

February 5, 1988

Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Case 9319

Re: Cactus Queen Unit
Chaves County, New Mexico

Gentlemen:

Enclosed for filing, please find three copies of the Application of Yates Drilling Company for Approval of a Secondary Recovery Unit Agreement, and for the Compulsory Unit Operation of a Pool, Cactus Queen Unit Area, Chaves County, New Mexico. Also enclosed are three copies of Form C-108, Application for Authorization to Inject for the Purpose of Secondary Recovery.

We ask that this matter be set for hearing before an Examiner on March 2, 1988.

Thank you.

Sincerely yours,

DICKERSON, FISK & VANDIVER


Chad Dickerson

CD:pvw
Enclosures

cc w/enclosure: Ms. Kathy Colbert

BEFORE THE OIL CONSERVATION DIVISION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION :
OF YATES DRILLING COMPANY FOR :
APPROVAL OF A SECONDARY RECOVERY :
UNIT AGREEMENT, AND FOR THE COM- :
PULSORY UNIT OPERATION OF A POOL, :
CACTUS QUEEN UNIT AREA, CHAVES :
COUNTY, NEW MEXICO :

CASE NO. 9319

APPLICATION

COMES NOW Yates Drilling Company, by its attorneys, pursuant to §70-7-1, et seq., N.M.S.A. (1978), and requests that the Division enter an order for the compulsory unit operation of a pool, and in support hereof, respectfully states:

1. Applicant is the operator of a portion of the following lands in Chaves County, New Mexico:

Township 12 South, Range 31 East, N.M.P.M.

Section 26: SW/4 SW/4
Section 27: SE/4, E/2 SW/4, SW/4 SW/4
Section 34: N/2 NE/4, SE/4 NE/4, N/2 NW/4
Section 35: NW/4 NW/4

containing 560 acres, more or less.

2. The Applicant seeks to commit the above described lands to a secondary recovery unit known as the Cactus Queen Unit. The unit consists of federal, state and fee lands.

3. A plat of the proposed unit area is submitted herewith. The formation proposed to be unitized is defined as that

interval underlying the unit area, the vertical limits of which extend from an upper limit described as the top of the Queen formation to a lower limit as the base of the Queen formation; the geologic markers having been previously found to occur at 2,980 feet and 3,100 feet, respectively, in the Yates Drilling Company's Doyal No. 1, located 660 feet from the north line and 990 feet from the east line of Section 34, Township 12 South, Range 31 East, N.M.P.M.

4. The reservoir involved in the application has been reasonably defined by development.

5. Yates Drilling Company, as operator, proposes to conduct a secondary recovery program for the unit area, consisting of injection of water under pressure, for the recovery of oil and gas.

6. Three copies of Form C-108, Application for Authorization to Inject for the Purpose of Secondary Recovery are filed herewith.

7. Three copies of the proposed Unit Agreement covering the manner in which the unit will be supervised and managed, and costs allocated and paid, which the Applicant considers fair, reasonable and equitable, are filed herewith.

8. The unitized management, operation and further development of the oil or gas pool is reasonably necessary in order to effectively carry on secondary recovery operations to

substantially increase the ultimate recovery of oil and gas from the pool or the unitized portion thereof.

9. That secondary recovery methods of operations as applied to such pool or portion thereof are feasible, will prevent waste and will result with reasonable probability in the increased recovery of substantially more oil and gas from the pool or unitized portion thereof than would otherwise be recovered.

10. That the estimated additional costs, if any, of conducting such operations will not exceed the estimated value of the additional oil and gas so recovered, plus a reasonable profit.

11. That such unitization and adoption of such unitized methods of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the pool or portion thereof directly affected.

12. That the operator has made a good faith effort to secure voluntary unitization within the pool or portion thereof directly affected.

13. That the participation formula contained in the unitization agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts in the unit area on a fair, reasonable and equitable basis.

14. The ratification or approval of operator's plan of operation by the owners required to so ratify by §70-7-8,

N.M.S.A. (1978), and by the Commissioner of Public Lands of the State of New Mexico, and the United States Bureau of Land Management, will be forthcoming prior to the effective date of any order issued pursuant to this application by the Division.

WHEREFORE, Applicant prays that this matter be set for hearing and, upon hearing, the Division enter its order approving operator's proposed secondary recovery project, and approving the unit agreement for compulsory unit operation of the Cactus Queen Unit hereinabove defined, within the vertical limits hereinabove set forth, making provision for the matters prescribed by §70-7-7 and §70-7-8, N.M.S.A. (1978), and for such other and further relief as to the Division seems proper.

YATES DRILLING COMPANY

By: 
Chad Dickerson

DICKERSON, FISK & VANDIVER
Seventh and Mahone, Suite E
Artesia, New Mexico 88210
(505) 746-9841

Attorneys for Applicant

SOUTHEAST CHAVES QUEEN GAS AREA
ASSOCIATED POOL
Chaves County, New Mexico

Order No. R-4435, December 1, 1972, Establishing Pool, as
Amended by Order No. R-5911, February 1, 1979; Order No. R-7763,
January 1, 1985; Order No. R-7800, February 1, 1985.

T-12-S, R-30-E	Secs. 1 through 36.
T-12-S, R-31-E	Secs. 1 through 34; NW/4 Sec. 35.
T-13-S, R-30-E	Secs. 1 through 36.
T-13-S, R-31-E	S/2, NW/4 Sec. 3; Secs. 4 through 9, 16 through
21, 28 through 32.	
T-14-S, R-29-E	Secs. 1 through 36.
T-14-S, R-30-E	Secs. 1 through 36.
T-14-S, R-31-E	Secs. 5 through 7, 18, 19, 30, 31.
T-15-S, R-29-E	Secs. 1 through 36.
T-15-S, R-30-E	Secs. 1 through 36.

SECTION II

New Mexico Page 441

REGULATIONS - ASSOCIATED
(attached.)

ANIAN "D" ASSOCIATED POOL
County, New Mexico

Special Rules and Regulations, in
and Regulations for Associated
Northwest and Southeast New Mexico,
Pennsylvanian "D" Associated Pool,
Mexico, February 1, 1977.

es Order No. R-2758, creating and
the Tocito Dome-Pennsylvanian
New Mexico, August 3, 1964, as
8-A, September 30, 1964, Order
and Order No. R-2758-C, August

1 proration unit shall be 160 acres.
shall be 320 acres.

all be located within 150 feet of

SOUTHEAST CHAVES QUEEN GAS AREA ASSOCIATED POOL
Chaves County, New Mexico

Order No. R-5353, Adopting Special Rules and Regulations, in
Addition to the General Rules and Regulations for Associated
Oil and Gas Pools in Northwest and Southeast New Mexico,
for the Southeast Chaves Queen Gas Area Associated Pool,
Chaves County, New Mexico, February 1, 1977.

(Order No. R-5353 supersedes Order No. R-4435, creating
and adopting temporary rules for the Southeast Chaves Queen
Gas Area, Chaves County, New Mexico, December 1, 1972, as
amended by Order No. R-4583, August 1, 1973, Order No.
R-4435-A, December 3, 1974, and Order No. R-4435-B, July 6,
1976.)

RULE 2. (a) A standard oil proration unit shall be 40 acres.
A standard gas proration unit shall be 320 acres.

(General Pool Rules also apply unless in conflict with these
Special Pool Rules.)

BEFORE THE OIL CONSERVATION DIVISION
OF THE STATE OF NEW MEXICO

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PULSORY UNIT OPERATION OF A POOL, :
CACTUS QUEEN UNIT AREA, CHAVES :
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CASE NO. 9319

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Section 27: SE/4, E/2 SW/4, SW/4 SW/4
Section 34: N/2 NE/4, SE/4 NE/4, N/2 NW/4
Section 35: NW/4 NW/4

containing 560 acres, more or less.

2. The Applicant seeks to commit the above described lands to a secondary recovery unit known as the Cactus Queen Unit. The unit consists of federal, state and fee lands.

3. A plat of the proposed unit area is submitted herewith. The formation proposed to be unitized is defined as that

interval underlying the unit area, the vertical limits of which extend from an upper limit described as the top of the Queen formation to a lower limit as the base of the Queen formation; the geologic markers having been previously found to occur at 2,980 feet and 3,100 feet, respectively, in the Yates Drilling Company's Doyal No. 1, located 660 feet from the north line and 990 feet from the east line of Section 34, Township 12 South, Range 31 East, N.M.P.M.

4. The reservoir involved in the application has been reasonably defined by development.

5. Yates Drilling Company, as operator, proposes to conduct a secondary recovery program for the unit area, consisting of injection of water under pressure, for the recovery of oil and gas.

6. Three copies of Form C-108, Application for Authorization to Inject for the Purpose of Secondary Recovery are filed herewith.

7. Three copies of the proposed Unit Agreement covering the manner in which the unit will be supervised and managed, and costs allocated and paid, which the Applicant considers fair, reasonable and equitable, are filed herewith.

8. The unitized management, operation and further development of the oil or gas pool is reasonably necessary in order to effectively carry on secondary recovery operations to

substantially increase the ultimate recovery of oil and gas from the pool or the unitized portion thereof.

9. That secondary recovery methods of operations as applied to such pool or portion thereof are feasible, will prevent waste and will result with reasonable probability in the increased recovery of substantially more oil and gas from the pool or unitized portion thereof than would otherwise be recovered.

10. That the estimated additional costs, if any, of conducting such operations will not exceed the estimated value of the additional oil and gas so recovered, plus a reasonable profit.

11. That such unitization and adoption of such unitized methods of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the pool or portion thereof directly affected.

12. That the operator has made a good faith effort to secure voluntary unitization within the pool or portion thereof directly affected.

13. That the participation formula contained in the unitization agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts in the unit area on a fair, reasonable and equitable basis.

14. The ratification or approval of operator's plan of operation by the owners required to so ratify by §70-7-8,

N.M.S.A. (1978), and by the Commissioner of Public Lands of the State of New Mexico, and the United States Bureau of Land Management, will be forthcoming prior to the effective date of any order issued pursuant to this application by the Division.

WHEREFORE, Applicant prays that this matter be set for hearing and, upon hearing, the Division enter its order approving operator's proposed secondary recovery project, and approving the unit agreement for compulsory unit operation of the Cactus Queen Unit hereinabove defined, within the vertical limits hereinabove set forth, making provision for the matters prescribed by §70-7-7 and §70-7-8, N.M.S.A. (1978), and for such other and further relief as to the Division seems proper.

YATES DRILLING COMPANY

By: *Chad Dickerson*
Chad Dickerson

DICKERSON, FISK & VANDIVER
Seventh and Mahone, Suite E
Artesia, New Mexico 88210
(505) 746-9841

Attorneys for Applicant

Case 9319

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no
- II. Operator: Yates Drilling Company
Address: 105 South 4th Street, Artesia, New Mexico 88210
Contact party: Tobin L. Rhodes Phone: (505) 746-9889
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- VIII. Attach appropriate 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: 1-7-88

* 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.

III. WELL DATA

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

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

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

OIL CONSERVATION DIVISION
FORM C-108 (Supplement)

Application of Yates Drilling Company
For a Secondary Recovery Project
(Proposed Cactus Queen Unit)
Chaves County, New Mexico

I. Purpose:

Application is made for authorization to inject water into the Queen formation within the boundaries of the proposed Cactus Queen Unit. The proposed unit consists of 560 acres and lies in Sections 26, 27, 34 and 35 of Township 12 South, Range 31 East, Chaves County, New Mexico. This project would be classified as a secondary recovery project with the objective of recovering hydrocarbons that will not be recovered by primary means.

