# AMOCO

#### **Amoco Production Company**

Post Office Box 68 Hobbs, New Mexico 88240

L. R. Smith District Manager

September 24, 1985

File: SGH-1816-416

Re: Appli

Application for Authority to Inject

South Hobbs (GSA) Unit

Hobbs Grayburg-San Andres Pool

Lea County, New Mexico

State of New Mexico Energy and Minerals Department Oil Conservation Division P. 0. Box 2088 Santa Fe, NM 87501

Amoco Production Company hereby requests administrative approval to convert two South Hobbs (GSA) Unit Wells to water injection. Form C-108 and necessary documentation is attached.

The two wells to be converted are:

South Hobbs (GSA) Unit No. 48

Unit J, 3300' FNL x 2310' FEL,

Section 3, T-19-S, R-38-E,

Lea County, NM

South Hobbs (GSA) Unit No. 68

Unit B, 660' FNL x 2310' FEL, Section 10, T-19-S, R-38-E,

Lea County, NM

As required, a copy of this application complete with all attachments has been served by certified mail to each of the parties shown on the attached service list.

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If you have any questions concerning this application, please contact Charles Herring in our Hobbs District Office, 505/393-1781, Extension 252.

# Original Signed By L.R. Smith

CMH/sh APRDO4-HHH

#### Attachments

cc: State of New Mexico Energy and Minerals Department Oil Conservation Division P. O. Box 1980 Hobbs, NM 88240

Sto Change

### SERVICE LIST

### Offset Operators for Proposed Injection Wells

Shell Western E&P, Inc. P. O. Box 991 Houston, TX 77001 Attention: D. J. Pfau

Cities Service Oil & Gas Corp. P. O. Box 1919
Midland, TX 79702

Cola Petroleum, Inc. 601 N. Marienfeld Suite 200 Midland, TX 79701

## Surface Owners for Proposed Injection Wells

Amoco Production Company

SEP 28 1985

APPLICA	ATION FOR AUTHORIZATION TO INJECT
I.	Purpose: Secondary Recovery X Pressure Maintenance Disposal Storage Application qualifies for administrative approval? Secondary Storage
II.	Operator: Amoco Production Company
	Address: P. O. Box 68, Hobbs, New Mexico 88240
	Contact party: John M. Breeden Phone: (505) 393-1781
111.	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? X yes no no no If yes, give the Division order number authorizing the project 4934.
٧.	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:
	<ol> <li>Proposed average and maximum daily rate and volume of fluids to be injected;</li> <li>Whether the system is open or closed;</li> <li>Proposed average and maximum injection pressure;</li> <li>Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and</li> <li>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.).</li> </ol>
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.
х.	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.  Administrative Analyst (SC)
	Name: Charles M. Herring / Title Administrative Analyst (SG)
	Signature: Charles M. Helling Date: September 24, 1985
mdua	he information required under Sections <b>2.</b> , VIII, X, and XI above has been previously itted, it need not be duplicated and resubmitted. Please show the date and circumstance he earlier submittal. R-4934-A, 8-4-83; R-4934-B, 8-23-83; R-4934-C, 8-23-83

#### 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



#### AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.
1,
Robert L. Summers
of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemn- ly swear that the clipping at- tached hereto was published once a week in the regular and entire issue of said paper, and not in a supplement thereof for a period
of
One weeks.
Beginning with the issue dated
September 23 , 19 85
and ending with the issue dated
September 23 19 85
Vahat & Summe
Publisher.  Sworn and subscribed to before
24
me this $\frac{\alpha}{4}$ day of
September, 1983
Wesa Whishy Notary Jublic.
My Commission expires
This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE
SEPTEMBER 23, 1985

TO WHOM IT MAY CONCERN:
Amoco Production Company will on or before September 24, 1985, apply for administrative approval to convert two producing South Hobbs (GSA) Unit Wells to water injection wells. The well names, numbers and locations are as follows:
Well Name and Number.

