

SWD

Initial

Application

Received: 09/09/19

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

RECEIVED 09/09/19	REVIEWER:	TYPE SWD	APP NO: pLEL1925943659
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Geological & Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Applicant: COG Operating, LLC **OGRID Number:** 229137
Well Name: Hasta La Vista 3 Fee SWD #1 **API:** _____
Pool: _____ **Pool Code:** _____

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

- 1) **TYPE OF APPLICATION:** Check those which apply for [A]
 A. Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD
- B. Check one only for [I] or [II]
 [I] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
 [II] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

- 2) **NOTIFICATION REQUIRED TO:** Check those which apply.
 A. ☒ Offset operators or lease holders
 B. ☐ Royalty, overriding royalty owners, revenue owners
 C. ☒ Application requires published notice
 D. ☐ Notification and/or concurrent approval by SLO
 E. ☐ Notification and/or concurrent approval by BLM
 F. ☒ Surface owner
 G. ☒ For all of the above, proof of notification or publication is attached, and/or,
 H. ☐ No notice required

FOR OCD ONLY

- ☐ Notice Complete
☐ Application Content Complete

- 3) **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Brian Collins

Print or Type Name

Signature

Date

575-748-6940

Phone Number

bcollins@concho.com

e-mail Address



September 9, 2019

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

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

Dear Mr. Goetze:

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 all the certified return receipts we will send you a copy.

Our geologic prognosis has the top of the Devonian at 15675' and Fusselman at 16550'. We're permitting the injection interval shallower and deeper than the prognosis just in case the formation tops are different than expected due to the lack of deep well control in this area.

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

Sincerely,

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

Brian Collins
Facilities Engineering Advisor

BC/mv
Enclosures

CORPORATE ADDRESS

ONE CONCHO CENTER | 600 WEST ILLINOIS AVENUE | MIDLAND, TEXAS 79701
P 432.683.7443 | F 432.683.7441

ARTESIA WEST OFFICE

2208 MAIN STREET | ARTESIA, NEW MEXICO 88210
P 575.748.6940 | F 575.746.2096

Received by OCD: 9/10/2019 11:37:11 AM



September 9, 2019

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

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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September 9, 2019

Quail Ranch, LLC
One Concho Center
600 W. Illinois Avenue
Midland, TX 79701

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
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Lea County, New Mexico

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September 9, 2019

Kaiser-Francis Oil Company
P.O. Box 21468
Tulsa, OK 74121-1468

RE: Application For Authorization To Inject
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September 9, 2019

Chevron Midcontinent, L.P.
15 Smith Road
Midland, Texas 79705

RE: Application For Authorization To Inject
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September 9, 2019

Matador Production Company
One Lincoln Center
5400 LBJ Freeway Suite 1500
Dallas, Texas 75240

RE: Application For Authorization To Inject
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September 9, 2019

Hawley Investment Company LLC
800 West 6th Street Suite 920
Los Angeles, CA 90017

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September 9, 2019

Ocon Parking LLC
10000 Memorial Drive Suite 510
Houston, TX 77024

RE: Application For Authorization To Inject
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September 9, 2019

ACRVS LLC
9838 North Cadbury Ridge
Owasso, OK 74055

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September 9, 2019

Annis Singleton Buell
4617 Crooked Ln
Dallas, TX 75229

**RE: Application For Authorization To Inject
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September 9, 2019

Jeanette Singleton Cloyd
6 Pinewood Circle
Houston, TX 77024

**RE: Application For Authorization To Inject
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Facilities Engineering Advisor

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P 575.748.6940 | F 575.746.2096



September 9, 2019

Tap Rock Resources
602 Park Point Dr., Suite 200
Golden, CO 80401

RE: Application For Authorization To Inject
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September 9, 2019

Delaware Hops
50 Kennedy Plaza, 18th Floor
Providence, RI 02903

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Facilities Engineering Advisor

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September 9, 2019

FR Energy
2 Greenway Plaza Suite 240
Houston, TX 77046

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September 9, 2019

Marathon Oil Permian LLC
5555 San Felipe Street
Houston, Texas 77056

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September 9, 2019

Tacor Resources, Inc.
Joel Talley
600 N. Marienfeld Suite 807
Midland, Texas 79701

RE: Application For Authorization To Inject
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September 9, 2019

Ozark Royalty Co. LLC
3652 Northwood Drive
Memphis, TN 38111

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September 9, 2019

Energen Resources Corporation
(acquired by Diamondback Energy)
3510 N A Street
Midland, Texas 79705

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September 9, 2019

Diamondback Energy
500 West Texas Ave. #1200
Midland, TX 79701

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

Sincerely,

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

Brian Collins
Facilities Engineering Advisor

BC/mv
Enclosures

CORPORATE ADDRESS

ONE CONCHO CENTER | 600 WEST ILLINOIS AVENUE | MIDLAND, TEXAS 79701
P 432.683.7443 | F 432.683.7441

ARTESIA WEST OFFICE

2208 MAIN STREET | ARTESIA, NEW MEXICO 88210
P 575.748.6940 | F 575.746.2096



September 9, 2019

MRC Permian Company
One Lincoln Center
5400 LBJ Freeway Suite 1500
Dallas, Texas 75240

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

To Whom It May Concern:

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September 9, 2019

Jetstream New Mexico, LLC
PO Box 471396
Fort Worth, Texas 76147

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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September 9, 2019

5588 Oil, LLC
P.O. Box 47095
Fort Worth, Texas 76107

RE: Application For Authorization To Inject
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P 575.748.6940 | F 575.746.2096



September 9, 2019

Mavros Minerals, LLC
P.O. Box 50820
Midland, Texas 79710

**RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico**

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Brian Collins
Facilities Engineering Advisor

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ARTESIA WEST OFFICE

2208 MAIN STREET | ARTESIA, NEW MEXICO 88210
P 575.748.6940 | F 575.746.2096



September 9, 2019

Oak Valley Mineral and Land, LP
3030 Veterans Airpark Lane, Ste 6101
Midland, Texas 79705

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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Facilities Engineering Advisor

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CORPORATE ADDRESS

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P 432.683.7443 | F 432.683.7441

ARTESIA WEST OFFICE

2208 MAIN STREET | ARTESIA, NEW MEXICO 88210
P 575.748.6940 | F 575.746.2096



September 9, 2019

CEP Minerals LLC
4849 Greenville Avenue, Ste 1265
Dallas, Texas 75206

RE: **Application For Authorization To Inject**
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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P 575.748.6940 | F 575.746.2096



September 9, 2019

Arrakis Holdings, LLC
707 Autumn Ridge Drive
McKinney, Texas 75070

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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ARTESIA WEST OFFICE

2208 MAIN STREET | ARTESIA, NEW MEXICO 88210
P 575.748.6940 | F 575.746.2096



September 9, 2019

Good News Minerals, LLC
4000 N Big Spring St, Ste 310
Midland, Texas 79705

**RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico**

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Brian Collins
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ARTESIA WEST OFFICE

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P 575.748.6940 | F 575.746.2096



September 9, 2019

Patricia Defazio Simmons
2 Round Rock Circle
Richardson, Texas 75080

**RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico**

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P 575.748.6940 | F 575.746.2096



September 9, 2019

Sandra Griffin Kasper
2429 Thorndon Park Court
League City, Texas 77573

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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September 9, 2019

Kerri Lane Brown
1930 Boulder Ridge Dr.
Conroe, Texas 77304

RE: Application For Authorization To Inject
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1860' FSL, 200' FWL
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Lea County, New Mexico

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ARTESIA WEST OFFICE

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September 9, 2019

Foundation Minerals, LLC
P.O Box 50820
Midland, Texas 79710

RE: Application For Authorization To Inject
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1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
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September 9, 2019

New Mexico Department of
Transportation Property Asset Manager
1120 Cerillos Rd
Santa Fe, NM 87505

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
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Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
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September 9, 2019

State of New Mexico Commissioner
of Public Lands
310 Old Santa Fe Trail
Santa Fe, NM 87501

RE: Application For Authorization To Inject
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ARTESIA WEST OFFICE

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P 575.748.6940 | F 575.746.2096



September 9, 2019

United States of America, through
the Bureau of Land Management
New Mexico State Office
301 Dinosaur Trail
Santa Fe, NM 87508

RE: Application For Authorization To Inject
Hasta La Vista 8 Fee SWD #1
1860' FSL, 200' FWL
Unit L, Section 8, Township 24 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

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APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery Pressure Maintenance X Disposal Storage
Application qualifies for administrative approval? X Yes No
- II. OPERATOR: COG Operating, LLC
ADDRESS: One Concho Center, 600 W. Illinois Ave., Midland, TX 79701
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 X 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: Facilities Engineering Advisor
SIGNATURE:  DATE: 9 Sept 2019
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:

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

C-108 Application for Authorization to Inject
Hasta La Vista 8 Fee SWD 1
1860' FSL, 200' FWL
Unit L, Section 8, T24S, R34E
Lea County, NM

COG Operating, LLC, proposes to drill the captioned well to 17,450' for salt water disposal service into the Devonian/Silurian from approximately 15,475' to 17,450'.

Should this well undergo a mechanical integrity issue while in service in the future, it will be taken out of service immediately per UIC rules and repaired as quickly as possible. The water going to this well will be diverted to other SWD wells via pipeline if applicable; otherwise it will be trucked to other SWD wells. If necessary, producing wells serviced by this SWD well will be curtailed and/or shut-in until this well is repaired.

- III. Well data is attached. A fishing risk assessment is attached.
- IV. This is not an expansion of an existing project.
- V. Map is attached.
- VI. Two wells within the 1 mile radius area of review penetrate the proposed injection zone. Well schematics are attached. Both wells are plugged with bridge plugs isolating the Devonian from the rest of the well bore.
- VII.
 - 1. Proposed average daily injection rate = 25,000 BWPD
Proposed maximum daily injection rate = 40,000 BWPD
 - 2. Closed system
 - 3. Proposed maximum injection pressure = 3095 psi
(0.2 psi/ft. x 15,475' ft.)
 - 4. Source of injected water will be Delaware, Bone Spring and Wolfcamp produced water. No compatibility problems are expected. Analyses of Delaware, Bone Spring and Wolfcamp waters from analogous source wells are attached. An appropriate chemical treatment program will be put in place should scale formation become apparent.
- VIII. The injection zone is the Devonian/Silurian, a mixture of non-hydrocarbon bearing limestone and dolomite from 15,475' to 17,450'. Any underground water sources will be shallower than 1208', the estimated top of the Rustler Anhydrite. The estimated top of the Devonian is 15,675' and the Fusselman is 16,550'. The proposed permitted injection interval has been expanded upwards and downwards to account for geologic uncertainty.
- IX. The Devonian/Silurian injection interval will be acidized with approximately 40,000 gals of 20 % HCl acid.
- X. Well logs will be filed with the Division. Sections of open hole log across the Devonian from the Government L Com 1 located about 0.83 miles southwest in Unit G, Section 18, T24S, R34E and

the Bell Lake 7 Unit 1 located about 0.4 miles west in Unit J, Section 7, T24S, R34E are attached.

XI. There are no fresh water wells within a mile of the proposed SWD well from the NMOSE records.

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.



, Facilities Engineering Advisor,



A seismicity assessment is attached.

XIII. Proof of Notice is attached.

COG Operating LLC
Hasta La Vista 8 Fee SWD #1
C-108 Attachment
May 23, 2019

Statement Regarding Seismicity and Disposal Well Location

COG Operating LLC interpreted faults based on licensed 3D seismic data in the area around our proposed SWD. Our investigation of the deep formations does not indicate nearby faults or structures in the immediate area that would increase the chances of induced seismicity.

A recent paper by Snee and Zoback titled, "State of Stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity", was published in the February 2018 edition of The Leading Edge. The authors evaluated the strike-slip probability of known Permian Basin faults. The nearest fault is located approximately 0.81 miles West of our proposed SWD (see map). The study predicts that this fault has a less than 10% probability of being critically stressed as to create an induced seismicity event. The primary reason for the low probability is the relationship of the strike of the fault to the regional maximum stress orientation (N 75 degrees E).