The reservoir as defined is near primary depletion. Our studies show that a five-spot injection pattern with six injection wells and six producing wells will result in recovery of oil in economic quantities not otherwise recoverable. Such a pattern will utilize eleven existing wells and will initially require the drilling of one additional well.

II. Operator:

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

Phone Number: (505) 746-9889

III. Injection Well Data:

A well data sheet is attached for each of the six wells proposed for injection. Each injection well data sheet includes a downhole schematic of how each individual well will be configured if this application is approved.

IV. Existing Project:

The proposed project is not an expansion of an existing project and will be a totally new project.

V. Ownership:

A lease ownership map is attached which identifies all wells and lease ownership within two miles of any of the six proposed injection wells. A one-half mile radius circle has been drawn around each of the injection wells on the second map to identify the unit's area of review.

VI. Well Data:

There are seventeen wells including the proposed injection wells which fall within the area of review. Two of these wells have been plugged and abandoned, one well is temporarily abandoned, and the remaining fourteen wells are active "Queen" producers. Available data for each of the seventeen well is included in attached well data sheets. Additionally a downhole schematic has been drawn depicting each of the two plugged and abandoned wells.

VII. Project Data:

1. The proposed daily injection rate is approximately 200 barrels per day for each of the six proposed injection wells. Total injection for the unit would be 1200 barrels per day. The maximum injection rate for any one well will be based on fracture pressures as determined from proposed step rate test to be conducted on each injection well.

2. Produced water will be stored in existing open top fiberglass tanks until transferred to a covered steel storage tank, therefore the water system will be open until the water is transferred to the steel storage tank. Any fresh water will be stored in a covered and sealed steel tank. Produced oil will immediately be separated from produced water and stored in steel, covered, production tanks until sold.

3. Initially the injection wells may take water on a vacuum, but as the reservoir begins to fill, a positive surface injection pressure will be required to inject water. The maximum injection pressure will also be based on proposed step rate tests.

4. The source of injection fluid will be produced water from producing wells within the unit and fresh water from an existing "Ogollala" well in the area. No commitment has been made but there are at least two water wells nearby that are capable of producing water in the amounts required. The State Engineer's Office

in Roswell has indicated commercial water rights are available in this area.

5. No water compatibility problems are expected as "Ogollala" water has been injected into the Queen formation for years, throughout the Caprock Queen field, without excessive problems.

VIII. Geologic Data:

The proposed Cactus Queen Unit produces from the upper sandstone member of the Queen formation, Upper Guadalupian series, Permian System. The average producing depth in the field is 2989 feet. The existing producing formation will be the interval into which water will be injected.

The productive/injection interval, as indicated from a whole core analysis on the DeLuna Federal #3 (330' FNL & 1980' FEL, 34-12s-34e) and sidewall core data from numerous wells, is fine grained, friable, gray, quartz sandstone. The grains are sub-angular to sub-rounded and well sorted. The cementing material is variously from anhydrite and dolomite. The exact depositional environment is unknown. Porosity and permeability are intergranular in nature. The sandstone is not naturally fractured.

The Cactus Queen Field 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. A tilted oil/water contact limits the production in that direction. The oil/ water has been established at (+1440) in the southeast end of the field and (+1446) at the northeast edge.

The underground 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 behind the surface pipe and cement of all existing wells in the unit area. 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 Aquifer is behind the production casing in all existing wells in the unit area.

IX. Stimulation Program:

Each of the eleven existing wells has previously received a fracture treatment. The details of each 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 proposed new producing well will require a fracture treatment which will be similar to currently existing wells' initial fracture treatment.

The wells which will be injection wells may require a small "cleanup" acid job prior to injection. We plan to treat each of these six well with a 1000 to 2000 gallon treatment of 15% hydrochloric acid. This treatment should insure that existing perforations in a well are open and that each well will accept water at the lowest possible pressure.

X. Well Logs:

Well logs for each of the existing well in the proposed unit have previously been submitted to the Hobbs office of the NMOCD. Logs obtained on a new well will also be submitted to the Hobbs office when these logs become available.

XI. Fresh Water:

The State Engineer's Office in Roswell has record of seven water wells within one mile of the proposed unit. The total depths of four of the seven wells are unknown, however all seven wells are assumed to be producing from the Ogollala formation. Analysis reports for water taken from three of the seven wells are attached.

XII. Injection Zone Isolation:

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

XIII. Proof of Notice:

A listing of off-set leasehold operators, surface owners, royalty owners, overriding royalty owners, and working interest owners 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

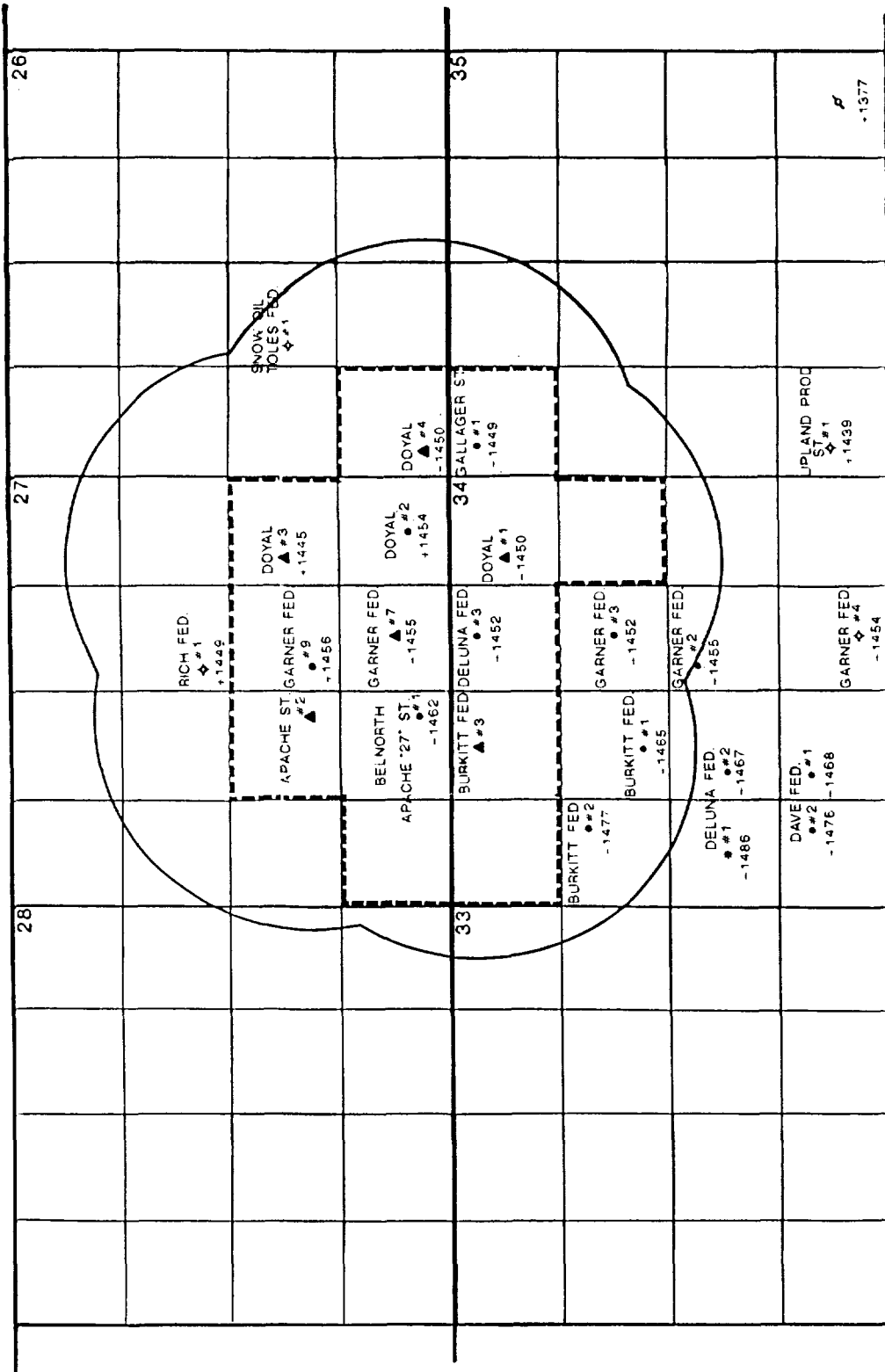
Tobin L. Rhodes

January 7, 1988

[illegible]

R31E

T 12 S



YATES DRILLING
PROPOSED CACTUS QUEEN UNIT
CHAVES CO., N.M.

AREA OF RELIEF
▲ PROPOSED INJECTION WELL
--- UNIT OUTLINE

INJECTION WELL DATA SHEET

OPERATOR: Enron Oil & Gas Co. LEASE: Apache "22" StateWELL NO.: 2 FOOTAGE: 1650 FSL-2310 FEL SEC: 27-112e-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 454

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 4-1/2" CEMENTED WITH: SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 7-7/8" SETTING DEPTH: 3150'
TOTAL DEPTH: 3150'

INJECTION INTERVAL

2996' FEET TO 3000' FEET - PERFORATED

TUBING

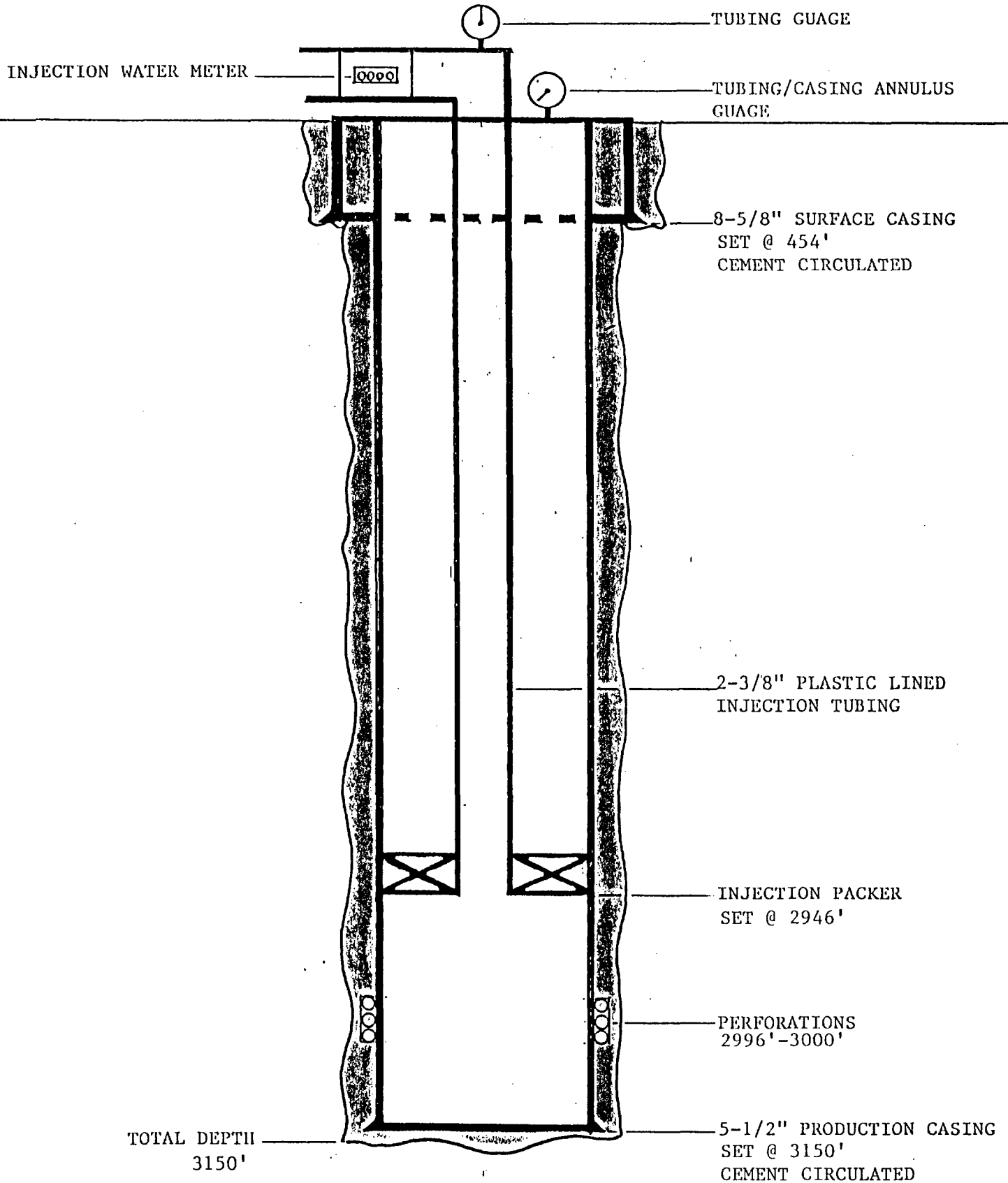
TUBING SIZE: 2-3/8" LINED WITH: Plastic SET IN A
Baker 60-1 PACKER AT: 2946' FEET

