STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

APPLICATION FOR AUTHORIZATION TO INJECT

I.	PURPOSE:Secondary RecoveryPressure MaintenanceX_DisposalStorage
I I .	OPERATOR: COG Operating, LLC
-	ADDRESS: 550 West Texas, Suite 100, Midland, TX 79701
	CONTACT PARTY: Mark A. FairchildPHONE: 432-686-3021
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
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,
- 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.

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- *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: Mark A. Fairchild

_TITLE: Senior Ops. Engineer DATE: 8/31/2010

SIGNATURE: Mark a. Fairchild

E-MAIL ADDRESS: MFairchild@conchoresources.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

ATT444111.txt

P.O. Box 4463 Midland, TX 79701 Ph: (432) 349-4729 Fx: (432) 262-5723 email: tye@orr-properties.com website: www.orr-properties.com

Jones, William V., EMNRD

From: Sent: To: Subject: Attachments: tyeorr@hotmail.com on behalf of Tye Orr [tye@veritas321.com] Monday, October 04, 2010 2:34 PM Jones, William V., EMNRD C-108 Application PastedGraphic-1.tiff; ATT425358.txt

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Will,

I recently submitted a C-108 application for COG for the Skelley Federal 28 SWD #1 and forgot to scan a copy of the entire application all put together for my file and my clients. Is there any way possible for you or someone to fax me over a copy of the entire application I sent you? Please let me know. If so, please fax to the number shown below. Thanks.

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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.



Wellbore Diagram

TON WELL DATA SHEET	L		
v Dow "B" 28 Federal #1)			
D	20	170	015
UNIT LETTER	28 SECTION	TOWNSHIP	RANGE
<u>WELL CONSTRUCTION DATA</u> Surface Casing			
Hole Size: 14"		Casing Size:_11 ¾'	"_@_614'
Cemented with: 450	sx.	or	ft ³
Top of Cement: Circ.		Method Determined	d: Visual
	<u>Intermedia</u>	te Casing	
Hole Size: 11"		Casing Size:_8 5/8'	"_@_5,040'
Cemented with: 3000	sx.	or	ft ³
Top of Cement: Circ.		Method Determined	d: Visual
	Production	n Casing	
Hole Size: 7 7/8"		Casing Size:_5 ½"	_@_12,725'
Cemented with: 2300	sx.	or	ft ³
Top of Cement: 6900'_		Method Determined	l: Unk
Total Depth: _12,725			
	Injection	Interval	
	fee	t to	
	rion well data sheet y Dow "B" 28 Federal #1) P	P 28 y Dow "B" 28 Federal #1) P 28 UNIT LETTER SECTION WELL CONSTR Surface Hole Size: 14" Cemented with: 450 Top of Cement: Circ. Intermedia Hole Size: 11" Cemented with: 3000 sx. Top of Cement: Circ. Production Hole Size: 7 7/8" Cemented with: 2300 sx. Top of Cement: 6900' Total Depth: _12,725 Injection	flon well DATA SHEET y Dow "B" 28 Federal #1) P28175 UNIT LETTER SECTION <i>Well CONSTRUCTION DATA</i> Surface Casing Hole Size: 14" Casing Size:_11 ¾ Cemented with: 450 sx. or

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(Perforated or Open Hole; indicate which)

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Pa	cker Setting Depth: within 100' of top perforation				
Ot	her Type of Tubing/Casing Seal (if applicable):				
	Additional Data				
1.	Is this a new well drilled for injection?YesYesY				
	If no, for what purpose was the well originally drilled?				
	Gas production				
2.	Name of the Injection Formation: Wolfcamp				
3.	Name of Field or Pool (if applicable): N/A SWD				
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.				
	Morrow_@11,764'- 92' interval will be plugged upon SWD approval.				
5.	Five the name and depths of any oil or gas zones underlying or overlying the proposed njection zone in this area:				
	Possible: Yeso @ ~5,700'; San Andres @ ~3,780'; Grayburg @ ~3,450'				



ATTACHMENT TO APPLICATION C-108

COG Operating Inc. Skelly Federal 28 SWD #1 Sec, 28, T-17-S, R-31-E Eddy County, NM

- III. WELL DATA See attached on reverse side of form as requested.
- V. MAP ATTACHED
- VI. LIST OF WELLS AND DATA ATTACHED.
- VII. PROPOSED OPERATIONS
 - 1. The injection volume will average 10,000-15,000 BWPD while the maximum

injection volumes are expected to be 20,000 BWPD.

- 2. This will be a closed loop system.
- 3. The average injection pressure will be on Vacumm while the maximum

injection pressure should not exceed 1,895 psig.

- 4. Analysis attached, only produced water.
- COG will swab the formation and recover fluid samples for analysis and reporting to NMOCD. Research disposal zone formation water and attach and chemical analysis.
- VIII. WORLFCAMP REEF FORMATION

The Wolfcamp reef section is a thick interval of carbonate reef buildup that has been diagenetically altered to dolomite, thus yielding intervals of significant secondary porosity with high permeability. Natural fracturing may also be present. Formation tops in this well are:

Quaternary: 0' Rustler: 907' Salado: 1,000' Yates: 2,220, Seven Rivers: 2,500' Oueen: 3,197' Grayburg: 3,566' San Andres: 3,940' Glorieta: 5,796' Paddock: 5,850' Bone Springs: 6,220' Tubb: 7,430' Drinkard: 7,489' Abo: 7,740' Upper Wolfcamp: 9,329' Lower Wolfcamp: 10,094' Total Depth: 12,725'

- IX. Large conventional acid job.
- X. Logging and test data will be run on the well once completed.
- XI. No fresh water found or recorded by state engineer or OCD.
- XII. The disposal formation will have several thousand feet of overburden on top of it. In these several thousands of feet of impermeable shale and evaporate zones of various thickness exits. These zones will stop any hydraulic communication between geologic strata.
- XIII. Notice (this application) has been sent to the surface owner (BLM) and leasehold operators of all wells within a half-mile along with a legal notice published in Eddy County as instructed.

COG SENM SWD Well Questionnaires Date: 9/15/10 By: Mark A. Fairchild, Office: 432-686-3021 Note: Answers to questions in this color

What will be the well name? Skelly Federal 28 SWD #1 API: 30-015-28676

What logs have been/will be run in the well? On 1/3/93 full suite of porosity and resistivity logs run

How will you re-enter/drill/convert the well? We will us a pulling unit to workover this well.

How will you test the mechanical integrity of the casing? A State of New Mexico supervised MIT test to 500 psig will be run on the tubing/casing annulus.

What size tubing do you plan to use? The tubing will be 3 1/2" Nominal OD.

How will lubing be internally lined? The tubing will be internally plastic coated.

What type packer will be used? A nickel plated compression set packer will be utilized.

Where will packer be set? Within 50 to 100' above top perf.

Will there be any other type of casing/tubing seal? No.

What is the fracture gradient? Approx 0.75

Will the well be stimulated? Yes

If yes, how will the well be stimulated? Large conventional acid job.

o what perforated intervals will you inject? Wolfcamp Reef, 9,350 to 9,583

What will be the average daily volume injected? 10-15,000 BWPD

What will be the maximum daily volume injected? 20, 000 BWPD

What will be the average injection pressure? Vacuum

What will be the maximum injection pressure? 1895 psig

Will water be trucked or piped to the well? Piped

What wells will dispose into it? Various wells owned exclusively by COG on our SWD water line system

Any non-COG wells? No outside operated water will be disposed of.

What surface facilities (e.g.; tanks, pumps, fifters) will be installed? 4 - 750 Bbi water storage tanks, 1 - 1,000 Bbi Gun Barrel 2 - 500 Bbi steel tanks, 1 - 400 BHP H pump

Do you have an analysis of the produced water you plan to inject? Yes

Do you have an analysis of the formation water into which you'll inject? No, these well are on a vacuum and do not produce.

How will the geology prevent migration into fresh water zones (e.g., thickness of shale or salt layers)? Various impervious geological barriers exist between the Wolfcamp and the surface.

C SCHARENCE BALL

-17. 11. P. P.

Y the system be open or closed? Closed

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<u>District 1</u> 1625 N. French Dr., Holbis, NM 88240 <u>District 11</u> 1301 W. Grand Avenue, Artevia, NM 88210 <u>District 111</u> 1000 Rio Brazos Rd., Aztec, NM 87410 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fc, NM 87505

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 October 15,2009 Submit one copy to appropriate District Office

AMENDED REPORT

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		W	ELL LO	CATIO	N AND ACR	EAGE DEDIC	ATION PLA	.T		
¹ API Number ² Pool Code				•	³ Pool Name					
¹ Property Code						roperty Name			² Welt Number	
		SKELLY FEDERAL "28" SWD						1		
OGRID	No.	⁴ Operator Name							⁹ Elevation	
22913	7	COG OPERATING LLC						3774.0		
¹⁹ Surface Location										
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	Соцяту	
P	28	17 S	31 E		1035.3	SOUTH	1228.6	EAST	EDDY	
"Bottom Hole Location If Different From Surface										
UL ar lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
² Dedicated Acres ¹¹ Joint or Infill ¹⁴ Consolidation Code ¹¹ 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.

NW CORNER SEC. 28 LAT. = 32'48'46.08"N LONG. = 103'52'59.71"W NMSP EAST (FT) N = 659721.75 E = 679611.39				¹⁷ OPERATOR CERTIFICATION 1 hereby certify drug the information contained herein is true and complete to the best of my hundredge and belacf, and that the argumentation enther unues a working interest or unleavest aniserul adversit in the back including the propertied bottom lack location or here or right to doubt this well as they be opposed bottom lack location to the or used bot that this well as they be compressed to constant lack location or here or the or and the
				છેલ્લાન છે. તે કે તે પ્રે પ્રે પ્રે પ્રે પ્રે પ્રે પ્રે પ્ર
	SKELLY FED. ELEV. = 3774.0 LAT. = $32^{\circ}48'04$ LONG. = $103'52$ NMSP EAST (FT) N = 655496.20 E = 683690.58	28" SWD #1 .105"N (NAD83) '12.139"W	E. O. CORNER SEC. 28 LAI. = $32'48'20.06'N$ LONC. = $103'51'57.76'W$ NMSP EAST (FT) N = 657114.66 E = 684910.49 SE CORNER SEC. 28 LAI. = $32'47'53.97'N$ LONG. = $103'51'57.74'W$ NMSP EAST (FT) N = 654476.75 E = 684924.71	Signature Date Printed Name ¹⁵ SURVEYOR CERTIFICATION 1 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 transaction of the field of the best of my belief. SEPTIMMENT 2011
SW CORNER SEC. 28 LAT. = $32'47'53.52'N$ LONG. = $103'52'59.43'W$ NMSP EAST (FT) N = 654408.51 E = 679857.75			SURFACE LOCATION	Date of Shirvey Line of the second s









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WELLS WITHIN AREA OF REVIEW THAT PENTRATE INJECTION ZONE

API #: 3001527675 Well_Name: DOW B 33 FEDERAL # 002 Location: -33-17.0S-31E, 660 FNL, 2310 FWL Lat:32.7965151255 Long:-103.875682106 Operator Name: V-F PETROLEUM INC County: Eddy Land Type: Federal Well Type: Gas Spud Date:10/24/1993 Plug Date: Elevation GL: 3754 Depth TVD: 12100

API #: 3001528140 Well_Name: SKELLY UNIT # 161 Location: -28-17.0S-31E, 1650 FSL, 2310 FWL Lat:32.8028643649 Long:-103.875703499 Operator Name: WISER OIL CO (THE) County: Eddy Land Type: Federal Well Type: Gas Spud Date:11/27/1994 Plug Date:12/29/2001 Elevation GL: 3771 Depth TVD: 12080

WELLS WITHIN AREA OF REVIEW THAT DO NOT PENETRATE INJECTION ZONE

API #: 3001529240 Well_Name: SKELLY UNIT Property Number.: 285 Location: H-28-17.0S-31E, 2606 FNL, 1173 FEL Lat: 32.8056675568 Long:-103.869910316 Operator Name: WISER OIL CO (THE) County: Eddy Land Type: Federal Well Type: Oil Spud Date: Plug Date: Elevation GL: 3787 Depth TVD: 0

API #: 3001505441 Well_Name: SKELLY UNIT # 095 Location: H-28-17.0S-31E, 1980 FNL, 660 FEL Lat:32.8073897937 Long:-103.868237789 Operator Name: SANDRIDGE EXPLORATION AND PRODUCTION, LLC County: Eddy Land Type: Federal Well Type: Injection Spud Date:12/29/1959 Plug Date: Elevation GL: 3803 Depth TVD: 3783

API #: 3001529210 Well_Name: SKELLY UNIT # 274 Location: G-28-17.0S-31E, 1443 FNL, 1462 FEL Lat:32.8088632278 Long:-103.870864776 Operator Name: SANDRIDGE EXPLORATION AND PRODUCTION, LLC County: Eddy Land Type: Federal Well Type: Oil Spud Date:11/20/1996 Plug Date: Elevation GL: 3801 Depth TVD: 3950

API #: 3001522265 Well_Name: SKELLY UNIT # 131 Location: G-28-17.0S-31E, 1880 FNL, 1880 FEL Lat: 32.8076607107 Long:-103.872228166 Operator Name: SANDRIDGE EXPLORATION AND PRODUCTION, LLC

County: Eddy

Land Type: Federal Well Type: Oil Spud Date: 9/17/1977 Plug Date: Elevation GL: Depth TVD: 2600

API #: 3001504884 Well_Name: SKELLY UNIT # 094

Location: G-28-17.0S-31E, 1980 FNL, 1980 FEL Lat:32.8073855207 Long:-103.872554372

Operator Name: SANDRIDGE EXPLORATION AND PRODUCTION, LLC **County:** Eddy

Land Type: Federal Well Type: Injection Spud Date: Plug Date: Elevation GL: 3800 Depth TVD:

API #: 3001529314 Well_Name: SKELLY UNIT # 284

Location: J-28-17.0S-31E, 2586 FSL, 2535 FEL Lat:32.8054382019 Long:-103.874363585

Operator Name: SANDRIDGE EXPLORATION AND PRODUCTION, LLC **County:** Eddy

Land Type: Federal Well Type: Oil Spud Date: 1/21/1997 Plug Date: Elevation GL: 3763 Depth TVD: 4025

API #: 3001522533 Well_Name: SKELLY UT Property Number.: 155 Location: K-28-17.0S-31E, 2130 FSL, 1980 FWL Lat:32.8041827686 Long:-103.876787323 Operator Name: TEXACO EXPLORATION & PRODUCTION INC County: Eddy

Land Type: Unknown Well Type: Oil Spud Date:1/1/1900 1 Plug Date:1/1/1900 1

Elevation GL: 0 Depth TVD: 0

API #: 3001504829 Well_Name: SKELLY UT Property Number.: 099 Location: K-28-17.0S-31E, 1980 FSL, 1980 FWL Lat:32.8037704807 Long:-103.876785862 Operator Name: TEXACO EXPLORATION & PRODUCTION INC County: Eddy Land Type: Unknown Well Type: Oil Spud Date:1/1/1900 1 Plug Date:1/1/1900 1

Elevation GL: 0 Depth TVD: 0



New Mexico Office of the State Engineer Point of Diversion by Location

No PODs found. **POD Search:** POD Basin: Roswell Artesian **PLSS Search:** Township: 17S Section(s): 28 Range: 31E (Within mile of location)

he 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, sliability, usability, or suitability for any particular purpose of the data