

MERRION OIL & GAS CORPORATION

P. O. Box 840
FARMINGTON, NEW MEXICO 87499

December 19, 1985

Oil Conservation Division
State Land Office Building
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Pot Mesa #2
Water Disposal Application

Gentlemen:

We request Administrative Approval to dispose of produced water from the Menefee, Mesaverde formation by subsurface injection. Attached is our Application for your consideration.

The proposed disposal well is the Pot Mesa #2. The proposed injection zone is the Cliffhouse, Mesaverde.

If further information is required, please advise.

Respectfully,

A handwritten signature in cursive script that reads "T. Greg Merrion".

T. Greg Merrion
Production Engineer

TGM/ljm

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Merrion Oil and Gas Corporation
Address: P. O. Box 840, Farmington, New Mexico 87499
Contact party: T. Greg Merrion Phone: 505 325-5093
- 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: T. Greg Merrion Title: Production Engineer
Signature: T. Greg Merrion Date: 12-20-85
- * 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.

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:

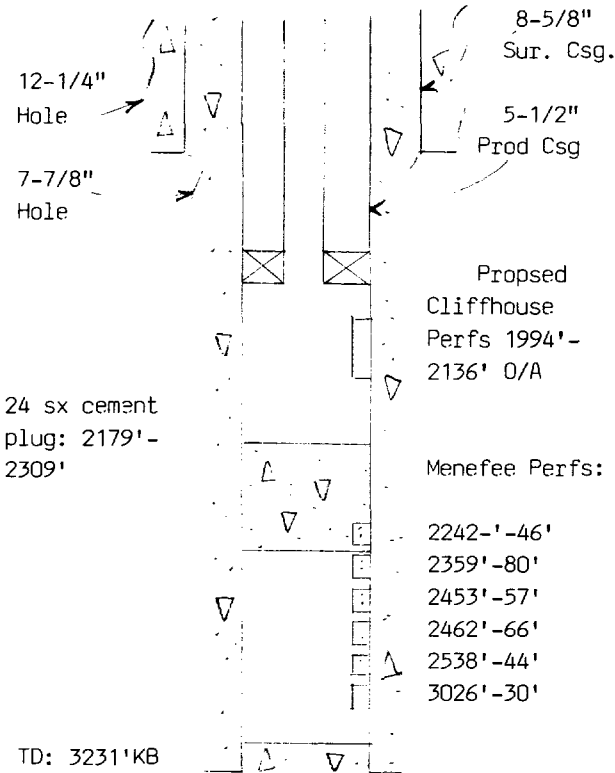
- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates 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.

INJECTION WELL DATA SHEET

OPERATOR		LEASE		
Merrion Oil and Gas Corporation		Pot Mesa		
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
2	1785' FNL & 2175' FEL	10	20N	06W

SchematicTabular DataSurface CasingSize 8-5/8" " Cemented with 80 sx.TOC Surface feet determined by CirculatedHole size 12-1/4"Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long stringSize 5-1/2" " Cemented with 405 sx.TOC Surface feet determined by CirculatedHole size 7-7/8"Total depth 3231' KBInjection interval1994 feet to 2136 feet
(perforated or open-hole, indicate which)Tubing size 2-7/8" lined with Plastic set in a
(material)5-1/2" Baker Lok-Set packer at 1950 feet
(brand and model)

(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation Cliffhouse
- Name of Field or Pool (if applicable) Wildcat Mesaverde
- Is this a new well drilled for injection? ☐ Yes ☒ No
If no, for what purpose was the well originally drilled? The well was originally drilled as a Menefee producer
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) Perfs: 2242'-46'; 2359'-80'; 2453'-57'; 2462'-66'; 2538'-44'; 3026'-30'. Spotted 24 sx cement plug from 2179' to 2309'.
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. None

ADDENDUM TO APPLICATION
FOR AUTHORIZATION TO INJECT

- VI. The wells within a one-half mile radius of the proposed Pot Mesa #2 disposal well are the Pot Mesa #1, Pot Mesa #4, and the Corrales #1.

Well: Pot Mesa #1

Type: Producing Oil Well

Construction: 8-5/8" surface casing to 93' cemented to surface w/80 sx (12-1/4" hole)

4-1/2" production casing to 3151' cemented to 850' w/ 250 sx (6-3/4" hole) *circulated to 700 - 850' Temp survey*

Date Drilled: 4-30-85 to 5-5-85

*35 sks - class B top of
Bradley Head to 225'*

Location: 660' FNL; 1980' FEL

Section 10, T20N-R6W

McKinley County, New Mexico

Total Depth: 3158' KB

Completed Interval: Menefee 2198'-2754' O/A

Well: Pot Mesa #4

Type: Presently being completed.

