CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

June 22, 1964

File: RP-3-WA-555

A visual compatibility study was made on water samples from (Sample # 1) produced water, Pennsylvanian "CD" reservoir; and (Sample # 2) produced water, well # 100 De Chelly formation.

Combined at Room Temperature		
Sample # 1	Sample # 2	Results for approx. 30 hours.
25 cc	25 cc	clear, no visible reaction
75 cc	25 cc	slightly cloudy
25 cc	75 cc	clear, no visible reaction

Combined at 130 Degrees		
25 cc	25 cc	clear, no visible reaction
75 cc	25 cc	clear, no visible reaction
25 cc	75 cc	clear, no visible reaction

The sulfate in sample # 2 could create some problems; especially, in an open system.

/KOH

copy to NMOCC + State Engr.

P. O. Box 3312
Durango, Colorado
July 6, 1964

New Mexico Oil Conservation Commission (2)
P. O. Box 2088
Santa Fe, New Mexico

Re: Case No. 3069
June 10, 1964
Docket No. 16-64

Gentlemen:

In the above case, Continental Oil Company testified that we would obtain compatibility studies of the two source waters for our Rattlesnake Pennsylvanian "CD" pressure maintenance program. Attached for your records are analyses of the Pennsylvanian "CD" zone produced water and the Dechelly water from Rattlesnake Well No. 100.

Also attached is the compatibility study conducted by Core Laboratories, Inc. showing good compatibility at atmospheric temperature and the reservoir temperature of 130° F. In regard to the laboratories' comment on sulfates in the Dechelly water, we do plan to inject in a closed system.

Very truly yours,

H. D. Haley
District Manager
Durango District
Production Department

EJV/ca

cc: NMOCC-Aztec
State Engineer's Office

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

MAIN OFFICE OCC

1964 JUL 8 AM 7 46

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copy to NMOCC & State Engr.

File Copy

MAIN OFFICE OCC

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

1964 JUL 8 AM 7:46

WATER ANALYSIS

File RP-3-WA-555

Company CONTINENTAL OIL CO. Well Name _____ Sample No. 1

Formation PENNSYLVANIAN "CD" RES Depth _____ Sampled From WATER DUMP AT TREATER

Location _____ Field RATTLESNAKE County SAN JUAN State NEW MEXICO

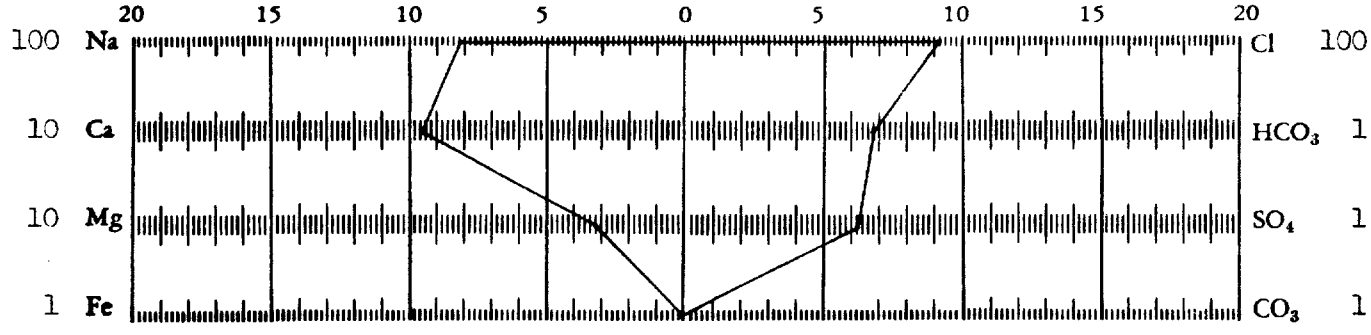
Date Sampled 6-12-64 Date Analyzed 6-18-64 Engineer HUFF

Total Dissolved Solids 24,226 mg/L CALC. Sp. Gr. 1.030 @ 78 °F.

