2/18/2014

SUD

PMAM 140495872

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 CHECKI

	THIS CHECKLIST IS N	MANDATORY FOR ALL ADMINISTRATIVE API	PLICATIONS FOR EXCEPTIONS TO	TO DIVISION RULES AND REGULATIONS
		WHICH REQUIRE PROCESSING	AT THE DIVISION LEVEL IN SAN	
Appi	[DHC-Dow [PC-Po	andard Location] [NSP-Non-Standa rnhole Commingling] [CTB-Leas pol Commingling] [OLS - Off-Lea	e Commingling] [PLC-Pose Se Storage] [OLM-Off-L PMX-Pressure Maintenanc [IPI-Injection Pressure In	ool/Lease Commingling] Lease Measurement] :e Expansion]
[1]	TYPE OF AI [A]	PPLICATION - Check Those Which Location - Spacing Unit - Simulta NSL NSP SD		-SWD -COG OPERATION 229137
	Check [B]	COne Only for [B] or [C] Commingling - Storage - Measure DHC CTB PLC		well
	[C]	Injection - Disposal - Pressure Inc WFX PMX SW		very 56D#1
	[D]	Other: Specify		
[2]	NOTIFICAT [A]	ION REQUIRED TO: - Check The Working, Royalty or Overrid		11 ()
	[B]	Offset Operators, Leaseholde	ers or Surface Owner	SILURIAN
	[C]	Application is One Which Re	equires Published Legal Not	tice
	[D]	Notification and/or Concurre U.S. Bureau of Land Management - Con		
	[E]	For all of the above, Proof of	Notification or Publication	is Attached, and/or,
	[F]	Waivers are Attached		
[3]		CURATE AND COMPLETE INF ON INDICATED ABOVE.	ORMATION REQUIRE	D TO PROCESS THE TYPE OF
	val is accurate at	FION: I hereby certify that the information of complete to the best of my knowl quired information and notifications.	edge. I also understand tha	at no action will be taken on this
	Note:	Statement must be completed by an indi		supervisory capacity.
	N COLLINS or Type Name	Signature Signature	SENIOR OP	PERATIONS ENGINEER Date
			bcollins@co	oncho 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: 2208 W. Main Street, ARTESIA, NM 88210								
	CONTACT PARTY: BRIAN COLLINS PHONE: 575-748-6940 .								
III.	WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.								
IV.	Is this an expansion of an existing project? Yes 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:								
	 Proposed average and maximum daily rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, 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).								
	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.								
	Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.								
	NAME: BRIAN COLLINS TITLE: Senior Operations Engineer .								
	SIGNATURE: DATE: 13Feb 2014								
k	E-MAIL ADDRESS:bcollins@concho.com If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:								

C-108 Application for Authorization to Inject COTTONWOOD 2 STATE SWD 1 400' FSL, 1400' FEL Unit O, Sec 2, T26S, R26E Eddy County, NM

COG Operating, LLC, proposes to drill the captioned well and make it into an open hole Devonian-Silurian-Ordovician SWD well from approximately 13100' to 14600'.

- V. Map is attached.
- VI. No wells within the ½ mile radius area of review penetrate the proposed injection zone.
- VII. 1. Proposed average daily injection rate = 7000 BWPD Proposed maximum daily injection rate = 20,000 BWPD
 - Closed system
 - 3. Proposed maximum injection pressure = 2620 psi (0.2 psi/ft. x 13100' ft.)
 - 4. Source of injected water will be Delaware Sand, Bone Spring and Wolfcamp produced water. No compatibility problems are expected (we've seen no compatibility issues in a Devonian SWD located in Sec.16-26s-28e that takes the same produced water as the proposed SWD well). Analyses of Delaware, Bone Spring and Wolfcamp waters are attached. There are no Devonian-Silurian-Ordovician receiving formation water analyses available in this area.
- VIII. The injection zone is the Devonian-Silurian-Ordovician from 13100' to 14600' which is composed of porous limestone and dolomite. Any underground water sources will be shallower than 300' based on surface casing setting depth.
 - IX. The Devonian-Silurian-Ordovician injection interval will be acidized with approximately 40,000 gals of 20% HCl acid.

 Colors for solution process for the potential will be acidized with approximately 40,000 for HC potential will be acidized with approximately 40,000 gals of 20% HCl acid.
 - X. Well logs if run, will be filed with the Division. There are no nearby well logs available for the Devonian-Silurian-Ordovician section.
 - XI. There are no fresh water wells within a mile or the proposed SWD well.
- XII. After examining the available geologic and engineering data, no evidence was found of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Proof of Notice is attached.

