

4/29/05 5/14/05  
NEW MI

ABOVE THIS LINE FOR DIVISION USE ONLY



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

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**RECEIVED**

FEB 18 2005

OIL CONSERVATION  
DIVISION

-025-37657

Delaware  
5550 - 6120 paid  
2 7/8 C 1/4 1/2  
2 1/8 C 1/4 1/2  
Delaware water  
2 1/8 C 1/4 1/2  
2 1/8 C 1/4 1/2

ed, and/or,

**PROCESS THE TYPE**

- jerrys@mackenergycorp.com  
e-mail Address

**APPLICATION FOR AUTHORIZATION TO INJECT**

I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance X \_\_\_\_\_ Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval? X \_\_\_\_\_ Yes \_\_\_\_\_ No

II. OPERATOR: Mack Energy Corporation

ADDRESS: P.O. Box 960, Artesia, NM 88211-0960

CONTACT PARTY: Jerry W. Sherrell

PHONE: (505)748-1288

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? \_\_\_\_\_ Yes X \_\_\_\_\_ No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_

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

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

VII. Attach data on the proposed operation, including:

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.).

\*V111. 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 freshwater from two or more freshwater 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: Mack C. Chase

TITLE: President

SIGNATURE: Mack C. Chase

DATE: 4/12/2005

\* 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: \_\_\_\_\_

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

## INJECTION WELL DATA SHEET

OPERATOR: \_\_\_\_\_

Mack Energy Corporation

WELL NAME &amp; NUMBER: \_\_\_\_\_

Bird SWD #1

WELL LOCATION: 1980 FNL &amp; 1980 FWL

F

FOOTAGE LOCATION

UNIT LETTER

9

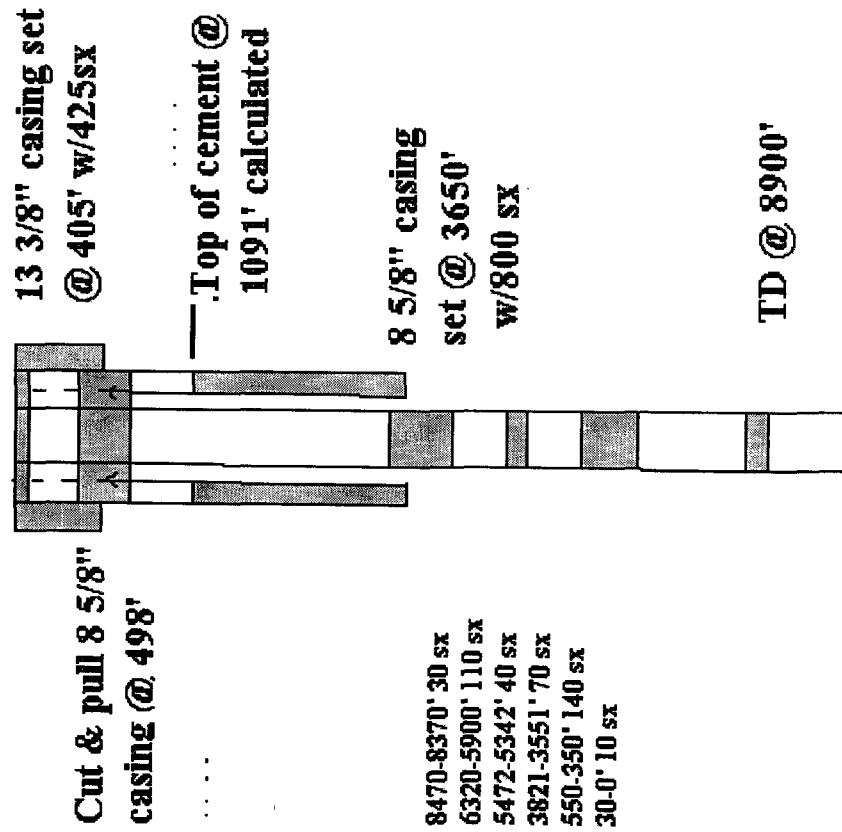
SECTION

18S

TOWNSHIP

34E

RANGE

WELL CONSTRUCTION DATASurface CasingWELLBORE SCHEMATIC

Hole Size: 17 1/2 \_\_\_\_\_ Casing Size: 13 3/8 set @ 405'

Cemented with: 425 \_\_\_\_\_ sx. or \_\_\_\_\_ ft

Top of Cement: Surface \_\_\_\_\_ Method Determined: Circulated

Intermediate Casing

Hole Size: 12 1/4 \_\_\_\_\_ Casing Size: 8 5/8 set @ 3650'

Cemented with: 800 \_\_\_\_\_ sx. or \_\_\_\_\_ ft

Top of Cement: 1091' \_\_\_\_\_ Method Determined: Calculated

Production CasingProposed Casing

Hole Size: 7 7/8 \_\_\_\_\_ Casing Size: 5 1/2 set @ 6620

Cemented with: 1300 \_\_\_\_\_ sx. or \_\_\_\_\_ ft

Top of Cement: Surface \_\_\_\_\_ Method Determined: Circulated

Total Depth: 8900 \_\_\_\_\_

Injection Interval

5550 \_\_\_\_\_ feet to 6120

(Perforated or Open Hole; indicate which)

**INJECTION WELL DATA SHEET**

Tubing Size: 2 7/8" Lining Material: Plastic Coated

Type of Packer: Halliburton Trump Packer

Packer Setting Depth: 4550' 5450'

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

**Additional Data**

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

If no, for what purpose was the well originally drilled? Bone Spring/Wolfcamp

2. Name of the Injection Formation: Delaware
3. Name of Field or Pool (if applicable): Vacuum 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. See Schematic
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Overlying GB-SA Underlying Bone Spring
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## **VII. DATA SHEET: PROPOSED OPERATIONS**

1. Proposed average and maximum daily rate and volume of fluids to be injected;  
**Respectively, 2000 BWPD and 3000 BWPD**
2. The system is closed or open;  
**Closed**
3. Proposed average and maximum injection pressure;  
**100-360#**
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than re-injected produced water;  
**We will be re-injecting produced water**
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;  
**N/A**

## **VIII. GEOLOGICAL DATA**

1. Lithologic Detail; **Sand**
2. Geological Name; **Delaware**
3. Thickness; **570'**
4. Depth; **5550-6120'**

## **IX. PROPOSED STIMULATION PROGRAM**

1. To be treated with 1000 gallons 15% acid

## **X. LOGS AND TEST DATA**

1. Well data has been filed with the OCD

## **XI. ANALYSIS OF FRESHWATER WELLS**

1. Attached

Additional Information

Waters Injected Grayburg, San Andres

## **XII. AFFIRMATIVE STATEMENT**

RE: Bird SWD #1

We have examined the available geologic and engineering data and find no evidence of open faults or any other hydraulic connection between the disposal zone and any underground source of drinking water.

