	13/12 SUSPENSE ENGINEER WVJJ 11/2/12 THESWD PAKUR 1223029759
REVIS (1/2 Janour	ABOVE THIS LINE FOR DIVISION USE ONL ABOVE THIS LINE FOR DIVISION USE
	ADMINISTRATIVE APPLICATION CHECKLIST
1	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
Аррі	lication 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]	[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response] TYPE OF APPLICATION - Check Those Which Apply for [A] [A] [A] Location - Spacing Unit - Simultaneous Dedication [A] NSL [A] NSP [B] NSP [Check One Only for [B] or [C] [Check One Only for [B] or [C]
	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
	[D] Other: Specify
[2]	NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply [A] Uvrking, 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

[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.

Alle in

BRIAN COLLINS Print or Type Name

Signature

SENIOR OPERATIONS ENGINEER Title

<u>240c+12</u> Date

bcollins@concho.com e-mail Address



October 29, 2012

RECEIVED OCD 2012 NOV - 2 P 12: 14 -

New Mexico Oil Conservation Division Attn: William V. Jones 1220 South St. Francis Drive Santa Fe, NM 87505

RE: <u>Revised C-108/Affidavit/Return Receipts/Lease Map</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

Dear Mr. Jones:

COG Operating LLC recently submitted an application for authorization to inject for the Gunner 16 State SWD #1 on August 10, 2012. Enclosed, for your review, please find a revised C-108 Application along with a copy of OXY Y-1 Company's notification letter. Please also find one copy of the affidavit of publication and one copy of the certified return receipt from each party that was notified. Also enclosed is a lease map identifying all of the separately owned tracts of land along with the owners of each tract.

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

Sincerely,

ulle.

Brian Collins Senior Operations Engineer

BC/sw Enclosures

PHONE 432.683.7443 FA

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

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:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:PHONE:
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).
*XI.	Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
XII.	Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
XIII.	Applicants must complete the "Proof of Notice" section on the reverse side of this form.
XIV.	Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
	NAME: BRIAN COLLINS
	SIGNATURE: DATE: 240ct 12
	E MAU ADDRESS, healling@eenche.com

E-MAIL ADDRESS: <u>bcollins@concho.com</u>

* 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 GUNNER 16 STATE SWD #1 Unit D, Sec 16 T26S R34E Lea County, NM

COG Operating, LLC, proposes to drill the captioned well to 7000' for salt water disposal service into the Delaware Sand from 6000' to 6900'. An APD will be submitted upon approval of this C-108.

- V. Map is attached.
- VI. No wells within the $\frac{1}{2}$ mile radius area of review penetrate the proposed injection zone.
- VII. 1. Proposed average daily injection rate = 7000 BWPD Proposed maximum daily injection rate = 10000 BWPD
 - 2. Closed system
 - 3. Proposed maximum injection pressure = 1200 psi (0.2 psi/ft. x 6000' ft.)
 - 4. Source of injected water will be Delaware Sand and Bone Spring Sand produced water. No compatibility problems are expected. Analyses of Delaware and Bone Spring waters from analogous source wells are attached.
- VIII. The injection zone is the Delaware Sandstone, a fine-grained sandstone from 6000' to 6900'. Any underground water sources will be shallower than 251'.
 - IX. The Delaware sand injection interval might be acidized with approximately 20 gal/ft of 7 ½ % HCl acid. If necessary, the injection interval may be fraced with up to 150,000 lbs. of sand.
 - X. Well logs, if run, will be filed with the Division. A section of the neutron-density porosity log from an analogous well 5250' to the west showing the injection interval is attached.
- XI. There are no fresh water wells within a mile of the proposed SWD well. Water analysis for the nearest fresh water will, located in the NE/4 Section 6-T26S-R34E, is attached.
- 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:Gunner 16 57	tate SWD No. 1	
WELL LOCATION: <u>330' FNL</u> 330' FWL FOOTAGE LOCATION	D 16 UNIT LETTER SECTION	<u>265</u> <u>34e</u> TOWNSHIP RANGE
<u>WELLBORE SCHEMATIC</u>	Surface	DNSTRUCTION DATA Casing
Well will be drilled for SWD use Proposed wellbore schematic is altached.	e, Hole Size: <u>17¹/2</u> " Cemented with: <u>sx.</u> Top of Cement: <u>SvrFace</u> <u>Intermedia</u>	or <u>± 1150</u> ft ³ Method Determined: <u>By Design</u>
	Hole Size: <u>1211411</u> Cemented with: <u>sx.</u> Top of Cement: <u>Sur Face</u> <u>Production</u>	or ± 3325 ft ³ Method Determined: B_{γ} Design
	Hole Size: $37''$ Cemented with: sx. Top of Cement: $4725'$ Total Depth:7000'	Casing Size: 7 2 ± 7000' or 550 ft ³ Method Determined: <u>By Design</u>
	Injection <u>6000</u> feet (Perforated or Open H	to 6900:

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INJECTION WELL DATA SHEET

Tub	ing Size: <u>31/2</u> " or 41/2" Lining Material: <u>IPC/Dvolime 20</u>
Тур	e of Packer: 5K nickel plated double grip retrievable
Pacl	cer Setting Depth: <u>15950</u>
Othe	er Type of Tubing/Casing Seal (if applicable)://}
	Additional Data
1.	Is this a new well drilled for injection?YesNo
	If no, for what purpose was the well originally drilled?
2. 3. 4.	Name of the Injection Formation: Delaware 5 and Name of Field or Pool (if applicable): 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: <u>Overlying</u> ' Name <u>Underlying</u> ' Bone Spring: ±9700'TVD, Wolfcamp:±13380'

Gunner 16 State SWD 30-925 330' FNL , 330' FWL D-16-265-34e Leg NM. 17% 1378"/545/J55/STC et= 1150 CF Cmt (cire) 31/2 or 41/2" Duoline 20 In Thy 12/4" TOC 4725 Design 95%"/40/J55,N80/BTC @ ±5225' 3325 CF Cmt (cire) 83/4" Inj PKr ± 5950' Delaware Sand 6000 - 6900 "/26/JS5/LTC & ±7000" 550 CF Cmt (Ocsign TPC 4725") 7000'

V.

MAP

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	Parsley Potton-Fed. Continental Inpi2799 Brodley TD5422	·	LAND C.	Lea C	ounty. NM

VII.

Water Analysis Produced and Receiving Formation Water

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WATER SAM	IPLE REPRESENTATIVE OF WA	TER BEING INJECT	ED INTO THE F	ROPOSED	SWD WELL							
Water is very	similar to that of the receiving forr	nation, therefore no ca	ompatibility prob	lems are exp	ected.						1	
Avalon												
Lab Test #	Lease	Location	Salesman	Date Out	Sample Date	Specific Gravity	Ionic Strength	TDS	рН	conductivity	Ca (mg/L)	Mg (mg/L)
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TH (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)
37551.69	48017.49	593.89	96.83	39.25	0.00	378.06	2.66	1	439.00	0.00	1	1050.00	68100.00	600.00	0.00

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Kepresentative Delaware Produced And Receiving Formation Water

Genera	al Information	About: Sample 4	222			
	NORTH EL N	MAR UNIT 022				
API	3002508278	Sample Number				
Unit/Section/ Township/Range	J / 25 / 26 S / 32 E	Field	EL MAR			
County	Lea	Formation	DEL			
State	NM	Depth				
Lat/Long	32.01136 / - 103.62579	Sample Source	UNKNOWN			
TDS (mg/L)	244815	Water Type				
Sample) Date(MM/DD/YYYY)		Analysis Date(MM/DD/YYYY)				
Remarks/Description						
Cation Info (mg/l		Anion Information (mg/L)				
Potassium (K)		Sulfate (SO)	220			
Sodium (Na)		Chloride (Cl)	153500			
Calcium (Ca)		Carbonate (CO ₃)				
Magnesium (Mg)		Bicarbonate (HCO ₃)	88			
Barium (Ba)		Hydroxide (OH)	-			
Manganese (Mn)		Hydrogen Sulfide (H ₂ S)				
Strontium (Sr)		Carbon Dioxide (CO ₂)				
Iron (Fe)		Oxygen (O)	-			