III.

WELL DATA

Side 1 INJECTION WELL DATA SHEET									
OPERATOR: COG Operating, LLC									
WELL NAME & NUMBER: Cottonwood 2 State SWD No. 1									
WELL LOCATION: 400' FSL 1400' FEL		2	265	26e					
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE					
<u>WELLBORE SCHEMATIC</u>		WELL CO! Surface Ca	NSTRUCTION DATA asing	<u>4</u>					
	Hole Size: 26"		Casing Size: 20"	e ±300'					
	Cemented with:	sx.	or ± 900	ft ³					
C D and Wallborn Coloniation	Top of Cement: Gov Fa	? a	Method Determined	Design					
See Proposed Wellbore Schematic		Intermediate	Casing 5						
	17½" Hole Size: 12½"		/3 ³ /8' Casing Size: 9 ⁵ /8"	e ± 1950'					
	Hole Size: 12/7		$\begin{array}{c} \pm 2700 \\ \text{or} \\ \pm 3400 \end{array}$	<u>e - 0 100</u>					
	Cemented with:	SX.	or <u>± 3400</u>	tt					
	Surface Top of Cement: 1500		Method Determined	: Design					
		<u>Production</u>	Casing (Liner)						
	Hole Size: 83/4"		Casing Size: 7"/	ner ± 8400 - 13 lo					
	Cemented with:	sx.	or ± 1050	ft ³					
	Top of Cement: Top of 1	iner	Method Determined	: Design					
	Total Depth: <u> </u>								
		Injection Ir	<u>nterval</u>						
61/8" Open t	tole ± 13,100'	feet	to ± 14600'						

(Perforated or Open Hole) indicate which)

