Initial Application Part I

Received: **08/21/2019**

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

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:
08/21/2019		SWD	pMAM1923349493

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: COONSKIN 28 FEE SWD #1 **API:**
Pool: **Pool Code:** 97869

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

SWD-2253

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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.

PAUL PORTER
Print or Type Name

Signature

8/21/2019
Date

575.748.6940
Phone Number

PPorter@concho.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

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: Paul Porter 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).

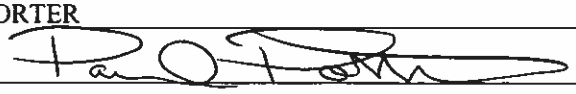
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: PAUL PORTER TITLE: General Manager of New Mexico

SIGNATURE:  DATE: 8/21/2019

E-MAIL ADDRESS: PPorter@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:

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

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
Coonskin 28 Fee SWD 1
1130' FNL, 1960' FWL
Unit C, Section 28, T24S, R35E
Lea County, NM

COG Operating, LLC, proposes to drill the captioned well to 19,550' for salt water disposal service into the Devonian/Silurian from approximately 17,400' to 19,550'.

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. No wells within the 1 mile radius area of review penetrate the proposed injection zone.

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 = 3480 psi
(0.2 psi/ft. x 17,400' 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 17,400' to 19,550'. Any underground water sources will be shallower than 610', the estimated top of the Rustler Anhydrite. The estimated top of the Devonian is 17,590' and the Fusselman is 18,685'. 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. A section of open hole log across the Devonian/Silurian from the Reno Com 1 located about 3.5 miles southeast in Unit D, Section 11, T25S, R35E is 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
Coonskin 28 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 3.9 miles Northwest 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).

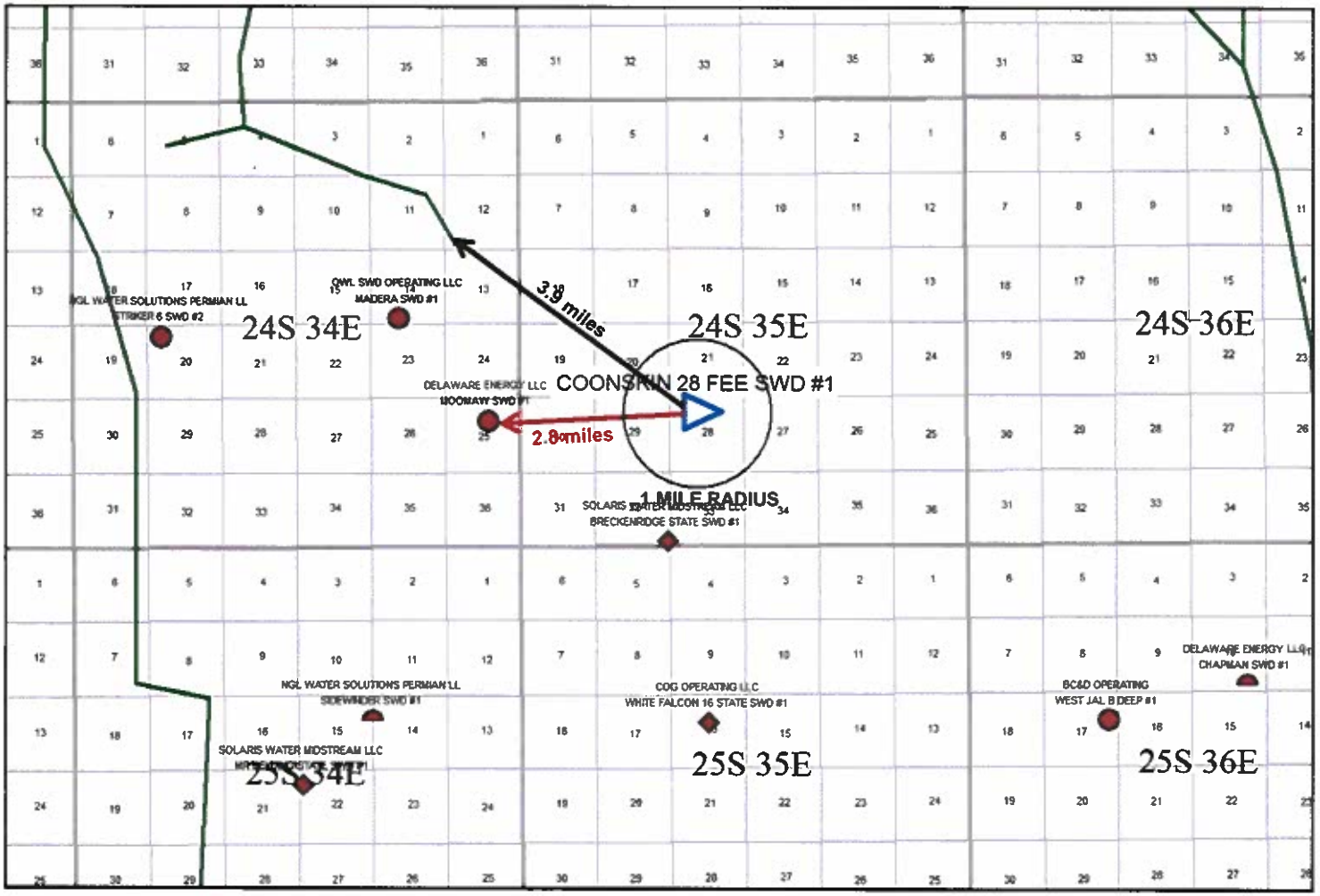
The proposed Coonskin 28 Fee SWD #1 is located 2.8 miles away from the nearest active Devonian SWD well (see map) and no active, permitted or pending Devonian SWD applications within the one mile radius.

Regards,

Carrie M. Martin

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

COONSKIN 28 FEE SWD #1



LEGEND

Devonian SWD Status

- SWD
- PLUGGED
- ABANDONED
- DRILLING
- LOC
- TA
- PROPOSED SWD
- Snee, Zoback Faults (Low Fault Slip Potential)