Well Name and Number

Location

South Hobbs (GSA) Unit No. 48

Sec. 3, T-19-S, R-38-E,
Lea County, NM
Unit B, 660' FNL x 2310' FEL,
Sec. 10, T-19-S, R-38-E,
Lea County, NM
Unit B, 660' FNL x 2310' FEL,
Sec. 10, T-19-S, R-38-E,
Lea County, NM
The purpose of this work is to expand the South Hobbs (GSA) Unit
Pressure Maintenance Project. Water will be injected into the
Grayburg-San Andres Formation at an average rate of 1000 BWIPD
with an average pressure of 500 psi. Any questions concerning this
project may be directed to Mr. John Breeden, District Foreman,
Amoco Production Company, P. O. Box 68, Hobbs, NM, 88240,
Phone, 505/393-1781.
Interested parties must file objections or request for

Interested parties must file objections or request for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mex-ico, 87501, within fifteen (15) days.

ITEM III
WELL DATA

# SOUTH HOBBS UNIT PRESSURE MAINTENANCE EXPANSION

III. Well Data

See attached data sheets for each proposed injection well.

- V. See attached map covering "Area of Review".
- VI. Previously submitted. See Form C-108.
- VII. Proposed Operation Data

Average Injection Rate: 1000 BWPD Average Injection Pressure: 500 PSI Maximum Injection Rate: 1500 BWPD

Maximum Injection Pressure: In accordance with Rule 11 of

Order No. R-4934-E

VIII. Geological Data

The injection zone is approximately 200' section in the San Andres. This interval is predominantly comprised of dolomite. The top of the Rustler Anhydrite is considered the lower limit of potable water occurrence in this area. This is situated at approximately 1600'. The Ogallala formation is the primary fresh water source, generally found at approximately 200'.

IX. Proposed Stimulation Program

Initial stimulation will generally consist of approximately 4000 gallons of 15% HCl acid.

- X. Well logs previously filed with the Division
- XI. Fresh Water Analysis

See attached Water Analysis

- XII. All available geologic and engineering data have been examined and there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Copy of this application has been mailed, as required by "Proof of Notice" section, to all parties on the attached service list.