OTHER DATA

1. NAME OF INJECTION FORMATION: 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 drilled as a Queen producing well.
4. HAS WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)? No
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING
DETAILS (SACKS OF CEMENT OR BRIDGE PLUG(S) USED):
5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR
UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA:
None known.

WELL SCHEMATIC ATTACHED

APACHE "27" STATE # 2
1650' FSL & 2310' FEL
SECTION 27-T12S-R31E
CHAVES COUNTY
NEW MEXICO



INJECTION WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Durkitt Federal

WELL NO.: 3 FOOTAGE: 330' FNL-2310' FWL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 270 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 424

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 260 SX.
TOC: 1640' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3083'
TOTAL DEPTH: 3100'

INJECTION INTERVAL

2988' FEET TO 2992' FEET - PERFORATED

TUBING

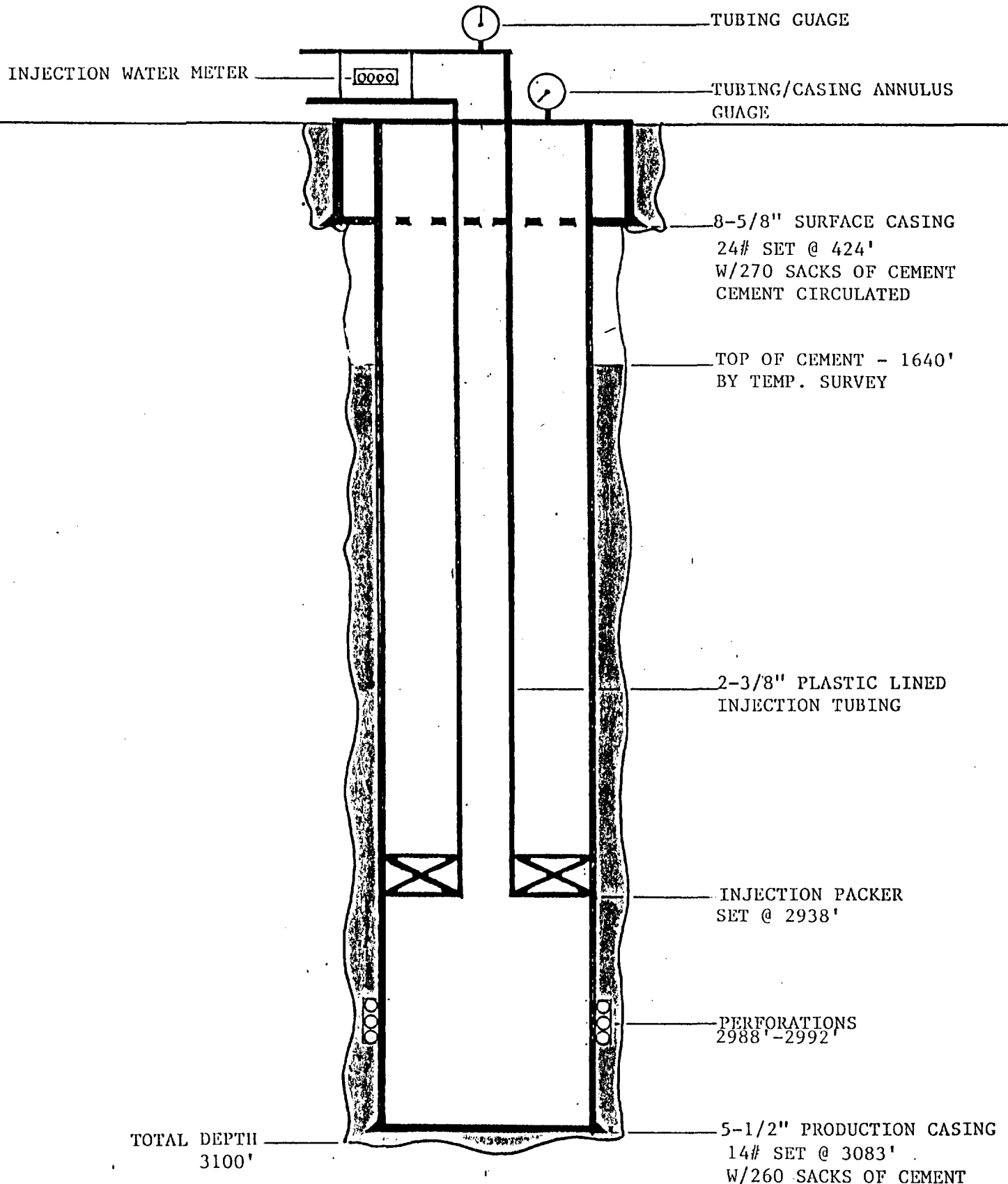
TUBING SIZE: 2-3/8" LINED WITH: Plastic SET IN A
Baker AD-1 PACKER AT: 2938' FEET

OTHER DATA

1. NAME OF INJECTION FORMATION: 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 drilled as a Queen producing well.
4. HAS WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)? No
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING
DETAILS (SACKS OF CEMENT OR BRIDGE PLUG(S) USED):
5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR
UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA:
None known.

WELL SCHEMATIC ATTACHED

BURKITT FEDERAL #3
330' FNL & 2310' FWL
SECTION 34-T12S-R31E
CHAVES COUNTY
NEW MEXICO



INJECTION WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Doyal

WELL NO.: 1 FOOTAGE: 660' FNL - 990' FEL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 409.46

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 250 SX.
TOC: 2200' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3100'
TOTAL DEPTH: 3100'

INJECTION INTERVAL

2982' FEET TO 2989' FEET - PERFORATED

TUBING

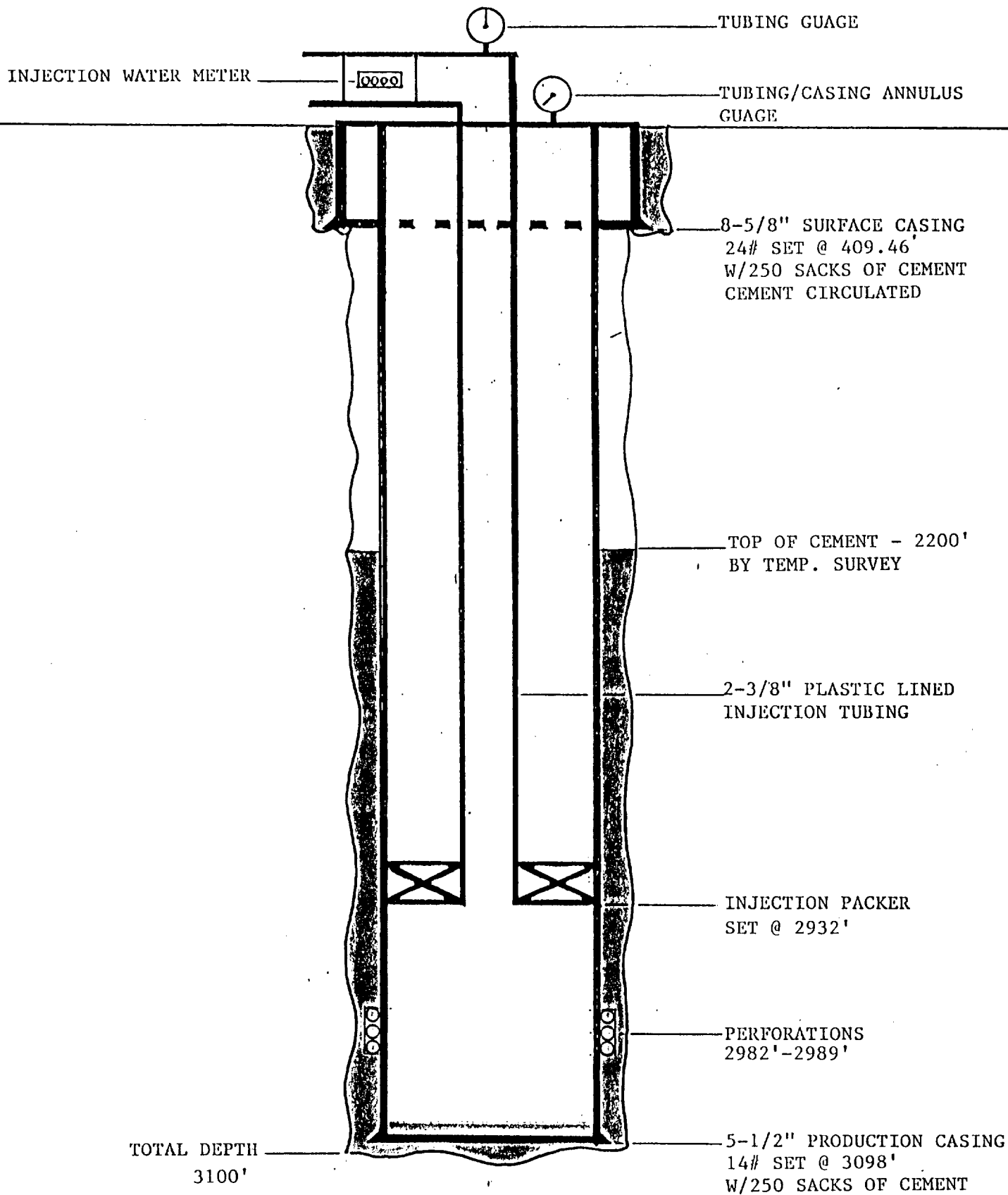
TUBING SIZE: 2-3/8" LINED WITH: Plastic SET IN A
Baker AD-1 PACKER AT: 2932' FEET

OTHER DATA

1. NAME OF INJECTION FORMATION: 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 drilled as a Queen producing well.
4. HAS WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)? No
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING
DETAILS (SACKS OF CEMENT OR BRIDGE PLUG(S) USED):
5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR
UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA:
None known.

