

|                        |          |                        |                          |                 |                |                           |
|------------------------|----------|------------------------|--------------------------|-----------------|----------------|---------------------------|
| DATE IN <b>7/20/09</b> | SUSPENSE | ENGINEER <b>Warner</b> | LOGGED IN <b>7/20/09</b> | TYPE <b>IPI</b> | PTW <b>PTW</b> | APP NO. <b>0920158056</b> |
|------------------------|----------|------------------------|--------------------------|-----------------|----------------|---------------------------|

ABOVE THIS LINE FOR DIVISION USE ONLY

## NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

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



30-025-39193

House SWD #1

Apache (873)

### 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]**

IPI-351

SWD-1169

920PSL

#### [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

TW.

- [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

RECEIVED

2009 JUL 20 PM 1 14



6120 S. YALE / SUITE 1500 / TULSA, OKLAHOMA 74136-4224

WWW.APACHECORP.COM  
Telephone: (918) 491-4900

July 17, 2009

State of New Mexico  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Attention: Mr. William V. Jones

RE: Request for Surface Injection Pressure Amendment  
House SWD #1 (30-025-39193)  
Lea County, New Mexico

Dear Mr. Jones:

Apache Corporation requests an amendment to the 0.2 psi/ft surface pressure limitation for the House SWD #1. A step-rate test was performed on July 16, 2006 and this test indicates that the parting pressure occurs at a surface pressure of 1585 psi (0.34 psi/ft). Therefore, Apache Corporation is requesting the allowable surface injection pressure limitation is increased from 920 psi to 1550 psi.

Your approval of said amendment would be greatly appreciated. Please call (918-491-4982) or email ([jeff.frederick@apachecorp.com](mailto:jeff.frederick@apachecorp.com)) with any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Frederick".

Jeff Frederick, P.E.

Attachments

Cc: Sophie Mackay, Engineering Tech

jlf,bm



$4600' \times FG = 1535'$   
 $FG = 3337$

$1585$   
 $-50$   
 $\hline 1535 \text{ psi}$

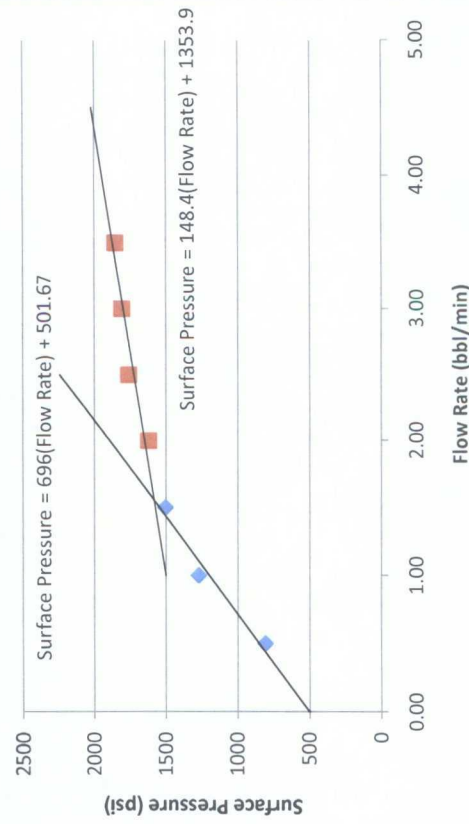
# House SWD #1 (30-025-39193): Step-Rate Test Analysis

