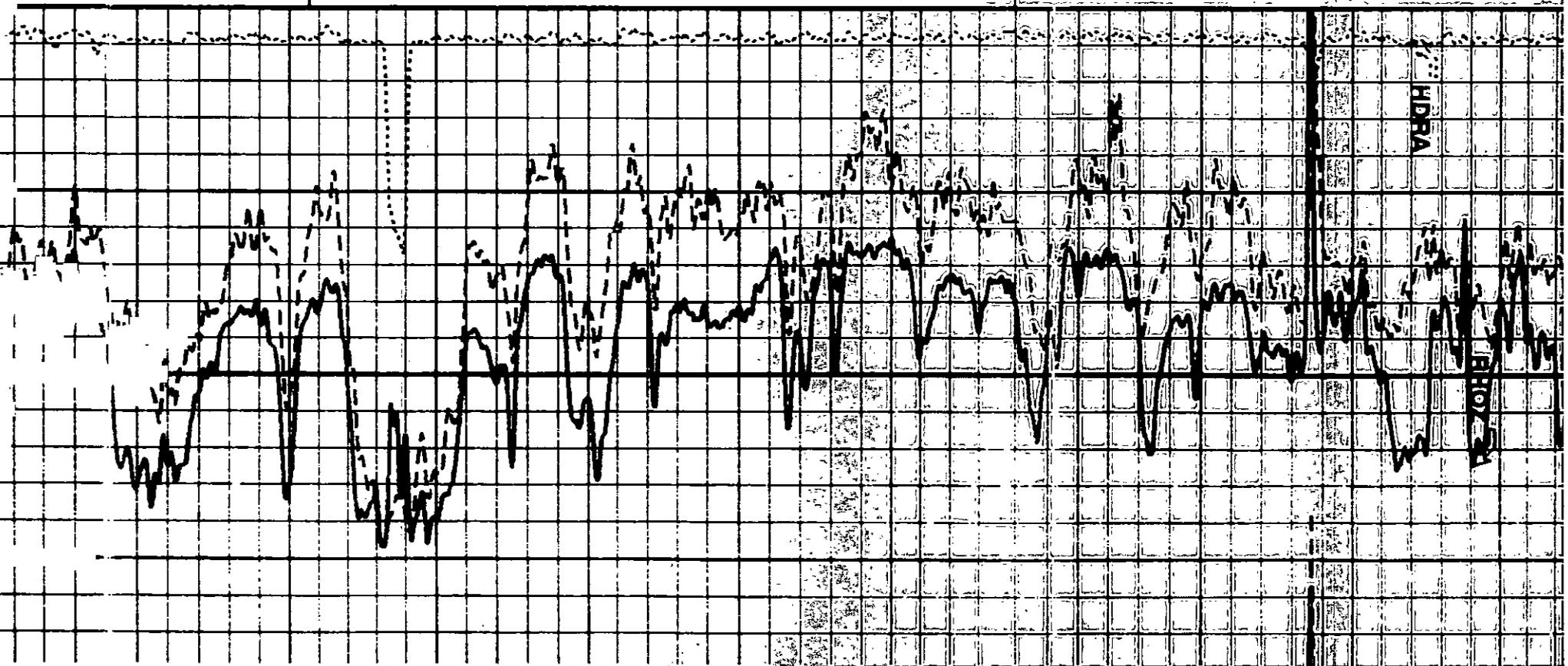
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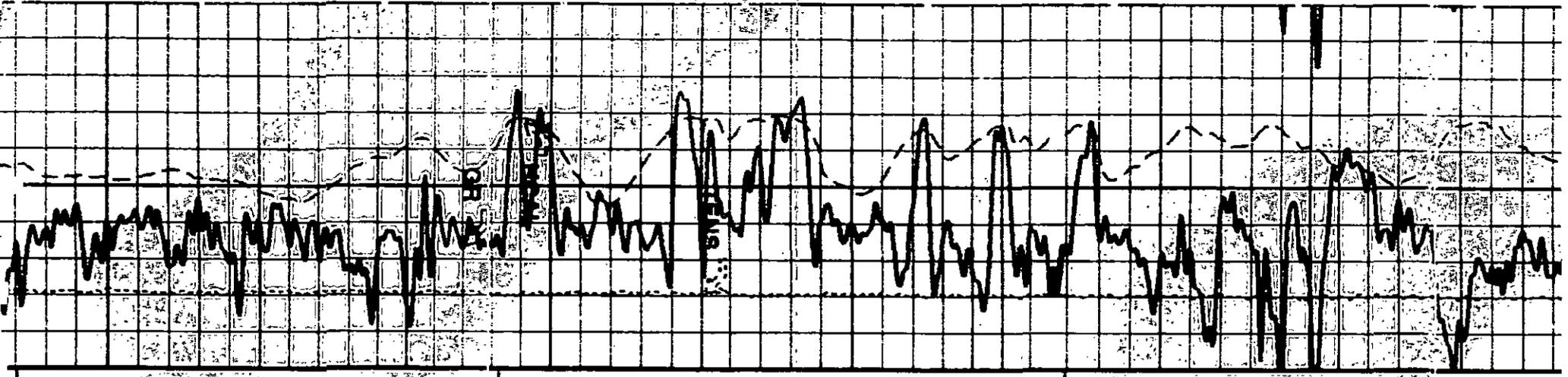
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5400





