

DATE: 8.22.11	SUSPENSE: 9/1/11	ENGINEER: WVJ	LOGGERS: B.22.11	TYPE: SWD	APP NO: 1123458194
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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



Devon

Ross Ranch 10 Fed #1

## ADMINISTRATIVE APPLICATION CHECKLIST

30-015-29605

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.

Derek Berg

Print or Type Name

Derek Berg

Signature

Engineering Tech.

Title

8-12-2011

Date

derek.berg@dvn.com

e-mail Address



Devon Energy Corporation  
20 North Broadway  
Oklahoma City, OK 73102-8260

405 235 3611 Phone  
www.devonenergy.com

December 15, 2010

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

RE: Form C-108, Application for Authorization to Inject  
Ross Ranch 10 Fed 1; API# 30-015-29605  
Eddy County, NM  
Section 10, T26S, R31E; 1980' FNL & 660' FEL

Dear Oil Conservation Division:

Please find attached Devon Energy Production Company, LP's Form C-108, Application for Authorization to Inject. Devon's application proposes to convert the Ross Ranch 10 Fed 1 to salt water disposal. Produced waters will be injected into the Cherry Canyon interval from 5118' to 5367'.

A copy of this application is being filed with the OCD-Artesia office. Notification has been sent to the surface land owner and to leasehold operators.

If you have any questions, please contact Jim Cromer at (405)-228-4464 or myself at (405)-228-8364.

Sincerely,

Derek Berg  
Engineering Technician

RS/rs  
Enclosure

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**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance ☒ Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval? ☒ Yes \_\_\_\_\_ No
- II. OPERATOR: \_\_\_\_\_ Devon Energy Production Company, LP \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ 20 North Broadway, Suite 1500, Oklahoma City, Oklahoma 73102 \_\_\_\_\_  
CONTACT PARTY: \_\_\_\_\_ Derek Berg \_\_\_\_\_ PHONE: \_\_\_\_\_ 405-228-8364
- 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: \_\_\_\_\_ Derek Berg \_\_\_\_\_ TITLE: \_\_\_\_\_ Engineering Technician  
SIGNATURE: \_\_\_\_\_ *Derek Berg* \_\_\_\_\_ DATE: \_\_\_\_\_ 8-18-2011 \_\_\_\_\_  
E-MAIL ADDRESS: \_\_\_\_\_ derek.berg@dvn.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: \_\_\_\_\_

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RECEIVED  
OCC

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

### III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

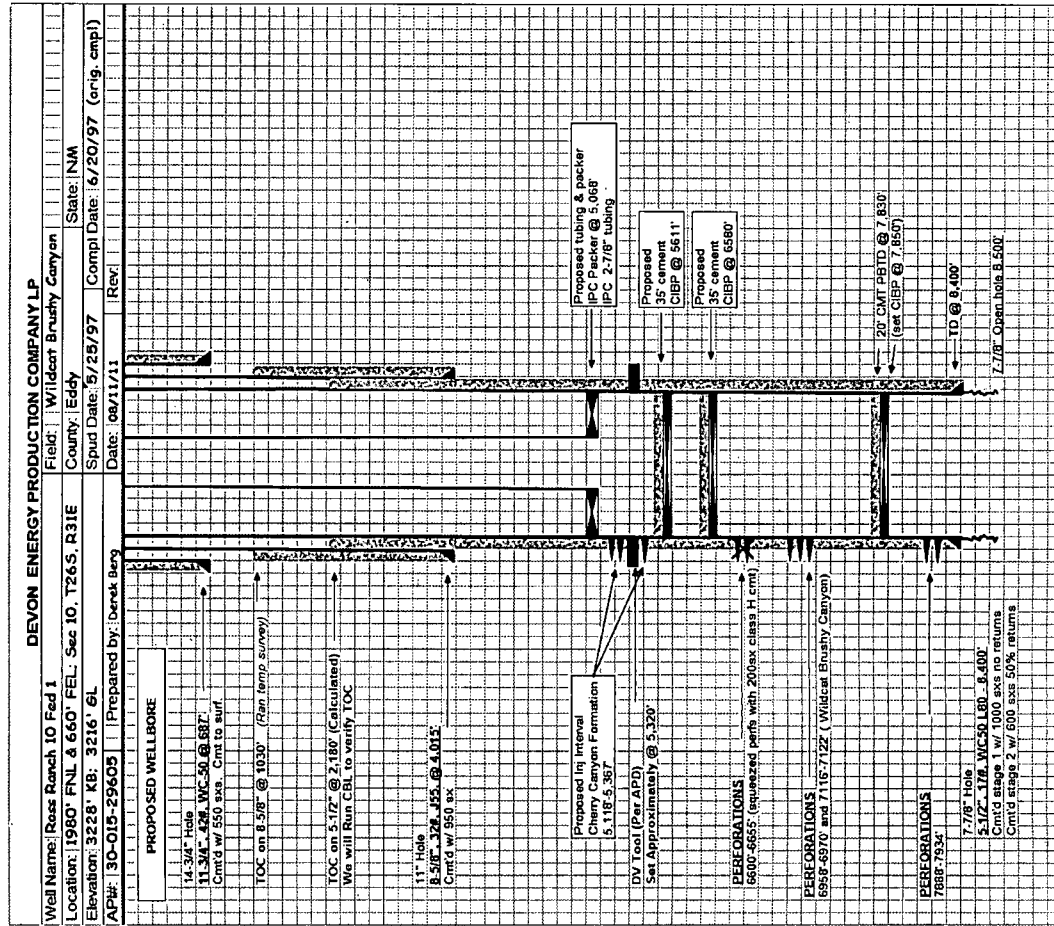
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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

