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

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: 207 South Fourth 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 Engineer

Signature: _____ Date: February 12, 1985

* 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. Subject well logs were submitted to the NMOCD in Hobbs.

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.

FORM C-108 SUPPLEMENT

DOYAL #3

I. Purpose:

To convert the temporarily abandoned Doyal #3 well to an injection well for the purpose of partial pressure maintenance in the Queen formation. Initially only produced water from the wells listed in part VII-4 will be injected into this well. At a later date when oil production has significantly lowered reservoir pressure, a full pressure maintenance project will be considered. We respectfully request the ability to handle the transition from partial pressure maintenance to full pressure maintenance administratively.

II. The operator is Yates Drilling Company
207 South Fourth Street
Artesia, New Mexico

III. Well Data:

See attached well data sheet.

IV. This is not an expansion of an existing project.

V. An ownership map is attached. Well and lease information is posted through 12-31-84. Displayed on this map are one-half mile and two-mile radius circles, which are centered around the Doyal #3 location.

VI. There are eight wells other than the proposed injection well within the area of review, as indicated by the attached map. All available data concerning the eight wells is included in the attached tabulation and schematic.

VII. Data on proposed partial pressure maintenance operations:

(1) The proposed average and maximum daily rates of fluid injection are 200 barrels per day and 400 barrels per day respectively. The estimated total volume of fluid to be injected is 300,000 barrels.

(2) We intend to use a closed system.

(3) The proposed average and maximum surface injection pressures are approximately 265 psig and 1500 psig.

(4) The source of the injection fluid will be produced water from the following Yates Drilling Company wells which are producing from the Queen formation in the general area of the subject well, indentified as follows:

a. Doyal #1
660' FNL & 990' FEL
Section 35-T12S-R31E
See attached tabulation.

b. Doyal #2
500' FSL & 760' FEL

d. Gallagher State #1
330' FNL & 330' FWL
Section 35-T12S-R31E
See attached tabulation

e. Garner Federal #7
660' FSL & 1980' FEL
Section 27-T12S-R31E
See attached tabulation

f. Garner Federal #9
1650' FSL & 2310' FEL
Section 27-T12S-R31E
See attached tabulation

g. Pebble Queen #1
990' FNL & 1980' FWL
Section 11-T13S-R31E
This well is not within the area of review and therefore not included in the tabulation. This well is approximately 2.5 miles south and .5 miles east of the subject well and is producing from the Queen formation at 3028'-3038'.

The water produced from subsequently drilled wells in this area which produce water from the Queen formation will also utilize the injection well covered by this application.

(5) The fluid injected into the Queen formation in the subject well will be produced water from the Queen formation, thus water compatibility will be assured.

VIII. Geologic data:

Injection zone: Queen at +1435' to +1429' subsea, very fine grained gray and red sandstone with traces of anhydrite and dolomite. Porosity is intergranular with very little natural secondary porosity.

Analysis of logging, pressure, and production data has resulted in the composition of the attached isopach, structure and pressure maps. The structure map shows the top of the Queen formation to be 1445 feet above sea level in the Doyal #3 well. Production test data has proved the water-oil contact to be between +1445 and +1449 in this reservoir.

The underground source of drinking water in this area is the Ogollala formation of Tertiary age, the base of which is estimated to be 300' in the area of the subject well. This aquifer is behind the surface pipe of the subject well and all other wells within the area of review. The Chinlee formation is also a fresh water aquifer which immediately underlies the Ogollala formation. The base of the Chinlee is estimated to be at approximately 500' in the area of the subject well. The Chinlee aquifer is behind the production casing of the subject well and all producing wells within the area of review.

IX. No additional stimulation program is planned for the subject well.

X. LDT-CNL, DLL-RXO logs have been submitted to the NMOCD in Hobbs.

XI. According to records from the Division II State Engineer Office there are seven water wells within one mile of the subject well. The total depths from four of the seven wells are unknown, however all seven wells are assumed to be producing water from the Ogollala formation. An analysis of water taken from two of the seven wells is attached.

XII. Available geological and engineering data have been examined and no evidence of open faults or any other hydrologic connections between the disposal zone and any underground fresh water aquifers have been found.

