



## COASTAL MANAGEMENT CORPORATION

OIL AND GAS PROJECT MANAGEMENT

August 13, 1998

State of New Mexico  
Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, NM 87505  
Attn: Mr. Ben Stone

Re: Water Injection Permits  
Parkway (Delaware) Unit  
Wells #304 and #507

Dear Mr. Stone:

Coastal Management Corporation as agent for St. Mary Land and Exploration began injection in the subject wells on June 21, 1997. Unfortunately, we failed to secure approval to inject from the OCD office. It was an oversight by Coastal Management. The two (2) wells are interior injection wells as highlighted on the attached map. There were five (5) wells injecting into the Delaware zone prior to drilling the 304 and 507. Subsequently, five (5) additional injection wells have been drilled and one (1) producer has been converted all with proper approval.

The Parkway (Delaware) Unit began to experience waterflood response in July, 1997. Response has begun in wells 201, 202 and 301. Wells 202 and 301 are direct offsets to the subject injection wells. Coastal is concerned that terminating injection in the 304 and 507 for a lengthy time will be detrimental to secondary recovery operations on the Unit. Ceasing injection in the subject wells will cause an imbalance of injection in four (4) complete 5-spot patterns and two (2) partial patterns. The GOR is also collapsing in other wells surrounding the subject wells. This indicates that we are building reservoir pressure as a result of injection. Terminating injection in the 304 and 507 will delay this process which is critical to the success of the project in these interior patterns. Coastal Management Corporation respectfully request OCD approval to continue injection into the Parkway (Delaware) Unit wells 304 and 507.

Coastal Management Corporation apologizes for any inconvenience we may have caused. It was never our intent to not file for the proper approval, it was an oversight on our account.

If you have any questions or require additional information, please call Mr. Otto Svendsen or myself at (915) 688-0700.

Respectfully,

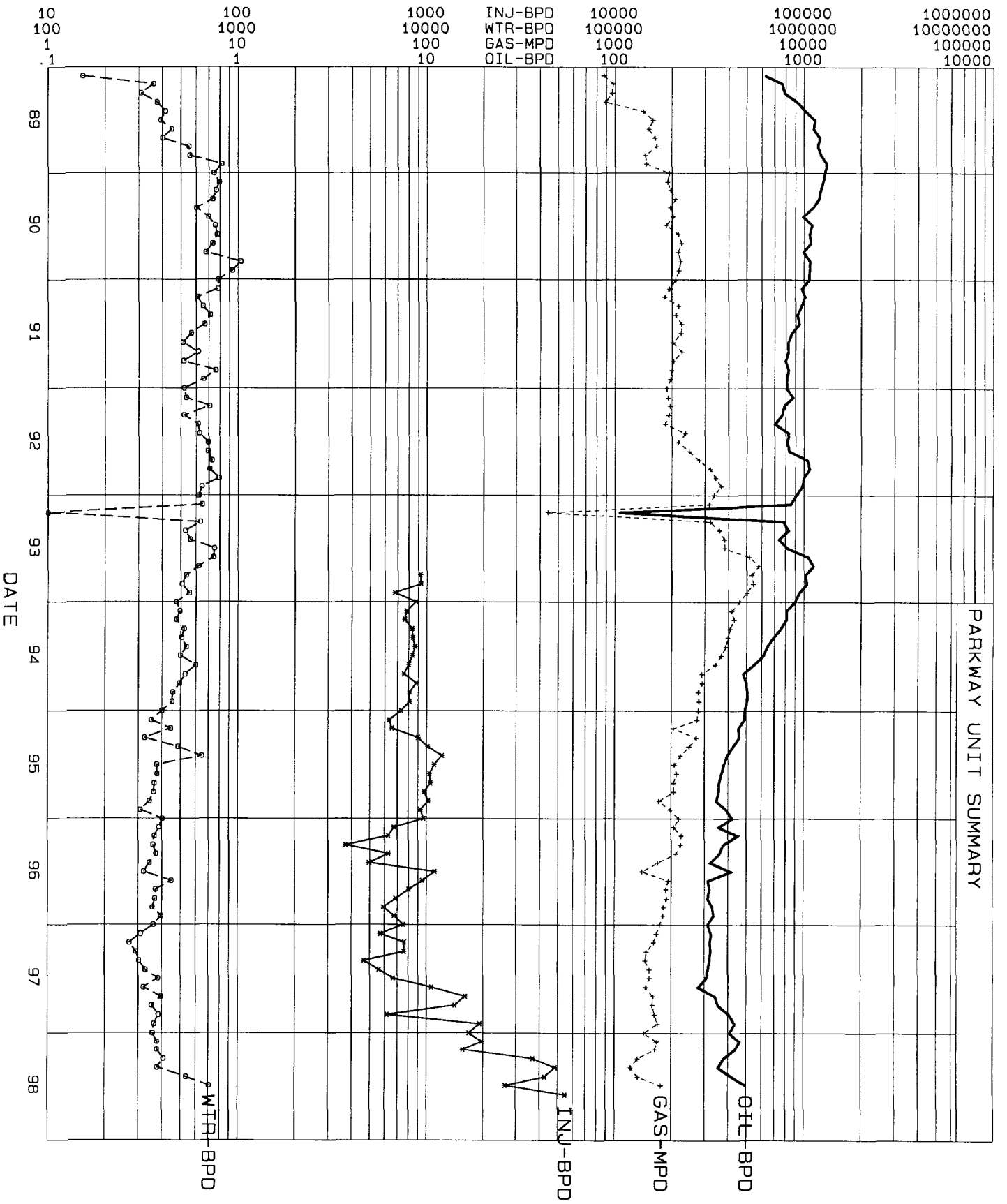
A handwritten signature in black ink, appearing to read 'Alan D. Means', written in a cursive style.