## INJECTION WELL DATA SHEET

OPERATOR: Devon Energy Production Company, LPWELL NAME & NUMBER: Ross Ranch 10 Federal #1WELL LOCATION: 1980' FNL & 660' FEL H Sec 10 T26S R31E UNIT LETTER TOWNSHIP RANGE  
FOOTAGE LOCATIONWELLBORE SCHEMATICWELL CONSTRUCTION DATA  
Surface CasingHole Size: 14-3/4" Casing Size: 11-3/4", 42#, @ 687'Cemented with: 550 sx. or ft<sup>3</sup>Top of Cement: Surface Method Determined: Circ. cementIntermediate CasingHole Size: 11" Casing Size: 8-5/8, 32#, @ 4,015'Cemented with: 950 sx. or ft<sup>3</sup>Top of Cement: 1,030' Method Determined: Temp SurveyProduction CasingHole Size: 7-7/8" Casing Size: 5-1/2, 17#, @ 8,400'Cemented with: 1600 sx. or ft<sup>3</sup>Top of Cement: 2,180' Method Determined: Calc.Total Depth: 8,500'Injection Interval Perforated5,118' feet to 5,367'

(Perforated or Open Hole; indicate which)



INJECTION WELL DATA SHEETTubing Size: 2-7/8" Lining Material: IPCType of Packer: 5-1/2" IPCPacker Setting Depth: +/- 5,068'

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

Additional Data

1. Is this a new well drilled for injection? No

If no, for what purpose was the well originally drilled? Wildcat Brushy Canyon completion

2. Name of the Injection Formation: Cherry Canyon.

3. Name of Field or Pool (if applicable): Wildcat Brushy Canyon; Delaware

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.

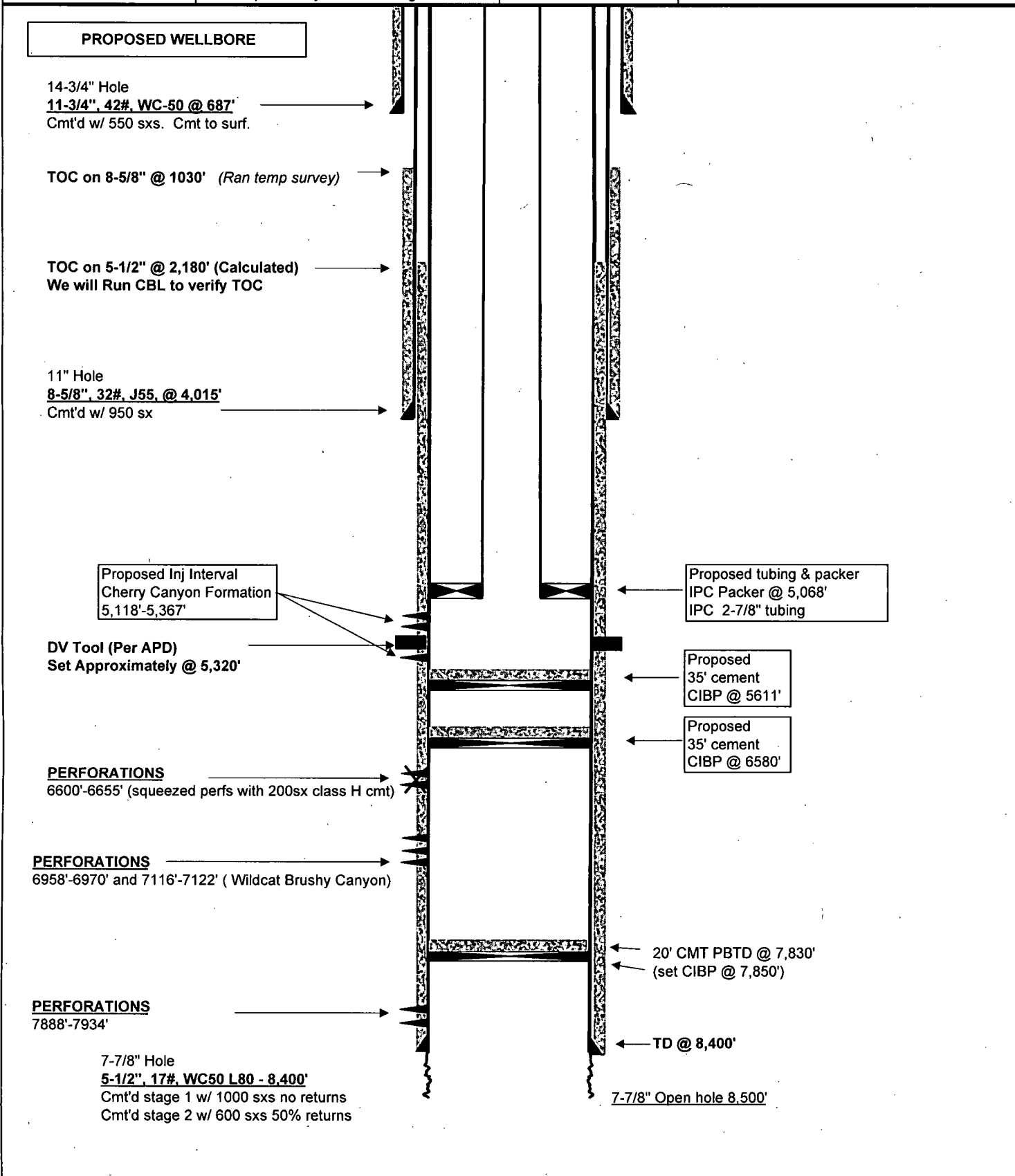
Brushy Canyon (7888' – 7934') set CIBP @ 7850', (6600' – 6655') squeezed perfs with 200sx class H cmt, and (6958' – 6970') Wildcat Brushy Canyon completion.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

Estimated Marker tops: Rustler-849', Top salt-1155', Bottom salt-3848', Bell Canyon-4104', Cherry Canyon-5094', Brushy Canyon-6345', Bone Spring-8102'.

# DEVON ENERGY PRODUCTION COMPANY LP

Well Name: Ross Ranch 10 Fed 1		Field: Wildcat Brushy Canyon	
Location: 1980' FNL & 660' FEL; Sec 10, T26S, R31E		County: Eddy	State: NM
Elevation: 3228' KB; 3216' GL		Spud Date: 5/25/97	Compl Date: 6/20/97 (orig. cml)
API#: 30-015-29605	Prepared by: Derek Berg	Date: 08/11/11	Rev:



# DEVON ENERGY PRODUCTION COMPANY LP

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API#: 30-015-29605	Prepared by: Derek Berg	Date: 08/11/11	Rev:

## CURRENT WELLBORE

14-3/4" Hole

11-3/4", 42#, WC-50 @ 687'

Cmt'd w/ 550 sxs. Cmt to surf.

