Judith River

DWL-451-2-A

DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

LABORATORY LOCATION Casper

API WATER ANALYSIS REPORT FORM

DATE February 25, 1972

LAB NO. CL 2683

Company: Murphy			Sample No.	Date Sampled: Feb. 1972
Field: E. Poplar	Legal Description		County or Parish: Roosevelt	State: Montana
Lease or Unit	Well	Depth	Formation: Judith	Water, B/D
Type of Water (Produced, Supply, etc.): Supply	Sampling Point: Water Plant			Sampled By: Getz

DISSOLVED SOLIDS

CATIONS	*mg/l*	*me/l*
Sodium, Na (calc.)	6578	286
Calcium, Ca	92	4.6
Magnesium, Mg	26	2.
Barium, Ba		

ANIONS		
Chloride, Cl	10000	285
Sulfate, SO_4	150	3.1
Carbonate, CO_3	0	
Bicarbonate, HCO_3	300	4.9

Total Dissolved Solids (calc.) 17146

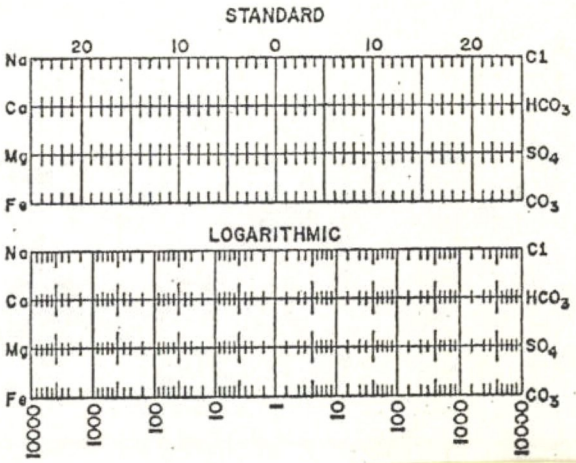
Iron, Fe (total) 1.0

Sulfide, as H_2S Trace

OTHER PROPERTIES

pH	6.75
Specific Gravity, 60/60 F.	1.015
Resistivity (ohm-meters) ____ F.	
Stability Index	+0.1
Sulfate Scaling	no

WATER PATTERNS — *me/l*



REMARKS & RECOMMENDATIONS: Low Solids 0.1 lb/1000 gallons suspended

Inj TDS 89

A-G water supply well

~~A-G~~

ANALYSIS BASED ON API RECOMMENDED PROCEDURE

Judith River (?)
See 8-D, 3(E)
Answers to Attachment II

NALCO

REPORT OF WATER ANALYSIS

From Murphy Oil Corporation S. Campbell 12 Apr 85 Analysis Date 12-27-70

4-G

Sample Marked Fresh Water, East Poplar Unit

MILLIGRAMS PER LITER

Chloride (as NaCl)	10,000
Total Hardness (as $CaCO_3$)	360
Calcium Hardness (as $CaCO_3$)	260
Total Alkalinity (as $CaCO_3$)	200
Acidity to Phenolphthalein (as $CaCO_3$)	0
Sulfate (as Na_2SO_4)	0
Total Iron (as Fe)	0.4
Suspended Solids	
Precipitated By Sulfate (as $BaSO_4$)	
Turbidity (SiO_2)	
Phosphate (PO_4)	2.5
pH	7.6
Specific Gravity	

*Estimated

Ray Thom
Analyst

NALCO CHEMICAL COMPANY
VISCO DIVISION
P. O. BOX 87 • SUGAR LAND, TEXAS 77478

NALCO trademarks of Nalco Chemical Company.

Form S-29

Lodgepole River

NALCO CHEMICAL COMPANY
VISCO DIVISION

P.O. Box 87 • Sugar Land, Texas 77478

Plants at Sugar Land, Texas, Anaheim, California, and Casper, Wyoming

REPORT OF WATER ANALYSIS

From Murphy Oil Corp.
Popler, Montana

A-60-5-6 **Analysis Date** 4-2-69

Sample Marked L.P.U. Fresh water - suction on pump

MILLIGRAMS PER LITER

Chloride (as NaCl)	15,600
Total Hardness (as $CaCO_3$)	272
Calcium Hardness (as $CaCO_3$)	128
Total Alkalinity (as $CaCO_3$)	P-0 M-204
Acidity to Phenolphthalein (as $CaCO_3$)	147
Sulfate (as Na_2SO_4)	0
Total Iron (as Fe)	1.7
Suspended Solids	
Precipitated By Sulfate (as $BaSO_4$)	5
pH	6.4
Specific Gravity	

