

▲ Dual Injector B. S./Queen

Completed Step-Rate Tests

Revised 7-28-95 Revised 6-10-93 Revised 6-10-93 Revised 5-25-93 Revised 11-30-92 Legised (S) Denotes Segregated Leas



Proposal For 2000 psi Surface Injection Pressure (Submitted in Case No. 10762)

1. While testing injectivity of Bone Spring in the Federal E #11 and Government K #2, a very heavy (.51 psi/ft.) water was injected as a source. While keeping the surface pressure @ a maximum of 1650 psi per Order R-9737, a gradient of .70 was achieved.

Gradient =
$$\frac{1650 + 8500' * .51}{8500'}$$
 = .70

- 2. All injection was contained to the 1st Bone Spring Sand during these tests as evidenced by injection profile logs run in both wells.
- 3. The average frac gradient for the Querecho Plains Bone Spring is equal to .74 as determined by the ISIP of 17 fracture stimulation jobs which Mewbourne pumped at the field.
- 4. A significantly less heavy (.45 psi/ft.) water is proposed for injection water during full flood operations.
- 5. As a result of the less heavy water, a 2000 psi surface pressure will generate a gradient of .69 and should result in all injection staying contained to the unitized formation.

Gradient =
$$\frac{2000 + 8500' * .45}{8500'}$$
 = .69

Proposal for 2320 psi Surface Injection Pressure (Case No. 11520)

- a. Average of 5 steprate tests = 2320 psi.
- b. Water gradient at the time of testing = .46 psi/ft.
- c. Frac Gradient = $\frac{2320 + 8500' * .46}{8500'}$ = .73 psi/ft

NOTE: This agrees very well with the ISIP of 17 frac jobs pumped at the field. (See item 3 above)

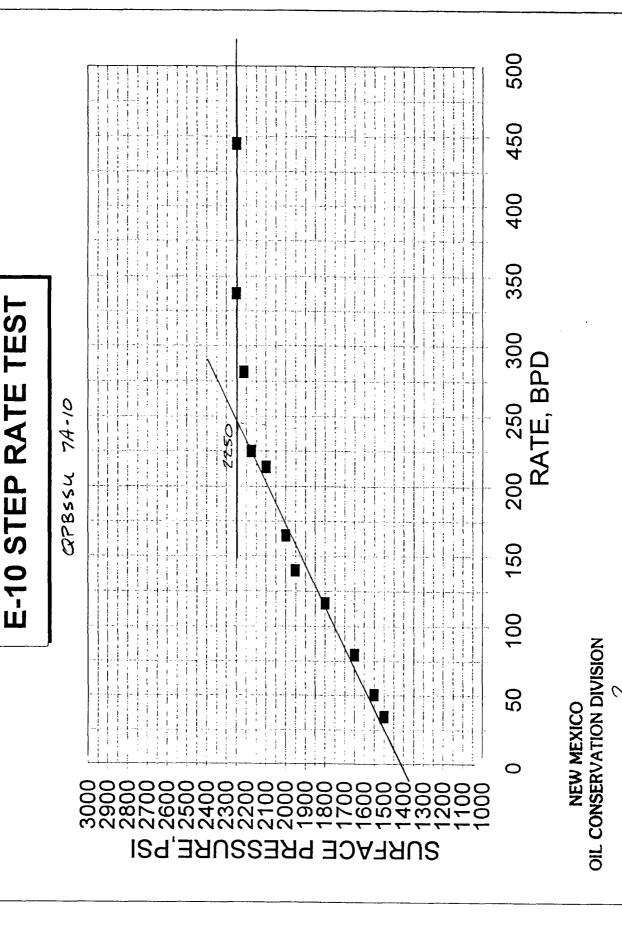
output Exhibit 226

NEW MEXICO

OIL CONSERVATION DIVISION

Membrurne EXHIBIT

1 (520)

