ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0100

April 12, 1984

Mr. Joe D. Ramey
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

RE: Water Injection Well
Seven Rivers Queen Unit No. 64
Lea County, New Mexico

ARCO Oil and Gas Company respectfully requests administrative approval to drill its Seven Rivers Queen Unit No. 64, a proposed injection well in an active waterflooding unit, at a location of 2310' FNL and 660' FWL, Section 2, Township 23 South, Range 36 East, Lea County, New Mexico. The well is to be drilled as a replacement for Seven Rivers Queen Unit No. 53 located 330' north of the proposed location. Seven Rivers Queen Unit No. 53 developed casing leaks in June, 1983. Many unsuccessful attempts to repair the leaks have been made. This well is to be plugged and abandoned. By drilling the proposed injection well the original waterflood pattern will be restored, thereby increasing the ultimate recovery of oil. Attached you will find a C-108 form along with all necessary data required for proper completion of said form. Surface owners and offset operators have been notified of this request via certified mail.

Yours very truly,

Craig L. Payken

Craig L. Payken
Area Engineer

CLP:RBM:sc
Atts.

cc: New Mexico Oil Conservation Div.
P. O. Box 1980
Hobbs, New Mexico 88240

cc: Surface Owners
Seven-Rivers Queen Unit
(see attached list)

cc: Offset Operators
Seven-Rivers Queen Unit
(see attached list)

OFFSET OPERATORS
SEVEN-RIVERS QUEEN UNIT

Conoco Oil Company
P. O. Box 460
Hobbs, New Mexico 88240

Marathon Oil Corporation
P. O. Box 552
Midland, Texas 79702

Sun Exploration and Production Company
P. O. Box 1861
Midland, Texas 79702

Getty Oil Company
P. O. Box 1231
Midland, Texas 79702

J. H. Hendrix Corporation
525 Midland Tower
Midland, Texas 79701

Gulf Oil Exploration and Production Company
P. O. Box 1150
Midland, Texas 79702

SURFACE OWNERS
SEVEN-RIVERS QUEEN UNIT

Millard Deck Estate
c/o Kirkwood & Darby
Continental National Bank Building
Ft. Worth, Texas 76102

Wanda Jones
1810 Marlinwood #8109
Temple, Texas 76501

State of New Mexico
c/o Commissioner of Public Lands
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

Dorothy L. Casey
1365 Amarillo Street
Abilene, Texas 79602

Opal M. Jones
Stiles Rt.
Big Lake, Texas 76932

UR Cattle Co., Inc.
P. O. Box 346
Eunice, New Mexico 88231

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

II. Operator: ARCO Oil and Gas Company

Address: P. O. Box 1610, Midland, Texas 79702

Contact party: District Engineer, West Phone: (915) 684-0149

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

IV. Is this an expansion of an existing project? [X] yes [ ] no
If yes, give the Division order number authorizing the project R-4589.

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: Craig L. Payken Title Area Engineer

Signature: Craig L. Payken Date: April 12, 1984

* 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.

Attachment to C-108 Form

ARCO's Seven-Rivers Queen Unit

Section

III. Well Data: See attached well diagram and tabular well data sheet.

V. Area of Review: See attached map.

VI. Well Data in Area of Review: See attached tabular well data sheets.

VII. 1) Proposed average daily rate 357 BWPD
Proposed average maximum daily rate 400 BWPD

2) System is closed

3) Proposed average injection pressure 1250 psig.
Proposed maximum injection pressure 1400 psig.

4) Injection water source: Capitan Reef
Getty's Jal Water Supply
Compatibility tests (see attached water analysis)
Reported 11-10-81 (also we have been injecting with no problems for ten years)

VIII. Geologic Data Injection Zone: The injection zone is the unitized interval for the Seven-Rivers Queen Unit which includes the bottom 100 feet of the Seven-Rivers formation and the entire Queen formation. The productive intervals of the Seven-Rivers and Queen formations are fine grained clean to dolomitic sands interbedded with tight dense dolomite and anhydrite stringers. However, the injection zone is the oil productive interval between the GOC at -150 SS and the WOC at -285 SS (135 feet). The injection interval occurs at a depth of 3600 to 3800 feet from the surface.