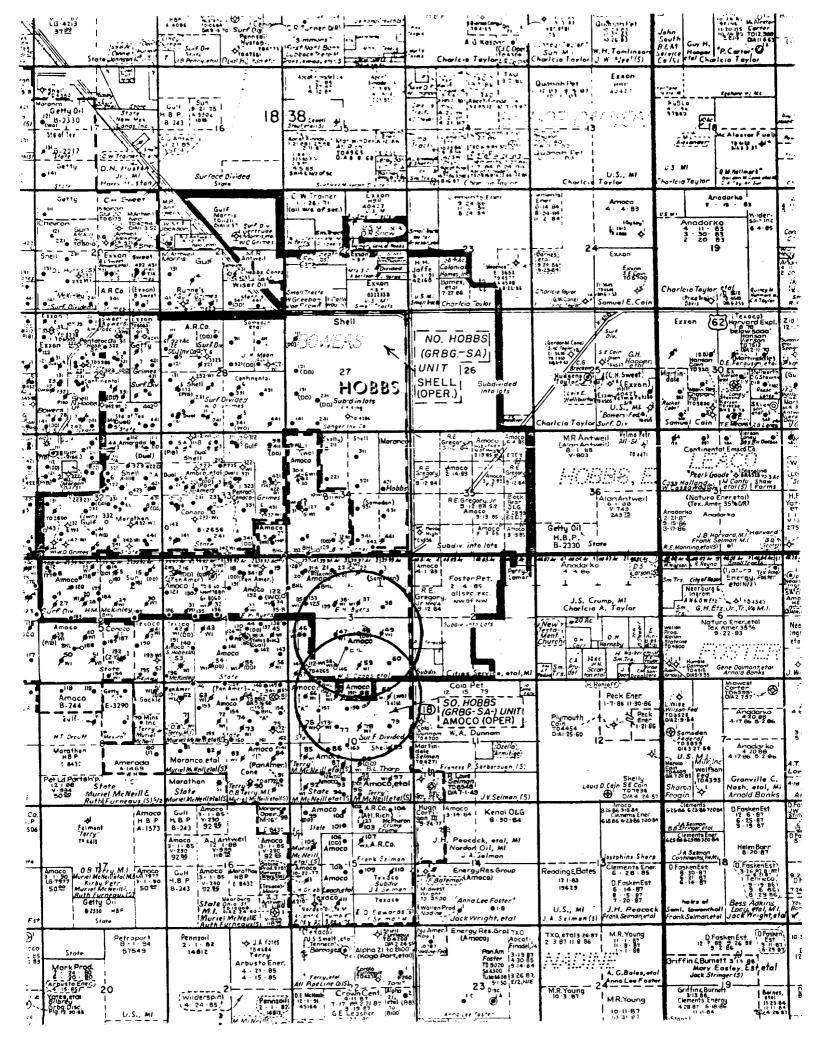
SGS/sh EPSEC7-LL

REP 25 1985

ITEM V

AREA OF REVIEW

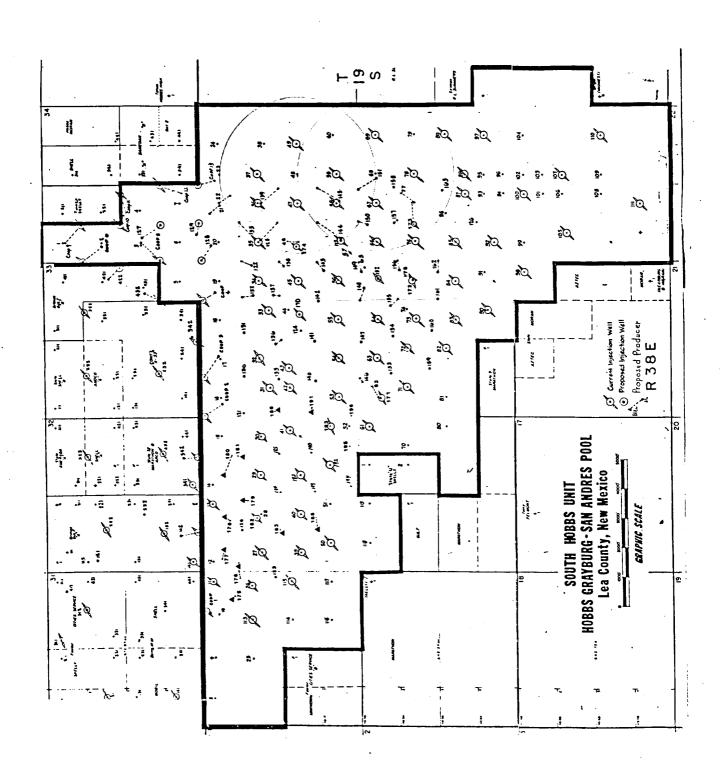
SER POS 1085



SER 26 1985

Schematic  Surface Cosion  Surface Cosion  Size 13	WELL NO.	3300 FNL X	2310 FEL	3	T-19-5	R-38.5
Surface Chaining  Size 13	WELL NO.	FOUTAGE LOCA	TION	SECTION	TOWNSHIP	R-38-E
Surface Chaining  Size 13				· · · · · · · · · · · · · · · · · · ·		
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Intermediate Casing  Size 95% Cemented with 560  TOC Swrace feet determined by Calculated Hole size 122 X 1490  TOC 3700 feet determined by CBL  TOC 3700 feet determined by CBL  TOC 3700 feet determined by CBL  Hole size 8 % X 4071  TOC 3700 feet determined by CBL  Hole size 8 % X 4071  TOC 3700 feet determined by CBL  TOC 1000			13 CSG TOC Sc	ntace r	eet determined t	y <u>Calculated</u>
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Size 95½ remented with 5LD  TOC Sorface rect determined by Calculridate  Hole size 12½ X 1490  100 Size 7 rect determined by Calculridate  Hole size 9½ X 1490  100 Feet determined by CBL  Hole size 9½ X 4971  101 3700 Feet determined by CBL  Hole size 9½ X 4971  102 Size 7 rect to 4734 Feet  103 Feet  104 Feet to 4734 Feet  105 Feet  105 Feet determined by CBL  Hole size 9½ X 4971  106 Feet determined by CBL  107 Feet determined by CBL  108 Feet to 4734 Feet  108 Feet determined by CBL  109 Feet determined by CBL  100 Feet deter	`		Interme	diate Casing	•	
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Hole size 12 2 x 1490    1	<u>'                                    </u>		TOC 50	rface r	eet determined b	
To 4250  To			. Hole si	ze 12 2" ×	11.90	Curcolated
Size Total depth 4750  Total depth 4750  Injection interval  4187 feet to 4734  Feet  Total depth 4750  Injection interval  4187 feet to 4734  Feet  Total depth 4750  Injection interval  4287 feet to 4734  Feet  Total depth 4750  Injection interval  4287 feet to 4734  Feet  Total depth 4750  Injection interval  4287 feet to 4734  Feet  Total depth 4750  Injection interval  4287 feet to 4734  Feet  Total depth 4750  Injection interval  4287 feet to 4734  Feet  Total depth 4750  Injection interval  Feet  Gentles and seed which)  Feet  Total depth 4750  Injection interval  4287 feet to 4734  Feet  Total depth 4750  Injection interval  Action interval  Feet  Gentles and seed which)  Feet  Injection interval  Action interval  Feet  Gentles and seed which)  Feet  Gentles and seed which  Feet  Gentles and seed and			5% CSG	•		
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4. Has the well ever been perforated in any other zone(s)? List all such perforated inter and give plugging detail (sacks of cement or bridge plug(s) used)  NONE  5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) this area.		or what purpose	was the well orig	inally drilled?	GRAYBURG -	SAN ANDRES
NONE  5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) this area.	If no, f					
NONE  5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) this area.	OIL P	well ever been p	perforated in any 1 (sacks of cement	other zone(s)?	List all such p	erforated interv
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) this area.	OIL P	productio decar	termination of the second of t			
this area.	OIL P 4. Has the and give					
this area.	OIL P		•			
,	OIL P  Has the and give	E	nme of any overlyi	ng and/or underl	ving oil or sec	zones (nocla)

