

KELLAHIN, KELLAHIN AND AUBREY

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

W. THOMAS KELLAHIN*
KAREN AUBREY†

*NEW MEXICO BOARD OF LEGAL SPECIALIZATION
RECOGNIZED SPECIALIST IN THE AREA OF
NATURAL RESOURCES-OIL AND GAS LAW

†ALSO ADMITTED IN ARIZONA

JASON KELLAHIN (RETIRED 1991)

TELEPHONE (505) 982-4285
TELEFAX (505) 982-2047

RED 1-23 92

January 22, 1992

Dear David:

Enclosed is an original and one copy of Mr. McKay's application for a SWD well. I think it qualifies for administrative approval unless an interested party objects.

It is similar to the previously approved Yates SWD well in this area. See SWD-434.

While the notice of mailing does not show it, a copy of the application is being sent to the OCE Arestia office.

Please call me if you have any questions.

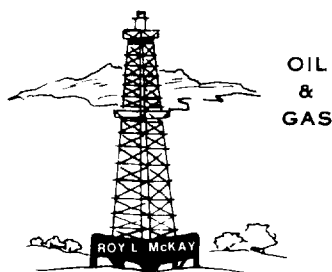


McKay Oil Corporation

ROY L. MCKAY, PRESIDENT

MAILING ADDRESS: P.O. BOX 2014 ROSWELL, N.M. 88202 • TELEPHONE 505 / 623 - 4735

STREET ADDRESS: ONE MCKAY PLACE ROSWELL, N.M. 88201 • FAX NO. 505 / 624 - 2202



January 21, 1992

New Mexico Oil Conservation Division
State Land Office Building
P.O. Box 2088
Santa Fe, New Mexico 87504

Gentlemen:

McKay Oil Corporation submits the attached application for conversion of the Charolette McKay Federal #1 located in Unit H, Section 25, T20S-R24E, Eddy County, New Mexico to a salt water disposal well, by deepening the well to approximately 10,300 feet for disposal in the Devonian formation.

McKay Oil Corporation requests the Administrative Approval as provided under the provisions of Rule 701 (B).

Thank you for your cooperation and assistance.

Very truly yours,

MCKAY OIL CORPORATION

A handwritten signature in cursive script, appearing to read "James L. Schultz".

James L. Schultz
V.P. Land & Legal

JLS:ml
Encl.

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: McKay Oil Corporation
Address: P.O. Box 2014, Roswell, New Mexico 88202-2014
Contact party: James L. Schultz Phone: 505 - 623-4735
- 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: James L. Schultz Title: V.P. Land & Legal

Signature: *James L. Schultz* Date: January 21, 1992

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.

C-108
Application for Authorization to Inject
McKay Oil Corporation
Charolette McKay Federal #1
Eddy County, New Mexico

- I. The purpose of completing this well is to make a disposal well for produced Dagger Draw water into the Devonian formation.
- II. Operator: McKay Oil Corporation
P.O. Box 2014
Roswell, New Mexico 88201
Jim Schultz (505) 623-4735
- III. Well Data: See Attachment A
- IV. This is not an expansion of an existing project.
- V. See attached map, Attachment B
- VI. Tabulation of all wells within half-mile of well.
(See Attachment C)
- VII.
 1. Proposed average daily rate - 4,000 BWPD
Maximum Daily Rate - 10,000 BWPD
 2. This will be a closed system.
 3. Proposed average injection pressure - 2,000 psi
Proposed maximum injection pressure - 2,500 psi
 4. Sources of injection fluid - Dagger Draw Canyon formation (Attachment D) - wells currently producing from Canyon formation in Dagger Draw.)
 5. Chemical analysis of proposed zone in the State "CO" Disposal. (Attachment E)
- VIII.
 1. The proposed injection interval will be in the Devonian formation, "open hole" from 9690' to an estimated 10,300'.
 2. The known fresh water zone is from the surface to 300 feet from the San Andres Aquifers. There are no underlying fresh water aquifers.
- IX. The proposed disposal interval may be acidized with 20,000 gallons of 20% HCL acid.
- X. Well logs and DST's have been previously submitted to the NMOCD. If new logs are run, these will be submitted.

C-108

Application for Authorization to Inject
Charolette McKay Federal #1

-2-

- XI. No windmills exist within a one mile radius of the subject location, however, there is a fresh water well within a one mile radius. The location of this well is indicated on the attached map. (Attachment F) A water analysis is also attached. (Attachment G)
- XII. McKay Oil Corporation has examined available engineering and geologic data and has found no evidence of open faults or hydrologic connections between the disposal zone and any underground drinking water.
- XIII. Proof of Notice
 - A. Certified letters sent to the surface owner and off-set operators-attached. (Attachment H)
 - B. Copy of legal advertisement attached. (Attachment I)
- XIV. Certification is signed.

