

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: Secondary Recovery Pressure Maintenance Disposal Storage  
Application qualifies for administrative approval? X Yes

II. OPERATOR: MARBOB ENERGY CORPORATION

ADDRESS: P O BOX 227, ARTESIA, NM 88211-0227

CONTACT PARTY: BRIAN COLLINS

PHONE: 505-748-3303

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

IV. Is this an expansion of an existing project? Yes X No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_

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 geologic data on the injection zone including appropriate lithologic detail, geologic 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).

\*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 sources 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: BRIAN COLLINS

TITLE: ENGINEER

SIGNATURE: Brian Collins

DATE: 15 Nov 02

\* 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 circumstances 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  
Llano McKay Federal 2 SWD  
Unit D, Section 13-T19S-R31E

- V. Map is attached.
- VI. Two wells within the 1/2 mile radius area of review penetrate the proposed injection zone. A wellbore diagram of each one is attached.
- VII.
  - 1. Proposed average daily rate = 1500 BWPD  
Proposed maximum daily rate = 5000 BWPD
  - 2. Proposed maximum injection pressure = 1742 psi (0.2 psi/ft)
  - 3. System is closed
  - 4. Source of injection fluid will be re-injected Bone Spring produced water.
  - 5. Disposal zone water will be the same as the produced water. Water analysis attached. There will be no compatibility problems. The proposed injection zone is structurally low to any area producers and is water productive.
- VIII. The injection zone is the 2<sup>nd</sup> Bone Spring Carbonate from 8710' to 8726' and is composed of dolomite bounded by tight Bone Spring sandstones. Underground sources of drinking water will be shallower than 400 feet deep.
- IX. The proposed injection zone will be acidized with 5,000 gallons 20% HCL acid
- X. Logs are filed with the Division. A section of the neutron-density log is attached.
- XI. There are no fresh water wells within one mile of the Llano McKay Fed. 2.
- XII. After examining available geologic and engineering data, there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Proof of Notice is attached.



**INJECTION WELL DATA SHEET**OPERATOR: Markob Energy Corp.WELL NAME & NUMBER: Llano McKay Fed. 2 SWDWELL LOCATION: 750' FNL 660' FNL D 13 19s 31e  
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE**WELLBORE SCHEMATIC****WELL CONSTRUCTION DATA**Surface CasingHole Size: 17 1/2" Casing Size: 13 3/8"Cemented with: 450 sx. or \_\_\_\_\_ ft<sup>3</sup>Top of Cement: Surface Method Determined: CirculatedIntermediate CasingHole Size: 11" Casing Size: 8 5/8"Cemented with: 1125 sx. or \_\_\_\_\_ ft<sup>3</sup>Top of Cement: Surface Method Determined: CirculatedProduction Casing(Proposed)Hole Size: 7 7/8" Casing Size: 5 1/2"Cemented with: 800 - 1000 sx. or \_\_\_\_\_ ft<sup>3</sup>Top of Cement: 3500' Design Method Determined: \_\_\_\_\_Total Depth: Est. 8850'Injection Interval8710 feet to 8726(Perforated) or Open Hole; indicate which)

- See Attached Sketches -

Well: Llano McKay Fed. 2 SWD

Zero: 18' AGL

Location: 660' FWL 750' FWL  
D-13-19s-31e  
Eddy NM

KB: 3580'  
GL: 3562'

Casing Program:

Size	Wt.	Grade	Conn.	Depth
13 3/8"	48			400
8 5/8"	24			2883' ±
	32			3882'
4 1/2"	11.6, 13.5		LTC	8895 - 12655'
5 1/2"	17	J55	LTC	± 8850'
2 7/8"	6.5	J55	EVE	± 8650'
Internally Plastic Coated				

Spvd 5/80

17 1/2"

42-981 100' STEEL CASE  
42-982 100' STEEL CASE  
42-983 100' STEEL CASE  
42-984 100' STEEL CASE  
42-985 100' STEEL CASE  
42-986 100' STEEL CASE  
42-987 100' STEEL CASE  
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42-995 100' STEEL CASE  
42-996 100' STEEL CASE  
42-997 100' STEEL CASE  
42-998 100' STEEL CASE  
42-999 100' STEEL CASE  
43-000 100' STEEL CASE

11"



13 3/8" @ 400'  
450sxH (circ 25sx)  
DV 672'