WELL SCHEMATIC ATTACHED

DOYAL #1
660' FNL & 990' FEL
SECTION 34-T12S-R31E
CHAVES COUNTY
NEW MEXICO



INJECTION WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: DoyalWELL NO.: 3 FOOTAGE: 1980'ESL- 990'FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 260 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 409'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: _____ SX.
TOC: _____ FEET DETERMINED BY: _____
HOLE SIZE: _____ SETTING DEPTH: _____

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 850 SX.
TOC: 630' FEET DETERMINED BY: Cement Bond Log
HOLE SIZE: 7-7/8" SETTING DEPTH: 3099'
TOTAL DEPTH: 3100'

INJECTION INTERVAL

2991' FEET TO 2997' FEET - PERFORATED

TUBING

TUBING SIZE: 2-3/8" LINED WITH: Plastic SET IN A
Baker AD-1 PACKER AT: 2941' FEET

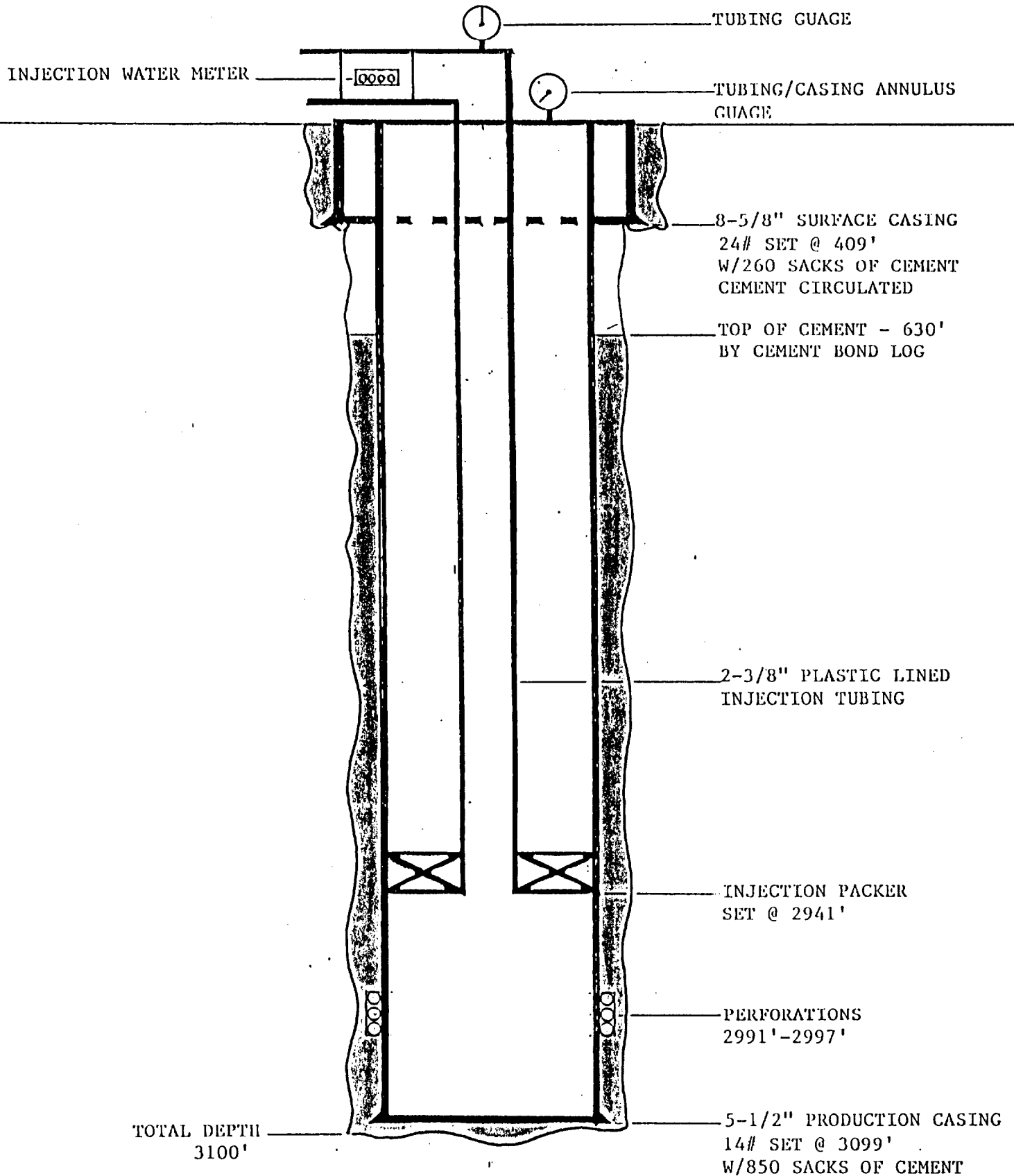
OTHER DATA

1. NAME OF INJECTION FORMATION: 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 drilled as a Queen producing well.
This well is temp. aban. due to high water production
4. HAS WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)? No
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING
DETAILS (SACKS OF CEMENT OR BRIDGE PLUG(S) USED): _____

5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR
UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA: _____
None known.

WELL SCHEMATIC ATTACHED

BOYAL #3
1980' FSL & 990' FEL
SECTION 27-T12S-R31E
CHAVES COUNTY
NEW MEXICO



INJECTION WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: DoyalWELL NO.: 4 FOOTAGE: 330' FSL - 330' FWL SEC: 26-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 400

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: _____ SX.
TOC: _____ FEET DETERMINED BY: _____
HOLE SIZE: _____ SETTING DEPTH: _____

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 975 SX.
TOC: 310' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3088'
TOTAL DEPTH: 3100'

INJECTION INTERVAL

2982' FEET TO 2985' FEET - PERFORATED

TUBING

TUBING SIZE: 2-3/8" LINED WITH: Plastic SET IN A
Baker AD-1 PACKER AT: 2932' FEET

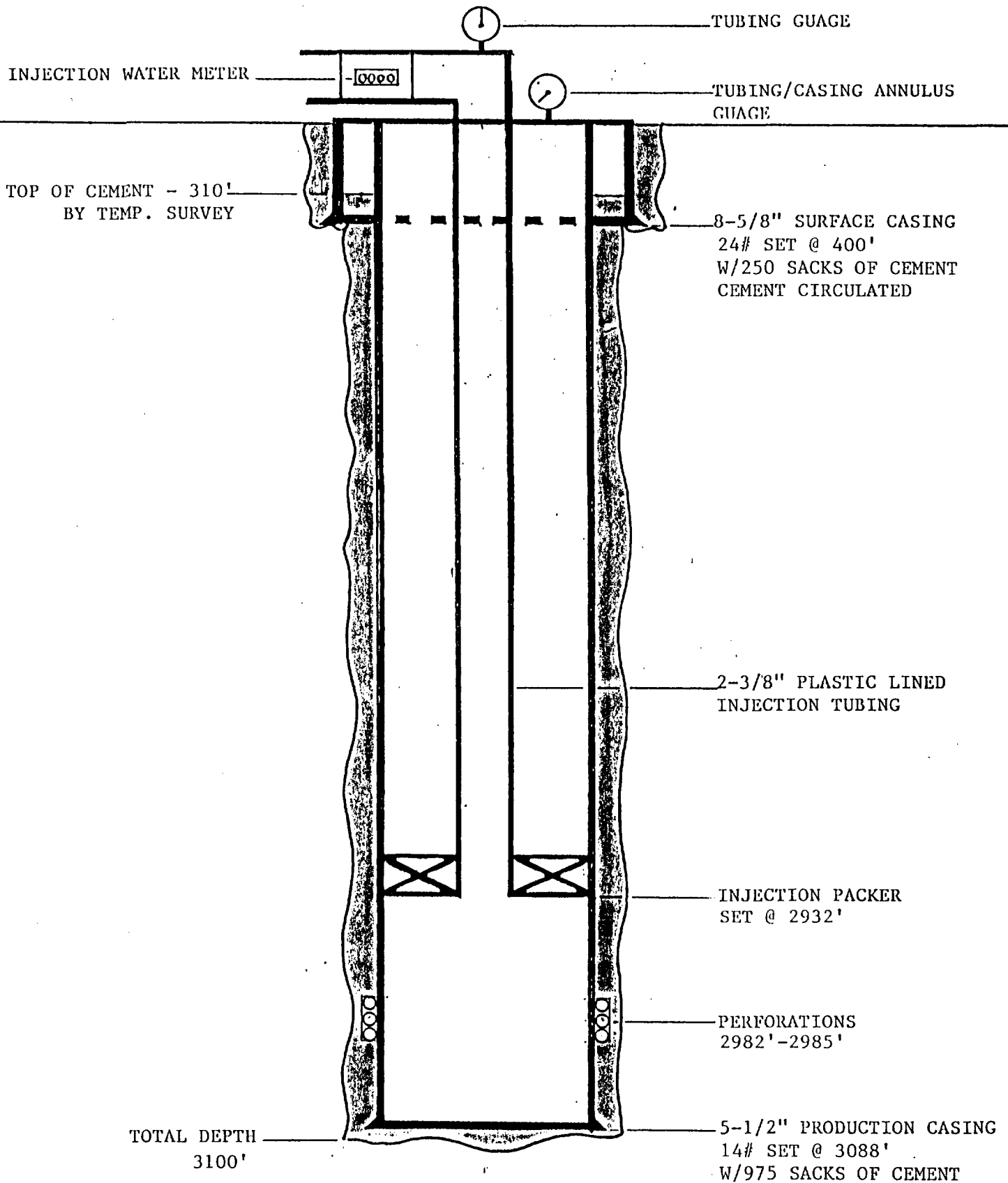
OTHER DATA

1. NAME OF INJECTION FORMATION: 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 drilled as a Queen producing well.
4. HAS WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)? No
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING
DETAILS (SACKS OF CEMENT OR BRIDGE PLUG(S) USED): _____

5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR
UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA:
None known.