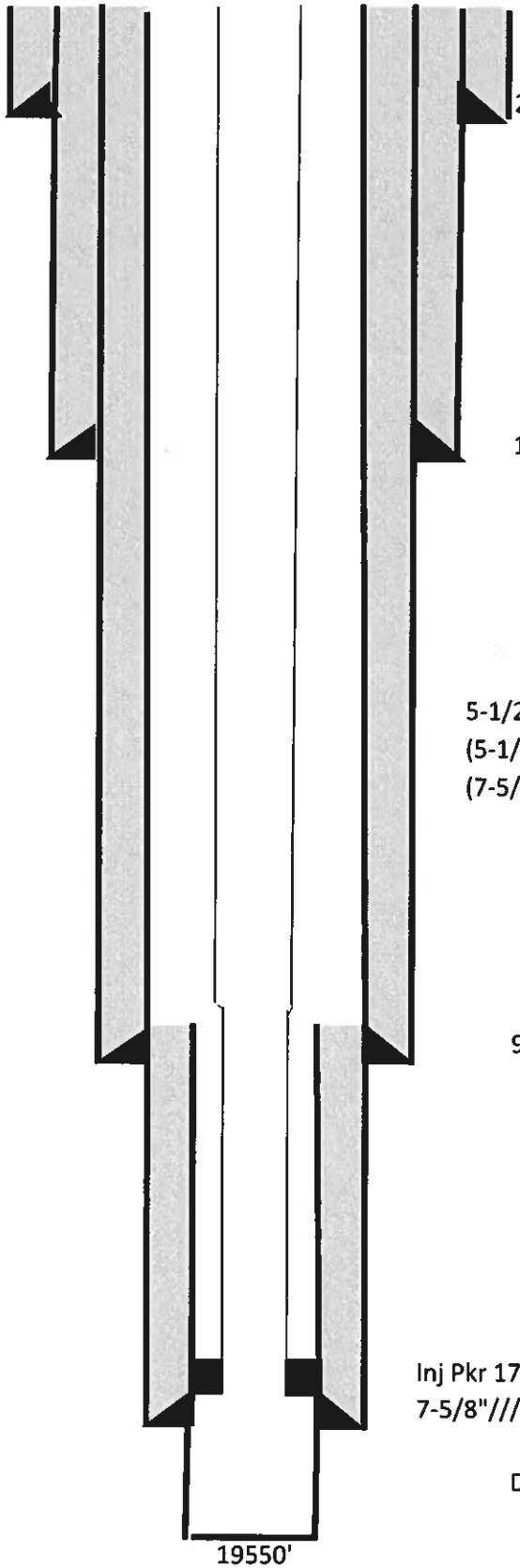
CONCHO

III.

WELL DATA

Coonskin 28 Fee SWD 1
1130' FNL, 1960' FWL
C-28-24s-35e
Lea, NM
30-025-xxxxx

Zero:
KB elev:
GL elev: 3310'



26"

20"/// @ 625'

1875 CF Cmt (circ to surf)
Rustler top 610'

17.5"

13-3/8"/// @ 5450'

7575 CF Cmt (circ to surf)
Top Lamar Lm 5393'

12.25"

5-1/2" x 5" Inj Tbg 0-17350'
(5-1/2" 0-12200' inside 9-5/8", 5" 12200-17350' inside 7-5/8")
(7-5/8" liner top 12300')

9-5/8"/// @ 12500'

5875 CF Cmt (circ to surf)
Top Wolfcamp 12275'

8.5"

Inj Pkr 17350'
7-5/8"/// FJ liner 12300-17400'

525 CF Cmt (circ to liner top)
Set in top Devonian

6.5"

Devonian/Silurian OH

19550'

kbcollins 5-Jun-19

INJECTION WELL DATA SHEET

Operator: COG Operating, LLC
Well Name & Number: Coonskin 28 Fee SWD 1
Well Location: 1130' FNL, 1960' FWL, Unit C, Section 28, T24S, R35E

Wellbore Schematic: See attached schematic

Surface Casing:

Hole Size: 26"
Casing Size: 20" @ 625'
Cemented with: 1875 cubic feet
Top of Cement: Surface by design

Intermediate Casing:

Hole Size: 17-1/2"
Casing Size: 13-3/8" @ 5450'
Cemented with: 7575 cubic feet
Top of Cement: Surface by design

Intermediate Casing:

Hole Size: 12-1/4"
Casing Size: 9-5/8" @ 12500'
Cemented with: 5875 cubic feet
Top of Cement: Surface by design

Production Casing:

Hole Size: 8-1/2"
Casing Size: 7-5/8" flush joint liner @ 12300-17400'
Cemented with: 525 cubic feet
Top of Cement: Liner top by design

Injection Interval:

17400' to 19550' (6-1/2" open hole)

Injection Tubing/Packer:

Tubing Size: 5-1/2" 0-12200' inside 9-5/8" casing, 5" from 12200-17350' inside 7-5/8" casing
Lining Material: Internally fiberglass lined
Type of Packer: Nickel plated or CRA 10K permanent packer
Packer Setting Depth: 17350'
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 5475-9025', Bone Spring 9100-12275', Wolfcamp 12275-13400', possible Strawn 13500+, possible Atoka 13850'+, possible Morrow 14800'+

   Underlying: None

Fishing Risk Assessment
Coonskin 28 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
Coonskin 28 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

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 Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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	[4] Property Name	[6] Well Number
	COONSKIN 28 FEE SWD	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
	COG OPERATING, LLC	3310'

[10] Surface Location

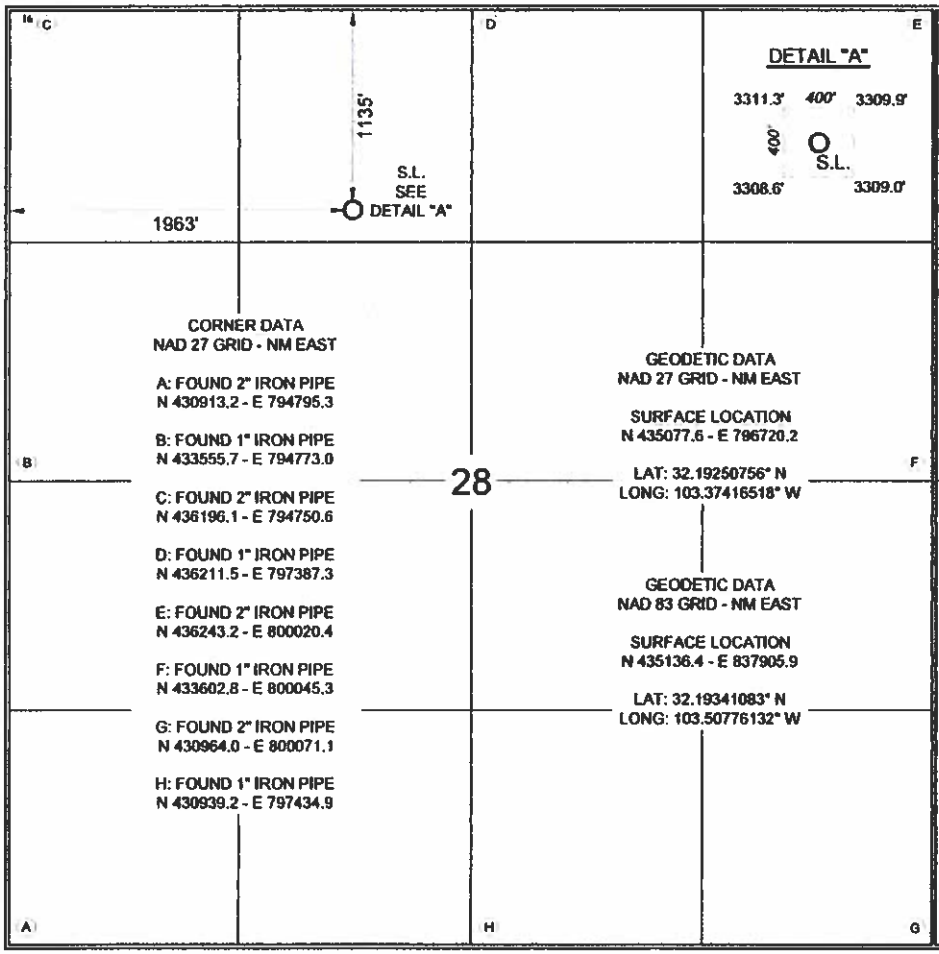
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	28	24S	35E		1135	NORTH	1963	WEST	LEA

[11] Bottom Hole Location If Different From Surface

UL 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.