The underground source of drinking water overlying the zone of injection is the Ogallala which occurs near the surface and is approximately 100 feet thick. There is no known source of drinking water below the zone of injection.

IX. The stimulation program used for the injection well is to acidize and then hydraulically fracture with 10,000 gal. carrying 25,000# of sand.

X. Log and test data to be filed with the Commission upon completion of well.

XI. See attached water analysis sheets dated 1-24-84 for freshwater wells shown on map.

XII. Not applicable.

XIII. Proof of Notice: Copy of application sent to surface owners and offset operators via Certified mail. Proof of publication to be received from Hobbs Daily News Sun.

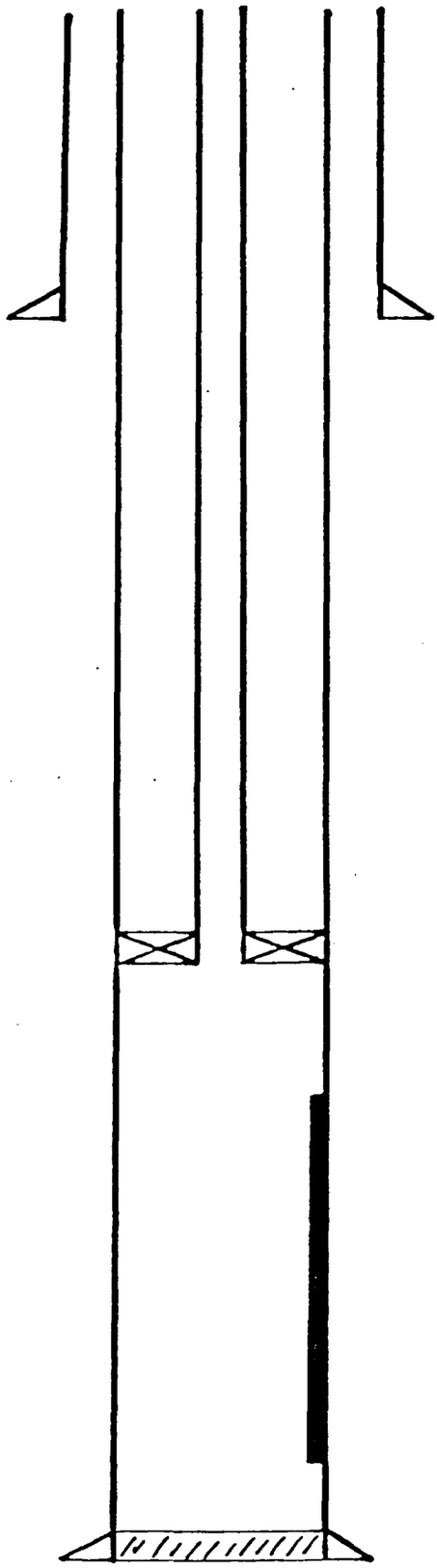
PROPOSED
WELL DATA SHEET

Lease: Seven Rivers Queen Unit Well: No. 64

Operator: ARCO Oil and Gas Company

Location: 2310' FNL & 660' FWL

Section 2 Township 23S Range 36E
Lea Co., New Mexico



8-5/8" csg @ 300' cmtd
w/ 250 sx. circ.
hole size 11"

*Note: All depths and volumes are approximate and depend on completion of well.

