

Gary L. Bennett
P.O. Box 16844
Lubbock, Texas 79490
July 18, 1990

N.M. Oil and Gas Conservation Division
Santa Fe, New Mexico
Attention : David Carrack

Re : Cavalcade Fed. 21 Well#4
Water Analysis
Maljamar Fresh Water Station
Water Analysis

Dear David:

Attached are the analysis of both water samples . The Yucca Water System name was changed to Maljamar Fresh Water Station.

Should you need additional information please contact me by phone 806 794-3368 or fax 806-794-7719.

Sincerely,


Gary L. Bennett

ILLEGIBLE



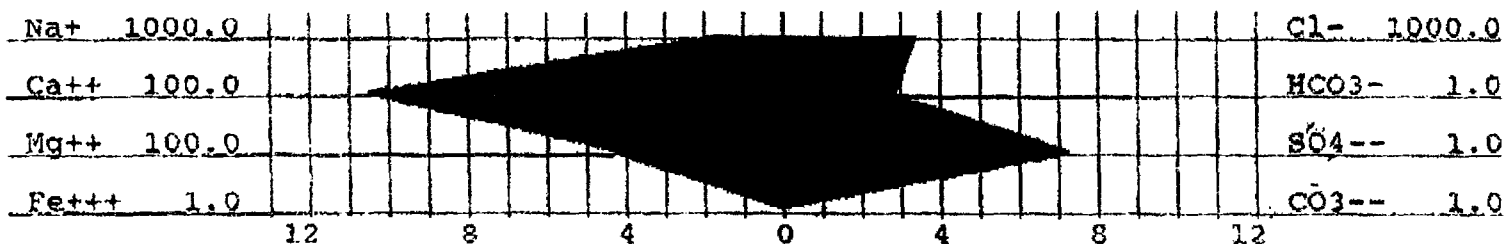
A Baker Hughes company

**WATER ANALYSIS
for
GARY BENNETT**

Date of Analysis:	NOVEMBER 17, 1989	Analysis #:	4426
Company:	GARY BENNETT	Company Address:	
State:		Field:	
Lease:	FEDERAL 21	Well #:	
Oil (bbl/day):	N/D	Water (bbl/day):	N/D
Type of Water:		Temp., C:	20
Sample Source:		Date of Sampling:	NOVEMBER 17, 1989
Representative:	JOE LEWIS	Analysis By:	S. BOXLEY

WATER ANALYSIS PATTERN

(number beside ion symbol indicates me/l scale unit)

**DISSOLVED SOLIDS**

CATIONS	me/l	mg/l
Total Hardness :	1520.00	
Calcium, (Ca++) :	1080.00	21651.96
Magnesium, (Mg++) :	440.00	5346.62
Iron, (Fe+++)	0.05	1.00
Barium, (Ba++) :	N/D	N/D
Sodium, Na+(calc) :	2011.57	46266.06
Manganese, (Mn++) :	0.00	0.00

ANIONS

Chloride, Cl-	: 3521.13	124995.73
Sulfate, SO4--	: 7.49	360.00
Carbonate, CO3--	: 0.00	0.00
Bicarbonate, HCO3--	: 3.00	183.04
Hydroxyl, OH-	: 0.00	0.00
Sulfide, S--	: 0.00	0.00
TOTAL SOLIDS (quant.) :		199207.00

DISSOLVED GASES

Hydrogen sulfide:	0.00	mg/l
Carbon dioxide :	159.40	mg/l
Oxygen :	1.00	mg/l

PHYSICAL PROPERTIES

pH :	7.05
Spec Grav. :	1.130
TDS (calc.) :	198807.41

SCALE STABILITIES

Temp., C	CaCO3	CaSO4	BaSO4
10.0	N/D	754	2
20.0	N/D	836	2
30.0	N/D	917	2
Max entity, (calc.)		843	0

