1044b UIC - EAST POPLAR OIL FIELD
ENFORCEMENT CASE SDWA 1431
Folder ID: 13674 1968 Privileged

Release in Full

60 Well Files - EPU 68

Region 8
13674

HISTORY

EAST POPLAR UNIT WELL NO. 68

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

PRODUCTION DEPT.
FILE COPY

EAST POPLAR UNIT WELL NO. 68

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

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DRILLING BIT & TOTCO RECORDS
& DIAMOND CORE BIT RECORDS----------Page 8

SAMPLE DESCRIPTION----------Page 9

WELL HISTORY

RECEIVED

DEC 27 1955

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

WELL NO.:	East Poplar Unit No. 68
LOCATION:	SW NE Section 11, Township 28 North, Range 51 East
ELEVATION:	2203' Ground - 2213' K.B.
CONTRACTOR:	Zach Brooks Drilling Company
SPUDDED:	5:00 P.M., October 29, 1955
COMPLETED:	December 14, 1955
TOTAL DEPTH:	5961' Schlumberger equals 5960' Driller
CASING:	9-5/8" @ 1017.23' with 400 sacks cement 5-1/2" @ 5960.00' with 300 sacks cement
TUBING:	2-3/8" @ 5613.73
PERFORATIONS:	"A" Zone 5614'-5619'
PACKER:	None
ACID TREATMENT:	"A" Zone - 500 gallons etching acid
INITIAL POTENTIAL:	Flowing on 10/64" choke, 194 BFPD, 8% water, 179 BOPD, 15 BWPD
TYPE COMPLETION:	Single producer from "A" Zone.

RECEIVED

DEC 23 1955

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

Poor Quality Source Document

The following document images have been scanned from the best available source copy.

To view the actual hard copy, contact the Region VIII Records Center at (303) 312-6473.

April, 1969

EAST POPLAR UNIT NO. 68

SUPPLEMENT OF WELL HISTORY

East Poplar Unit No. 68, PBTD 5924', was temporarily abandoned March 31, 1969. Pulled and layed down all rods. Pulled and stripped tubing. Ran gauge ring on sand line in 5-1/2" casing. Ran Size # 2 AA, Baker, Mercury Series Model "W", Mechanical set bridge plug on 2-3/8" tubing and set at 5640' K.B. Layed down all tubing, 176 jts. 2-3/8", 4.70#, 8rd., EUE. Capped well - T.A. with A Zone perforations open.

Baker Model "W" Bridge Plug set between A-4 Zone perforations at 5614-19' and B-1 Zone Perforations at 5758-5762'.

Temporarily Abandoned

BP 5640'

A-Zone Per.

5640'

MURPHY
OIL USA, INC.

POST OFFICE BOX 547
POPLAR, MONTANA 59255

February 18, 1993

Arnold Dougan
Bureau of Land Management
Miles City District Office
P.O. Box 940
Miles City, MT 59301

FEB 1993

Dear Mr. Dougan:

This is in response to your letter dated January 20, 1993 concerning the actual condition of the following wells:

EPU No. 3 Well bore open with perforations 5599'-5603' Last production 7-87

EPU No. 17 Well bore open with perforations 5628'-5632' Last production 10-89

EPU No. 30 Well bore open with perforations 5738'-5746' & 5756'-5766' Last production 7-87

EPU No. 34 Well bore open with perforations 5664'-5668' Last production 6-74

EPU No. 40 Well bore open with perforations 5699'-5703' & 5715'-5719' Last production 9-68

EPU No. 43 Well bore open with perforations 5772'-5778' & 5790'-5798' Last production 8-64

EPU No. 45 Well bore open with perforations 5626'-5634' Last production 6-87

EPU No. 68 Well bore open with perforations 5758'-5762' Last production 3-69

EPU No. 71 Well bore open with perforations 5892'-5901' & 5932'-5940' Last production 8-76

EPU No. 79 Well bore open with perforations 5718'-5726' Last production 3-88

EPU No. 103 Well bore open with perforations 5499'-5501' Last production 8-62

Sincerely,

SPUR

Raymond Reede
District Manager

Poplar

A.F.E. No. 56-4-31

AUTHORITY FOR EXPENDITURE
MURPHY CORPORATION - EAST POPLAR UNIT NO. 68
SW NE Section 11-T28N-R51E, Roosevelt County, Montana

WELL DRILLING & CONSTRUCTION EXPENSE:	TO CSG. PT.	COMP. & EQUIP.	TOTAL COST
Drilling - Footage - 5930' @ $5.25/ft.	$ 31,135		$ 31,135
Daywork - 4 days @ $850/day &	3,400		3,400
2 days @ $775/day		$ 1,550	1,550
Loc. survey, permit & prep.	500		500
Roads, fences, cattleguard, etc.	750		750
Mud mat. & chem., incl. oil & gas	4,000		4,000
Drilling bits, baskets, etc.	---	---	---
Cementing casing	1,600	950	2,550
Coring materials & services	700		700
Testing services, incl. swabbing	1,320		1,320
Other logs, surveys & analysis	1,200		1,200
Perforating services		600	600
Hydrafrac, acidize, etc. incl. oil		1,400	1,400
Float equip., centralizers, etc.	250	650	900
Trucking, welding & other labor	250	500	750
Supervision & miscellaneous	250	250	500
Total Est. Well Drlg. & Const. Exp.	$ 45,355	$ 6,900	$ 51,255
WELL EQUIPMENT COSTS:			
Casing: 1000' of 9-5/8" O.D.	$ 3,770		$ 3,770
Casing: 5930' of 5-1/2" O.D.		$ 9,850	9,850
Tubing: 5930' of 2-3/8" O.D.		3,610	3,610
Casing head & connections	300		300
Xmas tree & connections		800	800
Total Est. Well Equip. Costs	$ 4,070	$ 14,260	$ 18,330
Total Est. Cost of Well	$ 49,425	$ 20,160	$ 69,585
LEASE EQUIPMENT:			
Flow lines		$ 1,500	$ 1,500
Other line pipe, valves & fittings		250	250
Trucking, welding, & other labor		500	500
Total Est. Cost of Lease Equip.		$ 2,250	$ 2,250
TOTAL EST. COST OF WELL & LEASE EQUIP.	$ 49,425	$ 22,410	$ 71,835

APPORTIONMENT OF TOTAL ESTIMATED COSTS

	%			
Murphy Corporation - Unit Operator	31.448470	$ 15,543	$ 7,048	$ 22,591
Munoco Company	2.096565	1,036	470	1,506
Placid Oil Company	33.545035	16,580	7,517	24,097
The Carter Oil Company	16.335860	8,074	3,661	11,735
Phillips Petroleum Company	16.335860	8,074	3,661	11,735
C. F. Lundgren	.238210	118	53	171

APPROVAL OF EXPENDITURE

Requested by:

Harold Milan OCT 18 1955
Division Production Supt. Date

Recommend Approval:

Staff Production Engineer Date

Recommend Approval:

J D Langford OCT 18 1955
Division Manager Date

Budget Supervisor Date

Approved:

Vice President-Operations Date

(By) Date

HM:eg
10-18-55

A.F.E. No. 59-5[illegible]

AUTHORITY FOR EXPENDITURE
MURPHY CORPORATION - EAST POPLAR UNIT NO. 68
C SW NE Section 11-T28N, R51E - Roosevelt County, Montana
(Lower Pumping Depth to Perforations)

Pulling Unit - 12 hours	$ 350
3100' of 5/8" Rods, Class 2 - 75% of New Price	1,050
Miscellaneous Labor, Trucking and Material	250
Total Estimated Cost	$ 1,650

Present Status: Pumping from "A-3" Zone, perforations 5614'-19'; Tested September 3, 1959, 28 BOPD, 258 BWPD with 2" x 1½" double volume pump 90% efficiency.

Justification for expenditure: To lower pumping depth to perforations to increase production.
(Work to be done when well requires pulling.)

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Corporation - Unit Operator	31.448470%	$ 519
Munoco Company	2.096565%	35
Placid Oil Company	33.545035%	552
Carter Oil Company	16.335860%	270
Phillips Petroleum Company	16.335860%	270
C. F. Lundgren	.238210%	4

APPROVAL OF EXPENDITURES

Requested by: [signature] 10-19-59 Date

Recommend Approval:

Division Production Supt. Date

Staff Production Man Date

Recommend Approval:

Recommend Approval:

Division Manager Date

Budget Supervisor Date

Approved:

Vice President-Operations Date

MTJ:m
10-19-59

Received approval from Ed Mondo 11-2-59
No approval necessary from Partners
as A.F.E. is for less than $5,000

A.F.E. No. 1-1584

AUTHORITY FOR EXPENDITURE
MURPHY CORPORATION - EAST POPLAR UNIT NO. 68
C SW NE Section 11, T28N, R51E, Roosevelt County, Montana

(Workover No. 2)

Pulling Unit 4 (12 hr.) days @ $336	$1,350
Pump truck, cement and diesel oil	975
Misc. labor, trucking and material	500
TOTAL ESTIMATED COST	**$2,825**

Present Status: Pumping 369 BFPD, 89% water (41 BO 328 BW) from A-3 Zone perforations 5614-19'.

Justification for Workover: To increase production and lower water cut.

Proposed Workover: Pull tubing and rods. DOC squeeze A-3 Zone w/75 sks. reg. cement through retrievable packer. Swab and pump test.

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Corporation	31.448470%	$888
Munoco Company	2.096565%	59
Placid Oil Company	33.545035%	947
Humble Oil & Refining Company	16.335860%	462
Drilling Specialties Company	16.335860%	462
C. F. Lundgren	.238210%	7

APPROVAL OF EXPENDITURE

Requested by: M. J. Daniels — Field Production Superintendent — 7-10-61 Date

RECOMMEND APPROVAL:

Division Production Supt. — Date

RECOMMEND APPROVAL:

Staff Production Man — Date

RECOMMEND APPROVAL:

Division Manager — Date

RECOMMEND APPROVAL:

Budget Supervisor — Date

APPROVED:

Vice President - Operations — Date

MTJ:pm
7-10-61

Yours & M V James

A.F.E. No. 8-1516

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POPLAR UNIT NO. 68
C SW NE Section 11, T28N, R51E, Roosevelt County, Montana
(Perforate the B-1 Zone)

HISTORY: Completed December 14, 1955 from the A-4 Zone perforations 5614-19'.

Workover No. 1: February 13, 1957 treated with fresh water (unsuccessful).

Workover No. 2: May 7, 1962 D.O.S. squeezed (unsuccessful). Required acid to open.

Cumulative production through June, 1960 113,113 BO 1,023,774 BW.

PRESENT STATUS: Pumping from the A-4 Zone, July 30, 1960 Well Test 114 BFPD 97% Water 3 BOPD 11 BWPD (uneconomical).

PROPOSAL: Pull rods and tubing. Perforate the B-1 Zone 5753-62' with 50 gram jet casing gun (no acid), run rods and tubing. Pump Test. (Commingled production expected from the A-4 and B-1 12-15 BOPD with 90-95% water cut.) (Pay out at 12 BOPD 58 Days).

ESTIMATED COST

Pulling Unit, 12 hrs. at $33.00 per hr.	$ 400.00
Perforate B-1 Zone	$ 700.00
Misc. Labor, Trucking, and Material	$ 100.00
Total Estimated Cost	$ 1,200.00

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.442470%	$ 377.00
Monoco Company	2.093565%	$ 25.00
Placid Oil Company	33.545035%	$ 403.00
Humble Oil & Refining Company	16.335360%	$ 196.00
Drilling Specialties Company	16.335360%	$ 196.00
C. F. Lundgren	.238210%	$ 3.00

APPROVAL OF EXPENDITURE

Requested by: Approved:

M. V. James — Date 7-21-60 — W. Thornton — Date 9-19-60

MVJ/sb
July 21, 1960

A.F.E. No. 8-1510

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POSTER UNIT NO. 62
C SW NE Section 11, T28N, R51E, Roosevelt County, Montana
(Perforate the B-1 Zone)

HISTORY: Completed December 14, 1955 from the A-4 Zone perforations 5614-19'.

Workover No. 1: February 19, 1957 treated with fresh water (unsuccessful).

Workover No. 2: May 7, 1962 B.O.C. squeezed (unsuccessful). Required acid to open.

Cumulative production through June, 1968 118,113 BO 1,023,774 BW.

PRESENT STATUS: Pumping from the A-4 Zone. July 30, 1968 Well Test 114 BFPD 97% Water 3 BOPD 11 BWPD (uneconomical).

PROPOSAL: Pull rods and tubing. Perforate the B-1 Zone 5750-62' with 50 gram jet casing gun (no acid), run rods and tubing. Pump Test. (Commingled production expected from the A-4 and B-1 12-15 BOPD with 90-95% water cut.) (Pay out at 12 BOPD 66 Days).