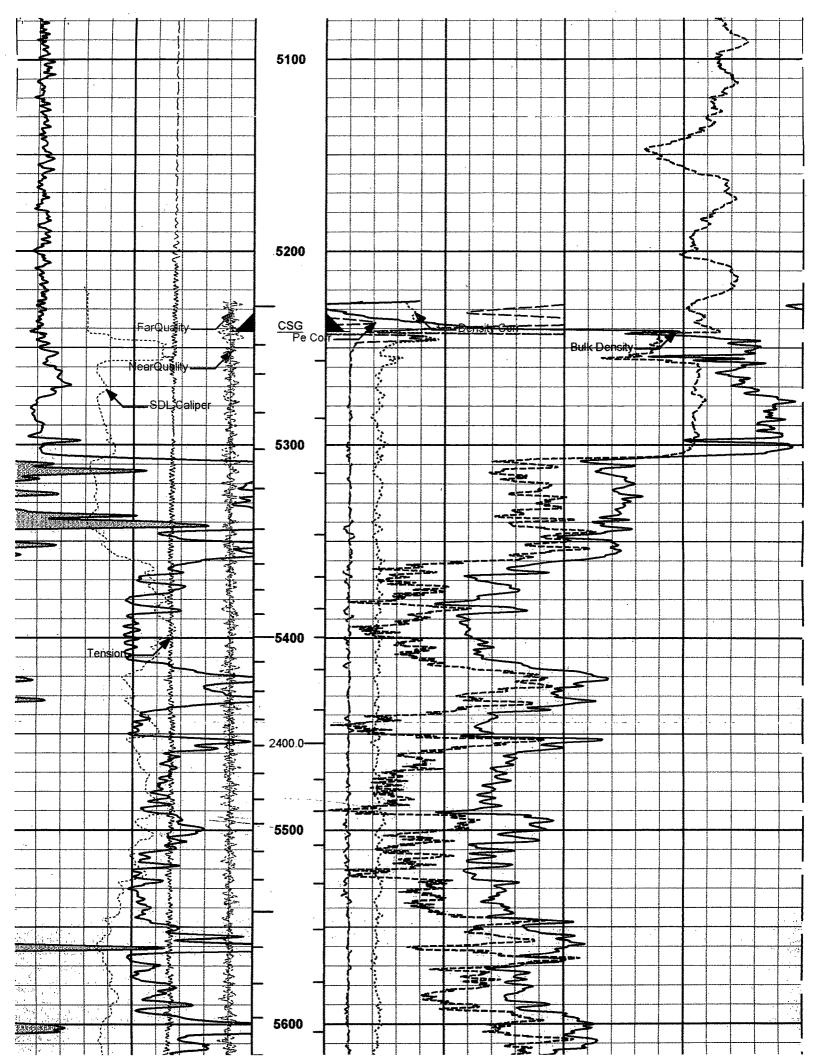
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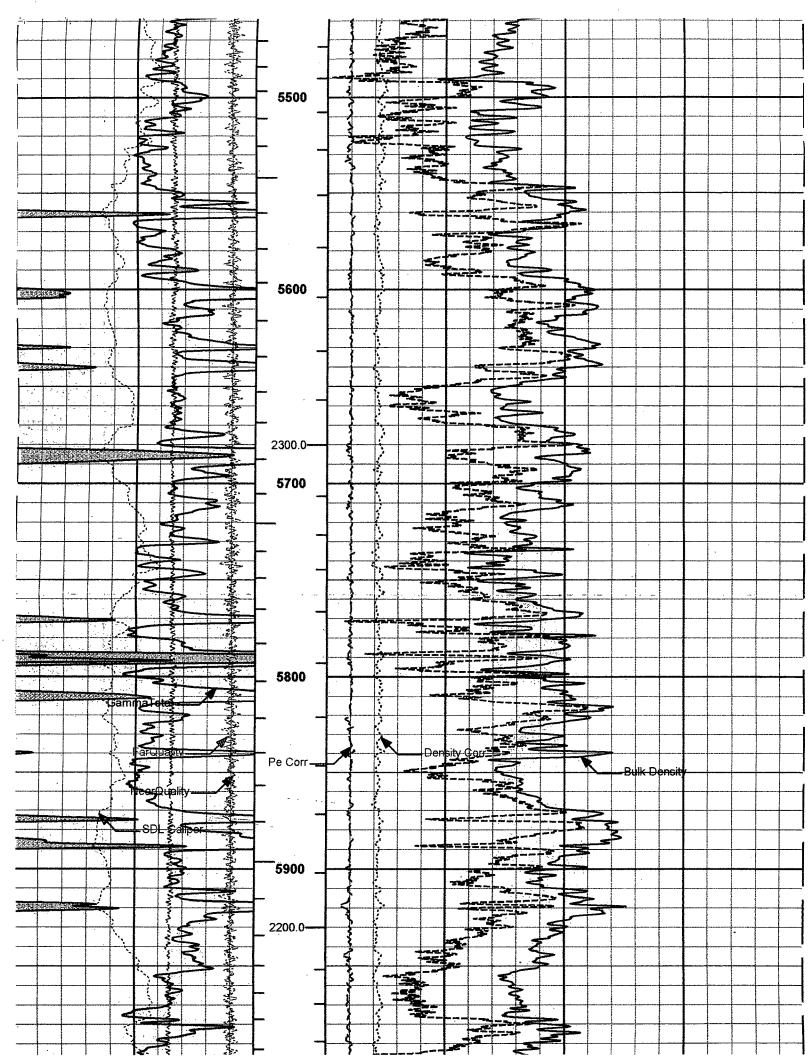
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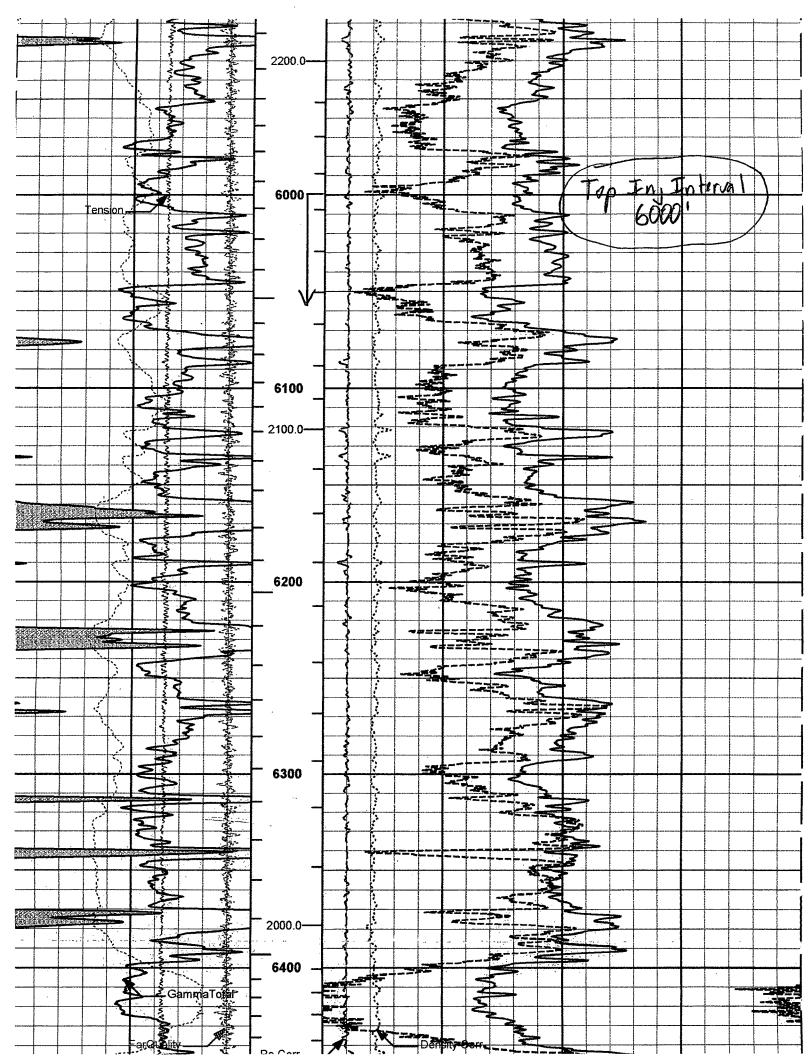
Log Across Proposed Delaware Sand Injection Interval From Nearby Analogous Well

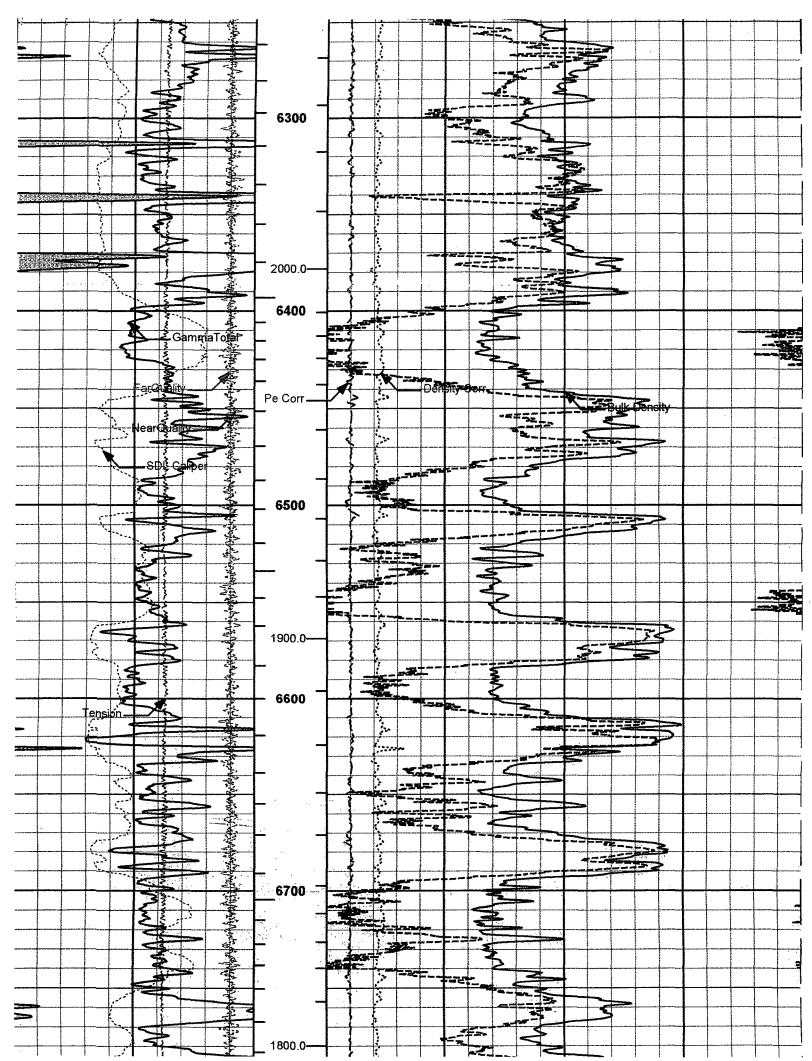
COMPENSATED GAMMA RAY DUAL SPACED NEUTRON SPECTRAL DENSITY UNNER 8 FEDERAL No. 8H MILDCAT; BONE SPRING LEA COG OPERATING; LLC. COG OPERATING; LSCATE NEW MEXICO LEA COG OPERATING; LSCATE NEW MEXICO ARTESIA WEST Trop. 285 Rg. 34E Elev. 33610 ft D.F. 33 21.0 ft ablove perm. Datum G. 200 vert 9 7500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert 2 1.0 ft ablove perm. Datum G. 1500 vert 9 7500 vert	Pecorded By	F	tax. Rec. Temperature 159.0 degF @ 1248	183		minho E0.0	MEAS	mc @ Meas. Temperature 0.086 ohmm @ /5.00	0.05 ohmm	harstura 0.070 ohmm	H Fluid Loss 9.00 pH	ensity Viscosity 9.7 ppg 28.00 s/qt	ype Fluid in Hole BRINE	it Size 8.750 in	-	asing - Driller 9.625 in @ 5245.0	op - Logged Interval 200.0 ft	ottom - Logged Interval 12432.0 ft	lepth - Logger 12486.0 ft	lepth - Driller 12500.00 ft	Un No. ONE	late 22-Nov-11		og measured from KB	Vermanent Datum GL	COMP, WELL FIELD COUN STATE Sect	ſY	GL	API No.	R 8 I			No. 8 PRING	COMPANY	HALLIBURTO	
	1000	31.18						Martin Contraction	一部 アージントあい		「「「「「」」、「「」」、「」」、「」、「」、「」、「」、「」、「」、「」、「」					1							· / · · · · · · · · · · · · · · · · · ·		Elev.:	Rge.	ARTESIA WEST		WUNN 2 9 2011	HORWER	COG OPERATING L& PATE	WILDCAT; BONE SPRING	GUNNER 8 FEDERAL No. 8H	COG OPERATING, LLC.	SPECTRAL DENSI	COMPENSATED GAMN