XIII. The off-set leasehold operators listed below have been furnished a copy of this application by certified mail.

HNG Oil Company
P.O. Box 2267
Midland, Texas 79702

Enserch Exploration, Inc.
P.O. Box 4815
Midland, Texas 79701

The Toles Company
P.O. Drawer 1300
Roswell, New Mexico 88201

C.R. Gallagher, Jr., etal
1005 Texas Commerce Bank Building
Lubbock, Texas 79401

Rich Partnership
2008 American Bank Building
New Orleans, Louisiana 70130

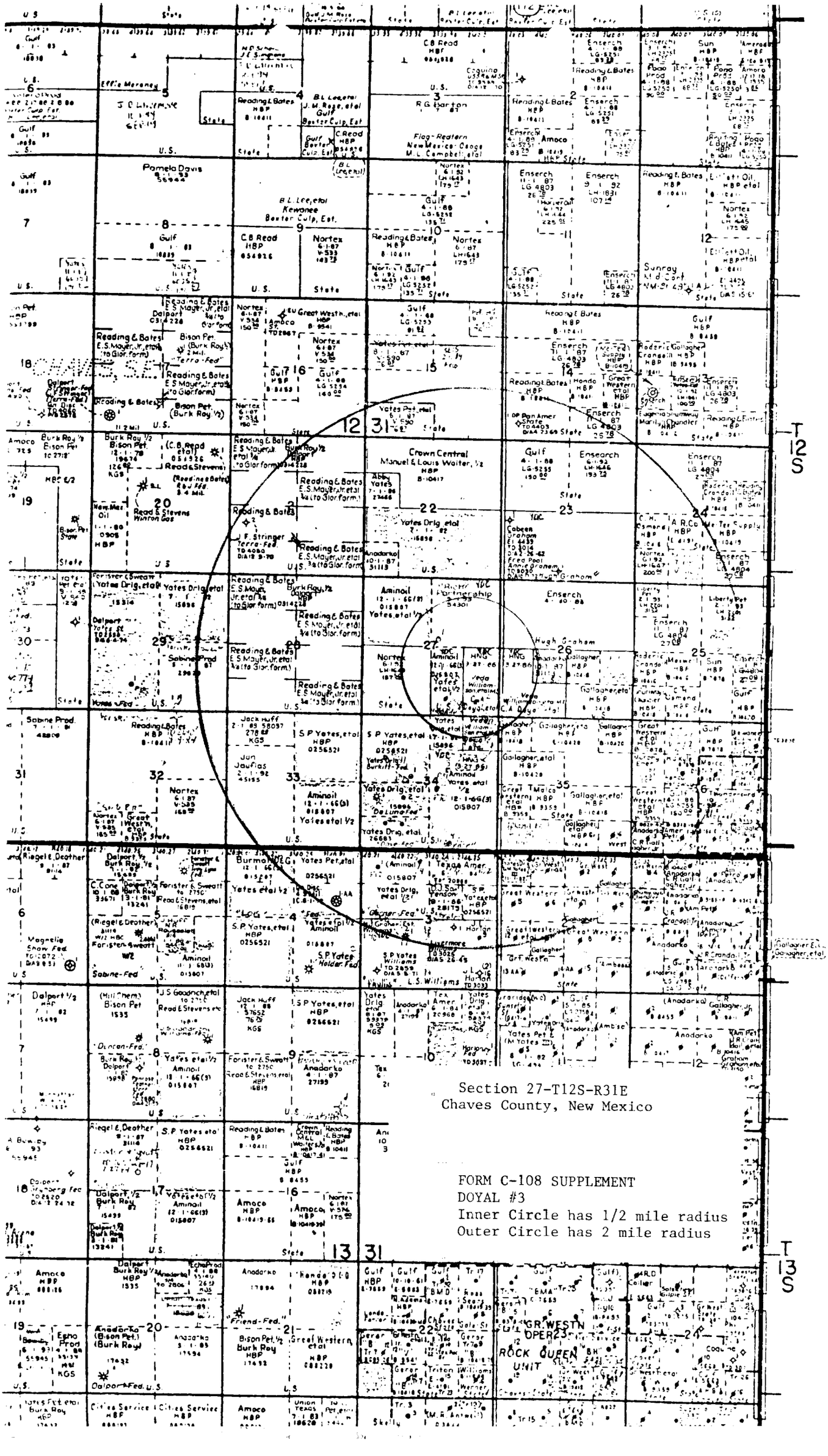
Phillips Oil Company
P.O. Box 1967
Houston, Texas 77001

