

DATE IN 11-15-04	SUSPENSE 11/30	ENGINEER JONES	LOGGED IN 11-16-04	TYPE SWD	APP NO. PSEM0432148182
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ABOVE THIS LINE FOR DIVISION USE ONLY

## NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



### ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

#### Application Acronyms:

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

#### [1] TYPE OF APPLICATION - Check Those Which Apply for [A]

**[A] Location - Spacing Unit - Simultaneous Dedication**  
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

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

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

**[D] Other: Specify** \_\_\_\_\_

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

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

**[B]** ☐ Offset Operators, Leaseholders or Surface Owner

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

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

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

**[F]** ☐ Waivers are Attached

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

**[4] CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note:** Statement must be completed by an individual with managerial and/or supervisory capacity.

Print or Type Name

Signature

Title

Date

e-mail Address

30-05-32895  
 EDDY CITY  
 1 ACTIVE  
 0 AOR well  
 0 PEA  
 1 TOTAL

**ChevronTexaco**  
MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

**Mike Reeves**  
Technical Assistant

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

November 10, 2004

**ChevronTexaco**

**APPLICATION FOR AUTHORIZATION  
TO INJECT - OCD FORM C-108  
Skelly Unit Well # 952  
HENSHAW SE WOLFCAMP POOL  
EDDY COUNTY, NEW MEXICO**

RECEIVED

State of New Mexico  
Energy and Minerals Dept.  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

NOV 15 2004  
OIL CONSERVATION  
DIVISION

Attention: William Jones, Engineer


ChevronTexaco Exploration and Production Co. requests your approval of the subject application to inject water into the Skelly Unit well # 952, located: 990' FSL & 990' FEL, Unit Letter ~~M~~<sup>N</sup>, Sec. 21, T17S-R31E, Eddy County, New Mexico. ✓

Chevron plans to convert this shut-in producer to an SWD as part of an ongoing infill drilling program.

Attached is an OCD Form C-108 with information relative to the water disposal conversion of the referenced well. A copy of the letter sent to applicable offset operators is included in the attachments. A sundry notice of intent was mailed to the BLM today to serve as notice to the surface owner of this well.

Your prompt consideration and approval of this application will be greatly appreciated. If additional information is required, please contact me at (432) 687-7114.

Sincerely,

  
Mike Reeves  
Engineering Assistant  
New Mexico Team

Attachments

**APPLICATION FOR AUTHORIZATION TO INJECT**

I. PURPOSE: Secondary Recovery Pressure Maintenance ☒ Disposal Storage  
Application qualifies for administrative approval? ☒ Yes ☐ No

II. OPERATOR: Chevron Usa Inc.

ADDRESS: 15 Smith Road, Midland, TX 79705

CONTACT PARTY: Mike Reeves PHONE: (432) 687-7114

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 ☒ No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

\*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

\*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

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

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Mike Reeves TITLE: Engineering Assistant

SIGNATURE: Mike Reeves DATE: 11-4-04

E-MAIL ADDRESS: mreeves@chevrontexaco.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: \_\_\_\_\_

Application for Authorization to Inject  
Skelly Unit #952 SWD  
Unit M, Section 21-T17S-R31E  
API# - 30-015-32895

- V. Map is attached
- VI. The Skelly Unit #901 is the one well within the ½ mile radius which penetrates the proposed injection zone. A wellbore schematic is attached for this well located ~2420' east of the proposed SU 952 SWD.
- VII.
  1. Proposed average daily rate = 5000 BWPD  
Proposed maximum daily rate = 20,000 BWPD
  2. Proposed maximum injection pressure = 1880# (0.2 psi/ft)
  3. System is closed
  4. Source of injection fluid will be Paddock and a small amount of Wolfcamp (from more than a mile away) produced water. Water analysis is attached.
  5. Disposal zone water analysis is attached. There will be no compatibility problems.
- VIII. The injection zone is the Wolfcamp from 9400' to 9457' and is composed of dolomite. Underground sources of drinking water will be shallower than 475 feet deep.
- IX. The proposed injection zone was acidized with 10,000g of 15% HCL acid
- X. Logs are filed with the Division. A section of the NeutronDensity/GR log is attached.
- XI. There are no fresh water wells within one mile of the proposed SWD well.
- XII. After examining available geologic and engineering data, there is no evidence 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.

[illegible]

MIDLAND © MAP

T  
17  
S



Only offset within area of review which penetrates Wolfcamp zone of interest.