RESIDUAL HYDROCARBONS: N/D

N/D = not determined

REMARKS: @ 20' C SEVERE CARBONATE SCALING

@ 20' C CALCIUM SULFATE SCALING IS UNLIKELY

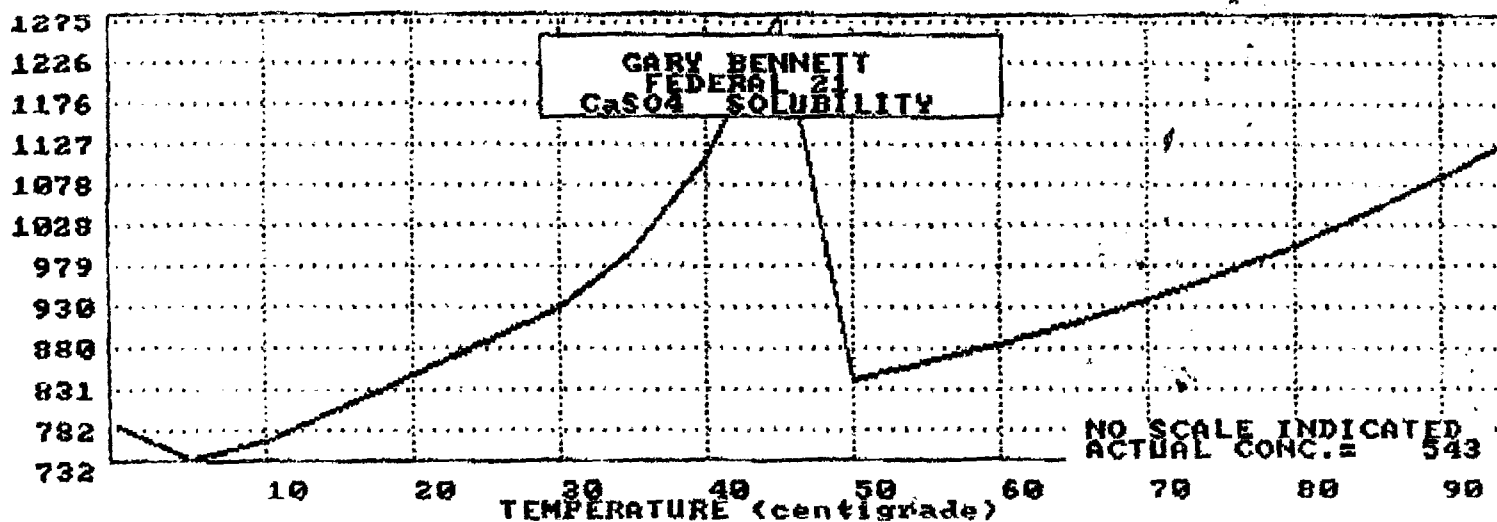
JUL-19-90 THU 8:20 GARY BENNETT
 3920 Essex Lane • P.O. Box 27714 Houston, Texas 77227-7714 • (713) 599-7401

Telex: ITT 4620056 • Cable: BAKPERCHEM

NOV-20-1989 17:38 FROM BAKER OIL LOVINGTON

TO

18067947719 P.02



WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY: YATES PET.
LEASE: MALJAMAR FRESH WATER STATION
SAMPLE POINT: WATER TANK
SAMPLE DATE: 6-25-90
SAMPLE TEMP.: N/A

pH: 7.0
H2S: NO
SPECIFIC GRAVITY: 1

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	207.40	3.40
Cl	1704.00	48.00
SO4	300.00	6.25
Ca	360.00	48.00
Mg	24.30	1.93
Na	176.14	7.66

IONIC STRENGTH = 0.09
TOTAL HARDNESS = 2600.0 mg/ltr.
TOTAL DISSOLVED SOLIDS = 3371.9 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	3.40	275.54
CaSO4	6.25	425.44
CaCl2	38.35	2128.42
Mg(HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	1.93	34.85
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	7.66	447.70

CALCULATED SCALING TENDENCIES

SCALING INDEX
CaCO3 @ 80 DEG F. = 0.7
CaCO3 @ 120 DEG F. = 1.1

SATURATION POINT
CaSO4 @ 70 DEG F. = 1382.0 MG/LTR.
CaSO4 @ 110 DEG F. = 1431.1 MG/LTR.

(THIS SAMPLE CONTAINED 425.4 MG/LTR. CaSO4)

ILLEGIBLE

WATER ANALYSIS REPORT
furnished by TREIOLITE CHEMICALS

COMPANY: YATES PET.
LEASE: MALJAMAR FRESH WATER STATION
SAMPLE POINT: WATER TANK
SAMPLE DATE: 6-25-90
SAMPLE TEMP: N/A

pH: 7.0
H2S: NO
SPECIFIC GRAVITY: 1

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	207.40	3.40
Cl	1704.00	48.00
SO4	300.00	6.25
Ca	960.00	48.00
Mg	24.30	1.99
Na	176.14	7.66

IONIC STRENGTH = 0.08
TOTAL HARDNESS = 2500.0 mg/ltr.
TOTAL DISSOLVED SOLIDS = 3371.9 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	3.40	275.54
CaSO4	6.25	425.44
CaCl2	38.35	2128.42
Mg(HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	1.99	94.85
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	7.66	447.70

CALCULATED SCALING TENDENCIES

SCALING INDEX
CaCO3 @ 80 DEG F. = 0.7
CaCO3 @ 120 DEG F. = 1.1

SATURATION POINT
CaSO4 @ 70 DEG F. = 1382.0 MG/LTR.
CaSO4 @ 110 DEG F. = 1431.1 MG/LTR

(THIS SAMPLE CONTAINED 425.4 MG/LTR. CaSO4)

ILLEGIBLE

* P.01 *

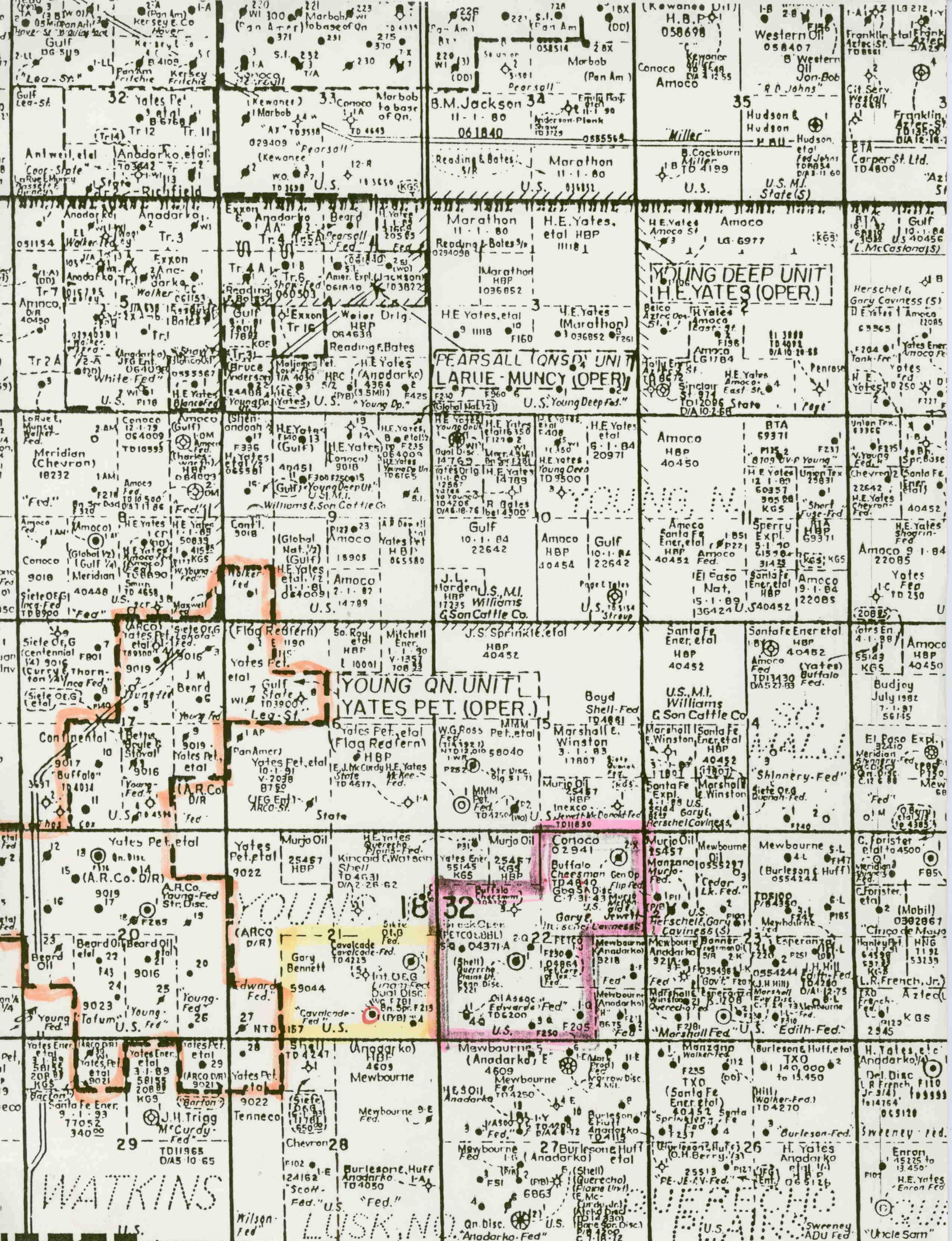
* TRANSACTION REPORT *

* JUL-18-90 WED 15:21 *

* DATE START SENDER RX TIME PAGES NOTE *

* JUL-18 15:19 505 746 6480 1'27" 2 OK *

JUL-18-90 WED 15:53 180679 19 P.01



Breck Operating Property
purchased by Gary L. Bennett

Cavalcade Federal 21 lease

Young Queen Unit Yates Operator
Water to come from this supply
system . Note contractand line map