TOC 3500' Design  
1st: 725 BJL + 150" C"  
8 5/8" @ 3882' 2nd: 150 BJL + 100" C"  
(circ 75sx)

2 7/8" IPC Inj. Tbg

7 7/8"

Nickel Plated  
Inj. PKr @ 8650'

8710-8726' Bone Spring

5 1/2" @ 8850' ±

4 1/2" jet cut @ 8895'

TDC 9816'

AFTER

CROP 12400'

12526-12548' Morrow

4 1/2" @ 12,655' 420 BJL + 300 H

12.660'

— Sketch Not To Scale —

KBC Collins / 13 Nov 02

Well: Llano McKay Fed. 2 SWD

Zen: 18' AGL

Location: 660' FWL 750' FNL  
D-13-19s-31e  
Eddy NM

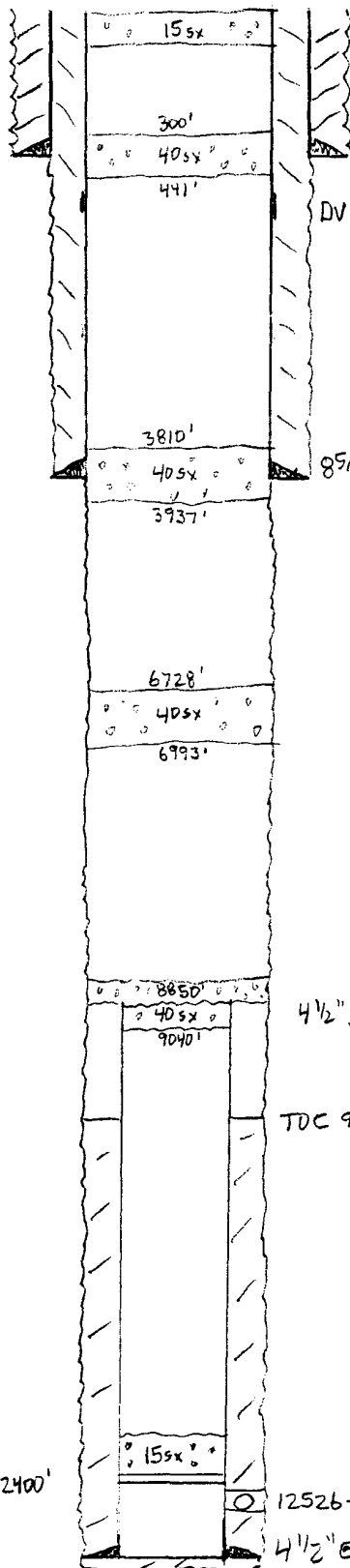
KB: 3580'  
GL: 3562'

### Casing Program:

Size	Wt.	Grade	Conn.	Depth
13 3/8"	48			400
8 5/8"	24			2883' ±
	32			3882'
4 1/2"	11.6, 13.5		LTC	8895 - 12655'

Spvd 5/80  
P4A 12/82

17 1/2"



13 3/8" @ 400'  
450sxH (circ 25sx)  
DV 672'

8 5/8" @ 3882' 1st: 725 BJL + 150"C"  
2nd: 150 BJL + 100"C"  
(circ 75sx)

7 7/8"

BEFORE

4 1/2" jet cut @ 8895'

TDC 9816'

CIBP 12400'

12526-12548' Morrow  
4 1/2" @ 12,655' 420 BJL + 300 H

12,660'

