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ppli	cation Acronyms:				
	[NSL-Non-Standard Loc IDHC-Downhole Cor	ation] [NSP-Non-Sta	Indard Proration U	nit] [SD-Simulta 1	aneous Dedication]
	[PC-Pool Commi	ingling] [OLS - Off-	Lease Storage]	OLM-Off-Lease	Measurement]
	[WFX-Wat	terflood Expansion]	[PMX-Pressure N	laintenance Ex	pansion]
	LSW EOR-Qualified Enh	anced Oil Recovery (	Certification] [P	Pressure Increa PR-Positive Proc	luction-Response]
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[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: Stat	ement must be complet	ed by an individua	I with managerial and/or super	visory capacity.	
<u>Lonna</u> Williaus Print or Type Name	Signature		Sr. Requie Title	abry Adrisor	<u>3(5(13</u> Date
	C		e-mail Address	villians c(	Conocophillips.

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:
II.	OPERATOR: CONOCOALILIAS COMPONY
	ADDRESS: 1.0. Box 51810 Midlard. Tx 79710
	CONTACT PARTY: Longo Willious PHONE: 432-688-6943
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?YesNo 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.
yı.	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:
	<ol> <li>Proposed average and maximum daily rate and volume of fluids to be injected;</li> <li>Whether the system is open or closed;</li> <li>Proposed average and maximum injection pressure;</li> <li>Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,</li> <li>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.).</li> </ol>
*УиГ.	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).
*X1.	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:
	SIGNATURE: DATE: 3(5(13
*	E-MAIL ADDRESS: <u>DOMA</u> . <u>S. Williausc</u> <u>Concophillips</u> . Coke 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: <u>Original</u> <u>ISUSIII</u> , <u>Auct d # 1</u> 7/2012

Side 1 INJEC	CTION WELL DATA SHEE	CT		
OPERATOR: COLOCOPHILLIPS COMPONY	SwD	94		
WELL NAME & NUMBER: Buck Store Fooler	rol <b>\$</b> 1#1			
WELL LOCATION: 2284 FNL > 1950 FWL FOOTAGE LOCATION	UNIT LETTER	17 SECTION	<b>Z6</b> S TOWNSHIP	32 E RANGE
WELLBORE SCHEMATIC		<u>WELL C</u> Surface	<u>ONSTRUCTION DAT</u> Casing	<u>"A</u>
	Hole Size: 13	4	Casing Size: 9	5/80 1094
	Cemented with:	<u>e10</u> sx.	or	ft <sup>3</sup>
i lached	Top of Cement:	turface_	Method Determined	t: rigual
DHac'		Intermedia	te Casing	
	Hole Size:		Casing Size:	
	Cemented with:	SX.	0 <b>r</b>	ft <sup>3</sup>
	Top of Cement:		Method Determine	d:
		Productio	n Casing	
	Hole Size: 83		Casing Size:	ļ
	Cemented with: 15	<u>sx.</u>	or	ft <sup>3</sup>
	Top of Cement:	irface	Method Determine	t: CBL
	Total Depth: 62	78		
		Injection	Interval	
	5410	fee	t to 5932	
		Perforated or Open H	Iole; indicate which)	

### **INJECTION WELL DATA SHEET**

• .

Tubing Size: <u>3'</u>
Type of Packer: SLett (Mesquite AS-IX)
Packer Setting Depth: 5357 (proposed)
Other 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. Name of the Injection Formation: Cherry Caryon (Delaworc)
3. Name of Field or Pool (if applicable):
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. <u>Mathematical constraints</u>
<ol> <li>Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:</li> </ol>



MCBU P. O. Box 51810 Midland, TX 79710-1810

February 26, 2013

Mr. Will Jones Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

RE: Request for Amendment of Administrative Order SWD-1316-A

Mr. Jones:

ConocoPhillips Company respectfully request administrative approval to amend Order SWD 1316-A as it pertains to the disposal interval. The current approved interval is 5686 to 5932 which is in the Cherry Canyon member of the Delaware Mountain Group. COP is respectfully requesting to add additional pay to include 5410' to 5932'. Notice has been provided to the Bureau of Land Management as well as Sahara Operating. As part of this request, please find attached a revised wellbore diagram as well as a geologic summary supporting this request.