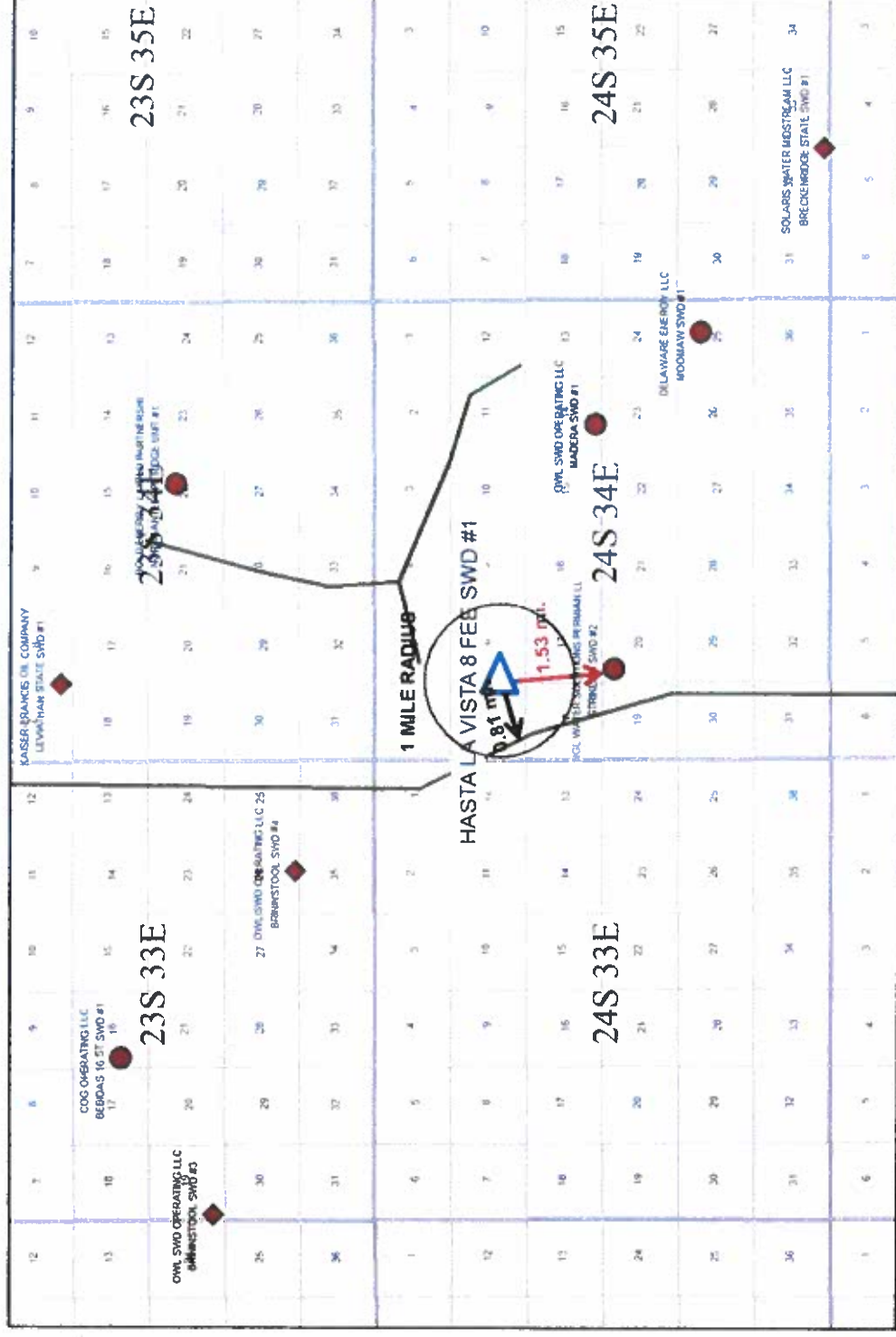
The proposed Hasta La Vista 8 Fee SWD #1 is located 1.53 miles away from the nearest active Devonian SWD well (see map) and no active, permitted or pending Devonian SWD applications within the one mile radius.

Regards,

Carrie M. Martin

Staff Geologist
COG Operating LLC
cmartin@concho.com
432-221-0479

HASTA LA VISTA 8 FEE SWD #1



III.

WELL DATA

INJECTION WELL DATA SHEET

Operator: COG Operating, LLC
Well Name & Number: Hasta La Vista 8 Fee SWD 1
Well Location: 1860' FSL, 200' FWL, Unit L, Section 8, T24S, R34E

Wellbore Schematic: See attached schematic

Surface Casing:

Hole Size: 26"
Casing Size: 20" @ 1225'
Cemented with: 3675 cubic feet
Top of Cement: Surface by design

Intermediate Casing:

Hole Size: 17-1/2"
Casing Size: 13-3/8" @ 5175'
Cemented with: 7200 cubic feet
Top of Cement: Surface by design

Intermediate Casing:

Hole Size: 12-1/4"
Casing Size: 9-5/8" @ 12000'
Cemented with: 5600 cubic feet
Top of Cement: Surface by design

Production Casing:

Hole Size: 8-1/2"
Casing Size: 7-5/8" flush joint liner @ 11800-15475'
Cemented with: 400 cubic feet
Top of Cement: Liner top by design

Injection Interval:

15475' to 17450' (6-1/2" open hole)

Injection Tubing/Packer:

Tubing Size: 5-1/2" 0-11700' inside 9-5/8" casing, 5" from 11700-15425' inside 7-5/8" casing
Lining Material: Internally fiberglass lined
Type of Packer: Nickel plated or CRA 10K permanent packer
Packer Setting Depth: 15425'
Other Type of Tubing/Casing Seal: Not Applicable

Additional Data:

1. Is this a new well drilled for injection? Yes
If no, for what purpose was well originally drilled? N/A
2. Name of Injection Formation: Devonian/Silurian
3. Name of Field or Pool (if applicable): SWD: Devonian
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
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

Overlying: Possible Delaware 5175-8900', Bone Spring 8950-11850', Wolfcamp 11850-12450', possible Strawn 12525'+, possible Atoka 12775'+, possible Morrow 13375'+

Underlying: None

**Fishing Risk Assessment
Hasta La Vista 8 Fee SWD 1**

Note: All fishing procedures are subject to well conditions. Expert judgement and experience are required and there are too many combinations of possible fishing operations options to list below. Fishing techniques are determined on a case-by-case, day-by-day basis.

5" Injection Tubing Inside of 7-5/8" Casing

7-5/8"/39ppf casing: ID = 6.625", Drift ID = 6.500"

5"/18ppf/L80/TCPC FG-lined injection tubing: Tube/body OD = 5.000", Cplg OD = 5.700"

Clearance between body OD of tubing and drift ID of casing = 1.500"

The proposed downhole configuration allows for effective, straightforward tubing fishing operations.

Tubing will have a floating seal assembly landed in seal bore extensions below the packer which will allow a simple straight pull to separate the tubing from the packer.

For washover operations:

- 6-3/8" washpipe: OD = 6.375", ID = 5.625", Drift ID = 5.500"
- OD of washpipe is less than drift ID of casing (6.500" drift ID vs 6.375" washpipe OD)
- Drift ID of washpipe is greater than OD of 5" tubing (5.500" drift ID vs 5.000" Tubing OD)
- Drift ID of washpipe is slightly less than coupling OD of 5" tubing (washpipe 5.500" drift ID vs 5.700" tubing coupling OD---0.200" difference). If necessary to wash over the coupling, would use a mill on the end of the washpipe to mill off the 0.200" dimensional difference in such a way:
 1. To allow a 6.625" Series 150 spiral grapple overshot turned down from 6.625" OD to 6.5" OD to catch the milled down coupling (mill coupling to 5.5" or less OD).
 2. To allow a 5.875" OD Series 150 spiral grapple overshot to catch the 5" body of the tubing (mill coupling to 5" tube OD).

For fishing operations with overshot:

- 5" tube/body can be fished with 5.875" OD Series 150 spiral grapple overshot (5.875" overshot OD vs 6.5" casing drift ID).
- 5.700" OD TCPC coupling can be milled down and fished as described above in "washover operations."

For fishing operations with spear:

- Fiberglass liner can be milled out, or torn out with a spear, to allow a releasable spear assembly to grasp the ID of the injection tubing.

**Fishing Risk Assessment
Hasta La Vista 8 Fee SWD 1**

Note: All fishing procedures are subject to well conditions. Expert judgement and experience are required and there are too many combinations of possible fishing operations options to list below. Fishing techniques are determined on a case-by-case, day-by-day basis.

5-1/2" Injection Tubing Inside of 9-5/8" Casing

9-5/8"/53.5 ppf casing: ID = 8.535", Drift ID = 8.379"

5-1/2"/20ppf/P110/TCPC FG-lined injection tubing: Tube/body OD = 5.500", Cplg OD = 6.250"

Clearance between body OD of tubing and drift ID of casing = 2.879"

The proposed downhole configuration allows for effective, straightforward tubing fishing operations.

Tubing will have a floating seal assembly landed in seal bore extensions below the packer which will allow a simple straight pull to separate the tubing from the packer.

For washover operations:

- 7-3/8" washpipe: OD = 7.375", ID = 6.625", Drift ID = 6.500"
- OD of washpipe is less than drift ID of casing (8.379" drift ID vs 7.375" washpipe OD)
- Drift ID of washpipe is greater than OD of 5-1/2" tubing (6.500" drift ID vs 5.500" Tubing OD)
- Drift ID of washpipe greater than OD of 5-1/2" tubing coupling (6.500" drift ID vs 6.250" Tubing Coupling OD)

For fishing operations with overshot:

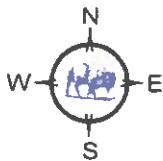
- 5-1/2" tube/body can be fished with 6.625" OD Series 150 spiral grapple overshot (6.625" overshot OD vs 8.379" casing drift ID).
- 6.250" OD TCPC coupling can be fished with 7.375" OD Series 150 spiral grapple overshot (7.375" overshot OD vs 8.379" casing drift ID).

For fishing operations with spear:

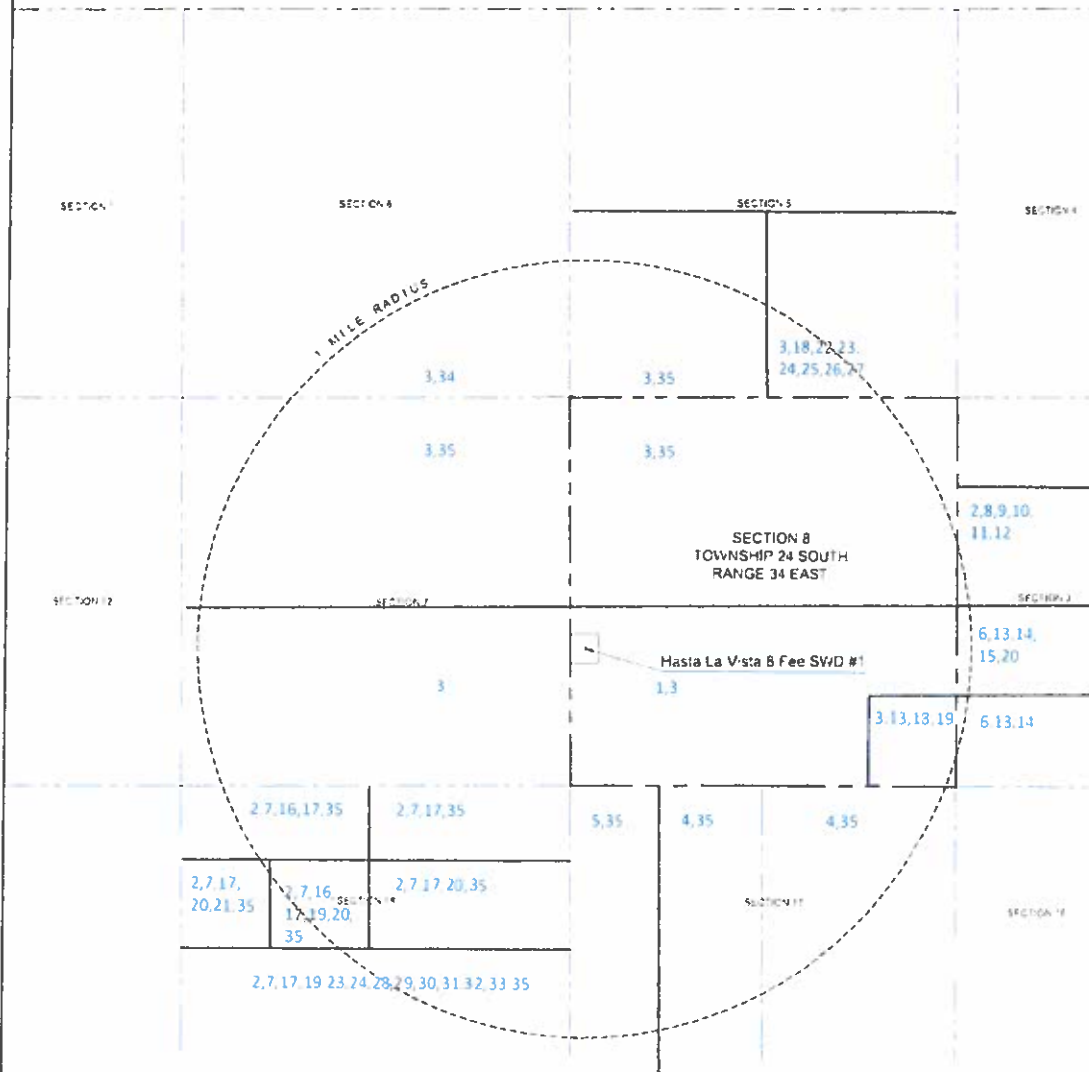
- Fiberglass liner can be milled out, or torn out with a spear, to allow a releasable spear assembly to grasp the ID of the injection tubing.

V.

MAP



SECTION NO. 8
TOWNSHIP 24 SOUTH
RANGE 34 EAST
N. M. P. M. NEW MEXICO
LEA COUNTY, NEW MEXICO



LEGEND
B.O.L. = BEGINNING OF LINE
E.O.L. = END OF LINE
P.I. = POINT OF INTERSECTION
C.M. = CONTROLLING MONUMENT

NOTE: RESEARCH AND TITLE PROVIDED BY OTHERS. BISON CREEK LAND SERVICES, LLC IS NOT LIABLE AND OR RESPONSIBLE FOR ANY TITLE ERRORS OR OMISSIONS RELATED TO THIS PLAT.

NOTE: BASIS OF BEARINGS ARE THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE NAD 27 AND COORDINATES AND DISTANCES ARE OF GRID VALUES. DISTANCES MUST BE MULTIPLIED BY A COMBINED SCALE FACTOR OF 0.99984743 TO OBTAIN SURFACE DISTANCES.