Well: Skelly Unit #901

Field: Fren

Reservoir: Paddock

offset to SU#952

#### Location:

990' FNL & 1850' FEL  
Section: 21 (NW/4 NE/4)  
Township: 17S  
Range: 31E Unit: B  
County: Eddy State: NM

#### Elevations:

GL: 3791'  
KB: 3809'  
DF: 3808'

#### Log Formation Tops

Rustler	356'
Tansill	1478'
Yates	1630'
Seven Rivers	1936'
Queen	2560'
Grayburg	2925'
San Andres	3283'
Glorieta	4775'
Tubb	6343'
Abo	7110'
Wolfcamp	8460'

#### TUBING DETAIL - 12/5/2003

157 jts - 2-7/8" J-55 6.5# 8rd EUE tbg  
1 TAC set w/20 pts 21" stretch  
11 jts - 2-7/8" J-55 6.5# 8rd EUE tbg  
1 2 7/8" x 1.1" SN  
1 Perf Sub J-55 6.5# 8rd EUE (new 12/5/03)  
1 MAJT w/bopb J-55 6.5# 8rd EUE

EOT landed @ 5216'

#### Rod Detail - 12/5/2003

1 1 1/2" x 26' Polish Rod  
1 1" x 4' Pony Rod grade EL  
61 1" x 25' Steel Rods (EL)  
58 7/8" x 25' Steel Rods (EL)  
78 3/4" x 2' Pony Rods (EL)  
8 1 1/2" Flexbars (C)  
1 7/8" x 4' Pony Guided Rod  
1 25-125-RHBC-20-5 -9 fit TC-349 12/5/03  
1 1 1/4" x 16' Gas Anchor

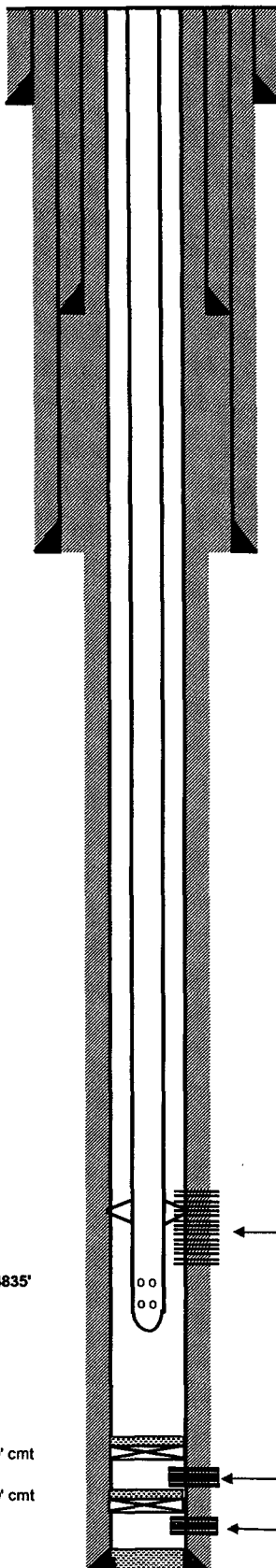
SN @ 5180'  
EOT @ 5216'

CIBP @ 8350' w/20' cmt

CIBP @ 8420' w/20' cmt

COTD: 9032'  
PBTD: 8330'  
TD: 9200'

#### Current Wellbore Diagram



#### Well ID Info:

Chevno: BR7331  
API No: 30-015-29326  
L5/L6: PH6 / 1200  
Spud Date: 7/24/97  
Rig Released: 9/12/97  
Compl. Date: 1/8/98

#### Surface Csg: 11 3/4" 42# WC-50 STC

Set: @ 605' w/ 450 sx Class C cmt  
Hole Size: 14 3/4"  
Circ: Yes TOC: Surface  
TOC By: Circulation (64 sx cmt)

#### Initial Completion:

9/97 Drid to 8465' w/7 7/8" bit ; 8 5/8" csg parted ; repaired w/7 5/8" csg insert  
drid to TD:9200' w/6 3/4" bit ; water flow up 5 1/2" csg ; hole @ 1700'  
Bradenhead sqz 5 1/2" w/400 sx class H cmt

Perf 8430'-8455' ; A/2300 gal 15% ; wet ; CIBP @ 8420'

w/20' cmt on top ; Perf 8380'-8388' ; A/1000 gal 15% NEFE ;  
wet ; CIBP @ 8350' w/20' cmt on top

1/8/98 Perf 5028'-5031', 5037', 5045'-5050', 5070'-5072', 5077'-  
5082', 5096'-5101', 5105', 5142'-5145', 5126'-5128' & 5151'-5154'  
A/2500 gal 15% NEFE ; Perf 4820'-4835', 4881'-4883', 4897'-  
4899', 4906', 4913'-4919', 4924', 4931'-4939', 4946'-4947', 4954'-  
4958', 4975' & 4990' ; A/3500 gal 15% NEFE ; AF/21000 gal YF 330  
& 21000 gal 20% HCL (3 stages)

