CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: NM & O Operating Well: Rocker Lake 15-2

Contact: John Thompson Title: Eng - Consultant Phone: ___

DATE IN 3-31-97 RELEASE DATE 4-15-97 DATE OUT 5-19-97

Proposed Injection Application is for: ___ **WATERFLOOD** ___ Expansion ___ Initial

Original Order: R- ___ (X) Secondary Recovery ___ Pressure Maintenance

SENSITIVE AREAS X **SALT WATER DISPOSAL** ___ Commercial Well

___ WIPP ___ Capitan Reef

Data is complete for proposed well(s)? YES Additional Data Req'd ___

AREA of REVIEW WELLS

11 Total # of AOR — 9 # of Plugged Wells

YES Tabulation Complete — ___ Schematics of P & A's

YES Cement Tops Adequate — ___ AOR Repair Required

INJECTION FORMATION

Injection Formation(s) Morrison Compatible Analysis YES

Source of Water or Injectate Mesaverde Production

PROOF of NOTICE

YES Copy of Legal Notice — YES Information Printed Correctly

YES Correct Operators — YES Copies of Certified Mail Receipts

NO Objection Received — ___ Set to Hearing ___ Date

NOTES: ___

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL? YES

COMMUNICATION WITH CONTACT PERSON:

1st Contact: ___ Telephoned ___ Letter ___ Date Nature ~~of Discussion~~ ___

2nd Contact: ___ Telephoned ___ Letter ___ Date Nature ~~of Discussion~~ ___

3rd Contact: ___ Telephoned ___ Letter ___ Date Nature ~~of Discussion~~ ___

SWD 4/15/71
658

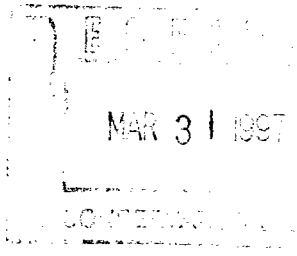
WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

7415 East Main
Farmington, New Mexico 87402
(505) 327-4892

New Mexico Oil Conservation Division
Attn. D. Catanach
2040 Pacheco St.
Santa Fe, NM 87505

March 27, 1997



Dear Mr. Catanach:

Enclosed is the application for authorization to inject into the Rucker Lake #2 (Sec 24/T25N/R2W) which is owned and operated by NM & O Operating Company. The following application and information is arranged in the order specified by form C-108.

If you have any questions or concerns, regarding the following information please feel free to contact me anytime.

Sincerely,

John C. Thompson
Engineer

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

7415 East Main
Farmington, New Mexico 87402
(505) 327-4892

NM & O OPERATING COMPANY
RUCKER LAKE #2

APPLICTION FOR AUTHORIZTION TO INJECT

LIST OF APPENDIXES

.STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

2040 Pacheco St.
Santa Fe, NM 87505

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: ____ Secondary Recovery ____ Pressure Maintenance __X__ Disposal ____ Storage
Application qualifies for administrative approval? __Yes __No

II. OPERATOR: NM & O OPERATING COMPANY

ADDRESS: 6 East 5th Street, Suite 200 Tulsa, OK 74103

CONTACT PARTY: Larry Sweet PHONE: 800 672-400

III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection. Additional sheets may be attached if necessary. SEE APPENDIX A

IV. Is this an expansion of an existing project: ___ Yes __X__ 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. SEE APPENDIX C

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 sources 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.) SEE APPENDIX E

* 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. SEE APPENDIX D

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. SEE APPENDIX F

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: John C. Thompson TITLE: Agent

SIGNATURE: John C. Thompson DATE: 2/28/97

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be 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 District Office

APPLICATION FOR AUTHORIZATION TO INJECT
FORM C-108 SUPPLEMENTAL DATA

RUCKER LAKE #2 WELL
24K-25N-2W
1450' FSL & 1520' FWL

I. Water Disposal

II. NM&O Operating
6 East 5th Street
Suite 200
Tulsa, Oklahoma 74103
Contact person: Larry Sweet

III. Well data sheet is attached.

IV. This not an expansion of an existing project.

V. See attached map showing area of review and attached list of wells.

VI. There are no wells within the area of review that penetrate the proposed Morrison Injection Zone. There are also no P&A wells within the area of review.

VII. Data on proposed injection operations are as follows:

1. Average Injection Rate - 500 bwpd (.347 bbl/min)
Maximum Injection Rate - 1000 bwpd (.694 bbl/min)

2. Closed system. Water would be trucked or piped into tanks on location.

3. Average injection pressure - 1631 psi
Maximum injection pressure - 1761 psi

4. Produced Mesa Verde water with TDS of 14,000 to 14,500 ppm will be injected into the Morrison zone in the Rucker Lake #2 well. A representative analyses of the Mesa Verde water that is to be injected is attached. (to be provided).

5. Chemical analysis of the water in the Morrison zone will be submitted after deepening the well from its current TD of 8155' in the Mancos zone.

VIII. Geologic & Lithologic data on injection zone.

1. The proposed zone of injection is in the Morrison Formation. The Morrison Formation is from 8102' - 8188'. See attached copy of open hole logs showing the Morrison Formation. The Rucker Lake was originally drilled for an Entrada test before it was plugged back and produce out of the Mancos. Please note that pipe was set at 8155' in the Morrison.

2. Lithology - Morrison sand w/ porosity's ranging from 8% - 15%

3. Other than the aquifers that are contained in the surface alluvium there are no known drinking water aquifers in the area of review.

IX. No stimulation procedures have been planned. At time of completion a step rate test will be performed to determine if the desired injection rates and pressures can be achieved without need for stimulation.

X. Open hole logs that cover the Morrison have been previously submitted to the NMOCD when the well was originally drilled.

XI. No known sources of potable water exist in the immediate area of the well. According to the *Hydrologic Report #6* published by the New Mexico Bureau of Mines & Mineral Resources, the only water wells in the area of review were dug or drilled into the surface alluvium at depths less than 100'. The report lists the wells as "Unused".

XII. At the present time, geologic studies of the area do not indicate fault communication between the proposed injection zone and any underground potential sources of drinking water.