Depth 4600 ft  
Fluid Wt 8.34 ppg

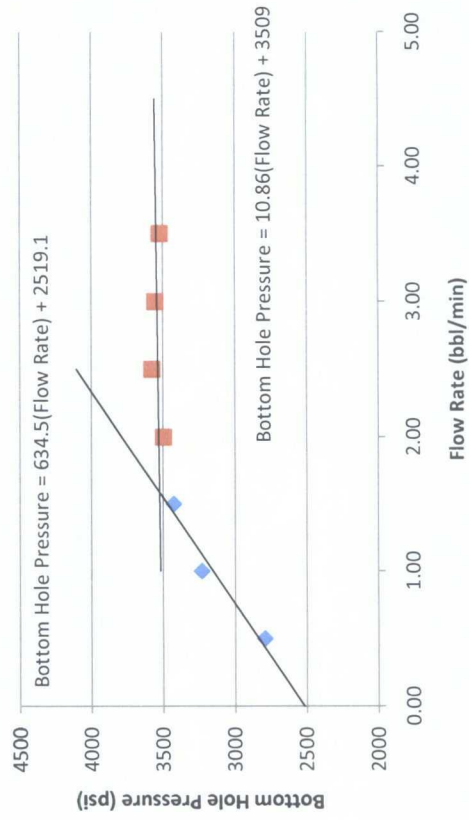
| Rate (bbl/min) | Surface Pressure (psi) | Friction Pressure (psi) | Hydrostatic Pressure (psi) | Bottom Hole Pressure (psi) |
|----------------|------------------------|-------------------------|----------------------------|----------------------------|
| 0.5            | 811                    | 10                      | 1995                       | 2796                       |
| 1              | 1275                   | 35                      | 1995                       | 3235                       |
| 1.5            | 1507                   | 72                      | 1995                       | 3430                       |
| 2              | 1623                   | 120                     | 1995                       | 3498                       |
| 2.5            | 1762                   | 179                     | 1995                       | 3578                       |
| 3              | 1808                   | 247                     | 1995                       | 3556                       |
| 3.5            | 1855                   | 326                     | 1995                       | 3524                       |
| ISIP           | 1600                   | 0                       | 1995                       | 3595                       |

| Location    | Parting Pressure (psi) | Rate at Parting Pressure (bbl/min) |
|-------------|------------------------|------------------------------------|
| Surface     | 1585                   | 1.6                                |
| Bottom hole | 3526                   | 1.6                                |

