10/10/2014 DATE IN	SUSPENSE	PRG ENGINEER	10/10/2014 LOGGED IN	SWD TYPE	PMAM1428359055 APP NO.

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- 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

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A] Empire State SWD 15 #1 30-015-39771

[A] Location - Spacing Unit - Simultaneous Dedication Amending SWD-1336
☐ NSL ☐ NSP ☐ SD

Well
SWD 15 #1
30-015-39771

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

Pool
- SWD; Cisco-Canyon
96186

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **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.

Kanicia Castillo	K - C	Lead Regulatory Analyst	10/01/14
Print or Type Name	Signature	Title	Date

kcastillo@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: Kanicia Castillo PHONE: 432-685-4332

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).

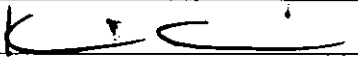
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: Kanicia Castillo TITLE: Lead Regulatory Analyst

SIGNATURE:  DATE: 10/01/14

E-MAIL ADDRESS: kcastillo@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: Previously approved 5/30/12, submitted by Three Rivers Operating, LLC SWD-1336

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.

III.

Side 1

INJECTION WELL DATA SHEET

OPERATOR: COG Operating LLC

WELL NAME & NUMBER: Empire State SWD 15 #1

WELL LOCATION:	2526' FSL & 1417' FWL	K	15	17S	29E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

See attached Schematic

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17 1/2" Casing Size: 13 3/8"

Cemented with: 500 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulate

Intermediate Casing

Hole Size: 12 1/4" Casing Size: 9 5/8"

Cemented with: 700 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulate

Production Casing

Hole Size: 8 3/4" Casing Size: 7"

Cemented with: 1250 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulate

Total Depth: ~~9450~~ 8K

Injection Interval

Open Hole: 8350 feet to 9450

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 3 1/2" EUE Lining Material: Internally plastic coated

Type of Packer: Double grip type, set in neutral

Packer Setting Depth: no more than 100' above top perf

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection? X Yes ____ No

   If no, for what purpose was the well originally drilled? ____

2. Name of the Injection Formation: Cisco/Canyon

3. Name of Field or Pool (if applicable): SWD;Cisco-Canyon 96186

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:

   San Andres @ 2,468', Yeso @ 3,962', Wolfcamp @ 7,179'

Empire State SWD 15 #1
Cisco/Canyon Field - 96099
Eddy County, New Mexico

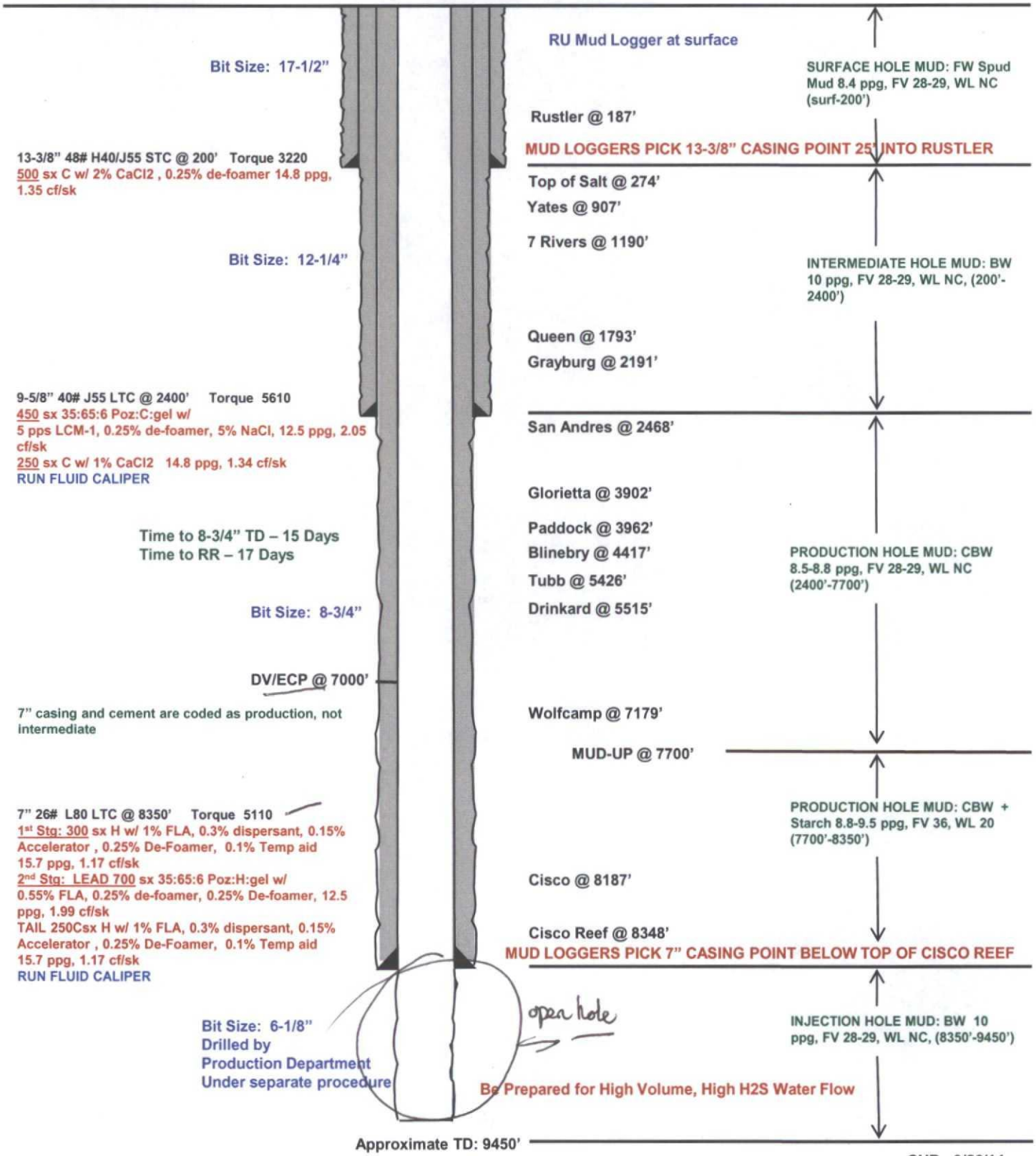
Proposed Wellbore

API: 30-015-39771

Rig:	?
Cmt:	Par 5
Mud:	Buckeye
Dir Drlg:	Phoenix
Wellhead:	Downing

KB: 3626'
GL: 3607'