CORNER DATA
NAD 27 GRID - NM EAST

A: FOUND 2" IRON PIPE
N 430913.2 - E 794795.3

B: FOUND 1" IRON PIPE
N 433555.7 - E 794773.0

C: FOUND 2" IRON PIPE
N 436196.1 - E 794750.6

D: FOUND 1" IRON PIPE
N 436211.5 - E 797387.3

E: FOUND 2" IRON PIPE
N 436243.2 - E 800020.4

F: FOUND 1" IRON PIPE
N 433602.8 - E 800045.3

G: FOUND 2" IRON PIPE
N 430964.0 - E 800071.1

H: FOUND 1" IRON PIPE
N 430939.2 - E 797434.9

GEODETIC DATA
NAD 27 GRID - NM EAST

SURFACE LOCATION
N 435077.6 - E 796720.2

LAT: 32.19250756° N
LONG: 103.37416518° W

GEODETIC DATA
NAD 83 GRID - NM EAST

SURFACE LOCATION
N 435136.4 - E 837905.9

LAT: 32.19341083° N
LONG: 103.50776132° W

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date

Printed Name

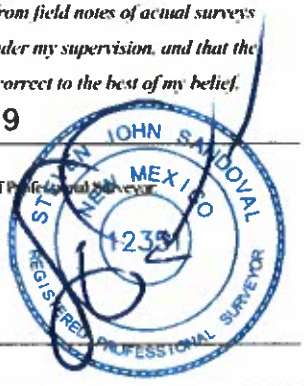
E-mail Address

[18] SURVEYOR CERTIFICATION

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.

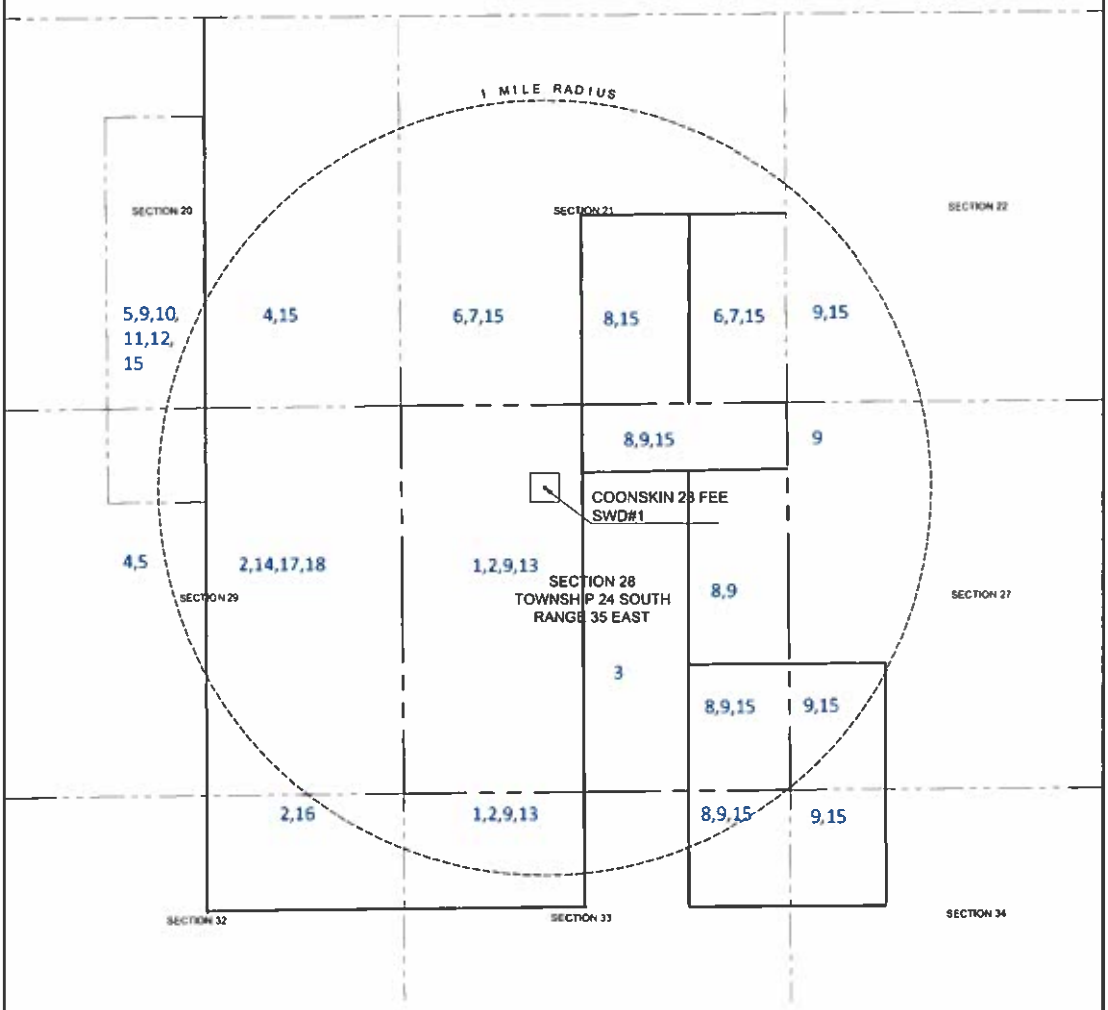
7-11-2019
Date of Survey

Signature and Seal of Professional Surveyor



12351
Certificate Number

SECTION NO. 28
TOWNSHIP 24 SOUTH
RANGE 35 EAST
N. M. P. M. NEW MEXICO
LEA COUNTY, NEW MEXICO



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'

2000 1000 0 2000 4000

GRAPHIC SCALE

1-800-321-2537
WWW.NM811.ORG
NEW MEXICO DAMAGE PREVENTION
CONSTRUCTION NOTE: UNDER GROUND UTILITIES MUST BE VERIFIED BY CONTRACTOR PRIOR TO EXCAVATING.

SCALE: 1" = 2000'	DATE: 04/05/19
DRWN: DV	APP'VD: JPK
CREW: RJR	
AFE NO.	
PROJ. NO.19-553-COONSKIN 1 MILE	

CONCHO OPERATING, LLC.
EXHIBIT OF PROPOSED
COONSKIN 28 FEE SWD #1
(1 MILE RADIUS)
LOCATED IN
SECTION 28,
TOWNSHIP 24 SOUTH,
RANGE 35 EAST,
N. M. P. M. NEW MEXICO

CONCHO

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

BISON CREEK LAND SERVICES

Coonskin 28 Fee SWD #1

located in 28-24S-35E, Lea County, New Mexico

Affected Persons

No.	Name	Address	Phone Number	Owner Type	S-T-R	Notes
1	Dion Hartman	7689 Pine Grave Ave Kingman, AZ 86401	928-692-4788	Drillsite Surface Owner	W2 28-24S-35E	
2	COG Operating, LLC	One Concho Center 600 West Illinois Avenue Midland, TX 79701	432-221-0500	Operator	E2 29-24S-35E W2 28-24S-35E NE4 32-24S-35E NW4 33-24S-35E	APIs: 30-025-43779 30-025-42783 30-025-42782 30-025-43683 30-025-45052 30-025-45050 30-025-45053 30-025-45051 30-025-45048 30-025-43299
3	Tap Rock Resources, LLC	602 Park Point Drive Suite 200 Golden, CO 80401	720-772-5090	Operator	W2E2 28-24S-35E NE4 33-24S-35E	30-025-44915 30-025-44656 30-025-44969
4	COG Operating, LLC	One Concho Center 600 West Illinois Avenue Midland, TX 79701	432-221-0500	Working Interest/ Leasehold	E2 20-24S-35E W2 29-24S-35E	
5	COG Production LLC	One Concho Center 600 West Illinois Avenue Midland, TX 79701	432-221-0500	Working Interest/ Leasehold	E2W2 20-24S-35E	
6	XTO Holdings, LLC	22777 Springwoods Village Pkwy Spring, TX 77389	817-870-2800	Working Interest/ Leasehold	W2, NE4 & E2SE 21-24S-35E	
7	Occidental Permian, LP	S E. Greenway Plaza Suite 110 Houston, TX 77046	713-552-8811	Working Interest/ Leasehold	W2, NE4 & E2SE 21-24S-35E	
8	MRC Permian Company	5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	972-371-5200	Working Interest/ Leasehold	W2SE 21-24S-35E E2E2 28-24S-35E E2NE4 33-24S-35E	

