STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

7/19/96

GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

WFX-691

RE: Proposed:
MC
DHC
NSL
NSP
SWD
WFX X
PMX

Gentlemen:

I have examined the application for the:

Yates Drilling Co Cactus Queen Unit #14-N 34-17-31
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton

Jerry Sexton
Supervisor, District 1

/ed

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPA 'ENT

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: [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: 505-748-4500

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

IV. Is this an expansion of an existing project? [ ] yes [X] no
If yes, give the Division order number authorizing the project 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: 7-15-96

* 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

NEW MEXICO OIL CONSERVATION DIVISION
Form C-108 (Data)

Application of Yates Drilling Company
For Authorization to Inject Water
Into
Cactus Queen Unit #14
N-34-12S-31E
Chaves County, New Mexico

I. Purpose

Application is made for administrative authorization to inject water into the Queen formation underlying the existing boundaries of the Cactus Queen Unit by utilizing the Cactus Queen Unit #14 well as an injection well. The existing unit is a currently active secondary recovery unit in Sections 27 and 34 of Township 12 South, Range 31 East, Chaves County, New Mexico.

II. Operator

Yates Drilling Company
105 South 4th Street
Artesia, New Mexico 88210
(505) 748-4500
Contact: Tobin L. Rhodes

III. Injection Well Data

A well data sheet is attached for the proposed injection well. There is also a downhole schematic depicting how the well will be configured if this application is approved.

IV. Existing Project

The proposed injection well lies within the boundaries of the existing Cactus Queen Unit. No expansion of the boundaries of the existing unit is proposed. The unit was approved by order R-9075-A, dated March 15, 1990 and expanded by order R-9075-A-1, dated January 26, 1993. Permission to inject into selected wells within the Cactus Queen Unit was granted March 15, 1990 by authority of order R-9075-B and injection into the expanded unit was granted under order R-9075-B-1, dated January 26, 1993.

V. Area of Review

A lease ownership map is attached which identifies all wells and lease ownership within two miles of the proposed injection well. The area of review has been identified by drawing a one half mile radius around the proposed injection well on the attached base map.

VI. Well Data

There are presently ten wells, including the proposed injection well, 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 injection wells, injecting water into the Queen formation. There are seven 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 the proposed injection well. The maximum injection rate for the proposed injection well will be based on fracture pressures as determined by step-rate pressure tests to be conducted on the injection well. The maximum injection rate is expected to be less than 400 barrels per day.

2. Produced water and fresh water from the supply well will be stored in covered fiberglass storage tanks.

3. Initially, this injection well 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 the Queen formation and fresh water from 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 produces 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, Section 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 aguifer is protected behind the surface casing and cement of the proposed injection well. 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.

IX. Stimulation Program

The proposed injection well has previously received a fracture treatment. The details of this treatment is outlined in the data sheet for the well.

This well may require a small clean-up acid treatment prior to injection. If needed we will treat the well with 500 to 1000 gallons of 7 1/2% hydrochloric acid. This treatment should insure that existing perforations are open and that the well will accept water at the lowest possible pressure.

X. Well Logs

Well logs for the subject well 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 unit area. The exact total depth of the wells is unknown, however all wells are assumed to be producing from the Ogollala formation. A water analysis was conducted on four of the wells. A copy of each analysis is 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