*ESTIMATED

R.L. Crane
ANALYST

FORM 8-39

1-62

Indetta River

NALCO CHEMICAL COMPANY
VISCO DIVISION

P.O. Box 87 · Sugar Land, Texas 77478

Plants at Sugar Land, Texas, Anaheim, California, and Casper, Wyoming

REPORT OF WATER ANALYSIS

From Murphy Oil Corporation

Poplar, Montana

Sample Marked EPU 5C

Sec 29-29N-51B

5-6

Date 2/28/68
Analysis No. 68-W131
Sampling Date Not Given
Date Sample Rec'd 2/22/68

MILLIGRAMS PER LITER

Chloride (as NaCl)	13,400
Total Hardness (as $CaCO_3$)	340
Calcium Hardness (as $CaCO_3$)	250
Total Alkalinity (as $CaCO_3$)	p 50 m 290
Acidity to Phenolphthalein (as $CaCO_3$)	0
Sulfate (as Na_2SO_4)	0
Total Iron (as Fe)	55
Suspended Solids	
Precipitated By Sulfate (as $BaSO_4$)	16
Turbidity (SiO_2)	85

pH	7.8
Specific Gravity	1.008

CHEMIST

*ESTIMATED

cc: D. C. Johnson (3)
D. V. Murphy
Mr. M. T. James
Murphy Oil Corp., Mont

mr

Case No. 56 E 50

Judith River

Bradford LABORATORIES

WATER ANALYSIS RESULTS

CLIENT: MURPHY CORPORATION

Sample No.		X-35			
Date Sampled		4-26-60			
Time Sampled					
Date Received					
Time Received					
Location:		Judith River Gas sand ?			
Appearance When Sampled		Turbid			
Appearance After Standing					
Odor					
Taste					
Temperature	°F				
pH		7.8			
Carbon Dioxide	ppm CO_2				
Dissolved Oxygen	ppm O_2				
Residual Chlorine	ppm Cl_2				
Turbidity	ppm				
Manganese	ppm Mn				
Iron (Total)	ppm Fe				
Alkalinity to Phenolphthalein	ppm $CaCO_3$	0			
Alkalinity to Methyl Orange	ppm $CaCO_3$	200			
Sulfates	ppm SO_4	6			
Chlorides	ppm Cl	6,750			
Total Hardness	ppm $CaCO_3$	334			
Silica	ppm SiO_2				
Calcium	ppm Ca	96			
Magnesium	ppm Mg	22			
Complex Phosphate	ppm				
Total Solids	ppm				
Conductivity		21,000			
Suspended Solids		15,750 *			

17.1 ppm equal 1 grain per U. S. gallon. - "nd" means not determined.

COMMENTS

B-4102

YAPUNCICH-SANDERSON LABORATORIES
P. O. BOX 593 BILLINGS, MONTANA 5 & 9½ N. 25TH ST.

WATER ANALYSIS REPORT

Lab. No. 461-W

Field E. Poplar County Roosevelt State Montana
Well No. 4G Location SW SE 19-29N-51E
Formation Judith River Depths 850'
Operator Murphy Corporation Date Sampled 10-21-54
DST No. Sample Production Sample Date Analyzed 10-25-54
Other Data Sample clear colorless water. Sample from a gas well.

Constituents	PPM	MEQ.	MEQ. %
Sodium	3057	132.95	47.16
Calcium	106	5.29	1.88
Magnesium	33	2.71	0.96
Sulfate	Trace	Trace	Trace
Chloride	6583	136.93	48.57
Carbonate	0	0	0
Bicarbonate	245	4.02	1.43

Total Solids in Parts per Million
By evaporation 10,028
After ignition 9764
Calculated 9900