Resistivity .123 ohm-meters @ 82 °F. MEAS. Hydrogen Sulfide ABSENT

pH 6.2

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	806.2	18,542	Chloride	921.0	32,660
Calcium	95.8	1,920	Bicarbonate	6.8	415
Magnesium	32.0	389	Sulfate	6.2	300
Iron	ABSENT		Carbonate	ABSENT	
Barium			Hydroxide		



Scale: meq/L

All analyses except iron determination performed on a filtered sample.

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1964 JUL 8 AM 7:46

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

WATER ANALYSIS

File RP-3-WA-255

Company CONTINENTAL OIL CO. Well Name NO. 100 Sample No. 2

Formation DE CHELLY Depth Sampled From PRODUCED WATER

Location Field RATTLESNAKE County SAN JUAN State NEW MEXICO

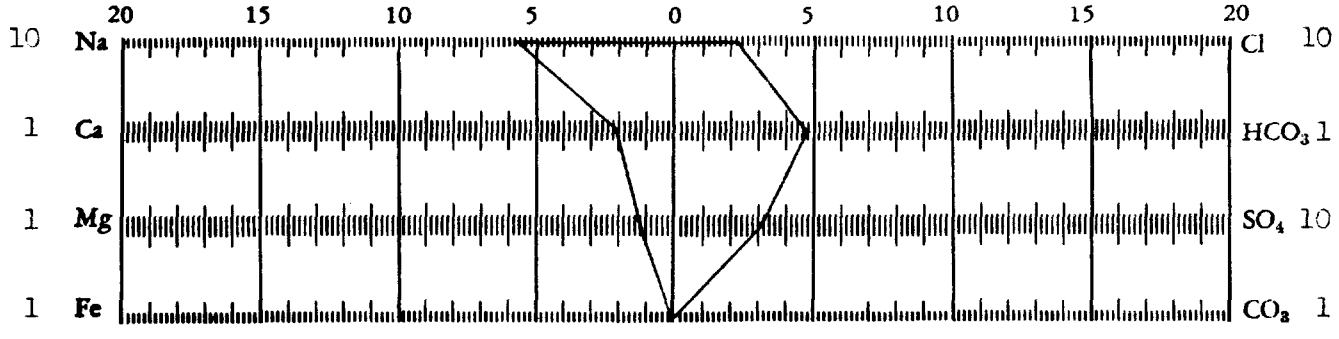
Date Sampled 6-12-64 Date Analyzed 6-12-64 Engineer HUFF

Total Dissolved Solids 4,020 mg/L CALC. Sp. Gr. 1.000 @ 83 °F.

Resistivity 1.80 ohm-meters @ 74 °F. MEAS. Hydrogen Sulfide ABSENT

pH 7.4

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	57.2	1,315	Chloride	22.0	781
Calcium	2.0	40	Bicarbonate	4.8	293
Magnesium	1.2	19	Sulfate	31.2	1,500
Iron	ABSENT		Carbonate	2.4	72
Barium			Hydroxide		



Scale: meq/L

All analyses except iron determination performed on a filtered sample.

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1964 JUL 8 AM 7 46

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

WATER ANALYSIS

File RP-3-WA-555

Company CONTINENTAL OIL CO. Well Name _____ Sample No. 1

Formation PENNSYLVANIAN "CD" RES Depth _____ Sampled From WATER DUMP AT TREATER

Location _____ Field RATTLESNAKE County SAN JUAN State NEW MEXICO

Date Sampled 6-12-64 Date Analyzed 6-16-64 Engineer HUFF

Total Dissolved Solids 54,226 mg/L CALC. Sp. Gr. 1.038 @ 78 °F.

