STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

RECEIVED
NOV 1
OIL CONSERVATION DIVISION

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [X] no

II. Operator: Yates Drilling Company

Address: 105 South 4th Street, Artesia, NM 88210

Contact party: Tobin L. Rhodes Phone: (505) 748-1471

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? [X] yes [ ] no
If yes, give the Division order number authorizing the project R-9075.

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 geological data on the injection zone including appropriate lithologic detail, geological 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 source 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 source 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: Tobin L. Rhodes Title Petroleum Engineer

Signature: Tobin L. Rhodes Date: 11-9-92

OIL CONSERVATION DIVISION
YATES DRILLING COMPANY NO. 11
10641 + 10642

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

OIL CONSERVATION DIVISION
FORM C-108 (SUPPLEMENT)

I. Purpose:

Application is made by Yates Drilling Company for authorization to inject water into the Queen formation underlying the boundaries of the proposed expansion area of the Cactus Queen Unit. The proposed expansion area consists of 320 acre, more or less, of Federal lands (Federal minerals, private surface) in units E, F, G, J, K, L, M and N (W/2, SW/4 of NE/4, NW/4 of SE/4) of Section 34, Township 12 South, Range 31 East, Chaves County, New Mexico. This project will be an expansion of the existing secondary recovery project with the objective of recovering hydrocarbons that will not and can not be recovered by primary means.

All of the wells in the expansion area are primary depleted or very near primary depletion. Our studies show that the injection of water into selected wells will result in the recovery of oil in economic quantities not otherwise recoverable. This project should provide economic benefits to all parties holding any type of interest in the expansion acreage.

II Operator:

Yates Drilling Company
105 South Fourth Street
Artesia, New Mexico 88210

Phone Number : (505) 748-1471

Contact: Tobin L. Rhodes

III. Injection Well Data:

A well data sheet and schematic is included for each of the five proposed water injection wells. Each schematic demonstrates how the injection well will be configured if this application is approved

IV. Existing Project:

The proposed project is an expansion of the Cactus Queen Unit. Formation of the Cactus Queen Unit was approved by the New Mexico Oil Conservation Division December 14, 1989 by authority of order R-9075A. Permission to inject into selected wells within the Cactus Queen Unit was granted March 15, 1990 by authority of order R-9075B.

V. Ownership:

A lease ownership map is attached which identifies all wells and lease ownership within two miles of any of the five proposed injection wells. On this map the area of review has been identified by drawing a one half mile circle around each injection well.

VI. Well Data:

There are presently twelve wells, including the proposed injection wells that fall within the boundaries of the expansion area or within the area of review. There are no wells within the area of review that have been plugged and abandoned. There are three wells within the area of review that are active injecting wells, injecting water into the Queen formation. There are ten wells that are active producing oil wells, producing from the Queen formation. Available data for each of these wells is included in a well data sheet.

VII. Project Data:

1. The proposed daily average water injection rate is expected to be approximately 200 barrels per day for each of the five proposed injection wells. The maximum injection rate for any well will be based on fracture pressures as determined by step-rate pressure tests to be conducted on each injection well. The maximum injection rate is expected to be less than 400 barrels per day.
2. Unit produced water and fresh water from the supply well will be stored in covered fiberglass storage tanks. There is no immediate plan to accept water from any other sources.
3. Initially, injection wells may take water on a vacuum, but as the reservoir fills a positive surface injection pressure will be required to inject water. The maximum injection pressure will also be determined by the planned step-rate pressure tests. At no time prior to the step-rate tests will the injection pressure exceed a pressure limitation of 0.2 PSIG per foot of depth to the top of the injection interval.
4. The source of injection fluid will be produced water from producing wells within the unit and fresh water from the our fresh water well producing from the Ogollala Aquifer

5. The Ogollala has been the source of water for many Queen waterfloods for many years without significant compatibility problems. We have had compatibility tests run with no compatibility problems observed.

VIII. **Geologic Data:**

The Cactus Queen Unit and the proposed expansion area produce from the upper sandstone member of the Queen formation, upper Guadalupian series, Permian system. The average producing depth in the field is approximately 2990 feet.

The productive/injection interval, as indicated from a whole core analysis on the Cactus Queen Unit #6 (330' FNL & 1980' FEl, 34-12S-31E, Chaves County, New Mexico) and from sidewall cores from numerous wells, is fine grained, friable, gray, quartz sandstone. The grains are subangular to subrounded and well sorted. The cementing materials are anhydrite and dolomite. The exact depositional environment is unknown. Porosity and permeability are intergrandular in nature. The sandstone is not naturally fractured.

The Cactus Queen Unit reservoir is a stratigraphic trap. Cementation of the sandstone results in the loss of porosity and permeability, creating a barrier on all sides with the exception of the east. An oil/water contact has been established on the eastern edge of the reservoir.

The primary source of fresh water in this area is the Ogollala formation of Tertiary age, the base of which is estimated to be 300 feet below the surface. This aquifer is protected behind the surface casing and cement of all the unit wells and proposed unit wells. The Chinlee formation is also a fresh water aquifer which immediately underlies the Ogollala formation. The base of the Chinlee is estimated to be approximately 500 feet below the surface in the unit area. The Chinlee is behind the surface casing of all existing wells in the area.

IX. **Stimulation Program:**

Each of the currently producing wells has previously received a fracture treatment. The details of these treatments are outlined in the data sheet for each individual well. There are no plans to stimulate any of the existing wells which will be producing wells in this project.

The wells which will be injection wells may require a small clean-up acid treatment prior to injection. We plan to treat each of the proposed injection wells with 500 to 1000 gallons of 7-1/2% hydrochloric acid. This treatment should insure that existing perforations are open and that each well will accept water at the lowest possible pressure.

X. **Well Logs:**

Well logs for each of the existing wells in the proposed expansion area have previously been submitted to the Hobbs office of the NMOCD.

XI. **Fresh Water:**

The office of the State Engineer in Roswell has a record of seven wells within one mile of the proposed unit expansion area. The exact total depth of all of the wells is unknown, however all wells are assumed to be producing from the Ogollala formation. Analysis reports from three of the wells are attached.

XII. **Injection Zone Isolation:**

Available engineering and geologic data has been examined and no evidence of open faulting or any other hydrologic connection between the injection zone and any underground source of drinking water has been found.