Mack Energy Corporation

Date: 4-12-2005

Mack C. Chase  
Mack C Chase, President



**WEST VACUUM UNIT**

**CHEVRON**

**(OPER.)**

**SEELY OIL (OPR.)**

**CENTRAL EK ON UT.**

**"Superior St."**

**Airstrip - St.**

**Tonto - St.**

**Tonto-S**

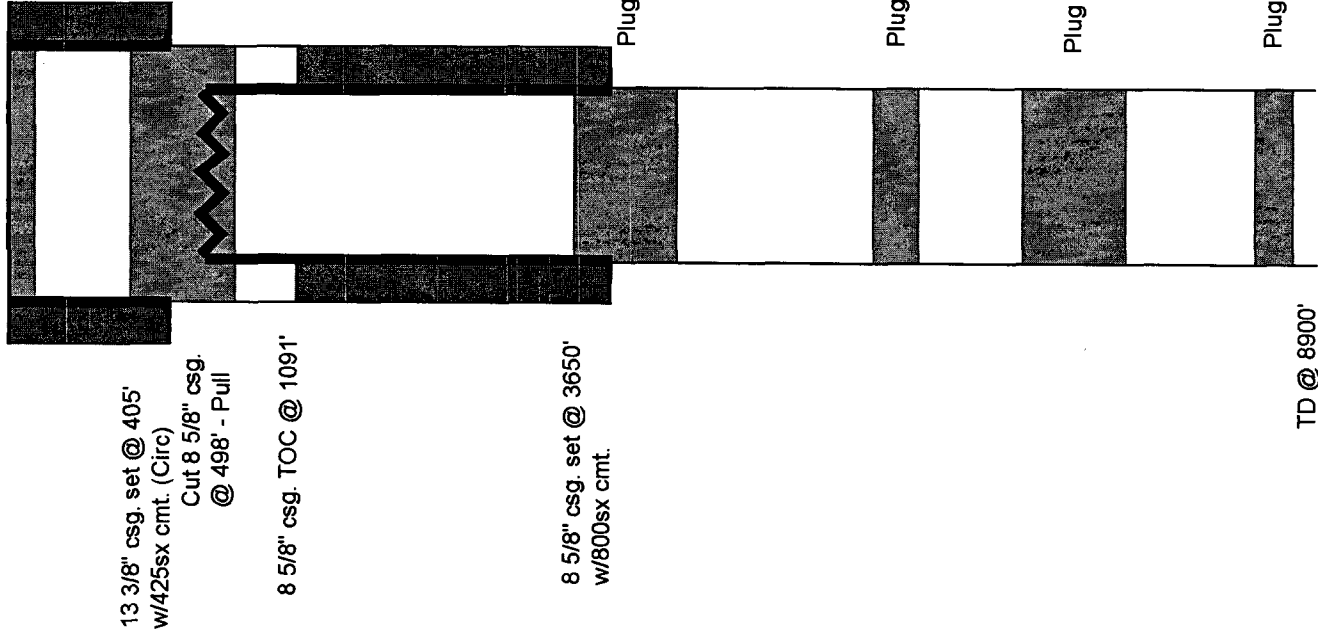
## AREA OF REVIEW WELL DATA

[illegible]

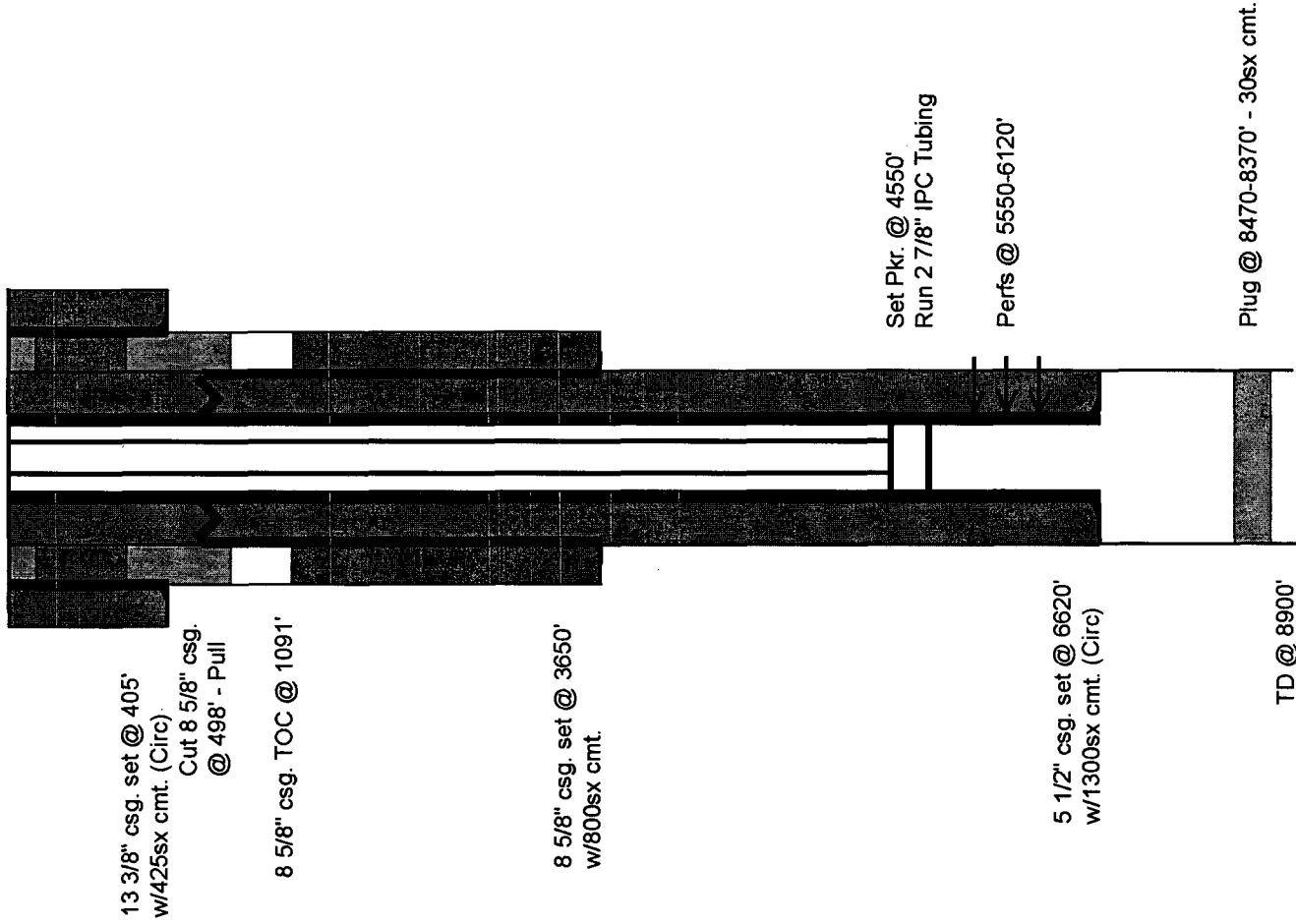
# Bird SWD #1

SH: 1980' FNL & 1980' FWL    BH: 1980' FNL & 1980' FWL  
Sec. 9-T18S-R34E

Before Conversion



After Conversion



# Crow State #1

SH: 1980' FSL & 1980' FEL BH: 1980' FSL & 1980' FEL

Sec. 9-T18S-R34E

13 3/8" csg. set @ 518'  
w/550sx cmt. (Circ)

8 5/8" csg. set @ 3586'  
w/1650sx cmt. (Circ)

Perfs @ 5031.5-5140'

Perfs @ 5215-5305.5'

Set Seat Nipple @ 5339'  
Run 2 7/8" IPC Tubing

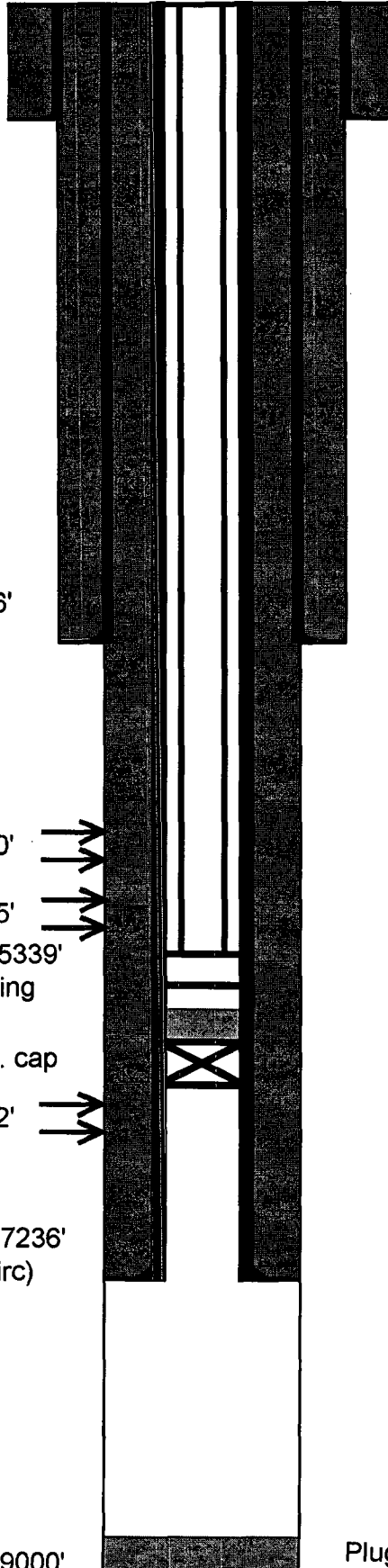
CIBP @ 6205' w/35' cmt. cap

Perfs @ 6304.5-6592'