Surface
2526' FSL
1417' FWL
S-15
T17S, R29E



CUB: 9/26/14

COG Operating

CB REVIEWED 9-17-14

GEOLOGICAL PROGNOSIS SWD

PRSPCT/ FLD **COG Operating** WELL NAME **Empire State SWD 15 #1**

COUNTY/ STATE **Eddy County, N. M.** DIST FROM SEC LINES **2526' FSL & 1417' FEL**

SEC **15** TWP **17S** RGE **29E** LEASE RESTRICTIONS POTASH, PRAIRE CHICKEN, ETC

LEASE NUMBER TYPE WELL **SWD** PTD ELEV: **GR 3563'**

REFERENCE WELLS **COG, Conoco State #1, API: 30-015-20715**

FORMATION	MD	VIS/ WL	LITHOLOGY	PROD TYPE	DST	HAZARDS/MISC
Formations						
Rustler	187		Dolomite			
Top of Salt	274		Salt			
Yates	907		Dolomite & Sand			
7 Rivers	1190		Dolomite			
Queen	1793		Sand			
Grayburg	2191		Dolomite & Sand			
San Andres	2468		Dolomite			
Glorieta	3902		Sand			
Paddock	3962		Dolomite			
Blinebry	4417		Dolomite			
Tubb	5426		Sand			
Drinkard	5515		Dolomite & Lime			
Wolfcamp	7179		Dolomite & Lime			
Cisco	8187		Dolomite & Shale			
☆☆ T/Cisco Reef	8348		Dolomite & Shale		Set 7" prod csg +25' below top of reef	
B/Cisco Reef	8574		Dolomite & Shale		Openhole to TD	
☆☆ Canyon	8765		Dolomite & Shale			
Strawn	9921		Dolomite & Shale			

TOTAL DEPTH **9,450** ☆ Secondary Objective ☆☆ Primary Objective

WIRELINE EVALUATION Schlumberger PEX, LDT-CNL-SPECTRAL GR, HRLA-GR
Run openhole at csg setting depth

CORING & TESTING

MUDLOGGING
From intermediate csg-TD, lagged 10' samples

LAND (Obligations & Deadlines)

VII.

COG Operating, LLC
Empire State SWD 15 #1
API# 30-015-39771
Sec 15, T17S, R29E, Unit K
2526' FSL & 1417' FWL
Eddy County, NM

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
   - **Average daily rate/volume 10,000 to 15,000 BWPD, Maximum daily rate/volume 20,000 BWPD**
2. Whether the system is open or closed;
   - **Closed System**
3. Proposed average and maximum injection pressure;
   - **Average injection pressure - Vacuum, Maximum injection pressure 1670 psig**
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than re-injected produced water; and,
   - **Produced water from the Yeso formation.**
   - **We do not anticipate incompatibility issues because we currently have similar SWD wells in the area that dispose of Yeso produced water in the Cisco.**
   - **Existing Cisco SWD wells: Empire St SWD #2 30-015-37787, Empire St SWD 9 #4 30-015-38972**
   - **Please see attached Yeso produced water analysis. (Conoco 8 St #1)**
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.).
   - **Chemical Analysis for the disposal zone formation water is attached**

Exhibit VIII

Geological Review
Ground Water Sources
Empire and Empire East
Eddy County, New Mexico

The interval under consideration for disposal operations includes the Cisco and Canyon. The Cisco interval is part of the Virgil Series of the Upper Pennsylvanian Age and the Canyon interval is part of the Missourian Series, located on the Northwest Shelf of the Delaware Basin in the western part of the Permian Basin.

The injection interval is the following:

Empire State SWD 15 #1 (SWD; Cisco/Canyon)

- Cisco/Canyon: 8,350.0' - 9,450.0' MD (8,350.0'- 9,450.0' TVD)

  The Empire State SWD 15 #1 will be a vertical well that will be drilled to a true vertical depth (TVD) of 9,450.0' and casing will be set at approximately 8,350.0' at the top portion of the Cisco Reef to allow for an open hole completion into the Cisco/Canyon formations.

Produced water from Lower Permian Age and Upper Pennsylvanian Age rocks are too mineralized to be potable or useable for live stock.

Ground water in Eddy County is obtained from porous and permeable aquifers in consolidated rocks of the Upper Permian and Triassic age and in relatively unconsolidated sediments of Tertiary and Quaternary age.

The area east of the Pecos River is a large area and includes half of Eddy County, generally from T 16S R 27E to T 26S R 31E, extending from the Chaves County line south to the Texas State line and east to the Lea County line.

The Triassic System overlies the Rustler formation in Eddy County and is composed of red beds and sandstones of the Dockum group. The lower part of these beds is considered Permian and correlated with Dewey Lake red beds by some geologists. The total thickness of the Dockum group east of Artesia is about 1,000'. Formations of the Dockum group exposed in Eddy County are the Pierce Canyon red beds, the Santa Rosa sandstone and red beds possibly from the Chinle formation.

In the Empire, Empire East, Loco Hills, and Fren Fields, the sandstone beds in the Triassic Dockum group and possibly in the Dewey Lake red beds are the chief sources of ground water. The depth to water in this area is generally less than 300'. Most of the wells in the outcrop area of the Dockum group yield water of better quality than the wells to the west that produce from the Rustler formation. Analyses were made of 21 samples of water from wells probably taking all or part of their water from the Triassic red beds. The hardness of calcium carbonate in the 21 samples ranged from 201 to 3,590 ppm and was more than 1,000 ppm in 14 of the 21 samples. The chloride content ranged from 17 to 785 ppm and was more than 200 ppm in 10 of the samples. Probably about half the wells in the Triassic red beds produce water that is considered usable for domestic purposes. None of the wells in the Triassic red beds produce water too highly mineralized for stock.

A review of all geologic map data and well as visual searches by field personnel did not indicate the presence of any windmills in the areas of review for the proposed conversions.

In summary, ground water in the Empire, Empire East, Loco Hills, and Fren areas for stock and domestic use can be obtained from wells in the Triassic red beds at depths up to 300'. Water is generally of fair quality but locally impotable. The injection intervals for the proposed conversions are in the Yeso group in the lower Permian age rocks at about 8,350' TVD to 9,450' TVD. No contamination of the known shallow potable ground waters is expected from the proposed deeper secondary operations due to over 8,000' of vertical separation between them. There was no indication of any use of ground water aquifers in the areas of reviews for the proposed conversions.

