1044b UIC - EAST POPLAR OIL FIELD
ENFORCEMENT CASE SDWA 1431
Folder ID: 13668 1954 Privileged

Release in Full

Region 8
13668

HISTORY

10P

EAST POPLAR UNIT WELL NO. 45

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

EAST POPLAR UNIT WELL NO. 45

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

HISTORY----------Page 1

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

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WELL HISTORY

WELL NO.:	East Poplar Unit No. 45
LOCATION:	SW NE Section 4, Township 28 North, Range 51 East
ELEVATION:	2042' Gr. - 2054' K.B.
CONTRACTOR:	Zach Brooks Drilling Company
SPUDDED:	4:00 A.M., July 26, 1954
COMPLETED:	4:00 P.M., August 23, 1954
TOTAL DEPTH:	5768' Schlumberger equals 5771' Driller
CASING:	13-3/8" @ 170.55' with 200 sacks cement 9-5/8" @ 1004.87' with 400 sacks cement 5-1/2" @ 5767' with 300 sacks cement
TUBING:	2-3/8" @ 5764.82'
PERFORATIONS:	5768'-5771' (Open Hole)
PACKER:	None
ACID TREATMENT:	"C" Zone - 500 gallons etching acid
INITIAL POTENTIAL:	414 barrels of oil per day, no water on 12/64" choke TFP-925#; CFP-950#
TYPE COMPLETION:	Single producer from the "C" Zone Converted to "B-2" Zone on June 1, 1955

SEP 10 1954

EAST POPLAR UNIT WELL NO. 45
SW NE Section 4, T28N, R51E
Roosevelt County, Montana

July 26, 1954:	Spudded at 4:00 a.m.
July 27, 1954:	Ran 5 joints, 156.55', of 13 3/8", H-40, 8rd. thd. American Casing. Landed 14' below RKB and set at 170.55'. Cemented with 200 sacks regular bulk cement with 2 per cent gel. Left approximately 25 sacks in pipe. Job complete at 6:40 p.m. Circulated approximately 15 sacks clean cement.
July 30, 1954:	1012' WOC. Ran 32 jts. (992.37') of 9 5/8", J-55, 36 lbs., R-2, 8rd. thd. American Casing. Landed 12.50' below RKB and set at 1004.87'. Cemented with 400 sacks of regular bulk cement with 1 per cent $CaCl_2$. Plug down at 10:35 a.m. 7-29-54. Bumped plug with 1000 lbs. Released pressure, float held ok. Circulated approximately 40 sacks of clean cement.

Schlumberger Top: Judith River--------721 (+1333)

SEP 10 1954

EAST POPLAR UNIT WELL NO. 45
SW NE Section 4, T28N, R51E
Roosevelt County, Montana

August 15, 1954: D.S.T. No. 1, single packer at 5471, TD 5480. Tool open 4 hours. Opened at 12:05 p.m., 8-14-54. With a medium blow, increasing in 20 minutes to good blow and continuing, throughout remainder of test. Recovered 1185' of gas, 150' of clean oil, 170' of muddy salty sulphur water. Hydro pressure 3220#. IBHFP 15#, FBHFP 110#. 20 Min. BHSIP 2450#. Core top of "A" Zone--5473.

August 17, 1954: D.S.T. No. 2, single packer at 5627' with T.D. at 5639'. Tool opened at 11:30 a.m., 8-16-54 for 4 hours. Tool opened with good blow which continued throughout test. Recovered 3600' of gas, 1620' of clean oil, 80' of oil and gas cut mud and 340' of salty sulphur water. Hydro pressure--3500#. IBHFP--112#, FBHFP--768#, 20 minutes BHSIP--2780#.

Core top of "B-1" Zone--5610
Core top of "B-2" Zone--5629

RECEIVED
SEP 13 1954
OIL CONSERVATION COMMISSION
OF THE STATE OF MONTANA

EAST POPLAR UNIT WELL NO. 45
SW NE Section 4, T28N, R51E
Roosevelt County, Montana

August 20, 1954: D.S.T. No. 3, "C" Zone, single packer at 5746'. Tool open 4 hours, open at 2:30 a.m., 8-20-54 with good blow increasing to strong blow in 15 minutes. Continued throughout test. Gas to surface in 3 hours and 30 minutes, recovered 5215' fluid. 4985' of clean oil, 50' of oil and gas cut mud, 165' of clean oil, 15' oil and gas cut mud. No free water. Hydro--3535#, IBHFP--92#, FBHFP--1775#, BHSIP--2842#. Ran Schlumbergers ES and ML. T.D. 5768' Schlumberger equals 5767 Driller

Schlumberger Tops: Greenhorn--------2332 (- 278)
Piper LS---------4348 (-2294)
Kibbey LS--------5262 (-3218)
Madison----------5351 (-3297)

EAST POPLAR UNIT WELL NO. 45
SW NE Section 4, T28N, R51E
Roosevelt County, Montana

SEP 13 1954

August 21, 1954: Ran 182 jts. 5756' of 5½ inch, J-55, 8rd, thd., R-2, American casing and landed 11' below RKB at 5767. Howco roto type scratchers from 5490 to 5540, 5590 to 5675 and 5730 to 5765. Howco centralizers at 5475, 5540, 5571, 5700, and 5760. Howco automatic fill up shoe top at 5763. Cemented with 300 sacks of ideal Slo-set cement with 2% gel. Plug down at 4:15 a.m. Bumped plug with 1000#, released pressure, float held ok. Pipe rotated freely while cementing.

August 24, 1954: 5771', drilled baffle collar and float shoe to original T.D. of 5768'. Drilled 3 more feet of "C" Zone intercrystalline to 5771'. Left in the well 200 jts. (5735.50') of 2 3/8 inch tubing, with drill collar and bit (1.62) and an 8 and 10' tubing sub. Bottom of bit at 5764.82'. Landed 9.70' below RKB. Acidized with 500 gallons of Dowell etching acid. Formation broke at 1600#. Maximum injection rate 1.0 BPM at 1800#. Bleed down pressure 1100#. Acid to surface in 24 minutes, new oil to surface in 5 more minutes.

Cleaned to pit and tested as follows:

1/2" choke 1224 barrels of oil per day with 5 percent acid water with 30# TFP and 125# CFP.

1/4" choke 701 barrels of oil per day with a trace of water with 300# TFP and 350# CFP.

12/64" choke 414 barrels of oil per day with no water, with 925# TFP and 950# CFP.

10/64" choke 133 barrels of oil per day with no water, with 1000# TFP and 1025# CFP.

CSIP 1025#, TSIP 1025#

Rig released at 4:00 p.m. 8-23-54.

ENVIRONMENTAL
PROTECTION AGENCY
NOV 5 1998

MURPHY
OIL USA, INC.

POST OFFICE BOX 547
POPLAR, MONTANA 59255

MONTANA OFFICE

February 18, 1993

FEB 1993
Miles City, Montana

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

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,

Raymond Reede
District Manager

A.F.E. No. 56-4-46

AUTHORITY FOR EXPENDITURE
MURPHY CORPORATION - EAST POPLAR UNIT NO. 45
(Installation of Pumping Unit)
SW NE Section 4-T28N-R51E, Roosevelt County, Montana

Pumping unit, complete with engine	$5,650
Labor and materials, setting unit	750
Trucking, small fittings, and incidentals	150
Rods, pump, and well head equipment	3,000
TOTAL ESTIMATED COST	$9,550

APPORTIONMENT OF TOTAL ESTIMATED COST

	%	
Murphy Corporation - Unit Operator	31.443470	$3,003
Hunoco Company	2.096565	200
Placid Oil Company	33.545035	3,203
The Carter Oil Company	16.335860	1,560
Phillips Petroleum Company	16.335860	1,560
C. F. Lundgren	.238210	23

APPROVAL OF EXPENDITURE

Requested by:

Harold Milan FEB 20 1956

Division Production Supt. Date

Recommend Approval:

Gordon Kirby FEB 20 1956

Division Manager Date

Approved:

By Date

Recommend Approval:

Staff Production Engineer Date

Recommend Approval:

Budget Supervisor Date

Approved:

Vice President-Operations Date

HM:eg
2-20-56

AUTHORITY FOR EXPENDITURE

MURPHY CORPORATION - EAST POPLAR UNIT NO. 45

C SW NE Sec. 4, Twp., 28N., Rge. 51E., Roosevelt Co., Montana

WELL DRILLING & CONSTRUCTION EXPENSE:	TO CSO. PT.	COMP. & EQUIP.	TOTAL COST
Drilling: Footage - 5830' @ $5.75/ft.	$ 33,525	$	$ 33,525
Daywork - 7 days @ $850/day & 3 days @ $775/day	6,020	2,325	8,345
Loc. survey, permit & prep.	175		175
Roads, fences, cattleguard, etc.	700		700
Mud mat. & chem., incl. oil & gas	4,500		4,500
Drilling bits, baskets, etc.		200	200
Cementing casing	2,050	950	3,000
Coring materials & services	2,900		2,900
Testing services, incl. swabbing	1,200	125	1,325
Other logs, surveys & analysis	1,300		1,300
Perforating services		600	600
Hydrafrac, acidize, etc., incl. oil		2,200	2,200
Float equip., centralizers, etc.	200	360	560
Trucking, welding & other labor	500	500	1,000
Supervision & Miscellaneous	500	400	900
Total Est. Well Drlg. & Const. Exp	53,570	7,660	61,230
WELL EQUIPMENT COSTS:			
Casing: 150' of 13-3/8" O.D.	670		670
Casing: 1050' of 9-5/8" O.D.	4,010		4,010
Casing: 6000' of 5-1/2" O.D.		10,500	10,500
Tubing: 6000' of 2-3/8" O.D.		3,700	3,700
Casinghead & Connections	350		350
Xmas tree & connections		1,400	1,400
Total Est. Well Equip. Costs	5,030	15,600	20,630
Total Est. Cost of Well	58,600	23,260	81,860
LEASE EQUIPMENT:			
Flow lines		2,875	2,875
Other line pipe, valves & fittings		400	400
Trucking, welding & other labor		800	800
Total Est. Cost of Lease Equip.		4,075	4,075
TOTAL EST. COST OF WELL & LEASE EQUIP.	$ 58,600	$ 27,335	$ 85,935

APPORTIONMENT OF TOTAL ESTIMATED COSTS

APPROVAL OF EXPENDITURE

Production Department

Requested by _____

Date _____

Approved by _____

Date _____

Executive Department

Approved by _____

Date _____

Approved

66 _____

By _____

Date _____

Permit Applications

ZR

Form 9-331 b
(April 1952)

Approval expires 12-31-62.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Fort Peck

Allottee Trust

Lease No. 2-37-Ind-13050

RECEIVED
JUL 19 1954
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	XXX	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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 OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

RECEIVED
JUL 20 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

July 15, 1954

Well No. 45 is located 1980 ft. from {N/S} line and 1980 ft. from {E/W} line of sec. 4

C SW NE Section 4 (¼ Sec. and Sec. No.) 28N (Twp.) 51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2042 ft. Gr.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Will set approximately 150 feet of 13 3/8 inch conductor casing with 200 sacks of cement. Approximately 1000 feet of 9 5/8 inch surface pipe will be set with 450 sacks of cement. Total depth is expected to be 6000 feet so as to evaluate the producing section of the Madison formation. Five and one-half (5½) inch 15.5# casing will be set for production string. Adequate blow out preventers will be installed.

APPROVED SUBJECT TO CONDITIONS SHOWN ON REVERSE

(Orig. Sgd.) H. M. PERRIGO
DISTRICT ENGINEER

JUL 19 1954
DATE

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Murphy Corporation

Address Box 447

Poplar, Montana

By M. L. Jones

Title Asst. District Production Supt.

U. S. GOVERNMENT PRINTING OFFICE 16—84876-6

Form No. 2
GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN TRIPLICATE)

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.

789

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill	XXXX	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	

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

July 15, 1954

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

LEASE 1-37-Ind-13050

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

Well No. 45 C SW NE Sec. 4 (m. sec.) 28N (Township) 51E (Range) M.P.M. (Meridian)

The well is located 1980 ft. { S. / ~~N.~~ } of N line and 1980 ft. { ~~E.~~ / W. } of E line of Sec. 4

The elevation of the derrick floor above the sea level is 2042 Gr.

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

Will set approximately 150 fee of 13 3/8 inch conductor casing with 200 sacks of cement. Approximately 1000 feet of 9 5/8 inch surface pipe will be set with 450 sacks of cement. Total depth is expected to be 6000 feet so as to evaluate the producing section of the Madison formation. Five and one-half (5½) inch 15.50# casing will be set for production string. Adequate blow out preventers will be installed.

Rotary No Bond

RECEIVED
JUL 17 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

A CHECK IN THE AMOUNT OF $75.00
ATTACHED FOR DRILLING PERMIT FEE

Verbally approved 7-19-54
H. H. Perrigo

APPROVED SUBJECT TO CONDITIONS SHOWN ON REVERSE.

Approved 7-19-54 (Date)

Mark P. Tuttle

Title Geologist-Engineer

District Office Agent

Company MURPHY CORPORATION

By M. H. Jones

Title Ass't. District Production Supt.

Address Box 447, Poplar, Montana

AMOUNT RECEIVED 75.00
DRILLING PERMIT NO. 5258
RECEIPT NO. 575

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

OVER

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Fort Peck

Allottee Trust

Lease No. I-37-Ind-13050

RECEIVED AUG 6 1954 U. S. GEOLOGICAL SURVEY BILLINGS, MONTANA

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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 OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	XX
NOTICE OF INTENTION TO ABANDON WELL			

RECEIVED AUG 7 - 1954 OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA - BILLINGS

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

August 5, 1954

Well No. 45 is located 1980 ft. from N line and 1980 ft. from E line of sec. 4

C SW NE Section 4 (¼ Sec. and Sec. No.) T28N (Twp.) R51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2042 ft. Gr.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

SEE ATTACHED SHEET

Approved AUG 6 - 1954
(Orig. Sgd.) M. H. PERRIGO
District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION

Address 13-B Bahner Building
Billings, Montana

By Harold Milam
Harold Milam
Title District Production Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—64376-6

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.2
Approval expires 12-31-62.

Indian Agency Ft. Peck

Allottee Trust

Lease No. 1-37-Ind-13050

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
AUG 23 1954
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	X
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

August 20, 19 54

Well No. 45 is located 1980 ft. from [N] line and 1980 ft. from [E] line of sec. 4

C SW NE Section 4 (¼ Sec. and Sec. No.) 28N (Twp.) 51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2042 ft. Gr.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

RECEIVED
AUG 24 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

SEE ATTACHED SHEET

Approved 8-23-54
H. Billings
District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION

Address 13-B Behner Building
Billings, Montana

By Harold Milan
Harold Milan
Title District Production Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-6

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.2.
Approval expires 12-31-52.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Ft. Peck

Allottee Trust

Lease No. 1-37-Ind-13050

RECEIVED
SEP 7 1954
U.S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	X
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

September 1, 1954

Well No. 45 is located 1980 ft. from [N] [S] line and 1980 ft. from [E] [W] line of sec. 4

C SW NE Section 4 (¼ Sec. and Sec. No.) 28N (Twp.) 51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2042 ft. Gr.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

SEE ATTACHED SHEET

Approved SEP 7 - 1954
(Orig. Sgd.) H. H. PEARSON
District Engineer

RECEIVED
SEP 8 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION

Address 13-B Behner Building
Billings, Montana

By Harold Milan
Harold Milan
Title District Production Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-6

eg

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
JUL 21 1966
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

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 Temp.	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)

July 19, 1966

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

LEASE East Poplar Unit No. 45

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

Well No. 45 C SW NW Section 4 (m. sec.) 28N (Township) 51E (Range) MPM (Meridian)

The well is located 1980 ft. from {N} line and 1980 ft. from {E} line of Sec. 4

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 2042' 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. 45 was shut down July 16, 1966 due to rods parting and production reaching its economic limits. Last Test July 7, 1966 - Pumping at the rate of 499 BFPD 98% Water.

