STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: American Cometra

Address: P. O. Box 1749, Midland, Texas 79702

Contact party: Davis Payne Phone: 915 684-8248

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. Attached

* 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. There are no wells within the area of review which penetrate the proposed injection zone.

VII. Attach data on the proposed operation, including: Attached

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. Attached

IX. Describe the proposed stimulation program, if any. 500 - 1500 gallons acid

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.) See Blanks Arco State 2 logs (attached)

* 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. See attached plat and water analysis.

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. attached

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. (Attached)

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: Brenda Coffman (Mark Wheeler) Title Agent

Signature: Brenda Coffman Date: January 14, 1987

* 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.

ATTACHMENT TO FORM C-108

III. Well Data

A-1. Arco State #2, located 405' FSL & 1850' FEL, Section 16, T-18-S, R-35-E, Lea County, New Mexico.

A-2. 16" casing @ 466', cemented w/675 sx cement in a 22" hole. Cement circulated to surface.

11 3/4" casing @ 4818', cemented with 3700 sx cement in a 14 3/4" hole. Cement circulated to surface

5 1/2" casing @ 12,197' - cemented with 1800 sx cement in a 7 7/8" hole. TOC @ 5,390'.

A-3. Tubing will be 2 7/8" Duoline 8RT set at 12,150'.

A-4. Packer will be a nickle plated Baker Lockset Packer and on-off tool. Packer will be set 30-50' above 5 1/2" casing shoe.

B-1. Produced water will be injected into the lower Devonian formation in the South Vacuum Devonian Field.

B-2. Injection interval will be OH from 12,173 - 12,197 or deeper, if possible. This is +/- 350' below the original one of 7900'.

B-3. Arco State #2 was originally drilled by Blanks in 1985. American Cometra/Polaris later produced the Wolfcamp, but the well is now depleted

B-4. 2/18/85 Devonian open hole 12,173 - 12,197'. CIBP @ 12,142' w/10' cement on top.
2/27/85 Devonian perfs. 12,123 - 12,129' w/1 JS/ft (7 holes) CIBP @ 12,080' w/10' cement on top.
3/04/85 Devonian perfs 12,029 - 12,040' w/ 1 JS/ft. (12 Holes). CIBP 11,950' w/20' cement on top.
3/09/85 Devonian perfs 11,821 - 11,881 selective (12 holes) CIBP 10,500' w/20' cement on top.
4/18/85 Wolfcamp perfs 10,189 - 10,220' selective (22 holes). Potentialed 156 BO + 198 BW.
7/30/85 CIBP 10,180' w/1 sack cement on top Wolfcamp perfs 10,043 - 10,159' selective (18 holes) Not commercial. Well TA'd. Hold for SWD well.

B-5. Devonian produced to a subsea depth of +/- 7900'. Wolfcamp produced at a depth of 10,200'. Bone Springs produced oil at approximately 8500'. The Queen produced oil and gas at a depth of approximately 4400' in the area. There is no known deeper production.

V. Map attached that identifies all wells and leases within two miles of proposed injection well with a one-half mile radius circle drawn around same well identifying well's area of review.

VII. Data on proposed operation, as follows:

1. The proposed average daily rate is 3000 and the maximum daily rate is 4000 BWPD to be injected.
2. The system will be closed.
3. The system will be on vacuum.
4. The injected water will be produced water from nearby leases (mostly Devonian). There will be no compatibility problem.
5. Disposal zone (lower Devonian) water analysis not available, but we assume it would be similar to water produced from upper Devonian. See Attached.

VIII. The proposed disposal zone is Devonian Carbonate in approximate middle of 700' thich Devonian section and +/- 350' below the Devonian oil water contact. Proposed injection depth in Arco State 2 is the open hole 12,173 - 12,197'. We will deepen to +/- 12,400', if we can do so without encountering severe lost circulation.

Fresh water in this area is from the Ogalalla at 100 - 200'. There are no fresh water zones below the proposed disposal zone.

XII. There are no known faults or hydrologic connection between the disposal zone at +/- 12,200' and the fresh water zone at 200'.