BLUE = CORRESPONDS TO AFFECTED PERSONS LIST



SCALE 1" = 2000'	DATE: 04/24/19
DRWN: BEM	APPVD: JPK
CREW: DC	
AFE NO	
PROJ NO 19-553-HASTA LA VISTA 1A.BLE	

CONCHO OPERATING, LLC.
EXHIBIT OF
PROPOSED SWD SITE
HASTA LA VISTA B FEE SWD #1
(1 MILE RADIUS)
LOCATED IN
SECTION 8
TOWNSHIP 24 SOUTH
RANGE 34 EAST
N. M. P. M. NEW MEXICO



CONCHO



Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311
(575) 443-6202 FAX (575) 443-1151



COPYRIGHT 2019

Hasta La Vista 8 Fee SWD #1
 Located in Section 8, Township 24S, Range 34E
Affected Persons

	Name	Address	Phone Number	Owner Type	S-T-R	Notes
1	Quail Ranch, LLC	One Concho Center 600 W. Illinois Avenue Midland, TX 79701	432-221-0500	Drillsite Surface Owner	8-24S-34E	
2	COG Operating LLC	One Concho Center 600 W. Illinois Avenue Midland, Texas 79701	432-683-7443	Operator	N2 9-24S-34E 18-24S-34E	APIs: 30-025-41687 30-025-41666 30-025-41688 30-025-41689 30-025-20817
3	Kaiser-Francis Oil Company	P.O. Box 21468 Tulsa, OK 74121-1468	918-494-0000	Operator	All of 5-24S-34E All of 6-24S-34E All of 7-24S-34E All of 8-24S-34E	APIs: 30-025-08491 30-025-36952 30-025-34307 30-025-38564 30-025-44618 30-025-44619 30-025-43034
4	Chevron Midcontinent, L.P.	15 Smith Road Midland, Texas 79705	432-498-8600	Operator	E2W2 & E2 17-24S-34E	APIs: 30-025-41957 30-025-41199
5	Matador Production Company	One Lincoln Center 5400 LBJ Freeway Suite 1500 Dallas, Texas 75240	972-371-5200	Operator	W2W2 17-24S-34E	APIs: 30-025-44937 30-025-44918
6	COG Operating LLC	One Concho Center 600 W. Illinois Avenue Midland, Texas 79701	432-683-7443	Working Interest/ Leasehold	W2SW 9-24S-34E	
7	COG Production LLC	One Concho Center 600 W. Illinois Avenue Midland, Texas 79701	432-683-7443	Working Interest	18-24S-34E	
8	Hawley Investment Company LLC	800 West 6th Street Suite 920 Los Angeles, CA 90017	213-892-205	Working Interest	NW 9-24S-34E	
9	Ocon Parking LLC	10000 Memorial Drive Suite 510 Houston, TX 77024	713-682-3441	Working Interest	NW 9-24S-34E	

10	ACRVS LLC	9838 North Cadbury Ridge Owasso, OK 74055	918-519-1292	Working Interest	NW 9-24S-34E	
11	Annis Singleton Buell	4617 Crooked Ln Dallas, TX 75229	214-368-5674 214-681-0296	Working Interest	NW 9-24S-34E	
12	Jeanette Singleton Cloyd	6 Pinewood Circle Houston, TX 77024	713-365-0324	Working Interest	NW 9-24S-34E	
13	Tap Rock Resources	602 Park Point Dr., Suite 200 Golden, CO 80401	720-772-5090	Working Interest/ Leasehold	SESE 8-24S-34E W2SW 9-24S-34E	
14	Delaware Hops	50 Kennedy Plaza, 18th Floor Providence, RI 02903	401-751-1700	Working Interest/ Leasehold	W2SW 9-24S-34E	
15	FR Energy	2 Greenway Plaza Suite 240 Houston, TX 77046	832-481-3498	Working Interest/ Leasehold	NWSW 9-24S-34E	
16	Marathon Oil Permian LLC	5555 San Felipe Street Houston, Texas 77056	713-629-6600	Working Interest	N2NW 18-24S-34E	Deep rights
17	Tacor Resources, Inc. Joel Talley	600 N. Marienfeld Suite 807 Midland, Texas 79701	432-682-4218	Working Interest	18-24S-34E	
18	Ozark Royalty Co. LLC	3652 Northwood Drive Memphis, TN 38111	972-210-1032	Leasehold	E2 5-24S-34E SESE 8-24S-34E	
19	Energen Resources Corporation (acquired by Diamondback Energy)	3510 N A Street Midland, Texas 79705	432-687-1155	Leasehold	SESE 8-24S-34E SENE & S2 18-24S-34E	Deep rights in 18-24S-34E
20	MRC Permian Company	One Lincoln Center 5400 LBJ Freeway Suite 1500 Dallas, Texas 75240	972-371-5200	Leasehold	NWSW 9-24S-34E S2N2 18-24S-34E	Deep rights in 18-24S-34E

21	Jetstream New Mexico, LLC	PO Box 471396 Fort Worth, Texas 76147	817-332-4411	Leasehold	SW4NW4 18-24S-34E	Deep rights
22	5588 Oil, LLC	P.O. Box 47095 Fort Worth, Texas 76107	432-520-7403	Unleased Mineral Interest	E2 S-24S-34E	
23	Mavros Minerals, LLC	P.O. Box 50820 Midland, Texas 79710	713-571-9393	Unleased Mineral Interest	E2 S-24S-34E S2 18-24S-34E	
24	Oak Valley Mineral and Land, LP	3030 Veterans Airpark Lane, Ste 6101 Midland, Texas 79705 P.O. Box 50820 Midland, Texas 79710	432-684-9696	Unleased Mineral Interest	E2 S-24S-34E S2 18-24S-34E	
25	CEP Minerals LLC	4849 Greenville Avenue, Ste 1265 Dallas, Texas 75206	214-247-7327	Unleased Mineral Interest	E2 S-24S-34E	
26	Arrakis Holdings, LLC	707 Autumn Ridge Drive McKinney, Texas 75070	214-548-5632	Unleased Mineral Interest	E2 S-24S-34E	
27	Good News Minerals, LLC	4000 N Big Spring St, Ste 310 Midland, Texas 79705	432-684-9696	Unleased Mineral Interest	E2 S-24S-34E	
28	Patricia Defazio Simmons	2 Round Rock Circle Richardson, Texas 75080	214-669-9049	Unleased Mineral Interest	S2 18-24S-34E	
29	Sandra Griffin Kasper	2429 Thorndon Park Court League City, Texas 77573	281-940-9662	Unleased Mineral Interest	S2 18-24S-34E	
30	Kerri Lane Brown	1930 Boulder Ridge Dr. Conroe, Texas 77304	832-866-6203	Unleased Mineral Interest	S2 18-24S-34E	

31	Foundation Minerals, LLC	P.O Box 50820 Midland, Texas 79710	817-929-1885	Unleased Mineral Interest	S2 18-24S-34E	
32	Estate of Cloma Mize Perkins Garrett, heirs & assigns	not located		Unleased Mineral Interest	S2 18-24S-34E	See Title Note 2 for S2 18-24S-34E
33	New Mexico Department of Transportation	Property Asset Manager 1120 Cerillos Rd Santa Fe, NM 87505	505-795-1401	Unleased Mineral Interest	S2 18-24S-34E	See Title Note 8 for S2 18-24S-34E
34	State of New Mexico Commissioner of Public Lands	310 Old Santa Fe Trail Santa Fe, NM 87501	505-827-5760	Mineral	6-24S-34E	
35	United States of America, through the Bureau of Land Management	New Mexico State Office 301 Dinosaur Trail Santa Fe, NM 87508	505-954-2000 blm_nm_comments@blm.gov	Mineral	17-24S-34E 18-24S-34E SW4 5-24S-34E N2 7-24S-34E N2 8-24S-34E	

District I
 1025 N. French Dr., Hobbs, NM 88240
 Phone: (575) 391-6161 Fax: (575) 391-6120
 District II
 411 S. First St., Artesia, NM 88203
 Phone: (575) 744-1203 Fax: (575) 744-0730
 District III
 1000 Rte. 68/80 Road, Aztec, NM 87816
 Phone: (505) 324-6178 Fax: (505) 324-6170
 District IV
 1270 S. St. Francis Dr., Santa Fe, NM 87505
 Phone: (505) 876-3460 Fax: (505) 876-3462

State of New Mexico
 Energy, Minerals & Natural Resources Department
 OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

Form C-102
 Revised August 1, 2011
 Submit one copy to appropriate
 District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
4 Property Code	5 Property Name HASTA LA VISTA 8 FEE SWD	
6 OUIRD No.	7 Operator Name COG OPERATING, LLC	
		8 Well Number 1
		9 Elevation 3595'

Surface Location

11. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	8	24S	34E		1860	SOUTH	200	WEST	LEA

Bottom Hole Location If Different From Surface

11. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

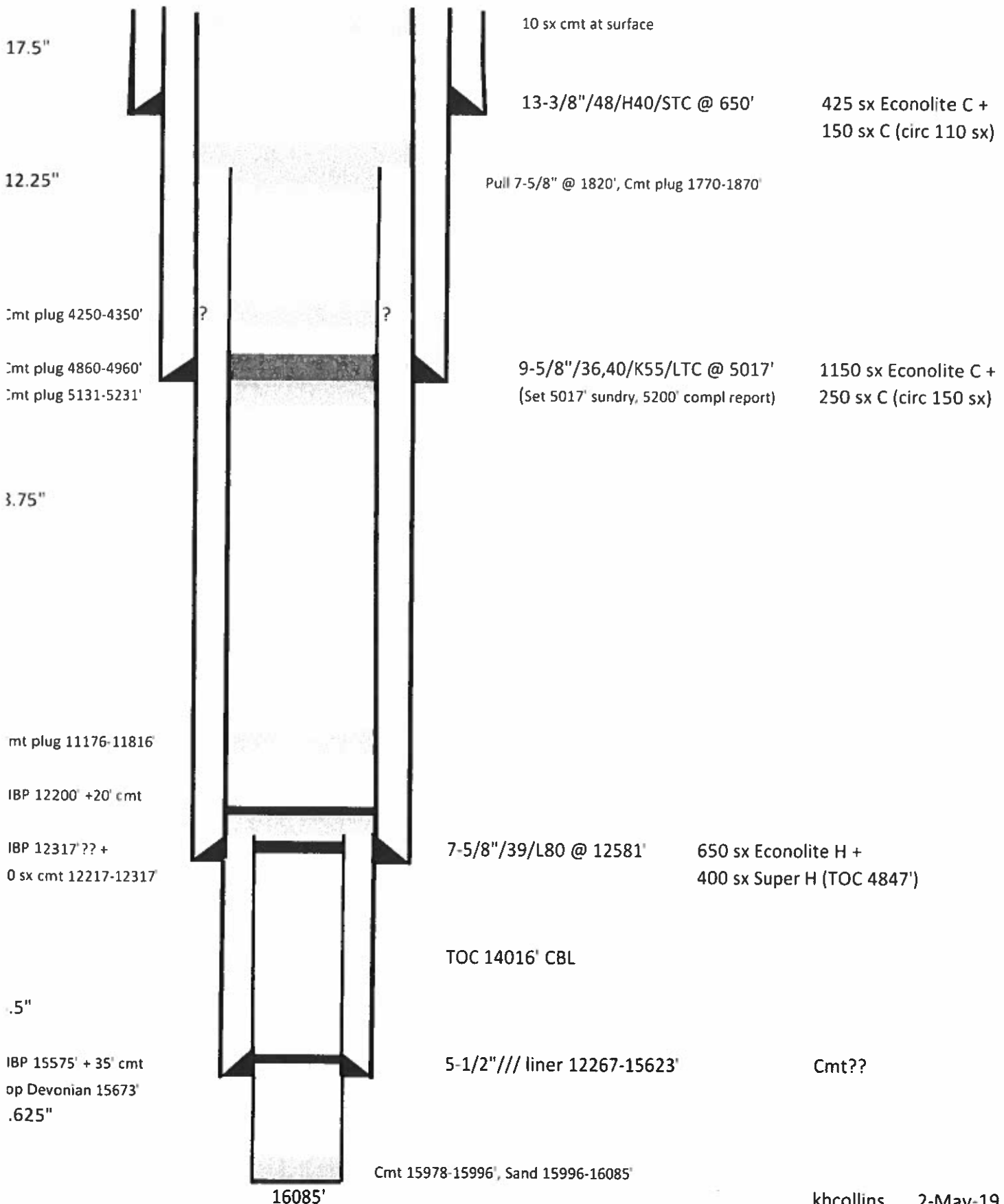
<p>GEODETIC DATA NAD 27 GRID - NM EAST</p> <p>SURFACE LOCATION N 448327.9 - E 757871.7</p> <p>LAT 32.22981884° N LONG 103.49940104° W</p> <p>GEODETIC DATA NAD 83 GRID - NM EAST</p> <p>SURFACE LOCATION N 448386.7 - E 799055.8</p> <p>LAT 32.22994289° N LONG 103.49987783° W</p> <p style="text-align: center; font-size: 2em;">8</p> <p>CORNER DATA NAD 27 GRID - NM EAST</p> <p>A. FOUND 2" BENT IRON PIPE N 446468.6 - E 757696.0</p> <p>B. FOUND FENCE CORNER N 451743.9 - E 757627.0</p> <p>C. FOUND 2" IRON PIPE N 451784.2 - E 762920.6</p> <p>D. FOUND 1" IRON PIPE N 449135.0 - E 762949.0</p> <p>E. FOUND 2" IRON PIPE N 446492.9 - E 762960.2</p> <p>F. FOUND 1" IRON PIPE N 446486.1 - E 760331.4</p>	<p>DETAIL "A"</p> <p>OPERATOR CERTIFICATION</p> <p>I, the undersigned, hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>Signature: _____ Date: _____</p> <p>Printed Name: _____</p> <p>Printed Address: _____</p> <p>SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>4-4-2019</p> <p>Date of Survey: _____</p> <p>Signature and Seal of: _____</p> <p>12351</p> <p>Certificate Number</p>
--	--

VI.

**Two Wells Penetrate
Proposed Disposal
Interval Within One
Mile Area of Review**

Bell Lake 7 Unit 1
2276' FSL, 1863' FEL
J-7-24s-34e
Lea, NM
30-025-33815

Zero:
 KB elev:
 GL elev: 3604'



Submit 3 Copies
to Appropriate
District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1950, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
P.O. Box 2038
Santa Fe, New Mexico 87504-2038

WELL API NO.
30 025 33815

5. Indicate Type of Lease
STATE ☐ FEE ☒

6. State Oil & Gas Lease No.
LC 066653

7. Lease Name or Unit Agreement Name

Bell Lake 7 Unit (19275)

8. Well No.
1

9. Pool name or Wildcat
Bell Lake Devonian (71800)
Bell Lake Morrow South (71960)

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A
DIFFERENT RESERVOIR. USE 'APPLICATION FOR PERMIT'
(FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:
OIL WELL ☐ GAS WELL ☐ OTHER Dry-Hole

2. Name of Operator
Enron Oil & Gas Company

3. Address of Operator
P. O. Box 2267, Midland, Texas 79702

4. Well Location
Unit Letter J : 2276 Foot From The south Line and 1853 Foot From The east Line
Section 7 Township 24S Range 34E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)
3604' GR

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data
NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☒
CASING TEST AND CEMENT JOB ☐
OTHER: ☐

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103. September 4 through September 10, 1997

Dump cmt with bailer on sand @ 15996 to 15987
Dump cmt with bailer on cmt @ 15987 to 15978
Ran bond log from 15600 to 13700 - top cmt 14016
Dump bailer and collar locator - top cmt @ 15978
CIBP @ 15575 - dump bailer (plug from 15575-15540)
Set CIBP on WL @ 12200- Spot 100' cmt plug from 12317-12217 w/20 sx cmt
CIBP @ 12200 w/bailer - dump 20' cmt on top
Spot cmt plug 11816 to 11176
Circ & spot cmt plug from 5231 to 5131
Spot cmt plug 4960-4860
Spot cmt plug 4350-4250
Spot cmt plug 1870-1770
Spot 10 sx cmt @ surface.