ESTIMATED COST

Pulling Unit, 12 hrs. at $33.00 per hr.	$ 400.00
Perforate B-1 Zone	$ 700.00
Misc. Labor, Trucking, and Material	$ 100.00
Total Estimated Cost	$ 1,200.00

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	$ 377.00
Kaneco Company	2.096565%	$ 25.00
Placid Oil Company	33.545035%	$ 403.00
Humble Oil & Refining Company	16.335860%	$ 196.00
Drilling Specialties Company	16.335860%	$ 196.00
C. F. Lundgren	.238210%	$ 3.00

APPROVAL OF EXPENDITURE

Requested by: Approved:

R. J. Jones — Date 7-31-68 — W. J. Thornton — Date

MRJ/sb
July 31, 1968

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

RECEIVED
OCT 1 - 1968
OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA BILLINGS

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change ~~[illegible]~~ Zones	XX	Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 30, 19 68

Following is a {notice of intention to do work} on land {~~[illegible]~~ leased} described as follows:

LEASE East Poplar Unit No. 68

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 68 11 (m. sec.) T28N (Township) R51E (Range) ~~[illegible]~~ (Meridian)

The well is located 1979 ft. from {XX S} line and 647 ft. from {XX W} line of Sec. 11

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2184' G.L.

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Pumping from the A-4 Zone. July 30, 1968 Well Test 114 BFPD 97% Water 3 BOPD 111 BWPD (uneconomical).

Pull rods and tubing. Perforate the B-1 Zone 5758-62' with 50 gram jet casing gun (no acid), run rods and tubing. Pump Test (Commingled production expected from the A-4 and B-1 12-15 BOPD with 90-95% water Cut).

Approved subject to conditions on reverse of form

Date OCT 2 - 1968

By ORIGINAL COPY SIGNED
District Office Agent Title

Company Murphy Oil Corporation

By ORIGINAL SIGNED BY M. T. JAMES

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

COMMISSION USE ONLY
API WELL NUMBER
2 5
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate.

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

3 REPORTER PRTG. & SUPPLY CO.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

U. S. Geological Survey
RECEIVED
OCT 1 1968
Billings, Montana

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Murphy Oil Corporation

3. ADDRESS OF OPERATOR
P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

2007 N 1980 E
~~647'~~ from ~~West~~ line and ~~1979'~~ from the ~~South~~ line

5. LEASE DESIGNATION AND SERIAL NO.
Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Fort Peck

7. UNIT AGREEMENT NAME
East Poplar Unit

8. FARM OR LEASE NAME
East Poplar Unit

9. WELL NO.
No. 68

10. FIELD AND POOL, OR WILDCAT
East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SW NE Section 11, T28N, R51E

12. COUNTY OR PARISH
Roosevelt

13. STATE
Montana

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE ~~PLAN~~ Zone XX	[ ]	(Other)			
(Other)							

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Pumping from the A-4 Zone. July 30, 1968 Well Test 114 BFPD 97% Water 3 BOPD 11 BWPD (uneconomical).

Pull rods and tubing. Perforated the B-1 Zone 5758-62' with 50 gram jet casing gun (no acid), run rods and tubing. Pump Test. (Commingled production expected from the A-4 and B-1 12-15 BOPD with 90-95% water cut).

18. I hereby certify that the foregoing is true and correct

ORIGINAL SIGNED BY M. T. [illegible]

SIGNED _____ TITLE District Superintendent DATE September 30, 196

(This space for Federal or State office use)

APPROVED BY (ORIG. SGD.) MICHAEL F. REITZ. TITLE ACTING DISTRICT ENGINEER DATE OCT 3 1968

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Roosevelt Montana

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
		Perforate B-1 Zone	XX

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

October 7, 19 68

Following is a [redacted] report of work done } on land } [redacted] leased } described as follows:

LEASE East Poplar Unit

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 68 11 (m. sec.) T28N (Township) R51E (Range) MPM (Meridian)

The well is located 2007 ft. from } N [redacted] } line and 1980 ft. from } E [redacted] } line of Sec. 11

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2184' G.L.

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Perforate the B-1 Zone 5738-62' with Wireline Casing Gun 50 gram jets, 2 holes per foot. Run tubing and rods and put well to pumping.

Pumping Fluid Level 5301'.
Fluid Entery 5424'.

A-4 & B-1 Workover potential Pumping commingled 106 BFPD 97% W.C. 3 BOPD 103 BWPD. To drop from report. To pump test 30 days to determine if water cut will improve.

Approved subject to conditions on reverse of form

Date

By
District Office Agent Title

Company MURPHY OIL CORPORATION
FINAL SIGNED BY
By
Title District Superintendent
Address P.O. Box 547, Poplar, Montana 59255

COMMISSION USE ONLY
API WELL NUMBER
2 5
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate.

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

3 REPORTER PRTG. & SUPPLY CO.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

U. S. Geological Survey
RECEIVED
OCT 8 1968
Billings, Montana

1. OIL WELL [XX] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: Murphy Oil Corporation

3. ADDRESS OF OPERATOR: P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 2007' from North line and 1980' from East line

5. LEASE DESIGNATION AND SERIAL NO.: Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Fort Peck

7. UNIT AGREEMENT NAME: East Poplar Unit

8. FARM OR LEASE NAME: East Poplar Unit

9. WELL NO.: No. 68

10. FIELD AND POOL, OR WILDCAT: East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SW NE Section 11, T28N, R51E

12. COUNTY OR PARISH: Roosevelt

13. STATE: Montana

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Perforate B-1 Zone			[XX]
(Other)			[ ]				

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Perforate the B-1 Zone 5758-62' with Wireline Casing Gun 50 gram jets, 2 holes per foot. Ran tubing and rods and put well to pumping.

Pumping Fluid Level 5301'.
Fluid Entery 5424'.

A-4 & B-1 Workover Potential Pumping commingled 106 BFPD 97% W.C. 3 BOPD 103 BWPD. To Drop From Report. To pump test 30 days to determine if water cut will improve.

18. I hereby certify that the foregoing is true and correct

SIGNED ORIGINAL SIGNED BY M. T. JAMES TITLE District Superintendent DATE October 7, 1968

(This space for Federal or State office use)

APPROVED BY (Chas. SGOJ [illegible]) TITLE ACTING DISTRICT ENGINEER DATE OCT [illegible]

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

RECEIVED APR 1969 OIL & GAS CONS. COMM. STATE OF MONT. BILLINGS

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	XX
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

March 31, 19 69

Following is a {XXXXXXXXXXXXXXXXXXXXXXXX / report of work done} on land {XXXXX / leased} described as follows:

LEASE East Poplar Unit No. 68

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 68 11 (m. sec.) T28N (Township) R51E (Range) MPM (Meridian)

The well is located 2007 ft. from {N / XXX} line and 1980 ft. from {E / XXXXX} line of Sec. 11

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2184' G.L.

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

East Poplar Unit No. 68 was shut in on March 23, 1969 due to electrical trouble. This well has reached its economical limit producing at the rate of 100 BFPD 97% W.C. 3 BOPD 97 BWPD. Temporarily Abandoned March 31, 1969.

Approved subject to conditions on reverse of form

Date APR 7 1969

By ORIGINAL SIGNED BY: J. R. Hug, Supervisor
District Office Agent Title

Company Murphy Oil Corporation

By ORIGINAL SIGNED BY M. T. JAMES

Title District Superintendent

Address P.O. Box 547, Poplar, Montana

COMMISSION USE ONLY
API WELL NUMBER
2 5
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

3 REPORTER PRTG. & SUPPLY CO.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

U.S. Geological Survey
RECEIVED
APR 1 1969
Billings, Montana

1. OIL WELL [XX] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Murphy Oil Corporation

3. ADDRESS OF OPERATOR
P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface
2007' from North line and 1980' from East line

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2184' G.L.

5. LEASE DESIGNATION AND SERIAL NO.
Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Fort Peck

7. UNIT AGREEMENT NAME
East Poplar Unit

8. FARM OR LEASE NAME
East Poplar Unit

9. WELL NO.
No. 68

10. FIELD AND POOL, OR WILDCAT
East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SW NE Section 11, T28N, R51E

12. COUNTY OR PARISH
Roosevelt

13. STATE
Montana

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]
(Other)			

SUBSEQUENT REPORT OF:

WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOTING OR ACIDIZING	[ ]	TEMP ABANDONMENT*	[XX]
(Other)			

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

East Poplar Unit No. 68 was shut in on March 23, 1969 due to electrical trouble. This well has reached its economical limit producing at the rate of 100 BFPD 97% W.C. 3 BOPD 97 BWPD. Temporarily Abandoned March 31, 1969.

18. I hereby certify that the foregoing is true and correct

SIGNED _____ TITLE District Superintendent DATE March 31, 1969

(This space for Federal or State office use)

APPROVED BY (ORIG. SGD.) MICHAEL F. REITZ TITLE ACTING DISTRICT ENGINEER DATE APR 1 1969

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

U.S. Geological Survey
RECEIVED
OCT 26 1976
Billings, Montana

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Murphy Oil Corporation

3. ADDRESS OF OPERATOR
P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
2007' from North line and 1980' from East lin e

5. LEASE DESIGNATION AND SERIAL NO.
Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Fort Peck

7. UNIT AGREEMENT NAME
East Poplar Unit

8. FARM OR LEASE NAME
East Poplar Unit

9. WELL NO.
No. 68

10. FIELD AND POOL, OR WILDCAT
East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SW NE Section 11, T28N, R51E

12. COUNTY OR PARISH: Roosevelt

13. STATE: Montana

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			
(Other) Reactivate T.A. Well			[X]	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

It is proposed to reactivate this temp. abandoned well. East Poplar Unit No. 100 is the South offset to No. 68 and is being produced from the B-1 at the rate of 24 BOD and 50 BWD with a 66% water cut. At the time East Poplar Unit No. 68 was temp. abandoned it was producing at the rate of 3 BOPD and 103 BWPD from the B-1 and A-3 comingled.

It is proposed to set a packer at 5740' and acidize the B-1 perforations, 5758-5762', with 1000 gallons of 28% HCL acid. It is anticipated that recovery should amount to at least what is presently being produced from East Poplar Unit No. 100.

18. I hereby certify that the foregoing is true and correct

SIGNED ORIGINAL SIGNED BY BILLY G. MELEAR TITLE District Superintendent DATE October 22, 1976

(This space for Federal or State office use)

APPROVED BY [signature] TITLE [illegible] DATE 10-27-76
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 230,
231, 232

(SUBMIT IN QUADRUPLICATE)

TO:

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

RECEIVED OIL & GAS COMM. STATE OF MONT. BILLINGS

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
Reactivate T.A. Well	X		

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

October 22, 19 76

Following is a {notice of intention to do work / report} on land {~~XXXXX~~ / leased} described as follows:

LEASE East Poplar Unit No. 68

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 68 SW NE 11 (m. sec.) T28N (Township) R51E (Range) MPM (Meridian)

The well is located 2007 ft. from {N / ~~XXX~~} line and 1980 ft. from {E / ~~XXXX~~} line of Sec. 11

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is 2184' G.L.

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

It is proposed to reactivate this temp. abandoned well. East Poplar Unit No. 100 is the South offset to No. 68 and is being produced from the B-1 at the rate of 24 BOPD and 50 BWPD with a 66% water cut. At the time East Poplar Unit No. 68 was Temp. Abandoned it was producing at the rate of 3 BOPD and 103 BWPD from the B-1 and A-3 comingled.

It is proposed to set a packer at 5740' and acidize the B-1 perforations, 5758-5762' with 1000 gallons of 28% HCL acid. It is anticipated that recovery should amount to at least what is presently being produced from East Poplar Unit No. 100.

(LOCATION INSPECTED & APPROVED)

Approved subject to conditions on reverse of form

Date OCT 28 1976
ORIGINAL COPY SIGNED BY:

By Claire F. Haughey, Field Supervisor
District Office Agent Title

Company Murphy Oil Corporation

By ORIGINAL SIGNED BY BILLY G. MELEAR

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

BOARD USE ONLY
API WELL NUMBER

2	5								
STATE		COUNTY			WELL				

NOTE:—Reports on this form to be submitted to the appropriate District for approval

WHEN USED AS PERMIT TO DRILL, PERMIT EXPIRES 90 DAYS FROM DATE OF APPROVAL IF WELL NOT SPUDDED OR EXTENSION REQUESTED.

OVER

66

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

Geological Survey
RECEIVED
MAY 1 1978
Billings, Montana

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: Murphy Oil Corporation

3. ADDRESS OF OPERATOR: P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 2007' from North line and 1980' from East line

5. LEASE DESIGNATION AND SERIAL NO.: Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Fort Peck

7. UNIT AGREEMENT NAME: East Poplar Unit

8. FARM OR LEASE NAME: East Poplar Unit

9. WELL NO.: No. 68

10. FIELD AND POOL, OR WILDCAT: East Poplar

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SW NE Section 11, T28N, R51E

12. COUNTY OR PARISH: Roosevelt

13. STATE: Montana

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Cancel Work			[X]
(Other)			[ ]	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Due to the lack of success on other workovers in this area it has been decided to cancel this work.

This wells status will remain temporarily abandoned.

18. I hereby certify that the foregoing is true and correct

SIGNED ORIGINAL SIGNED BY BILLY G. MELEAR TITLE District Superintendent DATE April 27, 1978

(This space for Federal or State office use)

APPROVED BY Lyle L. Paul TITLE DISTRICT ENGINEER DATE 5-2-78

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

EPU #68

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 230,
231, 232

(SUBMIT IN QUADRUPLICATE)
TO

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.