From Geology and Ground-Water Resources of Eddy County, New Mexico by G. E. Hendrickson and R. S. Jones. Ground-Water Report 3, New Mexico Bureau of Mines and Mineral Resources, 1952

Three Rivers Operating
State 151729 3ROC SWD
9

SampleID	Township	Range	Section	Formation	Location	Date	Chlorides
2402	17S	29E	22	SANTA ROSA	17S.29E.22.11231	9/16/81	42
2546	17S	29E	22	SANTA ROSA	17S.29E.22.112311	3/28/85	17
27937	17S	29E	29	RSLR	17S.29E.29.44433	9/18/90	880
27986	17S	29E	29	RSLR	17S.29E.29.44433	3/30/94	850
27936	17S	29E	29	RSLR	17S.29E.29.44433	9/18/90	880
10778	17S	29E	22	OAL	17S.29E.22.31222	5/11/81	60680
10486	17S	29E	22	OAL	17S.29E.22.112311	8/28/80	45
10005	17S	29E	22	OAL	17S.29E.22.112311	6/19/86	18
9112	17S	29E	22	OAL	17S.29E.22.112311	9/18/90	34
9056	17S	29E	22	OAL	17S.29E.22.112311	9/18/90	34
7992	17S	29E	22	OAL	17S.29E.22.112311	3/1/94	80
3441	17S	29E	29	CHINLE	17S.29E.29.44433	9/30/81	192
3463	17S	29E	35	CHINLE	17S.29E.35.121443	4/4/69	4400
2837	17S	29E	29	CHINLE	17S.29E.29.44433	3/28/85	444

Santa Rosa

Ground Water analysis from T17S, R29E, Eddy County,NM

Data Obtained from http://octane.nmt.edu

Exhibit"F"

IX.

COG Operating, LLC
Empire State SWD 15 #1
API# 30-015-39771
Sec 15, T17S, R29E, Unit K
2526' FSL & 1417' FWL
Eddy County, NM

Stimulation program: Large conventional acid job.

X.

COG Operating, LLC
Empire State SWD 15 #1
API# 30-015-39771
Sec 15, T17S, R29E, Unit K
2526' FSL & 1417' FWL
Eddy County, NM

Logging and test data: No test data. Logs will be filed with final completion paperwork.

Exhibit XII

Geological Statement

Concho Resources has examined available geological, seismic, and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

Harvin Broughton
Geoscience Lead
432-686-3016

Exhibit VI.

State 151729 3 Roc #9 (New well name: Empire State SWD 15 #1)

1. There are a total of 5 wells in the AOR penetrating the injection interval.
2. Of the total, there is 1 plugged/dry and abandoned well in the area of review penetrating the injection interval.

Area of Review

Well Name	Operator	API #	Legals	Footage	Hole Size	Casing Size	Set Depth	Cement Vol. (SX)	TOC	DV Tool Depth	Cmt blw DVT (SX)	Cmt abv DVT (SX)	TOC blw DVT	TOC abv DVT
Delta Wing Fed SWD #1	COG Operating LLC	30-015-26309	B-15-17S-29E	810 FNL, 1980 FEL	17.5	13.375	446	425	0					
					11	8.625	4500	2300	45					
					7.875	5.5	10950	1150	6400					
Durango 15 St Com SWD #1	COG Operating LLC	30-015-31557	D-15-17S-29E	660 FNL, 660 FWL	17.5	13.375	440	375	0					
					11	8.625	2684	1050	0					
					7.875	5.5	10900	1685	0	***	850	835	***	0
Conoco State #1	COG Operating LLC	30-015-20715	K-15-17S-29E	1980 FSL, 1650 FWL	17.5	12.75	379	450	0					
					12.25	8.625	3905	950	720					
					7.875	4.5	10881	750	7900	9001	450	300	9001	7900
M Dodd A #21Y (P&A)	Marbob Energy Corp	30-015-02991	O-15-17S-29E	660 FSL, 1934 FEL	17.5	13.375	836	800	0					
					7.875	9.625	3503	643	0					
GJ West Coop Unit #52	COG Operating LLC	30-015-02996	P-16-17S-29E	660 FSL, 660 FEL	17	13.375	788	850	0					
					9.875	5.5	2899	460	1340					
					6.5	***	***							

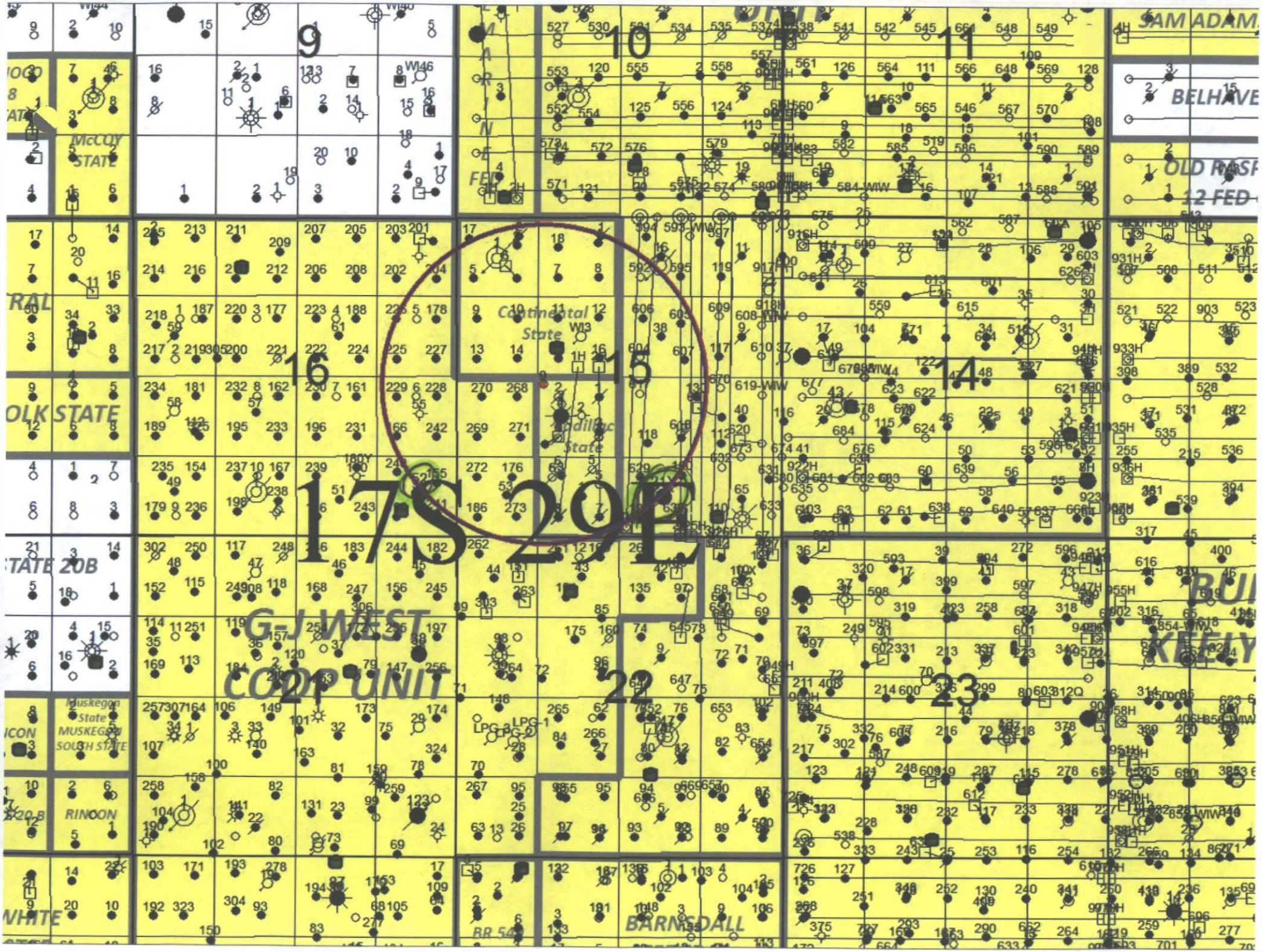
*** The required information was not recorded by the previous operator in the OCD records.