Resistivity .123 ohm-meters @ 82 °F. MEAS. Hydrogen Sulfide ABSENT

pH 6.2

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	806.2	18,542	Chloride	921.0	32,660
Calcium	95.8	1,920	Bicarbonate	6.8	415
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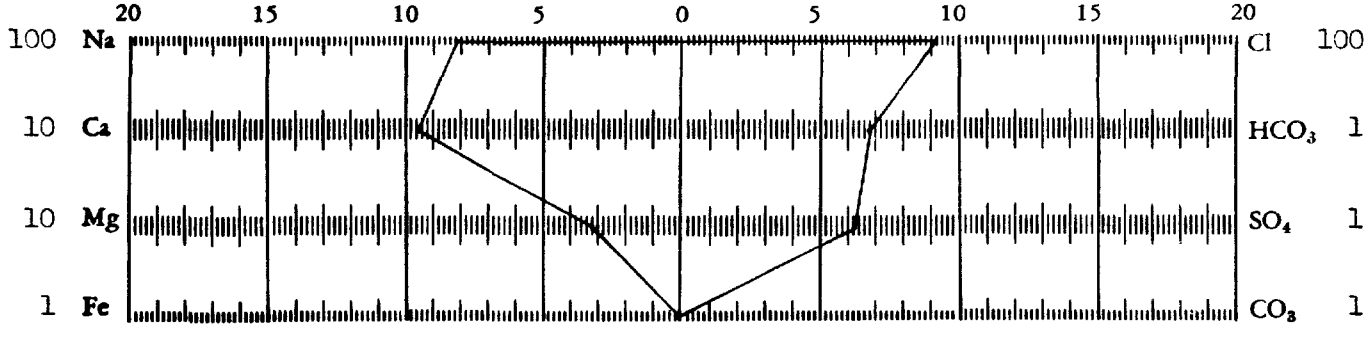

Scale: meq/L

All analyses except iron determination performed on a filtered sample.

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

1964 JUL 8 AM 7:46

WATER ANALYSIS

File R?-3-MA-555

Company CONTINENTAL OIL C?. Well Name NC. 100 Sample No. 2

Formation DE CHELLY Depth Sampled From PRODUCED WATER

Location Field RATTLESNAKE County SAN JUAN State NEW MEXICO

Date Sampled 6-12-64 Date Analyzed 6-12-64 Engineer HUFF

Total Dissolved Solids 4,020 mg/L CALC. Sp. Gr. 1.000 @ 83 °F.

Resistivity 1.80 ohm-meters @ 74 °F. MEAS. Hydrogen Sulfide ABSENT

pH 7.4

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	57.2	1,315	Chloride	22.0	781
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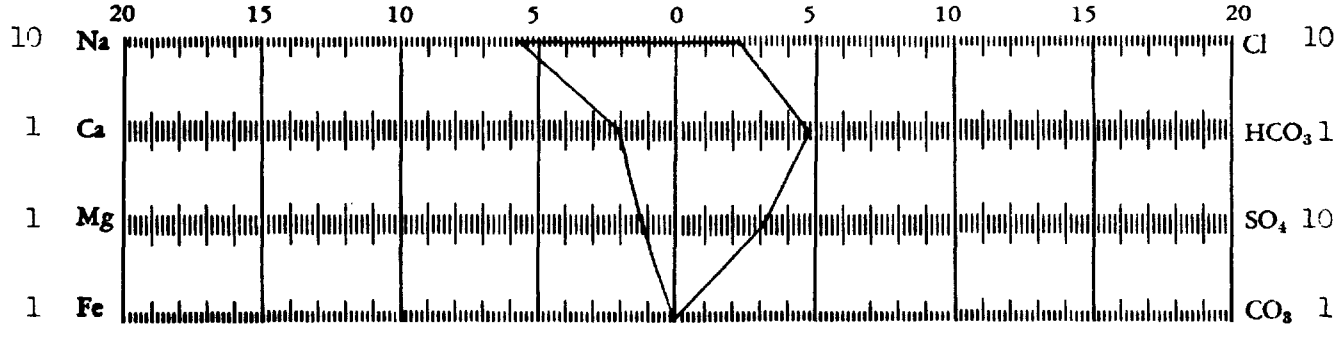

Scale: meq/L

All analyses except iron determination performed on a filtered sample.