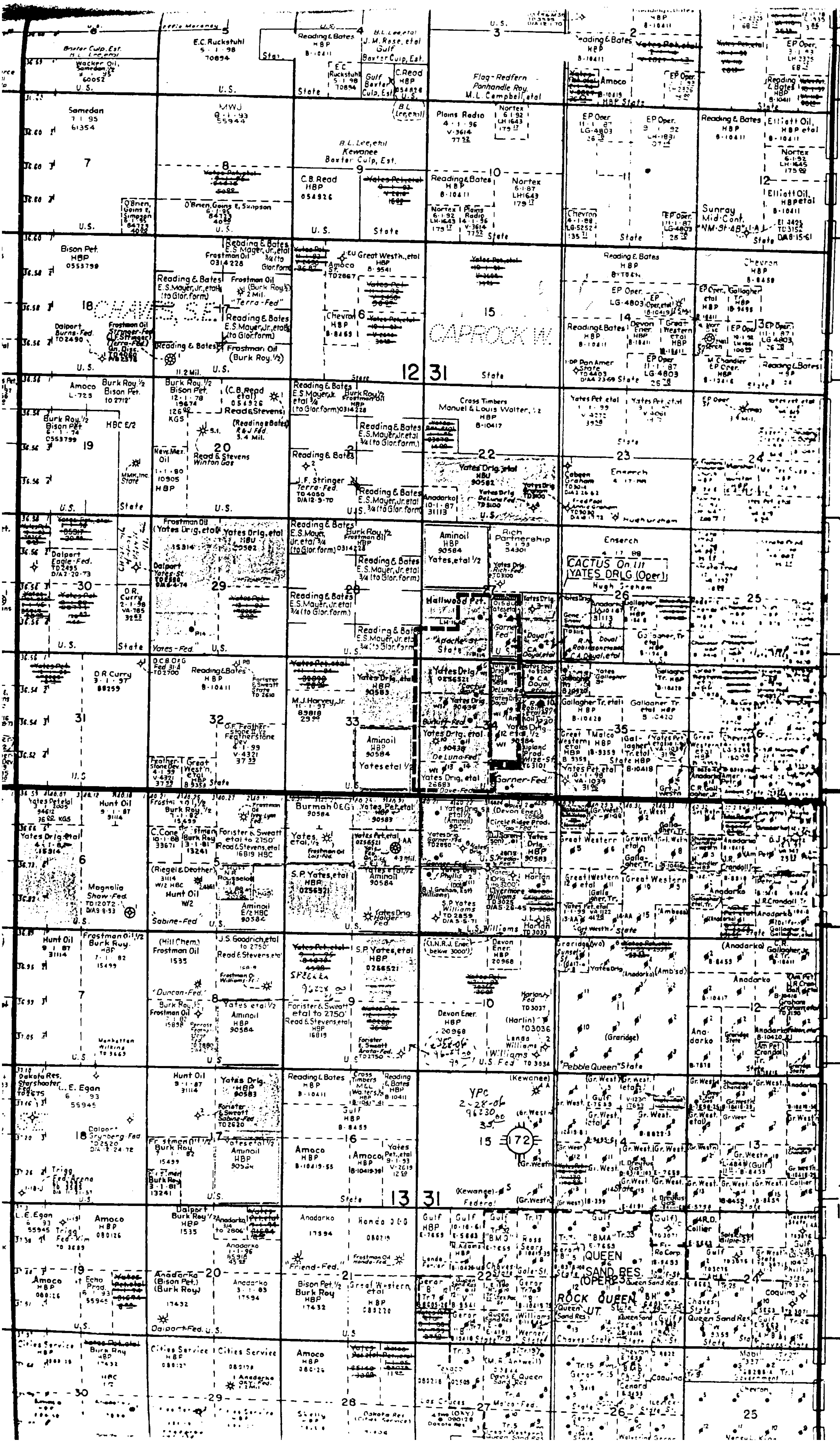
A listing of off-set leasehold operators within one half-mile of the proposed injection well and the surface owner(s) that have received a copy of this application by certified mail is attached.

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

July 15, 1996



CHAVES, S.E.
CAPROCK W.
CACTUS Qn. Ut
YATES DRLG (Oper)
QUEEN SAND RES. (OPER)
ROCK QUEEN UT.
"Pebble Queen" State
"Terra-Fed"
"Apache St."
"Duncan-Fed."
"Friend-Fed."
"Garner-Fed."
Dalport-Fed.
Chaves-State
12 31
13 31
Reading & Bates HBP B-10411
E.C. Ruckstuhl 5-1-98 70894
Flag-Redfern Panhandle Roy. M.L. Campbell, etal
Cross Timbers Manuel & Louis Walter, 1/2 HBP B-10417
Magnolia Shaw-Fed.
Yates Drig. etal
Hallwood Pet.
Aminoil HBP 90584
Yates etal 1/2
Amoco HBP
Ensearch
Great Western
Gallagher Tr.
Samedan 7-1-95 61354
Bison Pet. HBP 0553799
YPC 2-28-06 96230
172