## Step Rate Test: Surface Pressure Data



## Step Rate Test: Bottom Hole Pressure Data

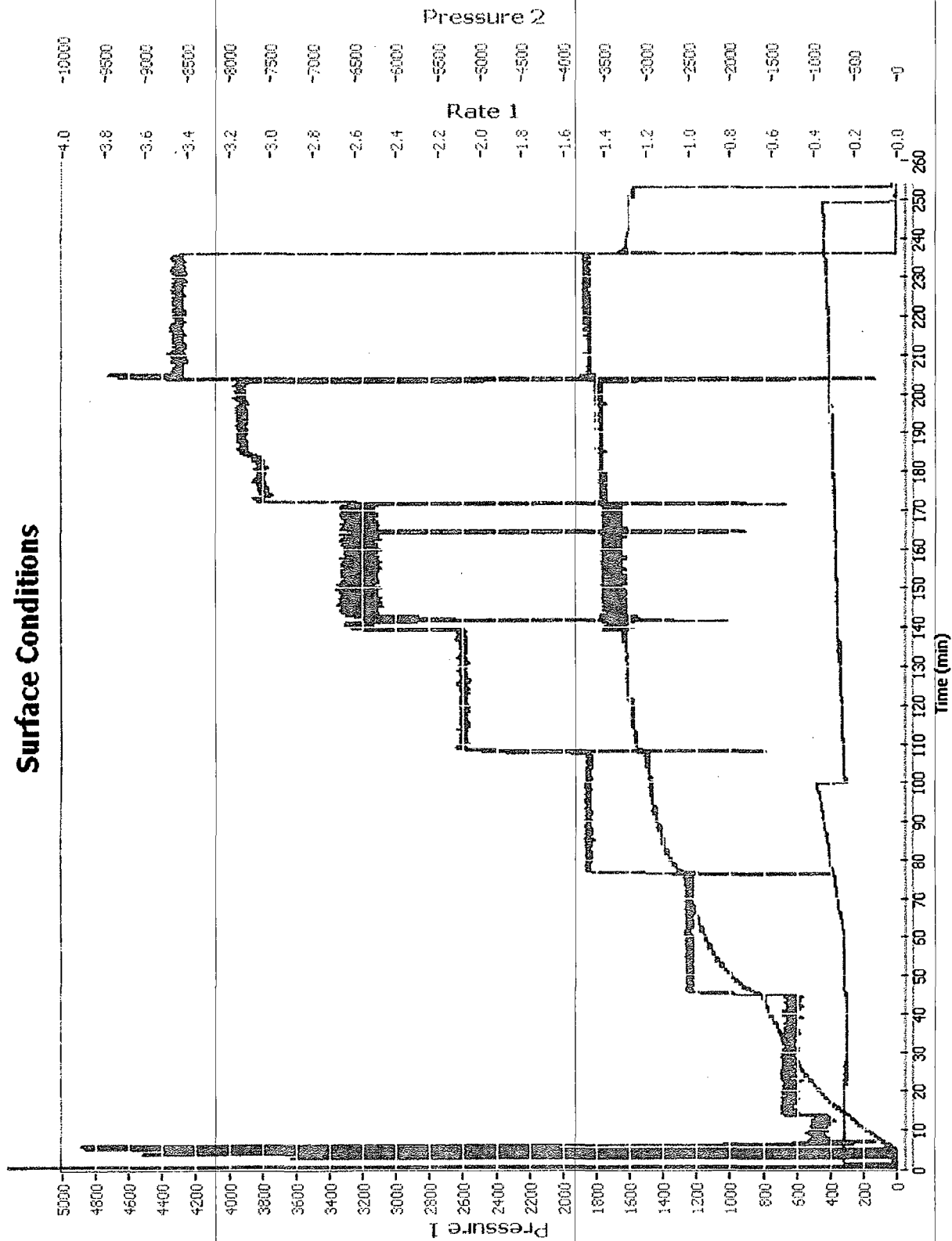


APACHE

HOUSE SWD #1

7-16-09

# Surface Conditions



# CPS Treatment Report

page 1

|                  |              |            |                       |
|------------------|--------------|------------|-----------------------|
| Customer:        | APACHE       | ESO#:      | DJUZ7TYTNJ            |
| Well Name & No.: | HOUSE SWD #1 | Formation: | SAN ANDERS            |
| County:          | LEA          | Date:      | July 16, 2009         |
| State:           | NM           | Well type: | Disposal, New / Stim. |

| Customer Information     |                   |
|--------------------------|-------------------|
| Address:                 | P.O. BOX DRAWER D |
| City, State:             | MONUMENT NM       |
| Zip Code:                | 88265             |
| Customer Representative: | TRAVIS CARNES     |



| Remarks |                             |
|---------|-----------------------------|
|         | Arrive on Location: 6:00 AM |
|         | Depart Location: 11:30 AM   |
|         | Total Hours: 5.50           |

|                       | Depth | O.D.  | Weight | I.D.  | Volume              | Bbls/linear ft. |
|-----------------------|-------|-------|--------|-------|---------------------|-----------------|
| Tubing 1 length ft.:  | 4,546 |       | 0      | 0.000 | 0.00                | 0.00000         |
| Tubing 2 length ft.:  |       |       |        |       | 0.00                | 0.00000         |
| Casing 1 length ft.:  | 4,600 | 5 1/2 | 0.00   | 0.000 | 0.00                | 0.00000         |
| Casing 2 length ft.:  |       |       |        |       | 0.00                | 0.00000         |
| Open Hole length ft.: |       | N/A   | N/A    |       | 0.00                | 0.00000         |
| Combined Depth ft.:   | 4,600 |       |        |       | Annular Vol.: BBLS. | 0.00000         |

|                        | Depth  | Vol. |                   |       |                 |      |
|------------------------|--------|------|-------------------|-------|-----------------|------|
| Top Perf/Open Hole:    | 4,600  | 0.00 | Maximum Pressure: | 1855  | ISIP:           | 1600 |
| Bottom Perf/Open Hole: | 5,500  | 0.00 | Average Pressure: | 1306  | 5 min:          | 1600 |
| Number of Perfs:       | OPEN H |      | Maximum Rate:     | 3.5   | 10 min:         | 1600 |
| Perf Size:             | 0.31   | in.  | Average Rate:     | 1.6   | 15 min:         | 1600 |
| Packer Depth:          | 4,546  | ft.  | Fluid to Recover: | 457.5 | Proppant Total: |      |