XIII. Proof of notice is attached.

XIV. Certification is signed.

INJECTION WELL DATA SHEET

OPERATOR NM & O OPERATING COMPANY LEASE Rucker Lake

WELL NO. #2 1450'FSL & 1520'FWL | 24 K | 25N | 2W

FOOTAGE LOCATION | SECTION | TOWNSHIP | RANGE

Schematic

SEE ATTACHMENT OF WELLBORE SCHEMATIC

IN APPENDIX A

Well Construction Data

Surface Casing

Size 9-5/8" " Cemented with 450 sx.

TOC Surface feet determined by Circulation

Hole Size 13-3/4"

Intermediate Casing

Size 4-1/2" " Cemented with 600 sx & 625 sx sx.

TOC 322' feet determined by Calculated

Hole Size 8-3/4"

Long String NONE

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole Size _____

Total Depth _____

Injection Interval MORRISON 8155' - 8188"

_____ feet to _____ feet

(perforated or open-hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size 2-3/8" lined with plastic set in a
(type of internal coating)
plastic lined packer at approx 8150' feet

Other type of tubing / casing seal if applicable _____

Other Data

1. Is this a new well drilled for injection? ____ Yes X No

   If no, for what purpose was the well originally drilled? This well was originally drilled as a Entrada test but was plugged back to the Mancos.

2. Name of the injection formation Morrison

3. Name of Field or Pool (if applicable) _____

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e., sacks of cement or plug(s) used. The Mancos has been perforated w/27 shots. See Attachment for shot depths and squeeze procedure.

5. Give the names and depths of any over or underlying oil of gas zones (pools) in this area.

   Over - Dakota, Mancos, Mesa Verde, Pictured Cliffs and Fruitland Coal.

   Under - Entrada

WALSH ENGINEERING & PRODUCTION CORP.

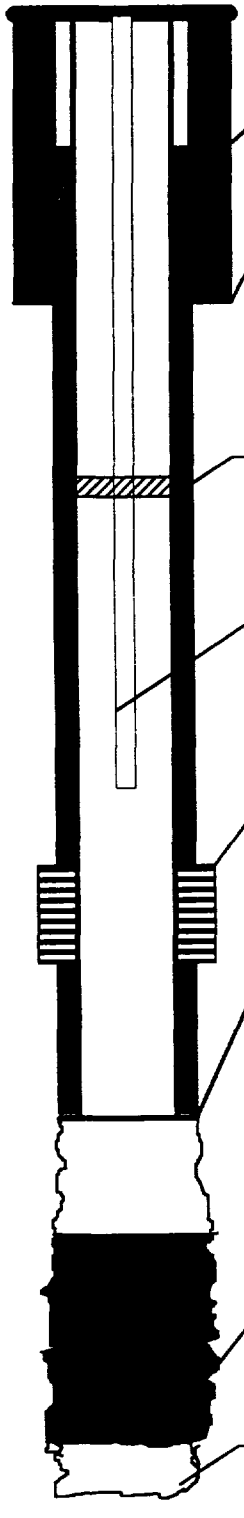
Current Status

Rucker Lake #2

Sec 24 T25N R2W
1450' FSL & 1520' FWL

Formation Tops

Gallup:	6694'
Greenhorn:	7685'
Dakota:	7873'
Morrison:	8100'



TOC @ 322'
(Calculated)

Hole size: 13-3/4"
Casing: 9-5/8", 36# set @ 522'
Cement: 450 sx(536 cu.ft.) Cl "B" w/ 1/4# gel flake/sk & 3% CaCl2. Circulated 15 bbls of cement.

Tubing achor @ 5774'.
SN @ 5773' KB.

188 jts. of 2-3/8" tbg. @ 5931',
231ea. 3/4" rods.

Perforations: 6825, 30, 36, 62, 72, 93, 98, 6938, 70, 76, 82, 88, 7004, 16, 22, 26, 30, 78, 7111, 29, 64, 93, 7238, 87, 7465, 76, 7484. Total of 27 (.37") holes.

Hole size: 8-3/4"
Casing: 4-1/2", 11.6# & 10.5# **set @ 8155'.**
Cement: 1st stage: 600sx (864 cu.ft.) 50/50 poz w/ 2% gel & 7# salt/sk & 6-1/4# fine gils/sk. 2nd stage: 625 sx (1538 cu.ft.) 65/35 poz w/ 12% gel & 12-1/2# fine gils/sk.

Hole size: 8-3/4"
Spot cement plug from 8950' - 8750'

TD @ 8975'

WALSH ENGINEERING & PRODUCTION CORP.

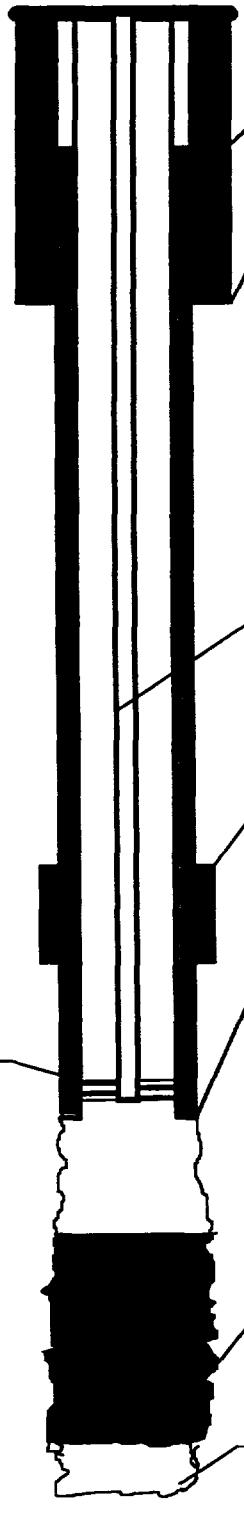
Disposal Status

Rucker Lake #2

Sec 24 T25N R2W
1450' FSL & 1520' FWL

Formation Tops

Gallup:	6694'
Greenhorn:	7685'
Dakota:	7873'
Morrison:	8100'



TOC @ 322'
(Calculated)

Hole size: 13-3/4"
Casing: 9-5/8", 36# set @ 522'
Cement: 450 sx(536 cu.ft.) Cl "B" w/ 1/4# gel flake/sk & 3% CaCl2. Circulated 15 bbls of cement.

2-3/8" plastic lined tbg. @ 8150'

Perforations: 6825, 30, 36, 62, 72, 93, 98, 6938, 70, 76, 82, 88, 7004, 16, 22, 26, 30, 78, 7111, 29, 64, 93, 7238, 87, 7465, 76, 7484. Total of 27 (.37") holes. **Squeezed** w/ 125 sx of Class "B" cement.