R31E

T 12 S

T 13 S

28

27

26

33

34

35

4

3

2

CACTUS QUEEN
WATERFLOOD
YATES DRILLING CO., OPERATOR

DOYAL LEASE
WATERFLOOD
YATES DRILLING CO., OPERATOR

RICH FEDERAL 1

TOLES FEDERAL 1

WI-3

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

GALLAGHER STATE 1

GARNER FEDERAL 10

GARNER FEDERAL 4

GARNER FEDERAL 5

TAO FEDERAL 1

TAO FEDERAL 2

GARNER FEDERAL 1

GARNER FEDERAL 8

GARNER FEDERAL 6

MEZE STATE 1

STATE Q 1

STATE QQ 1

STATE TT 2

PEBBLE QUEEN T TR10 1

LOIS FEDERAL

FEDERAL AA 1

FREDIA FED 1

PHYLLIS 1

WILLIAMS PHYLLIS 2

WILLIAMS B 1

WILLIAMS 1

HOLDER-FED 1

WILLIAMS PHYLLIS 1

WILLIAMS 2

STATE SS 2

PEBBLE QUEEN T TR-4 6

PEBBLE QUEEN T TR-9 7

PEBBLE QUEEN T TR11 8

STATE TT 3

PEBBLE QUEEN T TR10 11

PEBBLE QUEEN T TR-6 10

PEBBLE QUEEN T TR-5 9

PEBBLE QUEEN UNT TR 2

PEBBLE QUEEN T TR13 14

PEBBLE QUEEN T TR-5 15

N CPRCK QN UN TR-28 1

△ INJECTION WELL

YATES DRILLING COMPANY

BASE MAP-SE CHAVES QUEEN FIELD

DATE: 06-04-96	
SCALE : 1" = 1000'	DRAFT\92086-C JF

AREA OF REVIEW
WELL DATA

WELL	**GARNER FEDERAL #1**	**GARNER FEDERAL #4**	**GARNER FEDERAL #5**	**TAO FEDERAL #1**	**CQU UNIT #8**	**CQU UNIT #10**
LOCATION	D-3-13S-31E	O-34-12S-31E	C-3-13S-31E	B-3-13S-31E	F-34-12S-31E	L-34-12S-31E
	Chaves County, NM	Chaves County, NM	Chaves County, NM	Chaves County, NM	Chaves County, NM	Chaves County, NM
OPERATOR	Yates Drilling Company	Yates Drilling Company	Yates Drilling Company	Circle Ridge Production, Inc.	Yates Drilling Company	Yates Drilling Company
COMPLETION DATE	1-Mar-84	7-Jul-84	14-Aug-84	6-Jun-84	7-Apr-84	1-Sep-82
TOTAL DEPTH	2925 Feet	3108 Feet	2900 Feet	3114 Feet	3,100 Feet	2,900 Feet
CASING PROGRAM	8 5/8" @ 374' W/300 Sxs.	8 5/8" @ 408' W/250 Sxs.	8 5/8" @ 371' W/230 Sxs.	8 5/8" @ 566' W/225 Sxs.	8 5/8" @ 450' W/300 Sxs.	8 5/8" @ 400' W/240 Sxs.
	5 1/2" @ 2,920' W/ 230 Sxs.	5 1/2" @ 3108" W/ 250 Sxs.	5 1/2" @ 2891' W/ 235 Sxs.	5 1/2" @ 3114' W/ 252 Sxs.	5 1/2" @ 3,080' W/ 360 Sxs.	4 1/2" @ 2,900' W/ 250 Sxs.
PERFORATIONS	2695'-2701'	2989'-2997'	2773'-2789'	2983'-3003'	2874'-2882'	2718'-2748'
COMPLETION RECORD	Frac'd w/ 750 gals. 15% HCL	Frac'd w/ 1000 gals. 15% HCL	Frac'd w/ 1500 gals. 15% HCL	Frac'd w/ 500 gals. 15% HCL	Frac'd w/ 750 gals. 15% NE	Frac'd w/ 2,500 gals. 15% MCA
	30,000 gals. gelled water	35,000 gals. gelled water	14,215# 20/40 Sand	20,000 gals. gelled water	20,000 gals. gelled water	10,000 gals. gelled water
	24,000# 20/40 Sand	25% CO2 and Frac 30	13,500# 10/20 Sand	20,000# Sand	25% CO2	7,000# 20/40 Sand
	12,500# 10/20 Sand	43,000# 20/40 Sand			16,500# 20/40 Sand	6,800# 12/20 Sand
		22,000# 12/20 Sand			6,000# 12/20 Sand	
CURRENT STATUS	Pumping	Pumping	Pumping	Pumping	Pumping	Injection