The tubing and rods will be pulled. Casing will be left intact. Temp. Abandoned July 18, 1966.

RECEIVED
JUL 20 1966
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

Approved subject to conditions on reverse of form

Date 7-20-66

By John R Kirk
Title District Office Agent

Company MURPHY OIL CORPORATION

By M H Fornet

Title Field Production Superintendent

Address P.O. Box 547 Poplar, Montana

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

McKEE PRINT.

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.)

5. LEASE DESIGNATION AND SERIAL NO.: Patented

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

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

7. UNIT AGREEMENT NAME: East Poplar Unit

2. NAME OF OPERATOR: Murphy Oil Corporation

8. FARM OR LEASE NAME:

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

9. WELL NO.: 45

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

1980' from North line and 1980' from E line

10. FIELD AND POOL, OR WILDCAT: East Poplar

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: C SW NE Section 4, T28N, R51E

14. PERMIT NO.:

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 2042 G.L.

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:				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*	[XX]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Temp.			
(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. 45 was shut down July 16, 1966 due to rods parting and production reaching its economic limits. Last test July 7, 1966 - Pumping at the rate of 499 BFPD 98% Water

The tubing land rods will be pulled. Casing will be left intact. Temp. Abandoned July 18, 1966.

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

Orig. SIGNED M. T. James TITLE Field Production Superintendent DATE July 19, 1966

(This space for Federal or State office use)

APPROVED BY (ORIG. SGD.) HILLARY A. ODEN TITLE DISTRICT ENGINEER DATE JUL 21 1966

CONDITIONS OF APPROVAL, IF ANY:

COPY STATE

*See Instructions on Reverse Side

Form No. 4

(SUBMIT IN TRIPLICATE)

General Rule No. 206.3 & 231

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

WELL COMPLETION REPORT
(NEW WELLS ONLY)

Owner MURPHY CORPORATION Field East Poplar

Street 13-B Behner Building Pool East Poplar

City Billings State Montana County Roosevelt

Lease Name Indian Tribal Well No. 45 Acres in Unit

Location C SW NE Sec. 4 Twp. 28N Range 51E Elevation 2042 Gr.

Permit No. Electric Log Run July 29, 1954

Number of crude oil producing wells on this lease, including this well

DATA ON TEST

Dates Test Commenced August 23, 1954 Hour 4 P.M. Date Test Completed August 24, 1954 Hour 4 P.M.

Length of Test 24 Hours — Minutes.

For Flowing Well:

Flowing pressure on Csg. 950 Lbs./Sq. In.

Flowing pressure on Tbg. 925 Lbs./Sq. In.

Size Tbg. 2 3/8" In. No. Ft. Run 5764

Size choke 12/64 inches. Make choke O.C.T.

Length Adj. In. Shut in pressure 1025

For Pumping Well:

Length of stroke used inches

Number of strokes per minute

Size of working barrel inches

Size Tbg. In. No. Ft. run

If Flowing Well, was this well flowed for the entire duration of this test without the use of swab or other artificial flow device? Yes If jetted, used Cu. Ft. gas per Bbl. oil. Result of this test (Bbls. net oil per 24 hours.) 414 (100% tank tables.)

RECEIVED SEP 11 1954 OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA - BILLINGS

Gas-Oil ratio of this well is Negligible Cu. Ft. of gas per Bbl. of oil.

Per cent of water produced during this test 0

Gravity of oil produced during this test (corrected to A. P. I. 60° F.) 40.4

Name of pipe line or other carrier East Poplar Unit Gathering System

If Shot:

Date this well shot, perforated or treated August 23, 1954 No. Qts. used

If Perforated:

No. Size

If Acidized:

No. Gals. used 500 gallons etching acid

Formation shot, perforated or treated Ft. to feet.

Shooting, perforating or treating company Dowell

Bbls. of oil produced from this well since shot or treatment to time test was started 0

Date well completed August 23, 1954 Hour well completed 4:00 P.M.

Top of pay 5755 Ft. Total depth of well 5771 Ft.

CASING RECORD

Size	Put In Well Feet	Put In Well Inches	Pulled Out Feet	Pulled Out Inches	Left In Well Feet	Left In Well Inches	No. Sacks Cement Used	Packers	Float Collars and Shoes
13 3/8"	170.55'						200		Howco
9 5/8"	1004.87'						400		Howco
5 1/2"	5767'						300		Howco

Agent's address 13-B Behner Building

Billings, Montana

Phone 2-2131

MURPHY CORPORATION
(Name of Owner)

Harold Milburn
(Signature)

District Production Supt
(Title)

LOG OF WELL

Show all formation, especially all sands and character and contents thereof. Describe Cores. On other side—

OVER

SEE ATTACHED SHEETS

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

CASING: Ran 5 jts. 156.55' of 13-3/8", H-40, 8rd thd American casing. Landed 14' below RKB and set at 170.55'. Cemented with 200 sacks of regular bulk cement with 2 percent gel. Left approximately 25 sacks in pipe. Job complete at 6:40 P.M. Circulated approximately 15 sacks clean cement.

Ran 32 jts. 992.37' of 9-5/8", J-55, 36#, R-2, 8rd thd American casing. Landed 12.50' below RKB and set at 1004.87'. Cemented with 400 sacks of regular bulk cement with 1 percent $CaCl_2$. Plug down at 10:35 A.M., 7-29-54. Bumped plug with 1000#, released pressure, float held ok. Circulated approximately 40 sacks of clean cement.

Ran 182 jts. 5758' of 5-1/2", J-55, 8rd thd, R-2, American casing. Landed 11' below RKB at 5767'. Howco roto-type scratchers from 5480' to 5540', 5590' to 5675' and 5730' to 5765'. Howco centralizers at 5475', 5540', 5571', 5700', and 5760'. Howco automatic fill-up shoe top at 5763'. Cemented with 300 sacks of Ideal Slo-set cement with 2 percent gel. Plug down at 4:15 A.M. Bumped plug with 1000#, released pressure, float held ok. Pipe rotated freely while cementing.

COMPLETION: Drilled baffle collar and float shoe to original total depth of 5763'. Drilled 8 more feet of "C" Zone intercrystalline to 5771', left in the well 200 jts. 5735.30' of 2-3/8" tubing, with drill collar and bit (1.62) and an 8' and 10' tubing sub. Bottom of bit at 5764.82'. Landed 9.70' below RKB. Acidized with 500 gallons of Dowell etching acid. Formation broke at 1600#. Maximum injection rate 1.8 BPM at 1800#. Bleed down pressure 1100#. Acid to surface in 24 minutes, new oil to surface in 5 more minutes. Cleaned to pit and tested as follows:

1/2" choke 1224 barrels of oil per day with 5 percent acid water with TFP--30#; CFP--125#.
1/4" choke 701 barrels of oil per day with a trace of water with TFP--300#; CFP--350#.
12/64" choke 414 barrels of oil per day with no water, with TFP--925#; CFP--950#.
10/64" choke 133 barrels of oil per day with no water, with TFP--1000#; CFP--1025#.
CSIP--1025#; TSIP--1025#.

Rig released at 4:00 P.M., 8-23-54.

ELECTRO LOG DATA

Type of Log	Interval Logged
Electrical Survey	169'-1010'
	1010'-5767'
Microlog	2000'-5765'

Formation	Schlumberger Tops
Judith River	721 (+1333)
Eagle	1127 (+ 927)
Niobrara	1979 (+ 75)
Greenhorn	2330 (- 276)
Graneros	2534 (- 480)
Muddy Sandstone	2894 (- 840)
Dakota Silt	3100 (-1046)
Rierdon	3910 (-1856)
Piper Shale	4270 (-2216)
Piper Limestone	4346 (-2292)
Gypsum Springs	4403 (-2349)
Spearfish	4594 (-2540)
Amsden	4718 (-2664)
Heath	4830 (-2776)
Otter	4973 (-2919)
Kibbey	5099 (-3045)
Kibbey Limestone	5260 (-3206)
Madison	5351 (-3297)

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E.P.U. #45

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

TYPE OF LOG	INTERVAL LOGGED
Schlumberger Electrical Survey 2"	169'-5767'
Schlumberger Electrical Survey 5"	169'-5767'
Schlumberger Microlog 5"	2000'-5765'
Schlumberger Microlog 25"	5360'-5765'

LOG TOPS

	Depth	Datum	Thickness
Judith River	721	-1333	
Eagle	1127	+ 927	
Niobrara	1979	+ 75	
Greenhorn	2330	- 276	
Graneros	2534	- 480	
Muddy Sd.	2894	- 840	
Dakota Silt	3100	-1046	
Rierdon	3910	-1856	
Piper Sh.	4270	-2216	
Piper Ls.	4346	-2292	
Gypsum Sprgs	4403	-2349	
Spearfish	4594	-2540	
Amsden	4718	-2664	
Heath	4830	-2776	
Otter	4973	-2919	
Kibbey	5099	-3045	
Kibbey Ls.	5260	-3206	
Mission	5351	-3297	
A-1	5442	-3388	2'
A-2	5451	-3397	3'
A-3	5460	-3406	12'
A-4	5472	-3418	33'
B-1	5609	-3555	9'
B-2	5627	-3573	16'
B-3	5646	-3594	6'
B-4	5679	-3625	4'
B-5	5704	-3660	7
C-1	5755	-3701	10'
C-2	----	----	----

DRILL STEM TESTS

D.S.T. #1: 5471'-5480'. Single packer at 5471', TD 5480'. Tool open 4 hours. Opened at 12:05 P.M., 8-14-54, with a medium blow increasing in 20 minutes to good blow and continuing throughout test. Recovered 1185' of gas, 150' of clean oil, 170' of muddy salty sulphur water. Hydro pressure--3220#; IBHFP--15#; FBHFP--110#; 20 minute BHSIP--2450#.

D.S.T. #2: 5827'-5839'. Single packer at 5827' with TD at 5839'. Tool opened at 11:30 A.M., 8-16-54 for 4 hours. Tool opened with good blow which continued throughout test. Recovered 3600' of gas, 1620' of clean oil, 80' of oil-and-gas-cut mud and 340' of salty sulphur water. Hydro pressure--3500#; IBHFP--112#; FBHFP--768#; 20 minute BHSIP--2780#.

D.S.T. #3: "C" Zone single packer at 5746'. Tool open at 2:30 A.M., 8-20-54 for 4 hours. Tool opened with good blow increasing to strong blow in 15 minutes, continued throughout test. Gas to surface in 3 hours and 30 minutes, recovered 5215' fluid, 4985' of clean oil, 50' of oil-and-gas-cut mud, 185' of clean oil, 15' oil-and-gas-cut mud. No free water. Hydro pressure--3535#; IBHFP--92#; FBHFP--1775#; BHSIP--2842#.

CORE ANALYSIS REPORTS

Company MURPHY CORPORATION Date 9-25-54 Lab No. 359 Well No. Unit #46 Location C SW NE 4-28N-51E

Formation "A" Zone Field East Poplar County Roosevelt State Montana Depths 5430 - 5480

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 #6	5430-5480	Rec. 48'						
NS	5472-73.5								
1	73.5-74		0.07	0.07	1.0	2.68	2.71	0.0	34.0
2	74-75		2.4	2.4	3.2	2.64	2.72	0.0	22.5
3	75-76		F.T.	5.7	2.2	2.63	2.68	0.0	40.9
4	76-77		0.03	0.03	0.3	2.66	2.67	0.0	90.2
sim. to 4	77-78		0.03	0.03	0.3	2.66	2.67	0.0	89.7

CORE ANALYSIS REPORTS CONTINUED

Formation "B-1", "B-2" & "C" Zones Depths 5584-5767 Date 8-25-54

Sample No.	Depth Feet	Effective Porosity % Porespace	Permeability Millidarcies Horizontal	Permeability Millidarcies Vertical	Saturations % Pore Space Resid Oil	Saturations % Pore Space Total Water
	Core #7	5584-5639	Recovered 55'			
NS	5584-5600					
NS	5600-5610					
5	5610-11	16.6	11.		17.6	39.0
6	11-12	15.6	0.43		3.7	51.2
7	12-13	18.5	4.8		3.9	66.2
8	13-14	1.2	U.T.		7.8	76.5
9	14-15	4.0	0.15		Tr.	57.0
10	15-16	7.4	0.59		20.8	20.5
11	16-17	9.7	1.7		5.2	53.8
12	17-18	16.4	0.44		3.9	59.3
13	18-19	10.2	0.25		4.0	72.1
NS	5619-5628.5					
14	28.5-29.5	6.6	0.39		26.7	48.9
15	29.5-30.5	2.5	2.6		13.6	56.0
16	30.5-31.5	16.8	3.7		11.3	39.9
17	31.5-32.5	4.8	0.05		7.7	52.9
18	32.5-33.5	5.1	U.T.		11.8	72.2
19	33.5-34.5	4.0	4.9		10.4	83.6
20	34.5-35.5	4.0	0.10		Tr.	64.3
21	35.5-36.5	3.0	U.T.		0.0	55.0
22	36.5-37.5	6.5	0.34		1.5	66.9
23	37.5-39	4.3	0.60		Tr.	70.0
	Core #8	5760-5767	Recovered 7'			
24	5760-61	5.1	1.4	5000+	41.5	57.5
25	61-62	0.6	0.01		0.0	91.3
26	62-63	0.4	- 0.01		0.0	47.5
27	63-64	3.3	- 0.01		27.6	2.4
28	64-65	1.9	- 0.01		0.0	65.3
29	65-66	8.4	0.03	0.02	59.5	35.7
30	66-67	15.7	0.16		42.7	31.6

CORE DESCRIPTIONS

Core No. 1 4820 - 4853, recovered 30'.

5'0" Shale; dark red, with light green, waxy mottling, slightly calcareous. No show.
2'6" Limestone; light tan, amorphous, dense, brecciated; brecciated partings filled with pale green, waxy, calcareous, shale. No show.
2'6" Limestone; medium brownish-gray, microcrystalline, dense, very argillaceous; several thin shale partings. No show.
4'0" Siltstone; brick red, sandy, shaley, slightly calcareous. No show.
4'0" Sandstone; dark red, very fine grain, sub-rounded, very argillaceous, silty, tight, slightly calcareous. No show.
6'0" Shale; dark red, slightly calcareous.

Core No. 2 4853 - 4870, recovered 19'.

19'0" Shale; dark brick red with some light green mottling, slightly arenaceous, slightly cabareous. No show.

Core No. 3 4870 - 4890, recovered 18'.