#### Subsequent Work

#### Intermediate Csg: 8 5/8" 32# & 24# WC-50 LT&C

Set: @ 4800' w/ 2033 sx Class H cmt  
Hole Size: 11"  
Circ: Yes TOC: Surface (Pmp 33 sx down annulus w/1" tbg)  
TOC By: Circulation (10 sx cmt)

#### Intermediate Csg: 7 5/8" 29.7# P-110

Set: @ 1690' w/400 sx Class C cmt  
Hole Size: 11" (inserted inside 8 5/8" csg to repair parting)  
Circ: No TOC: Surface (Sqz 200 sx down annulus)  
TOC By:

#### Prod. Csg: 4 1/2" 11.6# LS-65 & 5 1/2" 17# WC-50

Set: @ 9200' w/1699 sx cmt  
Hole Size: 7 7/8" & 6 3/4"  
Circ: No TOC: 1790'  
TOC By: Bond Log

Perfs	Status
4820'-35', 4881'-83', 4897-99', 4906', 4946'-47',	Paddock - open
4954'- 58', 4913'-19', 4924', 4931'-39', 4975', 49	Paddock - open
5028'-31', 5037', 5045'-50', 5070'-72', 5077'-82',	Paddock - open
5096'-5101', 5105', 5142'-45', 5126'-28' & 5151'-	Paddock - open

Perfs	Status
8380'-8388'	Wolfcamp - abandoned
8430'-8455'	Wolfcamp - abandoned

By: W.P. Johnson

Updated: 4-19-04 by WAYN

## INJECTION WELL DATA SHEET

OPERATOR:

Chevron USA Inc.

WELL NAME &amp; NUMBER:

Skelly Unit #952

WELL LOCATION:

990' FBL + 990' FWL

FOOTAGE LOCATION

UNIT LETTER

#D

SECTION

21

TOWNSHIP

17S

RANGE

3/EWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size:

17.5"

Casing Size:

13 3/8" @ 459'

Cemented with:

490

sx.

or

ft<sup>3</sup>

Top of Cement:

Circulated

Method Determined:

Intermediate Casing

Hole Size:

12 1/4"

Casing Size:

8 5/8" @ 4420'

Cemented with:

2892

sx.

or

ft<sup>3</sup>

Top of Cement:

27'

Method Determined:

tagged with 1"Production Casing

Hole Size:

7 7/8"

Casing Size:

5.5"

Cemented with:

3070

sx.

or

ft<sup>3</sup>

Top of Cement:

Surface

Method Determined:

Circulation

Total Depth:

11,848'Injection Interval9400

feet

to 9457'

(Perforated) or Open Hole; indicate which)

Also see before and  
after wellbore  
Schematics



ProposedChevronTexaco  
SKelly Unit #952INJECTION WELL DATA SHEET

Tubing Size: 2 7/8" Lining Material: IPC

Type of Packer: Baker LOK set or equivalent

Packer Setting Depth: ~ 9380'

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

Additional Data1. Is this a new well drilled for injection? Yes ☐ No ☒If no, for what purpose was the well originally drilled? Production of oil & gas

2. Name of the Injection Formation: Lower Wolfcamp
3. Name of Field or Pool (if applicable): Henshaw SE Wolfcamp
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. Marrow (11617-11629) CIBP @ 11590 w/35' cmt  
Atoka (11,180-11,191) CIBP @ 11,150 w/35' cmt CAP.
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Under - Marrow (Atoka)  
Over - Paddock (4800-5300) (11,600) (11,180)

Well: Skelly Unit #952

Field: Cedar Lake North

Reservoir: Morrow

**Location:**

990' F&L & 990' FWL  
 Section: 21  
 Township: 17S  
 Range: 31E Unit: **M**  
 County: Eddy State: NM

**Elevations:**

GL: 3740'  
 KB: 3756'  
 DF: 3757'

**Log Formation Tops**

San Andres	
Glorieta	
Paddock	
Abo	
Wolfcamp	
Strawn	
Atoka	
Morrow	
Mississippian	