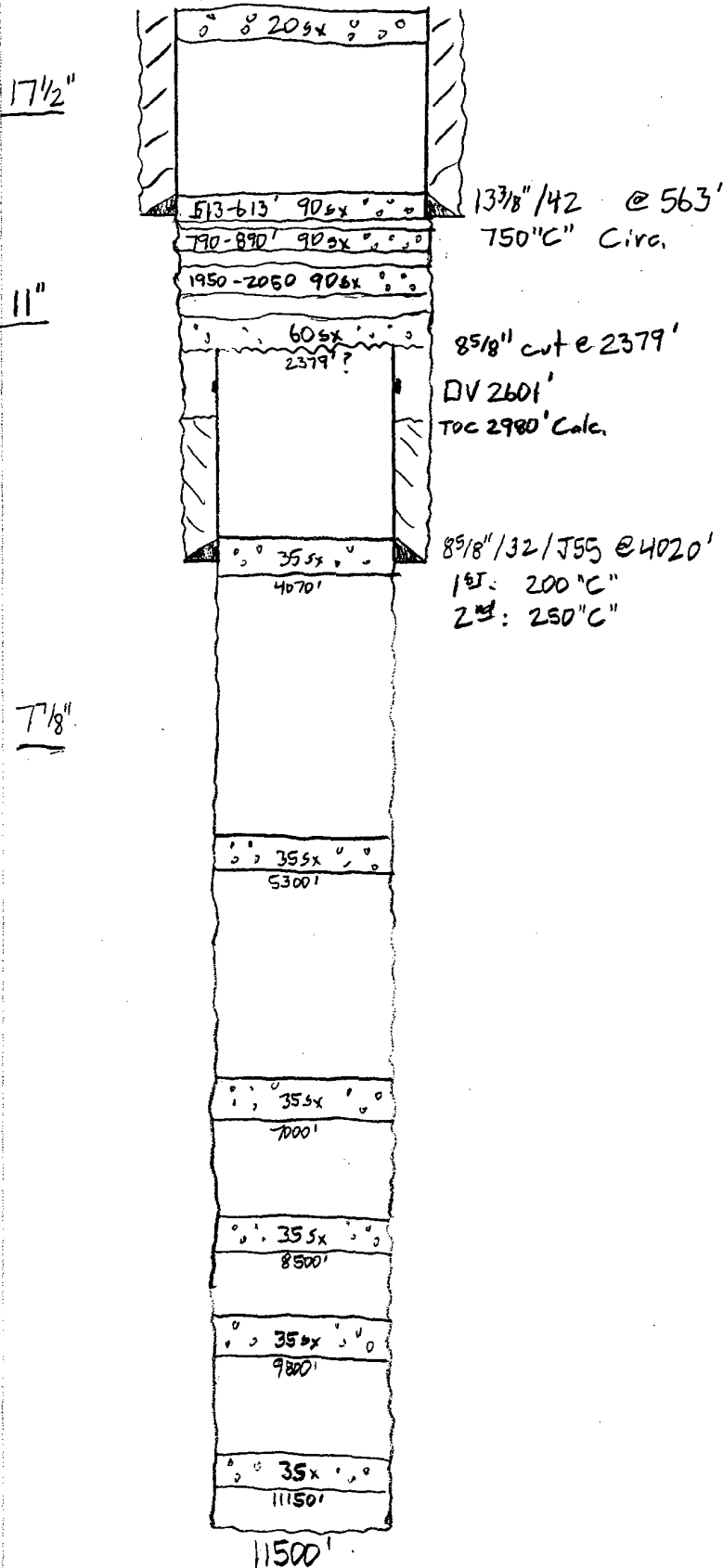
- Sketch Not To Scale -

KBC Collins / 13 Nov 02

Llano McKay Fed. 1  
(Formerly Sweeney Fed. A-1)