WELL SCHEMATIC ATTACHED

DOYAL #4
330' FSL & 330' FWL
SECTION 26-T12S-R31E
CHAVES COUNTY
NEW MEXICO



INJECTION WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Garner Federal
WELL NO.: 7 FOOTAGE: 660' FSL-1980' FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 424

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: _____ SX.
TOC: _____ FEET DETERMINED BY: _____
HOLE SIZE: _____ SETTING DEPTH: _____

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 270 SX.
TOC: 1900' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3098.54'
TOTAL DEPTH: 3100'

INJECTION INTERVAL

2987' FEET TO 2993' FEET - PERFORATED

TUBING

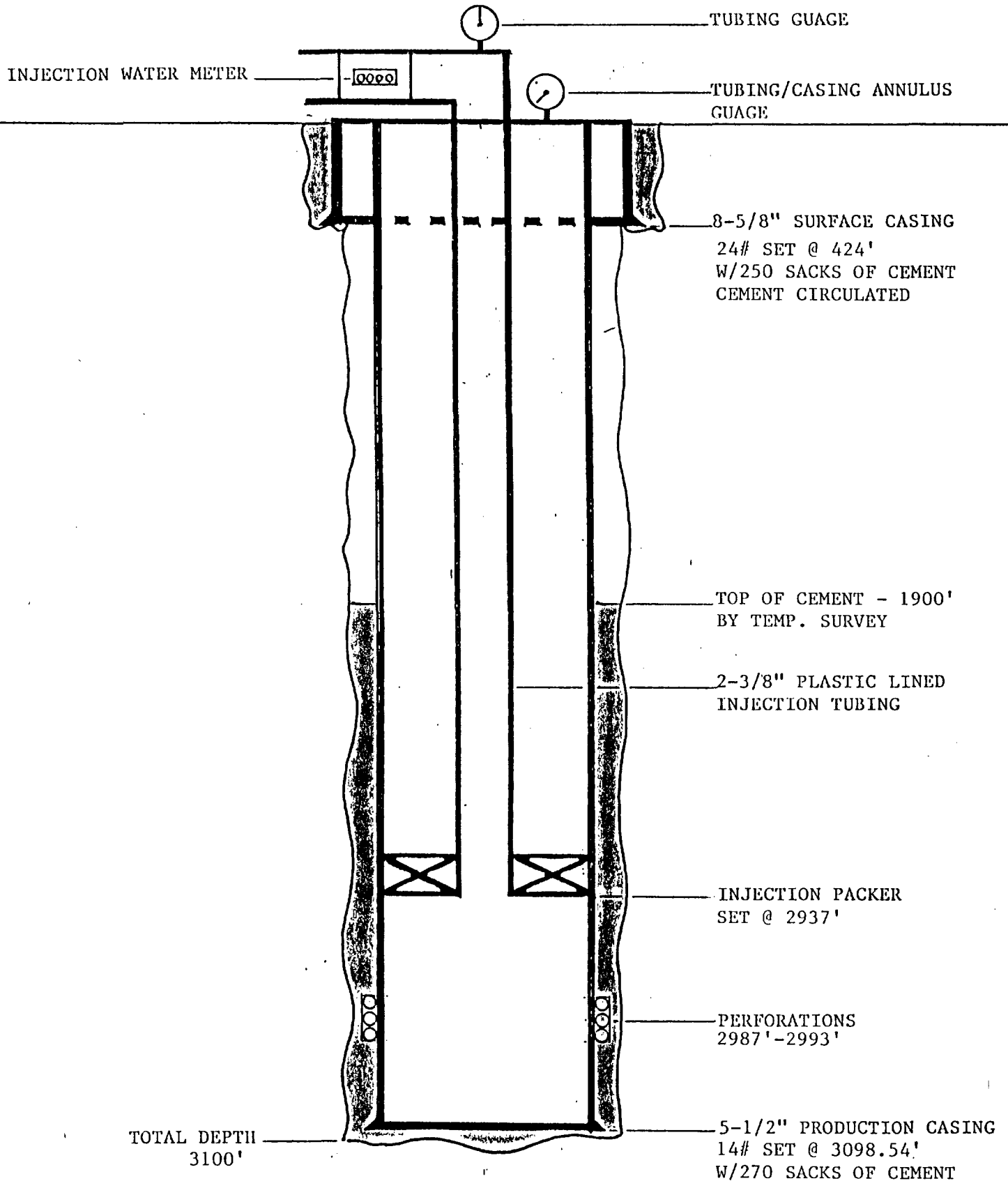
TUBING SIZE: 2-3/8" LINED WITH: Plastic SET IN A
Baker AD-1 PACKER AT: 2937' FEET

OTHER DATA

1. NAME OF INJECTION FORMATION: 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 drilled as a Queen producing well.
4. HAS WELL EVER BEEN PERFORATED IN ANY OTHER ZONE(S)? No
LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING
DETAILS (SACKS OF CEMENT OR BRIDGE PLUG(S) USED): _____
5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR
UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA: _____
None known.

WELL SCHEMATIC ATTACHED

GARNER FEDERAL # 7
660' FSL & 1980' FEL
SECTION 27-T12S-R31E
CHAVES COUNTY
NEW MEXICO



WELL DATA SHEET

OPERATOR: Enron Oil & Gas Co. LEASE: Apache "27" State

WELL NO.: 1 FOOTAGE: 330' FSL-2310' FWL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" CEMENTED WITH: SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 422'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 4-1/2" CEMENTED WITH: SX.
TOC: 210' FEET DETERMINED BY:
HOLE SIZE: 7-7/8" SETTING DEPTH: 3150'
TOTAL DEPTH: 3150'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 5-9-85 COMPLETION DATE: 6-27-85
PERFORATED: 2984 FEET TO 2991 FEET

STIMULATION: 100 gals. 15% HCl acid, 12000 gals. gel water
4000 gals. CO2, 10500# 20/40 sand, 10000# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Enron Oil & Gas Co. LEASE: Apache "27" State

WELL NO.: 2 FOOTAGE: 1650' FSL-2310' FEL SEC: 27-T12s-k31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" CEMENTED WITH: SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 454'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 4-1/2" CEMENTED WITH: SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 7-7/8" SETTING DEPTH: 3150'
TOTAL DEPTH: 3150'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 7-29-85 COMPLETION DATE: 8-23-85
PERFORATED: 2996 FEET TO 3000 FEET

STIMULATION: 850 gals. 15% HCl acid, 16000 gals. gel water
25% CO2, 10500# 20/40 sand, 10000# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Burkitt Federal

WELL NO.: 1 FOOTAGE: 2310' FNL-1980' FEL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 300 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 450'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: _____ SX.
TOC: _____ FEET DETERMINED BY: _____
HOLE SIZE: _____ SETTING DEPTH: _____

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 360 SX.
TOC: 1650' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3080'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 3-23-84 COMPLETION DATE: 4-7-84
PERFORATED: 2874 FEET TO 2882 FEET

STIMULATION: 750 gals. 15% HCl acid, 20000 gals. 30# gel,
25% CO2, 16500# 20/40 sand, 6000# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS: _____

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Burkitt Federal
WELL NO.: 2 FOOTAGE: 1650' FNL - 990' FWL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 375 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 370'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH: '

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 250 SX.
TOC: 1678' FEET DETERMINED BY: Cement Bond Log
HOLE SIZE: 7-7/8" SETTING DEPTH: 2845'
TOTAL DEPTH: 2850'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 5-5-84 COMPLETION DATE: 7-10-84
PERFORATED: 2754 FEET TO 2760 FEET

STIMULATION: 750 gals. 15% HCl acid, 15000 gals. 30# gel,
5000 gals CO2, 14500# 20/40 sand, 2500# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Burkitt Federal

WELL NO.: 3 FOOTAGE: 330' FNL-2310' FWL SEC: 34-112s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 270 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 424'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 260 SX.
TOC: 1640' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3083'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 8-9-85 COMPLETION DATE: 10-1-85
PERFORATED: 2988 FEET TO 2992 FEET

STIMULATION: 750 gals. 15% HCl acid, 15000 gals. gel water
24 tons CO2, 12000# 20/40 sand, 7000# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: DeLuna Federal
 WELL NO.: 3 FOOTAGE: 330'FNL-1980'FEL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 300 SX.
 TOC: Surface FEET DETERMINED BY: Circulation
 HOLE SIZE: 12-1/4" SETTING DEPTH: 433'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
 TOC: FEET DETERMINED BY:
 HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 410 SX.
 TOC: 1900' FEET DETERMINED BY: Cement Bond Log
 HOLE SIZE: 7-7/8" SETTING DEPTH: 3094'
 TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
 SPUD DATE: 2-11-85 COMPLETION DATE: 3-20-85
 PERFORATED: 2987-1/2 FEET TO 2993 FEET

STIMULATION: 750 gals. 15% hcl, 15000 gals. 30# gel, 23-1/2
tons CO2, 13000# 20/40 sand, 10000# 10/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Doyal

WELL NO.: 1 FOOTAGE: 660'FNL- 990'FEL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 409.46'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" CEMENTED WITH: 250 SX.
TOC: 2200' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3098'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 7-31-84 COMPLETION DATE: 8-25-84
PERFORATED: 2982' FEET TO 2989' FEET

STIMULATION: 750 gallons of 15 % HCl, 15000 gallons 30# gel
, 5000 SCF N2 per barrel, 10900# 20/40 sand, and 4200# 10/20
sand.

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well.

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Doyal

WELL NO.: 2 FOOTAGE: 500' FSL - 760' FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 275 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 411'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" CEMENTED WITH: 250 SX.
TOC: 2200' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3098'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 9-7-84 COMPLETION DATE: 9-20-84
PERFORATED: 2981' FEET TO 2987' FEET

STIMULATION: 750 gallons of 15 % HCl, 15000 gallons 30# gel
, 25% CO2 12000# 20/40 sand, 10000# 10/20 sand.

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well.

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Doyal

WELL NO.: 3 FOOTAGE: 1980' FSL - 990' FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 260 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 409'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 850 SX.
TOC: 630' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3099'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 9-20-84 COMPLETION DATE: NONE
PERFORATED: 2991' FEET TO 2997' FEET

STIMULATION: 750 gallons of 15 % HCl, 15000 gallons 30# gel
, 25% CO2 20000# 20/40 sand, 10000# 10/20 sand.

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Temp. Abandoned

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Doyal

WELL NO.: 4 FOOTAGE: 330' ESL- 330' FWL SEC: 26-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 400'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 975 SX.
TOC: 310' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3068'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 11-18-84 COMPLETION DATE: 1-24-87
PERFORATED: 2982' FEET TO 2985' FEET

STIMULATION: 750 gallons of 15 % HCl, 15000 gallons 30# gel,
22 tons CO2, 12000# 20/40 sand, 8500 # 12/20 sand.

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Gallagher State
WELL NO.: 1 FOOTAGE: 330'FNL- 330'FWL SEC: 35-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 433'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: _____ SX.
TOC: _____ FEET DETERMINED BY: _____
HOLE SIZE: _____ SETTING DEPTH: _____

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 900 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 7-7/8" SETTING DEPTH: 3084'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 10-28-84 COMPLETION DATE: 11-9-84
PERFORATED: 2982' FEET TO 2987' FEET

STIMULATION: 650 gallons of 15 % HCl, 15000 gallons 30# gel
, 22 tons CO2, 12000# 20/40 sand, 10750# 10/20 sand.

