



GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE November 23, 1973

TO Walters Drilling Co.
c/o Walter Zimmerman
Box 751

Great Bend, Kansas 67530

DEC 7 1973

1. Tilley

	1.	2.	3.	
Specific Gravity	<u>1.024</u>			Milligrams per liter
Chlorides	<u>18,000</u>			Milligrams per liter
Calcium	<u>1,800</u>			Milligrams per liter
Magnesium	<u>1,400</u>			Milligrams per liter
Sulfates	<u>2,180</u>			Milligrams per liter
Bicarbonates	<u>354</u>			Milligrams per liter
Iron	<u>0</u>			Milligrams per liter
Hydrogen Sulfide	<u>34</u>			Milligrams per liter
Barium	<u>0</u>			Milligrams per liter
pH	<u>7.5</u>			
Sulfate Reducing Bacteria	<u>None</u>			

cc: Wichita

LABORATORY ANALYST

Pivonka

RESPECTFULLY SUBMITTED

BY

T. J. Gordon

To convert to parts per million, divide by specific gravity.



GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE February 26, 1974TO Walters Drilling Co.Box 751Great Bend, Kansas

MAR 1 1974

1. Tilley #12. Tilley #2

	1.	2.	3.	
Specific Gravity	<u>1.024</u>	<u>1.024</u>		Milligrams per liter
Chlorides	<u>18,000</u>	<u>17,200</u>		Milligrams per liter
Calcium	<u>2,500</u>	<u>3,300</u>		Milligrams per liter
Magnesium	<u>530</u>	<u>558</u>		Milligrams per liter
Sulfates	<u>1,960</u>	<u>2,170</u>		Milligrams per liter
Bicarbonates	<u>342</u>	<u>415</u>		Milligrams per liter
Iron	<u>0</u>	<u>0</u>		Milligrams per liter
Hydrogen Sulfide	<u>68</u>	<u>68</u>		Milligrams per liter
Barium	<u>0</u>	<u>0</u>		Milligrams per liter
pH	<u>7.5</u>	<u>7.5</u>		
Sulfate Reducing Bacteria				

cc: **Wichita**

RESPECTFULLY SUBMITTED

LABORATORY ANALYST

Plyonka

BY

T. J. Gordon

To convert to parts per million, divide by specific gravity.



PHONE 316-792-2549

GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE May 13, 1975

TO Walters Drilling Company
Walter Zimmerman
Box 751, Great Bend, Kansas

1. Tillie #12. Tillie #2

	1.	2.	3.	
Specific Gravity	<u>1.024</u>	<u>1.025</u>	<u> </u>	Milligrams per liter
Chlorides	<u>17,200</u>	<u>18,200</u>	<u> </u>	Milligrams per liter
Calcium	<u>2,440</u>	<u>3,100</u>	<u> </u>	Milligrams per liter
Magnesium	<u>520</u>	<u>550</u>	<u> </u>	Milligrams per liter
Sulfates	<u>1,900</u>	<u>2,100</u>	<u> </u>	Milligrams per liter
Bicarbonates	<u>335</u>	<u>400</u>	<u> </u>	Milligrams per liter
Iron	<u>0</u>	<u>0</u>	<u> </u>	Milligrams per liter
Hydrogen Sulfide	<u>68</u>	<u>68</u>	<u> </u>	Milligrams per liter
Barium	<u>0</u>	<u>0</u>	<u> </u>	Milligrams per liter
pH	<u>7.5</u>	<u>7.5</u>	<u> </u>	
Sulfate Reducing Bacteria	<u>None</u>	<u>Present</u>	<u> </u>	
	<u> </u>	<u> </u>	<u> </u>	
	<u> </u>	<u> </u>	<u> </u>	

cc: Larry Benedict
Ness City, Kansas

RESPECTFULLY SUBMITTED

LABORATORY ANALYST

Gordon/ManningBY T. J. Gordon

T. J. Gordon

To convert to parts per million, divide by specific gravity.



GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE December 21, 1976to Walters Drilling CompanyMr. Walter ZimmermanP.O. Box 751, Great Bend, Kansas1. Tillie #12. Tillie #2

	<u>1.</u>	2.	3.	
Specific Gravity	1.022	1.025		Milligrams per liter
Chlorides	15,800	17,300		Milligrams per liter
Calcium	1,700	1,800		Milligrams per liter
Magnesium	446	460		Milligrams per liter
Sulfates	2,180	2,230		Milligrams per liter
Bicarbonates	451	460		Milligrams per liter
Iron	13	13		Milligrams per liter
Hydrogen Sulfide	0	0		Milligrams per liter
Barium	0	0		Milligrams per liter
pH	6.9	7.0		
Sulfate Reducing Bacteria	Negative	Positive		

Walt:

These samples compare with previous analyses run.
 Tillie #2 does indicate bacteria. We would recommend
 slugging this well with Corrosion Inhibitor #3 (Bactericide)
 for three successive weeks (five gals. per week).

Grady Bolding

cc: Larry Benedict
Ness City, Kansas

LABORATORY ANALYST Walters Drilling Co.

Wichita, Kansas

Manning/Medlock

RESPECTFULLY SUBMITTED

BY R. H. HauslerR. H. Hausler *JH*

To convert to parts per million, divide by specific gravity.

From Gordon Lab,

Indin

LABORATORY REPORT

Date July 8, 1976

TO Mr. Walter Zimmerman
Walters Drilling Company
P.O. Box 751, Great Bend, Kansas

Water samples (bacteria cultures)

We Give Below Results of OUR Exam. Of _____

Submitted By Larry Benedict

Marked (see below)

<u>WELL</u>		<u>SULFATE REDUCING BACTERIA</u>
Dickman #1	-	Present
#2	-	None
#3	-	None
Elmore #1	-	None
Klitzky #1	-	None
<u>Tilley #1</u>	-	Present
#2	-	None

cc: Larry Benedict

JUL 12 1976

LABORATORY ANALYST

Respectfully Submitted

Grady Bolding
Grady Bolding



GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE May 11, 1978TO Walters Drilling Co.Attn: Walt ZimmermanBox 751 Great Bend, Kansas 67530Tilley #1

	1.	2.	3.	
Specific Gravity	1.024			Milligrams per liter
Chlorides	17,500			Milligrams per liter
Calcium	1,600			Milligrams per liter
Magnesium	458			Milligrams per liter
Sulfates	1,680			Milligrams per liter
Bicarbonates	403			Milligrams per liter
Iron	2			Milligrams per liter
Hydrogen Sulfide	0			Milligrams per liter
Barium	0			Milligrams per liter
pH	7.0			
Sulfate Reducing Bacteria	none			

The above water analysis was prepared at your request as a regular check on this well. The mineral composition indicates normal production from the ~~Arbuckle~~ ^{Miss} formation. A test for sulfate reducing bacteria gave a negative result.

cc: Wichita
Larry Benedict

MAY 15 1978

RESPECTFULLY SUBMITTED

LABORATORY ANALYST

Manning/Medlock

BY

R. H. Hausler

R. H. Hausler

To convert to parts per million, divide by specific gravity.



GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE November 22, 1978TO Walters Drilling Co.Attn: Walt ZimmermanBox 751 Great Bend, KansasTillie #1

	1.	2.	3.	
Specific Gravity	<u>1.025</u>	<u> </u>	<u> </u>	Milligrams per liter
Chlorides	<u>17,900</u>	<u> </u>	<u> </u>	Milligrams per liter
Calcium	<u>1,700</u>	<u> </u>	<u> </u>	Milligrams per liter
Magnesium	<u>460</u>	<u> </u>	<u> </u>	Milligrams per liter
Sulfates	<u>1,610</u>	<u> </u>	<u> </u>	Milligrams per liter
Bicarbonates	<u>410</u>	<u> </u>	<u> </u>	Milligrams per liter
Iron	<u>5</u>	<u> </u>	<u> </u>	Milligrams per liter
Hydrogen Sulfide	<u>0</u>	<u> </u>	<u> </u>	Milligrams per liter
Barium	<u>0</u>	<u> </u>	<u> </u>	Milligrams per liter
pH	<u>7.0</u>	<u> </u>	<u> </u>	
Sulfate Reducing Bacteria	<u>none</u>	<u> </u>	<u> </u>	
	<u> </u>	<u> </u>	<u> </u>	
	<u> </u>	<u> </u>	<u> </u>	

cc: Wichita
 Larry Benedict
 LABORATORY ANALYST

Manning/Medlock

RESPECTFULLY SUBMITTED

BY

T. J. Gordon
 T. J. Gordon

To convert to parts per million, divide by specific gravity.