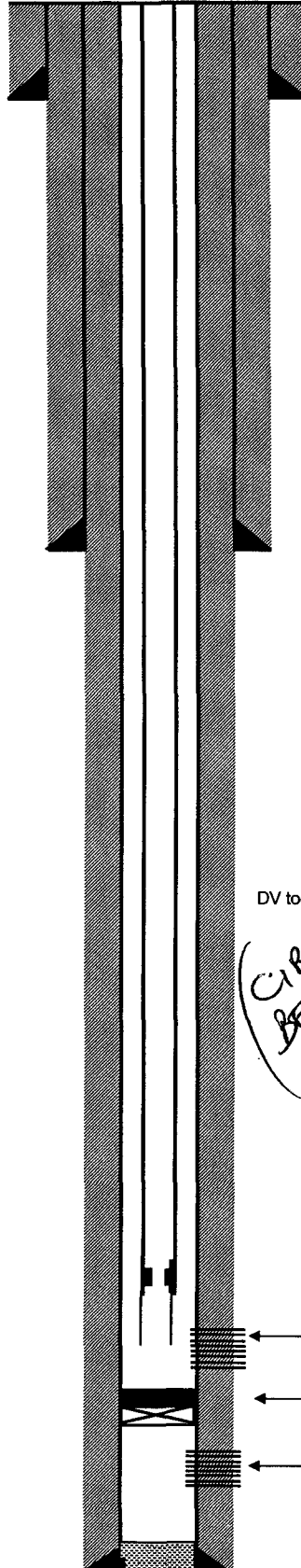
**TUBING DETAIL -**

1 31' 2 7/8" 6.5# L-80  
 1 10' x 2 7/8" sub 6.5# L-80  
 1 6' x 2 7/8" sub 6.5# L-80  
 355- 2-7/8" L-80 8rd 6.5# tbq  
 1 On Off tool w/ 2.31" F profile  
 1 5 1/2" Baker Model M pkr @ 11089'  
 1 10' x 2 7/8" tbq sub  
 1 2.25" R nipple  
 1 8' x 2 7/8" tbq sub  
 EOT landed @ 11114'

Baker Model M pkr @ 11581'  
 EOT @ 11114'

COTD: 11750'  
 PBTD: 11750'  
 TD: 11850'

**Current**  
**Wellbore Diagram**

**Well ID Info:**

Chevno: HL3456  
 API No: 30-015-32895  
 L5/L6:  
 Spud Date: 8/13/2003  
 Rig Released: 9/24/2003  
 Compl. Date: 10/10/2003

**Surface Csg:** 13 3/8" 48# H-40 STC

**Set:** @ 459' w/ 490 sx Class C cmt

**Hole Size:** 17 1/2"

**Circ:** Yes **TOC:** Surface

**TOC By:** Circulation

**Initial Completion:**

10/9/2003 Perf 11617"-11629" (6 spf TCP guns)

IP: 237 BO 2270 MCF

**Subsequent Work**

1/1/2003 Frac 11658-11674' w/33,000 gal 65Q CO2 Foam  
 & 34,360# Carbo Prop Sd

**Intermediate Csg:** 8 5/8" 32# K-55 LT&C

**Set:** @ 4420' w/ 2892sx

**Hole Size:** 12 1/4"

**Circ:** No **TOC:** 27'

**TOC By:**

**Prod. Csg:** 5 1/2" 17# I-80

**Set:** @ 11848' w/3070 sx cmt

**Hole Size:** 7 7/8"

**Circ:** Yes **TOC:** Surface

**TOC By:** Circulation

{Perfs  
11180-11191'

**Status**  
Atoka - Open

CIBP @ 11,590' w/35' cmt

{Perfs  
11617-11629'