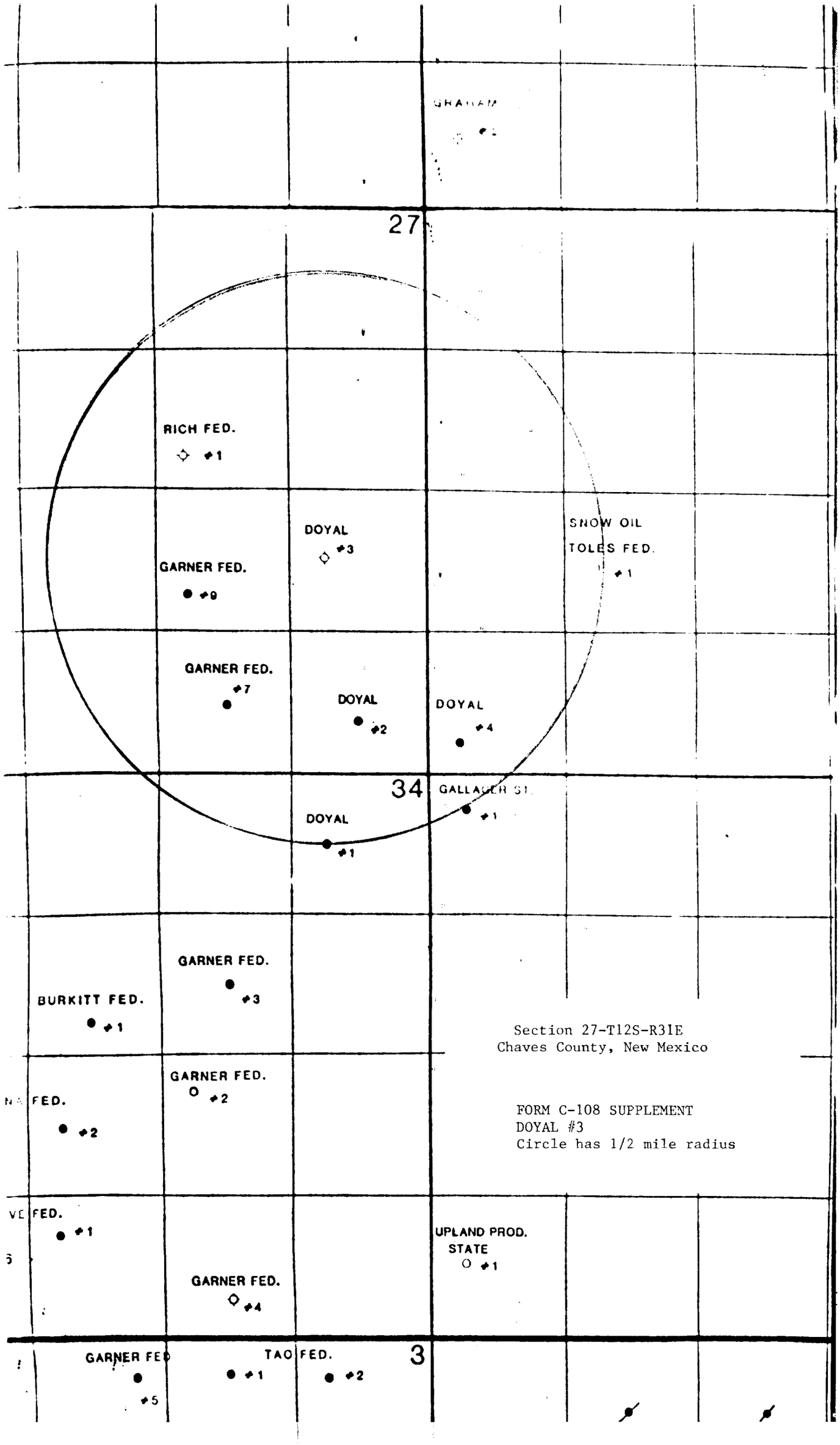
BelNorth Petroleum Corporation
One Petroleum Center Building Six
InterNorth Suite 201
3300 North A
Midland, Texas 79701

The surface owners listed below have been furnished a copy of this application by certified mail.