TOC on 8-5/8" @ 1030' (Ran temp survey)

TOC on 5-1/2" @ 2,180' (Calculated)

We will Run CBL to verify TOC

11" Hole

8-5/8", 32#, J55, @ 4,015'

Cmt'd w/ 950 sx

DV Tool (Per APD)

Set Approximately @ 5,320'

## PERFORATIONS

6600'-6655' (squeezed perms with 200sx class H cmt)

## PERFORATIONS

6958'-6970' and 7116'-7122' ( Wildcat Brushy Canyon)

## PERFORATIONS

7888'-7934'

7-7/8" Hole

5-1/2", 17#, WC50 L80 - 8,400'

Cmt'd stage 1 w/ 1000 sxs no returns

Cmt'd stage 2 w/ 600 sxs 50% returns

PRODUCTION TUBING  
2-7/8" tbg set @ 7177' with tbg anchor  
PRODUCTION METHOD  
Pumping (2.5" x 1.75" x 24')

20' CMT PBD @ 7,830'  
(set CIBP @ 7,850')

TD @ 8,400'

7-7/8" Open hole 8,500'



**Proposed Injection Well: Ross Ranch 10 Fed 1**

API: NA

**APPLICATION FOR INJECTION**

Form C-108 Section III

**III. Well Data--On Injection Well**

**A. Injection Well Information**

- (1) Lease Ross Ranch 10 Fed  
Well No 1  
Location 1980' FNL & 660' FEL  
Sec,Twn,Rnge Sec 10-T26S-R31E  
Cnty, State Eddy County, NM
- (2) Casing 11-3/4", 42#, WC-50, @ 687'  
Cmt'd w/550 sx to surface  
  
8-5/8", 32#, J55, @ 4015'  
Cmt'd w/ 950 sx to 1030' rpt'd by temp survey  
  
5-1/2", 17#, WC-50 and L80, @ 8400'  
Cmt'd w/1600 sx. Calc TOC @ 2180'
- (3) Injection Tubing 2-7/8", 6.5#, IPC Injection tubing
- (4) Packer 7" IPC Packer @ 5068'

**B. Other Well Information**

- (1) Injection Formation: Cherry Canyon formation  
Field Name: Delaware
- (2) Injection Interval: Cherry Canyon: 5118' -5367'

- (3) Original Purpose of Wellbore:

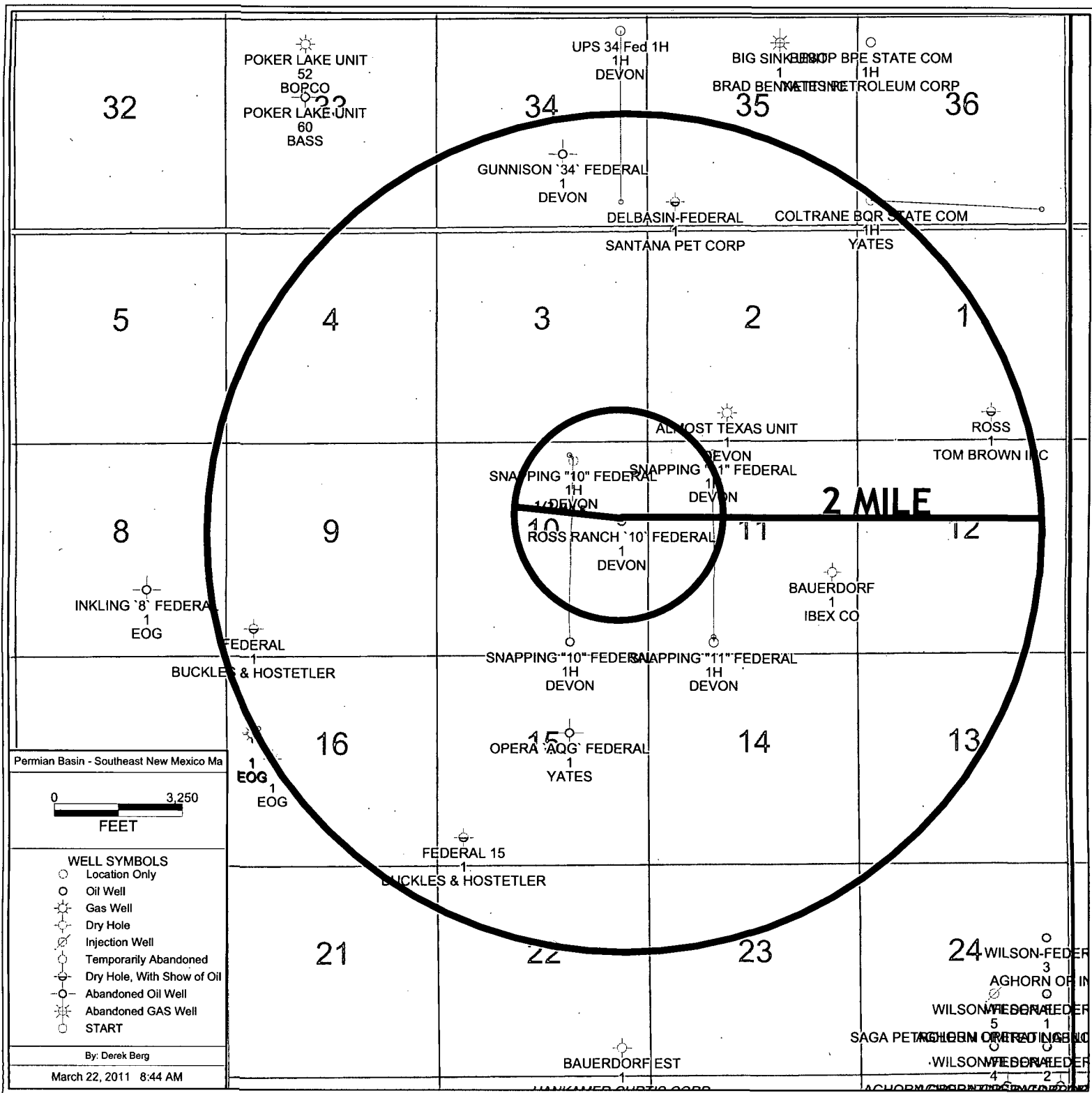
Oil & Gas producer

- (4) Other perforated intervals:

Brushy Canyon (7888' – 7934') set CIBP @ 7850', (6600' – 6655') squeezed perms with 200sx class H cmt, and (6958' – 6970') Wildcat Brushy Canyon completion.

- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well if any.

Estimated Marker tops: Rustler-849', Top salt-1155', Bottom salt-3848', Bell Canyon-4104', Cherry Canyon-5094', Brushy Canyon-6345', Bone Spring-8102'.



C108 ITEM VI--Well Tabulation in 1/2 Mile Review Area																						
Devon Energy Production Company, LP																						
Proposed Disposal Well: Ross Ranch 10 Fed 1																						
Updated: 3/22/11																						
Operator	Well Name	API NO	County	Surf Location	Sec	Twn	Rnge	Type	Status	Spud Date	Comp Date	TD	P8TD	Comp Zone	Comp Interval-Ft	Casing Program	Cement / TOC	CBL	DV Tool	Stage #1	Stage #2	
Devon Energy Prod Co LP	Ross Ranch 10 Fed 1 (proposed for swd)	30-015-36425	Eddy	1980' FNL 660' FEL	10	26S	31E	Oil	Shut In	5/25/97	6/20/97	8400	7830	Wildcat Brushy Canyon	6600'-6655' (squeezed perfs with 200sx class H cml) 6958'- 6970' and 7116'-7122' 7888'- 7934' (est CIBP @ 7850')	11-3/4", 42# @ 687' 8-5/8" 32# @ 4015' 5-1/2", 17# @ 8400'	550 sx / surf 950 sx / temp survey TOC @ 1,030'			Per APD sat @ Approximately 5,320'	Cmtd stage 1 w/ 1000 sxs No Returns	Cmtd stage 2 w/ 600 sxs 50% returns
Devon Energy Prod Co LP	Snapping 10 Fed 1H	30-015-37899	Eddy	330' FNL 1980' FEL	10	26S	31E	Oil	Active	7/10/10	11/5/10	12870	12866	Avalon ✓ Shale	Perforations From (8468-12858)	13-3/8", 48# @ 960' 9-5/8", 36# & 40# @ 4100' 5-1/2", 17# @ 12870'	960 sx / surf 1400 sx / surf		5977'	1st Sig- 1735 sx; circ 371 sx off dv tool(5977)	2nd Sig-480 sx; ETOC @ 3600'	
Devon Energy Prod Co LP	Snapping 11 Fed 1H	30-015-38193	Eddy	430' FSL 1650' FNL	11	26S	31E	Oil	Active	11/14/10	1/21/11	12985	12957	Avalon ✓ Shale	Perforations From (8677-12935)	13-3/8", 48# @ 852' 9-5/8", 36# & 40# @ 4143' 5-1/2", 17# @ 12960'	900 sx / surf 1400 sx / surf		5984'	1nd Sig- 1785 sx; circ 80 sx off dv tool(5984)	2nd Sig-485 sx; ETOC @ 1384'	

**Proposed Injection Well: Ross Ranch 10 Fed 1**

**APPLICATION FOR INJECTION**

**Form C-108 Section VII to XII**

**VII Attach data on the proposed operation, including:**

- (1) Proposed average injection rate: 3000 BWPB  
Proposed maximum injection rate: 5000 BWPB
- (2) The system will be a closed system.
- (3) Proposed average injection pressure: 750 psi  
Proposed max injection pressure: 1023 psi
- (4) The injection fluid will be produced water from the Avalon Shale formation that will be injected into the Delaware Cherry Canyon formation.
- (5) A representative water analysis is attached for sourced water from the Avalon Shale formation.

**VIII Geologic Injection Zone Data**

The injection zone is the Cherry Canyon from 5118' to 5367'. The gross injection interval is 249' thick. The Cherry Canyon formation is Permian aged sandstone. The average depth to fresh water is 300' in this area.

**IX Proposed Stimulation**

Based on injectivity results this interval could be stimulated with ~3000 gals 15% HCl and 160,000# of sand.

**X Log Data**

Logs for the Ross Ranch 10 Fed 1 (30-015-29605) have been submitted and are available on the OCD website. We have not been able to locate the CBL run per completion report dated 6/20/97. Devon is planning to run CBL to verify cement placement. See attached proposed wellbore schematic.

**XI Fresh Water Analysis**

No fresh water wells were indicated within the vicinity of the proposed disposal.

**XII Geologic / Engineering Statement**

An examination of this area has determined there are no open faults or other hydrologic connection between the disposal zone and any underground drinking water.

**XIII Proof of Notice**

Proof of notice to surface owner, and public legal notification are attached.

North Permian Basin Region  
P.O. Box 740  
Sundown, TX 79372-0740  
(806) 229-8121  
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## Water Analysis Report by Baker Petrolite

Company:	DEVON ENERGY CORPORATION	Sales RDT:	33521.1
Region:	PERMIAN BASIN	Account Manager:	GENE ROGERS (575) 910-1022
Area:	ARTESIA, NM	Sample #:	559840
Lease/Platform:	SNAPPING LEASE	Analysis ID #:	110597
Entity (or well #):	10-1	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 559840 @ 75 °F					
Sampling Date:	07/19/11	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	07/26/11	Chloride:	127230.0	3588.69	Sodium:	70089.5	3048.72
Analyst:	STACEY SMITH	Bicarbonate:	146.4	2.4	Magnesium:	1557.0	128.08
TDS (mg/l or g/m3):	209352.4	Carbonate:	0.0	0.	Calcium:	7327.0	365.62
Density (g/cm3, tonne/m3):	1.137	Sulfate:	600.0	12.49	Strontium:	882.0	20.13
Anion/Cation Ratio:	1	Phosphate:			Barium:	2.0	0.03
		Borate:			Iron:	203.0	7.34
		Silicate:			Potassium:	1313.0	33.58
Carbon Dioxide:	600 PPM	Hydrogen Sulfide:		0 PPM	Aluminum:		
Oxygen:		pH at time of sampling:		7.1	Chromium:		
Comments:		pH at time of analysis:			Copper:		
		pH used in Calculation:		7.1	Lead:		
					Manganese:	2.500	0.09
					Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	0.90	10.29	-0.43	0.00	-0.40	0.00	0.28	120.39	0.74	0.86	0.08
100	0	0.89	11.44	-0.51	0.00	-0.41	0.00	0.25	110.67	0.54	0.86	0.12
120	0	0.89	12.58	-0.58	0.00	-0.40	0.00	0.24	104.95	0.36	0.57	0.16
140	0	0.89	14.01	-0.63	0.00	-0.36	0.00	0.24	103.23	0.21	0.29	0.22