| Time        | STP  | CAS   | Rate | Stage | Total | Comments               |
|-------------|------|-------|------|-------|-------|------------------------|
| 6:04:06 AM  | 0    | 0     | 0.0  | 0.0   | 0.0   | SAFETY MEETING         |
| 7:31:54 AM  | 4452 | 628.0 | 0.0  |       | 0.0   | PRESSURE TESTED LINES  |
| 7:33:29 AM  | 0    | 628.0 | 3.8  |       | 2.0   | START WATER            |
| 7:35:12 AM  | 93   | 628.0 | 0.5  |       | 5.0   | LOADED START STEP RATE |
| 7:42:06 AM  | 325  | 628.0 | 0.5  |       | 8.1   | PSI & RATE CHECK       |
| 7:47:13 AM  | 464  | 628.0 | 0.5  |       | 11.0  | PSI & RATE CHECK       |
| 8:02:17 AM  | 696  | 605.0 | 0.5  |       | 18.6  | PSI & RATE CHECK       |
| 8:04:43 AM  | 719  | 605.0 | 0.5  |       | 19.9  | PSI & RATE CHECK       |
| 8:12:01 AM  | 811  | 605.0 | 0.5  |       | 23.6  | PSI & RATE CHECK       |
| 8:13:36 AM  | 858  | 628.0 | 1.0  |       | 24.0  | INCREASED RATE         |
| 8:36:17 AM  | 1229 | 698.0 | 1.0  |       | 47.4  | PSI & RATE CHECK       |
| 8:40:46 AM  | 1252 | 744.0 | 1.0  |       | 52.0  | PSI & RATE CHECK       |
| 8:43:33 AM  | 1275 | 767.0 | 1.0  |       | 54.4  | PSI & RATE CHECK       |
| 8:45:16 AM  | 1321 | 767.0 | 1.5  |       | 56.4  | INCREASED RATE         |
| 8:57:12 AM  | 1437 | 884.0 | 1.5  |       | 74.0  | PSI & RATE CHECK       |
| 9:01:06 AM  | 1461 | 907.0 | 1.5  |       | 79.7  | PSI & RATE CHECK       |
| 9:05:39 AM  | 1461 | 953.0 | 1.5  |       | 86.6  | PSI & RATE CHECK       |
| 9:10:40 AM  | 1484 | 628.0 | 1.5  |       | 93.9  | PSI & RATE CHECK       |
| 9:14:53 AM  | 1507 | 628.0 | 1.5  |       | 99.9  | PSI & RATE CHECK       |
| 9:16:35 AM  | 1553 | 628.0 | 2.1  |       | 102.7 | INCREASED RATE         |
| 9:25:18 AM  | 1600 | 651.0 | 2.1  |       | 121.0 | PSI & RATE CHECK       |
| 9:32:35 AM  | 1600 | 674.0 | 2.1  |       | 136.2 | PSI & RATE CHECK       |
| 9:41:37 AM  | 1623 | 674.0 | 2.1  |       | 154.9 | PSI & RATE CHECK       |
| 9:46:56 AM  | 1623 | 698.0 | 2.1  |       | 166.0 | PSI & RATE CHECK       |
| 9:48:33 AM  | 1716 | 698.0 | 2.5  |       | 169.8 | INCREASED RATE         |
| 10:00:42 AM | 1716 | 721.0 | 2.6  |       | 200.0 | PSI & RATE CHECK       |
| 10:08:10 AM | 1739 | 721.0 | 2.6  |       | 219.5 | PSI & RATE CHECK       |
| 10:12:55 AM | 1762 | 721.0 | 2.5  |       | 229.6 | PSI & RATE CHECK       |
| 10:16:51 AM | 1739 | 744.0 | 2.6  |       | 240.7 | PSI & RATE CHECK       |
| 10:19:07 AM | 1762 | 744.0 | 2.6  |       | 247.0 | PSI & RATE CHECK       |
| 10:20:30 AM | 1762 | 744.0 | 3.1  |       | 250.5 | INCREASED RATE         |

ESO #

[illegible]

**30-025-39193 HOUSE SWD #001 [37421]****General Well Information****Status:**

**Well Type:** Salt Water Disposal  
**Work Type:** New  
**Surface Location:** M-12-20S-38E 990 FSL 500 FWL  
**Lat/Long:** 0 0  
**GL Elevation:** 3563

**Direction:**  
**Lease Type:** Private

**Sing/Mult Compl:** Single  
**Potash Waiver:**

**Proposed Formation and/or Notes**

SAN ANDRES SPUD 06/29/09

**Depths**

**Proposed:** 5500

**Measured:** 0  
**Plugback Measured:**

**Formation Tops**

| Formation | Top | Method Obtained | Producing |
|-----------|-----|-----------------|-----------|
|-----------|-----|-----------------|-----------|

**Event Dates**

**Initial APD Approval:** 10/10/2008  
**Most Recent APD Approval:** 10/10/2008  
**APD Cancellation:**  
**APD Extension Approval:**  
**Spud:** 6/29/2009  
**Approved Temporary Abandonment:**  
**Shut In Waiting For Pipeline:**  
**Plug and Abandoned Intent Received:**  
**Well Plugged:**  
**Site Release:**  
**Last Inspection:** 6/29/2009