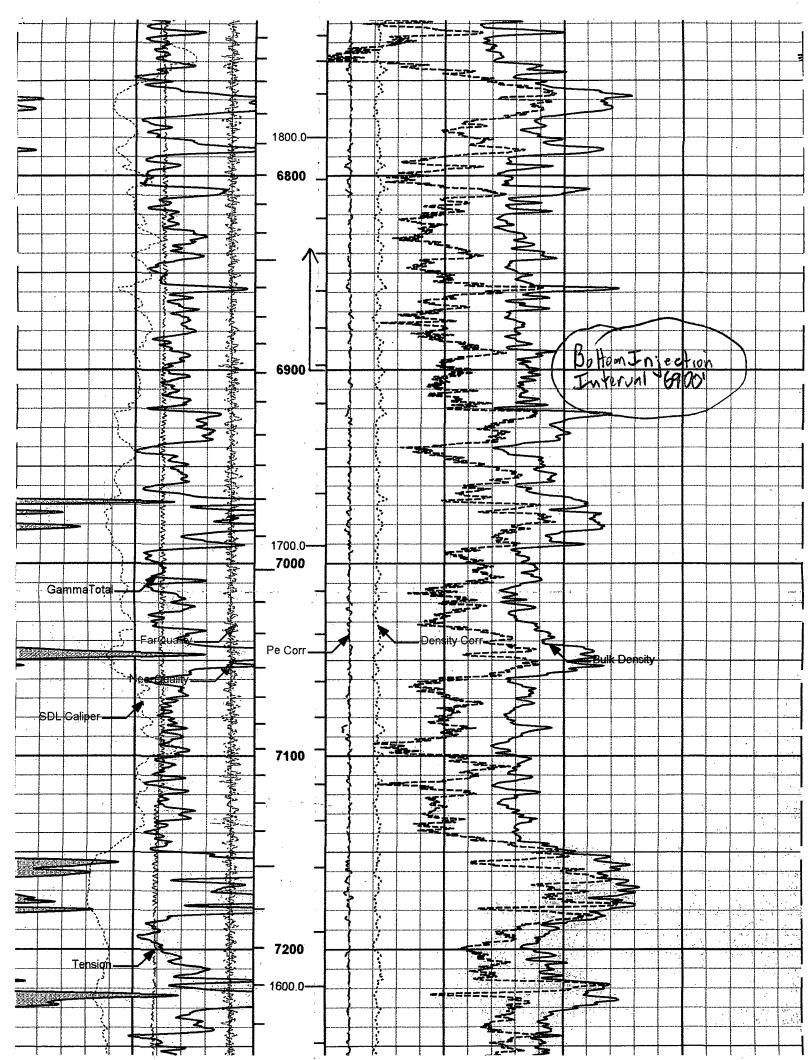
Service Ticket No.: 904	46735	API Serial No	5.: 30-025-40309	PGM Version: WL INSITE R3.4.0 (Build 4)								
		OR ADDITIONAL SAMP	LE	RESISTIVITY SCALE CHANGES								
Date Sample	No.			Type Log	De	pth Sca	ile Up Hole	Scale	Down Hole			
Depth-Driller	and the second second	an a										
Type Fluid in Hole	ALL STRACK			×.			1 A.					
Density Viscosit	X		記録(を持) たけ (1999年) (第45日) (1997年) (1997年) (1997年)		(. :					
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XI.

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Fresh Water Sample Analyses



New Mexico Office of the State Engineer Active & Inactive Points of Diversion

(with Ownership Information)

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No PODs found.

PLSS Search:

Section(s): 8-10

Township: 26S Range: 34E

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



New Mexico Office of the State Engineer Active & Inactive Points of Diversion

(with Ownership Information)

No PODs found.

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Range: 34E

Township: 26S

PLSS Search:

Section(s): 15-17

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.

7/6/12 4:00 PM



New Mexico Office of the State Engineer **Active & Inactive Points of Diversion**

(with Ownership Information)

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PLSS Search:				
Section(s): 20-22	Township: 26S	Range: 34E		

Section(s): 20-22

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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.

HALLIBURTON

PERMAIN BASIN OPERATIONS LABORATORY WATER ANALYSIS REPORT HOBBS, NEW MEXICO

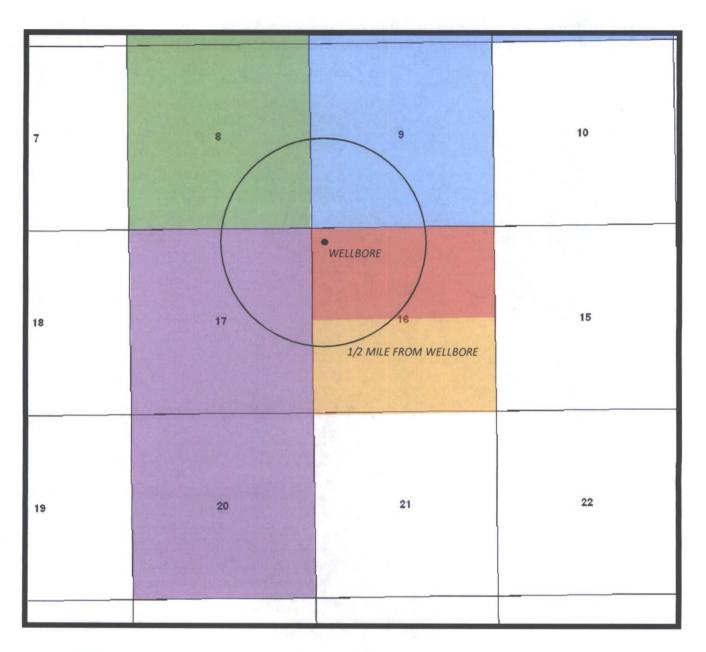
COMPANY: LEASE:	COG FW Well C-03441 NE/4 6-26s-34e		D,	ATE _	W12-143 July 11, 2012 Hobbs	-
SUBMITTED BY	Bret Barret					-
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This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management: it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Co.

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MPL = Milligrams per litter Resitivity measured in: Ohm/m2/m

ANALYST: AV





COG Operating LLC



Chesapeake Exploration LP Devon Energy Prop. Co. LP

Daniel E Gonzales

Daniel E Gonzales



Abo Petroleum Corporation MYCO Industries Inc. Oxy Y-1 Company Yates Petroleum Corporation

> Gunner 16 State SWD No. 1 330' FNL & 330' FWL Sec. 16; T26s - R34e Lea county, New Mexico



October 31, 2012

Devon Energy Production Co., LP Attn: Mr. David Rader 333 W. Sheridan Ave. Oklahoma City, OK 73102-5010

Re: <u>Revised C-108 Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

Dear Mr. Rader:

Per our discussion about changing the Delaware injection interval, attached is a copy of the revised C-108 package that was sent to you via email.

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

Sincerely, da

Brian Collins Senior Operations Engineer

BC/sw Enclosures

Corporate Address: One Concho Center 600 West Illinois Avenue

Midland, Texas 79701 Phone 432.683.7443 Fax 432.683.7441



October 29, 2012

OXY Y-1 Company P.O. Box 4294 Houston, TX 77210-4294

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

To Whom It May Concern:

Enclosed for your review is a copy of COG Operating LLC's C-108 Application to Inject for the above referenced well. We plan to drill this well for SWD service if our C-108 is approved. As a requirement of the New Mexico Oil Conservation Division, we are notifying you because you have been identified as 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.