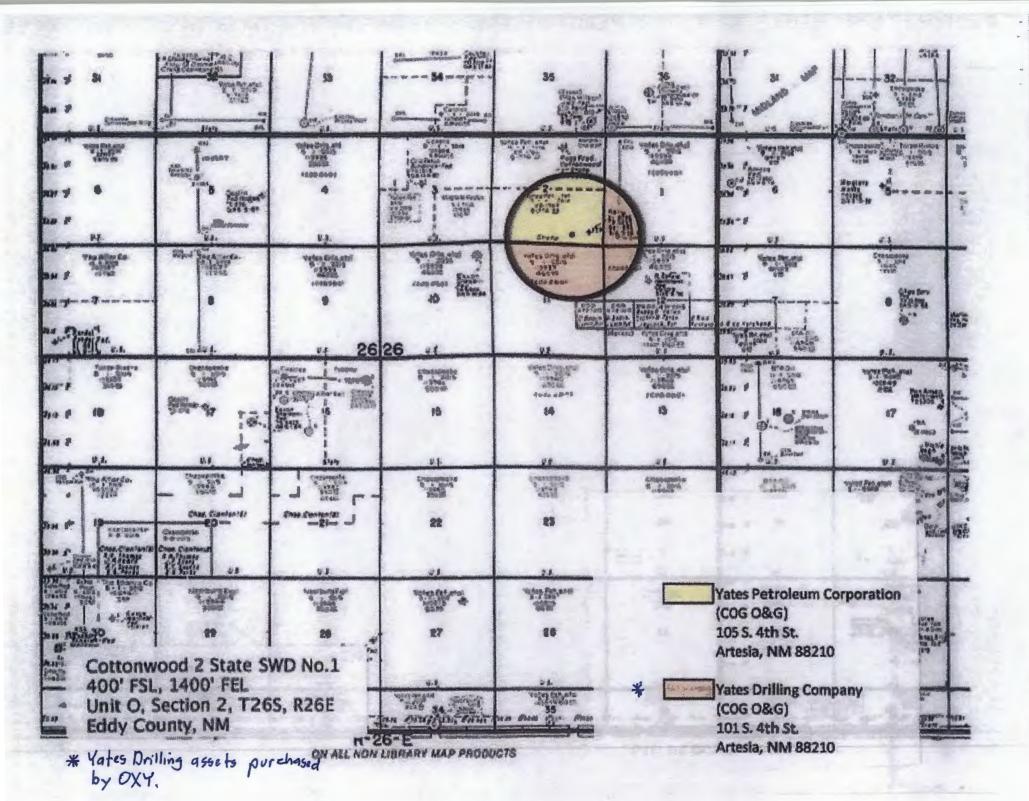
INJECTION WELL DATA SHEET

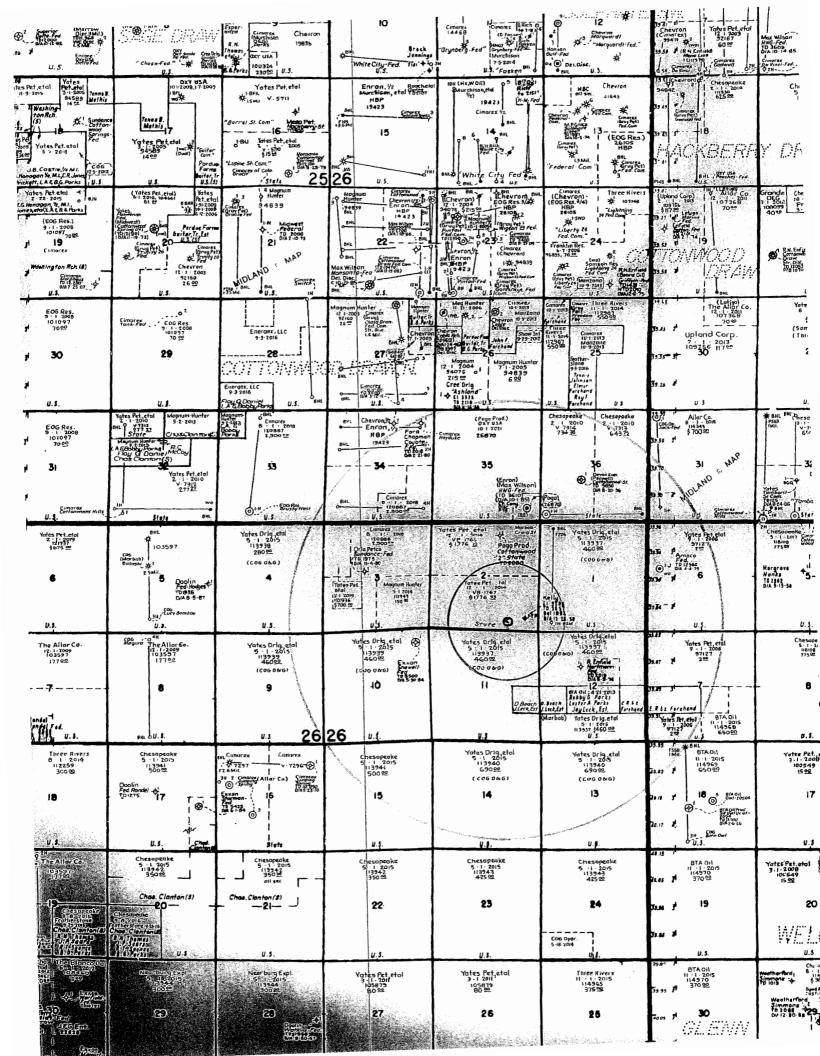
Γuł	bing Size: 41/2" Lining Material: 6 lassbore or Dudine 20
Ty]	pe of Packer: Nickel plated IDK double grip retrievable
	cker Setting Depth: ± 13050'
Otl	her Type of Tubing/Casing Seal (if applicable):
	Additional Data
l.	Is this a new well drilled for injection?YesNo
	If no, for what purpose was the well originally drilled?
2.	Name of the Injection Formation: <u>Devenian-Silvrian-Ordovician</u>
3.	Name of Field or Pool (if applicable): Cotton wood Draw
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.
5.	Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
	Underlying: None
	Overlying: Delaware 1855-5180't Bone Spring 6050-7800':
	Overlying: Delaware 1855-5180't, Bone Spring 6050-7800': Wolfcomp 9500't, Strawn 10259-10412't Atoka 11342-11354't, Morrow 11592-12263't
	Atoka 11342-11354'+ , Morrow 11592-12263'+

CoHonwood 2 State SWD L 30-015-400' FSL, 1400' FEL 0-2-269-26e Eddy NM / / e ± 300' ± 900 CF cmt. 17/21 TOC 1500' Design 113%"/ / @ ± 1950' ± 2700 CF cmt 121/21 Proposed Well Bore Schematic 41/2" Inj. Tbg. 95/8" / / @ = 8700' = 3400 CF comf 24 Inj Pkr + 13050' 7"/ / / Liner = 8400'- = 13100' = 1050 CF ent. 612" Devonian Silurian Ordovician
OH Inj. Interval ± 13100 , - ± 14600 , ± 14600'

V.