**Status**  
Morrow - Abandoned

Updated: 3/11/2004 CHSS

By: C.S. Stallard

Well: Skelly Unit #952

Field: Henshaw Wolfcamp SE

Reservoir: Wolfcamp

**Location:**

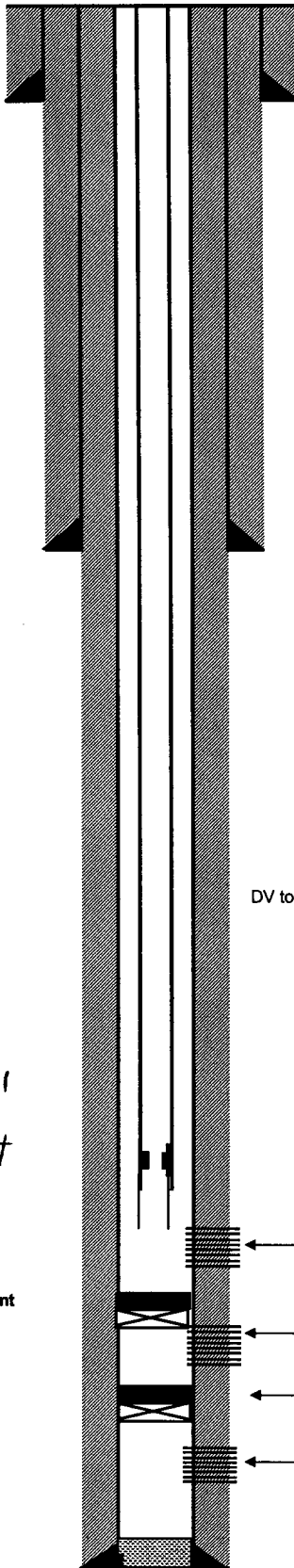
990' FSL &amp; 990' FWL

Section: 21

Township: 17S

Range: 31E Unit: *M D*

County: Eddy State: NM

**Proposed  
Wellbore Diagram****Well ID Info:**

Chevno: HL3456

API No: 30-015-32895

L5/L6:

Spud Date: 8/13/2003

Rig Released: 9/24/2003

Compl. Date: 10/10/2003

**Elevations:**

GL: 3740'

KB: 3756'

DF: 3757'

**Log Formation Tops**

San Andres	
Glorieta	
Paddock	
Abo	
Wolfcamp	
Strawn	
Atoka	
Morrow	
Mississippian	

**Surface Csg:** 13 3/8" 48# H-40 STC**Set:** @ 459' w/ 490 sx Class C cmt**Hole Size:** 17 1/2"**Circ:** Yes **TOC:** Surface**TOC By:** Circulation**Initial Completion:**

10/9/2003 Perf 11617-11629' (6 spf TCP guns)

IP: 237 BO 2270 MCF

**Subsequent Work**

12/4/2003 Perf 11180-11191 Atoka

**TUBING DETAIL -**

~~1 3' x 2 7/8" 6.5# L-80~~  
~~1 10' x 2 7/8" sub 6.5# L-80~~  
~~1 6' x 2 7/8" sub 6.5# L-80~~  
~~355- 2-7/8" L-80 8rd 6.5# tbg~~  
~~1 On Off tool w/ 2.31" F profile~~  
~~1 5 1/2" Baker Model M pkr @ 11089'~~  
~~1 10' x 2 7/8" tbg sub~~  
~~1 2.25" R nipple~~  
~~1 8' x 2 7/8" tbg sub~~  
~~EOT landed @ 11114'~~

DV tool @ 8536'

**Intermediate Csg:** 8 5/8" 32# K-55 LT&C**Set:** @ 4420' w/ 2892sx**Hole Size:** 12 1/4"**Circ:** No **TOC:** 27'**TOC By:****Prod. Csg:** 5 1/2" 17# I-80**Set:** @ 11848' w/3070 sx cmt**Hole Size:** 7 7/8"**Circ:** Yes **TOC:** Surface**TOC By:** Circulation

*2 7/8 6.5# L-80*  
*set at ~ 9380'*  
*with Baker or equivalent*  
*injection PK2.*

CIBP @ 9560' w/35' cmt

Baker Model M pkr @ 11583'  
 EOT @ 11114'

COTD: 11750'  
 PBTD: 11750' ~ 9560  
 TD: 11850'

Perfs 9400-9467' *actual* Status  
 9400-9404 9444-9448 9428-9429 WolfCamp - Open  
 9434-9438 9456-9457 (2SPF)  
 2  
 Perfs 11180-11191' Status  
 Atoka - Abandoned  
 CIBP @ 11,590' w/35' cmt  
 Perfs 11617-11629' Status  
 Morrow - Abandoned

Updated: 3/11/2004 CHSS

By: C.S. Stallard



PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
CHEVRON TEXACO  
ATTN: DENISE WANN  
15 SMITH RD.  
MIDLAND, TX 79705  
FAX TO: (432) 687-7871

*Injection zone water  
Analyses*

Receiving Date: 10/07/04  
Reporting Date: 10/08/04  
Project Number: NOT GIVEN  
Project Name: NOT GIVEN  
Project Location: SKELLY UNIT #952

Sampling Date: NOT GIVEN  
Sample Type: WATER  
Sample Condition: COOL & INTACT  
Sample Received By: AH  
Analyzed By: AH

*also ~ 3 BWPD as produced water*

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (mS/cm)	T-Alkalinity (mgCaCO <sub>3</sub> /L)
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ANALYSIS DATE:	10/07/04	10/07/04	10/07/04	10/07/04	10/07/04	10/07/04
H9215-1	4049	257	87	18256	62381	214
Quality Control	NR	40	52	4.87	1322	NR
True Value QC	NR	50	50	5.00	1413	NR
% Recovery	NR	80.0	104	97.4	93.6	NR
Relative Percent Difference	NR	2.0	6.0	5.8	0.8	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
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	Cl <sup>-</sup> (mg/L)	SO <sub>4</sub> (mg/L)	CO <sub>3</sub> (mg/L)	HCO <sub>3</sub> (mg/L)	pH (s.u.)	TDS (mg/L)
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ANALYSIS DATE:	10/07/04	10/07/04	10/07/04	10/07/04	10/07/04	10/08/04
H9215-1	22993	527	0	261	7.45	47600
Quality Control	1050	50.98	NR	976	6.95	NR
True Value QC	1000	50.00	NR	1000	7.00	NR
% Recovery	105	102	NR	97.6	99.3	NR
Relative Percent Difference	2.9	1.2	NR	2.2	0.1	1.4