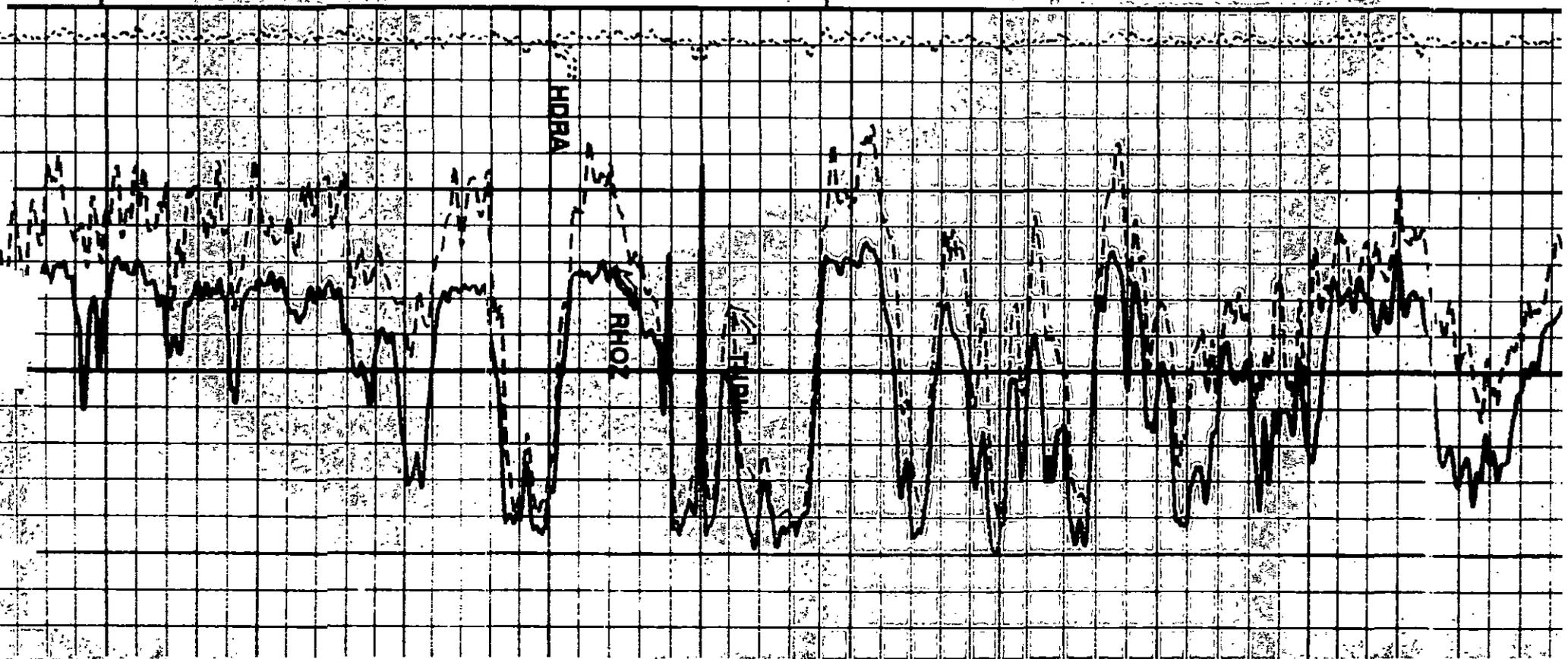
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6200