McKay Oil Corporation
Charolette McKay Federal #1
H-24-20S-24E

Attachment A
Page 1

III. Well Data

- A. 1. Charolette McKay Federal #1
H-25-20S-24E
1980' FNL & 660' FEL

2. Casing Strings:

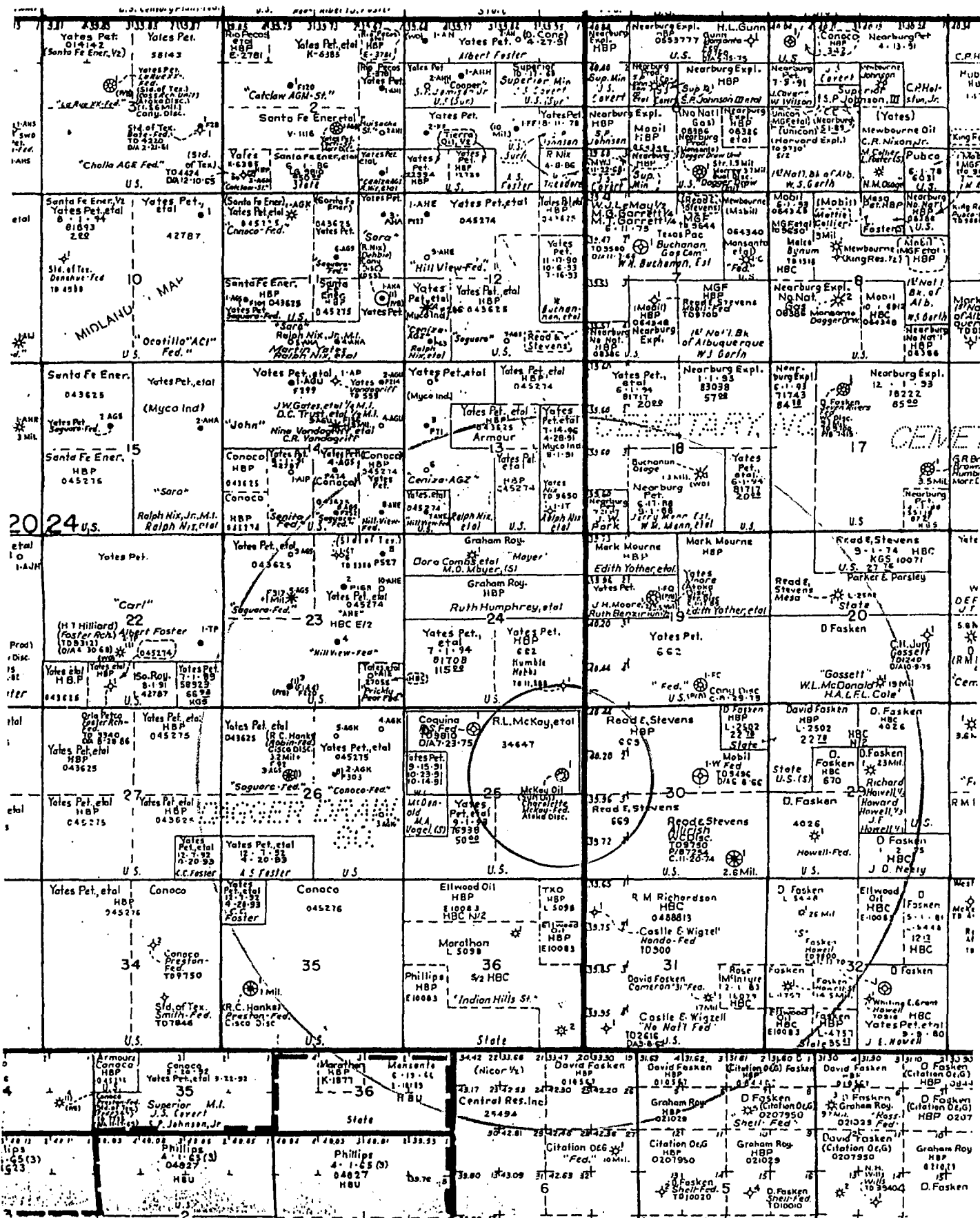
<u>Casing</u>	<u>Depth</u>	<u>SX Cement</u>	<u>Hole Size</u>	<u>TOC</u>
20"	35'	3 yds. Redimix	27"	Surface
13 3/8"	355'	920 sx	17 1/2"	CIRC
8 5/8"	2000'	980 sx	12 1/4"	CIRC
5 1/2"	9690'	650 sx	7 7/8"	*5700'

*Temp Survey

3. Casing same as above.
2 7/8" J-55, EUI, 6.5# Plastic coated tubing set at approximately 9600'.
4. Propose to use 5 1/2" Guiberson UNI-VI nickel-coated packer set at approximately 9600'.
- B. 1. Injection Formation: Devonian - The well will be deepened from 9690' to approximately 10,300' with a 4 3/4" hole.
2. Injection Interval:
Devonian - 9690' - 10,300' Open Hole
Determined after logging.
3. Well was originally drilled for production.
4. Perforations: *
8884'- 88', 8936'- 48', and 8989'- 94' (ATOKA)
5. Next higher: oil or gas zone within 1½ miles - Canyon
Next lower: oil or gas zone within ½ mile - Morrow

* all of these perforations will be
cement squeezed.