OPERATOR  WELL NO.	•	,		29. Ē
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	38 - E RANGE
Schen	natic		Tabular Data	
77.77		. 1	Cemented with feet determined by	
9 9	- 8 0 13" CSG SA ZZO	Hole size 17" X	220	
17.7	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	Size 95/8"	Cemented withfeet determined by	
8	9 9 48 056	Hole size 174	•	
9	SA 1689	Size"  TOC <u>circulated</u>	Cemented withfeet determined by	
, ,	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Hole size 83/L	1 × 4070	•
	, 8	Injection interval  4193 fee (perforated or open	et to 42216 n-hole, indicate which)	feet
		2nd Long stri	•	
		Size 4½" Toc circulale	Cemented with	tso sx
0	) 7 CSG SA 4070	Hole size 6	, u	
00	0 42" csc	10 1210		
TD 42	OHSH AS OH			
Tubing size	23/8 lines	d with PLAST	IC aterial)	set in a
BAKER (bra	nd and model)		r at	· feet
Other Data	any other casing-tubing	g seal).		
<del></del>	the injection formation	SAN ANDRES	<u> </u>	
	Field or Pool (if applic			
3. Is this	a new well drilled for i	injection?7 Yes	Ø No	
	or what purpose was the	well originally dril	1ed? GRAYBURG - S	AN ANDRES
and give	well ever been perforate plugging detail (sacks NE	ed in any other zone( of cement or bridge	s)? tist all such perfo plug(s) used) ·	rated interv
	133			
5. Give the	•	ny overlying and/or u	ınderlyin <del>g</del> oil or gas zor	ica (poola) i
this are	a			



SEP OF 1985

ITEM XI

FRESH WATER ANALYSIS

#### UNICHEM INTERNATIONAL

#### 601 NORTH LEECH

P.O.BOX1499

#### HOBBS. NEW MEXICO 88240

COMPANY: AMOCO
DATE: 8-24-84
FIELD.LFASE&WELL: SOUTH HOBBS UNIT - IRVIN
SAMPLING POINT:
DATE SAMPLED: 8-23-84

2200 FNILX 2030 FEL, Sec 5, T-195, R-38-E

≈125' Decp

SPECIFIC GRAVITY = 1 TOTAL DISSOLVED SOLIDS = 831 PH = 7.25

		ME/L	MG/I.
CATIONS			
CALCIUM MAGNESIUM SODIUM	(CA)+2 (MG)+2 (NA).CALC.	5 . 2 3 . 3 4 . 1	104. 40.1 96.0
ANIONS			
BICARBONATE CARBONATE HYDROXIDE SULFATE CHLORIDES	(HCO3)-1 (CO3)-2 (OH)-1 (SO4)-2 (CL)-1	4 . 6 0 0 2 . 0 6	280. 0 0 100 210
DISSOLVED GASES	·		·
CARBON DIOXIDE HYDROGEN SULFIDE OXYGEN	(CO2) (H2S) (O2)	NOT RUN NOT RUN NOT RUN	
IRON(TOTAL) BARIUM MANGANESE	(FE) (BA)+2 (MN)	O NOT RUN	. 2

IONIC STRENGTH (MOLAL) = .018

SCALING INDEX TEMP 3 0 C 8 6 F CARBONATE INDEX 1.54 CALCIUM CARBONATE SCALING LIKELY CALCIUM SULFATE INDEX CALCIUM SULFATE SCALING -16 UNLIKELY

#### UNICHEM INTERNATIONAL

#### 601 NORTH LEECH

P.O.BOX1499

#### HOBBS. NEW MEXICO 88240

COMPANY : AMOCO DATE : 8-24-84

FIELD.LEASE&WELL : SOUTH HORBS UNIT - WALKER MACHINE SAMPLING POINT:
DATE SAMPLED : 8-23-84

1330' FNLX 300' FWL, SOL 5, F-19-5, R-38-E

170' Ocep

SPECIFIC GRAVITY = 1 TOTAL DISSOLVED SOLIDS = 604 PH = 7.16

		ME/L	MG/L
CATIONS			
CALCIUM MAGNESIUM SODIUM	(CA)+2 (MG)+2 (NA).CALC.	3 2 4 3 1 5	64 1 52 2 35 6
ANIONS		•	
BICARBONATE CARBONATE HYDROXIDE SULFATE CHLORIDES	(HCO3)-1 (CO3)-2 (OH)-1 (SO4)-2 (CL)-1	4 . 6 0 0 . 4 5 4	280. 0 0 21.4 150
DISSOLVED GASES			•
CARBON DIOXIDE HYDROGEN SULFIDE OXYGEN	(CO2) (H2S) (O2)	NOT RUN NOT RUN NOT RUN	
IRON(TOTAL) BARIUM MANGANESE	(FE) (BA)+2 (MN)	0 NOT RUN	.06

IONIC STRENGTH (MOLAL) = .013

SCA	LINC INDEX	TEMP
		3 0 C
		86F
CARBONATE INDEX		1.61
CALCIUM CARBONATE	SCALING	LIKELY
CALCIUM SULFATE I	NDEX	-18
CALCIUM SULFATE S	CALING	UNLIKEL

#### INTERNATIONAL UNICHEM

#### 601 NORTH LEECH

P.O.BOX1499

#### HOBBS, NEW MEXICO 88240

COMPANY: AMOCO
DATE: 8-24-84
FIELD.LEASE&WELL: SOUTH HOBBS UNIT - WINDMILL.
SAMPLING POINT:
DATE SAMPLED: 8-23-84

850 FNLX (450 FE

850 FNLX 1450 FEL, SOL 4, T-19-5, 12-38-E

× 120, Dosp

SPECIFIC GRAVITY = 1 TOTAL DISSOLVED SOLIDS = 711 PH = 7.23

		ME/L	MG/L
CATIONS			
CALCIUM MAGNESIUM SODIUM	(CA)+2 (MG)+2 (NA).CALC.	4 . 4 6 5 . 8	88.1 7.2 135.
ANIONS			
BICARBONATE CARBONATE HYDROXIDE SULFATE CHLORIDES	(HCO3)1 (CO3)-2 (OH)1 (SO4)-2 (CL)-1	3 . 6 0 0 1 . 2 6	219. 0 0 61.5 200
DISSOLVED GASE	S		
CARBON DIOXIDE HYDROGEN SULFIDE OXYGEN	(CO2) (H2S) (O2)	NUR TON NUR TON NUR TON	•
IRON(TOTAL) BARIUM MANGANESE	(FE) (BA)+2 (MN)	O NOT RUN	. 2 . 0 8

IONIC STRENGTH (MOLAL) = .014

SCALING INDEX TEMP 3 0 C 86F CARBONATE INDEX CALCIUM CARBONATE SCALING 1.69 LIKELY CALCIUM SULFATE INDEX CALCIUM SULFATE SCALING -17 UNLIKELY

# P 267 162 753

### RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL

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9/	5		RET	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢	
PS Form 3800, Apr. 1976	ſ			AGE AND PEES	\$2.18	
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# **P 267** 162 752

### RECEIPT FOR CERTIFIED MAIL

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

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			RETU	SHOW TO WHOM DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢	
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# P 267 162 751

# RECEIPT FOR CERTIFIED MAIL

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

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		CE	RTII	FIED FEE	175.		
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	E		RI	STRICTED DELIVERY	¢		
	CONSULT POSTMASTER FOR FEES	VICES	3VICE	SHOW TO WHOM AND DATE DELIVERED	170'		
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