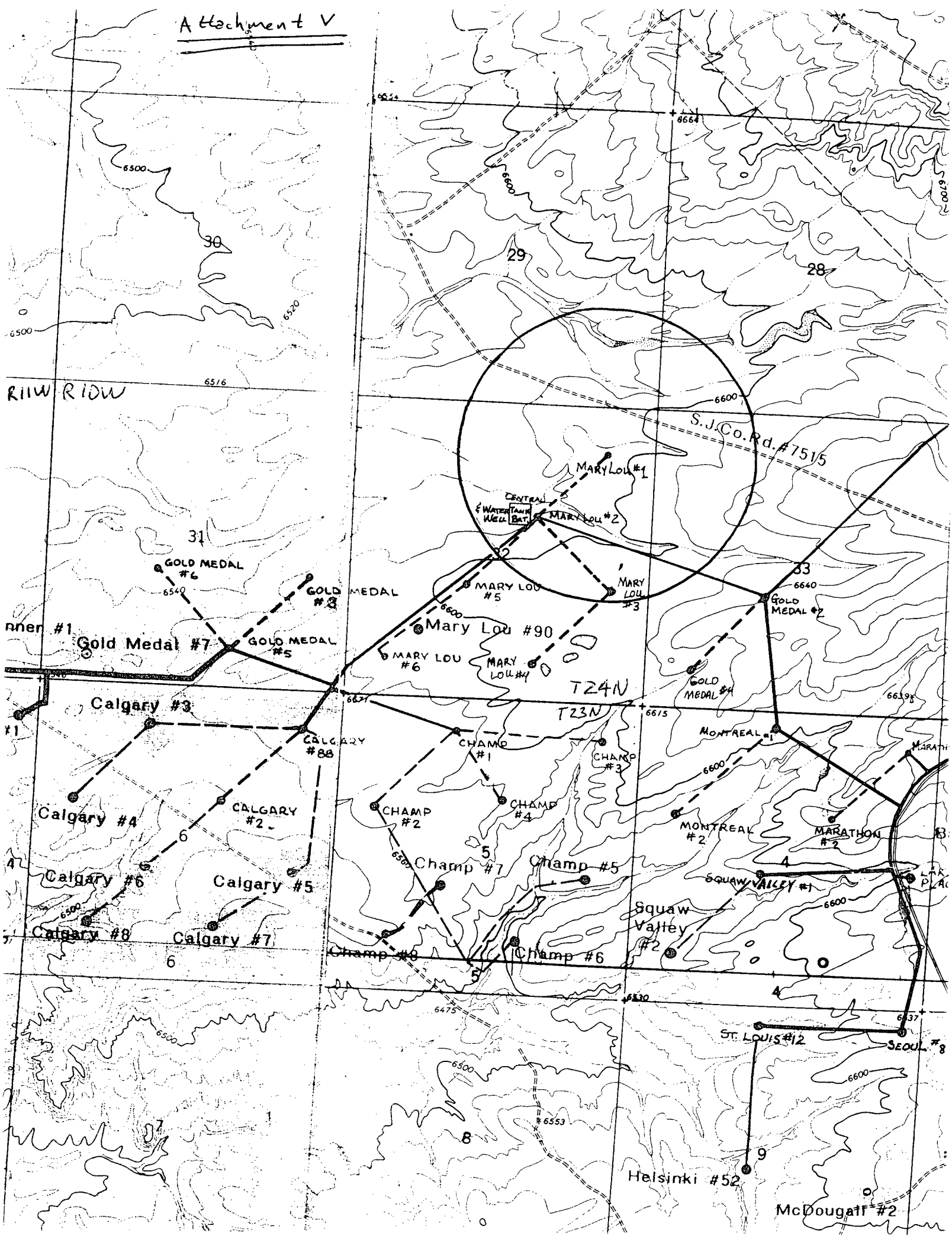


APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery Pressure Maintenance xx Disposal Storage  
Application qualifies for administrative approval? xx Yes No
- II. OPERATOR: Dugan Production Corp.  
ADDRESS: P.O. Box 420, Farmington, NM 87499-0420  
CONTACT PARTY: John Alexander PHONE: (505) 325-1821
- 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: Hank Baca TITLE: Petroleum Engineer  
SIGNATURE: Hank Baca DATE: June 10, 2003
- \* 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: \_\_\_\_\_