Baker AD-1 @ 3575' on
2-3/8" PC tbg

Perfs 3625' - 3750'
F 10,000 gal 25,000# sd
A 4000 gal

5-1/2" csg @ 3800' cmtd
w/ 1800 sx. circ.
TD 3800'
7-7/8" hole size

Injection Formation: South Eunice and Langlie Mattix (Seven-Rivers and Queen) 3600 - 3800'
Well originally drilled for Water Injection

Higher Producing Zone: Jalmat (Yates Seven-Rivers) 3200-3600'

Lower Producing Zone: Langlie Field (Devonian) 12,400-12,600'

PROPOSED WELL DATA

Lease: Seven Rivers Queen Unit
Well No.: 64

Location: 2310' FNL and 660' FWL
Section : 2
Township: 23S, Range 36E

Casing: 8 5/8" @ 300' Hole Size: 11" Sacks Cmt./Top: 250/Surface
5 1/2" @ 3800' 7 7/8" 1800/Surface

Tubing: 2 3/8" IPC J-55 EUE 8RD Depth: 3575'

Packer: Baker Model AD-1 Depth: 3575'

Note: Depths and cmt. volumes are approximate. Final depths and volumes depend on completion of well.

WELL DATA
AREA OF REVIEW: SEVEN-RIVERS QUEEN UNIT

OPERATOR WELL NAME LOCATION	COMPLETION DATE	TD	PBD	CASING SIZE	CASING DEPTH	CEMENT SACKS/TOP	PERFORATED INTERVAL	STIMULATION	CURRENT STATUS	REMARKS
ARCO SRQU No. 43 660' FNL & 1980' FWL 2-23S-36E	8-14-58	3800	3737	8-5/8 5-1/2	421 3800	350/circ 975/510	3628-3737	F 40,000 gal 40,000# sd A 2500 gal	WIW	Sqz perfs 3747-3777' w/100 sx. Sqzd perfs 3605' w/300 sx.
ARCO SRQU No. 44 660' FNL & 660' FWL 2-23-36E	5-10-58	3800	3797	8-5/8 5-1/2	394 3799	300/circ 1100/circ	3652-3757	F 55,000 gal 55,000# sd	OW	
ARCO SRQU No. 45 660' FNL & 660' FEL 3-23S-36E	3-58	3963	3892	8-5/8 5-1/2 3-1/2 fg	345 3963 3196-3918	250/circ 1099/1155 75/NA	3662-3800	F 30,000 gal 30,000# sd A 10,500 gal	WIW	Sqzd holes 1550-2730' w/1250 sx. Perf 4 holes 1100-1102'. Circ cmt to surf.
ARCO SRQU No. 51 1980' FNL & 1980' FEL 3-23S-36E	9-11-60	3856	3800	8-5/8 4-1/2	309 3851	200/circ 1635/circ	3686-3849	F 20,000 gal 27,250# sd A 9500 gal	WIW	
ARCO SRQU No. 52 1980' FNL & 660' FEL 3-23S-36E	9-23-60	3866	3847	8-5/8 5-1/2	262 3865	200/circ 1635/circ	3654-3772	F 25,000 gal 48,200# sd	OW	
ARCO SRQU No. 53 1980' FNL & 660' FWL 2-23S-36E	2-61	3800	3769	9-5/8 4-1/2	417 3800	175/circ 285/2455	3627-3727	F 33,000 gal 40,000# sd	SIWIW	Sqzd holes 1350-2900' w/6000+ sx cmt. Sqz unsuccessful. Well to be P&A'd.
ARCO SRQU No. 54 1980' FNL & 1980' FWL 2-23-36E	5-14-59	3770	3770	8-5/8 5-1/2	418 3693	325/circ 1050/700	3639-3770	F 32,000 gal 64,000# sd	OW	
ARCO SRQU No. 55 1980' FNL & 1980' FEL 2-23S-36E	4-19-59	3777	3772	8-5/8 5-1/2	402 3776	325/circ 1200/circ	3622-3764	F 40,000 gal 60,000# sd	WIW	Perf'd 3611' and sqz w/325 sx to shut off gas channel
Getty Hobbs "K" #1 660' FSL & 1980' FWL 2-23S-36E	11-14-59	3690	3689	8-5/8 5-1/2	306 3690	200 250	3678-3689	F 10,000 gal	OW	
Getty Hobbs "K" #2 660' FSL & 660' FWL 2-23S-36E	3-19-60 806-70	3700	3699	8-5/8 5-1/2	300 3700	200 275	3648-3681 3514-3606	F 15,000 gal A 1250 gal F 47,500 gal & 70,500#	OW	