6100

6000

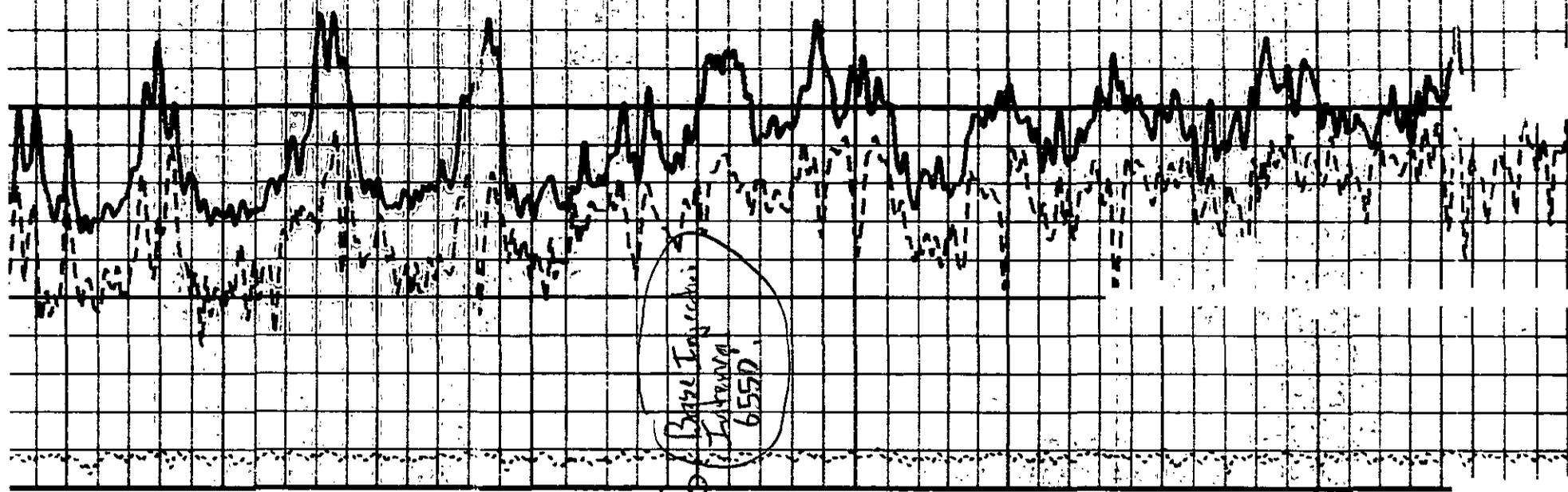
5900



HDPA

RHOZ

STIM



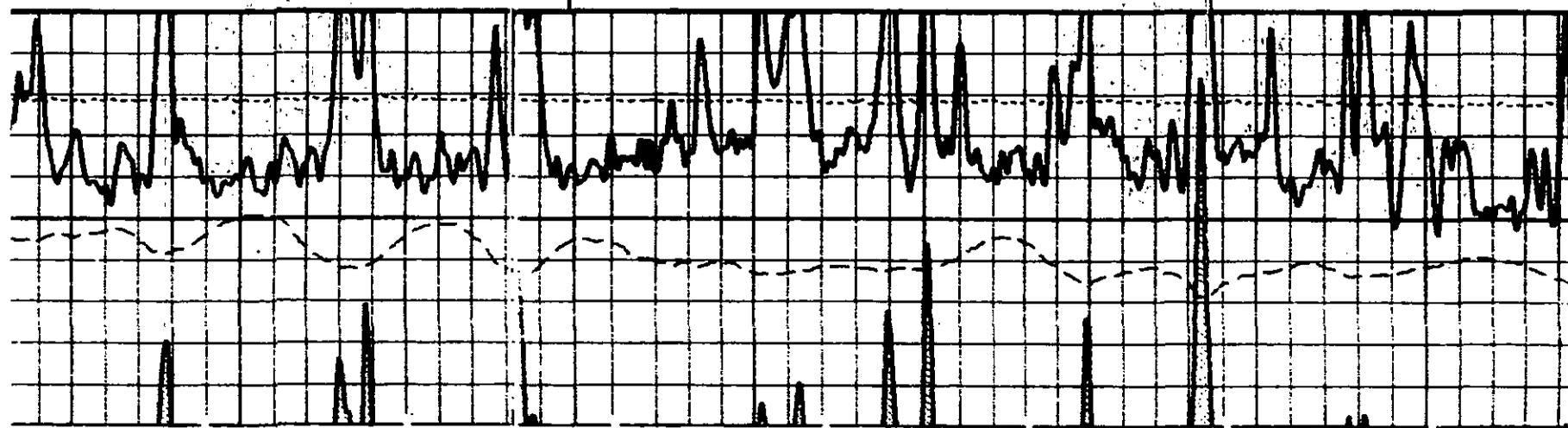
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6500

6600

6700

6800



# **XI.**

## **Fresh Water Sample Analyses**

# HALLIBURTON

PERMAIN BASIN OPERATIONS LABORATORY  
WATER ANALYSIS REPORT  
HOBBS, NEW MEXICO

COMPANY: Cog  
LEASE: Angel Well 15 23S 34E SW/4 SW/4 SE/4

REPORT W13-010  
DATE February 22, 2013  
DISTRICT Hobbs

SUBMITTED BY Bret Barrett CP 00637

### TANK SAMPLE

	_____	_____	_____	_____	_____
Sample Temp.	<u>70</u> °F	_____ °F	_____ °F	_____ °F	_____ °F
RESISTIVITY	_____	_____	_____	_____	_____
SPECIFIC GR.	<u>1.001</u>	_____	_____	_____	_____
pH	<u>7.7</u>	_____	_____	_____	_____
CALCIUM	<u>850</u> mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
MAGNESIUM	<u>420</u> mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
CHLORIDE	<u>277</u> mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
SULFATES	<u>&gt;1600</u> mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
BICARBONATES	<u>146</u> mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
SOLUBLE IRON	<u>0</u> mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
KCL	<u>negative</u>	_____	_____	_____	_____
Sodium	_____ mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
TDS	_____ mpl	_____ mpl	_____ mpl	_____ mpl	_____ mpl
OIL GRAVITY	_____ @ 60°F	_____ @ 60°F	_____ @ 60°F	_____ @ 60°F	_____ @ 60°F

### REMARKS

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

MPL = Milligrams per liter  
Resitivity measured in: Ohm/m2/m

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management: it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Co.

ANALYST: SB



# New Mexico Office of the State Engineer

## Active & Inactive Points of Diversion

(with Ownership Information)

(R=POD has been replaced and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)  
 C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)

WR File Nbr	Sub	basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	6416	4	Sec	Tws	Rng	X	Y	
CP 00323			PRO	0	SHELL OIL COMPANY	LE	CP 00323		Outside 1 mile radius.		3	2	22	23S	34E	645406	3573837*	
CP 00556			PRO	0	J.C. MILLS	LE	CP 00556		Outside 1 mile radius.	Shallow	4	4	3	08	23S	34E	641762	3576206
CP 00618			PRO	0	ESTORIL PRODUCING CO.	LE	CP 00618		Outside 1 mile radius.	Shallow	1	2	4	22	23S	34E	645713	3573539*
CP 00629			PRO	0	J.C. MILLS	LE	CP 00629		Outside 1 mile radius.		4	4	3	08	23S	34E	641846	3576102*
CP 00637			PRO	3	KELLER RV, LLC	LE	CP 00637		Just within 1 mile radius.	Shallow	3	3	4	15	23S	34E	645293	3574541*
CP 00649			PRO	0	MID AMERICAN PETROLEUM COMPANY	LE	CP 00649		Outside 1 mile radius.		3	4	1	10	23S	34E	644855	3576950*
CP 00872			EXP	0	JIM KELLER RV, LLC	LE	CP 00872		Outside 1 mile radius	Shallow	1	1	1	08	23S	34E	641225	3577504*
CP 00876			COM	0	LIMESTONE LIVESTOCK, LLC	LE	CP 00872		" " "	Shallow	1	1	1	08	23S	34E	641225	3577504*
CP 00878			PRO		PENWELL ENERGY	LE	CP 00872		" " "	Shallow	1	1	1	08	23S	34E	641225	3577504*
CP 01070			PRO	0	TONYA'S PERMIT SERVICE	LE	CP 00556		" " "	Shallow	4	4	3	08	23S	34E	641762	3576206
CP 01071			PRO	0	TD WATER SERVICES	LE	CP 00556		" " "	Shallow	4	4	3	08	23S	34E	641762	3576206
CP 01072			PRO	0	GLENN'S WATER WELL SRVC, INC.	LE	CP 00556		" " "	Shallow	4	4	3	08	23S	34E	641762	3576206
CP 01075			DOL	3	ATKINS ENGR ASSOC INC	LE	CP 01075 POD1		Outside 1 mile radius		1	1	1	08	23S	34E	641277	3577525