Attachment V



Attachment III – Dugan Production Corp. Mary Lou #1 Salt Water Disposal Application

A. Injection Well Information

(30-045-26460)

- 1) Mary Lou #1, Sec. 32, Twn. 24N, Rng 10W, 800' FNL & 800' FEL
- 2) 8-5/8" 24 # casing @ 193', cemented with 135 sx Class B cmt in 12-1/4" hole. Cement circulated to surface.  
  
4-1/2" 10.5# casing @ 4815', 7-7/8" hole cemented in two stages:  
1<sup>st</sup> stage: 235 sx Class B cmt with 50-50 poz & 2% gel (298 cu ft) TOC calculated @ 75% at 3834'.  
2<sup>nd</sup> stage: stage tool @ 3679', 550 sx Class B cmt with 65/35 poz & 12% gel & 1/4# flocele/sk, tail with 80 sx 50/50 poz & 2% gel w/ 1/4# flocele/sk (1318 cu ft). TOC calculated @ 75% to surface.
- 3) Injection tubing will be 2-3/8" plastic lined 4.7#/ft EUE 8rd. Setting depth will be  $\pm$  3500'.
- 4) Packer will be externally and internally plastic coated Baker Model AD-1. Setting depth will be  $\pm$  3500'.

B. Formation Information

- 1) Mesa Verde Sandstone.
- 2) Injection interval perforated will be approximately 1830-3612'
- 3) Well was originally drilled as a Gallup producer.
- 4) The Gallup is perforated from 4500-4768'. A CIBP will be placed @ 4475', and 25 sx of Class "B" cement will be placed on top of CIBP to permanently abandon the Gallup prior to converting the well to Mesa Verde injection.
- 5) The next higher oil and gas zone is the Pictured Cliffs at 1053', and the next lower is the Gallup at 4303'.

VII

- 1) Proposed average injection rate is 400 bwpd with a maximum of 1000 bwpd
- 2) System will be closed
- 3) Proposed average injection pressure is 450 psi with a maximum of 700psi.

2000-2100 = coal/sand  
2400-2550 = coal/sand

- 4) Source of injected water will be Fruitland Coal and Gallup wells within the immediate area. Attachment VIIa is an analysis of the Fruitland water and Attachment VIIb is the Gallup water analysis.
- 5) Attachment VIIc is a Mesa Verde water analysis from the nearest Mesa Verde well.

#### VIII

Injection will be into the Mesa Verde sandstone. Top of the Mesa Verde is 2108' with total thickness of 1567'. The Ojo Alamo is a possible source of drinking water. It is near the surface and behind the surface casing.

#### IX

No stimulation is proposed

#### X

Logs are on file with the Division

#### XI

There are no fresh water wells within one mile of this location.

#### XII

We have examined available geologic and engineering data and found no evidence of open faults or any other hydrologic connection between the Mesa Verde and any underground sources of drinking water.

#### XIII

Attached is a copy of the certified mail receipt notifying The New Mexico State Land Office as surface owner of our intention. There are no offset lease owners in the area of review. A copy of the letter provided is also attached.

A certified copy of the legal notice published in the Farmington Times is attached.