5 1/2" csg. set @ 7236'  
w/1000sx cmt. (Circ)

TD @ 9000'

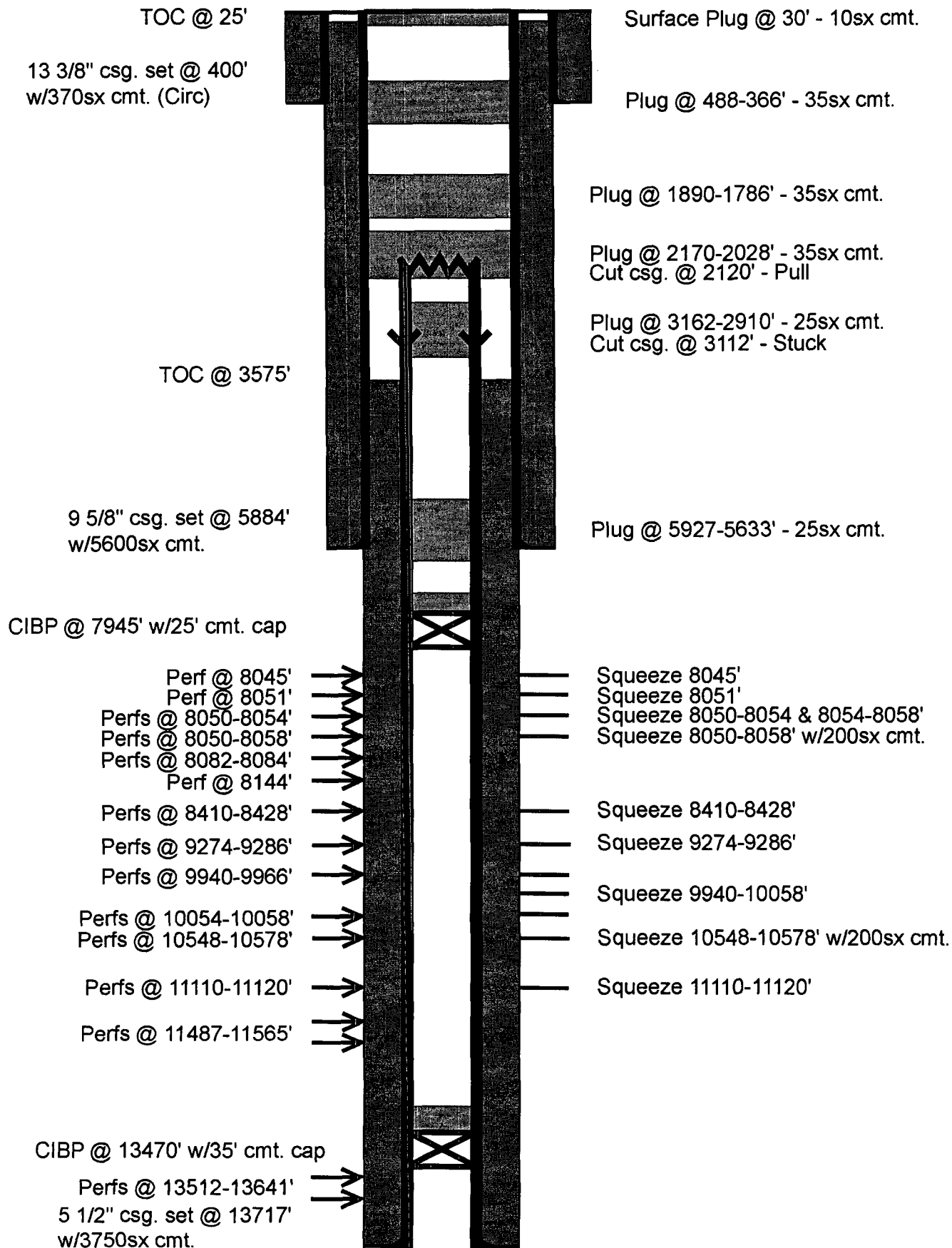
Plug @ 8935-9000' - 25sx cmt.



# State HS #1

SH: 1980' FSL & 1980' FWL BH: 1980' FSL & 1980' FWL

Sec. 9-T18S-R34E



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:            | MACK ENERGY INCORPORATED                  | Sales RDT:       | 33512                         |
| Region:             | PERMIAN BASIN                             | Account Manager: | WAYNE PETERSON (505) 910-9389 |
| Area:               | ARTESIA, NM                               | Sample #:        | 326980                        |
| Lease/Platform:     | CROW STATE LEASE                          | Analysis ID #:   | 47300                         |
| Entity (or well #): | 1                                         | Analysis Cost:   | \$40.00                       |
| Formation:          | UNKNOWN <i>Vacuum Grayburg-San Andres</i> |                  |                               |
| Sample Point:       | WELLHEAD                                  |                  |                               |

| Summary                           |             | Analysis of Sample 326980 @ 75 °F |          |         |            |         |         |
|-----------------------------------|-------------|-----------------------------------|----------|---------|------------|---------|---------|
| Sampling Date:                    | 12/13/04    | Anions                            | mg/l     | meq/l   | Cations    | mg/l    | meq/l   |
| Analysis Date:                    | 12/22/04    | Chloride:                         | 101262.0 | 2856.23 | Sodium:    | 49077.2 | 2134.74 |
| Analyst:                          | SALLY MOORE | Bicarbonate:                      | 103.7    | 1.7     | Magnesium: | 3109.0  | 255.76  |
| TDS (mg/l or g/m3):               | 166023.4    | Carbonate:                        | 0.0      | 0.      | Calcium:   | 9425.0  | 470.31  |
| Density (g/cm3, tonne/m3):        | 1.12        | Sulfate:                          | 1730.0   | 36.02   | Strontium: | 218.0   | 4.98    |
| Anion/Cation Ratio:               | 1           | Phosphate:                        |          |         | Barium:    | 0.5     | 0.01    |
|                                   |             | Borate:                           |          |         | Iron:      | 8.0     | 0.29    |
|                                   |             | Silicate:                         |          |         | Potassium: | 1090.0  | 27.88   |
| Carbon Dioxide:                   | 20 PPM      | Hydrogen Sulfide:                 |          | 2 PPM   | Aluminum:  |         |         |
| Oxygen:                           | 0 PPM       | pH at time of sampling:           |          | 6.9     | Chromium:  |         |         |
| Comments:                         |             | pH at time of analysis:           |          |         | Copper:    |         |         |
| RESISTIVITY - 22.12 OHM-CM @ 77°F |             | pH used in Calculation:           |          | 6.9     | Lead:      |         |         |
|                                   |             |                                   |          |         | Manganese: |         |         |
|                                   |             |                                   |          |         | Nickel:    |         |         |