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

Sincerely,

Brian Collins Senior Operations Engineer

BC/sw Enclosures

Affidavit of Publication

State of New Mexico, County of Lea.

I, JUDY HANNA PUBLISHER of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period

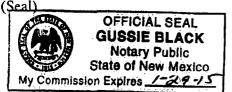
of 1 issue(s). Beginning with the issue dated August 24, 2012 and ending with the issue dated August 24, 2012

PUBLISHER Sworn and subscribed to before me this 14th day of September, 2012

use Black

Notary Public

My commission expires January 29, 2015



This newspaper is duly qualified to publish legal notices or advertisments within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

COGUEENALING, LLC QECEIVED OCT 1 8 2012 ARTESIAWEST

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August 26, 2012

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 Gunner 16 State SWD No. 1 is located 330' FNL & 330' FWL, Section 16, Township 26 South, Range 34 East, Lea County, New Mexico. Disposal water will be sourced from area wells producing from the Delaware formation at a depth of 5225' to 7250' at a maximum surface pressure of 1045 psi and a maximum rate of 10,000 BWPD. The proposed SWD well is located approximately 19 miles west of Jal. 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. 27537

02107967

00099187

COG OPERATING LLC FASKEN CENTER, TOWER II 550 W. TEXAS AVE., STE 1300 MIDLAND, TX 79701



ABO Petroleum Corporation 105 South 4th Street Artesia, NM 88210

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

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

Sincerely,

Brian Collins Senior Operations Engineer



Chesapeake Exploration, L.L.C. P.O. Box 18496 Oklahoma City, OK 73154

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

To Whom It May Concern:

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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



Dan E. Gonzales P.O. Box 2475 Santa Fe, NM 87504

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

To Whom It May Concern:

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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



Devon Energy Production Co., LP 333 W. Sheridan Ave. Oklahoma City, OK 73102-5010

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

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

Sincerely,

Brian Collins Senior Operations Engineer



MYCO Industries, Inc. P.O. Box 840 Artesia, NM 88211

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

To Whom It May Concern:

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

Sincerely,

me

Brian Collins Senior Operations Engineer



New Mexico State Land Office P.O. Box 1148 Santa Fe, NM 87504-1148

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

To Whom It May Concern:

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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



August 9, 2012

Yates Petroleum Corporation 105 South 4th Street Artesia, NM 88210

Re: <u>Application to Inject</u> Gunner 16 State SWD #1 Township 26 South, Range 34 East, N.M.P.M. Section 16: 330' FNL & 330' FWL Lea County, New Mexico

To Whom It May Concern:

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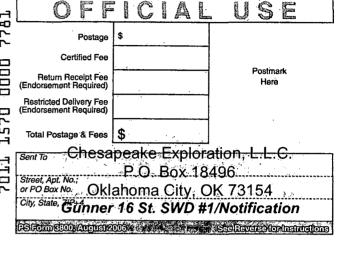
Please do not hesitate to contact us at 575-748-6940 should you have any questions.

Sincerely,

Brian Collins Senior Operations Engineer

BC/sw Enclosures

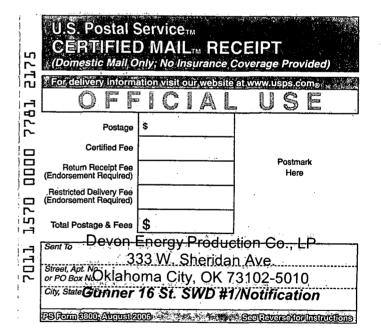
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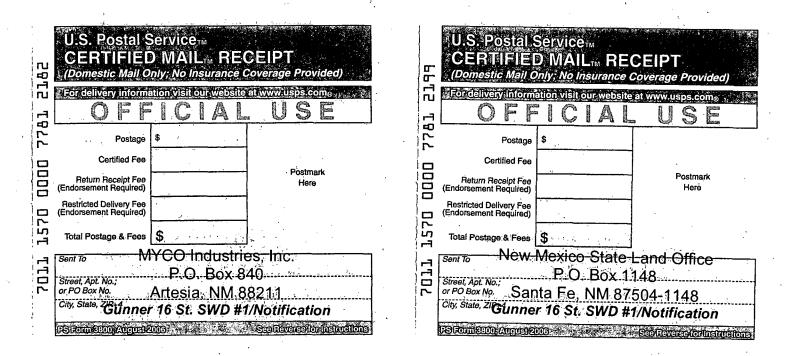
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Gunner 16 State SWD #1

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~	or PO Box No. Oklahoma City, OK 73102-5010
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SENDER: COMPLETE THIS SECTION COMPLETE THIS SECTION ON DELIVERY Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. A. Si ature Х Print your name and address on the reverse Addressee so that we can return the card to you. C. Date of Delivery, Attach this card to the back of the mailpiece, or on the front if space permits. Is delivery address different from item 1 Article Addressed to: -1-13 If YES, enter delivery address below: D No Yates Petroleum Corporation 105 South 4th Street Artesia, NM 88210 Service Type Gunner 16 St. SWD #1/Notification Certified Mail Express Mail Return Receipt for Merchandise Registered Sent out Insured Mail. C.O.D. Restricted Delivery? (Extra Fee) C Yes 2. Article Number 12205 (Transfer from service label) PS Form 3811, February 2004 **Domestic Return Receipt** 102595-02-M-1540 SENDER COMPLETE IN Signature Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Agent. Addressee Print your name and address on the reverse so that we can return the card to you. C. Date of Delivery Attach this card to the back of the mailpiece, or on the front if space permits. D. Is delivery address different from item 1? C Yes 1. Article Addressed to: If YES, enter delivery address below: D No MYCO Industries, Inc. P.O. Box 840 Artesia, NM 88211 Service Type Gunner 16 St. SWD #1/Notification s Mail Return Receipt for Merchandise Registered Insured Mail Restricted Delivery? (Extra Fee) C Yes Article Number 12001 1570 0000 7881 2182 (Transfer from service label) PS Form 3811, February 2004 **Domestic Return Receipt** 102595-02-M-1540 ECEIVED Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. A. Signature Agent Χ Print your name and address on the reverse. Addressee so that we can return the card to you. B. Received by (Printed Name C. Date of Delivery Attach this card to the back of the mailpiece, MAIL ROOP D. Is delivery address different from or on the front if space permits. C Yes 1. Article Addressed to: If YES, enter delivery address below: Chesapeake Exploration, L.L.C. P.O. Box 18496 Oklahoma City, OK 73154 Service Type Certified Mail Gunner 16 St. SWD #1/Notification Express Mail Return Receipt for Merchandise Registered Insured Mail C.O.D. year ou Restricted Delivery? (Extra Fee) C Yes 2. Artičle Number iori, 1570 0000 7761 2151() (Transfer from service labe

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New Mexico State Land Office P.O. Box 1148	D. is delivery address to mitem 1? Yes If YES, entered any system delow: No AUG 1 3 2012	1. Article Addressed to: Dan E. Gonzales P.O. Box 2475	D. Is delivery address different from item 1? □ Yes If YES, enter delivery address below AUG 1 4 2012
Santa Fe: NM 87504-1148 Gunner 16 St. SWD #1/Notification Sent out 8/10/12	3. Service vpe Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D. Serviced Delivery? (Extra Fee). Serviced Delivery?	Santa Fe, NM 87504 Gunner 16 St. SWD #1/Notification Bent OUF 8/10/12	3. Service Type D Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D. 4. Restricted Delivery? (Extra Fee) Yes
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SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
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JAMES BRUCE ATTORNEY AT LAW

POST OFFICE BOX 1056 SANTA FE, NEW MEXICO 87504

369 MONTEZUMA, NO. 213 SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone) (505) 660-6612 (Cell) (505) 982-2151 (Fax)

jamesbruc@aol.com

August 22, 2012

Hand delivered

Jami Bailey, Director Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

> Re: COG Operating LLC Administrative SWD application

> > Gunner 16 State Well No. 1 Unit D §16-26S-34E Lea County, New Mexico

Dear Ms. Bailey:

Devon Energy Production Company, L.P. objects to the above application.

Very truly yours, the

James Bruce

Attorney for Devon Energy Production Company, L.P.

cc: Brian Collins COG Operating LLC 2208 West Main Street Artesia, New Mexico 88210

RECEIVED OCD

2012 AUG 22 A 7:50

JAMES BRUCE ATTORNEY AT LAW

POST OFFICE BOX 1056 SANTA FE, NEW MEXICO 87504

369 MONTEZUMA, NO. 213 SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone) (505) 660-6612 (Cell) (505) 982-2151 (Fax)

jamesbruc@aol.com

November 12, 2012

Via fax

Jami Bailey, Director Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

> Re: COG Operating LLC Administrative SWD application

> > Gunner 16 State Well No. 1 Unit D §16-26S-34E Lea County, New Mexico

2012 NOV 14 P 4: 24

Dear Ms. Bailey:

Devon Energy Production Company, L.P. ("Devon") previously filed an objection to the above application. Devon now <u>withdraws</u> its objection, and consents to the application being approved administratively.

Very truly yours,

Attorney for Devon Energy Production Company, L.P.

From:	Jones, William V., EMNRD
Sent:	Friday, September 28, 2012 8:42 AM
То:	'Brian Collins'
Cc:	Glenn Carter; Dean Chumbley
Subject:	RE: COG C108 Gunner 16 State SWD 1, D-16-26s-34e, Lea CoProtests

Hello Brian,

Devon (through Jim Bruce) is the only protest I am aware of and they did not say why. Your attorney, Carol Leach talks to Jim Bruce and the other attorneys up here and may be aware of other concerns.