**Mary Lou #1 Proposed Wellbore Diagram**

Sec. 32, Twn. 24N, Rng 10W, 800' FNL & 800' FEL

spud 9/14/1985

8-5/8" 24# @ 193' in 12-1/4" hole  
cmt w/ 135 sx, circulated to surface

plan to set 2-3/8" plastic lined tubing @  $\pm$  3500'

plan to set plastic lined Baker Model AD-1 packer  
@  $\pm$  3500'

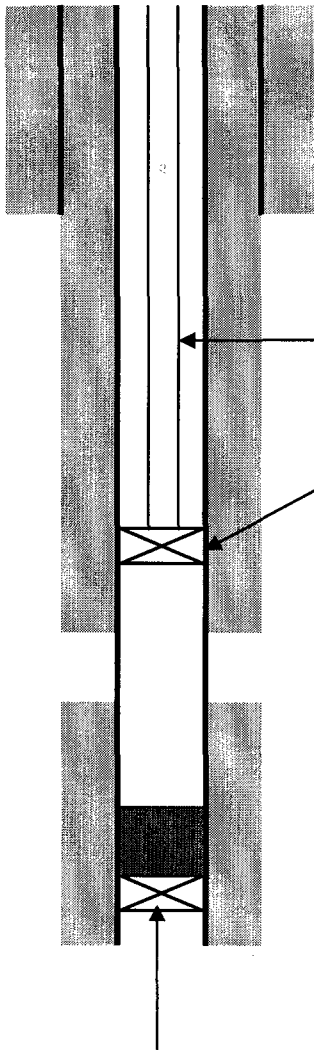
stage tool @ 3679'  
2nd stage TOC calc to surface @ 75%

4-1/2" TOC 3834' (calc @ 75%)

4-1/2" 10.5# csg @ 4815' in 7-7/8" hole  
cmt 1st stage: 235 sx 50/50 poz & 2% gel (298 cu ft)  
2nd stage: 550 sx 65/35 poz & 12% gel  
tail w/ 80 sx 50/50poz & 2% gel (1318 cu ft)

Gallup perms: 4500-4768' (40 holes total)

Plan to set CIBP @ 4475' w/ 25 sx Class "B" cmt on top of plug  
cement from 4144-4475'



## ATTACHMENT IV

WELL	LOCATION	TYPE	DRILLED	DEPTH	DATA
Mary Lou #2	1980' FNL & 1980' FEL Sec. 32 24N-10W	Gallup Producer	9/29/1985	4840'	8-5/8" 24# csg @ 217' w/ 135 sx 4-1/2" 10.5# csg @ 4838' cmt 1st stage 200 sx, stage tool @ 3644', 500 sx Gallup perforated 4470-4729' break down w/ water & ball sealers Frac w/ 124,000# 20/40 Brady sand & 93,000 gal water
Mary Lou #3	1980' FSL & 660' FEL Sec. 32 24N-10W	Gallup Producer	3/29/1987	4825'	8-5/8" 24# csg @ 208' w/ 180 sx 4-1/2" 10.5# csg @ 4824' cmt 1st stage 250 sx, stage tool @ 3650', 600 sx Gallup perforated 4435-4692' break down w/ water & ball sealers Frac w/ 124,000# 20/40 Brady sand & 93,000 gal water

## BJ SERVICES COMPANY

WATER ANALYSIS #FW01W092

FARMINGTON LAB

ATTACHMENT VIIA

## GENERAL INFORMATION

OPERATOR: DUGAN PRODUCTION  
 WELL: MO VALLEY 90  
 FIELD: SWSW SEC5/T24N/R9W  
 SUBMITTED BY: JOHN ALEXANDER  
 WORKED BY: D. SHEPHERD  
 PHONE NUMBER:

DEPTH:  
 DATE SAMPLED: 04/14/98  
 DATE RECEIVED: 04/15/98  
 COUNTY: STATE: ☐  
 FORMATION: FRUITLAND COAL

## SAMPLE DESCRIPTION

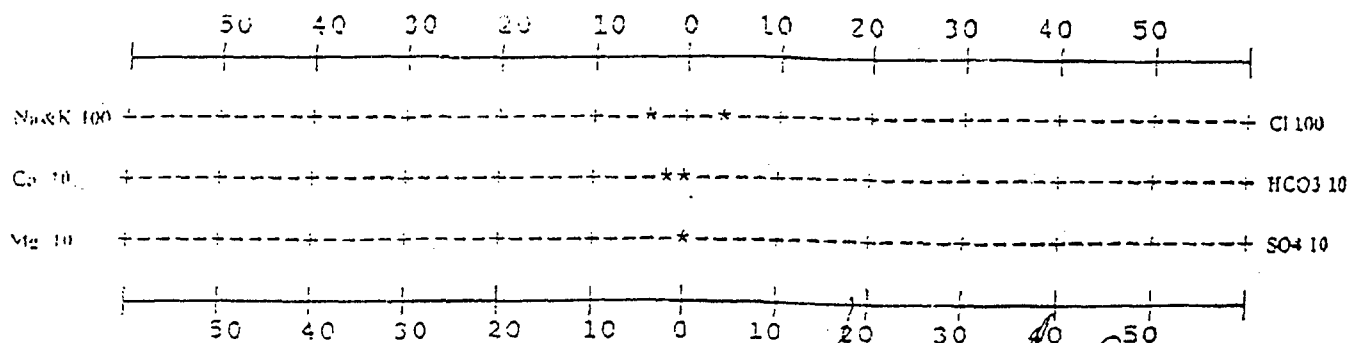
SAMPLE FOR ANALYSIS

## PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY:	1.015	@ 75°F	PH:	6.81
RESISTIVITY (MEASURED ):	0.210	ohms @ 76°F		
IRON (FE++) :	100 ppm	SULFATE:		0 ppm
CALCIUM:	371 ppm	TOTAL HARDNESS		1,341 ppm
MAGNESIUM:	101 ppm	BICARBONATE:		565 ppm
CHLORIDE:	15,369 ppm	SODIUM CHLORIDE (Calc)		25,282 ppm
SODIUM+POTASS:	9,561 ppm	TOT. DISSOLVED SOLIDS:		26,836 ppm
H2S: NO TRACE		POTASSIUM CHLORIDE:		130 (PPM)

## REMARKS

## STIFF TYPE PLOT (IN MEQ/L)



ANALYST

D. SHEPHERD

BJ SERVICES COMPANY

WATER ANALYSIS #FW01W160

Attachment VII b

FARMINGTON LAB

GENERAL INFORMATION			
OPERATOR:	DUGAN PRODUCTIONS	DEPTH:	
WELL:	JUNE JOY #2	DATE SAMPLED:	04/15/97
FIELD:	SEC25;T24N;10W	DATE RECEIVED:	04/16/97
SUBMITTED BY:		COUNTY:	STATE:
WORKED BY	:DAVID SHEPHERD	FORMATION:	GALLUP
PHONE NUMBER:			