9	Tap Rock Resources, LLC	602 Park Point Drive Suite 200 Golden, CO 80401	720-772-5090	Working Interest/ Leasehold	W2 22-24S-35E E2W2 20-24S-35E W2 27-24S-35E NW4NW4 34-24S-35E W2,E2E2 28-24S-35E NW4,E2NE4 33-24S-35E	
10	Crown Oil Partners VI, LLC	PO Box 50820 Midland, TX 79710	432-683-2950	Working Interest	E2W2 20-24S-35E	
11	Topwater Resources LLC	4747 Research Forest Dr #180 The Woodlands, TX 77381	214-435-0710	Working Interest	E2W2 20-24S-35E	
12	Crump Energy Partners III, LLC	PO Box 50820 Midland, TX 79710	432-683-2950	Working Interest	E2W2 20-24S-35E	
13	Delaware Hops, LLC	50 Kennedy Plaza 18th Floor Providence, RI 02903	401-751-1700	Working Interest	W2 28-24S-35E NW4 33-24S-35E	
14	Chevron USA, Inc.	15 Smith Road Midland, Texas 79705	432-498-8600	Working Interest	E2 29-24S-35E	Also Unleased Mineral Interest in E2 29-24S-35E
15	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	22-24S-35E All 20-24S-35E All 21-24S-35E W2 29-24S-35E N2NE4 & E2SE4 28-24S-35E NE4NE4 33-24S-35E W2SW4 27-24S-35E NW4NW4 34-24S-35E	
16	State of New Mexico by and through the Commissioner of Public Lands	310 Old Santa Fe Trail Santa Fe, NM 87501	508-827-5760	Mineral	NE4 32-24S-35E	
17	Riverbend Oil and Gas IX, LLC	500 Dallas Street, Suite 1250 Houston, TX 77002	713-874-9000 www.rboil.com	Mineral	E2 29-24S-35E	Unleased only as to depths below the base of the Wolfbone
18	Bugling Bull Investments, LLC	4747 Research Forest Dr. #180-315 The Woodlands, TX 77381	214-435-2710	Mineral	E2 29-24S-35E	Unleased only as to depths below the base of the Wolfbone

VI.

No Wells Penetrate Proposed Disposal Interval Within One Mile Area of Review

VII.

Water Analysis Produced and Receiving Formation Water

Delaware Sand

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 5/11/2018

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	COG OPERATING LLC	ACCOUNT REP:	KENNETH MORGAN
DISTRICT:	NEW MEXICO	SAMPLE ID:	201701012804
AREA/LEASE:	KING TUT	SAMPLE DATE:	3/21/2017
SAMPLE POINT NAME	KING TUT FED 3H BTRY	ANALYSIS DATE:	3/24/2017
SITE TYPE:	FACILITY	ANALYST:	SVP
SAMPLE POINT DESCRIPTION:	TRANSFER PUMP		

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

FIELD DATA

Initial Temperature (°F):	250
Final Temperature (°F):	80
Initial Pressure (psi):	100
Final Pressure (psi):	15
pH:	
pH at time of sampling:	6.8

ALKALINITY BY TITRATION:	mg/L	meq/L
Bicarbonate (HCO_3^-):	36.6	0.6
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	1050.0
aqueous H_2S (ppm):	0.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	247582
Density/Specific Gravity (g/cm³):	1.1573
Measured Specific Gravity	1.1683
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE

ANIONS:	mg/L	meq/L
Chloride (Cl^-):	152606.2	4304.8
Sulfate (SO_4^{2-}):	461.4	9.6
Borate (H_3BO_3):	170.9	2.8
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	ND	
Silica (SiO_2):	ND	

ORGANIC ACIDS:	mg/L	meq/L
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	

CATIONS:	mg/L	meq/L
Sodium (Na^+):	74498.5	3241.9
Potassium (K^+):	1381.8	35.3
Magnesium (Mg^{2+}):	2495.8	205.4
Calcium (Ca^{2+}):	15329.6	765.0
Strontium (Sr^{2+}):	724.2	16.5
Barium (Ba^{2+}):	1.8	0.0
Iron (Fe^{2+}):	43.2	1.5
Manganese (Mn^{2+}):	2.6	0.1
Lead (Pb^{2+}):	0.0	0.0
Zinc (Zn^{2+}):	0.0	0.0
Aluminum (Al^{3+}):	0.0	0.0
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	0.0	0.0
Molybdenum (Mo^{2+}):	0.0	0.0
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Lithium (Li^+):	ND	
Total Hardness:	49434	N/A

Anion/Cation Ratio: 1.01

ND = Not Determined

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

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.40	0.646	1.16	7.579	-0.15	0.000	-0.23	0.000
99°F	24 psi	0.28	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	0.28	109.409
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. $\%CO_2$ is not included in the calculations

ScaleSoftPitzer™ SSP2010

Comments:

Bone Spring

BAKER HUGHES

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	ACCOUNT REP:	KENNETH MORGAN
DISTRICT:	NEW MEXICO	SAMPLE ID:	201501048297
AREA/LEASE:	WINDWARD	SAMPLE DATE:	12/11/2015
SAMPLE POINT NAME	WINDWARD FED 2H	ANALYSIS DATE:	12/16/2015
SITE TYPE:	WELL SITES	ANALYST:	SAMUEL NEWMAN
SAMPLE POINT DESCRIPTION:	WELL HEAD		

COG OPERATING LLC, WINDWARD, WINDWARD FED 2H

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:	mg/L	meq/L	CATIONS:	mg/L	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_3BO_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			Aluminum (Al^{3+}):	ND	
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+}):	ND	
aqueous CO_2 (ppm):	240.0	Formic Acid:	ND		Molybdenum (Mo^{2+}):	ND	
aqueous H_2S (ppm):	0.0	Acetic Acid:	ND		Nickel (Ni^{2+}):	ND	
aqueous O2 (ppb):	ND	Propionic Acid:	ND		Tin (Sn^{2+}):	ND	
		Butyric Acid:	ND		Titanium (Ti^{2+}):	ND	
Calculated TDS (mg/L):	146283	Valeric Acid:	ND		Vanadium (V^{2+}):	ND	
Density/Specific Gravity (g/cm³):	1.0934				Zirconium (Zr^{2+}):	ND	
Measured Specific Gravity	1.1045				Lithium (Li^+):	ND	
Conductivity (mmhos):	ND						
Resistivity:	ND				Total Hardness:	21067	N/A
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data	Anion/Cation Ratio:		1.04	ND = Not Determined		

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

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
82°F	15 psi		0.000	1.43	35.518	-0.18	0.000	-0.34	0.000
101°F	24 psi		0.000	1.48	36.271	-0.17	0.000	-0.25	0.000
119°F	34 psi		0.000	1.54	37.269	-0.16	0.000	-0.16	0.000
138°F	43 psi		0.000	1.60	38.261	-0.15	0.000	-0.06	0.000
157°F	53 psi		0.000	1.66	39.182	-0.15	0.000	0.04	39.216
175°F	62 psi		0.000	1.72	40.019	-0.14	0.000	0.14	133.848
194°F	72 psi		0.000	1.78	40.776	-0.13	0.000	0.24	211.707
213°F	81 psi		0.000	1.84	41.510	-0.13	0.000	0.35	274.678
231°F	91 psi		0.000	1.90	42.195	-0.13	0.000	0.45	324.816
250°F	100 psi		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	30.476
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	38.985
194°F	72 psi	0.22	68.407	-1.18	0.000	-7.83	0.000	1.66	39.950
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 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; $\%CO_2$ is not included in the calculations