(OVER)

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Betty Gildon Betty Gildon TITLE Regulatory Analyst DATE 9/18/97

TYPE OR PRINT NAME TELEPHONE NO.

(This space for State Use)

APPROVED BY Charles R... TITLE DATE

CONDITIONS OF APPROVAL, IF ANY:

Submit to Appropriate
District Office
State Lease - 6 copies
Fee Lease - 5 copies

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-105
Revised 1-1-89

WELL API NO. 30 025 33815	
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>	
6. State Oil & Gas Lease No. LC 066653	
7. Lease Name or Unit Agreement Name Bell Lake 7 Unit	
8. Well No. 1	
9. Pool name or Wildcat / 1960 / 71800 Bell Lake Morrow South / Devonian	

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well: OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input checked="" type="checkbox"/> OTHER _____		7. Lease Name or Unit Agreement Name Bell Lake 7 Unit	
b. Type of Completion: NEW WELL <input type="checkbox"/> WORK OVER <input type="checkbox"/> DEEPEN <input type="checkbox"/> FLUID BACK <input type="checkbox"/> DIFF RESER <input type="checkbox"/> OTHER _____			
2. Name of Operator Enron Oil & Gas Company		8. Well No. 1	
3. Address of Operator P. O. Box 2267, Midland, Texas 79702		9. Pool name or Wildcat / 1960 / 71800 Bell Lake Morrow South / Devonian	
4. Well Location Unit Letter <u>J</u> : <u>2276</u> Feet From The <u>south</u> Line and <u>1863</u> Feet From The <u>east</u> Line Section <u>7</u> Township <u>24S</u> Range <u>34E</u> NMPM Lea County			
10. Date Spudded 6-12-97	11. Date T.D. Reached 9-8-97	12. Date Compl. (Ready to Prod.) P&A 9-10-97	13. Elevations (DF& RKB, RT, GR, etc.) 3604' GR
14. Elev. Casinghead 3604'			
15. Total Depth 16085	16. Plug Back T.D. -	17. If Multiple Compl. How Many Zones? P&A 9-10-97	18. Intervals Drilled By Rotary Tools <input checked="" type="checkbox"/> Cable Tools _____
19. Producing Interval(s), of this completion - Top, Bottom, Name Comp Z-Den, Comp Neut, GR and Multipole Array Acoustilog, Digital Acoustilog, GR; Dual Induction, GR			20. Was Directional Survey Made No
21. Type Electric and Other Logs Run			22. Was Well Cored No

CASING RECORD (Report all strings set in well)

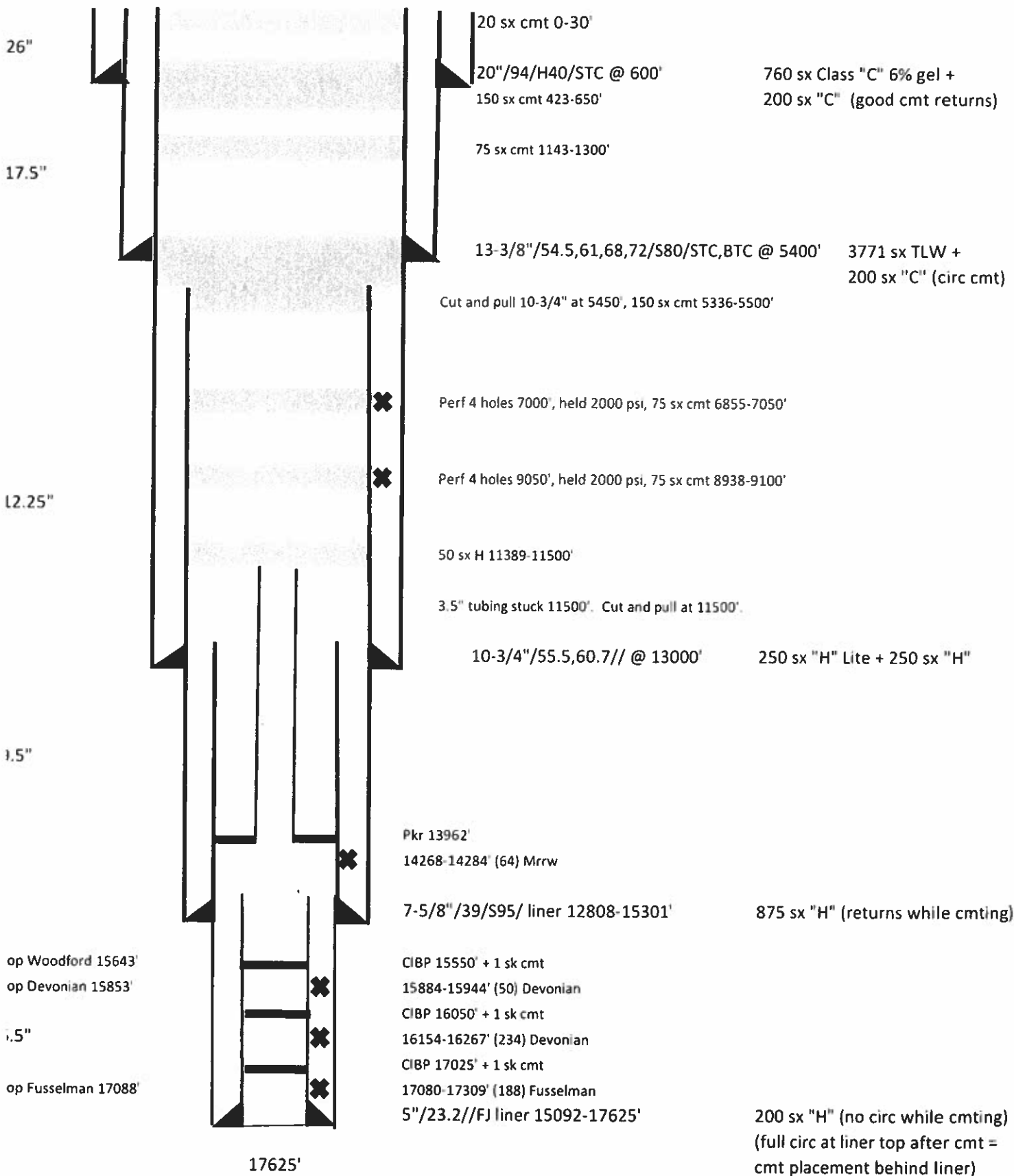
CASING SIZE	WEIGHT LB/FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8	48#	650	17-1/2	575 sx Prem Plus	Circ - None
9-5/8	40# & 36#	5200	12-1/4	1400 sx Prem Plus	Circ - None
7-5/8	39#	12581	8-3/4	600 Prem Plus &	
				400 50/50 poz	TOC 4847'
				Cut & retrieved	1820' of 7-5/8" casing

24. LINER RECORD				25. TUBING RECORD			
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
26. Perforation record (interval, size, and number)				27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.			
				DEPTH INTERVAL			
				AMOUNT AND KIND MATERIAL USED			

28. PRODUCTION							
Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)				Well Status (Prod. or Shut-in) Dry Hole	
Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl	Gas - Oil Ratio
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl	Gas - MCF	Water - Bbl	Oil Gravity - API - (Corr.)	
29. Disposition of Gas (Sold, used for fuel, vented, etc.)						Test Witnessed By	
30. List Attachments Logs, Inclination Report							
31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief							
Signature <u>Betty Gildon</u>		Printed Name <u>Betty Gildon</u>		Title <u>Regulatory Analyst</u>		Date <u>10/8/97</u>	

Government L Com #1
 1980' FNL, 1980' FEL
 G-18-24s-34e
 Lea, NM
 30-025-25604

Zero:
 KB elev:
 GL elev: 3576'



New Mexico Oil Conservation Division, District 1
1625 N. French Drive
Hobbs, NM 88240

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE- Other instructions on reverse side.

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NM-17446
2. Name of Operator EOG Resources, Inc		6. If Indian, Allottee or Tribe Name
3a. Address P.O. Box 2267, Midland, TX, 79702	3b. Phone No. (include area code) 432-561-8600	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Unit Letter G, 1980 FNL, 1980 FEL Section 18, Township 24-S, Range 34-E		8. Well Name and No. Government "L" Com #1
		9. API Well No. 30-025-00000-25604
		10. Field and Pool, or Exploratory Area Bell Lake, South Morrow
		11. County or Parish, State Lea, New Mexico

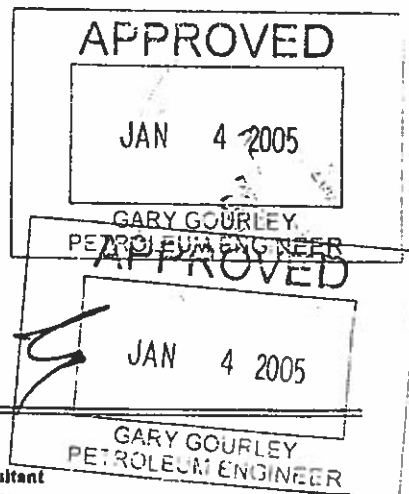
12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input checked="" type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

1. Notified Jim McCormick w/BLM 24 hrs prior to MI and RC.
2. Cut 3 1/2' tbg at 11500, spot 50sx C/Less "H" cmt, plug from 11500-11400, WOC Tag at 11389.
3. Circ hole w/MLF.
4. Perf 4 holes at 9050, press up to 2000 PSI, spot 75sx, plug from 9100-8950, WOC Tag @ 8938.
5. Perf 4 holes at 7000, press up to 2000 PSI, spot 75sx, plug from 7050-6900, WOC Tag at 6855.
6. Cut 10 3/4" csg at 5450, L/D csg, spot 150sx, plug from 5500-5350, WOC Tag at 5336.
7. Spot 75sx, plug from 1300-1200 (T-Salt) WOC Tag at 1143.
8. Spot 150sx, plug from 650-450 (20" Shoe) WOC Tag at 423.
9. Spot 20sx, plug from 30-Surf.
10. Clean location. Install dry hole marker 12-30-04.

P&A Complete 12-30-04



14. I hereby certify that the foregoing is true and correct Name (Printed/Typed) Jimmy Bagley		Title Consultant
Signature <i>[Signature]</i>		Date 12/30/2004

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Title Office	Date
--	-----------------	------

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

GWW

VII.

Water Analysis Produced and Receiving Formation Water



Permian Basin Area Laboratory
2101 Market Street
Midland, Texas 79703

Delaware Sand

Upstream Chemicals

REPORT DATE: 5/11/2018

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: COG OPERATING LLC
DISTRICT: NEW MEXICO
AREA/LEASE: KING TUT
SAMPLE POINT NAME: KING TUT FED 3H BTRY
SITE TYPE: FACILITY
SAMPLE POINT DESCRIPTION: TRANSFER PUMP

ACCOUNT REP: KENNETH MORGAN
SAMPLE ID: 201701012804
SAMPLE DATE: 3/21/2017
ANALYSIS DATE: 3/24/2017
ANALYST: SVP

COG OPERATING LLC, KING TUT, KING TUT FED 3H BTRY

FIELD DATA			ANALYSIS OF SAMPLE						
			ANIONS:	mg/L	meq/L	CATIONS:	mg/L	meq/L	
Initial Temperature (°F):	250	Chloride (Cl ⁻):	152606.2	4304.8	Sodium (Na ⁺):	74498.5	3241.9		
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	461.4	9.6	Potassium (K ⁺):	1381.8	35.3		
Initial Pressure (psi):	100	Borate (H ₃ BO ₃):	170.9	2.8	Magnesium (Mg ²⁺):	2495.8	205.4		
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	15329.6	765.0		
		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	724.2	16.5		
pH:		Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	1.8	0.0		
pH at time of sampling:	6.8	Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	43.2	1.5		
		Phosphate (PO ₄ ³⁻):	ND		Manganese (Mn ²⁺):	2.6	0.1		
		Silica (SiO ₂):	ND		Lead (Pb ²⁺):	0.0	0.0		
					Zinc (Zn ²⁺):	0.0	0.0		
ALKALINITY BY TITRATION	mg/L	meq/L							
Bicarbonate (HCO ₃ ⁻):	36.6	0.6			Aluminum (Al ³⁺):	0.0	0.0		
Carbonate (CO ₃ ²⁻):	ND				Chromium (Cr ³⁺):	ND			
Hydroxide (OH ⁻):	ND				Cobalt (Co ²⁺):	ND			
			ORGANIC ACIDS:	mg/L	meq/L	Copper (Cu ²⁺):	0.0	0.0	
aqueous CO ₂ (ppm):	1050.0	Formic Acid:	ND		Molybdenum (Mo ²⁺):	0.0	0.0		
aqueous H ₂ S (ppm):	0.0	Acetic Acid:	ND		Nickel (Ni ²⁺):	ND			
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND		Tin (Sn ⁴⁺):	ND			
		Butyric Acid:	ND		Titanium (Ti ²⁺):	ND			
Calculated TDS (mg/L):	247532	Valeric Acid:	ND		Vanadium (V ²⁺):	ND			
Density/Specific Gravity (g/cm ³):	1.1573				Zirconium (Zr ²⁺):	ND			
Measured Specific Gravity	1.1683				Lithium (Li):	ND			
Conductivity (mmhos):	ND				Total Hardness:	49434	N/A		
Resistivity:	ND								
MCF/D:	No Data								
SOPD:	No Data								
BWPD:	No Data	Anion/Cation Ratio:		1.01				ND = Not Determined	