AREA OF REVIEW
WELL DATA

WELL	**CQU UNIT #11**	**CQU UNIT #12**	**CQU UNIT #13**	**CQU UNIT #14**
LOCATION	K-34-12S-31E	J-34-12S-31E	M-34-12S-31E	N-34-12S-31E
	Chaves County, NM	Chaves County, NM	Chaves County, NM	Chaves County, NM
OPERATOR	Yates Drilling Company	Yates Drilling Company	Yates Drilling Company	Yates Drilling Company
COMPLETION DATE	1-Mar-84	1-Jun-84	9-Feb-84	12-Dec-83
TOTAL DEPTH	2,925 Feet	3100 Feet	2,925 Feet	2,925 Feet
CASING PROGRAM	8 5/8" @ 374' W/275 Sxs.	8 5/8" @ 410' W/250 Sxs.	8 5/8" @ 368' W/265 Sxs.	8 5/8" @ 390' W/220 Sxs.
	5 1/2" @ 2,915' W/ 250 Sxs.	5 1/2" @ 3,098' W/ 550 Sxs.	5 1/2" @ 2,925' W/ 250 Sxs.	5 1/2" @ 2,925' W/ 950 Sxs.
PERFORATIONS	2773'-2781'	2982'-2990'	2723'-2730'	2760'-2765'
COMPLETION RECORD	Frac'd w/ 750 gals. 15% HCL	Frac'd w/ 750 gals. 15% HCL	Frac'd w/ 750 gals. 15% HCL	Frac'd w/ 15,000 gals gelled water
	20,000 gals. gelled water	20,000 gals. gelled water	15,000 gals. gelled water	5,000 gals. CO2
	16,000 20/40 Sand	16,500# 20/40 Sand	5,000 gals. CO2	16,500 # 20/40 Sand
	6,000# 12/20 Sand	1,700# 12/20 Sand	16,500# 20/40 Sand	7,000 # 10/20 Sand
			6,000# 10/20 Sand	
CURRENT STATUS	Pumping	Injection	Injection	Pumping

WELL DATA SHEET

OPERATOR:	YATES DRILLING COMPANY
LEASE:	CACTUS QUEEN UNIT #14
FOOTAGE:	990' FSL & 1650' FWL LOCATION: Section 34-12S-31E
COUNTY, STATE:	Chaves County, New Mexico
SPUD DATE:	November 16, 1983
COMPLETION DATE:	December 12, 1983
CURRENT STATUS:	Active producing well - Queen
PROPOSED STATUS:	Active injection well - Queen

TUBULAR DATA

SURFACE CASING

CASING SIZE:	8.625"
CASING WEIGHT:	24.000 POUNDS/FOOT
CASING GRADE:	J-55
DEPTH SET:	390'
CEMENT USED:	220 SXS.
TOP OF CEMENT:	0'
DETERMINED BY:	CIRCULATE
HOLE SIZE:	12.25"

PRODUCTION CASING

CASING SIZE:	5.5"
CASING WEIGHT:	14.000 POUNDS/FOOT
CASING GRADE:	J-55
DEPTH SET:	2925'
CEMENT USED:	950 SXS.
TOP OF CEMENT:	0"
DETERMINED BY:	CIRCULATE
HOLE SIZE:	7.875"
TOTAL DEPTH:	2,925'
PLUG BACK:	2880'

INJECTION OR PRODUCING INTERVAL

INTERVAL TOP: 2760' INTERVAL BOTTOM: 2765'

COMMENTS: Perforated

PREVIOUS STIMULATION: 15,000 gals. 30#/1000 gelled KCL water, 5000 gals. CO_2, 16,500# 20/40 and 7,000# 10/20 sand.