pH 6.4

Specific Gravity @ 60°F 1.009

Resistivity @ 68°F
ohms/meter³ 0.63

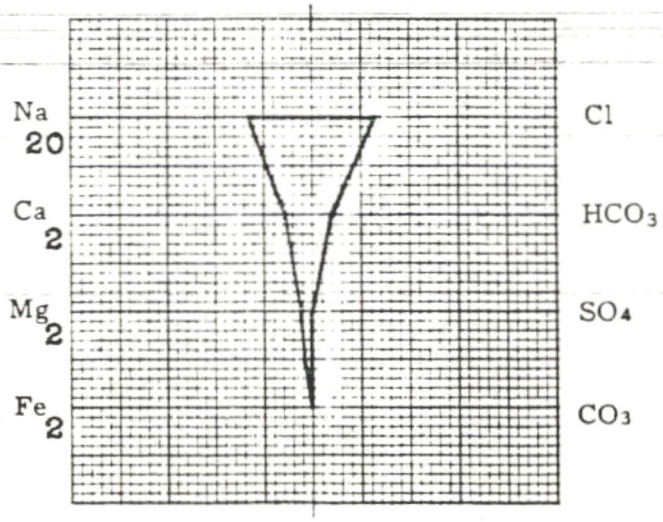
Chloride as NaCl 10,855 PPM. Total Solids From Resistivity as NaCl 9873 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit

Judith R H2O



WESTERN LITHO PRINT, INC., BILLINGS, MONT.

YAPUNICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12260-1

Field East Poplar Unit 2 County _____ State _____
Well No. _____ Location _____
Formation _____ Depths _____
Operator Murphy Oil Corporation Date Sampled _____
DST No. _____ Sample _____ Date Analyzed 7-21-75
Other Data Salt Water Station No. 1 North End
Slightly murky water; filtrate clear and colorless. H_2S present.

Constituents	PPM	MEQ.	MEQ. %
Sodium	59,790	2600.71	47.92
Calcium	1,931	96.33	1.77
Magnesium	208	17.09	0.31
Sulfate	1,506	31.33	0.58
Chloride	95,000	2679.00	49.35
Carbonate	0	0.00	0.00
Bicarbonate	232	3.80	0.07

Total Solids in Parts per Million
By evaporation _____
After ignition _____
Calculated 158,549

pH 6.2

Specific Gravity @ 60°F 1.104

Resistivity @ 68°F ohms/meter³ 0.062

Chloride as NaCl 156,655 PPM. Total Solids From Resistivity as NaCl 157,763 PPM.

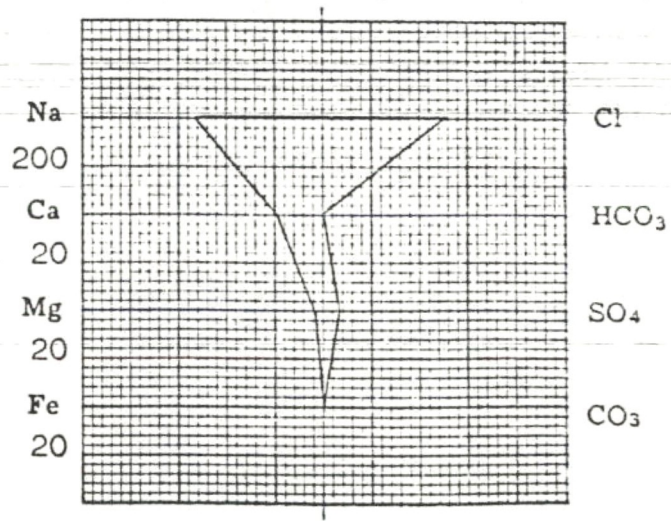
NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0017%

1. Bromine 7 ppm
2. Iodine <1 ppm

Inj. H2O

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



(< is less than)

SPECIALIZING IN CORE, WATER, GAS AND CRUDE OIL ANALYSES

YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12260-2

Field East Poplar Unit
County _____ State _____
Well No. _____
Location _____
Formation _____
Depths _____
Operator Murphy Oil Corporation
Date Sampled _____
DST No. _____ Sample _____
Date Analyzed 7-21-75
Other Data Salt Water Station No. 3 & 4 South End.
Clear, colorless water. H_2S present.

Constituents	PPM	MEQ.	MEQ. %
Sodium	52,884	2300.33	48.81
Calcium	911	45.45	0.95
Magnesium	137	11.23	0.24
Sulfate	1,914	39.80	0.84
Chloride	82,000	2312.40	49.05
Carbonate	0	0.00	0.00
Bicarbonate	293	4.80	0.11

Total Solids in Parts per Million
By evaporation _____
After ignition _____
Calculated 137,990

pH 6.3

Specific Gravity @ 60°F 1.094

Resistivity @ 68°F ohms/meter³ 0.068

Chloride as NaCl 135,218 PPM.

Total Solids From Resistivity as NaCl 136,991 PPM.