ATTACHMENT B



MCKAY OIL CORPORATION

CHAROLETTE MCKAY FEDERAL #1

PROPOSED SALT WATER DISPOSAL WELL

SEC. 25-20S-24E

1980 FNL & 660 FEL

EDDY COUNTY, NEW MEXICO

Attachment C

Charollette McKay Federal #1
Form C-108

Tabulation of Data on Wells Within Area of Review

Well Name	Operator	Type	Spud	Completed	Total Depth	Producing Zone	Perforations	Completion Information
Federal Hobbs Water Well #1 A 25-20S-24E	Humble Oil	Water	11/10/49	11/15/49	240'			8-5/8" @ 240' 4" tubing @ 236'
Humble SMD #1 P 24-20S-24E	Yates Pet.	SMD	-	09/27/91	11,580'	SMD	Open Hole 9532'-11,580'	13-3/8" @ 423' w/425 sx 9-5/8" @ 4010' w/400 sx from 810' 7" @ 7728' w/1050 sx, TOC 2250' 5-1/2" @ 7728' to 9600' w/350 sx Packer @ 9503', 2-7/8" tubing-7577' to 9503' and 3-1/2" tubing - surface to 7577'. Open hole SMD from 9600' - 11,580'. Admin. order No. SMD-434.

HALLIBURTON LABORATORY
HALLIBURTON SERVICES
MIDLAND DIVISION
ARTESIA, NEW MEXICO 88210
LABORATORY WATER ANALYSIS

No. W65, W66, & W67

To Yates Petroleum Corporation

Date _____

105 South Fourth Street

Artesia, NM 88210

This report is the property of Halliburton Company and in no way part thereof nor a copy thereof is to be put or disclosed without first securing the express written consent of laboratory management; it may however, be used in the course of regular business operations by any person or persons and employees thereof receiving such report from Halliburton Company.

Submitted by _____ Date Rec. _____

Well No. _____ Depth _____ Formation _____

County _____ Field _____ Source _____

	<u>Ross EC Fed. #2</u>	<u>Foster AN Com. #1</u>	<u>Parish IV Com.</u>
Resistivity	<u>.91 @ 60°</u>	<u>.9 @ 60°</u>	<u>.89 @ 60°</u>
Specific Gravity	<u>1.005 @ 60°</u>	<u>1.005 @ 60°</u>	<u>1.005 @ 60°</u>
pH	<u>7.5</u>	<u>7.3</u>	<u>7.0</u>
Calcium (Ca)	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>
Magnesium (Mg)	<u>600</u>	<u>500</u>	<u>650</u>
Chlorides (Cl)	<u>4,000</u>	<u>5,000</u>	<u>5,000</u>
Sulfates (SO ₄)	<u>Heavy</u>	<u>Heavy</u>	<u>Heavy</u>
Bicarbonates (HCO ₃)	<u>1,200</u>	<u>1,000</u>	<u>1,100</u>
Soluble Iron (Fe)	<u>Nil</u>	<u>Nil</u>	<u>Nil</u>
.....
.....
.....

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: Art Carrasco - District Engineer
cc:

HALLIBURTON COMPANY

NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or omission, resulting from such report or its use.

PETROLITE OIL FIELD CHEMICALS GROUP

3029 Marshall Avenue • St. Louis, Missouri 63119
314 961-3500 • Telex 44-2417**WATER ANALYSIS REPORT**

COMPANY Yates Petroleum Company ADDRESS Artesia, N.M. DATE 4-23-87
 SOURCE State "CO" Disposal DATE SAMPLED 3-18-87 ANALYSIS NO. 168
 Analysis Mg/L *Meq/L

1. pH	<u>7.0</u>			
2. H ₂ S (Qualitative)	<u>Pos.</u>			
3. Specific Gravity	<u>1.005</u>			
4. Dissolved Solids		<u>7,072</u>		
5. Suspended Solids				
6. Phenolphthalein Alkalinity (CaCO ₃)		<u>40</u>		
7. Methyl Orange Alkalinity (CaCO ₃)		<u>0</u>		
8. Bicarbonate (HCO ₃)		<u>342</u>	<u>÷ 61</u>	<u>5.6</u> HCO ₃
9. Chlorides (Cl)		<u>2,046</u>	<u>÷ 35.5</u>	<u>58</u> Cl
10. Sulfates (SO ₄)		<u>2,250</u>	<u>÷ 48</u>	<u>47</u> SO ₄
11. Calcium (Ca)		<u>368</u>	<u>÷ 20</u>	<u>18</u> Ca
12. Magnesium (Mg)		<u>80</u>	<u>÷ 12.2</u>	<u>7</u> Mg
13. Total Hardness (CaCO ₃)		<u>1,250</u>		
14. Total Iron (Fe)		<u>36 ppm</u>		
15. Barium (Qualitative)				
16. Strontium				

*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

<u>18</u>	Ca	←	HCO ₃	<u>5.6</u>
<u>7</u>	Mg	←	SO ₄	<u>47</u>
<u>86</u>	Na	←	Cl	<u>58</u>

Saturation Values	Distilled Water 20°C
Ca CO ₃	13 Mg/L
Ca SO ₄ • 2H ₂ O	2,090 Mg/L
Mg CO ₃	103 Mg/L

Compound	Equiv. Wt.	X	Meq/L	=	Mg/L
Ca (HCO ₃) ₂	81.04	<u>5.6</u>			<u>454</u>
Ca SO ₄	68.07	<u>12</u>			<u>817</u>
Ca Cl ₂	55.50				
Mg (HCO ₃) ₂	73.17				
Mg SO ₄	60.19	<u>7</u>			<u>421</u>
Mg Cl ₂	47.62				
Na HCO ₃	84.00				
Na ₂ SO ₄	71.03	<u>23</u>			<u>1,989</u>
Na Cl	58.46	<u>58</u>			<u>3,391</u>