Hope you folks have a nice weekend.

Will Jones

From: Brian Collins [mailto:BCollins@concho.com]
Sent: Friday, September 28, 2012 8:05 AM
To: Jones, William V., EMNRD
Cc: Glenn Carter; Dean Chumbley
Subject: COG C108 Gunner 16 State SWD 1, D-16-26s-34e, Lea Co---Protests

Will: Has anyone other than Devon objected to the captioned C108 Application? I've been visiting with Devon and I think I can get them to withdraw their objection by modifying the proposed disposal interval. If anyone else has objected, I'd like to know who they are so I can visit with them. If no one else has protested, I'll visit with Devon about notifying you and I'll resubmit C108 to reflect casing off the Delaware and modifying the injection interval. I appreciate it. Hope you have a good weekend.

Brian Collins

Senior Operations Engineer - NM Basin COG OPERATING LLC 2208 W Main St Artesia, New Mexico 88210-3720 575.748.6924 W 432-254-5870 C

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From:	Brian Collins <bcollins@concho.com></bcollins@concho.com>
Sent:	Monday, October 22, 2012 11:35 AM
То:	Jones, William V., EMNRD
Cc:	Dean Chumbley; Savannah Wilkinson
Subject:	RE: COG C108 Gunner 16 State SWD 1, D-16-26s-34e, Lea CoProtests

Will:

I'll flange things up with Devon tomorrow and will send revised C108 to you later this week. Yates, et al owns Section 9. One of the el als was Yates Drilling which was purchased by OXY Y1, who we forgot to notify. We will send them notice as soon as I finalize things with Devon. We'll send you a copy of the green card as soon as we receive it. Thanks. ---Brian Collins

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]
Sent: Sunday, October 21, 2012 5:08 PM
To: Brian Collins
Cc: Glenn Carter; Dean Chumbley
Subject: RE: COG C108 Gunner 16 State SWD 1, D-16-26s-34e, Lea Co---Protests

Brian,

If you get consensus from Devon, just send the new "post conversion" wellbore diagram and any pages of the application that would change.

If the revision is a subset of the previous proposal, you would not need to re-notice anyone.

My map of the ½ mile AOR is black and white. So I am a bit unsure who owns the lands in Section 9 to the NE?

I will wait to hear from you before reviewing this application in depth.

Will

From: Brian Collins [mailto:BCollins@concho.com]
Sent: Friday, September 28, 2012 8:05 AM
To: Jones, William V., EMNRD
Cc: Glenn Carter; Dean Chumbley
Subject: COG C108 Gunner 16 State SWD 1, D-16-26s-34e, Lea Co---Protests

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Brian Collins Senior Operations Engineer - NM Basin COG OPERATING LLC 2208 W Main St

From:	Jones, William V., EMNRD
Sent:	Friday, November 09, 2012 5:32 PM
То:	'Brian Collins'
Cc:	jamesbruc@aol.com; Kautz, Paul, EMNRD; Shapard, Craig, EMNRD; Brooks, David K., EMNRD
Subject:	Disposal application from COG Operating LLC: Gunner 16 State SWD #1, D-16-26s-34e, Lea County (REVISED APPLICATION NOW 6000 to 6900 FEET)

Hello Brian,

Please ask Devon to send us a retraction letter of the former protested application.

OK Even if I wait 15 days from the latest application, it could be argued whether this is a "new" application or just a revision of the first one.

I was going to ask you, but found some tops on a well to the SW showing the tops of Cherry (6402 feet) and Brushy (6402 feet). If this correlates, it seems your interval is lower Bell and upper Cherry. Let me know if you guys disagree.

It appears the area of interest in the Delaware may be the upper Bell Canyon but logs through deeper members are Scarce and you didn't say anything about calculated water saturations. I understand log calcs in (especially) the Delaware are difficult. A mudlog over this 900 foot interval would better ensure all is well.

OK You noticed Chesapeake, but the Chesapeake interests may have already switched to Chevron? Probably no need to notice Chevron in this case, the lands in question were jointly owned by Devon/Chesapeake.

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O Chevron where Chesapeake lands are involved.

Thank You,

Will

From:	Brian Collins <bcollins@concho.com></bcollins@concho.com>
Sent:	Monday, November 12, 2012 7:35 AM
То:	Jones, William V., EMNRD
Subject:	RE: Disposal application from COG Operating LLC: Gunner 16 State SWD #1,
	D-16-26s-34e, Lea County (REVISED APPLICATION NOW 6000 to 6900 FEET)

Will: I'll scan you the mudlog from the nearest well to the captioned well this morning. I forwarded your email to Devon asking them to mail or email a letter to you withdrawing their objection to this application. Thanks. ---Brian

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]
Sent: Friday, November 09, 2012 6:32 PM
To: Brian Collins
Cc: jamesbruc@aol.com; Kautz, Paul, EMNRD; Shapard, Craig, EMNRD; Brooks, David K., EMNRD
Subject: Disposal application from COG Operating LLC: Gunner 16 State SWD #1, D-16-26s-34e, Lea County (REVISED APPLICATION NOW 6000 to 6900 FEET)

Hello Brian,

Please ask Devon to send us a retraction letter of the former protested application. Even if I wait 15 days from the latest application, it could be argued whether this is a "new" application or just a revision of the first one.

I was going to ask you, but found some tops on a well to the SW showing the tops of Cherry (6402 feet) and Brushy (8132 feet). If this correlates, it seems your interval is lower Bell and upper Cherry. Let me know if you guys disagree.

It appears the area of interest in the Delaware may be the upper Bell Canyon but logs through deeper members are scarce and you didn't say anything about calculated water saturations. I understand log calcs in (especially) the Delaware are difficult. A mudlog over this 900 foot interval would better ensure all is well.

You noticed Chesapeake, but the Chesapeake interests may have already switched to Chevron? Probably no need to notice Chevron in this case, the lands in question were jointly owned by Devon/Chesapeake.

Other applications from COG may need to also notice Chevron where Chesapeake lands are involved.

Thank You,

Will

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From:	Brian Collins <bcollins@concho.com></bcollins@concho.com>
Sent:	Monday, November 12, 2012 10:27 AM
То:	Jones, William V., EMNRD
Subject:	RE: Disposal application from COG Operating LLC: Gunner 16 State SWD #1, D-16-26s-34e, Lea County (REVISED APPLICATION NOW 6000 to 6900 FEET)
Attachments:	gunner 8 fed 1h mud log scan.pdf; gunner 8 fed 1h porosity log scan.pdf

Will:

I've attached a mud log section and porosity log section (with water saturation and bulk volume water-BVW calculations annotated on log) from the COG Gunner 8 Federal 1H drilled as an Avalon Shale well in Sec 8-26s-34e one mile west of the captioned well. Devon has data I'm not privy to in this area also. The injection interval 6000-6900' is one that COG and Devon are confident is not hydrocarbon productive in this area. We plan to mud log the Gunner 16 St SWD 1 when we drill it and will make sure we don't perforate any zones that have good, potentially commercial-looking mud log shows.

The Gunner 8 mud log has poor-looking mud log shows from 6160-6250' and 6350-6360'. The rest of the proposed SWD interval has no shows. In the Delaware I typically expect a good show description to be 40% or better yellow/bright yellow fluorescence. The Gunner 8 shows are described as 10% yellow/gold, trace yellow/gold, 30% <u>dull</u> yellow and trace <u>mineral</u> fluorescence. I've tested numerous zones that were non-commercial that had good show descriptions. I can't recall testing any commercial zones that had poor show descriptions. The Gunner 8 Fed 1H is one mile away, and the Delaware can vary considerably in that distance which potentially makes it a poor analog too.

A guideline I've been taught concerning Delaware log calculations is that the bulk volume water (BVW) should be less than 0.10 to have a chance of commercial oil production. BVW greater than 0.10 will likely be water productive or, at best, have only a one or two percent oil cut. I don't recall testing anything but 100% water at BVW values of 0.12 or greater. The BVW calculations on the attached log section vary from 0.10 to 0.16, with 0.14 BVW being typical. I would expect the sands in the proposed disposal interval to be water productive.

Hope this answers your questions concerning potential productivity in the proposed disposal interval. Let me know if you have additional questions. Thanks.