PROPOSED STIMULATION: 500-1000 gallons of 7 1/2% HCL to clean perforations.

TUBING:

TUBING SIZE: 2.375" LINED WITH: Plastic

PACKER: Nickel plated tension packer DEPTH TO BE SET: 2713.45'

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 ZONE(S)?
   No
   LIST ALL SUCH PERFORATED INTERVALS AND GIVE PLUGGING DETAILS (SACKS OF CEMENT OR BRIDGE PLUG (S) USED):
   None

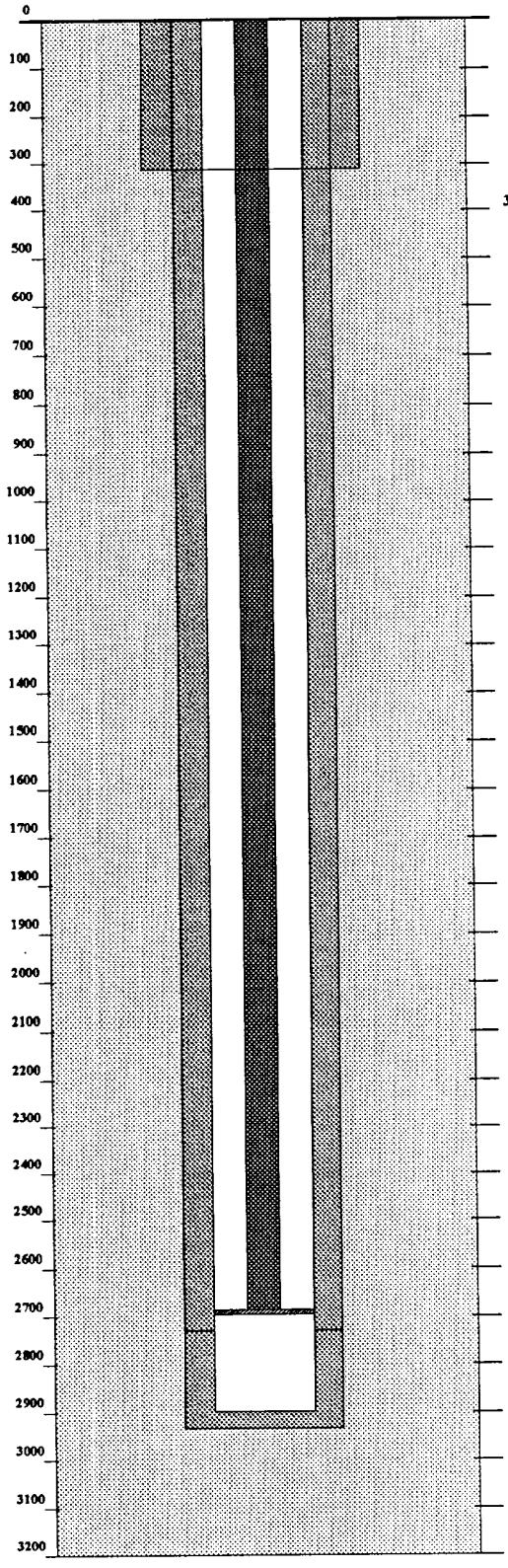
5. GIVE DEPTH TO AND NAME OF ANY OVERLYING AND/OR UNDERLYING OIL OR GAS ZONES (POOLS) IN THIS AREA:
   There has never been any production from any formation other that the Queen in the area surrounding this well.