ATTACHMENT TO FORM C-108
ARCO STATE WELL NO. 2

SURFACE OWNER

Mr. Bill Lee
West Star Route Box 465
Lovington, New Mexico 88260

LEASEHOLD OPERATORS WITHIN ONE-HALF MILE OF THE WELL LOCATION

Canyon Oil and Gas Corp.
C/O Slawson Oil Co.
104 S Broadway
Wichita, KS 67202

Arco Oil and Gas Company
Box 2819
1601 Bryan
Dallas, Texas 75221

Yates Petroleum
Yates Bldg.
105 South 4th
Artesia, New Mexico 88210

Maralo, Inc.
P. O. Box 832
Midland, Texas 79702 0832 (Waiver Attached)

January 19, 1987

New Mexico Oil Conservation Commission
Post Office Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Re: American Cometra
Application for Authorization To Inject
Form C-108

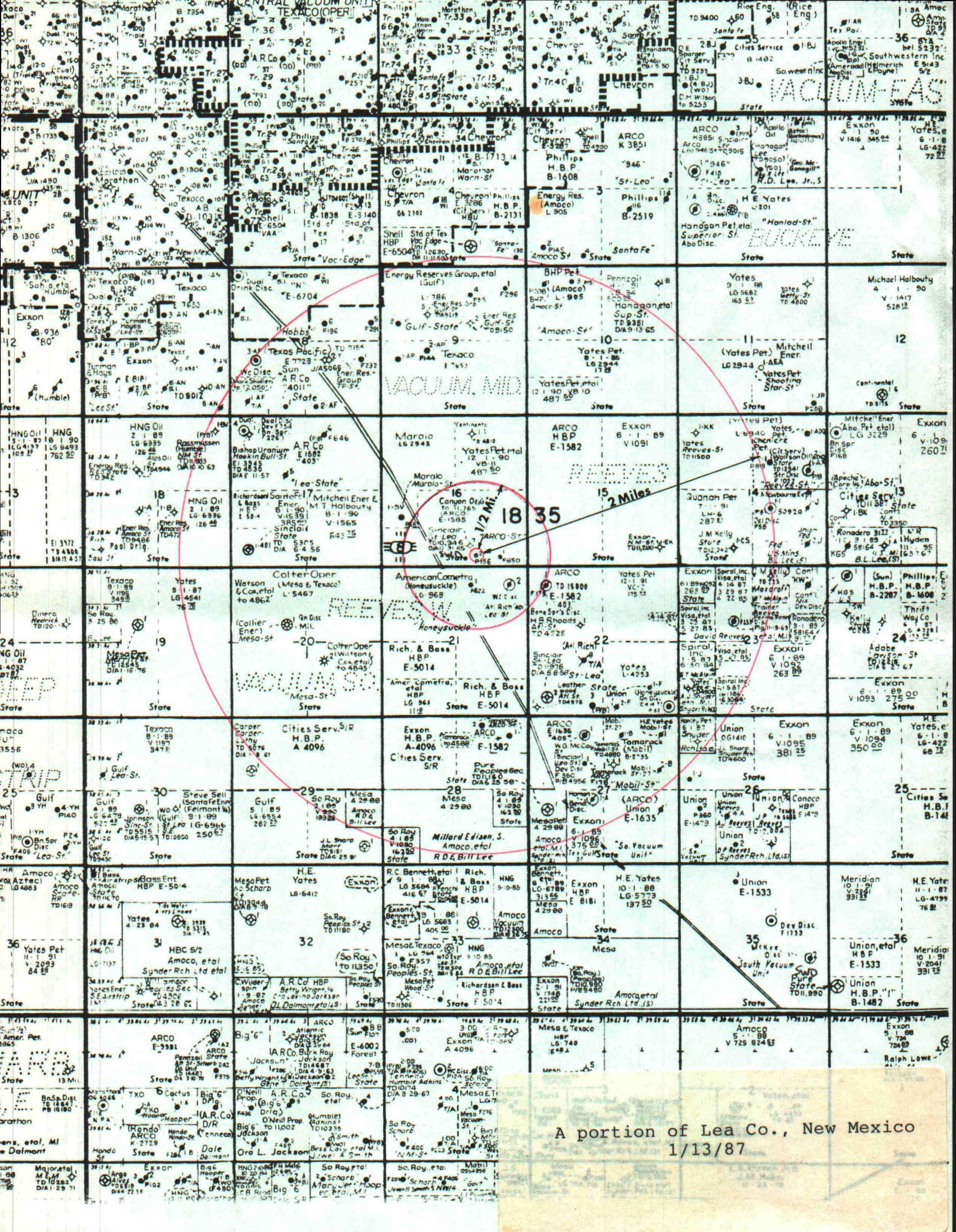
Dear Sir:

Please, consider this letter Maralo, Inc.'s waiver of any objections to American Cometra's application to inject water into their Arco State No. 2 located in Unit letter O, 405' FSL and 1850' FEL of Section 16 T-18-S, R-35-E, Lea County, New Mexico.