Plastic lined packer w/ on-off tool @ 8155'

Hole size: 8-3/4"
Casing: 4-1/2", 11.6# & 10.5# **set @ 8155'.**
Cement: 1st stage: 600sx (864 cu.ft.) 50/50 poz w/ 2% gel & 7# salt/sk & 6-1/4# fine gils/sk. 2nd stage: 625 sx (1538 cu.ft.) 65/35 poz w/ 12% gel & 12-1/2# fine gils/sk.

Hole size: 8-3/4"
Spot cement plug from 8950' - 8750'

TD @ 8975'

WALSH ENGINNERING & PRODUCTION CORP.

PROGNOSIS FOR
Larry Sweet
Rucker Lake #2

Location: Section K24 T25N R2W
Rio Arriba, New Mexico

Date: February 3, 1997

Field: Gavilan Mancos

Surface:
Lease Number: SF-079333

Elev: KB 7395'
Elev: GL 7382'
4-1/2" @ 8155'
PBTD @ 8144'
Existing Perfs: 6825' - 7484'

Procedure:

Prior to Move in:

1. Check for anchors and dig reserve pit if necessary.

Squeeze Gallup:

2. Move on location and rig up service unit. Hold safety meeting. Blow well down and kill with water, if necessary.

3. Pull polished rod and unseat pump. Pull 2 rods and pump hot water down tubing. Pull and lay down rods and pump. (231 3/4" rods and pump). Nipple down tubing head and nipple up BOP. Lay 2-3/8" relief line to the pit.

4. Release tubing anchor & TOH with a total of 188 jts (5931') of 2-3/8" tubing. Lay down perforated sub and mud anchor.

5. TIH with 4-1/2" X 2-3/8" retrievable packer on 2-3/8" tubing. Set RBP at approximately 6625'. Establish an injection rate with water into the Mancos perfs. Squeeze with 125 sx Class "B" cement .

6. Displace cement below packer and hesitate squeeze. Maximum squeeze pressure is 1500 psi. Leave at least 50' of cement above the top perf. Release RBP and pull out of hole approximately 200'. Reset packer and pressure up on squeeze again. WOC.

7. TOH and lay down RBP. PU 3-7/8" bit, bit sub, and 4 3-1/8" drill collars. TIH and tag up on cement. Establish circulation and pressure test casing above squeeze to 600 psi. Drill out cement and circulate hole clean.

8. Pressure test casing and squeeze to 600 psi. Re-squeeze if necessary.

Drill out float collar and shoe joint.

9. If pressure test is OK, TIH and tag up on bottom (float collar is at 8144' KB). Drill out float collar and shoe joint. Bottom of casing is at 8155' KB. Drill into open hole to 8200'. Circulate hole clean. TOH and lay down bit and drill collars.

Injection Test

10. Pick up 4-1/2" X 2-3/8" RBP and TIH. Set RBP below bottom perf at approximately 8100' KB. Load the annulus and pressure up to 100 psi. Monitor annulus pressure during injection test. Inject water down the tubing and into the Morrison formation, starting at 1/4 BPM and increasing rate in 1/4 BPM increments. Maximum injection pressure is 1650 psi. Record all rates and pressures. TOH and lay down RBP.

Install injection string

11. If injection rates and pressures are satisfactory, TIH with plastic lined packer with on-off tool and on 2-3/8" plastic lined tubing.