MAP





VII.

Water Analysis Produced and Receiving Formation Water

										The second secon		
VATER SAMPLE	ES REPRESENTATIVE OF V	WATER BEING INJE	CTED INTO THE	PROPOSE	SWD WELL					1		
Delaware					A STATE OF THE STA				:	to a company of the contract of		de
Lab Test #	Lease	Location	Salesman	Date Out	Sample Date	Specific Gravity	Ionic Strength	TDS	рΗ	conductivity	Ca (mg/L)	Mg (mg/L
2011128362	Sly Hawk State	1	William D Polk	9/28/2011	9/13/2011	1.17	4.06	256802.26	6.50		26180.00	4101.14
one Spring			-	1			1	:		÷		7
Lab Test #	Lease	Location	Salesman	Date Out	Sample Date	Specific Gravity	Ionic Strength	TDS	pН	conductivity	Ca (mg/L)	Mg (mg/L
2012108003	Boyles	24 1H	William D Polk	4/16/2012	4/3/2012	1.13	3.41	206441.81	6.69		3700.86	841.87
Wolfcamp			-	1			 	:		1		THE RESIDENCE OF THE PARTY OF THE PARTY.
Lab Test #	Lease	Location	Salesman	Date Out	Sample Date	Specific Gravity	Ionic Strength	TDS	pН	conductivity	Ca (mg/L)	Mg (mg/L
2012105892	Augustus 10	1H	:	3/15/2012	3/8/2012	1.06	1.46	89771.55	6.60		3963.30	639.83

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					i .										:
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		er a what are see that a construction of a state for a see						A	A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-						
11/0-000		1/ //1 \				2 (//)			110000 (/1)	000/_//	011	5644 #	01//		
								Resistivity	HCO3 (mg/L)						H25 (mg/L)
83379.63	62970.16	1133.12	38.78	20.06	1.64	905.03	9.33		73.00	0.00	in the second	70.00	161300.00	360.00	0.00
H (CaCO3)	Na (mg/L)	K (mg/L)	Zn (mg/L)	Fe (mg/L)	Ba (mg/L)	Sr (mg/L)	Mn (mg/L)	Resistivity	HCO3 (mg/L)	CO3 (mg/L)	OH (mg/L)	SO4 (mg/L)	CI (mg/L)	CO2 (mg/L)	H2S (mg/L)
13271.35	69386.15	1109.30	0.00	17.57	0.00	483.07	0.00		1403.00	0.00		700.00	128800.00	400.00	0.00
										000/ //					
H (CaCO3)	Na (mg/L)	K (mg/L)	Zn (mg/L)	Fe (mg/L)	Ba (mg/L)	Sr (mg/L)	Mn (mg/L)	Resistivity	HCO3 (mg/L)	CO3 (mg/L)	OH (mg/L)	SO4 (mg/L)	CI (mg/L)	CO2 (mg/L)	H2S (mg/L)
13352.51	28320.32	350.70	0.00	17.85	1.77	707.79	0.00		220.00	0.00		950.00	54600.00	60.00	0.00

XI.

Fresh Water Sample Analyses



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(R=POD has been replaced

and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)

C=the file is closed)

(quarters are smallest to largest) (NAD83 UTM in meters)

(acre ft per annum)

Sub

basin Use Diversion Owner

County POD Number

Code Grant

Source 6416 4 Sec Tws Rng

qqq

WR File Nbr C 00974

3 CARLSBAD CITY SCHOOLS

3 35 25S 26E

ED C00974 Location not correct.