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]
Sent: Friday, November 09, 2012 6:32 PM
To: Brian Collins
Cc: jamesbruc@aol.com; Kautz, Paul, EMNRD; Shapard, Craig, EMNRD; Brooks, David K., EMNRD
Subject: Disposal application from COG Operating LLC: Gunner 16 State SWD #1, D-16-26s-34e, Lea County (REVISED APPLICATION NOW 6000 to 6900 FEET)

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P.O. Box 55	COUNTY: Lea STATE	COG OPERATING LLC DECEIVE DEC 2 9 2011 deral #BARTESIA WEST E: NM
Interval Logged:9353 [.] Date Logged: <u>11/26/2011</u> Rig: <u>Union Drilling</u> Loggers: <u>Robert Henry, N</u> Api No.: <u>30-025-40309</u> Filename: <u>gunner8federal</u>	To: 12/22/2011 Spud Date: 10/30/. Unit No.: 216 lathan Guyon	
Geologist: Andrew McCart Abbreviations: NB. New Bit DSTDrill Stem Test COCirc Out DSDirectional Survey NRNo Returns CGConnection gas TGTrip Gas LATLogged Aher Trip WOB Wt on Bit PP -Pump Pressure RPM. RevMin SPMStrokestwin SGSurvey Gas DTGDown Time Gas	Lithology/Symbols:	ne C1
Mud Data WT.Weight V.Viscosity PH.Acidity F.Filtrate CHL:Chlorides SC.Solids Content Vis Por	Coal Shale Bentonia Carb Shale B Granite Wask B 20 Quarz V Accessories Glauconite PP Pyrite B 5 5 Fossils 1 0 C 5 Fractures 1 1 Cement V Oli Cut Flu Lithology Tr / Tr / Descriptions/Remarks	Vash
MIN/FT 9 m		
	Begin two-man logging @ 5265' on 10/10/2011 in the Delaware Mtn Group (Permian) below intermediate casing. Drilling with NB 5: Ulterra - MS1388BF	

PP - 1420 SPM - 90	SH: A.A.	pH - 9%
	LS: LTTN, WHT, CRM, BF, TN, OFFWHT, DKBRN/BRN, FLKY, OFFWHT, DKBRN/BRN, FLKY, BLKY, MICX, SM SHLY IP, SFT/FRM, TR VY SCTTRD BRI YEL FLUOR, NO CUT, NO PET ODOR NOTED	
	LS: GRY/BRN, LTGRY MOTT, TN, OFFWHT, BLKY, FLKY IP, VFX, ARG IP, SFT, FRM IP SS: FRSTD, LTGRY, CLR, WHY	r (<u>25</u>) 50 100 200 300 400 500
	SBANG/SBEND, RND IP, VFG, FRI CLSTRS W/LIMY CMT, FRI CLSTRS W/LIMY CMT, ISE, TR BLU FLUOR, TR SIV WET CUT, NO ODOR NTD IN SMPLES	
	LS: A.A., CLNR W/DEPTH	
50	SS: A.A., TR BLU FLUOR, TR SLW WET CUT, NO PET TR SLW WET CUT, NO PET OROD NTD IN SMPLS	
	LS: GRY/BRN, LTBRN, LTGRY MOTT, GRY MOTT, TN, BLKY, H. H. H	
	SS: LTGRY, FRSTD, CLR, SBANG/SBRND, RND IP, VFG SBANG/SBRND, RND IP, VFG LSE, FRI CLSTRS W/LIMY CMT IP	
6100	LS: BKGRY, LTGRY MOTT, II-111 LS: BKGRY, LTGRY MOTT, OFFWHT, CLNR W/DEPTH, BLKY, FLKY, VFX, SFT	
	I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.	
bs-4	LS: A.A. CLNR W/DEPTH	
	SS: FRSTD, CLR, LTGRY, SBRND, RND, FG, VFG, LSE, FRI CLSTRS W/LIMY CMT	
	Image: Signal state	
	LS: DKGRY/BRN, BRN, LIGRY MOTT, OFFWHT, ARG, BLKY, FLKY IP, VFX, SFT- FEM, VRY DRTY, 10% YEL/	

	LS: A.A. SS: FRSTD, LTGRY, CLR, SBANG/SBRND, VFG, LSE, FRI CLSTRS W/LIMY CMT IP, TR YEL/GLD FLUOR, TR-FR SLOW WET MLKY CUT, NO PET ODOR NTD IN SMPLES LS: A.A.	
	SS: A.A. 30% DLL YEL FLUOR, FR SLW WET CUT W/ STRM IP, NO PET ODOR NTD IN SMPLES LS: A.A.	
	SS: A.A., NO SHOWS POOR SMPL QUALITY LS: LTGRY MOTT, OFFWHT, TN, GRY, WHT, CLNR W/DEPTH FLKY, BLKY, VFX, SFT-FRM	
	SS: FRSTD, LTGRY, CLR, SBANG/SBRND, VFG, LSE, FRI CLSTRS W/LIMY CMT IP PL YELL MIN FLUOR LS: DKGRY/BRN, BRN, LTGRY MOTT, ARG, BLKY, FLKY IP, VFX, SFT-FRM, VRY DIRTY	
	SS: A.A. INCR LSE W/ DEPTH SS: FRSTD, LTGRY, SBANG/ SBRND, VFG, FRIA CLSTRS W/LIMY CMT	
	LS: A.A. W/DLL YELL MIN FLUOR, PR SLW WET CUT, NO PET ODOR NTD IN SMPLS	
	MOTT, ARG, BLKY, FLKY IP, VFX, SFT/FRM, VRI DRTY, TR PL YEL FLUOR, TR SLOW WET CUT, NO PET ODOR NTD IN SMPLES SS: FRSTD, LTGRY, CLR, SBANG/SBRND, VFG, LSE	

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		LS: LTGRY MOTT, DKGRY, OFFWHT, ARG IP, BLKY, FLKY VFX, SFT/FRM	
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		SBRND, VFG, FRI CLSTRS W/LIMY CMT	
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		LS: LTEGRY MOTT,LTTN, LTGRY,FLKY,BLKY, VFX,SFT/FRM	
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SS: A.A., INCRSNG LSE SS: A.A., INCRSNG LSE SS: FESTD, CLB, LXGRY, SM WHT: SBRND, VFC, FEM ST.TP. SBRNJ, VFC, SE SS: A.A. SS: A.A. TF, SH: DKBRN/BRN, DKGRY, CARB, CALC, FRM/BRTIL SS: A.A. SS: A.A. SS: A.A.		SS: FRSTD, LTGRY, CLR, SM SS: FRSTD, LTGRY, CLR, SM GRY, WHT, LTBRN, SBANG/	
SS: A.A., INCRSNG LSE SS: A.A., INCRSNG LSE SS: FRSTD, CLB, LTGRY, SM WTT: SERND/RND, VFC, FEW SUTY IP/NETTIL ISE: SN WTT: SERND/RND, VFC, FEW STTY IP/NETTIL ISE: SN WTT: SERND/RND, VFC, FEW STTY IP/NETTIL ISE: SN WTT: SERND/RND, VFC, FEW SS: A.A. SS: A.A. TR SH: DKBRN/BRN, DKGRY, BLK, BLKY, FLKY, M/FNSLT, CARB, CALC, FRM/BRTTL SS: A.A. SS: A.A. SS: A.A.		SBRND, VFG, SLTY IP, MSTL FRIA CLSTRS W/LIMY CMT SM LSE	
SS: A.A. SS: A.A. SS: A.A. SS: A.A. SS: A.A. SS: A.A. SS: A.A. SS: A.A. SS: A.A. SS: A.A.		SS: A.A., INCRSNG LSE	
SS: A.A. SS: A.A. TR SH: DKBRN/BRN, DKGRY, BLK, BLKY, FLKY, M/FNSLT, CARB, CALC, FRM/BRTTL SS: A.A. SS: A.A. SS: A.A.			
SS: A.A. SS: A.A. TR SH: DKBRN/BRN, DKGRY, BLK, BLKY, FLKY, M/FNSLT, CARB, CALC, FRM/BRTTL SS: A.A. SS: A.A. SS: A.A.		SS: FRSTD,CLR,LTGRY,SM WHT,SBRND/RND,VFG,FEW SLTY IP/MSTLY LSE/SM WLL SRTD,FRIA CLSTRS W LIMY CMT TR SCTTRD BRT	
SS: A.A. TR SH: DKBRN/BRN, DKGRY, BLK, BLKY, FLKY, M/FNSLT, CARB, CALC, FRM/BRTTL SS: A.A. SS: A.A. LS: GRY/LTGRY, MOTT, BF, TN/LTTN, CRM. OFFWHT/WHT.		YEL-GLD FLUOR, NO CUT, NO PET ODOR NOTED IN SMPL	·
50 50 50 50		SS: A.A.	
Image: Start			
50 50 50 50 50 50 50 50 50 50 50 50 50 5		BLK, BLKY, FLKY, M/FNSLT, CARB, CALC, FRM/BRTTL	
LS: GRY/LTGRY, MOTT, BF, TN/LTTN, CRM, OFFWHT/WHT.		SS: A,A.	
FT/FRM, SM CHLKY IP		LS: GRY/LTGRY, MOTT, BF, TN/LTTN, CRM, OFFWHT/WHT FLKY, BLKY, MICX, SHLY IP SFT/FRM, SM CHLKY IP	

Image: State in the state i	tnessed By	roorded By	luipment Location	xx. Rec. Temperature	me on Bottom	me Since Circulation	n @ BHT	NUICE Rmf Rmc	nc @ Meas. Temperature	nf @ Meas. Temperature	n @ Meas. Temperature	wrce of Sample	1 Fluid Loss	msity Viscosity	pe Fluid in Hole	l Size	ising - Logger	sino - Driller	vn - I onner Interval	spin - Logger	apth - Drifer	in No.	318	niling measured from	og measured from	ermanent Datum	COMPAN [®] WELL FIELD COUNTY	GUN	NEI	OPER/ R 8 FE AT; B LE	DERAI	L No. 1			
ART; BONI COCOPE ARTE 2000 21. 21. 21. 21. 21. 21.			-							ŀ																	-	and a strong of the state of th	1	IEW N					ľ
AT; BONI COCOPE ARTE 200 21	RICHARD FRE	DANIEL HEITZ	700		23-Nov-11 01:28	8.0 hr		MEAS	l l	1		FLOWLINE	9.00 pH	9.7 ppg	BRINE	8.750 in			12432.0 II	12486.0 ft	12500.00 ft	ONE	22-Nov-11	KB	KB	GL				COUNTY	FIELD	WELL	COMPANY		
SPECTRAL DENSITY SPECTRAL No. 8H AT; BONE SPRING ARIESIA WEST ARTESIA WEST 21.0 ft above perm. Datum @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @	EMAN		HOBBS, NM					MEAS			1	Conversion of the second s						5245.0										FSL & 300 FM	25-40309		WILDC/	GUNNE			
NEW MEXICO Other Services: DLIT/MGRD RSCT GL. 0.F. GL. 0.F. 0.F. 0.F. 0.F. 0.F. 0.F. 0.F. 0.		CHIDIEBERE OKOLI		8			8		8	Ø	æ					69		5							, 21.0 ft above perm. Datum			NOV 2 9 2011	•	States and	NT; BONE SPRING	R 8 FEDERAL No. 8H	PERATING, LLC.	SPECTRA	
				Ø			69		6	0	0					@		8					1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	G.L.	O.F.	Elev.: K.B.		RSCT	Other Services: DLLT/MGRD	1				- DENSITY	