12. Circulate packer fluid down backside and set packer as close to 8100' KB as possible.

13. Release rig and move off location

Install surface facilities

14. Install injection pump and surface facilities.

15. Run step rate injection test and casing integrity test per BLM and NMOCD requirements.

John C. Thompson

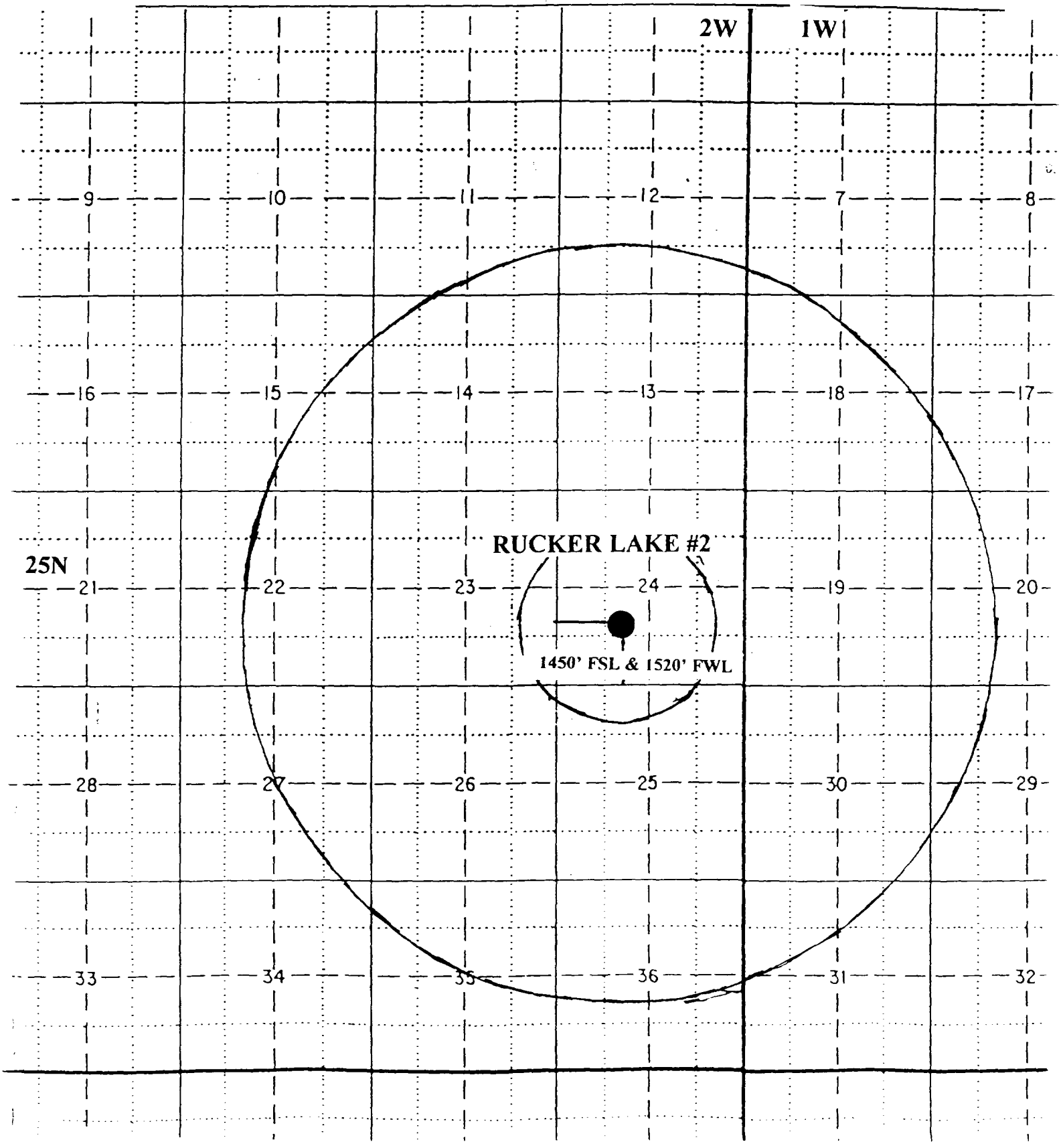
Engineer

WALSH ENGINEERING & PRODUCTION CORP.
Petroleum Engineering Consulting
Lease Management
Contract Pumping
Farmington, New Mexico 87401
(505) 327-4892