Raymond Spears
307 North 7th
Lovington, New Mexico 88260

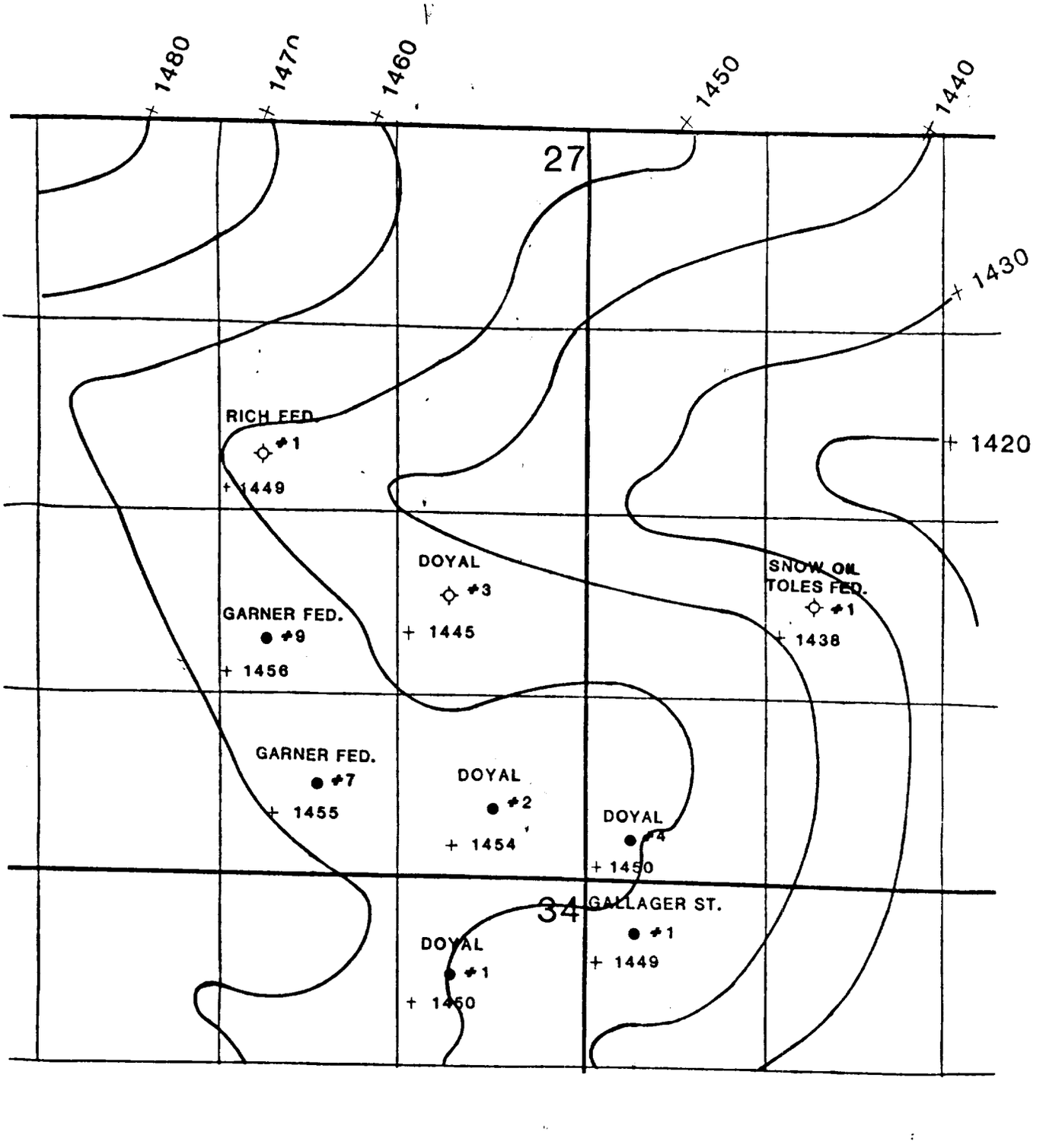
J.D. Spears
P.O. Box 1017
Carlsbad, New Mexico 88220


Section 27-T12S-R31E
Chaves County, New Mexico
FORM C-108 SUPPLEMENT
DOYAL #3
Inner Circle has 1/2 mile radius
Outer Circle has 2 mile radius
T 12 S
T 13 S



Section 27-T12S-R31E
Chaves County, New Mexico

FORM C-108 SUPPLEMENT
DOYAL #3
Circle has 1/2 mile radius



YATES DRILLING CO.