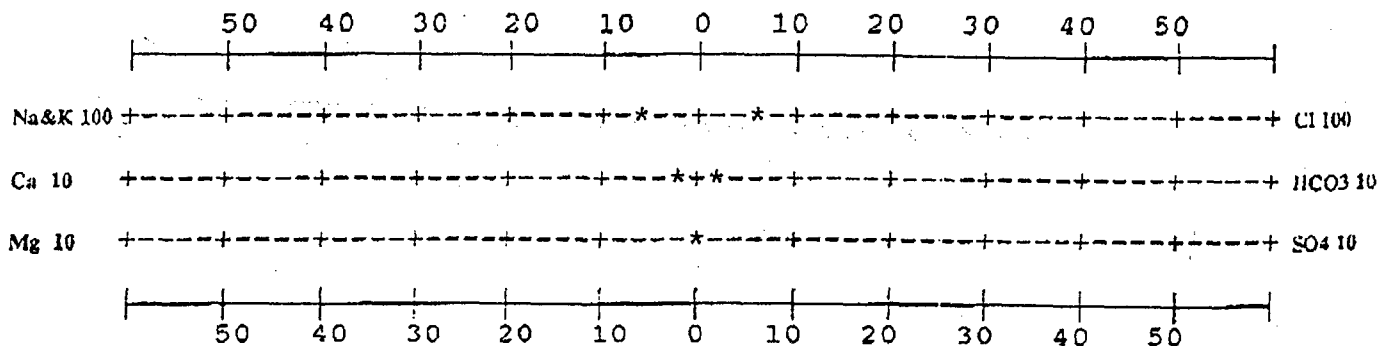
### SAMPLE DESCRIPTION

## PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY:	1.023	@ 75°F	PH:	7.25
RESISTIVITY (MEASURED ):	0.200	ohms @ 75°F		
IRON (FE++) :	25 ppm	SULFATE:		29 ppm
CALCIUM:	274 ppm	TOTAL HARDNESS		929 ppm
MAGNESIUM:	59 ppm	BICARBONATE:		990 ppm
CHLORIDE:	19,061 ppm	SODIUM CHLORIDE(Calc)		31,355 ppm
SODIUM+POTASS:	16,635 ppm	TOT. DISSOLVED SOLIDS:		37,644 ppm
IODINE:		POTASSIUM CHLORIDE:		

## REMARKS

## STIFF TYPE PLOT (IN MEQ/L)



ANALYST

DAVID SHEPHERD



Attachment VII C

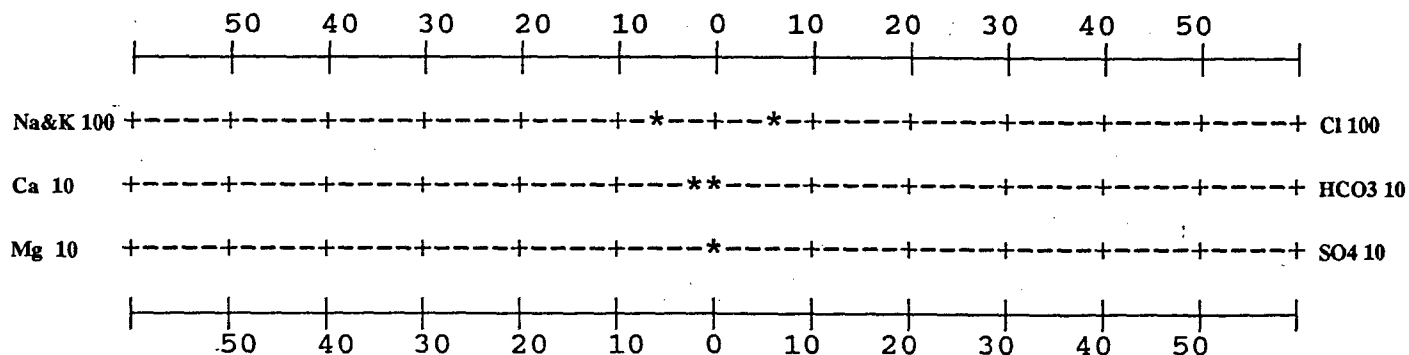
OPERATOR:	DUGAN PRODUCTION	DEPTH:	
WELL:	SANCHEZ O'BRIEN #1	DATE SAMPLED:	12/03/97
FIELD:	SEC.6/T24N/R9W	DATE RECEIVED:	12/03/97
SUBMITTED BY:	JOHN ALEXANDER	COUNTY:	SAN JUAN
WORKED BY	:D. SHEPHERD	STATE:	NM
PHONE NUMBER:		FORMATION:	MESAVERDE

SWAB SAMPLE AFTER 200 BBL.

SPECIFIC GRAVITY:	1.025	@ 76°F	PH:	7.23
RESISTIVITY (MEASURED ):	0.160	ohms @ 76°F		
IRON (FE++) :	3 ppm	SULFATE:		0 ppm
CALCIUM:	336 ppm	TOTAL HARDNESS		1,074 ppm
MAGNESIUM:	57 ppm	BICARBONATE:		548 ppm
CHLORIDE:	22,137 ppm	SODIUM CHLORIDE(Calc)		36,415 ppm
SODIUM+POTASS:	14,065 ppm	TOT. DISSOLVED SOLIDS:		37,823 ppm
H2S: NO TRACE		POTASSIUM (PPM):		84

## REMARKS

STIFF TYPE PLOT (IN MEQ/L)



ANALYST

D. SHEPHERD

## AFFIDAVIT OF PUBLICATION

Ad No. 48077

### STATE OF NEW MEXICO County of San Juan:

MICHAEL BELL, being duly sworn says: That he is the General 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 meeting of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication on the following day(s):  
Friday, June 13, 2003.

And the cost of the publication is \$27.05



ON 6-16-03 MICHAEL BELL appeared before me, whom I know personally to be the person who signed the above document.



My Commission Expires April 2, 2004.

### COPY OF PUBLICATION

918	Legals
NOTICE	
Dugan Production Corp., P.O. Box 420 Farmington, NM 87401 (505-325-1821, Hank Baca) has made application to the New Mexico Oil Conservation Division to convert the Mary Lou #1 to produced water disposal service. The well is located 800' ENL & 800' FEL in Sec. 32 T24N R10W, San Juan County NM. Injection interval is the Mesa Verde formation from 2108-3675'. Maximum pressure is to be 700' psi. Maximum injection rate is 1000 bwpd. Objecting parties must file written notice with the NMOCD at 1220 South St. Francis Drive Santa Fe, NM 87505 within 15 days.	
Legal No. 48077 published in The Daily Times, Farmington, New Mexico on Friday, June 13, 2003.	

**SENDER: COMPLETE THIS SECTION**

- ☒ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- ☒ Print your name and address on the reverse so that we can return the card to you.
- ☒ Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

*New Mexico State Bank Office  
P.O. Box 1148  
Santa Fe, NM  
87504-1148*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature ☒ Agent

B. Received by *[Signature]* ☐ Addressee

C. Date of Delivery

D. Is delivery address different from item 1? ☒ Yes  
If YES, enter delivery address below: ☐ No

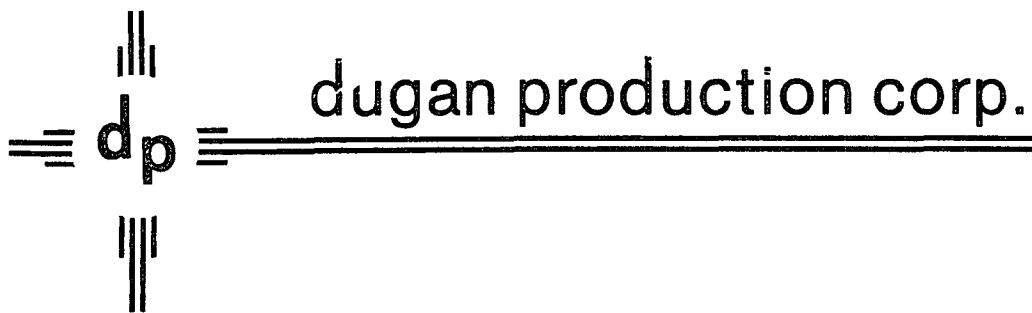
3. Service Type

- ☒ Certified Mail ☐ Express Mail
- ☐ Registered ☒ Return Receipt for Merchandise
- ☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number  
(Transfer from service label) **7001 1940 0003 1548 2496**

PS Form 3811, August 2001 Domestic Return Receipt



June 10, 2003

New Mexico State Land Office  
P.O. Box 1148  
Santa Fe, NM 87504-1148

Mr. Patrick Lyons,

This letter is to inform you as surface owner that Dugan Production Corp., P.O. Box 420 Farmington, NM 87401 (505-325-1821, Hank Baca) has made application to the New Mexico Oil Conservation Division to convert the Mary Lou #1 to produced water disposal service. The well is located 800' FNL & 800' FEL in Sec. 32 T24N R10W, San Juan County NM. Injection interval is the Mesa Verde formation from 2108-3675'. Maximum pressure is to be 700 psi. Maximum injection rate is 1000 bwpd. Objecting parties must file written notice with the NMOCD at 1220 South St. Francis Drive, Santa Fe, NM 87505 within 15 days.

Sincerely,

Hank Baca  
Petroleum Engineer