GORDON LAB, INC.

925 PATTON ROAD • P. O. BOX 605 • GREAT BEND, KANSAS 67530

WATER ANALYSIS

DATE May 28, 1980

TO Walters Drilling Co., Inc.
Walter Zimmerman
Box 751
Great Bend, Kansas 67530

1. Tilley #1

2. Tilley #2

	1.	2.	3.	
Specific Gravity	<u>1.025</u>	<u>1.025</u>	<u> </u>	Milligrams per liter
Chlorides	<u>17,000</u>	<u>17,000</u>	<u> </u>	Milligrams per liter
Calcium	<u>1,800</u>	<u>1,850</u>	<u> </u>	Milligrams per liter
Magnesium	<u>510</u>	<u>600</u>	<u> </u>	Milligrams per liter
Sulfates	<u>1,680</u>	<u>1,920</u>	<u> </u>	Milligrams per liter
Bicarbonates	<u>440</u>	<u>410</u>	<u> </u>	Milligrams per liter
Iron	<u>6</u>	<u>5</u>	<u> </u>	Milligrams per liter
Hydrogen Sulfide	<u>0</u>	<u>0</u>	<u> </u>	Milligrams per liter
Barium	<u>0</u>	<u>0</u>	<u> </u>	Milligrams per liter
pH	<u>7.0</u>	<u>7.1</u>	<u> </u>	
Sulfate Reducing Bacteria	<u>negative</u>	<u>negative</u>	<u> </u>	
	<u> </u>	<u> </u>	<u> </u>	
	<u> </u>	<u> </u>	<u> </u>	

These analyses were run for your records. They compare with our results of December 21, 1979.

cc: Wichita ✓
 Larry Benedict

LABORATORY ANALYST

Manning

RESPECTFULLY SUBMITTED

BY

Stephen H. Couch
 Stephen H. Couch

To convert to parts per million, divide by specific gravity.

Chem-Serv Inc.

105 South Broadway
Suite 705, Broadway Plaza Bldg.
Wichita, Kansas 67202
Phone (316) 263-3399

WATER ANALYSIS REPORT

SHEET NUMBER

DATE

4-14-84

STATE

KS

COMPANY

Walters Drilling

COUNTY OR PARISH

Ness

WELL OR UNIT

Tilley

WELL(S) NAME OR NO.

#1

WATER SOURCE (FORMATION)

Mississippi

DEPTH, FT.

BHT, F

SAMPLE SOURCE

Bleeder

TEMP, F

WATER, BBL/DAY

322

OIL, BBL/DAY

10

GAS, MMCF/DAY

DATE SAMPLED

4-12-84

TYPE OF WATER

☒ PRODUCED☐ SUPPLY☐ WATERFLOOD☐ SALT WATER DISPOSAL

DISSOLVED SOLIDS

CATIONS

mg/l*

mg/l*

Calcium Hardness

114

Calcium, Ca⁺⁺

92

1,840

Magnesium, Mg⁺⁺

22

268

Iron (Total) Fe⁺⁺⁺

0

0

Barium, Ba⁺⁺Sodium, Na⁺(calc.)

606

13,938

ANIONS

Chloride, Cl⁻

676

24,000

Sulfate, SO₄⁼

39

1,875

Carbonate, CO₃⁼Bicarbonate, HCO₃⁻

4.7

287

Hydroxyl, OH⁻Sulfide, S⁼

.8

12

Sulfate Reducing Bacteria

negative

PHYSICAL PROPERTIES

DISSOLVED GASES

(Redox Potential)

7.2

MV

Specific Gravity

1.024

Acidity, JTU Units

Total Dissolved Solids (calc.) 42,220 mg/l*

Hydrogen Sulfide, H₂S

25

mg/l*

Carbon Dioxide, CO₂

mg/l*

Oxygen, O₂

mg/l*

Residual Hydrocarbons

ppm(Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide ☐Iron Oxide ☐Calcium Carbonate ☐Acid Insoluble ☐

REMARKS AND RECOMMENDATIONS:

ENGINEER

Larry Lancaster

DIST. NO.

ADDRESS

Great Bend, KS

OFFICE PHONE

(316) 793-8154

HOME PHONE

792-7430

ANALYZED

DATE

4-14-84

DISTRIBUTION

☐ CUSTOMER☐ ENGINEER☐ DISTRICT OFFICE☐ SALES SUPERVISOR

Shannon Schierholz



Water Analysis Report

Analysis Number : 000000372

Company.....: Palomino
Location.....:
Field.....: Ness County
Base.....: Tilley
Sample Source.....: Bleeder
Date of Sampling.....: 07/23/94
Date of Analysis.....: 07/22/94
Baker Representative..: Ken Knight
Well#.....: 1
Analysis by.....: Davenport

DISSOLVED SOLIDS

ATIONS:	mg/l	me/l
Ca++	1920.00	96.00
Mg++	610.00	50.00
Fe+++	0.40	0.02
Ba++	1.00	0.01
Na+	9735.44	423.28
Mn++	0.00	0.00

ANIONS:	mg/l	me/l
Cl-	18000.00	507.04
SO4--	2500.00	52.08
HCO3-	335.50	5.50
CO3--	0.00	0.00
OH-	0.00	0.00
S-	75.00	4.69

TOTAL HARDNESS.....: 146.00
TOTAL SOLIDS (quantitative).....: 0.00
RESIDUAL HYDROCARBONS(ppm).....: 0.00

Ø = not determined

DISSOLVED GASES

Hydrogen Sulfide, H2S.....:	125.0
Carbon Dioxide, CO2.....:	40.0
Oxygen, O2.....:	Ø 0.0

PHYSICAL PROPERTIES

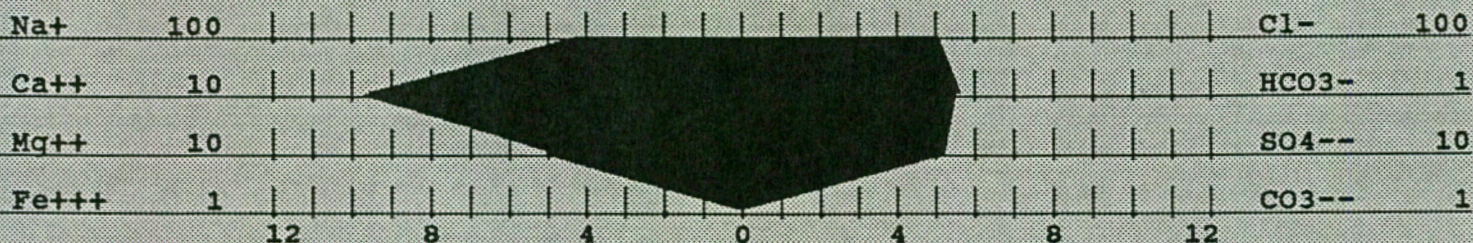
pH.....:	6.0
Specific Gravity.....:	1.015
TDS (calculated) ppm.....:	33177.3
TIS (calculated)	0.7

SCALE STABILITIES

Temp.	°C	°F	CaCO3	CaSO4	BaSO4
	32	90	-0.73	4161	0
	38	100	-0.60	4202	0
	43	109	-0.47	4275	0
Max entity, (calculated):				3576	2

WATER ANALYSIS PATTERN

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



NOTES:

Water Analysis Report

Analysis Number : 000000372

Company.....: Palomino
 Location.....:
 Field.....: Ness County
 Use.....: Tilley
 Sample Source.....: Bleeder

Date of Sampling.....: 07/23/94
 Date of Analysis.....: 07/22/94
 Baker Representative.: Ken Knight
 Well#.....: 1
 Analysis by.....: Davenport