Township 25N Range 2W

County RIO ARRIBA State NEW MEXICO

RUCKER LAKE #2

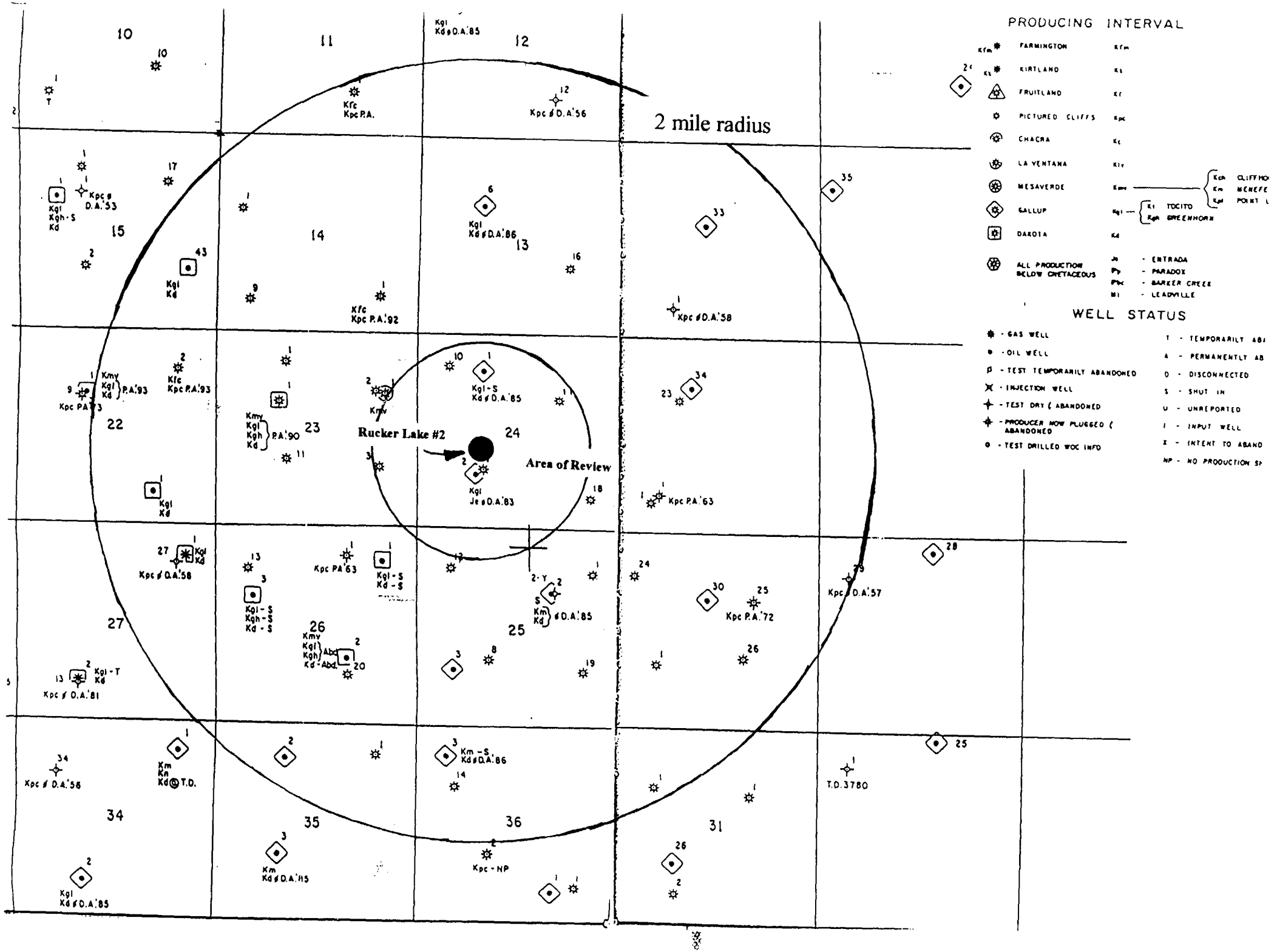


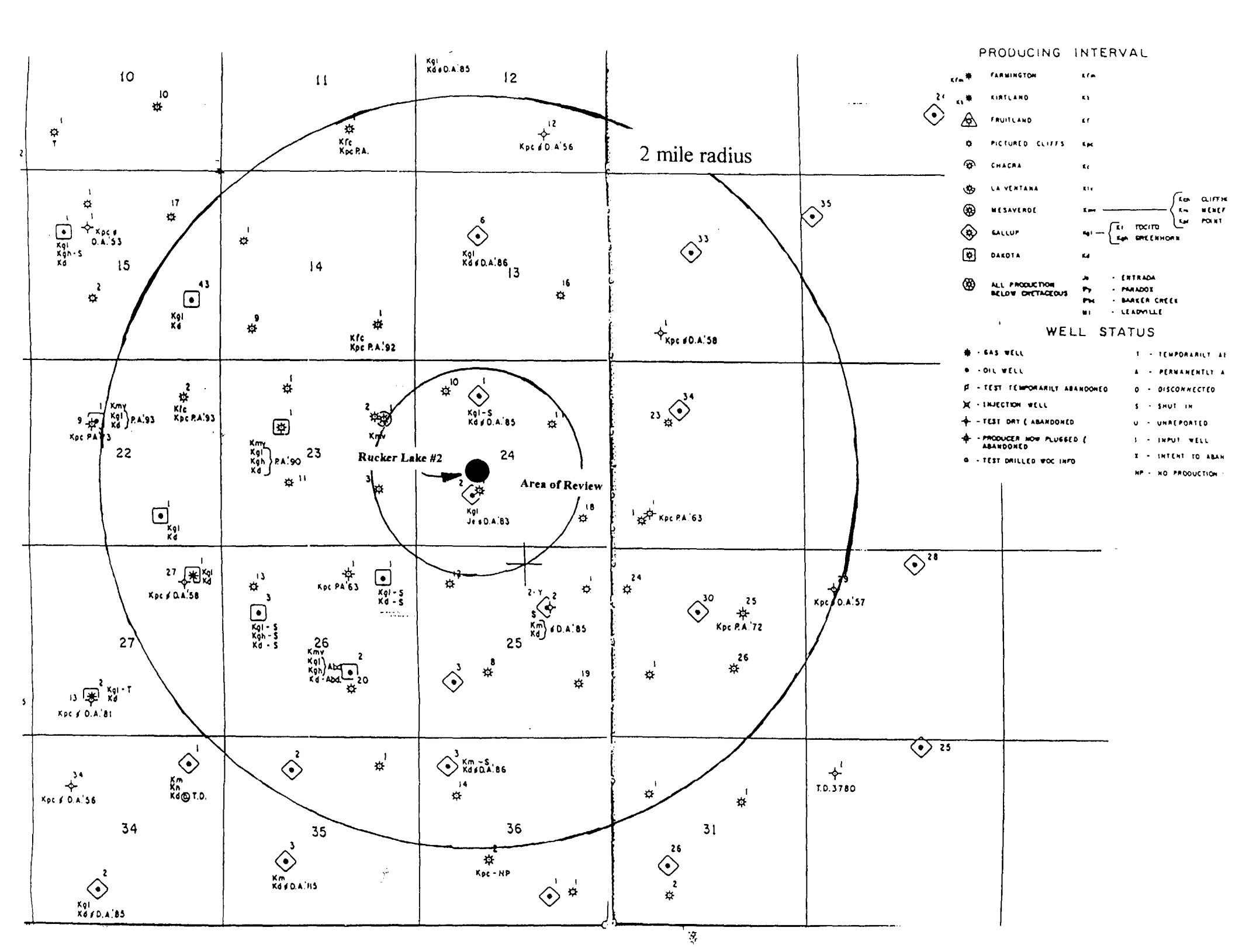
LIST OF PROPERITES ADJACENT TO RUCKER LAKE #2
26-Feb-1997

note: Wells that are with in one half mile of the Rucker #2 (area of review) are shaded.

ST	FIELD	RESERVOIR	COUNTY	LOCATION	OPERATOR	WELL/LEASE NAME	WELL #	STAT	RETRIEVAL CODE
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	11O 25N 2W	N M & O OPER	DAVIS 1		ACT	251,039,25N02W11O00PC
NM	UNDESIGNATED (GALL	GALLUP	RIO ARRIBA	12E 25N 2W	MALLON OIL C	JOHNSON FEDERAL	12		000005 INA 151,039,25N02W12E00GP
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	12E 25N 2W	MALLON OIL C	JOHNSON FEDERAL	12 5	ACT	151,039,25N02W12E00MK
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	13J 25N 2W	N M & O OPER	FEDERAL	16	ACT	251,039,25N02W13J00PC
NM	GAVILAN (GREENHORN	GREENHORN GRAN	RIO ARRIBA	13F 25N 2W	MALLON OIL C	POST FEDERAL			000006 INA 151,039,25N02W13F00GG
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	13F 25N 2W	MALLON OIL C	POST FEDERAL	13 6	ACT	151,039,25N02W13F00MK
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	14E 25N 2W	N M & O OPER	FEE	1	ACT	251,039,25N02W14E00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	14M 25N 2W	FUNDINGSLAND G	DUNHAM	9	ACT	251,039,25N02W14M00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	14P 25N 2W	NM & O OPERA	KOON	000001	INA	251,039,25N02W14PPKPC
NM	BASIN (FRUITLAND C	FRUITLAND COAL	RIO ARRIBA	14P 25N 2W	N M & O OPER	KOON	1	ACT	251,039,25N02W14P00FT
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	15A 25N 2W	N M & O OPER	FEDERAL	17	ACT	251,039,25N02W15A00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	15C 25N 2W	N M & O OPER	LOCER	1	ACT	251,039,25N02W15C00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	15K 25N 2W	N M & O OPER	LOCER	2	ACT	251,039,25N02W15K00PC
NM	GAVILAN (GREENHORN	GREENHORN GRAN	RIO ARRIBA	15E 25N 2W	N M & O OPER	BANSHEE	1	ACT	151,039,25N02W15E00GG
NM	GAVILAN (GREENHORN	GREENHORN GRAN	RIO ARRIBA	15I 25N 2W	R B OPERATIN	HOWARD FEDERAL	15 43	ACT	151,039,25N02W15I00GG
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	15I 25N 2W	R B OPERATIN	HOWARD FEDERAL	15 43	ACT	151,039,25N02W15I00MK
NM	BASIN (FRUITLAND C	FRUITLAND COAL	RIO ARRIBA	22A 25N 2W	N M & O OPER	HOWARD	2	ACT	251,039,0390594371629
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	22A 25N 2W	NM & O OPERA	HOWARD	000002	INA	251,039,25N02W22A00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	22F 25N 2W	EL PASO NATU	FEDERAL	000009	P&A	251,039,25N02W22FPHPC
NM	GAVILAN (GREENHORN	GREENHORN GRAN	RIO ARRIBA	22F 25N 2W	NM & O OPERA	HELLCAT	000001	INA	151,039,25N02W22F00GG
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	22F 25N 2W	N M & O OPER	HELLCAT	1	INA	151,039,25N02W22F00MK
NM	GAVILAN (GREENHORN	GREENHORN GRAN	RIO ARRIBA	22O 25N 2W	N M & O OPER	BEARCAT	1	INA	151,039,25N02W22O00GG
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	22O 25N 2W	N M & O OPER	BEARCAT	1	ACT	151,039,25N02W22O00MK
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	23C 25N 2W	N M & O OPER	HOWARD	1	ACT	251,039,25N02W23C00PC
NM	BLANCO (MESAVERDE)	MESAVERDE	RIO ARRIBA	23F 25N 2W	N M & O OPER	GAVILAN HOWARD	1	INA	251,039,25N02W23F00MV
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	23K 25N 2W	FUNDINGSLAND	SUNICO FEDERAL	11	ACT	251,039,25N02W23K00PC
NM	UNDESIGNATED (GH D	GH DAKOTA	RIO ARRIBA	23F 25N 2W	MESA GRANDE	GAVILAN HOWARD	000001	INA	151,039,25N02W23F00DG
NM	UNDESIGNATED (GH D	GH DAKOTA	RIO ARRIBA	23F 25N 2W	MESA GRANDE	GAVILAN HOWARD	000001	INA	151,039,25N02W23F00DK
NM	GAVILAN (GREENHORN	GREENHORN GRAN	RIO ARRIBA	23F 25N 2W	NM & O OPERA	GAVILAN HOWARD	000001	INA	151,039,25N02W23F00GG
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	23F 25N 2W	N M & O OPER	GAVILAN HOWARD	1	INA	151,039,25N02W23F00MK
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	25A 25N 2W	GALLAWAY	W M PAT	1	ACT	251,039,25N02W25A00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	25I 25N 2W	N M & O OPER	FEDERAL	19	ACT	251,039,25N02W25I00PC
NM	GAVILAN (PICTURED	PICTURED CLIFF	RIO ARRIBA	25K 25N 2W	FUNDINGSLAND	SUNICO FEDERAL	8	ACT	251,039,25N02W25K00PC
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	25G 25N 2W	BURLINGTON	R HILL FEDERAL	2Y	INA	151,039,25N02W25G00MK
NM	GAVILAN (MANCOS) M	MANCOS	RIO ARRIBA	25L 25N 2W	N M & O OPER	RUCKER LAKE	3	ACT	151,039,25N02W25L00MK

NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	26B 25N 2W	EL PASO NATU	EDERAL C	000001 P&A 251,039,25N02W26BPAPC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	26D 25N 2W	N M & O OPER	FEDERAL	13 ACT 251,039,25N02W26D00PC
NM	BLANCO (MESAVERDE) MESAVERDE	RIO ARRIBA	6J 25N 2W	N M & O OPER	GAVILAN	2 INA 251,039,25N02W26J00MV
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	26J 25N 2W	N M & O OPER	FEDERAL	20 ACT 251,039,25N02W26J00PC
NM	GAVILAN (GREENHORN GREENHORN GRAN	RIO ARRIBA	26E 25N 2W	NM & O OPERA	GAVILAN	000003 INA 151,039,25N02W26E00GG
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	26E 25N 2W	NM & O OPERA	GAVILAN	000003 INA 151,039,25N02W26E00MK
NM	UNDESIGNATED (DAKO DAKOTA	RIO ARRIBA	26J 25N 2W	PHILLIPS E A	GAVILAN	000002 INA 151,039,25N02W26J00DK
NM	GAVILAN (GREENHORN GREENHORN GRAN	RIO ARRIBA	26J 25N 2W	N M & O OPER	GAVILAN	2 INA 151,039,25N02W26J00GG
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	26J 25N 2W	NM & O OPERA	GAVILAN	000002 INA 151,039,25N02W26J00MK
NM	BASIN (DAKOTA) DK DAKOTA	RIO ARRIBA	27A 25N 2W	MCHUGH JEROM	JANET	000001 INA 251,039,25N02W27A00DK
NM	BASIN (DAKOTA) DK DAKOTA	RIO ARRIBA	27N 25N 2W	MCHUGH JEROM	NATIVE SON	000002 INA 251,039,25N02W27N00DK
NM	GAVILAN (GREENHORN GREENHORN GRAN	RIO ARRIBA	27A 25N 2W	N M & O OPER	JANET	1 ACT 151,039,25N02W27A00GG
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	27A 25N 2W	N M & O OPER	JANET	1 ACT 151,039,25N02W27A00MK
NM	GAVILAN (GREENHORN GREENHORN GRAN	RIO ARRIBA	27N 25N 2W	BENSON MONTI	NATIVE SON A	000002 INA 151,039,25N02W27N00GG
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	27N 25N 2W	BENSON MONTI	NATIVE SON A	2 ACT 151,039,25N02W27N00MK
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	35A 25N 2W	BURLINGTON	HAWK FEDERAL	1 ACT 251,039,25N02W35A00PC
NM	GAVILAN (GREENHORN GREENHORN GRAN	RIO ARRIBA	35C 25N 2W	BURLINGTON R	HAWK FEDERAL	000002 INA 151,039,25N02W35C00GG
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	35C 25N 2W	N M & O OPER	HAWK FEDERAL	2 INA 151,039,25N02W35C00MK
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	35K 25N 2W	N M & O OPER	HAWK FEDERAL	3 ACT 151,039,25N02W35K00MK
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	36E 25N 2W	N M & O OPER	FEDERAL	14 ACT 251,039,25N02W36E00PC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	36P 25N 2W	DUGAN PRODUC	KILGORE	1 ACT 251,039,25N02W36P00PC
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	36D 25N 2W	N M & O OPER HILL	FEDERAL	3 INA 151,039,25N02W36D00MK
NM	GAVILAN (MANCOS) M MANCOS	RIO ARRIBA	36O 25N 2W	DUGAN PRODUC	LINDRITH	1 ACT 151,039,25N02W36O00MK
NM	PUERTO CHIQUITO WE MANCOS	RIO ARRIBA	18F 25N 1W	BENSON MONTI	CANADA OJITOS UNIT	33 ACT 151,039,25N01W18F00MK
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	19F 25N 1W	GILBREATH NO	ALICE FEDERAL	000023 INA 251,039,25N01W19F00PC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	19M 25N 1W	EL PASO NATU	FEDERAL H	000001 P&A 251,039,25N01W19MPAPC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	19M 25N 1W	NASSAU RESOU	COUGAR	000001 INA 251,039,25N01W19M00PC
NM	PUERTO CHIQUITO WE MANCOS	RIO ARRIBA	19F 25N 1W	BENSON MONTI	CANADA OJITOS UNIT	34 ACT 151,039,25N01W19F00MK
NM	PUERTO CHIQUITO WE MANCOS	RIO ARRIBA	20A 25N 1W	BENSON MONTI	CANADA OJITOS UNIT	36 INA 151,039,25N01W20A00MK
NM	PUERTO CHIQUITO WE MANCOS	RIO ARRIBA	29B 25N 1W	BENSON MONTI	CANADA OJITOS UNIT	28 ACT 151,039,25N01W29B00MK
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	30D 25N 1W	GILBREATH NO	JOHN K. FEDERAL	24 ACT 251,039,25N01W30D00PC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	30J 25N 1W	N M & O OPER	FEDERAL	26 ACT 251,039,25N01W30J00PC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	30L 25N 1W	DUGAN PRODUC	FEDERAL H	1 ACT 251,039,25N01W30L00PC
NM	PUERTO CHIQUITO WE MANCOS	RIO ARRIBA	30F 25N 1W	BENSON MONTI	CANADA OJITOS UNIT	30 ACT 151,039,25N01W30F00MK
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	31E 25N 1W	SOUTHLAND RO	CAPULIN MESA	000001 INA 251,039,25N01W31E00PC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	31G 25N 1W	GOULD JOSEPH	FEDERAL G	000001 INA 251,039,25N01W31G00PC
NM	GAVILAN (PICTURED PICTURED CLIFF	RIO ARRIBA	31N 25N 1W	SOUTHLAND RO	CAPULIN MESA	000002 INA 251,039,25N01W31N00PC
NM	PUERTO CHIQUITO WE MANCOS	RIO ARRIBA	31K 25N 1W	BENSON MONTI	CANADA OJITOS UNIT	000026 INA 151,039,25N01W31K00MK


2 mile radius
Rucker Lake #2
Area of Review
PRODUCING INTERVAL
FARMINGTON
KIRTLAND
FRUITLAND
PICTURED CLIFFS
CHACRA
LA VENTANA
MESAVERDE
GALLUP
DAKOTA
ALL PRODUCTION BELOW CRETACEOUS
WELL STATUS
GAS WELL
OIL WELL
TEST TEMPORARILY ABANDONED
INJECTION WELL
TEST DRY & ABANDONED
PRODUCER NOW PLUGGED & ABANDONED
TEST DRILLED WOC INFO
TEMPORARILY ABA
PERMANENTLY AB
DISCONNECTED
SHUT IN
UNREPORTED
INPUT WELL
INTENT TO ABAND
NO PRODUCTION SI


2 mile radius
Rucker Lake #2
Area of Review
PRODUCING INTERVAL
FARMINGTON
KIRTLAND
FRUITLAND
PICTURED CLIFFS
CHACRA
LA VENTANA
MESAVERDE
GALLUP
DAKOTA
ALL PRODUCTION BELOW CRETACEOUS
CLIFFHOUSE
MENEFEE
POINT LOOKOUT
TOCITO
GREENHORN
ENTRADA
PARADOX
BARKER CREEK
LEADVILLE
WELL STATUS
GAS WELL
OIL WELL
TEST TEMPORARILY ABANDONED
INJECTION WELL
TEST DRY (ABANDONED
PRODUCER NOW PLUGGED (ABANDONED
TEST DRILLED WOC INFO
TEMPORARILY AB
PERMANENTLY A
DISCONNECTED
SHUT IN
UNREPORTED
INPUT WELL
INTENT TO ABAN
NO PRODUCTION

Water Analysis

The following water analysis is intended to be a representative sample of the Mesa Verde formation water that will be disposed.

HALLIBURTON SERVICES

Tech:

ULRICH

HALLIBURTON DISTRICT LABORATORY

WATER ANALYSIS DATA SHEET

Analysis Date: 8-29-91

Report No.

To

Ms. Melissa Bergman
District Engineer
Farmington New Mexico

Submitted By ~~Mr. Peter Newman~~ Date Received 8-29-91

Well Number Gavilon Howard #2

Location ~~Lyndell New Mexico~~ Formation Mesa Verde

Data for Report

Specific Gravity 1.002

pH 7.20

Aliquot or Dilution	Ion	Calculation	Milligrams per liter
	Fe Log		< 10
	K %T		< 10
	Na %T		4651
	Ca		627
	Mg		66
	Cl		4050
	SO4 Log		2000
	CO3		
	HCO3		2928
	TDS		14322

Rw ___ at ___ °F

NOTICE

This report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or of any calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data calculations or opinions.

RECE... SEP 3 1991 A DIVISION OF HALLIBURTON COMPANY

FAX MEMO

PAGES 1 DATE 2/28/97 FAX# 505-327-9834

TO John Thompson

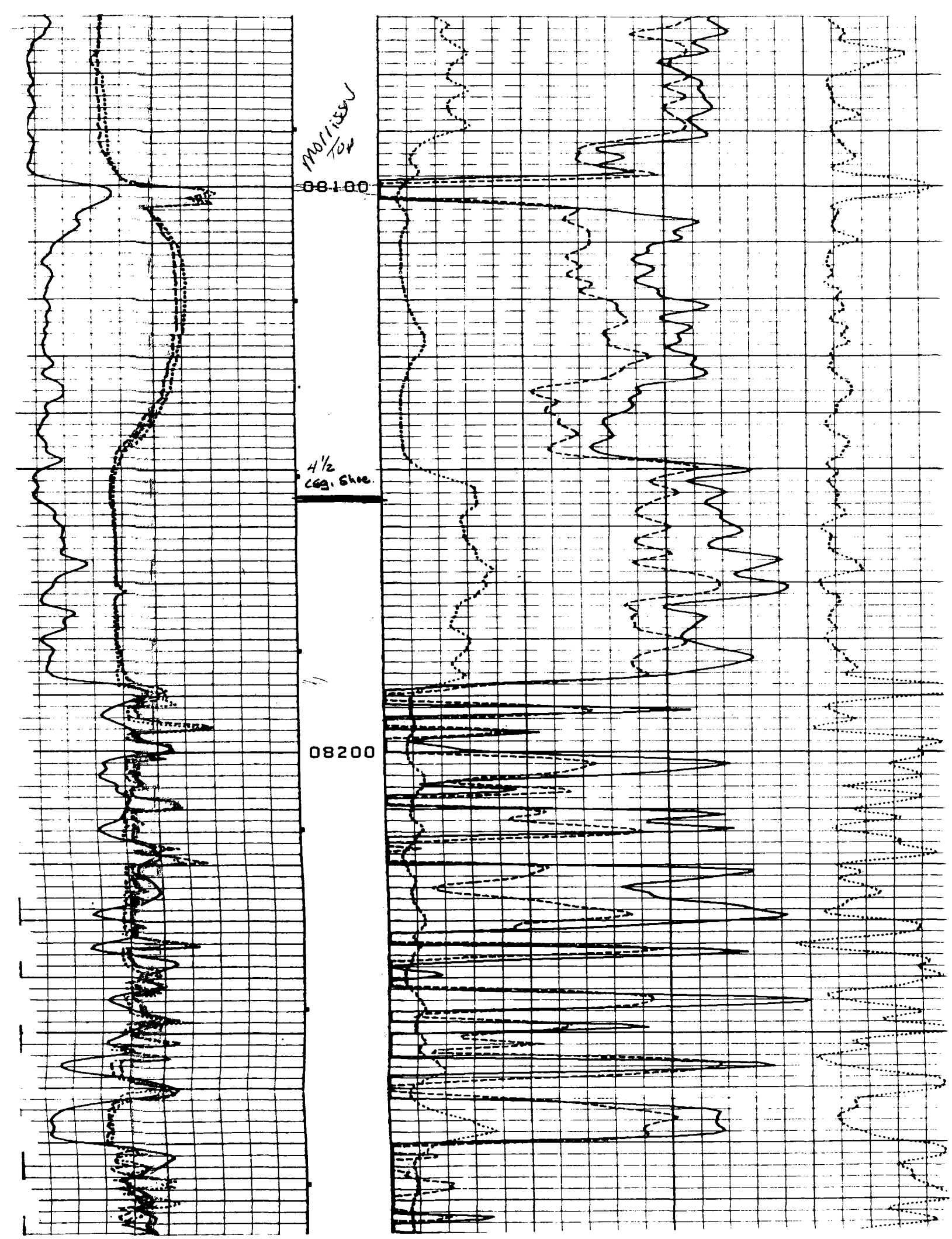
FROM Larry Sunbel

CO.

PH# FAX#

Logs

There is a copy of the open hole logs on file of the with the Division, attached is a photo copy of the Density/Neutron logs from the Rucker Lake #2 showing the Morrison top and where the 4-1/2" casing was landed.


Morrison Top
08100
4½ Csg. Shoe
08200

AFFIDAVIT OF PUBLICATION

No. 37599

STATE OF NEW MEXICO
County of San Juan:

DENISE H. HENSON being duly sworn says: That she is the Classified Manager of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication on the following day(s):

Wednesday, March 5, 1997;

and the cost of publication is: $19.99.

Denise H. Henson

On 3-10-97 DENISE H. HENSON appeared before me, whom I know personally to be the person who signed the above document.

Deena Allen

My Commission Expires November 1, 2000

COPY OF PUBLICATION

Legals

Legal Notice
Daily Times

NM & 0 Operating Company, the operator of the Rucker Lake #2, proposes to convert the well from a Mancos well into a water disposal well. The well is located in Section 24K, Township 25N, Range 2W. Mesaverde water is to be disposed into the Morrison formation at a maximum rate of 1000 bwpd at 1761 psig.

Questions concerning this proposal can be sent to John C. Thompson, Walsh Engineering and Production Corp., 7415 East Main Street, Farmington, New Mexico 87402 (505) 327-4892.

Interested parties should file comments or objections and requests for hearing with the New Mexico Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87504-2088 within 15 days.

Legal No. 37599 published in The Daily Times, Farmington, New Mexico, on Wednesday, March 5, 1997.

WALSH ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping

7415 East Main
Farmington, New Mexico 87402
(505) 327-4892

E.L. Fundingsland - Ventures Petroleum Inc.
7400 E. Orchard Rd. Ste. 240
Inglewood, Colorado 80111
Attn. Land/Engineering

Re: Notice of Intent to Inject

To whom it may concern,

NM & O Operating from Tulsa, Oklahoma is applying for a permit to dispose of Mesa Verde water into the Morrison Formation by converting the Rucker Lake #2 (located in Rio Arriba County, New Mexico, 24K-25N-2W, 1450' fsl & 1520' fwl) from a Mancos well into a Morrison disposal well. The Morrison injection zone is located at a depth of 8155'. NM & O plans to inject between 500 - 1000 bwpd at pressures from 1631 psi - 1761 psi.

The Sunico-Federal #7 (Pictured Cliffs formation) which is listed as being operated by E.L. Fundingsland is in the area of review because it is located within one half mile of the Rucker Lake #2. As required by the NMOCD & form C-108, this letter is intended to serve as notice of the application and to inform you of your rights to object and file for a hearing with the Oil Conservation Division, PO Box 2088, Santa Fe, NM 87504-2088 within 15 days upon receiving this letter.

The person to contact at NM & O Operating is Mr. Larry Sweet (800-672-4008) should you have any questions regarding this matter. You may also feel free to contact me at (505-327-4892).

Sincerely,

John C. Thompson
Engineer

P 386 812 550

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to E.L. Fundingsland-Ventures	
Street & Number 7400 Orchard Rd. Ste. 240	
Post Office, State, & ZIP Code Englewood, CO 80111	
Postage	$ .32
Certified Fee	.220
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$ .252
Postmark or Date 3/18/97	

PS Form **3800**, April 1995

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

EL FUNDINGSLAND_VENTURES PET. CO
Attn: Land/Engr
7400 E. Orchard Rd. Suite 240
Englewood, CO 80111

NM&O Oper.

4a. Article Number
320 290 618

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
3-19-97

5. Signature (Addressee)
E. L. Fundingsland

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form **3811**, December 1991 *U.S. GPO 1992-307-714 DOMESTIC RETURN RECEIPT

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.