ScaleSoftPitzer™ SSP2010

Comments:

Wolfcamp

BAKER HUGHES

Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

Upstream Chemicals

REPORT DATE: 5/11/2018

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	COG OPERATING LLC	ACCOUNT REP:	LARRY G HINES
DISTRICT:	WATER MANAGEMENT - PERMIAN	SAMPLE ID:	201801021234
AREA/LEASE:	VIKING HELMET STATE	SAMPLE DATE:	4/11/2018
SAMPLE POINT NAME	VIKING HELMET STATE COM 24H	ANALYSIS DATE:	4/16/2018
SITE TYPE:	WELL SITES	ANALYST:	SP
SAMPLE POINT DESCRIPTION:	WELL HEAD		

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_3BO_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:	6.8	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	meq/L					
Bicarbonate (HCO_3^-):	342.0	5.6			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):	220.0	Formic Acid:	ND		Molybdenum (Mo^{2+}):	0.0	0.0
aqueous H_2S (ppm):	0.0	Acetic Acid:	ND		Nickel (Ni^{2+}):	ND	
aqueous O2 (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/cm³):	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; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		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	80.758	-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	84.028	-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. $\%CO_2$ is not included in the calculations

ScaleSoftPitzer™
SSP2010

Comments:

Devonian (Receiving Formation)
Sec 19-19s-32e

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 NMOCD.

X.

Log Section Across Proposed Devonian Injection Interval

...ition Co.

...perger

COMPENSATED NEUTRON-FORMATION DENSITY

D-11-T25S-R36E 1200FN 1200FW
ROBERT E LANDRETH
RENO FEDERAL COM #1
30-025-28867

LEA

COMPANY FLORIDA EXPLORATION COMPANY TOR AB

76294.2

WELL RENO COM #1

FIELD WILDCAT

COUNTY LEA STATE NEW MEXICO

1200' FNL & 1200' FWL,

SERIAL NO.	SEC.	TWP.	RANGE
	11	25-S	35-E

Other Services:
DLL/DI
BHC

57

Permanent Datum: G.L. ; Elev.: 3200
Log Measured From K.B. 27 Ft. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 3227
D.F. 3226
G.L. 3200

Date	9-16-80	11-6-80	1-2-81
Run No.	ONE	TWO	THREE
Depth—Driller	12455	16830	19160
Depth—Logger	12434	16821	19151
Btm. Log Interval	12433	16818	19148
Top Log Interval	SURF	12422	16821
Casing—Driller	13 3/8@5030	10 3/4@12425	7 5/8@ 16830
Casing—Logger	5024	12422	16821
Bit Size	12 1/4	9 1/2	6 1/2
Type Fluid in Hole	CUT BRINE	OIL BASE	CUT BRINE
Dens. / Visc.	9.2 / 32	12.5 / 50	8.8 / 28
pH / Fluid Loss	9.5 / ml	/ 6 ml	8 / ml
Source of Sample	FLOWLINE		PIT
Rm @ Meas. Temp.	.061 @ 75 °F	@ °F	.21 @ 60 °F
Rmf @ Meas. Temp.	.061 @ 75 °F	@ °F	.20 @ 60 °F
Rmc @ Meas. Temp.	@ °F	@ °F	@ °F
Source: Rmf / Rmc	M /	/	M /
Rm @ BHT	.03 @160 °F	@ °F	.04 @225 °F
TIME Circulation Stopped	1100	1330 11-5	1300 12-31
TIME Logger on Bottom	2100	0530 11-6	0630 1-1-81
Max. Rec. Temp.	160 °F	206 °F	232 °F
Equip. / Location	8185 / HOBBS	8022 / HOBBS	8022 / HOBBS
Recorded By	SEVOUGIAN	REISINGER	REISINGER
Witnessed By	NEAGLE	NEAGLE	NEAGLE

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

RUN NO.	ONE	TWO	THREE	Type Log	Depth
Service Order No.	143046				
Fluid Level	FULL	FULL	FULL		
Salinity, PPM Cl.	112000	300000	43000		
Speed - F.P.M.	30	30	30		
EQUIPMENT DATA					
Dens. Panel	623	54	91		
Dens. Cart.	352	51	51		
Dens. Skid.	1161	429	429		
Dens. Sonde	307	226	226		
Dens. Source	3425	5489	5489		
Dens. Calibrator	184	163	163		
Neut. Panel	623	54	91		
Neut. Cart.	2090	1291	1291		
Neut. Source	2084	8022	8022		
Neut. Calibrator	2160	1334	1334		
GR Cart.	3003	1251	1250		
Memorizer Panel	1054	92	324		
Tape Recorder (TTR)	965	790	790		
Depth Encoder (DRE)					

REMARKS:

New Mexico Oil Conservation Division

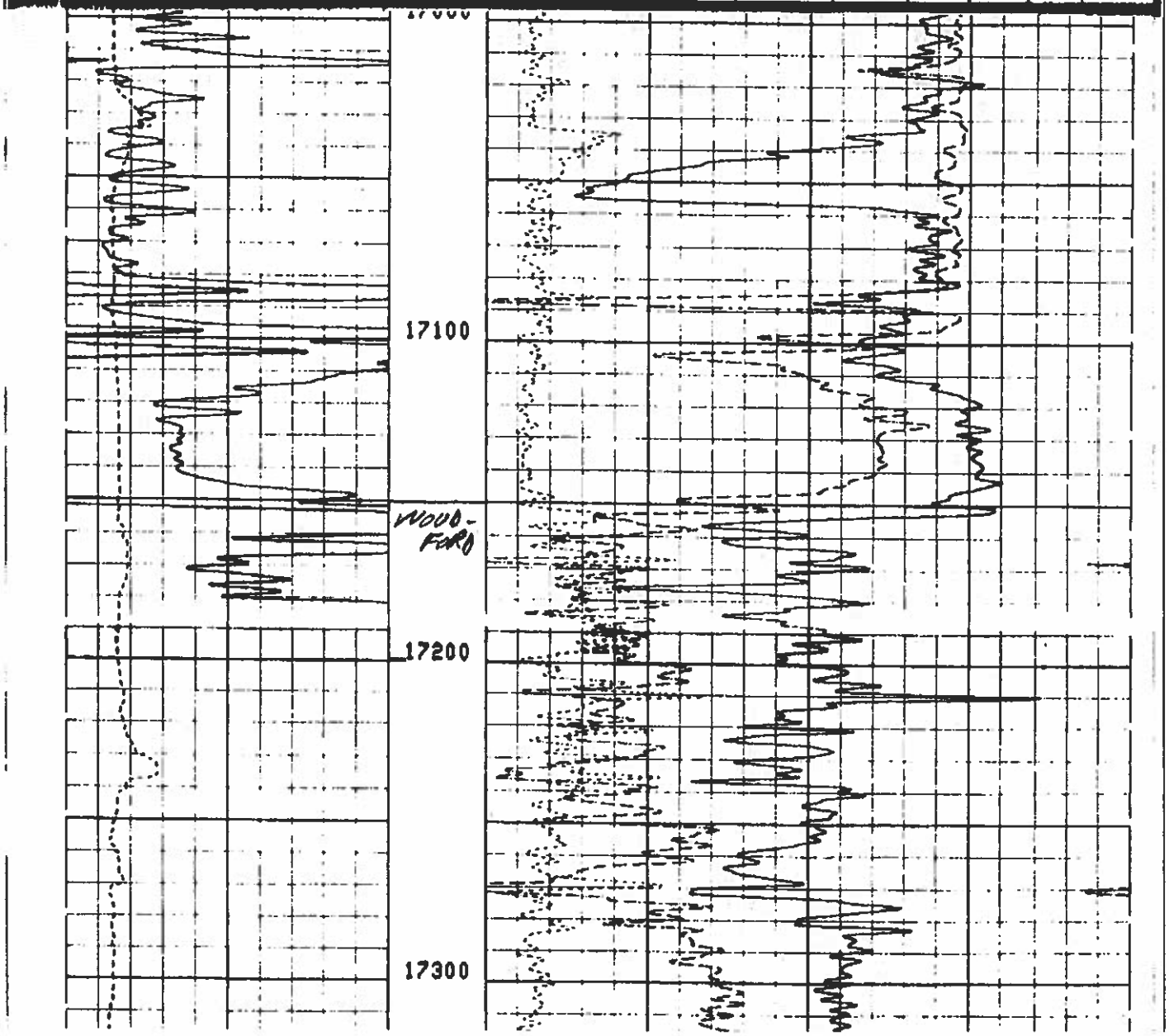
Enter Spring, Standoffs, In-line, or None	Type	BOWSPRING	CALIPER	CALIPER
	No.	1		
	S. O. – Inches			