Record Count: 13

**PLSS Search:**

Section(s): 8-10, 15-17, 20-22 Township: 23S Range: 34E

Sorted by: File Number

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



# New Mexico Office of the State Engineer

## Transaction Summary

72121 All Applications Under Statute 72-12-1

Transaction Number: 475312

Transaction Desc: CP 00637

File Date: 10/28/1981

**Primary Status:** PMT Permit  
**Secondary Status:** APR Approved  
**Person Assigned:** \*\*\*\*\*

**Applicant:** ESTORIL PRODUCING CORPORATION

**Events**

Date	Type	Description	Comment	Processed By
 10/28/1981	APP	Application Received	*	*****
10/29/1981	FIN	Final Action on application		*****
10/29/1981	WAP	General Approval Letter		*****
10/29/1981	CN5	Meter Installation Request		*****
06/13/2011	ARV	Rec & Arch - file location	CP 00637 Box: 503	*****

**Change To:**

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
CP 00637		3		PRO 72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
<b>**Point of Diversion</b>				
CP 00637		645293	3574541*	

\*An (\*) after nothing value Indicates UTM location was derived from PLSS - see Help

**Remarks**

ADDITIONAL APPROPRIATION OF UNDERGROUND WATER IS REQUESTED TO DRILL ESTORIL PRODUCING CORPORATION TRIPLE "A" FEDERAL WELL #1, NW 1/4 OF NW 1/4 OF SE 1/4 (1980' FSL, 1980' FEL) SEC. 10-T23S-R34E, LEA COUNTY, N.M. ESTIMATED STARTING DATE NOV. 15, 1981.  
 ADDRESS/LOCATION: 760' FSL, 2380' FEL, SEC. 15, T23S-R34E, NMPM, LEA CO. N.M.  
 ABSTRACTORS NOTE: PERMIT STATES WELL RECORD WAS FILED ON 07/16/1981. NO WELL RECORD DUE DATE GIVEN ON PERMIT.

**Conditions**

- 3 Appropriation and use of water under this permit shall not exceed a period of one year from the date of approval.
- 5A A totalizing meter shall be installed before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water; pumping records shall be submitted to the District Supervisor for each calendar month on or before the 10th day of the following month.

**Action of the State Engineer**

**Action of the State Engineer**

**Approval Code:** A - Approved

**Action Date:** 10/29/1981

**State Engineer:** John R. D Antonio,

---

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

STATE ENGINEER OFFICE  
WELL RECORD

SANTA FE

495311

Section 1. GENERAL INFORMATION

(A) Owner of well Estoril Producing Corporation Owner's Well No. CP637  
Street or Post Office Address 11 th Floor Vaughn Building  
City and State Midland, Texas 79701

Well was drilled under Permit No. \_\_\_\_\_ and is located in the:

a. SW  $\frac{1}{4}$  SW  $\frac{1}{4}$  SE  $\frac{1}{4}$  of Section 15 Township 23-s Range 31-E N.M.P.M.  
b. Tract No. \_\_\_\_\_ of Map No. \_\_\_\_\_ of the \_\_\_\_\_  
c. Lot No. \_\_\_\_\_ of Block No. \_\_\_\_\_ of the \_\_\_\_\_  
Subdivision, recorded in Lea County.  
d. X= \_\_\_\_\_ feet, Y= \_\_\_\_\_ feet, N.M. Coordinate System \_\_\_\_\_ Zone in the \_\_\_\_\_ Grant.

(B) Drilling Contractor Raymond Wheeler Drilling Co. License No. 109-729  
Address 2419 West 14 th Odessa, Texas 79760

Drilling Began 7-6-81 Completed 7-9-81 Type tools Rotary Size of hole 8.75 in.  
Elevation of land surface or \_\_\_\_\_ at well is \_\_\_\_\_ ft. Total depth of well 430 ft.  
Completed well is  shallow  artesian. Depth to water upon completion of well 430 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
400	425		water bearing sand	100

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
7"	2		0	430'	430'	na	400'	430'

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				
					cemented top 10 ft.

Section 5. PLUGGING RECORD

Plugging Contractor \_\_\_\_\_  
Address \_\_\_\_\_  
Plugging Method \_\_\_\_\_  
Date Well Plugged \_\_\_\_\_  
Plugging approved by: \_\_\_\_\_

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

State Engineer Representative

FOR USE OF STATE ENGINEER ONLY

Date Received July 16, 1981 Quad \_\_\_\_\_ FWL \_\_\_\_\_ FSL \_\_\_\_\_

File No. CP-637 Use DIC Location No. 23.34.15.433112



**HOBBS NEWS SUN**  
**LEGAL NOTICE**

COG Operating LLC, 2208 W. Main Street, Artesia, NM 88210 has filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Gettysburg 16 State SWD No. 1 is located 1980' FSL & 1980' FEL, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico. Disposal water will be sourced from area wells producing from the Delaware and Bone Spring formations. The disposal water will be injected into the Delaware formation at a depth of 5025' to 6550' at a maximum surface pressure of 1005 psi and a maximum rate of 10,000 BWPD. The proposed SWD well is located approximately 20 miles west of Jal. Any interested party who has an objection to this must give notice in writing to the Oil Conservation Division, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505, within fifteen (15) days of this notice. Any interested party with questions or comments may contact Brian Collins at COG Operating LLC, 2208 W. Main Street, Artesia, NM 88210, or call 575-748-6940.