6. IF WELL IS PLUGGED AND ABANDONED, LIST DETAILS OF PLUGGING AND ATTACH SCHEMATIC.
   Not applicable.

CACTUS QUEEN UNIT #14

N34-12S-31E

CHAVES COUNTY, NM



390', 8-5/8" 24# J-55 CASING, CEMENTED WITH 220 SACKS, CIRCULATED

2710', APPROXIMATE INJECTION PACKER DEPTH
2760-2765', PERFORATIONS, 10 HOLES

2925', TD, 5-1/2", 14.5# J-55 CASING, CEMENTED WITH 950 SACKS, CIRCULATED

PROPOSED INJECTION CONFIGURATION

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

PETROLITE

TRETOLITE DIVISION

Petrolite Corporation
422 West Main Street
Artesia, NM 88210-2041

(505) 746-3588
Fax (505) 746-3580

Reply to:
P.O. Box 1140
Artesia, NM
88211-7531

WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NM
Lease : WILLIAMS
Well : RANCH HOUSE
Sample Pt. :

Date : 04/16/96
Date Sampled : 04/15/96
Analysis No. : 0273

	ANALYSIS		mg/L		* meq/L
1.	pH	7.1			
2.	H2S	0 PPM			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		690.3		
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	256.0	HCO3	4.2
12.	Chloride	Cl	106.0	Cl	3.0
13.	Sulfate	SO4	125.0	SO4	2.6
14.	Calcium	Ca	74.0	Ca	3.7
15.	Magnesium	Mg	12.2	Mg	1.0
16.	Sodium (calculated)	Na	117.1	Na	5.1
17.	Iron	Fe	0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		235.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

4	*Ca <----- *HCO3	4
	/------->	
1	*Mg -----> *SO4	3
	<---------/	
5	*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	3.7	299
CaSO4	68.1		
CaCl2	55.5		
Mg(HCO3)2	73.2	0.5	37
MgSO4	60.2	0.5	30
MgCl2	47.6		
NaHCO3	84.0		
Na2SO4	71.0	2.1	149
NaCl	58.4	3.0	175

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
SHAWNA MATTHEWS

PETROLITE

TRETOLITE DIVISION

Petrolite Corporation
422 West Main Street
Artesia, NM 88210-2041

(505) 746-3588
Fax (505) 746-3580

Reply to:
P.O. Box 1140
Artesia, NM
88211-7531

WATER ANALYSIS REPORT

Company : YATES DRILLING
Address : ARTESIA, NM
Lease : TIVIS
Well : RANCH HOUSE
Sample Pt. :