WELL DATA
AREA OF REVIEW: SEVEN-RIVERS QUEEN UNIT

OPERATOR WELL NAME LOCATION	COMPLETION DATE	TD	PBD	CASING SIZE	CASING DEPTH	CEMENT SACKS/TOP	PERFORATED INTERVAL	STIMULATION	CURRENT STATUS
Hendrix State "JG" #2 2310' FSL & 1650' FEL 2-23S-36E	9-3-59 5-9-69R	3795	3764	8-5/8 5-1/2	250 3784	221 200	3674-3706 3574-3634	A 350 gal F 30,000 gal A 2000 gal F 20,000 gal & 30,000#	OW
Hendrix State "JG" #3 1980' FSL & 2310' FWL 2-23S-36E	12-26-60 2-20-69	3802	3774	8-5/8 4-1/2	247 3798	225 250	3688-3722 3494-3561	F 20,000 gal A 2500 gal F 20,000 gal & 20,000 #	OW
Hendrix State "JG" #4 1980' FSL & 660' FWL 2-23S-36E	12-5-60 3-14-70	3772	3745	8-5/8 4-1/2	257 3770	200 250	3653-3675 3426-3592	A 200 gal F 11,000 gal & 16,500# A 1000 gal F 20,000 gal & 22,000#	GW
Sun State "A" #30 1650' FSL & 990' FEL 3-23S-36E	10-30-51	3624		9-5/8 7	309 2920	300 1600	2920-3624' OH		SI GW
Sun State "A" #61 1980' FSL & 1980' FEL 3-23S-36E	5-29-58	3719		9-5/8 5-1/2	320 3642	300 250	3642-3719 OH	F 25,000 gal	OW
Sun State "A" #63 1980' FSL & 660' FEL 3-23S-36E	8-16-59 5-20-70	3691		9-5/8 7	322 3654	300 250	3654-3691 OH 3639-3682 OH	F 15,000 gal A 2000 gal SWF 20,000 gal & 30,000#	OW
Sun State "A" #69 660' FSL & 990' FEL 3-23S-36E	10-28-59	3675		9-5/8 7	336 3648	300 725	3648-3675 OH	F 10,000 gal	OW

P. O. BOX 1468
MONAHANS, TEXAS 79756
PHONE 943-3234 OR 563-1040

Martin Water Laboratories, Inc

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 118151

TO: Mr. Jim Curfew
P.O.Box 1710, Hobbs, NM

SAMPLE RECEIVED 11-6-81

RESULTS REPORTED 11-10-81

COMPANY ARCO Oil & Gas Company LEASE Seven Rivers Queen Unit

FIELD OR POOL South Eunice

SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced water - taken from Seven Rivers Queen Unit, 11-6-81

NO. 2 Conoco supply water, 11-6-81 GETTY WATER ANALYSIS ON PAGE 2

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	me/l	NO. 2	me/l
Specific Gravity at 60° F.	1.0393		1.0500	
pH When Received	7.2		6.4	
Carbonate as CO_3	0	0.0	0	0.0
Bicarbonate as HCO_3	1,238	20.3	586	9.6
Supersaturation as $CaCO_3$	90		15	
Undersaturation as $CaCO_3$	—		—	
Total Hardness as $CaCO_3$	9,350		6,800	
Calcium as Ca	1,080	54.0	1,640	82.0
Magnesium as Mg	1,616	133.0	656	54.0
Sodium and/or Potassium	19,312	839.7	24,775	1,077.2
Sulfate as SO_4	2,750	57.2	3,944	82.0
Chloride as Cl	29,828	841.1	39,771	1,121.5
Iron as Fe	0.62	0.0	0.23	0.0
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	55,824		71,372	
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide - Total				
Resistivity, ohms/m at 77° F.	325 0.146		375 0.120	
Suspended Oil				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks

Form No. 2

By ___

P. O. BOX 1468
MCNAHANS, TEXAS 79756
PHONE 943-3234 OR 563-1040

Martin Water Laboratories, Inc

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 118151 (Page 2)