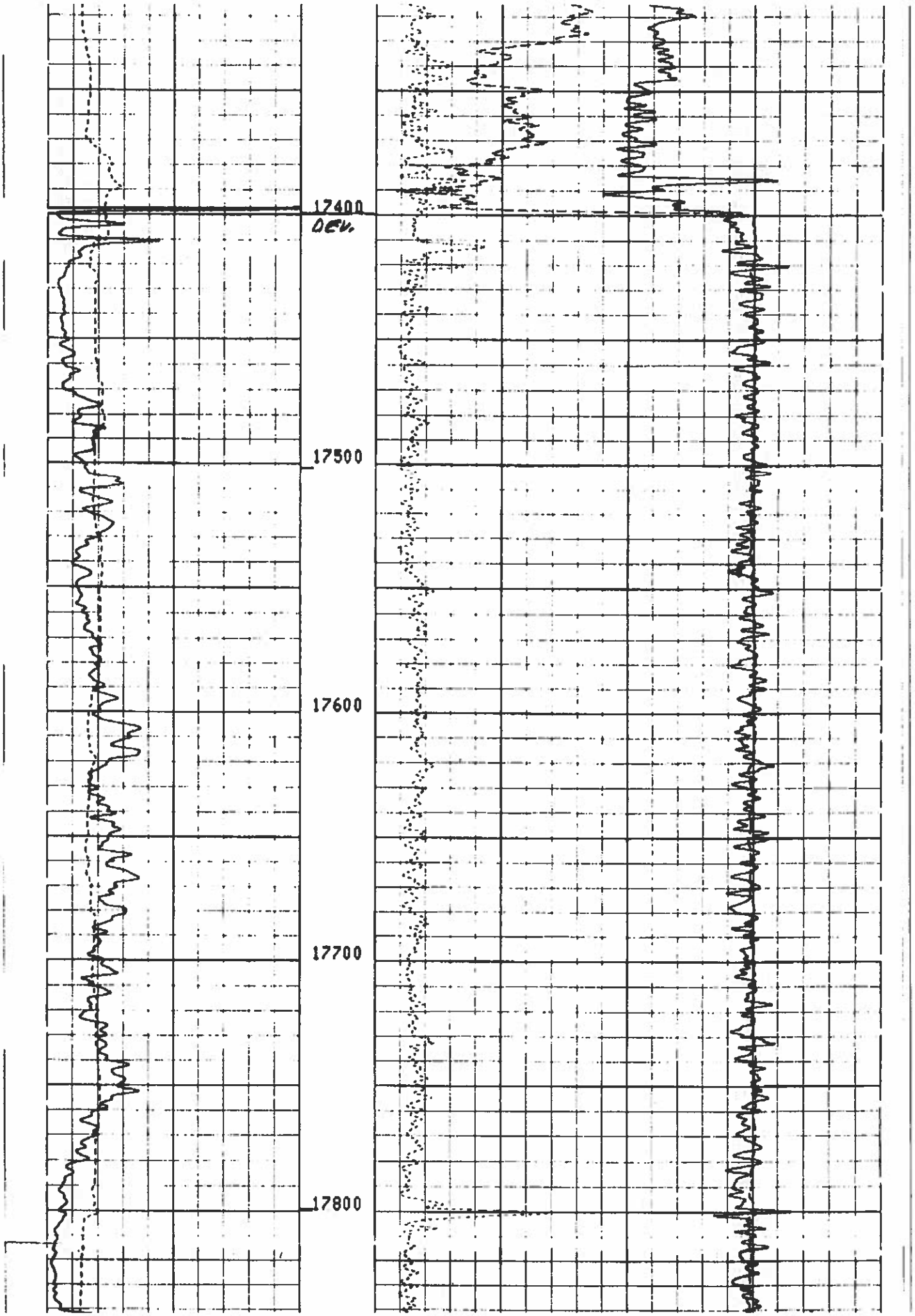
CALIBRATION DATA

GR	BKG. CPS		SEE CAL	SEE CAL
	Source CPS		FILM	FILM
	Sens. - Cal			
	T. C. - Cal			
CNL	Short Spacing - Before Log			
	Long Spacing - Before Log			
	Short Spacing - After Log			
	Long Spacing - After Log			
FDC	P_1 – Before Log			
	P_2 Before Log			
	P After Log			
	P After Log			

LOGGING DATA

DEPTH		CNP			FDC				GR			
Top	Bottom	Porosity Scale	Matrix	Auto Corr. or Hole Size Setting	Porosity Scale	Grain Density	Liquid Density	Hole Fluid	Sens. Logged	T. C.	Zero Div. Left	Scale Per 100 Div.
5024	12433	30 10	LS OH	AUTO	30 -10	2.71	1.1	LIQ	165		0	100
SURF	5024	30 10	LS OH	AUTO					165		0	100
12433	16817	30 10	LIME	AUTO	30 -10	2.71	1.0	LIQ	100	1'	0	100
16817	19146	30 10	LIME	AUTO	30 -10	2.71	1.0	LIQ	100	1'	0	100