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS: _____

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Garner Federal

WELL NO.: 2 FOOTAGE: 2310 FSL-2310 FEL SEC: 34-T12s-K31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 410'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: _____ SX.
TOC: _____ FEET DETERMINED BY: _____
HOLE SIZE: _____ SETTING DEPTH: _____

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 550 SX.
TOC: 1992' FEET DETERMINED BY: Cement Bond Log
HOLE SIZE: 7-7/8" SETTING DEPTH: 3098'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 4-29-84 COMPLETION DATE: 6-1-84
PERFORATED: 2982 FEET TO 2990 FEET

STIMULATION: 750 gals. 15% HCl acid, 20000 gals. 30# gel,
25% CO2, 16500# 20/40 sand, 1700# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS: _____

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Garner Federal

WELL NO.: 3 FOOTAGE: 1980' ENL-1980' FEL SEC: 34-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 225 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 408'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 250 SX.
TOC: 1810' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3100'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 7-2-84 COMPLETION DATE: 8-12-84
PERFORATED: 2981 FEET TO 2986 FEET

STIMULATION: 750 gals. 15% HCl acid, 15000 gals. 30# gel,
5000 SCF N2 per barre, 1500# 20/40 sand, 1700# 12/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Garner Federal

WELL NO.: 7 FOOTAGE: 660' FSL-1980' FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 424'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 270 SX.
TOC: 1900' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3098.54'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 10-14-84 COMPLETION DATE: 10-30-84
PERFORATED: 2987' FEET TO 2993' FEET

STIMULATION: 750 gallons of 15 % HCl, 15000 gallons 30# gel
, 1000 SCF/BEL CO2 13000# 20/40 sand, 9000# 10/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF F&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Garner Federal

WELL NO.: 9 FOOTAGE: 1650' FSL-2310' FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 428'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 5-1/2" 14# CEMENTED WITH: 320 SX.
TOC: 1820' FEET DETERMINED BY: Temp. Survey
HOLE SIZE: 7-7/8" SETTING DEPTH: 3098'
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 11-11-84 COMPLETION DATE: 11-30-84
PERFORATED: 2985' FEET TO 2995' FEET

STIMULATION: 750 gallons of 15 % HCl, 15000 gallons 30# gel
, 16 tons of CO2, 18000# 20/40 sand, 12500# 10/20 sand

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Pumping oil well

IF P&A, LIST PLUGGING DETAILS:

WELL DATA SHEET

OPERATOR: Yates Drilling Co. LEASE: Rich FederalWELL NO.: 1 FOOTAGE: 2310' FNL-2310' FEL SEC: 27-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" 24# CEMENTED WITH: 250 SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 412'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: 7-7/8" SETTING DEPTH:
TOTAL DEPTH: 3100'

PRODUCING INTERVAL

FORMATION: None POOL OR FIELD: SE Chaves Queen
SPUD DATE: 11-30-84 COMPLETION DATE: None
PERFORATED: FEET TO FEETSTIMULATION: None

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Plugged and AbandonedIF P&A, LIST PLUGGING DETAILS: P&A 12-12-84
Plug 3040-2940' 35 sx Class "C" neat, Plug 2100-2000' 75 sx
Class "C" w/2% CaCl2, plug 1500-1400' 35 sx Class "C" neat,
Plug 462-362' 50 sx Class "C" w/2% CaCl2, Plug 50-Sur. 20sx
Class "C" neat

RICH FEDERAL # 1
2310' FNL & 2310' FEL
Section 27-T12S-R31E
Chaves County,
New Mexico

20 sx. surface plug
0-50'

50 sx. plug at
bottom of casing
362'-462'

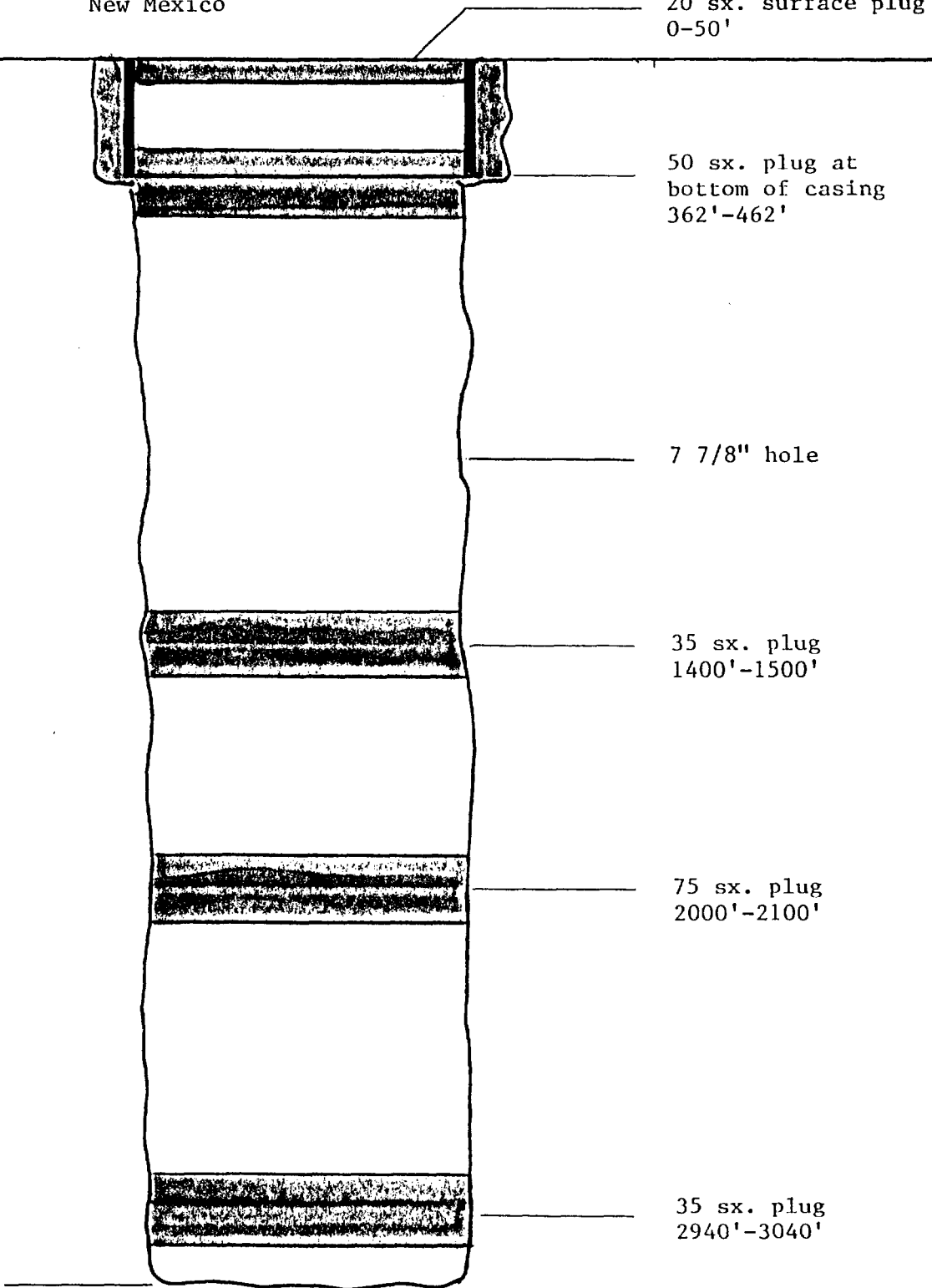
7 7/8" hole

35 sx. plug
1400'-1500'

75 sx. plug
2000'-2100'

35 sx. plug
2940'-3040'

Total Depth
3100'



WELL DATA SHEET

OPERATOR: Snow Oil Company LEASE: Toles Federal
WELL NO.: 1 FOOTAGE: 1980' FSL-1650' FWL SEC: 26-T12s-R31e

TUBULAR DATA

SURFACE CASING

SIZE: 8-5/8" CEMENTED WITH: SX.
TOC: Surface FEET DETERMINED BY: Circulation
HOLE SIZE: 12-1/4" SETTING DEPTH: 473'

INTERMEDIATE CASING

SIZE: None CEMENTED WITH: SX.
TOC: FEET DETERMINED BY:
HOLE SIZE: SETTING DEPTH:

LONG STRING

SIZE: 4-1/2" CEMENTED WITH: SX.
TOC: 900' FEET DETERMINED BY: Estimate
HOLE SIZE: SETTING DEPTH: 3115'
TOTAL DEPTH: 3115'

PRODUCING INTERVAL

FORMATION: Queen POOL OR FIELD: SE Chaves Queen
SPUD DATE: 1-8-85 COMPLETION DATE: None
PERFORATED: 2344 FEET TO 2845 FEET

STIMULATION:

OTHER PERFORATED ZONES: None

CURRENT STATUS

WHAT IS CURRENT STATUS OF WELL? Plugged and Abandoned

IF P&A, LIST PLUGGING DETAILS: 3sx plug on CIBP @ 2990'
3sx plug on CIBP @ 2290', cut and pulled 4-1/2" casing @ 825'
35sx plug @ 867', 35sx plug @ 524', 10sx plug @ surface

TOLES FEDERAL # 1
1980' FSL & 1650' FWL
Section 26-T12S-R34E
Chaves County,
New Mexico

10 sx. surface
plug

35 sx. plug at 524'

Open Hole

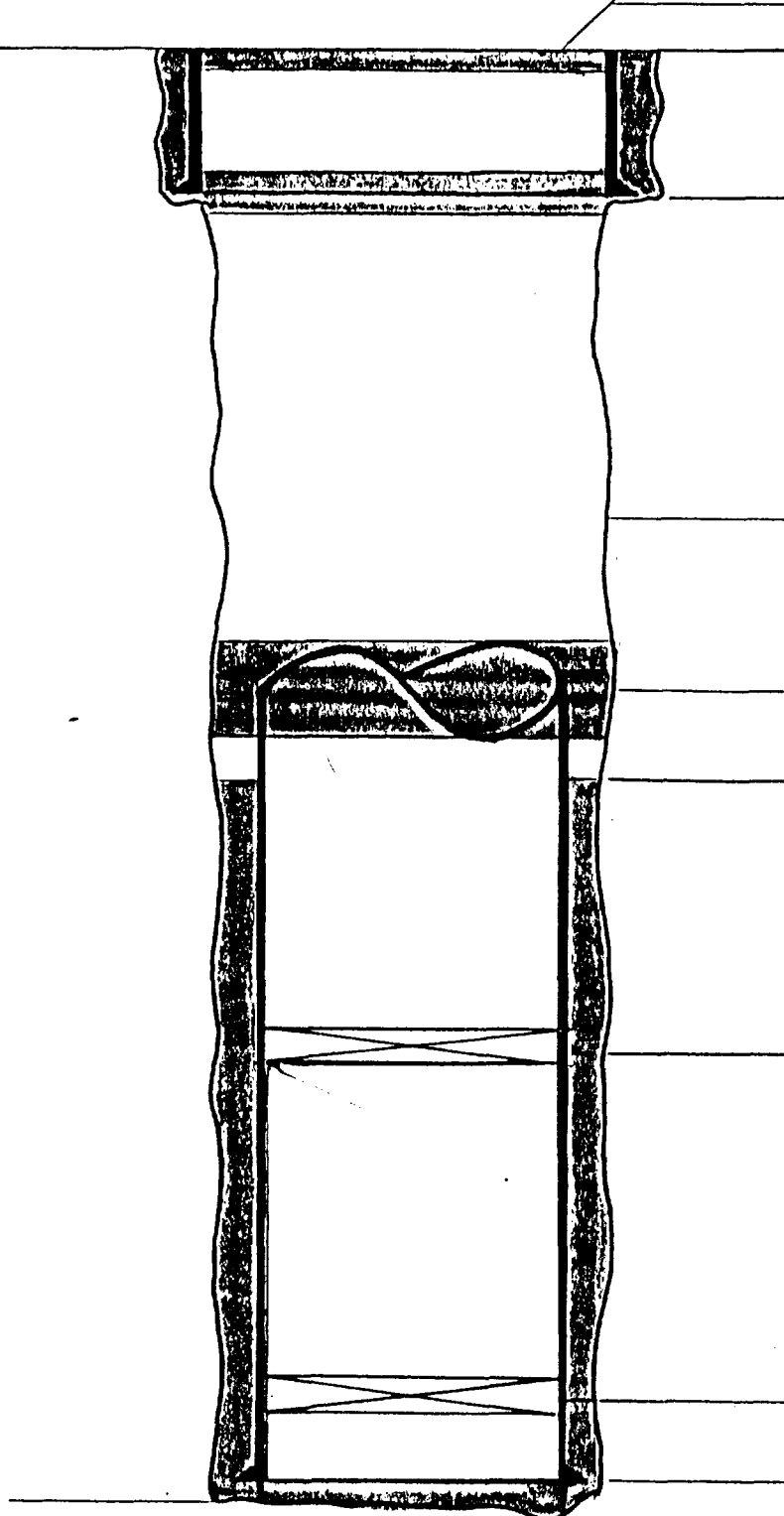
Cut and pulled csg.
at 825'
35 sx. plug at 867'
App. top of cement
at 900'

3 sx. on CIBP at
2290'

3 sx. on CIBP at
2990'

4 1/2" set at 3115'

Total Depth
3115'



CHEMEX

P. O. Box 4,
Albino, N. M. 86211

WATER ANALYSIS REPORT

Yates Drilling Co.