15'0" Dolomite; medium grayish-green, micro to very fine crystalline; argillaceous, dense; several thin partings of green and dark red shale. No show.
3'0" Shale; dark red, with dull green mottling. No show.

Core No. 4 4890 - 4928, recovered 30'.

5'0" Shale; dark red with green mottling; green portion, waxy and calcareous. No show.
12'0" Siltstone; brick red, well indurated, tight, fossiliferous. No show.
13'0" Siltstone; medium greenish-gray, with some red mottling, fairly well indurated, several thin shaley sections.

Core No. 5 4938 - 4983, recovered 45'.

11'0" Shale; varigated, dark brick red, medium gray, and light green. No show.
16'0" Shale; medium gray, very silty, well indurated, some dark red mottling. No show.
1'6" Sandstone; greenish-red, fine grain, sub-round to sub-angular, fair sorting, well cemented, tight, numerous, small inclusions of green shale. No show.

3'6" Shale; bright green, hard, brittle, some dark maroon mottling in lower one-half. No show.
3'0" Limestone; buff to light tan, amorphous, dense; entire unit broken when removed from core barrel. No show.
5'0" Limestone; very dolomitic, medium gray, micro to very fine crystalline, dense. No show.

Core No. 6 5430 - 5480, recovered 48'.

3'6" Anhydrite; light gray, very fine crystalline, slightly dolomitic, argillaceous. No show.
2'0" Shale; dark brownish gray, calcareous. No show.
3'0" Anhydrite; grayish-white, silty, dolomitic, dense. No show.
3'0" Shale; dark gray, dolomitic. No show.
1'6" Dolomite; dark gray, fine crystalline, anhydritic, dense. No show.
4'0" Dolomite; medium gray, dense in upper half, porous in lower half, argillaceous; lower half looks wet. No show.
3'0" Limestone; medium gray, fine crystalline, dense; several thin streaks of dark gray calcareous shale and white crystalline anhydrite. No show.
2'0" Shale; light gray, dolomitic. No show.
5'0" Anhydrite; gray, very fine crystalline, dolomitic, several thin gray shale partings. No show.
5'0" Anhydrite; light gray, very fine crystalline, very argillaceous, dense. No show.
1'0" Dolomite; medium gray, fine crystalline, anhydrite, dense, no show.
5'0" Anhydrite; grayish-white, dense. No show.
"A" Zone * 5'0" Limestone; dark gray, amorphous, dense, except for fairly numerous, short, irregular, fairly tight fractures in upper 3'; a few similar fractures in lower 2', fair oil odor, stain and spotty medium golden yellow fluorescence on fracture planes.

Core No. 7 5584 - 5639, recovered 55'.

6'0 Anhydrite; light gray, micro-crystalline, dense. No show.
1'6" Dolomite; medium gray, medium crystalline, a single short, vertical tight fracture filled with gypsum. No show.
0'6" Anhydrite; grayish-white; brecciated, partings filled with black dolomitic shale. No show.
8'0" Dolomite; medium gray, medium crystalline, dense, fragments of anhydrite in lower 4 feet. No show.

* Analyzed by Chemical and Geological Laboratories

	10'0"	Anhydrite; grayish white, dense; dolomitic in lower 5'. No show.
"B-1" Zone	* 9'0"	Limestone; medium brown, fine crystalline, fair porosity, and permeability, numerous very small brown calcite crystals; good oil stain, odor, taste and a spotty to even bright yellow fluorescence throughout.
	9'6"	Anhydrite; light gray, micro-crystalline, dense. No show.
"B-2" Zone	*10'6"	Limestone; dark brown; fine crystalline, good inter-crystalline and some vugular porosity, numerous inclusions of small brown calcite crystals; several short fairly tight, irregular fractures; good oil stain, odor, taste and spotty to even bright golden-yellow fluorescence on fracture planes and in matrix.

Core No. 3 5760 - 5767, recovered 7'.

	* 5'0"	Limestone; dark gray to black, amorphous, dense; except for a single slightly open to open vertical fracture through unit. Slight oil stain and dull spotty, golden-yellow fluorescence on fracture planes; No show in matrix.
"C-2" Zone	* 2'0"	Limestone; black, very fine crystalline, good inter-crystalline porosity and some permeability, a closed vertical fracture in upper one foot connected to fractures in unit above, lower one foot broken when removed from core barrel. Good oil stain, taste, odor and even bright golden-yellow fluorescence throughout matrix and on fracture planes.

* Analyzed by Chemical and Geological Laboratories.

MUD PROGRAM SUMMARY

MUD ADDITIVES USED: Aquagel 284 sacks; Caustic 42 sacks; Barafos 6 sacks; Driscose 8 sacks; Baroco 8 sacks; Mulls 10 sacks; Baroid 1112 sacks; Smentox 1 sack; Cement 5 sacks; Soda Ash 14 sacks; Tannex 81 sacks;

MUD COST:	$5,947.18
DRAYAGE:	329.88
TOTAL MUD COST	$6,277.06

Drilled conductor hole to 186 ' and ran 5 jts. (156.55') of 13 3/8" casing set at 170.55' with 200 sacks of Atlas Regular cement with 2% ca cl2.

Drilled out from under conductor pipe to approximately 690 feet where mud weight was built up to 12.2 in order to avoid gas blow in the Judith River formation. Continued drilling to 1012' and ran 31 jts. (992.37') of 9 5/8" casing set at 1006.87' and cemented with 400 sacks of regular bulk cement with 1 % ca cl2.

Drilled out from under surface pipe to approximately 4200 feet with water. At this point a caustic-tannex mud program was started and maintained to a total depth of 5768 Schlumberger measurement, with additions of caustic, tannex, gel, aquagel, soda ash, driscose, and baroco. Ran 182 jts, (5756') of 5 1/2" casing set at 5767' and cemented with 300 sacks Ideal slo-set with 2% gel. without difficulty. Eight cores and three drill stem tests were run without difficulty.

Mud characteristics while drilling were as follows:

Depth	Weight	Viscosity	Water Loss	Ph.
4623	10.3	65	7.5	11
4820	10.1	60	10.1	12
5073	10.8	60	9.4	12
5220	10.7	55	10.4	12
5610	10.6	56	11.0	12
5735	10.6	56	12.0	12.5

DRILLING BIT AND TOTCO RECORDS

Bit No.	Make	Size	Type	Serial No.	From	To	Totco Footage	Degre
	Hughes	12 1/4	OSC-3	RR	0	1012	282	1/4
1	Hughes	8 3/4	OSC-3	51801	1012	2470	2022	1/2
2	Hughes	8 3/4	OSCJ	40709	2470	3375	3700	3/4
3	Hughes	8 3/4	OSC	40749	3375	3802		
4	Hughes	8 3/4	OSC	40927	3802	3950		
5	Hughes	8 3/4	OSC	40745	3950	4137		
6	Hughes	8 3/4	OSC	40925	4137	4313		
7	Hughes	8 3/4	OSC	40792	4313	4497	4517	1/2
8	Hughes	8 3/4	OSC	40757	4497	4712		
9	Hughes	8 3/4	OWV	40755	4712	4820		
10	Security	8 3/4	MLN	77867	4820	4883		
11	Security	8 3/4	MLN	77855	4883	5126		
12	Security	8 3/4	MLN	77936	5126	5220		
13	Hughes	8 3/4	OWV	47053	5220	5264		
14	Security	8 3/4	MLN	77857	5264	5430		
15	Security	8 3/4	MLN	77853	5430	5584		
16	Security	8 3/4	MLN	77972	5584	5768		

DIAMOND CORE BIT RECORD

Core No.	Make	Serial No.	Size	From	To
1	Christenson	D-713	7 7/8	4820	4853
2	Christenson	D-713	7 7/8	4853	4870
3	Christenson	D-713	7 7/8	4870	4890
4	Christenson	D-713	7 7/8	4890	4928
5	Christenson	D-713	7 7/8	4938	4983
6	Christenson	D-713	7 7/8	5430	5480
7	Christenson	D-713	7 7/8	5584	5639
8	Christenson	D-713	7 7/8	5760	5767

[illegible] DESCRIPTIONS

3000-	3020	Shale; medium gray, micaceous, pyritic. Trace siltstone; light gray.
3020	3160	Shale; dark gray. Trace siltstone and shales as above. Trace sandstone; light gray, very fine grain, micaceous, glauconitic.
3160		Sample Top Dakota
3160	3280	Trace sandstone; white, very fine to fine grain, sub-rounded, medium cement, porous. Shale; medium gray, micaceous.
3280	3400	Shales; medium to dark gray, micaceous.
3400	3520	Shale; medium gray. Shale; brownish gray. Trace sandstone; light gray, very fine grain, tight. Trace sandstone; light gray, fine grain, glauconitic, micaceous.
3520	3720	Shale; medium to dark gray. Siltstone; brownish-gray, micaceous.
3720		Sample Top Swift
3720	3780	Sandstone; light gray, very fine grain, glauconitic, calcareous. Shale; medium to dark gray. Siltstone; light gray, micaceous.
3780	3880	Trace sandstone; as above. Shale; dark gray. Shale; medium gray. Siltstone; light gray, micaceous.
3880	3895	Shales; as above. Shale; light gray.
3895		Sample Top Rierdon
3895	4000	Trace sandstone; white, very fine grain, sub-rounded, well sorted, calcareous. Shales; medium to dark gray.
4000	4070	Tons sandstone; light gray, very fine grain, tight, calcareous. Shales; medium to dark gray. Shale; greenish-gray, calcareous.
4070	4140	Trace sandstone as above. Shale; gray, green, calcareous. Shales; medium to dark gray.
[illegible]	4210	Shales; as above. Shale; brownish gray. Shale; medium to dark gray.
[illegible]	[illegible]	Shale; as from [illegible] dark gray. [illegible]; light gray, [illegible] micaceous.
[illegible]	(-9350)	Sample Top Pahasapa Shale

4247	4352	Shale; light brick red. Shale; dark gray. Shale; medium gray, silty, micaceous. Shale; greenish-gray, calcareous. Trace limestone; grayish brown, crypto-crystalline, dense.
4352		Sample Top Piper Limestone
4352	4390	Limestone; medium to dark brown, amorphous, dense. Shale; light to medium gray.
4390	4402	Limestone; as above. Limestone; light brown, sandy. Shale; as above. Shale; light grayish green, calcareous.
4402		Sample Top Gypsum Springs
4402	4480	Shale; grayish-green, calcareous. Shale; medium gray. Shale; red. Trace limestone; light to medium brown, amorphous, dense.
4480	4520	Shales; as above. Limestone; cream to brown, amorphous, dense.
4520	4552	Limestone; cream, amorphous, dense. Shales; as above. Shale; red, silty.
452 4552	4622	Limestone; cream and tan, amorphous, dense. Anhydrite; white, micro-crystalline, dense. Shale; brick red, silty. Shale; light gray. Shale; medium to dark gray.
4622		Sample Top Spearfish
4622	4715	Sandstone; red, very fine grain, silty, anhydritic. Shale; dark gray. Shale; greenish-gray.
4715		Sample Top Amsden
4715	4750	Sandstone and shale as above. Shale; dark red. Limestone; tan, amorphous, dense. Dolomite; white, amorphous, dense. Shale; purple.
4750	4820	Limestone; tan, crypto-crystalline, oval crystal, calcite inclusions, dense. Some white dolomite as above. Shale; medium gray, medium green, red, and purple.
4820	4858	Core No. 1
4858	4870	Core No. 2
4870	4890	Core No. 3
4890	4928	Core No. 4
4928	4933	Core No. 5

4983	4990	Shale; brownish red, silty. Shale; bright green. Sandstone; medium green, off-white, sub-angular, well sorted, trace porosity. Limestone; off-white with tan, hard, cherty (?), crypto-crystalline, dense. Shale; greenish-gray, calcareous.
4990	5010	Shale; medium gray, calcareous. Shale; brick red. Limestone; medium gray, arenaceous, crypto-crystalline, dense.
5010	5020	Limestone; off-white with tan, crypto-crystalline, dense. Shale; as above.
5020	5030	Limestone; as above. Shale; as above. Trace sandstone; greenish gray, sub-angular, well sorted, fine grain, calcareous. Trace porosity.
5030	5040	Limestone; as above. Shale; as above. Shale; light green, tan.
5040	5050	Limestone; as above. Shale; as above. Trace sandstone; clear pinkish, sub-angular, poorly sorted, porous. Trace pyrite.
5050	5060	Limestone; as above. Shale as above. Sandstone; greenish; very fine grain, poorly cemented, fair porosity.
5060	5080	Limestone; light gray with tan, crypto-crystalline, dense, medium hard. Shale; as above. Trace anhydrite (?) white, chalky.
5080	5110	Limestone; as above. Limestone; pink, crypto-crystalline, dense. Shale; as above.
5110		Sample Top Kibbey Sandstone
5110	5140	Limestone; light gray, crypto-crystalline, dense. Shale; as above. Sandstone; clear with pinkish, very fine with fine grain, trace porosity, fairly well sorted.
5140	5160	Sandstone; as above. Limestone; as above. Shale; as above. Shale; medium gray with black specks.
5160	5180	Sandstone; as above. Shale; as above. Sandstone; gray with black specks, fine grain, sub-angular, fairly well sorted, calcareous. Limestone; as above.
5180	5255	Sandstone; clear with red, fine grain, sub-angular, poorly cemented, calcareous. Shale; as above. Trace sandstone; gray as above. Limestone; as above.
5255		Sample Top Kibbey Limestone

5255	5270	Limestone; grayish tan, crypto crystalline, dense, amorphous. Sandstone; red, very fine with fine grain, sub angular, fairly well sorted, tight. Sandstone; pinkish red, medium grain, angular, poorly sorted, trace dolomite. Shale; dark gray. Shale; light grayish green, waxy. Shale; brown with maroon.
5270	5280	Limestone; tan, crypto-crystalline, dense, brown spots. Shale; as above. Sandstone; pinkish red, medium green, angular, poorly sorted, trace porosity.
5280	5294	Sandstone; off white with pinkish, medium with fine grain, sub-angular, trace porosity, calcareous, medium cement. Limestone; as above. Shale; as above.
5294	5300	Anhydrite; white. Sandstone; as above. Sandstone; red, very fine grain, tight. Shale; as above.
5300	5370	Sandstone; brick red, very fine grain, tight, well cemented, calcareous, silty. Sandstone; off white with pink, medium green, sub-round, poorly sorted, trace porosity, calcareous. Trace anhydrite as above. Trace limestone; tanish gray, amorphous, dense, medium hard. Shale; dark gray, calcareous. Shale; light green.
5370	5390	Dolomite; light gray, fine crystalline, dense, medium hard. Sandstone; brick red as above. Shale; greenish gray. Shale; dark gray. Trace anhydrite, as above.
5390		<u>Sample Top Madison</u>
5390	5430	Dolomite; as above. Anhydrite; white, chalky. Dolomite; dark gray, fine crystalline, hard, appears sandy.
5430	5480	Core No. 6.
5480	5520	Limestone; dark brown, micro-crystalline, dense, hard. Limestone; tan with gray, medium crystalline, fair porosity. Shale; dark gray. Anhydrite; white, fibrous.
5520	5530	Dolomite; tanish gray, fine crystalline, dense. Limestone; brown as above. Shale; as above. Anhydrite; as above.
5530	5550	As above with increase in anhydrite.
5550	5570	As above. Limestone; light gray, amorphous, dense, very sandy.
5570	5584	As above. Limestone; pink, amorphous, very S.F.F., dolomite, anhydritic.
5584	5639	Core No. 7

5639	5649	Limestone; medium brown, very fine crystalline; porous, slight cut with CCl_4.
5649	5680	Some limestone as above. Limestone; round, brown, amorphous, dense. Trace anhydrite, white. Dolomite; tan, micro-crystalline, porous, limy.
5680	5720	As above. Dolomite; medium gray, crypto-crystalline, dense.
5720	5760	Limestone; medium brown, crypto-crystalline, dense. Some Dolomite as above. Anhydrite, white, dense.
5760	5767	Core No. 8

5767' Driller equals 5668' Schlumberger.