Date : 04/16/96
Date Sampled : 04/15/96
Analysis No. : 0276

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	0 PPM			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		731.1		
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	231.0	HCO3	3.8
12.	Chloride	Cl	106.0	Cl	3.0
13.	Sulfate	SO4	175.0	SO4	3.6
14.	Calcium	Ca	102.0	Ca	5.1
15.	Magnesium	Mg	6.1	Mg	0.5
16.	Sodium (calculated)	Na	110.9	Na	4.8
17.	Iron	Fe	0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		280.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

```
+------+                    +------+
|    5 | *Ca <----- *HCO3   |    4 |
|------|   /------->        |------|
|    1 | *Mg -----> *SO4    |    4 |
|------|     <---------/    |------|
|    5 | *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	3.8	307
CaSO4	68.1	1.3	89
CaCl2	55.5		
Mg(HCO3)2	73.2		
MgSO4	60.2	0.5	30
MgCl2	47.6		
NaHCO3	84.0		
Na2SO4	71.0	1.8	130
NaCl	58.4	3.0	175

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
SHAWNA MATTHEWS

PETROLITE

TRETOLITE DIVISION

Petrolite Corporation
422 West Main Street
Artesia, NM 88210-2041

(505) 746-3588
Fax (505) 746-3580

Reply to:
P.O. Box 1140
Artesia, NM
88211-7531

WATER ANALYSIS REPORT

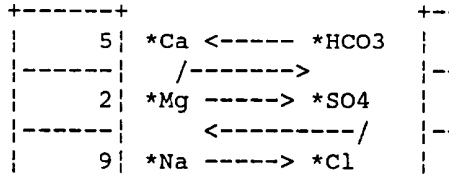
Company : YATES DRILLING
Address : ARTESIA, NM
Lease : GRAHAM
Well : WATER WELL
Sample Pt. :

Date : 04/16/96
Date Sampled : 04/15/96
Analysis No. : 0275

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	0 PPM			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		1102.7		
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	127.0	Cl	3.6
13.	Sulfate	SO4	400.0	SO4	8.3
14.	Calcium	Ca	106.0	Ca	5.3
15.	Magnesium	Mg	20.7	Mg	1.7
16.	Sodium (calculated)	Na	205.0	Na	8.9
17.	Iron	Fe	0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		350.0		

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	4.0	324
CaSO4	68.1	1.3	88
CaCl2	55.5		
Mg(HCO3)2	73.2		
MgSO4	60.2	1.7	103
MgCl2	47.6		
NaHCO3	84.0		
Na2SO4	71.0	5.3	379
NaCl	58.4	3.6	209

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
SHAWNA MATTHEWS

PETROLITE

Petrolite Corporation
422 West Main Street
Artesia, NM 88210-2047

TRETOLITE DIVISION

(505) 746-3588
Fax (505) 746-3580

Reply to:
P.O. Box 1140
Artesia, NM
88211-7531

WATER ANALYSIS REPORT

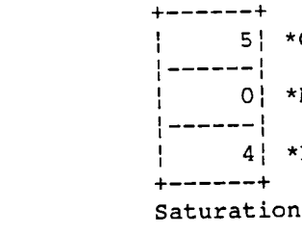
Company : YATES DRILLING
Address : ARTESIA, NM
Lease : CACTUS QUEEN
Well : WATER WELL
Sample Pt. :

Date : 04/16/96
Date Sampled : 04/15/96
Analysis No. : 0274

	ANALYSIS		mg/L		* meq/L
1.	pH	7.1			
2.	H2S	0 PPM			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		647.6		
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	195.0	HCO3	3.2
12.	Chloride	Cl	127.0	Cl	3.6
13.	Sulfate	SO4	125.0	SO4	2.6
14.	Calcium	Ca	102.0	Ca	5.1
15.	Magnesium	Mg	0.1	Mg	NR
16.	Sodium (calculated)	Na	98.5	Na	4.3
17.	Iron	Fe	0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		255.0		

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	3.2	259
CaSO4	68.1	1.9	129
CaCl2	55.5		
Mg(HCO3)2	73.2		
MgSO4	60.2	NR	0
MgCl2	47.6		
NaHCO3	84.0		
Na2SO4	71.0	0.7	50
NaCl	58.4	3.6	209

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
SHAWNA MATTHEWS

AFFIDAVIT OF PUBLICATION

County of Chaves
State of New Mexico

I, Gina Brooks,
Legal Clerk,

Of the Roswell Daily Record, a daily newspaper published at Roswell, New Mexico, do solemnly swear that the clipping hereto attached was published once a week in the regular and entire issue of said paper and not in a supplement thereof for a period
of: one time weeks
.....
beginning with issue dated
June 13TH , 1996
.....
and ending with the issue dated
June 13TH , 1996
.....

Gina Brooks
Clerk

Sworn and subscribed to before me

this 13TH day of
.....
June ,1996
.....
.....

Marylon L Shippes
Notary Public

My Commission expires

July 25, 1998
.....

(SEAL)

Publish June 13, 1996

Yates Drilling Company hereby gives notice to the public that it will be filing an application with New Mexico Oil Conservation Division seeking authority to inject water for the purpose of secondary recovery in its Cactus Queen Unit well #14, located 990 feet from the South line and 1650 feet from the West line of Section 34, Township 12 South, Range 31 East, N.M.P.M., Chaves County, New Mexico. The proposed injection will be into the Queen formation between the depths of 2760 feet and 2765 feet. The maximum injection rate sought is 400 barrels per day and the maximum initial surface pressure to be used will be 552 PSIG. Any increase in the maximum surface pressure will be based on step-rate tests and subject to New Mexico Oil Conservation Division approval. Any objection to this application must be filed within fifteen (15) days of the date of this advertisement at the Oil Conservation Division, Post Office Box 2088, Santa Fe, New Mexico 87504. Questions concerning this application should be directed to Mr. Doug Hurlbut, Yates Drilling Company, 105 South 4th Street, Artesia, New Mexico 88210. Telephone (505) 748-1471.

LEASEHOLD OWNERSHIP

T-12-S, R-31-E
Section 33: SE/4NE/4, E/2SE/4
Section 34: S/2NW/4, SW/4, SW/4NE/4, W/2SE/4
T-13-S, R-31-E
Section 3: N/2NW/4
Section 4: NE/4NE/4
Chaves County, New Mexico

Yates Drilling Company
105 South 4th Street
Artesia, NM 88210

T-13-S, R-31-E
Section 3: NW/4NE/4
Chaves County, NM

Circle Ridge Production, Inc.
300 E. Northside Dr.
Fort Worth, Texas 76106-9234

SURFACE OWNER

W.T. Tivis, Jr.
P.O. Box 1614
Eunice, NM 88231

Submit 5 Copies
Appropriate District Office
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

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

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-104
Revised 1-1-89
See Instructions
at Bottom of Page

REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

I.

Operator	Well API No.
Yates Drilling Company	3000520920 ✓
Address	
105 South 4th Street, Artesia, NM 88210	

Reason(s) for Filing *(Check proper box)*

New Well ☐ Recompletion ☐ Change in Operator ☐

Change in Transporter of: Oil ☐ Dry Gas ☐ Casinghead Gas ☐ Condensate ☐

☒ Other *(Please explain)*
NAME CHANGE: Dave Federal #1 to Cactus Queen Unit #14

If change of operator give name and address of previous operator _____

II. DESCRIPTION OF WELL AND LEASE

Lease Name	Well No.	Pool Name, Including Formation	Kind of Lease State, Federal or Fee	Lease No.
~~Dave Federal~~ Cactus Queen Unit	14	SE Chaves Qn Gas Area Assoc.		NM-26883

Location

Unit Letter N : 990 Feet From The South Line and 1650 Feet From The West Line

Section 34 Township 12S Range 31E , NMPM, Chaves County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil ☒ or Condensate ☐	Address *(Give address to which approved copy of this form is to be sent)*
Navajo Refining Company	P.O. Box 159, Artesia, NM 88210
Name of Authorized Transporter of Casinghead Gas ☐ or Dry Gas ☐	Address *(Give address to which approved copy of this form is to be sent)*

If well produces oil or liquids, give location of tanks.	Unit	Sec.	Twp.	Rge.	Is gas actually connected?	When ?
	N	34	12S	31E	NO	

If this production is commingled with that from any other lease or pool, give commingling order number: _____

IV. COMPLETION DATA

Designate Type of Completion - (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Res'v	Diff Res'v

Date Spudded	Date Compl. Ready to Prod.	Total Depth	P.B.T.D.
Elevations *(DF, RKB, RT, GR, etc.)*	Name of Producing Formation	Top Oil/Gas Pay	Tubing Depth
Perforations			Depth Casing Shoe

TUBING, CASING AND CEMENTING RECORD

HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT

V. TEST DATA AND REQUEST FOR ALLOWABLE

OIL WELL *(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours.)*

Date First New Oil Run To Tank	Date of Test	Producing Method *(Flow, pump, gas lift, etc.)*	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil - Bbls.	Water - Bbls.	Gas- MCF

GAS WELL

Actual Prod. Test - MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
Testing Method *(pitot, back pr.)*	Tubing Pressure (Shut-in)	Casing Pressure (Shut-in)	Choke Size

VI. OPERATOR CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Karen J. Leishman
Signature

Karen J. Leishman — Production Clerk
Printed Name — Title

2-8-93 — 505-748-1471
Date — Telephone No.

OIL CONSERVATION DIVISION

Date Approved FEB 10 1993

By ORIGINAL SIGNED BY JERRY SEXTON
DISTRICT I SUPERVISOR

Title _____

INSTRUCTIONS: This form is to be filed in compliance with Rule 1104

1) Request for allowable for newly drilled or deepened well must be accompanied by tabulation of deviation tests taken in accordance with Rule 111.
2) All sections of this form must be filled out for allowable on new and recompleted wells.