**Current APD Expiration:** 10/10/201  
**Expiration:** Not retriev  
**Plugged, Not Released**  
**Expiration:**  
**Intention To Plug:**  
**Last MIT:**

**History**

| Effective Date | Property          | Operator          | C-101 Work Type | Well Type           | Apd Cancelled | Plug Date |
|----------------|-------------------|-------------------|-----------------|---------------------|---------------|-----------|
| 10/10/2008     | [37421] HOUSE SWD | [873] APACHE CORP | N               | Salt Water Disposal |               |           |

**Comments**

| Date/Time | User Id | Comment |
|-----------|---------|---------|
|-----------|---------|---------|

**Operator**

**Company:** [873] APACHE CORP  
**Address:** 6120 S. YALE SUITE 1500  
TULSA ,OK 74136  
**Country:**  
**Main Phone:**

**Central Contact Person**

**Name:**  
**Phone:**  
**Cell:**  
**E-Mail Address:**

**Title:**  
**Fax:**

No district contact found.

**Pits****Pit On Site: Number 01**

**Pit Type:** Closed Loop  
P1-00555

**Status:** Active

**Registration Denied:**

**Closure Approved:**  
**Closure Denied:**

**Event Dates**

**Registered:** 10/10/2008

**Approved:** 10/10/2008

**Open:** 10/10/2008

**Most Recent Rig**

**Release:**

**Closed:**

**Casing**

|                       |       |           | Boreholes, Strings and Equipment Specifications |      |                | Specifications for Strings and Tubing |        |        | Strings Cemented and Intervals |            |      | Cement and Plug Description |       |                     |
|-----------------------|-------|-----------|---|------|----------------|---------------------------------------|--------|--------|--------------------------------|------------|------|-----------------------------|-------|---------------------|
| String/Hole Type      | Taper | Date Set  | Diameter  | Top  | Bottom (Depth) | Grade                                 | Length | Weight | Bot of Cem                     | Top of Cem | Meth | Class of Cement             | Sacks | Pressure Test (Y/N) |
| Hole 1                | 1     | 6/29/2009 | 12.25   | 0    | 1552           |                                       | 0      | 0.0    | 0                              | 0          |      |                             | 0     | No                  |
| Surface Casing        | 1     |           | 9.625   | 0    | 1552           | K-55                                  | 1552   | 40.0   | 1552                           | 0          | Circ | Class C Cement              | 620   | No                  |
| Hole 2                | 1     |           | 8.75  | 1552 | 5500           |                                       | 0      | 0.0    | 0                              | 0          |      |                             | 0     | No                  |
| Intermediate 1 Casing | 1     |           | 7   | 0    | 4600           | J-55                                  | 4600   | 26.0   | 4600                           | 0          | Circ | Class C Cement              | 950   | No                  |
| Tubing 1              | 1     | 7/7/2009  | 3.5   | 0    | 4600           |                                       | 0      | 0.0    | 0                              | 0          |      |                             | 0     | No                  |

**Well Completions**

No Completions Found

**Financial Assurance**

| Bond Id | Bond Type | Amount | Issuer                                 | Cash/Surety | Issuer Bond Number | Bond Cancellation Date |
|---------|-----------|--------|--|-------------|--------------------|------------------------|
| 10042   | Blanket   | 50000  | [26205] CONTINENTAL CASUALTY CO        | Surety      | 600803496          | 3/10/2003              |
| 249236  | Blanket   | 50000  | [26036] SAFECO INSURANCE CO OF AMERICA | Surety      | 6188993            |                        |

Requests to release bonds must be submitted in writing. You may send an e-mail to [Dorothy.Phillips@state.nm.us](mailto:Dorothy.Phillips@state.nm.us) or fax a letter to (505) 476-346

**Compliance**

Note that Financial Assurance and Inactive Well Compliance are documented in separate reports ([Inactive Well Report](#), [Financial Assurance Rep](#))

Also note that some compliance issues are addressed at the operator level so not listed under each well.

**Complaints, Incidents and Spills**



No Incidents Found

Please note that incidents that impact ground water are recorded along with "facilities" which may not be wells, so although the initial report may be related to the abatement plans, remediation plans and ground water impact information are not yet part of this application.