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Workover Record

May 21, 1955
5771' Prep. to kill well. Moved in workover rig and rigged up.

May 22, 1955
5771' Conditioning mud. Hauled mud from No. 14 and killed well.

May 23, 1955
5771' W.O.C. Made trip and set Howco Model C Prod. packer at 5743' w/tail pipe to 5754'. Circ. hole with oil. Inj. 30 bbls. oil into formation w/last 5 bbls. having 10 gals. of hy-flo added. Mixed 100 sx. reg. cmt. w/400 gals. Diesel fuel, 10 gals. DOC 1 wetting agent, and 5 cans of radio active tracer material. Squeezed into formation with max. press. at 2400 lbs. Over-flushed w/10 bbls. of oil. Ran Gamma Ray log and found top of tracer material at 5759'.

May 24, 1955
Prep. to swab.

May 25, 1955
5771' Open to test tank at 6:00 AM, 5-24-55. Flwd. 10 bbls. displacement oil, decr. to small stream, started swabbing at 8:00 AM, swabbed down to bottom, rec. 2 to 3 bbls. fluid per hour, 90% wtr., 3% emulsified cmt., 7% oil. Prep. to perf. C zone fractures.

May 26, 1955
Prep. to acidize. Swabbed 9:00 AM to 2:00 PM, 2 to 3 bbls. per hr., 95% wtr. Pulled 7 jts. tbg. to check csg. collars and packer. Top packer at 5743'. Perf. C zone fractures 5754' to 5760' Schlumberger Measurement with Lane Wells 1 3/4" tbg. gun, 5 JPF. Swabbing at rate of 2 to 3 bbls. fluid per hr., 70% water.

May 27, 1955
5771' W.O.C. Swabbed 2 to 3 bbls. fluid per hr., acidized C zone w/500 gals. Dowell Etching acid, max. press. 1450#. Max. inj. rate 1/2 bbl. per min., 5 mins. bleed down pressure 1100#. Flowed spent acid to surface 22 mins. Flwd. 27 bbls. per hr. 1/4" cke. Salt wtr. w/trace oil. TFP 200#, Squeezed the C zone 5754' to 5771' w/100 sx. of Slo-set cmt., broke formation.

May 28, 1955
PBTD 5757' Drld. Halliburton Model C packer, PBTD 57[illegible]' Schlumberger. Perf. C zone fractures 5750-[illegible], 4 JPF. Would not flow natural, acidized w/500 gals. Dowell Etch. acid. Max. press. 3150#. Inj. 1/2 bbls. per min. at 2500#. Bleed down 2125#. Flwd. small stream 7 mins., died, swabbed down, swabbed 30 to 40 bbls. mud out of formation w/trace oil, was not rec. any fluid w/swab.

May 29, 1955
5757' PBTD. Loaded hole w/oil, re-acidized C zone w/500 gals. of Dowell Etch. acid over flushed w/1000 gals. crude oil, maximum pressure. Flowed very small stream, swabbed down, rec. 10 bbls. fluid per hr. 50 to 98 percent wtr. with trace mud.

May 30, 1955
PBTD 5757'. 6:00 AM to 9:00 AM (3 hrs.) Avg. 8 BFPH, 83% wtr. Chls. 40,000 PPM, 9:00 AM to 12:00 noon 3 bbls. fluid per hr., 75 percent wtr. Chlorides 40,000 PPM, 12:00 noon to 3:00 PM, 3 bbls fluid per hr., 97% wtr. Loaded hole w/oil, ran Halliburton Model C Prod. packer, Top packer 5738', swabbed down, rec. 2 to 3 bbls. per hr., 96 to 98% wtr. Re-acidized C zone, perf. 5750-55' w/500 gallons Dowell Mud acid, Max. press. 3100#, inj. 4 BPM at 3100#, Bleed down press. 1250#, open to test tank, Flowd. med. stream 15 mins. Started swabbing.

May 31, 1955
WOC, Swabbed displacement oil and spent acid, swabbed at rate of 13 bbls. salt wtr., chlorides 40,000 PPM. Stopped swabbing at 2:30 PM, Started flwg. 4:30 PM, Flwd at rate 11 BFPH, Squeezed w/400 sx. Slo-set cmt. Broke formation w/1200#., max. press. 4200#, held, 55 sacks in formation, reversed out 45 sacks. Job complete at 12:15 AM, 5-31-55.

June 1, 1955
PBTD 5745' Schl., Perf. B-2 zone 5626' to 34' w/Lane Wells 1 3/4" gun, 5 JPF Schl. measure. Acidized B-2 zone 5626-5634' w/1000 gals Dowell Etching acid. Broke formation 3100#. Inj. 1 1/2 bbls. per min. at 1900#. Last 3 bbls. at 1 bbl. per min. at 2200 lbs. Opn to test tank 11:00 PM, Flwd. spent acid to surf. 23 mins. New oil 30 more mins. Flwd. 30 mins. on 1/2" cke. to clean, flwd. 1hr. 1/4" cke. 5 bbls. fluid per hr., 30% salt wtr. and spent acid. TFP 100#, CP 200#, Tested 2 hrs. 1/4" cke., flw. rate 21 bbls. fluid per. hr., 15% salt wtr. Chlorides 180,000 PPM, TFP 100#, CP 175#, Rig released at 6:00 AM, 6-1-55.

June 2, 1955
PBTD 5745' Flwg. to tanks.

June 3, 1955
PBTD 5745'. Test 12/64" cke. 195 MCFD, no wtr., TFP 475#, CP 600#. To drop from report.

Location: C SW NW Sec. 4-T28N-R51E
Spacing - 160 acres
Elevation: 2054 K.B. - 2042 Gr.
Spudded: 7-26-54
Completed: 8-23-54
T.D.: 5768' Schl - 5771' Drlr.
Prod. Zones: C Zone - Open hole

Schlumberger Tops

	Depth	Datum	Thickness
Judith River	723	+1331	
Greenhorn	2334	- 280	
Muddy Sd	2905	- 851	
Dakota Silt	3123	-1069	
Piper Ls	4350	-2296	
Amsden	4710	-2656	
Heath	4830	-2776	
Otter	4973	-2919	
Kibbey Sd	5114	-3060	
Kibbey Ls	5261	-3207	
Madison	5351	-3297	
A-1	**5442	-3388	2'
A-2	**5451	-3397	3'
A-3	**5460	-3406	12'
A-4	**5472	-3418	33'
B-1	**5609	-3555	9'
B-2	5627	-3573	16'
B-3	**5648	-3594	6'
B-4	**5679	-3625	4'
B-5	5714	-3660	?
C-1	* 5755	-3701	10'
C-2	----	-----	---

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

Drill Pipe Corrections (Made)
4938 Driller - 4928 SLM (-10')

Coring Intervals:
#1 4620-4659 Rec. 30' Heath
#2 4853-4870 Rec. 19' Heath
#3 4870-4890 Rec. 18' Heath
#4 4890-4928 Rec. 30' Heath
#5 4938-4983 Rec. 45' Heath
#6 5430-5480 Rec. 48' A-1-2-3-4
#7 5584-5639 Rec. 55' A-4
#8 5760-5767 Rec. 7' C-1

Drill Stem Tests:
DST #1 5471-80 A-4, Tool opn 4 hrs, w/med. blow incrsg to good blow after 20 min, cont'd thruout. Rec. 1185' gas, 150' cln oil, 170' muddy salty sulf wtr. IBHFP 15#, FBHFP 110, 20 min. BHSIP 2450, Hydro 3220.
DST #2 5627-39' B-2 Tool opn 4 hrs. Opnd w/good blow cont'd. thruout test. Rec. 3600' gas, 1620' cln oil, 80' o & g cut mud, 340' salty sulf wtr. IBHFP 112, FBHFP 768, 20 min BHSIP 2780, Hydro 3500#.
DST #3 5746-67' C-1 Tool opn 4 hrs, w/good blow incrsg to strng blw after 15 min and cont'd thruout. Gas to surf in 3 hrs 30 min. Rec. 4985' cln oil, 50' o & g cut mud, 165' cln oil, 15' o & g cut mud, no free wtr. IBHFP 92, 20 min BHSIP 2842, FBHFP 1775, Hydro 3535.

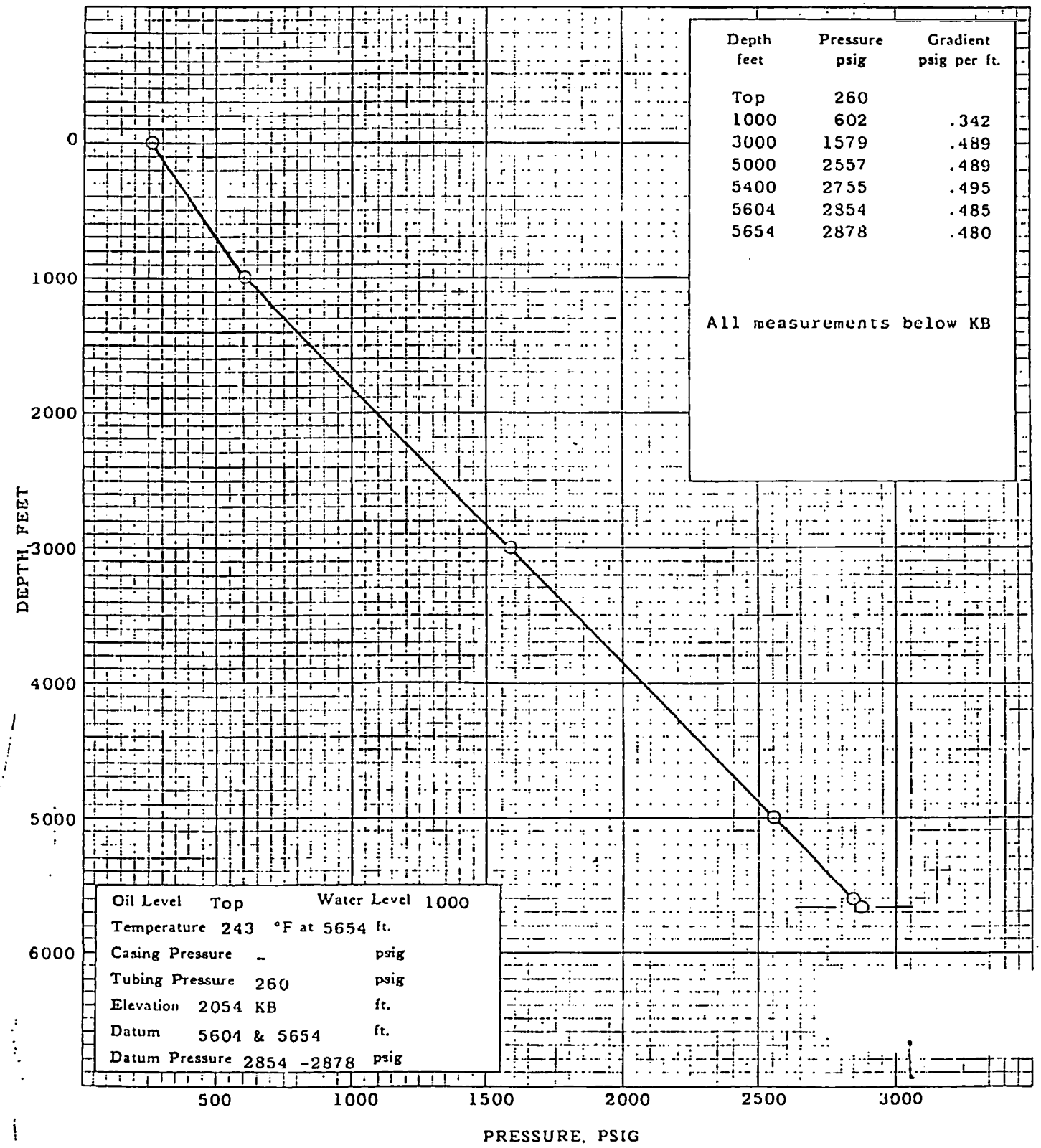
History Subsequent to Completion:
6-1-55: Squeezed C zone.
Perforated B-2 Zone 5626-34'

CHEMICAL & GEOLOGICAL LABORATORIES

Casper, Glendive, Edmonton

PRESSURE SURVEY

Company	Murphy Corporation	County	Roosevelt
Field	East Poplar	State	Montana
Lease and Well No.	EPU No. 45	Formation	B 2
Type of Test	Static	Date Tested	November 15, 1956



Depth feet	Pressure psig	Gradient psig per ft.
Top	260	
1000	602	.342
3000	1579	.489
5000	2557	.489
5400	2755	.495
5604	2854	.485
5654	2878	.480