Actually in 3-5635-215-260

Record Count: 1

PLSS Search:

Section(s): 34, 35, 36

Township: 25S

Range: 26E

Sorted by: File Number

*UTM location was derived from PLSS - see Help

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

4





146596 REVISED FEBRUARY 1969

(EXECUTE IN TRIPLICATE ACCOMPANIED BY \$1.00 FILING FEE)

462188

APPLICATION FOR PERMIT TO REPAIR OR DEEPEN WELL

		B-	974	STEEL STEEL
Date	Received July 28; 1986	File No. (C-974		-
1.	Name of Water Right Owner Carlsbad Municipal S	chools		- 59
	Mailing address 408 No. Canyon St. City and State Carlsbad, NM 8	8220		139
	City and State	0220		
2.	Describe well location under one of the following subheading	S:		20
	8 % SW % of Sec. 35	Twp,21	_ Rge 26 E N.	M. P. M. in
	Eddy County.			
	b. Tract No of Map No	of the		District.
	c. Lot No of Block No of	the	Subdivision,	of record in
	County,			
3,	Source of supplynon-artesian	artesian or non-arte		
,	air conditioning cool		SIBN)	n. rnosoo
4.	Right was acquired for Conditioning Cool			_ purposes.
5,	Type of repair contemplated: a. [X] Clean out we from to feet c. [X] OtherS	ell to original der ee explanation	oth b in #7 below	Deepen well
6.	Name of driller, if known: Woody's Welding ε	Winch Service		
7.	Additional statements or explanations: There were tw	vo wells drille	d at the same	time in
,-	1961. One was a supply well and the other	<u>er was a disch</u>	<u>narge well. We</u>	were
	having pump problems and when pulled for casing problem or some other obstruction	und the supp In cons	oly well has eit	<u>ner a</u> r engineer
	we feel that the best solution may be to s	witch the use	of the two wel	ls. We
	wish to run a test pump on the discharge water. We do not think we will need to cl	well and poss	sibly use it for	supply
	water. We do not tritik we will field to ch	ear the well a	110 11 15 500 0	ecp.
			1000	<u> </u>
				>
			(71 - 22	
			77. 77.	75
			1 (1) (1) **(1) (7) (1)	
_			<u> </u>	
1,_	DON G. FISHER affirm that the foreg			ny Khowledge
and	belief and that development shall not commence until approve	al of the permit ha	s been obtained.	ω
	Library Manager Calenda			
Car	Isbad Municipal Schools , Applicant			
Ву:	Var Sicher	Date	July 25, 1986	<u> </u>
	ACTION OF STATE B	NGINEER		
Thi	s application is approved for the work indicated, subject to			
	heredon the reverse side k specified is completed and the well record filed on or befor			expire unless
S. I	Reynolds, State Engineer:			
	0.11.51			
	By: Miller Miller			
	Delbert W. Nelson			
	Assistant District II Supervisor Date: August // , 1986	FILE NO.:		
	Date.			
		LOG FILED:		



New Mexico Office of the State Engineer Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 34, 35, 36

Township: 25S

Range: 26E



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

No PODs found.

PLSS Search:

Section(s): 1, 2, 3

Township: 26S

Range: 26E

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



New Mexico Office of the State Engineer Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 1, 2, 3

Township: 26S

Range: 26E



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(R=POD has been replaced

and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)

(Too many cattle present to allow water sampling at windmill ...)

C=the file is closed)

(quarters are smallest to largest) (NAD83 UTM in meters)

Sub

WR File Nbr ba

basin Use Diversion Owner

(acre ft per annum)

K 3 DORIS & OWEN

County POD Number

mber Code Grant

Frant

Source 6416 4 Sec Tws Rng

. . .

..........

C 02438

STK

3 DORIS & OWEN CARLETON

ED C 02438

Slightly greater than I mile away.

4 2 3 12 26S 26E

15 3546705*

Record Count: 1

PLSS Search:

Section(s): 10, 11, 12

Township: 26S

Range: 26E

Sorted by: File Number

*UTM location was derived from PLSS - see Help



New Mexico Office of the State Engineer Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number

Q64 Q16 Q4 Sec Tws Rng

Х

Υ

C 02438

4 2 3 12 26S 26E

571015 3546705*

Driller License:

Driller Name:

Drill Start Date:

Drill Finish Date:

12/31/1945

Plug Date:

Log File Date:

PCW Rcv Date:

Source:

Pump Type:

Pipe Discharge Size:

Estimated Yield:

Casing Size:

3.00

Depth Well:

30 feet

Depth Water:

*UTM location was derived from PLSS - see Help



New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a (R=POD has been replaced, O=orphaned,

C=the file is

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

closed)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD

Sub-

2 Q Q

Depth Depth Water

POD Number

water right file.)

Code basin County 64 16 4 Sec Tws Rng

71015 25

Well Water Column

C 02438

ED 4 2 3 12 26S 26E

571015 3546705*

30

Average Depth to Water:

Minimum Depth: --

Maximum Depth:

Record Count: 1

PLSS Search:

Section(s): 10, 11, 12

Township: 26S

Range: 26E



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

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy County, New Mexico

luch.