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

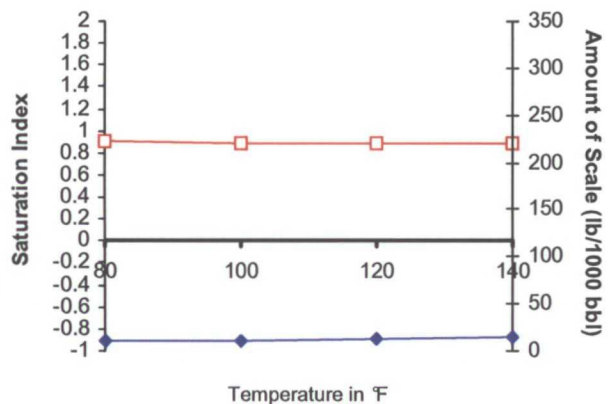
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

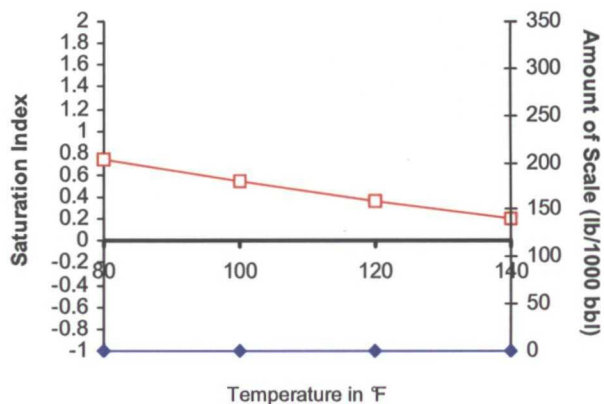
## Scale Predictions from Baker Petrolite

Analysis of Sample 559840 @ 75 °F for DEVON ENERGY CORPORATION, 07/26/11

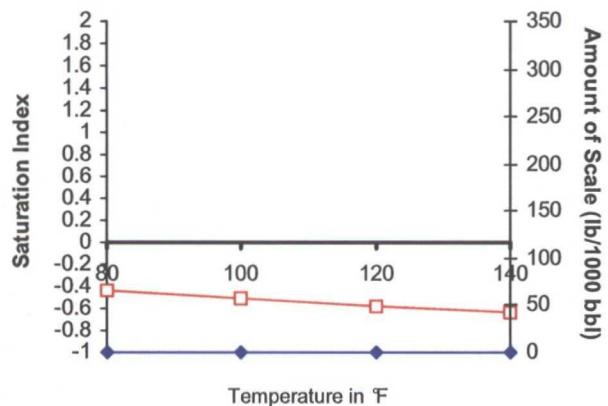
**Calcite -  $\text{CaCO}_3$**



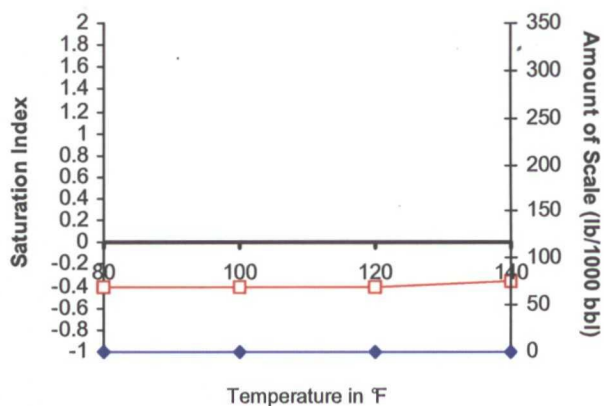
**Barite -  $\text{BaSO}_4$**



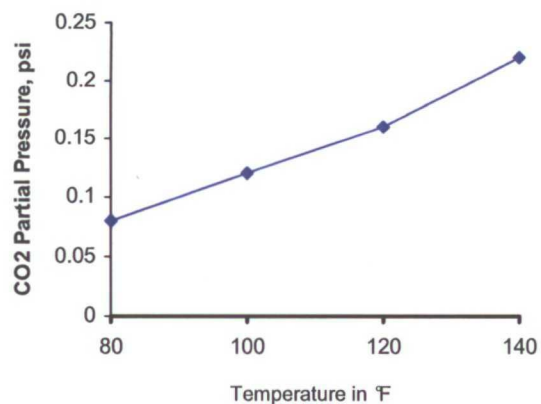
**Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$**



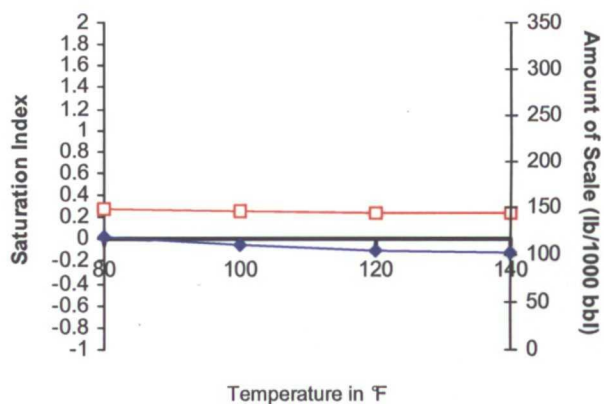
**Anhydrite -  $\text{CaSO}_4$**



**Carbon Dioxide Partial Pressure**



**Celestite -  $\text{SrSO}_4$**



North Permian Basin Region  
P.O. Box 740  
Sundown, TX 79372-0740  
(806) 229-8121  
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## Water Analysis Report by Baker Petrolite