Service Ticket No.:	9046735		API	Serial No.	PGM Version: WL INSITE R3.4.0 (Build 4)									
	CHANGE IN M	UD TYPE C	R ADDITIONA	L SAMPL	E		_	RES	SISTIVITY, SC	ALE C	HANGES	~~~~~~		
Date Sam	ple No.	Ī				Type Log	De	pth	Scale	Up Hol	e	Sca	ale Down Hole	
Depth-Driller							1		<u> </u>					
Type Fluid in Hole							1		<u></u>					
Density Visco	osity	T					1							
Ph Fluid	Loss		*** <u>*-</u>				1							
Source of Sample							1	RES	ISTIVITY EC	UIPME	NT DATA			
Rm @ Meas. Temp		0			Q	Run No.	Tool Ty	pe & No.	Pad Typ	θ [Tool P	08.	Other	
Rmf @ Meas. Temp		e			Ø									
Rmc @ Meas. Temp).	8			Q	***								
Source Rmf Rmc		1	·											
Rm @ BHT		<u>Ø</u>			Ô		1							
Rmf @ BHT		Q			0				- <u></u>					
Rmc @ BHT C					Q		1				*****			
					EQUIP	MENT DATA				ł				
G	AMMA			ACOU	STIC	1	DEN	ISITY				NEUTRO	IRON	
lun No. ONE			Run No.	T		Run No.		ONE		Run N	»	ONE		
Serial No.	107656540	0R	Serial No.			Serial No.		90078467	OR	Serial	No.	90078467OR		
Model No.	GTET		Model No.			Model No.		SDLT-I		Model	No.	DSNT-I		
Diameter	3.625 inch		No. of Cent.			Diameter		4.5 inch			let.	3.625 inch		
Detector Model No.	T-102A		Spacing			Log Type		GAM-GAM	A	Log Ty	g Type		NEU-NEU	
Туре	SCINT					Source Type	•	Cs 137		Source	Туре		n2418e	
	O O in alt					1		COOODA!		1		Inc	11 262	

LOGGING DATA

Serial No.

Strength

8.0 inch

24.0 ft

Length

Distance to Source

LSA [Y/N]

FWDA [Y/N]