**Orders****Salt Water Disposal SWD-1169-0**

**Applicant:** [873] APACHE CORP  
**Reviewer:** WVJ  
**BLM Office:**

**Contact:** Sophie Mackay, Engineer  
**Approved By:**  
**Issuing Office:** Santa Fe

**Processing Dates**

**Received:** 3/2/2009  
**Suspended:**  
**Ordered:** 3/23/2009  
**Cancelled:**

**Expiration:****Comments****Notes****Order Pools**

| Pool                   | Gas Percent | Oil Percent |
|------------------------|-------------|-------------|
| [96121] SWD;SAN ANDRES | 0           | 0           |

**Injection Orders**

| Injection |      |        |              |             | Pressure |                 |           |          |
|-----------|------|--------|--------------|-------------|----------|-----------------|-----------|----------|
| Formation | Top  | Bottom | Packer Depth | Tubing Size | Gradient | Injection Limit | CO2 Limit | Comments |
| Psa       | 4600 | 5500   | 0            | 4           | 0        | 920             | 0         |          |

**Production / Injection**[Show All](#)

| Earliest Production in OCD Records: |            |           |              | Last     |              |           |           |       |          |
|-------------------------------------|------------|-----------|--------------|----------|--------------|-----------|-----------|-------|----------|
|                                     | Production |           |              |          | Injection    |           |           |       |          |
| Time Frame                          | Oil(BBLS)  | Gas (MCF) | Water (BBLS) | Days P/I | Water (BBLS) | Co2 (MCF) | Gas (MCF) | Other | Pressure |
| Grand Total:                        | 0          | 0         | 0            | 0        | 0            | 0         | 0         | 0     | 0        |

**Transporters**

| Transporter | Product | Most Recent for Property |
|-------------|---------|--------------------------|
|-------------|---------|--------------------------|



# New Mexico Energy, Minerals and Natural Resources Department

**Bill Richardson**  
Governor

Joanna Prukop  
Cabinet Secretary  
Reese Fullerton  
Deputy Cabinet Secretary

Mark Fesmire  
Division Director  
Oil Conservation Division



## Administrative Order SWD-1169 Corrected Order

March 23, 2009

Sophie MacKay  
Apache Corp  
6120 S. Yale Ave  
Suite 1500  
Tulsa, OK 74136-4224

### ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION

Under the provisions of Division Rule 26.8B., Apache Corp seeks an administrative order to utilize its House SWD Well No. 1 (**API 30-025-39193**) located 990 feet from the South line and 500 feet from the West line, Unit M of Section 12, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico, for produced water disposal purposes.

#### THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 26.8B. Satisfactory information has been provided that affected parties as defined in Rule 26.8B.(2) have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 26.8 will be met and the operator is in compliance with Division Rule 5.9.

#### IT IS THEREFORE ORDERED THAT:

The applicant, Apache Corp, is hereby authorized to utilize its House SWD Well No. 1 (**API 30-025-39193**) located 990 feet from the South line and 500 feet from the West line, Unit M of Section 12, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico, for disposal of produced water into the lower San Andres formation Open Hole from 4600 feet to 5500 feet through **3-1/2 inch** or smaller diameter, plastic-lined tubing set within 100 feet of the disposal interval.

OH 4600-5500

Oil Conservation Division \* 1220 South St. Francis Drive  
\* Santa Fe, New Mexico 87505

\* Phone: (505) 476-3440 \* Fax (505) 476-3462 \* <http://www.emnrd.state.nm.us>



IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the proposed disposal interval and is not permitted to escape to other formations or onto the surface.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The wellhead injection pressure on the well shall be limited to **no more than 920 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by an acceptable Step-Rate-Test.

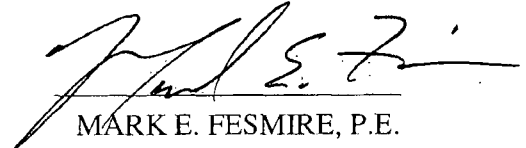
The operator shall notify the supervisor of the Division's District I office in Hobbs of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District I office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 26.13 and 7.24.

Without limitation on the duties of the operator as provided in Division Rules 30 and 29, or otherwise, the operator shall immediately notify the Division's district office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

In accordance with Division Rule No 26.12.C., the disposal authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request, mailed by the operator prior to the termination date, may grant an extension thereof for good cause. One year after disposal into the well has ceased, the authority to dispose will terminate *ipso facto*.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

  
MARK E. FESMIRE, P.E.  
Director

MEF/wvj

cc: Oil Conservation Division – Hobbs