| Conditions |              | Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl |        |                                                |        |                                |        |                                |        |                             |        |                       |
|------------|--------------|-----------------------------------------------------------------------------|--------|------------------------------------------------|--------|--------------------------------|--------|--------------------------------|--------|-----------------------------|--------|-----------------------|
| Temp       | Gauge Press. | Calcite<br>CaCO <sub>3</sub>                                                |        | Gypsum<br>CaSO <sub>4</sub> ·2H <sub>2</sub> O |        | Anhydrite<br>CaSO <sub>4</sub> |        | Celestite<br>SrSO <sub>4</sub> |        | Barite<br>BaSO <sub>4</sub> |        | CO <sub>2</sub> Press |
| °F         | psi          | Index                                                                       | Amount | Index                                          | Amount | Index                          | Amount | Index                          | Amount | Index                       | Amount | psi                   |
| 80         | 0            | 0.53                                                                        | 5.08   | 0.11                                           | 205.40 | 0.11                           | 170.47 | 0.18                           | 45.08  | 0.64                        | 0.30   | 0.09                  |
| 100        | 0            | 0.59                                                                        | 5.97   | 0.05                                           | 98.52  | 0.12                           | 178.83 | 0.16                           | 41.20  | 0.46                        | 0.30   | 0.11                  |
| 120        | 0            | 0.64                                                                        | 6.87   | 0.00                                           | 2.69   | 0.15                           | 219.73 | 0.16                           | 40.01  | 0.29                        | 0.00   | 0.15                  |
| 140        | 0            | 0.69                                                                        | 8.06   | -0.04                                          | 0.00   | 0.21                           | 282.13 | 0.16                           | 40.90  | 0.15                        | 0.00   | 0.19                  |

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

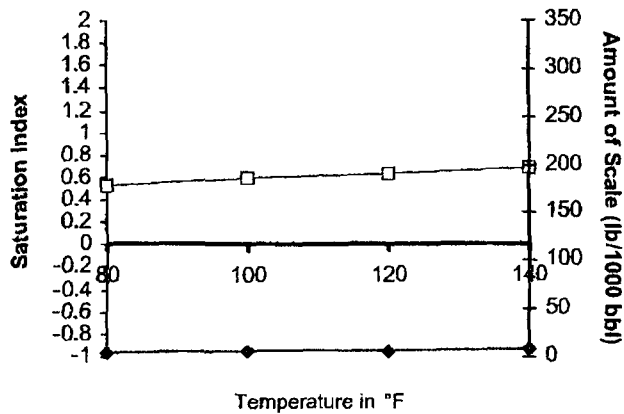
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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.

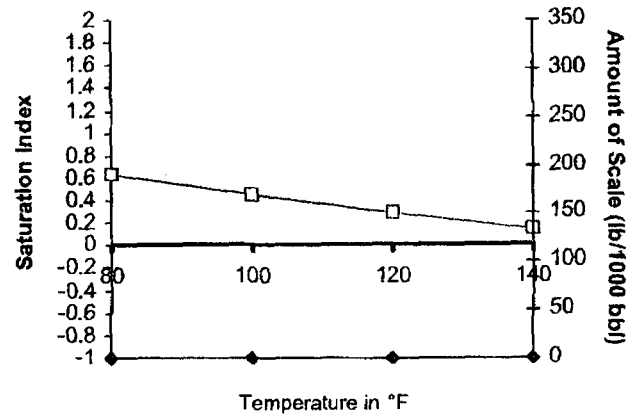
# Scale Predictions from Baker Petrolite

Analysis of Sample 326980 @ 75 °F for MACK ENERGY INCORPORATED, 12/22/04

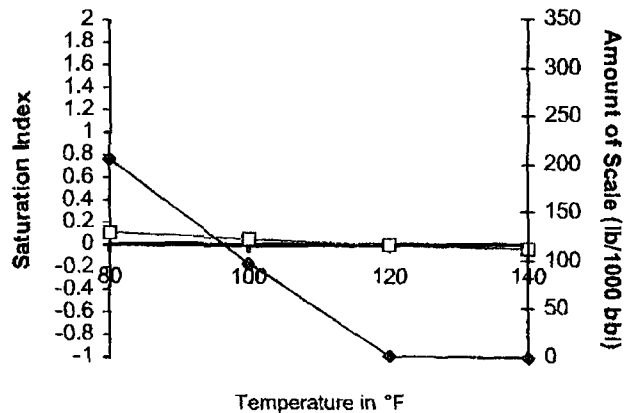
**Calcite -  $\text{CaCO}_3$**



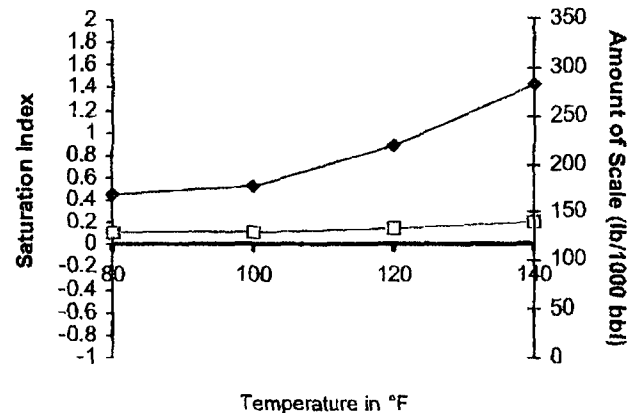
**Barite -  $\text{BaSO}_4$**



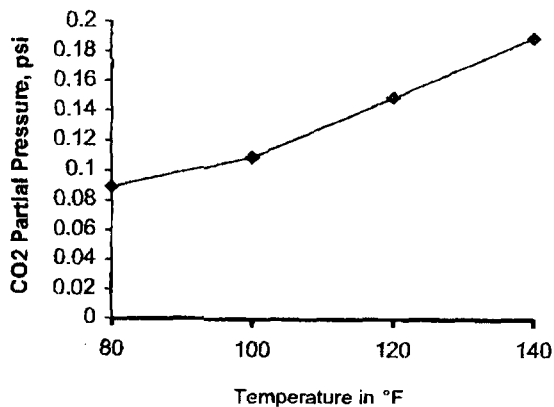
**Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$**



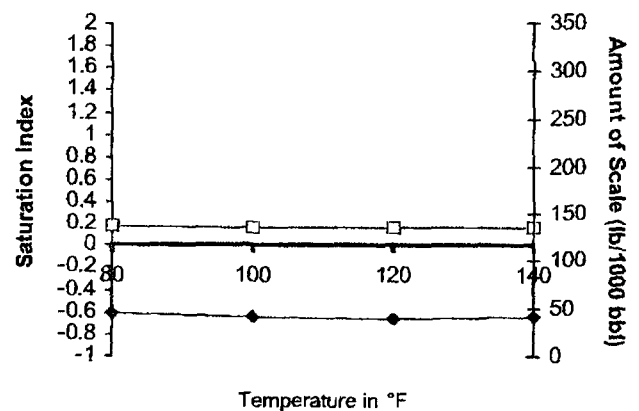
**Anhydrite -  $\text{CaSO}_4$**



**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  
(915) 495-7240

## Water Analysis Report by Baker Petrolite

|                     |                                |                  |                               |
|---------------------|--------------------------------|------------------|-------------------------------|
| Company:            | MACK ENERGY INCORPORATED       | Sales RDT:       | 33512                         |
| Region:             | PERMIAN BASIN                  | Account Manager: | WAYNE PETERSON (505) 910-9389 |
| Area:               | ARTESIA, NM                    | Sample #:        | 305634                        |
| Lease/Platform:     | MA 'A' FEDERAL UNIT            | Analysis ID #:   | 41553                         |
| Entity (or well #): | 2                              | Analysis Cost:   | \$40.00                       |
| Formation:          | UNKNOWN <i>Corbin Delaware</i> |                  |                               |
| Sample Point:       | WELLHEAD                       |                  |                               |