DOYAL #3

PARTIAL PRESSURE MAINTENANCE PROJECT

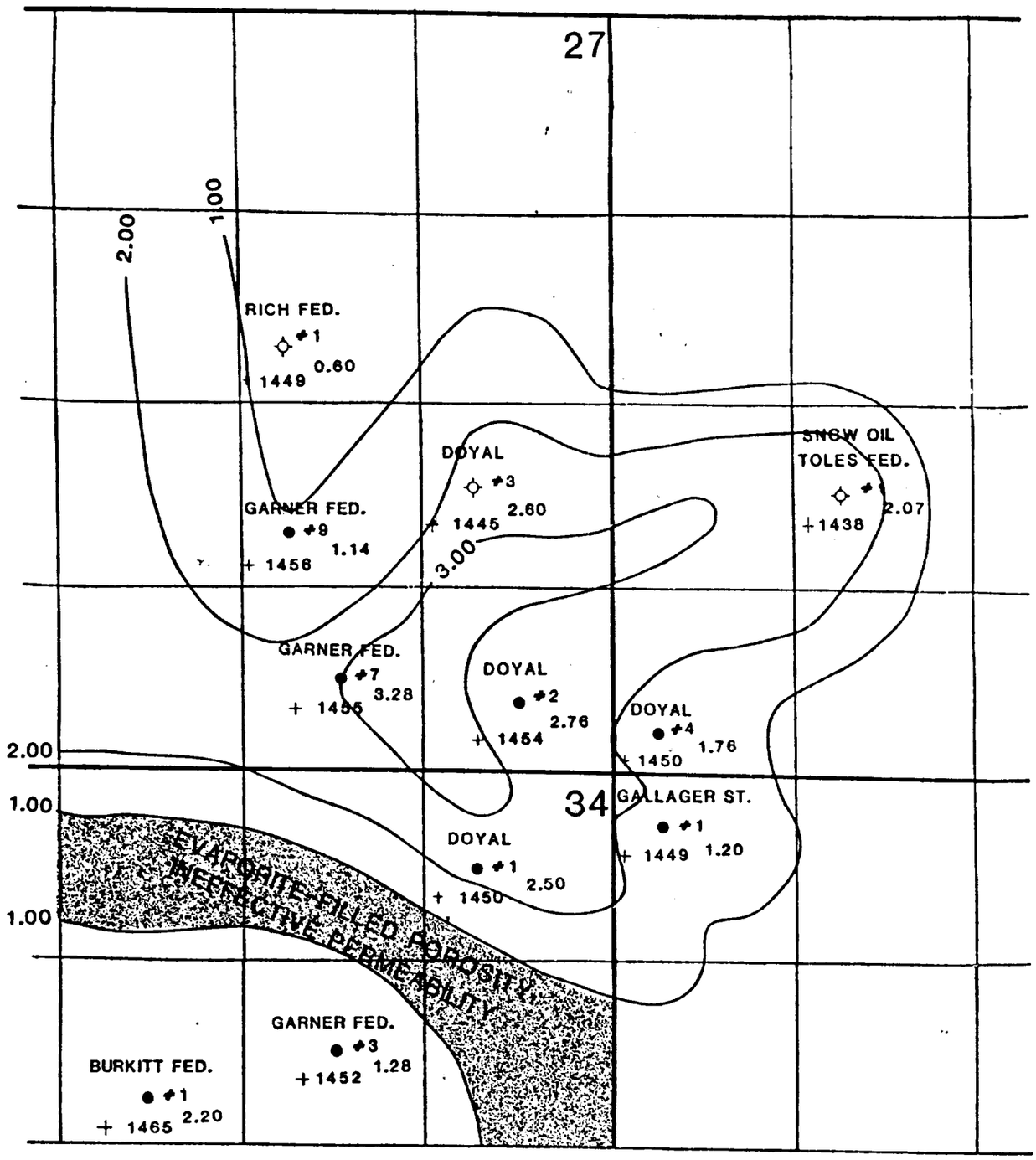
Sec. 27 - T12S - R31E

Chaves Co., New Mexico

Contoured on Top of Queen

C.I. = 10'

Scale: 1" = 1000'



YATES DRILLING CO.

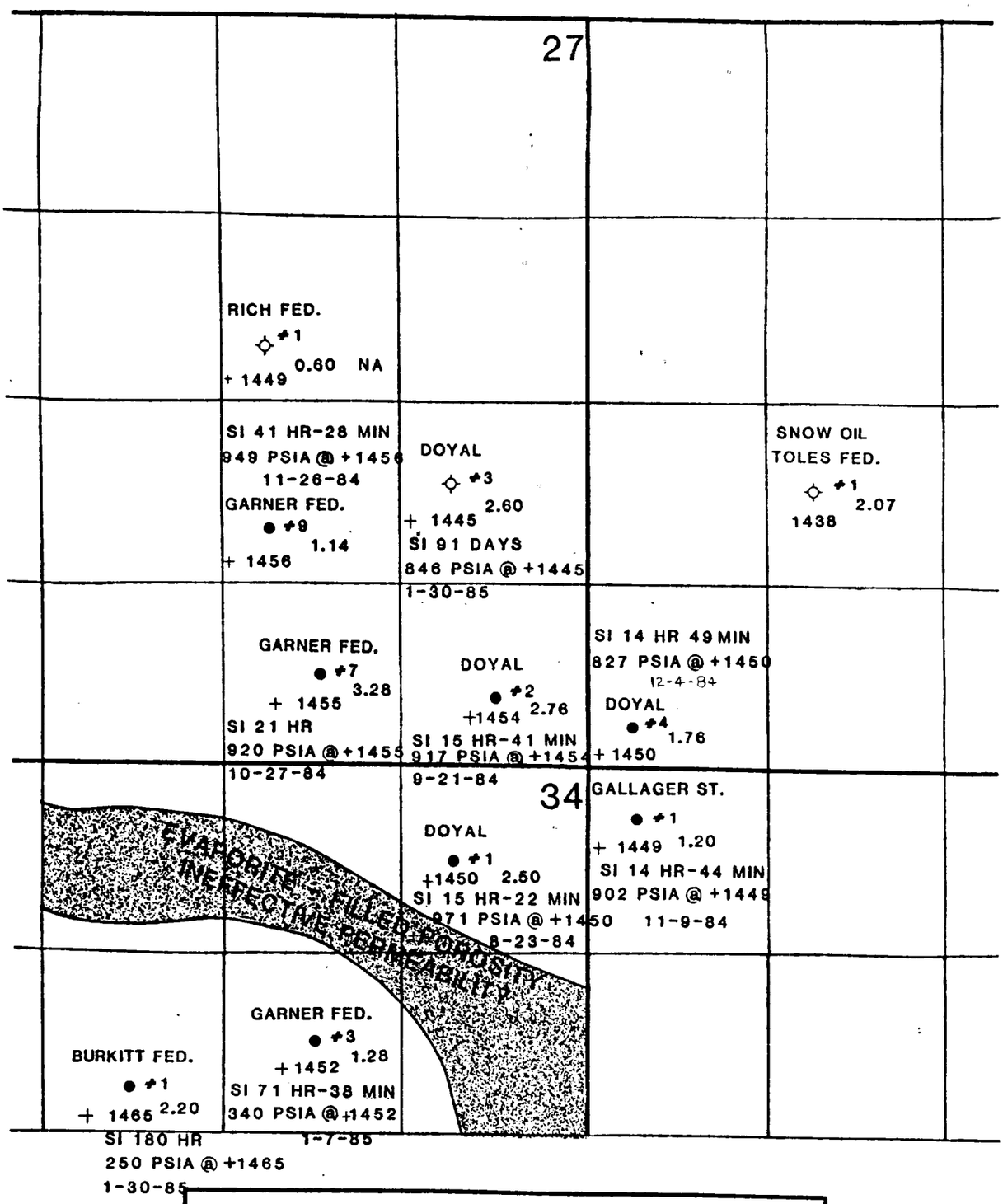
DOYAL #3
PARTIAL PRESSURE MAINTENANCE PROJECT
Sec. 27 - T12S - R27E
Chaves Co., New Mexico