Should you have any questions, or need additional information, please do not hesitate to contact me at 432-688-6943 or via email at Donna.J.Williams@Conocophillips.com .

Sincerely Donna Williams

Sr. Regulatory Advisor



Page 1/1

Report Printed: 6/19/2012



API# WELL_NAME	WELL # Status	CURR_OPERA	Туре	SPUD	Depth	PLUGBACK DIREC	LEASE_NAME	Location	Footage
300252771600 RUSSELL '17' FEDERL	12 Active	SAHARA OPERATING COMPANY	OIL	2/25/1982	4502	4430 VERTICAL	RUSSELL '17' FEDERL	17 26S 32E	1980 FSL 1980 FWL
300252793700 RUSSELL '17 FEDERAL	13 PA	SAHARA OPERATING COMPANY	OIL.	10/20/1982	/ 4550	4500 VERTICAL	RUSSELL 17 FEDERAL	17 26\$ 32E	1980 FSL 650 FWL
300252737500 RUSSELL 17 FEDERAL	10 Active	SAHARA OPERATING COMPANY	OIL	9/15/1981	4500	/ 4460 VERTICAL	RUSSELL '17'FEDERAL	17 26S 32E	660 FSL 1720 FWL
300252793000 THOMPSON 18 FEDERAL	5 / Active	SAHARA OPERATING COMPANY	OIL	11/5/1982	4600	/ 4568 VERTICAL	THOMPSON'18'FEDERAL	18 26S 32E	1980 FNL 660 FEL
300252890900 RUSSELL FEDERAL	11 V Active	SAHARA OPERATING COMPANY	OIL	9/17/1984	4363/	/ 0 VERTICAL	RUSSELL FEDERAL	17 26S 32E	1980 FSL 2310 FEL
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### Red Hills West SWD Well ConocoPhillips, Buck Federal 17 1SWD Sect 17-T26S-R32E 2284' FNL & 1950'FWL Lea Co. NM

#### **Geologic Summary:**

The subject SWD well (ConocoPhillips, Buck Federal 17 1SWD) is located in section 17, T26S-R32E in Lea County, New Mexico. This geologic evaluation includes all of T26S-R32E over at least a 1,865' interval from the top of the Delaware Bell Canyon to the top portion of the Lower Cherry Canyon. The Upper Delaware Bell Canyon Sandstone members known as the Ramsey and Olds' Sandstones, are the only zones that have been found to be hydrocarbon productive in or in the immediate area around this township. These Sandstones occur within the top 200' of the Delaware Bell Canyon Formation at a depth from 4,350' to 4,495' in the Buck Federal 17 1SWD.

The interval indentified for salt water disposal in the Buck Federal 17 1SWD are Cherry Canyon Sandstones which occur between the depths of 5,410' to 5,932'. This interval is composed of non-hydrocarbon bearing sandstones that have good porosity and permeability interbedded with numerous thin shales and carbonates and that are very continuous across the area. This interval had no mudlog shows of significance when penetrated in the ConocoPhillips, Buck Federal 17 1H which is located 4,025' southeast of the Buck Federal 17 1SWD. Water saturation calculations from open hole logs in the Buck Federal 17 1SWD well indicate that the interval is wet and non-hydrocarbon productive.

The interval thickness between the base of the Ramsey and Olds Sandstone and the top of the proposed water disposal zone is 915' in the Buck Federal 17 1SWD. This interval contains approximately eight relatively thin shales that are continuous across the area. The gross thickness along with interbedded shales throughout the area should act as a low permeability barrier between the disposal interval and the Upper Delaware Bell Canyon Sandstones.