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA. FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.40	0.645	1.15	7.579	-0.15	0.000	-0.23	0.000
99°F	24 psi	0.25	0.509	1.18	7.675	-0.14	0.000	-0.14	0.000
118°F	34 psi	0.16	0.334	1.20	7.774	-0.14	0.000	-0.06	0.000
137°F	43 psi	0.05	0.115	1.22	7.857	-0.15	0.000	0.03	13.651
156°F	53 psi	-0.06	0.000	1.23	7.925	-0.15	0.000	0.11	51.143
174°F	62 psi	-0.16	0.000	1.24	7.980	-0.16	0.000	0.20	82.865
193°F	72 psi	-0.25	0.000	1.25	8.022	-0.17	0.000	0.26	109.429
212°F	81 psi	-0.34	0.000	1.25	8.058	-0.19	0.000	0.37	131.297
231°F	91 psi	-0.42	0.000	1.26	8.083	-0.20	0.000	0.46	149.069
250°F	100 psi	-0.50	0.000	1.26	8.095	-0.22	0.000	0.55	163.281

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.34	123.094	-0.45	0.000	-7.90	0.000	0.19	1.935
99°F	24 psi	0.34	125.716	-0.46	0.000	-8.04	0.000	0.27	2.698
118°F	34 psi	0.35	126.379	-0.48	0.000	-8.15	0.000	0.34	3.330
137°F	43 psi	0.35	126.223	-0.49	0.000	-8.24	0.000	0.39	3.801
156°F	53 psi	0.35	126.022	-0.50	0.000	-8.32	0.000	0.43	4.122
174°F	62 psi	0.35	126.264	-0.51	0.000	-8.38	0.000	0.45	4.307
193°F	72 psi	0.35	127.203	-0.53	0.000	-8.43	0.000	0.45	4.367
212°F	81 psi	0.36	128.885	-0.54	0.000	-8.47	0.000	0.44	4.316
231°F	91 psi	0.36	131.186	-0.55	0.000	-8.51	0.000	0.42	4.148
250°F	100 psi	0.37	133.846	-0.56	0.000	-8.54	0.000	0.38	3.848

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation index predictions on this sheet use pH and alkalinity. H₂CO₃ is not included in the calculations.

ScaleSoft Pitzer™
SSP2010

Comments

Bone Spring



Permian Basin Area Laboratory
2101 Market Street
Midland Texas 79703

Upstream Chemicals

REPORT DATE: 5/16/2018

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: COG OPERATING LLC
DISTRICT: NEW MEXICO
AREA/LEASE: WINDWARD
SAMPLE POINT NAME: WINDWARD FED 2H
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: WELL HEAD

ACCOUNT REP: KENNETH MORGAN
SAMPLE ID: 201501043297
SAMPLE DATE: 12/11/2015
ANALYSIS DATE: 12/16/2015
ANALYST: SAMUEL NEWMAN

COG OPERATING LLC, WINDWARD, WINDWARD FED 2H

FIELD DATA			ANALYSIS OF SAMPLE					
			ANIONS:		mg/L		CATIONS:	
					meq/L			
Initial Temperature (°F):	250	Chloride (Cl ⁻):	89914.5	2536.4	Sodium (Na ⁺):	46148.7	2008.2	
Final Temperature (°F):	82	Sulfate (SO ₄ ²⁻):	1031.7	21.5	Potassium (K ⁺):	902.9	23.1	
Initial Pressure (psi):	100	Borate (H ₂ BO ₃):	187.2	3.0	Magnesium (Mg ²⁺):	855.0	70.4	
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	6890.6	343.8	
		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	278.9	6.4	
pH:		Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	0.0	0.0	
pH at time of sampling:	7.1	Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	89.1	3.2	
		Phosphate (PO ₄ ³⁻):	ND		Manganese (Mn ²⁺):	1.8	0.1	
		Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND		
					Zinc (Zn ²⁺):	0.0	0.0	
ALKALINITY BY TITRATION	mg/L	meq/L						
Bicarbonate (HCO ₃ ⁻):	170.0	2.8						
Carbonate (CO ₃ ²⁻):	ND							
Hydroxide (OH ⁻):	ND							
aqueous CO ₂ (ppm):	240.0	Formic Acid:	ND		Aluminum (Al ³⁺):	ND		
aqueous H ₂ S (ppm):	0.0	Acetic Acid:	ND		Chromium (Cr ³⁺):	ND		
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND		Cobalt (Co ²⁺):	ND		
		Butyric Acid:	ND		Copper (Cu ²⁺):	ND		
Calculated TDS (mg/L):	146283	Valeric Acid:	ND		Molybdenum (Mo ⁶⁺):	ND		
Density/Specific Gravity (g/cm ³):	1.0934				Nickel (Ni ²⁺):	ND		
Measured Specific Gravity:	1.1045				Tin (Sn ²⁺):	ND		
Conductivity (mmhos):	ND				Titanium (Ti ²⁺):	ND		
Resistivity:	ND				Vanadium (V ²⁺):	ND		
MCF/D:	No Data				Zirconium (Zr ²⁺):	ND		
BOPD:	No Data				Lithium (Li):	ND		
BWPD:	No Data							
		Anion/Cation Ratio:	1.04		Total Hardness:	21067	N/A	

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA. FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ · 2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
82°F	15 psi	0.000	0.000	1.43	35.518	-0.18	0.000	-0.34	0.000
101°F	24 psi	0.000	0.000	1.48	35.271	-0.17	0.000	-0.25	0.000
119°F	34 psi	0.000	0.000	1.54	37.269	-0.16	0.000	-0.16	0.000
138°F	43 psi	0.000	0.000	1.60	38.261	-0.15	0.000	-0.06	0.000
157°F	53 psi	0.000	0.000	1.66	39.182	-0.15	0.000	0.04	39.216
175°F	62 psi	0.000	0.000	1.72	40.019	-0.14	0.000	0.14	133.848
194°F	72 psi	0.000	0.000	1.75	40.776	-0.13	0.000	0.24	211.707
213°F	81 psi	0.000	0.000	1.84	41.510	-0.13	0.000	0.35	274.678
231°F	91 psi	0.000	0.000	1.90	42.195	-0.13	0.000	0.45	324.816
250°F	100 psi	0.000	0.000	1.96	42.808	-0.12	0.000	0.56	364.191

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
82°F	15 psi	0.16	51.545	-1.13	0.000	-7.50	0.000	1.18	33.476
101°F	24 psi	0.17	54.187	-1.14	0.000	-7.61	0.000	1.28	32.451
119°F	34 psi	0.18	56.250	-1.15	0.000	-7.69	0.000	1.38	34.487
138°F	43 psi	0.18	58.374	-1.16	0.000	-7.75	0.000	1.47	36.277
157°F	53 psi	0.19	60.980	-1.17	0.000	-7.79	0.000	1.55	37.770
175°F	62 psi	0.21	64.301	-1.17	0.000	-7.81	0.000	1.61	39.985
194°F	72 psi	0.22	68.407	-1.18	0.000	-7.83	0.000	1.66	39.959
213°F	81 psi	0.24	73.238	-1.18	0.000	-7.84	0.000	1.70	40.777
231°F	91 psi	0.26	78.634	-1.18	0.000	-7.83	0.000	1.73	41.446
250°F	100 psi	0.29	84.362	-1.18	0.000	-7.82	0.000	1.75	41.931

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Prediction of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation index predictions on this sheet use pH and alkalinity. H₂CO₃ is not included in the calculations.

ScaleSoft Piracet™
SSP2010

Comments



Permian Basin Area Laboratory
2101 Market Street
Midland, Texas 79703

Wolfcamp

Upstream Chemicals

REPORT DATE: 5/11/2018

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: COG OPERATING LLC
DISTRICT: WATER MANAGEMENT - PERMIAN
AREA/LEASE: VIKING HELMET STATE
SAMPLE POINT NAME: VIKING HELMET STATE COM 24H
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: WELL HEAD

ACCOUNT REP: LARRY G HINES
SAMPLE ID: 201801021234
SAMPLE DATE: 4/11/2018
ANALYSIS DATE: 4/16/2018
ANALYST: SP

COG OPERATING LLC, VIKING HELMET STATE, VIKING HELMET STATE COM 24H

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:	mg/L	meq/L	CATIONS:	mg/L	meq/L
Initial Temperature (°F):	250	Chloride (Cl ⁻):	80548.2	2272.2	Sodium (Na ⁺):	46716.0	2032.9
Final Temperature (°F):	88	Sulfate (SO ₄ ²⁻):	1551.7	32.3	Potassium (K ⁺):	887.5	22.7
Initial Pressure (psi):	100	Borate (H ₂ BO ₃):	170.8	2.8	Magnesium (Mg ²⁺):	684.8	56.4
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	5224.8	260.7
		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	209.4	4.8
pH:		Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	0.0	0.0
pH at time of sampling:		Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	126.5	4.5
		Phosphate (PO ₄ ³⁻):	ND		Manganese (Mn ²⁺):	3.4	0.1
		Silica (SiO ₂):	ND		Lead (Pb ²⁺):	0.0	0.0
					Zinc (Zn ²⁺):	0.0	0.0
ALKALINITY BY TITRATION	mg/L						
Bicarbonate (HCO ₃ ⁻):	342.0				Aluminum (Al ³⁺):	0.0	0.0
Carbonate (CO ₃ ²⁻):	ND				Chromium (Cr ³⁺):	ND	
Hydroxide (OH ⁻):	ND				Cobalt (Co ²⁺):	ND	
		ORGANIC ACIDS:	mg/L	meq/L	Copper (Cu ²⁺):	0.0	0.0
aqueous CO ₂ (ppm):	220.0	Formic Acid:	ND		Molybdenum (Mo ²⁺):	0.0	0.0
aqueous H ₂ S (ppm):	0.0	Acetic Acid:	ND		Nickel (Ni ²⁺):	ND	
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND		Tin (Sn ²⁺):	ND	
		Butyric Acid:	ND		Titanium (Ti ²⁺):	ND	
Calculated TDS (mg/L):	136294	Valeric Acid:	ND		Vanadium (V ²⁺):	ND	
Density/Specific Gravity (g/cm ³):	1.0879				Zirconium (Zr ²⁺):	ND	
Measured Specific Gravity:	1.0961				Lithium (Li):	ND	
Conductivity (mmhos):	ND						
Resistivity:	ND				Total Hardness:	16122	N/A
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data	Anion/Cation Ratio:		0.97			ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA. FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
88°F	15 psi		0.000	1.26	69.277	-0.13	0.000	-0.27	0.000
106°F	24 psi		0.000	1.31	70.705	-0.12	0.000	-0.18	0.000
124°F	34 psi		0.000	1.38	72.857	-0.11	0.000	-0.09	0.000
142°F	43 psi		0.000	1.46	75.061	-0.10	0.000	0.00	4.176
160°F	53 psi		0.000	1.54	77.135	-0.10	0.000	0.10	142.433
178°F	62 psi		0.000	1.62	79.035	-0.09	0.000	0.20	260.388
196°F	72 psi		0.000	1.70	80.759	-0.08	0.000	0.30	359.322
214°F	81 psi		0.000	1.78	82.441	-0.08	0.000	0.40	440.907
232°F	91 psi		0.000	1.87	84.078	-0.07	0.000	0.50	507.127
250°F	100 psi		0.000	1.95	85.448	-0.07	0.000	0.61	560.114

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
88°F	15 psi	0.19	50.203	-1.20	0.000	-7.79	0.000	1.31	61.325
106°F	24 psi	0.20	52.071	-1.21	0.000	-7.88	0.000	1.40	64.099
124°F	34 psi	0.21	53.663	-1.22	0.000	-7.92	0.000	1.51	67.134
142°F	43 psi	0.22	55.383	-1.22	0.000	-7.94	0.000	1.61	69.838
160°F	53 psi	0.23	57.491	-1.23	0.000	-7.95	0.000	1.71	72.110
178°F	62 psi	0.24	60.125	-1.23	0.000	-7.94	0.000	1.79	73.969
196°F	72 psi	0.26	63.318	-1.24	0.000	-7.93	0.000	1.85	75.466
214°F	81 psi	0.28	67.017	-1.24	0.000	-7.91	0.000	1.91	76.785
232°F	91 psi	0.30	71.103	-1.24	0.000	-7.88	0.000	1.97	77.898
250°F	100 psi	0.33	75.415	-1.24	0.000	-7.84	0.000	2.01	78.761

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation index predictions on this sheet use pH and alkalinity. SiO₂ is not included in the calculations.

ScaleSoft Inc.
SSP2010

Comments:

8.0 RESERVOIR CHARACTERISTICS

8.1 FORMATION FLUID CHEMISTRY

Following the drilling of the 6-inch open-hole section the injection zone was swabbed and 10 samples were sent to Cardinal Laboratories in Hobbs, NM. The laboratory report and analysis, along with a summary table of the results that depict the concentrations of all analytes is included in Appendix D. The average concentrations for major constituents within the formation water in the entire injection interval are as follows:

Chloride: 23,700 mg/L
TDS: 42,750 mg/L
Diesel Range Organics: 5.7 mg/L
Extended Range Organics: 2.7 mg/L
pH: 6.5
Total Alkalinity: 613 mg/L

The maximum concentrations for major constituents within the formation water in the entire injection interval are as follows:

Chloride: 27,000 mg/L
TDS: 44,700 mg/L
Diesel Range Organics: 20.5 mg/L
Extended Range Organics: 5.6 mg/L
pH: 6.7
Total Alkalinity: 670 mg/L

The results of the formation water analysis support and confirm the conclusions presented from the geophysical logs, mud log, and sidewall cores that the injection zone clearly does not contain recoverable hydrocarbons. Included in Appendix D is Geolex's No Recoverable Hydrocarbon Summary report, which was required by the BLMs COA, and submitted to the BLM and NMOC.