Contoured on Queen Porosity Feet

Ø = Max. Ø
Ft. = Ft. > 6% Ø
Ø·Ft. = ØFt.

C.I. = 1 ØFt.

Scale: 1" = 1000'



YATES DRILLING COMPANY

DOYAL #3

PARTIAL PRESSURE MAINTENANCE PROJECT

MOST RECENT SIBHP

SEC. 27 T12S-R27E

CHAVES CO. NEW MEXICO

SCALE : 1" - 1000'

Phone (505) 746-6100

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

WATER ANALYSIS REPORT

Company Yates Drilling Co. Date 2-5-85

Field _____ County Chaves State NM

Lease and Well No. Sample #1 Prod. Formation _____

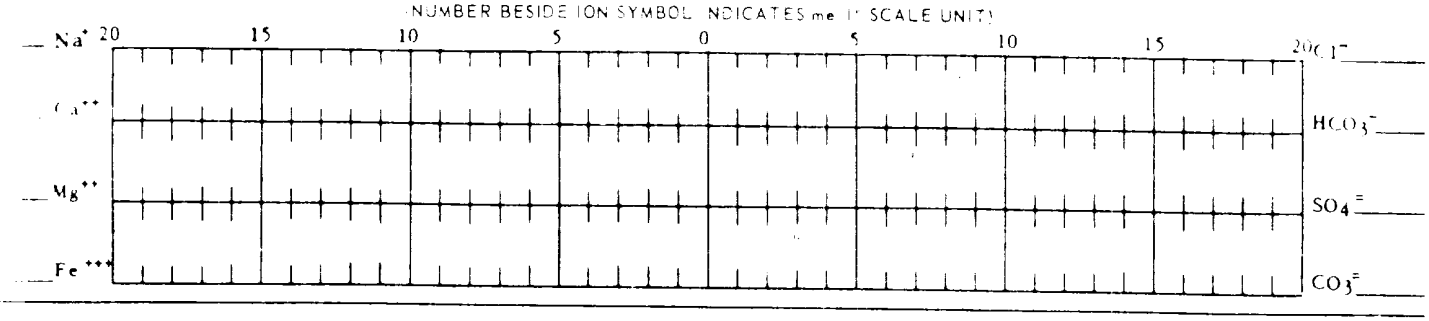
Source of Sample well head

Sample of Prod. Water X Inj. Water Other: _____

Date Collected _____ Analyst James B. Campanella

WATER ANALYSIS PATTERN

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



Dissolved Solids Constituent	MG/L (PPM)	EPM
Calcium	nil	
Magnesium	nil	
Sodium	nil	
Iron	nil	
Chloride	nil	
Bicarbonate	88	
Carbonate	nil	
Sulfate	nil	
Total Hardness	nil	
Total Dissolved Solids	88	
Hydrogen Sulfide	nil	
Oxygen	10+	