Company:	DEVON ENERGY CORPORATION	Sales RDT:	33521.1
Region:	PERMIAN BASIN	Account Manager:	GENE ROGERS (575) 910-1022
Area:	ARTESIA, NM	Sample #:	559841
Lease/Platform:	SNAPPING LEASE	Analysis ID #:	110598
Entity (or well #):	11-1	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 559841 @ 75 °F			
		Anions		Cations	
		mg/l	meq/l	mg/l	meq/l
Sampling Date:	07/19/11	Chloride:	118943.0	Sodium:	68797.3
Analysis Date:	07/26/11	Bicarbonate:	122.0	Magnesium:	1066.0
Analyst:	STACEY SMITH	Carbonate:	0.0	Calcium:	5059.0
TDS (mg/l or g/m3):	196576.7	Sulfate:	872.0	Strontium:	577.0
Density (g/cm3, tonne/m3):	1.127	Phosphate:		Barium:	1.5
Anion/Cation Ratio:	1	Borate:		Iron:	12.0
		Silicate:		Potassium:	1126.0
Carbon Dioxide:	380 PPM	Hydrogen Sulfide:	0 PPM	Aluminum:	
Oxygen:		pH at time of sampling:	7	Chromium:	
Comments:		pH at time of analysis:		Copper:	
		pH used in Calculation:	7	Lead:	
				Manganese:	0.900
				Nickel:	0.03

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	0.57	5.50	-0.40	0.00	-0.38	0.00	0.30	128.48	0.83	0.58	0.09
100	0	0.59	6.37	-0.48	0.00	-0.39	0.00	0.27	118.06	0.62	0.58	0.12
120	0	0.61	7.52	-0.55	0.00	-0.38	0.00	0.26	111.99	0.44	0.58	0.16
140	0	0.63	8.68	-0.61	0.00	-0.34	0.00	0.25	109.38	0.28	0.29	0.21

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

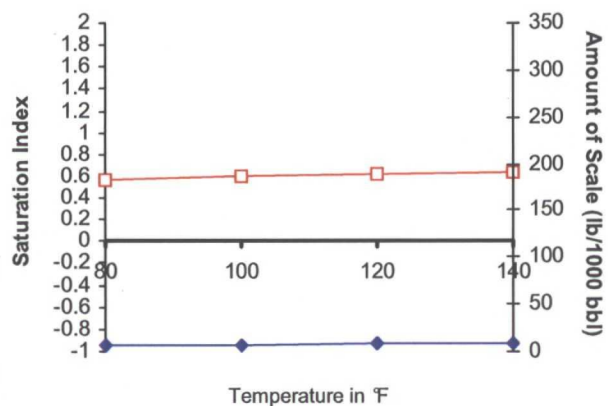
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

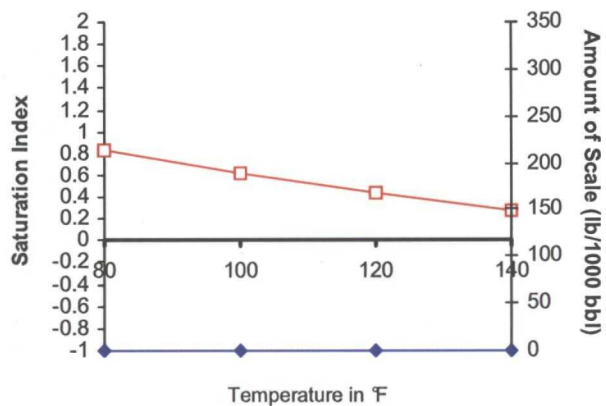
# Scale Predictions from Baker Petrolite

Analysis of Sample 559841 @ 75 °F for DEVON ENERGY CORPORATION, 07/26/11

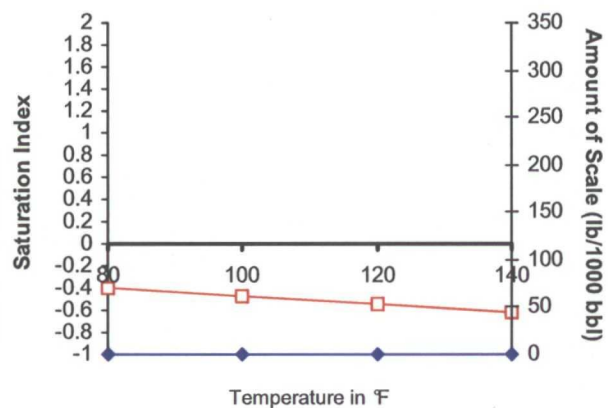
## Calcite - $\text{CaCO}_3$



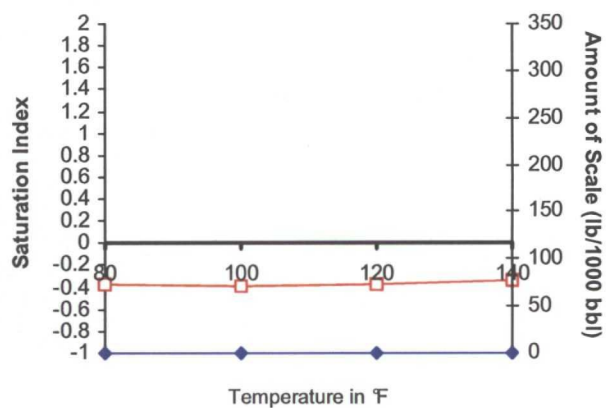
## Barite - $\text{BaSO}_4$



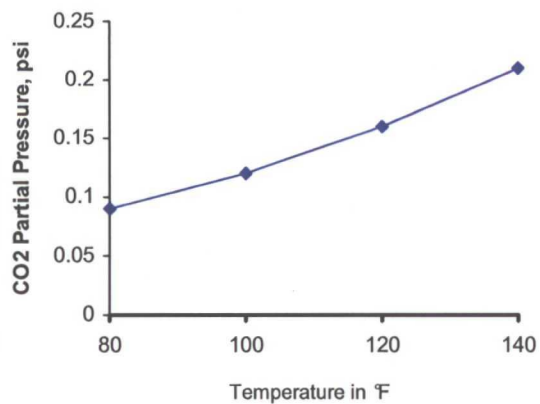
## Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$