REMARKS Allison (4) - Stenzel - File

PETROLITE OILFIELD CHEMICALS GROUP
 ARTESIA, NEW MEXICO
 WATER ANALYSIS REPORT

COMPANY NAME : VOTES PETROLEUM
 LEASE NAME : STATE '00' SMO
 SAMPLE POINT : UPSTREAM OF PUMP
 SAMPLE DATE : 10-2-87

PH = 8.00
 SAMPLE TEMP. = 87.0
 H2S (QUALITATIVE) = POS.
 SPECIFIC GRAVITY = 1.000

TITRATED AND CALCULATED IONS

HCO3 (MG/LTR) =	1025.00	HCO3 (MEQ/LTR) =	16.80
CL (MG/LTR) =	3025.00	CL (MEQ/LTR) =	35.21
SO4 (MG/LTR) =	2000.00	SO4 (MEQ/LTR) =	41.66
CA (MG/LTR) =	600.00	CA (MEQ/LTR) =	30.00
MG (MG/LTR) =	131.00	MG (MEQ/LTR) =	10.73
NA (MG/LTR) =	2002.00	NA (MEQ/LTR) =	104.00

IONIC STRENGTH = 0.10
 TOTAL HARDNESS = 2029.00
 TOTAL DISSOLVED SOLIDS = 9147.31
 TOTAL IRON (FE) = 0.0

CA(HCO3)2 (MG/LTR) =	1361.73	CA(HCO3)2 (MEQ/LTR) =	16.80
CA(SO4) (MG/LTR) =	898.30	CA(SO4) (MEQ/LTR) =	13.19
CA(CL)2 (MG/LTR) =	0.0	CA(CL)2 (MEQ/LTR) =	0.0
MG(HCO3)2 (MG/LTR) =	0.0	MG(HCO3)2 (MEQ/LTR) =	0.0
MG(SO4) (MG/LTR) =	646.30	MG(SO4) (MEQ/LTR) =	10.73
MG(CL)2 (MG/LTR) =	0.0	MG(CL)2 (MEQ/LTR) =	0.0
NAHCO3 (MG/LTR) =	0.0	NAHCO3 (MEQ/LTR) =	0.0
NA2SO4 (MG/LTR) =	1259.52	NA2SO4 (MEQ/LTR) =	17.73
NA(CL) (MG/LTR) =	4981.45	NA(CL) (MEQ/LTR) =	35.21

CALCULATED SCALING TENDENCIES

SCALING INDEX

CAHCO3 @ 80 DEG F = 1.00
 CAHCO3 @ 120 DEG F = 2.30

SATURATION POINT

CA(SO4) @ 70 DEG F (MG/LTR) = 3494.52
 CA(SO4) @ 110 DEG F (MG/LTR) = 3541.99
 THIS SAMPLE CONTAINED 898.30 MG/LTR

PETROLITE OILFIELD CHEMICALS GROUP
ARTESIA, NEW MEXICO
WATER ANALYSIS REPORT

COMPANY NAME : YATES PETROLEUM
LEASE NAME : STATE CO
SAMPLE POINT : UPSTREAM
SAMPLE DATE : 12-8-87

PH = 8.00
SAMPLE TEMP. = N/A
HOS (QUALITATIVE) = POS.
SPECIFIC GRAVITY = 1.000

TITRATED AND CALCULATED IONS

HC03 (MG/LTR) =	1125.00	HC03 (MEQ/LTR) =	10.00
CL (MG/LTR) =	3125.00	CL (MEQ/LTR) =	20.00
SO4 (MG/LTR) =	2000.00	SO4 (MEQ/LTR) =	41.00
CA (MG/LTR) =	632.00	CA (MEQ/LTR) =	31.60
MG (MG/LTR) =	126.00	MG (MEQ/LTR) =	10.02
NA (MG/LTR) =	2507.00	NA (MEQ/LTR) =	100.00

IONIC STRENGTH = 0.19
TOTAL HARDNESS = 2026.52
TOTAL DISSOLVED SOLIDS = 3578.44
TOTAL IRON (FE) = 0.0

CA(HC03)2 (MG/LTR) =	1507.87	CA(HC03)2 (MEQ/LTR) =	10.00
CA(SO4) (MG/LTR) =	334.46	CA(SO4) (MEQ/LTR) =	12.00
CA(CL)2 (MG/LTR) =	0.0	CA(CL)2 (MEQ/LTR) =	0.0
MG(HC03)2 (MG/LTR) =	0.0	MG(HC03)2 (MEQ/LTR) =	0.0
MG(SO4) (MG/LTR) =	621.63	MG(SO4) (MEQ/LTR) =	10.02
MG(CL)2 (MG/LTR) =	0.0	MG(CL)2 (MEQ/LTR) =	0.0
NAHC03 (MG/LTR) =	0.0	NAHC03 (MEQ/LTR) =	0.0
NA2SO4 (MG/LTR) =	1003.07	NA2SO4 (MEQ/LTR) =	10.04
NACL (MG/LTR) =	5261.48	NACL (MEQ/LTR) =	90.00