Spud: 8/66  
P&A: 9/66 & 1/80

660' FNL, 660' FWL  
D-13-19s-31e  
Eddy, NM



HB Collins / 13 Nov 02

# Malone Federal 1-A

1980' FNL, 1980' FWL

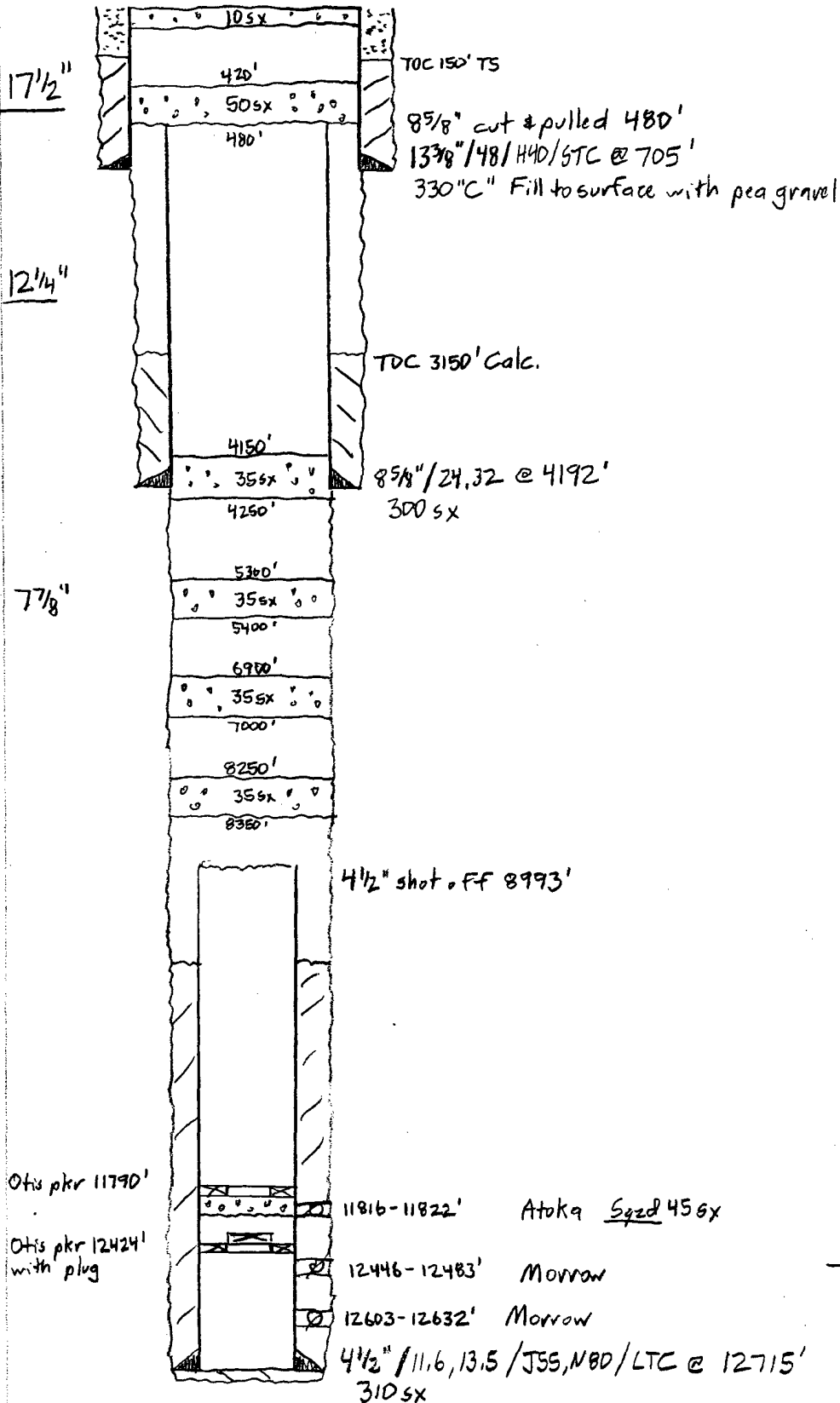
F-13-19s-31e

Eddy, NM

Spud: 9/63

P#A: 3/64

22-141 50 SHEETS  
22-142 100 SHEETS  
22-143 200 SHEETS



-Not To Scale-

KBCollins / 13 Nov 02





HALLIBURTON

CENTRAL OPERATIONS LABORATORY  
WATER ANALYSIS REPORT  
HOBBS, NEW MEXICO

COMPANY

Marbob

REPORT

W01-112

DATE

November 26, 2001

DISTRICT

Artesia/Hobbs

Bone Spring  
Produced Water

SUBMITTED BY

CELL

COUNTY

FORMATION

SOURCE

SAMPLE

Luske 13

Lusk 19

WPB 1

Sample Temp.

66

°F

RESISTIVITY

0.058

SPECIFIC GR.

1.135

I

6.14

CALCIUM

7,600

mpl

MAGNESIUM

5,160

mpl

CHLORIDE

134,355

mpl

SULFATES

Mod

mpl

CARBONATES

31

mpl

SOLUBLE IRON

light

mpl

WATER ANALYSIS REPORT  
HOBBS, NEW MEXICO

66

°F

0.06

1.120

6.19

8,200

mpl

6,900

mpl

106,470

mpl

light

mpl

61

mpl

light

mpl

66

°F

0.058

1.135

6.54

4,100

mpl

3,000

mpl

129,285

mpl

Light

mpl

122

mpl

light

mpl

SODIUM

CHLORIDE

OIL GRAVITY

@

REMARKS

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management. It may, however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Co.

ANALYST:

MPL = Milligrams per liter

Resistivity measured in: Ohm/m2/m

*John E. Bank*

13-19-31

E 3580

Schlumberger		<b>COMPENSATED NEUTRON FORMATION DENSITY</b>	
COMPANY PETROLEUM DEVELOPMENT CORPORATION			
WELL LLAND-MCKAY FEDERAL #2			
FIELD UNDESIGNATED (MORROW)			
COUNTY EDDY STATE NEW MEXICO			
750' FNL & 660' FNL		Other Services	
13 19-S 31-E		DLL	
Permanent Datum: G.L.		Elev. 3562	
Log Measured From: K.B.		D.F. 3580	
Drilling Measured From: K.B.		G.L. 3562	
Date	6-12-80		
Run No.	ONE		
Depth - Driller	12640		
Depth - Logger	12625		
Run Log Interval	12625		
Top Log Interval	SURF		
Casing - Driller	8 5/8 @ 4020	@	@
Casing - Logger	2592		
Dr Size	7 7/8		
Type Fluid in Hole	SALT GEL. STARCH		
Dens. Visc.	9.9 38		
pH Fluid Loss	10 12 ml	ml	ml
Source of Sample	PIT		
Run @ Mean Temp.	04.8 @ 94 F	@	@
Run @ Mean Temp.	04.2 @ 86 F	@	@
Run @ Mean Temp.	@ F	@	@
Source Run @ Mean	M		
Run @ BH	029 @ 162 F	@	@
Circulation Stopped	1830 6-11		
Logger on Bottom	2330 6-11		
Mean Run Temp.	162		
Depth Location	8075 HOBBS		
Recorded by	NEUMANN, CAMPBELL		
Checked by	JOHNSON		

R 421 + 2900  
Y 2485 + 1025  
T 2140 + 740  
Q 3450 - 20  
SA 4526 - 946.2  
De 4570 - 990  
BSLM 6940 - 3340  
1st BS 8246 - 9486  
3rd BS 9808 - 6228  
Wc Carb 10320 - 6740  
Strat Lm 11152 - 7572  
B/S strat Lm 11308 - 7728  
HkK 10566 - 7986  
HkK Lm 11824 - 8246  
Mor A 12186 - 8606  
Mor B 12298 - 8718  
Mor C 12472 - 8892  
B/c 12554 - 8974

Ch ataka  
Reported By Cor  
Petroleum Information. TD Mor  
Minimum Temp 70°F  
Orig Drd by Coastal States  
to Site SPT 9/19/80  
REFERENCE Y 2634C  
TD 11,500' (PI)  
34/COMPLETION RECORD

CLUDD  
Comp Mor C Nat  
GACF 8454 MCF  
6/30/80

SPUD DATE

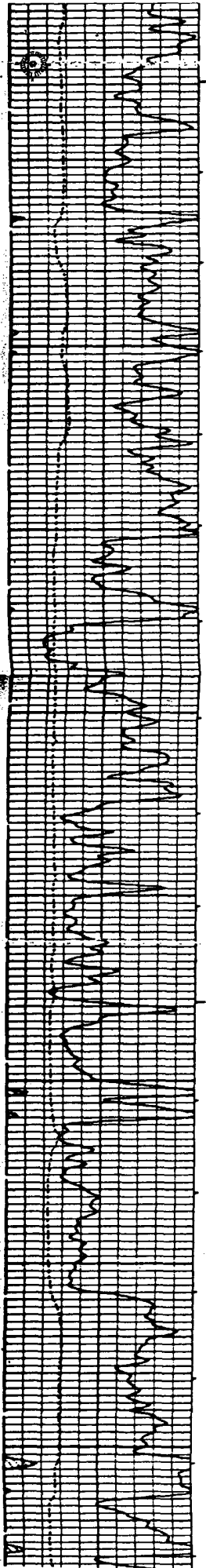
COMP DATE

BST RECORD

API NO

CASING RECORD

PERFORATING RECORD



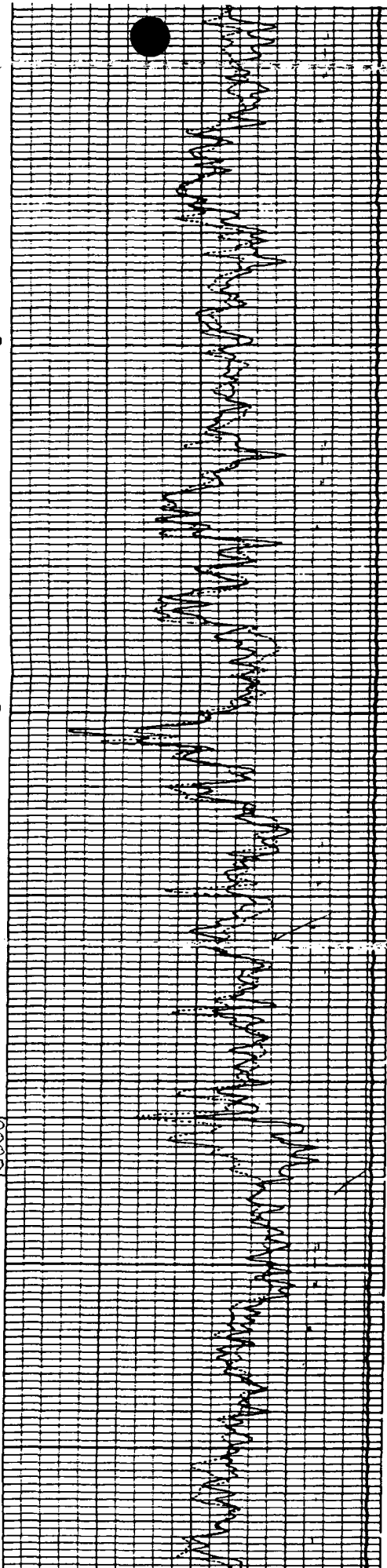
8500

8600

8700

8800

0000



Bone Spring



**marbob**  
energy corporation

November 14, 2002

Shackelford Oil Co.  
P. O. Box 10665  
Midland, TX 79702



Re: Application to Inject  
Llano McKay Federal No. 2  
Township 19 South, Range 31 East, NMPM  
Section 13: 750' FNL and 660' FWL  
Eddy County, New Mexico

Gentlemen:

Enclosed for your review is a copy of Marbob Energy Corporation's application to convert the referenced well into a saltwater disposal well. As a requirement of the New Mexico Oil Conservation Division, we are notifying you because you have been identified as an operator or surface owner. Any objections must be submitted in writing to NMOCD, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505. Objections must be received within fifteen (15) days of receipt of this letter. If you have no objections to our application, please indicate below and return one copy of this letter to our office.

Please do not hesitate to contact us should you have any questions.

Sincerely,

Brian Collins  
Petroleum Engineer

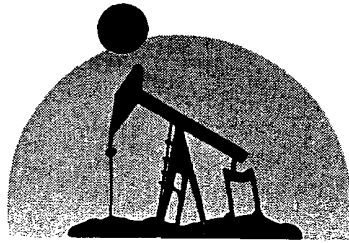
BC/dlw  
enclosure

**Shackelford Oil Co. has no objection to the proposed disposal well:**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



**marbob**  
energy corporation

November 14, 2002

BTA Oil Producers  
P. O. Box 1203  
Jal, NM 88252



Re: Application to Inject  
Llano McKay Federal No. 2  
Township 19 South, Range 31 East, NMPM  
Section 13: 750' FNL and 660' FWL  
Eddy County, New Mexico

Gentlemen:

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Please do not hesitate to contact us should you have any questions.

Sincerely,

Brian Collins  
Petroleum Engineer

BC/dlw  
enclosure

**BTA Oil Producers has no objection to the proposed disposal well:**

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_



**marbob**  
energy corporation

November 14, 2002

Concho Resources, Inc.  
110 W. Louisiana #410  
Midland, TX 79701



Re: Application to Inject  
Llano McKay Federal No. 2  
Township 19 South, Range 31 East, NMPM  
Section 13: 750' FNL and 660' FWL  
Eddy County, New Mexico

Gentlemen:

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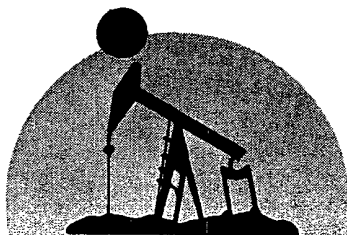
Sincerely,

Brian Collins  
Petroleum Engineer

BC/dlw  
enclosure

**Concho Resources, Inc. has no objection to the proposed disposal well:**

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_



**marbob**  
energy corporation

November 14, 2002

ChevronTexaco Exploration & Production Co.  
15 Smith Road  
Midland, TX 79705



Re: Application to Inject  
Llano McKay Federal No. 2  
Township 19 South, Range 31 East, NMPM  
Section 13: 750' FNL and 660' FWL  
Eddy County, New Mexico

Gentlemen:

Enclosed for your review is a copy of Marbob Energy Corporation's application to convert the referenced well into a saltwater disposal well. As a requirement of the New Mexico Oil Conservation Division, we are notifying you because you have been identified as an operator or surface owner. Any objections must be submitted in writing to NMOCD, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505. Objections must be received within fifteen (15) days of receipt of this letter. If you have no objections to our application, please indicate below and return one copy of this letter to our office.

Please do not hesitate to contact us should you have any questions.

Sincerely,

Brian Collins  
Petroleum Engineer

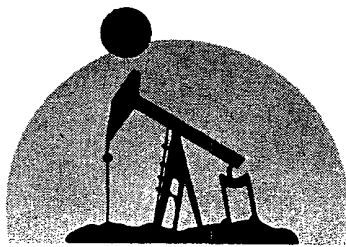
BC/dlw  
enclosure

**ChevronTexaco Exploration & Production Co. has no objection to the proposed disposal well:**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



**marbob**  
energy corporation

November 14, 2002

Gruy Petroleum Management Co.  
3300 North A St., Bldg 8, Ste. 120  
Midland, TX 79705



Re: Application to Inject  
Llano McKay Federal No. 2  
Township 19 South, Range 31 East, NMPM  
Section 13: 750' FNL and 660' FWL  
Eddy County, New Mexico

Gentlemen:

Enclosed for your review is a copy of Marbob Energy Corporation's application to convert the referenced well into a saltwater disposal well. As a requirement of the New Mexico Oil Conservation Division, we are notifying you because you have been identified as an operator or surface owner. Any objections must be submitted in writing to NMOCD, 1220 S. St. Francis Drive, Santa Fe, New Mexico 87505. Objections must be received within fifteen (15) days of receipt of this letter. If you have no objections to our application, please indicate below and return one copy of this letter to our office.

Please do not hesitate to contact us should you have any questions.

Sincerely,

Brian Collins  
Petroleum Engineer

BC/dlw  
enclosure

**Gruy Petroleum Management Co. has no objection to the proposed disposal well:**

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_





**marbob**  
energy corporation

November 14, 2002

Lynx Petroleum Consultants, Inc.  
P. O. Box 1708  
Hobbs, NM 88241



Re: Application to Inject  
Llano McKay Federal No. 2  
Township 19 South, Range 31 East, NMPM  
Section 13: 750' FNL and 660' FWL  
Eddy County, New Mexico

Gentlemen:

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Please do not hesitate to contact us should you have any questions.

Sincerely,

Brian Collins  
Petroleum Engineer

BC/dlw  
enclosure

**Lynx Petroleum Consultants, Inc. has no objection to the proposed disposal well:**

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_



**marbob**  
energy corporation

November 14, 2002



Artesia Daily Press  
P. O. Box 190  
Artesia, NM 88211-190

Re: Legal Notice  
Salt Water Disposal Well

Gentlemen:

Enclosed is a legal notice regarding New Mexico Oil Conservation Division C-108 Application for Authorization to Inject for a salt water disposal well.

Please run this notice and return the proof of notice to the undersigned at Marbob Energy Corporation, P. O. Box 227, Artesia, NM 88211-0227.

Sincerely,

Brian Collins  
Petroleum Engineer

BC/dlw

enclosure

**ARTESIA DAILY PRESS**  
**LEGAL NOTICES**

Marbob Energy Corporation, Post Office Box 227, Artesia, New Mexico, 88211-0227, has filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Llano McKay Federal No. 2 is located 750' FNL and 660' FWL, Section 13, Township 19 South, Range 31 East, Eddy County, New Mexico. Disposal water will be sourced from area wells producing from the Bone Spring formation. The disposal water will be injected into the Bone Spring formation at a depth of 8710'-8726' at a maximum surface pressure of 1742 psi and a maximum rate of 5,000 BWPD. Any interested party who has an objection to this must give notice in writing to the Oil Conservation Division, 1220 South Saint Francis Street, Santa Fe, New Mexico, 87505, within fifteen (15) days of this notice. Any interested party with questions or comments may contact Brian Collins at Marbob Energy Corporation, Post Office Box 227, Artesia, New Mexico 88211-0227, or call 505-748-3303.

Published in the Artesia Daily Press, Artesia, New Mexico  
\_\_\_\_\_, 2002.