5069GW

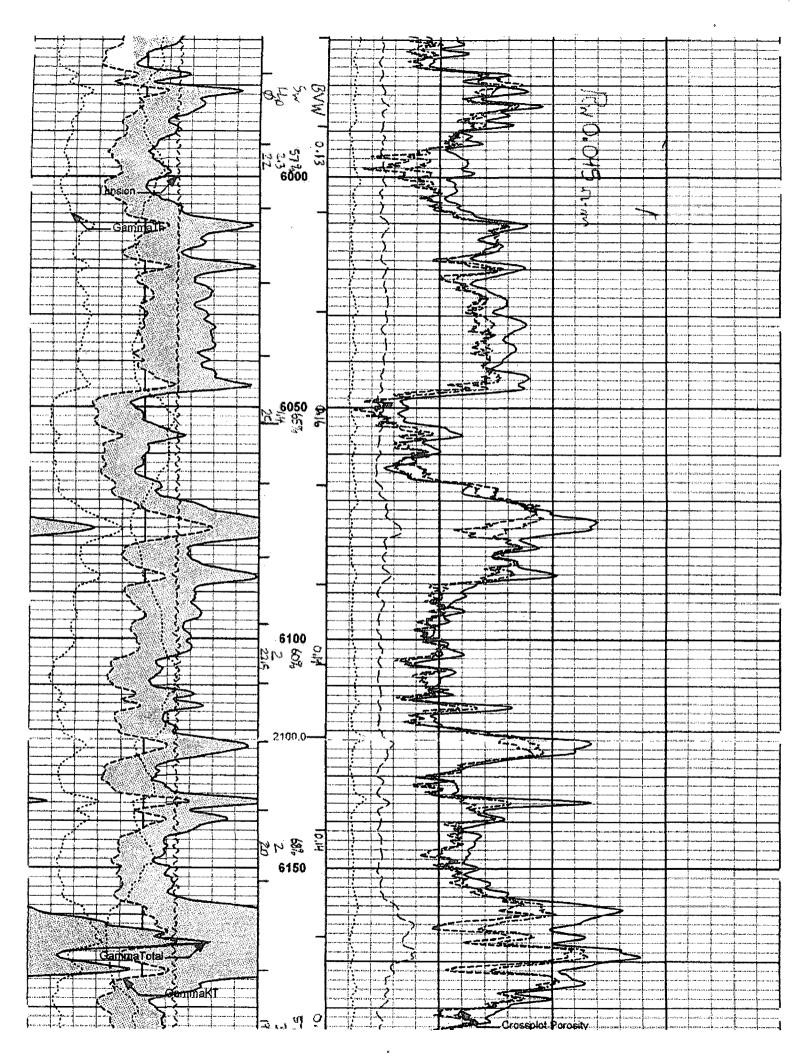
1.5 Ci

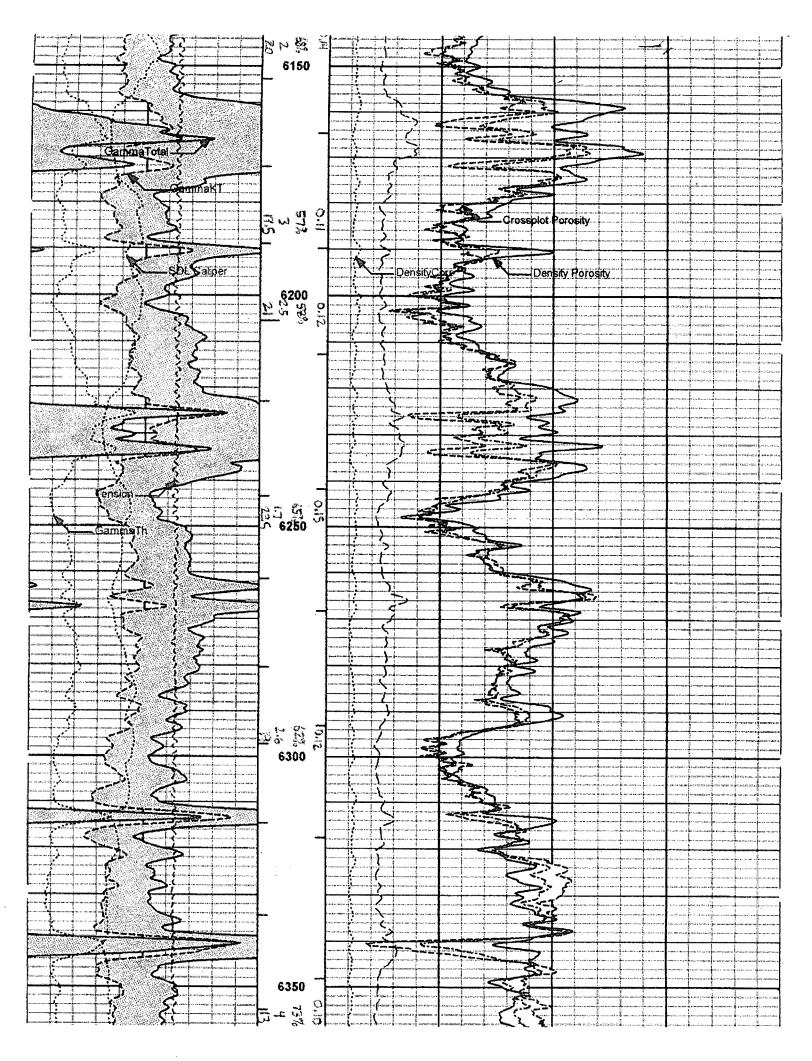
DSN-363

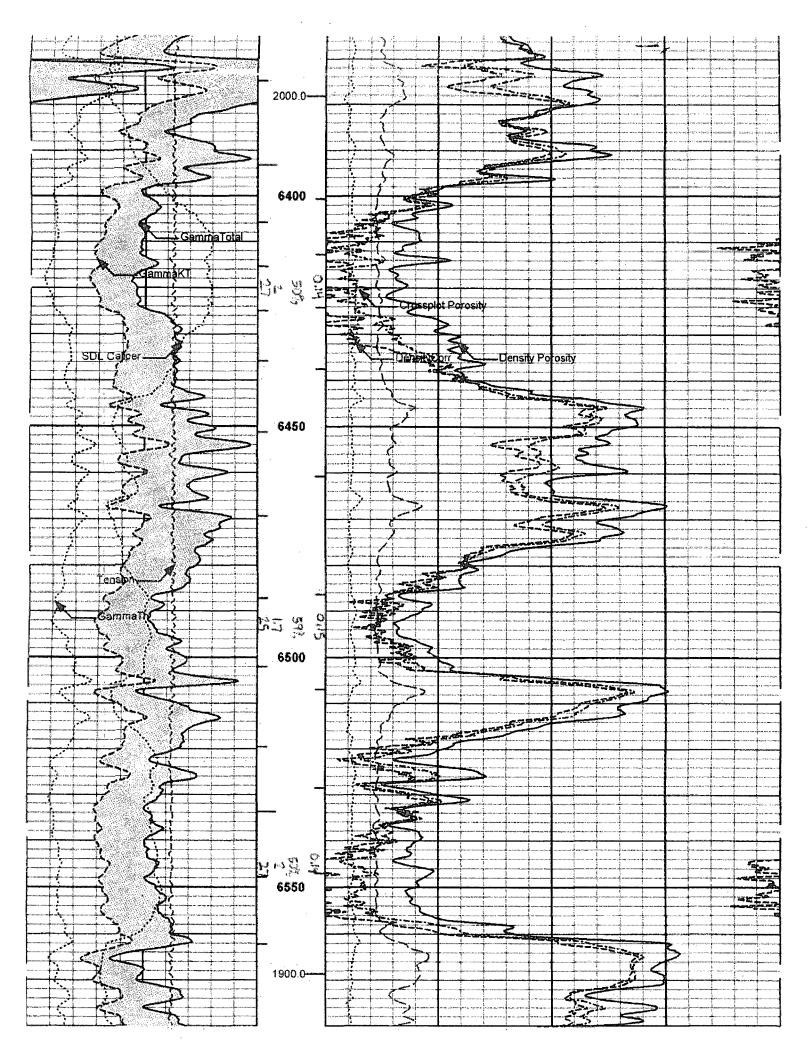
15.0 Ci

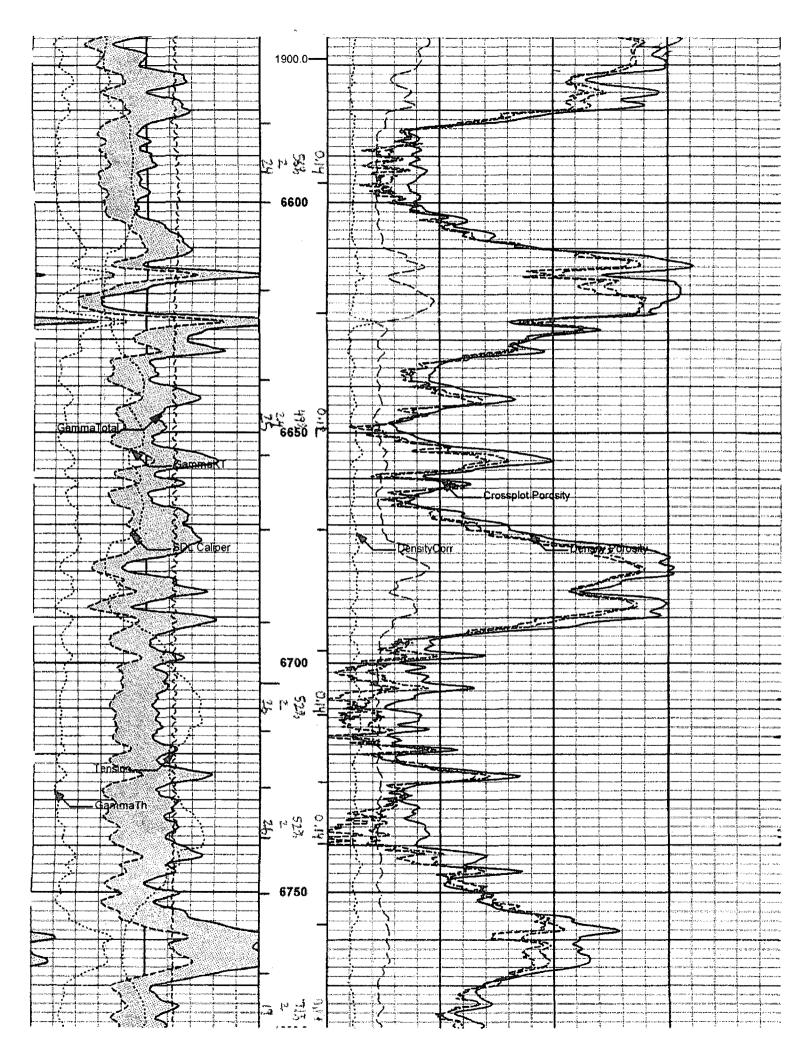
Serial No.

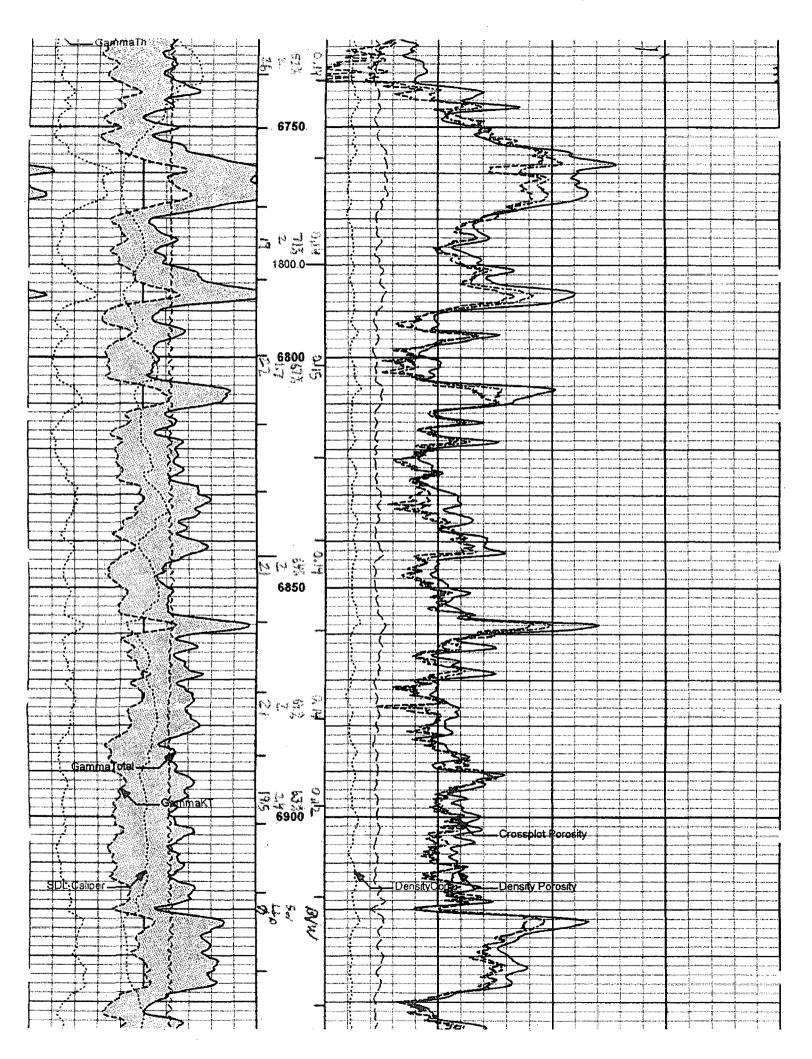
Strength











/														
	Injection Permit Checklist (11/15/2010)													
1	WFX													
	#Wells I Well Name(s): GUNNER 16 STATE SWD #1													
	API Num: 30-0 25 - NA Spud Date: N/A New/Old N (UIC primacy March 7, 1982)													
	Footages 330 FNL/FWL Unit D Sec 16 TSp 265 Rge 34E County LEA													
	General Location:													
	Operator: COG OPERATING UC Contact BRIAN COLLINS													
	OGRID: 229137_RULE 5.9 Compliance (Wells)													
	Well File Reviewed None Status: New Prill													
	Planned Work to Well: Drill Cose Port Inject													
	Diagrams: Before Conversion After Conversion Elogs in Imaging File: Nau Sizes Setting Stage Cement Determination													
	Well Details: HolePipe Depths Tool Sx or Cf Method													
	New Existing Surface $\frac{17}{2}$ $\frac{13^{18}}{978}$ $\frac{790}{5225}$ - $\frac{1150}{3725}$ CF Suff													
	New_Existing_Interm 12/4 978 5225 - 3325 CF Surf New_Existing_LongSt $8^{3/4}$ 7" 700 TD - 550 CF 47125 EST,													
	New_Existing _ Liner													
RENSE														
REAL	Depths/Formations: Depths, Ft. Formation Tops? (5319 Del Tuliths													
×	Eormation(s) Above 6402 Cherry C													
	Injection TOR: 6000' Bell Die Max. PSI 1200 OpenHole_ Perfs_L													
	Injection BOTTOM: 6900' Davy Did wing Size Zort Packer Depth													
	8-8-132 Brung CF													
	Formation(s) Below 7399 BS 01,057,503,0													
	Capitan Reef2 (Potash? Noticed?]aalado Top/Bot]aalado Top/Bot													
l .	Fresh Water: Depths: < 251' Formation Wells? Montanalysis? YeAffirmative Statement													
	Disposal Fluid Analysis? Sources: 67 1													
	Disposal Interval: Analysis? Production Potential/Testing:													
	Notice: Newspaper Date 8/14/1Surface Owner 10/3/12 SLO Mineral Owner(s) SLO													
	RULE 26.7(A) Affected Persons: Vala Devous Charge DavidE. GON Ealy ABO MYCO XY													
	AOR: Maps? Well List? Producing in Interval? N Wellbore Diagrams?													
	Active Wells Repairs? WhichWells?													
	P&A Wells Repairs? Which Wells?													
	Issues: Request Sent Reply:													

7

SWD Checklist.xls/Reviewershist

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