RECEIVED MAY 1 1978 OIL & GAS CONS. COMM. STATE OF MONT. BILLINGS

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
		Cancel Work	X

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

April 27, 19 78

Following is a {~~XXXXX XXXXXXXX XXXXXX XXXX XXXX~~ report of work done} on land {~~XXXXXX~~ leased} described as follows:

LEASE East Poplar Unit No. 68

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 68 SW NE Section 11 (m. sec.) T28N (Township) R51E (Range) MPM (Meridian)

The well is located 2007 ft. from {N ~~XXX~~} line and 1980 ft. from {E ~~XXX~~} line of Sec. 11

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is 2184' G.L.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Due to the lack of success on other workovers in this area it has been decided to cancel this work.

This wells status will remain temporarily abandoned.

Approved subject to conditions on reverse of form

Date MAY 1 1978

ORIGINAL COPY SIGNED BY:

By Claire F. Haughey Field Supervisor
District Office Agent Title

Company Murphy Oil Corporation

ORIGINAL SIGNED BY
BILLY G. MELEAR

By

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

BOARD USE ONLY
API WELL NUMBER
25
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the appropriate District for approval

WHEN USED AS PERMIT TO DRILL, PERMIT EXPIRES 90 DAYS FROM DATE OF APPROVAL IF WELL NOT SPUDDED OR EXTENSION REQUESTED.

OVER

66

GEOLOGICAL DATA

Form 9-330

Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

U. S. LAND OFFICE Billings
SERIAL NUMBER 3929 (7842) Pat
LEASE OR PERMIT TO PROSPECT

LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Murphy Corporation Address 602 Midland Nat'l. Bank Bldg.

Lessor or Tract #3929 (7842) Field East Poplar State Montana

Well No. 68 Sec. 11 T. 28N R. 51E Meridian M.P.M. County Roosevelt

Location 2007 ft. [N.] of N Line and 1980 ft. [E.] of E Line of Section 11 Elevation 2213 KB
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed Harold Milam

Date December 22, 1955 Title Division Production Sup't.

The summary on this page is for the condition of the well at above date.

Commenced drilling October 29, 19 55 Finished drilling December 14, 19 55

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 5614 to 5619 No. 4, from to

No. 2, from to No. 5, from to

No. 3, from to No. 6, from to

IMPORTANT WATER SANDS

ORIGINAL FORWARDED TO CASPER

No. 1, from to No. 3, from to

No. 2, from to No. 4, from to

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
9 5/8"	36#	8	J-55	1007.38'	Baker				Surface
5 1/2"	15.5#	8	J-55	5961.50	Baker		5614	5619	Oil String

HISTORY OF OIL OR GAS WELL

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
9 5/8"	1017.23	400	Pump & plug		
5 1/2"	5960.00	300	Pump & plug		

PLUGS AND ADAPTERS

Heaving plug—Material Length Depth set

Size

FOLD | MARK

MURPHY EPA CS

LOCATE WELL CORRECTLY

Form No. 4
(Gen. Rule 206.3 & 231)

(SUBMIT IN TRIPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

RECEIVED
DEC 2 1955
799
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

LOG OF WELL

Company MURPHY CORPORATION Lease #3929 (7842) Well No. 68

Address 602 Midland National Bank Building Field (or Area) East Poplar

The well is located 2007 ft. from ~~(S)~~ (N) line and 1980 ft. from ~~(W)~~ (E) line of Sec. 11

Sec. 11; T. 28N; R. 51E; County Roosevelt; Elevation 2213 K.B. (D.F., R.B. or G.L.)

Commenced drilling 5:00 P.M. October 29, 1955; Completed December 14, 1955

The information given herewith is a complete and correct record of the well. The summary on this page is for the condition of the well at the above date.

Completed as Oil well (oil well, gas well, dry hole)

Signed Harold Miller

Title Division Production Superintendent

Date December 22, 1955

IMPORTANT ZONES OF POROSITY

(denote oil by O, gas by G, water by W; state formation if known)

From 5614 to 5619 O
From ____ to ____
From ____ to ____
From ____ to ____

From ____ to ____
From ____ to ____
From ____ to ____
From ____ to ____

CASING RECORD

Size Casing	Weight Per Ft.	Grade	Thread	Casing Set	From	To	Sacks of Cement	Cut and Pulled from
9 5/8"	36#	J-55	8	1017.23'			400	
5 1/2"	15.50#	J-55	8	5960.00'			300	

TUBING RECORD

Size Tubing	Weight Per Ft.	Grade	Thread	Amount	Perforations
2 3/8"	4.70#	J-55	8	5613.73	open ended

COMPLETION RECORD

Rotary tools were used from 0 to 5961
Cable tools were used from ____ to ____
Total depth 5961 ft.; Plugged back to 5924 T.D.; Open hole from ____ to ____

PERFORATIONS			ACIDIZED, SHOT, SAND FRACED, CEMENTED			
Interval From	Interval To	Number and Size and Type	Interval From	Interval To	Amount of Material Used	Pressure
5614	5619	1/2" jet	5614	5619	500 gal etching	2100#

(If P&A show plugs above)

INITIAL PRODUCTION

Well is producing from Madison (pool) formation.

I. P. 179 barrels of oil per 24 hours flowing (pumping or flowing)

____ Mcf of gas per ____ hours.

15 barrels of water per 24 hours, or ____ % W.C.

(OVER)

5M—6-55

INITIAL PRODUCTION—(Continued)

Initial 10-day average production _____ (bbl./day) (if taken)
Pressures (if measured): Tubing _____ psi flowing; _____ psi shut-in
Casing _____ psi flowing; _____ psi shut-in
Gravity 40.4 ° API (corrected to 60° F.)

DRILL STEM TESTS

D.S.T. No.	From	To	Tool Open (Min.)	Shut-In	F.P.	S.I.P.	Recovery	Cushion
				SEE ATTACHED SHEETS				

LOGS RUN

Type	Intervals	
	From	To
SEE ATTACHED SHEETS		

FORMATION RECORD

From	To	SAMPLE AND CORE NO. AND DESCRIPTION	Top of Formation
		SEE ATTACHED SHEETS	

Form 9-330

Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

U. S. LAND OFFICE Billings
SERIAL NUMBER ~~3929 (7842)~~ Fee
LEASE OR PERMIT TO PROSPECT

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOCATE WELL CORRECTLY

LOG OF OIL OR GAS WELL

Company Murphy Corporation Address 602 Midland Nat'l. Bank Bldg.

Lessor or Tract #3929 (7842) Field East Poplar State Montana

Well No. 68 Sec. 11 T. 28N R. 51E Meridian M.P.M. County Roosevelt

Location 2007 ft. {N. / S.} of N Line and 1980 ft. {E. / W.} of E Line of Section 11 Elevation 2213 KB
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed Harold Milan

Date December 22, 1955 Title Division Production Sup't.

The summary on this page is for the condition of the well at above date.

Commenced drilling October 29, 19 55 Finished drilling December 14, 19 55

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 5614 to 5619 No. 4, from to

No. 2, from to No. 5, from to

No. 3, from to No. 6, from to

IMPORTANT WATER SANDS

ORIGINAL FORWARDED TO CASPER

No. 1, from to No. 3, from to

No. 2, from to No. 4, from to

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
9 5/8"	36#	8	J-55	1007.38'	Howco				Surface
5 1/2"	15.5#	8	J-55	5951.50	Howco		5614	5619	Oil String

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
9 5/8"	1017.23	400	Pump & plug		
5 1/2"	5960.00	300	Pump & plug		

PLUGS AND ADAPTERS

Heaving plug—Material Length Depth set

Adapters—Material Size

FOLD | MARK

GEOLOGICAL PROSPECTUS

Division Billings — Lease No. 3929 (7842)

Operator Murphy Corporation — Well Name East Poplar Unit — Well No. 68

Location: Section SW NE 11 — Township 28 North — Range 51 East

Pool Name: East Poplar — County Roosevelt — State Montana

Type of Well: Oil X Gas ____ Exploratory ____ Development X

Objective Formation Madison — Projected Depth 5930'

Well Elevation 2212' KB (est); 2200 Gr. (est)

Expected Stratigraphic Section and Estimated Depths:

Judith River	842	(+1370)	Gypsum Springs	4476	(-2264)
Eagle	1230	(+ 982)	Spearfish	4676	(-2464)
Niobrara	2069	(+ 143)	Amsden	4792	(-2580)
Greenhorn	2432	(- 220)	Heath	4940	(-2728)
Graneros	2629	(- 417)	Otter	5106	(-2894)
Muddy	2760	(- 548)	Kibbey	5236	(-3024)
Dakota	3195	(- 983)	Kibbey Limestone	5402	(-3190)
Morrison	3566	(-1354)	Madison	5497	(-3285)
Swift	3642	(-1430)	"A" Zone	5607	(-3395)
Vanguard	4003	(-1791)	"B-1" Zone	5732	(-3520)
Rierdon	4182	(-1970)	"B-2" Zone	5751	(-3539)
Piper Shale	4336	(-2124)	"C" Zone	5897	(-3685)
Piper Limestone	4422	(-2210)			

Anticipated Pay Horizons, Net Pay and Expected Depths:

"A" Zone 5607 (6')
"B-1" Zone 5732 (8')
"B-2" Zone 5751 (15')
"C" Zone 5897 (10')

Recommended Coring and Formation Testing Program:

Core:	Test:
"B-1 & B-2" (30')	"B-1" and "B-2" Zones separately
"C" Zone (40')	"C" Zone
(Core into C-3)	All other tests at discretion of well site geologist.

Recommended Sampling and Logging Program:

20 [illegible]' samples from 2000 to 4000.
10 [illegible]' samples from 4000 to total depth.
Circulate Heath and Kibbey sands and core on show.
Record 5' drilling time from 2000' to 4200' and 1' time from 4200' to total depth.

Electrical Logs;
ES (2") surface pipe to TD
ES (5") 2000' to TD
ML (5") 2000' to TD
ML (25") 5575 to TD

Remarks: (Including pertinent data relative to location accessibility, unusual drilling problems due to surface or subsurface conditions, etc.)

Nearest well control: E.P.U. No. 7, SW NW Section 11, T28N, R51E.

Division Geologist — Date 10-18-55

App'd. By ____
Date: 10-18-55

DRILLING PROSPECTUS FOR East Poplar Unit — 68
Lease Name — Well No.

LOCATION SW NE Section 11-T28N-R51E FIELD East Poplar

COUNTY Roosevelt STATE Montana

SURFACE HOLE

SIZE:	12-1/4"
MUD:	Natural and Baried (11.5 to 12#)
CASING: 1000	1000' of 9-5/8" O.D.
CEMENT:	400 sacks regular 2% $CaCl_2$
SETTING TIME:	24 hours

BELOW SURFACE

HOLE SIZE:	8-3/4"
CORE HOLE SIZE:	7-7/8"
TEST TOOLS:	Howco and Johnson
TESTING TIME:	4 hours
SHUT IN TIME:	20 to 30 minutes
CASING:	5980' of 5-1/2" O.D. 15.50#, J-55
CEMENT:	300 sacks Slo-set, 2% gel

MUD PROGRAM

TYPE:	Natural and Chemical to 4400' Caustic and Quebracho from 4400' to T.D.
MUD WEIGHT:	10.4 to 10.5
WATER LOSS:	15 cc or less
PH:	12 to 12.5
VISCOSITY:	40 to 45

NOTES:

Completion to be made in the "C" Zone.

BILLINGS DIVISION

BY Harold Miller

DATE OCT 18 1955

HM:cg
10-18-55

C O M P L E T I O N D A T A

CASING: Ran 25 jts. 1007.38' of 9-5/8", 36#, J-55, 8rd. thd., R-3, American casing. Landed 9.75' below RKB at 1017.23'. Howco float shoe at 1017.23, Howco centralizers at 995' and 835'. Cemented with 400 sacks cement with 2 percent $CaCl_2$. Ran 10 barrels soda ash water followed by 10 barrels clean water ahead of cement. Bumped plug with 900 PSI, released pressure, float held ok. Tested 9-5/8" casing and blow-out preventers with 1000# pressure for 30 minutes, held ok.

Ran 187 jts. 5951.50' of 5-1/2", 15.50#, J-55, 8rd. thd., R-2 American casing. Landed 8.50' below RKB at 5960' Schlumberger, 1' off bottom. Howco differential fillup shoe on bottom and Howco baffle collar at 5926.69'. Ran 5 Weatherford spiral centralizers at 5958', 5912', 5792', 5752', and 5590'. Ran 46 Weatherford reciprocating scratchers from 5548' to 5960'. Reciprocated pipe 35' while circulating 1 hour and during cementing. Cemented with 300 sacks Slo-set cement with 2 percent gel. Plug down at 11:37 P.M., 12-5-55. Bumped plug with 1200 PSI, released pressure, float held ok. Set slips.

COMPLETION: Picked up 191 jts. tubing and tagged bottom. Tubing record as follows: 2-3/8" EUE, 4.70#, J-55, 8rd. thd., R-2, Class A tubing

Landed below RKB	7.00
Top joint	31.15
Sub joints	14.10
179 joints	5561.48
Bottom tubing	5613.73.