For the reasons mentioned above, this interval has no potential for oil or gas production from the Buck Federal 17 1SWD and will be a good interval for salt water disposal. A review of geologic and engineering data in the immediate area of this SWD well, finds that there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

Harvey O. Vick III Geologist, ConocoPhillips February 21, 2013

Buck Federal 17 1	ISWD F		KB (via survey plat)	3,189		
Notes:	This is a vertical	salt water dis	posal well (SWD).			
Surface Location		Sec 17	T26S	R	32E	Lea Co. NM, Surface Location: 1950' FWL & 2284' FNL
Formation Name	Formation Top (TVD)	Subsea Depth	Gross Thickness	Gross Thickness	Gross Thickness	Comments
Quaternary	Surface					
Rustler	1,028	2,161				
Castile	2,577	612				
Delaware Top	4,326	-1,137				
Ramsey	4,360	-1,171				
Ford Sh	4,419	-1,230				
Olds	4,432	-1,243				
Cherry Canyon Upper SWDZ Top	5,410	-2,221				Disposal zone
Cherry Canyon SWDZ 1 Top	5,684	-2,495				Disposal zone
Cherry Canyon SWDZ 2 Top	5,733	-2,544				Disposal zone
Cherry Canyon SWDZ 3 Top	5,812	-2,623				Disposal zone
Cherry Canyon SWDZ 4 Top	5,877	-2,688				Disposal zone
ΤD	6,278	-3,089				

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# Additional Proposed Injection (disposal) Zone in the ConocoPhillips, Buck Federal 17 1SWD

- ConocoPhillips is proposing an additional disposal zone to be perforated in the Buck Federal 17 1SWD well. The additional perforations in the subject well, are proposed in a upper Cherry Canyon Upper Sandstone zone from 5,410' to 5,460' which are located above the current perforations (5,686' to 5,932') and below the Cherry Canyon top. The cross sections in this Power Point show the Cherry Canyon top correlated across the area of the Buck Federal 17 1SWD well as identified from Petroleum Information (PI) in the Costa, Forest #1 well (see well #6 on the cross sections).
- Petrophysical analysis of this additional disposal zone in the Cherry Canyon (described in slides 5 – 9) indicates that it calculates wet, with an average water saturation of 97% and therefore should not produce hydrocarbon.



Stratigraphic and Structural Cross Section Trace from Red Hills West Field in S.W. NM to the Grice Field in Central Loving Co TX.



Harvey Vick, Geologist ConocoPhillips 8-27-12

### - ----



Harvey Vick, Geologist ConocoPhillips 8-27-12

# Petrophysical Methodology

- Calculate volume shale from gamma ray (based on x-ray from area DMG cores).
- Calculate porosity and lithology from shale-corrected, Neutron-Density-PE algorithms.
- Calculate water saturation using Modified Simandoux equation with RW of 0.07 from RWA.
- Calculate permeability from poroperm plots from area DMG cores (KCORE).
- Calculate permeability using modified Timur equation (KTIMUR)
- Sum averages over proposed perf intervals.

### **Description of Log Curves**



## Additional Proposed Disposal Zone in the ConocoPhillips Buck Federal 17 1SWD (purple) Along with Existing Perforations (hashed)



Proposed additional perfs: 5,410' to 5,460'

### Existing Injection (disposal) Zone Average Sw's

Discrimin PERF≧≥≕	ator(s): 1 ::: 5	∵ Lõğičj≑AN	D				
Curve Name	Units	NULL	Fail Count	Net Interval	Arithmetic Méan	G	
RHIE	DEC	<u></u> 0′	208	142:500	0/1/49		Average v
SW	DEC	0	208	142.500	0:985		saturation
KCORE	md	0	208	142,500	8:374		
	and all	്റ്.	ກໍຄືດັ	ัง เวลียกกั	56 M 6 D		OT 98.5%