ph 6.0

Sp. Gravity _____

Remarks

SE¼NW¼NE¼SE¼NE¼, Section 27-T12S-R31E

H_2S

Phone (505) 746-6100

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

WATER ANALYSIS REPORT

Company Yates Drilling Co. Date 2-6-85

Field _____ County Chaves State NM

Lease and Well No. Sample #2 Prod. Formation _____

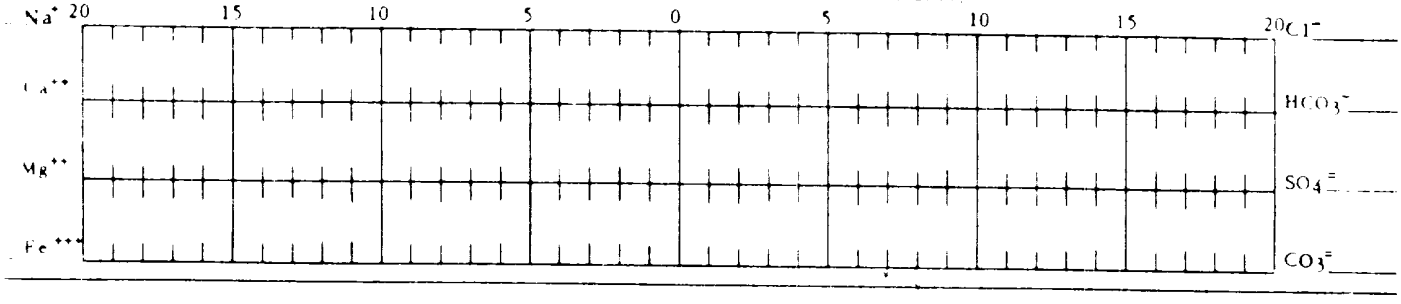
Source of Sample well head

Sample of Prod. Water X Inj. Water _____ Other _____

Date Collected _____ Analyst James B. Campanella

WATER ANALYSIS PATTERN

NUMBER BESIDE ION SYMBOL INDICATES me l" SCALE UNIT)



Dissolved Solids Constituent	MG/L (PPM)	EPM
Calcium	nil	
Magnesium	nil	
Sodium	nil	
Iron	nil	
Chloride	nil	
Bicarbonate	108	
Carbonate	nil	
Sulfate	nil	
Total Hardness	nil	
Total Dissolved Solids	108	
Hydrogen Sulfide	nil	
Oxygen	10+	

ph 6.0

Sp. Gravity _____

Remarks:

SW¼SW¼SW¼SW¼SE¼, Section 26-T12S-R31E

LEASE NAME: Doyal WELL NUMBER: 1

OPERATOR: Yates Drilling Company LEASE NUMBER: Fee

FORMATION: Queen POOL: S.E. Chaves Queen Area Gas Assoc.

LOCATION: 660'FNL & 990' FEL Section 34-T12S-R31E

ELEVATION: 4425' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 409.46' CEMENT: 250 sx. TOP: Surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3098' CEMENT: 250 sx. TOP: 2200' (Temp. Sur.)

SPUD DATE: 7-31-84 COMP. DATE: 8-25-84

PERFORATIONS: 2982'-2989'

STIMULATION: 750 gals. of 15% HCL, 15000 gals. 14F-30, 5000 SCF N_2 per barrel.
10900# of 20-40 sand, 4200# 10-20 sand

COMP. TYPE: Oil Well

CURRENT STATUS: Pumping oil well

LEASE NAME: Doyal WELL NUMBER: 2

OPERATOR: Yates Drilling Company LEASE NUMBER: Fee

FORMATION: Queen POOL: S.E. Chaves Queen Area Gas Assoc.

LOCATION: 500' FSL & 760' FEL Section 27-T12S-R31E

ELEVATION: 4427' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 411' CEMENT: 275 sx. TOP: surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3090' CEMENT: 400 sx. TOP: 1810' (Temp.Sur.)

SPUD DATE: 9-7-84 COMP. DATE: 9-20-84

PERFORATIONS: 2981'-2987'

STIMULATION: 750 gals. 15% HCL, 15000 gal WF-30, 25% CO_2,
12000# 20-40 sand, 10000# 10-20 sand.

COMP. TYPE: Oil Well

CURRENT STATUS: Pumping oil well

LEASE NAME: Doyal WELL NUMBER: 3

OPERATOR: Yates Drilling Company LEASE NUMBER: Fee

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION: 1980' FSL & 990' FEL Section 27-T12S-R31E

ELEVATION: 4429' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 409' CEMENT: 260 sx. TOP: Surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3099' CEMENT: 850 sx. TOP: 630' (CBL)

SPUD DATE: 9-20-84 COMP. DATE: -

PERFORATIONS: 2991'-2997'

STIMULATION: 750 gals. 15% HCL acid, 15000 gals WF-30, 25% CO_2
20000# 20-40 sand, 10000# 10-20 sand

COMP. TYPE: Not completed

CURRENT STATUS: Temporarily Abandoned

LEASE NAME: Doyal WELL NUMBER: 4

OPERATOR: Yates Drilling Company LEASE NUMBER: Fee

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION: 330' FSL & 330' FWL Section 26-T12S-R31E

ELEVATION: 4424.5' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 400' CEMENT: 250 sx. TOP: Surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3088' CEMENT: 975 sx. TOP: 310' (Temp Sur.)