Tested tree and casing with 1000 PSI. Reversed out mud with water, spaced tubing at 5616' and reversed out water with oil. Picked up tubing 15', went in hole with Lane Wells 1-3/4" expendable tubing tun. Perforated "A" Zone 5614'-5619' with 5 jets per foot, 25 shots. Would not flow natural. Acidized "A" Zone with 500 gallons Dowell etching acid through perforations. Broke formation down at 1900 PSI after 42 gallons injected, pressure bled back to 900 PSI. Injected 126 more gallons at maximum pressure of 2100 PSI. Bled back to 900 PSI. Total acid injected equals 168 gallons. Opened well to pit. Spent acid to surface in 42 minutes, clean oil 15 minutes later. Cleaned to pit.

16/64" choke, 1 hr. test, flowed 376.20 BFPD, 274.60 BOPD, 27% BS&W, TFP--480#, CP--670#, choke plugged.

12/64" choke, 1 hr. test, flowed 202.50 BFPD, 149.80 BOPD, 27% BS&W, TFP--360#, CP--680#, choke plugged.

Released rig at 4:00 P.M., 12-6-55. Moved off rig and continued testing.

12/64" choke, 199 BFPD, 2% BS&W, 194 BOPD, 4 BWPD.

10/64" choke, 84.50 BFPD, 81.12 BOPD, 3.38 BWPD, TFP--175#, CP--80#.

10/64" choke, 194 BFPD, 8% water, 179 BOPD, 15 BWPD, (initial potential).

E L E C T R O L O G D A T A

TYPE OF LOG	INTERVAL LOGGED
Schlumberger Electrical Survey 2"	1017'-5960'
Schlumberger Electrical Survey 5"	2000'-5980'
Schlumberger Microlog 5"	2000'-5958'
Schlumberger Microlog 25"	5350'-5958'

LOG TOPS

	Depth	Datum	Thickness
Greenhorn	2438	- 225	
Graneros	2640	- 427	
Muddy	3008	- 795	
Dakota Silt	3215	-1002	
Morrison	3580	-1367	
Vanguard	4009	-1796	
Rierdon	4193	-1980	
Piper Sh	4364	-2151	
Piper Ls	4450	-2237	
Spearfish	4703	-2490	
Amsden ?	4802	-2589	
Heath ?	4959	-2746	
Otter	5118	-2905	
Kibbey Sd	5262	-3049	
Kibbey Ls	5417	-3204	
Madison	5510	-3297	
A-1	5588	-3375	2'
A-2	5598	-3385	3'
A-3	5604	-3391	12'
A-4	5616	-3403	32'
B-1	5758	-3545	9'
B-2	5777	-3564	16'
B-3	5799	-3586	6'
B-4	5832	-3619	4'
B-5	5867	-3654	?
C-1	5907	-3694	?
C-2	5927	-3714	9'

DRILL STEM TESTS

D.S.T. #1: 5761'-5771' ("B-1" Zone) with Halliburton, 1/2" bottom choke, no water cushion. Tool open 4 hours. Tool opened with medium blow, continued throughout test. Gas to surface in 3 hours and 15 minutes. No closed in pressure, tool would not rotate, pipe stuck. Dropped bar, opened circulating sub at 5648', reversed out fluid from drill stem test. Recovered 100' clean oil, 90' oil-and-gas-cut mud and 200' salt sulphur water, and 90' additional feet of water left in hole under circulating sub. IBHFP--15#, FBHFP--580#, BHSIP--3295#.(?), Hydro--3515#.

D.S.T. #2: 5777'-5791' ("B-2" Zone) with Halliburton single packer, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with good blow, continued throughout test. Gas to surface in 3 hours and 20 minutes. Recovered 273' clean oil, 212' oil-and-gas-cut mud, 4188' salt sulphur water. IBHFP--60#, FBHFP--2110#, BHSIP--2645#, Hydro--3290#.

D.S.T. #3: 5923'-5937' ("C" Zone) with Halliburton straddle packers, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with very weak blow, died in 2 hours and 35 minutes, remained dead rest of test. Recovered 90' slightly gas-cut mud, no trace of oil or water. IBHFP--15#, FBHFP--32#, BHSIP--920#, Hydro--3405#, bottom packer held ok.

CORE ANALYSIS REPORTS

Company MURPHY CORPORATION Date 11-28-55 Lab. No. 491 Well No. Unit #68 Location C SW NE 11-28N-51E

Formations "B-1" & "B-2" Zones Field East Poplar County Roosevelt State Montana Depths 5731 - 5791

Sample No.	Representative of Feet	Midpoint of Sample	Permeability Radial	Permeability Vertical	Effective Porosity Percent	Density Bulk	Density Matrix	Saturation % of Pore Space Resid. Oil	Saturation % of Pore Space Water
	Core No. 1	5731-5771	Rec. 40'						
1	5762-63		1.01	0.89	10.9	2.40	2.69	8.6	55.2
2	63-64		1.84	1.34	16.2	2.26	2.70	3.5	49.4
3	64-65		0.45	0.58	13.0	2.34	2.69	0.8	68.7
4	65-66		5.12	9.53	3.9	2.57	2.67	Tr.	96.2
5	66-67		U.T.	5.16	2.3	2.59	2.65	4.8	35.7
6	67-68		29.	14.	15.1	2.28	2.68	4.4	13.0
7	68-69		8.48	0.45	13.7	2.30	2.66	19.6	29.0
8	69-70		85.	69.	22.7	2.10	2.71	9.3	23.0
9	70-71		16.	4.97	14.9	2.31	2.71	11.5	36.1
	Core No. 2	5773-5791	Rec. 18'						
NS	5773-76								
10	76-77		4.65	1.00	6.8	2.57	2.76	Tr.	8.1
11	77-78		31.	4.97	12.2	2.35	2.68	8.6	35.5
12	78-79		12.	2.51	10.1	2.40	2.67	11.4	56.2
13	79-80		5.45	5.91	14.8	2.26	2.65	7.5	43.1
14	80-81		264.	45.	15.2	2.34	2.75	8.0	39.3
15	81-82		28.	2.17	6.5	2.51	2.69	1.5	32.8
16	82-83		5.95	5.91	7.2	2.58	2.72	4.7	53.5
NS	83-84	Missing							
17	84-85		4.77	2.92	7.7	2.49	2.70	13.8	57.3
18	85-86		18.	1.71	7.7	2.50	2.71	10.3	57.9
19	86-87		11.	U.T.	16.3	2.27	2.71	16.9	36.2
20	87-88		29.	23.	17.3	2.23	2.69	1.4	20.8
21	88-89		7.55	32.	11.6	2.40	2.71	6.1	25.9
22	89-90		22.	15.	17.1	2.26	2.72	10.2	27.0
23	90-91		16.	U.T.	15.3	2.29	2.72	8.7	26.1

CORE ANALYSIS REPORTS CONTINUED

Formation "C" Zone Depths 5910-5960 Date 12-3-55

Sample No.	Representative of feet	Midpoint of Sample	Permeability Radial	Permeability Vertical	Effective Porosity Percent	Density Bulk	Density Matrix	Saturation % of Pore Space Resid. Oil	Saturation % of Pore Space Water
	Core No. 3	5910-5960	Rec. 50'						
NS	5910-26								
24	26-27		0.48	5000+	4.8	2.58	2.70	1.4	69.1
25	27-28		0.02	<0.01	4.3	2.53	2.66	1.9	98.0
26	28-29		0.02	0.02	3.8	2.58	2.69	Tr.	70.0
27	29-30		0.04	<0.01	6.8	2.50	2.69	17.9	41.6
28	30-31		0.18	0.07	9.7	2.45	2.70	25.7	32.5
29	31-32		0.08	1.10	5.9	2.53	2.69	31.4	39.5
30	32-33		0.05	0.04	6.0	2.52	2.68	25.5	45.8
NS	33-60								

CORE DESCRIPTIONS

Core No. 1 5731-5771, cut 40', recovered 38'.

6'0"	Anhydrite; medium gray, amorphous, bottom 1' salt leached, no show.
2'0"	Dolomite; brown-gray, microcrystalline, appears wet, no show.
3'0"	Anhydrite; gray, amorphous, with black dolomitic shale partings, no show.
7'0"	Anhydrite; medium gray, fine crystalline, slightly calcareous (?), no show.
3'0"	Anhydrite; salt leached at top, unit appears wet, no show.
8'0"	Anhydrite; gray, massive, amorphous, no show.
3'0"	Limestone; gray-green, finely crystalline, medium hard, fair porosity, numerous small, black calcite crystals, fair oil odor, stain and fluorescence throughout.
2'0"	Limestone; as above with tight irregular fractures having good odor, stain and fluorescence, no show in matrix.
4'0"	Limestone; as above, fair intercrystalline porosity, good oil odor, stain and fluorescence ("B-1" Core Top 5760 (-3547) 39' low to #7).

Core No. 2 5773-5791, cut 18', recovered 18'.

3'0"	Anhydrite; gray, amorphous, no show.
15'0"	Limestone; dark gray-brown, fine to medium crystalline, fair intercrystalline porosity, numerous short, tight, irregular fractures becoming open 9" from top, good to fair golden yellow fluorescence throughout, good oil odor, unit saturated, no bleeding oil no evidence of water saturation (B-2 Core top 5776 (-3563) 36' low to #7).

Core No. 3 5910-5960, cut 50', recovered 50'.

2'0"	Dolomite; light gray, micro to cryptocrystalline, hard, tight, no show.
10'0"	Limestone; medium gray, grading to light gray, microcrystalline, hard, tight, no show, stylolitic 3' to 4' from top of unit.
4'0"	Limestone; gray-brown, fine crystalline, occasional calcite inclusions, one tight vertical fracture leading down into intercrystalline porosity with spotty pale yellow fluorescence, faint odor, no staining, no show in matrix.
7'0"	Limestone; gray-brown, earthy to fine crystalline, fossiliferous in upper zone, no fracture systems, questional porosity and permeability, spotty pale golden yellow fluorescence, fair oil odor on fresh break.

15'0"	Limestone; gray, micro to fine crystalline, tight, dense, no show in matrix, one short, tight, vertical fracture with associated weak spotty fluorescence and faint oil odor, no staining 1' from top of unit, one open fracture 4' long, 10' from top unit.
2'0"	Limestone; gray, microcrystalline, rarely fossiliferous, hard, dense, no show.
4'0"	Limestone; gray, earthy to fine crystalline, dense, tight, no show.
3'0"	Limestone; gray-brown, medium to coarse crystalline, fossiliferous, sulfur odor, fair porosity and permeability, no show.

MUD PROGRAM SUMMARY

MUD SERVICE CO: BAROID

MUD ADDITIVES AND COST:

Material	Spud - Surface Amount	Spud - Surface Cost	Surface - T.D. Amount	Surface - T.D. Cost	Total Amount	Total Cost
Aquagel	65	141.05	90	195.30	155	336.35
Barafos	4	110.00			4	110.00
Baried	494	1398.02	167	472.61	661	1870.63
Caustic			53	704.90	53	704.90
Driscose			19	855.00	19	855.00
Cement	5	9.50			5	9.50
Soda Ash			12	90.00	12	90.00
Tannex			89	1179.25	89	1179.25
Total		1658.57		3497.06		5155.63
Drayage		154.00		102.79		256.79
TOTAL COST:		1812.57		3599.85		5412.42

UNIT MUD COSTS:	Total Cost	Feet Drld.	Cost Per Foot	Days Mud Used	Cost Per Day
Spud to T.D.	5412.42	5960	.91	37 1/2	144.33
Spud to Surface	1812.57	1025	1.77	3	604.19
Surface to T.D.	3599.85	4935	.73	34 1/2	104.34

MUD PROPERTIES:

Depth	Weight	Viscosity	Water Loss	pH	Remarks:
0-700	Spud Mud				
700-1025	11.0				
1025-4500	Native Clay and Water				
4676	10.4	35	5.6	12.8	
5074	10.7	46	8.8	11.5	
5328	10.5	41	9.6	12.5	
5743	10.6	46	13.4	12.5	
5771	10.7	62	7.4	12.5	Stuck Pipe
5771	10.6	46	4.6	11.5	Fishing
5773	10.5	52	5.2	11.5	Reaming
5889	10.5	51	5.6	11.5	
5960 T.D.	10.6	48	5.3	11.5	

SUMMARY:

A 12 1/4" surface hole was drilled to 1025'. A high viscosity and gel strength mud was mixed from gel and cement to drill the surface gravels after circulation was lost while trying to spud with water. The mud was weighted up to approximately 11 lb/gal at about 700' to provide sufficient hydrostatic head to hold the Judith River Sand. The viscosity was controlled with gel and phosphate. The 9 5/8" surface casing was landed at 10.7'. No difficulties were encountered.

Water was used to drill the 8 3/4" hole to 4500'. At this depth the native mud was converted to a high pH red mud with additions of caustic soda, Aquagel, and Tannex. Baroid or water additions were made to control the weight at 10.4 to 10.6 lb/gal, Driscose was used to maintain the water loss below 15 cc, and Soda Ash was used to aid in treating out calcium contamination. The mud was maintained in good shape throughout the drilling of the well.

After cutting Core #1 from 5745 to 5771', the pipe stuck while running DST #1. Six days were spent washing over and recovering the stuck drill collars and test tool. Two more cores and two more drill stem tests were run and the well drilled to 5960' without further trouble.