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DEV.
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17600
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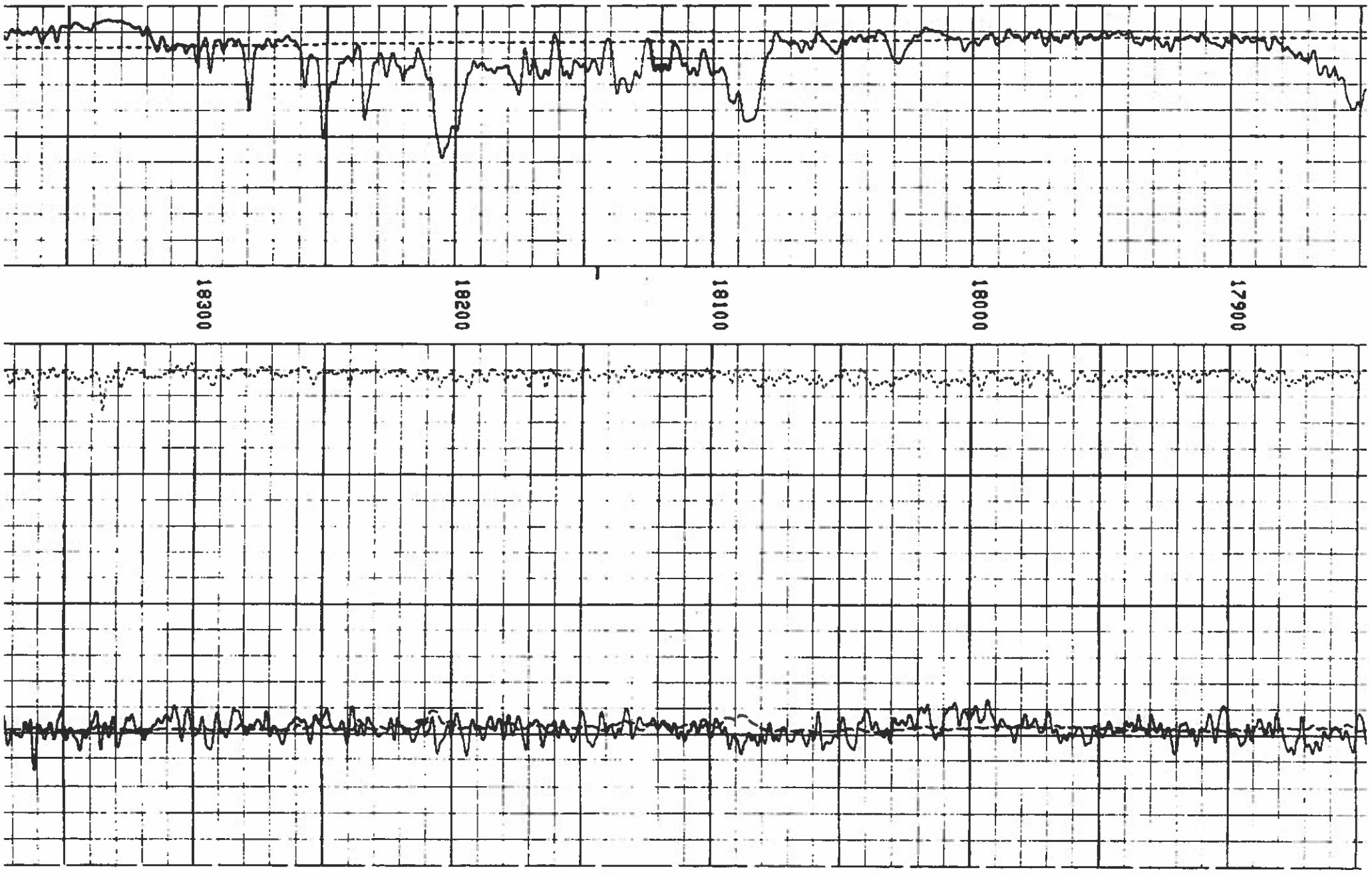
17800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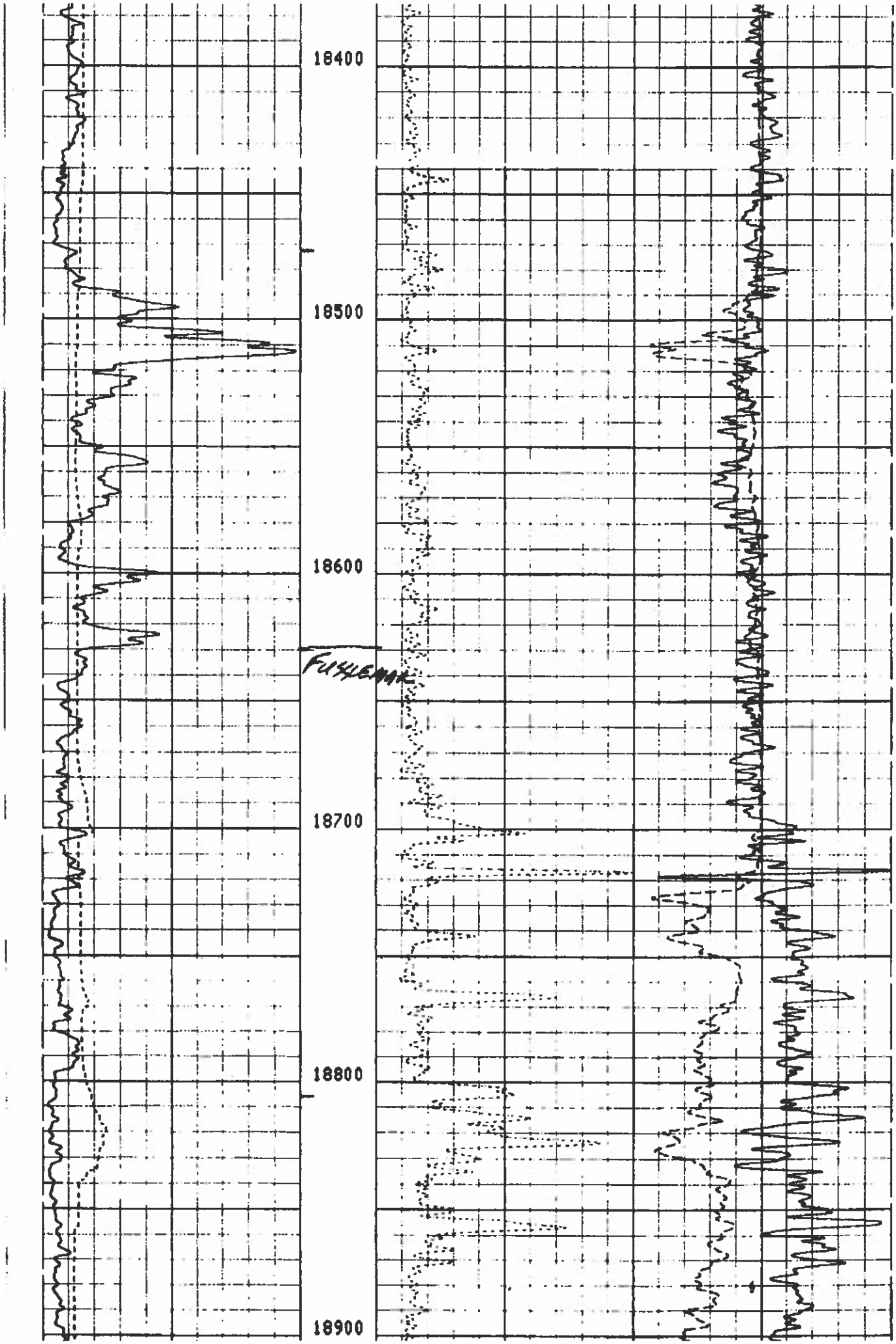
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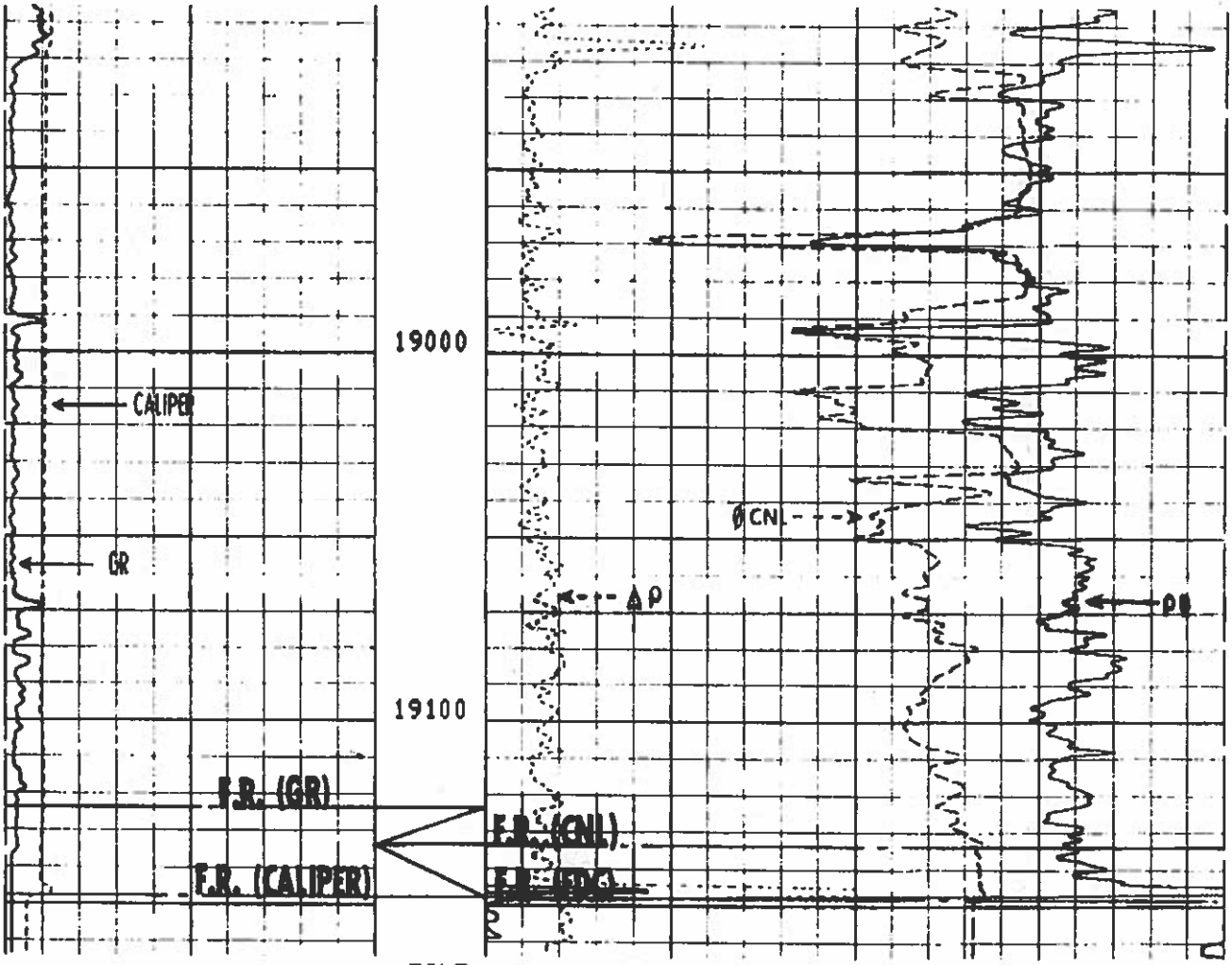