Construction: 8-5/8" surface casing to 88' cemented to surface with 80 sx (12-1/4" hole).

5-1/2" production casing to 3177' cemented to surface with 460 sx (7-7/8" hole). *circulated to surface*

Date Drilled: 10-29-85 to 11-07-85

Location: 465' FNL; 1780' FWL

Section 10, T20N, R6W

McKinley County, New Mexico

Total Depth: 3190'

Well: Corrales #1

Type: Waiting to be completed.

Construction: 8-5/8" surface casing to 108' KB cemented to surface with 80 sx (12-1/4" hole).

5-1/2" production casing to 3198' cemented with 380 sx (7-7/8" hole). *circulated to surface*

Date Drilled: 11-28-85 to 12-3-85

Location: 465' FSL; 1785' FEL

Section 3, T20N, R6W

McKinley County, New Mexico

Total Depth: 3200'

Addendum to Application
for Authorization to Inject

-2-

- VII. 1. Average proposed injection rate: 1000 BWPD
Maximum proposed injection rate: 2000 BWPD
- 2. The injection system is closed.
- 3. Average proposed surface injection pressure:
250 psig
Maximum proposed surface injection pressure:
500 psig
- 4. The Menefee formation is the source of the produced water. A water sample is attached.
- 5. An analysis of the Cliffhouse formation water will be provided upon completion of the Pot Mesa #2 disposal well.

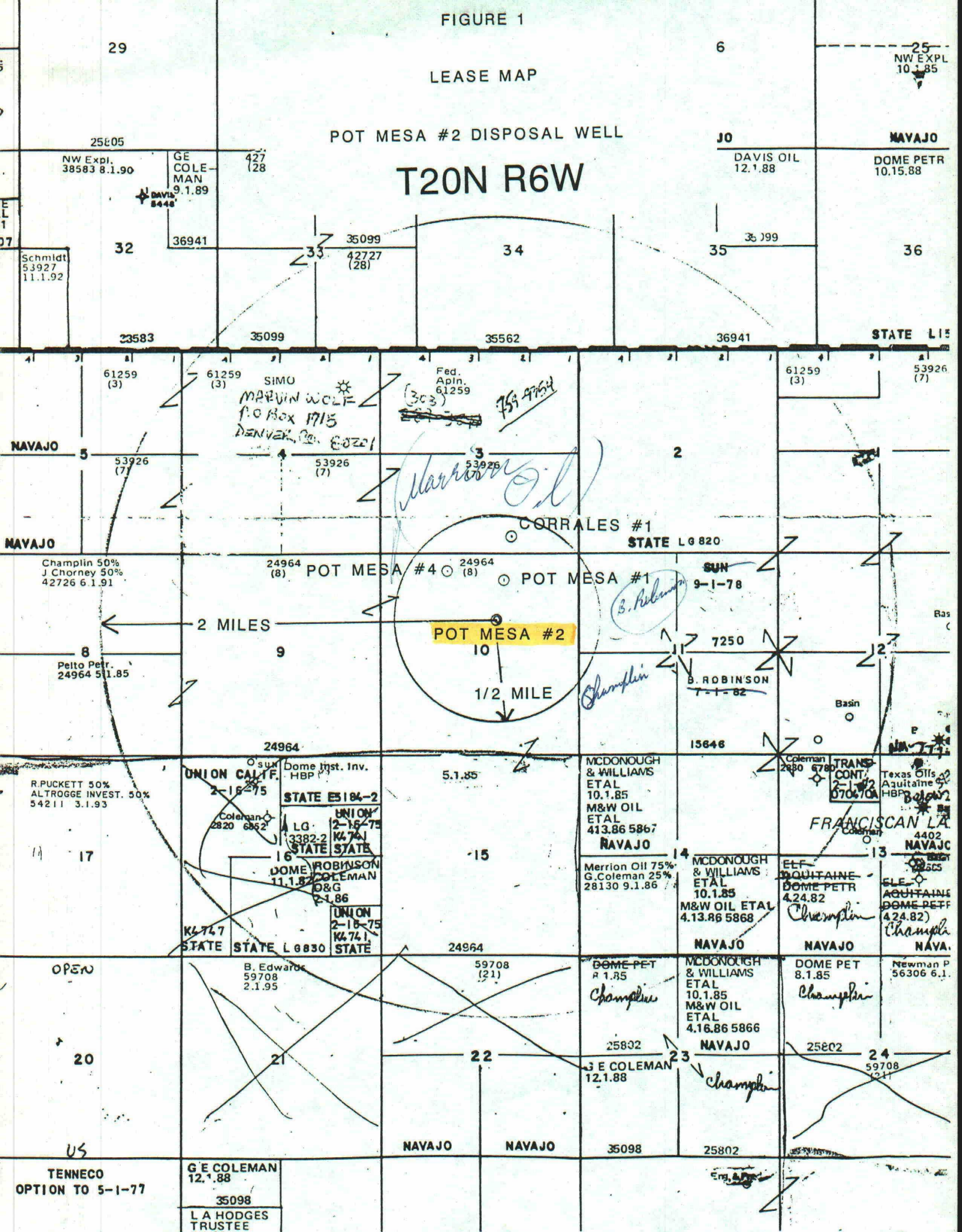
VIII The injection interval is the Cretaceous Cliffhouse formation. The Cliffhouse is a medium-grained, slightly clay-filled, calcareous marine sandstone. The Cliffhouse top is at 1992' KB and the formation is 144' thick.