SPUD DATE: 11-18-84 COMP. DATE: 1-24-85

PERFORATIONS: 2982'-2985'

STIMULATION: 750 gals. 15% HCL, 15000 gals. WF-30, 22 Tons CO_2,
12000 20-40 sand and 8500# 12-20 sand

COMP. TYPE: Oil Well

CURRENT STATUS: Pumping oil well

LEASE NAME: Gallagher State WELL NUMBER: 1

OPERATOR: Yates Drilling Company LEASE NUMBER: B-10418

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION: 330' FNL & 330' FWL Section 35-T12S-R31E

ELEVATION: 4424.5' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 433' CEMENT: 250 sx. TOP: surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3084' CEMENT: 900 sx. TOP: surface

SPUD DATE: 10-28-84 COMP. DATE: 11-9-84

PERFORATIONS: 2982'-2987'

STIMULATION: 650 gals. 15% HCL acid, 15000 gals. WF-30, 22 Tons CO_2
12000# 20-40 sand, 10750# 10-20 sand.

COMP. TYPE: Oil Well

CURRENT STATUS: Pumping oil well

LEASE NAME: Garner Federal WELL NUMBER: 7

OPERATOR: Yates Drilling Company LEASE NUMBER: NM-015807

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION: 660' FSL & 1980' FEL Section 27-T12S-R31E

ELEVATION: 4433.4' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 424' CEMENT: 250 sx. TOP: Surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3098.54' CEMENT: 270' sx. TOP: 1900 (Temp. Sur.)

SPUD DATE: 10-14-84 COMP. DATE: 10-30-84

PERFORATIONS: 2987'-2993'

STIMULATION: 750 gals 15% HCL, 15000 gals. WF-30, 1000 SCF CO_2/barrel,
13000# 20-40 sand, 9000# 10-20 sand.

COMP. TYPE: Oil well

CURRENT STATUS: Pumping oil well

LEASE NAME: Garner Federal WELL NUMBER: 9

OPERATOR: Yates Drilling Company LEASE NUMBER: NM-015807

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION: 1650' FSL & 2310' FEL Section 27-T12S-R31E

ELEVATION: 4434.5' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 428' CEMENT: 250 sx. TOP: Surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: 5 1/2", 14# @ 3098' CEMENT: 320 sx. TOP: 1820' (Temp. Sur.)

SPUD DATE: 11-11-84 COMP. DATE: 11-30-84

PERFORATIONS: 2985'-2995'

STIMULATION: 750 gals. 15% HCL, ball sealers, 15000 gals. WF-30, 16 Tons CO_2, 18000# 20-40 sand & 12500# 10-20 sand

COMP. TYPE: Oil Well

CURRENT STATUS: Pumping oil well

LEASE NAME: Rich Federal WELL NUMBER: 1

OPERATOR: Yates Drilling Company LEASE NUMBER: NM-54301

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION: 2310' FNL & 2310' FEL Section 27-T12S-R31E

ELEVATION: 4435.6' TOTAL DEPTH: 3100'

SURFACE CASING: 8 5/8", 24# @ 412' CEMENT: 250 sx. TOP: Surface

INT. CASING: - CEMENT: - sx. TOP: -

PROD. CASING: - CEMENT: - sx. TOP: -

SPUD DATE: 11-30-84 COMP. DATE:

PERFORATIONS: None

STIMULATION: None

COMP. TYPE: Dry Hole

CURRENT STATUS: P&A, See attached schematic

LEASE NAME: Toles Federal WELL NUMBER: 1

OPERATOR: Snow Oil Company LEASE NUMBER: NM-31113

FORMATION: Queen POOL: S.E. Chaves Queen Gas Area Assoc.

LOCATION:

ELEVATION: TOTAL DEPTH:

SURFACE CASING: CEMENT: sx. TOP:

INT. CASING: CEMENT: sx. TOP:

PROD. CASING: CEMENT: sx. TOP:

SPUD DATE: COMP. DATE:

PERFORATIONS:

STIMULATION:

COMP. TYPE: No information available for public record as of 1-31-85.

CURRENT STATUS:

LEASE NAME: WELL NUMBER:

OPERATOR: LEASE NUMBER:

FORMATION: POOL:

LOCATION:

ELEVATION: TOTAL DEPTH:

SURFACE CASING: CEMENT: sx. TOP:

INT. CASING: CEMENT: sx. TOP:

PROD. CASING: CEMENT: sx. TOP:

SPUD DATE: COMP. DATE:

PERFORATIONS:

STIMULATION:

COMP. TYPE:

CURRENT STATUS:

RICH FEDERAL NO. 1
2310' FNL & 2310' FEL
Section 27-T12S-R31E
Chaves County, N.M.

Elevation-4435.6' GL.