All measurements below KB

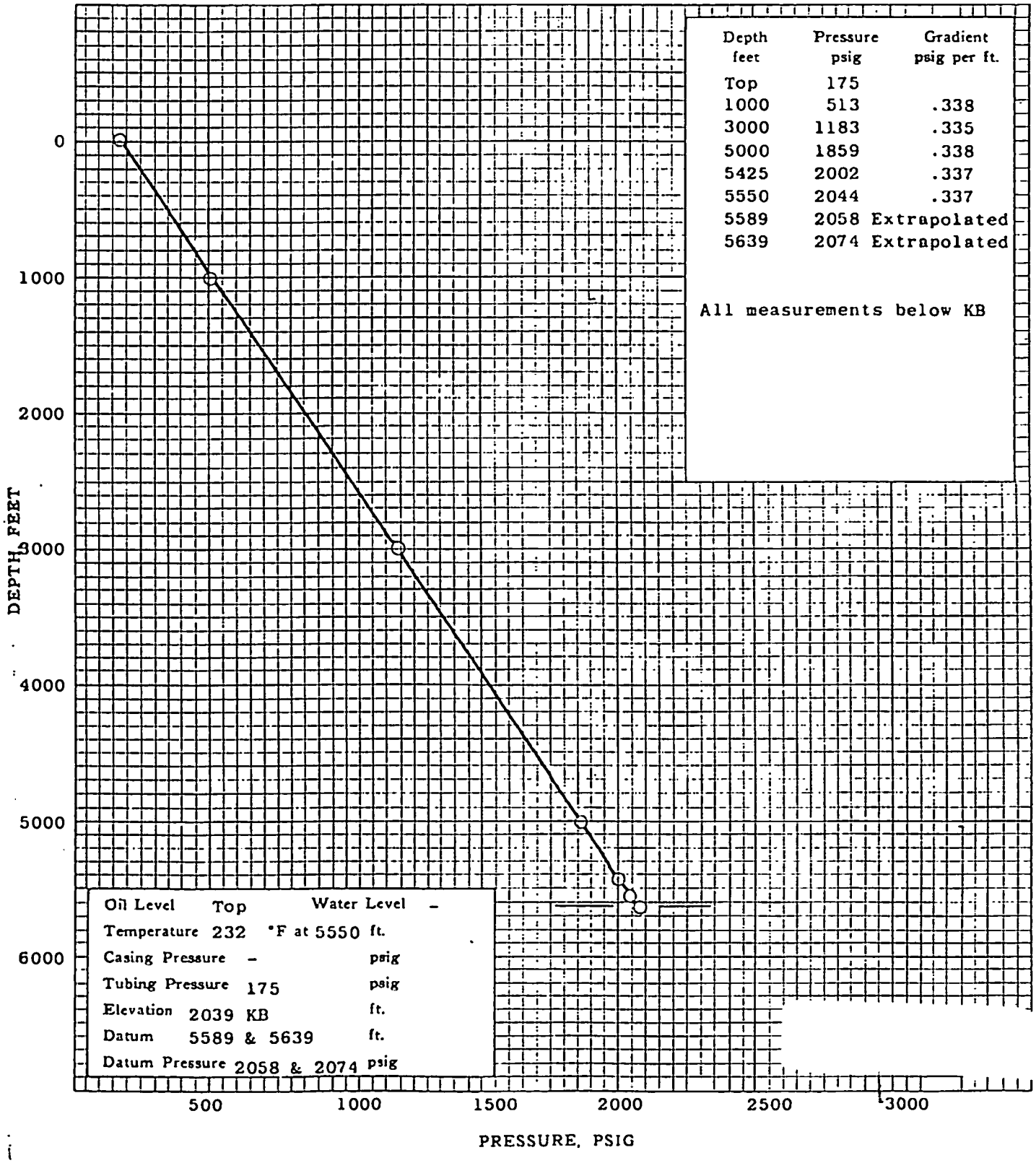
Oil Level	Top	Water Level	1000
Temperature	243 °F at 5654	ft.	
Casing Pressure	–	psig	
Tubing Pressure	260	psig	
Elevation	2054 KB	ft.	
Datum	5604 & 5654	ft.	
Datum Pressure	2854 -2878	psig	

CHEMICAL & GEOLOGICAL LABORATORIES

Casper, Glendive, Edmonton

PRESSURE SURVEY

Company	Murphy Corporation	County	Roosevelt
Field	East Poplar	State	Montana
Lease and Well No.	EPU No. 70	Formation	B1 and B2
Type of Test	Static	Date Tested	November 15, 1956



Depth feet	Pressure psig	Gradient psig per ft.
Top	175	
1000	513	.338
3000	1183	.335
5000	1859	.338
5425	2002	.337
5550	2044	.337
5589	2058	Extrapolated
5639	2074	Extrapolated

All measurements below KB

Oil Level	Top	Water Level	-
Temperature	232 °F at 5550 ft.		
Casing Pressure	-		psig
Tubing Pressure	175		psig
Elevation	2039 KB		ft.
Datum	5589 & 5639		ft.
Datum Pressure	2058 & 2074		psig

103 50 5M 3-52

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-42

DISTRICT #15 DENVER STATION WILLISTON DATE 8-23 54, 19

OWNER MURPHY CORP. LEASE EPU WELL NO. 45

POOL E. POPLAR COUNTY ROOSEVELT STATE MONTANA

LOCATION 4-28N-51E OWNER'S REPRESENTATIVE JIM CRANUTT

WELL DATA

FORMATION CHARLES "C"

PAY-FROM 5767 TO 5771

PRESENT TOTAL DEPTH 5771 P. B. FROM X

PIPE DATA—

CASING SIZE 5½" WT. 15½#

CASING DEPTH 5767 SKS. CEMENT 300

LINER SIZE WT.

LINER DEPTH-FROM TO

LINER DESCRIPTION

TUBING SIZE 2" Eue DEPTH 5765

PACKER-TYPE X DEPTH

PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—

DATE NEW CABLE TOOL

ROTARY X DRILLING FLUID MUD

SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
8 3/4 OH	5767	5768
4 3/4 "	5768	5771

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. ~~P.M.~~	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
8 MST			ARRIVAL AT LOCATION WITH 500 GALS. OF DOWELL Jel X100				
9 22			Start oil to displace water				FILL 120 BBLS
10 20	600	600	Well circulated				BLEED 23 BBLS.
10 26	"	"	Start 12 bbl. acid down tubing				FLUSH 12 BBLS
10 31	800	"	Start 11 bbl. oil to spot acid on form.				
10 36	500	300					Acid spotted
10 47	700	200	23				Start acid in form.
10 49	1600	1550	24	1	1	.5	Form. feeding
10 50	"	1450	24.5	1.5	.5	.5	Press. break
10 51	1700	1600	25	2.0	.5	.5	Increase pump rate
10 52	"	1750	26	3.0	1.0	1.0	
10 54	1750	1800	28	5.0	2.0	1.0	Pumping steady
10 56	"	"	30	7.0	2.0	1.0	
10 57	"	"	31	8.0	1.0	1.0	
10 58	1780	"	32	9.0	1.0	1.0	Pumping steady
10 59	1650	1750	33	10.0	1.0	1.0	
11 00	1600	1700	34	11.0	1.0	1.0	
11 01	"	"	35	12.0	1.0	1.0	All acid displaced, shut down
11 10	700	1100					Bleed down press.

LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

RECEIVED AUG 28 1954 OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA - BILLINGS

B. OWEN
SERVICE ENGINEER

E. H. NIELSEN
STATION OR DISTRICT MANAGER

PRINTED IN U. S. A.
103 10M 7-54

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-141

DISTRICT #15 Denver STATION Williston, N. Dakota DATE 5-26, 1955

OWNER Murphy Corporation LEASE E.P.U. WELL NO. 45
POOL E. Poplar COUNTY Roosevelt STATE Montana
LOCATION 4-28-51 OWNER'S REPRESENTATIVE James and Greene

WELL DATA

FORMATION C Zone
PAY-FROM 5754 TO 5760
PRESENT TOTAL DEPTH 5771 P. B. FROM

PIPE DATA—
CASING SIZE 5½" WT. 15½
CASING DEPTH 5767 SKS. CEMENT 300
LINER SIZE WT.
LINER DEPTH-FROM TO
LINER DESCRIPTION
TUBING SIZE 2" Eue DEPTH 5754
PACKER-TYPE Baker DEPTH 5748
PACKER FURNISHED BY OPERATOR X DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5754	5760

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

RECEIVED
JUN 11 1955
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

DETAILED RECORD OF TREATMENT

TIME A.M. ~~P.M.~~	PRESSURE CASING	PRESSURE TUBING	BBLS. OF FLUID OUT OF TANKS	BBLS. OF FLUID IN FORMATION	BBLS. OF FLUID PER READING	BBLS. OF FLUID PER MINUTE	REMARKS
11 00							ARRIVAL AT LOCATION WITH 500 GALS. OF DOWELL Jel X100
12 00							Start circulating oil down csg. FILL 70 BBLS.
12 30	300	800					Well circulated BLEED 22.5 BBLS.
12 35							Start 12 bbl. acid down tubing FLUSH 12.0 BBLS.
1 05	400	200					Start 10.5 bbl. oil to spot acid
1 15	600	400					Acid spotted, set packer
1 28	550	300	22.5				Start acid in form.
1 32	"	975	23.0	.5	.5	.1	
1 34	500	1000	23.5	1.0	.5	.2	Shut down, let soak
1 35	"	900					Resume pumping
1 38	"	1150	24.2	1.7	.7	.2	Shut down
1 39	"						Resume pumping
1 41	"	1375	25	2.5	.8	.4	Shut down
1 43	"	1100					Resume pumping
1 46	300	1400	26.5	4.0	1.5	.5	Feeding
1 49	"	1450	27.5	5.0	1.0	.3	Shut down
1 52	"	1300					Resume pumping
1 55	"	1450	29	6.5	1.5	.5	
1 58	200	"	30	7.5	1.0	.3	
2 01	"	1425	31.5	9.0	1.5	.5	
2 04	"	1400	32.5	10	1.0	.3	Press. break
2 07	"	"	33.5	11	1.0	.3	
2 10	34	1200	34.5	12	1.0	.3	All acid displaced, shut down
2 15	100	1100	S.I.P.				
4 15	Trucks left location						

IF TREATMENT IS NOT CONVENTIONAL LINES FOR FORMATION TREATMENT INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. Owen
SERVICE ENGINEER

E. H. Nielsen
STATION OR DISTRICT MANAGER

PRINTED IN U. S. A.
1M 3-25 12500 5-54

JUN 14 40

DOWELL INCORPORATED

STAGE NO.

TREATMENT NO.

TREATMENT REPORT

DISTRICT #15 STATION Williston, N.D. DATE 5-26, 1955

OWNER Murphy Corp LEASE EPH. WELL NO. 45
POOL E. Pop COUNTY Roosevelt STATE Montana
LOCATION OWNER'S REPRESENTATIVE James & Greene

WELL DATA

FORMATION "C" Zone
PAY-FROM 5754 TO 5760
PRESENT TOTAL DEPTH P. B. FROM

PIPE DATA–
CASING SIZE WT.
CASING DEPTH SKS. CEMENT
LINER SIZE — WT. —
LINER DEPTH-FROM — TO —
LINER DESCRIPTION —
TUBING SIZE 2" EUE DEPTH 5754
PACKER-TYPE Baker DEPTH 5748
PACKER FURNISHED BY OPERATOR yes DOWELL

COMPLETION DATA–
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5754	5760

PRODUCTION–

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD–

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
11:00	0	0					ARRIVAL AT LOCATION WITH 500 GALS. OF DOWELL Jel X 100
12:00	0	0					Start circulating oil down casing — FILL 70 BBLS.
12:30	300	300					well circulated — BLEED 22.5 BBLS.
12:35							Start 12 bbls Acid down Tubing — FLUSH 12.0 BBLS.
1:05	400	200					Start 10.5 bbls oil To spot Acid
1:15	600	400					Acid spotted, set Packer
1:28	550	300	22.5	0	—	—	Start Acid in formation
1:32	550	975	23	.5	.5	.1	
1:34	500	1000	23.5	1.0	.5	.2	Shut down, Let soak
1:35	500	900					Resume Pumping
1:38	500	1150	24.2	1.7	.7	.2	Shut down
39							Resume Pumping
1:41	500	1375	25	2.5	.8	.4	Shut down
1:43	500	1100					Resume Pumping
1:46	300	1400	26.5	4.0	1.5	.5	Feeding
1:49	300	1450	27.5	5.0	1.0	.3	Shut down
1:50	300	1200					Resume Pumping
1:55	300	1450	29	6.5	1.5	.5	
1:58	200	1450	30	7.5	1.0	.3	
2:01	200	1425	31.5	9.0	1.5	.5	

LEFT LOCATION (Next Page.)

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

R. Owen
SERVICE ENGINEER

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STATION OR DISTRICT MANAGER

PRINTED IN U. S. A.
103 3-25 12500 5-54

STAGE NO.

DOWELL INCORPORATED

TREATMENT NO.

TREATMENT REPORT

DISTRICT #15 STATION _____ DATE 5-26, 1955

OWNER Simply Corp LEASE [illegible] WELL NO. 45
POOL _____ COUNTY _____ STATE _____
LOCATION _____ OWNER'S REPRESENTATIVE _____

WELL DATA

FORMATION _____
PAY-FROM _____ TO _____
PRESENT TOTAL DEPTH _____ P. B. FROM _____

PIPE DATA—
CASING SIZE _____ WT. _____
CASING DEPTH _____ SKS. CEMENT _____
LINER SIZE _____ WT. _____
LINER DEPTH-FROM _____ TO _____
LINER DESCRIPTION _____
TUBING SIZE _____ DEPTH _____
PACKER-TYPE _____ DEPTH _____
PACKER FURNISHED BY OPERATOR _____ DOWELL _____

COMPLETION DATA—
DATE _____ CABLE TOOL _____
ROTARY _____ DRILLING FLUID _____
SIZE OPEN HOLE _____

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

Page 2

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
			ARRIVAL AT LOCATION WITH				GALS. OF DOWELL
							FILL ____ BBLS.
							BLEED ____ BBLS.
							FLUSH ____ BBLS.
2:04	800	1400	22.5	10	1.0	.3	Pressure dropping
2:07	200	1400	22.5	11	1.0	.3	
2:10	100	1400	34.5	12	1.0	.3	All Acid displaced, shut down
2:15	100	1100					Shut in Pressure
4:15 CST			LEFT LOCATION				Trucks

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

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103 10M - 7-54

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-142

DISTRICT #15 Denver STATION Williston, N. Dakota DATE 5-28, 1955

OWNER Murphy Corporation LEASE E.P.U. WELL NO. 45

POOL E. Poplar COUNTY Roosevelt STATE Mont.

LOCATION 4-28-51 OWNER'S REPRESENTATIVE Greene and James

WELL DATA

FORMATION McGowan

PAY-FROM 5750 TO 5755

PRESENT TOTAL DEPTH 5758 P. B. FROM 5771

PIPE DATA—

CASING SIZE 5½' WT. 15½

CASING DEPTH 5767 SKS. CEMENT 300

LINER SIZE WT.

LINER DEPTH-FROM TO

LINER DESCRIPTION

TUBING SIZE 2" Eue DEPTH 5752

PACKER-TYPE DEPTH

PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—

DATE CABLE TOOL

ROTARY DRILLING FLUID

SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5750	5755

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD

RECEIVED
JUN 11 1955
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

DETAILED RECORD OF TREATMENT

TIME A.M. OR ~~P.M.~~	PRESSURE CASING	PRESSURE TUBING	BBLS. OF FLUID OUT OF TANKS	BBLS. OF FLUID IN FORMATION	BBLS. OF FLUID PER READING	BBLS. OF FLUID PER MINUTE	REMARKS
5 00							ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL Jel X100
5 43							Start bleeding 12 bbl. acid down tubing — FILL ___ BBLS.
5 50		300					Start 10.5 bbl. oil to spot acid — BLEED 22.5 BBLS.
5 57		"					Acid spotted (500 gal.) — FLUSH 12 BBLS.
5 58	100	300	22.5				Start acid in form.
6 00	1300	1400					
6 02	2500	3150	23.5	1	1.0	.2	Feeding
6 03	2200	2800	24.0	1.5	.5	.5	Press. break
6 04	2000	2600	24.5	2.0	.5	.5	Ditto
6 07	1800	2600	26.0	3.5	1.5	.5	
6 08	"	"					Shut down
6 09	"	2400					Resume pumping
6 11	"	2550	27.5	5.0	1.5	.5	
6 14	1750	2525	29.0	6.5	1.5	.5.	Minimum press.
6 17	1700	2500	30.5	8.0	1.5	.5	
6 20	"	2475	32	9.5	1.5	.5	Steady press.
6 23	1600	"	33.5	11.0	1.5	.5	
6 25	"	"	34.5	12.0	1.0	.5	All acid displaced, shut down
6 30	1300	2125					S.I.P.
							Let flow back before next acid
				LEFT LOCATION			Continued on page 2

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

SERVICE ENGINEER

STATION OR DISTRICT MANAGER

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File #45

DOWELL INCORPORATED

TREATMENT REPORT

STAGE NO.

TREATMENT NO.

DISTRICT #15 STATION Williston, N.D. DATE 5-28, 1955

OWNER Murphy Corp. LEASE E.P.A. WELL NO. 45
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION OWNER'S REPRESENTATIVE Greene

WELL DATA

FORMATION
PAY-FROM 5750 TO 5755
PRESENT TOTAL DEPTH 5758 P. B. FROM

PIPE DATA—
CASING SIZE 5½" WT. 15 & 17#
CASING DEPTH 5767 SKS. CEMENT 200
LINER SIZE — WT. —
LINER DEPTH-FROM — TO —
LINER DESCRIPTION —
TUBING SIZE 2" & 1¼ DEPTH 5755
PACKER-TYPE — DEPTH
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5750	5755

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	REMARKS
5:00	0	0	ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL Jel X 100
5:45	0	0	Start bleeding 12 bbls Acid down Tubing — FILL 0 BBLS.
5:50	0	300	Start 10.5 bbls oil To Spot Acid — BLEED 22.5 BBLS.
5:57	0	300	Acid spotted — FLUSH 12 BBLS.

TIME	CASING	TUBING	BBLS. OF ACID OUT OF TANKS	IN FORMATION	PER READING	PER MINUTE	REMARKS
5:58	100	300	22.5	0	—	—	Start Acid in formation
6:00	1300	1900					
6:02	2500	3150	23.5	1	1.0	.2	Feeding
6:03	2300	2800	24.0	1.5	.5	.5	Pressure Break
6:04	2000	2650	24.5	2	.5	.5	Pressure Break
6:07	1800	2600	26	3.5	1.5	.5	
6:08		2600					Shut down
6:09		2400					Resume Pumping
6:11		2550	27.5	5.0	1.5	.5	
6:14	1750	2525	29	6.5	1.5	.5	Min. Pressure
6:17	1700	2500	30.5	8.0	1.5	.5	
6:20	1700	2475	32	9.5	1.5	.5	Steady Pressure
6:23	1600	2475	33.5	11.0	1.5	.5	
6:25	1600	2475	34.5	12.0	1.0	.5	All Acid displaced shut down
6:30	1300	2125					Shut in Pressure

LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. Owen
SERVICE ENGINEER

DISTRICT OFFICE COPY.

STATION OR DISTRICT MANAGER

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STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO.

Page 2 15-5-142

DISTRICT _____ STATION _____ DATE _____, 19____

OWNER _____ LEASE _____ WELL NO. _____
POOL _____ COUNTY _____ STATE _____
LOCATION _____ OWNER'S REPRESENTATIVE _____

WELL DATA

FORMATION _____
PAY-FROM _____ TO _____
PRESENT TOTAL DEPTH _____ P. B. FROM _____

PIPE DATA—
CASING SIZE _____ WT. _____
CASING DEPTH _____ SKS. CEMENT _____
LINER SIZE _____ WT. _____
LINER DEPTH-FROM _____ TO _____
LINER DESCRIPTION _____
TUBING SIZE _____ DEPTH _____
PACKER-TYPE _____ DEPTH _____
PACKER FURNISHED BY OPERATOR _____ DOWELL _____

COMPLETION DATA—
DATE _____ CABLE TOOL _____
ROTARY _____ DRILLING FLUID _____
SIZE OPEN HOLE _____

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF FLUID OUT OF TANKS	BBLS. OF FLUID IN FORMATION	BBLS. OF FLUID PER READING	BBLS. OF FLUID PER MINUTE	REMARKS
			ARRIVAL AT LOCATION WITH		GALS. OF DOWELL		
							FILL ____ BBLS.
							BLEED ____ BBLS.
							FLUSH ____ BBLS.
Using 2nd 500 gallons							
4 18 PM							Start bleeding 12 bbl. acid down tbg.
4 26							Start 10.5 bbl. oil to spot acid
4 35	800	600					Acid spotted
4 51	850	750	22.5				Start acid in form.
4 52		2900	24.5	2.	2.	2.	
4 53	2500	2600	26.5	4.	2.	2.	
4 54	2450	"	28	5.5	1.5	1.5	
4 57	2400	"	32.5	10.	4.5	1.5	
4 59	2350	2650	34.5	12.	2.	1.	All acid in form.
5 00	2350	"					Start 24 bbl. overflush
5 01	2300	2700	36	13.5	1.5	1.5	
5 05	"	2650	42	19.5	6.	1.5	
5 09	"	"	48	28.5	6.	1.5	
5 13	"	"	54	31.5	6.	1.5	
5 16	"	2600	58.5	36	4.5	1.5	All overflush pumped, shut down
5 40	1300						S.I.P.
7 30		Trucks	LEFT LOCATION				

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT. _____

B. OWEN
SERVICE ENGINEER

E. H. NIELSEN
STATION OR DISTRICT MANAGER

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103 3-25 12500 10-54

File #45

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO.

DISTRICT #15 STATION Williston, N.D. DATE 5-28, 1955

OWNER Murphy Corp. LEASE E.P.M. WELL NO. 45
POOL E. Poplar COUNTY Roosevelt STATE Montana
LOCATION OWNER'S REPRESENTATIVE M.T. James

WELL DATA

FORMATION
PAY-FROM 5750 TO 5754
PRESENT TOTAL DEPTH P. B. FROM

PIPE DATA—
CASING SIZE WT.
CASING DEPTH SKS. CEMENT
LINER SIZE WT.
LINER DEPTH-FROM TO
LINER DESCRIPTION
TUBING SIZE DEPTH
PACKER-TYPE DEPTH
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5750	5754

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

REMARKS 2nd 600 gals of 1X100 GALS. OF DOWELL

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	REMARKS
			ARRIVAL AT LOCATION WITH
4:18 pm	0	0	Start bleeding 12 bbls Acid down Tubing
4:26			Start 10.5 bbls oil to spot Acid
4:35	800	600	Acid spotted

FILL BBLS.
BLEED 22.5 BBLS.
FLUSH 36 BBLS.

TIME	CASING	TUBING	BBLS. OF FLUID OUT OF TANKS	IN FORMATION	PER READING	PER MINUTE	REMARKS
4:51	800	750	22.5	0	—	—	Start Acid in formation
52		2400	24.5	2.0	2.0	2.0	
53	2500	2600	26.5	4.0	2.0	2.0	
54	2450	2600	28	5.5	1.5	1.5	
57	2400	2600	32.5	10.0	4.5	1.5	
4:59	2350	2650	34.5	12.0	2.0	1.0	All Acid in formation
5:00	2350	2650					Start 24 bbls over flush
5:01	2350	2700	36	13.5	1.5	1.5	
5:05	2300	2650	42	19.5	6.0	1.5	
5:09	2300	2650	48	25.5	6.0	1.5	
5:13	2300	2650	54	31.5	6.0	1.5	
5:16	2300	2600	58.5	36	4.5	1.5	All overflush pumped. Shut down
5:40	1300	1550					Shut in Pressure
7:30 CST							LEFT LOCATION Trucks

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

R. Owen
SERVICE ENGINEER

STATION COPY.

STATION OR DISTRICT MANAGER

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STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-143

DISTRICT #15 Denver STATION Williston, N. Dakota DATE 5-30 55, 19

OWNER Murphy Corp. LEASE E.P.U. WELL NO. 45
POOL E. Poplar COUNTY Roosevelt STATE Mont..
LOCATION 4-28-51 OWNER'S REPRESENTATIVE M. T. James

WELL DATA

FORMATION McGowan
PAY-FROM 5750 TO 5755
PRESENT TOTAL DEPTH 5758 P. B. FROM 5771

PIPE DATA—
CASING SIZE 5½" WT. 15½
CASING DEPTH 5767 SKS. CEMENT 300
LINER SIZE WT.
LINER DEPTH-FROM TO
LINER DESCRIPTION
TUBING SIZE 2" Eue DEPTH 5752
PACKER-TYPE Halliburton DEPTH 5746
PACKER FURNISHED BY OPERATOR X DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5750	5755

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

RECEIVED
JUN 11 1955
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

DETAILED RECORD OF TREATMENT

TIME A.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF FLUID OUT OF TANKS	BBLS. OF FLUID IN FORMATION	BBLS. OF FLUID PER READING	BBLS. OF FLUID PER MINUTE	REMARKS
2 00							ARRIVAL AT LOCATION WITH 2000 GALS. OF DOWELL Jel X100; 500 gal. Mud Aci
3 38							Start 12 bbl. mud acid down tubing — FILL 20 BBLS.
3 42							Start 10.5 bbl. oil to spot acid — BLEED BBLS.
3 46		400					20 bbl. pumped, hit pressure — FLUSH 12 BBLS.
3 48		1000					Acid on form.
3 50		2400	22.5				Start acid in form.
3 51		3000	26.5	4	4	4.	
3 52		3100	30.5	8	4	4.	
3 53		"	34.5	12	4	4.	All acid displaced, shut down
4 00		1250					S.I.P.
							Flowed well to test, making water.
							Decided to squeeze off not using
							2000 gal. Jel X100.
7 30		Trucks					LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. OWEN
SERVICE ENGINEER

E. H. NIELSEN
STATION OR DISTRICT MANAGER

File #45

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DOWELL INCORPORATED

STAGE NO.

TREATMENT NO.

TREATMENT REPORT

DISTRICT #15 STATION Williston, N.D. DATE 5-30, 1955

OWNER Murphy Corp LEASE EPG WELL NO. 45
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec OWNER'S REPRESENTATIVE M.T. Jones

WELL DATA

FORMATION McGowan
PAY-FROM 5760 TO 5765
PRESENT TOTAL DEPTH _____ P. B. FROM _____

PIPE DATA—
CASING SIZE _____ WT. _____
CASING DEPTH _____ SKS. CEMENT _____
LINER SIZE _____ WT. _____
LINER DEPTH-FROM _____ TO _____
LINER DESCRIPTION _____
TUBING SIZE _____ DEPTH _____
PACKER-TYPE _____ DEPTH _____
PACKER FURNISHED BY OPERATOR _____ DOWELL _____

COMPLETION DATA—
DATE _____ CABLE TOOL _____
ROTARY _____ DRILLING FLUID _____
SIZE OPEN HOLE _____

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5760	5765

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	REMARKS
3:00			ARRIVAL AT LOCATION WITH 500 Mud Acid 2000 GALS. OF DOWELL Jel X 100
3:28	0	0	Start 12 bbls Mud Acid — FILL 20 BBLS.
3:42	0	0	Start 10.5 bbls oil to foot Acid — BLEED 0 BBLS.
3:46	0	1100	20 bbls in Sit Pressure — FLUSH 12 BBLS.
3:48	0	1000	Acid on formation

TIME	CASING	TUBING	BBLS. OF ACID OUT OF TANKS	IN FORMATION	PER READING	PER MINUTE	REMARKS
3:50	0	2400	22.5	0	0	0	Start Acid in formation
3:51		3000	26.5	4	4	4.0	
3:52		3100	30.5	8	4	4.0	
3:53		3100	34.5	12	4	4.0	All Acid displaced
4:00		1250					Shut in Pressure

LEFT LOCATION _____

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. Owen
SERVICE ENGINEER

DISTRICT OFFICE COPY.

STATION OR DISTRICT MANAGER

103 5M 4-55

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-144

DISTRICT #15 Denver STATION Williston, N. D. DATE 5-31 1955

OWNER Murphy Corp. LEASE EPU WELL NO. 45
POOL E. Poplar COUNTY Roosevelt STATE Mont.
LOCATION 4-28-51 OWNER'S REPRESENTATIVE M. T. James

WELL DATA

FORMATION B-2 zone
PAY-FROM 5626 TO 5634
PRESENT TOTAL DEPTH 5738 P. B. FROM 5771

PIPE DATA–
CASING SIZE 5½" WT. 15½#
CASING DEPTH 5767 SKS. CEMENT 300
LINER SIZE WT.
LINER DEPTH-FROM TO
LINER DESCRIPTION
TUBING SIZE 2" Eue DEPTH 5631
PACKER-TYPE X DEPTH
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA–
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
5	5626	5634

PRODUCTION–

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD

RECEIVED
JUN 8 - 1955
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

DETAILED RECORD OF TREATMENT

TIME A.M.	TIME P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF FLUID OUT OF TANKS	BBLS. OF FLUID IN FORMATION	BBLS. OF FLUID PER READING	BBLS. OF FLUID PER MINUTE	REMARKS
3 30								ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL Jel X100
	9 30	PM						Start pumping 24 bbl. oil down csg. FILL 24 BBLS.
	10 05							Start bleeding 22.5 bbl. acid down tbg. BLEED 22.5 BBLS.
	10 17	800	200					Acid spotted FLUSH 22.5 BBLS.
	10 18	800	200	22.5				Start acid in form.
	10 20	3100	300	24	1.5	1.5	.7	All acid pumped
	10 21							Start 22.5 bbl. oil flush
	10 32	3300	3100	25.5	3.0	1.5	1.5	Max. press.
	10 83	2700	2500	27	4.5	1.5	1.5	Press. break
	10 35	2400	2200	30	7.5	3.0	1.5	" "
	10 37	2000	1900	33	10.5	3.0	1.5	" "
	10 29	"	"	36	13.5	3.0	1.5	
	10 31	"	2000	39	16.5	3.0	1.5	
	10 33	2100	2100	42	19.5	3.0	1.5	Press. rising
	10 35	"	2200	43.5	21.0	1.5	.7	
	10 37	"	"	45	22.5	1.5	.7	All acid displaced, shut down
	10 40	1200	1500					SIP
	11 20		Trucks					LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. OWEN
SERVICE ENGINEER

E. H. NIELSEN
STATION OR DISTRICT MANAGER

PRINTED IN U. S. A.
103 3-25 12500 5-54

File #45

STAGE NO.

DOWELL INCORPORATED

TREATMENT NO.

TREATMENT REPORT

DISTRICT #15 STATION Williston, N. Dak DATE 5- , 1955

OWNER Murphy Corp LEASE E.P.H. WELL NO. 45
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec. 4-28-51 OWNER'S REPRESENTATIVE

WELL DATA

FORMATION B-2 Zone
PAY-FROM 5626 TO 5634
PRESENT TOTAL DEPTH P. B. FROM 5771

PIPE DATA—
CASING SIZE 5½" WT. 15½#
CASING DEPTH 5767 SKS. CEMENT 300
LINER SIZE — WT. —
LINER DEPTH-FROM — TO —
LINER DESCRIPTION —
TUBING SIZE 2" E8E DEPTH 5631
PACKER-TYPE — DEPTH
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
5	5626	5634

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
3:20	0	0					ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL Jel X100
9:20 Pr	0	0					START 24 bbls oil down casing — FILL 24 BBLS
10:00							well loaded — BLEED 22.5 BBLS
10:05							START 22.5 bbls Acid down Tubing — FLUSH 22.5 BBLS
10:17	800	200					Acid Spotted.
10:18	800	200	22.5	0	—	—	START Acid in formation
10:20	3100	3000	24	1.5	1.5	.7	All Acid Pumped
10:21							START 22.5 bbls oil flush
10:22	3200	3100	25.5	3.0	1.5	1.5	MAX. Pressure
10:23	2700	2500	27	4.5	1.5	1.5	Pressure Break
10:25	2400	2200	30	7.5	3.0	1.5	Pressure Break
10:27	2000	1900	33	10.5	3.0	1.5	" "
10:29	2000	1900	36	13.5	3.0	1.5	
10:31	2000	2000	39	16.5	3.0	1.5	
10:32	2100	2100	42	19.5	3.0	1.5	Pressure Rising
10:35	2100	2200	42.5	21.0	1.5	.7	
10:37	2100	2200	45	22.5	1.5	.7	All Acid displaced, shut down
10:40	1200	1500					Shut in Pressure
11:20	MST						LEFT LOCATION Tanks

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. Owen
SERVICE ENGINEER

GENERAL OFFICE COPY.

STATION OR DISTRICT MANAGER

HOWCO 195-81—LITTLE'S 37489 75M 8-52

Halliburton
OIL WELL CEMENTING COMPANY

DUNCAN, OKLAHOMA

CEMENTING SERVICE TICKET

RECEIVED
AUG 11 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

DATE 7-29-54 PLACE Poplar, Montana ORDER No.

Well No. 45 Farm T.P.U. County Roosevelt State Mont. Sec. 4 SHELBY T. 28 R. 57

CHARGE TO: Murphy Corp.
Mailing Address: Murphy Bldg.
City & State: El Dorado, Ark.

Owner or Contractor: Zook Brooks
City & State: Glendive, Montana

Truck Called Out 4 AM PM On Location 6:30 AM PM Job Began 10:15 AM PM Job Completed 10:4 AM PM

TYPE OF JOB (✓) ONE		CASING		HOLE DATA		TUBING or DRILL PIPE		CEMENTING PACKER	
SURFACE	✓	NEW		BORE SIZE	12¼	SIZE		SIZE	
INTERMEDIATE		USED	✓	TOTAL DEPTH	1012	TYPE		TYPE	
PRODUCTION		SIZE	9 5/8	ROTARY	✓	WEIGHT		WEIGHT	
SQUEEZE		WEIGHT	36#	CABLE TOOL		TOTAL DEPTH		DEPTH SET	
PUMPING		DEPTH	1007						
PLUG BACK		TYPE	J-55						
GROUTING									
OTHER (Write In)									

PLUGS AND HEADS		PRESSURE		CEMENT LEFT IN CASING 10 FT.	
BOTTOM PLUG	TYPE	CIRCULATING	300	BY REQUEST?	✓
TOP PLUG ✓	TYPE 5 W	MINIMUM	0	NECESSITY?	
TYPE HEAD	Plug Container	MAXIMUM	1000	MEASURED WITH LINE?	

SQUEEZE OR PLUG BACK DATA						SHOW ON ALL TYPES OF JOBS	
PURPOSE		DEPTH FROM	TO APPROX.	IN SIZE Casing	Hole	TIME MIXING	TIME PUMPING
WATER						RECEIVED	
GAS						AUG 18 1954	
ABANDON							

SERVICE AND RENTAL CHARGES			
DEPTH OF JOB ____ FT			
PRICE REF.			
[illegible]	BASE CHARGE	$ [illegible]	00
R-20	ADD'N. CHARGE	$ 5	00
	EXTRA TRUCK	$	
	STAND BY TRUCK	$	
	MILEAGE @	$	
		$	
		$	
		$	
	TOTAL CHARGE	$ 2[illegible]	00

MAKE FLOAT EQUIPMENT	OTHER EQUIPMENT
FLOAT COLLAR	
GUIDE SHOE	
FLOAT SHOE HOWCO	HOWCO Centralizer

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

CEMENT DATA

BULK? ✓ SACKED? ____ MIXED WT. PER GAL. 16.5

SACKS	TYPE	BRAND	% GEL	OTHER ADMIX
400	Reg.	Ideal		400 lb.
				c/c.

TRUCK	TITLE	NAME	LOCATION	STATE
[illegible]	CEMENTER	J.T. Dungan	Wolf Point	Mont.
	DRIVER	E. Ernston		
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			

The above job was done and equipment used under the exclusive control, direction and supervision of the owner, operator or his agent whose signature appears below.

J.V. Garrett
OWNER, OPERATOR OR HIS AGENT

The following information is urgently requested in order that we may be fully advised and to enable us to keep our standard of service up to the highest point.

WAS OPERATION OF THE CEMENTING EQUIPMENT SATISFACTORY? ____

WAS THE WORK OF THE CEMENTING CREW PERFORMED IN A SATISFACTORY MANNER? ____

WAS THE CEMENTING JOB SATISFACTORILY COMPLETED? ____

SUGGESTIONS: ____

J.V. Garrett
OWNER, OPERATOR OR HIS AGENT

COPY No. 86169 H C

HOWCO 1026-A—LITTLE'S 37838 50M 9-52

HALLIBURTON OIL WELL CEMENTING CO.

FORMATION TESTING AND TOOL SERVICE TICKET

Date 8-14-54 Place Poplar, Mont. Order No. Outfit No. 3763 OTHER DESCRIPTION

Well No. #45 Farm E.P. Unit County Roosevelt Sec. 4 Twp. 28N Range 51E

CHARGE TO: Murphy Corporation OWNER Murphy Corp.

MAILING ADDRESS Murphy Bldg. CONTRACTOR Zack Brooks Drlg. Co.

CITY & STATE El Dorado, Ark. Truck called out 5:00 AM PM On location 7:00 AM PM Job Began 9:00 AM PM Job completed 6:00 AM PM

Depth of Casing Depth of Well 5480 Condition of Well good Size Drill Pipe 4½ EL Size Tubing X Size Casing X

Kind of Job Open hole test. Tool No. 4145 Pressure Device No. BT392-PRD3176 Temperature Device No. X

Size of Rat Hole 7-7/8" Length of Rat Hole 9' Condition Of Rat Hole good Amt. of Time Tool Open 4 hrs. Result of Test: GAS ☐ : OIL ☐ : DRY ☐

TIME MIXING AND PUMPING	NO. SACKS	SIZE PACKER	KIND OF TOOL	DEPTH SET	PRESSURE BREAKING FORM -	PRESSURE SQUEEZING
		7"	5-7/8" Hydrospring tester	5771'		
			No jars run by reguest			
			J.20 closed in press. valve			
			used.			

	PRICE			
Price Job	R305	$ 254	00	Kind of Job & Explanation Open hole test in Madison lime "A" Zone
Packer Charge	R335	$ 15	00	Recovered. 1135' gas. 150' clean oil, 170' muddy
Other Charge (Explain)		$		salty sulphur water.
TOTAL		$ 269	00	

The Above Job Was Done, And All Tools Were Used Under The Exclusive Control, Direction And Supervision of the Owner, Operator or His Agent Whose Signature Appears Below.

G. M. Gass — HOWCO OPERATOR
Wolf Point, Mont. — LOCATION
J. W. Curnutt — OWNER, OPERATOR OR HIS AGENT

The Following Information is Urgently Requested in Order That We may Be Fully Advised And To Enable Us To Keep Our Standard of Service Up To The Highest Point.

Was Operation Of The Equipment Satisfactory? _____ Was The Job Satisfactorily Completed? _____

Suggestions: _____

RECEIVED
AUG 21 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - FILLINGS

COPY No. 57010-AT T

J. W. Curnutt
OWNER, OPERATOR OR HIS AGENT

HOWCO 1026-A—LITTLE'S 37638 50M 9-52

HALLIBURTON OIL WELL CEMENTING CO.

FORMATION TESTING AND TOOL SERVICE TICKET

Date 8-16-54 Place Poplar, Mont. Order No. Outfit No. 3763 OTHER DESCRIPTION

Well No. #45 Farm E.P. Unit County Roosevelt Sec. 4 Twp. 28N Range 51E

CHARGE TO: Murphy Corp. OWNER Murphy Corp.

MAILING ADDRESS Murphy Bldg. CONTRACTOR Zack Brooks Drlg. Co.

CITY & STATE El Dorado, Ark.

Truck called out 5:00 AM On location 7:00 AM Job Began 9:00 AM Job completed 9:00 AM

Depth of Casing: Depth of Well 5639 Condition of Well good Size Drill Pipe 4½" EH Size Tubing: Size Casing:

Kind of Job Open hole test. Tool No. 4145 Pressure Device No. BT392-PRD3176 Temperature Device No.

Size of Rat Hole 7-7/3" Length of Rat Hole 12' Condition Of Rat Hole good Amt. of Time Tool Open 4 hrs. Result of Test: GAS ☐ ; OIL ☐ ; DRY ☐

TIME MIXING AND PUMPING	NO. SACKS	SIZE PACKER	KIND OF TOOL	DEPTH SET	PRESSURE BREAKING FORM -	PRESSURE SQUEEZING
		7"	5-7/8" Hrdo-spring tester	5627		
			no jars run by request			
			J.20 closed in press. valve			
			used.			

	PRICE REF.		
Price Job	R335	$ 254	00
Packer Charge	R535	$ 15	00
Other Charge (Explain)		$	
TOTAL		$ 269	.00

Kind of Job & Explanation: Open hole test in Madison lime B#2 zone. Recovered. 3600' gas, 1620' clean oil 80' oil & gas cut mud, 340' salty sulpur water.

The Above Job Was Done, And All Tools Were Used Under The Exclusive Control, Direction And Supervision of the Owner, Operator or His Agent Whose Signature Appears Below.

G. M. Gass — HOWCO OPERATOR | Wolf Point, Mont. — LOCATION | J. W. Curnutt — OWNER, OPERATOR OR HIS AGENT

The Following Information is Urgently Requested in Order That We may Be Fully Advised And To Enable Us To Keep Our Standard of Service Up To The Highest Point.

Was Operation Of The Equipment Satisfactory? _____ Was The Job Satisfactorily Completed? _____

Suggestions: _____

RECEIVED

AUG 26 1954

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

COPY

No. 57611-AT

J. W. Curnutt
OWNER, OPERATOR OR HIS AGENT

HOWCO 1026-A—LITTLE'S 37638 50M 9-52

HALLIBURTON OIL WELL CEMENTING CO.

FORMATION TESTING AND TOOL SERVICE TICKET

Date 8-20-54 Place N.E. Poplar, Mont. Order No. Outfit No. 3721 OTHER DESCRIPTION

Well No. 45 Farm E. P. U. County Roosevelt Sec. 4 Twp. 28 Range 51

CHARGE TO: Murphy Corp. OWNER Murphy Corp.

MAILING ADDRESS Murphy Bldg. CONTRACTOR Zack Brooks Drlg. Co.

CITY & STATE El Dorado, Ark.

Truck called out 8-19-54 8:30 AM On location 12:00 noon Job Began 12:01 AM Job completed 11:30 AM

Depth of Casing 992 Depth of Well 5768 Condition of Well good Size Drill Pipe 4½ x H Size Tubing Size Casing 9-5/8 Surf.

Kind of Job Open hole test Tool No. 4011 Pressure Device No. 192-3036 Temperature Device No. None used

Size of Rat Hole 8-3/4 Length of Rat Hole 23' Condition Of Rat Hole good Amt. of Time Tool Open 4 hrs. Result of Test: GAS ☐ : OIL ☐ : DRY ☐

TIME MIXING AND PUMPING	NO. SACKS	SIZE PACKER	KIND OF TOOL	DEPTH SET	PRESSURE BREAKING PORE -	PRESSURE SQUEEZING
		3"	SEWP & Hydro-spg. tester	5746		
Dist. #3						
			S.R. Bowen Jars of Calif. #1143			

		PRICE			
Price Job	R	305	$ 254	00	Kind of Job & Explanation Tool open w/ good blow inc. to strong blow
Jars Packer Charge	R	323	$ 100	00	in 15 min., con't. thru out test, Gas to surface
Other Charge (Explain)	R	335	$ 15	00	in 3½ hrs. Rec. 5150' free oil & 65' O & G cut mud.
TOTAL			$ 369	00	

The Above Job Was Done, And All Tools Were Used Under The Exclusive Control, Direction And Supervision of the Owner, Operator or His Agent Whose Signature Appears Below.

Guy Sturgis — HOWCO OPERATOR

Glendive, Mont. — LOCATION

J. W. Curnutt — OWNER, OPERATOR OR HIS AGENT

The Following Information is Urgently Requested in Order That We may Be Fully Advised And To Enable Us To Keep Our Standard of Service Up To The Highest Point.

Was Operation Of The Equipment Satisfactory? _____ Was The Job Satisfactorily Completed? _____

Suggestions: _____

COPY

No. 56987-AT

T

J. W. Curnutt
OWNER, OPERATOR OR HIS AGENT

Halliburton
OIL WELL CEMENTING COMPANY
DUNCAN, OKLAHOMA

CEMENTING SERVICE TICKET

DATE 8-21-54 PLACE Poplar, Mont. ORDER NO.

Well No. 45 Farm EPU County Roosevelt State Mont. Sec. T. R.

CHARGE TO: Murphy Corp. Owner or Contractor: Zack Brooks Drlg. Co.
Mailing Address: Murphy Bldg. City & State: Glendive, Mont.
City & State: El Dorado, Ark. Truck Called Out 6 PM On Location 7:30 PM Job Began 3:30 AM Job Completed 4:15 AM

OWNER, OPERATOR OR HIS AGENT STATES THE WELL IS IN CONDITION FOR THE SERVICE JOB TO BE PERFORMED AND SUBMITS THE FOLLOWING DATA:

TYPE OF JOB (V) ONE		CASING		HOLE DATA		TUBING OR DRILL PIPE		CEMENTING PACKER	
SURFACE		NEW	X	BORE SIZE	8-3/4	SIZE		SIZE	
INTERMEDIATE		USED		TOTAL DEPTH	5768	TYPE		TYPE	
PRODUCTION	X	SIZE	5½	ROTARY	X	WEIGHT		WEIGHT	
SQUEEZE		WEIGHT	15.5	CABLE TOOL		TOTAL DEPTH		DEPTH SET	
PUMPING		DEPTH	5767						
PLUG BACK		TYPE	J-55						
GROUTING									
OTHER (Write In)									

MAKE FLOAT EQUIPMENT
FLOAT COLLAR HOWCO (Bpple)
GUIDE SHOE
FLOAT SHOE HOWCO Fillup

OTHER EQUIPMENT
5 HOWCO centralizers
165' Roto Wall cleane:

SQUEEZE OR PLUG BACK DATA

PURPOSE		DEPTH FROM	TO APPROX.	IN SIZE CASING	HOLE
WATER					
GAS					
Abandon					

CEMENT DATA
BULK? X SACKED? MIXED WT. PER GAL 15#

SACKS	TYPE	BRAND	% GEL	OTHER ADMIX
300	Slo Set	Ideal		

OTHER DATA ON SERVICE OPERATION

PLUGS AND HEADS
BOTTOM PLUG TYPE
TOP PLUG X TYPE 5W
TYPE HEAD Plug container

PRESSURE
CIRCULATING 300#
MINIMUM
MAXIMUM 1000#

CEMENT LEFT IN CASING 35' FT.
BY REQUEST? X
NECESSITY?
MEASURED WITH LINE?

SERVICE AND RENTAL CHARGES
DEPTH OF JOB 5767 FT.

PRICE REF.				
R-5	BASE CHARGE	$	303	00
R63	ADD'N. CHARGE	$	35	00
	EXTRA TRUCK	$		
	STAND BY TRUCK	$		
	MILEAGE @	$		
excess footage		$	17	60
		$		
		$		
	TOTAL CHARGE	$	355	60

TRUCK	TITLE	NAME	LOCATION	STATE
3770	CEMENTER	J. Dungan	Wolf Point,	Mont.
	DRIVER	E. Homiston		
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			

RECEIVED
AUG 26 1954
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

The above job was done and equipment used under the exclusive control, direction and supervision of the owner, operator or his agent whose signature appears below and who certifies the above data furnished by him is correct.

J.W. Curnutt
OWNER, OPERATOR OR HIS AGENT

The following information is urgently requested in order that we may be fully advised and to enable us to keep our standard of service up to the highest point.

WAS OPERATION OF THE CEMENTING EQUIPMENT SATISFACTORY?
WAS THE WORK OF THE CEMENTING CREW PERFORMED IN A SATISFACTORY MANNER?
WAS THE CEMENTING JOB SATISFACTORILY COMPLETED?
SUGGESTIONS:

J. W. Curnutt
OWNER, OPERATOR OR HIS AGENT

COPY No. 86172-H

Halliburton
OIL WELL CEMENTING COMPANY
DUNCAN, OKLAHOMA

CEMENTING SERVICE TICKET

HOWCO 193-A-R-2 SANDEFER 6004 100M 12-54

DATE 5-22-55 PLACE Poplar ORDER NO.

Well No. 45 Farm E.P.U. County Roosevelt State Mont. Sec. Twp. Range

CHARGE TO Murphy Corporation OWNER OR CONTRACTOR Western Well Service

MAILING ADDRESS Murphy Building CITY & STATE

CITY & STATE El Dorado, Arkansas

Truck called out 10 AM On location 1 PM Job Began 5 PM Job Completed 9:30 PM

Owner, operator or his agent states the well is in condition for the service job to be performed and submits the following data:

TYPE OF JOB (✓) ONE		CASING		HOLE DATA		Tubing or Drill Pipe		Cementing Packer		MAKE FLOAT EQUIPMENT
SURFACE		NEW		BORE SIZE	4 3/4	SIZE	2"	SIZE	5½	FLOAT COLLAR
INTERMEDIATE		USED		TOTAL DEPTH	5771	TYPE	EUE	TYPE	HOWCO	GUIDE SHOE
PRODUCTION		SIZE	5½	ROTARY	X	WEIGHT		WEIGHT	13-17#	FLOAT SHOE
SQUEEZE	X	WEIGHT	15.50	CABLE TOOL		TOTAL DEPTH	5758	DEPTH SET	5758	OTHER EQUIPMENT
PUMPING		DEPTH	5766							
PLUG BACK		TYPE								
GROUTING										
OTHER (Write In)										

SQUEEZE OR PLUG BACK DATA

Purpose		Depth From	To Approx.	IN SIZE Casing	Hole
WATER	X	5766	5771		
GAS					
Abandon					

CEMENT DATA

Bulk? Sacked? X Mixed Wt. Per Gal.

Sacks	Type	Brand	% Gal.	Other Admix
100	Regular			

OTHER DATA ON SERVICE OPERATION

PLUGS AND HEADS		PRESSURE		CEMENT LEFT IN CASING FT.
BOTTOM PLUG	TYPE	CIRCULATING	500	BY REQUEST?
TOP PLUG	TYPE	MINIMUM	1200	NECESSITY?
TYPE HEAD		MAXIMUM	2200	MEASURED WITH LINE?

SERVICE AND RENTAL CHARGES

DEPTH OF JOB 5771 FT.

PRICE REF.				
R-41	BASE CHARGE	$ 303	00
Excess Footage	ADD'L CHARGE	$ 17	60
	EXTRA TRUCK	$	
	STAND-BY TRUCK	$	
	MILEAGE @	$	
R-31	10gal.Hyflo	$ 70	00
R-33	10gal.DOCl	$ 100	00
		$	
	TOTAL CHARGE	$ 490	60

Truck	Title	Name	Location	State
3770	CEMENTER	M. Kruse	Wolf Point	Mont.
	DRIVER	O.Gunnickson		
3770	CEMENTER	W. Miller	"	"
	DRIVER	B. Fields		
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			

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

The above job was done and equipment used under the exclusive control, direction and supervision of the owner, operator or his agent whose signature appears below and who certifies the above data furnished by him is correct.

Harold Milan
Well Owner, Operator or His Agent

The following information is urgently requested in order that we may be fully advised and to enable us to keep our standard of service up to the highest point.

WAS OPERATION OF THE CEMENTING EQUIPMENT SATISFACTORY?

WAS THE WORK OF THE CEMENTING CREW PERFORMED IN A SATISFACTORY MANNER?

WAS THE CEMENTING JOB SATISFACTORILY COMPLETED?

SUGGESTIONS:

COPY

No. 93073 H

Harold Milan
Well Owner, Operator or His Agent

Halliburton
OIL WELL CEMENTING COMPANY
DUNCAN, OKLAHOMA

CEMENTING SERVICE TICKET

HOWCO 193-A-R-2 SANDEFER 6004 100M 12-54

DATE 5-31-55 PLACE E. Poplar ORDER NO.

Well No. 45 Form E. P. Unit County Roosevelt State Mont. Sec. 4 Twp. 28 Range 51

CHARGE TO: Murphy Corporation OWNER OR CONTRACTOR: Western Oil

MAILING ADDRESS: Murphy Building CITY & STATE:

CITY & STATE: El Dorado, Arkansas

Truck called out 7 AM PM On location 9 AM PM Job Began 10 AM PM Job Completed 12:30 AM PM

Owner, operator or his agent states the well is in condition for the service job to be performed and submits the following data:

TYPE OF JOB (V) ONE		CASING		HOLE DATA		Tubing or Drill Pipe		Cementing Packer		MAKE FLOAT EQUIPMENT
SURFACE		NEW		BORE SIZE		SIZE	2"	SIZE	5½	FLOAT COLLAR
INTERMEDIATE		USED		TOTAL DEPTH		TYPE	EUE	TYPE	C	GUIDE SHOE
PRODUCTION		SIZE		ROTARY		WEIGHT		WEIGHT	13-17	FLOAT SHOE
SQUEEZE	X	WEIGHT		CABLE TOOL		TOTAL DEPTH	5735	DEPTH SET	5740	OTHER EQUIPMENT
PUMPING		DEPTH								
PLUG BACK		TYPE								
GROUTING										
OTHER (Write In)										

SQUEEZE OR PLUG BACK DATA

Purpose		Depth From	To Approx.	IN SIZE Casing	Hole
WATER	X	5750	5755		
GAS					
Abandon					

CEMENT DATA

Bulk? Sacked? X Mixed Wt. Per Gal. 15.5

Sacks	Type	Brand	% Gel.	Other Admix
100	Sloset			

OTHER DATA ON SERVICE OPERATION

PLUGS AND HEADS		PRESSURE		CEMENT LEFT IN CASING FT.
BOTTOM PLUG	TYPE	CIRCULATING	1200	BY REQUEST?
TOP PLUG	TYPE	MINIMUM	900	NECESSITY?
TYPE HEAD		MAXIMUM	4400	MEASURED WITH LINE?

SERVICE AND RENTAL CHARGES

DEPTH OF JOB 5755 FT.

PRICE REF.				
R-5	BASE CHARGE	$ 303	00
Excess	ADD'L CHARGE	$ 17	60
	EXTRA TRUCK	$	
	STAND-BY TRUCK	$	
	MILEAGE @	$	
		$	
		$	
		$	
	TOTAL CHARGE	$ 320	60

Truck	Title	Name	Location	State
3770	CEMENTER	W. Miller	Wolf Point	Mont.
	DRIVER	B. Fields		
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			
	CEMENTER			
	DRIVER			

RECEIVED
JUN 3 - 1955
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

The above job was done and equipment used under the exclusive control, direction and supervision of the owner, operator or his agent whose signature appears below and who certifies the above data furnished by him is correct.

V. L. Greene
Well Owner, Operator or His Agent

The following information is urgently requested in order that we may be fully advised and to enable us to keep our standard of service up to the highest point.

WAS OPERATION OF THE CEMENTING EQUIPMENT SATISFACTORY?

WAS THE WORK OF THE CEMENTING CREW PERFORMED IN A SATISFACTORY MANNER?

WAS THE CEMENTING JOB SATISFACTORILY COMPLETED?

SUGGESTIONS:

COPY

No. 93176 H

V. E. Greene
Well Owner, Operator or His Agent

File #45

LANE-WELLS Company

PERFORATION LOG

Company: MURPHY CORP.
Well & No.: E.P.U. 45
Location: SEC. 4-28N-51E
Depth: 57 Method:
Date Perforated: 5-25-55
Sales Order: 85477
Casing Record: 18# 5½

Holes: 30 Size: J-3 1¾"
Runs: 3
Truck & Operator: 421-HANSON
Remarks: O.W.

FORM O-190 20M 1-52 PRINTED IN U.S.A.

5750

5754

30 Holes @ 5 Holes Per Ft.
1¾" J-3

5760

5760

File #48

LANE-WELLS Company

PERFORATION LOG

Company: MURPHY CORP.
Well & No.: E.P.U. 45
Location:
Depth: 57 Method: TUBING
Date Perforated: 5-27-55
Sales Order: 86357
Casing Record: 5½ 17#

Holes: 20 Size: 26 A
Runs: 1 RUN
Truck & Operator: 362 HANSON
Remarks: ZERO 2' ABOVE ROTARY (BABE CANNON RIG)

FORM HO-190 20M 8-54 PRINTED IN U.S.A.

5750

5760

5750
5755
20 Holes @ 4 PERFT.

File #45

LANE-WELLS Company

PERFORATION LOG

Company: Murphy Corp.
Well & No.: E.P.U. #45
Location: East Poplar
Depth: 57 Method: Tubing
Date Perforated: 5-31-55
Sales Order: 96359
Casing Record: 5 1/2 - 17# & 2" Tubing

Holes: 40 Size: J-3-1 3/4"
Runs: 1
Truck & Operator: 362 - Westfall
Remarks: Zero 10' above Bradden head flange

FORM HO-190 20M 8-54 PRINTED IN U.S.A.

5620

5630

5624
40 - Holes
5634'

YAPUNCICH-SANDERSON LABORATORIES

P. O. BOX 593 — BILLINGS MONTANA — 5 & 915 N. 25TH ST.

Lab. No. 501-W

WATER ANALYSIS REPORT

Field: East Poplar — County: Roosevelt — State: Montana
Well No.: 45 Unit — Location: C SW NE 4-28N-51E
Formation: Madison "A" Zone — Depth: 5471-5480'
Operator: Murphy Corporation — Date Sampled: 8-16-54
DST No.: 1 — Sample No.: — Date Analyzed: 8-26-54
Other Data: Tool open 4 hrs. Recovered 1185' gas, 150' clean oil, 170' muddy salty, sulfur water. FP 15-110 lbs., SIP 20 min., 2450 lbs., HP 3220 lbs. Sample clear colorless water with oil on top

Constituents	PPM	MEQ.	MEQ. %
Sodium	88,264	3839.22	48.91
Calcium	1400	69.86	0.89
Magnesium	195	16.03	0.20
Sulfate	3129	65.08	0.83
Chloride	136,620	3852.68	49.08
Carbonate	0	0	0
Bicarbonate	448	7.35	0.09

Total Solids in Parts per Million
By evaporation: 244,700
After ignition: 228,500
Calculated: 229,829

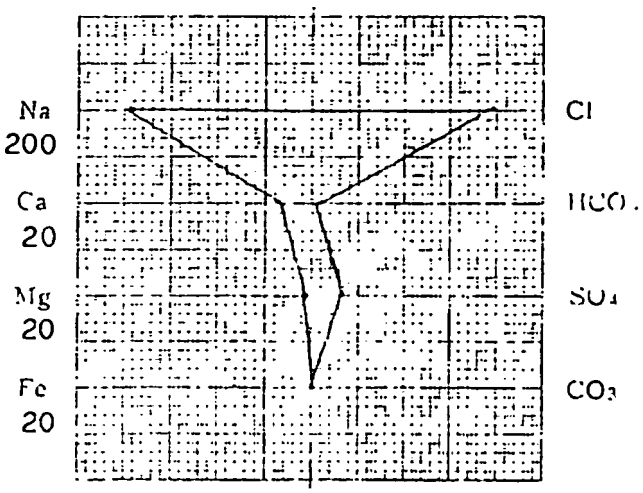
pH: 5.0
Specific gravity @ 60°F: 1.149
Resistivity @ 68°F ohms/meter³: 0.050

Chloride as NaCl: 225,423 PPM.
Total Solids From Resistivity as NaCl: 228,289 PPM.

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

Water Analysis Pattern

Scale MEQ. Per Unit



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

Lab. No. 502-W

WATER ANALYSIS REPORT

Field: East Popler — County: Roosevelt — State: Montana
Well No: 45 Unit — Location: C SW NE 4-28N-51E
Formation: Madison "B-2" Zone — Depths: 5627-5639'
Operator: Murphy Corporation — Date Sampled: 8-17-54
DST No: 2 — Sample No: — Date Analyzed: 8-26-54
Other Data: Recovered 1620' oil, 80' oil and gas cut mud, 340' salt water. FP 112-768 lbs., SIP 20 min., 2780 lbs., HP 3500 lbs. Sample clear colorless water.

Constituents	PPM	MEQ.	MEQ. %
Sodium	118,866	5170.35	49.24
Calcium	1240	61.88	0.59
Magnesium	220	18.08	0.17
Sulfate	1338	27.83	0.27
Chloride	185,058	5218.64	49.70
Carbonate	0	0	0
Bicarbonate	234	3.84	0.03

Total Solids in Parts per Million
By evaporation 308,800
After ignition 306,500
Calculated 306,837

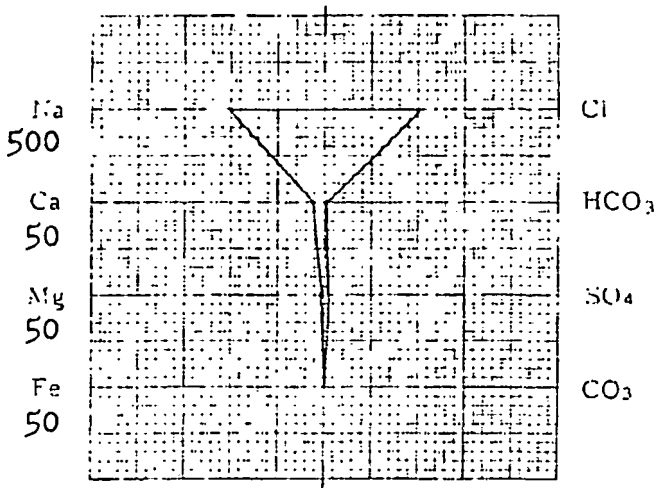
pH 5.0
Specific gravity @ 60°F 1.195
Resistivity @ 68°F ohms meter³ 0.046

Chloride as NaCl 305,161 PPM. Total Solids From Resistivity as NaCl 306,274 PPM.

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

Water Analysis Pattern

Scale MEQ. Per Unit



PRODUCTION &
INJECTION DATA

SURFACE EQUIPMENT

PLUGGING &
ABANDONMENT