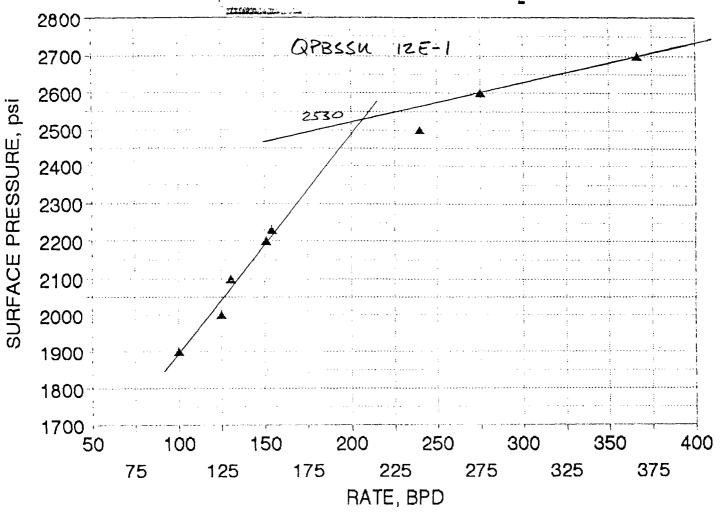


0251

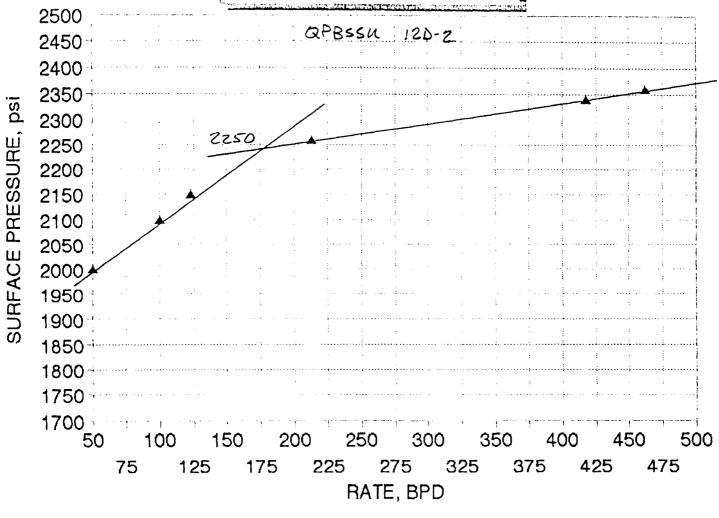
CASE NO.

EXHIBIT

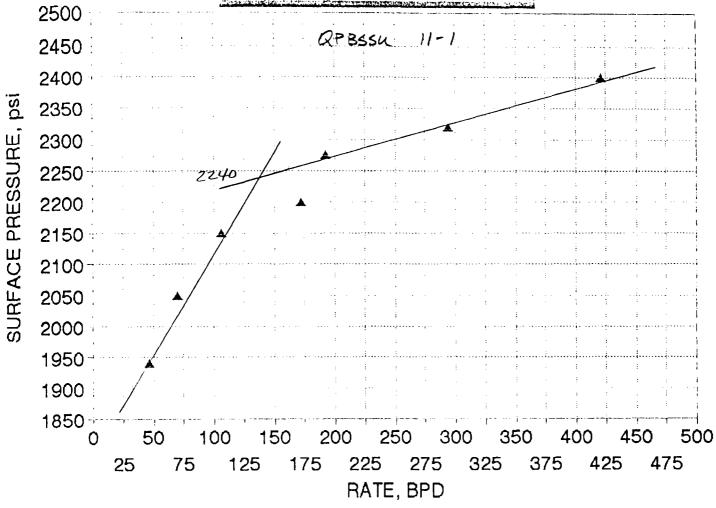
STEP RATE TEST SPRINKLE FEDERAL #1



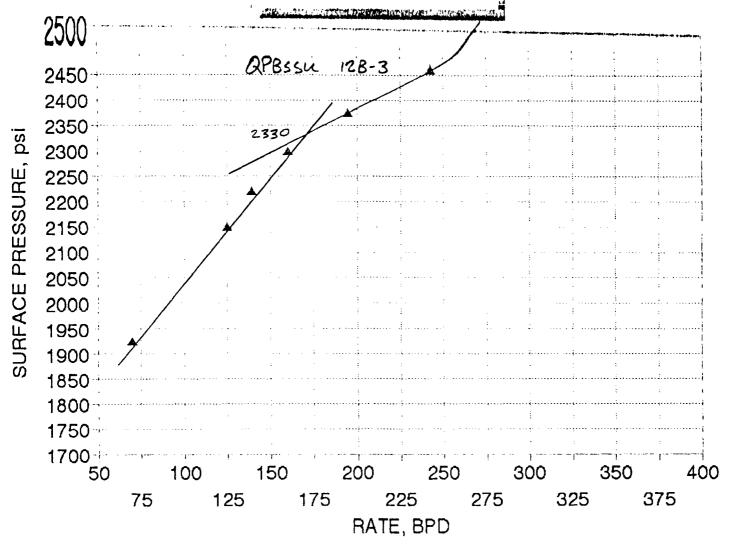








STEP RATE TEST 5 SHINNERY FED. #3



BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION OF MEWBOURNE OIL COMPANY TO INCREASE INJECTION PRESSURE, LEA COUNTY, NEW MEXICO

Case No. 11520

AFFIDAVIT REGARDING NOTICE

STATE	OF	NEW	MEX	ICO)	١
COUNTY	OF	SAN	ATI	FΕ)	SS

Kevin Mayes, being duly sworn upon his oath, deposes and states:

- 1. I am over the age of 18 and have personal knowledge of the matters stated herein.
 - 2. I am an employee of Applicant.
- 3. Applicant has conducted a good faith, diligent effort to find the names and correct addresses of the interest owners entitled to receive notice of the Application filed herein.
- 4. Notice of the Application was provided to the interest owners at their correct addresses by certified mail. Copies of the notice letters and certified return receipts are attached hereto as Exhibit A.
- 5. Applicant has complied with the notice provisions of Form C-108 and Division Rule 1207.

Kevin Mayes

SUBSCRIBED AND SWORN TO before me this /sw day of May, 1996, by Kevin Mayes.

Keny Radecki

My Commisssion Expires:

July 27, 1998

NEW MEXICO
OIL CONSERVATION DIVISION

EXHIBIT 4

CASE NO. /1520

P.O. BOX 7698

TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL RETURN RECEIPT REQUESTED Z 077 781 631

Bureau of Land Management P. O. Box 1397 Roswell, New Mexico 88220

Application for Increased Surface Injection Pressure Querecho Plains Bone Spring Sand Unit Waterflood Project Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E.

Project Engineer



P.O. BOX 7698 TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL RETURN RECEIPT REQUESTED Z 077 781 630

New Mexico Oil Conservation Division P. O. Box 1980 Hobbs, New Mexico 88240

Attention: Jerry Sexton

Re: Application for Increased Surface Injection Pressure Querecho Plains Bone Spring Sand Unit Waterflood Project Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E.

Project Engineer

P.O. BOX 7698
TYLER, TEXAS 75711
903 - 561-2900
FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Z 079 526 655

Santa Fe Energy 500 West Illinois, Suite 500 Midland, Texas 79701

Attention: James Blount

Re: Application for Increased Surface Injection Pressure
Querecho Plains Bone Spring Sand Unit Waterflood Project
Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.É. Project Engineer

P.O. BOX 7698 TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Z 079 526 654

Anadarko Petroleum Corporation P. O. Drawer 1330 Houston, Texas 77251-1330

Attention: Richard Rowe

Re: Application for Increased Surface Injection Pressure
Querecho Plains Bone Spring Sand Unit Waterflood Project
Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E. Project Engineer

March

rioject Engine

P.O. BOX 7698 TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL RETURN RECEIPT REQUESTED Z 079 526 653

BTA 104 South Pecos Midland, Texas 79701

Application for Increased Surface Injection Pressure Re: Querecho Plains Bone Spring Sand Unit Waterflood Project Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E. Project Engineer

Kum Marya

P.O. BOX 7698 TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL RETURN RECEIPT REQUESTED **Z** 079 526 651

Yates Petroleum Corporation 207 South 4th Street Artesia, New Mexico 88210

Application for Increased Surface Injection Pressure Querecho Plains Bone Spring Sand Unit Waterflood Project Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E. Project Engineer

Kwin Mayer

P.O. BOX 7698 TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Z 079 526 650

Meridian Oil, Inc. P. O. Box 51810 Midland, Texas 79710-1810

Re: Application for Increased Surface Injection Pressure
Querecho Plains Bone Spring Sand Unit Waterflood Project
Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E. Project Engineer

Marke

P.O. BOX 7698 TYLER, TEXAS 75711 903 - 561-2900 FAX 903 - 561-1870

April 4, 1996

CERTIFIED MAIL RETURN RECEIPT REQUESTED Z 079 526 652

Siete Oil & Gas Corporation P. O. Box 2523 Roswell, New Mexico 88202-2523

Re: Application for Increased Surface Injection Pressure Querecho Plains Bone Spring Sand Unit Waterflood Project Lea County, New Mexico

Gentlemen:

Mewbourne Oil Company on this date made application to increase the surface injection pressure at the referenced project. This application will be heard May 2, 1996, at the New Mexico Oil Conservation Division office in Santa Fe, New Mexico. Any objections to the application should be filed with the Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505 within fifteen (15) days.

Should you have any questions or comments, please call me or Monty Whetstone at (903) 561-2900.

Sincerely,

Kevin Mayes, P.E.

Project Engineer

SENDER: • Complete items 1 and/or 2 for additional services. • Complete items 3, and 4a & b. • Print your name and address on the reverse of this form so the return this card to you. • Attach this form to the front of the mailpiece, or on the back does not permit. • Write "Return Receipt Requested" on the mailpiece below the art. • The Return Receipt will show to whom the article was delivered a delivered.	if space 1. Addressee's Address ticle number. and the date Consult postmaster for fee.	
3. Article Addressed to: BULEAU OF LAND MGT P.O. BOX 1397 ROSWELL, NM 88220	4a. Article Number Z 077 781631 4b. Service Type Registered Insured Certified COD Express Mail Return Receipt for Merchandise 7. Date of Delivery 2	
5. Signature (Addressee) 6. Signature (Agent) PS Form 3811, December 1991 *U.S. GPO: 1993—352	8. Addressee's Address (Only if requested and fee is paid). 2-714 DOMESTIC RETURN RECEIPT	

SENDER: Complete items 1 and/or 2 for additional services. Complete items 3, and 4a & b. Print your name and address on the reverse of this form so that return this card to you. Attach this form to the front of the mailpiece, or on the back if does not permit. Write "Return Receipt Requested" on the mailpiece below the article. The Return Receipt will show to whom the article was delivered and	space 1. Addressee's Address cle number. 2. Restricted Delivery
JERRY SEXTON NEW MEY OIL CONSERVATION DIVISION P.O. BOX 1980 HOBBS, NM 88240	4a. Article Number
5. Signature (Addressee) 6. Signature (Agent)	8. Addressee's Address (Only if requested and fee is paid) 2714 DOMESTIC RETURN RECEIPT

TURN ADDRESS completed on the reverse side?	SENDER: Complete items 1 and/or 2 for additional services. Complete items 3, and 4a & b. Print your name and address on the reverse of this form so tha return this card to you. Attach this form to the front of the mailpiece, or on the back it does not permit. Write "Return Receipt Requested" on the mailpiece below the article The Return Receipt will show to whom the article was delivered and delivered. Article Addressed to: JAMES BLOUNT SANTA FE ENERGY 550 W.ILLINOIS, SUITE/330 MIDLAND, TX 79701	4a. Arti 4b. Ser Regi Cert Expr	icle Number O 79 526 655 vice Type stered	Thank you for using Return Receipt Service.
S vour RETURN	5. Signature (Addressee) 6. Signature (Agent) PS Form 3811, December 1991 *U.S. GPO: 1993—352	and		Thank
<u>-6</u>				

• Complete items 1 and/or 2 for additional services. • Complete items 3, and 4a & b. • Print your name and address on the reverse of this form so the return this card to you. • Attach this form to the front of the mailpiece, or on the back does not permit. • Write "Return Receipt Requested" on the mailpiece below the art. • The Return Receipt will show to whom the article was delivered delivered.	if space 1. Addressee's Address
3. Articlé Addressed to: RICHARD ROWE ANADARKO PETR CORP P.O. DRAWER 1330 HOUSTON, N. 7251-1330	4a. Article Number 2 079 526 654 4b. Service Type Registered Insured Cortified COD Express Mail A Return Receipt for Merchandise
5. Signature (Addressee) 6. Signature (Agent) *** TRS() ** PS Form 3811 , December 1991 ** U.S. GPO: 1993—35	8. Addressee's Address (Only it requested and fee is paid)

SENDER: Complete items 1 and/or 2 for additional services. Complete items 3, and 4a & b. Print your name and address on the reverse of this form so to return this card to you. Attach this form to the front of the mailpiece, or on the back does not permit. Write "Return Receipt Requested" on the mailpiece below the asset of the second seco	article number.
delivered.	Consult postmaster for fee.
BTA OF SOUTH PECOS MIDLAND, TX 79701	4a. Article Number 2 079 526 653 4b. Service Type Registered Insured Certified COD Express Mail Return Receipt for Merchandise 7. Date of Delivery 4-8-96
5. Signature (Addressee) 6. Signature (Agent)	8. Addressee's Address (Only if requested and fee is paid)
PS Form 3811 , December 1991 ±U.S. GPO: 1993—3	352-714 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and/or 2 for additional services. Complete items 3, and 4a & b. Print your name and address on the reverse of this form so that return this card to you. Attach this form to the front of the mailpiece, or on the back if does not permit. Write "Return Receipt Requested" on the mailpiece below the article of the Return Receipt will show to whom the article was delivered and delivered.	space 1. Addressee's Address 5
3. Article Addressed to: YATES PETROLEUM CORP 207 S. 4 U. STREET ARTESIA, NEW MEX 88210	4a. Article Number 2079 526 65/ 4b. Service Type Registered Insured Certified COD Express Mail Return Receipt for Merchandise 7. Date of Delivery
5. Signature (Addressee) Signature (Agent) Signature (Agent) PS Form 3811, December 1991 *U.S. GPO: 1993—352-	8. Addressee's Address (Only if requested and fee is paid) 11. [1] 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

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3. Article Addressed to: MELIDIAN OIL, INC. P.O.BOX 5/8/0 MIDLAN P, TV 797/0-1810	4a. Article Number 2 079 526 650 4b. Service Type Registered Insured Certified COD Express Mail Return Receipt for Merchandise 7. Date of Delivery 8
5. Signature (Addressee) 6. Signature (Agent) PS Form 3811 , December 1991 *U.S. GPO: 1993—35	Addressee's Address (Only if requested and fee is paid) DOMESTIC RETURN RECEIPT

Receipt for Certified Mail

No Insurance Coverage Provided Do not use for International Mail (See Reverse)

Status For June Mail (See Reverse)

Status For June Mail (See Reverse)

Status For Light Code

Posture For Light Code

Restricted Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom, June, and Addressee's Address

8 Feets

Postmark or Date

Postmark or Date

NEW MEXICO OIL CONSERVATION DIVISION

QPBSSU WATER INJECTION SUMMARY

DECEMBER 1995 EXHIBIT 5

WELL NAME	DAYS	DAILY	MONTH	CUMULATIVE
	INJ.	AVG.	TOTAL	TOTAL
BURLESON FED. #1	31	106	3286	163809
BURLESON FED. #2	1	0	0	87982
FEDERAL "E" #10	31	218	6764	147875
FEDERAL "E" #11	31	108	3342	157247
FEDERAL "F" #3	31	81	2502	173906
FEDERAL "L" #2	31	216	6682	184160
FEDERAL "L" #4	31	320	9913	188885
FEDERAL "L" #5	0	ERR	0	55334
FEDERAL "L" #7	31	255	7900	184906
FEDERAL "P" #1	31	160	4952	191531
GOVERNMENT "K" #2	31	274	8494	169300
SHINNERY "14" #3	31	71	2202	137113
SHINNERY "1 4" #4	31	174	5398	183400
SPRINKLE FED. #1	31	64	1996	156285
SPRINKLE FED. #2	27	198	5357	134733
Average barrels of water injected per day				2263
Total barrels of water injected for month				68788
Total barrels of water injected as of 01/01/96				2334232

SOURCE	01/01/96	12/01/95	
f/			X
DOUBLE EAGLE TOUSA	→ 173698	167200	64980 T.oly
ANADARKO ,	82240	79882	2358 1.17
SANTA FE (SWD)	10362	0	10362 1.17
SANTA FE (SWD) SPRINKLE FED. #4 Del. prod.	10186	9810	376 1.17 \ W+ Ava
CEDAR LAKE #4			966 1.17 } 1.05
QPBSSU			7400 1.10 8.7 289
QPQASU BATTERY #1			268 1.17 \V= .46 Ft
QPQASU BATTERY #2			1604 1.17
QPQASU BATTERY #4			1702 1.17
QPQASU BATTERY #5			1 1.17/
	٦	TOTAL	90017