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 the newspaper publication and all certified return receipts, I will send you a copy.

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

Sincerely,

Brian Collins

Senior Operations Engineer



Oil Conservation Division Attn: Richard Inge 811 South 1st St. Artesia, NM 88210

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy County, New Mexico

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Sincerely,

Brian Collins

Senior Operations Engineer



New Mexico State Land Office 310 Old Santa Fe Trail, Santa Fe, NM 87501

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy 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 an operator or surface owner. 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.

This well will not be a commercial SWD well. Please do not hesitate to contact us at 575-748-6940 should you have any questions.

Sincerely,

Brian Collins

Senior Operations Engineer

BC/bg Enclosures ppler



Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy County, New Mexico

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

Sincerely,

Brian Collins

Senior Operations Engineer



OXY-Y-1 Co. P.O. Box 27570 Houston TX, 77227-7570

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy County, New Mexico

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

Sincerely,

Brian Collins

Senior Operations Engineer



OXY, USA, Inc. P.O. Box 4294 Houston TX, 77210-4294

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy County, New Mexico

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

Sincerely,

Brian Collins

Senior Operations Engineer

Meh



Artesia Daily Press P. O. Box 190 Artesia, NM 88211-0190

Re: Legal Notice

Salt Water Disposal Well
Cottonwood 2 State SWD #1

To Whom It May Concern:

Enclosed is a legal notice regarding New Mexico Oil Conservation Division C-108 Application for Authorization to Inject for a salt water disposal well.

Please run this notice and return the proof of notice to the undersigned at:

COG Operating LLC, 2208 W. Main St., Artesia, NM 88210

Sincerely,

Brian Collins

Senior Operations Engineer

ARTESIA DAILY PRESS LEGAL NOTICES

COG Operating LLC, 2208 W. Main Street, Artesia, NM 88210 has filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Cottonwood 2 State SWD No. 1 is located 400' FSL & 1400' FEL, Section 2, Township 26 South, Range 26 East, Eddy 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-Ordovician formation at a depth of 13100' to 14600' at a maximum surface pressure of 2620 psi and a maximum rate of 20,000 BWPD. The proposed SWD well is located approximately 9 miles southeast of White's City. Any interested party who has an objection to this must give notice in writing to the Oil Conservation Division, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505, within fifteen (15) days of this notice. Any interested party with questions or comments may contact Brian Collins at COG Operating LLC, 2208 W. Main Street, Artesia, NM 88210, or call 575-748-6940.

Published in the Artesia	Daily Press,	Artesia,	New N	1exico
	, 2014.			





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

RE: Application For Authorization To Inject

Cottonwood 2 State SWD #1

Township 26 South, Range 26 East, N.M.P.M.

Section 2: 400' FSL & 1400' FEL Eddy 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 the newspaper publication and all certified return receipts, I will send you a copy.

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

Sincerely,

Brian Collins

Senior Operations Engineer

Affidavit of Publication

State of New Mexico County of Eddy: Danny Scott being duly sworn, sayes that he is the Publisher of the Artesia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto attached **Legal Notice** was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for Consecutive weeks/day on the same day as follows: February 19, 2014 First Publication Second Publication Third Publication Fourth Publication Fifth Publication Subscribed ans sworn before me this 19th day of February 2014 OFFICIAL SEAL atisha Romine OTARY PUBLIC-STATE OF NEW MEXICO My commission expires:

Latisha Romine

Notary Public, Eddy County, New Mexico

Copy of Publication:

LEGAL NOTICE

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SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
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: Yates Petroleum Corporation 105 South 4th Street Artesia, NM 88210 Cottonwood 2 State SWD #1 C108	A. Signisture X	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 malipiece, or on the front if space permits. 1. Article Addressed to: New Mexico Oil Conservation Division Attn: Phillips Goetze 1220 South St. Francis Drive Santa Fe, NM 87505 Cottonwood 2 State SWD #1 C108	A. Signature X. Addressed B. Received by (Printed Name) C. Date of Delivery D. Its delivery address different from fign. 1? Yes If YES, enter delivery didness by by No FEB 1 8 2014 3. Service Type D. Certified Mail: Registered Registered Registered Registered Registered Registered Registered Registered Registered Yes Restricted Delivery? (Extra Fee) Yes
(transfer from service label)	eturn Receipt	PS Form 3811, July 2013 Domestic Re	turn Receipt
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Thatsia non service receip	D. la delivery address different inputern 13 12 Tests. 3. Service Type Gettined Mail* Priority Mail Exprese** Prio	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. Article Addressed to: Oil Conservation Division Attn: Richard Inge 811 South 1 st Street Artesia, NM 88210 Cottonwood 2 State SWD #1 C108	A. Signature Addresse B. Received by (Printed Name) C. Date of Delivery C. Date of Delivery If YES, enter delivery address below: No 3. Septice Type Contribed Mail* Priority Mail Express* Received Return Receipt for Morchandles Instruct Mail Collect on Delivery 4. Restricted Delivery? (Extra Fee) Yes COLUMN STATES S
	A CANADA	Life to the second seco	
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 mailplece, or on the front if space permits.	A. Signature Addressee A. Signature A. Si	SENDER: COMPLETE THIS SECTION Complete Items 1, 2, and 3. Also complete Item 4 if Restricted Delivery is desired, Print your rame and address on the reverse so that we can return the card to you. Attach this card to the back of the mailplece, or on the front if space permits.	A. Signature A. Signature A. Signature Addressee B. Received by (Printed Name) C. Date of Delivery D. Is delivery address different from Item 1? If YES, enter delivery address below:
OXY Y-1 Co. PO Box 27570 Houston, TX 77227-7570 Cottonwood 2 State SWD #1 C108	3. Servjoe Type Certified Mail* Priority Mail Express* Registered Return Receipt for Merchandise Insured Mail Collect on Delivery 4. Restricted Delivery? (Extra Fee) Yes	New Mexico State Land Office 310 Old Santa Fe Trail Santa Fe, NM 87501 Cottonwood 2 State SWD #1 C108	3. Sepide Type 3. Sepide Type □ Priority Mail Express* □ Registered □ Return Receipt for Merchandise □ Inaured Mail □ Collect on Delivery 4. Restricted Delivery? (Extra Fee) □ Yes
2. Article Number 7013	3020 0000 8750 3942	2. Article Number 7013	3020 0000 8750 3928
(Transfer from service label)	Return Receipt	PS Form 3811, July 2013 Domestic Re	eturn Receipt