Brenda Coffman

Brenda Coffman, Agent

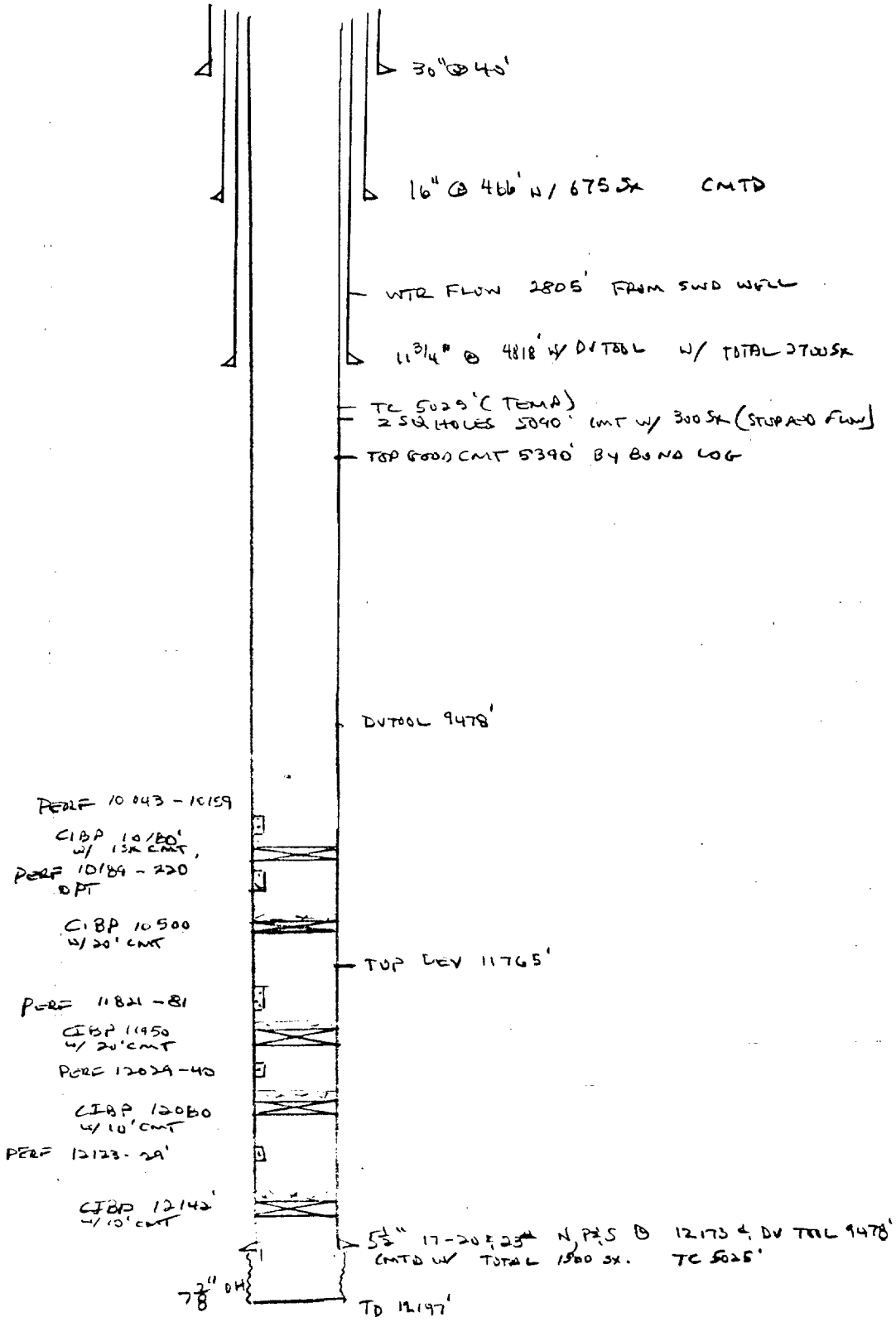
January 19, 1987
Date



A portion of Lea Co., New Mexico
1/13/87

ARCO STATE 2
SWD

3973' KB
ZERO 13' AGL



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VII E)

HALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVIS .
HOBBS, NEW MEXICO 88240

LABORATORY WATER ANALYSIS

No. W85-636

To Maralo

Date 11-18-85

Submitted by _____ Date Rec. _____

Well No. SV St. #16 Depth _____ Formation DEVONIAN

County LEA Field S. VACUUM Source WELL HEAD

Resistivity	0.19 @ 75 °F			
Specific Gravity	1.027 @ 60 °F			
pH	6.2			
Calcium (Ca)	2000			*MPL
Magnesium (Mg)	1200			
Chlorides (Cl)	23,000			
Sulfates (SO_4)	mod			
Bicarbonates (HCO_3)	600			
Soluble Iron (Fe)	mod			

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: ~~Lee Hisey~~

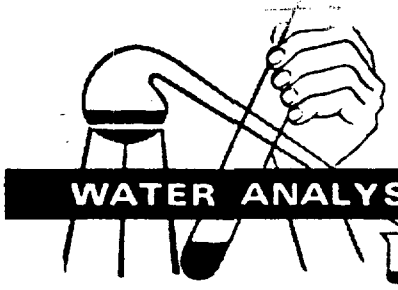
HALLIBURTON COMPANY

cc:

By _____
CHEMIST

NOTICE

6120



WATER ANALYSIS REPORT

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863
RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561
PLANT: Odessa, Texas Phone (915) 337-0055

Champion Chemicals, Inc.

BOX 4513
ODESSA, TEXAS 79760

REPORT FOR: Cecil Brewer
CC: Skidmore
CC:
CC:
COMPANY: Maralo, Inc.
ADDRESS:
SERVICE ENGINEER: Cecil Brumley

DATE SAMPLED: 6/6/86 6/9/86
DATE REPORTED:
FIELD, LEASE, OR WELL: S V State 16 #1
COUNTY: STATE: N.M.
FORMATION:
DEPTH:
SUBMITTED BY: Cecil Brumley

CHEMICAL ANALYSIS (AS PARTS PER MILLION)

Chemical Component	Field, Lease, or Well					
	6/6	#1 6/9	#2 6/9	#3 6/9	#4 6/9	
Chloride (Cl)	16000	23000	51000	39000	30000	
Iron (Fe)	14.6	75.4	237.6	221.2	221.2	
Total Hardness ($CaCO_3$)	4400	13900	62300	37000	28500	
Calcium (Ca)	1160	4040	16000	10400	7560	
Magnesium (Mg)	364	923	5419	2673	2333	
Bicarbonate (HCO_3)	500	268	0	0	73	
Carbonate (CO_3)	0	0	0	0	0	
Sulfate (SO_4)	1625	1825	1425	1375	1425	
Hydrogen Sulfide (H_2S)	1.0	1.5	3.4	1.9	2.2	
Specific Gravity	1.021	1.028	1.056	1.045	1.035	
~~Density, lb/gal.~~ TDS	28960	39547	78952	62374	48448	
pH - Beckman [X] Strip [ ]	6.6	5.9	4.4	5.0	5.4	
Sodium	9310	9490	5108	8926	7056	
Scaling Index						
CaCO3 @ 86F	-0.19	-0.71	-4.00	-3.70	-1.57	
CaCO3 @ 158F	+0.98	+0.46	-2.82	-2.54	-0.40	
CaSO4	negative	positive	positive	positive	positive	

OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

REPORTED BY: Randolph Scott TITLE: Chemist

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

P

WATER ANALYSIS REPORT

COMPANY	SOURCE
Union Oil Company of California	South Vacuum Unit Well 1-26 Sample point: Wellhead
Submitted by: Raybon Sampled by: Raybon Distribution Center: Midland	Sample date: 6/ 8/82 Analysis Date: 6/17/82 Analysis No.: 20327

SAMPLE ANALYSIS

Appearance: Clear
Color: Colorless
Sp. Conductivity: 42000 micromhos/cm
Chem. Treatment: N/A
pH: 7.4
H2S (Qualitative): Neg.