FILE

5

		DRHO(G/C3) -0.050 0.4500
CALI(IN) 6.000 16.00	Run 3	RHOB(G/C3) 2.000 3.000
GR (GAPI) 0.0 100.0		NPHI( ) 0.3000 -0.100

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)

No PODs found

PLSS Search:

Section(s): 20, 21, 22, 27, 28, 29, 32, 33, 34 **Township:** 24S **Range:** 35E

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
June 08, 2019
and ending with the issue dated
June 08, 2019.

Publisher

Sworn and subscribed to before me this
8th day of June 2019.

Business Manager

My commission expires
January 29, 2023
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-23

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
JUNE 6, 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 Coonskin 28 Fee SWD No. 1, is located 1130' FNL and 1980' FWL, Section 28, Township 24 South, Range 35 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 17,400' to 19,550' at a maximum surface pressure of 3480 psi and a maximum rate of 40,000 BWPD. The proposed SWD well is located approximately 13 miles west/northwest of Jal. 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.
#34259

02107967 00229343

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

HOBBS NEWS-SUN
LEGAL NOTICES

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 Coonskin 28 Fee SWD No. 1, is located 1130' FNL and 1960' FWL, Section 28, Township 24 South, Range 35 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 17,400' to 19,550' at a maximum surface pressure of 3480 psi and a maximum rate of 40,000 BWPD. The proposed SWD well is located approximately 13 miles west/northwest of Jal. 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.

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

CONCHO

August 21, 2019

RE: Application For Authorization To Inject
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

Dear Mr. McMillan

All Notices were mailed out to the affected parties on August 21, 2019.
Please do not hesitate to contact me at (575) 748-6941 should you have any questions.

Sincerely,

Marissa Villa
Operations Engineering Technician
COG Operating, LLC
2208 West Main
Artesia, NM 88210
Office: 575.748.6941
Fax: 575.746.2523

CONCHO

August 21, 2019

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

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 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 17590' and Fusselman at 18685'. 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,

Paul Porter
General Manager of New Mexico

PP/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

CONCHO

August 21, 2019

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

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
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.

Our geologic prognosis has the top of the Devonian at 17590' and Fusselman at 18685'. 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,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

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

CONCHO

August 21, 2019

Dion Hartman
7689 Pine Grave Ave
Kingman, AZ 86401

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
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 drill 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 or an affected person within a one 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,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

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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

CONCHO

August 21, 2019

Tap Rock Resources, LLC
602 Park Point Drive Suite 200
Golden, CO 80401

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

XTO Holdings, LLC
22777 Springwoods Village Pkwy
Spring, TX 77389

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Occidental Permian, LP
5 E. Greenway Plaza Suite 110
Houston, TX 77046

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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Sincerely,

Paul Porter
General Manager of New Mexico

PP/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

CONCHO

August 21, 2019

MRC Permian Company
5400 LBJ Freeway, Suite 1500
Dallas, TX 75240

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Crown Oil Partners VI, LLC
PO Box 50820
Midland, TX 79710

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Topwater Resources LLC
4747 Research Forest Dr #180
The Woodlands, TX 77381

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Crump Energy Partners III, LLC
PO Box 50820
Midland, TX 79710

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Delaware Hops, LLC
50 Kennedy Plaza18th Floor
Providence, RI 02903

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/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

CONCHO

August 21, 2019

Chevron USA, Inc.
15 Smith Road
Midland, Texas 79705

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 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**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
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Please do not hesitate to contact us at 575-748-6940 should you have any questions.

Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

State of New Mexico by and through
The Commissioner of Public Lands
310 Old Santa Fe Trail
Santa Fe, NM 87501

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
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 drill 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 or an affected person within a one 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,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Riverbend Oil and Gas IX, LLC
500 Dallas Street, Suite1250
Houston, TX 77002

RE: **Application For Authorization To Inject**
Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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Sincerely,

Paul Porter
General Manager of New Mexico

PP/mv
Enclosures

CONCHO

August 21, 2019

Bugling Bull Investments, LLC
4747 Research Forest Dr. #180-315
The Woodlands, TX 77381

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Coonskin 28 Fee SWD #1
1130' FNL, 1960' FWL
Unit C, Section 28, Township 24 South, Range 35 East, N.M.P.M.
Lea County, New Mexico

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