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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*Amy Hill*  
Chemist

*10/8/04*  
Date

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. Cardinal shall be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

# Produced Water Analyses

**BJ Chemical Services**  
Production Water Analysis for  
ChevronTexaco, Skelly Unit 930

*- Paddock water*

**Representative: Hanson, Lavell**

**Sample Date: 05/27/2004**

**Lab Test No: 2004121076**

<b>Specific Gravity:</b>	1.143	
<b>TDS:</b>	219404	
<b>pH:</b>	7.2	
<b>Cations</b>	<b>mg/L</b>	<b>as:</b>
Calcium:	4906	Ca
Magnesium:	1056	Mg
Sodium:	80070	Na
Iron:	4.6	Fe
Barium:	1.15	Ba
Strontium:	102.1	Sr
Manganese:	0.3	Mn
<b>Anions</b>	<b>mg/L</b>	<b>as:</b>
Bicarbonate:	464	HCO3
Carbonate:	0	CO3
Sulfate:	2100	SO4
Chloride:	130700	Cl
<b>Gases:</b>	<b>mg/L</b>	<b>as:</b>
Carbon Dioxide:	180	CO2
Hydrogen Sulfide:	43	H2S
<b>Lab Comments:</b>		
<b>Sales Comments:</b>		

## DownHole SAT Scale Prediction:

### Mineral Scale

@ 104 deg. F

### Saturation Index

### Momentary Excess (lbs/1000 bbls)

Calcite (CaCO3)	12.55	0.166
Aragonite (CaCO3)	10.6	0.163
Witherite (BaCO3)	< 0.001	-28.52
Strontianite (SrCO3)	0.133	-1.67
Magnesite (MgCO3)	4.02	0.114
Anhydrite (CaSO4)	1.72	116.09
Gypsum (CaSO4*2H2O)	1.52	106.94
Barite (BaSO4)	1.66	0.272
Celestite (SrSO4)	0.156	-226.58
Calcium phosphate	0	>-0.001
Silica (SiO2)	0	-41.69
Brucite (Mg(OH)2)	< 0.001	-0.265
Magnesium silicate	0	-105.76
Iron hydroxide (Fe(OH)3)	< 0.001	< 0.001
Strengite (FePO4*2H2O)	0	>-0.001
Siderite (FeCO3)	7.16	0.178
Halite (NaCl)	0.19	-89355
Thenardite (Na2SO4)	< 0.001	-87313



D013192582

**Schlumberger**Company: **Chevron U.S.A. Inc.**Well: **Skelly Unit #952**Field: **Cedar Lake North Morrow**County: **Eddy** State: **New Mexico****PLATFORM EXPRESS****Three Detector Litho Density****Compensated Neutron / Spectral Gamma Ray**990' FNL & 990' FWL  
Section 21, T-17S, R-31EElev.: K.B. 3757 ft  
G.L. 3740 ft  
D.F. 3756 ftPermanent Datum: Ground LevelElev.: 3740 ftLog Measured From: Kelly Bushing

17.0 ft above Perm. Datum

Drilling Measured From: Kelly BushingAPI Serial No.  
30-015-32895Section:  
21Township:  
17SRange:  
31ECounty: **Eddy**  
Field: **Cedar Lake North Morrow**  
Location: **990' FNL & 990' FWL**  
Well: **Skelly Unit #952**  
Company: **Chevron U.S.A. Inc.**

LOCATION

Logging Date		20-Sep-2003	
Run Number		One	
Depth Driller		11850 ft	
Schlumberger Depth		11850 ft	
Bottom Log Interval		11835 ft	
Top Log Interval		200 ft	
Casing Driller Size @ Depth		8.625 in @ 4420 ft	@
Casing Schlumberger		4418 ft	
Bit Size		7.875 in	
Type Fluid In Hole		Salt Gel	
Density	Viscosity	9.7 lbm/gal	45 s
Fluid Loss	PH	6.7 cm3	10
Source Of Sample		Flow Line	
RM @ Measured Temperature		0.071 ohm.m @ 100 degF	@
RMF @ Measured Temperature		0.062 ohm.m @ 72 degF	@
RMC @ Measured Temperature		0.088 ohm.m @ 72 degF	@
Source RMF	RMC	Mud Press	Mud Press
RM @ MRT	RMF @ MRT	0.051 @ 143	0.033 @ 143 @
Maximum Recorded Temperatures		143 degF	
Circulation Stopped	Time	20-Sep-2003	8:30
Logger On Bottom	Time	20-Sep-2003	19:15
Unit Number	Location	3125	Hobbs, New Mexico