DRILLING BIT RECORD

Run No.	Make	Size	Type	Ser. No.	Depth Out
	Hughes	12 1/4	C-3	6732	1025
1	Security	8 3/4	S3F	107817	2145
2	Security	"	"	107844	3310
3	"	"	S-6	101187	3730
4	"	"	"	104401	3985
5	"	"	"	104035	4121
6	"	"	"	103307	4406
7	"	"	"	103277	4600
8	"	"	"	104265	4743
9	"	"	"	103269	4938
10	"	"	"	102417	5035
11	"	"	"	103984	5062
12	"	"	"	103985	5093
13	"	"	M4N	107210	5099
14	"	"	"	107145	5220
15	"	"	"	109171	5328
16	"	"	"	104929	5472
17	"	"	S-6	108730	5730
18	Hughes	"	OWV	25610	5773
19	Security	"	S-6	104740	5910
20	Hughes	"	OWV	Re-run	5960

TOTCO RECORD

Depth Out	Degrees Off
1615	1/4
2484	1/2
3230	1/2
4705	1 1/4
4917	1
5450	1

Christensen Diamond Coring Record

Ser. No. C-535 Size 7 7/8"

Core No.	From	To	Footage
1	5730	5771	41
2	5773	5791	18
3	5910	5960	50

SAMPLE DESCRIPTION

2000	2240	Siltstone; gray, mostly gray shale, soft, gummy; trace brown limestone; few quartz grains.
2240		Sample Top Greenhorn
2240	2500	Shale; light gray with traces of buff color, calcareous specks; trace brown limestone.
2500	2640	Shale; light gray, micaceous; trace pyrite.
2640	2790	Shale; medium gray-tan with trace of glauconite interbedded in the shale.
2790		Sample Top Muddy
2790	3000	Shale and siltstone; light gray, calcareous.
3000		Sample Top Muddy Sand
3000	3050	Sandstone; gray, fine grained, hard, tight, angular; gray shale.
3050	3200	Shale; light gray, silty or slightly sandy.
3200		Sample Top Dakota Silt
3200	3350	Siltstone; gray, micaceous; some gray, soft shale.
3350	3380	Sandstone; light gray, fair porosity and permeability, calcareous cement.
3380	3580	Shale; dark gray; slightly calcareous.
3580		Sample Top Morrison
3580	3620	Shale; limy, calcareous, dark gray to black.
3620	3660	Shale; black, splintery; fine pieces of light gray limestone.
3660		Sample Top Swift
3660	3700	Sandstone; light gray, medium grained, fair porosity and permeability; glauconitic; shale as above with some light gray.
3700	4000	Shale; dark gray; few pieces of tan limestone; trace pyrite.
4000		Sample Top Vanguard
4000	4060	Sandstone; light gray, fine grained, glauconitic, hard, tight, no show.

4060	4190	Shale; light gray, silty and dark gray to black splintery with light gray siltstone.
4190		Sample Top Rierdon
4190	4230	Sandstone; dirty gray, medium grained, trace glauconite, hard, tight, no show; dark gray shale; some black splintery shale.
4230	4360	Shale; dark gray to black, splintery.
4360		Sample Top Piper Shale
4360	4450	Shale; as above with trace of brick red sandy shale and a light green silty shale to fine grained silty sand.
4450		Sample Top Piper Limestone
4450	4500	Limestone; light brown, microcrystalline, dense with the above shales.
4500		Sample Top Gypsum Springs
4500	4600	Shale; light gray to red, sandy; green shale with traces of white anhydrite.
4600	4700	Shale; as above with increase in anhydrite and scattered pieces of buff limestone.
4700		Sample Top Spearfish
4700	4830	Shale; dark gray to black with red sandy shale.
4830		Sample Top Amsden
4830	4900	Shale; dark gray to black, splintery; trace pink dolomite and white limestone.
4900	4990	Shale; as above; decrease in both dolomite and limestone.
4990		Sample Top Heath
4990	5040	Sandstone; red and white, medium grained, hard, tight, no show; purple and dark gray to black calcareous shale.
5040	5070	Shale; dark gray, calcareous; traces red sandy shale.
5070	5110	Sandstone; red and white, hard, fine to medium grained, angular, no show.
5110		Sample Top Otter

5110	5140	Shale; dark gray, calcareous; trace of green and purple shale; trace of above sandstone.
5140	5160	Limestone; light gray to dirty white, dense, earthy, with trace porosity; above gray, green and purple shale; sandstone; fine grained, silty, poor porosity and permeability, no show.
5160	5180	Limestone; as above, drop the sandstone.
5180	5220	Shale; light and dark gray, silty; trace of red sandy shale, also green shale; trace of light gray lime as above.
5220	5260	Shale; dark gray; trace of red sandy shale.
5260		Sample Top Kibbey
5260	5290	Sandstone; red, fine grained, hard, tight, no show; shale, red, calcareous; trace black splintery shale; fine pieces crystalline quartz grains.
5290	5300	Siltstone; gray, limy.
5300	5320	Sandstone; red and white, medium grained, good porosity and permeability, no fluorescence or cut, no show; trace of above shale.
5320	5340	Shale; black, splintery with trace of above sandstone.
5340	5410	Sandstone; redish brown, medium grained, angular, hard, fair porosity and permeability, no fluorescence or cut, no show; some medium gray splintery shale.
5410		Sample Top Kibbey Limestone
5410	5440	Limestone; light brown to buff, dense; some light gray lime with traces of porosity and permeability, no show; trace of above sandstone along with gray shale.
5440	5500	Shale and limestone; dark gray-green, shale, splintery; above limestone; trace of red, hard, fine grained sandstone.
5500		Sample Top Madison
5500	5560	Limestone; light gray, dense, with carbon discoloration; buff to brown dolomite; gray and red shales; soft, white anhydrite.
5560	5610	Limestone; dark gray, oolitic, trace porosity and permeability, trace light gray, crystalline; black splintery shale; trace dolomite, buff.
5616		Sample Top "A" Zone

5616	5640	Limestone; dark gray to brown, medium to finely crystalline, trace of oolites; fair to poor porosity and permeability, no show; trace anhydrite.
5640	5670	Limestone; dark gray, dense, no show; traces of buff dolomite and hard dark gray anhydrite, also black fissile shale.
5670	5690	Anhydrite; dark gray, hard, dense.
5694		Sample Top Salt
5694	5720	Salt, 26' total.
5720	5730	Anhydrite; dark gray, dense, no show.
5731	5771	Core No. 1, cut 40', recovered 38'.
5773	5791	Core No. 2, cut 18', recovered 18'.
5791	5810	Limestone; dark gray-brown, finely crystalline, fair porosity and permeability, poor cut, no fluorescence; traces of dolomite, no show.
5810	5830	Limestone; dark gray, dense with dark gray anhydrite.
5830	5870	Limestone; as above with increase in white, soft anhydrite.
5870	5910	Limestone; dark gray; dense, with trace light gray dolomite.
5910	5960	Core No. 3, cut 50', recovered 47'.

Total Depth 5961' Schlumberger equals 5960' Driller.

WORKOVER HISTORY NO. 1

Date February 22, 1957

Lease and Well East Poplar Unit Well No. 68

Field East Poplar County Roosevelt State Montana

Well Location SW NE Section 11, T28N, R51E

Status Prior to Present Job:

Date Completed December 14, 1955 Date Last Workover None

TD 5961' PBTD 5924' Producing Zone A-3 of the Madison Formation

Perforations 5614-19' (A-3 zone) w/5 j.s.p.f. Cumulative Prod. 20,973 bbls oil, 23,272 bbls water. Latest test 30 BOPD and 75 BWPD

Justification for Workover:

Fluid analysis showed a high salt content in the oil and water possibly causing a salt block. Will attempt to dissolve salt block to increase fluid to keep the well flowing.

Summary of Workover:

2-13-57: PBTD 5924' To eliminate a possible salt block, the formation was washed with 50 barrels of fresh water as follows: Spotted 50 barrels water down tubing. Began injecting fresh water at 3/4 BPM 1200#. Slowed down pump after 5 barrels fresh water in formation, injected at the rate of 1/2 BPM 950#. With 23 barrels in formation, increased pump rate to 3/4 BPM, 1100# (slight formation break). Washed zone by flowing back 5 barrels and injecting 10 barrels. Final injection rate, 3/4 BPM at 1300#. 50 barrels fresh water in formation, 5 barrels oil overflush. Bleed-down pressure 900#. Opened well to test tank. Flowed back 27 barrels oil, tubing displacement plus 5 barrels overflush, began getting salty water. Took samples on 5 barrel increments to check chlorides, fresh water injected either picked up salt or was diluted by salt water. Recovered 27 barrels displacement oil, 50 barrels injected water, 20 barrels formation fluid. Turned well through treater to clean up overnight.

2-14-57: PBTD 5924'. Flowed well through treater overnight to clean up. On 4 hour test, open flow, well flowed at the rate of 201 BFPD, 78% BS&W. (44 BOPD, 157 BWPD). Water samples were taken at approximately 5 barrel intervals when flowing the water back and chloride tests were run on the samples. The chlorides increased from 19,000 PPM to 75,000 PPM quite uniformly. This indicates that if any salt were deposited around the well base it had nearly all been dissolved by the first of the fresh water. More likely the water injected was diluted by formation--greater penetration equals greater chloride concentration. A total of 1400# of salt was removed by the 50 barrels of fresh water or an average of 28# per barrel. Before the fresh water treatment, the well averaged 20 BOPD and had a water cut of 82%.

Workover History No. 1 Continued

2-15-57: PBTD 5924', testing. On 24 hour test, open flow, well flowed at the rate of 203 BFPD, 78% BS&W (45 BOPD, 158 BWPD).

2-16-57: PBTD 5924', testing. On 6 hour test, open flow, well flowed at the rate of 195 BFPD, 81% BS&W (27 BOPD, 158 BWPD).

2-17-57: PBTD 5924' testing. On 24 hour test, open flow, well flowed at the rate of 191 BFPD, 81% BS&W, (36 BOPD, 155 BWPD).

2-18-57: PBTD 5924', no test.

2-19-57: PBTD 5924', no test.

2-20-57: PBTD 5924', flowing. On 2 hour test, flowed at rate of 163 BFPD, 80% water, 130 BWPD, 33 BOPD.

2-21-57: PBTD 5924', to drop from report. On 24 hour test, well flowed at the rate of 175 BFPD, 79% water (37 BOPD, 138 BWPD) TFP-10#, CP-700#. Workover Potential.

Re-cap of Workover:

Final Perforations - A-3 zone 5614-19' (unchanged).

Final PBTD - 5924' (unchanged).

Initial Potential after workover - 175 BFPD, 79% water (37 BOPD, 138 BWPD), TFP-10#, CP700#.

Producing zone - A-3 zone of Madison Formation.

Downhole Equipment - (unchanged).

Results of Workover:

Chloride tests indicated that nearly all salt deposits, if any, near the well bore were dissolved by the fresh water increasing oil production by 7 BPD and water production by 63 BPD. Did not produce desired results.

WORKOVER HISTORY NO. 2

May 25, 1962

This was carried as Workover No. 1 on the A.F.E. and on the daily TWK reports. It should have been Workover No. 2.

Lease & Well No. East Poplar Unit Well No. 68

Field East Poplar County Roosevelt State Montana

Well Location SW NE Section 11, T28N, R51E

Status Prior to Present Job:

Date Completed Dec. 14, 1955 Date Last Workover February 22, 1957

T.D. 5951' P.B.T.D. 5924' Producing Zone A-3 of Madison Formation

Latest Test Pumping 376 BFPD, 93% water (26 BO, 350 BW)

Justification for Workover:

To lower water cut and increase production.

Summary of Workover:

5-07-62 5924' PBTD. MI & RU plg unit. Pld rods out of hole. Ran Dia-Log caliper survey in 2 3/8" tbg. Pld tbg out of hole & changed out 9 jts of tbg. Closed well in overnight.

5-08-62 5924' PBTD. D.O.C. sqzd A-3 zone perf 5614-19' w/60 sxs. Ran Baib. R.T.T.S. retrievable pkr w/20' of tail pipe. Set pkr at 5624'. Tstd csg below perf w/2000#, held ok. Reset 5610'. Press csg to 1000#, held ok. Set at 5595'. Press csg to 1000#. Broke form w/SW at rate of 3.5 BPM at 3700#. Rel pkr. Disp SW w/oil at 5640'. Sptd 10 bbls of crude oil mix w/10 gals of Hy-flo. Follow w/3 bbls diesel oil. Set pkr at 5595'. Mix 8 bbls slurry of diesel oil cmt w/2 gals. D.O.C. 3. Followed w/3 bbls diesel oil. Min sqz press 3000#. Max 4100# w/17 sxs cmt in form. Rel pkr. Rev out 27 sxs of cmt. Wash down to 5640' holding 1000# back press. Reset pkr 5595'. Over flush 1 bbl at 4100#. Broke back 3750#. Bleed to 2500# in 5 min. Bleed csg to 700#. Closed well in overnight.