| Summary                         |               | Analysis of Sample 305634 @ 75 °F |          |         |            |
|---------------------------------|---------------|-----------------------------------|----------|---------|------------|
|                                 |               | Anions                            | mg/l     | meq/l   | Cations    |
| Sampling Date:                  | 2/6/04        | Chloride:                         | 111643.0 | 3149.04 | Sodium:    |
| Analysis Date:                  | 2/19/04       | Bicarbonate:                      | 228.0    | 3.74    | Magnesium: |
| Analyst:                        | JAMES AHRLETT | Carbonate:                        | 0.0      | 0.      | Calcium:   |
| TDS (mg/l or g/m3):             | 183655.1      | Sulfate:                          | 1844.0   | 38.39   | Strontium: |
| Density (g/cm3, tonne/m3):      | 1.125         | Phosphate:                        |          |         | Barium:    |
| Anion/Cation Ratio:             | 1             | Borate:                           |          |         | Iron:      |
|                                 |               | Silicate:                         |          |         | Potassium: |
| Carbon Dioxide:                 | 230 PPM       | Hydrogen Sulfide:                 |          | 4 PPM   | Aluminum:  |
| Oxygen:                         |               | pH at time of sampling:           |          | 7       | Chromium:  |
| Comments:                       |               | pH at time of analysis:           |          |         | Copper:    |
| RESISTIVITY: 9.64 OHM-CM @ 77°F |               | pH used in Calculation:           |          | 7       | Lead:      |
|                                 |               |                                   |          |         | Manganese: |
|                                 |               |                                   |          |         | Nickel:    |

| Conditions |              | Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl |        |                                                |        |                                |        |                                |        |                             |        |                       |
|------------|--------------|-----------------------------------------------------------------------------|--------|------------------------------------------------|--------|--------------------------------|--------|--------------------------------|--------|-----------------------------|--------|-----------------------|
| Temp       | Gauge Press. | Calcite<br>CaCO <sub>3</sub>                                                |        | Gypsum<br>CaSO <sub>4</sub> ·2H <sub>2</sub> O |        | Anhydrite<br>CaSO <sub>4</sub> |        | Celestite<br>SrSO <sub>4</sub> |        | Barite<br>BaSO <sub>4</sub> |        | CO <sub>2</sub> Press |
| °F         | psi          | Index                                                                       | Amount | Index                                          | Amount | Index                          | Amount | Index                          | Amount | Index                       | Amount | psi                   |
| 80         | 0            | 0.98                                                                        | 20.24  | 0.11                                           | 224.95 | 0.13                           | 200.02 | 0.07                           | 14.96  | 0.55                        | 0.29   | 0.15                  |
| 100        | 0            | 1.02                                                                        | 22.58  | 0.05                                           | 99.13  | 0.13                           | 199.14 | 0.05                           | 10.56  | 0.36                        | 0.00   | 0.21                  |
| 120        | 0            | 1.05                                                                        | 24.93  | -0.01                                          | 0.00   | 0.15                           | 232.28 | 0.04                           | 8.51   | 0.19                        | 0.00   | 0.28                  |
| 140        | 0            | 1.08                                                                        | 27.28  | -0.05                                          | 0.00   | 0.20                           | 289.77 | 0.04                           | 8.51   | 0.04                        | 0.00   | 0.36                  |

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

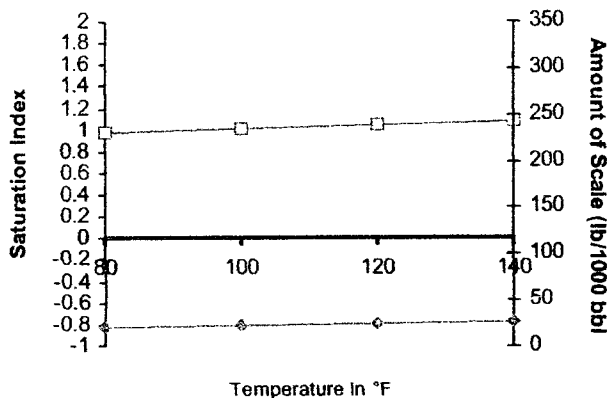
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

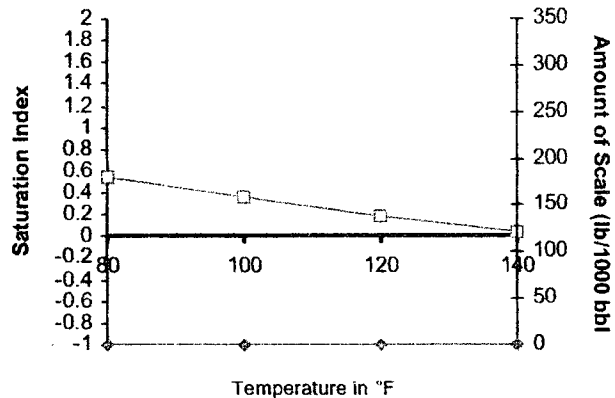
# Scale Predictions from Baker Petrolite

Analysis of Sample 305634 @ 75 °F for MACK ENERGY INCORPORATED, 2/19/04

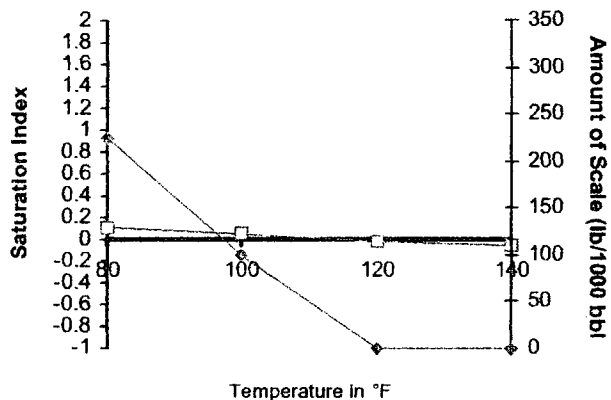
**Calcite -  $\text{CaCO}_3$**



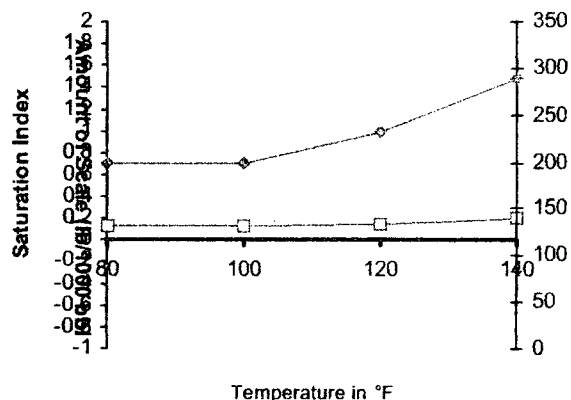
**Barite -  $\text{BaSO}_4$**



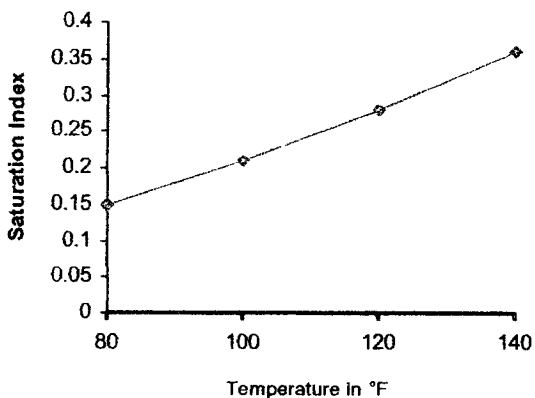
**Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$**



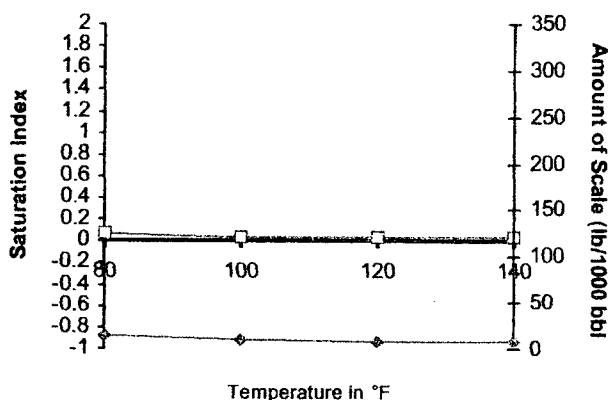
**Anhydrite -  $\text{CaSO}_4$**



**Carbon Dioxide Partial Pressure**



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





North Permian Basin Region

P.O. Box 740

Sundown, TX 79372-0740

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Lab Team Leader - Sheila Hernandez