XIII. **Proof of Notice:**

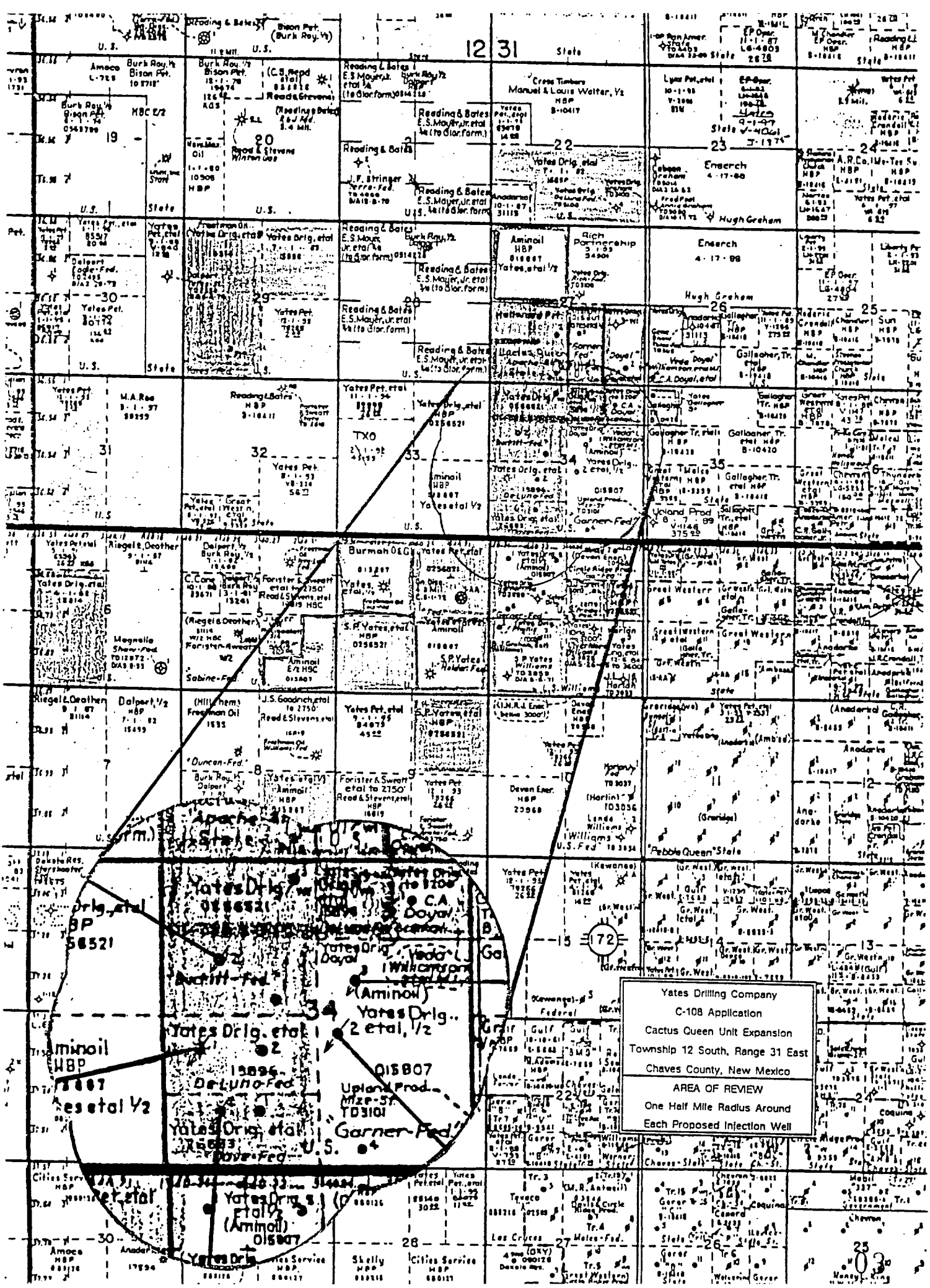
A listing of off-set leasehold operators within one half mile of any proposed injection well and the surface owner(s) that have received a copy of this application by certified mail is attached.

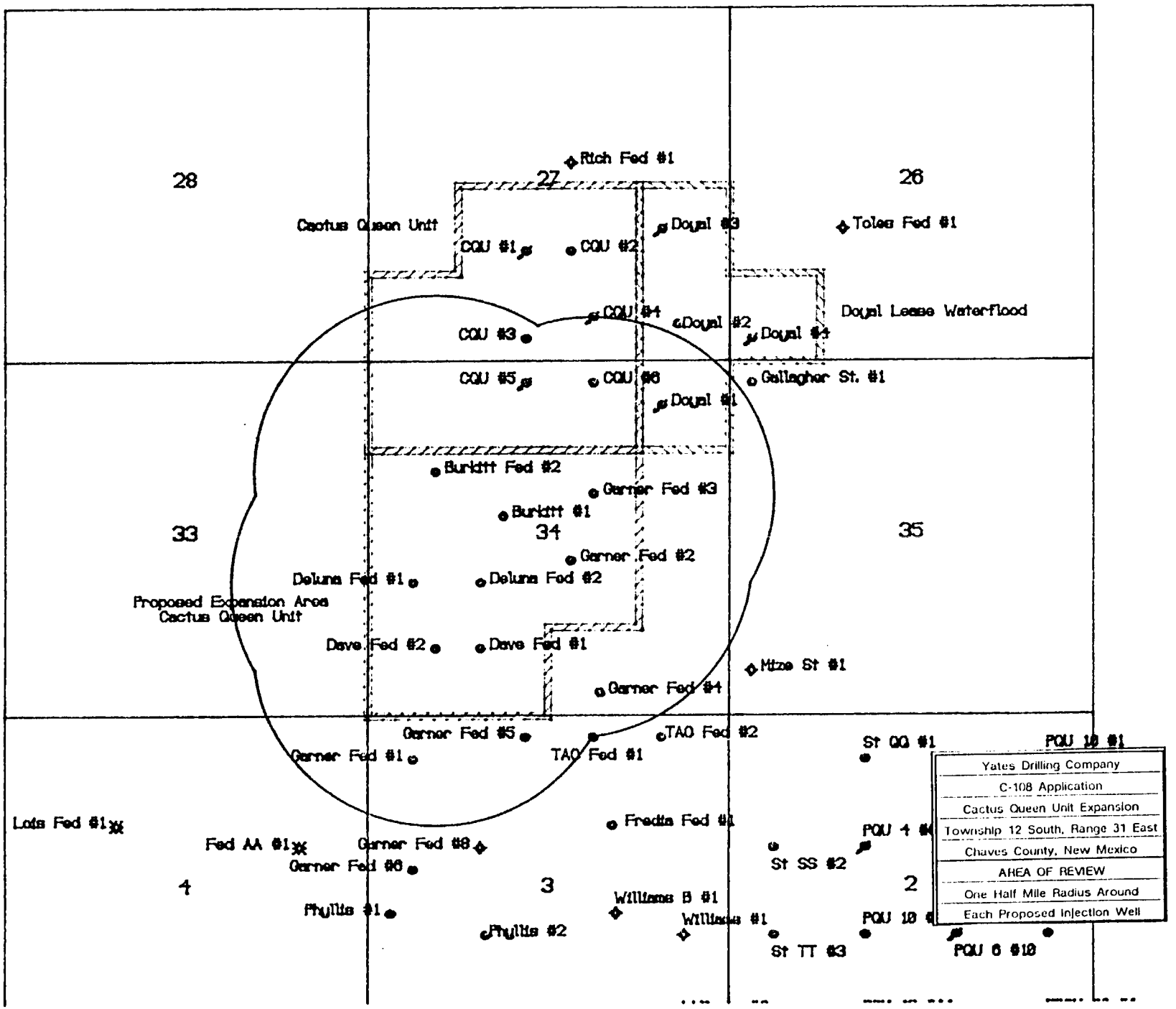
XIV. **Certification:**

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

Tobin L. Rhodes — Petroleum Engineer

November 9, 1992


Yates Drilling Company
C-108 Application
Cactus Queen Unit Expansion
Township 12 South, Range 31 East
Chaves County, New Mexico
AREA OF REVIEW
One Half Mile Radius Around
Each Proposed Injection Well


