HINKLE, COX, EATON, COFFIELD & HENSLEY

ATTORNEYS AT LAW

500 MARQUETTE N.W., SUITE 800

ALBUQUERQUE, NEW MEXICO 87102-2121

(505) 768-1500

FAX (505) 768-1529

LEWIS C. COX
PAUL W. EATON
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR
ERIC D. LANPHERE
C. D. MARTIN
PAUL J. KELLY, JR.
MARSHALL G. MARTIN
OWEN M. LOPEZ
DOUGLAS L. LUNSFORD
JOHN J. KELLY
T. CALDER EZZELL, JR.
WILLIAM B. BURFORD*
RICHARD E. OLSON
RICHARD R. WILFONG*
THOMAS J. McBRIDE
STEVEN D. ARNOLD
JAMES J. WECHSLER
NANCY S. CUSACK
JEFFREY L. FORNACIARI
JEFFREY D. HEWETT
JAMES BRUCE
JERRY F. SHACKELFORD*
JEFFREY W. HELLBERG*
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THOMAS M. HNASKO
JOHN C. CHAMBERS*
MICHAEL A. GROSS
THOMAS D. HAINES, JR.
FRANKLIN H. McCALLUM*
GREGORY J. NIBERT

DAVID T. MARKETTE*
MARK C. DOW
KAREN M. RICHARDSON*
FRED W. SCHWENDIMANN
JAMES M. HUDSON

RAYMOND HAMILTON
STANLEY K. KOTOVSKY
BETTY H. LITTLE*
JEFFREY S. BAIRD*
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HOWARD R. THOMAS
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NANCY AUGUSTUS
MACDONNELL GORDON
REBECCA NICHOLS JOHNSON
PAUL R. NEWTON
WILLIAM P. JOHNSON
ELLEN S. CASEY
S. BARRY PAISNER
MARGARET CARTER LUDEWIG
MARTIN MEYERS
GREGORY S. WHEELER
ANDREW J. CLOUTIER
JAMES A. GILLESPIE
GARY W. LARSON
STEPHANIE LANDRY
JERRY D. WORSHAM II
JOHN R. KULSETH, JR.
TONY CONNERS*

*NOT LICENSED IN NEW MEXICO

OF COUNSEL
O. M. CALHOUN
MACK EASLEY
JOE W. WOOD

CLARENCE E. HINKLE (1901-1985)
W. E. BONDURANT, JR. (1913-1973)
ROY C. SNODGRASS, JR. (1914-1987)

700 UNITED BANK PLAZA
POST OFFICE BOX 10
ROSWELL, NEW MEXICO 88202
(505) 622-6510
FAX (505) 623-9332

2800 CLAYDESTA NATIONAL BANK BUILDING
POST OFFICE BOX 3580
MIDLAND, TEXAS 79702
(915) 683-4691
FAX (915) 683-6518

1700 TEAM BANK BUILDING
POST OFFICE BOX 9238
AMARILLO, TEXAS 79105
(806) 372-5569
FAX (806) 372-9761

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April 24, 1990

FEDERAL EXPRESS

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APR 25 1990

OIL CONSERVATION DIVISION

Florene Davidson
New Mexico Oil Conservation
Division
310 Old Santa Fe Trial
Room 206
Santa Fe, New Mexico 87501

Re: Case No. 9925

Dear Florene:

Enclosed are an original and two copies of the Application of Siete Oil & Gas Corporation for a waterflood project.

Very truly yours,

HINKLE, COX, EATON, COFFIELD & HENSLEY

By: James Bruce

JB:le
Enclosures

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

RECEIVED

APR 23 1990

OIL CONSERVATION DIVISION

APPLICATION OF SIETE OIL & GAS CORPORATION FOR AUTHORITY TO INSTITUTE A WATERFLOOD PROJECT, EDDY AND LEA COUNTIES, NEW MEXICO

No. 9925

APPLICATION

Siete Oil & Gas Corporation hereby applies for an order approving the institution of a waterflood project for secondary recovery of hydrocarbons in the proposed East Shugart cooperative area in Eddy and Lea Counties, New Mexico, and in support thereof, states:

1. The area involved in this application is as follows:

(a) The Conoco Federal Lease covering Lot 4 of Section 18, Township 18 South, Range 32 East, N.M.P.M.;

(b) The Inca Federal Lease covering the NW¼NW¼ of Section 19, Township 18 South, Range 32 East, N.M.P.M.;

(c) The Geranimo Federal Lease covering the NE¼ of Section 24, Township 18 South, Range 31 East, N.M.P.M.; and

(d) The Arco Federal Lease, covering the NE¼NW¼ of Section 24, Township 18 South, Range 31 East, N.M.P.M.

Applicant intends to operate the above-described area cooperatively by agreement with working interest owners.

2. Applicant proposes to institute a waterflood project for the secondary recovery of oil and gas from the Shugart (Yates-Seven Rivers-Queen-Grayburg) Pool.

3. Applicant proposes to convert the following wells to injection wells:

(a) The Geronimo Fed. Well No. 2, located 950 feet from the North line and 2,310 feet from the East line of said Section 24. The injection interval for this well will be 4,264 to 4,277.5 feet subsurface.

(b) The Geronimo Fed. Well No. 7, located 1,750 feet from the North line and 990 feet from the East line of said Section 24. The injection intervals for this well will be 4,250 to 4,262 feet and 4,299 to 4,309.5 feet subsurface.

(c) The Inca Fed. Well No. 4, located 760 feet from the North line and 420 feet from the West line of said Section 19. The injection intervals for this well will be 3,768 to 3,792 and 4,269 to 4,279 feet subsurface.

4. The proposed average rate of water injection is 300 barrels per day, with a maximum rate of water injection of 500 barrels per day.

5. Water is to be injected at a surface pressure not to exceed 0.2 psi per foot of depth to the top of the injection zone, provided that surface pressure in excess of 0.2 psi per foot of depth to the top of the injection zone may be applied upon administrative approval as provided by Division rules and regulations.

6. Approval of the waterflood project will substantially increase recoverable hydrocarbon reserves from

the subject leases, thereby preventing waste and protecting correlative rights.

7. A copy of Form C-108 relating to the proposed waterflood is attached hereto.

WHEREFORE, Siete Oil & Gas Corporation requests that this application be set for hearing before the Division on May 2, 1990 and that the Division enter its order approving the waterflood project.

Respectfully Submitted,

HINKLE, COX, EATON, COFFIELD & HENSLEY

By James Bruce

James Bruce
500 Marquette, N.W.
Suite 800
Albuquerque, New Mexico 87102
(505) 768-1500

Attorneys for Siete Oil & Gas Corporation

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: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [X] no

II. Operator: Siete Oil and Gas Corporation

Address: P.O. Box 2523 Roswell, NM 88202

Contact party: Robert Lee Phone: 505-622-2202

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

IV. Is this an expansion of an existing project? [ ] yes [X] no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate 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.

* 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 of drinking water.

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

XIV. Certification

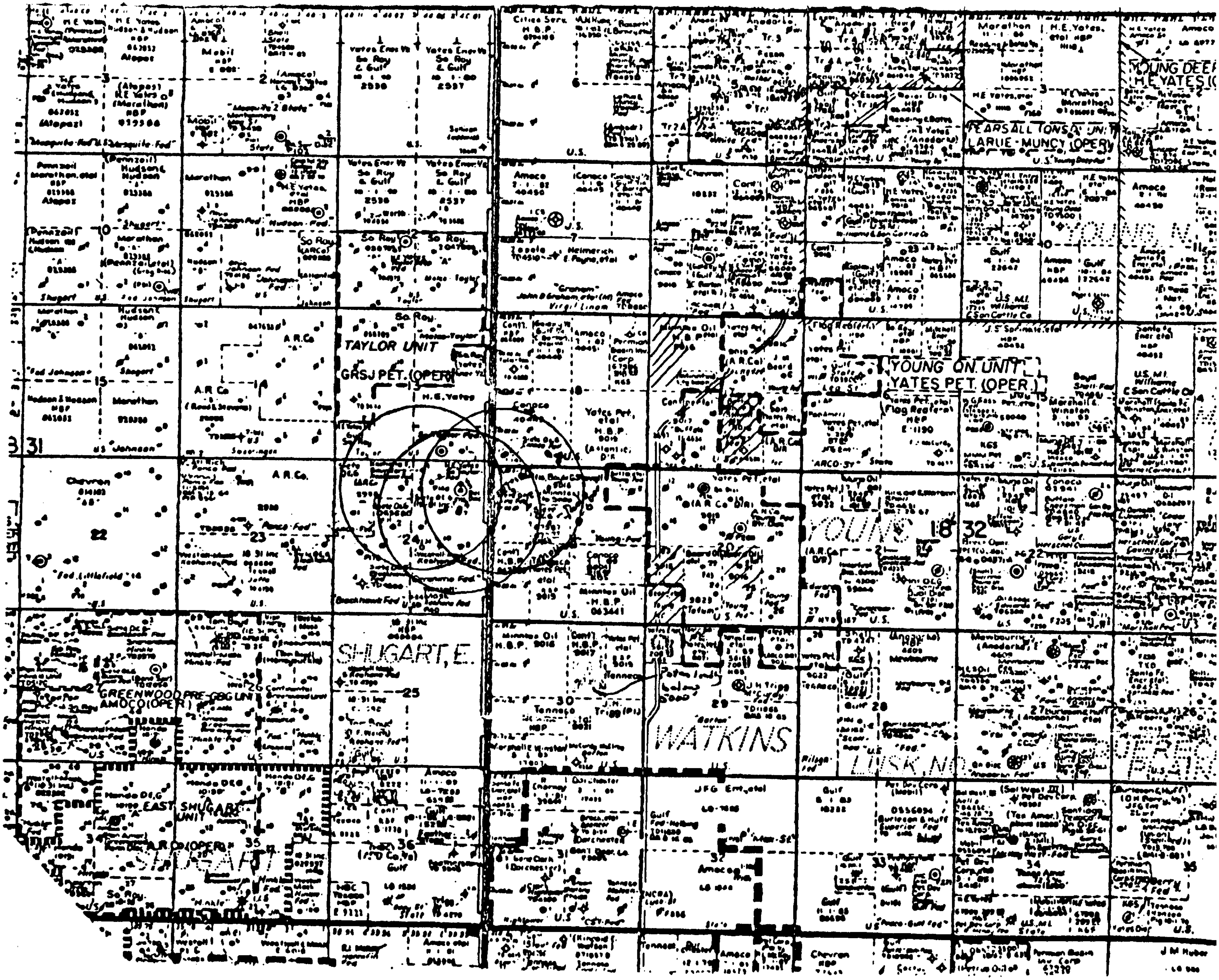
I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Robert Lee Title Senior Reservoir Engineer

Signature: Robert Lee Date: October 6, 1989

* 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


TAYLOR UNIT
GRSJ PET. (OPER.)
YOUNG GN UNIT
YATES PET. (OPER.)
LARUE-MUNCY (OPER.)
YOUNG
SHUGART, E.
GREENWOOD PRE-GBG UNIT
AMOCO (OPER.)
WATKINS
EAST SHUGART UNIT
A.R.CO. (OPER.)

Well Name	Location	Well Type	Spud Date	T D	Compl. Interval	Date Compl.
Siete Geronimo No. 5	765 FNL 1980 FEL Sec. 24 T18S R31E	Oil	2-16-86	10200' PBD-5250'	5013-5088' Del	3-18-86
Siete Geronimo No. 6	790 FNL 940 FEL Sec. 24 T18S R31E	Oil	4-10-86	4450' PBD-4407'	4301-4306' QPG	4-26-86
Siete Geronimo No. 7	1750 FNL 990 FEL Sec. 24 T18S R31E	Oil	4-21-86	4500' PBD-4489'	4299-4309' QPG	5-06-86
Siete Geronimo No. 8	2310 FSL 990 FEL Sec. 24 T18S R31E	Oil	9-08-86	5500' PBD-5441'	5042-5094' Del	10-02-86
Siete Geronimo No. 9	1730 FNL 1650 FEL Sec. 24 T18S R31E	Oil	12-01-86	5400' PBD-5360'	5022-5273' Del	2-02-87
Siete Geronimo No. 10	2310 FSL 1650 FEL Sec. 24 T18S R31E	Oil	3-02-87	5500' PBD-5471'	5041-5079 Del	3-23-87
Siete Geronimo No. 11	990 FSL 330 FEL Sec. 24 T18S R31E	Oil	9-03-87	5500' PBD-5489'	4636-4651 QPG	9-30-87
Siete Geronimo No. 12	990 FNL 1650 FEL Sec. 24 T18S R31E	Oil	12-21-88	5600' PBD-5400'	5255-5270 5135-5156 Del	2-03-89
Siete Arco No. 1	1830 FNL 660 FWL Sec. 24 T18S R31E	Oil	3-12-85	5256' PBD-5235'	3740-4316' QPG	4-01-85
Siete Arco No. 2	950 FNL 2310 FWL Sec. 24 T18S R31E	Oil	6-02-86	4500' PBD-4487'	4264-4272' QPG	6-21-86
Heyco S. Taylor "13" Fed. 1	330 FSL 990 FEL Sec. 13 T18S R31E	Oil	7-24-86	5410' PBD-5083'	5063-5063' (Jet Perf) Del	9-25-86

Well Name	Location	Well Type	Spud Date	T D	Compl. Interval	Date Compl.
Siete Blackhawk No. 1	2310 FSL 1650 FWL Sec. 24 T18S R31E	Oil	3-24-85	4527' PBD-4485'	3761-3814' QPG	4-18-85
Siete Blackhawk No. 2	2310 FNL 1980 FWL Sec. 24 T18S R31E	Oil	4-08-85	4500' PBD-4204'	3750-3791' QPG	9-05-85
Siete Blackhawk No. 3	2040 FSL 920 FWL Sec. 24 T18S R31E	Oil	1-12-86	4500' PBD-4463'	3722-3747' QPG	2-05-86
Siete Blackhawk No. 4	990 FSL 990 FWL Sec. 24 T18S R31E	D/A	6-11-86	4500'	P & A	6-20-86
Westall Keohane 24-1	330 FSL 2310 FEL Sec. 24 T18S R31E	Oil	11-30-78	4200'	3785-4135' QPG	12-27-78
Westall Keohane 24-2	2310 FSL 2200 FEL Sec. 24 T18S R31E	Oil	10-18-85	4500' PBD-4496'	4266-4338' QPG	12-11-85
Westall Keohane 24-3	2200 FSL 990 FEL Sec. 24 T18S R31E	Oil	10-09-87	4500'	4252-4292' 4300-4328' QPG	11-25-87
Siete Geronimo No. 1	2310 FNL 2310 FEL Sec. 24 T18S R31E	Oil	11-07-84	6417' PBD-4748'	4268-4284' QPG	2-17-85
Siete Geronimo No. 2	950 FNL 2310 FEL Sec. 24 T18S R31E	Oil	4-03-85	4702' PBD-4691'	4264-4277' QPG	4-26-85
Siete Geronimo No. 3	890 FNL 990 FEL Sec. 24 T18S R31E	Oil	9-01-85	6470' PBD-6459'	5012-5069' Del	10-05-85
Siete Geronimo No. 4	1650 FNL 990 FEL Sec. 24 T18S R31E	Oil	11-30-85	6550' PBD-5321'	5016-5074' Del	12-20-85

Well Name	Location	Well Type	Spud Date	T D	Compl. Interval	Date Compl.
Heyco S. Taylor "13" Fed. 2	330 FSL 330 FEL Sec. 13 T18S R31E	Oil	12-30-87	5448' PBD-5410'	5310-5390' Del	3-09-88
Heyco S. Taylor "13" Fed. 3	430 FSL 1650 FEL Sec. 13 T18S R31E	Oil	7-22-88	5450' PBD-4781'	4330-4428' also Perfed @ 4848-4870' QPG	8-01-88
Conoco Buffalo No. 1	1650 FSL 330 FWL Sec. 18 T18S R32E	Oil	9-09-87	6519' PBD-6469'	4795-4820' QPG 6279-6329' Del	11-24-87
Conoco Bufflao No. 2	330 FSL 1650 FWL Sec. 18 T18S R32E	Oil	10-02-87	6500' PBD-5064'	4826-4958' QPG	12-09-87
Siete Jade No. 1	1650 FNL 1650 FWL Sec. 19 T18S R32E	Oil	6-20-87	5500' PBD-5488'	5274-5289' Del	7-13-87
Siete Jade No. 2	1650 FNL 1750 FWL Sec. 19 T18S R32E	Oil	12-15-87	4525' PBD-4230'	3806-3875' QPG	1-27-88
Siete Inca No. 1	760 FNL 440 FWL Sec. 19 T18S R32E	Oil	4-10-87	5500' PBD-5450'	5292-5307 Del	5-04-87
Siete Inca No. 2	1700 FNL 330 FWL Sec. 19 T18S R32E	Oil	6-08-87	5500' PBD-5460'	5259-5274' Del	6-28-87
Siete Inca No. 3	660 FNL 1650 FWL Sec. 19 T18S R32E	Oil	7-12-87	5500' PBD-5255'	5188-5200' Del	8-06-87
Siete Inca No. 4	760 FNL 430 FWL Sec. 19 T18S R32E	Oil	1-07-88	4500' PBD-4244'	3768-3792' QPG	2-04-88
Siete Conoco No. 1	330 FSL 330 FWL Sec. 18 T18S R32E	Oil	6-21-86	5500' PBD-5457'	5190-5221' Del	7-15-86

Well Name	Location	Well Type	Spud Date	T D	Compl. Interval	Date Compl.
Siete Conoco No. 1	400 FSL 400 FWL Sec. 18 T18S R32E	Oil	12-13-86	4500' PBD-4487'	4420-4425' QPG	1-13-87
Siete Conoco No. 3	2310 FSL 660 FWL Sec. 19 T18S R32E	Oil	12-27-87	5650' PBD-5596'	5054-5215' Del	2-12-88
Westall Keohane Saunders	330 FNL 2260 FEL Sec. 24 T18S R32E	Oil	3-12-61	4232'	P & A QPG	5-03-61
Siete Blackhawk No. 5	2310 FSL 330 FEL Sec. 23 T18S R31E	Oil	11-14-86	4500' PBD-4462'	4234-4264' QPG	12-04-86
Siete Blackhawk No. 6	2310 FSL 1650 FEL Sec. 23 T18S R31E	D/A	3-15-87	4500'	Tested 4214-4229' QPG	11-24-87
Siete Mohawk No. 1	2310 FSL 1650 FWL Sec. 19 T18S R32E	Oil	10-24-87	6550' PBD-6510'	5048-5072' Del	11-28-87
Conoco Young Fed. No. 5	1650 FNL 330 FEL Sec. 19 T18S R 32E SE/4 NW/4 Sec. 19	Abnd. Loc.	1-30-57	4050'	Tested 3700-3726' QPG	5-22-57
Arco Panco Federal WI-4	2310 FNL 2310 FWL Sec. 23 T 18S R31E SE/4 NW/4 Sec. 23	Injection	11-7-69	3535	3439-59 QN	11-19-69
Westfall Hask Keohame Federal #3	990 FSL 1750 FWL Sec. 23 T 18S R31E SE/4 SW/4 Sec. 23	Oil	8-22-75	3692	3392-3682 Q.P.G.	9-3-75
Texwell B.S. Jaffa #1	1980 FSL 660 FEL Sec. 23 T-18-S R-31-E SE/4 SW/4 Sec.23	P & A	4-28-39	4107	Tested 3908 Q. P. G.	7-18-39

Siete Geronimo No. 11	990 FSL 330 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 364', cem. w/230 sks., circ. 5 1/2" production casing @ 5489', cem. w/1330 sks.
Siete Geronimo No. 12	990 FNL 1650 Fel Sec. 24 T18S R31E	8 5/8" surface casing @ 372', cem. w/240 sks., circ. 5 1/2" production casing @ 5622', cem. w/1170 sks.
Heyco S. Taylor "13" Fed. 1	330 FSL 990 FEL Sec. 13 T18S R31E	8 5/8' surface casing @352', cem. w/250 sks., circ. 5 1/2" production casing @ 5410', cem. w/2325 sks.
Heyco S. Taylor "13" Fed. 2	330 FSL 330 FEL Sec. 13 T18S R31E	8 5/8" surface casing @ 350', cem. w/230 sks. circ. 5 1/2" production casing @ 5448', cem. w/1350 sks.
Heyco S. Taylor "13" Fed. 3	430 FSL 1650 FEL Sec. 13 T18S R31E	8 5/8" surface casing @ 366', cem. w/ 230 sks.,circ. 5 1/2" production casing @ 5450', cem. w/1950 sks.
Conoco Buffalo No. 1	1650 FSL 330 FWL Sec. 18 T18S R32E	8 5/8" surface casing @ 950', cem. w/570 sks. 5 1/2" production casing @ 6519', cem. w/2775 sks.
Conoco Buffalo No. 2	330 FSL 1650 FWL Sec. 18 T18S R32E	8 5/8" surface casing @ 900', cem. w/570 sks. 5 1/2" production casing @ 5110', cem. w/2025 sks.
Siete Jade No. 1	1650 FNL 1650 FWL Sec. 19 T18S R32E	8 5/8" surface casing @ 372', cem. w/230 sks., circ. 5 1/2" production casing @ 5500', cem. w/1160 sks.
Siete Jade No. 2	1650 FNL 1750 FWL Sec.19 T18s R32E	8 5/8" surface casing @ 350', cem. w/230 sks., circ. 5 1/2" production casing @ 4526', cem. w/1205 sks.
Siete Inca No. 1	760 FNL 440 FWL Sec. 19 T18S R32E	8 5/8" surface casing @ 350', cem. w/200 sks., circ. 5 1/2" production casing @ 5500', cem. w/1250 sxs.
Siete Inca No. 2	1700 FNL 330 FWL Sec. 19 T18S R32E	8 5/8" surface casing @ 372', cem. w/200 sxs circ. 5 1/2" production casing @ 5460', cem. w/1170 sxs.

Siete Inca No. 3	660 FNL 1650 FWL Sec. 19 T18S R32E	8 5/8" surface casing @ 374', cem. w/230 sks. circ. 5 1/2" production casing @ 5500',cem. w/1360 sks.
Siete Inca No. 4	760 FNL 430 FWL Sec. 19 T18S R32E	8 5/8" surface casing @ 358', cem. w/230 sks circ. 5 1/2" production casing @ 4500', cem. w/1050 sks
Siete Conoco No. 1	330 FSL 330 FWL Sec. 18 T18S R32E	8 5/8" surface casing @ 362', cem. w/250 sks., circ. 8 5/8" production casing @ 5457', cem. w/600 sks.
Siete Conoco No. 2	400 FSL 400 FWL Sec. 18 T18S R32E	8 5/8" surface casing @ 350', cem. w/200 sks., circ. 5 1/2" production casing @ 4500', cem. w/1100 sks.
Siete Conoco No. 3	2310 FSL 660 FWL Sec. 19 T18S R32E	8 5/8" surface casing @ 374', cem. w/230 sks., circ. 5 1/2" production casing @5636', cem. w/1425 sks.
Westall Keo hane Saunders	330 FNL 2260 FEL Sec. 24 T18S R32E	8 5/8" surface casing @897', cem. w/50 sks. 7" production casing @ 4232', cem. w/100 sks. Well is currently P & Aed.
Siete Mohawk No. 1	230 FSL 1650 FWL Sec. 19 T18S R32E	8 5/8" surface casing @351', cem. w/ 230 sks. circ. 5 1/2" production casing @ 6550', cem. w/1635 sks.
Conoco Young Fed. No. 5	1650 FNL 330 FEL Sec. 19 T18S R32E SE/4 NW/4 Sec. 23	8 5/8" surface casing @ 837', cem. w/450 sks. 5 1/2" production casing @ 4050', cem. w/500 sks.
Arco Panco Fed. WI-4	2310 FNL 2310 FWL Sec. 23 T 185 R31E SE/4 SW/4 Sec. 23	8 5/8" surface casing @ 814', cem. w/400 sks. 5 1/2" production casing @ 3529', cem. w/300 sks.

Westall Keo hane 24-3	2200 FSL 990 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 749', cem. w/400 sks. 4 1/2" production casing @ 4500', cem. w/750 sks.
Siete Geronimo No. 1	2310 FNL 2310 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 846', cem. w/415 sks., circ. 5 1/2" Production casing @ 5367' cem. w/900 sks.
Siete Geronimo No. 2	950 FNL 2310 FEL Sec. 24 T18S R31E	13 3/8" surface casing @ 345', cem. w/400 sks., circ. 4 1/2" production casing @ 4700', cem. w/1730 sks.
Siete Geronimo No. 3	890 FNL 990 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 311', cem. w/400 sks.,circ. 5 1/2" production casing @ 6489', cem. w/2830 sks.
Siete Geronimo No. 4	1650 FNL 990 FEL Sec. 24 T18S R31E	13 3/8" surface casing @ 357', cem. w/400 sks., circ. 5 1/2" production casing @ 5365', cem. w/840 sks.
Siete Geronimo No. 5	765 FNL 1980 FEL Sec. 24 T18S R31E	13 3/8" surface casing @ 372', cem. w/385 sks., circ. 8 5/8" production casing @ 5350', cem. w/2050 sks.
Siete Geronimo No. 6	790 FNL 940 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 357', cem. w/230 sks., circ. 5 1/2" production casing @ 4449', cem. w/900 sks.
Siete Geronimo No. 7	1750 FNL 990 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 362', cem. w/230 sks., circ. 5 1/2" production casing @ 4499', cem. w/700 sks.
Siete Geronimo No. 8	2310 FSL 990 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 337', cem. w/250 sks., circ. 5 1/2" production casing @ 5497', cem. w/910 sks.
Siete Geronimo NO. 9	1730 FNL 1650 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 345', cem. w/200 sks., circ. 5 1/2" production casing @ 5400', cem. w/935 sks
Siete Geronimo No. 10	2310 FSL 1650 FEL Sec. 24 T18S R31E	8 5/8" surface casing @ 350', cem. w/230 sks., circ. 5 1/2" production casing @ 5496' cem. w/1300 sks.

Westfall Mask Keohane Fed. #3	990 FSL 1750 FWL Sec. 23 T18S, R31E	8 5/8" Surface Casing @ 650' cem. w/250 sks. 4 1/2" Production Casing @ 3692', cem. w/400 sks.
Texwell B.S. Jaffa #1	1980 FSL 660 FEL Sec. 23 T18S, R31E	8 1/4" Surface Casing @ 969, cem. w/50 sks.
Siete O&G Blackhawk Fed. No. 3	2040' FSL & 1650' FWL Sec. 24, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 351', cem. w/500 sks. 5 1/2" Production Casing @ 4498' cem. w/2415 sks.
Siete O&G Blackhawk Fed. No. 1	2310' FSL & 1650' FWL Sec. 24, T18S, R31E Eddy County, NM	13 3/8" Surface Casing @ 374' cem. w/400 sks. 4 1/2" Production Casing 4525' cem. w/1985 sks.
Siete O&G Blackhawk Fed. No. 2	2310' FSL & 1980' FWL Sec. 24, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 350' cem. w/400 sks. 5 1/2" Production Casing @ 4600' cem. w/2050 sks.
Siete O&G Arco Fed. No. 2	950' FNL & 2310' FWL Sec. 24, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 357' cem. w/250 sks. 5 1/2" Production Casing @ 4497' cem. w/ 750 sks.
Siete O&G Arco Fed. No. 1	1830' FNL & 660' FWL Sec. 24, T18S, R31E Eddy County, NM	13 3/8" Surface Casing @ 350' cem. w/370 sks. 4 1/2" Production Casing @ 5255' cem. w/2300 sks.
Siete O&G Blackhawk Fed. No. 5	2310' FSL & 330' FEL Sec. 23, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 351' cem. w/225 sks. 5 1/2" Production Casing @ 4500' cem. w/990 sks.
Siete O&G Blackhawk Fed. No. 6	2310' FSL & 1650' FEL Sec. 23, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 350' cem. w/225 sks. 5 1/2" Production Casing @ 4500' cem. w/799 sks.
Siete O&G Blackhawk Fed. No. 4	990' FSL & 990' FWL Sec. 24, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 366' cem. w/250 sks. No Production Casing in Hole.

Westall-Mask Keohane "24" Fed. No. 1	330' FSL & 2310' FEL Sec. 24, T18S, R31E Eddy County, NM	8 5/8" Surface Casing @ 685' cem. w/300 sks. 4 1/2" Production Casing @ 4200' cem. w/365 sks.
Westall-Mask Keohane "24" Fed. No. 2	2310' FSL & 2220' FEL Sec. 24, T18S, R31E Eddy County, NM	8 5/8" surface Casing @ 687' cem. w/410 sks. 4 1/2" Production Casing @ 4496' cem. w/870 sks.

SIETE OIL GAS CORPORATION

Shugart Waterflood Project - Convert to Injection

NMOCD Form C-108 Sections VII - XIII

VII. Injection Data

1. Injection Rates
   a. Proposed average daily water injection is 300 BWPD/Well.
   b. Maximum rate of daily water injection is 500 BWPD/Well.

2. The injection station for the gathering and processing injection water will be a closed system.

3. Injection Pressures
   a. Proposed average daily injection pressure is 600 PSI.
   b. Maximum daily injection pressure is 740 PSI*.
   * Note: Maximum injection pressure abides by .2 PSI/Ft maximum injection pressure imposed by the NMOCD. Future necessary increases in surface pressure will be obtained administratively from the NMOCD using field obtained "Step Rate Test" data.

4. Chemical analysis of injection and formation water (see attached Nalco water analysis).
   a. Proposed injection fluid will be produced water from offsetting Siete operated leases which currently produce from both the East Shugart Delaware and Shugart Grayburg formations. These leases are the Geronimo Federal lease (E/2 Sec. 24, T-18S, R31E), Arco Federal Lease (NE/4 NW/4 and SW/4 NW/4 Section 24, T-18S, R-31E), and Blackhawk Federal lease (NE/4 NE/4 Section 23, T-18S, R-31E) in Eddy County, New Mexico, and the Conoco Federal lease (SW/4 SW/4 Section 18, T-18S, R32E), Inca Federal lease (N/2 and SW/4 NW/4 Section 19, T-18S, R32E), Jade Federal lease (SE/4 NW/4 Section 19, T-18S, R32E) and Mohawk Federal lease (NE/4 SW/4 Section 19, T18S, R32E) in Lea County, New Mexico.
   b. A sample of formation water was obtained from a nearby Siete operated Queen-Penrose producing well, the Scottsdale Federal No. 1 in the NW/4 NE/4 Section 27, T18S, R31E in Eddy County, New Mexico. This well is approximately 2 miles west of the proposed unit.

5. Water injection will be into a zone currently productive of oil and gas.

VIII. Geologic Data:

The injection interval on the proposed Shugart Waterflood Project is the Penrose and Grayburg Queen formation. The Penrose and Grayburg, a fine to medium grained sandstone of the Guadalupian Series and Permian age. The Penrose interval exists at an average depth of 3723 feet (-16 feet subsea) and has an average gross thickness of approximately 200 feet. The average net pay thickness of the injection interval is approximately 8 feet. The Grayburg interval exists at a depth of around 4250' (-543 feet subsea), and has an average gross thickness of approximately 270 feet. The average pay thickness for this injection interval is approximately 25 feet. There are no sources of drinking water overlying or underlying the proposed injection interval.

IX. No formation stimulation of the Penrose or Grayburg formation during the conversions of the proposed wells to injection is anticipated.

X. Well logs for these wells have been previously submitted. The well tests are as follows:

	BOPD	BWPD	MCFGPD	EST. CUM. PROD. MBO
Geronimo #2	12	12	9	61.0
Geronimo #7	31	8	86	49.2
Inca #4	21	0	24	7.7

XI. There are no fresh water sources within one mile of these proposed injection wells.

XII. I, Robert Lee, a Production/Reservoir Engineer for Siete Oil and Gas Corporation and in behalf of, have compiled and examined all available geologic and engineering data and have not found any evidence of hydrologic connections between the proposed Shugart Penrose-Grayburg Waterflood Project injection zone and any sources of underground drinking water.

XIII. Proof of Notice - requirements
1. See attached mailing list and registered mail certificates.

SIETE OIL & GAS CORPORATION
CURRENT WELLBORE SCHEMATIC

WELL: Geronimo Federal No. 2
FIELD: Shugart-SA-Grayburg
INTERVAL: Grayburg
Comp: 4/16/85
IP: 136 BO, 60 BWPD, 77 MCFGPD
GOR 566-1

LOCATION:
950' FNL & 2310' FEL
Section 24: T18S, R31E
Eddy County, N.M.
API #: 30-015-25244
Spudded 17 1/2" hole on 4/3/85

ELEVATION: 4694' KB
ZERO: 8' AGL

TOPS
1. Queen 3512'
2. Penrose 3759'
3. Grayburg 4072'
4. Grayburg 4264'

EQUIPMENT IN HOLE
1. Jensen 114 Pump
2. 131 jts. tbg.

Seat Nipple @ 4197'

SURFACE CASING ran 10 jts. 13 3/8" 48# J-55 STC @ 345'KB cem w/400 sks. Class "C", 2% CaCl2, circulate

PRESENT COMPLETION INTERVAL

Grayburg Zone 2

*<-Perf 4264' - 4277.5' (10 shots) w/1000 gals. 15% HCL
* acid, Frac w/20,000 gals. YF3 Crosslink
* w/47,000# 12/20 sand.
*
* Acidize & Frac existing perfs (4/3/87) w/500
* gals. 15% HCL acid.Frac w/27,000 gals. 30#
* Crosslink w/6,400 100# mesh, 38,000#
*<-20/40 & 37,000# 12/20 sand

PRODUCTION CASING ran 118 jts. 4 1/2" 10.5# J-55 STC @ 4700' KB, cem w/1730 sks. Lt. Wt. III, tail in w/460 sks. 50/50 POZ Class "C", circulate

TD: 4702'
PBTD: 4691'

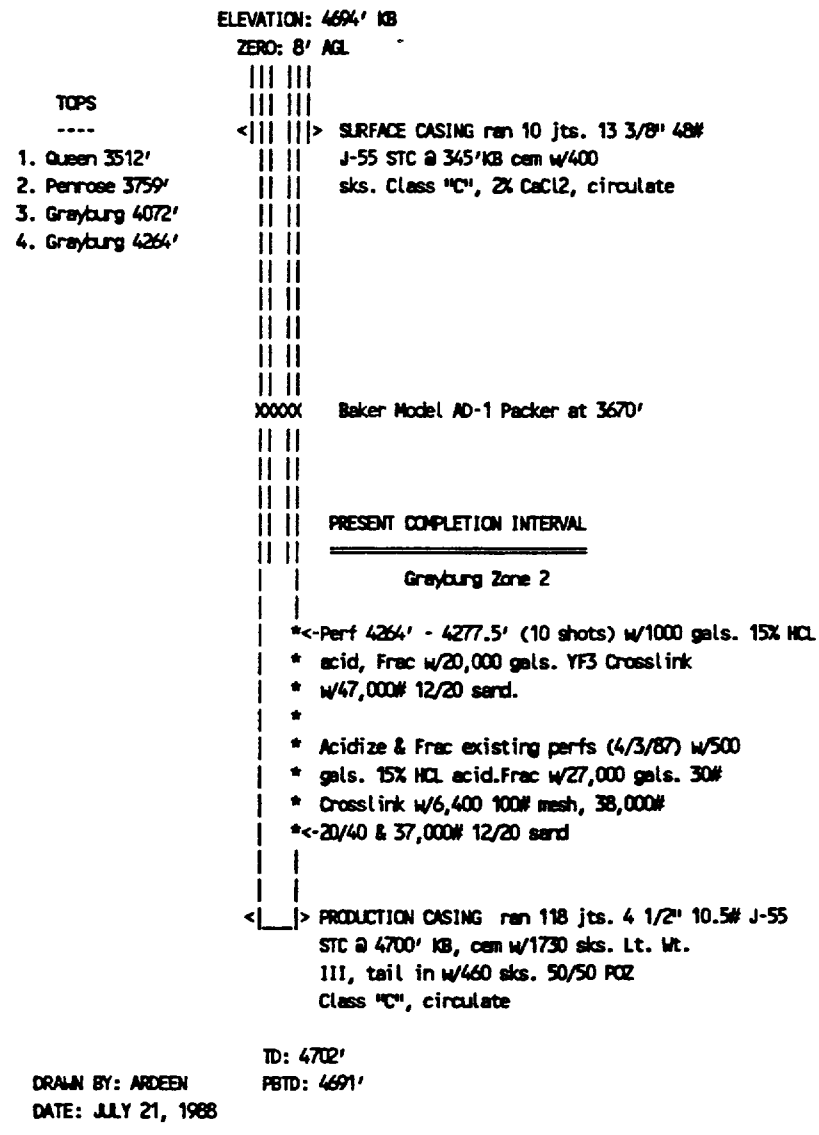
DRAWN BY: ARDEEN
DATE: JULY 21, 1988

Per Trico - Pump History
Out 3/6/89 T5-979 - 2 x 1 1/2 x 16' RSTC 54 ring 4 cup T.B. D/V alloy 3/4" 1" 138"
In T5-1017 - 2 x 1 1/2 x 16' RWTC 4' S/M T.B. D/V alloy

SIETE OIL & GAS CORPORATION
PROPOSED

WELL: Geronimo Federal No. 2
FIELD: Shugart-SA-Grayburg
INTERVAL: Grayburg
Comp: 4/16/85
IP: 136 BO, 60 BWPD, 77 MCFGPD
GOR 566-1

LOCATION:
950' FNL & 2310' FEL
Section 24: T18S, R31E
Eddy County, N.M.
API #: 30-015-25244
Spudded 17 1/2" hole on 4/3/85



DRAWN BY: ARDEEN
DATE: JULY 21, 1988

SIETE OIL & GAS CORPORATION

Geronimo Federal No. 2 - Convert to Injection

NMOCD Form C-108 Section III

III. Data on injection well(s)

A. Injection well information (see attached schematic)

Tabular data

1. Lease: Geronimo Federal lease

   Well No: 2

   Location: 950' FNL & 2310' FEL
   Section 24, T-18S, R-31E
   Eddy County, NM

2. Casing: 13-3/8" surface @ 345' w/400 sks., circ. to surface
   4 1/2" production @ 4700' w/2190 sks. circ. to surface.

3. Injection tubing: + or - 118 Jts. 2-3/8", 4.7 lb/ft, J-55 internally plastic coated tubing.

4. Packer: Baker Model AD-1 injection packer set @ 3670 feet.

B. Other well information

1. Injection formation: Yates-7 Rivers-Queen-Penrose-Grayburg-San Andres

   Field: Shugart Yates 7-Rvrs Queen Grayburg

2. Cased hole perforated interval from 4264' - 4277.5'.

3. The Geronimo Federal No. 2 well was originally drilled for oil and gas production.

4. There are no other perforated or tested intervals in the Geronimo Federal No. 2 well.

5. Within the area of the Geronimo Federal No. 2, there are no higher productive formations. The Delaware is productive at about 5300'. But this wellbore does not penetrate the Delaware zone.

SIETE OIL & GAS CORPORATION
CURRENT WELLBORE SCHEMATIC

WELL: Geronimo Federal No. 7 — LOCATION:
FIELD: Shugart-SA-Grayburg — 1750' FNL & 990' FEL
INTERVAL: Grayburg — Section 24: T18S, R31E
Comp: 5/4/86 — Eddy County, N.M.
IP: 115 BOPD, 113 BWPD, 55 MCFGPD (GOR 478)
API #: 30-015-25598 — Spudded 12 1/4" hole on 4/21/86

ELEVATION: 4492' KB
ZERO: 8' AGL

TOPS
1. Yates 2396'
2. Queen 3505'
3. Grayburg 4018'
4. San Andres 4420'

EQUIPMENT IN HOLE
1. American 114 Pump
2. 133 jts. 2 3/8" tbg.
3. RBP @ 4283'
4. 150-3/4" rods
5. 2 -2' rod subs
Seat Nipple @ 4247'

RBP @ 4283'

SURFACE CASING - ran 9 jts. 8 5/8" 24# J-55 @ 362'
cem w/230 sks. Class C w/2% CaCl2 &
1/4# celloflake - circ.

PRESENT COMPLETION INTERVAL

Grayburg
<--Perf 4250' - 4262' (9 shots) w/1000 gal. 15% acid
frac w/33,000 gals. 30# Crosslink, w/40000#
<--100 mesh, 36,000# 20/40 & 35,000# 12/20 (2 stages)

<--Perf 4299' 4309.5' (8 shots) w/500 gal.
15% acid, 20,000 gal. crosslink
2,000# 100 mesh, 20,000#
<--20/40, 20,000# 12/20.

PRODUCTION CASING - ran 113 jts. 5 1/2" J-55 @ 4499'
cem w/500 sks. HEII, 10# salt, tail in w/
200 sks. 50/50 POZ, 6# salt - circ.

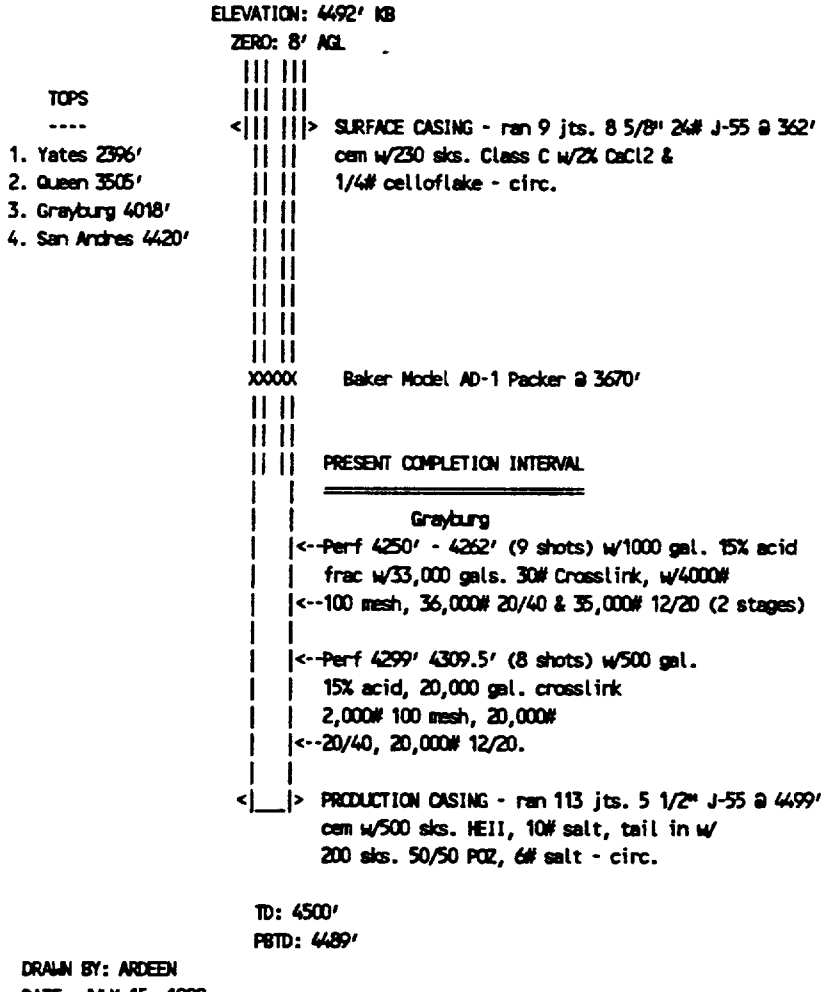
TD: 4500'
PBTD: 4489'

DRAWN BY: ARDEEN
DATE: JULY 15, 1988

SIETE OIL & GAS CORPORATION
PROPOSED

WELL: Geronimo Federal No. 7
FIELD: Shugart-SA-Grayburg
INTERVAL: Grayburg
Comp: 5/4/86
IP: 115 BOPD, 113 BWPD, 55 MCFGPD (GOR 478)
API #: 30-015-25598

LOCATION:
1750' FNL & 990' FEL
Section 24: T18S, R31E
Eddy County, N.M.
Spudded 12 1/4" hole on 4/21/86



DRAWN BY: ARDEEN
DATE: JULY 15, 1988

SIETE OIL & GAS CORPORATION

Geronimo Federal No. 7 - Convert to Injection

NMOCD Form C-108 Section III

III. Data on injection well(s)

A. Injection well information (see attached schematic)

Tabular data

1. Lease: Geronimo Federal lease

   Well No: 7

   Location: 1750' FNL & 990' FEL
   Section 24, T-18S, R-31E
   Eddy County, NM

2. Casing: 8-5/8" surface @ 362' w/230 sks., circ. to surface
   5-1/2" production @ 4499' w/700 sks. circ. to surface.

3. Injection tubing: + or - 118 Jts. 2-3/8", 4.7 lb/ft, J-55 internally plastic coated tubing.

4. Packer: Baker Model AD-1 injection packer set @ 3670 feet.

B. Other well information

1. Injection formation: Yates-7 Rivers-Queen-Penrose-Grayburg-San Andres

   Field: Shugart Yates 7-Rvrs Queen Grayburg San Andres

2. Cased hole perforated interval from 4250' - 4262'.

3. The Geronimo Federal No. 7 well was originally drilled for oil and gas production.

4. There are other perforated intervals in the Geronimo Federal No. 7 well. These are at 4299'- 4309.5'. There is a RBP @ 4283', which will be pulled. The lower zone will then be fraced and used for injection.

5. Within the area of the Geronimo Federal No. 7, the Delaware is productive at about 5300'. But this wellbore does not penetrate the Delaware zone. There are no higher productive intervals.

SIETE OIL & GAS CORPORATION
CURRENT WELLBORE SCHEMATIC

WELL: Inca Federal No. 4 — LOCATION:
FIELD: Y-SR-Q-GB-SA — 760' FNL & 420' FWL
INTERVAL: Penrose — Section 19: T18S, R32E
Comp: 2/4/88 — Lee County, N. M.
IP: 82 BOPD, 39 BWPD, 28 MCFGPD, (GOR 339)
Spudded 12 1/4" hole on 1/7/88 — API #: 30-025-30039

ELEVATION: 3719' KB
ZERO: 8' AGL

TOPS
1. B/Salt 2200'
2. T/Queen 3520'
3. T/Grayburg 3942'

EQUIPMENT IN HOLE
1. Trico P.J.
2. 110 jts. 2 3/8" tbg

Seat Nipple @ 3728'

SURFACE CASING - ran 8 jts. 8 5/8" 24# J-55 @ 358'
cem w/230 sks. HEII, w/2% CaCl2 & 1/4#
celloflake - circ.

PRESENT COMPLETION INTERVAL

Penrose
*<--Perf 3768'-3792' (17 shots) w/ 1,000 gal.
* 15%, Frac w/17,000 gals. 30# Crosslink
*<--w/2000# 100 mesh, 27,000# 20/40 sand & 12,000# 12/20

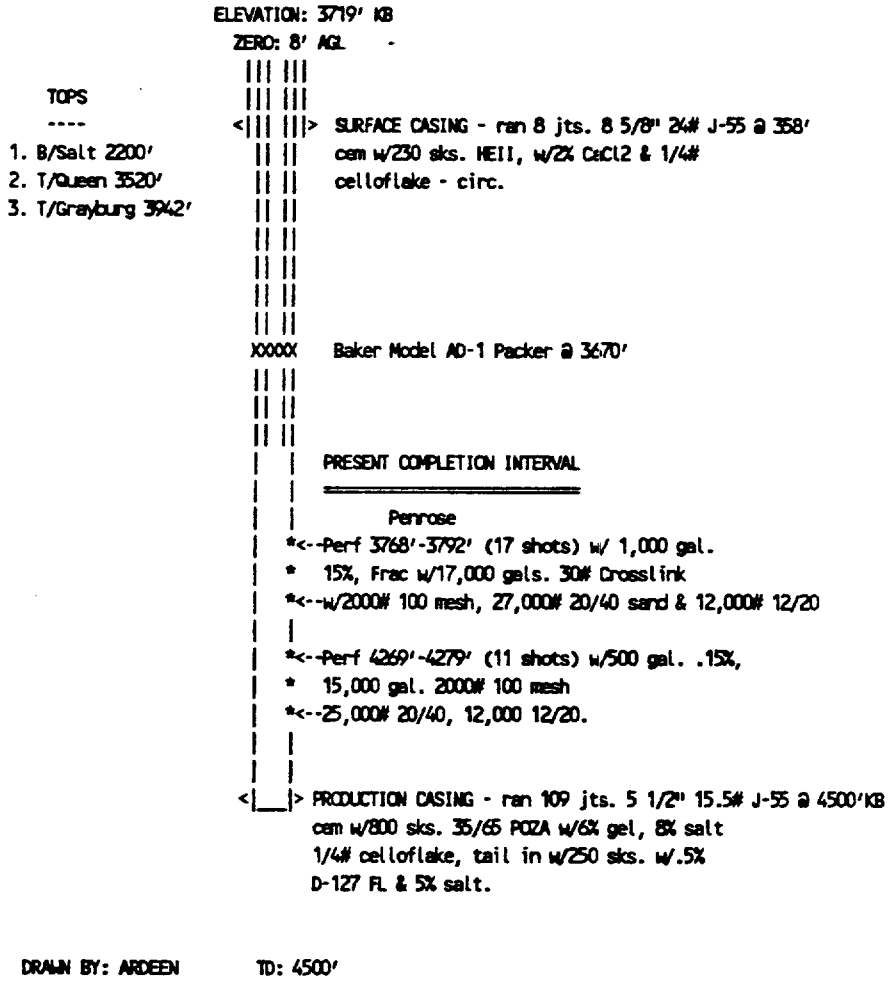
*<--Perf 4269'-4279' (11 shots) w/500 gal. .15%,
* 15,000 gal. 2000# 100 mesh
*<--25,000# 20/40, 12,000 12/20.

PRODUCTION CASING - ran 109 jts. 5 1/2" 15.5# J-55 @ 4500'KB
cem w/800 sks. 35/65 POZA w/6% gel, 8% salt
1/4# celloflake, tail in w/250 sks. w/.5%
D-127 FL & 5% salt.

DRAWN BY: ARDEEN — TD: 4500'
DATE: JULY 12, 1988 — PBTD: 4264'

SIETE OIL & GAS CORPORATION
PROPOSED

WELL: Inca Federal No. 4 LOCATION:
FIELD: Y-SR-Q-GB-SA 760' FNL & 420' FWL
INTERVAL: Penrose Section 19: T18S, R32E
Comp: 2/4/88 Lea County, N. M.
IP: 82 BOPD, 39 BWPD, 28 MCFGPD, (GOR 339)
Spudded 12 1/4" hole on 1/7/88 API #: 30-025-30039



DRAWN BY: ARDEEN TD: 4500'
DATE: JULY 12, 1988 PBTD: 4244'

SIETE OIL & GAS CORPORATION

Inca Federal No. 4 - Convert to Injection

NMOCD Form C-108 Section III

III. Data on injection well(s)

A. Injection well information (see attached schematic)

Tabular data

1. Lease: Inca Federal lease

   Well No: 4

   Location: 760' FNL & 420' FWL
   Section 19, T-18S, R-32E
   Lea County, NM

2. Casing: 8-5/8" surface @ 358' w/230 sks., circ. to surface
   5-1/2" production @ 4500' w/1050 sks. circ. to surface.

3. Injection tubing: + or - 118 Jts. 2-3/8", 4.7 lb/ft, J-55 internally plastic coated tubing.

4. Packer: Baker Model AD-1 injection packer set @ 3670 feet.

B. Other well information

1. Injection formation: Yates-7 Rivers-Queen-Penrose-Grayburg-San Andres

   Field: Shugart Yates 7-Rvrs Queen Grayburg San Andres

2. Cased hole perforated interval from 3768' - 3792', 4269' - 4279'.

3. The Inca Federal No. 4 well was originally drilled for oil and gas production.

4. There are no other perforated or tested intervals in the Inca Federal No. 4 well.

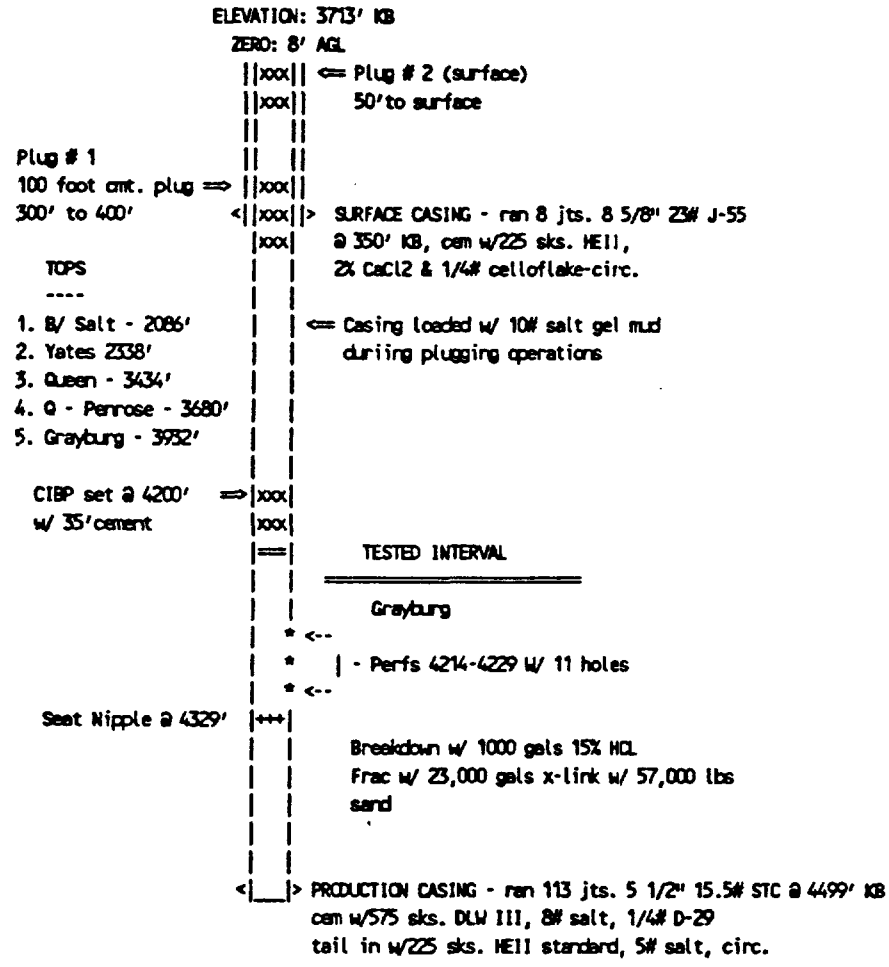
5. Within the area of the Inca Federal No. 4, there are no other higher productive formations. The Delaware is productive at a depth of 5300'. But this well does not penetrate the Delaware.

/015

SIETE OIL & GAS CORPORATION

WELL: Blackhawk Federal No. 6 — LOCATION:
FIELD: Shugart — 2310' FSL & 1650' FEL
INTERVAL: Grayburg — Section 23, T-18S, R-31E
Comp: Well tested non-commercial — Eddy County, N.M.
IP: 1 BOPD, 60 BWPD, TSTM-MCFGPD (GOR N/A) Spudded 12 1/4" hole on 3/15/87

WELL PLUGGED AND ABANDONED ON 11/24/87



DRAWN BY: ARDEEN — TD: 4500'
DATE: JULY 14, 1988 — PBTD: 4330'

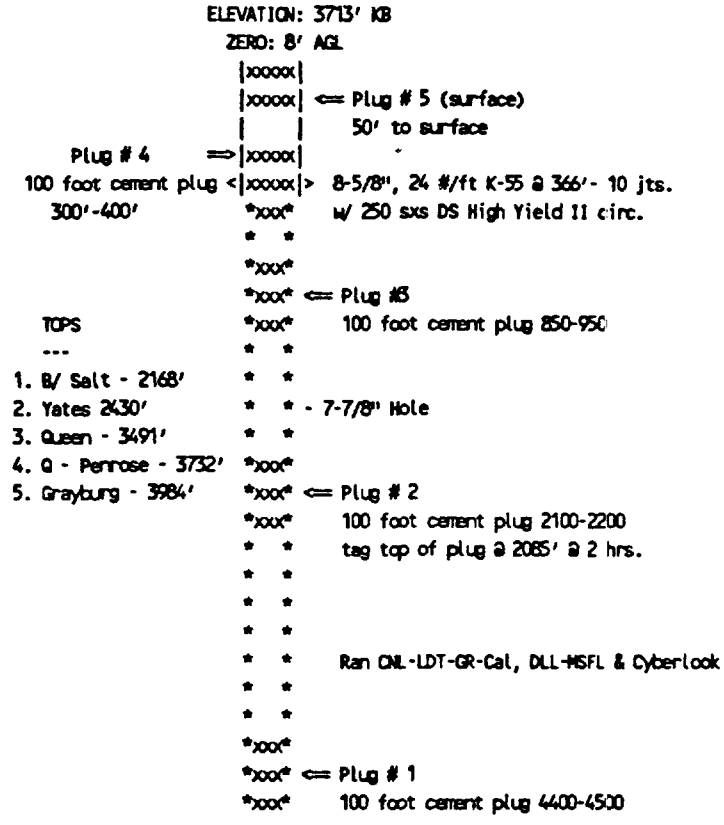
/015

SIETE OIL & GAS CORPORATION

WELL: Blackhawk Federal No. 6 — LOCATION:
FIELD: Shugart — 2310' FSL & 1650' FEL
INTERVAL: Grayburg — Section 23, T-18S, R-31E
Comp: Well tested non-commercial — Eddy County, N.M.
IP: 1 BOPD, 60 BWPD, TSTM-MCFGPD (GOR N/A) Spudded 12 1/4" hole on 3/15/87

SIETE OIL & GAS CORPORATION

WELL: Blackhawk Federal No. 4 — LOCATION:
FIELD: Shugart — 990' FSL & 990' FWL
INTERVAL: Proposed Queen-Grayburg — Section 24, T-18S, R-31E
Spudded 6/11/86 — Eddy County, N.M.
Dry & Abandoned; plugged 6/20/86 — API #: 30-015-25629



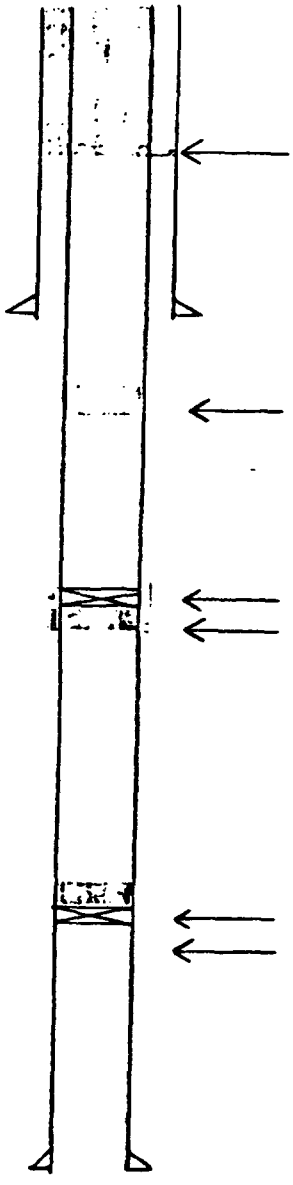
DRAWN BY: JER
DATE: November 7, 1987

SIETE OIL & GAS CORPORATION

WELL: Blackhawk Federal No. 4 — LOCATION:
FIELD: Shugart — 990' FSL & 990' FWL
INTERVAL: Proposed Queen-Grayburg — Section 24, T-18S, R-31E
Spudded 6/11/86 — Eddy County, N.M.
Dry & Abandoned; plugged 6/20/86 — API #: 30-015-25629

Siete Oil & Gas Corporation
Keohane Federal No. 1
330' FNL & 2260' FEL
Sec. 24: T18S, R31E
Eddy County, New Mexico

PLUGGING DIAGRAM



Perforations @ 400' w/4 holes per foot in 7" casing circulated cement Between 7" & 8 5/8" casing - Filled inside 7" casing from surface to 400' (142 sks.).

8 5/8" 24# casing set @ 897' cemented w/50 sks.

Perforations @ 1100' w/4 holes per foot - Could not circulate spot 20 sk. plug (100') top of cement @ 1000'.

20 sk. cement plug (100') TOC @ 2194'

Cement retainer @ 2294'.

Perforations @ 2350' w/4 holes per foot
Squeezed perfs w/35 sks cement
Set 100' plug on top of retainer - TOC @ 2196'

CIBP Set @ 3775'
Old perforations 3811' - 17'

7" 20# casing set @ TD 4232' & cemented w/100 sks.

OIL FIELD SERVICES DIVISION
VISCO CHEMICALS

NALCO CHEMICAL COMPANY
6520 CARLSBAD HIGHWAY □ HOBBS, NEW MEXICO 88240 □ AREA 505-393-0436

January 18, 1988

Siete Oil & Gas
Roswell, NM

Attention: Eddie Rodriguez

Eddie,

As you requested I have conducted water analyses on produced water from the Geronimo, Arco and Scottsdale leases. In addition, compatibility was determined to ensure that these waters will not cause scaling problems when mixed. The compatability report attached is for a combination of Geronimo/Arco water and Scottsdale water. The water labeled "produced" is the Geronimo/Arco water that you plan to inject and the sample labeled "fresh" is the water that is present in the formation now.

As you can see from the report, the $CaCO_3$ and the $CaSO_4$ indices are positive at some mixture ratios and temperatures. However, the magnitude of the indices is small and indicates only a slight chance of scale precipitation in the formation. If this is determined to be a problem, a concentration of 1-2 ppm of Visco 953 Scale Inhibitor can be added to the waters before injection.

Since the water tanks at the batteries are open to the atmosphere it will be necessary to remove the oxygen from the water before injection. This can be accomplished by adding an oxygen scavenger to the water before it is transferred to the skim tank. When the water station is complete and actual oxygen levels can be determined, the type and amount of oxygen scavenger can be selected.

Eddie, it is my opinion that the Geronimo/Arco water can be used for injection without any adverse results to the formation as long as the oxygen and scale problems are addressed. I look forward to working with you on this project in the near future. If you have any questions, please contact me at 505-393-0436. Thank you.

Respectfully,

David T. Parker
District Salesman

VISCO Water Compatibility Report

Prepared for SIETE OIL & GAS
LOCO HILLS

Parker, David T.
NALCO Chemical Company
21-JAN-88

	PRODUCED WATER	FRESH WATER
Sample Date	: 01/08/88	01/08/88
Water Source	: GERONIMO & ARCO	SCOTTSDALE

Temperature Degrees F	Water Mixture (Fresh/Produced)	CaCO3 Index Stiff-Davis units	CaSO4 Index Skillman units	Actual CaSO4 Mg/L
60	0 /100	* 0.29	* 11.81	992.
	20 / 80	* 0.35	* 9.40	907.
	40 / 60	* 0.39	* 6.90	822.
	50 / 50	* 0.40	* 5.61	779.
	60 / 40	* 0.40	* 4.28	737.
	80 / 20	* 0.41	* 1.49	652.
	100 / 0	* 0.41	* -1.57	567.
80	0 /100	* 0.52	* 11.84	
	20 / 80	* 0.58	* 9.43	
	40 / 60	* 0.62	* 6.94	
	50 / 50	* 0.62	* 5.65	
	60 / 40	* 0.62	* 4.32	
	80 / 20	* 0.64	* 1.53	
	100 / 0	* 0.63	* -1.52	
100	0 /100	* 0.80	* 11.76	
	20 / 80	* 0.87	* 9.35	
	40 / 60	* 0.90	* 6.85	
	50 / 50	* 0.91	* 5.56	
	60 / 40	* 0.91	* 4.22	
	80 / 20	* 0.92	* 1.42	
	100 / 0	* 0.92	* -1.64	
120	0 /100	* 1.14	* 11.36	
	20 / 80	* 1.20	* 8.92	
	40 / 60	* 1.24	* 6.38	
	50 / 50	* 1.24	* 5.07	
	60 / 40	* 1.24	* 3.71	
	80 / 20	* 1.26	* 0.86	
	100 / 0	* 1.25	* -2.27	

* Note: Nalco refered to the Scottsdales water (similar to Blackhawk formation water) as fresh water

ISCO Water Compatibility Report

repared for SIETE OIL & GAS
LOCO HILLS

Parker, David T.
NALCO Chemical Company
21-JAN-88

	PRODUCED WATER	FRESH WATER
ample Date :	01/08/88	01/08/88
ater Source :	GERONIMO & ARCO	SCOTTSDALE

Temperature Degrees F	Water Mixture (Fresh/Produced)	CaCO3 Index Stiff-Davis units		CaSO4 Index Skillman units	
140	0 /100	*	1.53	*	11.39
	20 / 80	*	1.59	*	8.95
	40 / 60	*	1.63	*	6.42
	50 / 50	*	1.64	*	5.10
	60 / 40	*	1.64	*	3.75
	80 / 20	*	1.65	*	0.90
	100 / 0	*	1.65	*	-2.23
160	0 /100	*	1.98	*	11.46
	20 / 80	*	2.04	*	9.03
	40 / 60	*	2.08	*	6.51
	50 / 50	*	2.08	*	5.20
	60 / 40	*	2.08	*	3.85
	80 / 20	*	2.09	*	1.01
	100 / 0	*	2.09	*	-2.10
180	0 /100	*	2.48	*	11.54
	20 / 80	*	2.54	*	9.12
	40 / 60	*	2.58	*	6.60
	50 / 50	*	2.58	*	5.29
	60 / 40	*	2.58	*	3.95
	80 / 20	*	2.59	*	1.12
	100 / 0	*	2.59	*	-1.98

* At this temperature and total ionic strength, the value of "K" exceeds reported values. The index number given is estimated and if positive, scaling is expected.

SIETE OIL & GAS
LOCO HILLS

7-DEC-87

SCOTTSDALE FEDERAL
WELLHEAD

>>> Oil Field Water Analysis <<<

DISSOLVED SOLIDS

Cations		mg/l	meq/l		mg/l
Sodium	Na+	75,877.6	3,299.0	as NaCl	
Calcium	Ca++	7,600.0	380.0	as CaCO3	19,000.0
Magnesium	Mg++	5,346.0	440.0	as CaCO3	22,000.0
Barium	Ba++			as CaCO3	
Strontium	Sr++			as CaCO3	
Total Cations		88,823.6	4,119.0		

Anions		mg/l	meq/l		mg/l
Chloride	Cl-	145,680.0	4,108.2	as NaCl	240,000.0
Sulfate	SO4=	270.4	5.6	as Na2SO4	400.0
Carbonate	CO3=			as CaCO3	
Bicarb.	HCO3-	317.2	5.2	as CaCO3	260.0
Total Anions		146,267.6	4,119.0		

Total Solids 235,091.2

METALS

Total Iron,Fe	0.9	as Fe	0.9
Acid to Phen,CO2		as CaCO3	

OTHER PROPERTIES

pH	6.1
Specific Gravity	1.2
Turbidity	
Oxygen, as O2 ppm	
Sulfide as H2Sppm	
Temperature F	70.0

SIETE OIL & GAS
LOCO HILLS

7-DEC-87

SCOTTSDALE FEDERAL
WELLHEAD

>>> Scaling Indices <<<

Positive values indicate scaling tendencies

Temperature (Deg. F)	Calcium Carbonate	Calcium Sulfate	Barium Sulfate	Strontium Sulfate
60	-0.12	-28.74	NA	NA
80	+0.08	-28.80	NA	NA
100	+0.32	-28.72	NA	NA
120	+0.61	-28.24	NA	NA
140	+0.95	-28.22	NA	NA
160	+1.32	-23.03	NA	NA
180	+1.74	-28.27	NA	NA
200	+2.20	NA	NA	NA
220	NA	NA	NA	NA
240	NA	NA	NA	NA
260	NA	NA	NA	NA
280	NA	NA	NA	NA
300	NA	NA	NA	NA
320	NA	NA	NA	NA

SIETE OIL & GAS
LOCO HILLS

7-DEC-87

ARCO FEDERAL
WELLHEAD

>>> Oil Field Water Analysis <<<

DISSOLVED SOLIDS

Cations		mg/l	meq/l		mg/l
Sodium	Na+	70,047.0	3,045.5	as NaCl	
Calcium	Ca++	8,000.0	400.0	as CaCO3	20,000.0
Magnesium	Mg++	4,131.0	340.0	as CaCO3	17,000.0
Barium	Ba++			as CaCO3	
Strontium	Sr++			as CaCO3	
Total Cations		82,178.0	3,785.5		

Anions		mg/l	meq/l		mg/l
Chloride	Cl-	133,540.0	3,765.8	as NaCl	220,000.0
Sulfate	SO4=	811.2	16.9	as Na2SO4	1,200.0
Carbonate	CO3=			as CaCO3	
Bicarb.	HCO3-	170.8	2.8	as CaCO3	140.0
Total Anions		134,522.0	3,785.5		
Total Solids		216,700.0			

METALS

Total Iron,Fe	0.7	as Fe	0.7
Acid to Phen,CO2		as CaCO3	

OTHER PROPERTIES

pH	6.1
Specific Gravity	1.2
Turbidity	
Oxygen, as O2 ppm	
Sulfide as H2Sppm	
Temperature F	70.0

SIETE OIL & GAS
LOCO HILLS

7-DEC-87

ARCO FEDERAL
WELLHEAD

>>> Scaling Indices <<<

Positive values indicate scaling tendencies

Temperature (Deg. F)	Calcium Carbonate	Calcium Sulfate	Barium Sulfate	Strontium Sulfate
60	-0.44	-13.48	NA	NA
80	-0.25	-13.59	NA	NA
100	-0.01	-13.53	NA	NA
120	+0.27	-12.98	NA	NA
140	+0.60	-12.85	NA	NA
160	+0.97	-12.76	NA	NA
180	+1.39	-12.68	NA	NA
200	+1.86	NA	NA	NA
220	NA	NA	NA	NA
240	NA	NA	NA	NA
260	NA	NA	NA	NA
280	NA	NA	NA	NA
300	NA	NA	NA	NA
320	NA	NA	NA	NA

SIETE OIL & GAS
LOCO HILLS

7-DEC-87

GERONIMO BATTERY
WATER TANK

>>> Scaling Indices <<<

Positive values indicate scaling tendencies

Temperature (Deg. F)	* Calcium Carbonate	Calcium Sulfate	Barium Sulfate	Strontium Sulfate
60	-0.10	-7.92	NA	NA
80	+0.11	-7.86	NA	NA
100	+0.40	-7.88	NA	NA
120	+0.73	-8.15	NA	NA
140	+1.12	-8.36	NA	NA
160	+1.57	-8.56	NA	NA
180	+2.07	-8.77	NA	NA
200	+2.63	NA	NA	NA
220	NA	NA	NA	NA
240	NA	NA	NA	NA
260	NA	NA	NA	NA
280	NA	NA	NA	NA
300	NA	NA	NA	NA
320	NA	NA	NA	NA

* At this temperature and total ionic strength, the value of "K" exceeds reported values. The index number given is estimated and if positive, scaling is expected.

SIETE OIL & GAS
LOCO HILLS

7-DEC-87

GERONIMO BATTERY
WATER TANK

>>> Oil Field Water Analysis <<<

DISSOLVED SOLIDS

Cations		mg/l	meq/l		mg/l
Sodium	Na+	114,115.5	4,961.5	as NaCl	
Calcium	Ca++	15,200.0	760.0	as CaCO3	38,000.0
Magnesium	Mg++	3,402.0	280.0	as CaCO3	14,000.0
Barium	Ba++			as CaCO3	
Strontium	Sr++			as CaCO3	
Total Cations		132,717.5	6,001.5		

Anions		mg/l	meq/l		mg/l
Chloride	Cl-	212,450.0	5,991.1	as NaCl	350,000.0
Sulfate	SO4=	405.6	8.4	as Na2SO4	600.0
Carbonate	CO3=			as CaCO3	
Bicarb.	HCO3-	122.0	2.0	as CaCO3	100.0
Total Anions		212,977.6	6,001.5		
Total Solids		345,695.1			

METALS

Total Iron,Fe	12.0	as Fe	12.0
Acid to Phen,CO2		as CaCO3	

OTHER PROPERTIES

pH	6.0
Specific Gravity	1.3
Turbidity	
Oxygen, as O2 ppm	
Sulfide as H2Sppm	
Temperature F	70.0