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## Water Analysis Report by Baker Petrolite

|                     |                          |                  |                               |
|---------------------|--------------------------|------------------|-------------------------------|
| Company:            | MACK ENERGY INCORPORATED | Sales RDT:       | 33512                         |
| Region:             | PERMIAN BASIN            | Account Manager: | WAYNE PETERSON (505) 910-9389 |
| Area:               | ARTESIA, NM              | Sample #:        | 37165                         |
| Lease/Platform:     | FRESH WATER WELL         | Analysis ID #:   | 50355                         |
| Entity (or well #): | LO-5372 X2               | Analysis Cost:   | \$7.00                        |
| Formation:          | UNKNOWN                  |                  |                               |
| Sample Point:       | WELLHEAD                 |                  |                               |

| Summary                    |             | Analysis of Sample 37165 @ 75 °F |       |       |            |       |       |
|----------------------------|-------------|----------------------------------|-------|-------|------------|-------|-------|
| Sampling Date:             | 4/6/05      | Anions                           | mg/l  | meq/l | Cations    | mg/l  | meq/l |
| Analysis Date:             | 4/7/05      | Chloride:                        | 873.3 | 24.63 | Sodium:    | 394.4 | 17.16 |
| Analyst:                   | MIKE JORREN | Bicarbonate:                     | 103.7 | 1.7   | Magnesium: | 68.0  | 5.59  |
| TDS (mg/l or g/m3):        | 2007.9      | Carbonate:                       |       |       | Calcium:   | 216.0 | 10.78 |
| Density (g/cm3, tonne/m3): | 1           | Sulfate:                         | 350.0 | 7.29  | Strontium: | 0.0   | 0.    |
| Anion/Cation Ratio:        | 0.9999998   | Phosphate:                       |       |       | Barium:    | 0.0   | 0.    |
|                            |             | Borate:                          |       |       | Iron:      | 2.5   | 0.09  |
|                            |             | Silicate:                        |       |       | Potassium: |       |       |
| Carbon Dioxide:            | 0 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: |       |       |
|                            |             |                                  |       |       | Nickel:    |       |       |

| Conditions |              | Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl |        |                                                |        |                                |        |                                |        |                             |        |                       |
|------------|--------------|-----------------------------------------------------------------------------|--------|------------------------------------------------|--------|--------------------------------|--------|--------------------------------|--------|-----------------------------|--------|-----------------------|
| Temp       | Gauge Press. | Calcite<br>CaCO <sub>3</sub>                                                |        | Gypsum<br>CaSO <sub>4</sub> ·2H <sub>2</sub> O |        | Anhydrite<br>CaSO <sub>4</sub> |        | Celestite<br>SrSO <sub>4</sub> |        | Barite<br>BaSO <sub>4</sub> |        | CO <sub>2</sub> Press |
| °F         | psi          | Index                                                                       | Amount | Index                                          | Amount | Index                          | Amount | Index                          | Amount | Index                       | Amount | psi                   |
| 80         | 0            | -0.36                                                                       | 0.00   | -0.92                                          | 0.00   | -1.00                          | 0.00   | 0.00                           | 0.00   | 0.00                        | 0.00   | 0.14                  |
| 100        | 0            | -0.23                                                                       | 0.00   | -0.93                                          | 0.00   | -0.93                          | 0.00   | 0.00                           | 0.00   | 0.00                        | 0.00   | 0.18                  |
| 120        | 0            | -0.09                                                                       | 0.00   | -0.92                                          | 0.00   | -0.84                          | 0.00   | 0.00                           | 0.00   | 0.00                        | 0.00   | 0.22                  |
| 140        | 0            | 0.06                                                                        | 1.05   | -0.90                                          | 0.00   | -0.73                          | 0.00   | 0.00                           | 0.00   | 0.00                        | 0.00   | 0.27                  |

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

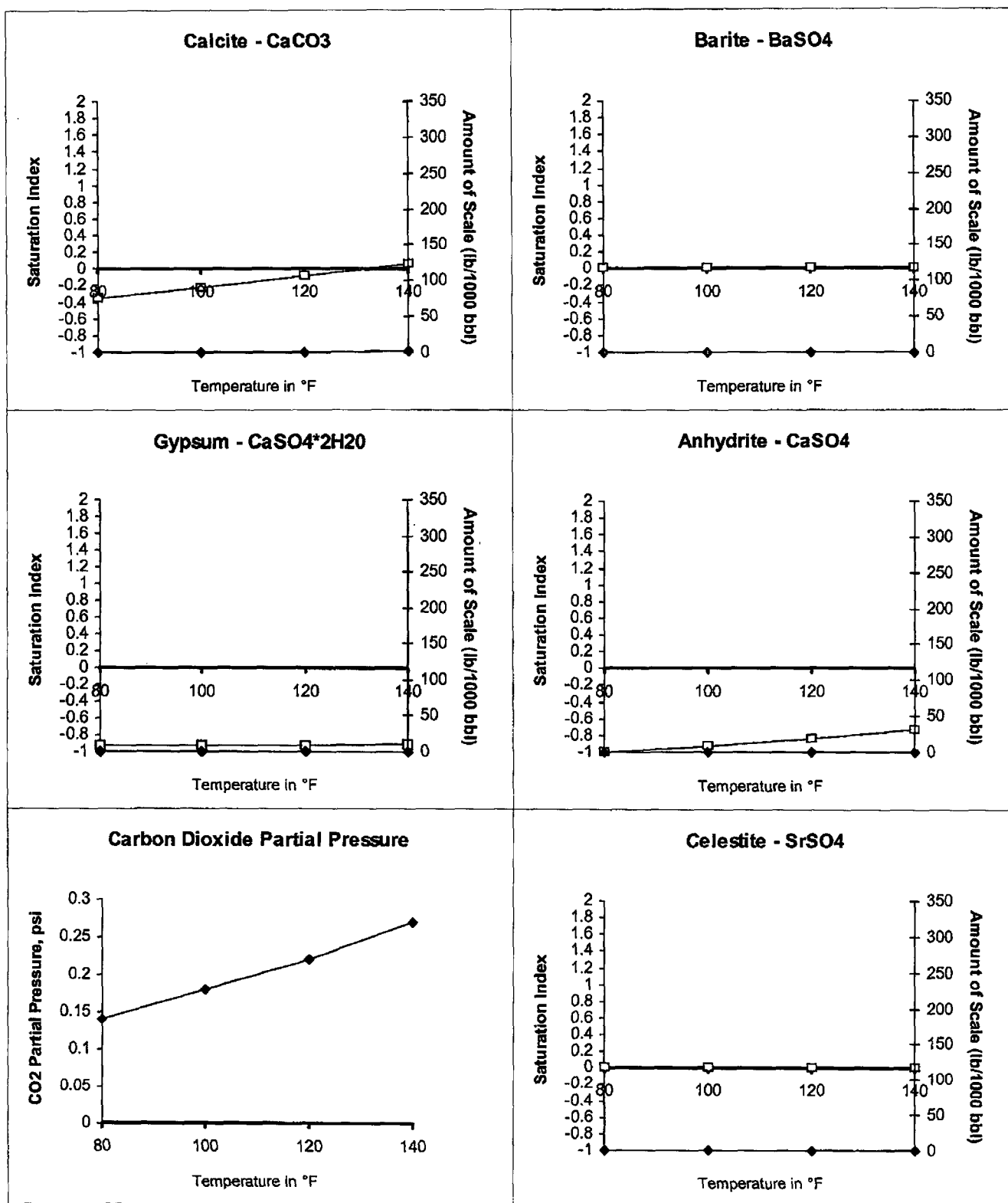
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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.


