CIBOLA ENERGY CORPORATION
Post Office Box 1668
Albuquerque, New Mexico 87103

David:

These water samples are to be used with the application for Authorization to Inject for the Plains 29 #9 well that I sent in a couple of weeks ago.

Thanks,

Karen Azar

Plains 29 #9
Sec. 29-10S-28E
990 FNL & 990 FWL

369 Marshall Avenue • St. Louis, Missouri 63119
314 961-3500 • TWX 910-760-1660 • Telex 44-2417

Case 8757

WATER ANALYSIS REPORT

Company: CIBOLA ENERGY CORP.

Sampling Date: 09/06/84
Analysis Date: 09/28/84
Sample ID: F13214

Sample Source
Lease: E. X. PLAINS
Well: #6
Sample Pt:

Submitted by: HOLLINGER, S.B.
Sampled by: S.B. HOLLINGER
Chem. Treatment:
Sample Condition: SLIGHT TURBIDITY

ANALYTICAL RESULTS

Scale
+ BARITE
CaCO3

pH at the time of sampling: 5.45
pH at the time of analysis: 7.00
Density: 1.135
Hydrogen Sulfide (H2S):
TDS: Calculated 204814.2 mg/L

CONSTITUENT		mg/L	meq/L	method	comments
ANIONS					
*Bicarbonate	HCO3-	383.0	6.28	FIA	
Boron	B(OH)4-	99.1	1.26	ICP	
*Carbonate	CO3--	.0	.00	N.A.	
*Chloride	Cl-	125000.0	3525.79	FIA	
Phosphate	PO4---	17.0	.54	ICP	
*Sulfate	SO4--	1770.0	36.85	FIA	
	SUM OF ANIONS=		3570.72		
CATIONS					
Aluminum	Al+++	7.4	.83	ICP	
*Barium	Ba++	14.1	.21	ICP	
*Calcium	Ca++	2253.0	112.43	ICP	
Chromium	Cr+++	0.0	0.00	ICP	DL= 2.020
Copper	Cu++	0.0	0.00	ICP	DL= 2.020
*Iron	Fe++	0.0	0.00	ICP	DL= 2.020
Lead	Pb++	0.0	0.00	ICP	DL=10.100
Lithium	Li+	0.0	0.00	N.A.	
*Magnesium	Mg++	833.0	68.55	ICP	
Manganese	Mn++	0.0	0.00	ICP	DL= 1.010
Nickel	Ni++	5.4	.19	ICP	
Potassium	K+	658.0	16.83	ICP	
Silica	SiO2	0.0	0.00	ICP	DL= 2.020
*Sodium	Na+	73620.0	3202.26	ICP	
*Strontium	Sr++	154.0	3.52	ICP	
Vanadium	V++	0.0	0.00	N.A.	
	SUM OF CATIONS=		3404.80		

Ratio of ANIONS:CATIONS 1.05

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SATURATION INDEX TABLE

Sample ID: F13214
pH (at 25.0 deg C): 7.00

Temperature		Scale Component				
deg F	deg C	CaCO3 (Calcite)	CaSO4 (Anhydrite)	CaSO4*2H20 (Gypsum)	SrSO4 (Celestite)	BaSO4 (Barite)
32.00	.00	.756	-1.035	-.320	-.266	2.330
68.00	20.00	.827	-.828	-.438	-.335	1.945
[illegible]	25.00	.846	-.780	-.458	-.343	1.853
104.00	40.00	.902	-.640	-.499	-.350	1.589
140.00	60.00	.987	-.458	-.519	-.328	1.259
176.00	80.00	1.094	-.272	-.513	-.283	.950
212.00	100.00	1.228	-.076	-.491	-.224	.660

S.I.=SATURATION INDEX
S.I.=log(Product of activities of component ions/Ksp)

S.I. less than 0	The water is undersaturated and indicates a non-scaling situation.
S.I. near or equal to 0	The water is saturated and scale formation is likely.
S.I. greater than 0	The water is supersaturated and favors scale formation.

POSSIBLE SCALE FORMATION

Temperature		Scale Component (mg/1000 g H2O)				
deg F	deg C	CaCO3 (Calcite)	CaSO4 (Anhydrite)	CaSO4*2H20 (Gypsum)	SrSO4 (Celestite)	BaSO4 (Barite)
32.00	.00	64.	0.	0.	0.	26.
68.00	20.00	82.	0.	0.	0.	26.
77.00	25.00	87.	0.	0.	0.	26.
104.00	40.00	106.	0.	0.	0.	26.
140.00	60.00	137.	0.	0.	0.	25.
176.00	80.00	172.	0.	0.	0.	24.
212.00	100.00	208.	0.	0.	0.	21.

The POSSIBLE SCALE FORMATION predicts the maximum amount of any one scale component that could precipitate from the water as analyzed. As precipitation progresses, these predictions become less accurate.

To estimate the POSSIBLE SCALE FORMATION in lbs/1000 barrels (US 42 gal) use the following:
APPROXIMATE lbs/1000 barrels = (mg/1000g H2O) x 0.35

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******NOTES ON WATER ANALYSIS REPORT******

****KEY****
DL=DETECTION LIMIT (mg/L)
FIA=FLOW INJECTION ANALYSIS
FLD=FIELD DATA
ICP=INDUCTIVELY COUPLED PLASMA EMISSION
meq/L=MILLIEQUIVALENTS PER LITER
mg/L=MILLIGRAMS PER LITER
N.A.=NOT ANALYZED
S.I.=SATURATION INDEX=log(Activity Product/Ksp)
TDS=TOTAL DISSOLVED SOLIDS
#=INDICATES THE CONCENTRATION OF THE CONSTITUENT HAS SIGNIFICANTLY CHANGED SINCE THE LAST ANALYSIS
*=USED IN SPECIES DISTRIBUTION CALCULATIONS (SEE SECTION ON COMPUTER CALCULATIONS)

The following guidelines are useful when interpreting the results in the WATER ANALYSIS REPORT.

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3) The COMMENTS column is reserved to indicate if a constituent has significantly changed since the last analysis (#), and to denote the analytical detection limits (DL) when the constituent can not be detected.
4) The SATURATION INDEX (S.I.) predicts scaling conditions in the analyzed water. The S.I. is an indicator and may not accurately represent some site water conditions. In some instances a S.I. near 0 could indicate that scaling has already occurred.

*******NOTES ON COMPUTER CALCULATIONS******

A computer assisted model, WASEQ, has been utilized to calculate the equilibrium distribution of chemical species (single ions and ion pairs) in an aqueous system. The model is based on thermodynamic principles and calculations that incorporate activity coefficients, temperature corrected equilibrium constants and conservation of mass equations.

All of the ions listed in the constituent data are utilized for determining ionic strength, however, only the ions identified with a "*" are used in the ion pair distribution computations. The Saturation Index (S.I.) is a measure of the state of saturation and is determined from the free ions remaining after ion pairing.

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WATER ANALYSIS REPORT

Company: CIBOLA ENERGY CORP.

Sampling Date: 09/06/84
Analysis Date: 09/28/84
Sample ID: F13215

Sample Source
Lease: PLAINS 29
Well: #9
Sample Pt:

Submitted by: HOLLINGER, S.B.
Sampled by: S.B. HOLLINGER
Chem. Treatment:
Sample Condition: BLACK PPT

ANALYTICAL RESULTS

pH at the time of sampling: 5.75
pH at the time of analysis: 6.90
Density: 1.140
Hydrogen Sulfide (H2S):
TDS: Calculated 211900.5 mg/L

CONSTITUENT		mg/L	meq/L	method	comments
ANIONS					
*Bicarbonate	HCO3-	439.0	7.19	FIA	
Boron	B(OH)4-	102.8	1.30	ICP	
*Carbonate	CO3--	.0	.00	N.A.	
*Chloride	Cl-	129000.0	3638.62	FIA	
Phosphate	PO4---	12.4	.39	ICP	
*Sulfate	SO4--	2890.0	60.17	FIA	
	SUM OF ANIONS=		3707.68		
CATIONS					
Aluminum	Al+++	13.7	1.52	ICP	
*Barium	Ba++	13.9	.20	ICP	
*Calcium	Ca++	2777.0	138.57	ICP	
Chromium	Cr+++	0.0	0.00	ICP	DL= 2.020
Copper	Cu++	0.0	0.00	ICP	DL= 2.020
*Iron	Fe++	0.0	0.00	ICP	DL= 2.020
Lead	Pb++	0.0	0.00	ICP	DL=10.100
Lithium	Li+	0.0	0.00	N.A.	
*Magnesium	Mg++	883.0	72.66	ICP	
Manganese	Mn++	0.0	0.00	ICP	DL= 1.010
Nickel	Ni++	4.2	.14	ICP	
Potassium	K+	698.0	17.85	ICP	
Silica	SiO2	0.0	0.00	ICP	DL= 2.020
*Sodium	Na+	75000.0	3262.29	ICP	
*Strontium	Sr++	66.6	1.52	ICP	
Vanadium	V++	0.0	0.00	N.A.	
	SUM OF CATIONS=		3494.76		

Ratio of ANIONS:CATIONS 1.06

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SATURATION INDEX TABLE

Sample ID: F13215
pH (at 25.0 deg C): 6.90

Temperature		Scale Component				
deg F	deg C	CaCO3 (Calcite)	CaSO4 (Anhydrite)	CaSO4*2H20 (Gypsum)	SrSO4 (Celestite)	BaSO4 (Barite)
32.00	.00	.796	-.727	-.015	-.435	2.519
68.00	20.00	.886	-.520	-.134	-.504	2.134
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
104.00	40.00	.981	-.332	-.194	-.518	1.779
140.00	60.00	1.083	-.150	-.214	-.497	1.449
176.00	80.00	1.201	.037	-.208	-.451	1.140
212.00	100.00	1.341	.233	-.186	-.392	.851

S.I.=SATURATION INDEX
S.I.=log(Product of activities of component ions/Ksp)

S.I. less than 0	The water is undersaturated and indicates a non-scaling situation.
S.I. near or equal to 0	The water is saturated and scale formation is likely.
S.I. greater than 0	The water is supersaturated and favors scale formation.

POSSIBLE SCALE FORMATION

Temperature		Scale Component (mg/1000 g H2O)				
deg F	deg C	CaCO3 (Calcite)	CaSO4 (Anhydrite)	CaSO4*2H20 (Gypsum)	SrSO4 (Celestite)	BaSO4 (Barite)
32.00	.00	90.	0.	0.	0.	26.
68.00	20.00	113.	0.	0.	0.	26.
77.00	25.00	119.	0.	0.	0.	26.
104.00	40.00	142.	0.	0.	0.	26.
140.00	60.00	178.	0.	0.	0.	25.
176.00	80.00	216.	264.	0.	0.	24.
212.00	100.00	255.	1468.	0.	0.	23.

The POSSIBLE SCALE FORMATION predicts the maximum amount of any one scale component that could precipitate from the water as analyzed. As precipitation progresses, these predictions become less accurate.

To estimate the POSSIBLE SCALE FORMATION in lbs/1000 barrels (US 42 gal) use the following:
APPROXIMATE lbs/1000 barrels = (mg/1000g H2O) x 0.35

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FIA=FLOW INJECTION ANALYSIS
FLD=FIELD DATA
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meq/L=MILLIEQUIVALENTS PER LITER
mg/L=MILLIGRAMS PER LITER
N.A.=NOT ANALYZED
S.I.=SATURATION INDEX=log(Activity Product/Ksp)
TDS=TOTAL DISSOLVED SOLIDS
#=INDICATES THE CONCENTRATION OF THE CONSTITUENT HAS SIGNIFICANTLY CHANGED SINCE THE LAST ANALYSIS
*=USED IN SPECIES DISTRIBUTION CALCULATIONS (SEE SECTION ON COMPUTER CALCULATIONS)

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WATER ANALYSIS REPORT

Company: CIBOLA ENERGY CORP.

Sampling Date: 09/06/84
Analysis Date: 09/28/84
Sample ID: F13213

Sample Source
Lease: J.P. WHITE D
Well: #5
Sample Pt:

Submitted by: HOLLINGER, S.B.
Sampled by: S.B. HOLLINGER
Chem. Treatment:
Sample Condition: SLIGHT TURBIDITY

ANALYTICAL RESULTS

pH at the time of sampling: 5.25
pH at the time of analysis: 6.90
Density: 1.139
Hydrogen Sulfide (H2S):
TDS: Calculated 212937.3 mg/L

CaCO3 (Barite)

CONSTITUENT		mg/L	meq/L	method	comments
ANIONS					
*Bicarbonate	HCO3-	343.0	5.62	FIA	
Boron	B(OH)4-	116.6	1.48	ICP	
*Carbonate	CO3--	.0	.00	N.A.	
*Chloride	Cl-	130000.0	3666.83	FIA	
Phosphate	PO4---	25.9	.82	ICP	
*Sulfate	SO4--	2780.0	57.88	FIA	
	SUM OF ANIONS=		3732.63		
CATIONS					
Aluminum	Al+++	13.2	1.47	ICP	
*Barium	Ba++	14.0	.20	ICP	
*Calcium	Ca++	2865.0	142.96	ICP	
Chromium	Cr+++	0.0	0.00	ICP	DL= 2.020
Copper	Cu++	0.0	0.00	ICP	DL= 2.020
*Iron	Fe++	0.0	0.00	ICP	DL= 2.020
Lead	Pb++	0.0	0.00	ICP	DL=10.100
Lithium	Li+	0.0	0.00	N.A.	
*Magnesium	Mg++	965.0	79.41	ICP	
Manganese	Mn++	2.2	.08	ICP	
Nickel	Ni++	3.8	.13	ICP	
Potassium	K+	662.0	16.93	ICP	
Silica	SiO2	0.0	0.00	ICP	DL= 2.020
*Sodium	Na+	75090.0	3266.20	ICP	
*Strontium	Sr++	56.5	1.29	ICP	
Vanadium	V++	0.0	0.00	N.A.	
	SUM OF CATIONS=		3508.68		

Ratio of ANIONS:CATIONS 1.06

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SATURATION INDEX TABLE

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pH (at 25.0 deg C): 6.90

Temperature		Scale Component				
deg F	deg C	CaCO3 (Calcite)	CaSO4 (Anhydrite)	CaSO4*2H2O (Gypsum)	SrSO4 (Celestite)	BaSO4 (Barite)
32.00	.00	.709	-.727	-.015	-.525	2.504
68.00	20.00	.798	-.519	-.134	-.594	2.119
77.00	25.00	.821	-.471	-.154	-.602	2.027
104.00	40.00	.892	-.331	-.194	-.609	1.763
140.00	60.00	.993	-.149	-.214	-.587	1.433
176.00	80.00	1.110	.038	-.207	-.541	1.124
212.00	100.00	1.249	.235	-.185	-.482	.835

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Temperature		Scale Component (mg/1000 g H2O)				
deg F	deg C	CaCO3 (Calcite)	CaSO4 (Anhydrite)	CaSO4*2H2O (Gypsum)	SrSO4 (Celestite)	BaSO4 (Barite)
32.00	.00	60.	0.	0.	0.	26.
68.00	20.00	77.	0.	0.	0.	26.
77.00	25.00	82.	0.	0.	0.	26.
104.00	40.00	99.	0.	0.	0.	26.
140.00	60.00	127.	0.	0.	0.	26.
176.00	80.00	157.	270.	0.	0.	25.
212.00	100.00	189.	1450.	0.	0.	23.

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TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) WO 1-3500/TWX 910-760-1660/Telex 44-2417

WATER ANALYSIS REPORT

COMPANY Cibola Energy Corporation ADDRESS Artesia, N.M. DATE: 7-19-84

SOURCE Mabel DATE SAMPLED 7-12-84 ANALYSIS NO. 846

Analysis		Mg/L		*Meq/L	
1. pH	7.0				
2. H_2S (Qualitative)	Pos.				
3. Specific Gravity	1.140				
4. Dissolved Solids		227,216			
5. Suspended Solids					
6. Phenolphthalein Alkalinity ($CaCO_3$)					
7. Methyl Orange Alkalinity ($CaCO_3$)		360			
8. Bicarbonate (HCO_3)	HCO_3	439	÷61	7.2	HCO_3
9. Chlorides (Cl)	Cl	136,016	÷35.5	3,803	Cl
10. Sulfates (SO_4)	SO_4	3,750	÷48	78	SO_4
11. Calcium (Ca)	Ca	3,200	÷20	160	Ca
12. Magnesium (Mg)	Mg	875	÷12.2	72	Mg
13. Total Hardness ($CaCO_3$)		11,600			
14. Total Iron (Fe)		42			
15. Barium (Qualitative)					
16. Strontium					

*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

160	Ca ←	HCO_3
72	Mg →	SO_4
3,656	Na →	Cl

7.2	
78	
3,802	

Compound	Equiv. Wt.	X Meq/L	= Mg/L
$Ca(HCO_3)_2$	81.04	7.2	584
$CaSO_4$	68.07	78	5,310
$CaCl_2$	55.50	75	4,163
$Mg(HCO_3)_2$	73.17		
$MgSO_4$	60.19		
$MgCl_2$	47.62	72	3,429
$NaHCO_3$	84.00		
Na_2SO_4	71.03		
NaCl	58.46	3,656	213,730

Saturation Values Distilled Water 20°C

$CaCO_3$	13 Mg/L
$CaSO_4 \cdot 2H_2O$	2,090 Mg/L
$MgCO_3$	103 Mg/L

REMARKS P. White (2)

Hollinger - Knorr - M. Roberts - File

Respectfully submitted
TRETOLITE COMPANY

Ray Shaffner

[redacted]

[redacted] Marshall Avenue
[redacted]

314 [redacted]-3500
TWX 910-760-1660
Telex 44-2417

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
$CaCO_3$ Scaling Tendency

Water Analysis No. 846

pH 7.00

TOTAL IONIC STRENGTH 4.05

SI at (80)°F = + 1.21

SI at (120)°F = + 1.66

REMARKS: Severe Calcium carbonate scaling tendencies at 80°F and 120°F

SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

X = 0.041

S = 5,034 mg/l @ 70 °F

S = 5-043 mg/l @ 110 °F

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

January 8, 1986

Mr. Joel Carson
Losee & Carson
Attorneys at Law
Post Office Drawer 239
Artesia, New Mexico

Re: CASE NO. ~~8757~~
ORDER NO. ~~R-8115~~

Applicant:

~~Cibola Energy Corporation~~

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Sincerely,

R. L. STAMETS
Director

RLS/fd

Copy of order also sent to:

Hobbs OCD ~~x~~
Artesia OCD ~~x~~
Aztec OCD

Other

Collins Oil & Gas Corporation
P.O. Box 2443
Roswell, NM 88202-2443
(505) 623-2040
(505) 624-3150

JUN - 5 1996

June 3, 1996

Mr. David Catanach
Oil & Gas Conservation
2040 So. Pacheco Street
Santa Fe, NM 87505

Dear Mr. Catanach,

We currently operate a salt water disposal well, R-8115, Plains 29-9 located in Sec. 29-10S-28E of Chaves County. This well is on Fee land and is one of the best disposal wells in the area as it is on a vacuum and will take a large amount of water without any pressure. We currently dispose of 200-300 barrels of water per day into this well.

We have been approached by Scurlock Permian Corporation, Plains Radio & Broadcasting and other producers as to the possibility of disposing of their water. They are currently having to haul their disposal water to Lea County at great expense. These operators have marginal producing wells that could effect the difference in producing these stripper wells or having to plug these wells due to the cost of hauling water at greater distances rather than being able to dispose of their water in a short hauling distance.

We would like to amend our disposal well permit in order to accommodate these producers.

Sincerely,

Roy D. Collins
President

Collins Oil & Gas Corporation

P.O. Box 2443
Roswell, NM 88202-2443
(505) 623-2040
(505) 624-3150

CASE FILE - 8757

June 24, 1996

Mr. David Catanach
Oil & Gas Conservation
2040 South Pacheco Street
Santa Fe, NM 87505

Re: SWD- R-8115

Dear Mr. Catanach,

Please find the enclosed water analysis reports from area operators, listed below, who would like to dispose of water in the Plains 29-9 SWD. Please note that these analysis are from the San Andres formation and should be compatible with the San Andres formation of the Plains 29-9 SWD.

Collins Oil & Gas Corp. Bill Thorp Wells 1, 2, 9 & 11 located in Sec. 11 & 12 of 8S-27E, Chaves County, NM.

Collins Oil & Gas Corp. Frank P., Paula K, & Stone Brothers Wells located in Sec 21-10S-27E, Chaves County, NM.

Plains Radio & Broadcasting Inc. LER Wells located in Sections 9, 10, 15, & 16 of Sec. 11S-27E, Chaves County, NM.

I am forwarding these analysis reference our last telephone conversation requesting that these producers be allowed to dispose of their produced waters in the Plains 29-9 SWD well. If you have any other requirements, please let me know.

Sincerely,

Roy D. Collins
President

RDC/ jc

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

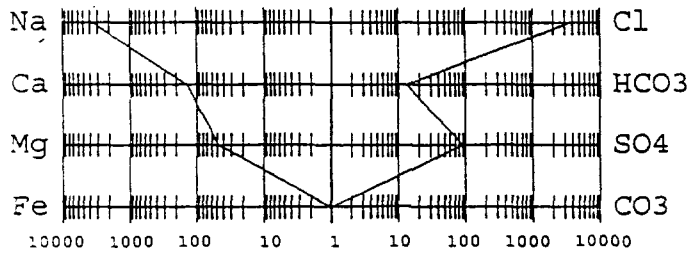
Oil Co. : **Plains Radio Pet.**
Lease : **LER**
Well No.: **16**
Salesman:

Sample Loc. : **Water Tank**
Date Reported:
Date Sampled : **25-May-1996**

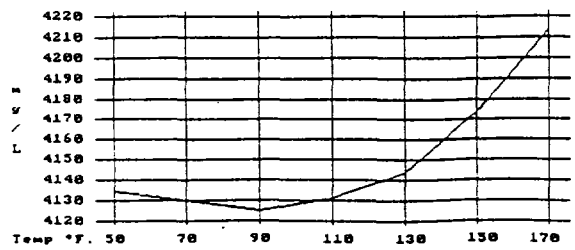
ANALYSIS

1.	pH		5.800		
2.	Specific Gravity 60/60 F.		1.148		
3.	$CaCO_3$ Saturation Index @ 80 F.		+0.042		
	@ 140 F.		+1.212		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		80		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	2,705	/ 20.1 =	134.58
8.	Magnesium	(Mg^{++})	547	/ 12.2 =	44.84
9.	Sodium	(Na^{+}) (Calculated)	79,197	/ 23.0 =	3,443.35
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	757	/ 61.1 =	12.39
14.	Sulfate	($SO_4^{=}$)	4,200	/ 48.8 =	86.07
15.	Chloride	(Cl^{-})	124,972	/ 35.5 =	3,520.34
16.	Total Dissolved Solids		212,378		
17.	Total Iron (Fe)		2	/ 18.2 =	0.11
18.	Total Hardness As $CaCO_3$		9,008		
19.	Resistivity @ 75 F. (Calculated)		0.001 /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	12.39	1,004
$CaSO_4$	68.07	86.07	5,858
$CaCl_2$	55.50	36.12	2,005
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	44.84	2,135
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,439.38	201,066

***Milli Equivalents per Liter**

This water is somewhat corrosive due to the pH observed on analysis. The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemco

WATER ANALYSIS REPORT

SAMPLE

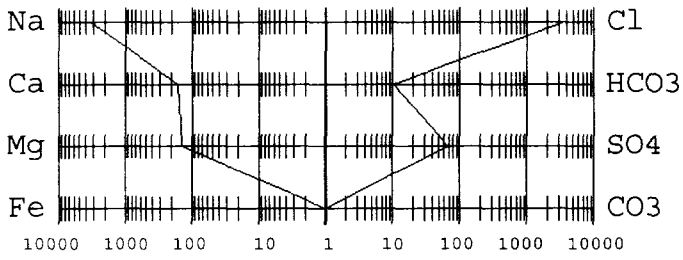
Oil Co. : **Collins Oil & Gas**
Lease : **Paula-K**
Well No.: **St. #1**
Salesman:

Sample Loc. :
Formation :
Date Analyzed: **12-June-1996**

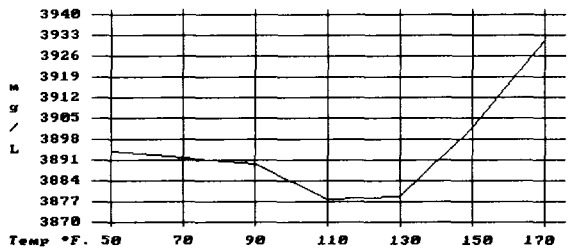
ANALYSIS

1.	pH		**6.340**		
2.	Specific Gravity 60/60 F.		**1.140**		
3.	$CaCO_3$ Saturation Index @ 80 F.		**+0.518**		
	@ 140 F.		**+1.628**		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		**Present**		
5.	Carbon Dioxide		**Not Determined**		
6.	Dissolved Oxygen		**Not Determined**		
	Cations				
7.	Calcium (Ca^{++})		**3,106**	/ 20.1 =	**154.53**
8.	Magnesium (Mg^{++})		**1,641**	/ 12.2 =	**134.51**
9.	Sodium (Na^{+})	(Calculated)	**72,868**	/ 23.0 =	**3,168.17**
10.	Barium (Ba^{++})		**Not Determined**		
	Anions				
11.	Hydroxyl (OH^{-})		**0**	/ 17.0 =	**0.00**
12.	Carbonate ($CO_3^{=}$)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate (HCO_3^{-})		**610**	/ 61.1 =	**9.98**
14.	Sulfate ($SO_4^{=}$)		**3,150**	/ 48.8 =	**64.55**
15.	Chloride (Cl^{-})		**119,973**	/ 35.5 =	**3,379.52**
16.	Total Dissolved Solids		**201,348**		
17.	Total Iron (Fe)		**6**	/ 18.2 =	**0.30**
18.	Total Hardness As $CaCO_3$		**14,513**		
19.	Resistivity @ 75 F. (Calculated)		**0.001** /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	9.98	809
$CaSO_4$	68.07	64.55	4,394
$CaCl_2$	55.50	79.99	4,440
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	134.51	6,405
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,165.02	185,027

***Milli Equivalents per Liter**

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemco

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : **Collins Oil & Gas**
Lease : **Frank-Pi**
Well No.: **St. #1**
Salesman:

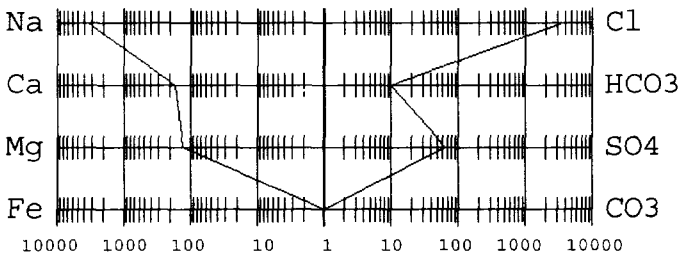
Sample Loc. :
Formation :
Date Analyzed: **12-June-1996**

ANALYSIS

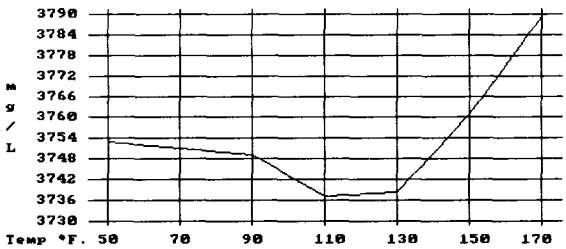
1.	pH		**6.280**		
2.	Specific Gravity 60/60 F.		**1.149**		
3.	$CaCO_3$ Saturation Index	@ 80 F.	**+0.498**		
		@ 140 F.	**+1.668**		

	Dissolved Gasses	**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide	**Present**		
5.	Carbon Dioxide	**Not Determined**		
6.	Dissolved Oxygen	**Not Determined**		
	Cations			
7.	Calcium (Ca^{++})	**3,307**	/ 20.1 =	**164.53**
8.	Magnesium (Mg^{++})	**1,520**	/ 12.2 =	**124.59**
9.	Sodium (Na^{+}) (Calculated)	**74,754**	/ 23.0 =	**3,250.17**
10.	Barium (Ba^{++})	**Not Determined**		
	Anions			
11.	Hydroxyl (OH^{-})	**0**	/ 17.0 =	**0.00**
12.	Carbonate ($CO_3^{=}$)	**0**	/ 30.0 =	**0.00**
13.	Bicarbonate (HCO_3^{-})	**586**	/ 61.1 =	**9.59**
14.	Sulfate ($SO_4^{=}$)	**3,050**	/ 48.8 =	**62.50**
15.	Chloride (Cl^{-})	**122,972**	/ 35.5 =	**3,464.00**
16.	Total Dissolved Solids	**206,189**		
17.	Total Iron (Fe)	**2**	/ 18.2 =	**0.11**
18.	Total Hardness As $CaCO_3$	**14,513**		
19.	Resistivity @ 75 F. (Calculated)	**0.001** /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L	= mg/L.
$Ca(HCO_3)_2$	81.04	9.59	777
$CaSO_4$	68.07	62.50	4,254
$CaCl_2$	55.50	92.44	5,130
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	124.59	5,933
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,246.97	189,818

***Milli Equivalents per Liter**

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemco

WATER ANALYSIS REPORT

SAMPLE

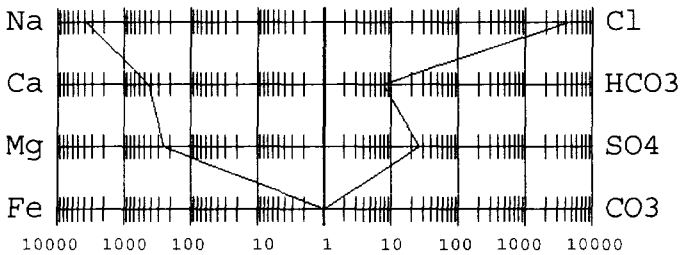
Oil Co. : **Collins Oil & Gas**
Lease : **Bill Thorpe**
Well No.: **St. #1**
Salesman:

Sample Loc. :
Formation :
Date Analyzed: **12-June-1996**

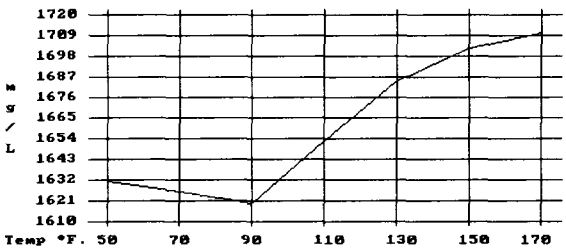
ANALYSIS

1.	pH		**6.040**		
2.	Specific Gravity 60/60 F.		**1.165**		
3.	$CaCO_3$ Saturation Index @ 80 F.		**+1.083**		
	@ 140 F.		**+3.183**		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		**Present**		
5.	Carbon Dioxide		**Not Determined**		
6.	Dissolved Oxygen		**Not Determined**		
	Cations				
7.	Calcium	(Ca^{++})	**8,417**	/ 20.1 =	**418.76**
8.	Magnesium	(Mg^{++})	**2,978**	/ 12.2 =	**244.10**
9.	Sodium	(Na^{+}) (Calculated)	**82,728**	/ 23.0 =	**3,596.87**
10.	Barium	(Ba^{++})	**Not Determined**		
	Anions				
11.	Hydroxyl	(OH^{-})	**0**	/ 17.0 =	**0.00**
12.	Carbonate	($CO_3^{=}$)	**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO_3^{-})	**454**	/ 61.1 =	**7.43**
14.	Sulfate	($SO_4^{=}$)	**1,250**	/ 48.8 =	**25.61**
15.	Chloride	(Cl^{-})	**149,966**	/ 35.5 =	**4,224.39**
16.	Total Dissolved Solids		**245,793**		
17.	Total Iron (Fe)		**5**	/ 18.2 =	**0.25**
18.	Total Hardness As $CaCO_3$		**33,280**		
19.	Resistivity @ 75 F. (Calculated)		**0.001** /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L	= mg/L.
$Ca(HCO_3)_2$	81.04	7.43	602
$CaSO_4$	68.07	25.61	1,744
$CaCl_2$	55.50	385.71	21,407
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	244.10	11,624
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,594.58	210,139

***Milli Equivalents per Liter**

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemco

WATER ANALYSIS REPORT

SAMPLE

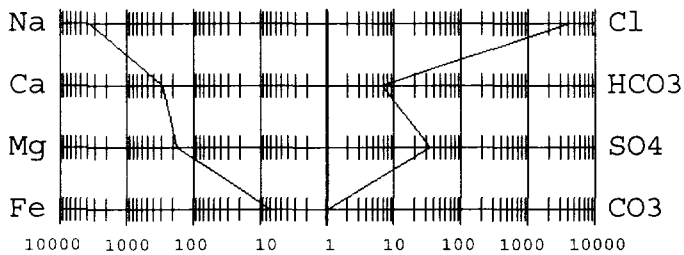
Oil Co. : **Collins Oil & Gas**
Lease : **Bill Thorpe**
Well No.: **St. #2**
Salesman:

Sample Loc. :
Formation :
Date Analyzed: **12-June-1996**

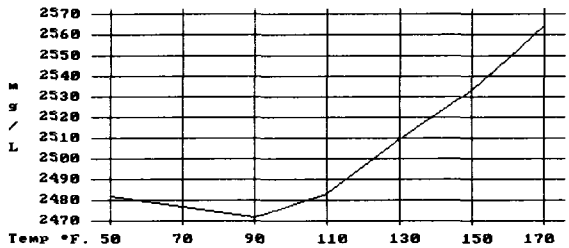
ANALYSIS

1.	pH			5.940	
2.	Specific Gravity 60/60 F.			1.153	
3.	$CaCO_3$ Saturation Index @ 80 F.			+0.422	
	@ 140 F.			+1.842	
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	5,611	/ 20.1 =	279.15
8.	Magnesium	(Mg^{++})	2,067	/ 12.2 =	169.43
9.	Sodium	(Na^{+}) (Calculated)	80,034	/ 23.0 =	3,479.74
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	391	/ 61.1 =	6.40
14.	Sulfate	($SO_4^{=}$)	1,600	/ 48.8 =	32.79
15.	Chloride	(Cl^{-})	137,969	/ 35.5 =	3,886.45
16.	Total Dissolved Solids		227,672		
17.	Total Iron (Fe)		125	/ 18.2 =	6.84
18.	Total Hardness As $CaCO_3$		22,520		
19.	Resistivity @ 75 F. (Calculated)		0.001 /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L	= mg/L.
$Ca(HCO_3)_2$	81.04	6.40	519
$CaSO_4$	68.07	32.79	2,232
$CaCl_2$	55.50	239.97	13,318
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	169.43	8,068
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,477.06	203,269

***Milli Equivalents per Liter**

This water is somewhat corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemco

WATER ANALYSIS REPORT

SAMPLE

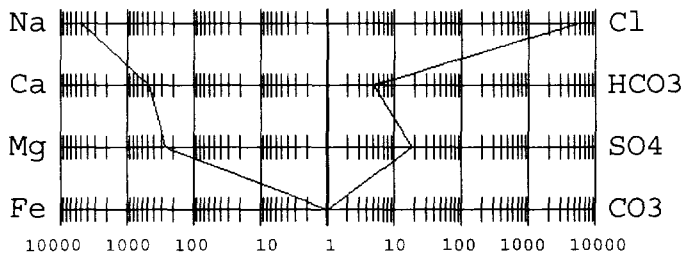
Oil Co. : **Collins Oil & Gas**
Lease : **Bill Thorpe**
Well No.: **St. #11**
Salesman:

Sample Loc. :
Formation :
Date Analyzed: **12-June-1996**

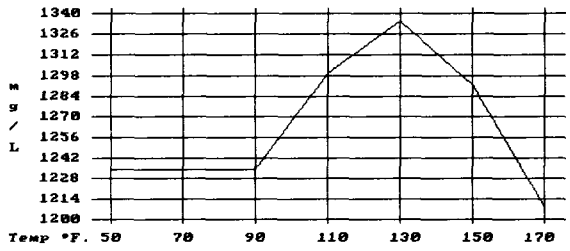
ANALYSIS

1.	pH			6.090	
2.	Specific Gravity 60/60 F.			1.208	
3.	$CaCO_3$ Saturation Index	@ 80 F.		+2.238	
		@ 140 F.		+3.158	
	Dissolved Gasses			**MG/L**	**EQ. WT.** ***MEQ/L**
4.	Hydrogen Sulfide			Not Present	
5.	Carbon Dioxide			Not Determined	
6.	Dissolved Oxygen			Not Determined	
	Cations				
7.	Calcium	(Ca^{++})		9,018	/ 20.1 = 448.66
8.	Magnesium	(Mg^{++})		3,100	/ 12.2 = 254.10
9.	Sodium	(Na^{+})	(Calculated)	107,484	/ 23.0 = 4,673.22
10.	Barium	(Ba^{++})		Not Determined	
	Anions				
11.	Hydroxyl	(OH^{-})		0	/ 17.0 = 0.00
12.	Carbonate	($CO_3^{=}$)		0	/ 30.0 = 0.00
13.	Bicarbonate	(HCO_3^{-})		283	/ 61.1 = 4.63
14.	Sulfate	($SO_4^{=}$)		850	/ 48.8 = 17.42
15.	Chloride	(Cl^{-})		189,957	/ 35.5 = 5,350.90
16.	Total Dissolved Solids			310,692	
17.	Total Iron (Fe)			12	/ 18.2 = 0.63
18.	Total Hardness As $CaCO_3$			35,281	
19.	Resistivity @ 75 F. (Calculated)			0.001 /cm.	

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L	= mg/L.
$Ca(HCO_3)_2$	81.04	4.63	375
$CaSO_4$	68.07	17.42	1,186
$CaCl_2$	55.50	426.61	23,677
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	254.10	12,100
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	4,670.20	273,020

***Milli Equivalents per Liter**

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts in solution.

Collins Oil & Gas Corporation
P.O. Box 2443
Roswell, NM 88202-2443
(505) 623-2040
(505) 624-3150

July 16, 1996

Mr. David Catanach
Oil & Gas Conservation
2040 S. Pacheco Street
Santa Fe, NM 87505

Re: SWD- R-8115

Dear Mr. Catanach,

Please find the enclosed water analysis reports from area operators, who would like to dispose of water in the Plains 29-9 SWD. These operators are currently having to transport their water to Eddy County at great exspense. Thank you for your assistance in this matter.

Sincerely,

Roy D. Collins
President

RDC/jc

Permian Treating Chemicals

WATER ANALYSIS REPORT

SAMPLE

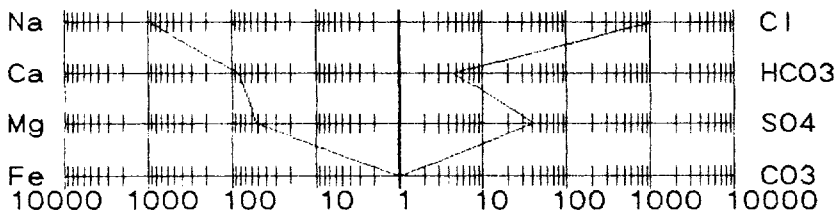
Oil Co. : Elk Oil
Lease : South of PH
Well No.: ???
Salesman:

Sample Loc. :
Date Analyzed: 12-July-1996
Date Sampled :

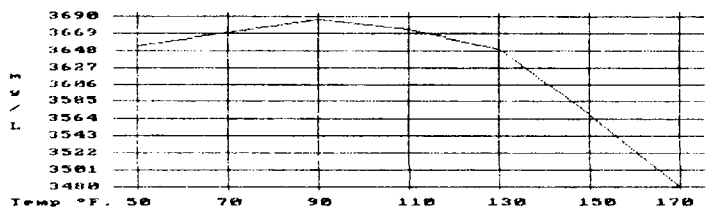
ANALYSIS

1.	pH		6.080		
2.	Specific Gravity 60/60 F.		1.043		
3.	$CaCO_3$ Saturation Index @ 80 F.		-1.062		
	@ 140 F.		-0.152		
	Dissolved Gasses		MG/L	EQ. WT.	*MEQ/L
4.	Hydrogen Sulfide		Not Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	1,603	/ 20.1 =	79.75
8.	Magnesium	(Mg^{++})	608	/ 12.2 =	49.84
9.	Sodium	(Na^{+}) (Calculated)	20,711	/ 23.0 =	900.48
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	264	/ 61.1 =	4.32
14.	Sulfate	($SO_4^{=}$)	1,900	/ 48.8 =	38.93
15.	Chloride	(Cl^{-})	34,992	/ 35.5 =	985.69
16.	Total Dissolved Solids		60,078		
17.	Total Iron (Fe)		2	/ 18.2 =	0.08
18.	Total Hardness As $CaCO_3$		6,506		
19.	Resistivity @ 75 F. (Calculated)		0.161 /cm.		

LOGARITHMIC WATER PATTERN
*meq/L.



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	4.32	350
$CaSO_4$	68.07	38.93	2,650
$CaCl_2$	55.50	36.50	2,026
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	49.84	2,373
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	899.36	52,576

*Milli Equivalents per Liter

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts in solution.

Permian Treating Chimicals

WATER ANALYSIS REPORT

SAMPLE

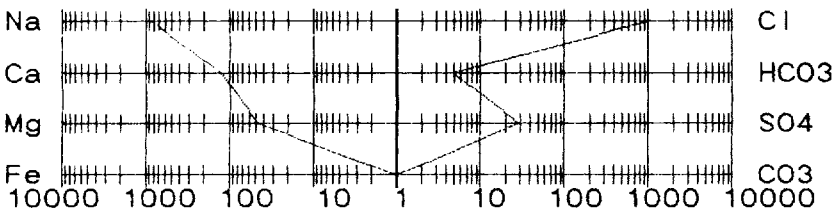
Oil Co. : Elk Oil
Lease : Meredith St. Com.
Well No.: # 1
Salesman:

Sample Loc. :
Date Analyzed: 11-July-1996
Date Sampled :

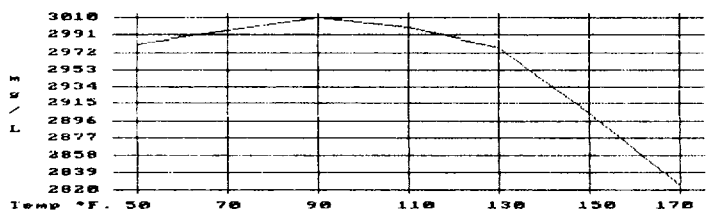
ANALYSIS

1.	pH		6.980		
2.	Specific Gravity 60/60 F.		1.041		
3.	$CaCO_3$ Saturation Index	@ 80 F.	+0.037		
		@ 140 F.	+0.947		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		Not Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium (Ca^{++})		2,405	/ 20.1 =	119.65
8.	Magnesium (Mg^{++})		547	/ 12.2 =	44.84
9.	Sodium (Na^{+})	(Calculated)	19,648	/ 23.0 =	854.26
10.	Barium (Ba^{++})		Not Determined		
	Anions				
11.	Hydroxyl (OH^{-})		0	/ 17.0 =	0.00
12.	Carbonate ($CO_3^{=}$)		0	/ 30.0 =	0.00
13.	Bicarbonate (HCO_3^{-})		278	/ 61.1 =	4.55
14.	Sulfate ($SO_4^{=}$)		1,350	/ 48.8 =	27.66
15.	Chloride (Cl^{-})		34,992	/ 35.5 =	985.69
16.	Total Dissolved Solids		59,220		
17.	Total Iron (Fe)		10	/ 18.2 =	0.52
18.	Total Hardness As $CaCO_3$		8,257		
19.	Resistivity @ 75 F. (Calculated)		0.162 /cm.		

LOGARITHMIC WATER PATTERN
*meq/L.



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	4.55	369
$CaSO_4$	68.07	27.66	1,883
$CaCl_2$	55.50	87.44	4,853
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	44.84	2,135
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	853.42	49,891

*Milli Equivalents per Liter

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts in solution.

Permian Treating Chimicals

WATER ANALYSIS REPORT

SAMPLE

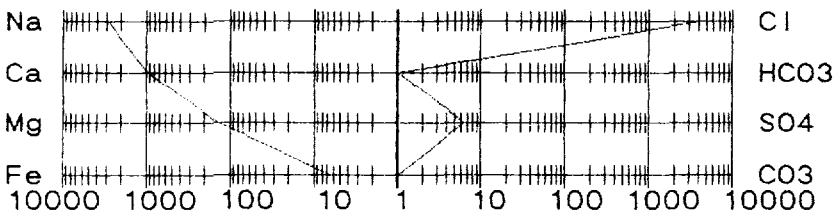
Oil Co. : Elk Oil
Lease : Aikman St. Com.
Well No.: # 2
Salesman:

Sample Loc. :
Date Analyzed: 11-July-1996
Date Sampled :

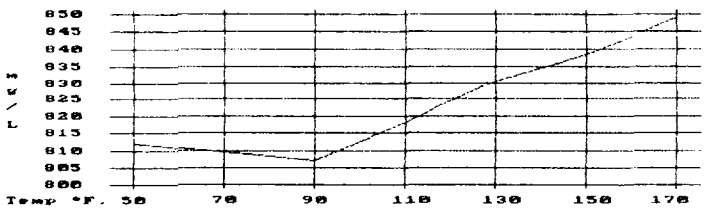
ANALYSIS

1.	pH		5.610		
2.	Specific Gravity 60/60 F.		1.155		
3.	$CaCO_3$ Saturation Index	@ 80 F.	-0.260		
		@ 140 F.	+1.500		
	Dissolved Gasses		MG/L	EQ. WT.	*MEQ/L
4.	Hydrogen Sulfide		Not Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	18,437	/ 20.1 =	917.26
8.	Magnesium	(Mg^{++})	1,580	/ 12.2 =	129.51
9.	Sodium	(Na^{+}) (Calculated)	64,836	/ 23.0 =	2,818.96
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	34	/ 61.1 =	0.56
14.	Sulfate	($SO_4^{=}$)	300	/ 48.8 =	6.15
15.	Chloride	(Cl^{-})	136,969	/ 35.5 =	3,858.28
16.	Total Dissolved Solids		222,156		
17.	Total Iron (Fe)		112	/ 18.2 =	6.13
18.	Total Hardness As $CaCO_3$		52,547		
19.	Resistivity @ 75 F. (Calculated)		0.001 /cm.		

LOGARITHMIC WATER PATTERN
*meq/L.



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	0.56	45
$CaSO_4$	68.07	6.15	418
$CaCl_2$	55.50	910.56	50,536
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	129.51	6,167
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	2,818.21	164,753

*Milli Equivalents per Liter

This water is somewhat corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts in solution.

Permian Treating Chimicals

WATER ANALYSIS REPORT

SAMPLE

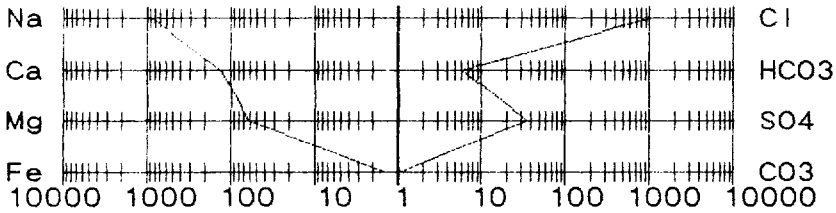
Oil Co. : ELK Oil
Lease : Viking St. Com.
Well No.: # 2
Salesman:

Sample Loc. :
Date Analyzed: 11-July-1996
Date Sampled :

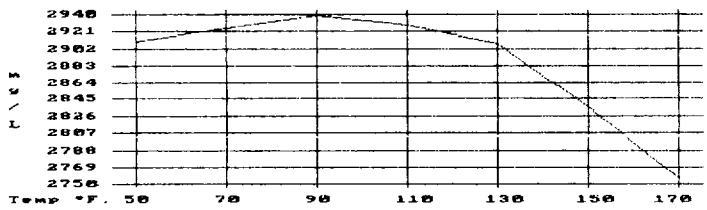
ANALYSIS

1.	pH		6.750		
2.	Specific Gravity 60/60 F.		1.043		
3.	$CaCO_3$ Saturation Index @ 80 F.		-0.092		
	@ 140 F.		+0.818		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		Not Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	2,505	/ 20.1 =	124.63
8.	Magnesium	(Mg^{++})	729	/ 12.2 =	59.75
9.	Sodium	(Na^{+}) (Calculated)	19,379	/ 23.0 =	842.57
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	337	/ 61.1 =	5.52
14.	Sulfate	($SO_4^{=}$)	1,700	/ 48.8 =	34.84
15.	Chloride	(Cl^{-})	34,992	/ 35.5 =	985.69
16.	Total Dissolved Solids		59,642		
17.	Total Iron (Fe)		25	/ 18.2 =	1.35
18.	Total Hardness As $CaCO_3$		9,258		
19.	Resistivity @ 75 F. (Calculated)		0.161 /cm.		

LOGARITHMIC WATER PATTERN
*meq/L.



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	5.52	447
$CaSO_4$	68.07	34.84	2,371
$CaCl_2$	55.50	84.28	4,677
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	59.75	2,845
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	841.66	49,203

*Milli Equivalents per Liter

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts in solution.

Custom Chemicals

WATER ANALYSIS REPORT

SAMPLE

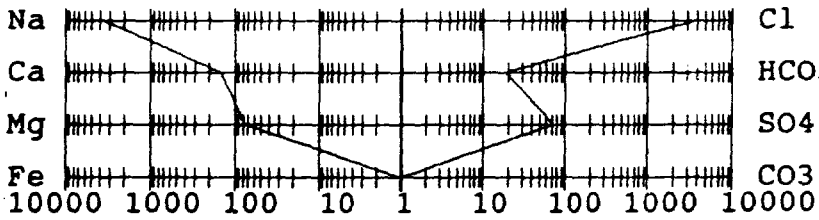
Oil Co. : BHP - Puffer
Lease : [redacted]
Well No.: #Puffer
Analysis:

Sample Loc. :
Date Sampled : 28 June, 1996
Attention :

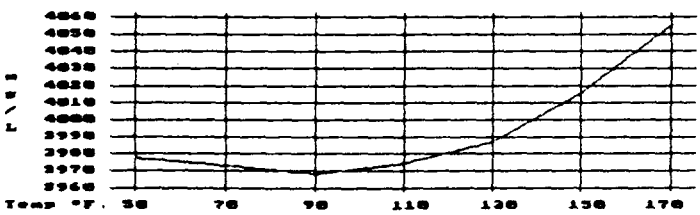
ANALYSIS

1.	pH		6.300		
2.	Specific Gravity 60/60 F.		1.138		
3.	$CaCO_3$ Saturation Index	@ 80 F.	+0.775		
		@ 140 F.	+1.995		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium (Ca^{++})		2,906	/ 20.1 =	144.58
8.	Magnesium (Mg^{++})		912	/ 12.2 =	74.75
9.	Sodium (Na^{+})	(Calculated)	79,957	/ 23.0 =	3,476.39
10.	Barium (Ba^{++})		Not Determined		
	Anions				
11.	Hydroxyl (OH^{-})		0	/ 17.0 =	0.00
12.	Carbonate ($CO_3^{=}$)		0	/ 30.0 =	0.00
13.	Bicarbonate (HCO_3^{-})		1,074	/ 61.1 =	17.58
14.	Sulfate ($SO_4^{=}$)		3,400	/ 48.8 =	69.67
15.	Chloride (Cl^{-})		127,971	/ 35.5 =	3,604.82
16.	Total Dissolved Solids		216,220		
17.	Total Iron (Fe)		5	/ 18.2 =	0.25
18.	Total Hardness As $CaCO_3$		11,010		
19.	Resistivity @ 75 F. (Calculated)		0.001 /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	17.58	1,425
$CaSO_4$	68.07	69.67	4,743
$CaCl_2$	55.50	57.33	3,182
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	74.75	3,560
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,472.74	203,016

***Milli Equivalents per Liter**

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemicals

WATER ANALYSIS REPORT

SAMPLE

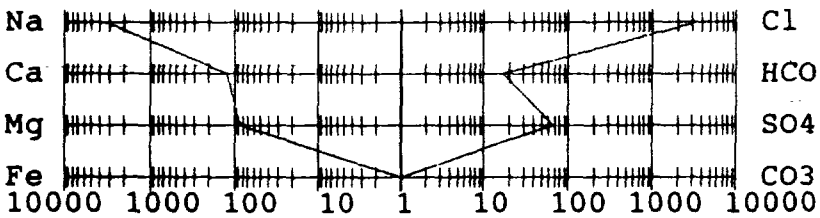
Oil Co. : Sammidan
Lease : [redacted]
Well No.: # 2
Analysis:

Sample Loc. :
Date Sampled : 28 June, 1996
Attention :

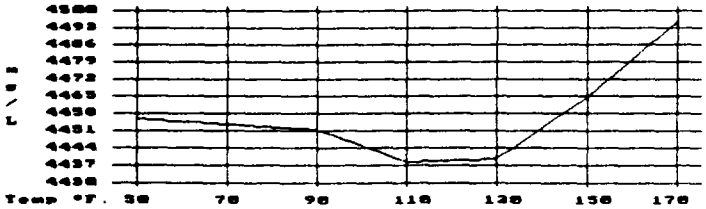
ANALYSIS

1.	pH		6.100		
2.	Specific Gravity 60/60 F.		1.139		
3.	$CaCO_3$ Saturation Index	@ 80 F.	+0.378		
		@ 140 F.	+1.488		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	2,405	/ 20.1 =	119.65
8.	Magnesium	(Mg^{++})	1,033	/ 12.2 =	84.67
9.	Sodium	(Na^{+}) (Calculated)	74,966	/ 23.0 =	3,259.39
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	991	/ 61.1 =	16.22
14.	Sulfate	($SO_4^{=}$)	3,150	/ 48.8 =	64.55
15.	Chloride	(Cl^{-})	119,973	/ 35.5 =	3,379.52
16.	Total Dissolved Solids		202,518		
17.	Total Iron (Fe)		6	/ 18.2 =	0.33
18.	Total Hardness As $CaCO_3$		10,259		
19.	Resistivity @ 75 F. (Calculated)		0.001 /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	16.22	1,314
$CaSO_4$	68.07	64.55	4,394
$CaCl_2$	55.50	38.88	2,158
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	84.67	4,032
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,255.97	190,344

***Milli Equivalents per Liter**

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.

Custom Chemicals

WATER ANALYSIS REPORT

SAMPLE

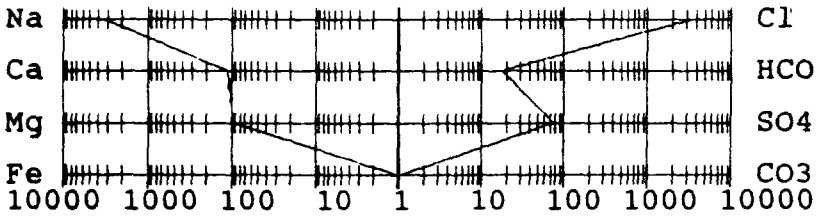
Oil Co. : BHP
Lease : [redacted]
Well No.: # 3
Analysis:

Sample Loc. :
Date Sampled : 28 June, 1996
Attention :

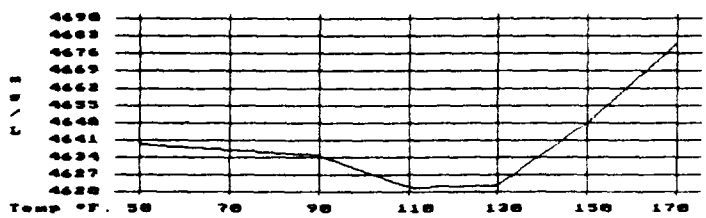
ANALYSIS

1.	pH		5.900		
2.	Specific Gravity 60/60 F.		1.139		
3.	$CaCO_3$ Saturation Index	@ 80 F.	+0.187		
		@ 140 F.	+1.357		
	Dissolved Gasses		**MG/L**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide		Present		
5.	Carbon Dioxide		Not Determined		
6.	Dissolved Oxygen		Not Determined		
	Cations				
7.	Calcium	(Ca^{++})	2,204	/ 20.1 =	109.65
8.	Magnesium	(Mg^{++})	1,094	/ 12.2 =	89.67
9.	Sodium	(Na^{+}) (Calculated)	77,208	/ 23.0 =	3,356.87
10.	Barium	(Ba^{++})	Not Determined		
	Anions				
11.	Hydroxyl	(OH^{-})	0	/ 17.0 =	0.00
12.	Carbonate	($CO_3^{=}$)	0	/ 30.0 =	0.00
13.	Bicarbonate	(HCO_3^{-})	1,030	/ 61.1 =	16.86
14.	Sulfate	($SO_4^{=}$)	3,500	/ 48.8 =	71.72
15.	Chloride	(Cl^{-})	122,972	/ 35.5 =	3,464.00
16.	Total Dissolved Solids		208,008		
17.	Total Iron (Fe)		2	/ 18.2 =	0.08
18.	Total Hardness As $CaCO_3$		10,009		
19.	Resistivity @ 75 F. (Calculated)		0.001 /cm.		

LOGARITHMIC WATER PATTERN
***meq/L.**



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *meq/L =	mg/L.
$Ca(HCO_3)_2$	81.04	16.86	1,366
$CaSO_4$	68.07	71.72	4,882
$CaCl_2$	55.50	21.07	1,170
$Mg(HCO_3)_2$	73.17	0.00	0
$MgSO_4$	60.19	0.00	0
$MgCL_2$	47.62	89.67	4,270
$NaHCO_3$	84.00	0.00	0
$NaSO_4$	71.03	0.00	0
NaCl	58.46	3,353.26	196,031

***Milli Equivalents per Liter**

This water is somewhat corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H2S in solution.