CITATION OIL & GAS CORPORATION

Water Analysis Report

State Y #1

SCALE POTENTIAL OF THIS WATER	VERY LIKELY	SLIM POSSIBILITY	NONE
$CaCO_3$	☑	☐	☐
$CaSO_4$	☐	☐	☑
$BaSO_4$	☐	☐	☐

Acid Returns ☐ DSF ☐ Other ☐

SAMPLE DESCRIPTION

COMPANY Shell Oil Company

FIELD Jalmat

LEASE Jalmat

WELL NUMBER 1 Y

COUNTY & STATE Lea, NM

PRODUCING FORMATION

WHERE SAMPLED

REMARKS

LABORATORY Martin Water Labs., Inc.

LABORATORY NUMBER 108330

DATE SAMPLE TAKEN 10-3-83

DATE SAMPLE RECEIVED 10-4-83

DATE SAMPLE REPORTED 10-10-83

CHEMICAL AND PHYSICAL PROPERTIES

TOTAL HARDNESS Mg/L AS $Ca CO_3$ 2,800

TOTAL ALKALINITY Mg/L AS $Ca CO_3$ 520

CONSTITUENT	Mg/LITER	REACT. COEF.	Meq/LITER
SODIUM (INCL. POTASSIUM) AS Na^+	1,628	0.04350	70.8
CALCIUM – Ca^{++}	692	0.04990	34.5
MAGNESIUM – Mg^{++}	260	0.08224	21.4
IRON TOTAL – Fe^{++} & Fe^{+++}	0.23	0.03581	0.0
BARIUM – Ba^{++}		0.01460	
POSITIVE SUB–TOTAL	2,580		126.7
CHLORIDE – Cl^-	2,521	0.02820	71.1
~~CARBONATE~~ & BICARBONATE ~~$CO_3^=$~~ & HCO_3^-	634	0.01639 *	10.4
SULFATE – $SO_4^=$	2,095	0.02082	43.6
HYDROXYL – OH^-	0	0.05880	0.0
SULFIDE – $S^=$	25.9	0.06238	1.6
NEGATIVE SUB–TOTAL	5,276		126.7
TOTAL DISSOLVED SOLIDS	7,859		253.4

* BICARBONATE

SPECIFIC GRAVITY 1.0108 @ 60 °F pH 7.4 RES. 0.850 @ 80 °F

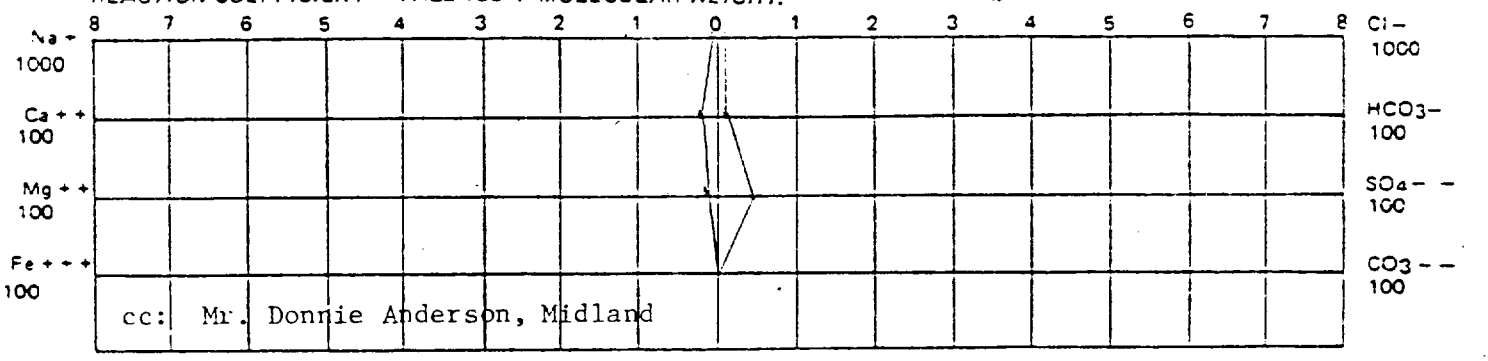
ANALYST

REQUESTED BY Carolyn Bulovas

Houston, TX

REACTION VALUE = (MILLIGRAMS/LITER) X (REACTION COEFFICIENT)

REACTION COEFFICIENT = VALENCE ÷ MOLECULAR WEIGHT.



cc: Mr. Donnie Anderson, Midland

INJECTION WELL DATA SHEET

Citation Oil & Gas Corp.	State			
OPERATOR	LEASE			
Y-1	380' FNL 380' FWL	Sec 36	T24S	R36E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic

Attached

Tabular Data

Surface Casing at 78'

Size 13-3/8 " Cemented with 60 sx.

TOC Surface feet determined by Circulation

Hole size 17-1/4"

Intermediate Casing at 1195'

Size 8-5/8 " Cemented with 750 sx.

TOC Surface feet determined by Circulation

Hole size 12-1/4

Long string at 2636'

Size 5-1/2 " Cemented with 350 sx.

TOC 1000 feet determined by Calculation

Hole size 7-7/8

Total depth 2942

Injection interval

2636 feet to 2725 feet
(perforated or open-hole, indicate which)

Open Hole

Tubing size 2-3/8 lined with Plastic (material) set in a

Baker Model "G" (brand and model) packer at 2600 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Yates

2. Name of Field or Pool (if applicable) Jalmat

3. Is this a new well drilled for injection? /7 Yes /X/ No

   If no, for what purpose was the well originally drilled? Originally drilled and completed as a producing oil & gas well. At present the well is temporarily abandoned.

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

   Well is open hole below casing at 2636'. No zones other than the open hole have been tested.

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Formations overlying the injection zone are not productive of oil or gas in this well bore. The Queen formation, ±3500' underlies the injection interval and is productive in the area.