28
27
26
Rich Fed #1
Cactus Queen Unit
CQU #1
CQU #2
Doyal #3
Tolee Fed #1
CQU #4
Doyal #2
Doyal #4
Doyal Lease Waterflood
CQU #3
CQU #5
CQU #6
Gallagher St. #1
Doyal #1
Burkitt Fed #2
Garner Fed #3
Burkitt #1
33
34
35
Garner Fed #2
Deluna Fed #1
Deluna Fed #2
Proposed Expansion Area
Cactus Queen Unit
Dave Fed #2
Dave Fed #1
Mtze St #1
Garner Fed #4
Garner Fed #5
TAO Fed #2
Garner Fed #1
TAO Fed #1
St QQ #1
PQU 10 #1
Yates Drilling Company
C-108 Application
Cactus Queen Unit Expansion
Township 12 South, Range 31 East
Chaves County, New Mexico
AREA OF REVIEW
One Half Mile Radius Around
Each Proposed Injection Well
Lots Fed #1
Fredia Fed #1
PQU 4 #4
Fed AA #1
Garner Fed #8
Garner Fed #6
St SS #2
4
3
2
Williams B #1
Phyllis #1
Phyllis #2
Williams #1
PQU 10 #
St TT #3
PQU 6 #10

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Burkitt Federal
WELL #: 1
FOOTAGE: 2310' fnl & 1980' fel
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 23-Mar-84
COMPLETION DATE: 7-Apr-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 450 FEET
CEMENTED USED: 300 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS FOOT
CASING GRADE: J-55
DEPTH SET: 3,050 FEET
CEMENTED USED: 350 SACKS
TOP OF CEMENT: 1,650 FEET
DETERMINED BY: temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TD: 3,050 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,874 FEET
INTERVAL BOTTOM: 2,882 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 20,000 gallons gelled water, 25% CO2, 16,500 pounds of 20/40 sand, 6000 pounds of 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Burkitt Federal
WELL #: 2
FOOTAGE: 1650' fnl & 990' fwl
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 5-May-84
COMPLETION DATE: 10-Jul-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 370 FEET
CEMENTED USED: 375 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,945 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 1,578 FEET
DETERMINED BY: CBL
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,950 FEET
PLUGGED BACK TD: 2,945 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,754 FEET
INTERVAL BOTTOM: 2,760 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 15,000 gallons gelled water, 5,000 gallons CO2, 14,500 pounds of 20/40 sand, 2,500 pounds of 12/20 sand
PROPOSED STIMULATION: 500-1000 gallons of 7-1/2% HCL acid to clean perforations

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Nickel plated tension packer
DEPTH TO BE SET: 2,704 FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

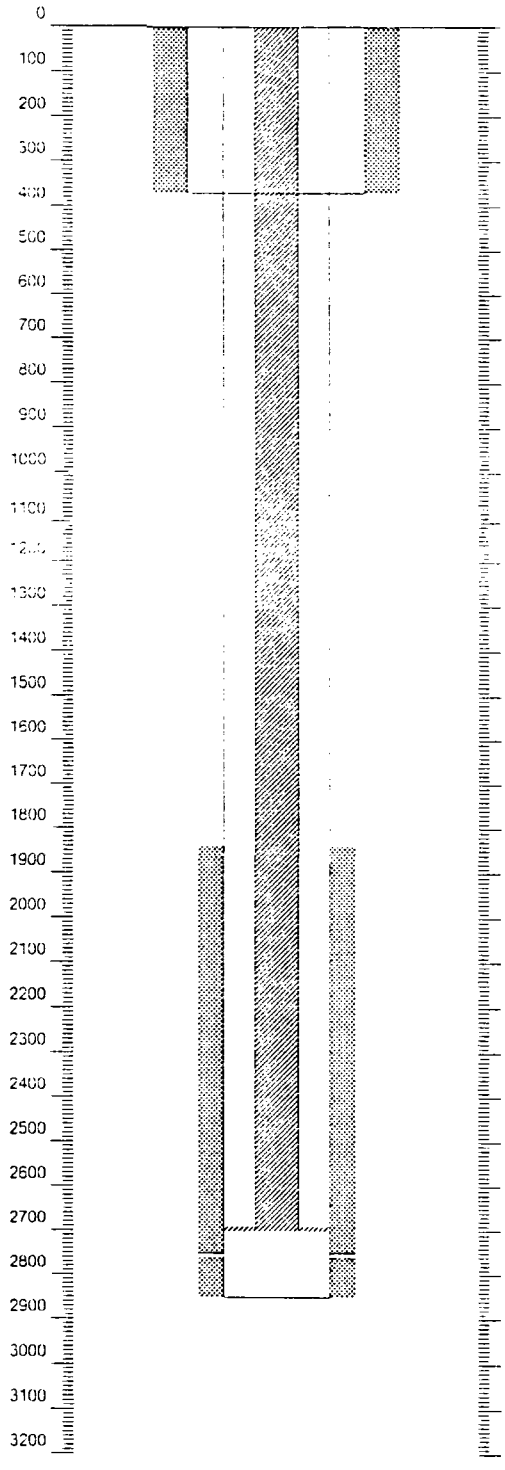
   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