X.

**Log Section Across
Proposed Devonian
Injection Interval**

ROSSELL OFFICE COPY 3-34

COMPENSATED NEUTRON
FORMATION DENSITY

1980FN 1980FE
EOG RESOURCES INC
GOVERNMENT L COM #1
30-026-26604

COMPANY SUPERIOR OIL COMPANY
ELLS 1978 GOVERNMENT "L"
NEW MEXICO LEA STATE
1980' FNL & 1980' FEL
UNIT 3
Other Services:
DLL-DIL
BHC
PML

LEA

Permanent Datum: G.L.
Long Measured From: K.B.
Drilling Measured From: K.B.
Elev.: 3576
Elev.: K.B. 3607.5
D.F. 3606
G.L. 3576

Ft. Above Perm. Datum

Date	Run No.	12-6-77	1-26-78	2-23-78	3-2-78	3-5-78
Depth-Driller	ONE	TWO	THREE	FOUR	FIVE	
Depth-Logger	13000	15302	16350	17093	17625	
Brm. Log Interval	13000	15314	16361	17085	17610	
Top Log Int. Vol	SURF	5000	15312	15800	17609	
Casing-Driller	13 3/8 @ 54'00	10 3/4 @ 3000	7 5/8 @ 15301	7 5/8 @ 15301	7 5/8 @ 15301	
Casing-Logger	54'07	13000	15312	15800	17609	
Bit Size	12 1/4	9 5/8	6 1/2	6 1/2	6 1/2	
Type Fluid in Hole	BRACKISH	L.S.N.D.	CUT BRINE	CUT BRINE	CUT BRINE	
Dens. Visc.	9.2	28	12.6	47	9.1	28
pH	9.7	9.5	8.8	ml	10	28
Fluid Loss	CIRC	FLOW LINE	PIT	TANK	*	
Source of Sample	Rm @ Meas. Temp.	.084 @ 69°F	2.72 @ 60°F	.148 @ 56°F	.334 @ 48°F	.148 @ 56°F
Rmf @ Meas. Temp.	.084 @ 69°F	1.85 @ 62°F	.148 @ 56°F	.334 @ 48°F	.148 @ 56°F	.148 @ 56°F
Rmc @ Meas. Temp.	@	3.8 @ 60°F	@	@	@	@
So urce: Rmf Rmc	C	M	M	M	M	M
Rm @ BHT	@	.83 @ 195°F	.039 @ 214°F	.082 @ 215°F	.039 @ 214°F	.039 @ 214°F
Ci reulation Stopped	1100	1200	1-25	1200	1600	1100
Longer on Bottom	2000	1330	1-26	2330	2345	1630
Max. Rec. Temp.	195	195	214	215	219	219
Equi P. Location	7679 HOBBS	7679 HOBBS	7732 HOBBS	7732 HOBBS	7638 HOBBS	7638 HOBBS
Recorded By	MULLEN	MULLEN	KEMPER	THURSTON	JACKSON	JACKSON
Witnessed By Mr.	DUFFY	SMITH	SMITH	SMITH	SMITH	SMITH

Elev.: K.B. _____ D.F. _____ G.L. _____									
---	--	--	--	--	--	--	--	--	--

RUN NO.	ONE	TWO	THREE	FOUR	FIVE
Service Order No.	22311				
Fluid Level	85'	FULL	1150'		975'
Salinity - PPM CL	86000	1000	90000	90000	90000

EQUIPMENT DATA

Panel NEUT.	252	158	652	158	252	
Panel DENS.	1142	1141	1147	1147	1207	
Cartridge NEUT.	1021	1021	240	240		REMARKS:
Sonde DENS.	307	306	278	273		
Panel						
Cartridge DENS.	21	1134		116		θ_{CP} RUN 2 - X-PLOT F LS-SS $km-Dolo = 0.54 \theta_N + 0.46 \theta_D$
Sonde						*LARGE AMOUNTS OF BARITE IN MUD MAKING DENSITY READ HIGH.
Gr. Panel						
Gr. Cort.	257	1126	1261	1261		
Cent. Device Used	BOWSPRING	BOW, CAL		BOWSPRING		
Stand-Off-Inches						RUN 5 - *NO CIRCULATION- VALUES FROM RUNS 3 AND 4.
DPI						
Memorizer Panel	905	905	792	792	711	
Skid DENS.	673	1056	1051	1012		
Source DENS.	3355	3356	3351	3272		
Calibrator DENS.	1006	1056	1083	1045		
Source NEUT.	1629	1629	304	304		
Calibrator NEUT.	521	521	248	248		
Tape Recorder (TTR)	2753	2753	853	853	853	
Depth Encoder (DRE)	118	118	1897	1897		
Pressure Wheel (CPW)	2732	2732	1743			

CALIBRATION DATA

INDUCTION	S.B.R.					
	SONDE ERROR:	When measured At surface, enter "surface" Down hole, enter depth				
	Corrected For	Hole Size Rm				
GR	Speed - F.P.M.	30	30	30	30	30
	BKG CPS	48	60	100	100	100
	Source CPS	520	580	570	570	570
	CAL.-TC-Sec	6	6	6	6	6
	CAL.-Sens.	165	165	165	165	165
GTL	Short Spacing - Before Log	RATIO	RATIO	2800	RATIO	RATIO
	Long Spacing - Before Log	2.33	2.34	1352	2.09	2.28
	Short Spacing - After Log	RATIO	RATIO	2807	RATIO	RATIO
	Long Spacing - After Log	2.33	2.34	1355	2.09	2.28
EDC	P ₁ - Before Log	107.6	105 X 4	753	93	113 X 4
	P ₂ - Before Log	191.7	184 X 4	479	137	213 X 4
	P ₁ - After Log		106 X 4	758	92	113 X 4
	P ₂ - After Log		188 X 4	484	138	213 X 4

BOTTOM HOLE TEMPERATURE

Time Entering Hole					
Time Bottom Reached					
Time Last Off Bottom					
Time Out of Hole					

4-04-78 0223113

Rw FROM DRILL STEM TEST

DST #1 - Rw @ 100°F	ΩM	ΩM	ΩM	ΩM	ΩM	ΩM	ΩM	ΩM
DST #2 - Rw @ 100°F	ΩM	ΩM	ΩM	ΩM	ΩM	ΩM	ΩM	ΩM

LOGGING DATA

[illegible]

CALIPER DIAM. IN INCHES

10 20

GAMMA RAY API UNITS

0 100

100 200

RUN 1

CORRECTION **GRAMS/CC**

Use this scale when correction curve is presented in Track 2

A horizontal number line with arrows at both ends. There are tick marks at 0 and 1. A dashed line segment connects the tick mark at 0 to the tick mark at 1. A tick mark is also present at 0.25, labeled with '+.25' above it.

BULK DENSITY GRAMS/CC

2.0 2.5 3.0

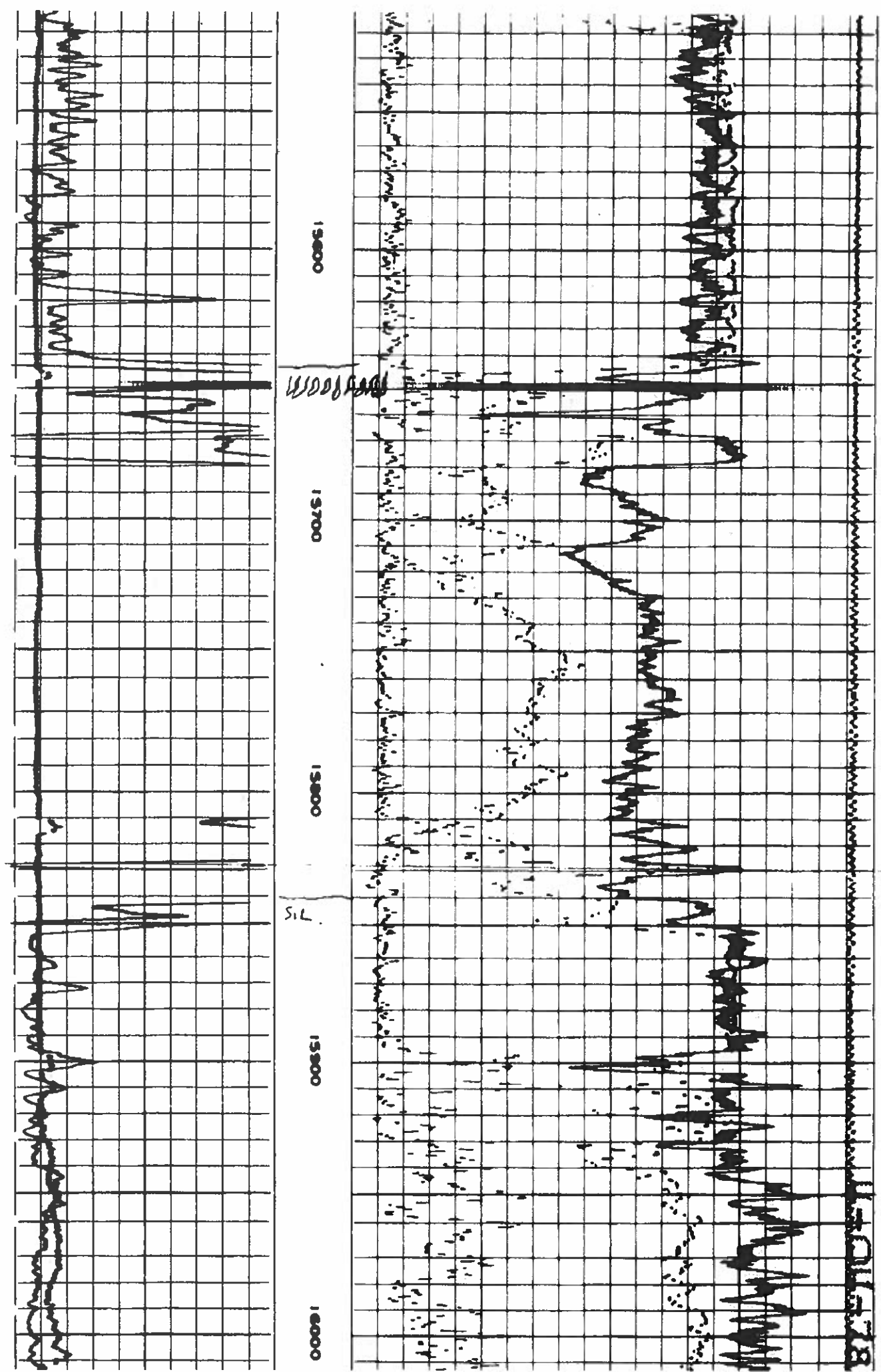
1.0 1.5 2.0

CNL POROSITY—%

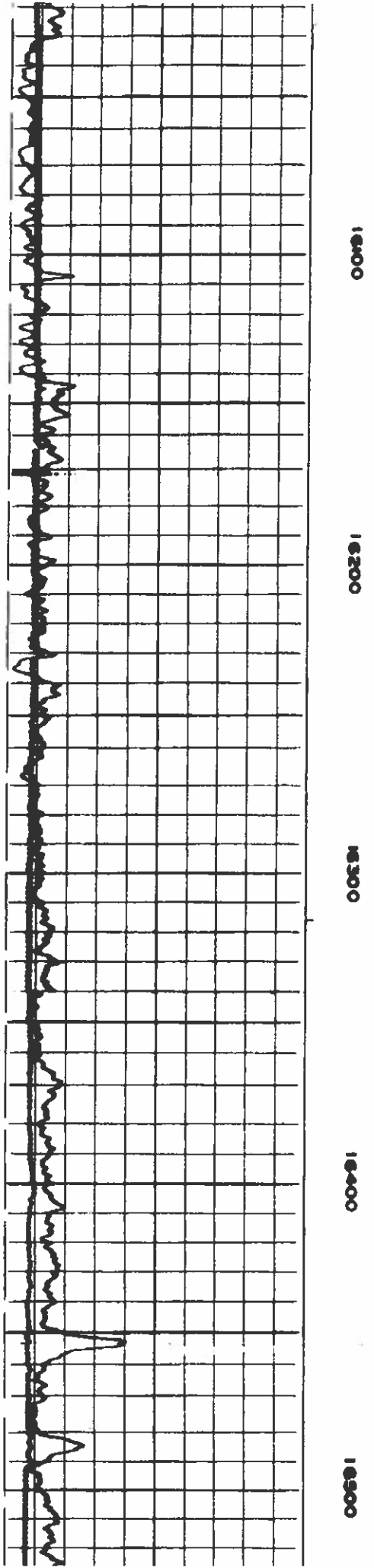
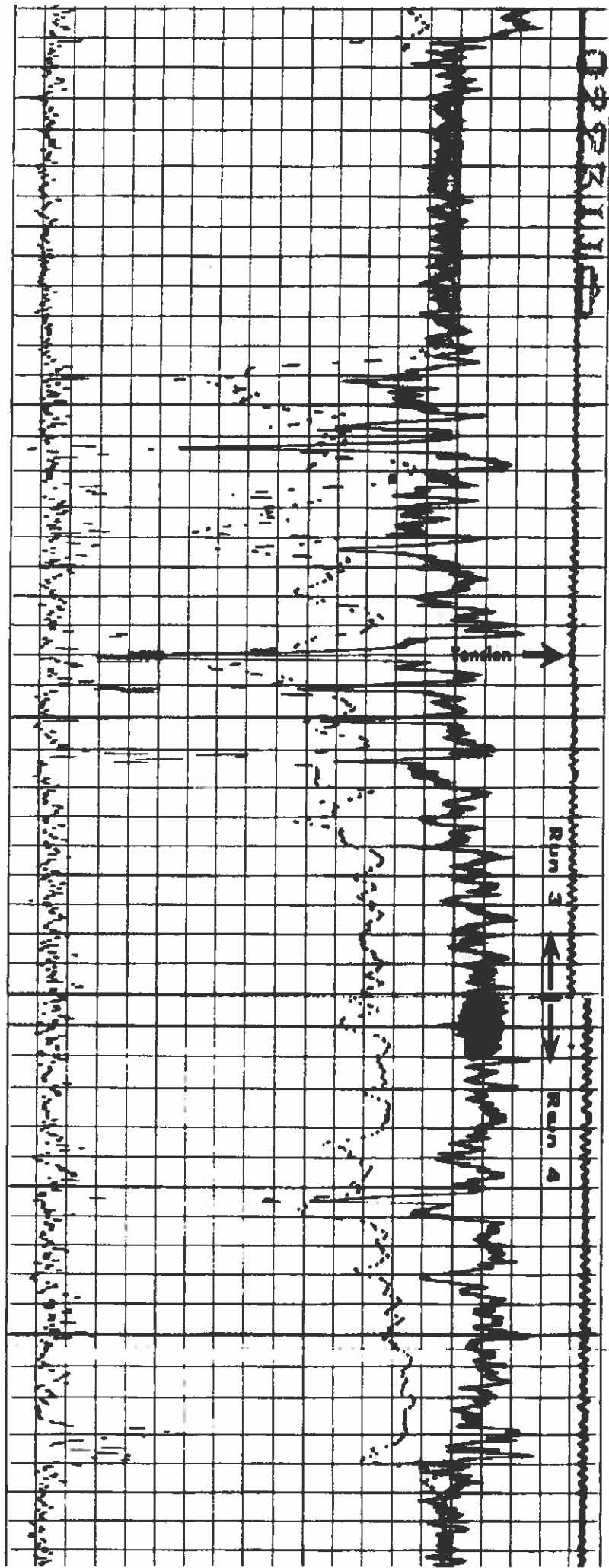
30 20 10 0 -10