Alan D. Means, PE  
Asset Manager

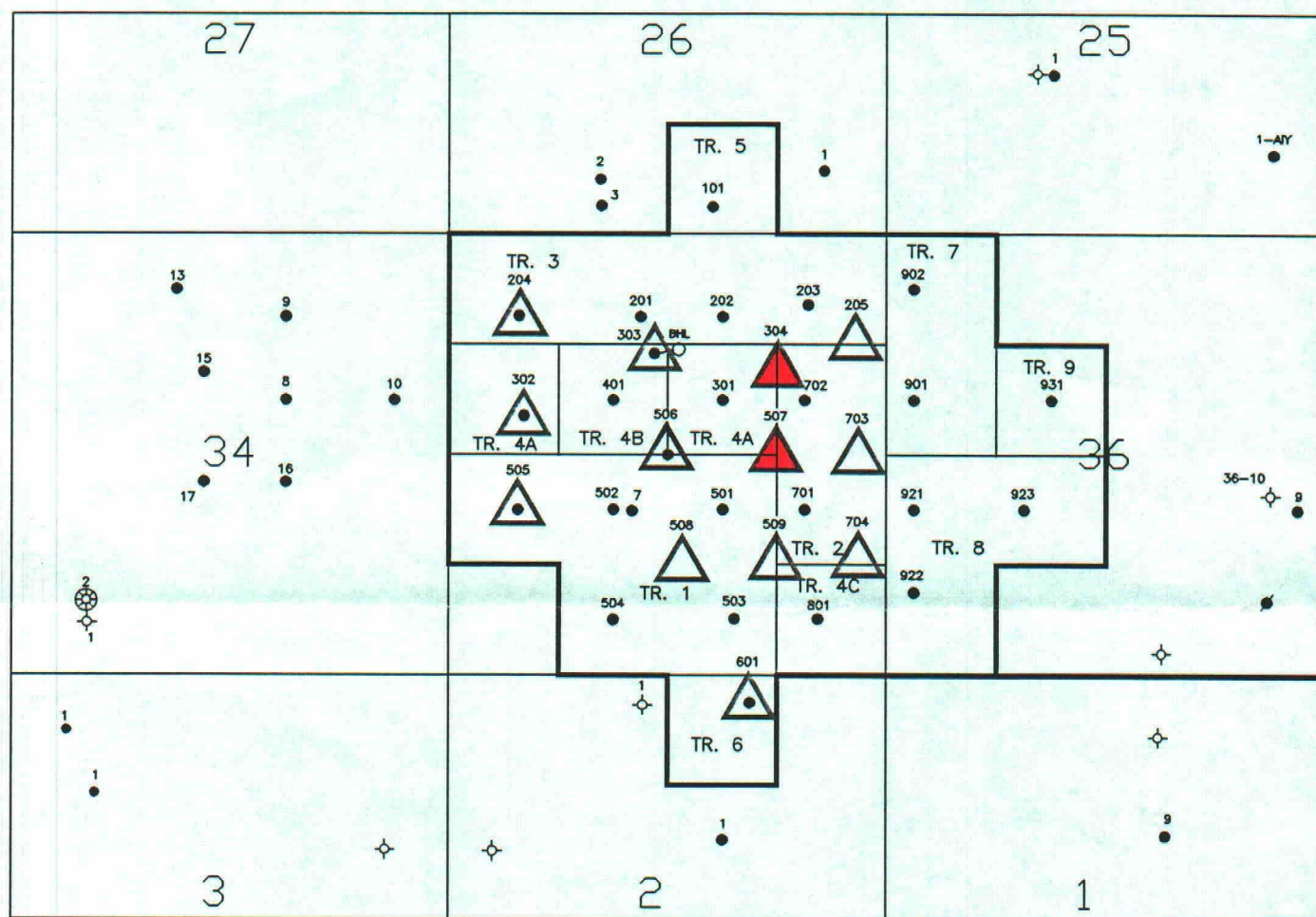
ADM/sb

cc: B. Smith  
L. Esterly  
O. Svendsen

PARKWAY UNIT SUMMARY



*Township 19 South, Range 29 East*



**ST. MARY LAND & EXPLORATION**

Eddy County, New Mexico

**PARKWAY DELAWARE FIELD**

**PROPOSED FINAL INJECTION PATTERNS**



CONVERSION



EXISTING



PHASE 2



# COASTAL MANAGEMENT CORPORATION

OIL AND GAS PROJECT MANAGEMENT

AUG 24 1998

OIL CONSERVATION DIVISION

August 17, 1998

Mr. Ben Stone  
State of New Mexico  
Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505

Re: Application for Authorization to Inject  
Parkway Delaware Unit No.'s 304 and 507  
Eddy County, New Mexico

Dear Mr. Stone:

The enclosed original Affidavit of Publication is to be included in the Application for Authorization to Inject into the captioned wells which was delivered to you in person by Mr. Bill Carr, Attorney for Carr & Campbell.

Should you have any questions in this regard, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosure  
/le

DATE IN	SUSPENSE 8/27/98	ENGINEER BEN	LOGGED BY KV	TYPE PMX
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186

ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
- Engineering Bureau -

**ADMINISTRATIVE APPLICATION COVER SHEET**

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

**Application Acronyms:**

**[NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]**  
**[DD-Directional Drilling] [SD-Simultaneous Dedication]**  
**[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]**  
**[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]**  
**[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]**  
**[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]**  
**[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]**

**[1] TYPE OF APPLICATION - Check Those Which Apply for [A]**

[A] Location - Spacing Unit - Directional Drilling  
☐ NSL ☐ NSP ☐ DD ☐ SD

Check One Only for [B] and [C]

[B] Commingling - Storage - Measurement  
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
☐ WFX ☒ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

**[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or ☐ Does Not Apply**

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☒ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

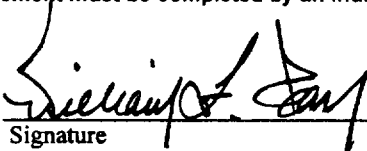
**[3] INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding**

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I understand that any omission of data (including API numbers, pool codes, etc.), pertinent information and any required notification is cause to have the application package returned with no action taken.

**Note: Statement must be completed by an individual with supervisory capacity.**

William F. Carr  
Print or Type Name

Signature



Attorney  
Title

08/07/98  
Date

### 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 objection or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87504-2088 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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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.

**PARKWAY DELAWARE UNIT NO. 304**

**PARKWAY DELAWARE UNIT NO. 507**

**OFFSET OPERATORS AND INTERESTED PARTIES**

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**OFFSET OPERATORS**

Burlington Resources Oil & Gas  
P.O. Box 51810  
Midland, Texas 79710-1810

Presidio Exploration, Inc.  
5613 DTC Parkway, Suite 750  
P.O. Box 6525  
Englewood, CO 80155-0625

Chevron U.S.A. Inc.  
P.O. Box 36366  
Houston, Texas 77236

Santa Fe Energy Resources, Inc.  
1616 S. Voss, Suite 1000  
Houston, Texas 77057

**COUNTY CLERK**

Eddy County Clerk  
Attn: County Clerk  
P.O. Box 850  
Carlsbad, New Mexico 88221-0850

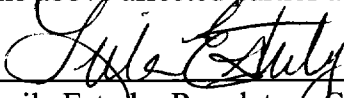
**SURFACE OWNERS**

Department of the Interior  
Bureau of Land Management  
2909 W. Second Street  
Roswell, New Mexico 88201

Commissioner of Public Lands  
State of New Mexico  
P.O. Box 1148  
Santa Fe, New Mexico 87504-1148

Reference XIV "Proof of Notice" of NMOC Form C-108 Instructions

I, Leila Esterly, certify that copies of the application were mailed on August 5, 1998 to the above affected parties at the addresses listed.

  
\_\_\_\_\_  
Leila Esterly, Regulatory Coordinator  
for Coastal Management Corporation  
(Acting on Behalf of St. Mary Land & Exploration Company)





**COASTAL MANAGEMENT CORPORATION**  
OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 691

August 5, 1998

Department of the Interior  
Bureau of Land Management  
2909 W. Second Street  
Roswell, New Mexico 88201

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

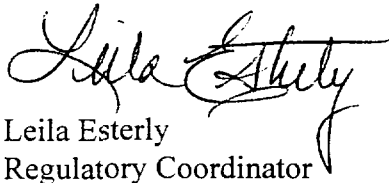
Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

  
Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**

OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 692

August 5, 1998

Eddy County Clerk  
Attn: County Clerk  
P.O. Box 850  
Carlsbad, New Mexico 88221-0850

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**  
OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 693

August 5, 1998

Santa Fe Energy Resources, Inc.  
1616 S. Voss, Suite 1000  
Houston, Texas 77057

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**  
OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 694

August 5, 1998

Chevron U.S.A. Inc.  
P.O. Box 36366  
Houston, Texas 77236

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**

OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 695

August 5, 1998

Presidio Exploration, Inc.  
5613 DTC Parkway, Suite 750  
P.O. Box 6525  
Englewood, CO 80155-0625

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**

OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 696

August 5, 1998

Burlington Resources Oil & Gas  
P.O. Box 51810  
Midland, Texas 79710-1810

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**  
OIL AND GAS PROJECT MANAGEMENT

VIA CERTIFIED MAIL P 245 753 697

August 5, 1998

Commissioner of Public Lands  
State of New Mexico  
P.O. Box 1148  
Santa Fe, New Mexico 87504-1148

Re: Parkway (Delaware) Field  
Parkway Delaware Unit No.'s 304 and 507  
Section 35, Township 19 South, Range 29 East  
Eddy County, New Mexico

Gentlemen:

Attached please find Coastal Management Corporation's (Operator for St. Mary Land & Exploration Company) application to the Oil Conservation Division of the State of New Mexico to convert the captioned wells to injection. Said wells were permitted to be drilled as injectors on March 27, 1997 and were completed during June, 1997.

Should you have any questions with regard to this application, please feel free to contact the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Regulatory Coordinator

Enclosures  
/le



**COASTAL MANAGEMENT CORPORATION**  
OIL AND GAS PROJECT MANAGEMENT

August 5, 1998

Carlsbad Current Argust  
P.O. Box 1629  
Carlsbad, New Mexico 88221

Re: Application to Inject Fluid  
Parkway (Delaware) Field  
Eddy County, New Mexico

Ladies and Gentlemen:

Please publish the attached legal notice in the legal notice section of the Carlsbad Current Argust for ONE day only, excluding Sunday. Upon publication, please forward a copy of the publication, an affidavit of publication designating that the Carlsbad Current Argust is of general circulation in Eddy County, New Mexico, and the billing to me at:

Coastal Management Corporation  
Attn: Leila Esterly  
P.O. Box 2726  
Midland, Texas 79702-2726

Should you require additional information, please do not hesitate contacting the undersigned at 915-688-0756.

Sincerely,

**COASTAL MANAGEMENT CORPORATION**

Leila Esterly  
Land Administrator

Enclosures  
/le



PMX 8/27/98

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE:        Secondary Recovery   X   Pressure Maintenance        Disposal        Storage  
Application qualifies for administrative approval?        Yes        No
- II. OPERATOR: St. Mary Land & Exploration Company, c/o Coastal Management Corporation  
  
ADDRESS: P.O. Box 2726, Midland, Texas 79702-2726  
  
CONTACT PARTY: Leila Esterly PHONE: 915-688-0756
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection.  
Additional sheets may be attached, if necessary.
- IV. Is this an expansion of an existing project:   X   Yes        No  
If yes, give the Division order number authorizing the project R-9822
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well within 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 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 source drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certifications: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Leila Esterly

TITLE: Regulatory Coordinator

SIGNATURE: 

DATE: August 4, 1998

\* If the information required under Section 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. June 26, 1993

## **NOTICE OF APPLICATION FOR FLUID INJECTION WELL PERMIT**

**Coastal Management Corporation (Operator for St. Mary Land & Exploration Company), P.O. Box 2726, Midland, Texas 79702**, is applying to the State of New Mexico, Oil Conservation Division for a permit to inject fluid into a formation that is productive of oil and gas. The applicant proposes to inject fluid into the Delaware formation on the following two (2) wells which are all located in Section 35, Township 19 South, Range 29 East of the Parkway (Delaware) Field in Eddy County, New Mexico: Parkway Delaware Unit No. 304 located 1485' FNL & 1485' FEL and the Parkway Delaware Unit No. 507 located 2628' FSL & 1485' FEL. Fluid will be injected into the subsurface depth interval as follows: PDU No. 304 from 4168' - 4261' and PDU No. 507 from 4164' - 4280'. The expected maximum pressure on each well will be 2500 psi with an expected maximum injection volume of 600 BWPD.

Requests for a public hearing from persons who can show they are adversely affected, should be submitted in writing, within fifteen (15) days of publication, to the Oil Conservation Division of the State of New Mexico, 2040 S. Pacheco, Santa Fe, New Mexico 87505 (Telephone: 505-827-7131). Requests for further information concerning any aspect of the application should be directed to Leila Esterly at Coastal Management Corporation, P.O. Box 2726, Midland, Texas 79702-2726 (Telephone: 915-688-0700).

STATE OF NEW MEXICO §  
COUNTY OF EDDY §

Before me, the undersigned authority, on this day personally appeared \_\_\_\_\_ (Name), the \_\_\_\_\_ (Title) of the **CARLSBAD CURRENT ARGUST**, a newspaper having general circulation in **EDDY** County, New Mexico, who by me duly sworn, deposes and says that the foregoing attached notice was published in said newspaper on the following date(s), to wit:  
\_\_\_\_\_.

Subscribed and sworn to before me this the \_\_\_\_\_ day of \_\_\_\_\_, 1998, to certify which witness my hand and seal of office.

\_\_\_\_\_  
Notary Public in and for  
\_\_\_\_\_ County, New Mexico.

**PARKWAY DELAWARE UNIT**  
**Parkway Delaware Unit No. 304 - Convert to Injection**

NMOC Form C-108 (Attachment)

**III. Injection Well Information (Schematic Attached)**

1. Lease: Parkway Delaware Unit  
Well No.: 304  
Location: 1485' FNL & 1485' FEL, Unit Letter G  
Section 35, T-19-S, R-29-E
2. Casing: 13-3/8" @ 356' w/540 sx, circ. to surf. (hole 17-1/2")  
9-5/8" @ 1500' w/535 sx, circ. to surf. (hole 12-1/4")  
7" @ 3045' w/350 sx, circ. to surf. (hole 8-3/4")  
4-1/2" @ 4422' w/250 sx (hole 6-1/4")  
TOC @ 1920'
3. Injection Tubing: 128 Jts. 2-3/8", 4.7 lb./ft., J-55 Fiber Lined
4. Packer set @ 4071'

**B. Other Well Information**

1. Injection Formation: Delaware  
Field: Parkway Delaware
2. Existing Perforations: 4227' - 4261', 1 SPF, 23 Holes  
4206' - 4224', 1 SPF, 13 Holes  
4182' - 4202', 1 SPF, 14 Holes  
4168' - 4178', 1 SPF, 7 Holes
3. This well was permitted to be drilled as an injection well by Coastal Management Corporation operation for St. Mary Land & Exploration Company on March 27, 1997.
4. There are no other perforated or tested intervals in this well.
5. Within the area of this project, the Yates formation is a marginal producing zone at  $\pm 1440'$ .

13.375" csg @ 356' w/ 540 sx

12.250" hole

9.625" csg @ 1500' w/ 535 sx  
(CIRC)

TOC = 1920'  
(CBL)

7.000" lnr @ 0- 3045' w/ 550 sx

6.250" hole

2.375" tbg @ 4071' (ICO)  
LOKSET W/ 1.50R PROFILE

4168- 4178'  
(DELA)

Cmpl fm 4227- 4261' (DELA)

CMT @ 4400'

4.500" csg @ 4430' w/ 250 sx

T.D. = 4430' PBTD: 4400'

Comments: NOT FRAC'D

FIELD: PARKWAY; EDDY Co., NM

LOC: 1485' FNL; 1485' FEL; Sec 35; T19S, R29E

ELEV: 3321' ( 0.0' above GL)

DATE: 08/04/98 BY: Leila Esterly

### CASING RECORD

#### SURFACE CASING

O.D.	#/ft	GRADE	CONN	SET AT
13.375	48.00	J-55	STC	356'

#### INTERMEDIATE CSG/ LNR

O.D.	#/ft	GRADE	CONN	SET AT
9.625	36.00	J-55	STC	1500'
7.000	23.00	J-55	LTC	0- 3045'

#### PRODUCTION CASING

O.D.	#/ft	GRADE	CONN	SET AT
4.500	11.6	J-55	LTC	4431'

#### TUBING

O.D.	#/ft	GRADE	CONN	SET AT
2.375	4.90	ICO	FGL	0 - 4071'

### WELL HISTORY

SPUDDED 04/23/97; TD 05/07/97

LOST RETURNS @ 323' & 1965'; 9 5/8"

CMT W/ STAGE PKR

**PARKWAY DELAWARE UNIT**  
**Parkway Delaware Unit No. 507 - Convert to Injection**

NMOC Form C-108 (Attachment)

**III. Injection Well Information (Schematic Attached)**

1. Lease: Parkway Delaware Unit  
Well No.: 507  
Location: 2628' FSL & 1485' FEL, Unit Letter G  
Section 35, T-19-S, R-29-E
2. Casing: 13-3/8" @ 354' w/390 sx, circ. to surf. (hole 17-1/2")  
9-5/8" @ 1366' w/500 sx, circ. to surf. (hole 12-1/4")  
7" @ 2988' w/480 sx, circ. to surf. (hole 8-3/4")  
4-1/2" @ 4399' w/210 sx (hole 6-1/8")  
TOC @ 2810'
3. Injection Tubing: 128 Jts. 2-3/8", 4.7 lb./ft., J-55 Dual Lined Fiber Coated
4. Packer set @ 4280'

**B. Other Well Information**

1. Injection Formation: Delaware  
Field: Parkway Delaware
2. Existing Perforations: 4211' - 4280', 1 SPF, 46 Holes  
4164' - 4198', 1 SPF, 26 Holes
3. This well was permitted to be drilled as an injection well by Coastal Management Corporation operation for St. Mary Land & Exploration Company on March 27, 1997.
4. There are no other perforated or tested intervals in this well.
5. Within the area of this project, the Yates formation is a marginal producing zone at  $\pm 1440'$ .

13.375" csg @ 354' w/ 390 sx

12.250" hole

9.625" csg @ 1366' w/ 500 sx  
(CIRC)

7.000" lnr @ 0- 2988' w/ 480 sx

6.125" hole

2.375" tbg @ 4280'

4.500" csg @ 4398' w/ 210 sx

TOC = 2810'  
(LOG)

CMT @ 4385'

XX XX

T.D. = 4400' PBTD: 4385'

Comments:

FIELD: PARKWAY; EDDY Co., NM

LOC: 2628' FSL; 1485' FEL; Sec 35; T19S, R29E

ELEV: 3334' ( 0.0' above GL)

DATE: 08/05/98 BY: Leila Esterly

## CASING RECORD

## SURFACE CASING

O.D.	#/ft	GRADE	CONN	SET AT
13.375	48.00	J-55	STC	354'

## INTERMEDIATE CSG/ LNR

O.D.	#/ft	GRADE	CONN	SET AT
9.625	36.00	J-55	STC	1366'
7.000	23.00	J-55	LTC	0- 2988'

## PRODUCTION CASING

O.D.	#/ft	GRADE	CONN	SET AT
4.500	11.6	J-55	LTC	4399'

## TUBING

O.D.	#/ft	GRADE	CONN	SET AT
2.375	4.70	J-55	PGL	0 - 4280'

## WELL HISTORY

SPUDDED 4/6/97; TD 4/17/97





**PARKWAY DELAWARE UNIT  
AREA OF REVIEW**

STATUS	WELL NAME	WELL NAME PRIOR TO UNIT	OPERATOR	LOCATION	TYPE OF WELL	SPUD DATE	COMP. DATE	TD	PBTD	COMP. INTERVAL	CASING RECORD
Active	Parkway Delaware Unit No. 201	Apache Federal No. 1-A	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 890' FNL & 990' FWL	Oil	3/22/89	4/12/89	4550'	4501'	4221' - 4239'	13 3/8" @ 359' w/955 SXS 8 5/8" @ 3200' w/1885 SXS 5 1/2" @ 4549' w/400 SXS
Active	Parkway Delaware Unit No. 202	Apache Federal No. 2-A	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 990' FNL & 1980' FWL	Oil	4/3/89	4/22/89	4550'	4504'	4136' - 4229'	13 3/8" @ 365' w/378 SXS 8 5/8" @ 3210' w/2300 SXS 5 1/2" @ 4550' w/500 SXS
Active	Parkway Delaware Unit No. 203	Apache Federal No. 3-A	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 990' FNL & 2310' FWL	Oil	4/13/89	6/16/89	4550'	4546'	3949' - 4264'	13 3/8" @ 372' w/725 SXS 8 5/8" @ 3200' w/2700 SXS 5 1/2" @ 4550' w/540 SXS
Active	Parkway Delaware Unit No. 204	Apache Federal No. 4-A	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 990' FNL & 940' FWL	Injector	7/13/89	8/16/89	4550'	4505'	4295' - 4461'	13 3/8" @ 353' w/465 SXS 8 5/8" @ 3200' w/4145 SXS 5 1/2" @ 4550' w/425 SXS
Active	Parkway Delaware Unit No. 301	Renegade Federal No. 2	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FNL & 1980' FWL	Oil	11/16/88	12/3/88	5000'	4958'	4190' - 4211'	13 3/8" @ 365' w/500 SXS 8 5/8" @ 3201' w/790 SXS 5 1/2" @ 5000' w/350 SXS
Active	Parkway Delaware Unit No. 302	Renegade Federal No. 3	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 2230' FNL & 760' FWL	Injector	11/15/88	1/26/89	5000'	4298'	4127' - 4142'	13 3/8" @ 363' w/700 SXS 8 5/8" @ 3202' w/1790 SXS 5 1/2" @ 5000' w/450 SXS
Active	Parkway Delaware Unit No. 303	NA	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1420' FNL & 2500' FWL	Injector	5/17/93	6/10/93	4800'	4764'	4247' - 4138'	20" @ 258' w/720 SXS 13 3/8" @ 1180' w/1050 SXS 8 5/8" @ 3200' w/1615 SXS 5 1/2" @ 4800' w/485 SXS
Active	Parkway Delaware Unit No. 304	NA	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1485' FNL & 1485' FWL	Injector	4/22/97	6/25/97	4430'	4164' 4261'	4164' 4261'	13 3/8" @ 356' w/540 SXS 9 5/8" @ 1500' w/535 SXS 7" @ 3045' w/350 SXS 4 1/2" @ 4422' w/250 SXS
Active	Parkway Delaware Unit No. 401	Renegade Federal No. 1	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FNL & 1980' FWL	Oil	6/16/88	10/22/88	5800'	5752'	3940' - 4058'	13 3/8" @ 357' w/665 SXS 5 1/2" @ 5795' w/2915 SXS
Active	Parkway Delaware Unit No. 501	Osage Federal No. 1	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FSL & 1980' FEL	Oil	7/18/88	8/12/88	5910'	5848'	4135' - 4168'	13 3/8" @ 353' w/350 SXS 8 5/8" @ 3193' w/2860 SXS 5 1/2" @ 5908' w/620 SXS
Active	Parkway Delaware Unit No. 502	Osage Federal No. 2	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FSL & 1980' FWL	Oil	10/2/88	10/24/88	5000'	4948'	4157' - 4187'	13 3/8" @ 363' w/740 SXS 5 1/2" @ 4993' w/1550 SXS
Active	Parkway Delaware Unit No. 503	Osage Federal No. 3	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 660' FSL & 1980' FWL	Oil	11/2/88	11/22/88	5000'	4933'	4201' - 4222'	13 3/8" @ 360' w/755 SXS 8 5/8" @ 3218' w/2295 SXS 5 1/2" @ 5000' w/400 SXS
Shut-in	Parkway Delaware Unit No. 504	Osage Federal No. 4	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 660' FSL & 1980' FWL	Oil	12/1/88	12/30/88	5000'	4948'	4018' - 4120'	13 3/8" @ 381' w/400 SXS 8 5/8" @ 3200' w/1405 SXS 5 1/2" @ 5000' w/420 SXS 20" @ 173' w/200 SXS
Active	Parkway Delaware Unit No. 505	Osage Federal No. 5	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FSL & 760' FWL	Injector	11/30/88	1/10/89	5000'	4958'	4135' - 4150'	13 3/8" @ 364' w/500 SXS 8 5/8" @ 3200' w/800 SXS 5 1/2" @ 5000' w/450 SXS
Active	Parkway Delaware Unit No. 507	NA	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 2628' FSL & 1485' FEL	Injector	4/6/97	6/25/97	4400'	4385'	4164' - 4280'	13 3/8" @ 354' w/390 SXS 9 5/8" @ 1366' w/500 SXS 7" @ 2988' w/480 SXS 4 1/2" @ 4399' w/210 SXS
Active	Parkway Delaware Unit No. 701	Apache Federal No. 1	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FSL & 990' FEL	Oil	12/12/88	2/1/89	4500'	4453'	4182' - 4218'	13 3/8" @ 365' w/805 SXS 8 5/8" @ 3200' w/2300 SXS 5 1/2" @ 4500' w/650 SXS
Active	Parkway Delaware Unit No. 702	Apache Federal No. 2	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 1980' FNL & 990' FEL	Oil	3/9/89	4/18/89	4549'	4492'	4176' - 4210'	13 3/8" @ 344' w/625 SXS 8 5/8" @ 3200' w/2300 SXS 5 1/2" @ 4500' w/650 SXS

**PARKWAY DELAWARE UNIT  
AREA OF REVIEW**

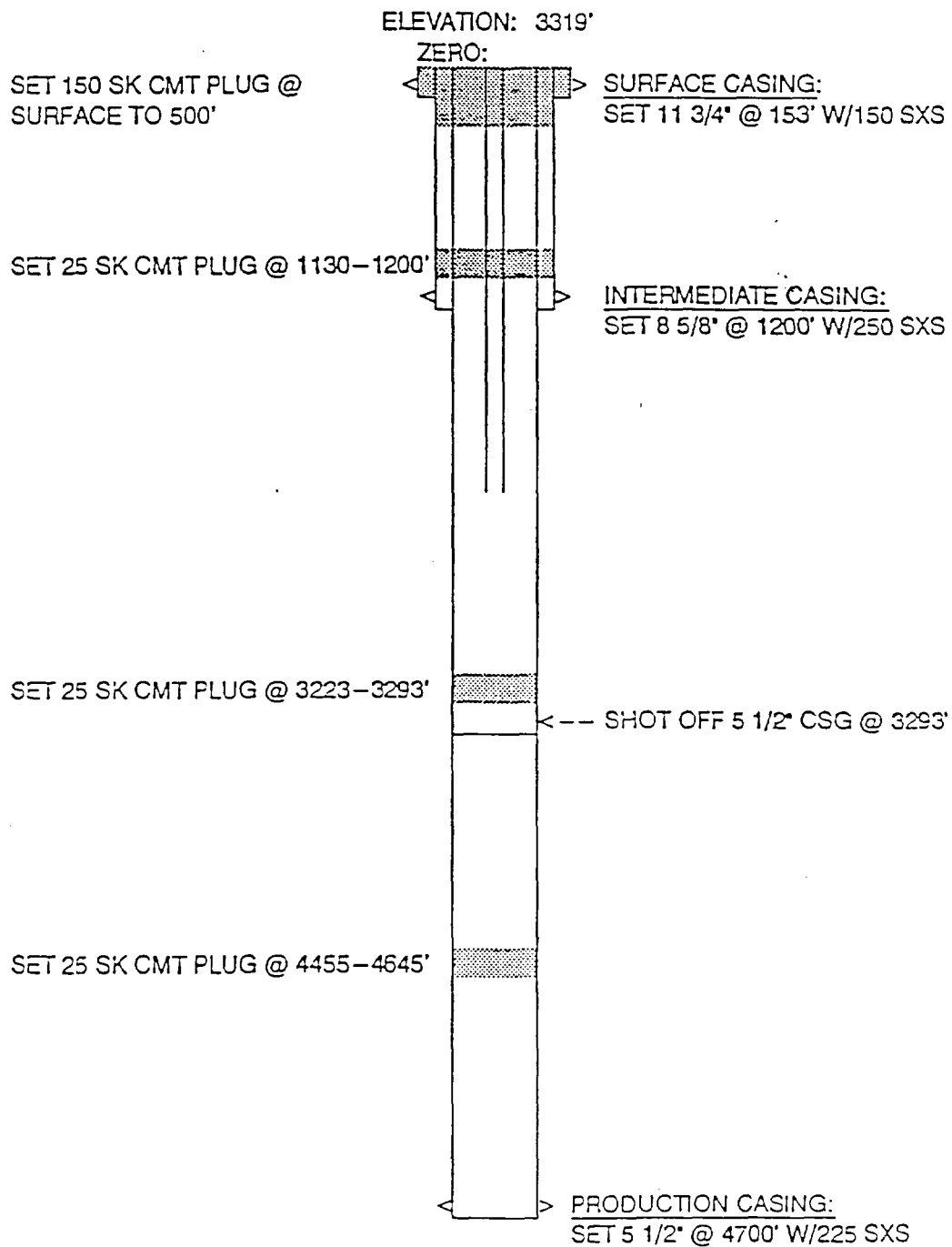
STATUS	WELL NAME	WELL NAME PRIOR TO UNIT	OPERATOR	LOCATION	TYPE OF WELL	SPUD DATE	COMP. DATE	TD	PBTD	COMP. INTERVAL	CASING RECORD
Shut-in	Parkway Delaware Unit No. 801	Longknife Federal No. 1	St. Mary Land & Exploration Co. c/o Coastal Management Corporation	Section 35, T19S, R29E 660' FSL & 810' FEL	Oil	12/13/88	3/1/89	6000'	5980'	5930' - 5936'	10 3/4" @ 370' w/350 SXS 7" @ 3200' w/100 SXS 4 1/2" @ 4850' w/450 SXS

# S. E OIL & GAS CORPORATION

WELL: #1-35 FEDERAL WALTER  
FIELD: WILDCAT  
INTERVAL: BONE SPRING  
Comp: 1/9/56  
IP: NONE  
Spudded: 11/22/55

LOCATION:  
660' FN & 660' FW  
SEC 35 20S 29E  
EDDY COUNTY, NM

API #:



DRAWN BY: EJG

TD: 6014'

(SUBMIT IN TRIPLICATE)

Land Office .....

Lease No. 8-3-353-1

Unit .....

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

JUN 10 AM 2.25

## SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL .....	SUBSEQUENT REPORT OF WATER SHUT-OFF .....	
NOTICE OF INTENTION TO CHANGE PLANS .....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING .....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF .....	SUBSEQUENT REPORT OF ALTERING CASING .....	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL .....	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR .....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE .....	SUBSEQUENT REPORT OF ABANDONMENT .....	<input checked="" type="checkbox"/>
NOTICE OF INTENTION TO PULL OR ALTER CASING .....	SUPPLEMENTARY WELL HISTORY .....	
NOTICE OF INTENTION TO ABANDON WELL .....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

January, 1955

Well No. 1-35 is located 500 ft. from N line and 500 ft. from W line of sec. 3

20.3 of Section 35  
(1/4 Sec. and Sec. No.)

Twp. 3  
(Twp.)

R. 3 E  
(Range)

T. 3 N  
(Meridian)

500  
(Field)

500  
(County or subdivision)

Cal. 35  
(State or Territory)

The elevation of the derrick floor above sea level is 300 ft. (200)

## DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Spotted 25 in. cement plug 100-100' at 500' and  
recovered 200' to 500' casing.

Spotted 25 in. cement plug at 100-100' and 100-100' and 100 in. cement  
from surface to 500'.

The well was plugged and abandoned January 10, 1955, and sealed with a 4" O.P.  
plug of pipe rising vertically 4' above ground level.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Union Oil Company of California

Address 610 West Tenth Avenue

Beaumont, Texas

By R. W. Harrison

Title Assistant Division Engineer

EDDY

WILDCAT

STATE N.M. KROENLEIN 2319-56

Union Oil Co. of Calif - #1-35 - Fed. Reg. 3319  
Walter

640' FWL & FWL

Sec. 35, T. 19S, R. 29E

CASES RECORDED  
11 3/4- 153-150  
5/8-1200-250  
5 1/2-4700-225

Tons  
Anhy 195  
S/Salt 257  
S/Salt 1143  
Yates 1335  
Dela sd. 3940  
Bone Springs 5690

11-22-55 1-9-56

PCA

Sub. 100% SW

6014' Li.

CONT'D. PAGE 2

EDDY, N.H. SEC: 35-19S-29E  
Union Oil Co. - #1-35 - Fed Walter

K-23  
PAGE 2

Ord. 1527-79 rec. 52'; 10' hard dse dolo, 5-1/2' dolo  
fxln stn. on vert frac. 16' dolo shale ptgs. 6-1/2'  
sand grey some fluor por bldg. oil, 4' dolo hard  
dse NS. 10' lite grey sand, fluor bldg oil.

Ord. 3375-3424 rec. 49' dark grey fx dse, lime sulf. odor  
no show.

Ord. 3983-4033 rec. 50' grey fg. sand w/sho of salt wtr.  
DST 3952-4033 op 2 hrs. rec. 1150' MCSW w/NS PP 60-595#  
SIP 1445# 20 mins,

DST 4204-83 op 2 hrs. rec. 100' SO&HGM, PP 70-80# SIP  
95# 20 mins.

Took sidewall cores 3635-4906, SW Cores fgs w/SSG.  
4616' fg sd stn, fluor, 4621' fg sd sli stn. 4623' fg sd goo  
fluor, 4626' fg. sd SSO. 4627' fg sd stn, fluor  
4629' fg sd sli fluor 4635' fg sd no sho. 4638' fg sd  
no sho. 4642' fg w/SSG, 4661' fg sd w/SSG, 4667' fg sd  
shaly NS, 4906' fg sd NS.  
CONT'D ON PAGE 3

N.M. SEC: 35-198-29E  
Can Oil - #1-35 - Fed. Walter

K-2309-56  
PAGE 3

4610-32 pkr failed str pkr.  
T 4611-4647 op 1 hr 30 mins rec. 150' s oil & GCX 5 to  
10% oil FP 50# SIP 1225# 20 mins.  
of 68/4612-29 A/500 WCA, SF 10,000 4612-29 Swb part of  
load swb dry.

**PARKWAY DELAWARE UNIT**  
**Parkway Delaware Unit No. 304 - Convert to Injection**

NMOC Form C-108 (Attachment)

**VII. Injection Data**

1. Injection Rates
  - a. Proposed average daily water injection is 500 BWPD.
  - b. Maximum rate of daily water injection is 600 BWPD.
2. The injection station for gathering and processing the injection water will be a closed system.
3. Injection Pressures
  - a. Proposed average daily injection pressure is 1500 psi.
  - b. Maximum daily injection pressure is 2500 psi.
4. Chemical analysis of injection and formation water (see attached water analysis).
  - a. Proposed injection fluid will be produced Delaware water, TOG Federal water and water from the Exx Federal #1 WSW. The Petrolite Lab analysis dated May 14, 1997 indicates no compatibility problems with mixing these waters.
5. Water injection will be into a zone currently productive of oil and gas.



**PARKWAY DELAWARE UNIT**  
**Parkway Delaware Unit No. 507 - Convert to Injection**

NMOC Form C-108 (Attachment)

**VII. Injection Data**

1. Injection Rates
  - a. Proposed average daily water injection is 500 BWPD.
  - b. Maximum rate of daily water injection is 600 BWPD.
2. The injection station for gathering and processing the injection water will be a closed system.
3. Injection Pressures
  - a. Proposed average daily injection pressure is 1500 psi.
  - b. Maximum daily injection pressure is 2500 psi.
4. Chemical analysis of injection and formation water (see attached water analysis).
  - a. Proposed injection fluid will be produced Delaware water, TOG Federal water and water from the Exx Federal #1 WSW. The Petrolite Lab analysis dated May 14, 1997 indicates no compatibility problems with mixing these waters.
5. Water injection will be into a zone currently productive of oil and gas.

PETROLITE

## Water Analysis Report from Petrolite Corporation

Summary of Mixing Waters										
Sample Number	17936.00	17937.00								
Company	COASTAL	COASTAL								
Lease	OSAGE	PARKWAY								
Well	WELL #1	J.C. EX-62								
Sample Location	PUMP	W/H								
<b>Anions (mg/L)</b>										
Chloride	137,172	23,430								
Bicarbonate	134	195								
Carbonate	0.00	0.00								
Sulfate	750	175								
Phosphate	0.00	0.00								
Borate	0.00	0.00								
Silicate	0.00	0.00								
<b>Cations (mg/L)</b>										
Sodium	59,864	12,592								
Magnesium	3,462	548								
Calcium	20,000	1,500								
Strontium										
Barium										
Iron	5.00	1.30								
Potassium	0.00	0.00								
Aluminum	0.00	0.00								
Chromium	0.00	0.00								
Copper	0.00	0.00								
Lead	0.00	0.00								
Manganese	0.00	0.00								
Nickel	0.00	0.00								
Anion/Cation Ratio	1.00	1.00								
TDS (mg/L)	221,387	38,442								
Density (g/cm)	1.15	1.03								
Sampling Date	2/26/97	5/13/97								
Sampled by										
Submitted by										
Analysis Date	2/26/97	5/14/97								
pH at time of sampling	5.60	7.00								
pH at time of analysis										
pH used in Calculations	5.60	7.00								


 PETROLITE

## Water Analysis Report from Petrolite Corporation

Mixes at 80°F and 0 psi

Predictions of Saturation Index and Amount of Scale in lb/1000bbl												
Mix Waters		CO2	Calcite CaCO3		Gypsum CaSO4.2H2O		Anhydrite CaSO4		Celestite SrSO4		Barite BaSO4	
17936	17937	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
14%	86%	0.31	0.25	6.67	-0.83		-0.87		N/A		N/A	

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

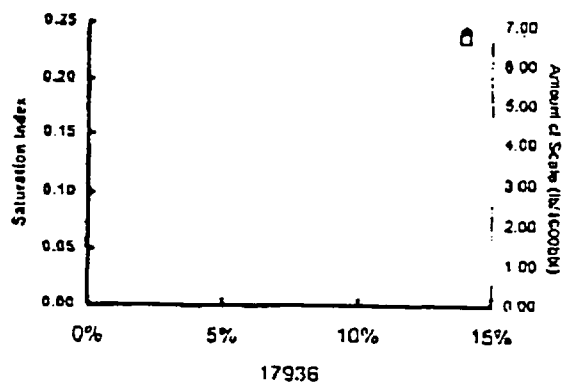
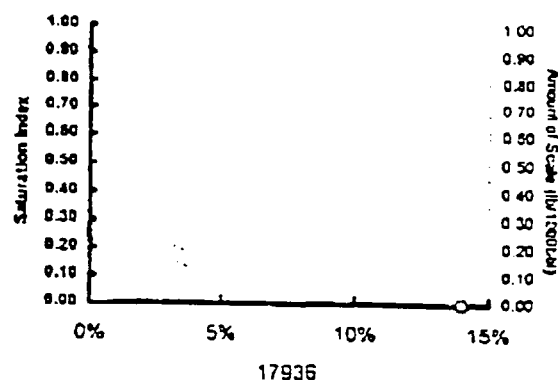
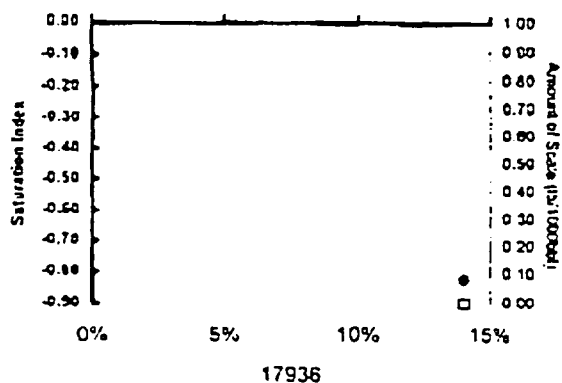
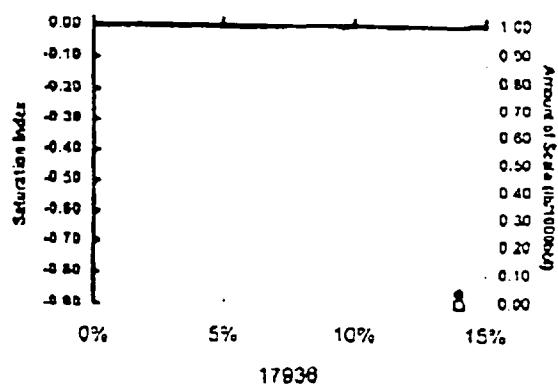
Note 3: CO<sub>2</sub> Pressure is absolute pressure. Total Pressure is gauge pressure.

PETROLITE

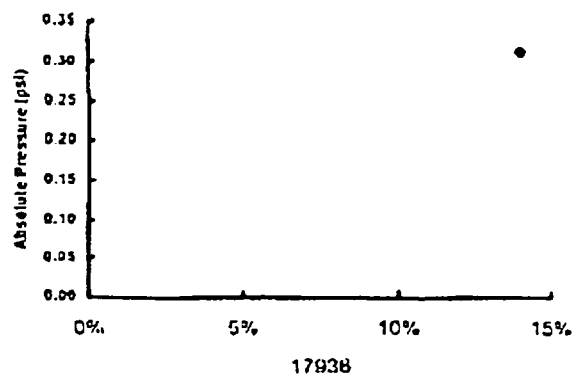
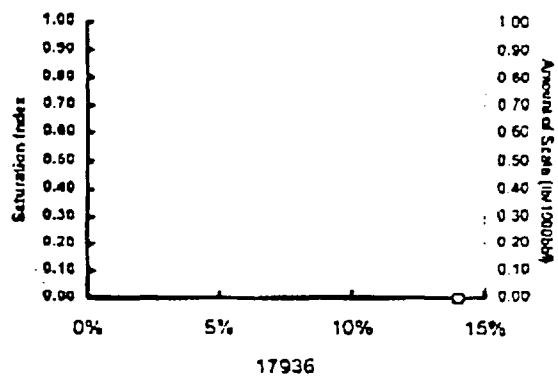
# Petrolite Corporation's Scale Predictions for Mixtures

17938 with 17937 at 80°F and 0 psi

Note: Ranges of scale axes vary from graph to graph

Calcite -  $\text{CaCO}_3$ Barite -  $\text{BaSO}_4$ Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ Anhydrite -  $\text{CaSO}_4$ 

Carbon Dioxide Partial Pressure

Celestite -  $\text{SrSO}_4$ 

PETROLITE

## Water Analysis Report from Petrolite Corporation

Mixes at 100°F and 0 psi

### Predictions of Saturation Index and Amount of Scale in lb/1000bbl

Mix Waters		CO2	Calcite CaCO3	Gypsum CaSO4.2H2O	Anhydrite CaSO4	Celestite SrSO4	Barite BaSO4
17936	17937	psi	Index Amount	Index Amount	Index Amount	Index Amount	Index Amount
14%	86%	0.40	0.34 9.52	-0.86	-0.83	N/A	N/A

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

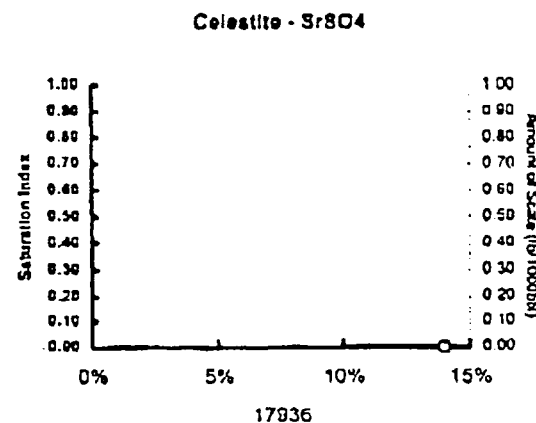
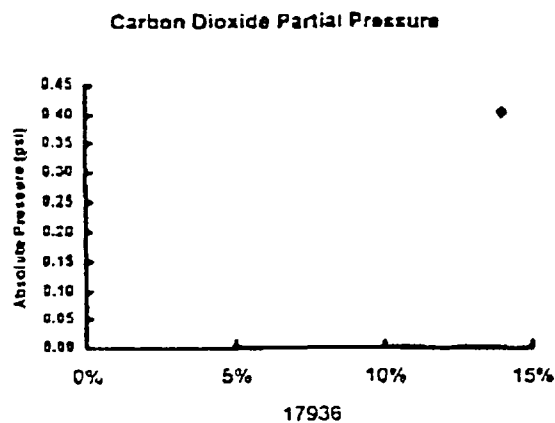
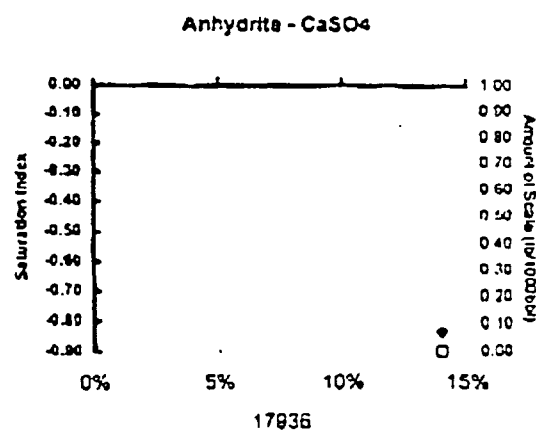
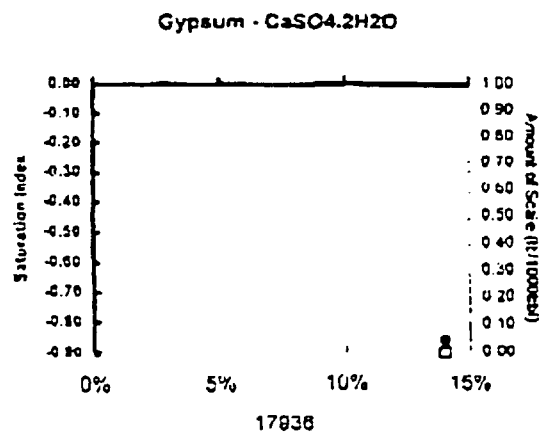
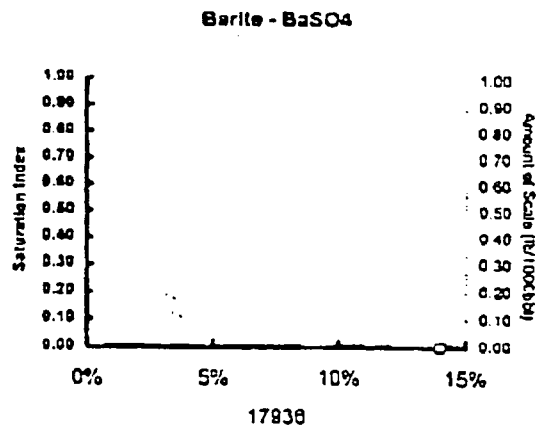
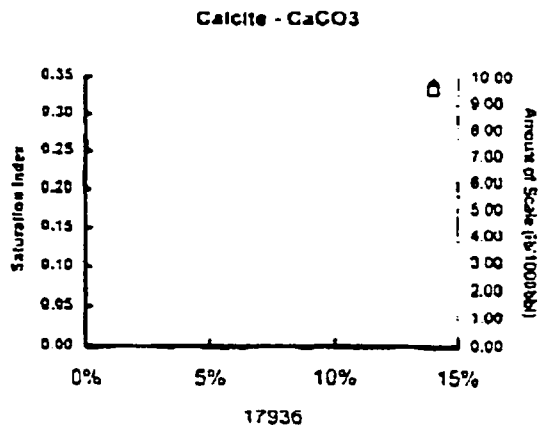
Note 3: CO2 Pressure is absolute pressure. Total Pressure is gauge pressure.

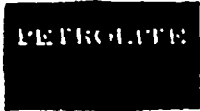
PETROLITE

## Petrolite Corporation's Scale Predictions for Mixtures

17936 with 17937 at 100°F and 0 psi

Note: Ranges of scale axes vary from graph to graph.




 PETROLITE

## Water Analysis Report from Petrolite Corporation

Mixes at 120°F and 0 psi

<i>Predictions of Saturation Index and Amount of Scale in lb/1000bbl</i>								
Mix Waters		CO <sub>2</sub>	Calcite CaCO <sub>3</sub>	Gypsum CaSO <sub>4</sub> .2H <sub>2</sub> O	Anhydrite CaSO <sub>4</sub>	Celestite SrSO <sub>4</sub>	Barite BaSO <sub>4</sub>	
17936	17937	psi	Index Amount	Index Amount	Index Amount	Index Amount	Index	Amount
14%	88%	0.50	0.44 12.5	-0.88	-0.78	N/A	N/A	

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

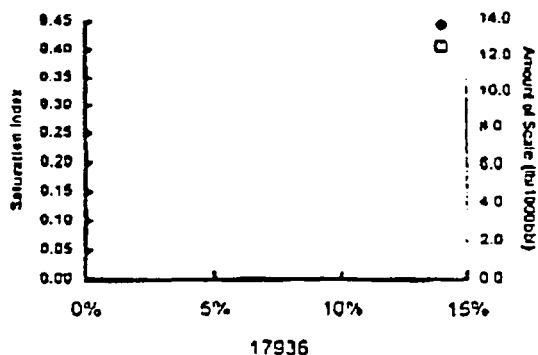
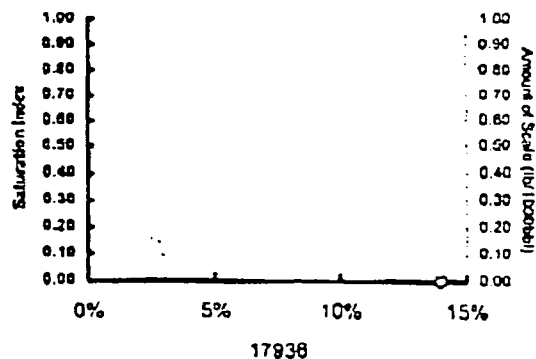
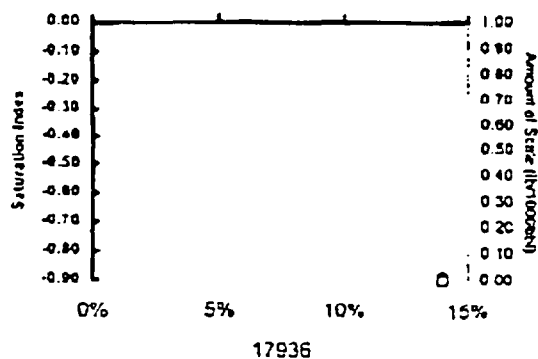
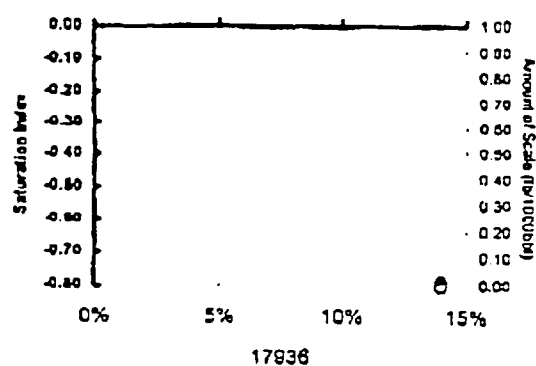
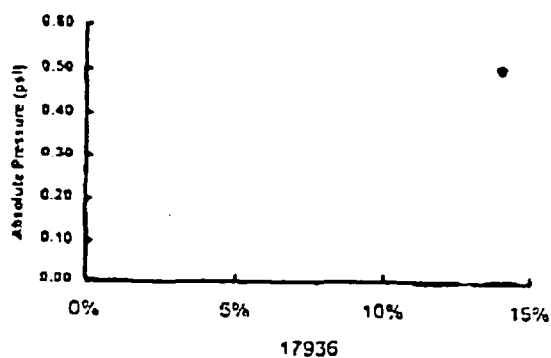
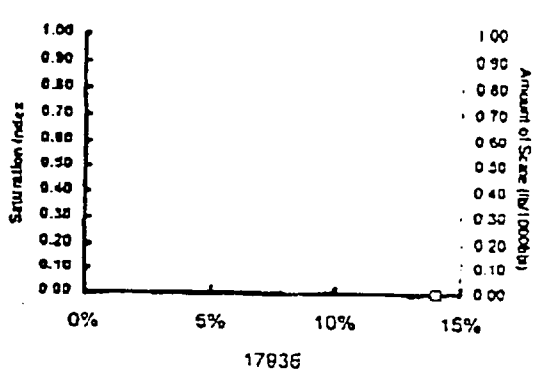
Note 3: CO<sub>2</sub> Pressure is absolute pressure. Total Pressure is gauge pressure.

PETROLITE

**Petrolite Corporation's Scale Predictions for Mixtures**

17936 with 17937 at 120°F and 0 psi

Note: Ranges of scale axes vary from graph to graph.

**Calcite -  $\text{CaCO}_3$** **Barite -  $\text{BaSO}_4$** **Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$** **Anhydrite -  $\text{CaSO}_4$** **Carbon Dioxide Partial Pressure****Celestite -  $\text{SrSO}_4$** 





## Water Analysis Report from Petrolite Corporation

Mixes at 140°F and 0 psi

### Predictions of Saturation Index and Amount of Scale in lb/1000bbl

Mix Waters		CO <sub>2</sub>	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>	
		psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
17936	17937											
14%	86%	0.60	0.54	15.7	-0.90		-0.70		N/A		N/A	

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

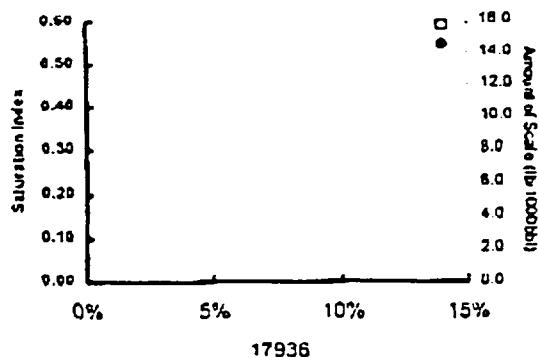
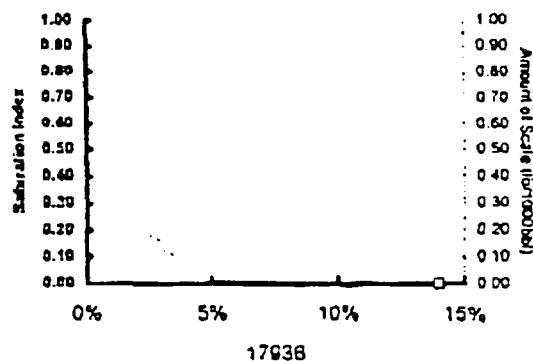
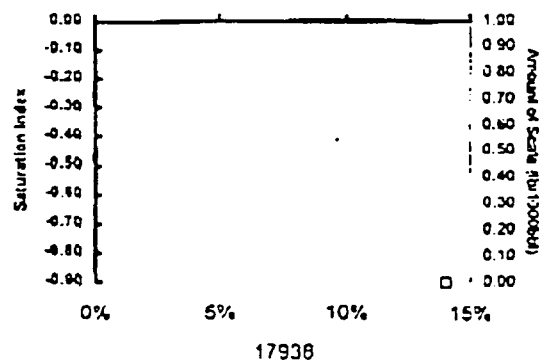
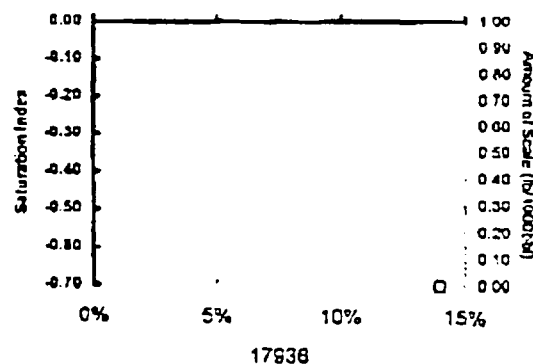
Note 3: CO<sub>2</sub> Pressure is absolute pressure. Total Pressure is gauge pressure.

PETROLITE

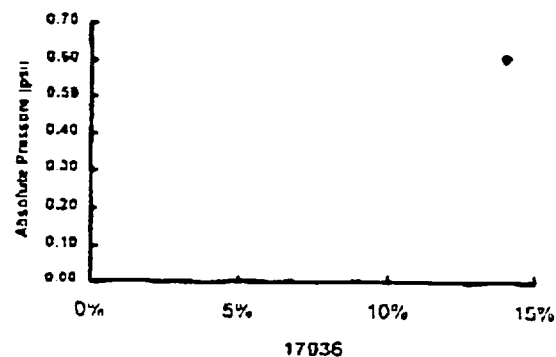
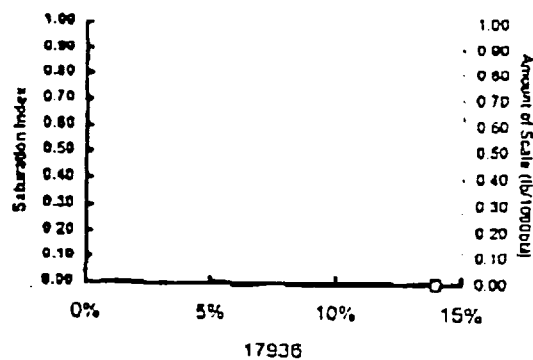
## Petrolite Corporation's Scale Predictions for Mixtures

17936 with 17937 at 140°F and 0 psi

Note: Ranges of scale axes vary from graph to graph

Calcite -  $\text{CaCO}_3$ Barite -  $\text{BaSO}_4$ Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ Anhydrite -  $\text{CaSO}_4$ 

Carbon Dioxide Partial Pressure

Celestite -  $\text{SrSO}_4$ 

# TRETOLITE DIVISION

(505) 746-3588  
Fax (505) 746-3580

## WATER ANALYSIS REPORT

Reply to:  
P.O. Box 1140  
Artesia, NM  
88211-1140

Company : COASTAL MANAGEMENT Date : 05/14/97  
Address : BURTON FLATS Date Sampled : 05/13/97  
Lease : PARKWAY DELAWARE Analysis No. : 001  
Well : J.C. WILLIAMS SOURCE Exx FEDERAL #4 WSW  
Sample Pt. : WELLHEAD

ANALYSIS	mg/L	* meq/L
1. pH	7.0	
2. H2S	0 PPM	
3. Specific Gravity	1.025	
4. Total Dissolved Solids	38444.0	
5. Suspended Solids	NR	
6. Dissolved Oxygen	NR	
7. Dissolved CO2	NR	
8. Oil In Water	NR	
9. Phenolphthalein Alkalinity (CaCO3)		
10. Methyl Orange Alkalinity (CaCO3)		
11. Bicarbonate HCO3	195.0	HCO3 3.2
12. Chloride Cl	23430.0	Cl 660.9
13. Sulfate SO4	175.0	SO4 3.6
14. Calcium Ca	1500.0	Ca 74.9
15. Magnesium Mg	548.0	Mg 45.1
16. Sodium (calculated) Na	12594.8	Na 547.8
17. Iron Fe	1.3	
18. Barium Ba	NR	
19. Strontium Sr	NR	
20. Total Hardness (CaCO3)	6002.0	

## PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter	Compound	Equiv wt X meq/L	= mg/L
75   *Ca <----- *HCO3   3	Ca(HCO3)2	81.0 3.2	259
-----  /----->  -----	CaSO4	68.1 3.6	248
45   *Mg -----> *SO4   4	CaCl2	55.5 68.0	3774
-----  <-----/  -----	Mg(HCO3)2	73.2	
548   *Na -----> *Cl   661	MgSO4	60.2	
+-----+	MgCl2	47.6 45.1	2146
Saturation Values Dist. Water 20 C	NaHCO3	84.0	
CaCO3 13 mg/L	Na2SO4	71.0	
CaSO4 * 2H2O 2090 mg/L	NaCl	58.4 547.8	32016
BaSO4 2.4 mg/L			

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,  
TATE LAIR

SCALE TENDENCY REPORT  
-----

Company : COASTAL MANAGEMENT Date : 05/14/97  
Address : BURTON FLATS Date Sampled : 05/13/97  
Lease : PARKWAY DELAWARE Analysis No. : 001  
Well : J.C. WILLIAMS SOURCE Analyst : TATE LAIR  
Sample Pt. : WELLHEAD Exx Feb. #1 WSW

STABILITY INDEX CALCULATIONS  
(Stiff-Davis Method)  
CaCO<sub>3</sub> Scaling Tendency

S.I. = 0.2 at 60 deg. F or 16 deg. C  
S.I. = 0.2 at 80 deg. F or 27 deg. C  
S.I. = 0.3 at 100 deg. F or 38 deg. C  
S.I. = 0.4 at 120 deg. F or 49 deg. C  
S.I. = 0.4 at 140 deg. F or 60 deg. C

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

S = 3093 at 60 deg. F or 16 deg C  
S = 3288 at 80 deg. F or 27 deg C  
S = 3393 at 100 deg. F or 38 deg C  
S = 3421 at 120 deg. F or 49 deg C  
S = 3431 at 140 deg. F or 60 deg C

Petrolite Oilfield Chemicals Group

Respectfully submitted.  
TATE LAIR

PETROLITE

# Affidavit of Publication

No 19299

State of New Mexico,  
County of Eddy, ss.

Amy McKay

being first duly sworn, on oath says:

That she is Business Manager  
of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

August 13, 1998  
\_\_\_\_\_, 19\_\_\_\_  
\_\_\_\_\_, 19\_\_\_\_  
\_\_\_\_\_, 19\_\_\_\_  
\_\_\_\_\_, 19\_\_\_\_  
\_\_\_\_\_, 19\_\_\_\_

That the cost of publication is \$ 35.71,  
and that payment thereof has been made and will  
be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this

14<sup>th</sup> day of August, 1998

Donna M. Crump

My commission expires 8/1/02  
Notary Public

August 13, 1998

## NOTICE OF APPLICATION FOR FLUID INJECTION WELL PERMIT

Coastal Management Corporation (Operator for St. Mary Land & Exploration Company), P.O. Box 2726, Midland, Texas 79702, is applying to the State of New Mexico, Oil Conservation Division for a permit to inject fluid into a formation that is a productive of oil and gas. The applicant proposes to inject fluid into the Delaware formation on the following two (2) wells which are all located in Section 35, Township 19 South, Range 29 East of Parkway (Delaware) Field in Eddy County, New Mexico: Parkway Delaware Unit No. 304 located 1485' FNL & 1485' FEL and the Parkway Delaware Unit No. 507 located 2628' FSL & 1485' FEL. Fluid will be injected into the subsurface

depth interval as follows: PDU No. 304 from 4168' - 4261' and PDU No. 507 from 4164' - 4280'. The expected maximum pressure on each well will be 2500 psi with an expected maximum injection volume of 600 BWP.

Requests for a public hearing from persons who can show they are adversely affected, should be submitted in writing, within fifteen (15) days of publication, to the Oil Conservation Division of the State of New Mexico, 2040 S. Pacheco, Santa Fe, New Mexico 87505 (Telephone: 505-827-7131). Request for further information concerning any aspect of the application should be directed to Leila Esterly at Coastal Management Corporation, P.O. Box 2726, Midland, Texas, 79702-2726 (Telephone: 915-688-0700).