Published in the Hobbs News Sun, Hobbs, New Mexico  
\_\_\_\_\_, 2013.



March 26, 2013

Oil Conservation Division  
Attn: Paul Kautz  
1625 North French Dr.  
Hobbs, NM 88240

RE: Application For Authorization To Inject  
Gettysburg 16 State SWD #1  
Township 23 South, Range 34 East, N.M.P.M.  
Section 16: 1980' FSL & 1980' FEL  
Lea County, New Mexico

Dear Mr. Kautz:

COG Operating LLC respectfully requests administrative approval for authorization to inject for the referenced well. Attached, for your review, is a copy of the C-108 application. Once we receive the newspaper publication and all certified return receipts, I will send you a copy.

Please do not hesitate to contact me at (575) 748-6940 should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Collins".

Brian Collins  
Senior Operations Engineer

BC/sw  
Enclosures



March 26, 2013

Devon Energy  
P O Box 1678  
Oklahoma City, OK 73101-1678

RE: Application For Authorization To Inject  
Gettysburg 16 State SWD #1  
Township 23 South, Range 34 East, N.M.P.M.  
Section 16: 1980' FSL & 1980' FEL  
Lea County, New Mexico

To Whom It May Concern:

Enclosed for your review is a copy of COG Operating LLC's C-108 Application to Inject for the above referenced well. We plan to reenter this well for SWD service if our C-108 is approved. As a requirement of the New Mexico Oil Conservation Division, we are notifying you because you have been identified as the surface owner, an operator or a lessee within a half mile radius area of review. Any objections must be submitted in writing to NMOCD, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505. Objections must be received within fifteen (15) days of receipt of this letter.

Please do not hesitate to contact us at 575-748-6940 should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Collins".

Brian Collins  
Senior Operations Engineer

BC/bg  
Enclosures



March 26, 2013

Petrohawk Operating Company  
4305 N. Garfield Street  
Midland, TX 79705

RE: Application For Authorization To Inject  
Gettysburg 16 State SWD #1  
Township 23 South, Range 34 East, N.M.P.M.  
Section 16: 1980' FSL & 1980' FEL  
Lea County, New Mexico

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Sincerely,

A handwritten signature in black ink, appearing to read "Brian Collins".

Brian Collins  
Senior Operations Engineer

BC/bg  
Enclosures



March 26, 2013

The Allar Company  
735 Elm Street  
Graham, TX 76450

RE: Application For Authorization To Inject  
Gettysburg 16 State SWD #1  
Township 23 South, Range 34 East, N.M.P.M.  
Section 16: 1980' FSL & 1980' FEL  
Lea County, New Mexico

To Whom It May Concern:

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Sincerely,

A handwritten signature in black ink, appearing to read "Brian Collins".

Brian Collins  
Senior Operations Engineer

BC/bg  
Enclosures



March 26, 2013

Limestone Livestock LLC  
76 Angell Road  
Lovington, NM 88260

RE: Application For Authorization To Inject  
Gettysburg 16 State SWD #1  
Township 23 South, Range 34 East, N.M.P.M.  
Section 16: 1980' FSL & 1980' FEL  
Lea County, New Mexico

To Whom It May Concern:

Enclosed for your review is a copy of COG Operating LLC's C-108 Application to Inject for the above referenced well. We plan to reenter this well for SWD service if our C-108 is approved. As a requirement of the New Mexico Oil Conservation Division, we are notifying you because you have been identified as the surface owner, an operator or a lessee within a half mile radius area of review. Any objections must be submitted in writing to NMOCD, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505. Objections must be received within fifteen (15) days of receipt of this letter.

Please do not hesitate to contact us at 575-748-6940 should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Collins".

Brian Collins  
Senior Operations Engineer

BC/bg  
Enclosures



March 26, 2013

New Mexico Oil Conservation Division  
Attn: Richard Ezeanyim  
1220 South St. Francis Drive  
Santa Fe, NM 87505

RE: Application For Authorization To Inject  
Gettysburg 16 State SWD #1  
Township 23 South, Range 34 East, N.M.P.M.  
Section 16: 1980' FSL & 1980' FEL  
Lea County, New Mexico

Dear Mr. Jones:

COG Operating LLC respectfully requests administrative approval for authorization to inject for the referenced well. Attached, for your review, is a copy of the C-108 application. Once we receive the newspaper publication and all certified return receipts, I will send you a copy.

Please do not hesitate to contact me at (575) 748-6940 should you have any questions.

Sincerely,

Brian Collins  
Senior Operations Engineer

BC/bg  
Enclosures

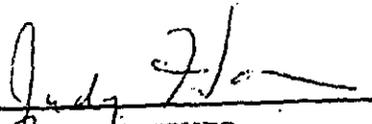
RECEIVED OGD  
2013 MAR 28 P 2:24

# Affidavit of Publication

State of New Mexico,  
County of Lea.

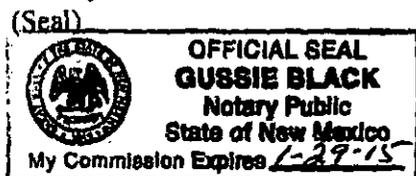
I, JUDY HANNA  
PUBLISHER  
of the Hobbs News-Sun, a  
newspaper published at Hobbs, New  
Mexico, do solemnly swear that the  
clipping attached hereto was  
published in the regular and entire  
issue of said newspaper, and not a  
supplement thereof for a period

of 1 issue(s).  
Beginning with the issue dated  
February 26, 2013  
and ending with the issue dated  
February 26, 2013

  
PUBLISHER  
Sworn and subscribed to before me  
this 26th day of  
February, 2013

  
Notary Public

My commission expires  
January 29, 2015



This newspaper is duly qualified to  
publish legal notices or  
advertisements within the meaning of  
Section 3, Chapter 167, Laws of  
1937 and payment of fees for said  
publication has been made.

## LEGAL NOTICE FEBRUARY 26, 2012

COG Operating LLC, 2208 W. Main Street, Artesia, NM 88210 has filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Gettysburg 16 State SWD No. 1 is located 1980' FSL & 1980' FEL, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico. Disposal water will be sourced from area wells producing from the Delaware and Bone Spring formations. The disposal water will be injected into the Delaware formation at a depth of 5025' to 6550' at a maximum surface pressure of 1005 psi and a maximum rate of 10,000 BWPD. The proposed SWD well is located approximately 20 miles west of Jal. Any interested party who has an objection to this must give notice in writing to the Oil Conservation Division, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505, within fifteen (15) days of this notice. Any interested party with questions or comments may contact Brian Collins at COG Operating LLC, 2208 W. Main Street, Artesia, NM 88210, or call 575-748-6940.

Published in the Hobbs News Sun, Hobbs, New Mexico  
February 26, 2013.  
#27954

02107967                      00109876  
COG OPERATING LLC  
600 W. ILLINOIS AVENUE  
MIDLAND, TX 79701

SENDER: COMPLETE THIS SECTION

- Complete Items 1, 2, and 3. Also complete Item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

NM Oil Conservation Division  
 Attn: Richard Ezeanyim  
 1220 South St. Francis Drive  
 Santa Fe, NM 87505

2. Article Number  
(Transfer from service label)

7012 2210 0001 7109 1510

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature  
 X *JM*  Agent  Addressee

B. Received by (Printed Name) C. Date of Delivery  
*Richard Ezeanyim* 3/28/13

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

MAR 28 2013  
 STATION

SENDER: COMPLETE THIS SECTION

- Complete Items 1, 2, and 3. Also complete Item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Allar Company  
 735 Elm Street  
 Graham, TX 76450

2. Article Number  
(Transfer from service label)

7012 2210 0001 7109 1497

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature  
 X *Melanie Barrett*  Agent  Addressee

B. Received by (Printed Name) C. Date of Delivery  
*Melanie Barrett* 4-1-13

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

SENDER: COMPLETE THIS SECTION

- Complete Items 1, 2, and 3. Also complete Item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Devon Energy  
 P O Box 1678  
 Oklahoma City, OK 73101-1678

2. Article Number  
(Transfer from service label)

7012 2210 0001 7109 1503

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature  
 X *Alan Casberry*  Agent  Addressee

B. Received by (Printed Name) C. Date of Delivery  
*IC*

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Limestone Livestock, LLC  
76 Angell Road  
Lovington, NM 88260**

2. Article Number  
(Transfer from service label)

7012 2210 0001 7109 1473

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature   Agent  
 Addressee

B. Received by (Printed Name) \_\_\_\_\_ C. Date of Delivery \_\_\_\_\_

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

PITNEY BOWES  
 \$ 007.570  
 02 1P 0003184434 MAR 27 2013  
 MAILED FROM ZIP CODE 59210

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Petrohawk Operating Company**  
 4305 N. Garfield Street  
 Midland, TX 79705

2. Article Number  
 (Transfer from service label) **7012 2210 0001 7109 1480**

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
**X**  Agent  Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

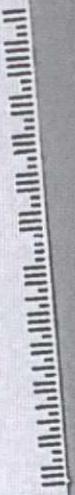
4. Restricted Delivery? (Extra Fee)  Yes

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-15

  
 7012 2210 0001 7109 1480

  
 2208 West Main Street  
 Aransas, New Mexico 88210  
**Petrohawk Operating Company**  
 4305 N. Garfield Street  
 Midland, TX 79705

04/01/13  
 NIXIE 797052007-1N  
 RETURN TO SENDER  
 UNABLE TO FORWARD  
 RETURN TO SENDER



## Ezeanyim, Richard, EMNRD

---

**From:** Bobbie Goodloe <BGoodloe@concho.com>  
**Sent:** Thursday, April 25, 2013 9:51 AM  
**To:** Ezeanyim, Richard, EMNRD  
**Subject:** Gettysburg 16 St SWD #1 Proof of Notice and Affidavit  
**Attachments:** Proof of Notice and Affidavit .pdf

Mr. Ezeanyim,

Attached you will find the Proof of Notice receipts as well as the Affidavit for our C-108 application on the Gettysburg 16 St SWD #1. Please let me know if you need anything else.

Thank you,  
Bobbie Goodloe

*Bobbie Goodloe*

**Administrative Assistant/Completions - NM Basin**  
**COG OPERATING LLC**  
**2208 W Main St**  
**Artesia, New Mexico 88210-3720**  
**575.748.6954**



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**Injection Permit Checklist:** Received 04/01/13 First Email Date: — Final Reply Date: 05/09/13 Final Notice Date: —

Issued Permit: Type: WFX / PMX / SWD Number: 1416 Permit Date: 05/09/13 Legacy Permits or Orders: NA

Well No. 1 Well Name(s): Gettysburg 16 State SWD [formerly Gazelle 16 State #17]

API: 30-0 25-34258 Spud Date: 3/29/98 New/Old: N (UIC Cl II Primacy March 7, 1982)

Footages 1980 FSL & 1980 FEL Lot — Unit 5 Sec 16 Tsp 23S Rge 34E County Lea

General Location: Sea Simon Swale - NW of Jal Pool: SWD: Delaware Sand (Bell Lake) Pool No.: —