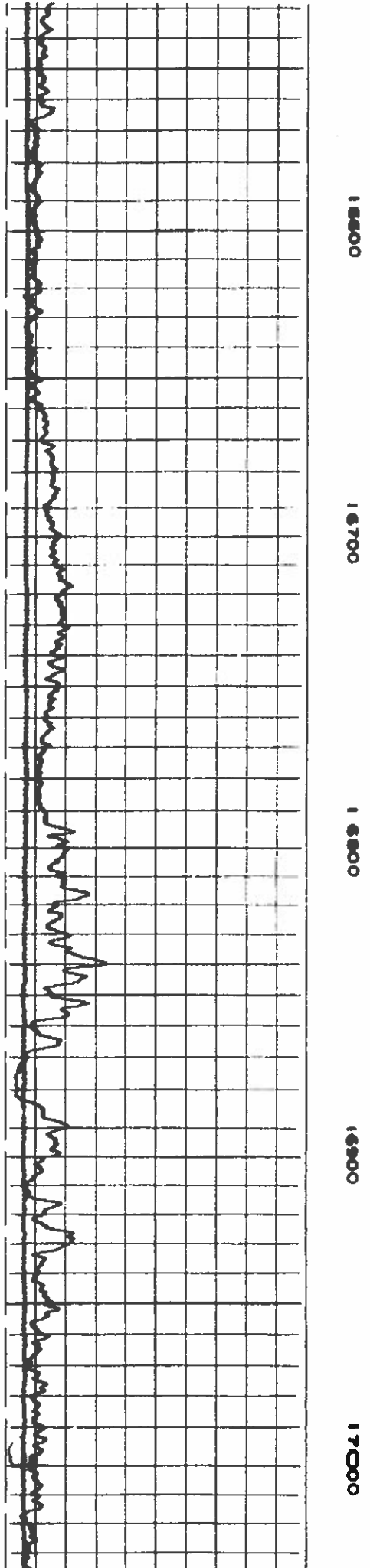
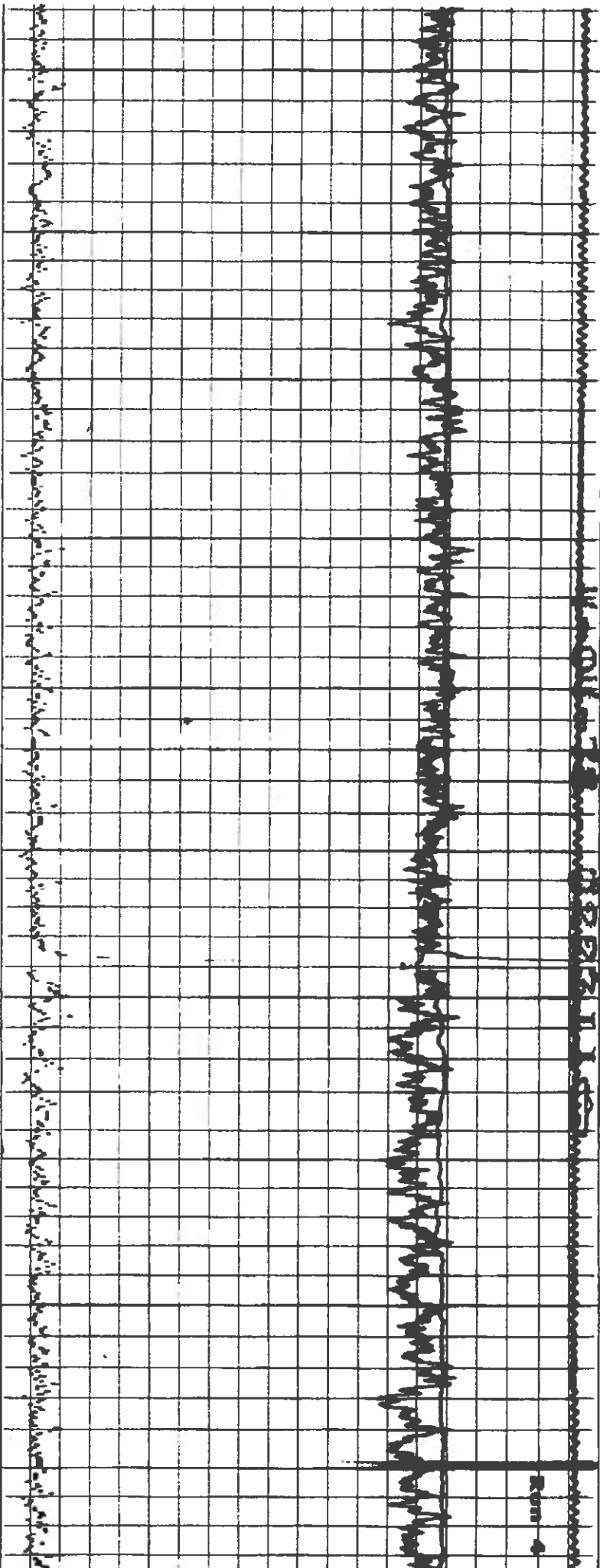


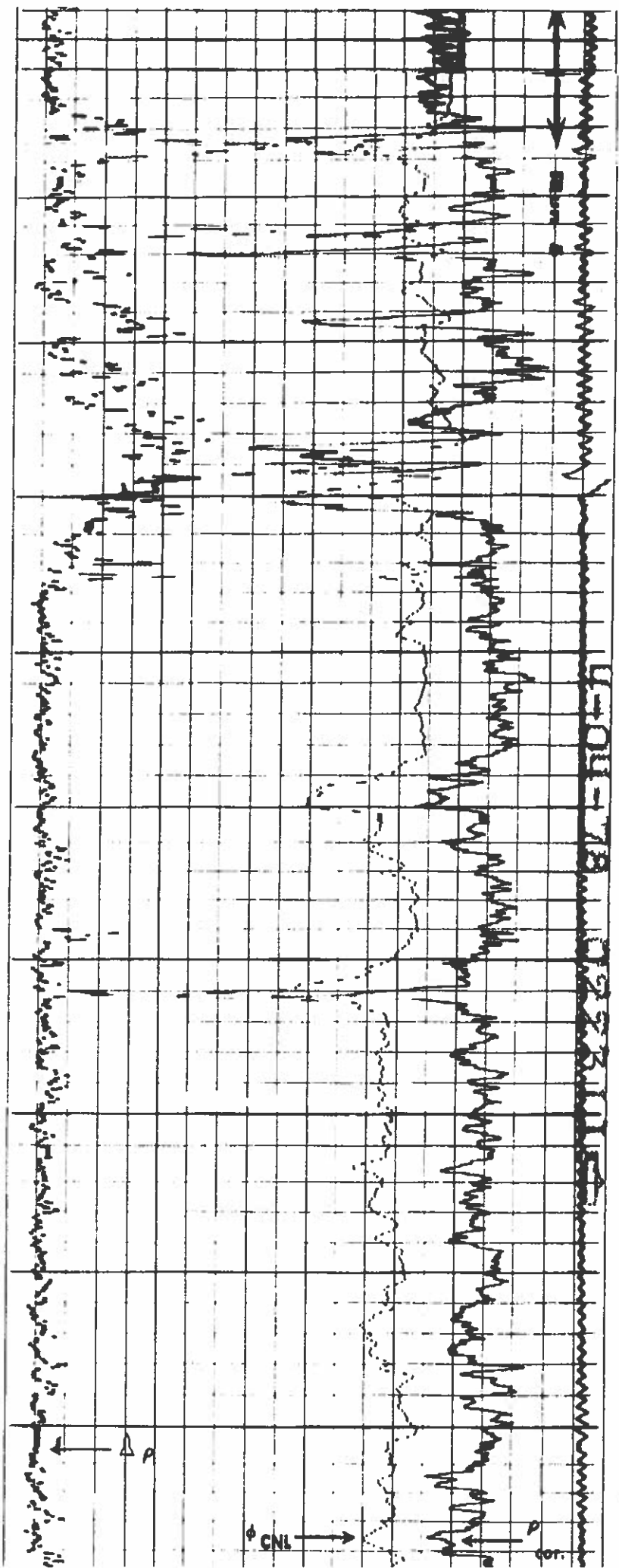
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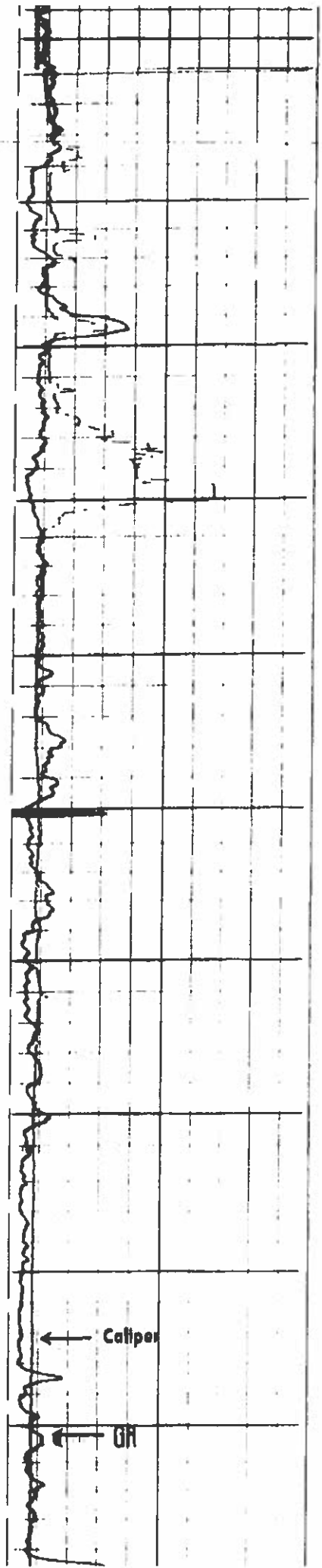
082111