TIGHT HOLE

GR

Re

Neutron Density

Production test  
perfs

50	$\phi$	K	S <sub>w</sub>	
74	11.1	4.3	29	= c
18	14.3	7.0	58	

9400

No Recovery

6	B.2	B.2	91	= c
---	-----	-----	----	-----

11	10.2	19.2	50	= c
----	------	------	----	-----

19	24	TBPA	49	= c
	2	TBPA	76	

9500

ChevronTexaco  
S Kelly Unit  
#952

**ChevronTexaco**  
MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

**Mike Reeves**  
Technical Assistant

*Merit Partners LP, et al*  
*12222 Merit Dr. #1500*  
*Dallas, TX 75251*

November 10, 2004

**ChevronTexaco**

Skelly Unit # 952  
Convert to Salt Water Disposal (SWD)  
Township 17 South, Range 31 East  
Section 21: 990 FSL and 990 FEL  
Eddy County, New Mexico

Attention: Offset Operator

Ladies and/or Gentlemen,

ChevronTexaco Exploration and Production Co., as operator of the Skelly Unit (SU), has filed an application with the New Mexico Oil Conservation Division to convert the SU # 952 to an SWD well.

Attached is an OCD Form C-108 with information relative to the water disposal conversion of the referenced well. Also, a copy of the legal notice to be posted in the Artesia Daily Press is included. Any objections or requests for hearing must be filed in writing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, NM 87505, within 15 days of this notice.

If additional information is required, please contact me at (915) 687-7114 or by e-mail at the address provided in the above header.

Sincerely,



Mike Reeves  
Engineering Assistant  
New Mexico Team

Attachments



ChevronTexaco  
MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

Mike Reeves  
Technical Assistant

*Devon Energy*  
*20 N Broadway #1500*  
*OK City, OK 73102*

November 10, 2004

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Engineering Assistant  
New Mexico Team

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MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

**Mike Reeves**  
Technical Assistant

*Marbob Energy Corp*  
*PO Box 227*  
*Artesia NM 88211*

November 10, 2004

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Engineering Assistant  
New Mexico Team

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MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

**Mike Reeves**  
Technical Assistant

*Wiser Oil Co  
8115 Preston Road #400  
Dallas TX 75225*

November 10, 2004

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Mike Reeves  
Engineering Assistant  
New Mexico Team

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MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

**Mike Reeves**  
Technical Assistant

*Chase Oil Corp, et al*  
*PO Box 1767*  
*Artesia, NM 88211*

November 10, 2004

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Sincerely,



Mike Reeves  
Engineering Assistant  
New Mexico Team

Attachments

**ChevronTexaco**  
MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

**Mike Reeves**  
Technical Assistant

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

*Kenneth Wade (Kersey + Co)*  
*PO Box 247*  
*Fredericksburg TX 78624*

November 10, 2004

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New Mexico Team

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MidContinent Business Unit  
15 Smith Road  
Midland, Texas 79705

Tel 432 687 7114  
Fax 432 687 7871  
mreeves@chevrontexaco.com

**Mike Reeves**  
Technical Assistant

*\*legals@artesianews.com*

*Emailed to Artesia Daily*  
*11/10/04*

**ChevronTexaco**

November 9, 2004

**REQUEST TO PUBLISH  
LEGAL NOTICE – Salt Water Disposal Well**

Artesia Daily Press  
Box 190  
Artesia, NM 88211-190

Attention: Classified Department

ChevronTexaco Exploration & Production Company requests that you publish the attached notice in your newspaper, one time only, as soon as possible.

Please mail the invoice for this legal notice to the letterhead address above, attention: Mike Reeves, Room 2224. Please attach a copy of the notice as it was published in your newspaper and an affidavit certifying publication of the attached notice and the date of publication.