Operator: COG Operating LLC OGRID: 229137 Contact: Brian Collins

COMPLIANCE RULE 5.9: Inactive Wells: 10 Total Wells: 3471 Fincl Assur: Yes Compl. Order? No IS 5.9 OK? Yes

Well File Reviewed:  Current Status: P&A

Planned Rehab Work to Well: Drill out plugs at surface / 650' / 2000' & 5075' (4 total); install

Well Diagrams: Proposed  Before Conversion  After Conversion  Are Elogs in Imaging?: Yes packer & tubing

Well Construction Details:	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Stage Tool	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Cond	—	—	—	—	—
Planned ___ or Existing <input checked="" type="checkbox"/> Surface	17 1/2 / 13 3/8	0 - 665'	—	450 head / 250 / fair / 127	Circ to surf.
Planned ___ or Existing <input checked="" type="checkbox"/> Interm	12 1/4 / 9 5/8	0 - 5025'	—	1975 / 300 / 200	Circulate to surface
Planned ___ or Existing ___ LongSt	—	—	—	—	—
Planned ___ or Existing ___ Liner	—	—	—	—	—
Planned ___ or Existing <input checked="" type="checkbox"/> (OH) PERF	8 1/2 9 5/8	5025 to TD	—	—	—

Completion/Ops Details:	
Drilled TD	<u>8830'</u> PBDT <u>—</u>
Open Hole	<input checked="" type="checkbox"/> or Perfs <u>—</u>
Tubing Size	<u>4.5</u> Inter Coated? <u>—</u>
Proposed Packer Depth	<u>4975</u>
Max Packer Depth	<u>4925</u> (100-ft limit)
Proposed Max. Surface Press	<u>1005</u>
Calc. Injt Press	<u>1005</u> (0.2 psi per ft)
Calc. FPP	<u>—</u> (0.65 psi per ft)

Injection Formation(s):	Depths (ft)	Formation	Tops?
Above Top of Inject Formation	—	Plaster	<u>1073</u>
Above Top of Inject Formation	—	Castile / Lona	—
Proposed Interval TOP:	<u>5025 / 6558</u>	Delaware Sand	<u>5042'</u>
Proposed Interval BOTTOM:	<u>6558</u>	—	<u>7850</u>
Below Bottom of Inject Formation	<u>2100</u>	—	—
Below Bottom of Inject Formation	<u>8620</u>	Bone Spring	<u>8620</u>

**AOR: Hydrologic and Geologic Information**

CAPITAN REEF: in No thru No POTASH Not Noticed? No WIPR No Noticed? No SALADO Top — Bot — CLIFF HOUSE —

Fresh Water: Max Depth: 125' FW Formation Qal Wells? 1 Analysis? Yes Hydrologic Affirm Statement Yes

Disposal Fluid: Formation Source(s) Bone Spring & Delaware Producers On Lease — Only from Operator  or Commercial —

Disposal Interval: Protectable Waters? No H/C Potential: Log — /Mudlog  /DST — /Tested — /Depleted — Other —

AOR Wells: 1/2-M Radius Map? — Well List? — Producing in Interval? No Formerly Produced in Interval? Morrow

Penetrating Wells: No. Active Wells 0 Num Repairs? NA on which well(s)? — Diagrams? —

Penetrating Wells: No. P&A Wells 0 Num Repairs? NA on which well(s)? — Diagrams? —

NOTICE: Newspaper Date 02/26/13 Mineral Owner COG/Private Surface Owner Limestone Livestock N. Date 03/28/13

RULE 26.7(A): Identified Tracts? — Affected Persons: Allor Company / Devon N. Date 4/1/13

Permit Conditions: Bottom of casing 5025 - top of Castile at base of casing

Issues: \*Modified permit applicator

## **Goetze, Phillip, EMNRD**

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**From:** Brian Collins <BCollins@concho.com>  
**Sent:** Wednesday, May 08, 2013 10:31 AM  
**To:** Goetze, Phillip, EMNRD  
**Cc:** Bobbie Goodloe  
**Subject:** COG Gettysburg 16 State SWD 1 C-108 Application

Phillip:

Per our phone conversation yesterday, we are proposing to dispose of water into the lower 20' of the Castille anhydrite in addition to the Delaware formation in the captioned well. The intermediate casing string was set about 20' above the Lamar Lime leaving 20' of Castille anhydrite exposed beneath the casing shoe when this well was originally drilled. Our intent is to dispose into the open hole below the intermediate casing shoe and this short section of Castille will be included in the injection interval. The Lamar Lime is typically considered part of the Delaware formation.

Per your request, we'll be sending you the public notice affidavits for the captioned well and the East Owl 8 Fed SWD No. 1. Please call or email if you have any questions. Thank you.

### **Brian Collins**

Senior Operations Engineer  
NM Basin Team

COG OPERATING LLC  
2208 W. Main Street  
Artesia, New Mexico 88210-3720  
Phone # 575.748.6924  
Email: [bcollins@concho.com](mailto:bcollins@concho.com)



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Gazelle 16

T Integrate Hole Volume Minor Pip Every 10 F3  
T Integrated Hole Volume Major Pip Every 100 F3  
- Integrated Cement Volume Minor Pip Every 10 F3  
- Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Gamma Ray (GR)  
(GAPI) 0 100

Tension (TENS)  
(LBF) 10000 0

Caliper (HCAL)  
(IN) 8 16

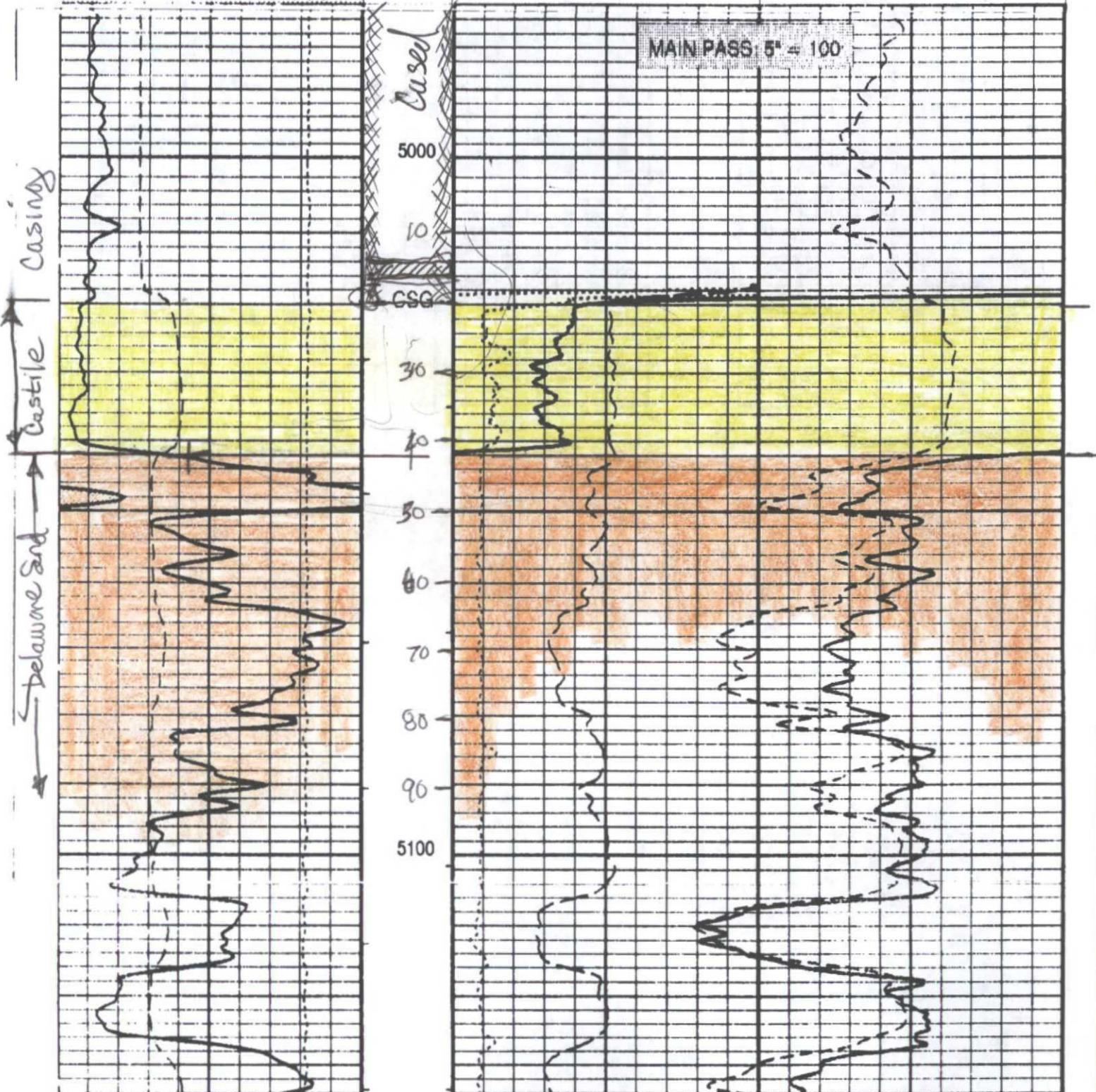
Gamma Ray Backup

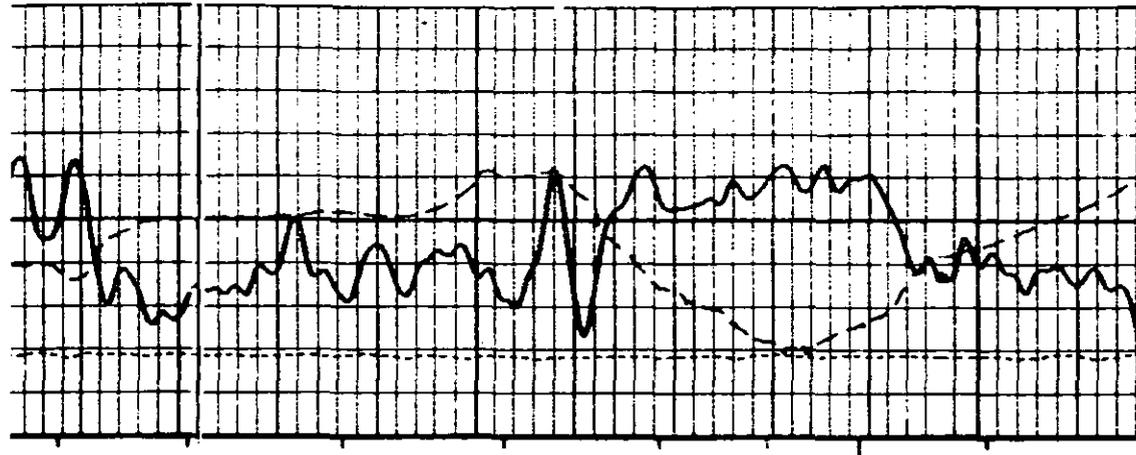
Env. Corr. Thermal Neutron Porosity (TNPH)  
(V/V) 0.3 -0.1

Std. Res. Formation Pe (PEFZ)  
(----) 0 10

Std. Res. Density Porosity (DPHZ)  
(V/V) 0.3 -0.1

Density Correction (HDRA)  
(G/C3) -0.05 0.45





5200