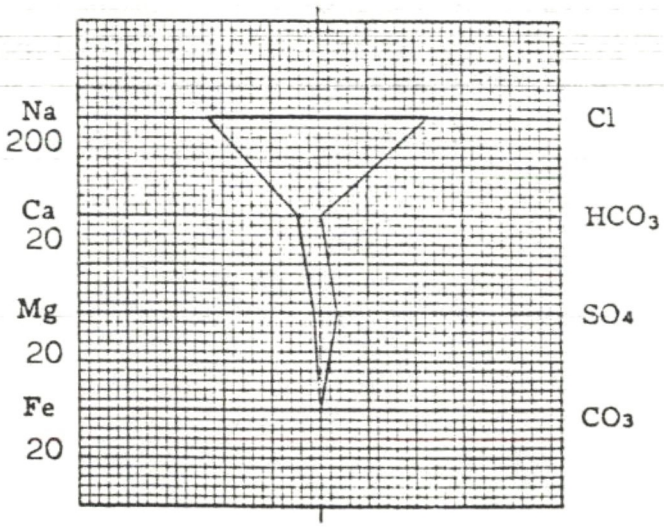
NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

1. Bromine 8 ppm
2. Iodine <1 ppm

(< is less than)

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN

LABORATORIES

PHONE 252-6325 P. O. BOX 593 13 NO. 32nd ST.

BILLINGS, MONTANA 59103

File E. Poplar Unit Water Analysis Data

Murphy Oil Corporation

200 Jefferson Avenue

El Dorado, Arkansas 71730

DATE 3-02-76

INVOICE NO 14121

YOUR ORDER NO

TERMS: NET 30 DAYS

LAB. NO.	SERVICE	AMOUNT
12700	Routine Water Analysis, 5 Samples @ $35.00/Sample	$ 175.00
	Evaporation for Salt, 5 Samples	25.00
		$ 200.00

Madison Formation
North End of East Poplar Unit, Roosevelt County, Montana

1. EP Unit No. 48 Wellhead Temperature 130°F C Zone
2. EP Unit No. 21 Wellhead Temperature 195°F C Zone
3. EP Unit No. 84 Wellhead Temperature 155°F C Zone
4. Composite Sample Well No. 19 Wellhead Temp. 155°F A Zone
   Well No. 38 Wellhead Temp. 175°F A Zone
   Well No. 95 Wellhead Temp. 100°F A Zone
5. Composite Sample "B" Zone
   Well No. 54 Wellhead Temp. 140°F
   Well No. 56 Wellhead Temp. 135°F
   Well No. 73 Wellhead Temp. 145°F

Received 2-26-76

Ordered by O.Paul Doyle

NO FURTHER STATEMENT WILL BE RENDERED UNLESS REQUESTED

SPECIALIZING IN CORE, WATER, GAS, CRUDE OIL, REFINED PETROLEUM PRODUCTS ANALYSES AND FIELD ENGINEERING SERVICES

YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-1

Field: North End of East Poplar Unit
County: Roosevelt
State: Montana
Well No.: EP Unit No. 48
Location:
Formation: Madison "C" Zone
Depths:
Operator: Murphy Oil Corporation
Date Sampled:
DST No.: Sample:
Date Analyzed: 3-01-76
Other Data: Wellhead Temperature 130°F

Clear, colorless water; H_2S present.

Constituents	PPM	MEQ.	MEQ. %
Sodium	9,673	420.74	43.15
Calcium	1,002	50.00	5.13
Magnesium	204	16.80	1.72
Sulfate	1,223	25.44	2.61
Chloride	16,170	455.99	46.76
Carbonate	0	0.00	0.00
Bicarbonate	372	6.10	0.63

Total Solids in Parts per Million
By evaporation:
After ignition:
Calculated: 28,455

pH: 7.3

Specific Gravity @ 60°F: 1.017

Resistivity @ 68°F ohms/meter³: 0.25

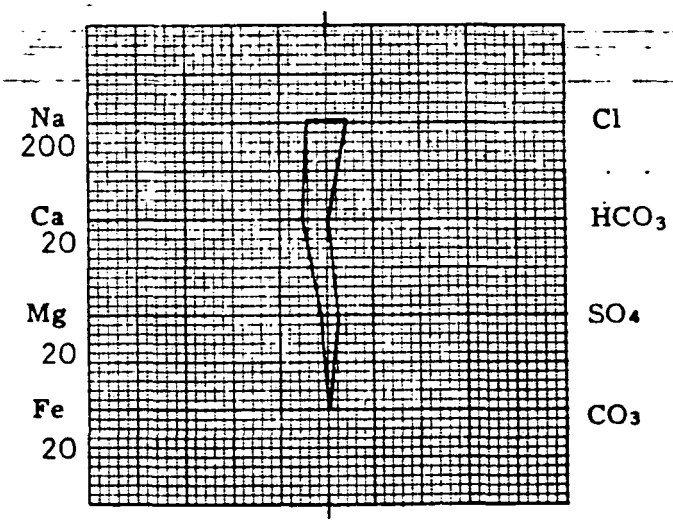
Chloride as NaCl 25,664 PPM.

Total Solids From Resistivity as NaCl 27,791 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-2

Field: North End of East Poplar Unit County: Roosevelt State: Montana
Well No.: EP Unit No. 21
Location:
Formation: Madison "C" Zone
Depths:
Operator: Murphy Oil Corporation
Date Sampled:
DST No.: Sample:
Date Analyzed: 3-01-76
Other Data: Wellhead Temperature 195°F

Clear, colorless water; H_2S present.

Constituents	PPM	MEQ.	MEQ. %
Sodium	19,261	837.80	46.88
Calcium	842	42.00	2.35
Magnesium	168	13.83	0.77
Sulfate	1,486	30.92	1.73
Chloride	30,380	856.72	47.93
Carbonate	0	0.00	0.00
Bicarbonate	366	6.00	0.34

Total Solids in Parts per Million

By evaporation:
After ignition:
Calculated: 52,317

pH: 7.7

Specific Gravity @ 60°F: 1.039

Resistivity @ 68°F ohms/meter³: 0.16

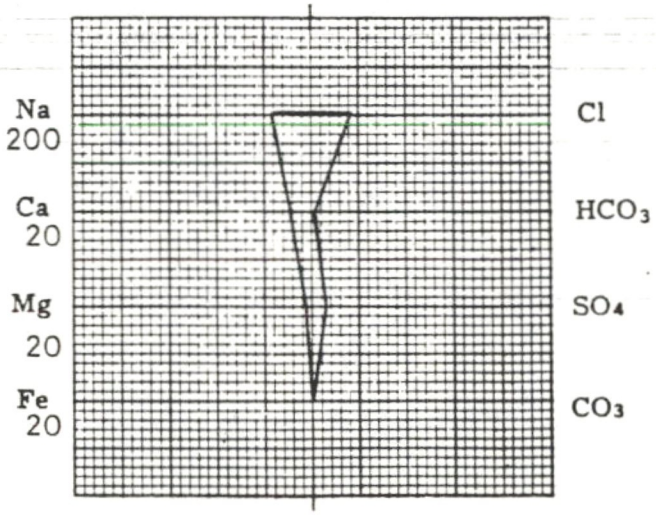
Chloride as NaCl: 50,097 PPM.

Total Solids From Resistivity as NaCl: 51,522 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-3

Field North End of East Poplar Unit County Roosevelt State Montana
Well No. EP Unit No. 84 Location
Formation Madison "C" Zone Depths
Operator Murphy Oil Corporation Date Sampled
DST No. Sample Date Analyzed 3-01-76
Other Data Wellhead Temperature 155°F

Clear, colorless water; H_2S present.

Constituents	PPM	MEQ.	MEQ. %
Sodium	17,485	760.54	46.74
Calcium	802	40.00	2.46
Magnesium	156	12.85	0.79
Sulfate	1,585	32.97	2.03
Chloride	27,440	773.81	47.57
Carbonate	0	0.00	0.00
Bicarbonate	403	6.60	0.41

Total Solids in Parts per Million

By evaporation
After ignition
Calculated 47,666

pH 7.9

Specific Gravity @ 60°F 1.036

Resistivity @ 68°F ohms/meter³ 0.16

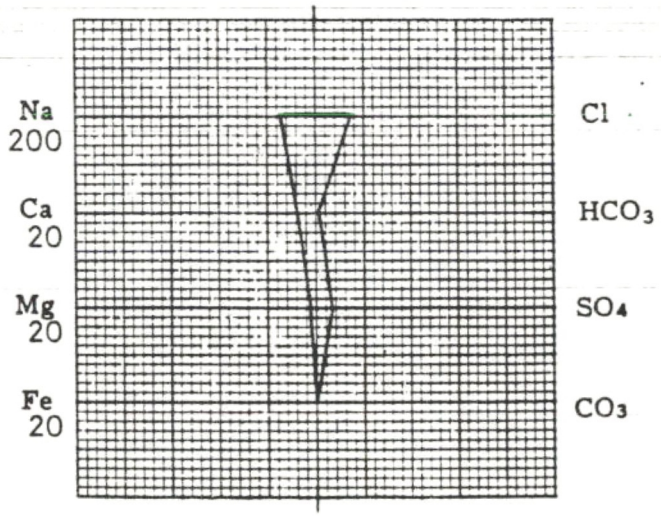
Chloride as NaCl 45,249 PPM.

Total Solids From Resistivity as NaCl 46,817 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-4

Field North End of East Poplar Unit County Roosevelt State Montana
Well No. *
Location
Formation Madison "A" Zone
Depths
Operator Murphy Oil Corporation
Date Sampled
DST No. Sample
Date Analyzed 3-01-76
Other Data *Wellhead Temperature 155°F Well No. 19 — 4-6 the same
*Wellhead Temperature 175°F Well No. 38
*Wellhead Temperature 100°F Well No. 95
Clear, colorless water; H_2S present

Constituents	PPM	MEQ.	MEQ. %
Sodium	57,198	2,487.96	49.00
Calcium	802	40.00	0.79
Magnesium	132	10.87	0.21
Sulfate	2,221	46.19	0.91
Chloride	88,200	2,487.24	48.98
Carbonate	0	0.00	0.00
Bicarbonate	329	5.40	0.11

Total Solids in Parts per Million
By evaporation
After ignition
Calculated 148,715

pH 7.4

Specific Gravity @ 60°F 1.102

Resistivity @ 68°F
ohms/meter³ 0.065

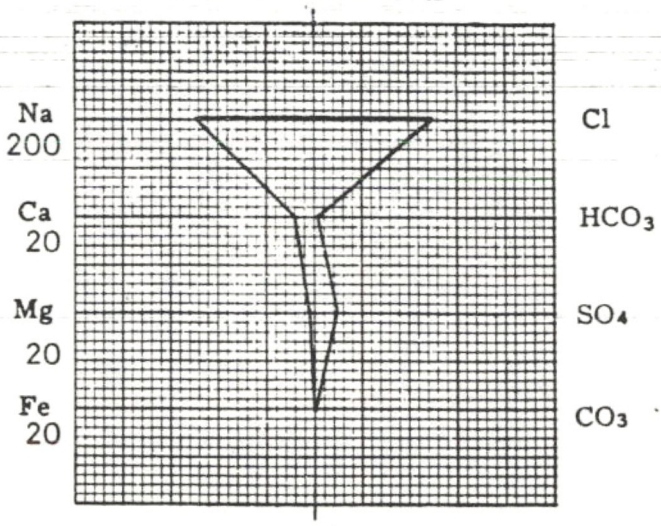
Chloride as NaCl 145,442 PPM.

Total Solids From Resistivity as NaCl 147,557 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-5

Field North End of East Poplar Unit County Roosevelt State Montana
Well No. *
Location
Formation Madison "B" Zone
Depths
Operator Murphy Oil Corporation
Date Sampled
DST No. Sample
Date Analyzed 3-01-76
Other Data *Wellhead Temperature 140°F Well No. 54
*Wellhead Temperature 135°F Well No. 56
*Wellhead Temperature 145°F Well No. 73
Clear, colorless water.

Constituents	PPM	MEQ.	MEQ. %
Sodium	83,699	3,640.67	47.17
Calcium	3,607	180.00	2.33
Magnesium	469	38.53	0.50
Sulfate	755	15.70	0.20
Chloride	136,220	3,841.40	49.77
Carbonate	0	0.00	0.00
Bicarbonate	128	2.10	0.03

Total Solids in Parts per Million

By evaporation
After ignition
Calculated 224,813

pH 7.0

Specific Gravity @ 60°F 1.144

Resistivity @ 68°F ohms/meter³ 0.050

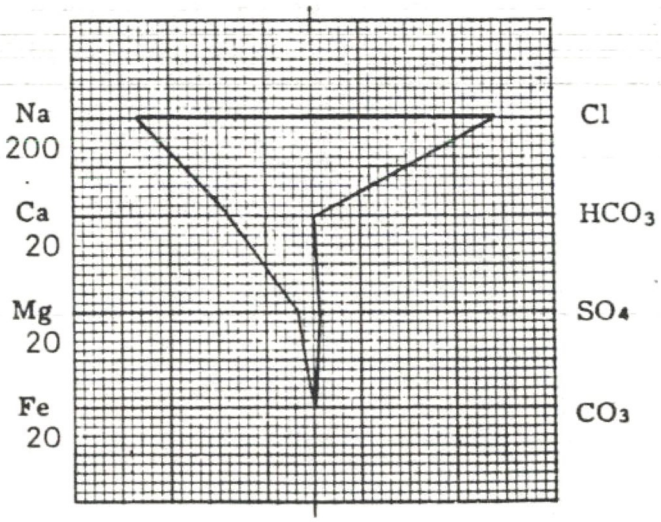
Chloride as NaCl 224,627 PPM.

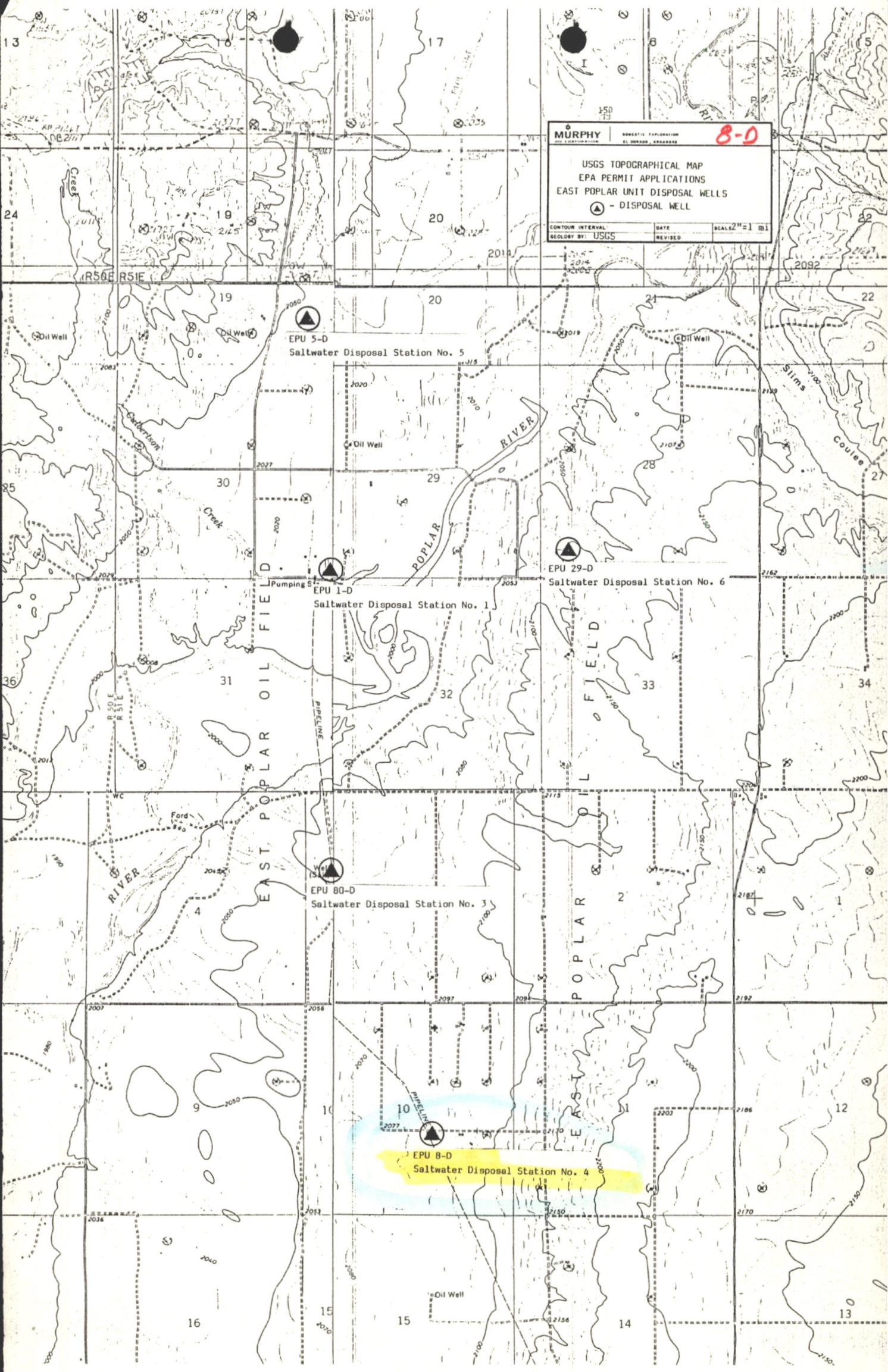
Total Solids From Resistivity as NaCl 224,417 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit




MURPHY
8-D
USGS TOPOGRAPHICAL MAP
EPA PERMIT APPLICATIONS
EAST POPLAR UNIT DISPOSAL WELLS
- DISPOSAL WELL
CONTOUR INTERVAL:
GEOLOGY BY: USGS
DATE
REVISED
SCALE 2"=1 mi
EPU 5-D
Saltwater Disposal Station No. 5
EPU 1-D
Saltwater Disposal Station No. 1
EPU 29-D
Saltwater Disposal Station No. 6
EPU 80-D
Saltwater Disposal Station No. 3
EPU 8-D
Saltwater Disposal Station No. 4
EAST POPLAR OIL FIELD
POPLAR RIVER
Oil Well
Pumping S
Ford
PIPELINE
Slims Coulee
Cedartwon Creek
R50E R51E

MURPHY
OIL USA, INC.

200 PEACH STREET
EL DORADO, ARKANSAS 71730

November 16, 1984

NOV 19 1984
EPA REGION VIII
DRINKING WATER BRANCH

Mr. Angus Campbell
United States Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80295-0699

Underground Injection Control
(UIC) Permit Application for:
East Poplar Field Well Nos.
1-D, 5-D, 8-D, 29-D, 59-D,
80-D

Dear Mr. Campbell:

This is to confirm the November 16 approval by telephone of the extension of the filing deadline to December 10, 1984 of information requested by Mr. Max Dodson's letter concerning deficiencies in our East Poplar Field UIC permit applications.

We will answer the deficiencies by the December 10, 1984 deadline. Your cooperation in this matter is appreciated.

Yours very truly,

Sidney W. Campbell

Sidney W. Campbell
Sr. Petroleum Engineer

SWC/ac

RECORD OF COMMUNICATION	☑ PHONE CALL ☑ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE ☐ OTHER (SPECIFY) (Record of item checked above)	
TO: Angus Campbell	FROM: Al Sampson	DATE 11/16/89 TIME 1:30pm

SUBJECT

Murphy Oil. E. Popular Unit

SUMMARY OF COMMUNICATION

Discussed deficiency letter and clarified point in dispute.
Also he asked for an extension on the reply - I verbally gave him until Dec. 10, 1989 - to he will request it in writing prior to 11/26/89

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES TO: Angus Campbell / Mike Livizzi

EPA Form 1300-6 (7-72) REPLACES EPA HQ FORM 8300-3 WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED.

MURPHY
OIL USA, INC.
200 PEACH STREET
EL DORADO, ARKANSAS 71730

December 5, 1984

RECEIVED
DEC 07 1984
EPA REGION VIII
DRINKING WATER BRANCH

Mr. Max Dodson, Director
Water Management Division
United States Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80295-0699

Re: Underground Injection Control (UIC) Permit Application for: East Poplar Field Well Nos. 1-D, 5-D, 8-D, 29-D, 59-D, and 80-D. Ref: 8WM-DW

Dear Mr. Dodson:

The subject permit applications have been reviewed based on the list of deficiencies you submitted to us following the initial filing. We believe the applications are now essentially complete. The only part we have not completed is the Area of Notification. We are currently working to complete this requirement and will notify you as required when it has been done.

We plan to send written notification from our Vice President of Production and Exploration, Mr. Glenn M. Fedderson, duly authorizing the undersigned as the representative for any future permit applications or reports under 40 CFR Section 144.32 (a) and (b).

Therefore, would you continue to direct all correspondence concerning this matter to my attention.

Yours very truly,

Alvin W. Simpson
Manager of Operations

AWS/cs
Attachments

cc: Ray Reede
P. O.Box 547
Poplar, MT 59255

SPUR

Mike
(copy given to
Angus 2/20)

MURPHY
OIL USA, INC.

200 PEACH STREET
EL DORADO, ARKANSAS 71730

February 15, 1985

United States Environmental Protection Agency
Region VIII-Drinking Water Branch
Water Management Division
1860 Lincoln Street
Denver, Colorado 80295-0699

40 CFR Section 144.32
Authorized Representative

Gentlemen:

As required in 40 CFR Section 144.32 (a) and (b), Mr. Alvin W. Simpson, Manager of Operations is hereby designated as the authorized representative for Murphy Oil USA, Inc. for all Environmental Protection Agency permits.

This authorization is to be effective beginning January 1, 1985 and is to remain in effect until so notified by a duly authorized representative of Murphy Oil USA, Inc.

Yours very truly,

Glenn M. Fedderson
Vice President, Production
and Exploration Department

GMF/ac

SPUR