**BAKER  
HUGHES**
**Baker Petrolite**

## Scale Predictions from Baker Petrolite

Analysis of Sample 37165 @ 75 °F for MACK ENERGY INCORPORATED, 4/7/05



Submit to Appropriate  
District Office  
State Lease - 6 copies  
Fee Lease - 5 copies  
**DISTRICT I**  
P.O. Box 1980, Hobbs, NM 88240

**DISTRICT II**  
P.O. Drawer DD, Artesia, NM 88210

**DISTRICT III**  
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

Form C-105  
Revised 1-1-89

|                                                                                                     |
|-----------------------------------------------------------------------------------------------------|
| WELL API NO.<br>30-025-31657                                                                        |
| 5. Indicate Type of Lease<br>STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/> |
| 6. State Oil & Gas Lease No.<br>B-1078                                                              |

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

|                                                                                                                                                                                                                       |                                   |                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------|
| 1a. Type of Well:<br>OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input checked="" type="checkbox"/> OTHER _____                                                                          |                                   | 7. Lease Name or Unit Agreement Name<br><br>Dirt Devil "9" State                      |
| b. Type of Completion:<br>NEW WELL <input type="checkbox"/> WORK OVER <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF RESVR <input type="checkbox"/> OTHER _____ P&A |                                   |                                                                                       |
| 2. Name of Operator<br>Collins & Ware, Inc.                                                                                                                                                                           |                                   | 8. Well No.<br>1                                                                      |
| 3. Address of Operator<br>508 W. Wall, Suite 1200, Midland, Texas 79701                                                                                                                                               |                                   | 9. Pool name or Wildcat<br>Wildcat                                                    |
| 4. Well Location<br>Unit Letter <u>F</u> : <u>1980</u> Feet From The <u>North</u> Line and <u>1980</u> Feet From The <u>West</u> Line<br>Section <u>9</u> Township <u>18S</u> Range <u>34E</u> NMPM Lea County        |                                   |                                                                                       |
| 10. Date Spudded<br>11/17/94                                                                                                                                                                                          | 11. Date T.D. Reached<br>12/04/93 | 12. Date Compl. (Ready to Prod.)                                                      |
| 13. Elevations (DF& RKB, RT, GR, etc.)<br>4047.7 GR                                                                                                                                                                   |                                   | 14. Elev. Casinghead                                                                  |
| 15. Total Depth<br>8,900'                                                                                                                                                                                             | 16. Plug Back T.D.                | 17. If Multiple Compl. How Many Zones?                                                |
| 18. Intervals Drilled By                                                                                                                                                                                              |                                   | Rotary Tools <input checked="" type="checkbox"/> Cable Tools <input type="checkbox"/> |
| 19. Producing Interval(s), of this completion - Top, Bottom, Name                                                                                                                                                     |                                   | 20. Was Directional Survey Made<br>No                                                 |
| 21. Type Electric and Other Logs Run<br>CNLD/GR & DLL-MSFL/GR                                                                                                                                                         |                                   | 22. Was Well Cored<br>Yes                                                             |

**CASING RECORD (Report all strings set in well)**

| CASING SIZE | WEIGHT LB/FT. | DEPTH SET | HOLE SIZE | CEMENTING RECORD     | AMOUNT PULLED |
|-------------|---------------|-----------|-----------|----------------------|---------------|
| 13 3/8      | 61            | 405       | 17 1/2    | 425 sx "C"           |               |
| 8 5/8       | 32            | 3650      | 12 1/4    | 800 sx Poz "H" & "C" | 498'          |
|             |               |           |           |                      |               |
|             |               |           |           |                      |               |
|             |               |           |           |                      |               |

| 24. LINER RECORD |     |        |              |        | 25. TUBING RECORD |           |            |
|------------------|-----|--------|--------------|--------|-------------------|-----------|------------|
| SIZE             | TOP | BOTTOM | SACKS CEMENT | SCREEN | SIZE              | DEPTH SET | PACKER SET |
|                  |     |        |              |        |                   |           |            |
|                  |     |        |              |        |                   |           |            |

|                                                     |                                                 |                               |
|-----------------------------------------------------|-------------------------------------------------|-------------------------------|
| 26. Perforation record (interval, size, and number) | 27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC. |                               |
|                                                     | DEPTH INTERVAL                                  | AMOUNT AND KIND MATERIAL USED |
|                                                     | See Attached                                    |                               |
|                                                     |                                                 |                               |

**PRODUCTION**

|                                                            |                 |                                                                     |                        |           |             |                                |                 |
|------------------------------------------------------------|-----------------|---------------------------------------------------------------------|------------------------|-----------|-------------|--------------------------------|-----------------|
| 28. Date First Production                                  |                 | Production Method (Flowing, gas lift, pumping - Size and type pump) |                        |           |             | Well Status (Prod. or Shut-in) |                 |
| Date of Test                                               | Hours Tested    | Choke Size                                                          | Prod'n For Test Period | Oil - Bbl | Gas - MCF   | Water - Bbl                    | Gas - Oil Ratio |
| Flow Tubing Press.                                         | Casing Pressure | Calculated 24-Hour Rate                                             | Oil - Bbl              | Gas - MCF | Water - Bbl | Oil Gravity - API - (Corr.)    |                 |
| 29. Disposition of Gas (Sold, used for fuel, vented, etc.) |                 |                                                                     |                        |           |             | Test Witnessed By              |                 |

30. List Attachments  
CNLD/GR Log & DLL-MSFL/GR Log, Copy of Deviation Survey, Cement Plugging

31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature [Signature] Printed Name Dianne Sumrall Title Production Clerk Date 8/5/94

# INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

## INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

### Southeastern New Mexico

T. Anhy \_\_\_\_\_  
T. Salt 1900  
B. Salt \_\_\_\_\_  
T. Yates \_\_\_\_\_  
T. 7 Rivers \_\_\_\_\_  
T. Queen 4108  
T. Grayburg \_\_\_\_\_  
T. San Andres 4748  
T. Glorieta \_\_\_\_\_  
T. Paddock \_\_\_\_\_  
T. Blinberry \_\_\_\_\_  
T. Tubb \_\_\_\_\_  
T. Drinkard \_\_\_\_\_  
T. Abo \_\_\_\_\_  
T. Wolfcamp \_\_\_\_\_  
T. Penn \_\_\_\_\_  
T. Cisco (Bough C) \_\_\_\_\_

T. Canyon \_\_\_\_\_  
T. Strawn \_\_\_\_\_  
T. Atoka \_\_\_\_\_  
T. Miss \_\_\_\_\_  
T. Devonian \_\_\_\_\_  
T. Silurian \_\_\_\_\_  
T. Montoya \_\_\_\_\_  
T. Simpson \_\_\_\_\_  
T. McKee \_\_\_\_\_  
T. Ellenburger \_\_\_\_\_  
T. Gr. Wash \_\_\_\_\_  
T. Delaware Sand 5412  
T. Bone Springs 6120  
T. 1st BS Sd 8220  
T. \_\_\_\_\_  
T. \_\_\_\_\_  
T. \_\_\_\_\_

### Northwestern New Mexico

T. Ojo Alamo \_\_\_\_\_  
T. Kirtland-Fruitland \_\_\_\_\_  
T. Pictured Cliffs \_\_\_\_\_  
T. Cliff House \_\_\_\_\_  
T. Menefee \_\_\_\_\_  
T. Point Lookout \_\_\_\_\_  
T. Mancos \_\_\_\_\_  
T. Gallup \_\_\_\_\_  
Base Greenhorn \_\_\_\_\_  
T. Dakota \_\_\_\_\_  
T. Morrison \_\_\_\_\_  
T. Todilto \_\_\_\_\_  
T. Entrada \_\_\_\_\_  
T. Wingate \_\_\_\_\_  
T. Chinle \_\_\_\_\_  
T. Permian \_\_\_\_\_  
T. Penn "A" \_\_\_\_\_

T. Penn. "B" \_\_\_\_\_  
T. Penn. "C" \_\_\_\_\_  
T. Penn. "D" \_\_\_\_\_  
T. Leadville \_\_\_\_\_  
T. Madison \_\_\_\_\_  
T. Elbert \_\_\_\_\_  
T. McCracken \_\_\_\_\_  
T. Ignacio Otzte \_\_\_\_\_  
T. Granite \_\_\_\_\_  
T. \_\_\_\_\_  
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T. \_\_\_\_\_  
T. \_\_\_\_\_  
T. \_\_\_\_\_  
T. \_\_\_\_\_

### OIL OR GAS SANDS OR ZONES

No. 1, from \_\_\_\_\_ to \_\_\_\_\_  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_  
No. 3, from \_\_\_\_\_ to \_\_\_\_\_  
No. 4, from \_\_\_\_\_ to \_\_\_\_\_

### IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from \_\_\_\_\_ to \_\_\_\_\_ feet.  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_ feet.  
No. 3, from \_\_\_\_\_ to \_\_\_\_\_ feet.