The base of the Ojo Alamo is generally considered the bottom of all underground sources of drinking water in this area. The base of the Ojo Alamo is at 160' in the subject well.

- IX. A 15,000# sand frac is the proposed stimulation for the subject well.
- X. The well logs have already been filed with the Division.
- XI. There are no fresh water wells within one mile of the proposed disposal well.
- XII. Available engineering and geologic data has been examined and there is no evidence of a hydrologic connection between the disposal zone and a source of drinking water.
- XIII Leasehold operators within a one-half mile radius include Champlin Petroleum Company and Ms Billie Robinson. Both operators have been notified by registered mail of the proposed disposal well. A legal advertisement was published in McKinley County, New Mexico and is attached.

LEASE MAP

T20N R6W



Affidavit of Publication

STATE OF NEW MEXICO,

) ss

COUNTY OF MCKINLEY

Cecilia Paiz being duly sworn upon oath, deposes and says:

As Legal Clerk of the Gallup Independent, a newspaper published in and having a general circulation in McKinley County, New Mexico, and in the City of Gallup, therein: that this affiant makes this affidavit based upon personal knowledge of the facts herein sworn to. That the publication, a copy of which is hereto attached was published in said newspaper during the period and time of publication and said notice was published in the newspaper proper, and not in a supplement thereof,

for two times, the first publication being on the 26 day of December, 1985 the

second publication being on the 27 day of December, 1985 the third publication

on the _____ day of _____, 19____

and the last publication being on the _____ day of _____, 19____

That such newspaper, in which such notice or advertisement was published, is now and has been at all times material hereto, duly qualified for such purpose, and to publish legal notices and advertisements within the meaning of Chapter 12, of the statutes of the State of New Mexico, 1941 compilation.

Cecilia Paiz
Affiant

Sworn and subscribed to before me this 28 day of December, A.D., 1985

Margaret M. Palochek
Notary Public.

My commission expires

8-27-89

LEGAL NOTICE
MCKINLEY OIL FIELD
205 PETROLEUM CLUB BUILDING
FARMINGTON, N.M. 87401
Propose to convert Water Disposal Well
Pot Mesa #2, 1785, FNL and 1475 FEL,
Section 10, T20N, R6W, McKinley County,
New Mexico. Injection zone 1100-1200.
Depth 1984' - 2120'. Anticipated rate 2000
BWP/D. Anticipated pressure 300-400.
Interested parties must file objections or
requests for hearing with the Oil Conser-
vation Division, P.O. Box 200, Santa Fe,
New Mexico 87502 within 15 days.
Legal #912333 Published in the Gallup
Independent Thursday December 26, 7,
1985.

ANALYSIS NO. 2Q-39-85

FIELD RECEIPT NO. _____

API FORM 45-1

API WATER ANALYSIS REPORT FORM

Company MERRION OIL & GAS		Sample No. 2 (10:30AM)		Date Sampled 5-18-85	
Field Wildcat		Legal Description Sec.10, T20N, R6W		County or Parish McKinley	
Lease or Unit Pot Mesa		Well #1		Depth 3109	
Type of Water (Produced, Supply, etc.)		Formation Menefee		Water, B/D	
Sampling Point		Sampled By			

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	<u>4089</u>	<u>177.8</u>
Calcium, Ca	<u>120</u>	<u>6.0</u>
Magnesium, Mg	<u>97</u>	<u>8.0</u>
Barium, Ba		
Potassium, K ⁺	<u>-0-</u>	<u>-0-</u>

ANIONS

Chloride, Cl	<u>5871</u>	<u>165.5</u>
Sulfate, SO ₄	<u>250</u>	<u>5.2</u>
Carbonate, CO ₃	<u>trace</u>	
Bicarbonate, HCO ₃	<u>1286</u>	<u>21.1</u>

Total Dissolved Solids (calc.)

11713

Iron, Fe (total)

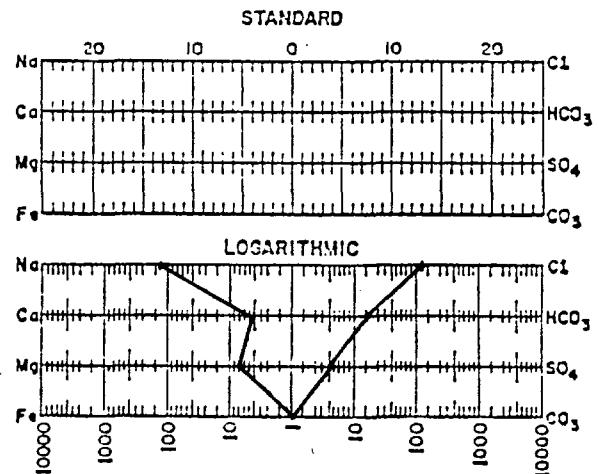
-0-Sulfide, as H₂S

REMARKS & RECOMMENDATIONS:

OTHER PROPERTIES

pH	<u>8.1</u>
Specific Gravity, 60/60 F.	<u>1.010</u>
Resistivity (ohm-meters) <u>78°F.</u>	<u>0.60</u>
Total hardness	<u>700</u>

WATER PATTERNS — me/l

ANALYST: Steve Schelske

THE WESTERN COMPANY OF
NORTH AMERICA, FARMINGTON, NM
(505) 327-6222

Please refer any questions to: Clay Terry, District Engineer or
Tom Burris, Field Engineer

Pot Mesa #2 - Injection

PS Form 3811, July 1983

<p>SENDER: Complete items 1, 2, 3 and 4.</p> <p>Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.</p>	
<p>1. <input checked="" type="checkbox"/> Show to whom, date and address of delivery.</p>	
<p>2. <input type="checkbox"/> Restricted Delivery.</p>	
<p>3. Article Addressed to:</p> <p>Champlin Petroleum Company P. O. Box 1257 Englewood, Colorado 80150</p>	
<p>4. Type of Service:</p> <p><input checked="" type="checkbox"/> Registered <input type="checkbox"/> Insured <input type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail</p>	<p>Article Number</p> <p>P058 366 453</p>
<p>Always obtain signature of addressee or agent and DATE DELIVERED.</p>	
<p>5. Signature - Addressee</p> <p>X</p>	
<p>6. Signature - Agent</p> <p>X</p>	
<p>7. Date of Delivery</p> <p>12-26-85</p>	
<p>8. Addressee's Address (ONLY if requested and fee paid)</p>	

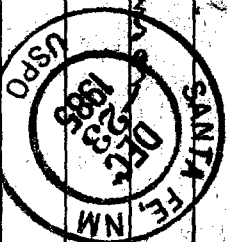
DOMESTIC RETURN RECEIPT

Pot Mesa #2 - Injection

PS Form 3811, July 1983

<p>SENDER: Complete items 1, 2, 3 and 4.</p> <p>Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.</p>	
<p>1. <input checked="" type="checkbox"/> Show to whom, date and address of delivery.</p>	
<p>2. <input type="checkbox"/> Restricted Delivery.</p>	
<p>3. Article Addressed to:</p> <p>Ms Billie Robinson P. O. Box 1281 Santa Fe, New Mexico 87504</p>	
<p>4. Type of Service:</p> <p><input checked="" type="checkbox"/> Registered <input type="checkbox"/> Insured <input type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail</p>	<p>Article Number</p> <p>P 058 366 454</p>
<p>Always obtain signature of addressee or agent and DATE DELIVERED.</p>	
<p>5. Signature - Addressee</p> <p>X</p>	
<p>6. Signature - Agent</p> <p>X</p>	
<p>7. Date of Delivery</p>	
<p>8. Addressee's Address (ONLY if requested and fee paid)</p>	

DOMESTIC RETURN RECEIPT





ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE 1-13-86

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

Gentlemen:

I have examined the application dated January 7, 1986
for the MERRION OIL & GAS CORP. POT MESA #2 G-10-20N-6W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve based on POT MESA #2 STEP RATE TEST & CLIFF
HOUSE WATER SAMPLE.

POT MESA #1 BRADENHEAD SQ. 0-225' COVERS OJO ALAMO.
TOC - PORRALES #1 CIRC. TO SURFACE.

Yours truly,

Carolyn J. Taplin