5-09-62 5924' PBTD. Swab tstd D.O.C. sqz job. Set pkr at 5598'. Swbd tbg dry. Swab rate as follows:
1st hr - 27 BOPD, no wtr
2nd hr - 55 BOPD, no wtr
3rd hr - 41 BOPD, no wtr
4th hr - 41 BOPD, no wtr
5th hr - 41 BFPD, w/c 20% (33 BOPD, 8 BWPD)
6th hr - 41 BFPD, w/c 33% (27 BOPD, 14 BWPD)
Shut down swbg. Left well open to tst tk overnight. Had 4000' of fluid fillup in 16 hrs, w/c 75% (4 BO, 12 BW).

Summary of Workover: (continued)

5-10-62 5924' PBTD. Rel pkr. Pld same out of hole. Ran tbg & rods w/2"x1¼"x 16' insert pmp. Started well pmpg at 1:30 p.m.

5-11-62 5924' PBTD. Pmpd 11 BFPD, w/c 25% (8 BO, 3 BW). Chloride 110,000 ppm.

5-12-62 5924' PBTD. Pmpd 28 BFPD, w/c 65% (10 BO, 18 BW). Chloride 103,000 ppm.

5-13-62 5924' PBTD. Pmpg on 64"x13 SPM. Pmpd 31 BFPD, w/c 40% (19 BO, 12 BW). Chloride 104,000 ppm.

5-14-62 5924' PBTD. On 21 hr tst pmpd 30 BFPD, 84% water (5 BO, 25 BW).

5-15-62 5924' PBTD. On 17 hr wtr draw tst pmpd at rate of 32 BFPD, 90% wtr (3 BO, 29 BW).

5-16-62 5924' PBTD. Pmpd 27 BFPD, w/c 92% (2 BO, 25 BW). Chloride 99,000 ppm.

5-17-62 5924' PBTD. On 24 hr tst pmpd 28 BFPD, 92% wtr (2 BO, 26 BW). Chloride 103,000 ppm.

5-18-62 5924' PBTD. RU pld unit. Pld rods 60' & pmp hung up. Pld worn 5/8" rod in too. Pld tbg to fish then stripped out to pmp. Rang tbg w/Baker Model "R" pkr & 20' tail pipe. Shut in overnight.

5-19-62 5924' PBTD. Filled hole w/SW. Set Baker Model "R" pkr at 5604'. Tst csg & well head w/1500#. Acidized A-3 zone (5614-19') w/500 gals Dowell reg acid. Spot acid down tbg. Press up on form to 2000#. Press bleed to 1800# in 1 min. Inc press to 2500#, bleed back to 2000#. Inc press to 2900#. Then acid started feeding. Form broke back gradually w/1 bbl acid in form. Press broke back to 2000# w/2 bbls acid in. Shut down pmp. Two bbls acid in form at rate of 1/4 BPM. Open to pit, flwd small stream. Swbd to pit until spent acid was recovered. W/C was 95% w/acid taste. Rel pkr & pld tbg. Ran tbg w/Halb anchor catcher on bottom & 2"x1 3/4"x8' pmp spaced at 4000'. Ran rods & started well pmpg. Unit out of balance & would not run. Shut in overnight.

5-20-62 5924' PBTD. Will tst when levels off.

5-21-62 5924' PBTD. On 18 hr tst pmpd at rate of 280 BFPD, 97% wtr (8 BO, 272 BW).

5-22-62 5924' PBTD. Pmpg at rate of 280 BFPD, 96% wtr (11 BO, 269 BW). Chloride 103,000 ppm. Pmpg on 64"x13 SPM, 1 3/4" bore pmp. To inc SPM.

5-23-62 5924' PBTD. Pmpg at rate of 336 BFPD, 94% wtr (20 BO, 316 BW), 16 SPM.

5-24-62 5924' PBTD. Pmpg at the rate of 332 BFPD, 92% wtr (27 BO, 305 BW). Chloride 102,000 ppm. THIS IS THE WORKOVER POTENTIAL - TO DROP FROM REPORT.

Recap of Workover:

1. Final Perforations: 5614-19'

2. Final PBTD: 5924'

3. Initial Potential after Workover: Pmpg 332 BFPD, 92% wtr (27 BO, 305 BW)

4. Geological name of Producing Zone: A-3 of Madison Formation

5. Downhole Equipment:

Tbg Record: 180 Jts, 2 3/8", 4.70#, J-55, 8rd thd, R-2, Class 2

Below RKB	7.00'
1 Jt 2 3/8" Tbg	29.83'
128 Jts 2 3/8" Tbg	3992.76'
2"x1 3/4"x8' Tbg Liner Pmp	16.05'
51 Jts 2 3/8" Tbg	1550.80'
Halb Anchor Catcher	7.18'
Bottom of Tbg	5598.62'

Rod Record:

96 - 5/8" Rods	3975'
63 - 3/4" Rods	1575'

Fluid Entry: 5599'

Pmp Depth: 4023'

Pmp Size: 2"x1 3/4"x8' Oilwell Tbg Liner

ok
MHK

October, 1968

WORKOVER NO. 3

Lease and Well No: East Poplar Unit No. 68

Field: East Poplar Unit County: Roosevelt State: Montana

Well Location: SW NE Section 11, T28N, R51E

STATUS PRIOR TO PRESENT JOB:

Date Completed: December 14, 1955 Date Last Workover: May 25, 1962

T.D.: 5961' PBTD: 5924' Producing Zone: A-4 Zone of the Madison Formation

Cumulative Production: 118,485 BO 1,032,386 BW

Latest Test: 9/1/68 3 BOPD 90 BWPD 97% W.C. 93 BFPD

JUSTIFICATION FOR WORKOVER:

Pumping from the A-4 Zone 93 BFPD 97% W.C. 3 BOPD 90 BWPD (uneconomical). Perforate the B-1 Zone 5758-5762' with 50 gram jet casing gun. Commingled production expected from the A-4 and B-1 12-15 BOPD with a 90-95% W.C..

SUMMARY OF WORKOVER:

10-1-68 5924' PBTD Preparing to perforate the B-1 Zone and put on pump. Moved in pulling unit. Pulled rods and tubing. Installed B.O.P. and shut well in overnight.

10-2-68 5924' PBTD Pumping
Perforated the B-1 Zone 5758-62' with Wireline Casing Gun 50 gram jets, 2 holes per foot. Ran tubing and rods and put well to pumping. Will test when well levels off.

10-3-68 5924' PBTD Pumping
24 Hr. Test 103 BFPD 100% W.C.

10-4-68 5924' PBTD Pump Testing
Changed stroke to 64". Will have 4 hr. test off this A.M.. Well now pumping 97% W.C.

10-5-68 5924' PBTD Pump Testing Pumping on 13 X 64" X 1-1/2"
4 Hr. Test Pumped 17.60 BF = 106 BFPD 3 BOPD 103 BWPD 97% W.C.

10-6-68 5924' PBTD Pumping 97% W.C.
Pumping fluid level 5301' Fluid entry 5424'
A-4 and B-1 pumping commingled 106 BFPD 97% W.C. 3 BOPD 103 BWPD.
A-4 and B-1 Zones Workover Potential. To Drop From Report. To pump 30 days to determine if water cut will improve.

RECAP OF WORKOVER:

Final Perforations:	5614-5619' - A-4 - Unchanged 5758-5762' - B-1
Final PBTD:	5924' - Unchanged
Initial Potential After Workover:	106 BFPD 97% W.C. 3 BOPD 103 BWPD
Geological Name of Producing Zone:	A-4 and B-1 Zone of the Madison Formation
Fluid Entry:	5424'

CHEMICAL & GEOLOGICAL LABORATORIES
OF MONTANA

CHEMISTS GEOLOGISTS ENGINEERS

113 WEST BELL
GLENDIVE, MONTANA

MURPHY CORPORATION

#68 UNIT

C SW NE 11-28N-51E

East Poplar, Montana

CORE ANALYSIS REPORT

CHEMICAL & GEOLOGICAL LABORATORIES
OF MONTANA

CHEMISTS GEOLOGISTS ENGINEERS

113 WEST BELL
GLENDIVE, MONTANA

February 14, 1956

Murphy Corporation
El Dorado, Arkansas

Gentlemen:

Full diameter corestudy shows both the B-1 and B-2 Zones to be very permeable and porous. The water saturations in the top four feet of the B-1 are very high. The remainder of the B Zone appears favorable to oil production.

The top foot of the C Zone is fractured and is water bearing. The remainder of the zone appears too tight to be productive.

Yours very truly,

CHEMICAL & GEOLOGICAL LABORATORIES OF MONTANA

J. Roger Artley

J. Roger Artley
Chemical Engineer

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CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA
113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

CORE ANALYSIS REPORT

Field East Poplar County Roosevelt State Montana

Well No. #68 Unit Location C SW NE 11-28N-51E

Formation B-1 Zone Depths 5731-5771

Operator Murphy Corporation Elevation 2213 KB Lab No. 491

CORE INFORMATION

Cored with from 5731 to 5771

Footage of formation cored 40

Feet of core received at laboratory for analysis 9

Feet of core not accounted for 31

Number of representative samples selected for analysis 9

Feet of core represented by selected samples 9

ROCK CHARACTERISTICS	FEET OF CORE ANALYZED	FEET OF CORE NOT ANALYZED
Shale and/or dense barren material		
Fratured material		
Non-fractured material	9	
TOTAL	9	

RECORD OF DRILL STEM TESTS

REMARKS

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CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA

113 WEST BELL P. O. BOX 537

GLENDIVE, MONTANA

B-1 Zone

CORE ANALYSIS REPORT

Field East Poplar Well No. #68 Unit

Operator Murphy Corporation Laboratory No. 491

SUMMARY OF REPORT

DISTRIBUTION BY MAXIMUM PERMEABILITY RANGES

PERMEABILITY RANGE	FOOTAGE	PERMEABILITY	POROSITY	WATER SATURATION	RESIDUAL OIL SATURATION
Less that 0.01					
0.01 - 0.09					
0.10 - 0.99	1	0.58	13.0	68.7	0.8
1.00 - 9.9	5	4.20	9.4	53.1	7.3
10 - 99	3	43	17.6	24.0	8.4
100 - 999					
1,000 +					
Total summarized	9				
Total analyzed	9				
0.01 +	9	17	12.5	45.1	6.9
0.10 +	9	17	12.5	45.1	6.9
1.00 +	8	19	12.5	42.2	7.7
10 +	3	43	17.6	24.0	8.4
100 +					
1,000 +					

Total porosity-feet 113

Total millidarcy-feet of 0.1 md. and above 152

Mean matrix density 2.68

Remarks:

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CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA
113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

CORE ANALYSIS REPORT

Field East Poplar County Roosevelt State Montana

Well No. #68 Unit Location C SW NE 11-28N-51E

Formation B-2 Depths 5773-5791

Operator Murphy Gorporation Elevation 2213 KB Lab. No. 491

CORE INFORMATION

Cored with _____ from 5773 to 5791

Footage of formation cored 18

Feet of core received at laboratory for analysis 17

Feet of core not accounted for 1

Number of representative samples selected for analysis 14

Feet of core represented by selected samples 14

ROCK CHARACTERISTICS	FEET OF CORE ANALYZED	FEET OF CORE NOT ANALYZED
Shale and/or dense barren material		3
Fratured material		
Non-fractured material	14	
TOTAL	14	3

RECORD OF DRILL STEM TESTS

REMARKS

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CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA
113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

CORE ANALYSIS REPORT

B-2 Zone

Field East Poplar Well No. #68 Unit

Operator Murphy Corporation Laboratory No. 491

SUMMARY OF REPORT

DISTRIBUTION BY MAXIMUM PERMEABILITY RANGES

PERMEABILITY RANGE	FOOTAGE	PERMEABILITY	POROSITY	WATER SATURATION	RESIDUAL OIL SATURATION
Less that 0.01					
0.01 - 0.09					
0.10 - 0.99					
1.00 - 9.9	4	5.32	9.1	40.5	6.5
10 - 99	9	22	12.7	35.4	8.3
100 - 999	1	264	15.2	39.3	8.0
1,000 +					
Total summarized	14				
Total analyzed	14				
0.01 +	14	35	11.9	37.1	7.8
0.10 +	14	35	11.9	37.1	7.8
1.00 +	14	35	11.9	37.1	7.8
10 +	10	46	13.0	35.8	8.3
100 +	1	264	15.2	39.3	8.0
1,000 +					

Total porosity-feet 166

Total millidarcy-feet of 0.1 md. and above 484

Mean matrix density 2.71

Remarks:

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CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA
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GLENDIVE, MONTANA

CORE ANALYSIS REPORT

Field East Poplar County Roosevelt State Montana

Well No. #68 Unit Location C SW NE 11-28N-51E

Formation C-Zone Depths 5910-5960

Operator Murphy Corporation Elevation 2213 KB Lab. No. 491

CORE INFORMATION

Cored with _____ from 5910 to 5960

Footage of formation cored 50

Feet of core received at laboratory for analysis 7

Feet of core not accounted for 43

Number of representative samples selected for analysis 7

Feet of core represented by selected samples 7

ROCK CHARACTERISTICS	FEET OF CORE ANALYZED	FEET OF CORE NOT ANALYZED
Shale and/or dense barren material		
Fratured material	1	
Non-fractured material	6	
TOTAL	7	

RECORD OF DRILL STEM TESTS

REMARKS

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113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

CORE ANALYSIS REPORT

C-Zone

Field East Poplar Well No. #66 Unit

Operator Murphy Corporation Laboratory No. 491

SUMMARY OF REPORT

DISTRIBUTION BY MAXIMUM PERMEABILITY RANGES

PERMEABILITY RANGE	FOOTAGE	PERMEABILITY	POROSITY	WATER SATURATION	RESIDUAL OIL SATURATION
Less that 0.01					
0.01 - 0.09	4	0.03	5.4	62.8	11.3
0.10 - 0.99	1	0.16	9.7	32.5	25.7
1.00 - 9.9	1	1.10	5.9	39.5	31.4
10 - 99					
100 - 999					
1,000 +	1	5000+	4.3	69.1	1.4
Total summarized	7				
Total analyzed	7				
0.01 +	7	714	5.9	56.0	13.4
0.10 +	3	1667	6.6	47.0	16.2
1.00 +	2	2500	5.1	54.3	11.4
10 +	1	5000+	4.3	69.1	1.4
100 +	1	5000+	4.3	69.1	1.4
1,000 +	1	5000+	4.3	69.1	1.4

Total porosity-feet 41.3

Total millidarcy-feet of 0.1 md. and above 5001

Mean matrix density 2.69

Remarks:

CHEMICAL & GEOLOGICAL LABORATORIES
OF MONTANA
113 West Bell
Glendive, Montana

CORE SUMMARY AND ESTIMATED RECOVERABLE OIL

CORE SUMMARY

Formation Name		B-1	B-2	C
Depth—Feet		5762-71	5776-91	5926-27
Feet of Permeable Productive Formation		8	14	1
Porosity	Minimum	3.9	6.5	4.3
	Maximum	22.7	17.3	4.3
	Weighted Average	12.5	9.1	4.3
Permeability	Minimum	1.01	4.65	5000+
	Maximum	85	264	5000+
	Weighted Average	18.9	35	5000+
Capacity—Average Porosity x Feet Productive Formation		99.7	36.5	4.3
Weighted Average Residual Oil Saturation, % Pore Space		7.7	7.8	1.4
Weighted Average Total Water Saturation, % Pore Space		42.2	37.1	69.1
Weighted Average Connate Water Saturation, % Pore Space		30.0*	25.0*	
Formation Volume Factor		1.26*	1.26*	
Probable Type of Production		Oil	Oil	Water

Remarks: *Estimated

ESTIMATED RECOVERABLE OIL

Stock Tank Oil in Place:		
Barrels Space per Acre-Foot	970	706
Barrels Connate Water per Acre-Foot	291	177
Barrels Reservoir Oil per Acre-Foot	679	529
Barrels Stock Tank Oil per Acre-Foot	539	420
Solution Gas Drive:		
Barrels per Acre-Foot		
Barrels per Acre		
Water Drive:		
Barrels per Acre-Foot	232	183
Barrels per Acre	1856	2562

The interpretation and estimates herein are based upon information obtained from analyses of cores and/or material supplied by customer, and Chemical & Geological Laboratories assumes no responsibility nor makes no guarantee, as to the capacity of this well to produce oil and/or gas. The opinions and estimates contained herein represent the best judgment of Chemical & Geological Laboratories.

CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA

113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

FULL DIAMETER CORE STUDY

Operator: Murphy Corporation Field: East Poplar Formation: B-1 Zone & B-2 Zone

Well No.: #68 Unit Location: C SW NE 11-28N-51E Depths: 5731-5791

Elevation: 2213 KB Date: November 28, 1955 Lab. No.: 491

SAMPLE NO.	REPRESENTATIVE OF FEET	MIDPOINT OF SAMPLE	FOOTAGE	PERMEABILITY RADIAL	PERMEABILITY VERTICAL	EFFECTIVE POROSITY %	DENSITY BULK	DENSITY MATRIX	SATURATION % OF PORE SPACE RESIDUAL OIL	SATURATION % OF PORE SPACE WATER	DESCRIPTION
	CORE #1	5731-71	Rec. 40'	B-1 Zone							
1	5762-63			1.01	0.89	10.9	2.40	2.69	8.6	55.2	ls,I
2	63-64			1.84	1.34	16.2	2.26	2.70	3.5	49.4	ls,I
3	64-65			0.45	0.58	13.0	2.34	2.69	0.8	68.7	ls,I
4	65-66			5.12	9.53	3.9	2.57	2.67	Tr.	96.2	ls,VC
5	66-67			U.T.	5.16	2.3	2.59	2.65	4.8	35.7	ls,HC
6	67-68			29	14	15.1	2.28	2.68	4.4	13.0	ls,I
7	68-69			3.48	0.45	13.7	2.30	2.66	19.6	29.0	ls,VC,I,Sty
8	69-70			85	69	22.7	2.10	2.71	9.3	23.0	ls,I
9	70-71			16	4.97	14.9	2.31	2.71	11.5	36.1	ls,I
	CORE #2	5773-91	Rec. 18'	B-2 Zone							
NS	5773-76										Anhy
10	76-77			4.65	1.00	6.8	2.57	2.76	Tr.	8.1	ls,A,VC,SVu
11	77-78			31	4.97	12.2	2.35	2.68	8.6	35.5	ls,Vu,
12	78-79			12	2.51	10.1	2.40	2.67	11.4	56.2	ls,SVu,I
13	79-80			5.45	5.91	14.8	2.26	2.65	7.5	43.1	ls,SVu,I
14	80-81			264	45	15.2	2.34	2.75	8.0	39.3	ls,Vu
15	81-82			28	2.17	6.5	2.51	2.69	1.5	32.8	ls,SVu
16	82-83			5.95	5.91	7.2	2.53	2.72	4.7	53.5	ls,SVu
NS	83-84	Missing									
17	84-85			4.77	2.92	7.7	2.49	2.70	13.8	57.3	ls,VC,SVu,I
18	85-86			18	1.71	7.7	2.50	2.71	10.3	57.9	ls,VC
19	86-87			11	U.T.	16.3	2.27	2.71	16.9	36.2	ls,VC,I,SP
20	87-88			29	23	17.3	2.23	2.69	1.4	20.6	ls,VC,SVu,I
21	88-89			7.55	32	11.6	2.40	2.71	6.1	25.9	ls,VC,SVu,I
22	89-90			22	15	17.1	2.26	2.72	10.2	27.0	ls,VC,SVu,I
23	90-91			16	U.T.	15.8	2.29	2.72	8.7	26.1	ls,VC,SVu,I,Sp

CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA

113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

FULL DIAMETER CORESTUDY

Operator: Murphy Corporation Field: East Poplar Formation: B-1 Zone

Well No.: #68 Unit Location: C SW NE 11-28N-51E Depths: 5731-

Elevation: 2213 KB Date: November 28, 1955 Lab. No.: 491

SAMPLE NO.	REPRESENTATIVE OF FEET	MIDPOINT OF SAMPLE	FOOTAGE	PERMEABILITY RADIAL	PERMEABILITY VERTICAL	EFFECTIVE POROSITY %	DENSITY BULK	DENSITY MATRIX	SATURATION % OF PORE SPACE RESIDUAL OIL	SATURATION % OF PORE SPACE WATER	DESCRIPTION
	~~core~~ CORE #1	5731-71	Rec. 40'								
1	5762-63			1.01	0.89	10.9	2.40	2.69	8.6	55.2	ls,I
2	63-64			1.84	1.34	16.2	2.26	2.70	3.5	49.4	ls,I
3	64-65			0.45	0.58	13.0	2.34	2.69	0.8	68.7	ls,I
4	65-66			5.12	9.53	3.9	2.57	2.67	Tr.	96.2	ls,VC
5	66-67			U.T.	5.16	2.3	2.59	2.65	4.8	35.7	ls,HC
6	67-68			29	14	15.1	2.28	2.68	4.4	13.0	ls,I
7	68-69			3.48	0.45	13.7	2.30	2.66	19.6	29.0	ls,VC,I,Sty
8	69-70			85	69	22.7	2.10	2.71	9.3	23.0	ls,I
9	70-71			16	4.97	14.9	2.31	2.71	11.5	36.1	ls,I

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CHEMICAL & GEOLOGICAL LABORATORIES of MONTANA

113 WEST BELL P. O. BOX 537
GLENDIVE, MONTANA

FULL DIAMETER CORESTUDY

Operator: Murphy Corporation Field: East Poplar Formation: C-Zone

Well No.: #68 Unit Location: C SW NE 11-28N-51E Depths: 5910-5960

Elevation: 2213 KB Date: December 3, 1955 Lab. No.: 491

SAMPLE NO.	REPRESENTATIVE OF FEET	MIDPOINT OF SAMPLE	FOOTAGE	PERMEABILITY RADIAL	PERMEABILITY VERTICAL	EFFECTIVE POROSITY %	DENSITY BULK	DENSITY MATRIX	SATURATION % OF PORE SPACE RESIDUAL OIL	SATURATION % OF PORE SPACE WATER	DESCRIPTION
	CORE #3	5910-60	Rec. 50'	C-Zone							
NS	5910-26										
24	26-27			0.48	5000+	4.3	2.58	2.70	1.4	69.1	ls,VF
25	27-28			0.02	-0.01	4.8	2.53	2.66	1.9	93.8	ls
26	28-29			0.02	0.02	3.8	2.58	2.69	Tr	70.0	ls,VC
27	29-30			0.04	-0.01	6.8	2.50	2.69	17.9	41.6	ls
28	30-31			0.16	0.07	9.7	2.45	2.70	25.7	32.5	ls
29	31-32			0.03	1.10	5.9	2.53	2.69	31.4	39.5	ls,VC
30	32-33			0.05	0.04	6.0	2.52	2.68	25.5	45.8	ls
NS	33-60										

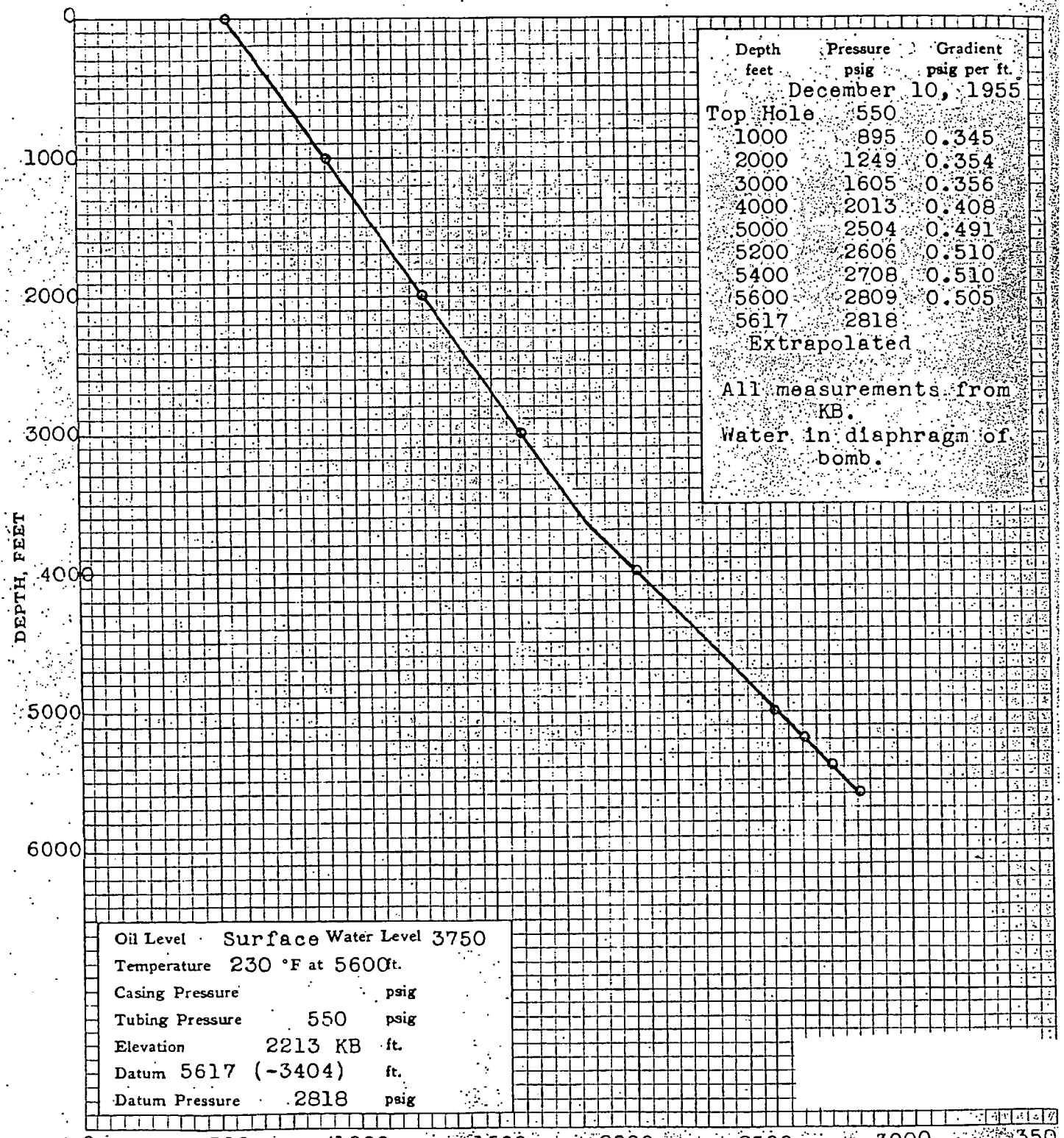
CHEMICAL & GEOLOGICAL LABORATORIES

Casper, Glendive, Edmonton

PRESSURE SURVEY

Company Murphy Corporation
Field East Poplar
Lease and Well No. EPU 68

County Roosevelt
State Montana
Formation A Zone



Depth feet	Pressure psig	Gradient psig per ft.
December 10, 1955		
Top Hole	550	
1000	895	0.345
2000	1249	0.354
3000	1605	0.356
4000	2013	0.408
5000	2504	0.491
5200	2606	0.510
5400	2708	0.510
5600	2809	0.505
5617	2818	
Extrapolated		

All measurements from KB.
Water in diaphragm of bomb.

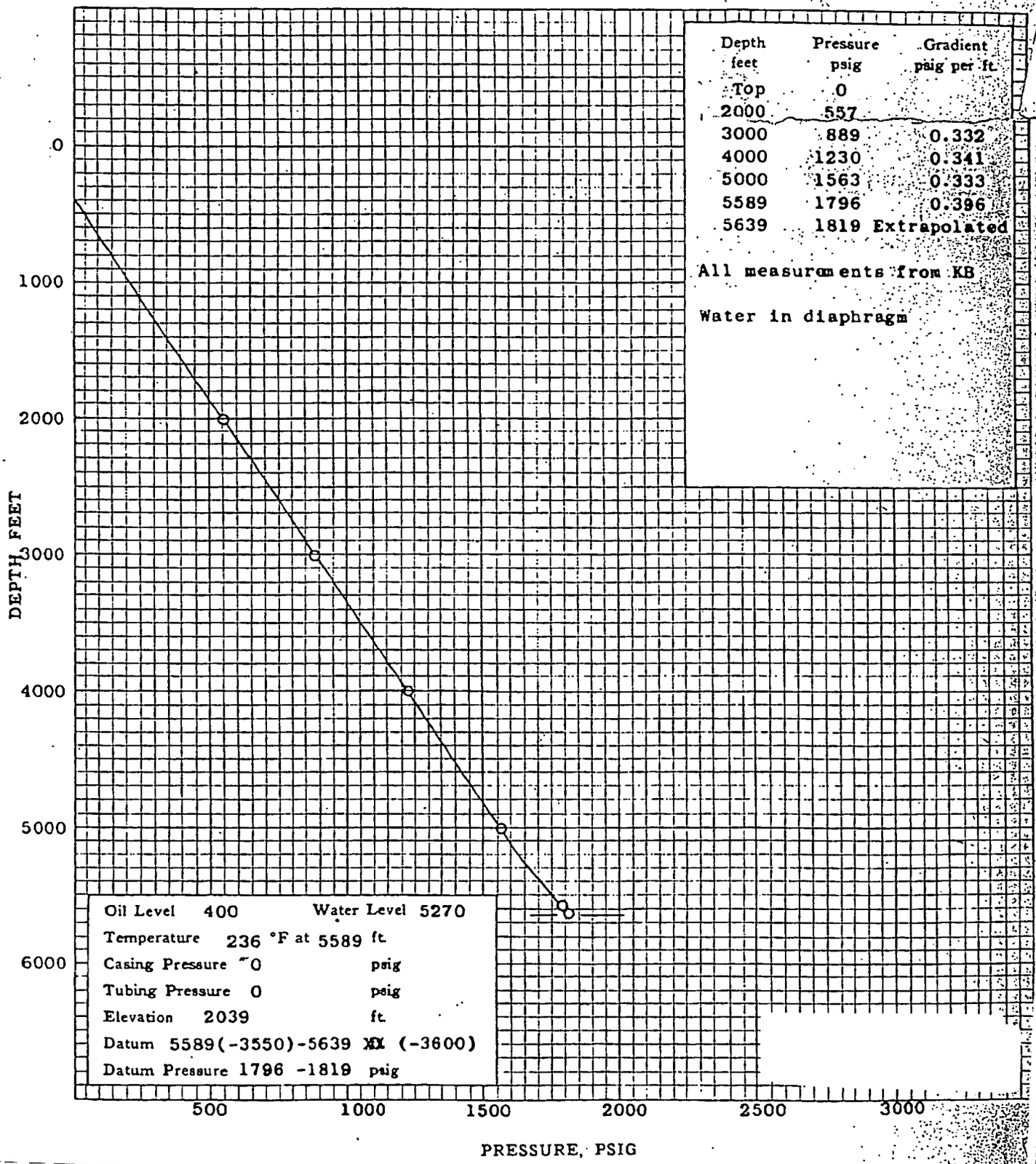
Oil Level Surface Water Level 3750
Temperature 230 °F at 5600 ft.
Casing Pressure psig
Tubing Pressure 550 psig
Elevation 2213 KB ft.
Datum 5617 (-3404) ft.
Datum Pressure 2818 psig

CHEMICAL & GEOLOGICAL LABORATORIES

Casper, Glendive, Edmonton

PRESSURE SURVEY

Company	Murphy Corporation	County	Roosevelt
Field	East Poplar Unit	State	Montana
Lease and Well No.	EPU No. 70	Formation	B1 & B2
Type of Test	Static	Date Tested	September 27, 1956



Depth feet	Pressure psig	Gradient psig per ft.
Top	0	
2000	557	
3000	889	0.332
4000	1230	0.341
5000	1563	0.333
5589	1796	0.396
5639	1819 Extrapolated	

All measurements from KB

Water in diaphragm

Oil Level 400 Water Level 5270

Temperature 236 °F at 5589 ft.

Casing Pressure 0 psig

Tubing Pressure 0 psig

Elevation 2039 ft.

Datum 5589(-3550)-5639 XX (-3600)

Datum Pressure 1796 -1819 psig

Location: [illegible] SW NW Sec. 11-T28N-R51E
Spacing - 160 acres
Elevation: 2213 K.B. - 2203 Gr.
Spudded: 10-29-56
Completed: 12-14-56
T.D.: 5960' Dlr - 5961' Schl.
Prod. Zones: A: 5614-5619'

Schlumberger Tops

	Depth	Datum	Thickness
Judith River	----	-----	
Greenhorn	2440	- 227	
Muddy Sd	3007	- 794	
Dakota Silt	3213	-1000	
Piper Ls	4450	-2237	
Amsden	4833	-2620	
Heath	4988	-2775	
Otter	5115	-2902	
Kibbey Sd	5263	-3050	
Kibbey Ls	5410	-3197	
Madison	5500	-3287	
A-1	**5588	-3375	2'
A-2	**5598	-3385	3'
A-3	**5604	-3391	12'
A-4	5616	-3403	32'
B-1	**5758	-3545	9'
B-2	*5777	-3564	76'
B-3	5799	-3586	6'
B-4	**5832	-3619	4'
B-5	5867	-3654	?
C-1	**5907	-3694	?
C-2	*5927	-3714	9'

**Probable prod. Zones (From DST structural position, etc.
*Shows

Drill Pipe Corrections (Made)
None

Coring Intervals:
#1 5731-71 Rec. 38' B-1
#2 5773-91 Rec. 18' B-2
#3 5910-60' Rec. 47' C-1

Drill Stem Tests:
DST #1 5761-71' B-1 ½" bot. cke., no W.C. Tool opn 4 hrs, Opnd w/med blow. Gas to surf. 3 hrs 15 min. Tool would not rotate, pipe stuck. Worked pipe 6 hrs. Rec. 100' cln oil, 90' o & g cut mud. 200' s.w. IBHFP 15, FHBFP 580, BHSIP 3295, Hydro 3515.
DST #2 5777-91' w/Hall. B-2 Sngle pkr, 1/2" bot. cke. No W.C. Tool opn 4 hrs, SI 30 min. Tool opn w/good blow, cont'd thruout. Gas to surf. 3 hrs, 20 min. Rec. 273' cln oil, 212' o & g cut mud, 4188' s. sulf wtr. IBHFP 60 FBHFP 2110 BHSIP 2645. Hydro 3290.
DST #3 5923-37' C-2 w/Hall strad. ½" bot. cke., no W.C. Tool opn 4 hrs, SI 30 min. Opn w/weak blow, died in 2 hrs and remained dead rest of test. Rec. 90' sli gas cut mud, no tr. of oil or wtr. IBHFP 15 FBHFP 32, BHSIP 920, Hydro 3405, Bottom packer held o.k.

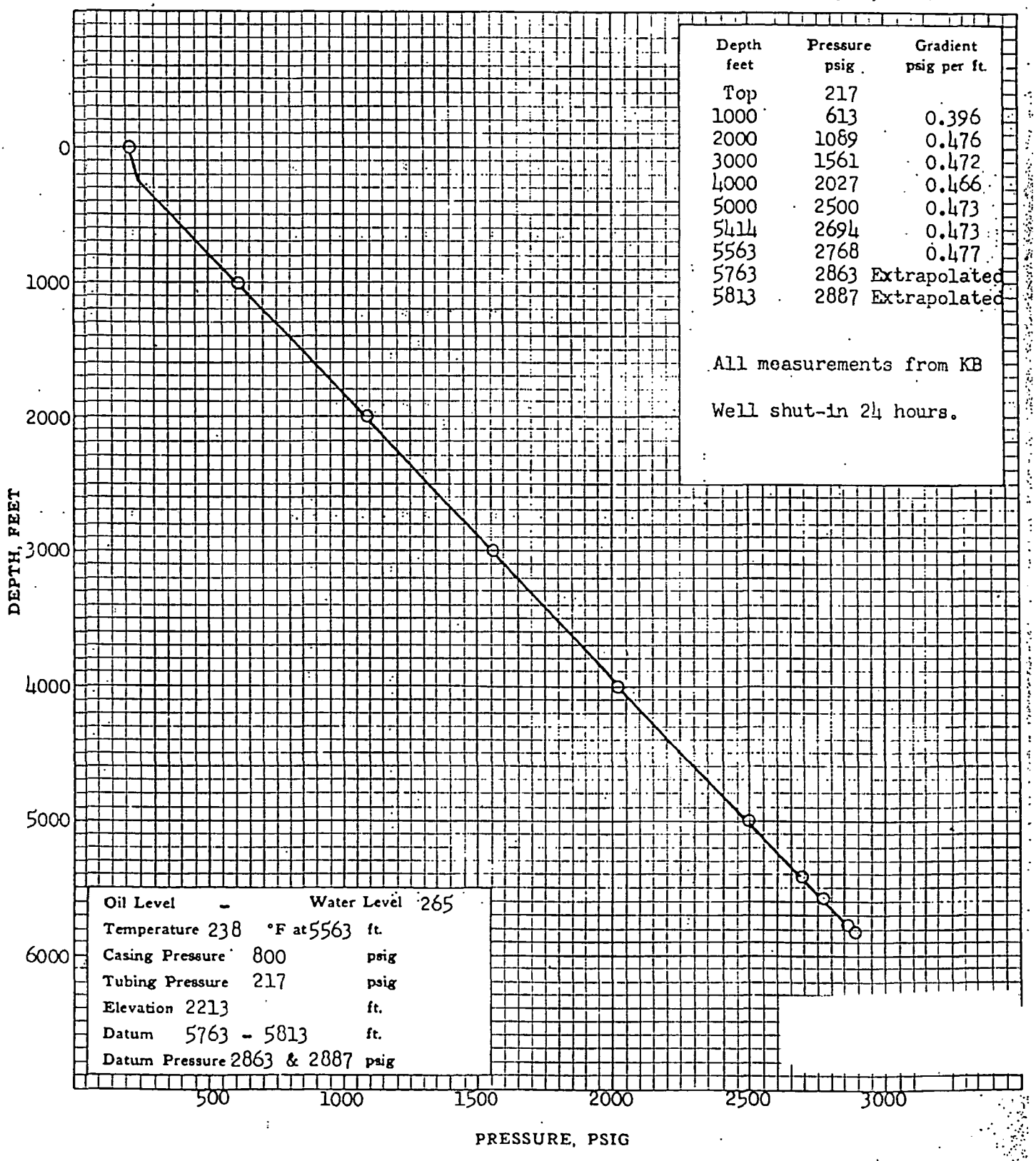
History Subsequent to Completion:
None

CHEMICAL & GEOLOGICAL LABORATORIES

Casper, Glendive, Edmonton

PRESSURE SURVEY

Company	Murphy Corporation	County	Roosevelt
Field	East Poplar	State	Montana
Lease and Well No.	EPU No. 68	Formation	A Zone
Type of Test	Static	Date Tested	February 2, 1957



Depth feet	Pressure psig	Gradient psig per ft.
Top	217	
1000	613	0.396
2000	1089	0.476
3000	1561	0.472
4000	2027	0.466
5000	2500	0.473
5414	2694	0.473
5563	2768	0.477
5763	2863	Extrapolated
5813	2887	Extrapolated

All measurements from KB

Well shut-in 24 hours.

Oil Level	-	Water Level	265
Temperature	238 °F at	5563	ft.
Casing Pressure	800		psig
Tubing Pressure	217		psig
Elevation	2213		ft.
Datum	5763 - 5813		ft.
Datum Pressure	2863 & 2887		psig

PRODUCTION &
INJECTION DATA

SURFACE EQUIPMENT