BURKITT FEDERAL #2

E34-12S-31E

CHAVES COUNTY, NM



370', 8-5/8" 24# J-55 CASING, CEMENTED WITH 375 SACKS, CIRCULATED

1840', TOP OF CEMENT AS DETERMINED BY TEMPERATURE SURVEY

2704', APPROXIMATE INJECTION PACKER DEPTH

2754'-2760', PERFORATIONS, 12 HOLES

2850', TD, 5-1/2" 14&15.5# J-55 CASING @ 2840', CEMENTED WITH 250 SACKS

PROPOSED INJECTION CONFIGURATION

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Cactus Queen Unit
WELL #: 3
FOOTAGE: 1650' fsl & 2310' fel
SEC-TWN-RNG, COUNTY, STATE: 27-12S-34E, Chaves County, New Mexico
SPUD DATE: 29-Jul-85
COMPLETION DATE: 23-Aug-85
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 454 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 405.000 INCHES
CASING WEIGHT: 10.500 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,150 FEET
CEMENTED USED: 575 SACKS
TOP OF CEMENT: 254 FEET
DETERMINED BY: CBL
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,150 FEET
PLUGGED BACK TO: 3,150 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,984 FEET
INTERVAL BOTTOM: 2,991 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 12,000 gallons gelled water, 4,000 CO@, 10,500 pounds 20/40 sand and 10,000 pounds 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Cactus Queen Unit
WELL #: 4
FOOTAGE: 660' fsl & 1980' fel
SEC-TWN-RNG, COUNTY, STATE: 27-12S-34E, Chaves County, New Mexico
SPUD DATE: 14-Oct-84
COMPLETION DATE: 30-Oct-84
CURRENT STATUS: Active injection well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 424 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,099 FEET
CEMENTED USED: 270 SACKS
TOP OF CEMENT: 1,900 FEET
DETERMINED BY: temp survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TD: 3,099 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,987 FEET
INTERVAL BOTTOM: 2,993 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons of 15 % HCL plus 15,000 gallons of gelled water, 1,000 SCF/BBL of CO2, 13,000 pounds of 20/40 sand and 9,000 pounds of 20/40 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: nickel plated tension packer
DEPTH TO BE SET: 2,936 FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Cactus Queen Unit
WELL #: 5
FOOTAGE: 330' fnl & 2310' fwl
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 9-Aug-85
COMPLETION DATE: 1-Oct-85
CURRENT STATUS: Active injection well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 424 FEET
CEMENTED USED: 270 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS FOOT
CASING GRADE: J-55
DEPTH SET: 3,033 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 1,640 FEET
DETERMINED BY: temp survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TD: 3,033 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,988 FEET
INTERVAL BOTTOM: 2,992 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons of 15% HCL acid plus 15,000 gallons of oilled water, 24 tons of CO2, 12,000 pounds of 20/40 sand and 7,000 pounds of 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Aluminum bronze tension packer
DEPTH TO BE SET: 2,921 FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Cactus Queen Unit
WELL #: 6
FOOTAGE: 330' fnl & 1980' fel
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 11-Feb-85
COMPLETION DATE: 20-Mar-85
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 433 FEET
CEMENTED USED: 300 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,094 FEET
CEMENTED USED: 410 SACKS
TOP OF CEMENT: 1,900 FEET
DETERMINED BY: CBL
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TO: 3,094 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,987 FEET
INTERVAL BOTTOM: 2,993 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons of 15% HCL acid plus 15,000 gallons of gelled water, 23.5 tons of CO2
13,000 pounds of 20/40 sand and 10,000 pounds of 10/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Dave Federal
WELL #: 1
FOOTAGE: 990' fsl & 990' fwl
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 21-Jan-84
COMPLETION DATE: 9-Feb-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 368 FEET
CEMENTED USED: 265 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,925 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 1,800 FEET
DETERMINED BY: Temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,925 FEET
PLUGGED BACK TD: 2,925 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,723 FEET
INTERVAL BOTTOM: 2,730 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 15,000 gallons gelled water, 5,000 pounds CO2, 16,500 pounds of 20/40 sand, 6,000 pounds of 12/20 sand
PROPOSED STIMULATION: 500-1000 gallons of 7-1/2% HCL to clean perforations

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Nickel plated tension packer
DEPTH TO BE SET: 2,673 FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Dave Federal
WELL #: 2
FOOTAGE: 990' fsl & 990' fwl
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 21-Jan-84
COMPLETION DATE: 9-Feb-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 368 FEET
CEMENTED USED: 265 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,925 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 1,800 FEET
DETERMINED BY: Temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,925 FEET
PLUGGED BACK TO: 2,925 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,723 FEET
INTERVAL BOTTOM: 2,730 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 15,000 gallons gelled water, 5,000 pounds CO2, 16,500 pounds of 20/40 sand, 6,000 pounds of 12/20 sand
PROPOSED STIMULATION: 500-1000 gallons of 7-1/2% HCL to clean perforations

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Nickel plated tension packer
DEPTH TO BE SET: 2,673 FEET

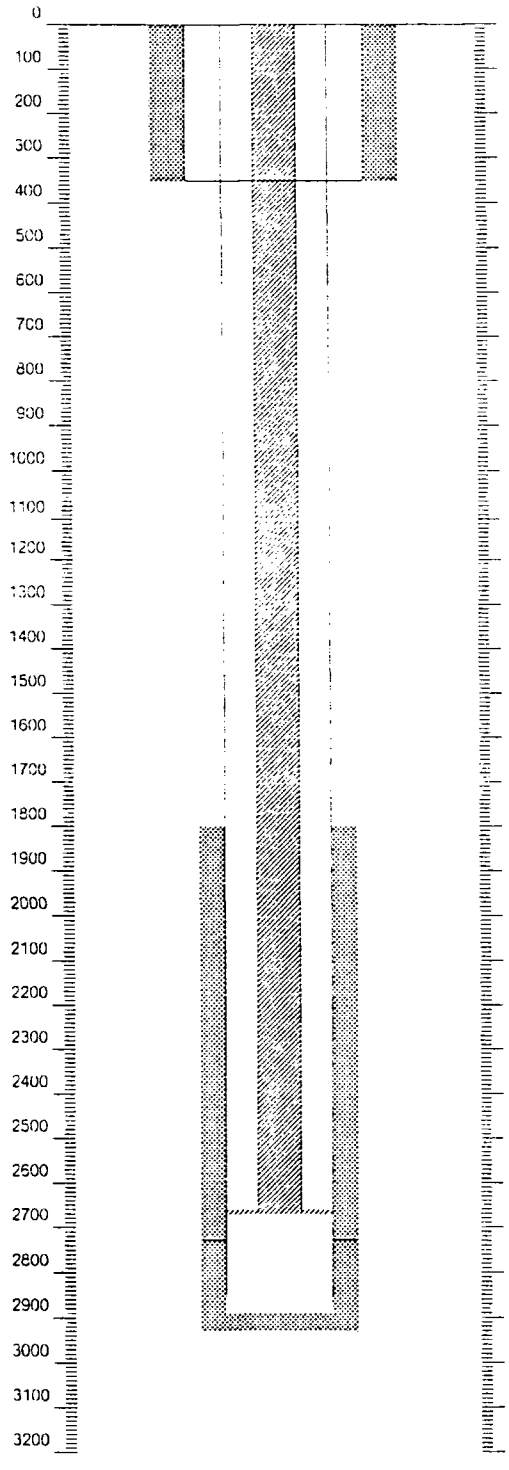
OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

DAVE FEDERAL #2
M34-12S-31E
CHAVES COUNTY, NM



265', 8-5/8" 24# J-55 CASING, CEMENTED WITH 265 SACKS, CIRCULATED

1600', TOP OF CEMENT AS DETERMINED BY TEMPERATURE SURVEY

2673', APPROXIMATE INJECTION PACKER DPETH

2723'-2730', PERFORATIONS, 14 HOLES

2925', TD, 5-1/2"14.5# J-55 CASING, CEMENTED WITH 250 SACKS

PROPOSED INJECTION CONFIGURATION

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: DeLuna Federal
WELL #: 1
FOOTAGE: 1980' fsl & 660' fwl
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 2-Jul-82
COMPLETION DATE: 1-Sep-82
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 400 FEET
CEMENTED USED: 240 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 4.500 INCHES
CASING WEIGHT: 10.500 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,900 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: ? FEET
DETERMINED BY: ?
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,900 FEET
PLUGGED BACK TO: 2,900 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,718 FEET
INTERVAL BOTTOM: 2,724 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 2500 gallons 15% HCL acid plus 10,000 gallons gelled water, 5,000 scf CO2,
7,000 pounds of 20/40 sand, 6,800 pounds of 12/20 sand
PROPOSED STIMULATION: 500-1000 gallons of 7-1/2% HCL acid to clean perforations

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Nickel plated tension packer
DEPTH TO BE SET: 2,668 FEET