17100 17200 17300 17400 17500



14E
& GAS CO
7 UNIT #1
315

J-7-T245-R34E 2276FS 1863FE
ENRON OIL & GAS CO
BELL LAKE 7 UNIT #1
30-025-33815



COMPENSATED Z-DENS LOGSM
COMPENSATED NEUTRON LOG
GAMMA RAY LOG

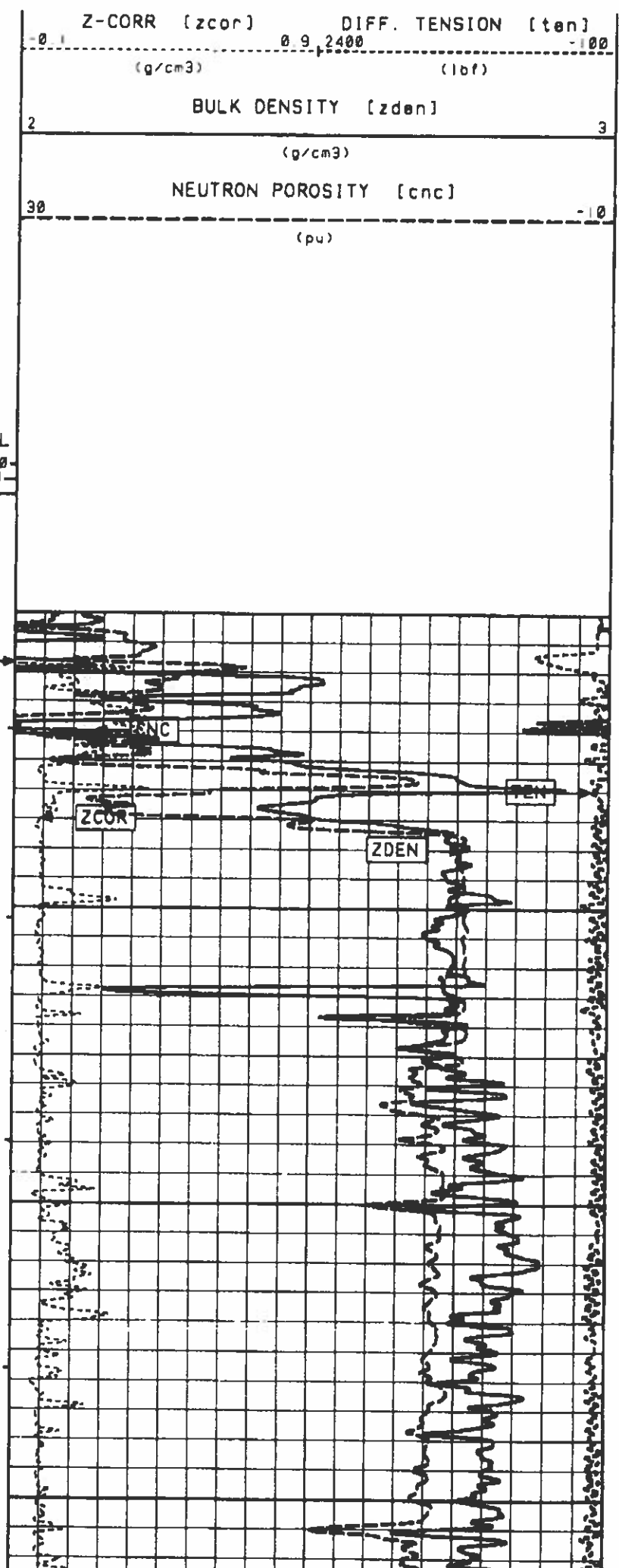
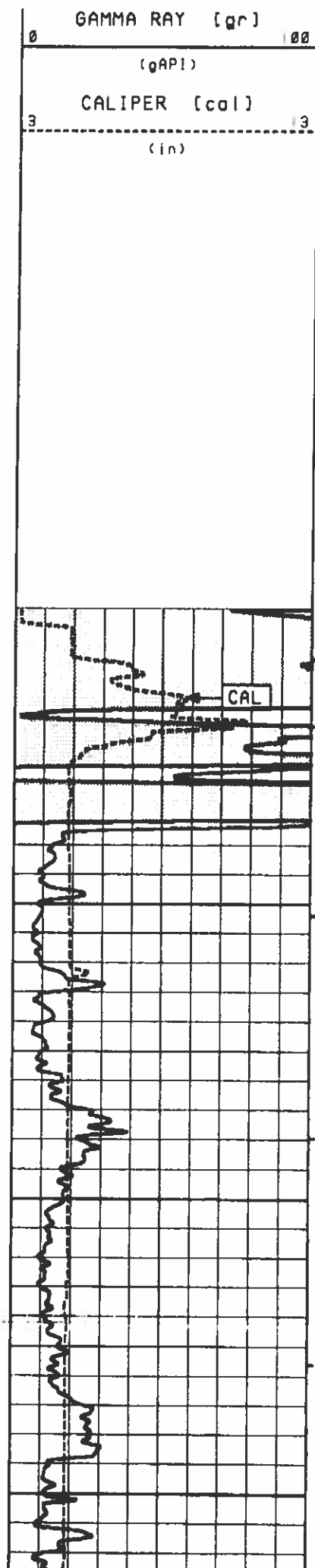
COMPANY	ENRON OIL AND GAS COMPANY
WELL	BELL LAKE 7 UNIT #1
FIELD	BELL LAKE
COUNTY	LEA
STATE	NEW MEXICO
LOCATION:	
22 1/2" SL & 1863' FE.	
SRC 2	TWP 24S RGE 34E
PERMANENT DATUM	CL ELEVATION 3604 FT
LOG MEASURED FROM	KB 3624 FT
DRILL. MEAS. FROM	KB 3623 FT
	CL 3604 FT

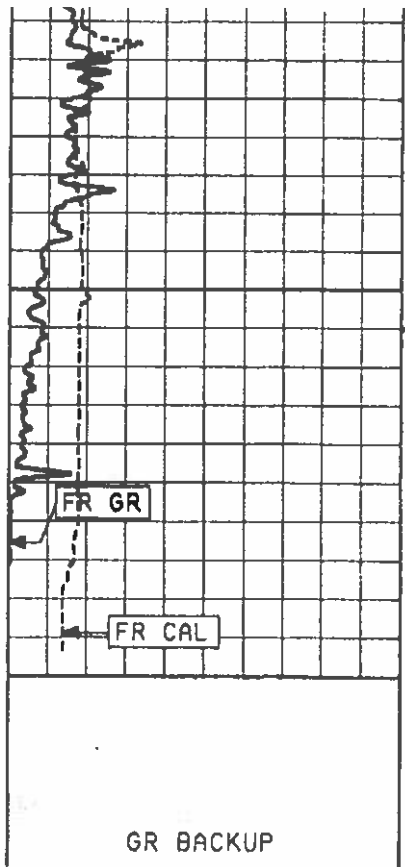
DATE	5 JUNE 1997	31 JULY 1997
RUN	1	2
SERVICE ORDER	206015	206126
DEPTH DRILLER	12712 FT	14500 FT
DEPTH LOGGER	12610 FT	14505 FT
BOTTOM LOGGED INTERVAL	12610 FT	14502 FT
TOP LOGGED INTERVAL	5000 FT	12584 FT
CASING - DRILLER	9.625 IN	7.625 IN
CASING LOGGER	5013 FT	12584 FT
BIT SIZE	8.75 IN	6.5 IN
TYPE OF FLUID IN HOLE	FRESH WATER	XCD/PAC
DENSITY / VISCOSITY	8.4 LB/G	12.0 LB/G
PH	10	9.0
SOURCE OF SAMPLE	TANK	TANK
RM AT MEAS. TEMP.	0.7 OHMM	0.71 OHMM
RM AT MEAS. TEMP.	0.7 OHMM	0.60 OHMM
SOURCE OF RMF. / RMC.	MEASURED	MEAS.
RM AT BHT	0.35 OHMM	0.35 OHMM
TIME SINCE CIRCULATION	6.5 HRS	8 HRS
MAX. RECORDED TEMP.	167 DEGF	185 DEGF
EQUIP. NO. / LOCATION	HL-6599	HL-6599
RECORDED BY	ROGER HINDS	D. TRAVIS
WITNESSED BY	CORRY STEWART	MIKE METCALF

FOLD HERE

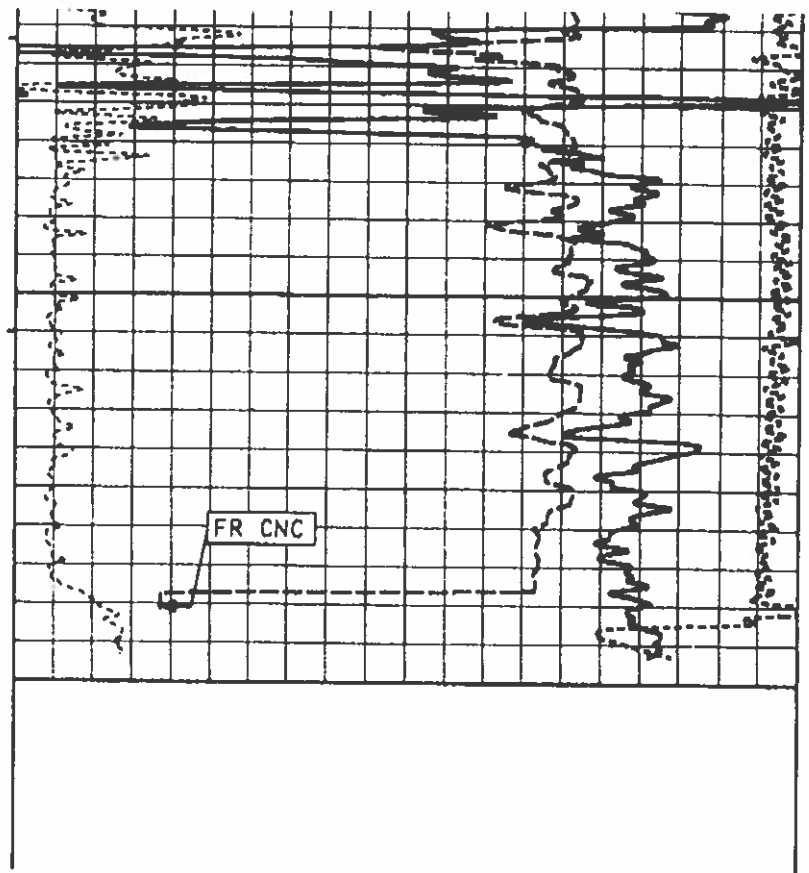
DATE	01 SEPTEMBER 1995
RUN	4
SERVICE ORDER	216809
DEPTH DRILLER	16082 FT
DEPTH LOGGER	16089 FT
BOTTOM LOGGED INTERVAL	16089 FT
TOP LOGGED INTERVAL	15618 FT
CASING - DRILLER	5.5 IN
CASING LOGGER	15618 FT
BIT SIZE	4.625 IN
TYPE OF FLUID IN HOLE	FRESH WATER
DENSITY / VISCOSITY	8.4 LB/G
PH	12
SOURCE OF SAMPLE	CIRCULATION TANK
RM AT MEAS. TEMP.	0.87 OHMM
RM AT MEAS. TEMP.	0.87 OHMM
SOURCE OF RMF. / RMC.	MEASURED
RM AT BHT	0.33 OHMM
TIME SINCE CIRCULATION	7 HRS
MAX. RECORDED TEMP.	222 DEGF
EQUIP. NO. / LOCATION	HL-6590
RECORDED BY	B. A. JOHNSON
WITNESSED BY	CORRY STEWART

DATE	
RUN	
SERVICE ORDER	
DEPTH DRILLER	
DEPTH LOGGER	
BOTTOM LOGGED INTERVAL	
TOP LOGGED INTERVAL	
CASING - DRILLER	
CASING LOGGER	
BIT SIZE	
TYPE OF FLUID IN HOLE	
DENSITY / VISCOSITY	
PH	
SOURCE OF SAMPLE	
RM AT MEAS. TEMP.	
RM AT MEAS. TEMP.	
SOURCE OF RMF. / RMC.	
RM AT BHT	
TIME SINCE CIRCULATION	
MAX. RECORDED TEMP.	
EQUIP. NO. / LOCATION	
RECORDED BY	
WITNESSED BY	





16000 16100 FEET



XI.

Fresh Water Sample Analyses

**There Are No FW Wells
Within 1 Mile from
NMOSE Records**



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)					(R=POD has been replaced and no longer serves this file C=the file is closed)		(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)												
WR File Nbr	Sub basin	Type	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	Q 1	Q 2	Q 3	Q 4	Sec	Twp	Range	X	Y
C 03902	CLB	EXP		BRYCE KARGER	LE	C 03902 POD1					4	1	2	04	24S	34E		642044	3567579
					LE	C 03902 POD2					4	1	2	04	24S	34E		643697	3567594
C 03912	CLB	EXP		BRYCE KARGER	LE	C 03912 POD1					3	1	2	05	24S	34E		642196	3569244
					LE	C 03912 POD10					4	4	3	07	24S	34E		640623	3566514
					LE	C 03912 POD2					4	2	2	05	24S	34E		642646	3569290
					100'	LE	C 03912 POD3				4	3	2	05	24S	34E		642442	3568747
						LE	C 03912 POD4				1	3	4	05	24S	34E		642197	3568245
						LE	C 03912 POD5				2	4	4	05	24S	34E		642647	3568290
						LE	C 03912 POD6				1	1	4	07	24S	34E		640617	3567013
						LE	C 03912 POD7				4	1	3	04	24S	34E		641616	3567025
					72'	LE	C 03912 POD8				4	2	4	07	24S	34E		641120	3566769
						LE	C 03912 POD9				4	3	3	04	24S	34E		641622	3566425
C 04014	CLB	MON		TRANSWESTERN PIPELINE CO LLC	LE	C 04014 POD1					1	1	3	06	24S	34E		639811	3568634
C 04282	C	SAN		KAISER FRANCIS OIL COMPANY	LE	C 04282 POD1					1	2	1	05	24S	34E		641607	3569541
Record Count: 13																			

Record Count: 14

PLSS Search:

Section(s): 5 6 7 8 9 17, 18 Township: 24S Range: 34E

Sorted by: File Number

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

4/10/19 11:12 AM

ACTIVE & INACTIVE POINTS OF DIVERSION



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 03932 POD3	Expl-Drill & plugged	CUB	LE	4	3	2	05	24S	34E	642442	3568787	100		
C 03932 POD8	Expl-Drill & plugged	CUB	LE	4	2	4	07	24S	34E	641120	3566769	72		
C 04014 POD1	Monitor well	CUB	LE	1	1	3	06	24S	34E	639811	3568638	91	81	10

Average Depth to Water: 81 feet

Minimum Depth: 81 feet

Maximum Depth: 81 feet

Record Count: 3

PLSS Search:

Section(s): 5, 6, 7, 8, 9, 17, 18 **Township:** 24S **Range:** 34E

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.

4/11/19 9:28 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA


I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, 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
May 10, 2019
and ending with the issue dated
May 10, 2019.



Publisher

Sworn and subscribed to before me this
10th day of May 2019.

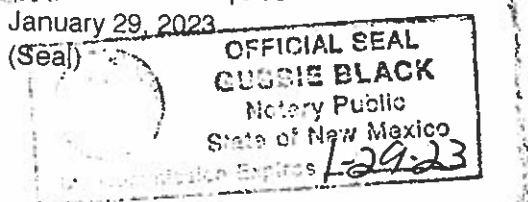


Business Manager

My commission expires

January 29, 2023

(Seal)



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

LEGAL NOTICES MAY 10, 2019

COG Operating LLC, 2208 W. Main Street, Artesia, New Mexico, 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 Hasta La Vista 8 Fee SWD No. 1, is located 1860' FSL and 200' FWL, Section 8, Township 24 South, Range 34 East, Lea County, New Mexico. Disposal water will be sourced from area wells producing from the Delaware, Bone Spring and Wolfcamp formations. The disposal water will be injected into the Devonian/Silurian formation at an estimated depth of 15,475' to 17,450' at a maximum surface pressure of 3095 psi and a maximum rate of 40,000 BWP. The proposed SWD well is located approximately 19.5 miles west/northwest of Jai. Any interested party who has an objection to this must give notice in writing to the Oil Conservation Division, 1220 South Saint Francis Street, 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, New Mexico 88210, or call 575-748-6940. #34126

67112034

00228177

COG OPERATING LLC - ARTESIA
2208 W. MAIN ST.
ARTESIA, NM 88210

HOBBS NEWS-SUN
LEGAL NOTICES

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Published in the Hobbs News-Sun Hobbs, New Mexico
_____, 2019.