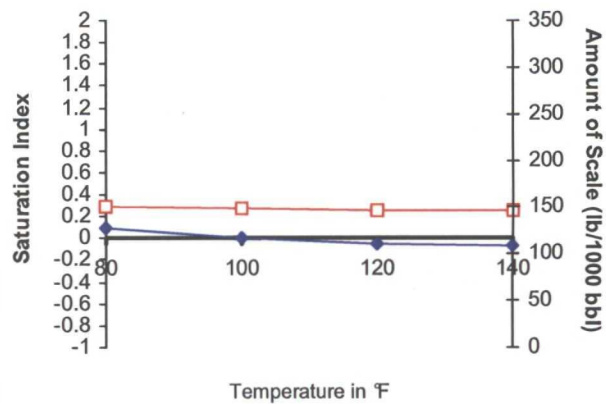
## Anhydrite - $\text{CaSO}_4$



## Carbon Dioxide Partial Pressure



## Celestite - $\text{SrSO}_4$





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB NO. 1004-0137  
EXPIRES: March 31, 2007

**SUNDRY NOTICES AND REPORTS ON WELLS**

**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals**

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. <b>NM 89057</b>
2. Name of Operator <b>DEVON ENERGY PRODUCTION COMPANY, LP</b>		6. If Indian, Allottee or Tribe Name
3a. Address <b>20 North Broadway, Ste 1500, Oklahoma City, OK 73102</b>		7. Unit or CA Agreement Name and No.
3b. Phone No. (include area code) <b>405-228-8364</b>		8. Well Name and No. <b>Ross Ranch 10 Fed 1</b>
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) <b>1980' FNL &amp; 660 FEL H Section 10, T26S, R31E</b>		9. API Well No. <b>30-015-29605</b>
		10. Field and Pool, or Exploratory Area <b>Wildcat Brushy Canyon</b>
		11. County or Parish, State <b>Eddy NM</b>

**12. CHECK APPROPRIATE BOX(es) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input checked="" type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work and approximate duration thereof. If the proposal deepens directionally or recompletes horizontally, give subsurface location and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirement, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection)

Note: Devon Energy is filing Form C-108 (Application for Authorization to Inject) with the Oil Conservation Division in Santa Fe, NM. Proposed SWD conversion is in the existing Cherry Canyon (from 5118' to 5367'). The BLM will be furnished a copy of Form C-108 when filed.

**PROPOSED SWD CONVERSION**

1. Wait on OCD C108 and BLM sundry approval.
2. MIRU. Pull production tubing with tbg anchor and pump.
3. Run CBL to verify TOC.
4. RIH set CIBP @ 6580' with 35' cmt on top.
5. Move up hole set second CIBP @ 5611' with 35' cmt on top.
6. Perf interval from 5118' to 5367'.
7. Establish injecton in Cherry Canyon formation interval from 5118' to 5367', not to exceed maximum authorized surface injection pressure per C108.
8. Stimulate Cherry Canyon formation if necessary.
9. Run 2-7/8" IPC injection tubing and 5-1/2" IPC packer at +/- 5068".
10. Run MIT test and chart. File MIT w/ OCD office.
11. Return well to injection service.

14. I hereby certify that the foregoing is true and correct Name: <b>Derek Berg</b>	Title <b>Engineering Technician</b>
Signature <i>Derek Berg</i>	Date <b>8-17-2011</b>

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by	Title	Date
Conditions of approval, if any are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct or operations thereon.	Office	

Section XIV--Proof of Notice to Surface Land Owner  
Devon Energy Prod Co LP  
C108 Application For Injection  
Proposed Well: Ross Ranch 10 Fed 1

Proof of Notice to Surface Land Owner of well location site.

Bureau of Land Management  
Carlsbad Field Office  
620 East Greene Street  
Carlsbad, NM 88220

Certified receipt No:  
7010 1060 0000 0919 4019

A copy of this application has been mailed to the above surface land owner by certified mail, pertaining to Devon Energy's application for salt water disposal in the Ross Ranch 10 Fed 1.

Date Mailed: 8-18-2011

Signature: Derek Berg

Date: 8-18-2011

Derek Berg, Engineering Technician  
Devon Energy Production Co., L.P.  
20 N. Broadway, Suite 1500  
Oklahoma City, OK 73102

Section XIV--Proof of Notice to Leasehold Operators

Devon Energy Prod Co LP

C108 Application For Injection

Proposed Well: Ross Ranch 10 Fed 1

Proof of Notice to Leasehold Operators within 1/2 mile of Ross Ranch 10 Fed 1

Headington Royalty, Inc.  
2711 N. Haskell Ave, Suite 2800  
Dallas, TX 75204

Certified receipt No.  
7008 1830 0003 1985 7600

Roden Participants, Ltd.  
2603 Augusta Drive, Suite 740  
Houston, TX 77057

Certified receipt No.  
7008 1830 0003 1985 7617

Roden Associates, Ltd.  
2603 Augusta Drive, Suite 740  
Houston, TX 77057

Certified receipt No.  
7008 1830 0003 1985 7631

W.F. Roden  
2603 Augusta Drive, Suite 740  
Houston, TX 77057

Certified receipt No.  
7008 1830 0003 1985 7648

Harvey Mineral Partners, LP  
3811 Turtle Creek Blvd.  
Dallas, TX 75219

Certified receipt No.  
7008 1830 0003 1985 7655

XTO Energy, Inc.  
810 Houston Street  
Fort Worth, TX 76102-6298  
Attn: Mark Dale

Certified receipt No.  
7008 1830 0003 1985 7662

Conoco Phillips Company  
600 N. Dairy Ashford St.  
Houston, TX 77079  
Attn: Tom Scarbrough

Certified receipt No.  
7008 1830 0003 1985 7679

Geronimo Holding Corporation  
P.O. Box 804  
Midland, TX 79702

Certified receipt No.  
7008 1830 0003 1985 7686

EOG Resources, Inc.  
P.O. Box 2267  
Midland, TX 79708

Certified receipt No.  
7008 1830 0003 1985 7693

E.G.L. Resources, Inc.  
P.O. Box 10886  
Midland, TX 79702

Certified receipt No.  
7008 1830 0003 1985 7709

T.R. Cone  
P.O. Box 778  
Jay, OK 74346

Certified receipt No.  
7008 1830 0003 1985 7716

T.R. Cone  
P.O. Box 400  
Southwest City, MO 64863

Certified receipt No.  
7008 1830 0003 1985 7723

William H. Bennett  
P.O. Box 51407  
Midland, TX 79710

Certified receipt No.  
7008 1830 0003 1985 7730

A copy of this application has been mailed to the above leasehold operator by certified mail, pertaining to Devon Energy's application for salt water disposal in the Ross Ranch 10 Fed 1

Date Mailed: 8-18-2011

Signature: Derek Berg

Date: 8-18-2011

Derek Berg, Engineering Technician  
Devon Energy Production Co., L.P.  
20 N. Broadway, Suite 1500  
Oklahoma City, OK 73102

# Affidavit of Publication

State of New Mexico,  
County of Eddy, ss.