} at ½-mile radius

Total 5 wells:

4 active (2 SWDs)

1 P&A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10
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16
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14
17S 29E
21
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23
McCOY STATE
FED
SAM ADAM
BELHAVE
OLD
12 FED
Continental State
Cadillac State
OLK STATE
STATE 20B
G-J WEST COOP UNIT
Muskegon State
MUSKEGON SOUTH STATE
RINCON
BARNSDALL
BR 54
KEELY

COG Operating LLC
(Three Rivers)

Lease & Well # **Conoco State #1**

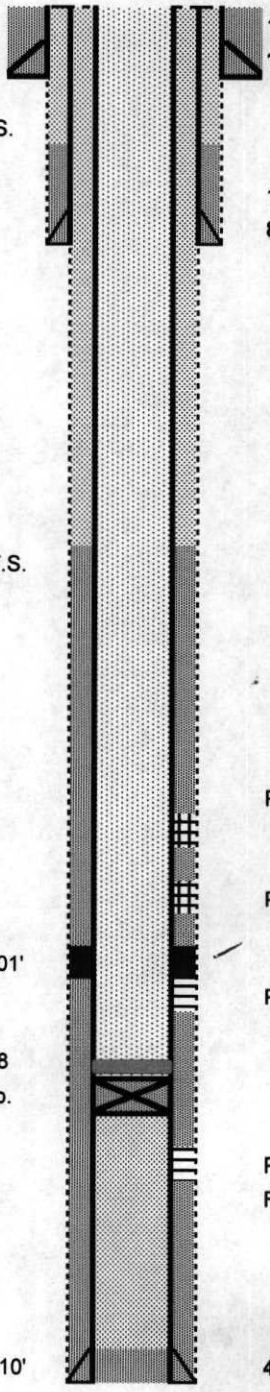
3001520715

Spud date 8-6-72

Completion date 11-2-72

Elevation - 3562' GL

Sec 15 T 17S R 29E, 1980 FSL & 1650 FWL UNIT K
EDDY CO., NM



17 1/2" hole

12 3/4" 35# csg @ 379' w/450 sxs. Circ 80 sx.

TOC @ 720' T.S.

11" hole

8 5/8 " 24# & 32# csg @ 3905' w/950 sx. DN Circ, TOC @ 720' T.S.

TOC @ 7,900'. T.S.

Perf @ 8768 - 8787' A/3000 gal 15% w/N2
Squeezed off perfs w100 sx

Perf @ 8897 - 8905' 2spf A/3000 gal 7 1/2% w/N2
Squeezed off perfs w150 sx

DVT @ 9,001'

Perf @ 9820 - 9847', 2 spf A/3,000 gal 7 1/2% w/N2
Frac w/40,000 gal Mini Max II & 53,000 # sd
IP 20 BO 5 BW GOR 6900 4/10/78

PBTD @ 10,151' 3/30/78
CIBP @ 10,250' w/32' cmt cap.

Perf'd Penn @ 10,308 - 10,316 4 spf A/1500 gal 7 1/2%
Frac w/10,000 gal, 18,000 # sd
IP 4 BO 675 MCFG 0 BW 11/2/72

CMt 1st stage: 450 sx, circ 50 sx.
cmt 2nd stage: 300 sx, TOC @ 7900' T.S.

TD @ 11,110'

4 1/2" 11.6# csg @ 10,881' 7 7/8" hole

9/23/2014

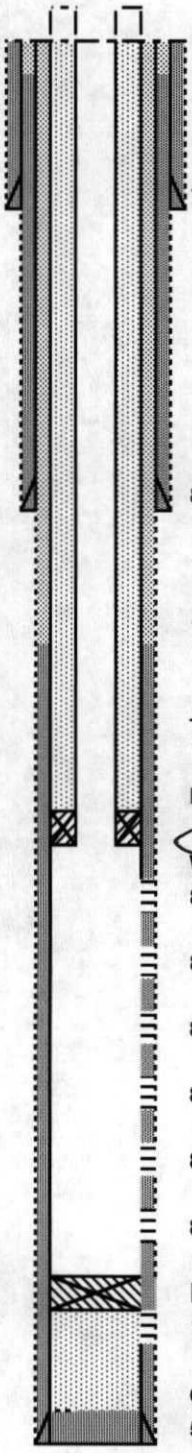
COG Operating LLC
(MARBOB)

Lease & Well # **Delta Wing Federal #1** SWD-643

Eddy Co., NM

SPUD - 4/30/1990
API # 30-015-26309
Elevation - 3590.8'

Sec 15 T17S R29E 810 FNL & 1980 FEL



13 3/8" 5.45 # H-40 @ 446', 425 C, circ 30 sx

8 5/8" 32# 8rd J-55 STC @ 4,500', C/w 2300 sx , D/n circ. TOC 45' fs T.S.

TOC 6,400', T.S.

Tubing: 2 7/8" PC

PC pkr @8245'

Wolfcamp
8291 - 8306' Upper H

8390 - 8432' (8390-8428' previously squeezed w/150 sx, re-perf'd)

8520 - 8535'

8522 - 8536'

8550 - 8650'

8792 - 8802'

CIBP - 10,545' w/35' cmt

Morrow
10,654 - 10,773' 6 jspf, 210 holes

PBTD- 10,570'

Cmt w/1150 sx. H, d/n circ. TOC 6,400' fs, T.S.
5 1/2" 17# LT&C csg @ 10,950'.

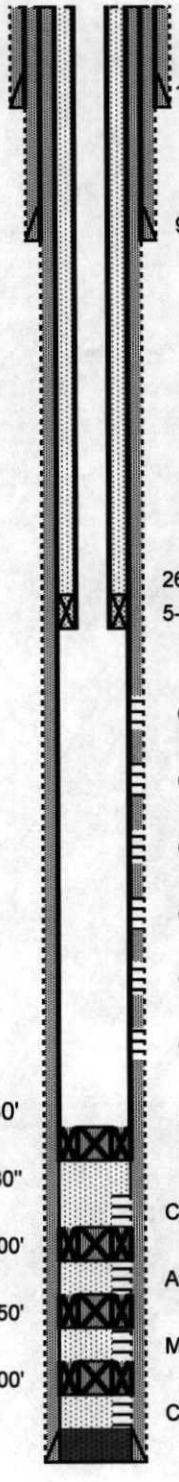
COG Operating LLC

Lease & Well # **Durango 15 St Com #1** SWD - 809A

Eddy Co., NM

SPUD - 3/31/2001
API # 30-015-31557
Elevation - 3564'
SWD-809

660 FNL 660 FWL, Sec 15-T17S-R29E, Unit D



13 3/8" 48# H40 @ 440', 375 sx C, circ. 18 sx

9 5/8" 36# J55 @ 2,684', 1050sx, circ 100sx

267 jts 2 7/8" L-80 IPC tbg.
5-1/2" X 2-7/8", Arrow Set pkr, NP, 2-7/8" O/O Tool 2.25F Profile Nipple @ 8,701'

Cisco perfs 8,770'-8,792'; 22 shots

Cisco perfs 8,792-8,814'; 22 shots

Cisco perfs 8,814-8,836', 22 shots

Cisco perfs 8,836'-8,858', 22 shots

Cisco perfs 8,850-8,880', 22 shots

Cisco perfs 8,880'-8,900', 22 shots

PBTD- 9,180'

5-1/2" 17# N80 & P110 csg @ 10,900', 1685sx cement, circ 20 bbl
2 stage job, no record of DVT, 1st stage showed CMT above DVT

35' cmt
CIBP @ 9,180"
35' cmt
CIBP @ 10200'
35' cmt
CIBP @ 10550'
35' cmt
CIBP @ 10700'

Caynon perfs, 9,225-9,247'

Atoka perfs, 10,286'-10,291'

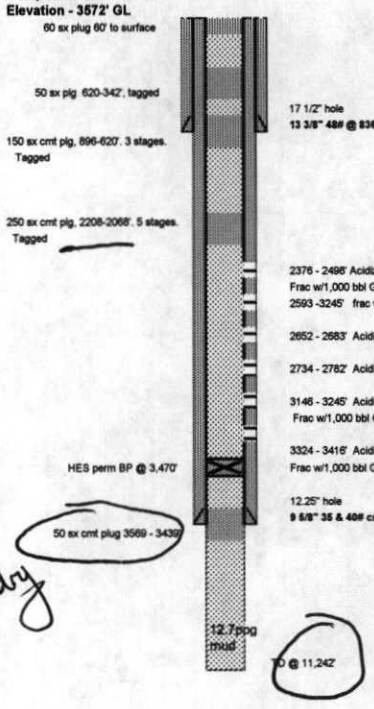
Morrow perfs 10,602'-10,651'

Chester perfs 10,722'-10,746'

Marbob

Lease & Well # M Dodd A 21Y
3001502991
Spud date 3-27-58
Completion date 1-17-83
Elevation - 3572' GL

P&A 6/19/2003
Sec 15 T17S R 29E, 660 FSL & 1934 FEL
EDDY CO., NM



17 1/2" hole
13 3/8" 48# @ 836' w/800 sx. Circ 80 sxs.

2376 - 2496' Acidized w/1000 gal 15% NEFE
Frac w/1,000 bbl GW, 77 Sd
2593 -3245' frac w/3,000 bbl GW

2652 - 2683' Acidized w/1,000 gal 15% NEFE

2734 - 2782' Acidized w/1,000 gal 15% NEFE

3146 - 3245' Acidized w/1500 gal 15% NEFE
Frac w/1,000 bbl GW

3324 - 3416' Acidized w/1,000 gal 15% NEFE
Frac w/1,000 bbl GW

12.25" hole
9 5/8" 35 & 40# csg @ 3503' w/643 sx. Circ 25 sxs.

30-015-02991

1982 sundry

at ½ mile radius

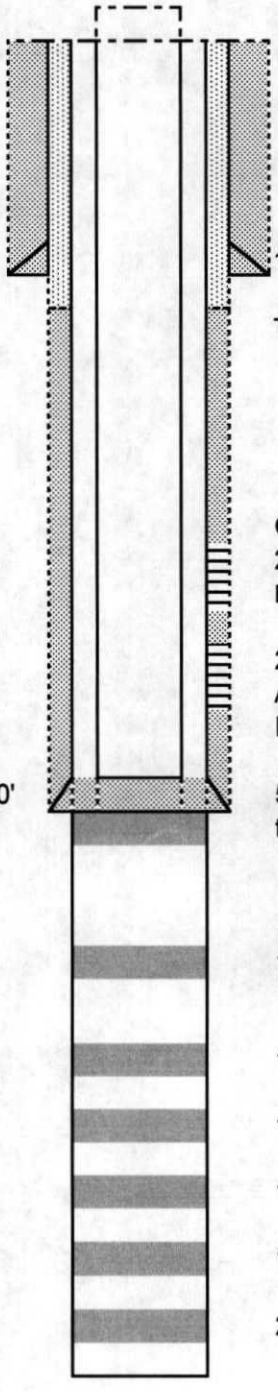
Down dip

Concho

Lease & Well # GJ West COOP Unit # 52
(Plugged Back)

Spud - 6/11/66
API # 30-015-02996
Elevation - 3550'

KB -



13 3/8" 54.5# J-55 @ 788', 850 sx cmt., circ. CMT

Top of cmt # 1,340', temp sur.

GB/SA
2247-2506
Frac w/50,000 gal GW, 75,000 # sd

2598-2748
Acidized w/2000 gal 15% NEFE
Frac w/25,0000 gal GW, 24,000 # sd

PBTD-2850'

5 1/2" 15.5 # csg @ 2899', cmt w/400 sx C 16% gel, tail in 60 sx latex cmt. TOC @ 1340', temp sur.

10 sxs @ 3,853'

10 sxs @ 6,004'

10 sxs @ 7,156' DC

10 sxs @ 8,794'

10 sxs @ 10,176'

25 sxs @ 10,966'

at ½ mile radius
down dip

Catalyst Oilfield Services
11999 E Hwy 158
Gardendale, TX 79758
(432) 563-0727
Fax: (432) 224-1038

Water Analysis Report

Customer:	COG Operating LLC - NM	Sample #:	11945
Area:	Artesia	Analysis ID #:	13687
Lease:	Lakewood SWD		
Location:	#1 0		
Sample Point:			

Sampling Date:	3/4/2013
Analysis Date:	3/6/2013
Analyst:	Catalyst
TDS (mg/l or g/m3):	190610.9
Density (g/cm3):	1.129
Hydrogen Sulfide:	120
Carbon Dioxide:	160
Comments:	

Anions	mg/l	meq/l
Chloride:	**113841.8**	**3211.06**
Bicarbonate:	**329.4**	**5.4**
Carbonate:		
Sulfate:	**2300.0**	**47.89**

Cations	mg/l	meq/l
Sodium:	**68210.0**	**2966.97**
Magnesium:	**955.1**	**78.57**
Calcium:	**3785.0**	**188.87**
Potassium:	**1111.0**	**28.41**
Strontium:	**78.6**	**1.79**
Barium:	**0.0**	**0.**
Iron:	**0.0**	**0.**
Manganese:	**0.000**	**0.**

pH at time of sampling:	6.7
pH at time of analysis:	
pH used in Calculation:	**6.7**
Temperature @ lab conditions (F):	**75**
Conductivity (micro-ohms/cm):	**198100**
Resistivity (ohm meter):	**.0505**

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl

Temp	Calcite $CaCO_3$		Gypsum $CaSO_4 \cdot 2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$	
°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
80	0.58	20.68	-0.10	0.00	-0.08	0.00	-0.13	0.00	0.00	0.00
100	0.64	24.18	-0.18	0.00	-0.09	0.00	-0.16	0.00	0.00	0.00
120	0.70	27.68	-0.25	0.00	-0.08	0.00	-0.17	0.00	0.00	0.00
140	0.76	31.76	-0.31	0.00	-0.05	0.00	-0.18	0.00	0.00	0.00
160	0.81	35.83	-0.36	0.00	0.01	13.40	-0.18	0.00	0.00	0.00
180	0.86	39.91	-0.40	0.00	0.08	137.22	-0.18	0.00	0.00	0.00
200	0.92	44.28	-0.43	0.00	0.16	266.57	-0.17	0.00	0.00	0.00
220	0.98	48.94	-0.47	0.00	0.25	392.13	-0.16	0.00	0.00	0.00

91 7199 9991 7033 5389 3809

CONCHO

One Concho Center
600 West Illinois Avenue
Midland, Texas 79701

NEW MEXICO STATE LAND OFFICE
OIL GAS AND MINERALS DIVISION
310 OLD SANTA FE TRAIL
SANTA FE, NM 87504-1148

SENDER: *COMPLETE THIS SECTION*

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

1. Article Addressed to:

NEW MEXICO STATE LAND OFFICE
OIL GAS AND MINERALS DIVISION
310 OLD SANTA FE TRAIL
SANTA FE, NM 87504-1148

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

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

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

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

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 91 7199 9991 7033 5389 3809

PS Form 3811, February 2004 Domestic Return Receipt

CONCHO

October 2, 2014

New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe, NM 87504

Certified Mail Article Number: 91 7199 9991 7033 5389 3809

Re: Amendment to SWD-1336:

Empire State SWD 15 #1
API# 30-015-39771
Sec 15, 17S, R29E, Unit K
2526' FSL 1417' FWL
SWD;Cisco-Canyon (96186)
Eddy County, New Mexico

To Whom It May Concern:

This letter will serve as notice under Rule 19.15.26.8B that COG Operating LLC has re-applied for a permit from the Oil Conservation Division in Santa Fe, NM for a new SWD well. We will be injecting, for the purpose of disposal, into the Cisco/Canyon zone. injection interval will be at 8350' 9450'.

Should your company have any objection, it must be filed in writing within fifteen (15) days from the date of this notice. If the Oil Conservation Division determines the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Drive, Santa Fe, New Mexico, 87505, the telephone number is 505-476-3440.

Sincerely,

Kanicia Castillo
Lead Regulatory Analyst
COG Operating LLC

LEGAL NOTICE

COG Operating LLC is reapplying to drill the Empire State SWD 15 #1 as a water disposal well (SWD-1336). The well is located at 2526' FSL & 1417' FWL, Sec. 15, T17S, R29E, Eddy County, NM. The well will dispose of water produced from oil and gas wells into the Cisco/Canyon Reef zone at a depth of 8350' to 9450' at a maximum rate of 20,000 barrels of water per day and at a maximum pressure of 1670 psi. Interested parties must file objections with the NM Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, NM 87505, within 15 days. Additional information can be obtained by contacting Kanicia Castillo, COG Operating LLC, phone number is 432-685-4332.

Published in the Artesia Daily Press, Artesia, N.M., October 3, 2014 Legal No. 23202.

Administrative Order SWD-1336
May 30, 2012

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of 19.15.26.8B NMAC, Three Rivers Operating Company, LLC seeks an administrative order to utilize its proposed State 151729 3ROC SWD Well No. 9 (API 30-015-39771) to be located 2526 feet from the South line and 1417 feet from the West line, Unit letter K of Section 15, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico, for produced water disposal purposes.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of 19.15.26.8B NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in 19.15.26.8 NMAC have been met and the operator is in compliance with 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, Three Rivers Operating Company, LLC, is hereby authorized to utilize its proposed State 151729 3ROC SWD Well No. 9 (API 30-015-39771) to be located 2526 feet from the South line and 1417 feet from the West line, Unit letter K of Section 15, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico, for disposal of oil field produced water (UIC Class II only) into the Cisco/Canyon formations through perforations from approximately 8770 feet to 9330 feet through internally coated tubing and a packer set less than 100 feet above the permitted disposal interval.

The operator shall mud log and run electric logs over the disposal interval and turn in these to the Division along with a written analysis of the hydrocarbon produce ability of the disposal interval. If hydrocarbons can be feasibly and economically produced, this Cisco/Canyon interval shall not be used for disposal purposes.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the proposed disposal interval and is not permitted to escape to other formations or onto the surface.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT testing procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC.

The wellhead injection pressure on the well shall be limited to **no more than 1754 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate-Test.

The operator shall notify the supervisor of the Division's district office of the date and time of the installation of disposal equipment and of any MIT test so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's district office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's district office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

JAMI BAILEY
Director

JB/wvjj

cc: Oil Conservation Division – Artesia
State Land Office – Oil, Gas, and Minerals Division

CONCHO

October 9, 2014

Kanicia Castillo
COG Operating LLC
One Concho Center
600 W Illinois Avenue
Midland, TX 79701

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

RE: Saltwater Disposal Application SWD-1336

Empire State SWD 15 #1
API# 30-015-39771
K-15-17S-29E
2526 FSL & 1417 FWL
SWD;Cisco-Canyon 96186
Eddy County, New Mexico

Mr. Goetze:

COG Operating LLC respectfully requests administrative approval for authorization to inject the Empire State SWD 15 #1 for SWD purposes.
The application was originally submitted as the State 151729 3Roc SWD #9 by Three Rivers Operating, LLC in 2012. We missed our deadline to renew and would like to resubmit for approval. We would like approval to inject into the Cisco/Canyon Reef, located between 8350' – 9450'.
Please contact me at 432-685-4332 or email at kcastillo@concho.com if you need additional information.

Sincerely,

Kanicia Castillo
Lead Regulatory Analyst
COG Operating LLC

C-108 Review Checklist: Received 10/10/14 Add. Request: 10/17/14 VII - Chemistry Reply Date: 11/18/14 VII - Chemistry Suspended: — [Ver 15]

ORDER TYPE: WFX / PMX / (SWD) Number: 1508 Permit Date: ______ Legacy Permits/Orders: SWD-1336 [expired before injection / approved for 8770' to 9350' (560')]

Well No. 1 Well Name(s): Empire State 15

API: 30-0 15-39771 Spud Date: TBD New or Old: New (UIC Class II Primacy 03/07/1982)

Footages 2526 FSL / 1417 FWL Lot — or Unit K Sec 15 Tsp 17S Rge 29E County Eddy

General Location: 17 miles east of Artesia along 82 / 1 mile north of 82 Pool: SWD; Cisco-Canyon Pool No.: 96186

BLM 100K Map: Artesia Operator: COG Operating LLC OGRID: 229137 Contact: Karicia Castillo

COMPLIANCE RULE 5.9: Total Wells: 3761 Inactive: 4 Fincl Assur: Yes Compl. Order? No IS 5.9 OK? Yes Date: 11/18/14

WELL FILE REVIEWED ✓ Current Status: APD-on file

WELL DIAGRAMS: NEW: Proposed ✓ or **RE-ENTER:** Before Conv. ○ After Conv. ○ Logs in Imaging: None

Planned Rehab Work to Well: New drill

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft) (Previous method for SWD's in area)	Stage Tool	Cement (Sx) or Cf	Cement Top and Determination Method
Planned ✓ or Existing __ Surface	13 3/8	0 to 200' ✓		500	Cir. to surface
Planned ✓ or Existing __ (Interm)/Prod	9 5/8	0 to 2400'	None	700	Cir to surface
Planned ✓ or Existing __ Interm/(Prod)	7	0 to 8350'	DV 7000'	1250 (total)	Cir to surface
Planned __ or Existing __ Prod/Liner	—	—	—	—	—
Planned __ or Existing __ Liner	—	—	—	—	—
Planned ✓ or Existing __ (OH) / PERF	6 1/8 bore	8350 to 9450	Inj Length 1100'		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.		Drinkard	5515
Confining Unit: Litho. Struc. Por.	~163	Wolfcamp	7179
Proposed Inj Interval TOP:	8350	Cisco	8187
Proposed Inj Interval BOTTOM:	9450	Canyon	8765
Confining Unit: Litho. Struc. Por.	~470	Strawn	9921
Adjacent Unit: Litho. Struc. Por.		—	—

Completion/Operation Details:

Drilled TD 9450 PBTD 9450

NEW TD NA NEW PBTD NA

NEW Open Hole (✓) or NEW Perfs ○

Tubing Size 3 1/2 in. Inter Coated? Yes

Proposed Packer Depth ≤ 8250 ft

Min. Packer Depth 8250 (100-ft limit)

Proposed Max. Surface Press. 1670 psi

Admin. Inj. Press. 1670 (0.2 psi per ft)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P (No) Noticed? NA **BLM Sec Ord** (No) **WIPP** (No) Noticed? NA (SALT)/SALADO T: 274 B: 907 **CLIFF HOUSE** NA

FRESH WATER: Aquifer Dewey Lake / Santa Rosa pot. Max Depth <400' **HYDRO AFFIRM STATEMENT By Qualified Person** ✓

NMOSE Basin: Roswell Artesian **CAPITAN REEF:** thru ○ adj ○ NA ✓ **No. Wells within 1-Mile Radius?** Ø (RA 8233 Eagle Farms - deleted) FW Analysis NA

Disposal Fluid: Formation Source(s) Yeso producers in Area Analysis? Yes 11/18/14 On Lease ○ Operator Only ✓ or Commercial ○

Disposal Int: Inject Rate (Avg/Max BWPD): / 20000 Protectable Waters? No Source: Area SWD's System: Closed ✓ or Open ○

HC Potential: Producing Interval? 1 1/2 to 2 miles to West Formerly Producing? No Method: (Logs/DST)/P&A/Other HC pot 2-Mile Radius Pool Map ✓

AOR Wells: 1/2-M Radius Map? Yes Well List? Yes Total No. Wells Penetrating Interval: 3 (SWD's in area) Horizontals? Ø

Penetrating Wells: No. Active Wells 4 Num Repairs? Ø on which well(s)? 2 - SWDs Diagrams? Yes

Penetrating Wells: No. P&A Wells 1 Num Repairs? Ø on which well(s)? ______ Diagrams? Yes

NOTICE: Newspaper Date Oct 3, 2014 Mineral Owner SLO Surface Owner SLO N. Date ?

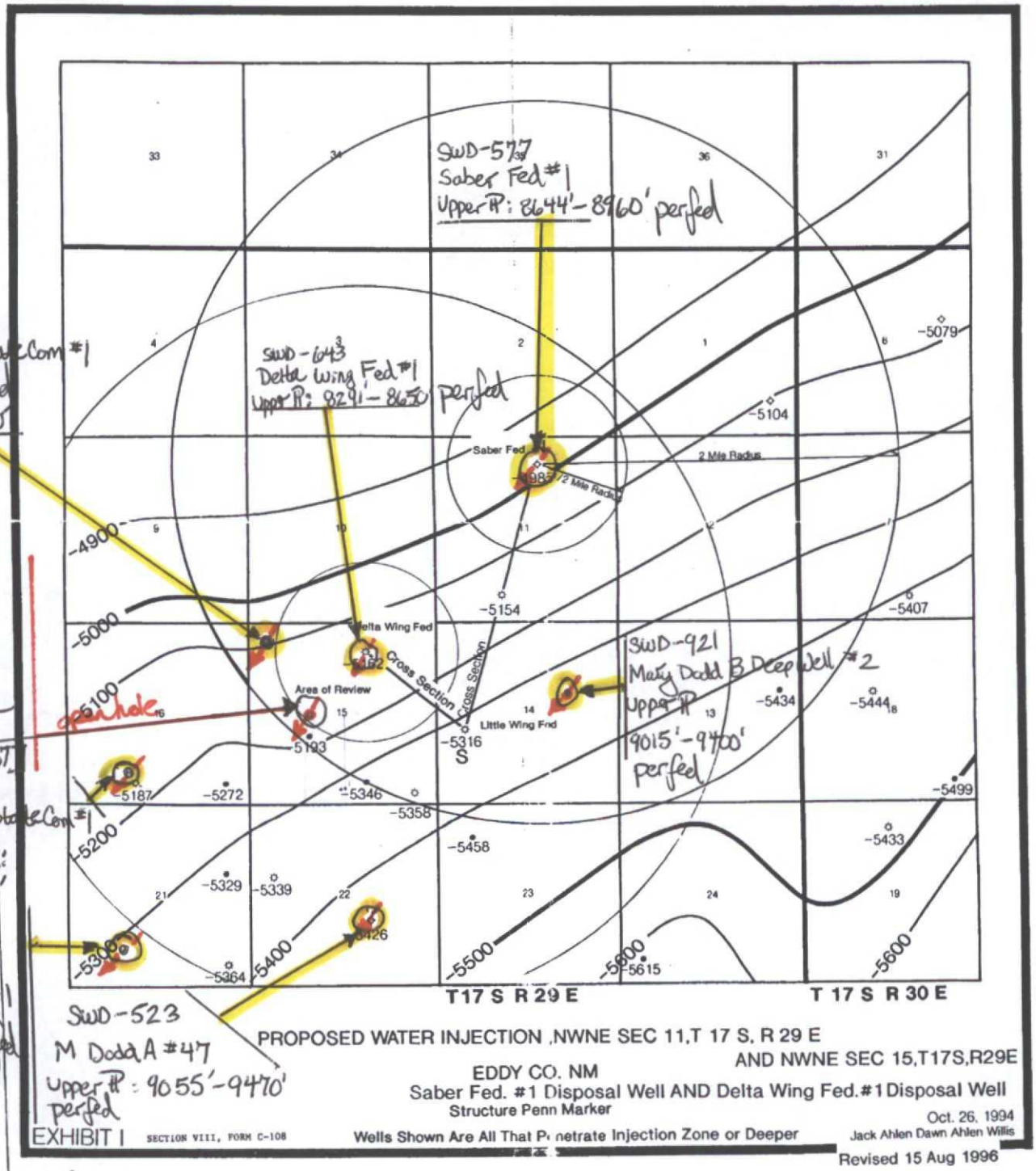
RULE 26.7(A): Identified Tracts? No Affected Persons: NA - COG Holdings N. Date —

Order Conditions: Issues: HC potential; length of injection interval

Add Order Cond: Logs & report - approval before injection; run injection survey in 1st year

Closest HC Potential: Cisco production in Sec 18, 17S, 29E – west of SWD location
GreenB #12: 30-015-23747
Perfed: 8630' – 8668' [-4979' – -5015']; Cisco/Bear Grass Draw (Cisco Reef)

Active SWD's In Application Area



From Saber Fed #1 SWD C-108 Appl. (SWD-577)

Goetze, Phillip, EMNRD

From: Goetze, Phillip, EMNRD
Sent: Monday, November 17, 2014 3:14 PM
To: Kanicia Castillo (kcastillo@concho.com)
Subject: C-108 Application for the Empire 15 #1

Kanicia:

One last item: The application for the Empire states that "produced water only" as the disposal fluid (attached for VII., 3.). This has to be clarified as to specific production formations and some type of analytical results to show compatibility. If COG is going to utilize this SWD well similar to the other cluster of upper Penn COG SWD wells in the area, then I would suggest that you obtain information from these wells that can be used for the Empire and provide a copy. Call/e-mail with any questions. PRG

Phillip R. Goetze, P.G.
Engineering and Geological Services Bureau, Oil Conservation Division
1220 South St. Francis Drive, Santa Fe, NM 87505
O: 505.476.3466 F: 505.476.3462
phillip.goetze@state.nm.us

Catalyst Oilfield Services
11999 E Hwy 158
Gardendale, TX 79758
(432) 563-0727
Fax: (432) 224-1038

Water Analysis Report

Customer:	COG Operating LLC - NM	Sample #:	8606
Area:	Artesia	Analysis ID #:	10527
Lease:	Conoco 8 State	BOPD:	13
Location:	1	BWPD:	87
Sample Point:	Wellhead		

		Anions	mg/l	meq/l	Cations	mg/l	meq/l
Sampling date:	5/30/2012	Chloride:	123254.2	3475.77	Sodium:	58970.0	1662.95
Analysis date:	6/1/2012	Bicarbonate:	488.0	8.00	Magnesium:	2529.0	41.48
Analysis:	Catalyst	Carbonate:		0.00	Calcium:	13930.0	463.87
TDS (mg/l or g/m3):	201443	Sulfate:	880.0	18.30	Potassium:	1101.0	22.90
Density (g/cm3):	1.139				Strontium:	278.2	6.34
Hydrogen Sulfide:	0				Barium:	0.0	0.00
Carbon Dioxide:	120				Iron:	12.5	0.45
Comments:					Manganese:	0.0	0.00
		pH at time of sampling:		5.42			
		pH at time of analysis:					
		pH used in Calculation:		5.42	Conductivity (micro-ohms/cm):		209000
		Tempeture @ lab conditions (F):		75	Resistivity (ohm meter):		0.0478

	Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Calcite CaCO3		Gypsum CaSo4*2H2O		Anhydrite CaSO4		Celestite SrSO4		Barite BaSO4		
°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	
80	-0.06	0.00	-0.05	0.00	-0.03	0.00	-0.09	0.00	0.00	0.00	
100	0.02	2.60	-0.12	0.00	-0.03	0.00	-0.11	0.00	0.00	0.00	
120	0.11	12.41	-0.17	0.00	-0.01	0.00	-0.12	0.00	0.00	0.00	
140	0.20	22.50	-0.22	0.00	0.04	34.04	-0.12	0.00	0.00	0.00	
160	0.30	32.60	-0.26	0.00	0.11	82.52	-0.11	0.00	0.00	0.00	
180	0.41	42.70	-0.29	0.00	0.19	134.16	-0.09	0.00	0.00	0.00	
200	0.53	52.51	-0.31	0.00	0.29	182.92	-0.07	0.00	0.00	0.00	
220	0.66	61.74	-0.33	0.00	0.39	226.49	-0.05	0.00	0.00	0.00	