C-108 Review	/ Checklist: Re	O2/8/14 Add. Reques	st:	Reply Date:	Suspended: [Ver 13]			
		umber: 1473 Permi						
Well No Well Name(s	s): Cottonwo	ood 2 State S	aw					
API: 30-0 15- Tending		_		New (UIC Class II	Primacy 03/07/1982)			
Footages 400 FSL 1400	FEL Lot_	or Unit <u>0</u> Sec 2	_Tsp2	65 _{Rge} 26E	County Eddy			
General Location: 6 m Nof TX b								
BLM 100K Map: Carlsbad	Operator: COC	Operating LLC	OGRID	: 229137 Contac	Brian Collins			
COMPLIANCE RULE 5.9: Total Well	s: <u>3677</u> Inactiv	ve:(0 Fincl Assur:_\e_	compl.	Order? NO IS 5	houls up-not violated 9 OK? Yes Date: Highway			
WELL FILE REVIEWED OF Current	Status: New u	vell-pending API	number	/ no C·103, fil	ed 7/10/2017			
WELL DIAGRAMS: NEW: Proposed	or RE-ENTER:	Before Conv. After Co	onv. 🔘 L	ogs in Imaging: None	e-proposal doesnt			
Planned Rehab Work to Well:	A new well;	deep formations	for inju	ection interval	ae a log suite			
Well Construction Details:	Sizes (in) Borehole / Pipe	Setting Depths (ft)		Cement Sx of Cf	Cement Top and Determination Method			
Planned Vor Existing _Surface	4.100	0 60 300	Stage Tool	9084	Cir to Surface			
Planned_vor Existing Interm/Prod	17/2/13/8	0 to 1950	None	270034	cir to Surface			
Planned_fr Existingtntern/Prod		0 6 8700	None	3400	1300 (Catc)			
Planned or Existing Prod Liner	415.50	8400 to 13100	None	1050	100 of Liver (Calc)			
Planned_or Existing Liner	7.			1				
Planned or Existing OH PERF	6//8	13100 to 14600	Ini Length	Completion	/Operation Details:			
Injection Stratigraphic Units:	Depths (ft)	Injection or Confining Units	Top s ∯	Drilled TD	4.4			
Adjacent Unit: Litho. Struc. Por.		Mississipping	*	NEW TD <u>/ 14600</u>	NEW PBTD _ NA			
Confining Unit: Litho. Struc Por.	*	Woodford 8h	*		or NEW Perfs O			
Proposed Inj Interval TOP:		Devonion 13352	130	•	in. Inter Coated? Yes			
Proposed Inj Interval BOTTOM:	1,000	Sil /ord	TBD		epth <u>13050</u> ft			
Confining Unit: Litho. Struc. Por. Adjacent Unit: Litho. Struc. Por.		reway be	< 4600		13000 (100-ft limit) face Press. 2620 psi			
AOR: Hydrologic a			22	4 '	2620 (0.2 psi per ft)			
POTASH: R-111-P Noticed? No			A SALT					
FRESH WATER: Aquifer								
NMOSE Basin: Outsbad		y						
Disposal Fluid: Formation Source(s	s) Delaware/y	IC/Bone Sormanalysis	? Yes	On Lease () Operat	or Only or Commercial			
Disposal Int: Inject Rate (Avg/Max	BWPD): 7000/2	0000 Protectable Water	s?Dis	purce: Need Info s	ystem: Closed or Open			
Disposal Int: Inject Rate (Avg/Max BWPD): 7000/2000 Protectable Waters? Probabilities Spurce: Need Two System: Closed For Open O HC Potential: Producing Interval? No Formerly Producing? No Method: Logs/DST/P&A/other Need Tyo 2-Mile Radius Pool Map								
AOR Wells: 1/2-M Radius Map? Ves Well List? NA Total No. Wells Penetrating Interval: Horizontals?								
Penetrating Wells: No. Active Wells Num Repairs? on which well(s)? Diagrams?								
Penetrating Wells: No. P&A Wells				01 A	Diagrams? N/Y			
NOTICE: Newspaper Date 02 19	.*		_	Owner_SLO	N. Date 02 //8/14			
RULE 26.7(A): Identified Tracts?				1	N. Dat 02/18/14			
Permit Conditions: Issues:	unknown Wg	or injection zone;	new wel	I no log suite	poposea			
Add Permit Cond: Loas	restamated.	tops & SalinityAn	ulcj (100 jor 100s;	Tops pichea			

Goetze, Phillip, EMNRD

From: Brian Collins <BCollins@concho.com>

Sent: Wednesday, April 09, 2014 5:36 PM

To: Goetze, Phillip, EMNRD
Cc: Ward Whiteman

Subject: RE: COG C108 and Request for Higher Injection Pressure Letter Questions

Phillip:

I'm curious why the Ellenburger is excluded as a permissible disposal interval? Answers to your questions follow below.

There's very little deep well control in this area, but here's our geologist's projected picks for the two deep wells:

Pine Springs 2 State SWD 1 Devonian/Silurian/Ordovician (12450-14000') Sec 2-26s25e:

Devonian-12630' Fusselman (Silurian)-13060' Ellenburger (Ordovician)-14180'

I applied for an injection interval a little higher than the estimated top of Devonian and into the Silurian to account for geologic uncertainty and to ensure we cut plenty of dolomite for better permeability. Calling this formation the Devonian/Silurian/Ordovician was what Will Jones recommended a few years ago on these deep applications since we were likely penetrating the Silurian on "Devonian" SWDs.

Cottonwood 2 State SWD 1 Devonian/Silurian/Ordovician (13100-14600') Sec 2-26s-26e:

Devonian-13332' Fusselman (Silurian)- not picked Ellenburger (Ordovician)-not picked

I applied for an injection interval a little higher than the estimated top of Devonian and into the Silurian to account for geologic uncertainty and to ensure we cut plenty of dolomite for better permeability. I applied for a 1500' thick open hole disposal interval the same as the Pine Springs well shown above with the top reference depth 200'+ shallower than the projected top of the Devonian. This should put us into the Silurian at TD.

Our proposed total depths should keep us well above the Ellenburger. Our 7" casings will be set into the actual top of the Devonian on each well. Applying for the shallower top of the injection interval will keep us from having to re-permit in case the Devonian comes in a little shallower than projected. I've no problems if you want to issue the permit as Devonian/Silurian instead of Devonian/Silurian/Ordovician. Hope this answers your questions. Please call or email if you have any more questions. Thank you.

Brian Collins

Senior Operations Engineer NM Basin Team

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