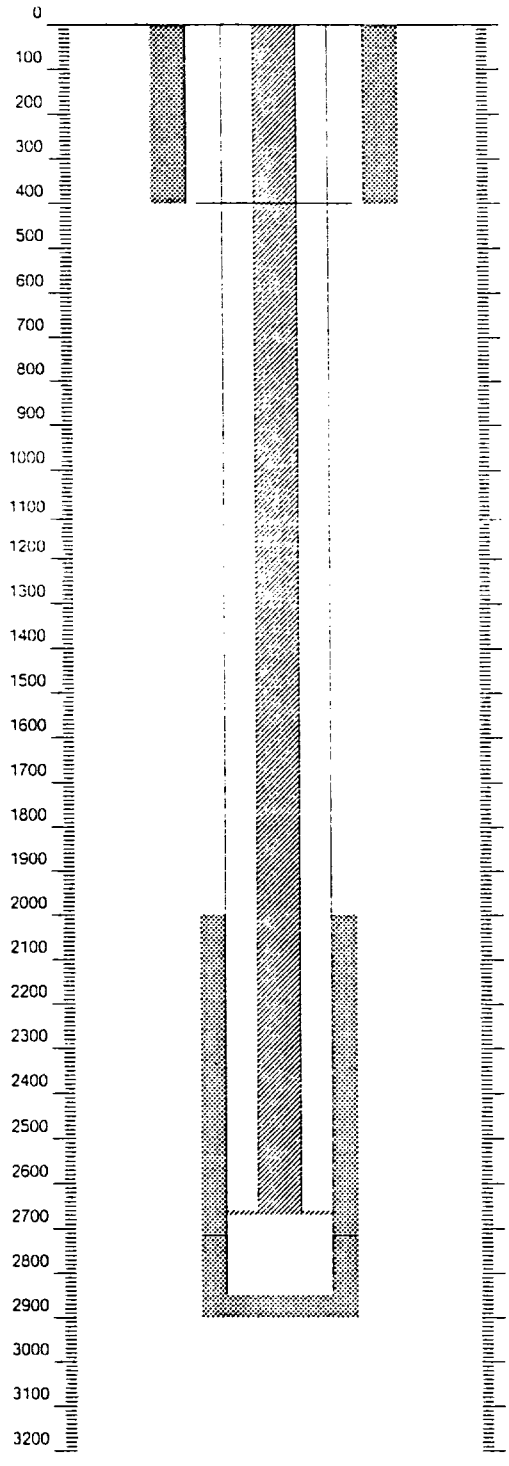
OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

DELUNA FEDERAL #1
L34-12S-31E
CHAVES COUNTY, NM



400', 8-5/8" 24# J-55 CASING, CEMENTED WITH 240 SACKS, CIRCULATED

2000', TOP OF CEMENT AS ESTIMATED

2668', APPROXIMATE INJECTION PACKER DPETH

2718'-2724', PERFORATIONS, 14 HOLES

2900', TD, 4-1/2"10.5# J-55 CASING, CEMENTED WITH 250 SACKS

PROPOSED INJECTION CONFIGURATION

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: DeLuna Federal
WELL #: 2
FOOTAGE: 1980' fsl & 1650' fwl
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 7-Feb-84
COMPLETION DATE: 1-Mar-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 374 FEET
CEMENTED USED: 275 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,915 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 1,775 FEET
DETERMINED BY: Temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,925 FEET
PLUGGED BACK TO: 2,915 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,773 FEET
INTERVAL BOTTOM: 2,781 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 20,000 gallons gelled water, 25% CO2,
15,000 pounds of 20/40 sand, 6,000 pounds of 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Doyal
WELL #: 1
FOOTAGE: 660' fnl & 990' fel
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 31-Jul-84
COMPLETION DATE: 25-Aug-84
CURRENT STATUS: Active injection well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 409 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,098 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 2,200 FEET
DETERMINED BY: temp survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TD: 3,098 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,982 FEET
INTERVAL BOTTOM: 2,989 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons of 15% HCL plus 15,000 gallons of gelled water, 5,000 SCF per barrel N2, 10,900 pounds 20/40 sand and 4,200 pounds of 20/40 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: nickle plated tension packer
DEPTH TO BE SET: 2,913 FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Garner Federal
WELL #: 1
FOOTAGE: 660' fnl & 660' fwl
SEC-TWN-RNG, COUNTY, STATE: 3-13S-34E, Chaves County, New Mexico
SPUD DATE: 14-Feb-84
COMPLETION DATE: 1-Mar-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 374 FEET
CEMENTED USED: 300 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,920 FEET
CEMENTED USED: 230 SACKS
TOP OF CEMENT: 2,000 FEET
DETERMINED BY: Temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,925 FEET
PLUGGED BACK TO: 2,920 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,695 FEET
INTERVAL BOTTOM: 2,701 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 30,000 gallons gelled water, 24,000 pounds of 20/40 sand, 12,500 pounds of 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Garner Federal
WELL #: 2
FOOTAGE: 2310' fsl & 2310' fel
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 29-Apr-84
COMPLETION DATE: 1-Jun-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 410 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,098 FEET
CEMENTED USED: 550 SACKS
TOP OF CEMENT: 1,992 FEET
DETERMINED BY: CBL
HOLE SIZE: 7.975 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TD: 3,098 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,982 FEET
INTERVAL BOTTOM: 2,990 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 25,000 gallons gelled water, 25% CO2,
16,500 pounds of 20/40 sand, 1,700 pounds of 12/20 sand
PROPOSED STIMULATION: 500-1000 gallons of 7-1/2% HCL to clean perforations

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Nickel plated tension packer
DEPTH TO BE SET: 2,932 FEET

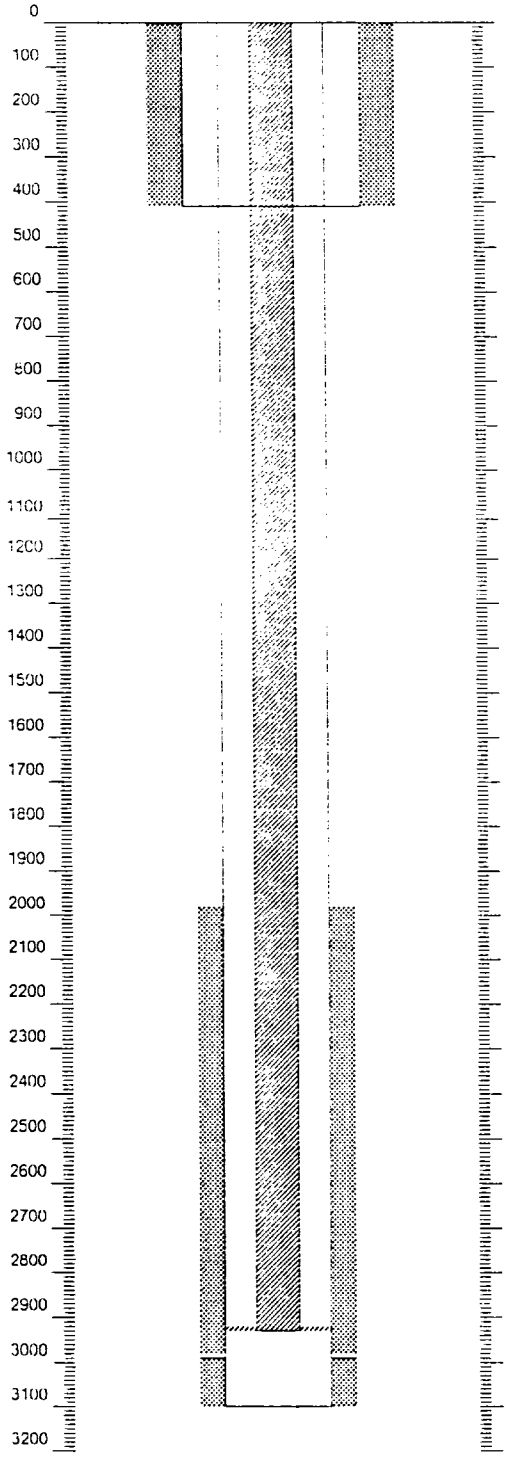
OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