Sincerely,



Mike Reeves  
Engineering Assistant  
New Mexico Team

Attachment

**Artesia Daily Press  
Legal Notice**

ChevronTexaco Exploration & Production Co., 15 Smith Road, Midland, TX. 79705 has applied to the Oil Conservation Division of the State of New Mexico for administrative approval to dispose of water in the Skelly Unit #952 SWD. The well is located: 990' FSL & 990' FWL, in Section 21, Unit Letter 'M', Township 17 South, Range 31 East, Eddy County, New Mexico. Disposal water will be injected into the Wolfcamp at a depth of 9400' to 9467' at a maximum surface pressure of 1880# and a maximum rate of 20,000 bwpd. Source water will come from area wells producing from nearby Paddock formations and Wolfcamp formations over one mile away. Persons wanting to contact ChevronTexaco should direct their inquiries to Mike Reeves, ChevronTexaco Exploration & Production Co., 15 Smith Road, Midland, TX 79705; telephone (432) 687-7114.

Interested Parties must file objections or requests for hearing in writing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, NM 87505, within 15 days of this notice.

Published in the Artesia Daily Press, Artesia, NM \_\_\_\_\_, 2004.

**Affidavit of Publication**

NO. 18676

STATE OF NEW MEXICO

County of Eddy:

Gary D. Scott being dulysworn, says: That he is the Publisher of The

Artesia Daily Press, a daily newspaper of general

circulation, published in English at Artesia, said county

and county and state, and that the here to 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

1 consecutive weeks/days on the same

day as follows:

First Publication November 11 2004

Second Publication

Third Publication

Fourth Publication

Subscribed and sworn to before me this

11th Day November 2004

Barbara Ann Brown  
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 2007

**Copy of Publication:****LEGAL NOTICE**

proval to dispose of water in the Shelly Unit #952 SWD. The well is located: 990' FSL & 990' FWL in Section 21, Unit Letter 17, Township 17 South, Range 31 East, Eddy County, New Mexico. Disposal water will be injected into the

Main surface area of 1880± and a maximum rate of 20,000 bwpd. Source water will come from area wells producing from nearby Paddock formations and Wolfcamp formations over one mile away. Persons wanting to contact ChevronTexaco should direct their inquiries to Mike Reeves, ChevronTexaco Exploration & Production Co., 15 Smith Road, Midland, TX 79705; telephone (432) 697-7114.

Interested Parties must file objections or requests for hearing in writing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, NM 87505.

ChevronTexaco Exploration & Production Co., 15 Smith Road, Midland, TX 79705 has applied to the Oil Conservation Division of the State of New Mexico for administrative ap-

Published in the Artesia Daily Press, Artesia, N.M. November 11, 2004.

Legal 18676



North America Upstream  
Permian Business Unit  
15 Smith Road  
Midland, TX 79705  
Fax 915-687-7871

## Fax Transmission

To William Jones  
Company BLM  
Fax 505 476 3462  
Re

SKelly Unit 952

Affidavit

## ChevronTexaco

From Mike Reeves  
Date 11-18-04  
Pages 2  
Urgent ☒ Routine ☐

**Jones, William V**

---

**From:** Reeves, Michael T (MReeves) [MReeves@chevrontexaco.com]  
**Sent:** Monday, December 06, 2004 7:52 AM  
**To:** Jones, William V  
**Subject:** RE: Skelly unit 952

I had Gary Gourley with the Roswell BLM look on their web site. He found a "brief" or something that shows all the transactions on particular tracts. His records show that Section 21 of the Skelly Unit is still owned by the BLM. So that should do it. Gary is going to send me a copy of the web page, but I haven't gotten it yet.

I feel confident that it is correct though.

-----Original Message-----

**From:** Jones, William V [mailto:WVJones@state.nm.us]  
**Sent:** Friday, December 03, 2004 9:04 AM  
**To:** Reeves, Michael T (MReeves)  
**Subject:** RE: Skelly unit 952

Hey Mike:

The mountains now have snow and I heard that the 10th will be opening for business, if you are a skier?

Did you notice the owner of the surface at the site of the well?  
Let me know who it was today and we might can release this...

Many Regards,

Will Jones

-----Original Message-----

**From:** Reeves, Michael T (MReeves) [mailto:MReeves@chevrontexaco.com]  
**Sent:** Friday, December 03, 2004 7:12 AM  
**To:** Jones, William V  
**Subject:** RE: Skelly unit 952

I had one offset who had moved. I just checked the status of his letter and it was just delivered to his new address in Denver. Actually they didn't really move, Wiser Oil got bought by Forest Oil so their address changed. Anyway, I should be getting the hard copy of the proof of receipt soon. Right now all I have is something from the web site saying it was delivered to Denver.

Hope you have a great weekend! Have you guys had any snow yet? We had some frost on the windshields and a couple of morning lows around freezing, but no ice or snow yet.

-----Original Message-----

**From:** Jones, William V [mailto:WVJones@state.nm.us]