Date 2-5-85

County Chaves

State NM

Well No Sample #1

Prod. Formation

Sample well head

Prod. Water X

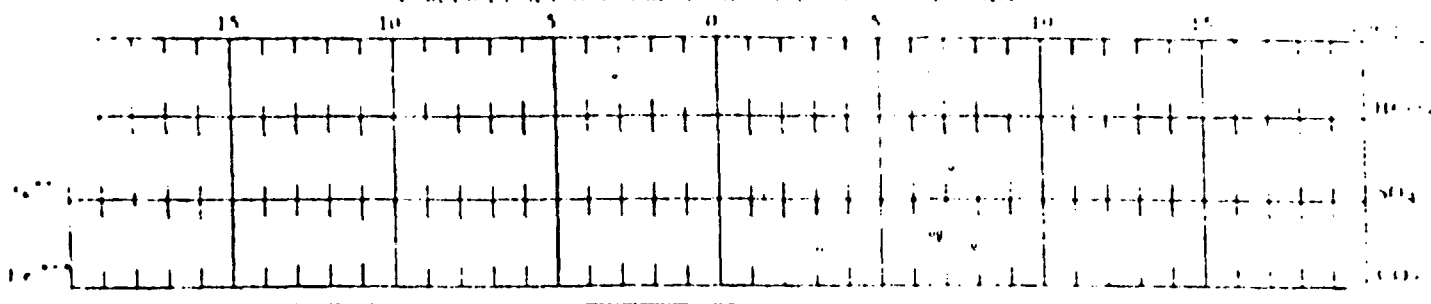
Inj. Water

Other

Analyst James B. Campanella

WATER ANALYSIS PATTERN

NUMBER RESIDUE (ON SAMPLE) ONE DATE



Total Solids

Percent

MG/L (PPM)

TEMP

Calcium nil
Magnesium nil
Sodium nil
Potassium nil
Chloride nil
Carbonate 88
Sulfate nil
Sulfide nil

ph 6.0

Sp. Gravity

Total Hardness nil
Total Dissolved Solids 88
Hydrogen Sulfide nil
Oxygen 10+

SE₂NW₄NE₄SE₄NE₄, Section 27-T12S-R31E

H₂S

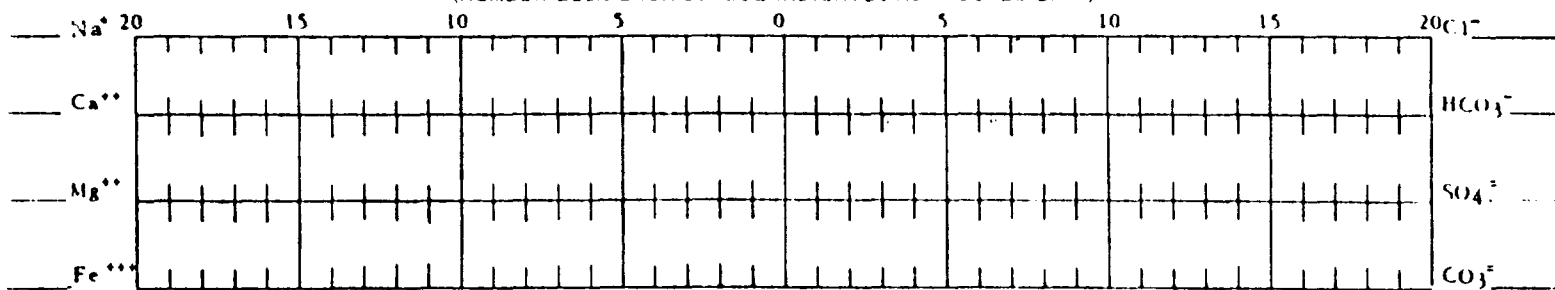

P. O. Box 423
Artesia, N. M. 88210

WATER ANALYSIS REPORT

Company Yates Drilling Date 3-22-85Field Spears Water Sample, NW/4SW/4 Section 26-12S-31E County Chaves State N.M.

Lease and Well No. _____ Prod. Formation _____

Source of Sample _____

Sample of Prod. Water ☐ Inj. Water ☐ Other ☐Date Collected _____ Analyst James B. CampanellaWATER ANALYSIS PATTERN
(NUMBER BESIDE ION SYMBOL INDICATES mg/l SCALE UNIT)

Dissolved Solids

Constituent

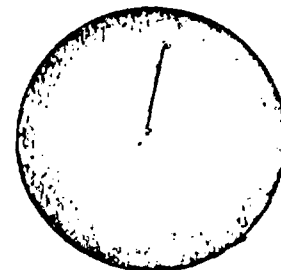
MG/L (PPM)

EPM

Calcium	<u>nil</u>
Magnesium	<u>nil</u>
Sodium	<u>nil</u>
Iron	<u>nil</u>
Chloride	<u>nil</u>
Bicarbonate	<u>nil</u>
Carbonate	<u>nil</u>
Sulfate	<u>120</u>

Total Hardness	<u>nil</u>
Total Dissolved Solids	<u>120</u>
Hydrogen Sulfide	<u>nil</u>
Oxygen	<u>10+</u>

_____ ph 6.0
 _____ Sp. Gravity _____



Remarks:

Fresh H2O

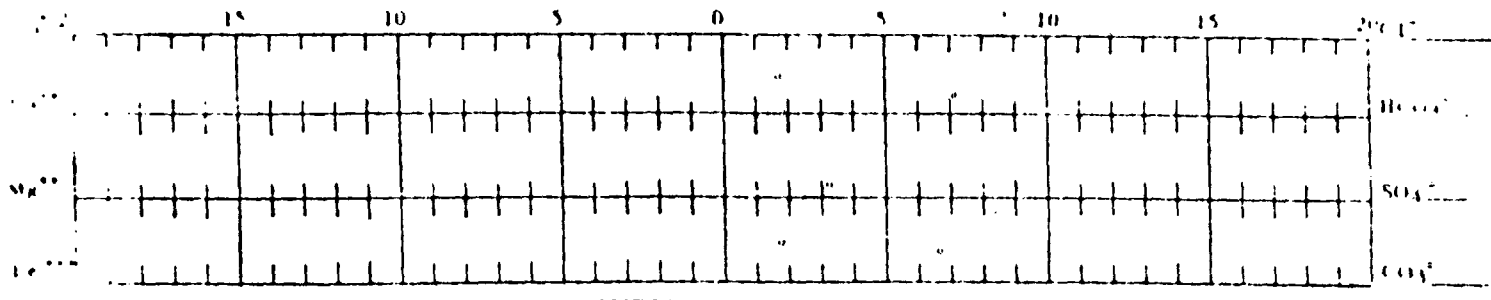

P. O. Box 423
Artesia, N. M. 88210

WATER ANALYSIS REPORT

Company Yates Drilling Co. Date 2-6-85County Chaves State NMWell No. Sample #2 Prod. Formation _____Type of Sample well headType of Water Prod. Water X Inj. Water _____ Other _____Analyst James B. Campanella

WATER ANALYSIS PATTERN

NUMBER BESIDE EACH SYMBOL INDICATES mg/l SCALE UNIT



Total Solids

Chloride

MG/L (PPM)

EPM

Calcium	nil
Magnesium	nil
Sodium	nil
Chloride	nil
Sulfate	108
Carbonate	nil
Other	nil
Total Hardness	nil
Total Dissolved Solids	108
Hydrogen Sulfide	nil
Oxygen	10+

pH 6.0
Sp. Gravity _____

Remarks

SW₁SW₁SW₁SW₁SE₁, Section 26-T12S-R31E

CHEMEX CHEMEX

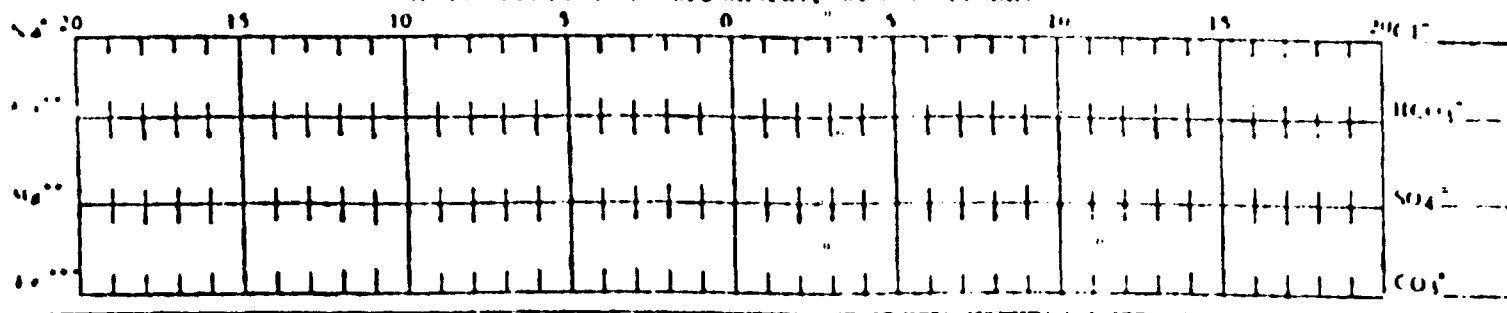
P. O. Box 423
Albuquerque, N. M. 88210

WATER ANALYSIS REPORT

Company Yates Drilling Co. Date 8-23-84
County _____ State _____
Land Well No. Doyal #1 Prod. Formation _____
Source of Sample Frac Tank
Sample of Prod. Water ☒ Inj. Water ☐ Other ☐
Collected 8-23-84 Analyst K. Jones

WATER ANALYSIS PATTERN

NUMBER BESIDE ION SYMBOL INDICATES MG/L SCALE UNITS



Dissolved Solids Constituent	MG/L (PPM)	PPM	pH
Calcium	<u>1920</u>	<u>96</u>	<u>6.5</u>
Magnesium	<u>1280</u>	<u>105</u>	Sp Gravity _____
Sodium	<u>4324 est.</u>		
Iron	<u>32.40</u>	<u>3070</u>	
Chloride	<u>109000</u>	<u>3070</u>	
Bicarbonate	<u>565</u>	<u>9</u>	
Carbonate	<u>0</u>		
Sulfate	<u>3480</u>	<u>73</u>	
Total Hardness	<u>3200</u>		
Total Dissolved Solids	<u>116245</u>		
Hydrogen Sulfide	<u>3</u>		
Oxygen	<u>10</u>		

Remarks:

CHEMEX CHEMEX

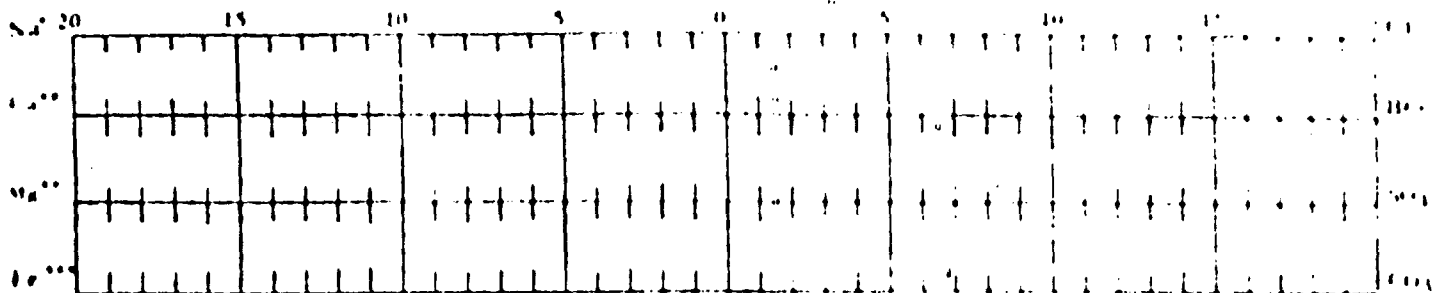
P. O. Box 421
Artesia, N.M. 87003

WATER ANALYSIS REPORT

Company Yates Drilling Co. Date 10-3-84
Field _____ County _____ State N.M.
Case and Well No. Garner #7 Prod. Formation _____
Source of Sample Well head
Sample of ☒ Prod. Water ☐ Inj. Water ☐ Other _____
Date Collected 10-2-84 Analyst James Campanella

WATER ANALYSIS PATTERN

NUMBER BEHIND CON SYMBOL INDICATES SCALE FACTOR



Resolved Solids

Constituent	MG/L (PPM)
Sodium	2240
Magnesium	23960
Calcium	37099
Iron	48
Fluoride	129,500
Carbonate	384
Chloride	nil
Sulfate	1680
Total Hardness	26,200
Total Dissolved Solids	157,764
Nitrogen Sulfide	nil
Oxygen	10+

TEMPERATURE

112	ph	6.0
1964	Sp. Gravity	
3648		
6		
nil		
35		

Remarks:



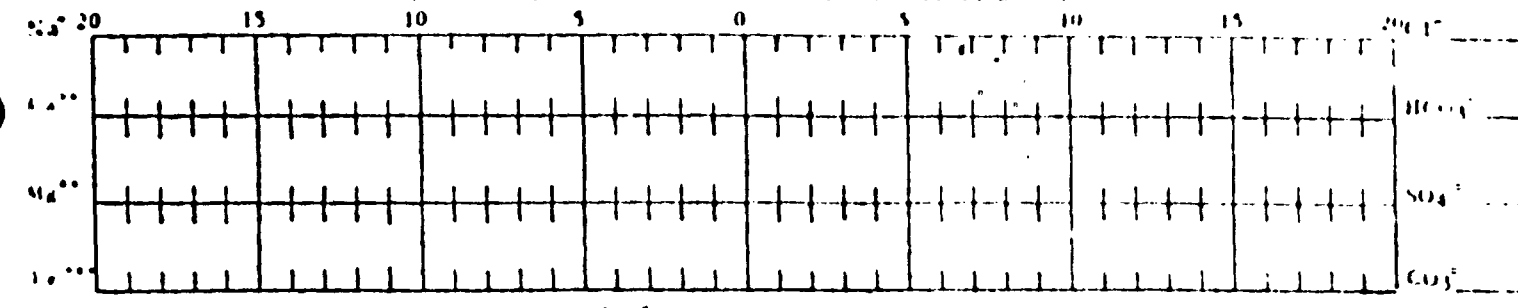
P. O. Box 423
Artesia, N. M. 88210

WATER ANALYSIS REPORT

Company Yates Drilling Co. Date 11-20-84
Field _____ County _____ State N.M.
Base and Well No. Gallagher St. #1 Prod. Formation _____
Source of Sample _____
Sample of ☐ Prod. Water ☐ Inj. Water ☐ Other: ☐
Collected 11-20-84 Analyst James Campanella

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES MG/L SCALE UNIT)



Dissolved Solids
Constituent

MG/L (PPM)

EPM

Calcium 3,800
Magnesium 44,200
Sodium 118,266
Iron 394
Chloride 201,000
Carbonate 400
Bicarbonate N11
Sulfate 1,200

190
362
5662
7
711
25

ph 5.5
Sp Gravity _____

Total Hardness 48,000
Total Dissolved Solids 250,600
Hydrogen Sulfide N11
Oxygen 2.5

Remarks:

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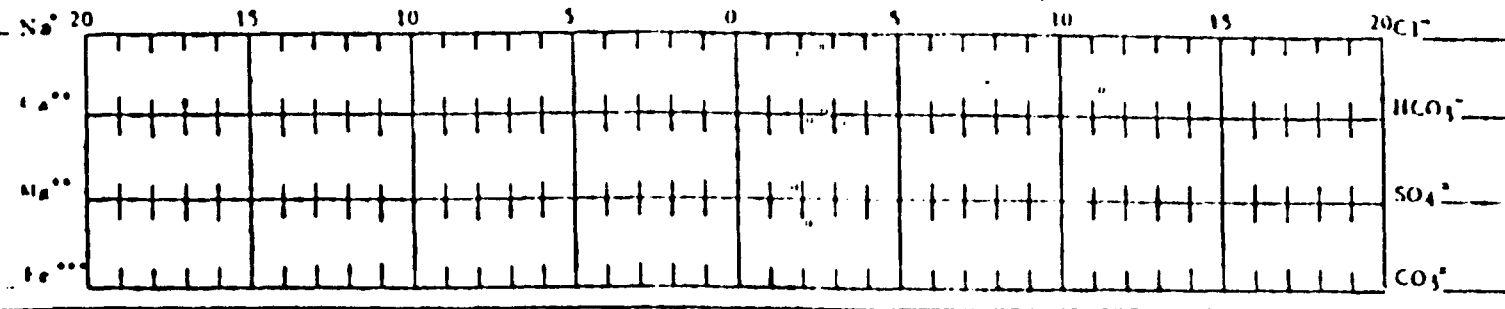
P. O. Box 423
Artesia, N. M. 88210

WATER ANALYSIS REPORT

Company Yates Drig. Date 9-21-84
Field _____ County _____ State _____
Case and Well No. Doyal #2 Prod. Formation _____
Source of Sample _____
Sample of Prod. Water^X Inj. Water Other I
Date Collected _____ Analyst K. Jones

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES mg/l SCALE UNIT)



Dissolved Solids
Constituent

MG/L (PPM)

EPM

Calcium 2720
Magnesium 2980
Sodium 103477
Iron 50+
Chloride 172000
Bicarbonate 415
Carbonate 0
Sulfate 1368
Total Hardness 5700
Total Dissolved Solids 179483
Hydrogen Sulfide 7
Oxygen 10+

136
244
4845
6
28

ph 7.0
Sp. Gravity _____

Remarks:

KCL 0%

CACTUS QUEEN UNIT
ADDRESSEE LIST
SURFACE OWNERS AND OFFSET OPERATORS

Mr. Raymond Spears
307 N. 7th Street
Lovington, NM 88260

Mrs. J. D. Spears
Box 1017
Carlsbad, NM 88220

Enserch Exploration, Inc.
6 Desta Drive
Suite 5250
Midland, Texas 79705-5510
Attention: Steve Wright

Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762
Attention: Frank Hulse

Reading & Bates Petroleum Company
2412 N. Grandview
Suite 201
Odessa, TX 79761
Attention: Don Kipgen

Burk Royalty
P. O. Box BRC
Wichita Falls, Texas 76307

Rich Partnership
P. O. Box 3402
Casper, Wyoming 82602
Attention: Ken Snyder

Great Western Drilling Company
Box 1659
Midland, TX 79702
Attention: Pat L. Shannahan

Dalport Oil Corporation
3471 Interfirst One
Dallas, Texas 75202

E. S. Mayer, Jr.
c/o Reading & Bates Petroleum
Company
2412 N. Grandview
Suite 201
Odessa, TX 79761
Attention: Don Kipgen

C. R. Gallagher, Jr.
1005 Texas Commerce Bank
1208 - 14th Street
Lubbock, Texas 79401

Gregory J. Gallagher
8550 Kathy Freeway
Suite 208
Houston, Texas 77024

Robin C. Herndon, III
c/o Robin C. Herndon, Jr.
P. O. Box 2031
Mobile, Alabama 36601

Yates Drilling Company
105 South Fourth Street
Artesia, New Mexico 88210
Attention: Toby Rhodes

OIL CONSERVATION DIVISION
FORM C-108 (Supplement)

Application of Yates Drilling Company
For a Secondary Recovery Project
(Proposed Cactus Queen Unit)
Chaves County, New Mexico

I. Purpose:

Application is made for authorization to inject water into the Queen formation within the boundaries of the proposed Cactus Queen Unit. The proposed unit consists of 560 acres and lies in Sections 26,27,34 and 35 of Township 12 South, Range 31 East, Chaves County, New Mexico. This project would be classified as a secondary recovery project with the objective of recovering hydrocarbons that will not be recovered by primary means.

The reservoir as defined is near primary depletion. Our studies show that a five-spot injection pattern with six injection wells and six producing wells will result in recovery of oil in economic quantities not otherwise recoverable. Such a pattern will utilize eleven existing wells and will initially require the drilling of one additional well.

II. Operator:

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

Phone Number: (505) 746-9889

III. Injection Well Data:

A well data sheet is attached for each of the six wells proposed for injection. Each injection well data sheet includes a downhole schematic of how each individual well will be configured if this application is approved.

IV. Existing Project:

The proposed project is not an expansion of an existing project and will be a totally new project.

V. Ownership:

A lease ownership map is attached which identifies all wells and lease ownership within two miles of any of the six proposed injection wells. A one-half mile radius circle has been drawn around each of the injection wells on the second map to identify the unit's area of review.

VI. Well Data:

There are seventeen wells including the proposed injection wells which fall within the area of review. Two of these wells have been plugged and abandoned, one well is temporarily abandoned, and the remaining fourteen wells are active "Queen" producers. Available data for each of the seventeen well is included in attached well data sheets. Additionally a downhole schematic has been drawn depicting each of the two plugged and abandoned wells.

VII. Project Data:

1. The proposed daily injection rate is approximately 200 barrels per day for each of the six proposed injection wells. Total injection for the unit would be 1200 barrels per day. The maximum injection rate for any one well will be based on fracture pressures as determined from proposed step rate test to be conducted on each injection well.

2. Produced water will be stored in existing open top fiberglass tanks until transferred to a covered steel storage tank, therefore the water system will be open until the water is transferred to the steel storage tank. Any fresh water will be stored in a covered and sealed steel tank. Produced oil will immediately be separated from produced water and stored in steel, covered, production tanks until sold.

3. Initially the injection wells may take water on a vacuum, but as the reservoir begins to fill, a positive surface injection pressure will be required to inject water. The maximum injection pressure will also be based on proposed step rate tests.

4. The source of injection fluid will be produced water from producing wells within the unit and fresh water from an existing "Ogollala" well in the area. No commitment has been made but there are at least two water wells nearby that are capable of producing water in the amounts required. The State Engineer's Office