GARNER FEDERAL #2
034-12S-31E
CHAVES COUNTY, NM



410'. 8-5/8" 24# J-55 CASING, CEMENTED WITH 250 SACKS, CIRCULATED

1980'. TOP OF CEMENT AS DETERMINED BY TEMPERATURE SURVEY

2932'. APPROXIMATE INJECTION PACKER DPETH

2982'-2990'. PERFORATIONS, 17 HOLES

3100'. TD, 5-1/2"14#&15.5# J-55 CASING, CEMENTED WITH 550 SACKS

PROPOSED INJECTION CONFIGURATION

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Garner Federal
WELL #: 3
FOOTAGE: 1980' fnl & 1980' fel
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 2-Jul-84
COMPLETION DATE: 12-Aug-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active injection well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 408 FEET
CEMENTED USED: 225 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,100 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 1,910 FEET
DETERMINED BY: temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,100 FEET
PLUGGED BACK TD: 3,100 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,981 FEET
INTERVAL BOTTOM: 2,986 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 750 gallons 15% HCL acid plus 15,000 gallons gelled water, 5,000 scf CO2,
15,000 pounds of 20/40 sand, 1,700 pounds of 12/20 sand
PROPOSED STIMULATION: 500-1000 gallons of 7-1/2% HCL acid to clean perforations

INJECTION TUBING (if an injection well)

TUBING SIZE: 2.375 INCHES
LINING: plastic
PACKER: Nickel plated tension packer
DEPTH TO BE SET: 2,931 FEET

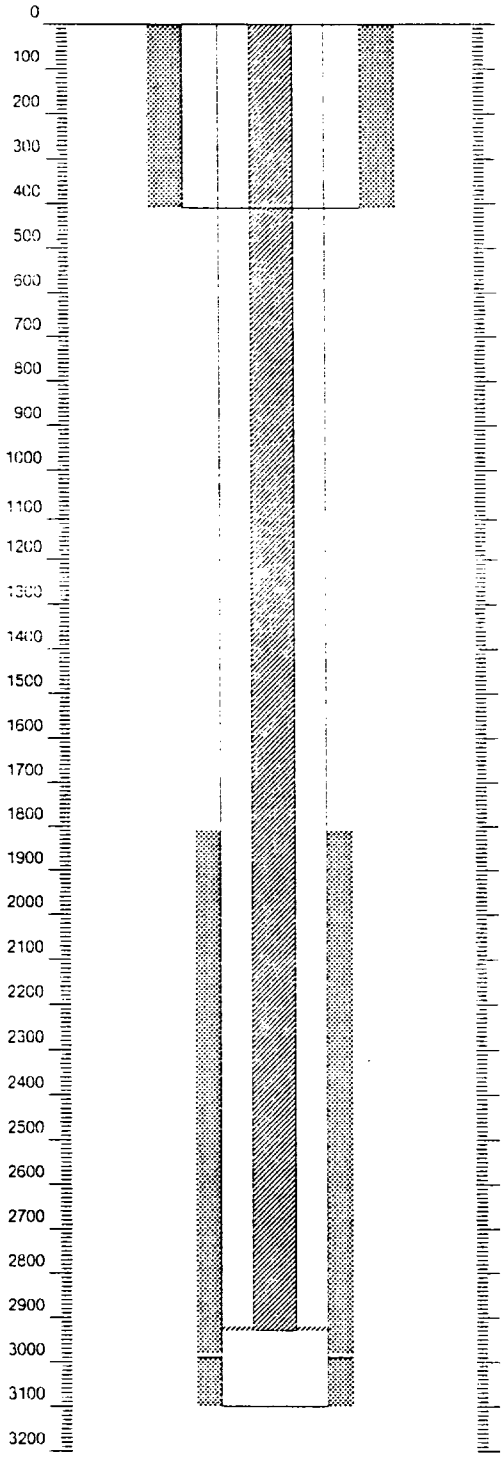
OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

GARNER FEDERAL #3
G34-12S-31E
CHAVES COUNTY, NM



409', 8-5/8" 24# J-55 CASING, CEMENTED WITH 225 SACKS, CIRCULATED

1810', TOP OF CEMENT AS DETERMINED BY TEMPERATURE SURVEY

2931', APPROXIMATE INJECTION PACKER DPETH

2981'-2986', PERFORATIONS, 12 HOLES

3100', TD, 5-1/2"14# J-55 CASING, CEMENTED WITH 250 SACKS

PROPOSED INJECTION CONFIGURATION

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Garner Federal
WELL #: 4
FOOTAGE: 330' fsl & 1980' fel
SEC-TWN-RNG, COUNTY, STATE: 34-12S-34E, Chaves County, New Mexico
SPUD DATE: 24-Jun-84
COMPLETION DATE: 1-Aug-84
CURRENT STATUS: Inactive producing well - Queen
PROPOSED STATUS: Inactive producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS FOOT
CASING GRADE: J-55
DEPTH SET: 408 FEET
CEMENTED USED: 250 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 3,108 FEET
CEMENTED USED: 500 SACKS
TOP OF CEMENT: 1,940 FEET
DETERMINED BY: Temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,108 FEET
PLUGGED BACK TD: 3,108 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,989 FEET
INTERVAL BOTTOM: 2,997 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 1000 gallons 15% HCL acid plus 35,000 gallons gelled water, 25% CO2, 43,000 pounds of 20/40 sand, 22,000 pounds of 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Garner Federal
WELL #: 5
FOOTAGE: 330' fnl & 2310' fwl
SEC-TWN-RNG, COUNTY, STATE: 3-13S-34E, Chaves County, New Mexico
SPUD DATE: 25-Jul-84
COMPLETION DATE: 14-Aug-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: 24.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 371 FEET
CEMENTED USED: 230 SACKS
TOP OF CEMENT: 0 FEET
DETERMINED BY: circulate
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: 14.000 POUNDS/FOOT
CASING GRADE: J-55
DEPTH SET: 2,991 FEET
CEMENTED USED: 235 SACKS
TOP OF CEMENT: 1,910 FEET
DETERMINED BY: Temp. survey
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 2,900 FEET
PLUGGED BACK TO: 2,891 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,773 FEET
INTERVAL BOTTOM: 2,789 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 1500 gallons 15% HCL acid plus 30,000 gallons gelled water, 25% N2,
14,500 pounds of 20/40 sand, 13,500 pounds of 12/20 sand
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

WELL DATA SHEET

OPERATOR: Yates Drilling Company
LEASE: Tao Federal
WELL #: 1
FOOTAGE: 330' fnl & 1980' fel
SEC-TWN-RNG, COUNTY, STATE: 3-13S-34E, Chaves County, New Mexico
SPUD DATE: 22-May-84
COMPLETION DATE: 9-Jun-84
CURRENT STATUS: Active producing well - Queen
PROPOSED STATUS: Active producing well - Queen