### LITHOLOGY RECORD (Attach additional sheet if necessary)

| From | To   | Thickness<br>in Feet | Lithology                       | From | To | Thickness<br>in Feet | Lithology |
|------|------|----------------------|---------------------------------|------|----|----------------------|-----------|
| 0    | 4108 | 4108                 | Salt, Anhydrite, Sand,<br>Shale |      |    |                      |           |
| 4108 | 4748 | 640                  | Dolomite, Sand                  |      |    |                      |           |
| 4748 | 5412 | 664                  | Dolomite, Sand                  |      |    |                      |           |
| 5412 | 6120 | 708                  | Sand, Dolomite                  |      |    |                      |           |
| 6120 | 8200 | 2080                 | Lime, Dolomite                  |      |    |                      |           |
| 8200 | 8900 | 700                  | Sand, Dolomite                  |      |    |                      |           |

Legal Notice

Mack Energy Corporation, has filed an Application with the New Mexico Oil Conservation Division seeking authorization to inject produced salt water in the Bird SWD #1, Section 9, Township 18 South, Range 34 East, NMPM, Lea County, New Mexico. The water will be injected into the Delaware formation at a disposal depth of 5550-6120'. Water will be injected at a maximum surface pressure of 300 pounds and a maximum injection rate of 3000 BWPD. Any interested party with questions or comments may contact Jerry W. Sherrell at Mack Energy Corporation, Post Office Box 960, Artesia, New Mexico 88211-0960 or call (505) 748-1288. Objections to this application or requests for hearing must be filed with the Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505, within fifteen days of the date of the publication of this notice. Published in the Hobbs News Sun, Hobbs, New Mexico.



RECEIVED

MAY 2 - 2005

OIL CONSERVATION  
DIVISION

P.O. Box 960  
Artesia, NM 88211-0960  
Office (505) 748-1288  
Fax (505) 746-9539

April 29, 2005

Patrick H. Lyons  
State of New Mexico  
Commissioner of Public Lands  
P.O. Box 1148  
Santa Fe, NM 87504-1148

Gentlemen:

Enclosed for your review is a copy of Mack Energy Corporation's application for approval to re-enter and convert the Bird SWD #1 (Formerly Dirt Devil 9 State #1), Sec. 9 T18S R34E well into a produced water disposal well.

This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing within fifteen (15) days of receiving this letter.

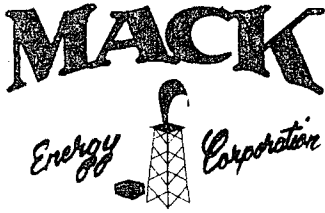
Sincerely,

MACK ENERGY CORPORATION

Jerry W. Sherrell  
Production Clerk

JWS\

Enclosures



P.O. Box 960  
Artesia, NM 88211-0960  
Office (505) 748-1288  
Fax (505) 746-9539

April 12, 2005

**VIA CERTIFIED MAIL 7004 2510 0004 3033 0068**  
**RETURN RECEIPT REQUESTED**

Chevron USA Inc.  
15 Smith Rd.  
Midland, TX 79705  
Attn: Denise Beckham

Gentlemen:

*Enclosed for your review is a copy of Mack Energy Corporation's application for approval to re-enter and convert the Bird SWD #1 (Formerly Dirt Devil 9 State #1), Sec. 9 T18S R34E well into a produced water disposal well.*

*This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing within fifteen (15) days of receiving this letter.*

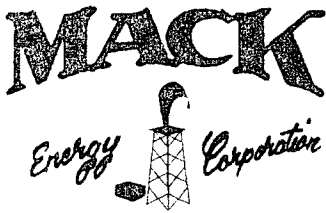
*Sincerely,*

**MACK ENERGY CORPORATION**

*Jerry W. Sherrell*  
Production Clerk

JWS\

*Enclosures*



P.O. Box 960  
Artesia, NM 88211-0960  
Office (505) 748-1288  
Fax (505) 746-9539

April 12, 2005

**VIA CERTIFIED MAIL 7004 2510 0004 3033 0051**  
**RETURN RECEIPT REQUESTED**

Oxy USA Inc.  
P.O. Box 50250  
Midland, TX 79710  
Attn: David Evans

Gentlemen:

*Enclosed for your review is a copy of Mack Energy Corporation's application for approval to re-enter and convert the Bird SWD #1 (Formerly Dirt Devil 9 State #1), Sec. 9 T18S R34E well into a produced water disposal well.*

*This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing within fifteen (15) days of receiving this letter.*

*Sincerely,*

MACK ENERGY CORPORATION

Jerry W. Sherrell  
Production Clerk

JWS\

Enclosures



P.O. Box 960  
Artesia, NM 88211-0960  
Office (505) 748-1288  
Fax (505) 746-9539

April 12, 2005

**VIA CERTIFIED MAIL 7004 2510 0004 3033 0044**  
**RETURN RECEIPT REQUESTED**

Pearce Trust-Fred Pearce  
1717 Jackson Rd.  
Pecos, TX 79772  
Attn: Fred Pearce

Gentlemen:

Enclosed for your review is a copy of Mack Energy Corporation's application for approval to re-enter and convert the Bird SWD #1 (Formerly Dirt Devil 9 State #1), Sec. 9 T18S R34E well into a produced water disposal well.

This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing within fifteen (15) days of receiving this letter.

Sincerely,

MACK ENERGY CORPORATION

Jerry W. Sherrell  
Production Clerk

JWS\

Enclosures



P.O. Box 960  
Artesia, NM 88211-0960  
Office (505) 748-1288  
Fax (505) 746-9539

April 12, 2005

**VIA CERTIFIED MAIL 7004 2510 0004 3033 0037**  
**RETURN RECEIPT REQUESTED**

Seely Oil Company  
815 W. Tenth St.  
Fort Worth, TX 79702

Gentlemen:

*Enclosed for your review is a copy of Mack Energy Corporation's application for approval to re-enter and convert the Bird SWD #1 (Formerly Dirt Devil 9 State #1), Sec. 9 T18S R34E well into a produced water disposal well.*

*This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing within fifteen (15) days of receiving this letter.*

*Sincerely,*

**MACK ENERGY CORPORATION**

*Jerry W. Sherrell*  
Production Clerk

JWS\

*Enclosures*

**Jones, William V**

---

**From:** Jones, William V  
**Sent:** Friday, April 29, 2005 1:58 PM  
**To:** 'jerrys@mackenergycorp.com'  
**Cc:** Ezeanyim, Richard  
**Subject:** Proposed Bird SWD #1 30-025-31657

Hello Jerry:  
I reviewed this application and please send:

- 1) Geologist's formation tops - above, thru, and below the Delaware.
- 2) Any local Delaware water analysis if you have it - if not, the well can be swabbed prior to injection.
- 2) Proof of notice to the State Land Office - our records show this to be State owned.

Thank You,

William V. Jones

Engineering Bureau

Oil Conservation Division

Santa Fe

6/7/2005