KCORE from a core transform

### Additional Proposed Disposal Zone Average Sw

ZONE: 527 DATE: 28 /	70 - 5500 FT Aug 2012 @ 5	:57				
Discrimina PHIE >= .	ntor(s) : 1 ::::: 08	Logic = AN	D			
Curve		NULL	Fail	Net	Arithmetic	GE
Name	Units	Count	Count	Interval	Mean	-
PHIE	DEC	0	181	140.000	0185	_
	DEC	0	181	140.000	0.972	
SW						1 1 1 1
SW KCORE	md	0.	181	140.000	30.558	

Average water saturation (Sw) of 97.2% in the additional proposed disposal zone.

KCORE from a core transform KTIMUR from modified Timur Equation

#### **Proof of Notice**

I hereby certify that notice has been provided by certified mail to the below listed parties of the Administrative Application of ConocoPhillips Company to amend Order 1316-A as it pertains to the disposal interval. Notice was mailed to the parties on February 26, 2013.

Sahara Operating Company 306 W. Wall Street # 1025 Midland, Tx 79701-5101

Donna Williams Sr. Regulatory Advisor

Bureau of Land Management 620 E. Greene Street Carlsbad, New Mexico 88220

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PS Form 3811, February 2004

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Domestic Return Receipt

102595-02-M-154

### Jones, William V., EMNRD

From:	Jones, William V., EMNRD
Sent:	Friday, March 01, 2013 4:24 PM
То:	Williams, Donna J (Donna.J.Williams@conocophillips.com)
Cc:	Ezeanyim, Richard, EMNRD; Goetze, Phillip, EMNRD; Kautz, Paul, EMNRD
Subject:	Proposed amendment of SWD-1316 and SWD-1316-A

Hello Donna, We just received paperwork asking once again to add perforations up-hole in this well.

Please incorporate this paperwork into another Form C-108 application for disposal into this well over the new proposed depth range, with proof of notices, etc.

1

....and send the complete administrative application package to the engineering bureau.

We will log it in and process as a normal application.

Thank you,

William V. Jones, P.E. 505-476-3448W 505-476-3462F Engineering Bureau, Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

Injection Permit Checklist (11/15/2010) r WFX SWD ermit Dat UIC Qtr PMX <u>#</u>Wells Well Name(s) vew/Old: N UIC primacy March 7, 1982). API Num: 30-02 Soud Date: 2 150 Footages 32 County Rae General Loc BRIAN MAICRINO Operator: CTTLA Contact  $\frown$ OGRID: RULE 5.9 Compliance (Wells) IS 5.9 OK? (Finan Assur) None Well File Reviewed Current Status: Planned Work to Well: Dulla Diegrams: Before Conversion No. After Conversion Elogs in Imaging File Sizes Determination Setting Stage Cement Well Details: Hole ....Pipe Depths Method Tool Sx or Cf New \_\_Existing \_\_Surface 2 ß 280 New\_Existing \_Interm 1 8 300 540 New\_Existing \_ LongSt New\_Existing \_ Liner New\_Existing \_ OpenHole **Depths/Formations:** Depths, Ft. Formation Tops? କ୍ଷ Formation(s) Above 5410 Injection TOP vlax. PSI 归 OpenHole Perfs Injection BOTTOM: 700 Tubing Size 3 Packer Depth F Formation(s) Below Salado Top/Bol TEUSCA 22 9 Fresh Water: ormation Analysis? Affirmative Statement Wells? ß Disposal Fluid Analysis? Source  $\mathcal{A}$ Disposal Interval: Analysis? Production Potential/Testing 12/19 Notice: Newspaper Date / 2/22-Suriace Owner Mineral Owner(s) 121 6P. CO alune **BULE 25.7(A) Affected Persons** Producing in Interval? Wellbore Diagrams? AOR: Maps? Well List? Active Wells WhichWells? Repairs? P&A Wells **Renairs?** Which Wells? Request Sent Reply: Issues:

SWD\_Checklist.xls/ReviewersList