SURFACE CASING

CASING SIZE: 8.625 INCHES
CASING WEIGHT: ? POUNDS/FOOT
CASING GRADE: ?
DEPTH SET: 566 FEET
CEMENTED USED: 225 SACKS
TOP OF CEMENT: ? FEET
DETERMINED BY: ?
HOLE SIZE: 12.250 INCHES

PRODUCTION CASING

CASING SIZE: 5.500 INCHES
CASING WEIGHT: ? POUNDS/FOOT
CASING GRADE: ?
DEPTH SET: 3,114 FEET
CEMENTED USED: 252 SACKS
TOP OF CEMENT: ? FEET
DETERMINED BY: ?
HOLE SIZE: 7.875 INCHES
TOTAL DEPTH: 3,114 FEET
PLUGGED BACK TD: 3,114 FEET

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2,983 FEET
INTERVAL BOTTOM: 3,003 FEET
COMMENTS: Perforated
PREVIOUS STIMULATION: 500 gallons 15% HCL acid plus 20,000 gallons gelled water, 20,000 pounds of sand.
PROPOSED STIMULATION: None

INJECTION TUBING (if an injection well)

TUBING SIZE: NA INCHES
LINING: NA
PACKER: NA
DEPTH TO BE SET: NA FEET

OTHER DATA

1. Name of injection or producing interval.
   Queen
2. Name of field or pool (if applicable).
   SE Chaves Queen
3. Is this a new well drilled for injection?
   No.

   If no, for what purpose was the well originally drilled?
   This well was originally drilled as a Queen producing well.
4. Has well ever been perforated in any other zones?
   No

   List all such perforated intervals and give plugging details (sacks of cement or bridge plug(s) used).
   None
5. Give depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
   There has never been any production from any formation other than the Queen in the area surrounding this well.
6. If well is plugged and abandoned, list details of plugging and attach schematic.
   Not applicable.

Water Wells

SEC	TWN	RNG	UNIT LTR	QTR OF UNIT	TD	TYPE	#
24	12S	31E	K	?	148	DOM.	L4993
24	12S	31E	P	?	160	DOM.	L6649
26	12S	31E	E	?	166	DOM. & STK	L6746
✓26	12S	31E	L	?	?	IRR.	L2117
✓26	12S	31E	O	?	198	COM. (OIL & GAS)	L9566
✓26	12S	31E	O	?	198	COM.. DOM. & STK	L6749
✓27	12S	31E	H	?	160	DOM. & STK	L6650
✓35	12S	31E	F	NW	55	DOM.	L4170
✓35	12S	31E	IJOP	?	?	?	L2932
1	13S	31E	K	SE	190	WF	L3460
1	13S	31E	P	SE	220	WF	L3461
1	13S	31E	M	SW	190	COM. & STK	L3837X
1	13S	31E	M	SW	165	COM. & STK	L3837
2	13S	31E	H	SW	165	DEC.	L3834
2	13S	31E	H	?	?	WF	L4295
2	13S	31E	H	NE	196	SRO	L3914
2	13S	31E	H	SW	165	DEC.	L3835
2	13S	31E	P	SE	?	?	L3806
2	13S	31E	I	NE	216	SRO	L2745
12	13S	31E	A	?	217	SRO	L3460
13	13S	31E	ABCD	?	?	OWD	L2933
24	13S	31E	H	NE	196	IND.	L3914
35	13S	31E	F	SW	?	DOM.	L2849

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Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 746-3580 Fax

WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NEW MEXICO
Lease : WILLIAMS RANCH
Well : RANCH HOUSE
Sample Pt. : TAP

Date : 11/09/92
Date Sampled : 11/06/92
Analysis No. : 215

	ANALYSIS		mg/L		* meq/L
1.	pH	6.8			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		409.9		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	170.0	HCO3	2.8
12.	Chloride	Cl	106.0	Cl	3.0
13.	Sulfate	SO4	25.0	SO4	0.5
14.	Calcium	Ca	96.0	Ca	4.8
15.	Magnesium	Mg	24.4	Mg	2.0
16.	Sodium (calculated)	Na	-11.4	Na	-0.5
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		340.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

5	*Ca <----- *HCO3	3
	/------->	
2	*Mg -----> *SO4	1
	<---------/	
-0	*Na -----> *Cl	3

Saturation Values Dist. Water 20 C
CaCO3 13 mg/L
CaSO4 * 2H2O 2090 mg/L
BaSO4 2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	2.8	226
CaSO4	68.1	0.5	35
CaCl2	55.5	1.5	82
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	1.5	72
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4		

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

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WATER ANALYSIS REPORT

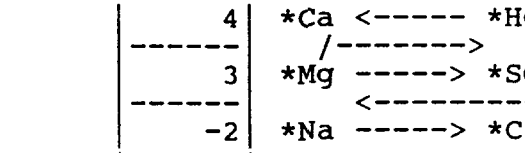
Company : YATES DRILLING
Address : ARTESIA, NEW MEXICO
Lease : TIVIS RANCH
Well : RANCH HOUSE
Sample Pt. : TAP

Date : 11/09/92
Date Sampled : 11/06/92
Analysis No. : 216

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		334.8		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	146.0	HCO3	2.4
12.	Chloride	Cl	85.0	Cl	2.4
13.	Sulfate	SO4	25.0	SO4	0.5
14.	Calcium	Ca	88.0	Ca	4.4
15.	Magnesium	Mg	34.1	Mg	2.8
16.	Sodium (calculated)	Na	-43.3	Na	-1.9
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		360.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter



Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	2.4	194
CaSO4	68.1	0.5	35
CaCl2	55.5	1.5	82
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	0.9	44
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4		

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

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WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NEW MEXICO
Lease : GRAHAM
Well : WINDMILL
Sample Pt. : WELL

Date : 11/09/92
Date Sampled : 11/06/92
Analysis No. : 217

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		433.3		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	170.0	HCO3	2.8
12.	Chloride	Cl	127.0	Cl	3.6
13.	Sulfate	SO4	25.0	SO4	0.5
14.	Calcium	Ca	128.0	Ca	6.4
15.	Magnesium	Mg	31.7	Mg	2.6
16.	Sodium (calculated)	Na	-48.3	Na	-2.1
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		450.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

6	*Ca <----- *HCO3	3
	/------->	
3	*Mg -----> *SO4	1
	<---------/	
-2	*Na -----> *Cl	4

Saturation Values Dist. Water 20 C
CaCO3 13 mg/L
CaSO4 * 2H2O 2090 mg/L
BaSO4 2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	2.8	226
CaSO4	68.1	0.5	35
CaCl2	55.5	3.1	171
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	0.5	24
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4		

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

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WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NEW MEXICO
Lease : DAVE FEDERAL
Well : BATTERY
Sample Pt. : GUN BARREL

Date : 11/09/92
Date Sampled : 11/06/92
Analysis No. : 218

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	1 PPM			
3.	Specific Gravity	1.025			
4.	Total Dissolved Solids		34942.6		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	146.0	HCO3	2.4
12.	Chloride	Cl	21303.0	Cl	600.9
13.	Sulfate	SO4	1750.0	SO4	36.4
14.	Calcium	Ca	2480.0	Ca	123.8
15.	Magnesium	Mg	2916.2	Mg	239.9
16.	Sodium (calculated)	Na	6347.4	Na	276.1
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		18200.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