Kathy McCarroll, being first duly sworn,  
on oath says:

That she is the Classified Supervisor of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

July 17

2011

That the cost of publication is \$54.08 and that payment thereof has been made and will be assessed as court costs.

Kathy McCarroll

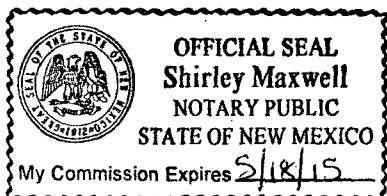
Subscribed and sworn to before me this

19th day of July, 2011

Shirley Maxwell

My commission Expires on May 18, 2015

Notary Public



**Jones, William V., EMNRD**

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**From:** Berg, Derek [Derek.Berg@dvn.com]  
**Sent:** Wednesday, August 24, 2011 10:06 AM  
**To:** Jones, William V., EMNRD  
**Cc:** Ezeanyim, Richard, EMNRD; Slack, Ronnie; Cromer, James  
**Subject:** RE: Disposal application from Devon: Ross Ranch 10 Federal #1 30-015-29605 Cherry Canyon 5118 - 5367

Hello William,

I had a conversation with our geologist and he confirmed that the proposed SWD is into an interval that is Wet on the Logs, and into an interval that does not have offsetting producing wells. If there is anything else that I can be of assistance on please don't hesitate to contact me.

Thank you,

Derek Berg  
Engineering Technician  
CT 02.004  
Cell- 940-389-4698  
Office- 405-228-8364  
[derek.berg@dvn.com](mailto:derek.berg@dvn.com)

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**From:** Jones, William V., EMNRD [<mailto:William.V.Jones@state.nm.us>]  
**Sent:** Tuesday, August 23, 2011 11:10 AM  
**To:** Berg, Derek  
**Cc:** Ezeanyim, Richard, EMNRD  
**Subject:** Disposal application from Devon: Ross Ranch 10 Federal #1 30-015-29605 Cherry Canyon 5118 - 5367

Hello Derek,

Thanks for this application, I just reviewed it and it was VERY well done.

The proposed SWD is into an interval that is Wet on the Logs? And into an interval that does not have offsetting producing wells.

I will prepare a permit for release after the 15 day wait – September 7<sup>th</sup> unless there is a protest.

Notices were sent to many lessees so it was apparently very thorough and guided by a landman.

Our landman/attorney has instituted a policy where we ask that all the separately owned tracts of lands be identified – I am attaching an example of a way to identify these tracts of land.

Maybe on your next application include something like this – don't do it on this one.

Regards,

William V Jones, P.E.  
Engineering, Oil Conservation Division  
1220 South St. Francis Drive, Santa Fe, NM 87505  
Tel 505.476.3448 ~ Fax 505.476.3462



## Injection Permit Checklist (11/15/2010)

WFX PMX SWD 1298 Permit Date 9/7/11 UIC Otr G(A/S)

# Wells 1 Well Name(s): ROSS RANCH 10 Fed #1

API Num: 30-0 15-29605 Spud Date: 5/25/97 New/Old: N (UIC primacy March 7, 1982)

Footages 1980 FWL/166FEL Unit # Sec 10 Tsp 265 Rge 31E County EDDY

General Location: 7 mi NE of Red Bluff Res. (North Texas)

Operator: Dena Energy Production Company, LP Contact Derek Berg

OGRID: 6137 RULE 5.9 Compliance (Wells) 6/15/11 (Finan Assur) OK IS 5.9 OK? OK

Well File Reviewed Current Status: Depleted Brushy S well

Planned Work to Well: PWE Back

Diagrams: Before Conversion After Conversion Elogs in Imaging File:

Well Details:	Sizes Hole.....Pipe	Setting Depths	Stage Tool	Cement Sx or Cf	Determination Method
New Existing Surface	14 3/4 11 3/4	687	—	SSO	CIRC
New Existing Interm	11 8 5/8	4015	—	950	1050 TD
New Existing LongSt	7 7/8 5 1/2	8400	5320	1600	2150 Calc
New Existing Liner		(8500 TD)			
New Existing OpenHole					

## Depths/Formations:

	Depths, Ft.	Formation	Tops?
Formation(s) Above	4104	Belec.	✓
	5094	Chery C.	✓
Injection TOP:	5118	Chery C.	Max. PSI 1024
Injection BOTTOM:	5367	" "	OpenHole Perfs ✓
			Tubing Size 2 7/8 Packer Depth 5068'
Formation(s) Below	6345	Brushy C.	✓

BIG SINKS SE Pool  
NOTHING THERE (Brushy)

Capitan Reef? (Botash? Noticed?) (WIPP? Noticed?) Salado Top/Bot 155-3438 Cliff House?

Fresh Water: Depths: 0-300' Formation ? Wells? None Analysis? Affirmative Statement ✓

Disposal Fluid Analysis? Sources: Avalon Shale

Disposal Interval: Analysis? Production Potential/Testing: Wet

Notice: Newspaper Date 7/17/11 Surface Owner BLM Mineral Owner(s)

RULE 26.7(A) Affected Persons: See Application

AOR: Maps? Well List? Producing in Interval? NO Wellbore Diagrams?

Active Wells 2 Repairs? Which Wells?

P&amp;A Wells 0 Repairs? Which Wells?

Issues: Run CBL  
Sat CIBR 5615' OK

Request Sent Reply: