

EXXON COMPANY, U.S.A.

POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702-1600

REGISTRATION DIVISION
REG-170

1993 APR 1 10 8 58

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

ENVIRONMENTAL AND REGULATORY AFFAIRS

March 30, 1993

Injection of Off Lease Water
Yates Federal C, Well No. 2
Eddy County, New Mexico

New Mexico Oil and Gas Commission
Energy and Minerals Dept.
P.O. Box 2088
Santa Fe, New Mexico 87501

Attention: Ben Stone

This letter is a follow-up to our phone conversation of March 15, 1993, concerning the disposal of off lease water into the Yates Federal C, Well No. 2. I am submitting water analysis from the leases water will come from. The water will come from the Gourley Federal, Laguna Grande Federal, NM State EU, S. Carlsbad Gas Com 2-1 and 4-1, NM State CW, Burton Flat E leases, and Burton Flat B leases. It is our understanding that there is no necessary permitting required for off lease disposal of produced water going to well no. 2.

Unless you indicate otherwise, we will go ahead with the injection of off lease water into well no. 2.

If there are any questions concerning this information, please call me at (915) 688-7871.

Sincerely,

Marsha Wilson

Marsha Wilson
Environmental and Regulatory Affairs

\mw
Attachments





Laboratory Services
 1331 Tasker Drive
 Hobbs, New Mexico 88240
 (505) 397-3713

WATER ANALYSIS

COMPANY	Exxon Company USA		
SAMPLE	Burton Flat Fed. E #2		
SAMPLED BY			
DATE TAKEN	3-17-93		
REMARKS			
Nitrate	15		
Barium as Ba	0		
Carbonate alkalinity PPM	0		
Bicarbonate alkilinity PPM	492		
pH At Lab	7.05		
Specific Gravity @ 60 F	1.100		
Magnesium as Mg	7.946		
Total Hardness as CaCO3	13.700		
Clorides as CL	79.072		
Sulfate as SO4	2.750		
Iron as Fe	1.0		
Potassium	18.75		
Hydrogen Sulfide	0		
Resistivity Ohms	0.085	@	22.0 C
Total Dissolved Solids	112.000		
Carbonate as CO3 G/L	0		
Calcium as CA	5.754		
Results reported as Parts Per Million Unless Stated.			

Langeller Saturation Index + 1.35

Analysis By: Rolland Perry
 Date: 3/20/93



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WATER ANALYSIS

COMPANY Exxon Company USA

SAMPLE South Carlsbad 4-1

SAMPLED BY _____

DATE TAKEN 3-17-93

REMARKS _____

Nitrate	0
Barium as Ba	87.5
Carbonate alkalinity PPM	0
Bicarbonate alkalinity PPM	128
pH At Lab	7.53
Specific Gravity @ 60 F	1.006
Magnesium as Mg	284
Total Hardness as CaCO3	490
Clorides as CL	1.046
Sulfate as SO4	0
Iron as Fe	28.25
Potassium	3.75
Hydrogen Sulfide	0
Resistivity Ohms	5.10 @ 22.1 C
Total Dissolved Solids	2.500
Carbonate as CO3 GL	0.04
Calcium as CA	206

Results reported as Parts Per Million Unless Stated.

Langelier Saturation Index - 0.17

Analysis By: Rolland Perry
Date: 3/20/93



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WATER ANALYSIS

COMPANY Exxon Company USA

SAMPLE Burton Flat Fed. B #2

SAMPLED BY _____

DATE TAKEN 3-17-93

REMARKS _____

Nitrate	0
Barium as Ba	0
Carbonate alkalinity PPM	0
Bicarbonate alkalinity PPM	548
pH At Lab	7.45
Specific Gravity @ 60 F	1.012
Magnesium as Mg	1.566
Total Hardness as CaCO3	2.700
Chlorides as CL	9.531
Sulfate as SO4	0
Iron as Fe	1.5
Potassium	26.25
Hydrogen Sulfide	0
Resistivity Ohms	5.750 @ 22.1 C
Total Dissolved Solids	15.250
Carbonate as CO3 GL	0
Calcium as CA	1.134

Results reported as Parts Per Million Unless Stated.

Langelier Saturation Index + 1.28

Analysis By: Rolland Perry
Date: 3/20/93



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WATER ANALYSIS

COMPANY Exxon Company USA

SAMPLE Burton Flat Fed. B #1

SAMPLED BY _____

DATE TAKEN 3-17-93

REMARKS _____

Nitrate	27.5
Barium as Ba	100
Carbonate alkalinity PPM	0
Bicarbonate alkalinity PPM	720
pH At Lab	6.73
Specific Gravity @ 60 F	1.065
Magnesium as Mg	3.596
Total Hardness as CaCO3	6.200
Chlorides as CL	49.420
Sulfate as SO4	250
Iron as Fe	0.5
Potassium	65.625
Hydrogen Sulfide	117.9
Resistivity Ohms	0.140 @ 22.3 C
Total Dissolved Solids	84.250
Carbonate as CO3 GL	1.10
Calcium as CA	2.604

Results reported as Parts Per Million Unless Stated.

Langelier Saturation Index + 0.93

Analysis By: Rolland Perry

Date: 3/20/93



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WATER ANALYSIS

COMPANY Exxon Company USA

SAMPLE New Mexico St. CW

SAMPLED BY _____

DATE TAKEN 3-17-93

REMARKS _____

Nitrate	0
Barium as Ba	62.5
Carbonate alkalinity PPM	0
Bicarbonate alkalinity PPM	440
pH At Lab	6.99
Specific Gravity @ 60 F	1.033
Magnesium as Mg	2.146
Total Hardness as CaCO3	3.700
Chlorides as CL	22.945
Sulfate as SO4	425
Iron as Fe	19.25
Potassium	1.65
Hydrogen Sulfide	0
Resistivity Ohms	0.280 @ 22.5 C
Total Dissolved Solids	37.750
Carbonate as CO3 G/L	0
Calcium as CA	1.554

Results reported as Parts Per Million Unless Stated.

Langelier Saturation Index + 0.74

Analysis By: Rolland Perry
Date: 3/20/93



Laboratory Services
1331 Tasker Drive
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WATER ANALYSIS

COMPANY Exxon Company USA

SAMPLE New Mexico St. EU

SAMPLED BY _____

DATE TAKEN 3-17-93

REMARKS _____

Nitrate	0
Barium as Ba	25
Carbonate alkalinity PPM	0
Bicarbonate alkalinity PPM	120
pH At Lab	6.07
Specific Gravity @ 60 F	1.005
Magnesium as Mg	290
Total Hardness as CaCO3	500
Chlorides as Cl	1.059
Sulfate as SO4	0
Iron as Fe	47.5
Potassium	0.825
Hydrogen Sulfide	0
Resistivity Ohms	5.600 @ 22.1 C
Total Dissolved Solids	2.250
Carbonate as CO3 G/L	0.13
Calcium as CA	210

Results reported as Parts Per Million Unless Stated.

Langlier Saturation Index - 1.67

Analysis By: Rolland Perry
Date: 3/20/93



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WATER ANALYSIS

COMPANY Exxon Company USA

SAMPLE South Calrsbad 2-1

SAMPLED BY _____

DATE TAKEN 3-17-93

REMARKS _____

Nitrate	0		
Barium as Ba	50		
Carbonate alkalinity PPM	0		
Bicarbonate alkilinity PPM	132		
pH At Lab	6.44		
Specific Gravity @ 60 F	1.051		
Magnesium as Mg	9.164		
Total Hardness as CaCO3	15.800		
Clorides as Cl	49.948		
Sulfate as SO4	0		
Iron as Fe	70.0		
Potassium	2.3		
Hydrogen Sulfide	0		
Resistivity Ohms	0.180	@	22.0 C
Total Dissolved Solids	61.000		
Carbonate as CO3 GL	0.28		
Calcium as CA	6.636		

Results reported as Parts Per Million Unless Stated.

Langeller Saturation Index +0.24

Analysis By: Rolland Perry

Date: 3/20/93



Laboratory Services
1331 Tasker Drive
Hobbs, New Mexico 88240
(505) 397-3713

WATER ANALYSIS

COMPANY Exxon Company USA
Attention: Mr. Jimmy McBee
SAMPLE Laguna Granda Fed. #3
SAMPLED BY Rolland Perry

DATE TAKEN 1/31/92 3:25PM

REMARKS

Barium as Ba	15
Carbonate alkalinity PPM	48
Bicarbonate alkilinity PPM	326
pH At Lab	8.22
Specific Gravity @ 60 F	1.055
Magnesium as Mg	1,712
Total Hardness as CaCO3	3,004
Clorides as CL	2,118
Sulfate as SO4	180
Iron as Fe	29.5
Potassium	4.90
Hydrogen Sulfide	0
Resistance Mmhoes	6,990
Total Disolved Solids	3,000
Carbonate as CO3 GL	0.14
Calcium as CA	1,292

Results reported as Parts Per Million Unless Stated.

Langelier Saturation Index +0.93

Analysis By Rolland Perry
Date: 2/2/92

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : EXXON USA
 DATE : 4-29-81
 FIELD, LEASE & WELL : GOURLEY FEDERAL #1
 SAMPLING POINT :
 DATE SAMPLED : 4-20-81

SPECIFIC GRAVITY = 1.009
 TOTAL DISSOLVED SOLIDS = 13995
 PH = 6.12

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	5.2	106.
MAGNESIUM	(MG)+2	6.1	74.5
SODIUM	(NA).CALC.	226.	5199.
ANIONS			
BICARBONATE	(HCO3)-1	5.4	329.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	4.6	222.
CHLORIDES	(CL)-1	227.	8064.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		104.
BARIUM	(BA)+2	NOT RUN	
STRONTIUM	(SR)+2	NOT RUN	

SCALING INDEX

TEMP

	30C
	86F
CARBONATE INDEX	-1.5
CALCIUM CARBONATE SCALING	UNLIKELY
SULFATE INDEX	-0.9
CALCIUM SULFATE SCALING	UNLIKELY