124	*Ca <----- *HCO3	2
	/------->	
240	*Mg -----> *SO4	36
	<---------/	
276	*Na -----> *Cl	601

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	2.4	194
CaSO4	68.1	36.4	2480
CaCl2	55.5	84.9	4712
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	239.9	11421
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	276.1	16135

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

PETROLITE

SCALE TENDENCY REPORT

Company	: YATES DRILLING	Date	: 11/09/92
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 11/06/92
Lease	: DAVE FEDERAL	Analysis No.	: 218
Well	: BATTERY	Analyst	: STEVE TIGERT
Sample Pt.	: GUN BARREL		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.3	at	80 deg. F	or	27 deg.	C
S.I. =	0.4	at	100 deg. F	or	38 deg.	C
S.I. =	0.5	at	120 deg. F	or	49 deg.	C
S.I. =	0.5	at	140 deg. F	or	60 deg.	C
S.I. =	0.6	at	160 deg. F	or	71 deg.	C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	3262	at	80 deg. F	or	27 deg	C
S =	3375	at	100 deg. F	or	38 deg	C
S =	3407	at	120 deg. F	or	49 deg	C
S =	3419	at	140 deg. F	or	60 deg	C
S =	3352	at	160 deg. F	or	71 deg	C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

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WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NEW MEXICO
Lease : DELUNA FEDERAL
Well : BATTERY
Sample Pt. : GUN BARREL

Date : 11/09/92
Date Sampled : 11/06/92
Analysis No. : 219

	ANALYSIS		mg/L		* meq/L
1.	pH	7.1			
2.	H2S	1 PPM			
3.	Specific Gravity	1.040			
4.	Total Dissolved Solids		62813.1		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	244.0	HCO3	4.0
12.	Chloride	Cl	37275.0	Cl	1051.5
13.	Sulfate	SO4	1875.0	SO4	39.0
14.	Calcium	Ca	1400.0	Ca	69.9
15.	Magnesium	Mg	1725.4	Mg	141.9
16.	Sodium (calculated)	Na	20293.7	Na	882.7
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		10600.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

70	*Ca <----- *HCO3	4
	/------->	
142	*Mg -----> *SO4	39
	<----------/	
883	*Na -----> *Cl	1051

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	4.0	324
CaSO4	68.1	39.0	2657
CaCl2	55.5	26.8	1488
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	141.9	6757
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	882.7	51586

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

PETROLITE

SCALE TENDENCY REPORT

Company	: YATES DRILLING	Date	: 11/09/92
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 11/06/92
Lease	: DELUNA FEDERAL	Analysis No.	: 219
Well	: BATTERY	Analyst	: STEVE TIGERT
Sample Pt.	: GUN BARREL		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.3	at	80 deg. F	or	27 deg. C
S.I. =	0.4	at	100 deg. F	or	38 deg. C
S.I. =	0.5	at	120 deg. F	or	49 deg. C
S.I. =	0.6	at	140 deg. F	or	60 deg. C
S.I. =	0.7	at	160 deg. F	or	71 deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	5336	at	80 deg. F	or	27 deg C
S =	5501	at	100 deg. F	or	38 deg C
S =	5556	at	120 deg. F	or	49 deg C
S =	5585	at	140 deg. F	or	60 deg C
S =	5517	at	160 deg. F	or	71 deg C

Petrolite Oilfield Chemicals Group

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WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NEW MEXICO
Lease : BURKETT FEDERAL
Well : BATTERY
Sample Pt. : GUN BARREL

Date : 11/09/92
Date Sampled : 11/06/92
Analysis No. : 220

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	1 PPM			
3.	Specific Gravity	1.030			
4.	Total Dissolved Solids		46894.5		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	146.0	HCO3	2.4
12.	Chloride	Cl	28116.0	Cl	793.1
13.	Sulfate	SO4	1750.0	SO4	36.4
14.	Calcium	Ca	2000.0	Ca	99.8
15.	Magnesium	Mg	2187.3	Mg	179.9
16.	Sodium (calculated)	Na	12695.2	Na	552.2
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		14000.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

100	*Ca <----- *HCO3	2
180	*Mg -----> *SO4	36
552	*Na -----> *Cl	793

Saturation Values Dist. Water 20 C
CaCO3 13 mg/L
CaSO4 * 2H2O 2090 mg/L
BaSO4 2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	2.4	194
CaSO4	68.1	36.4	2480
CaCl2	55.5	61.0	3383
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	179.9	8566
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	552.2	32271

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

PETROLITE

SCALE TENDENCY REPORT

Company	: YATES DRILLING	Date	: 11/09/92
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 11/06/92
Lease	: BURKETT FEDERAL	Analysis No.	: 220
Well	: BATTERY	Analyst	: STEVE TIGERT
Sample Pt.	: GUN BARREL		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.2	at	80 deg. F	or	27 deg. C
S.I. =	0.3	at	100 deg. F	or	38 deg. C
S.I. =	0.3	at	120 deg. F	or	49 deg. C
S.I. =	0.4	at	140 deg. F	or	60 deg. C
S.I. =	0.5	at	160 deg. F	or	71 deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	4073	at	80 deg. F	or	27 deg C
S =	4208	at	100 deg. F	or	38 deg C
S =	4248	at	120 deg. F	or	49 deg C
S =	4265	at	140 deg. F	or	60 deg C
S =	4195	at	160 deg. F	or	71 deg C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

Cactus Queen
Leasehold Ownership

1. SWNW of Section 35, T12 S-R31E, B-10420

   C.R. Gallagher, Jr.
   P.O. Box 628
   Pass Christian, MS 39571

   Delfern Operating Account
   1005 Texas Commerce Bank Bldg.
   1208 14th Street
   Lubbock, Texas 79401

2. NWSW of Section 35, T12S-R31E, B-9359
   Great Western Drilling Company
   P.O. Box 1659
   Midland, Texas 79702

3. SWSW of Section 35, T12S-R31E
   Unleased State Lands

4. SESE of Section 28, T12S-R31E
   Burk Royalty Company
   P.O. Box BRC
   Wichita Falls, Texas 76307

   Dalport Petroleum Corporation
   1401 Elm Street
   Dallas, Texas 75202

   F. Frank Stringer
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R.B. Operating Company
3100 Mid-Continent Tower
Tulsa, OK 74103

Pacific Enterprises Oil Company
5 Greenway Plaza, Suite 300
Houston, Texas 77046

TXO Production Corporation
Fidelty Union Tower
Dallas, Texas 75201

5. N/2NE/4 of Section 3, T13S-R31E
Circle Ridge Production, Inc.
300 East North Side Drive
Fort Worth, Texas 76106

Cactus Queen
Surface Ownership

1. SW/4, S/2NW/4, SW/4NE/4 of Section 34, T12S-R31E:

W.T. Tivis, Jr. and wife Wilberta
P.O. Box 1614
Eunice, New Mexico 88231

2. NW/4SE/4 of Section 34, T12S-R31E:

U.S.A. (surface)