TO: Mr. Jim Curfew
P.O.Box1710, Hobbs, NM

SAMPLE RECEIVED 11-6-81

RESULTS REPORTED 11-10-81

COMPANY ARCO Oil & Gas Company LEASE Seven Rivers Queen Unit

FIELD OR POOL South Eunice

SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Gotty supply water. 11-6-81

NO. 2

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	me/l	NO. 2	me/l
Specific Gravity at 60° F.	1.0161			
pH When Received	6.8			
Carbonate as CO_3	0	0.0		
Bicarbonate as HCO_3	1,110	18.2		
Supersaturation as $CaCO_3$	65			
Undersaturation as $CaCO_3$	—			
Total Hardness as $CaCO_3$	3,050			
Calcium as Ca	720	36.0		
Magnesium as Mg	304	25.0		
Sodium and/or Potassium	5,823	253.1		
Sulfate as SO_4	1,712	35.6		
Chloride as Cl	9,232	260.3		
Iron as Fe	0.31	0.0		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	18,901			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide				
Resistivity, ohms/m at 77° F.	Total 438			
Suspended Oil	0.420			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks These results clearly show no evidence of any incompatibility between any combination of these three waters. This is strong indication that the samples of Seven Rivers-Queen water and Conoco supply water were not representative on analysis #1081149 (10-16-81).

Form No. 1

cc: Mr. Robert Craig, Midland
Mr. J. P. McDonald, Dallas
Mr. W. G. Price, Midland
Mr. Vergil Herring, Hobbs
Central File System, Midland

By ___

Waylan C. Martin, M. A.

P O BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 184277

TO: Mr. Robert Craig
P.O. Box 1610, Midland, Texas

SAMPLE RECEIVED 1-23-84

RESULTS REPORTED 1-24-84

COMPANY ARCO Oil & Gas Company LEASE Seven Rivers Queen Unit

FIELD OR POOL South Eunice

SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from water well located ½ mile southwest of Seven Rivers Queen

NO. 2 (FRESH WATER SUPPLY WELL) Unit #49. 1-22-84

NO. 3

NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0025			
pH When Sampled				
pH When Received	7.64			
Bicarbonate as HCO_3	166			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	640			
Calcium as Ca	160			
Magnesium as Mg	117			
Sodium and/or Potassium	67			
Sulfate as SO_4	85			
Chloride as Cl	398			
Iron as Fe	2.7			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	993			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	5.50			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By _____

Waylan C. Martin, M. A.

P O BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 184276

TO: Mr. Robert Craig
P.O.Box 1610, Midland, Texas

SAMPLE RECEIVED 1-23-84
RESULTS REPORTED 1-24-84

COMPANY ARCO Oil &Gas Company LEASE Seven Rivers Queen Unit
FIELD OR POOL South Eunice
SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from water well located next to Seven Rivers Queen Unit #58. 1-23-84
NO. 2 (FRESH WATER WELL)
NO. 3
NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0043			
pH When Sampled				
pH When Received	7.27			
Bicarbonate as HCO_3	224			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	3,025			
Calcium as Ca	750			
Magnesium as Mg	279			
Sodium and/or Potassium	274			
Sulfate as SO_4	129			
Chloride as Cl	2,343			
Iron as Fe	0.39			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	3,999			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	1.30			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By _____
Waylan C. Martin, M. A.

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
ARCO OIL & GAS CORP.	SEVEN RIVERS QUEEN UNIT	64

Unit Letter	Section	Township	Range	County
E	2	23 SOUTH	36 EAST	LEA

Actual Footage Location of Well:
2310 feet from the NORTH line and 660 feet from the WEST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3466.3	SEVEN RIVERS QUEEN	LANGLIE MATTIX	40 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

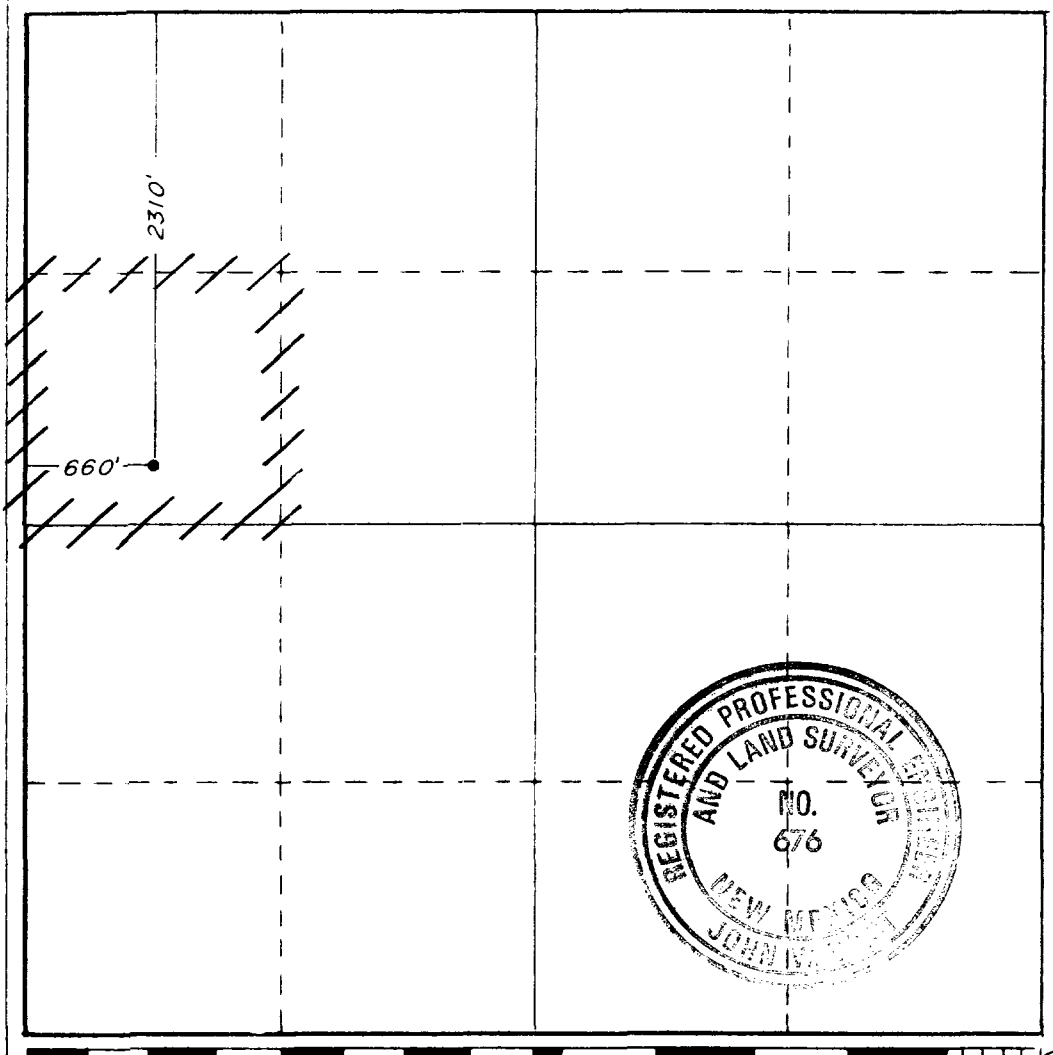
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



0 330 660 90 1320 1650 1980 2310 2640 2000 1500 1000 500 0

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: Craig L. Payton
Position: AREA ENGINEER
Company: ARCO OIL AND GAS CO.
Date: 12 APRIL, 1984

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: APRIL 6, 1984

Registered Professional Engineer and/or Land Surveyor

Certificate No. JOHN W. WEST, 676
RONALD J. EIDSON, 3239

OIL CONSERVATION DIVISION
DISTRICT I

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

DATE April 18, 1984

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

Gentlemen:

I have examined the application for the:

ARCO Oil & Gas Co. Seven Rivers Queen Unit #64-E 2-23-36
Operator Lease and Well No. Unit, S - T - R

and my recommendations are as follows:

O.K.----J.S.

Yours very truly,

/mc

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE