



02144611

Pro 1594
Amoco Production Company

071-06089

RESEARCH CENTER
WATER ANALYSIST.S. or File No. 5236WQ
Lab. No. W4138-6
Field No.
API Well No. 050710608900

LOCATION SAMPLED: Region DENVER Division SOUTHERN District _____
Operator (Plant) AMOCO PRODUCTION Well No. 1 Lease 46P ENTERPRISES B
State (Province) COLORADO County (Parish) LAS ANIMAS
Twp. 34S Rng. 67W Sec. 10 Quarter (Lsd.) _____ Other (Meridian) _____
37.09539 104.87306 Wildcat () Field Well () Field name _____
Sample collected from wellhead Date 8-16-85 Sample collected by MIKE MELLOR
Interval sampled _____ to _____ Interval name _____
Recovery Recently Fractured - may be recovering from fluid
Form 97 transmitted by _____ Date _____ Authorized by _____

ORGANIC CONSTITUENTS in mg/l

	BOTTOM	MIDDLE	TOP	MUD
benzene				
toluene				
HC Gases				

DESCRIPTION OF SAMPLE

Sample used for detailed analyses _____
Date received _____
Condition as received _____
Color _____
Solids _____
Bottom sediment _____
Oil or fluorescence _____

QUALITY OF SAMPLE

	BOTTOM	MIDDLE	TOP
Chloride			
in mg/l:			

COMMENTS:

Field Measurements

Measurement Temp. (°C) - 22.7

pH - 7.16

Eh - -152

S.G. - 1.005

Cond. (mS) - 7132

NH₃ (mg/l) - 4.0

Phenols (mg/l) - 0

H₂S (mg/l) - 0

Silica (mg/l) - 0

Wellhead Flowing Temp. - 23.8

CONVENTIONAL MAJOR ION ANALYSIS

		Major Ions mg/l	% of Total Major Ions	Reaction Value meq/l	% of Total Reaction Value
CATIONS	Sodium Na ⁺	1155			
	Calcium Ca ⁺⁺	40.22			
	Magnesium Mg ⁺⁺	2.53			
	Potassium K ⁺	139.9			
ANIONS	Chloride Cl ⁻	1724			
	Bicarbonate HCO ₃ ⁻	1296			
	Sulfate SO ₄ ⁻	- 0 -			
	Carbonate CO ₃ ⁻				
TOTAL					

Total solids by evaporation _____ mg/l
NaCl resistivity equivalent (Dunlap) _____ mg/l
Resistivity _____ ohm-meters at _____ °F
pH 6.50 Specific gravity 1.006 at 77 °F
Ryznar stability index (2pHs-pH) _____ at _____ °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/l	ANIONS	mg/l	OTHERS	mg/l
Sr	4.69	Acetate	110	B	2.30
Ba	1.78	Propionate	271	Si	10.59
Li	0.465	Butyrate	- 0 -	Org. C	1.20
		Valerate	- 0 -	Inorg. C	378.6
		I	1.23		

REMARKS AND CONCLUSIONS:

δ¹⁸O

δ D

Field Alkalinity (mg/l as HCO₃) - 1433

Wellhead Collected sample

Lab Cond = 6.35

Possibly Formate @ 5.6 mg/l

C:

Analyst _____ Date _____

Water charts on back ()

CORE LABORATORIES, INC

1300 SOUTH POTOMAC ST, SUITE 130
AURORA, CO, 80012

PHONE: (303) 751-1780



ANALYTICAL REPORT

07/-06089

COMPANY: AMOCO PRODUCTION COMPANY

WELL NAME:

DATE SAMPLED: 8/29/85

TYPE OF WATER:

DATE RECEIVED: 9/12/85

DEPTH:

DATE ANALYZED: 9/13/85

LEASE: MGP ENTERPRISES B#1

LOCATION:

FILE NUMBER: 6307-WR5613

FORMATION:

COUNTY:

SAMPLE #: 3

CONSTITUENTS

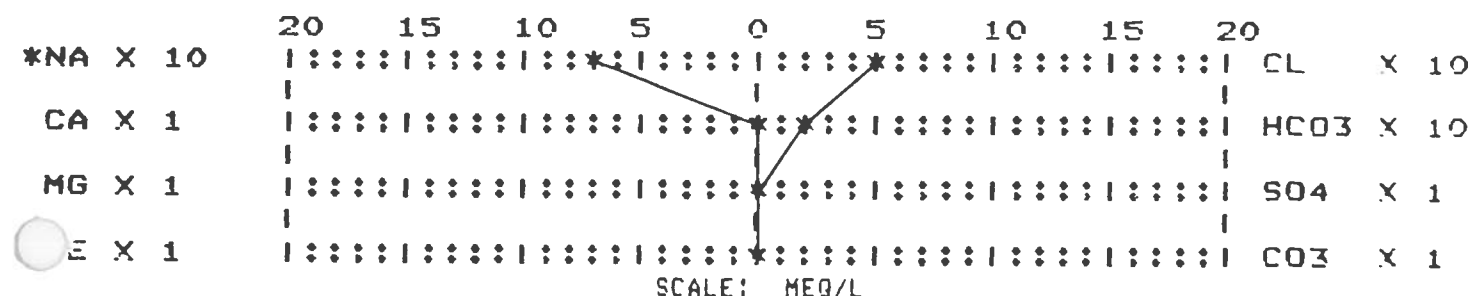
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM (NA)	1412	61.4	CHLORIDE (CL)	1602	45.2
CALCIUM (CA)	5.9	0.3	SULFATE (SO4)	18	0.4
MAGNESIUM (MG)	4.4	0.4	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	1.2	0.0	BICARBONATE (HCO3)	1227	20.1
POTASSIUM (K)	139	3.6	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 4409 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 8.28
SPECIFIC GRAVITY @ 77 F 1.0031
RESISTIVITY (OHM-METERS) @ 77 F 1.54



-INCLUDES POTASSIUM MEQ

CORE LABORATORIES, INC

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ANALYTICAL REPORT

071-66689

COMPANY: AMOCO PRODUCTION COMPANY

DATE SAMPLED: 9/12/85

WELL NAME:

DATE RECEIVED: 9/24/85

TYPE OF WATER:

DEPTH:

DATE ANALYZED: 9/25/85

LEASE: MGF ENTERPRISES B#1

LOCATION:

FILE NUMBER: 6307-W85657

FORMATION:

COUNTY:

SAMPLE #: 6

CONSTITUENTS

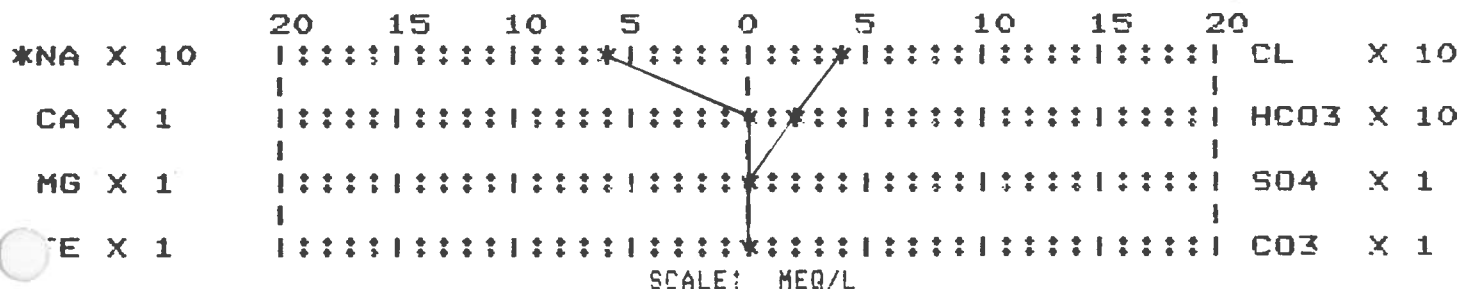
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	1299	56.5	CHLORIDE (CL)	1360	38.4
CALCIUM (CA)	7.8	0.4	SULFATE (SO4)	13	0.3
MAGNESIUM (MG)	3.6	0.3	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1285	21.1
POTASSIUM (K)	98	2.5	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 4066 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 8.30
SPECIFIC GRAVITY @ 77 F 1.0029
RESISTIVITY (OHM-METERS) @ 77 F 1.70



*-INCLUDES POTASSIUM MEQ

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ANALYTICAL REPORT

071-06089

COMPANY: AMOCO PRODUCTION COMPANY

WELL NAME:

TYPE OF WATER:

DEPTH:

LEASE: MGP ENTERPRISES B#1

LOCATION:

FORMATION:

COUNTY:

DATE SAMPLED: 9/18/85

DATE RECEIVED: 9/24/85

DATE ANALYZED: 9/25/85

FILE NUMBER: 6307-W85658

SAMPLE #: 3

CONSTITUENTS

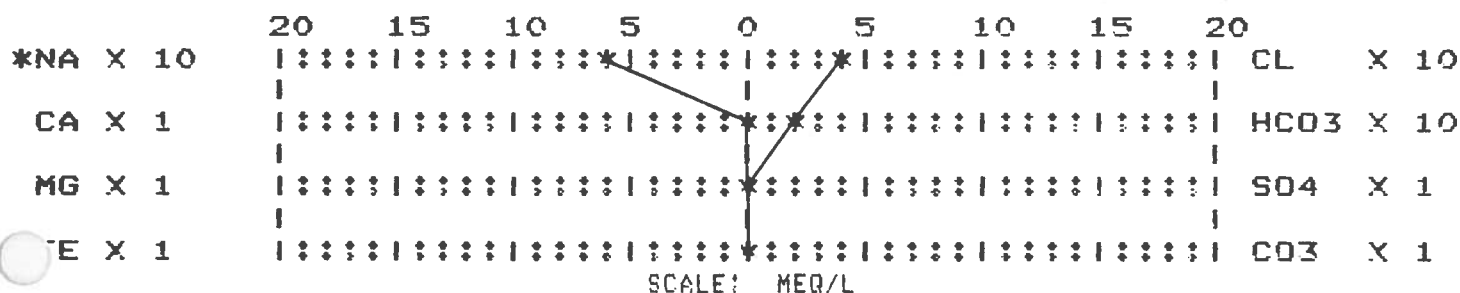
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	1256	54.6	CHLORIDE (CL)	1270	35.8
CALCIUM (CA)	8.3	0.4	SULFATE (SO4)	13	0.3
MAGNESIUM (MG)	3.2	0.3	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1308	21.4
POTASSIUM (K)	87	2.2	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 3945 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 9.27
SPECIFIC GRAVITY @ 77 F 1.0027
RESISTIVITY (OHM-METERS) @ 77 F 1.77



*-INCLUDES POTASSIUM MEQ

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ANALYTICAL REPORT

071-06089

COMPANY: AMOCO PRODUCTION COMPANY

DATE SAMPLED: 9/24/85

WELL NAME:

DATE RECEIVED: 9/30/85

TYPE OF WATER:

DEPTH:

DATE ANALYZED: 9/30/85

LEASE: MGP ENTERPRISES B #1

LOCATION:

FILE NUMBER: 6307-W25679

FORMATION:

COUNTY:

SAMPLE #: 3

CONSTITUENTS

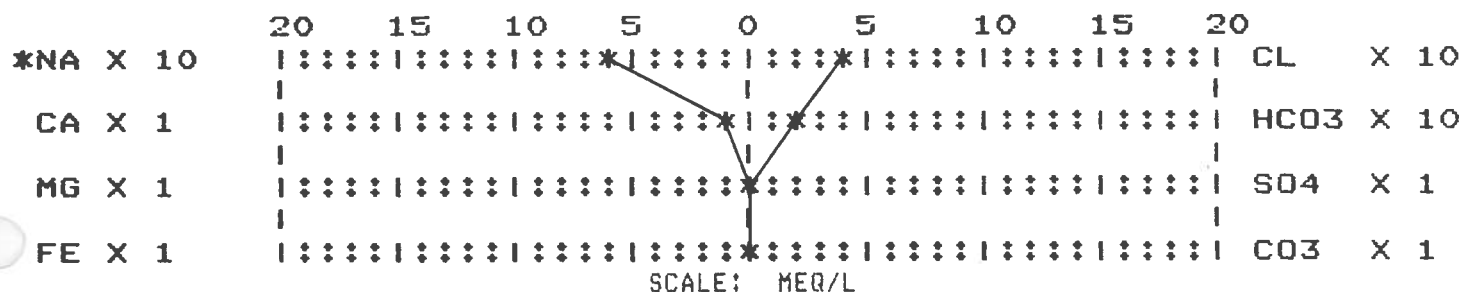
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
Na, SODIUM (NA)	1245	54.2	CHLORIDE (CL)	1250	35.3
CALCIUM (CA)	23	1.1	SULFATE (SO4)	20	0.4
MAGNESIUM (MG)	3.2	0.3	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1349	22.1
POTASSIUM (K)	87	2.2	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 3977 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 7.85
SPECIFIC GRAVITY @ 77 F 1.0028
RESISTIVITY (OHM-METERS) @ 77 F 1.80



*-INCLUDES POTASSIUM MEQ

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ANALYTICAL REPORT

071-66689

COMPANY: AMOCO PRODUCTION COMPANY

WELL NAME:

TYPE OF WATER:

DEPTH:

LEASE: MGP ENTERPRISES B#1

LOCATION:

FORMATION:

COUNTY:

DATE SAMPLED: 10/14/85

DATE RECEIVED: 10/24/85

DATE ANALYZED: 10/24/85

FILE NUMBER: 6307-W85778

SAMPLE #: 1

CONSTITUENTS

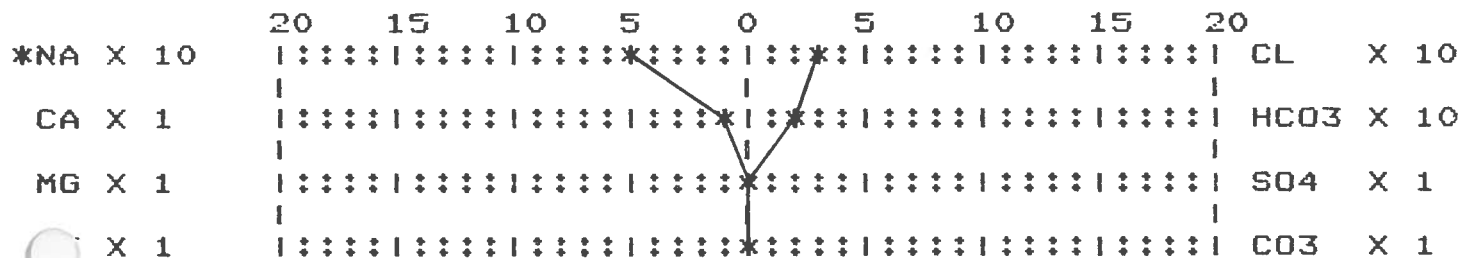
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	1208	52.5	CHLORIDE (CL)	1170	33.0
CALCIUM (CA)	14	0.7	SULFATE (SO4)	12	0.2
MAGNESIUM (MG)	3.0	0.2	CARBONATE (CO3)	13	0.4
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1317	21.6
POTASSIUM (K)	70	1.8	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 3806 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 8.44
SPECIFIC GRAVITY @ 77 F 1.0026
RESISTIVITY (OHM-METERS) @ 77 F 1.81



*-INCLUDES POTASSIUM MEQ



CORE LABORATORIES, INC

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ANALYTICAL REPORT

071-06089

COMPANY: AMOCO PRODUCTION CO

DATE SAMPLED: 17-NOV-85(0900)

WELL NAME: MGP ENT B #1

DATE RECEIVED: 27-NOV-85

TYPE OF WATER:

DEPTH:

DATE ANALYZED: 27-NOV-85

LEASE:

LOCATION:

FORMATION:

FILE NUMBER: 6307-W85862

COUNTY:

SAMPLE #: 3

CONSTITUENTS

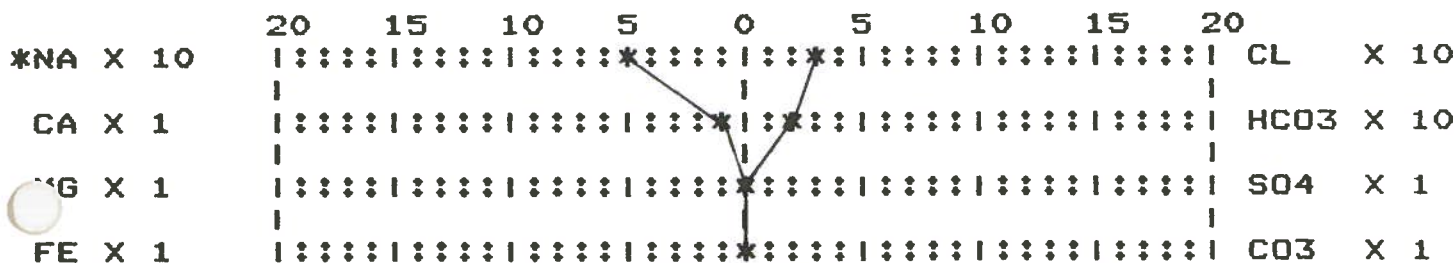
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	1194	51.9	CHLORIDE (CL)	1120	31.6
CALCIUM (CA)	20	1.0	SULFATE (SO4)	12	0.2
MAGNESIUM (MG)	2.8	0.2	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1380	22.6
POTASSIUM (K)	51	1.3	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 3779 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 7.91
SPECIFIC GRAVITY @ 77 F 1.0030
RESISTIVITY (OHM-METERS) @ 77 F 1.91



SCALE: MEQ/L

*-INCLUDES POTASSIUM MEQ



CORE LABORATORIES, INC

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ANALYTICAL REPORT

071-06689

COMPANY: AMOCO PRODUCTION CO.

DATE SAMPLED: 15-DEC-85

WELL NAME: M.G.P. ENT. B#1

DATE RECEIVED: 30-DEC-85

TYPE OF WATER:

DEPTH:

LEASE:

LOCATION:

FORMATION:

COUNTY:

DATE ANALYZED: 31-DEC-85

FILE NUMBER: 6307-W85928

SAMPLE #: 3

8973 TBNWR

CONSTITUENTS

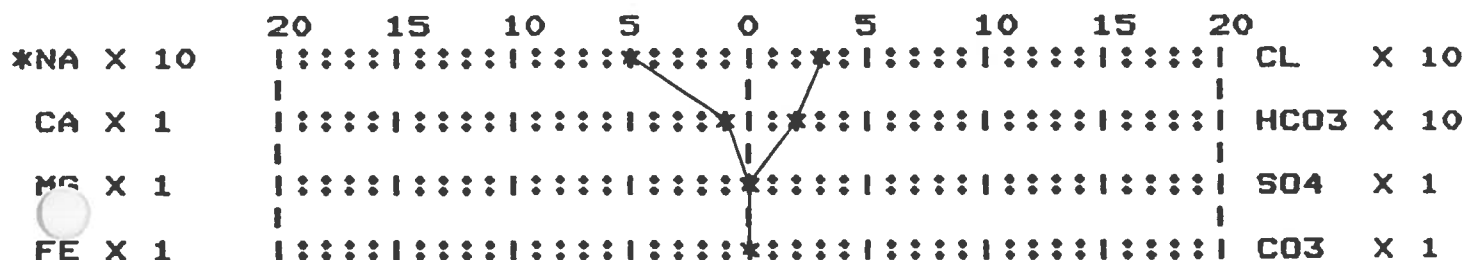
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	1142	49.7	CHLORIDE (CL)	1010	28.5
CALCIUM (CA)	17	0.8	SULFATE (SO4)	<0.1	0.0
MAGNESIUM (MG)	2.5	0.2	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1410	23.1
POTASSIUM (K)	34	0.9	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 3615 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 8.17
SPECIFIC GRAVITY @ 77 F 1.0027
RESISTIVITY (OHM-METERS) @ 77 F 1.99



SCALE: MEQ/L

K-INCLUDES POTASSIUM MEQ



CORE LABORATORIES, INC

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ANALYTICAL REPORT

671-06089

COMPANY: AMOCO PRODUCTION CO.

WELL NAME: M.G.P. ENT. #1
TYPE OF WATER:
DEPTH:
LEASE:
LOCATION:
FORMATION:
COUNTY:

DATE SAMPLED: 15-JAN-86

DATE RECEIVED: 17-JAN-86

DATE ANALYZED: 20-JAN-86

FILE NUMBER: 6307-W86047

SAMPLE #: 3

CONSTITUENTS

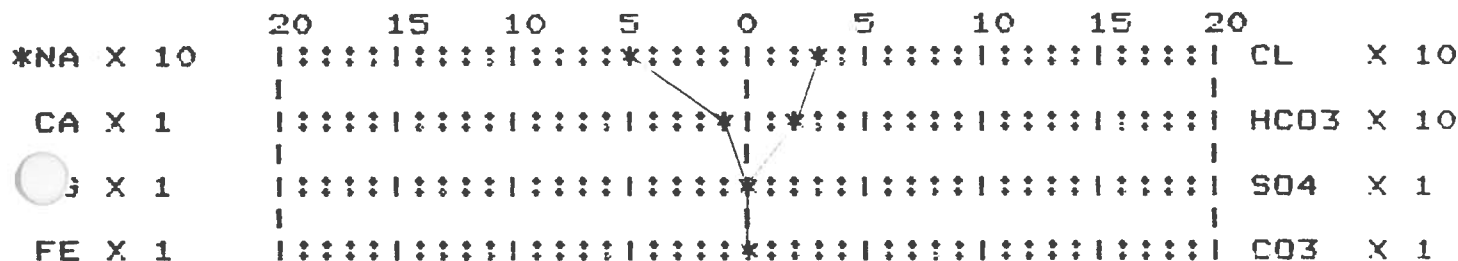
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	1135	49.4	CHLORIDE (CL)	990	27.9
CALCIUM (CA)	16	0.8	SULFATE (SO4)	20	0.4
MAGNESIUM (MG)	2.5	0.2	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	<0.1	0.0	BICARBONATE (HCO3)	1390	22.8
POTASSIUM (K)	30	0.8	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 3583 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH 8.20
SPECIFIC GRAVITY @ 77 F 1.0026
RESISTIVITY (OHM-METERS) @ 77 F 2.05



SCALE: MEQ/L

*-INCLUDES POTASSIUM MEQ