CALCULATED SCALING TENDENCIES

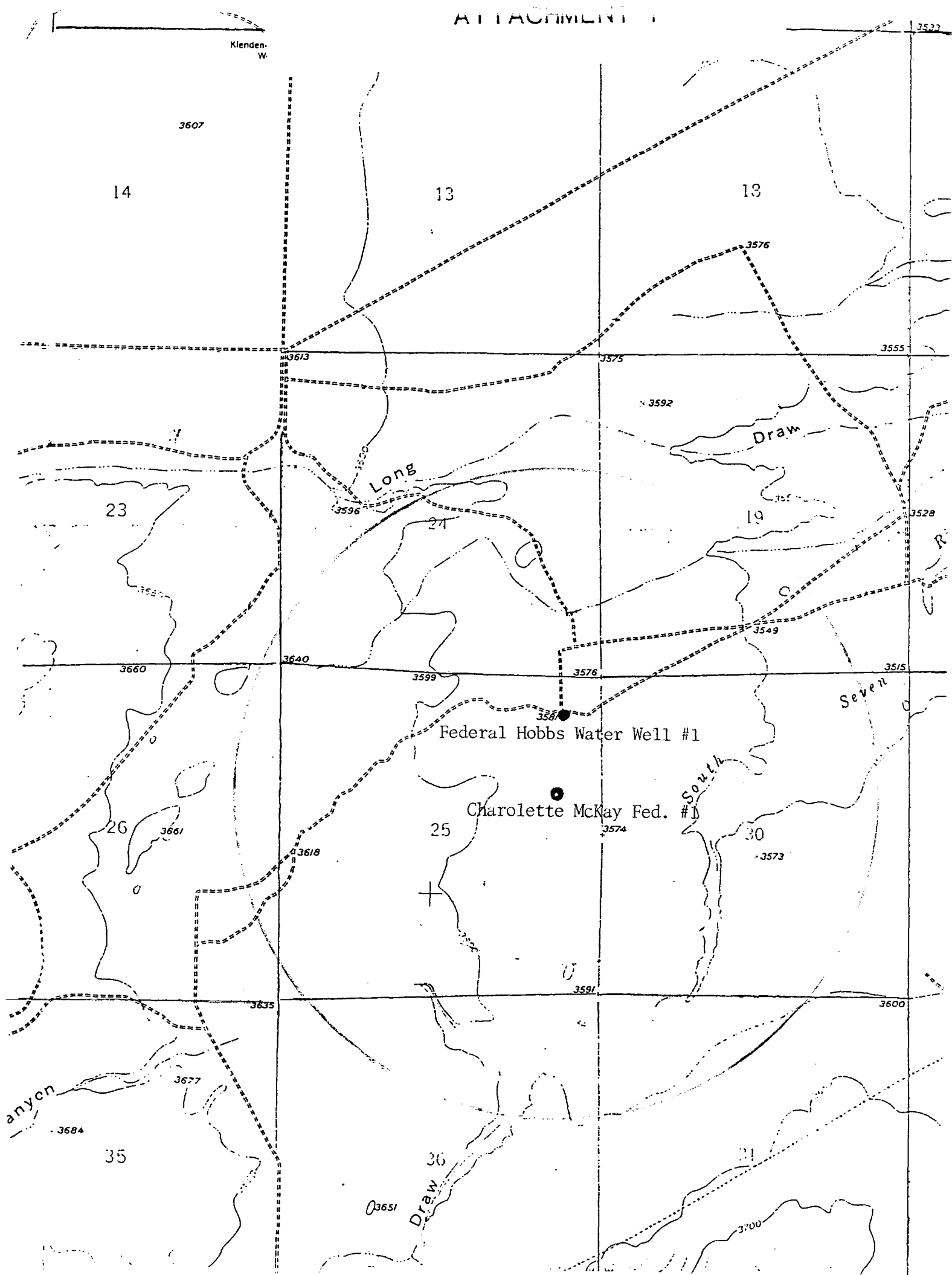
SCALING INDEX

CAHCO3 @ 80 DEG F = 1.97
CAHCO3 @ 120 DEG F = 2.37

SATURATION POINT

CA(SO4) @ 70 DEG F (MG/LTR) = 3423.63
CA(SO4) @ 110 DEG F (MG/LTR) = 3481.17
THIS SAMPLE CONTAINED 334.46 MG/LTR

ATTACHMENT 1



PETROLITE**Petrolite Oil Field Chemicals Group**16010 Barker's Point Lane • Houston, Texas 77079
(713) 558-5200 • Telex 4620346 • Fax (713) 589-4737Reply to: P.O. Box 5250
Hobbs, New Mexico 88241Phone: (505) 392-6711
Fax: (505) 392-3759**WATER ANALYSIS REPORT**

Company : YATES PETROLEUM
 Address : ARTESIA, NEW MEXICO
 Lease : S-25-T20S-R24-E
 Well : FRESH WATER
 Sample Pt. : UNKNOWN

Date : 4-11-91
 Date Sampled : 4-10-91
 Analysis No. : 443

ANALYSIS	mg/L	* meq/L
1. pH	7.0	
2. H ₂ S	NEGATIVE	
3. Specific Gravity	1.000	
4. Total Dissolved Solids	3071.2	
5. Suspended Solids		
6. Dissolved Oxygen		
7. Dissolved CO ₂		
8. Oil In Water		
9. Phenolphthalein Alkalinity (CaCO ₃)		
10. Methyl Orange Alkalinity (CaCO ₃)		
11. Bicarbonate	HCO ₃ 244.0	HCO ₃ 4.0
12. Chloride	Cl 277.0	Cl 7.8
13. Sulfate	SO ₄ 1800.0	SO ₄ 37.5
14. Calcium	Ca 952.0	Ca 47.5
15. Magnesium	Mg 272.7	Mg 22.4
16. Sodium (calculated)	Na -474.5	Na -20.6
17. Iron	Fe 0.0	
18. Barium	Ba 0.0	
19. Strontium	Sr 0.0	
20. Total Hardness (CaCO ₃)	3500.0	

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter	Compound	Equiv wt X meq/L	= mg/
48 *Ca <----- *HCO ₃	Ca(HCO ₃) ₂	81.0 4.0	324
----- /----->	CaSO ₄	68.1 37.5	2551
22 *Mg -----> *SO ₄	CaCl ₂	55.5 6.0	334
----- <----- /	Mg(HCO ₃) ₂	73.2	
-21 *Na -----> *Cl	MgSO ₄	60.2	
----- +----- +	MgCl ₂	47.6 1.8	85
Saturation Values Dist. Water 20 C	NaHCO ₃	84.0	
CaCO ₃ 13 mg/L	Na ₂ SO ₄	71.0	
CaSO ₄ * 2H ₂ O 2090 mg/L	NaCl	58.4	
BaSO ₄ 2.4 mg/L			

REMARKS:

----- L. MALLETT / S. BENNETT / MLAB / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
LEE MALLETT

PETROLITE

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 4-11-91
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 4-10-91
Lease	: S-25-T20S-R24-E	Analysis No.	: 443
Well	: FRESH WATER	Analyst	: LEE MALLET
Sample Pt.	: UNKNOWN		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO₃ Scaling Tendency

S.I. =	0.5	at	60 deg.	F or	16 deg.	C
S.I. =	0.5	at	80 deg.	F or	27 deg.	C
S.I. =	0.6	at	100 deg.	F or	38 deg.	C
S.I. =	0.6	at	120 deg.	F or	49 deg.	C
S.I. =	0.6	at	140 deg.	F or	60 deg.	C

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	1736	at	60 deg.	F or	16 deg	C
S =	1804	at	80 deg.	F or	27 deg	C
S =	1825	at	100 deg.	F or	38 deg	C
S =	1817	at	120 deg.	F or	49 deg	C
S =	1802	at	140 deg.	F or	60 deg	C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
LEE MALLET

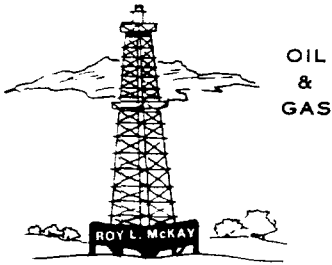
ATTACHMENT H

McKay Oil Corporation

ROY L. MCKAY, PRESIDENT

MAILING ADDRESS: P.O. BOX 2014 ROSWELL, N.M. 88202 • TELEPHONE 505 / 623-4735

STREET ADDRESS: ONE MCKAY PLACE ROSWELL, N.M. 88201 • FAX NO. 505 / 624-2202



January 21, 1992

Bureau of Land Management
P.O. Box 1778
Carlsbad, New Mexico 88221-1778

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) on McKay's Charolette McKay Federal #1, located in Unit H of Section 25-T20S-R24E.

Should you have any questions, please feel free to contact me at the above number.

Very truly yours,

MCKAY OIL CORPORATION

A handwritten signature in cursive script, appearing to read "Jim Schultz".

James L. Schultz
V.P. Land & Legal

JLS:ml
Encl.

Is your RETURN ADDRESS
completed on the reverse side?

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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 additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to: <i>Bureau of Land Mgmt. P.O. Box 1778 Carlsbad, New Mexico 88221-1778</i>	4. Article Number <i>P-340-899-464</i>
Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
Always obtain signature of addressee or agent and DATE DELIVERED.	
5. Signature — Address X	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature — Agent X	
7. Date of Delivery	

PS Form 3811, Mar. 1988

* U.S.G.P.O. 1988-212-865

DOMESTIC RETURN RECEIPT

Thank you for using
Return Receipt Service.

P 340 899 464

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

Sent to <i>Bureau of Land Mgmt.</i>	
Street and No. <i>P.O. Box 1778</i>	
P.O., State and ZIP Code <i>Carlsbad, NM 88221</i>	
Postage	\$ <i>1.98</i>
Certified Fee	<i>1.00</i>
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	<i>1.00</i>
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ <i>2.98</i>
Postmark or Date	

Fold at line over top of envelope to the right
of the return address

CERTIFIED

P 340 899 464

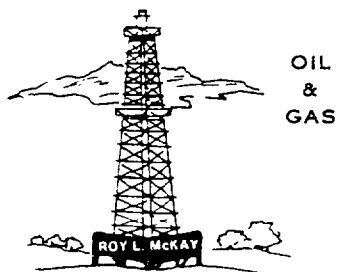
MAIL

McKay Oil Corporation

ROY L. MCKAY, PRESIDENT

MAILING ADDRESS: P.O. BOX 2014 ROSWELL, N.M. 88202 • TELEPHONE 505 / 623 - 4735

STREET ADDRESS: ONE MCKAY PLACE ROSWELL, N.M. 88201 • FAX NO. 505 / 624 - 2202



CERTIFIED MAILING
P-340-899-461

January 21, 1992

Read & Stevens, Inc.
P.O. Box 1518
Roswell, New Mexico 88202-1518

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) on McKay's Charolette McKay Federal #1, located in Unit H of Section 25-T20S-R24E.

Should you have any questions, please feel free to contact me at the above number.

Very truly yours,

MCKAY OIL CORPORATION

A handwritten signature in cursive script, appearing to read "Jim Schultz".

James L. Schultz
V.P. Land & Legal

JLS:ml
Encl.

Is your RETURN ADDRESS
completed on the reverse side?

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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 additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to: <i>Read & Stevens P.O. Box 1518 Roswell, New Mexico 88202</i>	4. Article Number <i>P 340-899-461</i>
	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
5. Signature — Address <i>X</i>	Always obtain signature of addressee or agent and DATE DELIVERED.
6. Signature — Agent <i>X</i>	8. Addressee's Address (ONLY if requested and fee paid)
7. Date of Delivery	

Thank you for using
Return Receipt Service.

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

P 340 899 461

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

Sent to <i>Read & Stevens</i>	
Street and No. <i>P.O. Box 1518</i>	
P.O. State and ZIP Code <i>Roswell, New Mex 88202</i>	
Postage	\$ <i>98</i>
Certified Fee	<i>1.00</i>
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	<i>1.00</i>
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ <i>2.98</i>
Postmark or Date	

Fold at line over top of envelope to the right
of the return address

CERTIFIED

P 340 899 461

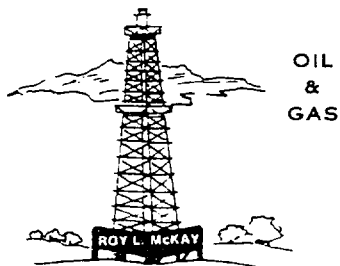
MAIL

McKay Oil Corporation

ROY L. MCKAY, PRESIDENT

MAILING ADDRESS: P.O. BOX 2014 ROSWELL, N.M. 88202 • TELEPHONE 505 / 623-4735

STREET ADDRESS: ONE MCKAY PLACE ROSWELL, N.M. 88201 • FAX NO. 505 / 624-2202



CERTIFIED MAILING
P-340-899-460

January 21, 1992

Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210

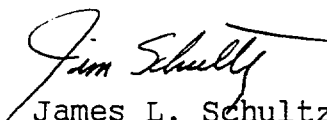
Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) on McKay's Charolette McKay Federal #1, located in Unit H of Section 25-T20S-R24E.

Should you have any questions, please feel free to contact me at the above number.

Very truly yours,

MCKAY OIL CORPORATION


James L. Schultz
V.P. Land & Legal

JLS:ml
Encl.

Is your RETURN ADDRESS
completed on the reverse side?

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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 additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge)
2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to: <i>Yates Petroleum Corp. 105 S. Fourth Street Artesia, New Mexico 88210</i>	4. Article Number <i>P-340-899-460</i>
Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
Always obtain signature of addressee or agent and DATE DELIVERED.	
5. Signature — Address <i>X</i>	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature — Agent <i>X</i>	
7. Date of Delivery	

PS Form 3811, Mar. 1988

* U.S.G.P.O. 1988-212-865

DOMESTIC RETURN RECEIPT

Thank you for using
Return Receipt Service.

P 340 899 460

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 1989-234-555

Sent to	<i>Yates Petroleum Corp.</i>
Street and No.	<i>105 S. Fourth Street</i>
P.O. State and ZIP Code	<i>Artesia, N.M. 88210</i>
Postage	<i>\$.98</i>
Certified Fee	<i>1.00</i>
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	<i>1.00</i>
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	<i>\$ 2.98</i>
Postmark or Date	

PS Form 3800, June 1985

Fold at line over top of envelope to the right
of the return address

CERTIFIED

P 340 899 460

MAIL

ATTACHMENT I

Legal Notice

McKay Oil Corporation, One McKay Place, Roswell, New Mexico, 88201, has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for an injection well. The proposed well, the Charolette McKay Federal #1, located 1980' FNL & 660' FEL of Section 25, Township 20 South, Range 24 East of Eddy County, New Mexico, will be used for saltwater disposal. Disposal waters from Dagger Draw will be injected into the Devonian, at a depth of 9690'- 10,300' feet with a maximum pressure of 2500 psi and a maximum rate of 10000 BWPD.

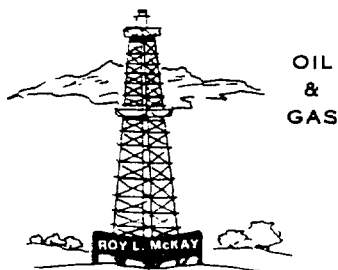
All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within 15 days. Additional information can be obtained by contacting Jim Schultz at (505) 623-4735.

McKay Oil Corporation

ROY L. MCKAY, PRESIDENT

MAILING ADDRESS: P.O. BOX 2014 ROSWELL, N.M. 88202 • TELEPHONE 505 / 623 - 4735

STREET ADDRESS: ONE MCKAY PLACE ROSWELL, N.M. 88201 • FAX NO. 505 / 624 - 2202



January 21, 1992

Artesia Daily Press
503 W. Main
Artesia, New Mexico 88210

Gentlemen:

McKay Oil Corporation desires to place a public notice in your newspaper for Thursday, January 23, 1992. Please find the attached notice.

Please forward a copy of such notice along with your billing to:

McKay Oil Corporation
P.O. Box 2014
Roswell, New Mexico 88202-2014

If you should have any questions in regard to this matter, please call me at the above number.

Thank you for your assistance.

Very truly yours,

MCKAY OIL CORPORATION

A handwritten signature in cursive script, appearing to read "Jim Schultz".

James L. Schultz
V.P. Land & Legal

JLS:ml
Encl.

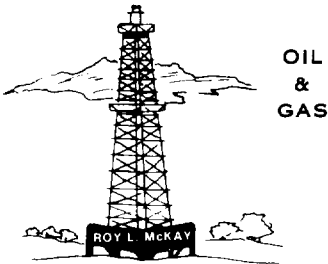
McKay Oil Corporation

RECEIVED IN DIVISION
RE ED

ROY L. MCKAY, PRESIDENT

MAILING ADDRESS: P.O. BOX 2014 ROSWELL, N.M. 88202 • TELEPHONE 505 / 623 - 4735

STREET ADDRESS: ONE MCKAY PLACE ROSWELL, N.M. 88201 • FAX NO. 505 / 624 - 2202



February 25, 1992

Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87505

Attention: Mr. Ben Stone

Re: Charolette McKay Federal #1

Mr. Stone:

As per our conversation on this date, please find copies of the certified cards showing receipt of the Application for Authorization to Inject for the above mentioned well. Also enclosed please find a copy of the Affidavit of Publication which was published in an Eddy County newspaper.

If you should have any questions regarding this matter, please call me at the above number.

Very truly yours,

MCKAY OIL CORPORATION

Monica L. Lightfoot
Monica L. Lightfoot
Land Department

:ml
Encl.

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 additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:
Oil Conservation Division
P.O. Drawer DD
Artesia, New Mexico 88220

4. Article Number
P-340-899-465

Type of Service:
☐ Registered
☒ Certified
☐ Express Mail
☐ Insured
☐ COD
☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

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

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery
1-27-92

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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 additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:
Bureau of Land Mgmt.
P.O. Box 1778
Caresbad, New Mexico 88221

4. Article Number
P-340-899-466

Type of Service:
☐ Registered
☒ Certified
☐ Express Mail
☐ Insured
☐ COD
☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
2-4-92

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

PS Form 3811, Apr. 1989

* U.S.G.P.O. 1989-238-815

DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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 additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:
Read & Stevens
P.O. Box 1518
Roswell, New Mexico

4. Article Number
P-340-899-461

Type of Service:
☐ Registered
☒ Certified
☐ Express Mail
☐ Insured
☐ COD
☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery
1-27-92

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

PS Form 3811, Mar. 1988

* U.S.G.P.O. 1988-212-865

DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:
Mates Petroleum Corp.
105 S. Fourth Street
Artesia, New Mexico 88210

4. Article Number
P-340-899-460

Type of Service:
☐ Registered
☒ Certified
☐ Express Mail
☐ Insured
☐ COD
☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery
01-22-92

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

PS Form 3811, Mar. 1988

* U.S.G.P.O. 1988-212-865

DOMESTIC RETURN RECEIPT

Affidavit of Publication

No. 13810

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of

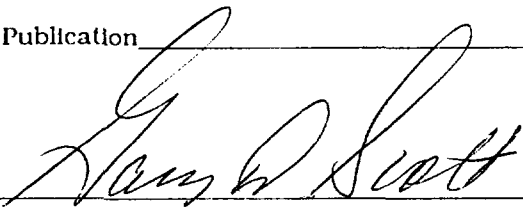
the state of New Mexico for 1 days consecutive weeks on the same day as follows:

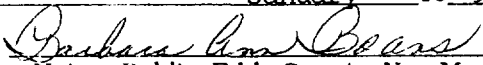
First Publication January 24, 1992

Second Publication _____

Third Publication _____

Fourth Publication _____


Subscribed and sworn to before me this 27th day of January 19 92


Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1992

Copy of Publication

LEGAL NOTICE

McKay Oil Corporation, One McKay Place, Roswell, New Mexico, 88201, has filed form G-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for an injection well. The proposed well, the Charlotte McKay Federal #1, located 1980' FNL & 660' FEL of Section 25 Township 20 South, Range 24 East of Eddy County, New Mexico, will be used for saltwater disposal. Disposal waters from Dagger Draw will be injected into the Devonian at a depth of 9690' to 10,300' feet with a maximum pressure of 2500 psi and a maximum rate of 10000 BWPD.

All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within 15 days. Additional information can be obtained by contacting Jim Schultz at (505) 823-4735.

Published in the Artesia Daily Press, Artesia, N.M. January 24, 1992.

Legal 13810