DEVONIAN WATER

constituent **	ppm	meq/l	method	comment
Sodium (Na+)	8950	389.	icp	
Potassium (K+)	275.	7.0	icp	
Lithium (Li+)	2.7	0.4	icp	
Calcium (Ca++)	1340	66.9	icp	
Magnesium (Mg++)	201.	16.5	icp	
Barium (Ba++)	0.42	0.006	icp	
Strontium (Sr++)	28.0	0.6	icp	
Aluminum (Al+++)	<0.1	-	icp	
Silver (Ag+)	<0.02	-	icp	
Arsenic (As+++)	<0.5	-	icp	
Chromium (Cr+++)	<0.06	-	icp	
Copper (Cu++)	<0.01	-	icp	
Iron (Fe++)	0.12	0.004	icp	
Mercury (Hg++)	<0.1	-	icp	
Lead (Pb++)	<0.?	-	icp	
Antimony (Sb+++)	<2.	-	icp	
Tin (Sn++)	<0.6	-	icp	
Titanium (Ti++++)	<0.01	-	icp	
Zinc (Zn++)	0.071	0.00216	icp	
Boron (B) ***	4.24	1.18	icp	
Phosphate (PO4---)	<0.5	-	icp	
Chloride (Cl-)	16000	451.	titr	
Sulfate (SO4--)	1730	36.0	turb	
Bicarbonate (HCO3-)	508.	8.3	titr	
Carbonate (CO3--)	<1.	-	titr	
Silica (SiO2)	70.0	-	icp	

7045

WATER ANALYSIS REPORT

TECH SERVICE LABORATORY: Odessa, Texas Phone (915) 337-0055 & 563-0863
RESEARCH LABORATORY: Houston, Texas Phone (713) 431-2561
PLANT: Odessa, Texas Phone (915) 337-0055

Champion Chemicals, Inc.
BOX 4513
ODESSA, TEXAS 79760

REPORT FOR: Cecil Evans
CC:
CC: Skidmore
CC:
COMPANY: Maralo
ADDRESS:
SERVICE ENGINEER: Ray Adrian

DATE SAMPLED: 1/7/87
DATE REPORTED: 1/9/87
FIELD, LEASE, OR WELL: as listed
COUNTY: STATE:
FORMATION:
DEPTH:
SUBMITTED BY: Ray Adrian

CHEMICAL ANALYSIS AS PARTS PER MILLION

Chemical Component	Field, Lease, or Well					
	~~CB 21 18S 35E~~ Miss.Chem #6 Fresh	~~C 16 18S 35E~~ Windmill No. of #6				
Chloride (Cl)	200	200				
Iron (Fe)	0	0				
Total Hardness ($Ca CO_3$)	300	340				
Calcium (Ca)	88	120				
Magnesium (Mg)	19	9				
Bicarbonate (HCO_3)	170	170				
Carbonate (CO_3)	0	0				
Sulfate (SO_4)	8	14				
Hydrogen Sulfide (H_2S)						
Specific Gravity	1.000	1.000				
Density, lb./gal.	8.334	8.334				
pH - Beckman [ ] Strip [ ]	7.400	7.200				
~~Carbon dioxide~~						
~~Sodium (calc.)~~	61	45				
~~TDS~~	548	560				
~~CaSO4 Sol @ 82F~~	2302	2253				
~~CaSO4 Present~~	12	20				

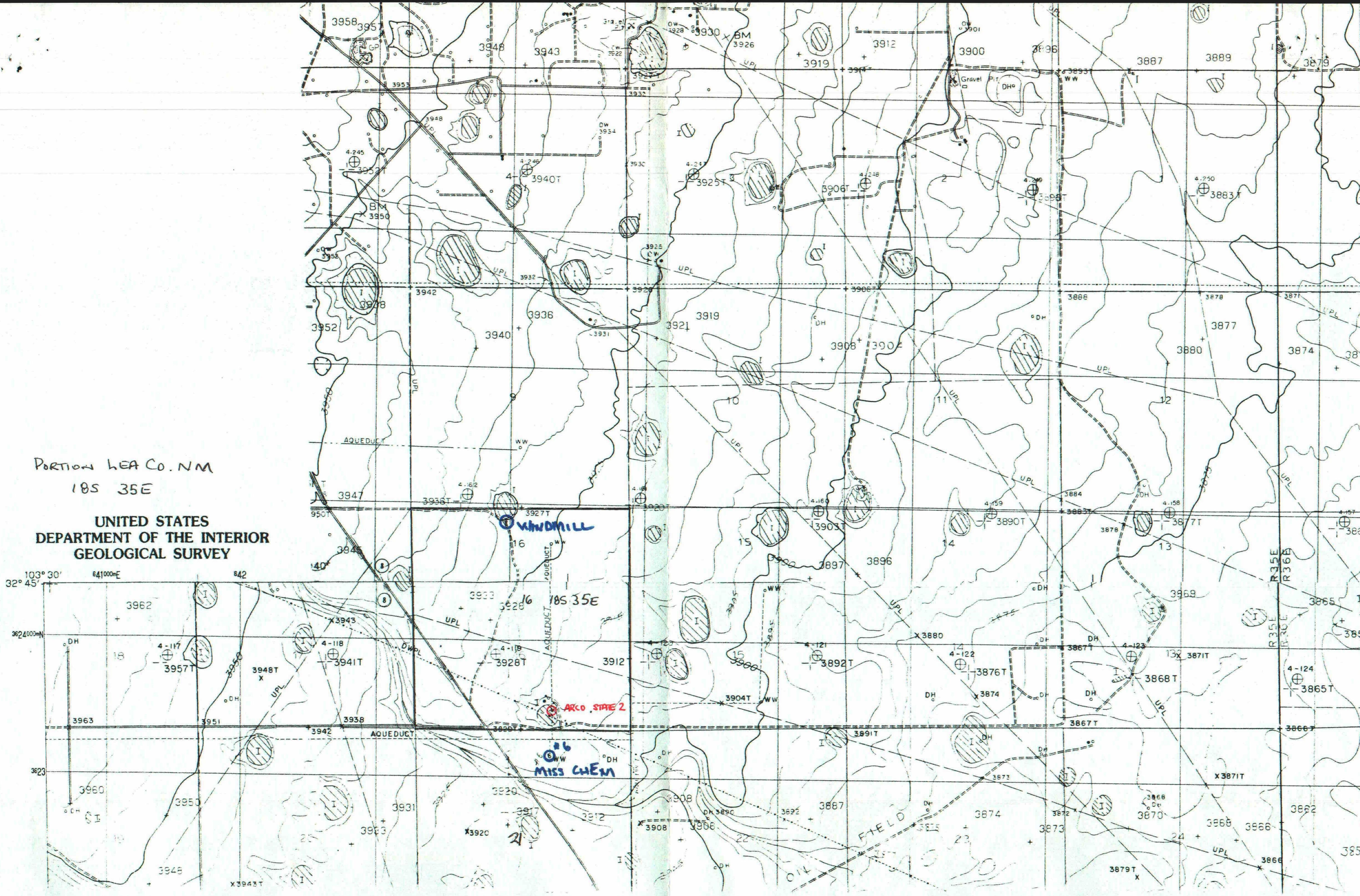
OTHER DESCRIPTION, REMARKS AND RECOMMENDATIONS

CaCO3 SI @	86 F	+0.50	+0.42
	104 F	+0.72	+0.64
	122 F	+0.95	+0.87
	140 F	+1.18	+1.10
	158 F	+1.43	+1.35

REPORTED BY: Randolph Scott TITLE: Chemist

PORTION LEA CO. NM
18S 35E

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



AFFIDAVIT OF PUBLICATION

State of New Mexico,

County of Lea.

I, _____

Robert L. Summers

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached 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

October 6, 19 86

and ending with the issue dated

October 6, 19 86

Robert L. Summers
Publisher.

Sworn and subscribed to before me this 5 day of November, 1986

Vera Murphey
Notary Public.

My Commission expires

Nov. 14, 1988

(Seal)

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
October 6, 1986

NOTICE OF APPLICATION TO DISPOSE OF PRODUCED WATER

American Cometra, Inc. is applying to the Oil Conservation Commission for a permit to inject produced water into a zone not productive of oil or gas. The person to contact, with American Cometra is Davis Papay at 915 [illegible]6248, P.O. Box 1749, Midland, Texas 79702.

American Cometra, Inc. intends to inject field into the Middle Devonian formation through open hole at a depth from 12,173 - 12,400'+/- for their Arco State Well No. 2. The well is located in Unit letter O, 405' from the South line and 1850' FEL of Section 16, T-18-S, R-35-E, Lea County, New Mexico. The maximum daily injection rate will be [illegible] BWPD and the average injection rate will be 3000 BWPD. The pressure will be maximum.

Interested parties must file objections or request for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE