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86 HISTORIC EPU RECORDS MILES CITY BLM OFFICE MAY 10 2001
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East Poplar Oil Field

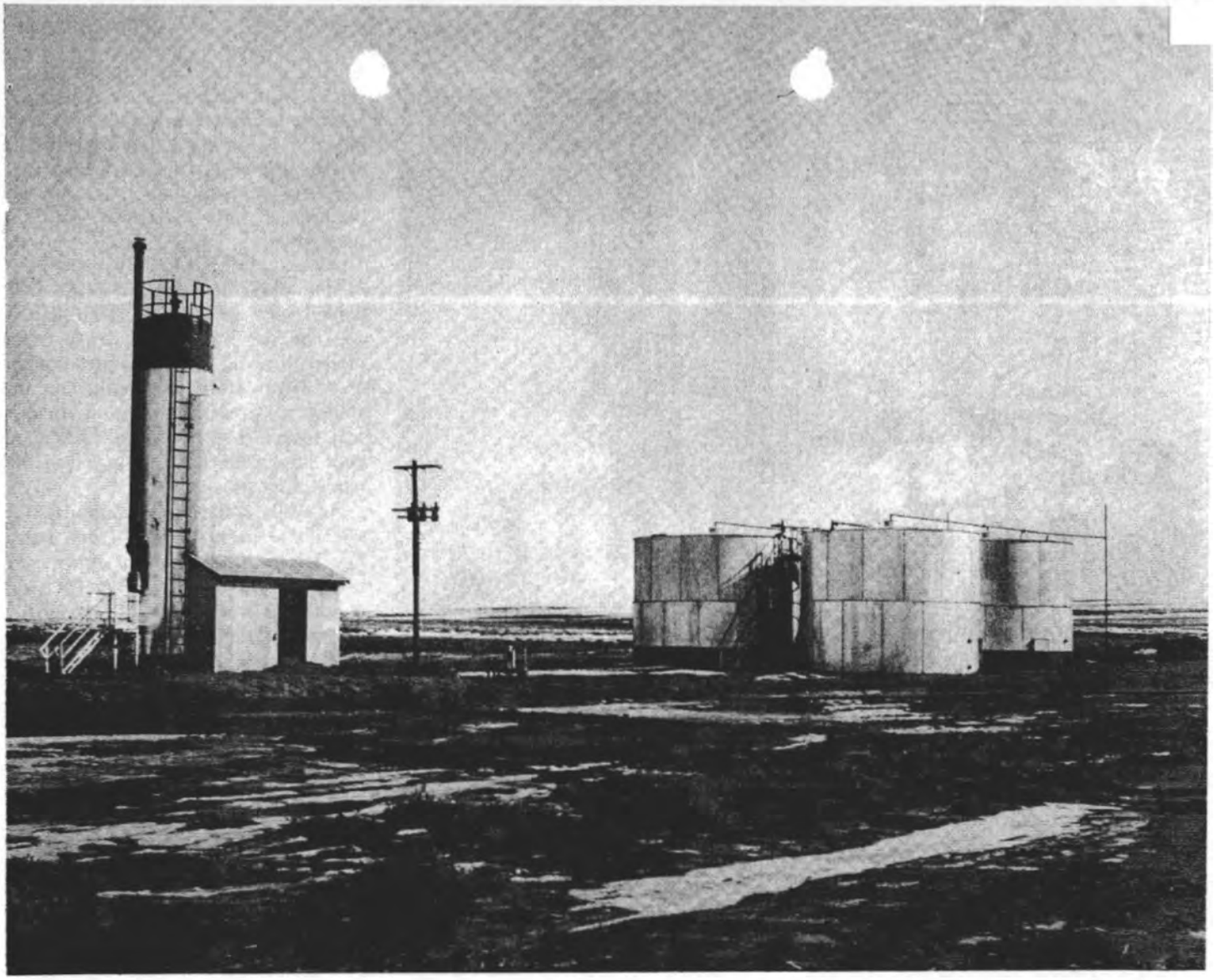
Region 8
13634

1951

1952

1953

1954



TYPICAL TANK BATTERY and heater-treater setup in the East Poplar Unit. Heater is insulated and all controls are housed in connecting shed.

Poplar Unit Operators Face Varied Production Problems

Paraffin, salt deposits, weather and floods plague operations in this prolific Williston Basin field just south of the Canadian border.

By J. HAROLD MILAM, The Murphy Corporation, Poplar, Mont.

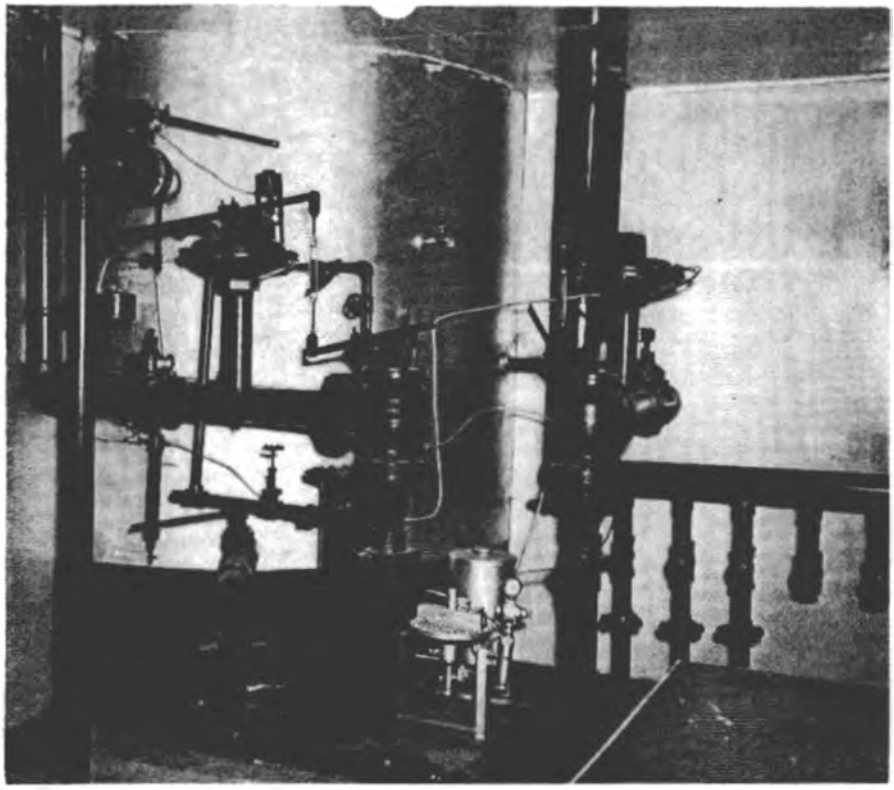
THERE ARE four major problems involved in the production of crude oil in the East Poplar Unit pool in the Montana sector of the Williston Basin area. These are:

- Paraffin accumulations.
- Severe cold weather.
- Salt deposits in the tubing.
- Surface mud caused by spring thaws.

The East Poplar Unit pool is located in the northeast corner of Roosevelt County, Montana, about 65 miles south of the Canadian border and some 55 miles west of the North Dakota line. It comprises approximately 35,000 acres and is owned jointly by The Murphy Corporation, Placid Oil Company, The Carter Oil Company, and Phillips Petroleum Company, with The Murphy Corporation as the operator.

The producing area lies in a general northwest-southeast trend, bisected by the Poplar River, a small tributary of the Missouri. Within the unit is a 160-acre tract with four producing wells not owned by the unit partners. Also at the extreme north side are two additional wells, direct offsets to the unit property but not owned by the unit partners.

At the present time, approximately 10,000 acres within the unit boundary have been proven to be productive by the drilling of 35 producers and one dry hole by the unit opera-



INTERIOR OF SHED which houses controls. Note that the flow line header is also located here along with the liquid level and temperature controls. Chemical injector also is placed here. Shed serves as the pumper's shack.

tor, and six producers and eight dry holes by other operators.

Production is from porosity zones of the Madison formation, Mississippian age, at an average depth of 5800 feet. Production rates are governed directly by market conditions rather than by the maximum efficient rate of production.

Tank battery hookups. Twelve tank batteries have been strategically located to handle present and proposed unit wells. A typical tank battery installation consists of two 1000-barrels galvanized cone-bottom steel tanks with an 8-foot by 27½-foot heater treater.

Treaters are insulated with a three-inch blanket of fiberglas covered with aluminum sheathing. All controls that operate the treater are grouped on one side and covered by a small, insulated building to prevent freezing. An electrically-driven rotary pump is located between the treater and the tanks so that oil may be circulated from the tanks through the heater treater to maintain temperature. The tank battery hookup is conventional with the exception that oil inlet lines go into the bottom rather than the top of the tanks.

Through trial and error it was found that in very cold weather condensation would freeze valves located on the top of the tank. It was also found that oil inlet lines positioned into the tank bottom would help keep paraffin in solution. By using this system and circulating each tank regularly through the heater treater, the buildup of tank bottoms has been negligible.

All valves on tanks and treaters are of the plug type with a relief hole drilled into the side of each so the core of the valve will drain when closed to avoid freezing and bursting. Vent lines from the tanks are installed in a vertical position since it was found that horizontally-installed vent lines collected moisture and became plugged with ice.

As wells make varied quantities of salt water, a small size water dump line has been laid from the heater treater to an earthen pit located about 150 feet distant. The water freezes in these lines during the severe cold weather where it is exposed to the atmosphere when entering the salt water pit. Fortunately, this condition exists only during short intervals of winter season.

Operating procedures. Bottom-hole temperature of wells in the Poplar Unit averages 246° F. Gas-oil ratio ranges from 10/1 to 150/1. Not sufficient gas is produced from the wells

TYPICAL WELL HOOKUP in East Poplar Unit, considered one of the best developed fields in the Williston Basin. All wells except one flow and must be pinched back to the 200-barrel-per-day allowable.

to maintain a desired temperature of 120° F. in the heater treater, but fortunately, a shallow zone in the north portion of the unit area is gas-bearing and two small gas wells have been drilled to supplement the gas supply.

Flow lines average 3500 feet in length and are buried below the frost line at approximately five feet in depth. With the help of the bottom-hole temperature and a high rate of flow, it is possible to obtain oil at the heater treater, coming from the wells, at a temperature of approximately 80° F; however, this varies with the capacity of the wells and the length of the flow line. It is general practice to flow wells at a minimum rate of 200 barrels per day so as to maintain as high a temperature as possible. This practice also lessens the consumption of gas and deposits of paraffin in the tubing and flow lines. When market conditions are such that all wells within the unit cannot be operated at an economically efficient rate, general practice is to close wells in alternately rather than pinch down on the production.

Paraffin problems. The most difficult and constant problem encountered is the deposition of paraffin in the tubing and flow lines. This paraffin becomes extremely hard and frequently plugs flow lines completely unless a high rate of flow is maintained or weekly hot oil treatments are applied. Practically every leading brand of paraffin solvent and inhibitor has been tested in the field with negligible results. A few types have been found that would give a small amount of help if used in large quantities, but the large amount of chemical required makes their use economically prohibitive. Various types of soluble plugs and pipe line pigs have been tried but with limited success.

Use of a hot oil unit has been the most economical solution found to the paraffin problem. The procedure is to heat oil to from 160-180° F. and pump it through the flow lines until the heat is transferred throughout the length of the line, thus dissolving paraffin accumulation. This treatment must be given to the flow lines every 7 to 10 days on all of the weaker flowing wells. One well in the field that is pumping must be treated every five days to prevent plugging.

About the Author

J. HAROLD MILAM is a native of Smackover, Ark., and attended El Dorado Junior College. In 1936 he started work as a rig builder and later became a driller and then toolpusher for Cook Drilling Company. He joined his brother, R. L. Milam, as partner and formed the Milam Production Company. In 1950 he became Rocky Mountain district production superintendent for Murphy Corporation. Milam is a member of the IPAA; the Rocky Mountain Oil and Gas Association and is on the API Advisory Committee.

Weather problems. With the present system, production operations can be carried out almost as efficiently in the winter as in the summer. However, operational problems are created by extended periods of extreme low temperatures. It is during these periods that extra caution must be exercised to prevent exposure and frost bite among operating personnel. Common practice is to have two switches in two vehicles check the wells and tank batteries just as a precautionary move in case a man gets injured or has a vehicle failure. Snow and high winds can completely block the field roads in a very short time. Mobile telephones are used in most of the vehicles, not only for operating efficiency, but so that contact can be maintained with the field office in case blocked roads isolate an employe. Bulldozers and road graders are kept available on a standby basis throughout the winter season.

Surface mud. The most difficult time to maintain normal operations is during the spring thaw, which causes extremely soft conditions of the field roads. During this season, the East Poplar Unit is almost a sea of mud, and the Poplar River overflows, cutting the field in half and entirely isolating the north half of the field. As the days become warmer and the snow melts faster, the volume of water released is of flood proportion, and the river rises, releasing the ice that has been capped in it all winter. The ice breaks up and mammoth blocks damage all field bridges.

When this happens a heavy-duty truck is placed on the north side of the river and personnel transferred back and forth by boat, and sometimes by airplane, in order to keep operating. It is virtually impossible to keep flow lines from plugging during the spring thaw due to the inability to get hot oil units to the wells.

Salt Plugging. Three of the wells that are producing on the northwest flank of the unit area produce a varied amount of supersaturated salt water. When producing, the agitation and cooling of the water allows salt crystals to precipitate out of solution and tends to plug the tubing. This condition may be alleviated by periodic fresh water injections into the casing. Fortunately, of the three wells mentioned only one well is regarded as a chronic problem of this sort. The solution to the problem, however, is not nearly as simple as it sounds, as fresh water is extremely difficult to handle during the winter months. It is necessary that the amount of water produced must be diluted on a 50-50 basis with fresh water, which means, assuming a well produces 50 barrels of supersaturated water daily, then it must be diluted with 50 barrels of fresh water daily.

Plans call for the installation of an insulated water storage with electric heating cables in the tank, and a small high-pressure piston-type, electrically-driven injection pump completely housed in an insulated building. An installation of this type will be set at each well where necessary.

Salt water disposal, as mentioned before, is effected by evaporation in earthen pits. Since the wells on the northwest side of the Poplar River do not produce large quantities of water this method of disposal is quite satis-

Continued on Page 190

Formation fracturing is conventional procedure in completion and workover practices. However, for best results, zone characteristics must be studied and the correct technique applied. Here are some case histories showing how they are successfully . . .

Fracturing Formations In the Illinois Basin

By G. H. LINK, District Engineer, The Carter Oil Company, Carmi, Ill.

FORMATION FRACTURING in the Illinois Basin, as in other areas, involves isolation of the zone to be fractured and pumping into the formation a viscous fluid containing sand in suspension. Case histories specifically indicate that best results can be expected if the following factors are considered carefully in performing the fracturing treatment:

- Highest pumping rate as possible will insure maximum fracturing.
- Sand content in the fracturing fluid should be at least two pounds per gallon for best results. (Some treatments have been made with as much as 4½ pounds per gallon.)
- Formation to be fractured should be clean. Presence of mud, cement, paraffin or salt deposits tend to minimize success of job.

Fracturing Technique. Technique used in the Illinois Basin to fracture oil-bearing reservoirs may best be illustrated by citing a field example. This well, a portion of whose electric log is shown in Figure 1, originally was completed by shooting the Bethel sand in the open hole below 2026 feet. The Hardinsburg sand was opened through perforations from 1806-1818 feet, or 10 feet above the original oil-water contact. No stimulation treatment was applied to the Hardinsburg originally because of the underlying water.

Completion date was on July 26, 1949. In March, 1953, it was decided to hydraulically fracture the Hardinsburg. A plug was set below the perforated interval. A six-hour bailing test indicated a daily production potential of eight barrels of oil and no barrels of water from the Hardinsburg. A retrievable packer was run in on tubing and set at 1774 feet. This isolated the zone to be fractured.

After pumping 840 gallons of clean crude oil into the formation and starting in with the fracturing fluid, it was necessary to circulate out and reperforate the casing since the fracturing fluid would not go into the formation. Evidently scale deposits had formed on the casing perforations.

After reperforating from 1806-18 feet, 840 more gallons of crude oil were pumped into the formation at a maximum pressure of 1300 pounds per square inch. A total of 1500 gallons of fracturing fluid containing 1.3 pounds of sand per gallon were then pumped in, followed by 3300 gallons of crude oil. The maximum pressure was 1900 psi which dropped to 1400 psi. Injection rate was 150 gallons per minute. A pumping test taken one month after treatment indicated a potential of 195 barrels of oil and 23 barrels of water in 24 hours, an increase in oil production of 2300 percent.

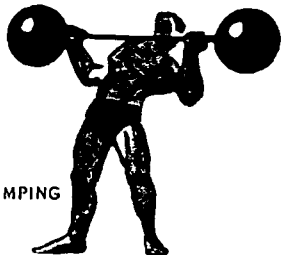
Admittedly, this treatment gave exceptionally good results. It is pertinent, therefore, to consider the factors that contributed to the unusual success of this job. Six pertinent points were brought out by this well study.

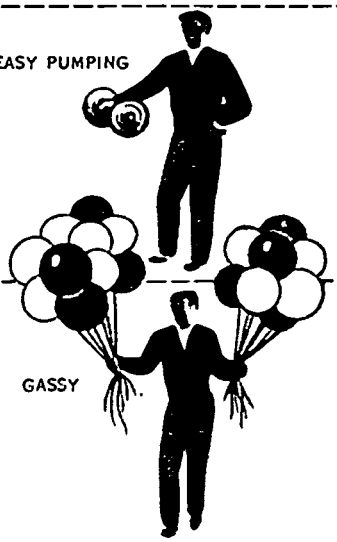
1. The accumulated production per acre foot from this well was low compared with other wells draining the same reservoir.
2. A drill stem test taken while drilling through the Hardinsburg flowed oil in four minutes. Furthermore, the average horizontal permeability in this particular reservoir, as determined from cores, was approximately 470 millidarcys and the vertical permeability was 430 millidarcys. These data indicated that the reservoir contained a good sand capable of high producing rates.
3. The sand, as shown in the electric log, was relatively clean and thick.
4. The treatment was confined to an interval of only 12 feet.
5. Prior to treatment, there had been no water production reported. The lowest perforation was ten feet above the original oil-water contact.
6. A recent bottom-hole pressure survey indicated a reservoir pressure in excess of 200 pounds in the area of this well. Indeed, this was an ideal well for stimulation treatment.

Case Histories. A review of other field examples will illustrate that a variation in one or more of these six conditions has resulted in a less favorable response to treatment.

Figure 2 tends to illustrate that good producers cannot be made by fracturing unless sand quality is favorable. This particular well which is draining the same reservoir as the previous well considered has a tighter,

WHAT IS YOUR WELL CONDITION?





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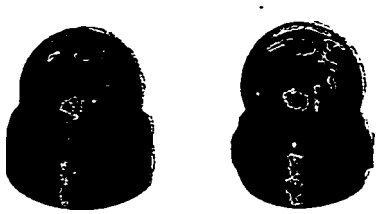

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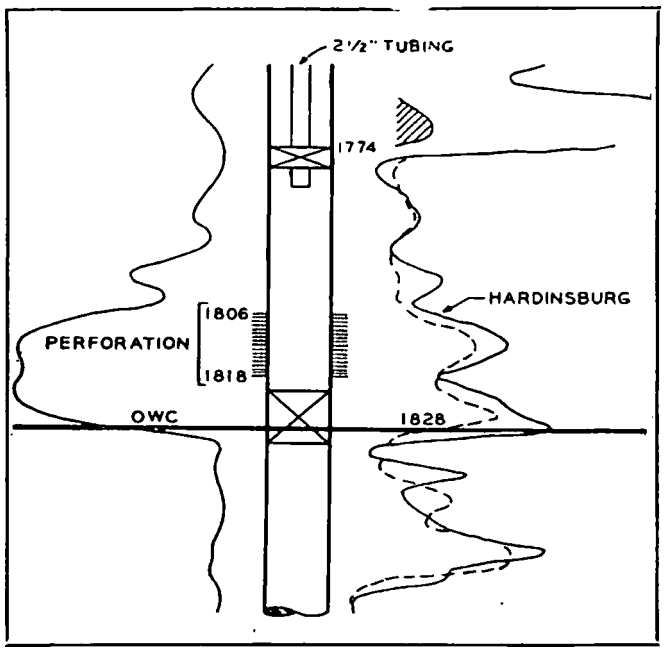


Fig. 1—Fracture treatment of this well included 840 gallons of crude oil followed by 1500 gallons fracture fluid with 1.3 pounds sand per gallon. Injection rate: 150 gallons per minute; pressure broke from 1900 to 1400 psi. Treatment followed with 3300 gallons crude injected at 1400 psi. Before treatment: 8 barrels oil, no water; after treatment: 195 barrels oil, 23 barrels water.

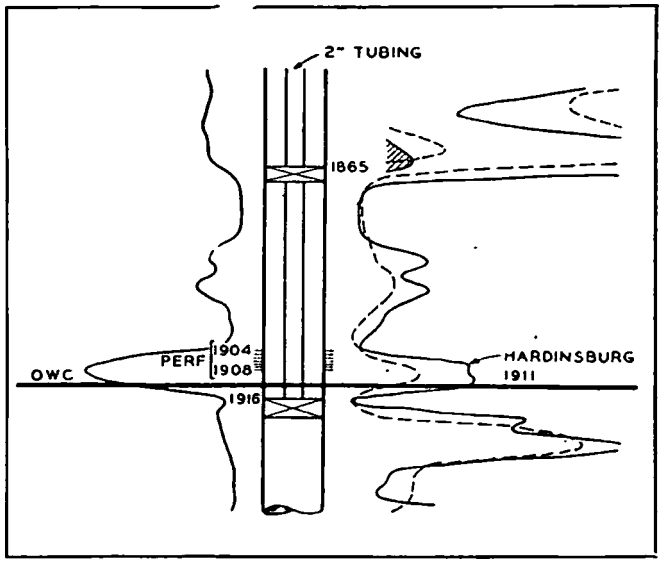


Fig. 2—This well treated with 840 gallons of crude pumped ahead at 1600 psi, followed with 1600 gallons fracture fluid with 0.4 pounds sand per gallon. Injection rate: 160 gallons per minute. Pressure increased from 1600 to 2400 psi. Treatment followed with 3300 gallons crude oil injected at pressures from 4000 to 1700 psi. Before treatment: 5 barrels oil, 1 barrel water; after treatment: 27 barrels oil, 26 barrels water.

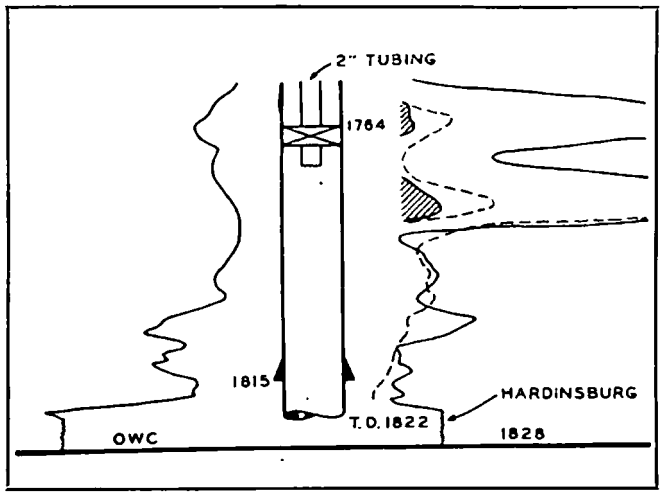


Fig. 3—Production after treating this well was 12 barrels oil, 80 barrels water; before treatment: 5 barrels oil, 8 barrels water. Well treated with 840 gallons crude at 800 psi, followed with 1600 gallons fracture fluid with 0.25 pounds sand per gallon, injected at 160 gallons per minute. Pressure broke from 1700 to 1400 psi. Treatment followed with 3000 gallons crude oil injected at pressures from 2000 to 1400 psi.

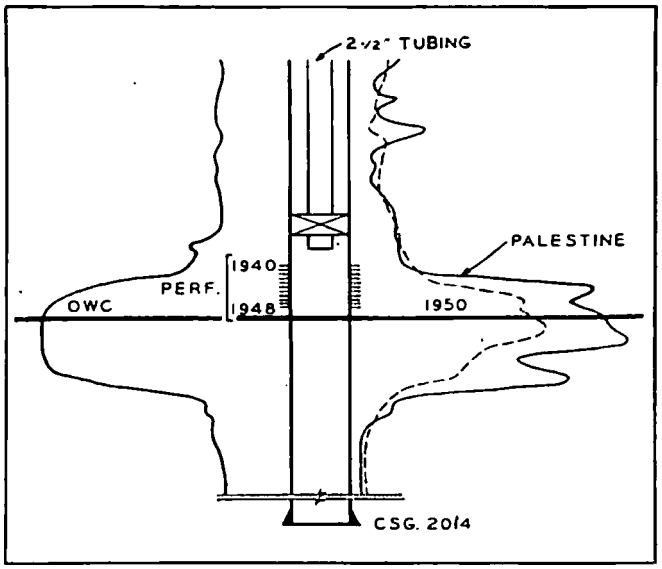


Fig. 4—A two-stage fracture treatment was made on this well. First stage included 840 gallons crude ahead at pressures from 2400 to 1700 psi; 1000 gallons fracture fluid with 1 pound sand per gallon, injected at 67 gallons per minute. Pressure broke from 2700 to 1500 psi. 1000 gallons crude followed at 1500 psi. Production increased from no oil to 11 barrels oil, 1 barrel water. Retreated with 840 gallons crude at 1800 psi, 800 gallons fracture fluid with 1.5 pounds sand per gallon, injected at 133 gallons per minute at pressures from 1950 to 1200 psi. 1500 gallons crude oil pumped in at 1400 psi. Production increase to 132 barrels oil plus 32 barrels water.

thinner sand, as shown by the electric log. The oil-water contact was three feet below the lowest perforation. The initial potential of the well was approximately five barrels per day.

In March, 1951, a decision was made to hydraulically fracture the Hardinsburg. A total of 1600 gallons of fracturing fluid containing 0.4 pounds of sand per gallon of fracturing fluid was utilized. The fracturing fluid started into the formation at 1600 psi and rose to 2400 psi. Pumping rate was 160 gallons of fluid per minute. The 3000 gallons of crude oil which followed the fracture fluid broke the formation from 4000 to 1200 psi. Production was increased from five barrels per day with one barrel of water to 27 barrels of oil and 26 barrels of water. However, based on current data, the cost of reconditioning has not and will not be returned.

Figure 3 illustrates the danger of

increasing water percentage. This particular well was completed in the Hardinsburg in the same reservoir and had casing set at 1815 feet. Exposed immediately below the casing seat were over three feet of shaly sand interbedded with shale as determined from core descriptions. Total depth of the well was six feet above the oil-water contact. Other factors were favorable for a successful job.

The fracturing fluid broke down the formation at a pressure of 1700 psi with a final pressure of 1400 psi. Fracture fluid containing 0.25 pounds of sand per gallon was pumped in at a rate of 160 gallons per minute. Production was increased from five barrels of oil and eight barrels of water to 12 barrels of oil and 80 barrels of water. This indicates that even though over three feet of shaly sand and shale were present below the casing point at least one fracture was made into the underlying aquifer.

Although this treatment was not considered good, it was successful since the cost of fracturing has been returned in increased oil production.

Another field example is shown in Figure 4. This particular well was drilled to a total depth of 2847 feet in the Aux Vases. No commercial production was encountered below the Palestine so casing was set at 2014 feet through the sand due to underlying water. The Palestine tested 940 feet oil, 270 feet gas, and 30 feet oil-cut mud in four hours from 1938-50 feet with a bottom-hole pressure of 342 pounds. The sand which was cored in an offset well revealed a horizontal permeability of 500 millidarcys. The well was perforated from 1940-44 feet and tested dry after pulling vacuum with a casing swab for four hours. The interval from 1944-48 feet was also perforated and the entire interval tested dry.

Due to apprehension about the underlying water, only 800 gallons of fracturing fluid containing one pound of sand per gallon was pumped in at an injection rate of 66.6 gallons per minute. Although the fracturing media started in at 2700 pounds and broke to 1500 pounds, disappointing results were obtained. The well was swabbed for four days and all fluid used in the previous treatment was finally obtained, plus some mud and sand. During the last 24 hours the well swabbed 11 barrels of oil and one barrel of water.

In view of the initial potentials of other wells in the area, it was deemed prudent to refracture. The second treatment was performed using 800 gallons of fracturing agent containing 1.5 pounds of sand per gallon. Pressure broke from 1950 to 1200 pounds while pumping in at a rate of 133 gallons per minute. The well was then completed for a pumping potential of 132 barrels of oil and 32 barrels of water per day. In the second treatment on this particular well, three factors were changed: (1) amount of sand was increased from one to 1.5 pounds per gallon; (2) the bore hole had been thoroughly cleansed by the previous treatment; and (3) the injection rate was greatly increased.

Success of the second treatment is largely attributed to the increased injection rate plus the cleaner condition of the sand.

Examine Factors. In reviewing the above case histories, it is important to examine them in retrospect to determine if a check list can be made for use in the selection of a well for hydraulic fracturing.

First factor to be considered is accumulated production. If the well under question has a low accumulated production per acre-foot in comparison with other wells in the same reservoir, and the sand quality is good, it is definitely a candidate for hydraulic fracturing.

Second, all core and drill stems should be examined to determine sand quality.

Third, an electrical log should also be examined to determine thickness, quality, and position of water table.

Fourth, the interval opened for treatment should be examined with the thought in mind that a minimum interval should be opened to insure maximum fracturing benefits.

Fifth, the water production history of the well should be examined as well as the position of the water table. It has been demonstrated that water percentages, in general, will increase, and if the water table is near, there is a good possibility of fracturing into it.

Sixth, the bottom-hole pressure should be examined if data are available. Unless there is sufficient reservoir energy to force oil into the reservoir, a successful hydraulic fracturing job cannot be achieved. —The End

. oplar Unit Problems

Continued from Page 185

factory. Wells on the south side, however, produce a much greater percentage of water and its disposal is beginning to become a major problem.

Vehicle maintenance. Maintenance of vehicles in this area has been found to be quite expensive. A vehicle stays packed underneath with snow and ice approximately 4½ to 5 months a year, except for short intervals when the temperature is above freezing. Conditions have been such that vehicles must be steamed out underneath two or three times per week. The extra load on the vehicles by ice causes considerable breakage of springs, shock absorbers, and general deterioration of the vehicle throughout.

Due to the degree in which personal safety depends on the operating condition of a vehicle, it is necessary that they be kept in tip-top shape throughout the cold periods. For this reason, all units are given a thorough checkup before the winter begins and careful inspections and repairs are made throughout the winter. The record to date proves that this procedure is quite satisfactory for there has been no occasion in which an employe was incapacitated because of unnecessary exposure to the cold due to vehicle failure.

Oil treating. Although treating the crude presents a serious problem in several areas, it was found that emulsions could be broken by a combination of heating and filtering in the heater treaters, and by using one pint of chemical per 100 barrels of oil. Crude oil ready for shipment must contain less than 1 percent basic sediment and water. A small gas-driven chemical injector is provided in each treater house, and cehmical injection is automatic on a 24-hour basis.

Characteristics of the East Poplar Unit crude oil are as follows:

Gravity @ 60° F. 40.2° API
Sulfur .330%
Pour Point + 20° F.
Viscosity @ 70° F 40.6 Secs. Saybolt Univ.
Viscosity @ 100° F 36.8 Secs. Saybolt Univ.
Color Brownish-Green
Initial Boiling Point 87° F.

—The End

"McGOWAN" FIELD
ROOSEVELT COUNTY, MONTANA

Data Presented to the
Montana Oil and Gas Conservation Commission
on
December 8, 1954

by
Murphy Corporation

INTRODUCTION

The Oil and Gas Conservation Commission of the State of Montana has requested a hearing for December 8, 1954 at Poplar, Montana to consider various matters concerning conservation in the Poplar Area. The Poplar Area is defined by the Commission as that area lying within Townships 28 and 29 North, Ranges 50 and 51 East, Roosevelt County, Montana.

The purpose of this report is to discuss the producing portion of the Poplar Area, that is variously referred to as the McGowan Area or Field, East Poplar Field, Northwest Poplar Field, and Goings Area or Field. This area will be termed the "McGowan" field in this report. It is recommended that the Nomenclature Committee of the Oil and Gas Conservation Commission consider the feasibility of officially designating this producing area as the "McGowan" field.

Engineering and geological data, as requested by the Commission, will be set forth, as well as economic and production information. A recommendation concerning spacing and field rules is included in this report.

DEFINITION OF FIELD

It is suggested that, at this time, the "McGowan" field be defined as that portion of Township 29 North, Range 50 East lying between the east boundary of the West Poplar Unit and the west and northwest boundaries of the East Poplar Unit.

DISCOVERY WELL

The discovery well for the "McGowan" field was the Ajax Oil Company #1 McGowan, C SE SW Section 10, Township 29 North, Range 50 East. This well was drilled to a total depth of 6274 feet and was completed in a Madison zone of porosity for an initial production of approximately 150 barrels of fluid per day, fifty percent water, pumping and flowing intermittently.

SUBSEQUENT DEVELOPMENT

Since the completion of the discovery well, seven wells have been drilled in the field area. These wells are listed below in the chronological order of drilling:

OPERATOR	WELL NAME AND NUMBER	COMPLETION DATE	STATUS
Ajax	#1 McGowan (SE SW Sec. 10)	9- -52 (?)	?
Ajax-Wilrich	#1 MacDonald (NW NW Sec. 15)	12-15-52	Pumping
Ajax	#2 McGowan (SE SE Sec. 9)	12-17-52	P & A
Ajax	#2 MacDonald (SE NW Sec. 15)	7-31-53	Pumping
Ajax-Utah Southern	#1 Dupree (SE SW Sec. 23)	8-1-53	P & A
Ajax	#3 MacDonald (NE NW Sec. 15)		Suspended Indefinitely
Murphy Corp.et al	#1 Goings-Gov't (SE NW Sec. 11)	11-12-53	Pumping
Ajax	#3 McGowan (NW NW Sec. 11)	12-1-53 (Approx.)	Pumping

STRUCTURE

There is insufficient sub-surface data available to define the structure of the "McGowan" field.

NATURE OF RESERVOIR

With special reference to Murphy et al #1 Goings--Government, production in the "McGowan" field is coming from a fractured limestone reservoir in the Madison formation of Mississippian age. The net thickness is approximately 16 feet, average porosity 10.3 percent, average permeability 1169 md., and estimated connate water saturation is 45 percent.

ECONOMICS

The following is a brief statement of the economics of oil production in the"McGowan" field with reference to the Murphy et al #1 Goings-Government.

Total oil production from November 12, 1953 to November 1, 1954 was 9970 barrels. Cost of drilling and completing the well was approximately $100,000.

CONCLUSION

There is insufficient data available to fully determine the reservoir characteristics of the "MC Gowan" field at this time, However, on the basis of the fractured nature of the reservoir in the # 1 Goings-government it appears likely that one well will effectively drain a minimum of 160 acres. There is certainly no data available at this time indicating that a well will not drain 160 acres.

RECOMMENDATION

Murphy Corporation, as operator of the # 1 Goings-government well, and on behalf of The Carter Oil Company, Placid Oil Company, Phillips Petroleum Corporation, and W. C. and Theodosia Nolan, co-owners with Murphy Corporation of the subject well recommends the following:

1. - Spacing Units - That the Commission establish temporary 160 acre spacing units for the "Mc Gowan" field so as to permit operators to develop the reservoir on wide spacing and thereby accumulate the data necessary for determination of that ultimate spacing which will result in the efficient and economic development of the pool.

2. - Field Rules - That field rules for the "Mc Gowan" field be patterned after rules recommended for the East Poplar Field, except for the rule concerning surface casing. It is suggested that only 250 feet of surface casing be required. A complete list of recommended field rules for the "Mc Gowan" field will be submitted in the near future.

GENERAL DATA

Name of Well	Goings No. 1
Location	Center of SE SW Section 11, Township 29 North, Range 50 East.
Completion Date	November 2, 1953
Producing Formation	Madison (Mississippian Age)
Perforated Interval	6051-61'
Initial Potential	45 BOPD, 12% BS&W
Gas-Oil Ratio	700 cubic feet/barrel

RESERVOIR DATA

Lithology	Fractured Limestone
Average Porosity	10.3%
Average Permeability	1169 MD
Connate Water Saturation	45% (est.)
Net Thickness	16 Feet

MURPHY CORPORATION, ET AL GOINGS #1
LOCATION: C SE SW 11-29N-50E
ELEVATION: 2259' K.B.

Year	Month	Oil Production Barrels	Water Production Barrels	Gas Production MCF
1953	November	752	112	526
	December	1,016	53	711
1954	January	1,246	219	872
	February	1,129	197	790
	March	1,043	136	730
	April	1,079	65	755
	May	674	21	472
	June	892	37	624
	July	652	34	456
	August	679	84	475
	September	417	41	292
	October	389	48	272
	TOTAL	9,968	1,047	6,975

1955

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
JAN 2 - 1955
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

P. O. Box 400
Casper, Wyoming

January 24, 1955

Memorandum for the Files

Subject: Hearing on East Poplar Field, Montana,
Poplar Montana, December 8 and 9, 1954

December 8 - 2:00 P.M.

Hearing held before the Montana Oil and Gas Conservation Commission. Commissioners present: D. E. Hageman, Joe H. Frerich, Ernest L. Anderson and Glayde W. Yoder. Commissioner Ted Hawley absent. Employees of Commission present were J. B. Flugstad, Petroleum Engineer; Mark P. Autry, Geologist; James F. Neely, Executive Secretary; and Mrs. Yulavich, Secretary. Lawyer.

U. S. Geological Survey represented by H. H. Perrigo, District Engineer; R. M. Larsen, Petroleum Engineer; and J. R. Schwabrow, Supervisor. Notes by J. R. Schwabrow.

J. A. O'Connor, Attorney, Murphy Corporation examined witnesses.

Jim Powell, Geologist, Murphy Corp. Sat on well No. 1 as geologist and has been working on the area ever since. Completed March 7, 1952, 715 B/D. T.D. 9163, P.B. 5827. As of December 1, 1954, unit has 43 producing wells and 3 dry holes. 15,000 acres proven. 100' of closure on Madison in field area. Madison averages 350', net pay averages 35'. Company has spent over $400,000 on coring, core analysis, drill stem tests and other surveys to find out all it can about the reservoir.

Shockton Smith, Phillips Petroleum Co., Bartlesville, Okla., Chief, Reservoir Engineer. Oil fields generally produce 25% of the oil in place by primary methods and 60% by use of all secondary and primary methods. Used map of West Cement - Medrano unit. Discovered in 1937 as gas field. Gas sold at 1½ cents. Oil discovered in December, 1941. Used model of West Cement-Medrano reservoir. Oklahoma has a 5% gross production tax. Unitized December 1, 1947. First gas injection July 11, 1949.

Shuler Jones sand pool, Arkansas. Unitized February 15, 1941. Gas injection started July 1, 1941. 16,000,000 bbls. produced with pressure drop from 3520 lbs. to 1500 lbs. After gas injection 17,000,000 bbls. produced with pressure drop of 100 lbs.

Used following fields to illustrate additional cases of greatly increased recovery due to pressure maintenance: Burkett Unit, Kansas; Washington County Production, Oklahoma; Bradford, Penna. Water flooding legalized, 1921; SW Antioch, Gibson Sand Unit; St. Andres Line, Goldsmith Pool, Texas; Gordon Kirby, Division Manager, Murphy Corp. identified East Poplar Unit Agreement.

R. J. Sweeney, Head of Reservoir Engineering Section, average 11% porosity. Average Permiability 5 M.D. Gas 22 cu. ft./bbl., 15,000 acres proven, 62 wells drilled, 39 wells flowing, 13 wells pumping, 10 abandoned, 40.2° A.P.I.

Since field is a water drive reservoir material balance equation is not applicable in the estimation of reserves. Showed that by the material balance equation, the reserves would amount to approximately 569,000,000 barrels. This is almost three times as much as the reservoir could contain from a volumetric analysis. From volumetric analysis, the reserve is roughly estimated at 200,000,000 barrels. Of the total of 4,200,000 barrels of oil and 700,000 barrels of water produced to date, it is estimated that 4,400,000 barrels of reservoir fluid has been produced by water encroachment and expansion of the oil.

As an example of well interference, Unit well 18 was shut in for 48 hours and unit 1 was shut in for 24 hours and then produced. At the end of the 24 hour period after production started, the BHP of No. 18 was 2666 lbs. per square inch compared with 2688 lbs. per square inch prior to production of No. 1, which is a decline of 22 lbs. per square inch.

Original B.H.P. 2940 lbs. square inch. Recommended that the reservoir pressure be maintained at 2600 lbs. square inch. Suggested a total fluid withdrawal of 15,000 bbls. per day as the best M.E.R. Estimated that such a withdrawal will result in an additional recovery of 6,000,000 barrels from the reservoir. Production should be allocated on a productive acreage basis. Recommended a total fluid withdrawal of 90 bbls. per 80 acre productive tract which would result in 14,190 bbls. for Murphy, 180 bbls. for Thomas and 90 bbls. for each of Empire State's four 80-acre tracts and 90 bbls. each for Wagner, Ashland and Dickey, if the latter well is drilled.

If operator returned water to reservoir, it would be the same as if the water was never produced.

Recommend no well be drilled more than 30' from center ¼ ¼ or 40 acre tract.

May have to introduce extraneous water to maintain reservoir pressure.

P. M. Westfeldt, Attorney for Empire State, stated that they may demand a hearing if evidence submitted tends to be adverse to their interests.

Put Smith back on stand. Used model to illustrate conditions in East Poplar. He also agreed with Sweeney's concluaions and believes allocations set forth by Sweeney as equitable to all parties.

Paul MacDonald, Production Manager also a Director of Murphy Corp., stated that in his opinion such an allocation would be equitable to all.

W. F. Dalton, Placid Oil Co., President. Unit experience, Long Lake 1939 and Cotton Valley 1940. Unit operation the best arrangement for all interests to obtain their fair share.

Scott Graham, Carter Oil Co., Reservoir Engineer, who agreed with Sweeney's conclusions.

Harold Milam, Murphy, District Production Superintendent, Casing program, 1000' surface pipe cemented in areas where there is pressure in Judith River formation. Blowout preventer. Deviation should be less than 3°. B.H.P. tests to be run in May and November. All wells in area of key wells should be shut in for 48 hours before test.

Earl Cranston, Attorney of Billings, ¼ interest in Thomas, Huber lease. Asked for 60 day recess to study Murphy's data and recommendations.

December 9, 1954. 9:00 A.M.

P. M. Westfeldt, Denver, Attorney for Empire State. Requested that hearing be continued on or about February 6, 1955. Claims notice of hearing specifically mentions spacing, unit agreement and whether waste exists. There are other generalities. Does not consider the notice sufficient to set out a proration order. Empire State has four producing wells, one drilling.

Winston Howard, Attorney for C. C. Thomas and Mr. Snyder. Just arrived. Had no time to prepare. From notice did not believe Murphy Corp. would request a proration order.

John Low, Attorney for Wm. Kirvan & Penland Emrick, which have interest in Thomas lease. Also asks for continuance. Also stated law requires all five commissioners to be present.

Richard S. Kitchen, Represents Mr. Clark and Mrs. Wood who have interest in Thomas lease. Also asks for continuance.

Winston Howard, again. Moves that the commission strike from the records all evidence and testimony regarding proration or oil allowables.

Lawrence O'Connell, Williston Attorney for Thomas, Davis, Ott and Updegrove, etc. Requests continuance.

Hageman will take request under advisement and continue the hearing.

Commission convened and went into session to determine what shall be done about the requests. Then announced that hearing will be continued until February 7, 1954 at 9:00 A.M., American Legion Hall and that they wou d continue with the hearing now on well spacing.

Westfeldt, Attorney for Empire State examined.

Ben Leveritt, Geologist, Empire State. Described the wells drilled by Company. Present intention not to drill any more wells. No spacing rules needed other than that already set by commission. O'Connor asked if one well will drain more than 40 acres. Leveritt answered that he thought it would drain as much as 80 acres.

No others present had anything else to offer on well spacing.

Dick Ryan, Attorney, Carter Oil Company, examined.

Graham on West Poplar well. Presented data on well.

Winston Howard handed in copies of report on C. C. Thomas lease.

Westfeldt stated they could furnish their report as soon as it is corrected.

O'Connor then took up MacGowan area; examined Sweeney, Murphy Corporation, Government No. 1 going SE SW sec. 11, T. 29 N., R. 50 E. Discovery well Ajax SE SW sec. 10, 150 bbls. fluid, 50% water, 1169 m.d. Seven wells in area. Going well G.O.R. - 750 cu. ft./barrel, 45% connate water. Recommends temporary spacing of 160 acres per well. Apparently not a water drive field. 250' of surface casing. Recommend area be called MacGowan instead of NW Poplar. 160 acre unit with wells in center of SE¼ of 160 acre. Tolerance of 30' out of center of 40 acres. Only one zone productive.

No one representing Wagner interests. Hearing continued until February 7, 1955.

Hearing on application of C. C. Thomas to dispose of Madison formation salt water into Judith River sand underlying NE¼ sec. 10, T. 28 N., R. 51 E.

Winston Howard stated data to support application has been filed with Commission.

Snyder read application. Judith River 890'. No oil or gas within area of disposal. Propose using 100' 7" surface casing 890' 4" both cemented to surface. Will inject 250 B/D. Water now disposed of in pits and goes mostly into surface gravel.

cc - Washington
Billings

(Orig. Sgd.) J. R. SCHWABROW

J. R. Schwabrow
Regional Oil and Gas Supervisor

P. O. Box 1435
Billings, Montana

February 15, 1955

Memorandum for the Files:

Subject: Hearing on East Poplar Field, Poplar, Montana
February 7 and 8, 1955

February 7, 1955 - 8:00 A.M.

Hearing held before the Montana Oil and Gas Conservation Commission. Commissioners present: D. E. Hageman, Chairman; Joe H. Frerich, Ernest L. Anderson, Clayde W. Yoder, and Ted Hawley. Commission employees present were J. B. Flugstad, Petroleum Engineer; John Risken, Attorney; Mark Autry, Geologist; James F. Neely, Executive Secretary; and Mrs. Yulavich, Secretary.

The U. S. Geological Survey was represented by H. H. Perrigo, District Engineer.

The Chairman of the Commission stated that this meeting was a continuation of the hearing held December 8 and 9, 1954. The question was raised at the December hearing regarding the legality of any act of the Commission without full membership present.

Mr. John Risken, Attorney for the Commission was asked for an opinion, and he stated that one or more members of the Commission can hold a legal hearing but not lessthan three can render a legal order or decision.

Mr. J. A. O'Connor, Attorney for Murphy Corporation reviewed the December 8 and 9 hearing and repeated the recommendations made by his company at that time.

Attorneys for other interests requested time to make preliminary statements.

Mr. P. M. Westfeldt, Denver, Attorney for Empire State Oil Company stated that his company as well as others in the field prepared testimony for presentation at this hearing. He stated that Murphy Oil Corporation is attempting to freeze out all competitors in the field and requested the Commission to arrive at a just and lawful order to prevent this.

Walter Burke, Williston, North Dakota, Attorney for Wagner-Christiamson Company concurred with Mr. Westfeldt and stated that his company is not waiving its rights regardless of any decision by the Commission.

Winston Howard, Denver, Attorney for C. C. Thomas subscribed to the above statements.

Ted Stockman, Denver, Attorney for royalty interests in the Thomas lease subscribed to the above statements.

John H. Schilts, Billings, Attorney for royalty interests in the Thomas lease subscribed to the above statements.

R. J. Sweeney, Head of Reservoir Engineering for the Murphy Corporation was called to the witness stand for cross examination. Attorney Stockman conducted the examination. Sweeney stated that there are four pay zones in the Madison formation and he thinks that they are connected by fractures but is unable to prove it at the present time. He stated that theoretically one well would drain the entire field, and said that the central or high spot in the field is the S½ sec. 29, and N½ sec. 32, T. 29 N., R. 51 E., and that this area would be the last producing area in the field.

Attorneys Westfeldt and Burke questioned Sweeney briefly. Sweeney stated that the MER in the competitive area has been lessened because of excessive production. He again recommended 90 BFPD per well for the Empire State area and 45 BFPD for the Thomas lease. He believes that Murphy Corporation should have 94.6% of the recommended 15,000 BFPD on an acreage basis, but stated that the Commission should regulate the take per well if they thought such action necessary.

Harold Milam, Production Superintendent for Murphy Corporation presented a tabulation showing casing, tubing perforations and pumping equipment on all unit wells.

Ben Leverett, Geologist for Empire State Oil Company took the witness stand and presented well data and a field report prepared for the Commission. He was examined by Attorney Westfeldt. He stated that producing zones are not connected in the northeast part of the field.

Meeting adjourned 5:45 P.M.

February 8, 1955 - 9 A.M.

H. J. Gruy, Consulting Engineer, Fort Worth, took the witness stand for C. C. Thomas and was examined by Attorney Howard.

Gruy presented contour maps for each pay zone in the field and stated that these zones are not connected and that each zone represents a pool as defined in the Montana law. He stated that he does not know anything about unit operation, but is not in favor of it. He said that he has never heard of allocation of oil on an acreage basis. He recommended a MER of 150 BOPD per well and 40-acre spacing for the entire field. He further stated that unit operation is wasteful in that the unit operator is not required to drill all leases and not enough wells are drilled to recover all of the oil or gas. He recommends drilling a well on each 40-acre tract in the East Poplar unit and said that such well density is necessary in order to recover all of the oil.

Gruy stated that there are two highs in the field on each pay zone, roughly centered in sec. 30, T. 29 N., R. 51 E., and sec. 2, T. 29 N., R. 51 E., and that the pay zones and the highs are not connected in any way. He thought that the zones might have a common aquifer some unknown distance away from the top of the structure. He criticized Murphy Corporation for taking so much oil from offset wells in the competitive areas, and discussed the fingering and coning which may follow.

Gruy mentioned the East Texas field as a good example of fingering and coning and showed a colored map of the field, picturing the fingers or cones. He said that there are about 130,000 acres in the field with about 1 well to each 5 acres. He stated that about 1/3 to 1/2 of the wells would not be necessary to recover the oil. He stated that there are between 800 and 900 operators in the field and the coning was due to uncontrolled production by hot oil operators in 1931. Such practice probably hastened the formation of Texas regulatory bodies.

R. M. Tesch, Jr., Consulting Engineer and oil operator took the witness stand for Wagner-Christianson Company and was examined by Attorney Burke.

Tesch is against unit operation for the same general reasons as presented by Gruy. One additional reason is that development is too slow. He stated that an acreage basis is not equitable for prorating unit proceeds, and recommended that reserves for each lease be determined and unit proceeds distributed accordingly. He also recommended an MER of 150 BOPD per well.

Bob Bumford, Superintendent Empire State, presented production data on Company wells. The lease produced 14,868 barrels of oil and 11,088 barrels of water in December, 1954.

John S. Herrin, President Empire State, recommended 40-acre spacing and an MER of 150 BOPD per well.

John Nunn, Geologist, Ashland Oil Company presented production data on Company well. Well produced 370 BOPD and 7 BWPD during December, 1954.

H. B. Lando, Bozeman, Montana, Attorney for royalty interests in Empire State leases, concurred in statement by John Herrin. He urged the Commission not to approve the East Poplar unit plan.

Mike Wagner presented production data on Wagner-Christianson wells. Lease produced 310 BOPD and 150 BWPD during December, 1954.

Harold Milam presented production data on unit wells. Unit produced an average of 12,522 BFPD during December, 1954. The December, 1954, production was 292,472 barrels of oil and 95,049 barrels of water.

Attorney Howard presented production data on Thomas lease. Lease produced at the rate of 800 BOPD and 367 BWPD during December, 1954.

Maverick Oil Company protested against any spacing regulations in the Northwest Poplar area.

Attorneys O'Connor, Stockman, Westfeldt, Burke and Howard made closing statements urging the Commission to adopt regulations as recommended by their respective companies. Burke strongly urged the Commission not to approve the East Poplar unit plan. This matter was not on the agenda for the February 7 meeting.

Meeting adjourned 5:40 P.M., February 8, 1955.

H. H. Perrigo
District Engineer

cc - With original (1)

SUMMARY OF RESERVOIR PRESSURE SURVEY
EAST POPLAR FIELD
May 1955 (Continued)

Operator	Well No.	Zone	Pressure Oct.'54	Pressure May '55	Decline	Production Oct. 15-May 15 Oil	Water	Total
G. C. Thomas	1					35,012	16,664	51,676
	2	C		2,937		57,393	18,119	75,512
	3	C		2,939		32,286	18,127	50,413
	4	B		2,562		41,244	10,007	51,251
M. R. Wagner	1	B		1,887		64,984	443	65,427
Ashland	1	B		1,925		41,835	336	42,171
						2,273,371	700,239	2,973,610

TOTAL WITHDRAWAL (Seven Months) 2,973,610

AVERAGE WITHDRAWAL (Per Day) 13,960

AVERAGE PRESSURES:

A Zone 2,913

B Zone 2,247

C Zone 2,874

ORIGINAL FORWARDED TO CASPER

RECEIVED SEP 9 1955 GEOLOGICAL SURVEY

SUMMARY OF RESERVOIR PRESSURE SURVEY
EAST POPLAR FIELD
May 1955

Operator	Well No.	Zone	Pressure Oct. '54	Pressure May '55	Decline	Production Oct.15-May Oil	Water	Total
Empire State Oil Co.	1	B		2,306		23,516	46,413	69,929
	3	B		2,145		7,690	53,204	60,894
	5	B		1,369		48,738	5,246	53,984
	6	B		1,895		38,182	4,986	43,168
	7	B		2,132		1,533	14,474	16,007
Deep Rock	1	B		2,165				
Murphy Corporation	1	C		2,945				
	1	B		2,165		21,304	428	21,732
	3	A		2,870		20,660	14,504	35,164
	4	B	2,696	2,652	44	73,523	7,209	80,732
	5	C		2,937				
	5	B		2,468		87,144	6,225	93,369
	6	C		2,921		55,460	14,909	70,369
	7	B	2,453	2,452	1	30,449	1,194	31,643
	8	C		2,932				
	8	B		2,482		26,922	17,527	44,449
	9	C		2,958				
	9	B	2,551			34,097	35,374	69,471
	10	B		2,020		58,093	996	59,089
	11					34,356	9,184	43,540
	12					45,875	5,853	51,728
	15	B	2,499	2,433	66	71,634	8,085	79,719
	17	C		2,434		19,338	11,842	31,180
	18	C		2,925				
	18	B		2,236		30,887	10,320	41,207
	19	B	2,283	2,030	53	43,921	836	44,757
	20	C		2,697		41,474	94,169	135,643
	21	C		2,911				
	21	B		2,043		64,367	15,436	79,803
	22					1,601	19,271	20,872
	23					1,575	6,346	7,921
	24	A		2,920		15,992	47,543	63,535
	25	B	2,314	2,223	91	19,372	695	20,067
	26	C		2,884		17,404	49,008	66,412
	27	B		2,046		48,586	2,685	51,271
	28	B		2,276		37,223	1,208	38,431
	29	B		2,652		47,826	8,301	56,127
	30	B	2,115	1,975	140	36,398	2,834	39,232
	31	A		2,940		31,663	3,499	35,162
	32					3,196	18,871	22,067
	33	B		2,068		56,336	4,503	60,839
	34	B	2,123	1,892	231	42,054	1,047	43,101
	36	B	2,431	2,253	178	67,059	1,971	69,030
	37	B	2,700	2,604	96	28,853	32,379	61,232
	38	B	2,433	2,068	365	20,034	2,867	22,901
	39	B		2,778		79,219	5,213	84,432
	40	B	2,119	1,902	217	93,694	947	94,641
	41	B	2,328	2,300	28	30,057	7,274	37,331
	42	B	2,961	2,934	27	42,066		42,066
	43	B	2,506	2,455	51	40,524	6,316	46,840
	45	C	2,923	2,941	Inc.(18)	7,285	19,657	26,942
	47	B	2,672	2,495	177	47,355	7,943	55,298
	48	B		2,590		56,922	916	57,838
	49	B	2,132	1,876	256	109,819	1,051	110,870
	50	B	2,104	1,878	226	56,900	3,101	60,001
	51	B		2,758		47,670	2,279	49,949
	53	B		1,933		18,681	185	18,866
	54	B		2,504		13,918	208	14,126
	56	A		2,923		2,172	11	2,183

STATE OF MONTANA

RECEIVED
JUN 30 1955

ADMINISTRATORS
JOHN B. FLUGSTAD
PETROLEUM ENGINEER
J. R. MARCHI
ATTORNEY
JAMES F. NEELY
EXEC. SECRETARY

ADDRESS ALL COMMUNICATIONS TO THIS OFFICE

OIL AND GAS CONSERVATION COMMISSION

STATE CAPITOL

HELENA, MONTANA

COMMISSIONERS
D. E. HAGEMAN, CHAIRMAN
2304 SPRUCE STREET
BILLINGS, MONTANA
J. H. FRERICH, VICE-CHAIRMAN
BOX 322, POPLAR, MONTANA
E. L. ANDERSON
BOX 317, CUT BANK, MONTANA
G. W. YODER
215 E. MORRILL
SIDNEY, MONTANA

2

29 June 1955

C. C. Thomas
1101 Mile High Center
Denver 2, Colorado

Dear Sir:

You have probably noted that the East Poplar Field Order, issued by the Commission under date of March 7, 1955, specified in Rule VIII that each operator in the field present the Commission with a plan for the disposal of produced salt water which will eliminate any hazard to the fresh water supply of the Town of Poplar and the residents of the surrounding territory, such plan to be presented to the Commission on or before July 1, 1955.

We have proposals by C. C. Thomas and by the Murphy Corporation and I have variously talked with others regarding this matter. The Commission, however, believe that all ideas and suggestions should be reviewed by interested parties prior to official action and approval by the Commission.

I am, therefore, suggesting the establishment of a committee to be composed of probably one or two representatives from each operator and that this committee function as the East Poplar Operators Engineering Committee. The Commission, through myself, will be glad to serve as a co-ordinator with the Committee. It is also suggested that Mr. H. H. Perrigo sit with any such committee.

It is my thought that such a committee can beneficially develop good ideas not only with respect to this current subject of water disposal but also well testing, bottom hole pressure work and other matters in which all operators are involved with the Commission.

I am, therefore, suggesting a preliminary meeting to be held in Billings, 9:00 o'clock A.M., July 8th, 1955, in the American Legion Hall. This early date might give us time to develop something before the Commission meeting in Sidney on July 27th. I will appreciate any comment or suggestions you may have, either for or against this idea.

I will review the recent pressure survey report for the operators at the first opportunity.

Very truly yours,

J. B. Flugstad
Petroleum Engineer

JBF/pjy
cc: Earl M. Cranston, Billings

(copies of this letter to all operators in East Poplar Field)

Blind CC: H. H. Perrigo:

This for your information, Mr. Perrigo. Mr. Flugstad is in Billings today and no doubt saw you. Thank you for attending to the matter of space for the meeting.

Phyllis J. Yalowich

For Mr. Flugstad

MEMORANDUM OF MEETING OF EAST POPLAR ENGINEER OPERATOR'S COMMITTEE - 8 JULY 1955

A meeting of representatives of operators in the East Poplar Field was held July 8, 1955, at the American Legion Hall in Billings, Montana, for the purpose of discussing the problem of disposing of produced salt water. This problem is in accord with the Oil and Gas Conservation Commission's order dated 7 March, 1955. Parties in attendance were Harold Milam, representing the Murphy Corporation; Earl Cranston, representing C. C. Thomas; R. P. Bumford, representing the Empire State Oil Company; H. H. Perrigo, Mark P. Autry, and J. B. Flugstad, representing government and state agencies.

Mr. Milam briefed the Committee on Murphy's plan to gather produced water on the Unit operation and advised that they plan to inject it into the B zones of the Madison reservoir through Well No. 46. Present injection rate would be about 2500 barrels per day and it is believed by Murphy that this would be in the nature of an experimental or pilot operation. The gathering and pumping system planned by Murphy will have an eventual capacity of as much as 23,000 barrels of water per day. However, at such rates of production, disposal would necessarily have to be conducted through quite a substantial number of wells. Murphy believe that by disposing of the water by injection into the B zones, it will serve the purpose of maintaining reservoir pressure, recovering additional oil through flushing or washing, and solve the problem of possible contamination of surface strata. The Murphy system does not provide for gathering water from leases not in the Unit.

Mr. Earl Cranston reviewed C. C. Thomas' status and commented that they are not yet producing a great amount of water (probably 300 barrels per day). They have not proceeded with their plan to inject into the Judith River formation although this proposal has the approval of the Oil and Gas Conservation Commission. Mr. Cranston indicated that C. C. Thomas might be interested in joining with Murphy in a field disposal program. However, this proposal would have to be further investigated by both parties.

Mr. Bumford stated that Empire State do not feel that they have anything to gain by injection into the reservoir for the reason that their leases are located down structure and will probably be the first ones to go to water. He stated that they do not believe the present method of disposing of the water in surface pits is harmful to any surface water bearing formation.

After further discussion, Mr. Flugstad pointed out that a public hearing must necessarily be conducted prior to any final decision regarding the disposal of water into the reservoir.

Another matter briefly discussed was the proposition of well testing in the restricted area. In this regard, Mr. Autry will shortly make a field inspection at which time he will witness the testing of all wells in the restricted area, noting their current status as to choke setting or pumping motion and make a report of same. It is believed that reasonably frequent tests will provide satisfactory checks on the production within the restricted area.

JBF/pjy

1956

FORM 164—TONEY

MURPHY CORPORATION

INTER-OFFICE CORRESPONDENCE

FROM: Safety and Training

DATE: July 31, 1956

TO: All Concerned

SUBJECT: Salt Water Tank Explosion

On June 29, 1956, our Poplar Field experienced an explosion in their 1,000 bbl. raw water accumulation tank which is a part of their salt water disposal system. This was followed by a fire and a second explosion and fire in the 1,000 bbl. clean water tank. There were two men inside the adjacent pump station--the station attendant and a contract welder; neither of these men was hurt. The following description of the explosion came from M. T. James, Poplar Field Production Superintendent.

"At the time of the explosion, the centrifugal pump that transfers raw water through the filter into the clean water tank, was started by the automatic control. At the same time the welder was cutting on the 6" drain line from the filter which is also connected to the raw water tank as an overflow line for excess accumulation of blanket. This line has a check valve with rubber O-ring clapper for shut-off between the tank and filter. The check valve was examined and found to be firmly seated without debris under seat.

"The welder stated that he did not notice any explosion or rumbling inside of the drain line, which would indicate that his acetylene torch had ignited any gas that might have been in the 6" line and flashed through the check valve into the raw water tank.

"Approximately fifteen minutes later the clean water tank caught fire from the raw water tank and exploded.

"There will be very little salvage of equipment that was located outside of building. The electric heaters were checked this morning and will have to be replaced. The only salvage will be the fire tubes and flanges."

Investigation by our Production and Engineering Departments points to the B & W off and on fluid level control switches (electrode type) located inside the accumulator tanks as being defective and the possible cause of the explosion. However, this does not preclude that other conditions were favorable towards the explosion.

Investigation is now under way as to the use of an outside type, fluid level control switch, and other safety features for efficient operation of the new installation.

These facts have been presented to remind all of us that salt water tanks and systems are carriers of hydrocarbons and with the right conditions will explode and burn. It would therefore pay all of us to treat these systems with the same care and caution as we would give any other explosive or flammable substance.

MURPHY CORPORATION

EL DORADO, ARKANSAS

December 28, 1956

RECEIVED
JAN 4 1957
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

U. S. GEOLOGICAL SURVEY
RECEIVED
JAN - 3 1957
CASPER, WYOMING

United States Geological Survey
P. O. Box 400
Casper, Wyoming

Attention Mr. J. R. Schwabrow
Regional Oil and Gas Supervisor

Gentlemen:

30 CFR 221.36
East Poplar Unit Area
Roosevelt County, Montana

On June 29, 1956, our Poplar, Montana, Field had two 1,000 barrel salt water accumulation tanks explode and catch fire. In view of the fact that the State of Montana requires a report of fires only if they exceed certain limits, which this fire did not, 30 CFR 221.36 was inadvertently overlooked and having this called to our attention, we are hereby attaching a report that was distributed within our company on July 31, 1956.

In the interim the two 1,000 barrel tanks have been replaced and the automatic switches have been relocated and placed in an outside water leg; they have also been changed to the fluid level type switch so that there will be no possibility of sparking in case of a faulty system.

Please advise should you need further information, or if this should be submitted on a special form.

Very truly yours,

Ralph A Beegle Jr

Ralph A. Beegle, Jr.
Safety and Training

RAB:PD
Attach.
CC: Mr. P. C. McDonald
Mr. Gordon Kirby

NOTED - SCHWABROW

1957

Murphy Corporation
602 Midland National Bank Building
Billings, Montana

July 3, 1957

PETITION FOR DISPOSAL OF SALT WATER IN DAKOTA FORMATION, EAST POPLAR UNIT, POPLAR FIELD, Roosevelt County, Montana.

Oil and Gas Conservation
Commission of Montana
Helena, Montana

Gentlemen:

Murphy Corporation as operator of the East Poplar Unit hereby applies to the Commission for permission to inject salt water into the Dakota formation in the Poplar Field, Roosevelt County, Montana. In compliance with Regulations 227.2 and 228.3, the following is submitted:

1. The proposed input well will be located in the SE¼SE¼SE¼, Section 30, Township 29 North, Range 51 East.

2. Exhibit M-1, which is made a part hereof, shows the location of all oil and gas wells, including abandoned and drilling wells and dry holes, in the Poplar Field. All of the wells within a radius of one mile of the proposed input well are within the East Poplar Unit where the working interest is owned by The Carter Oil Company, Phillips Petroleum Company, Placid Oil Company, C. F. Lundgren, Theodosia M. Nolan and William C. Nolan, and Murphy Corporation. Ownership of mineral or royalty interest is widely diversified, there being in excess of 500 separate ownerships, and like the working interest, subject to the provisions of the East Poplar Unit Agreement, which was approved by the Commission in Rule 4 of Order 7-55.

3. All of the producing wells in the Poplar Field are producing from the Madison formation. No wells have produced or are believed capable of producing from the proposed input formation. If more specific information is desired relative to Madison formation elevations, it will be furnished.

4. Exhibit M-2, which is made a part hereof, is a micro-log of East Poplar Unit Well 78, the nearest well to the proposed input well. The Dakota formation is identified on this exhibit. Exhibit M-3 is an electrical log of East Poplar Unit Well 78, showing the relationship of the Dakota formation with the producing Madison formation.

5. The casing program for the proposed input well will be as follows:

150' of 9 5/8", o.d.
1000' of 7", o.d.
3420' of 4½", o.d., plastic coated i.d.

The casing will be cemented with 250 sacks in a diligent manner so that no damage will be caused to potential oil, gas, or fresh water reservoirs.

6. The liquid to be injected into the input well is salt water produced from the Madison reservoir by East Poplar Unit wells. Exhibit M-4, which is made a part hereof, shows the location of the tank batteries where the water will be obtained. The estimated amount of water to be injected daily is 7,000 barrels.

7. Murphy Corporation, 602 Midland National Bank Building, Billings, Montana, is the sole operator of the project area.

8. Any additional information which may be required by the Commission will be furnished upon request.

This application is made for the purpose of disposing of surplus salt water not presently being handled by the reservoir pressure maintenance system installed in the East Poplar Unit as approved by Order 34-55, Docket 17-55, September 27, 1955.

Respectfully submitted,

Murphy Corporation

Gordon Kirby
Division Manager

GK:dd

MURPHY EXHIBITS 1 - 6

M-1	Base Map of East Poplar Unit
M-2	Microlog - East Poplar Unit Well #78
M-3	Electrical Survey - East Poplar Unit Well #78
M-4	Salt Water Disposal System Map
M-5	Core Analysis - East Poplar Unit Well #95
M-6	Water Analysis - East Poplar Unit Well #95

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

RECEIVED
AUG 2 - 1957
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

IN THE MATTER OF THE APPLICATION OF MURPHY CORPORATION, BILLINGS, MONTANA, FOR AUTHORITY TO DISPOSE OF SALT WATER PRODUCED WITH OIL, EAST POPLAR FIELD, ROOSEVELT COUNTY, MONTANA.	Order No. 5-57 Docket No. 5-57

Report of the Commission

This cause came on regularly for hearing on the 29th day of July, 1957, at 9:00 o'clock A. M., in the Courtroom of the Courthouse, in the City of Baker, Montana, pursuant to the order of the Oil and Gas Conservation Commission of the State of Montana, hereinafter referred to as the "Commission"; and the notice of the said hearing which was duly given as required by Law, setting the cause for hearing and the said notice having been published; at which time and place testimony was presented, statements received, exhibits received, and the Commission then took the cause under advisement.

The Commission, having fully considered the testimony, statements, exhibits and all things and matters presented for its consideration in this Docket, and being well and fully advised in the premises, finds as follows, to-wit:

Findings of Fact

1. That due, proper and sufficient notice was published and given of the said hearing, the time and place therefore, and the purposes thereof, and has been given regularly in all respects as required by the Law; and said notices and proofs of publication of the said notices so given have been filed in this proceeding, and the Commission has jurisdiction of the subject matter embraced in the said notices and of the parties interested therein, and the Commission has jurisdiction to issue and promulgate the hereinafter described Order.

2. That the Murphy Corporation is an operator in the production of oil in the East Poplar Field, Roosevelt County, Montana, and did file an Application with the Commission to inject salt water produced with oil in the said field, by injection of such water into the Dakota Formation in a well to be located in the SE SE SE Sec. 30, Twp. 29N, Rge. 59E, Roosevelt County, Montana.

3. That the Dakota Formation is barren of oil and/or gas and is a non-producing formation lying within the area delineated by the Commission as the East Poplar Field; that the said formation is capable of receiving between 7,000 and 10,000 barrels of salt water per day, which amount is or will be produced along with oil by Murphy Corporation wells within the said field; that the present technical information available to the Commission indicates that allowance of such injection will not be harmful to producing formations or to fresh water supplies in or adjacent to the East Poplar Field; that the Dakota Formation is situated at a depth approximately 1,500 feet above the Madison Formation, the latter being the producing formation within the field, and the Dakota Formation is separated from the Madison Formation by impervious materials.

4. That the allowance of this injection of salt water, produced with oil in the East Poplar Field, will be in the interests of conservation of oil and gas in the State of Montana; that, however, further consideration should be given by the said Murphy Corporation to the utilization of the said salt water, as a means of pressure maintenance and future injection into or below the present producing formation; that the allowance of this injection should be considered as an emergency measure and should be considered as a reserve means for handling emergencies; that the Commission is to be advised by the Murphy Corporation as to the possibility of utilizing the said salt water

produced with oil as a pressure maintenance mechanism, instead of injection into the Dakota Formation, as soon as such injection becomes feasible.

Order

IT IS THEREFORE ORDERED by the Oil and Gas Conservation Commission of the State of Montana, that the Application of the Murphy Corporation for permission to dispose of salt water produced with oil in the East Poplar Field, Roosevelt County, Montana, by injection into the well to be located as set forth in Findings above, be granted as applied for, it being understood that this allowance is considered as an emergency measure only.

DONE and performed by the Oil and Gas Conservation Commission of the State of Montana, at Baker, Montana, this 29th day of July, 1957.

D. E. Hageman, Chairman
J. H. Frerich, Vice Chairman
E. L. Anderson, Commissioner
G. W. Yoder, Commissioner

(SEAL)

ATTEST:

James F. Neely, Executive Secretary

RECEIVED
SEP 3 - 1957
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

STATE OF MONTANA
OIL AND GAS CONSERVATION COMMISSION
Helena, Montana
August 30, 1957

CONSERVATION AND PREVENTION)
OF WASTE OF OIL AND GAS)

Docket No. 7-57

NOTICE OF PUBLIC HEARING

The State of Montana, by its Oil and Gas Conservation Commission, hereby gives notice to the public and to all interested parties that, pursuant to the provisions of Chapter 238, Session Laws of Montana, 1953, (Sections 60-124 through 60-145, Revised Codes of Montana, 1947, as amended) and the rules and regulations of the said Commission promulgated thereunder, that the Commission will, at

9:00 o'clock A.M. (MST)
on Tuesday, the 24th day of September, 1957,
in the Governor's Reception Room, Capitol Building,
in the City of Helena, County of Lewis and Clark,
State of Montana

hold a public hearing for the purpose of hearing evidence:

Upon the motion of the Commission relative to the disposal of salt water produced with oil in and near the East Poplar Field, Roosevelt County, Montana, and the future plans of operators concerned in the said area. By independent investigation, the Commission has ascertained that the water supply of the Town of Poplar, Montana, is in danger of contamination and that water samples taken in the area indicate a high cloride content in the Poplar River, which river flows through the East Poplar Field, and through the Town of Poplar, Montana. The Commission is concerned that present salt water disposal practices in the East Poplar Field may tend to jeopardize present sources of fresh water in said Poplar, Montana. The Commission desires information on present and future salt water disposal practices from all operators in the area.

Pursuant to the hearing and provisions of Chapter 238, Session Laws of Montana, 1953, (Sections 60-124 through 60-145, Revised Codes of Montana, 1947, as amended) and the rules and regulations promulgated thereunder, the Commission will enter such order as in its judgment may be necessary in keeping with the evidence submitted.

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

James F. Neely
Executive Secretary

(SEAL)

MURPHY CORPORATION
602 Midland National Bank Building
Billings, Montana

September 24, 1957

STATEMENT TO COMMISSION ON
PRESENT AND FUTURE SALT WATER
DISPOSAL PRACTICES OF EAST
POPLAR UNIT. DOCKET 7-57,
SEPTEMBER 24, 1957

Montana Oil and Gas
Conservation Commission
Helena, Montana

Gentlemen:

The discovery well for the East Poplar Field was completed March 12, 1952. By September first of this year, 121 wells had been completed in the field area, resulting in 103 producers and 18 dry holes. Approximately 97% of the presently defined productive area, consisting of 87 producing wells, is under Unit operation. Murphy Corporation is Unit Operator.

During the early development history of the East Poplar Field, it became apparent that the recovery of oil would be accompanied by relatively high salt water production. In September, 1955, recognizing that the disposal of water could become a problem as the field became more fully developed, Murphy Corporation made application to this Commission to reinject produced water back into the reservoir, not only to dispose of the water but also to test, on a pilot basis, the feasibility of a reservoir pressure maintenance program. East Poplar Unit wells 46 and 59, dry holes located on the western edge of the field, were to be used as injection wells. Permission was granted by the Commission and construction was begun immediately on a Unit salt water gathering system. Work was halted during the winter months and through the spring thaws and resumed in May, 1956. The first barrel of

water was injected into the reservoir September 26, 1956. Since that date, approximately one and a quarter million barrels of salt water have been returned to the producing formation.

The injection program is believed to be beneficial and should result in a greater ultimate recovery of oil. At the present time, an engineering committee set up by the working interest owners of the East Poplar Unit is making a detailed study of the results of the injection program to determine the value of further expansion of the system.

During the past year because of the natural influx of water and the drilling of several high water-cut peripheral wells, water production increased to the point where the two injection wells could no longer handle the produced water. The excess was disposed of in earthen pits. To assist in alleviating this condition, eleven commercial Unit wells with high water production were shut in. In addition, on July 5, Murphy Corporation as Operator of the East Poplar Unit, made application to the Commission for permission to drill a well for disposal purposes only, to inject salt water into the Dakota formation. The purpose of the well was to establish a reserve means for handling excessive produced salt water and is not intended to displace or do away with the pressure maintenance program. Hearing was held on July 29 and on the same day, permission was granted as applied for.

The disposal well was completed in early September. Tests indicate that it is capable of receiving approximately 8300 barrels of water per day at 150 pounds pressure and that larger volumes may be handled with higher pressures.

A station for filtering the water is being erected but meanwhile temporary facilities have been constructed and we are pleased to inform this Commission that all salt water produced from the Madison reservoir by Unit wells is now being disposed of in either the disposal well or through the pressure maintenance system.

Very truly yours,

Murphy Corporation - Unit Operator

Harold Milam
Division Production Superintendent

HMteh

RECEIVED
OCT 31 1957
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER OF THE HEARING HELD UPON THE MOTION OF THE COMMISSION RELATING TO SALT WATER DISPOSAL PRACTICES OF OPERATORS IN THE EAST POPLAR FIELD, ROOSEVELT COUNTY, MONTANA.	Order No. 7-57 Docket No. 7-57

Report of the Commission

This cause came on regularly for hearing on the 24th day of September, 1957, at 10:55 A. M., in the Governor's Reception Room, State Capitol Building, Helena, Montana, pursuant to the order of the Oil and Gas Conservation Commission of the State of Montana, hereinafter referred to as the "Commission"; and notice of the said hearing, which was duly given as required by the Law, setting the cause for hearing, and the said notice having been published; at which time and place designated testimony was presented and statements were received, along with exhibits, and the Commission then took the cause under advisement; and, after consideration of the testimony, exhibits, and statements submitted by interested parties and produced and developed by the Commission by its own independent investigation, the Commission having fully considered all things and matters herein, and being well and fully advised in the premises, finds as follows, to-wit:

Findings of Fact

1. That due, proper and sufficient notice was made, published and given of the said hearing, the purpose thereof, the time and the place therefore, and the matters desired to be presented to the Commission for its consideration; that notice has been given herein in all respects as required by the Law; and, the said notices of hearing and proofs of publication of the said notices so given have been filed in this proceeding; and the Commission has jurisdiction to issue and promulgate the hereinafter Order.

2. That the Commission, during the month of August, 1957, was apprised that a situation existed wherein the fresh water supplies of the City of Poplar, Roosevelt County, State of Montana, were, or might be, in danger of contamination because of the infiltration into said supplies of salt water being produced along with oil by operators in the East Poplar Field, Roosevelt County, Montana; that the City of Poplar, Montana, lies immediately South and West of the said field, and the Poplar River courses through said field generally from Northeast to Southwest, thence through the said City of Poplar, Montana; that the City of Poplar, Montana, obtains its water from wells penetrating a gravel bed aquifer underlying the area at depths varying to approximately 100 feet; that geological investigation indicates this aquifer is constantly replenished by water filtering into the gravel bed from the Poplar River, which intersects it at several points; that the contamination of the Poplar River will have the ultimate effect of contaminating the water supply of the City of Poplar, Montana; that the Commission caused samplings of water to be taken on the 8th day of August, 1957, in the City of Poplar, Montana, and at various other points along the Poplar River as it courses through the entire East Poplar Field.

3. That from the water samplings caused to be taken and made by the Commission on August 8, 1957, it appeared that the chloride content of the said Poplar River was high, and that at four points in the field that its chloride content was above that suitable for human consumption; that water samples taken were tested by the State Board of Health, Helena, Montana, and the results of this examination were supplied to the Commission; that there is no reason to doubt the accuracy or reliability of such testing, and the Commission finds that they are accurate; that the maximum chloride content, according to the State Board of Health, for human consumption is 1,500 parts per million.

4. That on the 30th day of August, 1957, the Commission caused to be made the said notice, as referred to in finding No. 1, above, as the matter of possible contamination of the fresh water supply of the City of Poplar, Montana, is of concern to the Commission; that it is the duty of the Commission in this case, and in other similar caaes, to take the necessary steps to protect fresh water supplies when those said supplies are being endangered by the manner in which operators in the State of Montana are producing oil; that in this particular case, operators in the East Poplar Field have been, and they now are, producing a substantial quantity of salt water along with oil; that prior hereto the said salt water has been allowed to run into open pits, to be disposed of by evaporation or seepage; that seepage is the primary means of disposal with the investigation conducted by the Commission

showing numerous pits intersecting the previously mentioned porous gravel bed; that chlorides in the Poplar River are accounted for by communication of salt water from the pits to the gravel bed and thence to the said Poplar River.

5. That two other samplings of water from the City of Poplar, Montana, and from the same locations along the Poplar River from which were taken samples for the first examination, aforesaid, were made by the Commission, they being taken on the 6th day of September, 1957, and on the 19th day of September, 1957; that the results of these two samplings, as shown by State Board of Health analysis, show that the chloride content has dropped considerably, and that on those two dates none of the samples showed a chloride content in excess of the maximum limit for human consumption; that, however, the chloride content in certain of the samples was in a considerable amount, and that action to lessen the danger to fresh water supplies is necessary.

6. That the Murphy Corporation, operator of the East Poplar Unit, within the said field, has been granted Commission approval to inject water produced with oil into the Dakota Formation, and that such permission was granted on July 29, 1957; that the Dakota Formation is capable of receiving all water produced with oil in the field at the present rate of production, and injection of salt water into that formation does not endanger fresh water supplies, as water from the formation tested out at 3,720 parts per million chloride; that Murphy Corporation produces approximately 80% of the water that is being produced in the field; that its water injection program is now in operation, and none of the water produced with oil by it is being allowed to drain into open pits for evaporation or seepage; that the location of open pits previously used by said Murphy Corporation in their relation to the Poplar River leads the Commission to believe that the practice then engaged in to dispose of salt water may have been a definite factor contributing to the high chloride content of the waters of the Poplar River; that the danger to the fresh water supply of the City of Poplar has been considerably lessened by the adoption of this water injection program by Murphy Corporation.

7. That other operators, with producing wells located in the Northeast portion of the field, outside the unit operated by Murphy Corporation, presently engage in the practice of disposing of salt water through the use of earthen pits, which pits have gravel bases; that these pits are near the Poplar River; that it was testified that water produced in this area has 180,000 parts per million of chloride content, which is extremely high; that salt water currently being disposed of in earthen pits, according to the July, 1957, report of the operators to the Commission, is as follows:

Cresent Oil and Gas Corporation	1,640 bbls.
Empire State Oil Company	23,105 "
Richfield Oil Corporation	15,898 "
C. C. Thomas	27,613 "
Waggoner Christianson	49 "
Murphy Corporation	301,849 "

that, the Commission finds it desirable at this time to call upon the operators herein concerned for a plan for the disposal of salt water produced along with oil, said plan to be submitted to the Commission for approval on or before the 1st day of March, 1958; that the said plan should set forth an appropriate and feasible method or methods for the disposal of salt water produced along with oil so as to eliminate the danger of contamination of waters of the Poplar River, which danger the Commission finds to exist; that the Commission will continue to take samplings of water from the City of Poplar, Montana, and from various points along the Poplar River as it courses through the East Poplar Field from time to time, as it is the Commission's belief that, although contamination is not present at this time as a result of operation of wells in the Northern part of the field, it may occur because gravel beds underlying disposal pits in that portion of the field are continuous and underly the said river; that the Commission expressly reserves its right to compel action sooner than the March 1, 1958, date if the situation should change from its present status.

8. That the evidence showed water produced along with oil from the C. C. Thomas-Huber lease, within but not a part of the East Poplar Unit, was being disposed of by drainage into a natural lake, which lake is located on the said lease; that geologic information indicates that it is not possible for water in said lake to seep into or otherwise contaminate water in the Poplar River for the reason that the lake site is separated from the River by impervious material and a distance of approximately two miles; that this said water does not contaminate fresh water

supplies according to present information.

9. That the Commission is further concerned with the effect that such water has, or will have in the future, upon irrigation of lands in the area of the East Poplar Field; that the elimination of salt water danger will be beneficial for this purpose, in addition to its benefits as pertain to potable water for human and animal consumption.

Conclusion of Law

The Commission concludes as a matter of Law that the following order should be adopted.

Order

IT IS THEREFORE ORDERED that operators in the East Poplar Field who are now disposing of salt water produced along with oil by use of earthen pits shall, on or before the 1st day of March, 1958, formulate and submit to the Commission a plan suitable for the disposal of all such salt water by such a method or methods as to eliminate the danger of contamination of the waters of the Poplar River; that if no such plan is agreed upon by said operators by said date, the Commission will issue such order as in its opinion is necessary under the circumstances; that should the condition in the meantime change, and should it become apparent that the fresh water supplies of the City of Poplar, Montana, and the water of the Poplar River are being, or are in danger of being, contaminated by salt water disposal methods being employed by operators, the Commission expressly reserves its right to issue an order immediately to correct the situation; that samplings of water shall continue to be made and taken by Commission personnel from time to time to determine chloride content of the waters concerned; that this order shall not apply to salt water produced with oil from the C. C. Thomas-Huber Lease, within the field, nor to those salt waters produced by Murphy Corporation, all of which are now being injected back into the field, pursuant to Commission orders.

IT IS FURTHER ORDERED that the Commission expressly reserves its right, after notice and hearing, to amend, alter, or repeal any and/or all of the above.

DONE and performed by the Oil and Gas Conservation Commission of the State of Montana, at Helena, Montana, this 21st day of October, 1957.

D. E. Hageman, Chairman
J. H. Frerich, Vice-Chairman
E. L. Anderson, Commissioner
G. W. Yoder, Commissioner
Ted Hawley, Commissioner

(SEAL)

ATTEST:

James F. Neely, Executive Secretary
Oil and Gas Conservation Commission
of the State of Montana.

1958

1959

1960

U. S. GEOLOGICAL
RECEIVED
APR 29 1960
BILLINGS, MONTANA

P. O. Box 400
Casper, Wyoming

April 28, 1960

Memorandum

To: Area Director, Bureau of Indian Affairs, Billings, Montana

From: Regional Oil and Gas Supervisor, Casper, Wyoming

Subject: Lease agreement involving lands in Fort Peck leases 14-20-256-82 and 14-20-256-1063

Your memorandum of April 20 (Realty 322) requests our recommendations regarding the proposed lease agreement attached to Murphy Corporation's letter of April 15. Under the agreement Murphy Corporation would obtain rights with respect to lands in the subject leases for production and disposal of salt water and the injection of salt water or other liquids for the purpose of maintaining the reservoir pressure of the Madison "B" zone of the East Poplar field, Montana.

The lands involved are located in section 16, T. 29 N., R. 51 E., on the northeastern flank of the East Poplar field outside the East Poplar unit area. There is one oil well in the NE¼NW¼ sec. 16, lease 14-20-256-82 which was completed January 1, 1955, for an initial production of 50 barrels of oil and 387 barrels of water per day from the Madison formation. The initial production of 88% water increased rapidly to 100% water during the latter part of 1956 when producing operations were discontinued.

A portion of the lands in lease 14-20-256-1063 described as the W½SE¼SE¼ sec. 16 are subject to a communitization agreement, approved May 23, 1955, embracing 40 acres described as the SE¼SE¼ sec. 16. There is one oil well on the private land portion of the communitized tract in the E½SE¼SE¼ sec. 16. The well was completed on June 20, 1955, for an initial production of 185 barrels of oil (and a small amount of water) from the Madison formation. The well has been shut-in since October 1959 when the well was producing 97% water.

The production history of the above wells shows that water is rapidly encroaching into the reservoir from the northeast and indicates that the Madison formation underlying the lands in the subject leases has been depleted of the economically recoverable oil. Accordingly, we offer no objection to the proposal to inject water into the Madison formation which should contribute to increased ultimate oil recovery from the formation.

The information furnished indicates that Murphy Corporation may not have made a definite offer with respect to the amount of bonus, if any, and rentals to be paid for the privilege of obtaining the lease. If our recommendation as to the amount which would be acceptable is desired, we suggest that a definite offer be obtained from the Murphy Corporation.

[redacted]

J. R. Schwabrow
Regional Oil and Gas Supervisor

Copy to: Addressee 3
Billings 3

RECEIVED
MAY 26 1960
BILLINGS, MONTANA

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER OF THE APPLICATION OF THE MURPHY)
CORPORATION, EL DORADO, ARKANSAS, FOR PERMISSION)
TO INJECT WATER INTO THE EAST POPLAR UNIT, ROOSE-)
VELT COUNTY, MONTANA, (SECONDARY RECOVERY -)
PRESSURE MAINTENANCE). Docket No. 5-60)

ORDER No. 5-60

Report of the Commission

The above-entitled cause came on regularly for hearing on the 20th day of May, 1960, at 9:10 o'clock, A.M., in the Criminal Court Room, in the Court House, City of Billings, County of Yellowstone, State of Montana, pursuant to the order of the Oil and Gas Conservation Commission of the State of Montana, hereinafter referred to as the "Commission", and the notice of said hearing was duly given as required by the law, setting the cause for hearing; and the said notice having been published; at which time and place testimony was presented, statements and exhibits received, and the Commission then took the cause under advisement; and, the Commission having fully considered the testimony, statements, exhibits, and all things and matters presented to it for its consideration by all parties in this Docket, and being well and fully advised in the premises, finds and concludes as follows, to-wit:

Findings of Fact

1. That due, proper and sufficient notice was published and given of the said hearing, the time and place therefor, and the purposes thereof, and has been given regularly in all respects as required by law; and said notices and proofs of publication of the said notices so given have been filed in this proceeding, and the Commission has jurisdiction of the subject matter embraced in the said notices and of the parties interested therein, and the Commission has jurisdiction to issue and promulgate the hereinafter described order.

2. That the Murphy Corporation is an operator in the East Poplar Field located in Roosevelt County, Montana, and it is the operator of properties therein under a unit agreement relative to production of oil in said field; that the applicant requests permission to inject water produced with oil as a part of its secondary recovery-pressure maintenance program; that the wells originally requested in the application were:

Smith #1 located SW SE Section 8, T29N-R51E
Rehder #7 located NE NW Section 16, T29N-R51E
Owen-Simons #1 located SE SE Section 16, T29N-R51E
East Poplar Unit well #37 located SW NW Section 18, T29N-R51E

3. That the evidence presented to the Commission shows that the approval of the extension of said program is necessary and required as a means of realizing greater production from the said field through secondary recovery-pressure maintenance; however, that the well described as East Poplar Unit well #37 located in the SW NW Section 18, T29N - R51E MPM, is not presently a necessary part of this program and approval as to this well should be denied; that the applicant at the time of the hearing amended its application to delete the said East Poplar Unit well #37 from the consideration of the Commission; that approval of the other three wells concerned herein will be in the interest of conservation of oil and gas in the State of Montana, and that oil will be produced as a result of granting of this application as hereinafter set forth which otherwise would not be produced under usual production methods.

4. That the Commission shall be thoroughly advised at all times by the Murphy Corporation of the developments subsequent to the approval of this application relating to the said secondary recovery-pressure maintenance program hereby approved by this order.

Conclusion of Law

The Commission concludes, as a matter of law, that the application of the Murphy Corporation as submitted to the Commission should be granted.

Order

IT IS THEREFORE ORDERED by the Oil and Gas Conservation Commission of the State of Montana that the application of the Murphy Corporation for permission to inject water into

the following three described wells:

Smith #1 located SW SE Section 8, T29N-R51E
Rehder #7 located NE NW Section 16, T29N-R51E
Owen-Simons #1 located SE SE Section 16, T29N-R51E

should be and is hereby granted as applied for; that approval for injection of water into its East Poplar Unit well #37 located SW NW Section 18, T29N-R51E, should be and it is hereby denied.

IT IS FURTHER ORDERED that the Murphy Corporation shall supply the Commission with reports on progress and developments as a result of the approval of this application as su progress and results become available.

Done and performed by the Oil and Gas Conservation Commission of the State of Montana at Billings, Montana, this 20th day of May, 1960.

J. H. Frerich, Chairman
G. W. Yoder, Vice Chairman
E. L. Anderson, Commissioner
Ted Hawley, Commissioner
Ike W. Taylor, Commissioner

(Seal)

ATTEST:

James F. Neely, Executive Secretary
Oil and Gas Conservation Commission
of the State of Montana

P. O. Box 1435
Billings, Montana

October 10, 1960

Murphy Corporation
P. O. Box 547
Poplar, Montana

Attention: Mr. M. T. James
Field Production Superintendent

Gentlemen:

During a recent inspection of your operations in the East Poplar field, several conditions were noted which were not in compliance with the Oil and Gas Operating Regulations. Most of these conditions, which are listed below, were discussed with you during our visit in your Poplar office on September 28.

There were 15 wells visited which did not have well signs in evidence, and 29 other wells on which the well signs were either obliterated, incorrect, or incomplete. We are attaching an East Poplar field map indicating those wells which had no well signs (wells circled with red pencil) and those wells which had obliterated, incorrect, or incomplete signs (wells circled with blue pencil) with the errors and corrections noted on the map in blue pencil. For signs needing only minor corrections, the corrected information could be stencilled or freehanded on the present sign with paint until such time that replacement signs are warranted.

In general, the well sites and tank batteries were quite satisfactory, being in good operational condition, with necessary fences up, weeds mowed, etc., however, in a few instances, the weeds had not been cut and large amounts of oil had leaked or been spilled around well sites (wells circled in green pencil on attached map). It was noted that continual maintenance around well locations and tank sites was being carried on. The accumulation of weeds and spillage of petroleum products creates a definite fire hazard which may be particularly serious during the dry autumn season.

As was discussed during our visit on September 28, your expanded salt water gathering and disposal system and your intention to dispose

of 100% of the produced salt water into the Madison "B" zone for pressure maintenance, or alternately into the Dakota formation, seems to be the only reasonable method of arresting present surface salt water problems.

It is requested that the necessary well signs be erected and the other well signs as discussed above be corrected at the earliest possible date. Also it is requested that maintenance of operations be carried on in a safe and workmanlike manner as has been your policy in the past. If there are any questions concerning these matters, do not hesitate to call on us. Your cooperation and time spent with us during our recent visit was very much appreciated.

Sincerely yours,

[ORIG. SGD.] HILLARY A. ODEN

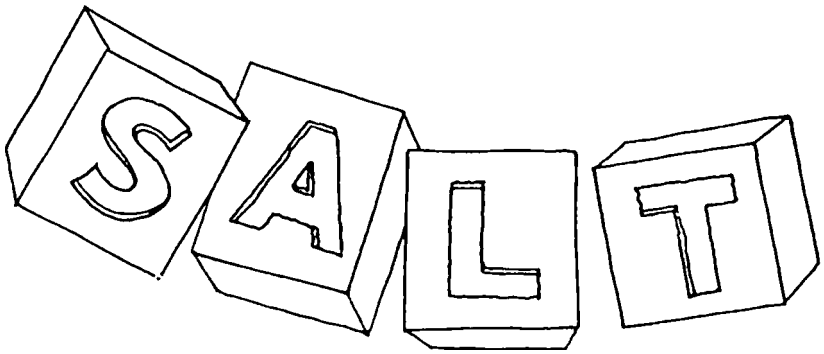
Hillary A. Oden
Acting District Engineer

cc: Casper
file

HAO:ls

1961

Think you've got troubles? Here are some tough problems that Rocky Mountain operators have licked as



BY W. B. BLEAKLEY
Production Editor

. . . plagues Montana production

East Poplar field, Montana, has lots of production problems. And most of them are due to one thing—salt. Produced water from most of the field is saturated, and precipitated salt can plug up the tubing in a hurry. Here's how Murphy Corp. personnel have met each problem.

EVERY OIL OPERATOR has had his share of salt-water trouble. Salt water increases lifting costs, causes a lot of workovers, and is an expensive thing to be disposed of.

But only a few operators have had the troubles of Murphy Corp. in its operation of East Poplar field, Roosevelt County, Montana. Fresh water is being dumped in the wells, flow lines are pigged every day, produced water salinities are checked regularly, but there is no stopping the invasion of salt into the productive Madison B zone.

And it really is an invasion. But more about that later.

East Poplar anticline is productive in the Madison formation. The Madison is made up of series of porous zones that are known to be interconnected in various areas of the field. The salt bed in question is located about 50 ft. above the main zone of porosity (B zone) in the Madison formation. This salt bed varies in thickness up to 40 ft., and is not present in some areas of the field.

The original water-oil contact varied from —3,760 to —3,560 ft., deepening to the north over the entire 6½-mile length of the field. This tilting water table is believed to be due to the hydrodynamic effect of water movement around the structure. The Madison formation outcrops in the Snowy and Little Rocky Mountains in South-Central Montana, southwest of East Poplar field.

Several dry holes have been drilled west of the field, just outside the oil-water contact. On penetrating the Madison, operators found that all of the pore space was filled with crystalline salt. This is also the case on the essentially nonproductive West Poplar anticline, several miles west of East Poplar field.

Here's the problem. When the field was first put on production, formation water from the wells on the west side of the field was much more saline than that in other parts of the field. As time went by the situation got worse, and started showing up as a coating on the inside of the tubing and flow lines.

Before long the flow lines would be completely plugged unless the salt was removed periodically.

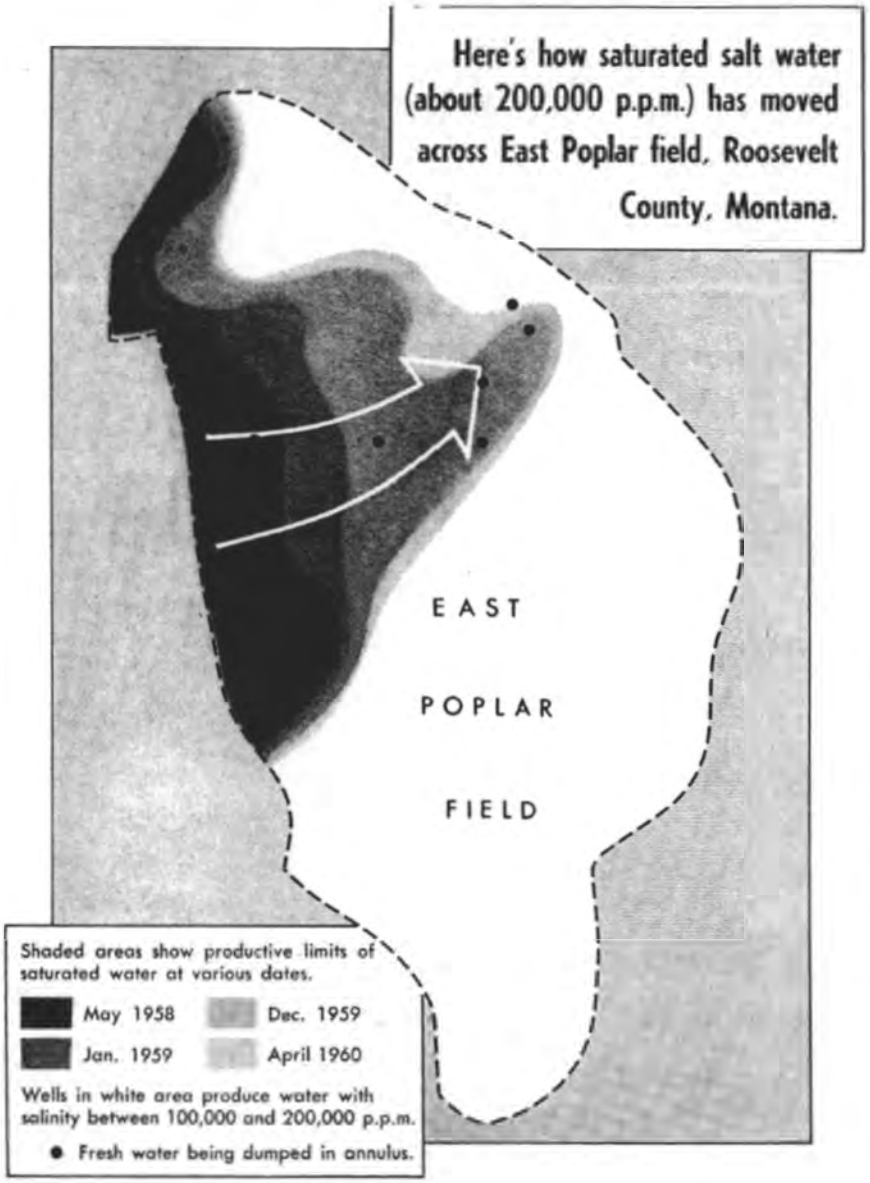
Migrating salinity. Water samples from wells throughout the field showed that the salinity was increasing to the east. Wells that produceed water of normal salinity originally were suddenly yielding water with salinities approaching the saturation point of 220,000 p.p.m. Cl^-. There was no mistaking the final outcome. Saturated water was slowly and steadily moving across the reservoir, and eventually all wells would be "problem wells." See map.

The solution. Dilution is the logical way to reduce the salinity of any solution. And this is what Murphy Corp. engineers have done. Fresh water is being pumped into wells where the salinity has reached the 200,000-p.p.m. point.

Also, pigs are run daily in the flow lines. Besides the salt, the pigs remove any accumulated paraffin. Paraffin is another one of the problems that Murphy has had to cope with at East Poplar. Most pumping wells are equipped with some 1,200-ft. of scraper sucker rods for paraffin removal in the tubing.

Since the winters in Montana are extremely cold, salt precipitation is more of a problem then than it is in summer. The solubility of the salt decreases as the temperature drops, and more salt is dropped out of solution to show up on the walls of the flow lines. To cope with low temperatures, all flow lines are buried 2½ to 5 ft. deep.

Fresh-water system. Fresh water for the dilution of produced salt water is taken from the Poplar River



runs northeast-southwest through East Poplar field. An electrically driven duplex pump, capable of delivering 1,200 bbl. per day at 600 psi., has been installed on the bank of the river.

But that brings up another problem. There is local flooding in the area every spring when the ice breaks up. The pump and all associated equipment must be moved to avoid damage and possible loss.

Fresh-water lines are buried to a depth of 5 ft. to avoid freeezing.

When the produced water from any well reaches 200,000 - p.p.m. salinity, fresh water is dumped down the annulus. The fresh-water distribution system is in a constant state of expansion as new wells are added to the delivery schedule at regular intervals during the program.

Corrosion. Two types of corrosion are causing trouble at East Poplar. One of these attacks the casing where it goes through the salt zone above the Madison; the other works on the oil and water lines buried near the surface.

Where it exists, the salt zone overlying the Madison surrounds the casing of the East Poplar wells. This is a source of corrosion, and several salt-damaged wells have been repaired. Rectifiers have recently been installed on 60 wells in the field in an effort to arrest the corrosive action.

The salt is troublesome in other ways, too. At least three wells have suffered casing collapse due to the salt bed shifting. Net result is an expensive repair job.

Buried lines are subject to rapid external corrosion because of soil conditions in the area. All flow lines and fresh - water lines are doped, wrapped, and protected cathodically.

Secondary problems. Construction of a water-distribution system, dumping fresh water into oil wells, and other operations have introduced additional problems.

Freezing of water lines has already been mentioned, and that problem has been pretty well licked by burying the pipes below the frost line. But, the introduction of fresh water into the oil wells has caused some gyp formation. This is the result of mixing of incompatible waters. Mineral content of the river water is such that, in combination with produced water, a precipitate is formed, resulting in a tubing deposit not unlike gypsum deposits found in many other installations (OGJ, Aug. 8, 1960, p. 92). The problem is not severe, however, and adding a small amount of polyphosphate at the water source has kept the deposition reasonably in check.

Corrosion rate of well equipment has been stepped up since the injection program started. This is the natural result of the introduction of oxygen with the fresh-water stream. Fortunately, the corrosion rate is still within the safe zone, but coupon tests show that the rate is higher than it was before the fresh-water program was started. Engineers are watching this, and are studying the economics of various possible solutions.

High cost. Result of all of the remedies that Murphy has installed is obvious—high operating cost. According to Murphy's Denver division production and engineering personnel, increased costs are due to several things: (1) cost of installing and maintaining the fresh - water system, (2) cost of lifting fresh water dumped into oil wells, (3) chemical cost, and (4) down time for tubing and flow-line cleanout or thawout. This last one is a real expensive item since the field is normally operating at capacity, and any down time is a direct loss on the income side of the ledger sheet.

So you think you've got troubles?

E. Poplar

P. O. Box 1435
Billings, Montana

May 25, 1961

Memorandum

To: Regional Oil and Gas Supervisor, Casper, Wyoming

From: District Engineer, Billings, Montana

Subject: Temporary shut down of pressure-maintenance program, East Poplar field, Montana

Mr. James, Murphy Corporation, called this morning to advise that the pressure-maintenance program had been shut down since May 16. He indicated the shut down would continue until Murphy Corporation could evaluate the reason for an apparent premature water breakthrough on some of the wells.

We offered no objection to the shut down in view of the possibility that, if operations continued as is, some of the reservoir oil might be bypassed and unrecoverable which might be recovered under a different method of operation.

We also gave verbal permission to set a DR plug above the Madison "B" zones in injection well No. 59, SW¼NW¼ sec. 4, T. 28 N., R. 51 E. Murphy will then block squeeze above and below the Dakota sand, perforate the Dakota and dispose of the excess produced water which had previously been reinjected into the Madison "B" zones in the various injection wells.

It is disturbing to us that Murphy did not discuss the shut down with us or your office prior to putting it into effect. Perhaps Murphy should be requested to file some sort of a "plan of development" detailing in full its reasons for the shut down and getting it approved.

If the evaluation indicates the pressure-maintenance program has hurt ultimate recovery, the Tribe will probably learn of it and give us some more H___ on East Poplar and our supervision of operations in general.

Hillary A. Oden
District Engineer

HAO:lp

cc: file

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

U.S. GEOLOGICAL SURVEY
RECEIVED
JUL 6 1961
BILLINGS, MONTANA

IN THE MATTER OF THE APPLICATION OF MURPHY)
CORPORATION FOR PERMISSION TO RE-COMPLETE)
ITS UNIT WELL NO. 59, EAST POPLAR FIELD,)
ROOSEVELT COUNTY, MONTANA, AS A SALT WATER)
DISPOSAL WELL. Docket No. 15-61)

ORDER No. 14-61

Report of the Commission

The above-entitled cause came on regularly for hearing on the 29th day of June, 1961, at 11:28 o'clock A.M., in the Governor's Reception Room, State Capitol Building, City of Helena, Montana, pursuant to the order of the Oil and Gas Conservation Commission of the State of Montana, hereinafter referred to as the "Commission", and the notice of said hearing was duly given as required by the law, setting the cause for hearing, and the said notice having been published; at which time and place testimony was presented, statements, and exhibits received, and the Commission then took the cause under advisement; and, the Commission having fully considered the testimony, statements, and exhibits, and all things and matters presented to it for its consideration by all parties, in this Docket, and being well and fully advised in the premises, finds and concludes as follows, to-wit:

Findings of Fact

1. That due, proper and sufficient notice was published and given of the said hearing, the time and place therefor, and the purposes thereof, and has been given regularly in all respects as required by law; and said notices and proofs of publication of the said notices so given have been filed in this proceeding, and the Commission has jurisdiction of the subject matter embraced in the said notices and of the parties interested therein, and the Commission has jurisdiction to issue and promulgate the hereinafter described order.

2. That the Murphy Corporation is the unit operator of the East Poplar Unit within the East Poplar Field, Roosevelt County, Montana, which field has heretofore been delineated by the Commission, and that it requested permission from the Commission to re-complete its Unit well No. 59 in the porous sands of the Dakota formation for salt water disposal; that said well is located in the SW¼ NW¼ of Section 4, Township 28 North, Range 51 East, Roosevelt County, Montana; that said well is presently completed in the Madison "B" zone and has been used as a salt water injection well for reservoir pressure maintenance, but that the injection into the Madison has been suspended in order to make engineering studies of the injection program; that the evidence indicates that it is necessary that this application be approved for the reason that surface pits within the field are unable to accommodate the amount of salt water produced and to dispose of the same by evaporation, and that the great amount of water must either be injected into the producing formations or into barren formations which will receive such salt water; that the Dakota formation is capable of receiving all of the water produced by the Murphy Corporation, which was indicated to be approximately 17,000 barrels per day; that the granting of the application will be in the interest of conservation of oil and gas in the State of Montana.

Conclusion of Law

The Commission concludes as a matter of law that the application of Murphy Corporation should be granted as applied for.

Order

IT IS THEREFORE ORDERED by the Oil and Gas Conservation Commission of the State of Montana that the application of the Murphy Corporation for permission to use its Unit well No. 59 located in the SW¼ NW¼ of Section 4, Township 28 North, Range 51 East, Roosevelt County, should be and the same is hereby granted as applied for.

Done and performed by the Oil and Gas Conservation Commission of the State of Montana at Helena, Montana, this 29th day of June 1961.

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

G. W. Yoder, Chairman
Ted Hawley, Vice Chairman
E. L. Anderson, Commissioner
Ike W. Taylor, Commissioner
Allen Zimmerman, Commissioner

(Seal)

ATTEST:

James F. Neely, Executive Secretary

P. O. Box 1435
Billings, Montana

July 6, 1961

Memorandum

To: Regional Oil and Gas Supervisor, Casper, Wyoming

From: District Engineer, Billings, Montana

Subject: Salt water disposal, East Poplar field, Montana

Attached is a summary of the State's testimony, Commission exhibits 1 and 2, and a copy of my statement in connection with Docket No. 13-61 at the Montana Oil and Gas Conservation Commission hearing in Helena, June 29.

Mr. Watkins, State Petroleum Engineer, presented the State's testimony and introduced exhibits 1 and 2 into evidence. I then read my statement.

Murphy Corporation's testimony consisted of trying to indicate that the situation was not as bad as Mr. Watkins and I presented it. They did admit that the Akers well might have become contaminated by seepage from the one pit but tried to play it down as a single localized incident. Murphy Corporation ended its testimony by requesting more time to study the situation thoroughly, sample all water, etc., and come back before the Commission before an order was issued that might cause them an undue economic hardship.

Mr. Pelumbus's (C. C. Thomas lease) testimony consisted of relating all his problems with the Thomas lease and the amount of money that had been spent on the four wells. He ended by indicating he didn't believe his disposal of about 1,000 barrels of salt water per day on the surface was hurting anything or polluting any fresh waters.

Richfield Oil Company's testimony was to the effect that they were not contaminating the surface or fresh waters by disposing of salt water in earthen pits.

No other operators testified.

The Commission, after conferring briefly, gave a 30-day continuance within which all operators could furnish the Commission with such further information, etc., as they desired.

Hillary A. Oden
District Engineer

Attachments

HAO:lp

cc: file

DOCKET NO. 13-61

Hillary Oden, U.S. Geological Survey

We have also been quite concerned about salt water contamination in the East Poplar area. As Mr. Watkins pointed out, disposal of the produced salt water has plagued the operators ~~everyone concerned~~ for about 7 years. I accompanied Mr. Watkins on his inspection trip of June 15 and can verify his findings.

Even though Murphy Corporation, the major operator in the field, has made serious attempts to dispose of its salt water in such a manner as to prevent surface contamination and pollution of fresh waters, it is still apparent that the job has not been satisfactorily accomplished.

Admittedly, subsurface disposal will place an additional economic burden on the operators who have ~~already~~ had more problems ~~with~~ in producing this field than they care to reflect on ~~contemplate~~. However, surface damage and pollution of fresh waters is also a very unfair arrangement for the landowners and residents in the area. There have already been too many violations of section 221.32 of the Code of Federal Regulations relating to oil and gas operations which states in part: "The lessee shall <u>not</u> pollute streams or damage the surface or pollute the underground water of the leased or other lands."

I might add one more thought; Any subsurface disposal system does not do much good when it is shut down for a lengthy period ~~several weeks~~ while waiting on replacements or repair of a vital pump or motor or the completion of additional disposal wells. I feel it imperative that a prudent operator should make necessary arrangements for auxillary equipment or shut in production if necessary so that earthen pits would be used for disposal only in an emergency and that emergency use should not exceed more than 3 or 4 days.

It appears that the only satisfactory solution to the problem of salt water damage and pollution will be disposal of all produced salt water into a non-productive subsurface formation such as the Dakota or back into the Madison reservoir in connection with the pressure maintenance program. in all areas of the field where there is any possibility of surface damage or pollution of fresh water.

SUMMARY OF TESTIMONY

DOCKET NO. 13-61

Commission Exhibit No. 1 is a map of the Poplar Field located in Roosevelt County, Montana. Producing wells, injection wells, abandoned wells and dry holes are shown on the map with the symbols for each identified in the legend in the lower left hand corner of the map. The dotted line around the field represents the area delineated by the Commission for the East Poplar Field, and the Northwest Poplar Field. The solid black line shaded in yellow represents the boundary of the unit area. The yellow shaded areas situated within the unit area represent leases which have not been committed to the unit. Other symbols and features of the Exhibit will be explained later in the testimony. This Exhibit is dated June 15, 1961 to indicate conditions in the field on that date. This Exhibit was prepared under my supervision and I ask that it be accepted into evidence.

The Poplar Field was discovered in 1952 when the Murphy Corporation drilled the E.P.U. Well No. 1 located in the SW NE Section 2, Township 28 North, Range 51 East. The majority of the field lies within the unit boundary and is operated by the Murphy Corporation. Field development has progressed outside the unit boundary on the northern side of the field. There are five operators which have producing leases outside of the unit. Those operators are Murphy, Ajax, Crescent, Richfield, and Wagner-Christianson. E. A. Polumbus operates the non-committed lease in the NE¼ Section 10, Township 28 North, Range 51 East.

Disposal of produced water has been a problem in the field since 1954. Four previous hearings concerning salt water disposal in this field have come before the Commission. The first hearing was on December 9, 1954 when C. C. Thomas (then operator of the Polumbus lease) requested approval to dispose of

produced water by injection into the Judith River formation. By its Order No. 1-55 the Commission granted Thomas approval to utilize the Judith River formation for disposal of produced salt water at a well to be located 660 feet from the north line and 1220 feet from the east line, Section 10, Township 28 North, Range 51 East. The Judith River formation lies at an approximate depth of 890 feet and contains salt water. This well was never drilled and all produced water has gone into earthen pits located upon the lease. Order No. 34-55 dated September 27, 1955 granted Murphy Corporation approval to inject produced salt water back into the producing formation. The intent was to provide a source of disposal and also to test the feasibility of pressure maintenance. Subsequently, the pressure maintenance project was expanded and approximately 8,000,000 barrels ~~(7,914,260)~~ 7,965,695 have been injected into the Madison formation to ~~April~~ May 1, 1961. The pressure maintenance project was shut down on May 16, 1961, and most of Murphy's produced water is now being injected into the Dakota formation.

Order No. 5-57 dated July 29, 1957 granted Murphy approval to inject surplus produced water into the Dakota formation at a well to be located in the SE SE SE Section 30, Township 29 North, Range 5~~4~~1 East. The Dakota formation lies at an approximate depth of ~~[illegible]~~ 3200 feet and it also contains salt water (5000 PPM). This well was completed and initial injections into the Dakota began in September, 1957. To ~~April~~ May 1, 1961 approximately 8,000,000 (8,101,924) of water have been injected into the Dakota.

Order No. 7-57 dated October 21, 1957 directed all field operators to submit plans for disposing of salt water in a manner that would eliminate danger of contaminating the Poplar River. As a result, Murphy Corporation began injecting most of their produced water either into the Madison or the Dakota formations. Other operators in the area continued to use earthen pits for disposal of their produced water.

Since these four previous hearings concern the same problem that is before the Commission today; that is, disposal of produced water, it is requested that the transcripts and orders of Dockets No. 18-54, 17-55, 5-57, and 7-57 be incorporated as a part of the record of today's proceedings.

The proper disposal of salt water continues to be a problem in the Poplar Field. Part of the original problem has been eliminated since the unit began injecting most of their produced water into the Madison and Dakota formations. However, a number of earthen pits are still in use. The Commission records indicate that during the month of April, 1961, total field water production was approximately 642,000 barrels of water. Murphy Corporation is the only operator disposing of produced water by injection. During the month of April, Murphy injected approximately 484,000 barrels of water. This means that approximately 158,000 barrels, or about 25% of the produced water was dumped into earthen pits in the month of April.

Calculations indicate that the majority of water being dumped into pits is seeping from the bottom of the pits into the underlying gravel strata. These calculations are based upon data published by the U. S. Weather Bureau. It was calculated for the Poplar area that on the yearly average about 67 BWPD can be evaporated from each acre of pit surface area. Weather Bureau records indicate that about 83% of the yearly evaporation occurs between the months of May and October. Therefore, daily evaporation rates during the winter months are about 11 BWPD per acre of pit area. Lined pits for complete evaporation in the winter of 255,000 BWPM (the amount turned into pits during Jan 1961) would have to have an accumulated surface area of 6,000 acres, nearly twice as large as the field itself. Since total pit surface area is only a fraction of that required for evaporation, it is apparent that excess water is escaping by seepage.

On June 15, 1961 I visited the Poplar Field and inspected all the pits. The pits are shown on Exhibit I as ovals with wavey lines through them. The color code represents the condition of the pits as I found them on that date. The pits are not drawn to scale and have been enlarged for the sake of clarity. They have not been scaled to their exact surveyed location and merely indicate their approximate location. The pits circled in blue represent pits that appeared to have been recently used. The ovals half-shaded with blue, represent pits that had water standing in them. The ovals with solid blue are pits that were in use at the time of my visit. Only two pits failed to show recent use and six pits had water going into them.

Exhibit No. 2 is a tabulation of 1961 production data for the various leases and operators within the field. (explain exhibit). This data was collected from information filed by the operators with the Commission. Some of the water production data is questionable. For example, Ajax reported 1200 barrels of water per month for the first four months with no variation. This is obviously, "boilerhoused" data. I believe that their lease is making much less water than this bacause their pits are virtually dry. On the other hand, Wagner-Christianson reported 2 barrels of water for the month of April and when the field inspection was made the treater dumped at least 2 barrels in just the few minutes I stood there. I have therefore estimated their water production at 500 barrels of water per day. This exhibit was made under my Supervision and I ask that it be accepted into evidence.

The shallow gravel beds in the area are the only source of fresh water for domestic purposes. The pump symbols on Exhibit No. 1 show six shallow wells in the area which are their owners sole source of fresh water for domestic consumption. Since experience in another field in Montana has shown the salt water seepage can contaminate shallow subsurface water, it was decided to analyze

samples from the six wells shown on Exhibit 1. On May 16, 1961, Mr. Hug and Mr. Kleysteuber, field inspectors for the Commission, collected samples from these wells. The samples were submitted to the Montana State Board of Health on May 22, 1961 for analysis. Analyses from five of the wells indicated no contamination. The maximum CL content in these five samples was 167 ppm or less. Total solids did not exceed 1510 ppm in any sample. The sixth well sample analyzed was the old Ayers place located in the SE¼ Section 21, Township 29 North, Range 51 East. This well is indicated on the Exhibit by a pump symbol with a large red dot. Analysis of the water from this well showed a CL content of 34,632 ppm with total dissolved solids of 80,060 ppm. This water has been contaminated to the extent that it is not fit for any domestic use.

It must be concluded that seepage from earthen disposal pits has resulted in the contamination of fresh water supplies in the Poplar area. It must be further concluded that continued use of earthen pits will in all likelihood result in additional contamination.

Evaporation rates are so low that even the use of lined pits appears completely impractical because of the large pit area required. It, therefore, appears that the only practical and economical method of disposing of salt water is by injection into a barren subsurface formation (barren of oil or fresh water).

To here

The Commission today is faced with a very difficult decision. They have two alternatives; i.e., (a) To permit the continued use of earthen pits or, (b) Require that all produced water be injected into a barren subsurface formation.

If alternative "a" is your decision, the continued seepage of salt water into the fresh water gravel sands will result in more contamination. The wells of other farmers and ranchers could become contaminated beyond future use. If this happens, residents of the area may have to haul in water for domestic and livestock consumption. This would be a great burden upon residents of the area.

If alternative "b" is your decision, you will be imposing some difficult economical burdens upon the operators. Referring to Exhibit 2, you will note that Wagner-Christianson is only producing about 8 barrels of oil per day. Economics would demand that they discontinue operations. Crescent, Polumbus and Richfield would find themselves in a very critical economic situation if they were required to install injection facilities. Even if their production would support the cost of installing injection facilities, the added cost of operating those facilities would raise the economic limit for each lease. This would require that the leases be abandoned earlier. In short, this alternative would probably result in the recovery of less oil than would be recoverable if pits were continued to be used.

1962

1963

1964

P. O. Box 1435
Billings, Montana 59101

June 12, 1964

Memorandum

To: Superintendent, Fort Peck Agency, Poplar, Montana

From: District Engineer, U. S. Geological Survey, Billings Montana

Subject: Salt Water Disposal in East Poplar Field, Montana (Real Prop. Mgmt.-322, memo of June 9)

Mr. James, field superintendent, for Murphy Corporation, in a telecon this morning stated that the salt water pit in the NW¼ sec. 3, T. 23 N., R. 51 E., would no longer be used. At present he is hauling water from the pit so that it will dry up and seepage will cease.

I will be in the area on June 18 or 19 to check the situation and to confer with Mr. James and your Agency further.

Hillary A. Oden

cc: U.S.G.S., Casper, Wyoming
Billings Area Office, Attn: Real Property Management-322.

File ✓

HAO:lp

P. O. Box 1435
Billings, Montana 59101

June 22, 1964

Memorandum

To: Superintendent, Fort Peck Agency, Poplar, Montana

From: District Engineer, U. S. Geological Survey, Billings, Montana

Subject: Salt water disposal in East Poplar field, Montana (previous correspondence with 322 of June 9 and 12).

On June 18, we inspected the damage caused by seepage and overflow of salt water pits in the NW¼ sec. 3, T. 28 N., R. 51 E. The damage occurred prior to 1960. There has been very little salt water run into the pits since 1962 except recently when Murphy Oil Corporation used the pits to supply salt water for use in drilling fluid on several wells north of Wolf Point.

Murphy Oil Corporation will stop running any salt water into the pits except when necessary in extreme emergencies. We will keep a close check on the situation so that the possibility of further damage will be minimized.

We believe the Superintendent is to assess damages as provided for in 30 CFR, part. 221.42 and part. 221.56.

Your bringing matters of this nature to our attention is appreciated.

Hillary A. Oden

cc: Casper
Billings Area Office
Attn: Real Property Management-322
File

HAO:ags

IN REPLY REFER TO:

Real Prop. Mgmt.
322

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
Fort Peck Indian Agency
Poplar, Montana

U.S. GEOLOGICAL SURVEY
RECEIVED
JUN 10 1964
BILLINGS, MONTANA

JUN 9 - 1964

Memorandum

To: District Engineer, U. S. Geological Survey, Billings, Montana

From: Superintendent, Fort Peck Agency, Poplar, Montana

Subject: Salt Water Disposal in East Poplar Field, Montana

Recent field check by staff members found that seepage and overflow from salt water pits have caused damage to crop and/or pasture land to the following allotted Indian land:

> Approximately 3-acres in the S½NW¼, Sec. 3, T. 28 N., R. 51 E., under the allotment of Nellie Eva Jarman, Allot. No. 2807 and approximately 1 acre in the N½SW¼, Sec. 3, T. 28 N., R. 51 E., under the allotment of Theresa Proctor, estate, Allot. No. 718.

The disposal system as explained by representative of field operator is gathered at this point from 5 or 6 operating wells within the East Poplar Communitization Unit and the greater portion of salt water is injected into an abandoned well in the SW¼NW¼, Sec. 3, T. 28 N., R. 51 East. There is a certain amount of pipe flow into the pit. Although there was some precautionary measures taken, there is still evidence of seepage. The situation is such that run-off from rain, seepage and possible overflow will tend to increase the damaged area unless corrective action is taken immediately.

Request is made that fixed value of damages on both crop and pasture land be made so that proper assessment will be in order and also request for corrective action by proper field operators.

Your report and recommendation on this matter is requested.

J. F. Otero

Acting Superintendent

cc: U.S.G.S., Casper, Wyoming
Billings Area Office, Attn: Real Property Management-322

1965

P. O. Box 1435
Billings, Montana 59101

February 4, 1965

Mr. L. L. Duncan
Production Superintendent
Murphy Oil Corporation
200 Jefferson Avenue
El Dorado, Arkansas 71730

Dear Mr. Duncan:

The Plan of Development, Amendment No. 54, East Poplar Unit, dated January 26 listed several figures which vary from figures previously furnished us on Lessee's Monthly Report of Operations, form 9-329A. Below are the figures and the apparent differences:

Amendment No. 54		Prod. from Form 9-329A	Runs from Form 9-329A
1964 oil production	- 1,444,791	1,267,495	1,267,023
Cumulative oil production	- 31,117,405	31,215,024	
Cumulative water injected	- 10,074.005	9,773,831	

It appears that Amendment No. 54 is incorrect, at least as to 1964 oil production. Please let us know which figures should be corrected.

Also, we would like to see the production totals for oil and water included on all future monthly 9-329A's.

Very truly yours,

Hillary A. Oden
District Engineer

cc: Casper
File

HAO:lp

1966

1967

1968

1969

1970

1971

Branch of Oil and Gas Operations
P. O. Box 2550
Billings, Montana 59103

September 7, 1971

POPLAR UNIT

Murphy Oil Corporation
P. O. Box 547
Poplar, Montana 59255

Re: Leases Fort Peck (Al.) 1-37-Ind-12716, - 13045 and -13089,
East Poplar field, Roosevelt County, Montana

Gentlemen:

As you may be aware we are quite concerned with pollution and and its prevention. The subject leaseholds of which you are the lessee of record have wells which have potentials to pollute a nearby stream. What methods are you using to prevent a pollution spill from entering the stream? Do you have any automatic shut-down equipment installed in the event of a line or connection break at the well? If not have you studied the possibility of installing such equipment? Do you have a dike around the well to catch a spill? Or do you have any dams across drainages which allows surface water to go through a drain but retains the oil?

We are very much interested in seeing that all reasonable measures to prevent pollution have been taken. Your cooperations will be greatly appreciated.

Sincerely yours,

Virgil L. Pauli
District Engineer

cc: Casper (3)
File (3)

VLP/pl

NOTED—REITZ

1972

1973

1974

Conservation Division
P.O. Box 2550
Billings, Montana 59103

December 3, 1974

Murphy Oil Corporation
P.O. Box 547
Poplar, MT 59255

Gentlemen:

An inspection of the various unit operations in the East Poplar Unit in Roosevelt County, Montana, of which you are the designated operator, was conducted November 20 through November 22, 1974.

Please note the attached tabulation of those areas visited indicating the various discrepancies noted during our visits.

It was noted that numerous accounts of surface pollution has occured throughout the unit in the form of oil spillage and discarded junk. This area of deficiency is of great concern and requires your immediate attention.

Unused equipment was noted to be lying around various locations. Please make it a point to have this equipment removed and stored in a proper storage yard.

Many fences around pits were either down and in need of repair or were absent altogether. Guard rails around several wells were also in need of repair.

Several pits had oil residue on their surface and in each case such pits are required to be covered with flags or wire mesh.

With regard to pits existing at various locations, mainly those at abandoned well sites, it was noted that the fence around the pit was in dire need for repair and that the pit itself had become an area for junk accumulation. Such pits, although not in immediate use, must be maintained in the same manner as those in use. We suggest that these pits either be maintained in a workmanlike condition or eliminated by properly backfilling and surface restorations. Unattended as many were, they were both unsightly and indicate a lack of concern on your part.

NOTED--MOROZ
L.A

We understand that maintaining a unit as large as the East Poplar Unit is a difficult task; however, many of the discrepancies noted during past visits were still existing during this recent visit. In the past, our visits to East Poplar have been several months apart; however, we feel as though the condition of the unit may warrant another visit in the nearer future to follow-up this letter. If during this next visit a reasonable attempt to correct the various area deficiencies has not been initiated by you, corrective measures on our part may be deemed necessary, one of which will be a certified letter to the El Dorado, Arkansas office and the surety with a definite time limit as to leasehold cleanup.

Your cooperation will be appreciated.

Sincerely yours,

Virgil L. Pauli
District Engineer

cc: Casper
File

TAM:vdr

1975

Conservation Division
P.O. Box 2550
Billings, Montana 59103

March 5, 1975

Murphy Oil Corporation
P.O. Box 547
Poplar, MT 59255

Re: East Poplar Unit, Roosevelt County, Montana

Gentlemen:

This is to confirm our recent conversation's operation practices on the subject unit.

1. Weeds should be kept cut or removed at least 10 feet from well heads, pumping units and other equipment to act as a fire break.

2. All pumping unit pads on plugged and abandoned wells are to be removed, buried or broken up. It is all right to leave pumping unit pads on temporarily abandoned wells until they are permanently abandoned.

3. It is all right at present to leave test tanks on well sites to prevent unnecessary moving of them but the tanks and the areas around the tanks must be maintained. The site is not to be allowed to deteriorate to where the tanks look abandoned.

4. Guard rails are not needed around temporarily abandoned wells if there are no valves or cellars.

5. No flags are needed on dry pits.

6. Junk pits are to be fenced, the area maintained, all junk is to be down into the pits, and no trash is allowed to blow out of the pits.

7. All tank batteries are to be identified which includes the location down to a ¼ ¼.

8. All oil spills, even old ones, are to be disced.

9. Emergency earthen pits may be retained and unlined if emptied immediately after use. In those areas where the surface consists of permeable glacial till and the produced water contains a sodium chloride

content in excess of 5,000 ppm, emergency-type earthen pits are prohibited unless properly lined with an impermeable material to prevent seepage. Saline water impounded in an emergency pit shall be recycled to underground disposal as soon as practicable after an emergency occurs.

Sincerely yours,

Virgil L. Pauli
District Engineer

cc: Casper
Montana O & G Com.
file: (East Poplar Unit)

Conservation Division
P.O. Box 2550
Billings, Montana 59103

March 5, 1975

Murphy Oil Corporation
P.O. Box 547
Poplar, MT 59255

Re: East Poplar Unit, Roosevelt County, Montana

Gentlemen:

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NOTED—MORO

ACKLEY

MAISONNEUVE

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Sincerely yours,

Virgil L. Pauli
District Engineer

cc: Casper
Montana O & G Com.
file (East Poplar Unit)

VLP:pf

BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

U. S. Geological Survey
RECEIVED
MAY - 6 1975
Billings, Montana

IN THE MATTER OF THE APPLICATION)	ORDER NO. 17-75
OF THE DEPARTMENT OF STATE LANDS)	
OF THE STATE OF MONTANA FOR A)	
FORMAL INQUIRY INTO ALLEGED)	
VIOLATIONS OF THE STATUTES AND)	
REGULATIONS OF THIS BOARD BY)	
OIL AND GAS OPERATORS IN)	
NORTHEASTERN MONTANA.)	
DOCKET NO. 1-75)	

Report of the Board

The above entitled cause came on regularly for hearing on the 17th day of April, 1975 at 9:00 o'clock A. M. in the Sheridan Room, Montana National Bank, City of Plentywood, County of Sheridan, State of Montana, pursuant to the order of the Board of Oil and Gas Conservation of the State of Montana hereinafter referred to as the "Board." The notice of said hearing was duly given as required by law, setting the cause of hearing. At this time and place testimony was presented, statements and exhibits were received, and the Board then took the cause under advisement; and, the Board having fully considered the testimony, statements and exhibits and all things and matters presented to it for its consideration by all parties in the Docket, and being well and fully advised in the premises, finds and concludes as follows:

Findings of Fact

1. Due, proper and sufficient notice was published and given of this matter, the hearing hereon, and of the time and place of said hearing, as well as the purpose of said hearing; all parties were afforded opportunity to present evidence, oral and documentary.

2. The extensive evidence submitted through testimony of various landowners in the area indicates that there have been violations of the regulations of this Board by oil and gas operators in the area, particularly with regard to the disposal of salt water. Said operators have indicated their intention of improving these practices but the staff of the Board should be directed to investigate every specific complaint and, if necessary, shut down production from any wells which are being operated in violation of the statutes or regulations of this Board.

3. The Board should retain continuing jurisdiction over this matter and require its staff to report to this Board on said violations at the next meeting of this Board on May 22, 1975 in Helena, Montana.

Order

IT IS THEREFORE ORDERED by the Board of Oil and Gas Conservation of the State of Montana that the staff of this Board prepare a report on each complaint submitted to it at its hearing of April 17, 1975 with a recommendation for action thereon and a report of the action taken by the staff or the operator.

IT IS FURTHER ORDERED that, whenever the staff of this Board finds that violations of the statutes or rules and regulations of this Board have occurred that the operator be ordered to immediately comply with such statutes and regulations or be required to shut down the lease or the well that is in violation.

IT IS FURTHER ORDERED that the staff of this Board report all violations where the operator fails or refuses to comply with the regulations of this Board to the County Attorney of the County in which said violations occur for prosecution pursuant to the provisions of 60-142 RCM 1947.

ORDER NO. 17-75 (Continued)

U. S. Geological Survey
RECEIVED
MAY - 6 1975
Billings, Montana

While this Board has no jurisdiction to award damages or adjudicate private disputes between landowners and operators, it can and will require operators to conduct their operations in a prudent manner which will minimize harm to the land, water and soil in the area of any wells drilled in this State.

Done and performed by the Board of Oil and Gas Conservation of the State of Montana, at Plentywood, Montana, this 17th day of April, 1975.

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

Richard A. Campbell, Chairman

Carl J. Iverson, Vice Chairman

Milton G. Anderson, Board Member

Paul C. Bunn, Board Member

(SEAL)

ATTEST:

Donald E. Chisholm, Administrator

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

THOMAS L. JUDGE, GOVERNOR
GARY WICKS, DIRECTOR

BOARD OF OIL AND GAS CONSERVATION

BOARD MEMBERS
RICHARD A. CAMPBELL, CHAIRMAN
CARL J. IVERSON, VICE-CHAIRMAN
MILTON G. ANDERSON
PAUL C. BUNN
JOHN P. MOORE

15 Poly Drive
Billings, Montana
April 30, 1975

U. S. Geological Survey
RECEIVED
MAY - 1 1975
Billings, Montana

Mr. V. L. Pauli
District Engineer
U. S. Geological Survey
P. O. Box 2550
Billings, Montana 59103

Dear Mr. Pauli:

Attached is a copy of Order 17-75 recently issued by the Board as a result of an application by the Department of State Lands requesting an inquiry into alleged violations of the statutes and regulations of the Board of Oil and Gas Conservation of the State of Montana by oil and gas operators in northeastern Montana. The contents of Order 17-75 are self-explanatory.

Among the numerous complaints heard and discussed at the April 17, 1975 meeting of the Board in Plentywood, Montana was one submitted by Mr. Orphey "Bud" Lien, Box 666, Poplar, Montana 59255. A copy of Mr. Lien's written testimony is attached.

Most of Mr. Lien's complaints relate to activities within the federally-supervised East Poplar Unit where the U.S.G.S. exercises primary responsibility from a regulatory standpoint. In view of this, we presume the U.S.G.S. would wish to initiate an investigation into Mr. Lien's complaints at the earliest possible time and take whatever action is appropriate to correct any malpractices or violations that may exist.

We would appreciate your acknowledging receipt of this letter and advising us at an early date of your plans. We shall be pleased to assist and cooperate with you in any way possible.

Yours very truly,

Judson D. Sweet
Petroleum Engineer

JDS/ia
cc: Mr. Orphey Lien
P. O. Box 666
Poplar, Montana 59255

Murphy Corporation, Poplar
Joe Simonson, Glendive

DIVISION OFFICE
325 FULLER AVE.
P. O. BOX 217
HELENA, MONTANA 59601
(406) 449-2611

TECHNICAL AND SOUTHERN FIELD OFFICE
15 POLY DRIVE
BILLINGS, MONTANA 59101
(406) 252-5109

NORTHERN FIELD OFFICE
218 MAIN STREET
P. O. BOX 690
SHELBY, MONTANA 59474
(406) 434-2422

BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

IN THE MATTER OF THE APPLICATION) OF THE DEPARTMENT OF STATE LANDS) OF THE STATE OF MONTANA FOR A) FORMAL INQUIRY INTO ALLEGED) VIOLATIONS OF THE STATUTES AND) REGULATIONS OF THIS BOARD BY) OIL AND GAS OPERATORS IN) NORTHEASTERN MONTANA.) DOCKET NO. 1-75)	ORDER NO. 17-75

U. S. Geological Survey
RECEIVED
MAY - 1 1975
Billings, Montana

Report of the Board

The above entitled cause came on regularly for hearing on the 17th day of April, 1975 at 9:00 o'clock A. M. in the Sheridan Room, Montana National Bank, City of Plentywood, County of Sheridan, State of Montana, pursuant to the order of the Board of Oil and Gas Conservation of the State of Montana hereinafter referred to as the "Board." The notice of said hearing was duly given as required by law, setting the cause of hearing. At this time and place testimony was presented, statements and exhibits were received, and the Board then took the cause under advisement; and, the Board having fully considered the testimony, statements and exhibits and all things and matters presented to it for its consideration by all parties in the Docket, and being well and fully advised in the premises, finds and concludes as follows:

Findings of Fact

1. Due, proper and sufficient notice was published and given of this matter, the hearing hereon, and of the time and place of said hearing, as well as the purpose of said hearing; all parties were afforded opportunity to present evidence, oral and documentary.

2. The extensive evidence submitted through testimony of various landowners in the area indicates that there have been violations of the regulations of this Board by oil and gas operators in the area, particularly with regard to the disposal of salt water. Said operators have indicated their intention of improving these practices but the staff of the Board should be directed to investigate every specific complaint and, if necessary, shut down production from any wells which are being operated in violation of the statutes or regulations of this Board.

3. The Board should retain continuing jurisdiction over this matter and require its staff to report to this Board on said violations at the next meeting of this Board on May 22, 1975 in Helena, Montana.

Order

IT IS THEREFORE ORDERED by the Board of Oil and Gas Conservation of the State of Montana that the staff of this Board prepare a report on each complaint submitted to it at its hearing of April 17, 1975 with a recommendation for action thereon and a report of the action taken by the staff or the operator.

IT IS FURTHER ORDERED that, whenever the staff of this Board finds that violations of the statutes or rules and regulations of this Board have occurred that the operator be ordered to immediately comply with such statutes and regulations or be required to shut down the lease or the well that is in violation.

IT IS FURTHER ORDERED that the staff of this Board report all violations where the operator fails or refuses to comply with the regulations of this Board to the County Attorney of the County in which said violations occur for prosecution pursuant to the provisions of 60-142 RCM 1947.

While this Board has no jurisdiction to award damages or adjudicate private disputes between landowners and operators, it can and will require operators to conduct their operations in a prudent manner which will minimize harm to the land, water and soil in the area of any wells drilled in this State.

Done and performed by the Board of Oil and Gas Conservation of the State of Montana, at Plentywood, Montana, this 17th day of April, 1975.

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

Richard A. Campbell, Chairman

Carl J. Iverson, Vice Chairman

Milton G. Anderson, Board Member

Paul C. Bunn, Board Member

(SEAL)

ATTEST:

Donald E. Chisholm, Administrator

LIEN FLYING SERVICE

BLUE OX CORPORATION
Box 996
POPLAR, MONTANA 59255
PHONE 406-768-3364

AGRICULTURE

RECEIVED
APR 1975
OIL & GAS CONS. COMM.
STATE OF MONT.

Gophey "Bud" Lien
April 3, 1975

Administrator
Board of Oil and Gas Conservation
P. O. Box 217
Helena, Montana 59601

U. S. Geological Survey
RECEIVED
MAY - 1 1975
Billings, Montana

Dear Sir:

Enclosed is a copy of the complaints that I propose to give before the Board of Oil and Gas Conservation in Plentywood on ~~May~~ April 17, 1975.

Sincerely Yours,

Bud Lien

Bud Lien

Copies to: Governor Tom Judge

Gary J. Wicks, Director, Dept. of Nat. Resources

LIEN FLYING SERVICE

BLUE OX CORPORATION
Box 666
POPLAR, MONTANA 59255
PHONE 406-448-3354

AGRICULTURE

Mr. Chairman and members of the Board of Oil and Gas Conservation, my name is Bud Lien and my address is Box 666, Poplar, Montana. I farm north of Poplar in the East Poplar Oil Field. I am a former legislator, having served in the Montana House of Representatives from 1969 through 1974.

We appreciate your coming to Plentywood today to hear our grievances, and sincerely hope that out of this will come better protection for our natural resources and our landowners.

There are many areas of surface damage to my land from salt water leaks and spills. My underground water is contaminated with salt and other chemicals so that it is unfit to drink. This is due to open salt water pits draining into the underground water supply. We have had to haul cooking and drinking water for over two years. I have in the past repeatedly complained to the Board of Oil and Gas Conservation, but, to my knowledge, absolutely nothing has been done to correct continuing damages and improper practices.

At present I am suing Murphy Oil Corporation for some of these damages and the issues will probably be decided in the courts. Only some of these damages apply since the statute of limitations in this case is only two years. A bill that I had introduced in the past session of the legislature failed to lengthen this statute of limitations.

LIEN FLYING SERVICE

BLUE OX CORPORATION
Box 666
POPLAR, MONTANA 59255
PHONE 406-448-3354

AGRICULTURE

Therefore, my complaints today are directed to the Board of Oil and Gas Conservation itself. The Board, by it's seeming lack of concern for surface owners has not followed the law which defines it's Powers and Duties as set forth in 60-127 on page 63 of it's book of General Rules and Regulations.

The Board has repeatedly opposed legislation, sometimes successfully, that would give better protection to land and landowners. The chairman of this board has testified in the Senate Natural Resources Committee against such bills that I sponsored during the 1974 session of the Legislature. These bills did pass and are now law.

The land in Montana disturbed by oil and gas production far exceeds that disturbed by strip mining, yet the department of our State Government responsible in this case for the protection of land and resources has, in my opinion, failed miserably. We have found it necessary to join together in the Northeast Montana Land and Mineral Owners Association to protect ourselves from the highhanded operations of the oil companies. We are certainly not opposed to oil production, but we believe that many oil companies have not given proper treatment to the land or landowners.

A representative of the Board has informed me that new rules and regulations are under consideration which may take care

LIEN FLYING SERVICE

BLUE OX CORPORATION

Box 666
POPLAR, MONTANA 59255
PHONE 406-448-3354

AGRICULTURE

of some of our problems. I formally request that the Board send me a copy of the new regulations, or proposed regulations, and also that a copy be sent to Chairman Norman A. Nelson of the Northeast Montana Land and Mineral Owners Association, Route 1, Box 30-A, Westby, Montana, 59275.

I urge the members of this board, at their convenience, to personally inspect the lands involved in the complaints that you hear today.

Again, I thank you gentlemen for coming to Northeast Montana and sincerely hope that our complaints will be given due consideration.

MAY - 1 1975
Billings, Montana

IN THE DISTRICT COURT OF THE FIFTEENTH JUDICIAL DISTRICT OF THE STATE OF MONTANA, IN AND FOR THE COUNTY OF ROOSEVELT

* * * * * * * * * * * * * * * * * * * *

O. A. LIEN and BLUE OX CORPORATION, a corporation, Plaintiffs, vs. MURPHY CORPORATION, a corporation, Defendant.	NO. 7878 ANSWERS TO INTERROGATORIES TO PLAINTIFF O. A. LIEN

* * * * * * * * * * * * * * * * * * * *

COMES NOW, one of the above named plaintiffs, O. A. LIEN, and answers the interrogatories served on said plaintiffs by defendant Murphy Corporation on or about the 3rd day of January, 1972, as tollows:

QUESTION: 1. Set forth each prcel of real property to which you are the record title holder, the date on which the deed was recorded and the County where the deed was recorded.

ANSWER:

Parcel No. 1.
Township 29 North, Range 51 East, M.P.M.
Section 17, SW¼SW¼, Recorded January 22, 1968, Roosevelt County;

Parcel No. 2.
Township 29 North, Range 51 East, M.P.M.
Section 20, SE¼NW¼, Recorded 22 October 1965 Roosevelt County

Parcel No. 3.
Township 29 North, Range 51 East, M.P.M.
Section 16, SE¼NW¼, Recorded December 11, 1969, Roosevelt County;

Parcel No. 4.
Township 29 North, Range 51 East, M.P.M.
Section 8, NE¼SW¼, Recorded September 29, 1958, Roosevelt County;

NOTED - PAID

QUESTION: 2. For each parcel of real property owned by you state:

(a) Each parcel that was damaged as alleged in Paragraph V of Count One of the Complaint.

(b) the area or size of the damaged area, i.e., 4' x 8' or 1, 2 or 3 acres.

(c) the date this damage occurred or when it was discovered, specifying the date, month and year.

(d) itemize how you arrive at the specific damage claim for each parcel of real property so damaged.

ANSWER: Parcel No. 1:

(a) Section 17, SW¼SW¼

(b) 40 acres. Underground water supply contaminated.

Leak in pipeline on south edge of forty approximately 1/10 acre.

(c) Leak observed December 4, 1970, approximately.

(d) $4,000 for underground water contamination loss, based on $100 los per acre in value.

One-tenth acre damaged for four crop years on 25 bushel per acre land. $48.50 costs and loss of crop x 4 = $194.00 X 1/10 = $19.40.

Total claim $4,019.40.

Parcel No. 2.

(a) Section 20, SE¼NW¼

(b) 40 acres.

(c) 1968-1969

(d) $4,000. Loss in value of $100 per acre.

Parcel No. 3.

(a) Section 16, SE¼NW¼

(b) 40 acres.

(c) 1968-1969.

(d) $4,000. Loss in value of $100 per acre.

Parcel No. 4.

(a) Section 8, NW¼SW¼

(b) Area around abandoned well needs cleaning up.

(c)

(d)

QUESTION: 3. Are you a party to any lease referred to in Paragraph III of the Complaint?

ANSWER: Yes.

QUESTION: 4. If your Answer to No. 3 is yes, state:

(a) the date of the lease.

(b) the parties to the lease.

(c) the real property covered by the lease.

ANSWER: Parcel "A"

(a) Approximately 1956 verbal lease.

(b) Helmer family and O. A. Lien

(c) Section 17, SE¼NW¼

Parcel "B"

(a) January 1, 1968

(b) Fort Peck Indian Agency (J. Vernon Pereau) and O. A. Lien

(c) Section 17, SE¼SE¼

Parcel "C"

(a) Approximately 1956 verbal lease. Written lease made June 29, 1971

(b) Louis J. Sayers and O. A. Lien

(c) Section 17 SE¼NW¼

QUESTION: 5. In Count One, Paragraph V, you allege damage to the real property owned by you has permanently injured all growing crops and caused the land to become sterile. With reference to this allegation state:

(a) Each parcel that has been permanently injured and made sterile.

(b) The area or size of the damaged area, i.e., 4' x 8', 1, 2 or 3 acres.

(c) Who has informed you the land is permanently injured and sterile?

(d) What crops were grown on the land which is allegedly permanently injured and sterile?

(e) The average crop yield on each parcel allegedly permanently injured and sterile, for five (5) years prior to the date the land became sterile, and specify the year for each yield.

(f) The year each parcel became permanently injured and sterile.

(g) The year and month each parcel was first damaged.

ANSWER: Land in parcels 1, 2, 3 and 4 above not permanently sterile. Claim damage to underground water supply of parcels 1, 2 and 3.

QUESTION: 6. With reference to the allegations of Paragraph V, that equipment has bogged down, broken and caused inconvenience and damage, state:

(a) If you are the owner of the equipment involved, i.e., individually or whether the equipment is owned by BLUE OX CORPORATION.

(b) The equipment involved for each occurrence, i.e., truck, combine, etc.

(c) The date of each occurrence.

(d) The nature of each broken piece of equipment, i.e., wheel, blades, etc.

(e) The cost of repairing said broken equipment.

(f) For each occurrence when the equipment bogged down:

(1) The equipment that was bogged down.

(2) The length of time each piece of equipment was bogged down.

(3) The manner of getting the equipment out of the bogged area.

(4) The cost of getting the bogged equipment out.

(5) The name of each person who was paid to get the bogged equipment out.

(6) The parcel of land involved where the equipment bogged down.

(g) The damage sustained on each occurrence and itemize how the damage is arrived at.

(h) Describe the inconvenience as alleged in Paragraph V of Count One.

ANSWER: <u>Parcel No. 1</u>.

(a) Equipment owned by Blue Ox.

(b) Case Combine.

(c) Fall 1965.

(d) Bent auger and bent pickup teeth.

(e) Could not be straightened perfectly. Lost time $15.00 for 2 hours = $30.

(f) Not bogged down.

(g) Auger could not be straightened perfectly. Two hours lost time at $15 - $30.

(h) Two hours lost during harves.t

<u>Parcel No. 3</u>.

(a) Equipment owned by Blue Ox.

(b) Hooked tool bar on partially buried cable near well site; broke shank holder and bent shank.

(c) 1969.

(d) See (b) above.

(e) --

(f) Not bogged down

(g) Welded shank holder and replaced shank with another. Estimated time 2 hours @ $15 per hour = $30, plus having shank straightened at Pete Logerings as noted in Blue Ox answers.

(h) Inconvenient.

PARCEL "B" (LEASED).

(a) Blue Ox.

(b) New Gleaner combine

(c) Fall of 1969

(d) Bent platform auger and teeth (conveyor assembly).

(e) Took to shop and made temporary repair in two hours @ $18 per hour = $36. Repaired again in fall of 1970 before harvest. Welded, re-enforced and straightened best as possible, 5 hours @ $6 = $30.

Because it was still not dependable I ordered a new auger, price paid $295.60. Not yet installed - estimated cost to install $30.

(f) (1) New Gleaner Combine
(2) Two hours
(3)
(4) See (e) above.
(5)
(6) Section 17 SE¼SE¼

(g) See (e) above.

(h) See above.

QUESTION: 7. Paragraph V of Count One alleges the salt water has seeped into your water supply causing an increase in the mineral content. With reference to this allegation, state:

(a) Each parcel of real property owned by you where this has occurred.

(b) When you first became aware of the condition by giving the day, month and year.

(c) If the condition presently exists on each parcel allegedly affected.

(d) The use to which you put said water prior to the alleged occurrence.

(e) The use to which you put said water after you were aware of the increased mineral content.

(f) The damages you have sustained as a result of said increased mineral content and state how you arrive at said damage figure.

ANSWER: 7. Parcel No. 1.

(a) Section 17, SW¼SW¼

(b) December 4, 1970

(c) The condition presently exists.

(d) --

(e) --

(f) Approximately 1/10 acre damaged for four crop years on 25 bushel per acre land. $48.50 costs and crop loss X 4 = $194.00 X 1/10 =$19.40.

Parcel No. 2.

(a) Section 20, SE¼NW¼

(b) 1968-69.

(c) Condition presently exists.

(d) --

(e) --

(f) Loss of $100 in value per acre on 40 acres.

Parcel No. 3.

(a) Section 16, SE¼NW¼

(b) 1968-69.

(c) Condition presently exists.

(d) --

(e) --

(f) Loss of $100 per acre on 40 acres.

QUESTION: 8. Have you ever been paid any money by defendant to damages to any parcel of land owned by you?

ANSWER: No.

QUESTION: 9. If the Answer to No. 8 is yes, state:

(a) Each parcel that was damaged.

(b) The year and month each parcel was damaged.

(c) The size or area of the damaged parcel of land, i.e., 4' x 8' or 1, 2 or 3 acres.

(d) The amount paid for each damaged parce.

(e) Whether any parcel that was previously damaged is included in your present claim for damages.

ANSWER: Not applicable.

QUESTION: 10. On any of the parcels set forth in your Answer to No. 9(a), state:

(a) Whether you have grown any crops on the parcel so damaged at any time after the damage, and if so, when you first obtained a crop.

ANSWER: Not applicable.

QUESTION: 11. Do you have any photographs of the area you presently claimed are damaged. If so, state:

(a) When they were taken

ANSWER: We have photographs of the damaged areas. They cannot all be identified as to when they were taken with complete accuracy, but they will be so noted on the photographs.

(b) Who has the pictures:

ANSWER: Attorney Gorham Swanberg has some pictures and Orphey Lien has some.

DATED this _____ day of _____, 1972.

_____
O. A. LIEN

STATE OF MONTANA)
: ss.
County of Cascade)

O. A. LIEN, being first duly sworn upon his oath, deposes and says: That he is the plaintiff named in the within and foregoing ANSWERS TO INTERROGATORIES TO THE PLAINTIFF O. A. LIEN; that he has read the same and knows the contents thereof to be true of his own knowledge.

_____

SUBSCRIBED AND SWORN TO before me this _____ day of _____, 1972.

(NOTARIAL SEAL)

_____
Notary Public, State of Montana
Residing at Great Falls, Montana
My Commission expires:

Bhm in part

Conservation Division
P.O. Box 2550
Billings, Montana 59103

May 6, 1975

Montana Depart. of Natural Resources & Conservation
Board of Oil and Gas Conservation
15 Poly Drive
Billings, MT 59101

Attn: Mr. Judson Sweet

Re: Order No. 17-75 and letter dated April 30, 1975 concerning damage complaints in the East Poplar Unit

Dear Mr. Sweet:

We acknowledge receipt of the subject letter. On May 8, 1975 Bill Brown, Murphy Oil Company, visited this office concerning the Unit and this matter was discussed. We plan to make a field investigation in the near future as soon as it stops raining and the ground dries up. We hope to contact the plaintiff and also Murphy Oil Company again. We will then make a report to you and discuss what we found and to see if additional information or data is needed. The weather is not very cooperative so it might be sometime near the end of June before we can make a report. We will keep you advised.

Sincerely yours,

Virgil L. Pauli
District Engineer

cc: Casper
File

VLP:vdr

NOTED—MOROZ
TAM
MAISONNEUVE

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

THOMAS L. JUDGE, GOVERNOR
GARY WICKS, DIRECTOR

BOARD OF OIL AND GAS CONSERVATION

BOARD MEMBERS
RICHARD A. CAMPBELL, CHAIRMAN
CARL J. IVERSON, VICE-CHAIRMAN
MILTON G. ANDERSON
PAUL C. BUNN
JOHN P. MOORE

15 Poly Drive
Billings, Montana
May 9, 1975

U. S. Geological Survey
RECEIVED
MAY 12 1975
Billings, Montana

Mr. Orphey Lien
P. O. Box 666
Poplar, Montana 59255

Dear Mr. Lien:

With reference to my letter of April 30, 1975 addressed to Mr. V. L. Pauli of the United States Geological Survey, attached is a copy of his reply.

Our Mr. Joe Simonson will be contacting you in the near future to determine which of your complaints, if any, are located outside the federally supervised East Poplar Unit area.

Yours very truly,

Judson D. Sweet
Petroleum Engineer

JDS/la
cc: Mr. V. L. Pauli
U.S.G.S., Billings, Mt.

Mr. Joe Simonson
Glendive, Montana

NOTED - PAUL

DIVISION OFFICE
325 FULLER AVE.
P. O. BOX 217
HELENA, MONTANA 59601
(406) 449-2611

TECHNICAL
AND SOUTHERN FIELD OFFICE
15 POLY DRIVE
BILLINGS, MONTANA 59101
(406) 252-5109

NORTHERN FIELD OF
218 MAIN STREET
P. O. BOX 690
SHELBY, MONTANA 5947
(406) 434-2422

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

THOMAS L. JUDGE, GOVERNOR
GARY WICKS, DIRECTOR

BOARD OF OIL AND GAS CONSERVATION

BOARD MEMBERS
RICHARD A. CAMPBELL, CHAIRMAN
CARL J. IVERSON, VICE-CHAIRMAN
MILTON G. ANDERSON
PAUL C. BUNN
JOHN P. MOORE

15 Poly Drive
Billings, Montana
July 28, 1975

Murphy Oil Corporation
P. O. Box 547
Poplar, Montana 59255

Gentlemen:

On April 17, 1975 the Board of Oil and Gas Conservation of the State of Montana convened in Plentywood, Montana to hear an application by the Department of State Lands concerning alleged violations of regulations and statutes by oil and gas operators in northeastern Montana.

Among the numerous complaints heard by the Board was one submitted by Mr. Orphey "Bud" Lien. A copy of Mr. Lien's written complaint is attached. In order to obtain more detail about the nature of Mr. Lien's complaint, our Mr. Joe Simonson of Glendive, Montana interviewed Mr. Lien on June 14, 1975.

The various items that Mr. Lien is complaining about are detailed in the attached letter to Mr. Lien. Most of the specific complaints are located within the Federally-supervised East Poplar Unit and we are asking the U.S.G.S. to investigate and initiate corrective action as soon as possible.

Complaint No. 3 concerns a plugged and abandoned well, Murphy (Empire State) Cornejo No. 3, NE SW Section 8-29N-51E., which is not within theEast Poplar Unit Area. We request that you initiate immediate action to remove the concrete pumping unit pad from this location, backfill and restore the small pit at the tank battery site and remove any flow lines that interfere with Mr. Lien's farming operations. We also request that you cut off the well marker below plow depth and restore the well site location.

We also request that you make an effort to restore any areas on Mr. Lien's property that have been damaged by salt water spills or line leaks and urge you to settle any claims for damage that may still be pending.

The Board of Oil and Gas Conservation has no jurisdiction to award damages to landowners nor to adjudicate disputes between surface owners and oil and gas operators. However, in an effort to promote better relations between individuals and oil companies we trust that you will cooperate willingly in complying with our requests.

DIVISION OFFICE
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P. O. BOX 217
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(406) 449-2611

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AND SOUTHERN FIELD OFFICE
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BILLINGS, MONTANA 59101
(406) 252-5109

NORTHERN FIELD OFFICE
218 MAIN STREET
P. O. BOX 690
SHELBY, MONTANA 59474
(406) 434-2422

We would appreciate your acknowledging receipt of this letter and would welcome any comments you may wish to offer in reference to Mr. Lien's complaints.

Yours very truly,

Judson D. Sweet
Petroleum Engineer

Attach.
JDS/la
cc: Mr. Orphey Lien
P. O. Box 666
Poplar, Montana 59255

Mr. Lee Paull
United States Geological Survey
P. O. Box 2550
Billings, Montana 59103

Mr. Joe Simonson
702 North Kendrick
Glendive, Montana 59330

Mr. Norman Nelson
Northeast Montana Land and Mineral Owners Association
Westby, Montana 59275

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

THOMAS L. JUDGE, GOVERNOR
GARY WICKS, DIRECTOR

BOARD OF OIL AND GAS CONSERVATION

BOARD MEMBERS
RICHARD A. CAMPBELL, CHAIRMAN
CARL J. IVERSON, VICE-CHAIRMAN
MILTON G. ANDERSON
PAUL C. BUNN
JOHN P. MOORE

15 Poly Drive
Billings, Montana
July 28, 1975

U. S. Geological Survey
RECEIVED
JUL 29 1975
Billings, Montana

Mr. Orphey Lien
P. O. Box 666
Poplar, Montana 59255

Dear Mr. Lien:

We wish to thank you for the courtesies extended to our Mr. Joe Simonson when he visited with you on June 14, 1975 to discuss in greater detail the nature of the complaint dated April 3, 1975 that you registered with the Board of Oil and Gas Conservation.

On the basis of information furnished me by Mr. Simonson, following is a list of the specific complaints you have against Murphy Oil Corporation:and others:

1. SW¼ SW¼ Section 8-29N-51E - A power line has been constructed across your property which is too low to permit farming equipment to pass thereunder.

2. SE¼ SW¼ Section 8-29N-51E - Unit Well No. 30, a temporarily abandoned well. The pumping unit has been moved off but the concrete base remains. A small pit remains and trash and debris are in evidence around the well site.

3. NE¼ SW¼ Section 8-29N-51E - Murphy (Empire State), Cornejo No. 3, a plugged and abandoned well. The concrete pad for the pumping unit has not been removed, a small pit at the tank battery site has not been restored, flow lines have not been removed, and the well marker should be cut off below plow depth.

4. NW¼ NE¼ Section 17-29N-51E - Unit Well No. 40, a temporarily abandoned location. The pumping unit has been moved off but the concrete pad remains. A small pit by the well site has not been restored and "dead men" have not been removed.

5. NW¼ NW¼ Section 16-29N-51E - Wagner-Christianson Brough No. 1, a plugged and abandoned well. The concrete pump base and treater base still remain, "dead men" have not been removed, a fairly large pit has not been restored and a road to the location has not been removed.

6. SW¼ NW¼ Section 16-29N-51E - Unit Well No. 49, a temporarily abandoned well. The pumping unit has been removed but the concrete pad remains and the surface has not been restored.

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218 MAIN STREET
P. O. BOX 690
SHELBY, MONTANA 59474
(406) 434-2422

7. NE¼ SW¼ Section 16-29N-51E - Unit Well No. 50, a temporarily abandoned well. The pumping unit has been removed but the concrete pad remains. A power line and road into the location are still in existence. The well head is dripping oil, a small pit near the well has not been backfilled and the surface has not been reclaimed.

In addition to the foregoing, Mr. Simonson has also advised me there have been numerous instances of salt water line leaks which have resulted in damage to the surface at various places. In addition, it is our understanding that a fresh water well which you drilled in Section 21-29N-51E in 1969 has been damaged by improper disposition of oil field produced water.

Complaints 1, 2, 4, 6, and 7 listed above as well as your fresh water well in Section 21-29N-51E are all located within a Federally-supervised East Poplar Unit. By copy of this letter to the U.S.G.S. in Billings we are requesting that agency to investigate those complaints located inside the Unit Area as soon as possible and to initiate such corrective measures as they deem appropriate in the circumstances.

In regard to Complaint 3, we are requesting Murphy Oil Corporation to remove the concrete pumping unit pad, backfill and restore the small pit at the tank battery site, remove all flow lines used in conjunction with the Murphy (Empire State) Cornejo No. 3 well and cut off below plow-depth the dry hole marker. (See attached letter).

With respect to Complaint No. 5, we presently are trying to determine where the responsibility lies for the restoration of the Brough No. 1 and will keep you advised accordingly.

We sincerely regret any inconvenience or loss that you may have suffered as a result of imprudent operations by the oil and gas industry. If we can be of service to you in the future in matters relating to oil and gas operations please feel free to contact Mr. Joe Simonson in Glendive, Montana. His phone number is 365-3592.

Yours very truly,

Judson D. Sweet
Petroleum Engineer

cc: Mr. Joe Simonson
702 North Kendrick
Glendive, Montana 59330

Mr. Lee Paull
United States Geological Survey
P. O. Box 2550
Billings, Montana 59103

Murphy Oil Corporation
P. O. Box 547
Poplar, Montana 59255

Mr. Norman Nelson
Northeast Montana Land & Mineral Owners Ass'
Westby, Montana 59275

MURPHY
OIL CORPORATION

200 JEFFERSON AVENUE
EL DORADO, ARKANSAS 71730

August 7, 1975

U. S. Geological Survey
RECEIVED
AUG 11 1975
Billings, Montana

P.O. Box 547
Poplar, Montana 59255

C O P Y

Mr. Judson D. Sweet
Montana Department Of Natural Resources
and Conservation
15 Poly Drive
Billings, Montana 59101

Dear Mr. Sweet:

This is to acknowledge reciept of your letter of July 28, 1975 concerning complaints by Mr. Bud Lien. We are concerned about the complaints by Mr. Lien, and will make every effort to satisfy him on each count. In fact, some of the work has been done sometime ago, Item No. 1 being one.

Items No. 2 and No. 4 concerning wells No. 30 and No. 40 are still on temporaily abandon list, but we will clean up around the wells and fill the pits and in general, make them as little nuisence to Mr. Lien as possible.

Item No. 3 concerning Cornejo No. 3 has for the most part been taken care of. The remaining clean up work is going on now.

Item No. 6 and No. 7 concerning wells No. 49 and No. 50 are on A.F.E. to be plugged and abandoned. I am hoping this work can be done in the very near future.

We do not have any unsettled claims against us by Mr. Lien or any other landowners, except a pending lawsuit by Mr. Lien. I will discuss this with Mr. Lien and with our Operations Supervisor in El Dorado, Arkansas, Mr. Alvin Simpson.

I hope the above meets with your approval, but would welcome any comments you may wish to offer.

Yours very truly,

MURPHY OIL CORPORATION

Billy G. Melear

Billy G. Melear
District Superintendent

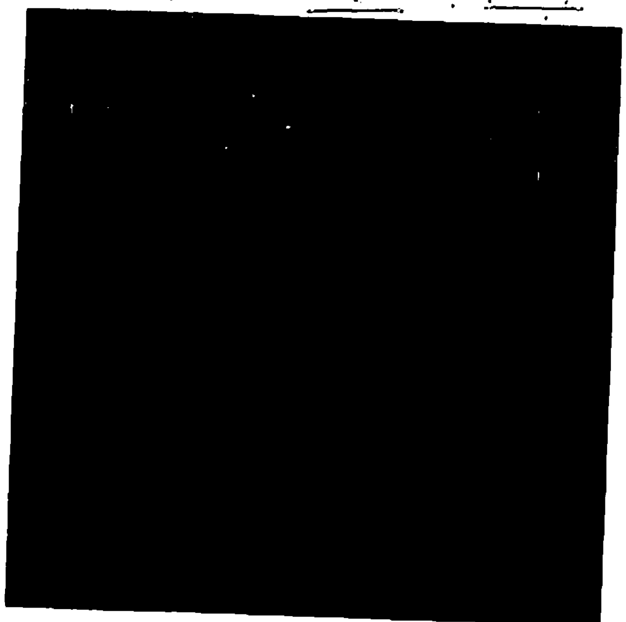
U. S. Geological Survey
RECEIVED
AUG 1 1 1975
Billings, Montana

BGM/sb
cc: A. W. Simpson, P&E, El Dorado, Arkansas
U.S.G.S., P.O. Box 2550, Billings, Montana 59101

SUMMARY OF ENVIRONMENTAL IMPACT EVALUATION

~~EXPLORATORY~~ - DEVELOPMENT
SALT WATER DISPOSAL
~~OIL & GAS~~ Depth 3500
Oper. MURPHY OIL CORP.
Well ID 5-D
Loc. 1255 'FS L & 660 'FE
Sec. 19 Twp. 29N Rge. 51E
County ROOSEVELT
State MONTANA
Lease No. FT. PECK (AL) I-37-IND-1288
Surface Agency BIA

Symbol	Meaning
/	NEGATIVE MINOR IMPACT
X	NEGATIVE MAJOR IMPACT
o	POSITIVE MINOR IMPACT
◇	POSITIVE MAJOR IMPACT



SeSe 19-29N-51E 9-18-75
Pre-drill I-37-IND-1288
Looking S

		ACCIDENTS: Spills and Leaks	ACCIDENTS: Operational Failure	ACCIDENTS: Other	OTHER: Other	OTHER: Other	OTHER: Other	OTHER: Other
LAND USE	Forestry							
	Grazing							
	Wilderness							
	Agriculture	/	/					
	Residential-Commercial							
	Mineral Extraction							
	Recreation							
	Scenic Views							
	Parks, Reserves, Monuments							
	Historical Sites							
	Unique Physical Features							
FLORA & FAUNA	Birds	/	/					
	Land Animals	/	/					
	Fish							
	Endangered Species							
	Trees, Grass, Etc.	/	/					
	Other							
PHY. CHARAC.	Surface Water	/	/					
	Underground Water							
	Air Quality	/	/					
	Erosion	/						
	Other							
	Other							
OTHER	Effect on Local Economy Good							
	Safety & Health Good							
	Other							
	Other							

Is Location in an Unusually Sensitive Area? No Is the importance of any non-mineral resource such that should damage occur, it would markedly affect the future use or development of such resource? No Historical or cultural site? No

L. Hewson A. Zick Inspector Bernard Moore 9-18-75
Technician Trainee Title Acting District Engineer, Billings Date

FOR U.S. GOVERNMENT USE ONLY

4/1973 Billings

MR
SR

BILLINGS District

INSPECTION RECORD

Detailed Well ____
Random: Well ____
Lease ____
C.A. ____
Unit ✓

E. POPLAR
~~Lease, C.A. or~~ Unit I-37-IND-12874

Operator MURPHY OIL CORP
Contractor DICKS WELL SVC. RIG 3

Well No. 19
Location SWSE sec. 19, T. 29N R. 51E

Field East Poplar

County Roosevelt State Montana

Operation: Drilling ____
Workover ✓
Abandonment ____
Other ____

Individual Well Inspection

Random:

Well Sign	✓	Guard rails	✓	BOP	N.A.	Pollution Control	✓
Safety Line(s)	X	Plastic hard hats	✓	Housekeeping	✓	Safe Operations	✓

Detailed: Above items plus the following -

BOP:		Fill & kill lines	____	Safety belt	X	Marker	____
Tests recorded	____	Exhaust dampeners	____	First aid kit(s)	X	Location	____
Correct rams	____	Guard shields	____	Fire extinguisher(s)	X	Vapor proof lights	____

Lease, C.A., Unit (Random--total or partial):

Portion inspected ____

Well sign(s)	____	Pollution Control	____
Measurement facilities	____	Housekeeping	____
Pit(s) (fenced)(screened)	____	Water disposal	____
Gas properly handled	____	Other	____

Remarks: NO SAFETY (GERONIMO) ESCAPE LINE FROM DERRICK, NO FIRE EXT., NO FIRST AID KIT.

Action: DISCUSSED W/ RAY REEDE (PROD. SUPT. FOR MURPHY). THIS RIG IS NOT TO OPERATE UNTIL ABOVE DEFICIENCIES CORRECTED

Name Lynn Henson Title Pet. Eng. Tech. Date 9-18-75
Alvin [illegible] Eng. Field Assistant

Use: ✓ for yes or satisfactory
x for no or unsatisfactory
NA for not applicable

FOR U.S. GOVERNMENT USE ONLY

NOTED - PAID

MAISONNEUVE

1976

TA-2D Duplicate different form

UNDESIREABLE EVENTS REPORT -47-76

EAST POPLAR UNIT

1. Date of Occurrence: 1 FEB 76 11:00 a.m.
2. Date Reported to USGS: 12 FEB 76 WRITTEN
3. Reporting Office: BILLINGS DISTRICT OIL & GAS OPERATIONS
4. Class &/or Size of Event: III MINOR
5. Location: State: MONTANA

   County: ROOSEVELT

   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: NW SE 3-28N-51E, MPM
6. Type of Event: 1 Bbl Oil Spilled
7. Cause of Event: Flowline developed a leak caused by external corrosion

8. Effects of Event: Spill ran about 50', No Permanent Damage. No surface waters entered.

9. Operator: MURPHY OIL
10. Surface Ownership: BLM
11. Lease Number: BLM-A-029305(a)
12. Corrective Action Taken and Date: Pollutants picked up by a front end loader and dumped into an emergency pit. Replaced 400' flowline with fiberglass line.

13. On-Site Inspection Dates:
14. Agencies Notified: State O&G Com.
15. Unit &/or Field: EAST POPLAR UNIT - POPLAR FIELD
16. Remarks:

Billings 7-75 vlp

cc: CASPER

TA-12

#16

EAST POPLAR UNIT

U. S. Geological Survey
RECEIVED
FEB 12 1976
Billings, Montana

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 59255

Subject: Pollution Report

Spill X Discharge ____ Blowout ____ Accident ____ Fire or Explosion ____

1. Specific Nature or Cause of Incident

Flow line from East Poplar Unit No. 12 to "F" Battery developed a leak caused by external corrosion.

2. Identify Incident

150' South of "F" Battery Treater next to emergency pit

NW SE 3-28N-51E, MPM

ROOSEVELT Co, MT BLM-A-029305(a)

3. Description of Resultant Damage and Volume of Pollutant Discharged

Due to cold winter weather it was impossible to determine actual amount of resultant damage. Amount of damage appears to be minor.

4. Date and Time of Occurrence

February 1, 1976 11:00 A.M.

5. Length of Time Required to Control Incident or Contain Pollutants

1 Hour

6. Action Taken to Prevent Recurrence

400' of flow line to be replaced with fiberglass

7. Measures Taken to Clean Up Pollutants

Front end loader used to scrape up all pollutants. Pollutants then dumped in emergency pit.

8. The make or manufacturer, size, working and test pressures, date of installation, type of use, physical damage, etc., of any equipment causing or directly involved with the incident.

2" Steel line pipe, used for flow line.

9. Other Federal or State Agencies Notified of Incident

Montanan Oil and Gas Commission - Copy of this form

Signature Bill L. Melear Date 2-10-76

Title Superintendent

TA-20

YEAR 1976

UNDESIREABLE EVENT REPORT #16

Event Time & Date: 1FEB 76 11:00am
Event Classification: III MINOR
Continuous Oral Reports Needed: NO
Final Inspection Completed: _____
Included in Mo. Engr. Rept: _____

FIELD POPLAR
UNIT EAST POPLAR
¼¼¼ S-T-R, Mer., Co., St. NW SE 3-28N-51E, MPM, ROOSEVELT CO., MONTANA
SURFACE CONTROL BLM

OPERATOR MURPHY OIL CORP
LEASE BLM-A-029305(a)

BILLINGS 5 - 75 v1p

NOTIFIED: EPA (STATE O&G) HEALTH BLM USFS BOR BIA F&WL STATE F&G _____
EVENT TYPE: (OIL SPILL) WATER SPILL TOXIC SPILL VENTING FLARING BLOWOUT FATALITY INJURY LIGHTNING EXPLOSION FIRE _____

EVENT CAUSE: 1 Bbl oil spilled from a flowline leak caused by external corrosion.

EVENT EFFECTS: Spill ran about 50', No Surface waters entered, No Permanent Damage.

ACTION TAKEN: Pollutants picked up by a front end loader and dumped into an emergency pit. Replaced 400' of line with fiberglass line.

OPERATOR'S ORAL REPORT TO DISTRICT: (Time) NA (Date) NA
OPERATOR'S WRITTEN REPORT TO DISTRICT: (Date) 12 FEB 76
CLASS I EVENT - ORAL REPORT TO RESTON: (Time) NA (Date) NA
CLASS I EVENT - ORAL REPORT TO CASPER: (Time) NA (Date) NA
CLASS I EVENT - WRITTEN SUMMARY TO RESTON: (Date) NA
CLASS II EVENT - WRITTEN REPORT TO DENVER: (Date) NA
CLASS II EVENT - WRITTEN REPORT TO CASPER: (Date) NA
CLASS III EVENT - WRITTEN REPORT TO CASPER: (Date) _____

DATES INSPECTED: _____

EAST POPLAR UNIT

TA-11

U. S. Geological Survey
RECEIVED
MAR - 1 1976
Billings, Montana

To: District Engineer, U.S. Geological Survey

From: Director Superintendent, Murphy Oil Corporation, Poplar, Montana

Subject: Pollution Report

#33

Spill _____ Discharge X Blowout _____ Accident _____ Other _____

1. Specific Nature or Cause of Incident

Corrosion ate a hole in 3-1/2" "J" Battery Shipping Line

2. Location of Incident

900' West of tank battery

3. Description of Resultant Damage and Volume of Pollutant Discharged

The damage was slight - 8 barrels discharged

4. Date and Time of Occurrence

February 19, 1976 7:00 A.M.

5. Length of Time Required to Control Incident or Contain Pollutants

6 Hours

6. Action Taken to Prevent Recurrence

Replaced 200' of line with 200' of Silver Thread 3" Fiberglass Tubing

7. Measures Taken to Clean Up Pollutants

Had water truck pick up discharged oil

8. The make or manufacturer, size, working and test pressures, date of installation, type or use, physical damage, etc., of any equipment causing or directly involved with the incident.

4", 5.53#, R-1, P&E Line Pipe

9. Other Federal or State Agencies Notified of Incident

Montana Oil and Gas Commission by copy of this form

Signature Ray Reede Date February 23, 1976

Title Foreman

TA-19

EAST POPLAR UNIT ✓

UNDESIREABLE EVENTS REPORT #

1. Date of Occurrence: 19 FEB 76 7:00 am.
2. Date Reported to USGS: 1 MAR 76 WRITTEN
3. Reporting Office: BILLINGS DISTRICT OIL & GAS OPERATIONS
4. Class &/or Size of Event: III MINOR
5. Location: State: MONTANA

   County: ROOSEVELT

   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: NW NW SW 29-29N-51E, MPM
6. Type of Event: 8 Bbls oil spilled
7. Cause of Event: Oil spilled from a corrosion hole in a 3½" tank battery shipping line

Billings 7-75 vlp

8. Effects of Event: Oil spilled at site and remained there. Spill did not enter any surface waters. No permanent damage
9. Operator: MURPHY OIL CORPORATION
10. Surface Ownership: PATENTED
11. Lease Number: PATENTED
12. Corrective Action Taken and Date: Spill washed down with hot fresh water and picked up with a vacuum truck. Absorbent material used to pick up remainder. NO OIL RECOVERED. 8 BBLS OIL LOST. Replaced 200' of line with fiberglass line. 23 FEB 76
13. On-Site Inspection Dates:
14. Agencies Notified: State Oil & Gas
15. Unit &/or Field: East Poplar Unit - Poplar field
16. Remarks:

CASPER

Conservation Division
P.O. Box 2550
Billings, Montana 59103

March 9, 1976

Murphy Oil Corporation
P.O. Box 547
Poplar, MT 59255

Re: Spill Prevention Control and Countermeasure Plan (SPCC)
East Poplar Unit

Gentlemen:

The subject unit has a significant pollution potential because of its proximity to the Poplar River. If you have an SPCC plan as required by the Environmental Protection Agency, we would like to obtain a copy for our use. Since the oil and gas operations of the unit are under our jurisdiction and if such a pollution event occurs, we would probably be designated as the lead agency to supervise cleanup operations.

Thank you.

Sincerely yours,

Virgil L. Pauli
District Engineer

cc: Casper
Unit File
SPCC File

TA-18

EPU ✓

UNDESIREABLE EVENTS REPORT # 43-76

1. Date of Occurrence: 20 MARCH 76 9:00 am
2. Date Reported to USGS: 25 MARCH 76 WRITTEN
3. Reporting Office: BILLINGS DISTRICT OIL & GAS OPERATIONS
4. Class &/or Size of Event: III - MINOR
5. Location: State: MONTANA
   County: ROOSEVELT
   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: NE NW 11-28N-51E
6. Type of Event: 1 BO & 8 BW SPILLED
7. Cause of Event: Flowline leak on EPU #15 well, 150 yds east

8. Effects of Event: Minor damage to a wheat field. No surface waters entered. No Permanent Damage

9. Operator: MURPHY OIL CORPORATION
10. Surface Ownership: PATENTED
11. Lease Number: PATENTED
12. Corrective Action Taken and Date: Spill washed down with hot fresh water, and fluid picked up with a vacuum truck. NO OIL RECOVERED. 1-BO LOST

13. On-Site Inspection Dates:
14. Agencies Notified: State Oil & Gas Com.
15. Unit &/or Field: East Poplar Unit - Poplar field
16. Remarks:

CC: CASPER

Billings 7-75 vlp

TA-10

#43-76

U. S. Geological Survey
RECEIVED
MAR 25 1976
Billings, Montana

EP4

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 59255

Subject: Pollution Report

Spill X Discharge _____ Blowout _____ Accident _____ Fire Or Explosion _____

1. Specific Nature or Cause of Incident

Flowline leak on East Poplar Unit No. 15 flowline.

2. Location of Incident

150 yards from East Poplar Unit No. 15 wellhead

3. Description of Resultant Damage and Volume of Pollutant Discharged

9 barrels total fluid - 1 barrel oil and 8 barrels water

Minor damage to winter wheat field.

4. Date and Time of Occurrence

3/20/76 Discovered leak at approximately 9:00 A.M.

5. Length of Time Required to Control Incident or Contain Pollutants

4 Hours required to repair leak

6. Action Taken to Prevent Recurrence

Repaired the leak

7. Measures Taken to Clean Up Pollutants

Picked up all fluid possible.

8. The make or manufacturer, size, working and test pressures, date of installation, type of use, physical damage, etc., of any equipment causing or directly involved with the incident.

N/A

9. Other Federal or State Agencies Notified of Incident

Montana Oil and Gas Commission, Billings, Montana by copy of this form.

Signature Bill Smelcer Date March 20, 1976

Title District Superintendent

MURPHY
OIL CORPORATION

200 JEFFERSON AVENUE
EL DORADO, ARKANSAS 71730

May 25, 1976

U. S. GEOLOGICAL SURVEY
RECEIVED
JUN 28 1976
Billings, Montana

Mr. Virgil Lee Pauli, District Engineer
United States Geological Survey
Branch of Oil and Gas Operations
P. O. Box 2550
Billings, Montana 59103

Dear Mr. Pauli:

USGS - Disposal of Produced
Water (NTL-2B)

This is further to Geological Survey Notice NTL-2B dated January 1, 1976, which provides that all produced water disposal methods must be approved in writing by the District Engineer by October 1, 1977. Applications were filed and approved by the USGS relative to all applicable salt water disposal systems operated by Murphy Oil Corporation at the time the systems were installed. You suggested during a visit to your office in February that we submit summary data pertaining to each of our salt water disposal facilities in order to update and to obtain current approval by your office. Attached for your consideration is a copy of such summary data which we believe provides you with the information you requested. Included with this data are copies of Water Analysis Reports representative of produced water from each of the fields. In the case of the East Poplar Unit we have attached two representative analyses, one for the northern portion and one for the Southern portion of the Unit.

If this is satisfactory we request that you approve the continued operations of these facilities in accordance with NTL-2B. If more information is needed or if these facilities are not satisfactory for compliance with the current rules, please so advise.

Murphy Oil Corporation

Billy G. Melear

Billy G. Melear
District Production Superintendent

BGM:cg

FOR U.S. GOVERNMENT USE ONLY

SPUR

East Poplar Unit No. 1-D Salt Water Disposal Well: This well was completed in 1957 with 177' of 13 3/8" O.D., 32#, H-40 casing set in 17 1/4" hole and cemented with 200 sacks regular cement with 2% $CaCl_2$. Good cement was circulated to the surface. 9 5/8" O.D., 32#, H-40 casing was set in a 12 1/4" hole to 941' and cemented with 400 sacks regular cement, 2% $CaCl_2$. Cement was circulated to the surface. 7" O.D., 23#, J-55 casing was set in an 8 3/4" hole and cemented with 250 sacks 50-50 Pozmix with 2% gel. Good cement was circulated to the surface. The present injection rate through 4 1/2" O.D., 2.58# fiberglass tubing is approximately 9,400 BWPD at 560 psig surface operating pressure, injecting into Dakota Sand perforations 3096 - 3106', 3146 - 3158', 3190 - 3298', 3318 - 3328' and 3344 - 3362'. An emergency overflow pit 70' x 145' x 15' is provided. This pit is not lined but is completely fenced.

All Unit wells are monitored by pressure gauges and visually checked daily. Well sites are provided with emergency spill pits.

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JUN 28 1976
Billings, Montana

NORTHEAST BENRUD FIELD
ROOSEVELT COUNTY, MONTANA

Mule Creek Allotted No. 1-D Salt Water Disposal Well: This well was completed November 17, 1967, as follows: Drilled 12 1/4" hole to 90' and set 7" O.D., 23#, J-55 casing at 81', cemented to surface with 90 sacks 50-50 Pozmix with 2% gel. A 6 1/4" hole was then drilled to 1700' and 4" O.D., 11.34#, J-55 casing was set at 1687' and cemented to surface with 215 sacks HALCO light cement with 2% gel. Present injection rate into this well is approximately 493 BWPD at 400 psig surface operating pressure. Injection is into the Judith River Sand perforations 1477 - 1517' and 1569 - 1619'. An emergency overflow pit 70' x 45' x 5' is provided but is not lined at this time.

EAST BENRUD FIELD
ROOSEVELT COUNTY, MONTANA

Wetsit No. 1-D Salt Water Disposal Well: This well was completed October 19, 1966, and is a conversion of the Wetsit No. 1 Well dry hole which was plugged and abandoned. The well has 13 3/8" O.D., 68#, J-55 casing set to 855' and cemented to surface with 750 sacks regular cement. 4 1/2" O.D., 14#, H-40 casing is set to 1640' and cemented to surface with 160 sacks 50-50 pozmix with 2% gel. Present injection rate is approximately 1,238 BWPD by gravity into the Judith River Sand perforations 1544 - 1600'. A 60' x 45' x 5' emergency overflow pit is provided but is not lined at this time.

VOLT FIELD
ROOSEVELT COUNTY, MONTANA

Courchene No. 1-D Salt Water Disposal Well: This well was drilled and completed in March, 1965, with 8 5/8" O.D., 24#, J-55 casing set at 98' and cemented to surface. 5 1/2" O.D., 15.50#, J-55 casing is set at 1523' and was cemented to surface with 140 sacks 50-50 Pozmix with 6% gel followed with 90 sacks 50-50 pozmix with 2% gel. Present injection rate is approximately 1,300 BWPD through 1372' of 2 7/8" O.D., 6.50#, J-55 EUE tubing set in a Packer set at 1377'. Injection is into the Judith River Sand perforations 1414 - 1450' with 450 psig surface operating pressure. An emergency overflow pit 64' x 54' x 4' lined with a 30 mil Hypalon Dowell liner is provided and is completely fenced.

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U. S. Geological Survey
RECEIVED
JUN 28 1976
Billings, Montana

Water Analysis Reports

The Lab. No. 12260-1 Water Analysis Report is for all East Poplar Unit produced water from the West side, North end of the field, of the Poplar River. This water is being injected into the Dakota Formation in Salt Water Disposal Wells No. 5-D and No. 1-D.

The Lab. No. 12260-2 Water Analysis Report is for all East Poplar Unit produced water from the East side of the Poplar River and South side of the field. This water is being injected into the Dakota Formation in Salt Water Disposal Wells No. 80-D and No. 8-D.

The Lab. No. 11318-5 Water Analysis Report is from the Mule Creek Allotted No. 1 and is being injected into the Judith River Formation at the Mule Creek Allotted No. 1-D Salt Water Disposal Well.

The Lab. No. 11318-3 Water Analysis Report is from the Tribal A-1 and is being injected into the Judith River Formation at the Wetsit No. 1-D Salt Water Disposal Well.

Lab. No. 11318-1, 11318-2 and 6469-1 Water Analysis Reports are for water produced from the Volt Field and is being injected into the Judith River Formation at the Courchene No. 1-D Salt Water Disposal Well.

FOR U.S. GOVERNMENT USE ONLY

TA-17

UNDESIREABLE EVENTS REPORT

120-76
East Poplar

1. Date of Occurrence: 11/23/76 3:30 PM
Date Reported to USGS: 11/26/76
3. Reporting Office: BILLINGS DISTRICT - OIL & GAS OPERATIONS
4. Class &/or Size of Event: III - MINOR
5. Location: State: MONTANA
County: ROOSEVELT
¼ ¼ ¼ Sec., Twn., Rge., Mer.: NW SE SEC. 10; T28N, R15E, MPM
6. Type of Event: SALT WATER SPILL (9½ BBLS)
7. Cause of Event: SALT WATER DISPOSAL PUMP BROKE DOWN CAUSING WATER TO GO TO PIT AND PIT OVER FLOWED.

Billings 7-75 vlp

8. Effects of Event: ABOUT 9½ BBLS OF SALT WATER OVERFLOWED FROM PIT ONTO FROZEN GROUND AND COLLECTED IN LOW SPOT. NO PERMANENT DAMAGE. NO SURFACE WATER INVOLVED.

Operator: MURPHY OIL CORPORATION
10. Surface Ownership: PATENTED
11. Lease Number: PATENTED
12. Corrective Action Taken and Date: REPAIRED DISPOSAL PUMP, SHUT-IN SOME WELLS AND TURNED OTHERS TO ANOTHER DISPOSAL STATION. PUMPED SALT WATER BACK INTO PIT.

13. On-Site Inspection Dates: 3/10/77
14. Agencies Notified: MONTANA OIL & GAS COMMISION
15. Unit &/or Field: EAST POPLAR UNIT 8-D, EAST POPLAR FIELD
16. Remarks: Discovery in files

cc: CASPER, BIA-Ft. Peck Resv.

TA-9

HAROL

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 5925

Subject: Pollution Report

Spill ___X___ Discharge _____ Blowout _____ Accident _____ Fire Or Explosion _____

1. Specific Nature or Cause of Incident

Salt Water Disposal emergency pit overflowed.

2. Location of Incident

NW SE Section 10, T28N, R51E, Roosevelt County, Montana

East Poplar Unit No. 8-D

3. Description of Resultant Damage and Volume of Pollutant Discharged

Approximately 9-1/2 barrels of salt water was discharged - crank shaft on disposal pump broke causing water to go to pit.

4. Date and Time of Occurrence

Tuesday November 23, 1976 3:30 P.M.

5. Length of Time Required to Control Incident or Contain Pollutants

Very Short Some wells were shut in and others were turned to other dis station.

6. Action Taken to Prevent Recurrence

Installed new crank shaft on pump.

7. Measures Taken to Clean Up Pollutants

Water was pumped back into pit. Ground was froze and water had accumula in low spot.

8. The make or manufacturer, size, working and test pressures, date of insta type of use, physical damage, etc., of any equipment causing or directly with the incident.

Oilwell 346 P

U. S. Geologica
RECEI
NOV 26
Billings, Mo

9 Other Federal or State Agencies Notified of Incident

Montana Oil and Gas Commission by copy of this form.

Signature Bissy S. Milnar Date November 24, 1976

Title District Superintendent

T,+-16 ✓ 121-76

East Poplar

UNDESIREABLE EVENTS REPORT

1. Date of Occurrence: 12-3-76 11:50 AM
2. Date Reported to USGS: 12-6-76
3. Reporting Office: BILLINGS DISTRICT - OIL & GAS OPERATIONS
4. Class &/or Size of Event: III MINOR
5. Location: State: MONTANA
   County: ROOSEVELT
   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: C SWNE SEC. 2, T28N, R51E, MPM
6. Type of Event: OIL AND SALT WATER SPILL
7. Cause of Event: OIL AND SALT WATER SPILLED DUE TO LEAK IN WELLHEAD CONNECTIONS
8. Effects of Event: OIL AND SALT WATER SPRAYED ON DIRT AROUND WELLHEAD. NO PERMANENT DAMAGE. NO SURFACE WATER INVOLVED.
9. Operator: MURPHY OIL CORP.
10. Surface Ownership: INDIAN
11. Lease Number: FT. PECK ALLOTTED I-37-IND-12892
12. Corrective Action Taken and Date: SHUT-IN WELL AND REPLACED WELLHEAD CONNECTIONS. WILL BURN OILY DIRT. 12-3-76 - LOST 1 BBL OIL. 2 bbls. salt water.
13. On-Site Inspection Dates: 3/10/77
14. Agencies Notified: STATE OIL & GAS
15. Unit &/or Field: EAST POPLAR UNIT #1, EAST POPLAR.
16. Remarks: Discovered in files.

CC: CASPER, BIA - Ft. Peck

Billings 7-75 v1p

TA-8 V

U. S. Geological Survey
RECEIVED
DEC 6 1976
Billings, Montana

Harold

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 59255

Subject: Pollution Report

Spill _____ Discharge X Blowout _____ Accident _____ Fire Or Explosion _____

1. Specific Nature or Cause of Incident

Leak in connections at wellhead - East Poplar Unit No. 1

LEASE FORT PECK ALLOTTED I-37-IND-12892

2. Location of Incident

Well Head East Poplar Unit No. 1 C SW NE Section 2, T28N, R51E, Roosevelt County, Montana

3. Description of Resultant Damage and Volume of Pollutant Discharged

2-1/2 barrels to 3 barrels of oil and salt water.

4. Date and Time of Occurrence

11:00 A.M. December 3, 1976

5. Length of Time Required to Control Incident or Contain Pollutants

5 Mins. - Shut Well In

6. Action Taken to Prevent Recurrence

Replaced connections

7. Measures Taken to Clean Up Pollutants

Soiled dirt will be buried.

8. The make or manufacturer, size, working and test pressures, date of installation, type of use, physical damage, etc., of any equipment causing or directly involved with the incident.

9. Other Federal or State Agencies Notified of Incident

Montana Oil and Gas Commission by copy of this form

Signature Bill Melear Jr. Date December 3, 1976

Title District Superintendent

MURPHY
OIL CORPORATION

300 JEFFERSON AVENUE
EL DORADO, ARKANSAS 71730

December 14, 1976

U. S. Geological Survey
RECEIVED
JAN 10 1977
Billings, Montana

P.O. Box 547
Poplar, Montana 59255

U.S.G.S.
P.O. Box 2550
Billings, Montana 59101

Dear Mr. Pauli:

Your letter of November 29, 1976 requests further information, pursuant to NTL-2B, before you can grant current approval. The additional information you requested will be listed by well where applicable.

1. Mule Creek Allotted No. 1-D Disposal Well

   Location: SW SE Section 20, T31N,R48E
   928' FSL and 2078' FEL

   Lease: Fort Peck (Allotted) 35-009

   Date Previously Approved: October 4, 1967

   Date Started Injection: November, 1967

2. Wetsit No. 1-D Disposal Well

   Location: SW/4 Section 36, T31N, R47E
   1740' FSL and 1740 FWL

   Lease: Fort Peck (Allotted) O & G 35-072

   Date Previously Approved: August 29, 1966

   Date Started Injection: October, 1966

3. Courchene No. 1-D Disposal Well

   Location: SE SW Section 4, T30N, R46E
   801' FSL and 2034' FWL

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SPUR

Attached are copies of analyses run on water taken from the intervals we are disposing into. The analysis of the Judith River Formation water is representative of the water in this formation in the Volt Field and Tule Creek Area. The analysis of Dakota Formation water is representative of the water found in the Dakota Formation throughout the East Poplar Unit.

Monitoring of the wells to assure injection is confined to the injection interval will be done and/or is being done through the use of pressure recording charts and/ or wellhead pressure guages. Cement bond logs and/ or temperature surveys will be run as needed.

U. S. Geological Survey
RECEIVED
JAN 10 1977
Billings, Montana

Yours very truly,

MURPHY OIL CORPORATION

Billy G. Melear

Billy G. Melear
Production Superintendent

TCH/tch
attachments

FOR U.S. GOVERNMENT USE ONLY

TA-15

'27-76

East Poplar

INDESIREABLE EVENTS REPORT

1. Date of Occurrence: 12-28-76 7:00 AM
2. Date Reported to USGS: 12-30-76 WRITTEN
3. Reporting Office: BILLINGS DISTRICT OIL AND GAS OPERATIONS
4. Class &/or Size of Event: III - MINOR
5. Location: State: MONTANA
   County: ROOSEVELT
   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: SE SE SEC. 30, T29N, R51E, MPM
6. Type of Event: ½ BBLS OIL AND 5 BBLS SALTWATER SPILLED
7. Cause of Event: PIN HOLE LEAK IN 3" STEEL GATHERING LINE

Billings 7-75 vlp

8. Effects of Event: OIL AND SALTWATER SPRAYED OUT AROUND GATHERING LINE WITH MOST OF IT SOAKING INTO GROUND. NO SURFACE WATERS INVOLVED. NO PERMANENT DAMAGE.
9. Operator: MURPHY OIL CORP.
10. Surface Ownership: INDIAN
11. Lease Number: PATENTED
12. Corrective Action Taken and Date: REPAIRED STEEL LINE PIPE WITH PIPE CLAMP. VACUUM TRUCK PICKED UP FLUIDS WHERE POSSIBLE. LOST ½ BBL OIL
    12-28-76
13. On-Site Inspection Dates: 3/10/77
14. Agencies Notified: NONE
15. Unit &/or Field: EAST POPLAR
16. Remarks: Discovered in files

cc: CASPER. BIA-Ft Peck

TA-7

U. S. Geological Survey
ECEIVED
DEC 30 1976
Billings, Montana

HAROLD

To: [illegible] Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana

Subject: Pollution Report

Spill X Discharge ____ Blowout ____ Accident ____ Use Or Emplacement ____

1. Specific Nature or Cause of Incident

Pin hole leak in gathering line

2. Location of Incident

SE-SE Section 30 T-29N R51-E

Roosevelt, County Montana

3. Description of Resulting Damage and Volume of Pollutant Discharge

1/2 Bbl. oil and 5 Bbls. salt water

4. Date and Time of Occurrence

Dec. 28, 1976 7 AM.

5. Length of Time Required to Control Incident or Contain Pollutants

1 Hr.

6. Method of Pollution Reduction

Leak clamp used, line to be replaced in spring

7. Measures Taken to Clean Up Pollutants

Vacuum truck used to pick up pollutants that could be picked up

8. The make of manufacturer, size, working and [illegible] type of [illegible], physical damage, etc., of any equipment [illegible] with the incident.

3" Standard steel line pipe

9. Other Federal or State Agencies Notified of Incident

Signed: Terry C. Huff Date: Dec. 29, 1976

Title: Petroleum Engineer

1977

TA-14

UNDESIREABLE EVENTS REPORT #'76-77

East Poplar

1. Date of Occurrence: 8:00 A.M, 11 Mar., 1977
2. Date Reported to USGS: 14 Mar., 1977 (W) + 22 Mar., 1977 (W) corr.
3. Reporting Office: Billings Dist. Oil + Gas Operations
4. Class &/or Size of Event: Class III Minor
5. Location: State: Montana
   County: Roosevelt
   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: NW SE Sec. 3' T 28 N R 51 E, M.P.M.
6. Type of Event: ½ bbl. oil, 7½ bbl. saltwater (142,531 ppm) spill
7. Cause of Event: The spill occurred when corrosion caused a leak in a 3 inch flowline.

Billings 7-75 vlp

8. Effects of Event: The spill stayed on the tank battery pad. No surface waters entered; no permanent damage.

9. Operator: Murphy Oil Corp.
10. Surface Ownership: BLM
11. Lease Number: BLM-A.(Mont) 029305-A
12. Corrective Action Taken and Date: 3/11/77. The flowline was shut in immediately upon discovery and the spill controlled within 30 minutes. The pipe was repaired with a leak clamp. As much fluid as possible was picked up; the rest was buried. The area was dragged with a lease drag. No recovery; ½ bbl. oil lost.
13. On-Site Inspection Dates:
14. Agencies Notified: USGS, Mont. Oil + Gas Comm.
15. Unit &/or Field: East Poplar Field + Unit
16. Remarks: Not previously reported.

cc: Casper, BIA-Ft. Peck Res.

TA-6

Corrected

U. S. Geological Survey
RECEIVED
MAR 22 1977
Billings, Montana

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 59255

Subject: Pollution Report

Spill _____ Discharge X Blowout _____ Accident _____ Fire Or Explosion _____

1. Specific Nature or Cause of Incident

3" Flowline - Leak in body of pipe caused by corrosion

2. Location of Incident

"F" Battery, 10' behind treater. EPU No. 39 Flowline

NW SE Section 3, R51E, T28N, Roosevelt County, Montana

3. Description of Resultant Damage and Volume of Pollutant Discharged

Produced fluid from EPU No. 39 = Salt water and Oil. Approximately 8 barrels total fluid - 1/2 barrel oil and 7-1/2 barrels salt water. Leak occurred on and was contained on tank battery location.

4. Date and Time of Occurrence

March 11, 1977 8:00 A.M.

5. Length of Time Required to Control Incident or Contain Pollutants

Shut in immediately upon discovery, 30 minutes.

6. Action Taken to Prevent Recurrence

Repaired with leak clamp.

7. Measures Taken to Clean Up Pollutants

Picked up as much as possible - hole was dug - pollutants pushed into hole and covered - Area drug with lease drag behind treater.

8. The make or manufacturer, size, working and test pressures, date of installation, type of use, physical damage, etc., of any equipment causing or directly involved with the incident.

Manufacturer of flowline pipe unknown. Pipe 3" steel, with 600# W.P. was installed in 1954 as oil and water flowline, pin hole leak.

9. Other Federal or State Agencies Notified of Incident

By copies of this form - Montana oil and Gas Commission

Signature Billy B. Melear Date March 11, 1977

Title District Superintendent

U. S. Geological Survey
RECEIVED
MAR 14 1977
Billings, Montana

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 59255

Subject: Pollution Report

Spill _____ Discharge X Blowout _____ Accident _____ Fire Or Explosion _____

1. Specific Nature or Cause of Incident

3" Flowline

2. Location of Incident

"F" ~~"K"~~ Battery, 10' behind treater #PU No. 39 Flowline

3. Description of Resultant Damage and Volume of Pollutant Discharged

Produced fluid from EPU No. 39 - salt water and oil

4. Date and Time of Occurrence

March 11, 1977 8:00 A.M.

5. Length of Time Required to Control Incident or Contain Pollutants

Shut in immediately upon discovery, 30 minutes.

6. Action Taken to Prevent Recurrence

Repaired with leak clamp

7. Measures Taken to Clean Up Pollutants

Picked up as much as possible

8 The make or manufacturer, size, working and test pressures, date of installation, type of use, physical damage, etc., of any equipment causing or directly involved with the incident.

9. Other Federal or State Agencies Notified of Incident

By copies of this form - Montana Oil and Gas Commission

Signature Bill L. Melear Date March 11, 1977

Title District Superintendent

142,53

United States Department of the Interior

GEOLOGICAL SURVEY
Conservation Division
P.O. Box 2550
Billings, Montana 59103

March 22, 1977

Memorandum

To: Files, Billings, Montana

From: Petroleum Engineering Technician, Billings, Montana

Subject: East Poplar Unit, Roosevelt County, Montana

A joint meeting concerning the current problems connected with operations of the referenced unit was held in Poplar on March 17, 1977, with U.S.G.S. Representative B. Fiant, H. Lemm, Ft. Peck BIA Representative D. Allison and Murphy Oil Co. Dist. Supt. B. Melear in attendance.

The Poplar Unit contains a large number of earthen pits most of which contain some type of produced fluid. There are approximately 10 battery's which have been taken out of service due to consolidation. These battery's are still in place as well as the old pits. Because of the high solids content of the produced water and prior operating condition the vegetation lost due to leakage and leaching is considered excessive. This problem exists throughout the unit and involves some farming land, as well as livestock pasture. Mr. Melear explained that Murphy Oil would initiate steps to cover all pits not in emergency service and work with the Bureau of Indian Affairs in reclaiming the land surface. The BIA will run soil tests to determine what types of vegetation will grow on the reclaimed areas.

Numerous other problems such as old spills, pit flagging and miscellaneous trash, etc. were discussed.

It was decided to allow Murphy approximately thirty days to initiate clean-up and corrective measures to comply with our instructions. A detail lease inspection will then be conducted to outline any remaining problems.

NTL-2B was also discussed and specific instructions were given to list all pits with the feeling that no pits within the unit have been approved.

B. Fiant

TA-13

UNDESIREABLE EVENTS REPORT 9-77 East Poplar

1. Date of Occurrence: 7:00 A.M. 24 May, 1977
2. Date Reported to USGS: 25 May, 1977 (W.)
3. Reporting Office: Billings Dist. Oil and Gas Operations
4. Class &/or Size of Event: Class III Minor
5. Location: State: Montana
   County: Roosevelt
   ¼ ¼ ¼ Sec., Twn., Rge., Mer.: NE NE Sec. 30 T29N R51E, MPM.
6. Type of Event: 1 bbl. oil spill.
7. Cause of Event: The oil spilled when a glued connection at a joint on a 2 inch flowline came apart.

Billings 7-75 vlp

8. Effects of Event: The spill stayed in the immediate area of the leak. No surface waters entered; no permanent damage.
9. Operator: Murphy Oil Co.
10. Surface Ownership: Indian
11. Lease Number: A.L. I-37-Ind-12839
12. Corrective Action Taken and Date: 3/24/77. The line was shut in upon discovery of the incident. The connection was cleaned and re-glued. The oil was buried. No oil recovered; 1 bbl. oil lost.
13. On-Site Inspection Dates:
14. Agencies Notified: USGS, State O+G Comm.
15. Unit &/or Field: East Poplar Field / Unit.
16. Remarks: Not previously reported.

cc: Casper, BIA Ft. Peck Resv.

TA-5

U. S. Geological Survey
RECEIVED
MAR 25 1977
Billings, Montana

To: District Engineer, U.S. Geological Survey

From: District Superintendent, Murphy Oil Corporation, Poplar, Montana 59255

Subject: Pollution Report

Spill _____ Discharge X Blowout _____ Accident _____ Fire or Explosion _____

1. Specific Name or Cause of Incident

Glued connection came apart on a 2" flowline at the joint, well to tank battery

2. Location of Incident

220' northwest of well located in the NE NE Section 30, T29N, R51E, Roosevelt County

3. Description of Resultant Damage and Volume of Pollutant Discharged

Produced fluid, oil and water, from East Poplar Unit No. 105 - approximately 1 barrel oil, no water.

4. Date and Time of Occurrence

March 24, 1977 7:00 A.M.

5. Length of Time Required to Control Incident or Contain Pollutants

Shut in upon discovery

6. Action Taken to Prevent Recurrence

Cleaned connection and reglued.

7. Measures Taken to Clean Up Pollutants

Dug hole, buried pollutants, cleaned up

8. Name or manufacturer, size, working and test pressures, date of installation, type of use, physical damage, etc., of any equipment causing or directly involved with the incident.

A.O. Smith 2" red thread fiberglass - 300# W.P. Installed 7/6/70

9. Other Federal or State Agencies Notified of Incident

Montana Oil and Gas Commission by copy of this form.

Signed: [signature] Date: March 24, 1977

District Superintendent

0256-2546

Conservation Division
P.O. Box 2550
Billings, Montana 59103

March 29, 1977

Murphy Oil Corporation
P.O. Box 547
Poplar, Montana 59255

Re: NTL-2B Approval for Salt Water Disposal Wells in the Northeast Benrud Field, East Benrud Field, Volt Field and East Poplar Field, Roosevelt County, Montana

Gentlemen:

We have reviewed your applications concerning approval of the numerous disposal wells. Your applications meet the regulations required under NTL-2B, and approval is hereby given for the following disposal wells:

Mule Creek Allotted No.1-D, Fort Peck (Allotted) 35-009, SW SE, Sec. 20-31N-48E, 929' FSL and 2078' FEL, Northeast Benrud Field;

Wetsit No.1-D, Fort Peck (Allotted) O&G 35-072, SW, Sec.36-31N-47E, 1740' FSL and 1740' FWL, East Benrud Field;

Courchene No.1-D, Fort Peck (Allotted) 35-035, SE SW, Sec.4-30N-46E, 801' FSL and 2034' FWL, Volt Field;

East Poplar Unit No.1-D, (Klies) #6104, SE SE SE, Sec.30-29N-51E, East Poplar Field;

East Poplar Unit No.80-D, I-37-IND-12914, SW NW, Sec.3-28N-51E, 1982' FNL and 761' FWL, East Poplar Field;

East Poplar Unit No.8-D, Fort Peck (Allotted) ---Patented, C NW SE, Sec.10-28N-51E, 1980' FSL and 1980' FEL, East Poplar Field;

East Poplar Unit No.5-D, I-37-IND-12858, SE SE, Sec.19-29N-51E, 1205' FSL and 660' FEL, East Poplar Field.

However, approval of the emergency pits that you are requesting cannot be given at this time. Each pit will be inspected individually by a staff member of this office. At the time of this inspection, each pit will be checked to see if it meets the criteria as stated under the section of NTL-2B that deals with emergency pits. We would like to remind you that all emergency pits are to be emptied of all fluids within 48 hours following their use. Each emergency use of the pits is to be reported to this office and approval is needed for the method of disposing of the fluid. Inspection of these pits will take place within 30 days. Also an emergency pit cannot be used as a trash pit.

Sincerely yours,

FOR U.S. GOVERNMENT USE ONLY

Virgil L. Paull

Virgil L. Paull
District Engineer

cc: Lease File (7)

1978

1979

DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

BOARD OF OIL & GAS CONSERVATION

THOMAS L. JUDGE, GOVERNOR

OIL & GAS CONSERVATION DIVISION

TED J. DONEY, DIRECTOR

September 24, 1979

U. S. Geological Survey
RECEIVED
SEP 28 1979
Billings, Montana

Mr. Orphey A. Lien
P. O. Box 666
Poplar, Montana 59255

Dear Mr. Lien:

The study begun on my trip to the Poplar area has been completed and one copy of the report is enclosed. Additional copies have been furnished other interested parties.

This office has requested that Murphy Oil Company remedy those exceptions to the Oil and Gas Board rules where the exceptions are outside the EPU boundary and suggested that U.S.G.S. do the same within the unit. As we discussed, most of the problems are associated with the wells inside the unit where this agency has no direct authority. Copies of the letters to Murphy and U.S.G.S. are also enclosed.

I hope the information presented in the report is useful to you and that an early solution to your water problem can be found. May I suggest that further efforts to that end be made by you with Mr. Tom Richmond, United States Geological Survey, P. O. Box 2550, Billings, Montana 59103.

Very truly yours,

ORIGINAL SIGNED BY
Andrew R. Fish, Jr.
Petroleum Engineer

A. R. Fish, Jr.
Petroleum Engineer

ARF:er

Enclosures

cc: Tom Richmond, U.S.G.S.
P. O. Box 2550, Billings, Montana 59103

Ted Doney

DIVISION OFFICE
25 SOUTH EWING
P.O. BOX 217
HELENA, MONTANA 59601
(406) 449-2611

TECHNICAL AND
SOUTHERN FIELD OFFICE
15 POLY DRIVE
BILLINGS, MONTANA 59101
(406) 252-5109

NORTHERN FIELD OFFICE
218 MAIN STREET
P.O. BOX 690
SHELBY, MONTANA 59474
(406) 434-2422

1980

U. S. Geological Survey
RECEIVED
FEB 21 1980
Billings, Montana

MURPHY
OIL CORPORATION

200 JEFFERSON AVENUE
EL DORADO, ARKANSAS 71730

February 19, 1980

Copy - State O&G
Original - File - East Poplar Unit

P.O. Box 547
Poplar, Montana 59255

Mr. Terry Messerli
United States Geological Survey
P.O. Box 2550
Billings, Montana 59103

Dear Terry:

We dug two holes approximately 12 feet deep as shown on the attached map. The South pit no. 1 is approximately 150' from the point at the Poplar River where Mr. Bud Lien got the sample he mailed in.

The Nalco report is for Total Salt, so that the water chlorides would be shown as less than 1,000 ppm.

We will be happy to conduct any other tests needed, or have test holes dug for tests needed by others interested in gathering water samples.

Yours very truly,

MURPHY OIL CORPORATION

NOTED-Richmond
NOTED - MESSERLI

Billy G. Melear
Billy G. Melear
District Superintendent

BGM/sb
attachments
cc: A. W. Simpson, P&E, El Dorado, Arkansas

SPUR

NALCO

FIELD SERVICE REPORT

Company Murphy Oil Corporation

Date 2-15-80

Address Poplar, Montana

Plant

Copies to

SUMMARY AND RECOMMENDATIONS

Test fresh water for total Sodium Chloride (salt)

PPM

SAMPLE FROM	NaCl	TH	Ca	M	P					
South Pit No. 1	1,440									
North Pit No.2	1,320									

RECOMMENDED READINGS

PRESENT DOSAGES

Treatment Applied to	Nalco	Visco					BPD	Pounds Water Treated
Changes to								

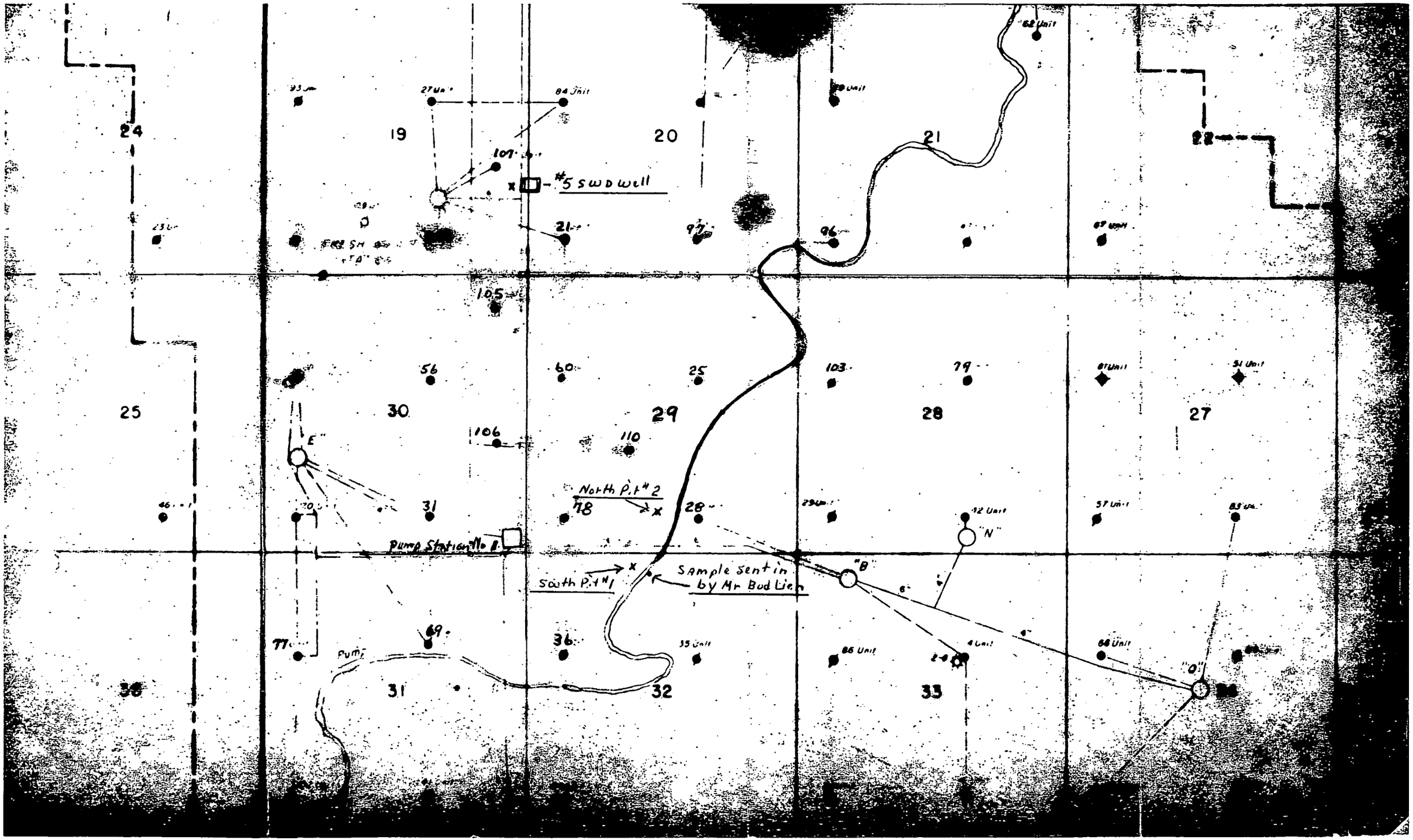
Signed R. J. Gray District 20-8

Copy left with Billy MeLear

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

NALCO trademarks of Nalco Chemical Company.

FORM 5-22



24
19
20
21
22
25
30
29
28
27
36
31
32
33
#5 SWD well
North Pit #2
South Pit #1
Sample sent in by Mr Bud Lien
Pump Station No 8
"E"
"B"
"N"
"O"

1981

1982

1983

Operator: Murphy Oil Company
P.O. Box 547
Poplar, MT 59255

Well: Murphy No 1-D
Location: SE SE SE 30 29N-51E
Well TD: 3465 ft.
Injection Interval:
Injection Formation:

Operator's Representative:

Ray Reedy

Date: 8-9-83

Injection (Tubing) Pressure:

Production Casing Pressure:

Surface Casing Pressure:

Remarks:

1. This well was not on the BIA list and is located on fee land; pressures were not checked.

2. Monitoring wells to a depth of approximately 45-50 feet in the area of this disposal well indicate elevated levels of chloride and iron.

3. Casing for this well (as per the well log in 1957) is: 13 3/8-inch - 177 ft; 9 5/8-inch - 951 ft; 7-inch - 3466 ft; 4 1/2-inch fiberglass tubing - 3077 ft.

4. A review of this file shows that in 1978 the 7-inch casing was checked for leaks and that in February 1980, the well was shut in because the 4 1/2-inch tubing had parted. The tubing was fished out and a casing inspection done. This found that the 7-inch casing was bad. They then ran 3084 feet of 5 1/2-inch casing and cemented it back to the surface. They were injecting at that time at the rate of 4700 BWPD.

5. Plastic lined steel tubing was on-site near the well.

EAST POPLAR UNIT NO. 1-D

Completed - September 12, 1957

Casing - 13-3/8" set at 177.11' with 200 sacks of cement
9-5/8" set at 950.84' with 400 sacks of cement
7" set at 3466.23' with 250 sacks of cement

Tubing - 4-1/2", plastic coated, set at 3089.08'
Lane Wells Type COC Packer

4-1/2" tubing changed out in October, 1961 - Replaced with 5-1/ 2" J-55, C-2

5-1/2" changed out in July, 1962 - Replaced with 4-1/2" TK-2 coated tubing.

4-1/2" changed out in February, 1968. Replaced with 4.48" O.D., Medium heavy service (800 PSI W.P.) Rock Island fiberglass tubing (no packer). Filled casing annulus with 44° gravity crude.

4-1/2" fiberglass replaced December, 1979. Ran in 5-1/2" casing liner, 3500' of 5-1/2", 15.50#, K-55, ST&C, casing internally coated with Tubecote TK-69. Cemented back to surface.

Ran in 95 joints (3051.49') of 2-7/8" internally coated tubing - October. 1983. 1 Arrowset I Packer.

95 Joints 2-7/8" Tubing, Coated	3051.49'
Arrowset I Packer	7.64
Landed below RK	5.40
Btm. Packer	3064.51
4 Joints Tailpipe, coated	129.49
End Tailpipe	3194.00

Accumulated water disposed to December, 1963	15,404,851BW
Water disposed of December, 1963 thru February, 1968	19,058,440 BW
Water disposed of February, 1968 thru December, 1979	42,355,619 BW
Water disposed of December, 1979 thru October, 1983	5,592,591 BW

TUBING RECORD

WELL NAME & NO.	FIELD	DISTRICT
E.P.U. SWD 1-D	East Poplar	R.M.

K. B. ELEVATION	SETTING DATE	DISTANCE K. B. TO CASING HEAD FLANGE	AFE NO.
2014	10/24/83	10'	3-1503-10

TUBING STRING DESIGN

JOINTS	COND.	SIZE	DESCRIPTION	FEET
95	1		2 7/8" tbg. internally coated	3051.49
1	1		Arrowset 1 PKR coated	7.62
			TOTAL	

LANDED BELOW R. K. B.	5.40
LANDED AT	3064.51

PERFORATIONS AT
3090-3306

TAIL PIPE DESCRIPTION
4 jts 2 7/8 " tbg internally coated 129.49'

PACKER	MANUFACTURER	SIZE	WEIGHT	TYPE	MODEL
	Arrow	5½			

I.D.	LENGTH	TOP SET #	BOTTOM SET #	TYPE " J " ASSEMBLY
	7.62	3056.89	3064.51	to set-pickup & turn to right to release-find free point & turn to right ½ turn

CHOKES/SEATING NIPPLES:
Packer set w/20,000#

SPECIAL EQUIPMENT DESCRIPTION:
Packer set 25' above top perforation

REMARKS:
5½ csg. liner run to 3084' do not run tools below

T.D. in 7" csg. drilled to 3310'

FORM 297

SIGNED:

1984

1985

MURPHY
OIL USA, INC.

POST OFFICE BOX 547
POPLAR, MONTANA 59255

JAN 1985
Bureau of Land Management Miles City, Montana

January 8, 1985

BLM
Miles City District Office
P.O. Box 940
Miles City, MT 59301

Attn: Warren Barton

Dear Mr. Barton:

This letter is a follow-up to our telephone conversation on January 7, 1985 informing you of the fire we had at EPU #8 SWD Station located at NW SE Section 10, T28N, R51E, Reynolds lease.

A leak developed in the total fluid line from the wells to the free water knockout. This gas migrated to the motor starter on the SWD pump and caused a fire.

The building around the SWD pump and free water knockout was destroyed. The motor on the SWD pump was damaged.

The Poplar Fire Department was called and the wells were immediately shut in. There was no loss of fluid. There was no oil loss and probably less than 5 MCF gas burned. There were no accidents or injuries.

Mr. George Ricker of the Bureau of Indian Affairs was notified.

A new total fluid line was laid.

If you have any more questions concerning this matter, or if I can be of further assistance please contact me.

Sincerely,

Raymond Reede

Raymond Reede
District Superintendent

RR/jh

SPUR

1986

IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT OFFICE
P.O. Box 940
Miles City, Montana 59301

JUN 12 1986

CERTIFIED MAIL - RETURN RECEIPT REQUESTED
Murphy Oil Corp.
P O Box 547
Poplar Mt 59255

RE: Well No. 111
Location NWSW Sec 12 T29N R50E
Lease No. East Poplar Unit
Roosevelt County, Montana

Gentlemen:

Enclosed is a copy of a letter received from the Bureau of Indian Affairs.

Please make the necessary correction within 30 days and notify this office when corrections are completed.

Any questions can be directed to Dick Hall at (406) 232-4331.

Sincerely yours,

/s/ Jim Graham

Acting Asst. District Manager
Division of Mineral Resources

HALL East Poplar Unit

30 dfup

SENDER: Complete items 1, 2, 3 and 4.
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.
3. Article Addressed to: MURPHY OIL CORP. PO BOX 547 Poplar, MT. 59225
4. Type of Service: ☐ Registered ☐ Insured ☐ Certified ☐ COD ☐ Express Mail.
Article Number P 243 235 446
Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature – Addressee
Joan Hagadone
6. Signature – Agent
7. Date of Delivery 6-16-86
8. Addressee's Address (ONLY if requested and fee paid)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

P. O. BOX 637
FORT PECK AGENCY
POPLAR, MONTANA 59255

June 3, 1986

Assistant District Manager
Division of Mineral Resources
Bureau of Land Management
P. O. Box 940
Miles City, MT 59301

Ref: Murphy Well #111
SW¼, Sec. 12-29-50

Dear Sir:

During an inspection on May 29, 1986, of the referenced well, Field Technician Vina Smith reported a problem with the reserve pit. The pit has no berm to the south, and is ground level. At the present time, the pit is full of water.

Any questions can be directed to the field technician with the Fort Peck Tribal Minerals Resource Office at telephone #768-5331.

Sincerely,

Larry L Travis

acting Land Operations Officer

Attachment: 1 photo of referenced location

VS/fme

4 JUN 1986
BUREAU OF LAND MANAGEMENT

5/29/86

Murphy #111 12-29-50

JUN 1986

MURPHY
OIL USA, INC.

POST OFFICE BOX 547
POPLAR, MONTANA 59255

JUN 1986
Bureau of Land Management
Miles City, Montana

June 27, 1986

United States Dept. of the Interior
Bureau of Land Management
Miles City District Office
P.O. Box 940
Miles City, Montana 59301

Attn: J. E. Graham

Dear Mr. Graham:

In regards to East Poplar Unit No. 111 Located NW SW Section 12, T29N, R50E, Roosevelt County, Montana reserve pit. A dike has been built at the south end of the pit and the fence repaired. The pit has been flagged and the water pumped out. The above work was completed June 26, 1986.

Sincerely,

Raymond Reede

Raymond Reede
Superintendent

RR/jh

cc: well file

SPUR

1987

REPORT ON TRUST ROYALTIES
ON THE EAST POPLAR UNIT, MONTANA
MAY 1952 THROUGH MAY 1987

Charles A. Norman
629 East Capitol Street, S.E.
Washington, D.C. 20003

Randall Fetterolf
Wyoming Royalties Inc.
Post Office Box 1071
Cheyenne, Wyoming 82003

To the Assiniboine and Sioux Tribes and allottees of the Fort Peck Indian Reservation, Montana:

We have applied certain agreed-upon procedures, as discussed below, to accounting records pertaining to the East Poplar Unit (EPU) for the period from May, 1952 through May, 1987 to determine the amount of additional oil royalties due to the Assiniboine and Sioux Tribes (Tribes) and Indian allottees for that period.

Background

This report contains data gathered from our field work in the following locations: Assiniboine and Sioux Tribes Oil and Gas Office, Poplar, Montana; Bureau of Indian Affairs offices in Poplar and Billings, Montana; Murphy Oil USA, Inc. ("Murphy") field office in Poplar, Montana and corporate headquarters in El Dorado, Arkansas; Minerals Management Service offices in Lakewood, Colorado, Casper, Wyoming and Tulsa, Oklahoma; Bureau of Land Management offices in Billings, Montana and Lakewood, Colorado; Montana Department of Revenue and Taxation offices in Helena, Montana; law offices of Sonosky, Chambers & Sachse, Washington, D.C.

The EPU agreement was approved by the Acting Director of the United States Geological Survey on August 23, 1951; the EPU became effective on that date. The unit is located on the Fort Peck Indian Reservation, Roosevelt County, Montana. At one point containing 34,144.34 acres, the unit area was contracted to 18,135.81 acres effective August 1, 1961.

Under the terms of the Unit Agreement, participating areas within the unit boundaries may be established and revised as exploration and development occurs. The first of three participating areas became effective March 12, 1952; effective November 1, 1953, all three participating areas (PA's) were combined. The fifteenth (and final) revision of the combined PA's became effective May 1, 1959.

Production is from the Madison formation and consists of crude oil with an average American Petroleum Institute (API) gravity of 39 degrees. Peak production occurred in 1957 when 4.2 million barrels were sold. Based on documents filed by Murphy with the Department of the Interior, we calculated average monthly barrels sold for the period 1952-1987 as follows:

	Sales Barrels/ Month, Rounded to Nearest 000
1952 (May-December)	31,000
1953	61,000
1954	218,000
1955	213,000
1956	282,000
1957	350,000
1958	316,000
1959	302,000
1960	260,000
1961	189,000
1962	147,000
1963	126,000
1964	106,000
1965	82,000
1966	70,000
1967	57,000
1968	52,000
1969	49,000
1970	46,000
1971	42,000
1972	38,000
1973	37,000
1974	37,000
1975	33,000
1976	34,000
1977	35,000
1978	30,000
1979	18,000
1980	19,000
1981	21,000
1982	20,000
1983	18,000
1984	17,000
1985	16,000
1986	14,000
1987 (January-May)	13,000

From inception through May, 1987, over 40 million barrels of oil have been sold from the EPU.

The EPU is operated by Murphy Oil USA, Inc. Murphy has, from inception, retained responsibility for disbursement of revenue to all other interest owners. According to the Oil and Gas Journal, Murphy, a publicly traded company, is the nation's 35th largest oil company; 1985 assets and revenue totaled approximately $1.98 billion and $1.37 billion, respectively. Six interest owners presently comprise the working interest group,

including Murphy Oil USA, Inc. (31.45%), Munoco Company (2.10%), Partnership Properties Co. (33.54%), Exxon Co. USA (16.34%), Phillips Petroleum Company (16.34%) and C.F. Lundgren (.23%).

Oil revenue is allocated to the Tribes and Allottees based on the ratio of their EPU acreage ownership to the total unit area. The computed ratios are multiplied by one-eighth to obtain the royalty interest of the Tribes and Allottees. The Tribal and Indian allottee royalty interest has varied in the thirty-six year history of the Unit; the tribal interest has ranged from -0-% to 2.4%, and the aggregate allottee interest has ranged from approximately 5% to 6%. As of May 1987, the tribal and aggregate allottee EPU royalty interests are approximately 2.4% and 5.6%, respectively.

Prior to the construction of a field-wide gathering system for crude oil (referred to as the "East Poplar Gathering System" or EPGS), unit production was sold to numerous independent purchasers, and transportation to market was accomplished by truck, rail car and direct pipelines out of the field.

Murphy personnel indicated that the EPGS was constructed in 1956 in order to streamline the crude oil gathering process. Murphy is the owner/operator of the EPGS. Previously, Placid Oil Company was a co-owner of the EPGS.

On April 27, 1987, we were accompanied on an inspection of the EPU by Murphy's field production supervisor. The purpose of this procedure was to obtain an understanding of the physical movement of the crude oil production and to test Murphy's recording of produced oil.

According to the supervisor, there is no well-head measurement of production, although well production tests are performed periodically with portable equipment. All wells are linked to one of four tank batteries located within the EPU boundaries: the North Central, South Central, "A" and "R" batteries. Approximately fifty wells are currently active, as shown below.

Battery	Well Number
South Central	6, 9, 11, 12, 15, 20, 22, 24, 32, 39, 55, 100, 101, 104
North Central	21, 27, 31, 56, 57, 58, 66, 70, 83, 84, 88, 90, 97, 102, 106, 107, 110, 111, 4, 10, 16, 36, 38, 48, 54, 62, 69, 73, 77, 92, 94, 95, 105

Battery	Well Number
"A"	1C, 85
"R"	7

The supervisor stated that these tank batteries are gauged daily, and shipped/run periodically. At each run, run tickets are prepared in the field. Gross runs are posted to a 10-day pumpers' report, and turned in to the Murphy production office in Poplar, Montana. At the production office, gross runs are adjusted for gravity and BS&W, and net sales barrels are sent in report form for each sales month to Murphy accounting in El Dorado, Arkansas. We recomputed the net sales barrels on thirty-two run tickets and found no exceptions.

The supervisor stated that all runs from EPU tank batteries are between Murphy Oil Corporation and Murphy's downstream accounting division (hereafter referred to as Murphy Pipeline). Murphy Pipeline takes possession of the oil at the EPU tank batteries, and transfers the crude into its East Poplar Gathering System tanks located nearby for commingling with other crude oil acquired elsewhere in the area.

More specifically, according to an affidavit of Mr. John L. Wakefield, Manager of Murphy's Rocky Mountain Region Manufacturing Department/Crude Oil Supply Division:

> After East Poplar Unit production enters the Gathering System pipeline it is moved to the tailgate of the system where two twenty thousand barrel tanks are located. At this point the East Poplar Unit production loses its specific identity as it is commingled with oil from over a dozen other leases in Roosevelt County, both Murphy operated and otherwise. This oil is trucked from the respective leases to the tailgate tankage of the Gathering System. Much of the non East Poplar Unit oil is of higher gravity than East Poplar Unit's average 39 degrees, so in addition to having roughly three times the East Poplar Unit amount available, the mix is not usually subject to deduction for being less than 40 degrees gravity. As an independent refiner, Murphy's primary objective for its limited equity production is to move the oil in as efficient and economical manner as possible to our refineries. This tenant [sic] would be applicable for Murphy's Montana equity

> production which is intended for Murphy's Superior, Wisconsin refinery. In most cases, when considering the East Poplar Unit production specifically, the most efficient and economical method is through arrangements such as exchanges or matching sale and purchase trades with other companies. This usually entails a delivery to the other company out of the Gathering System's tailgate tankage, and receipt back from the other company at another location closer to our refinery, hopefully at a pipeline location. Though such arrangements may take many different forms, and have listed considerations on basis other than those for lease sales (which listed considerations "wash" in that you pay the same as you receive) the net result is a transportation savings to the company. Since the alternative available is actual transportation of the barrels with the attendant higher transportation expenses associated therewith, it can be said that these arrangements benefit working and royalty interest owners as well.

We studied the details of two exchange transactions with unrelated companies. Since these transactions are designed primarily to avoid transportation costs, we were unable to quantify a meaningful price related to EPU crude oil from the exchanges.

At present, Texaco, Inc. maintains a pipeline station within 100 yards of Murphy's EPGS tankage. A Lease Account Custody Transfer (LACT) meter is in place at both Murphy Pipeline's EPGS tankage and Texaco's pipeline terminal to measure deliveries of crude. Other than water removal at the tank batteries, the EPU crude oil is not treated or processed.

Prior to January 1986, according to Murphy's revenue-accounting personnel, Murphy calculated an average price for EPU crude for royalty accounting purposes. This average price was based on the terms of various posted price bulletins and sales contracts for area oil of similar quality in effect at that time. At different times, Murphy computed Indian royalty basis using price postings for AMOCO Wyoming Powder River Basin, AMOCO Wyoming Sweet, CONOCO Williston Basin and AMOCO North Dakota. As explained by Murphy accounting personnel, these posted prices and sales contracts were often reduced by a gathering and/or transportation charge. Beginning January 1986, Murphy began posting its own area wide crude prices; these prices also incorporated gathering and/or transportation charges.

With the effect of gathering and/or transportation charges and bearing of pipeline tariffs by the buyers in some cases, the average price calculated by Murphy (and used for Indian royalty basis) sometimes approximated prices posted by major purchasers specifically for Roosevelt County, Montana production. In many cases, however, the average price did not equal those specific postings.

In August 1977, Murphy submitted USGS-CD Form 9-1926, "Application for Establishment of Royalty Values," to the DOI for EPU production. On the form, Murphy indicates the following: sales point for royalty determination is the wellhead; the crude oil gathering system is Murphy's own pipeline system; "Murphy produces, transports and purchases" all production from the East Poplar Unit. Murphy's sale point for royalty valuation and computation is, then, a non-arms-length transfer of crude oil to its affiliated pipeline company.

The role of the United States Department of Interior's Minerals Management Service, Bureau of Land Management and Bureau of Indian Affairs deserves mention. These federal agencies administer, in a fiduciary capacity, the tribal and allottee lands and related mineral production. Proceeds from the sale of minerals is remitted by the operator to the Minerals Management Service (MMS); the MMS, in turn, distributes tribal and allottee monies to the Bureau of Indian Affairs (BIA). Due to its prominent role in the receipt and distribution of funds, we directed most of our federal agency procedures at the MMS. As background information, the following is taken from a report issued by the House Committee on Appropriations, dated June 18, 1986, regarding the Department of Interior's Royalty Management Program:

> The Royalty Accounting System (RAS) accounted for royalties up to 1983. The RAS was a lease-based system with data on a mainframe IBM 360 located in Reston, Virginia. In 1983, the RAS was replaced by the Auditing and Financial System (AFS). The AFS is a payor based system and is on several VAX mini-computers located in Lakewood, Colorado. Other companion systems to the AFS are the Bonus and Rental Account Support System (BRASS) and the Production Accounting and Auditing System (PAAS). The PAAS is currently on line only for all offshore oil and gas leases and a few onshore leases.
>
> The Department's Royalty Management Program (RMP) has been beset with serious problems since 1959. The General Accounting Office, the Department's Office of Inspector General

> (OIG), the Commission on Fiscal Accountability, and Congressional probes made by the House Committee on Interior and Insular Affairs, and the Senate Select Committee on Indian Affairs have all been highly critical of the RMP in reports issued. These reports have outlined managerial problems and accounting system deficiencies affecting the Department's ability to collect all the royalties due from Federal and Indian oil and gas leases and to disburse the royalties to the appropriate recipient in the timely manner....

Our procedures were designed to test the accuracy and propriety of reported volumes and values used to compute tribal and allottee royalty; to document any deductions from gross royalties and the basis thereof and to test the distribution of the royalty monies. Our procedures and findings are described in the following paragraphs and appended tables.

Procedures

I. Documentation of EPU tribal and Indian allottee royalty interest.

From the EPU inception through May 1987, the tribal and aggregate allottee royalty interests changed many times due to revisions of the Participating Area, individual allottee ownership transfers and assignments and Federal legislation resulting in reclassification of lands. The following sources were used to verify tribal and aggregate allottee EPU royalty interest:

(a) Department of Interior lease documents and Unit Master media;

(b) EPU Unit Agreement and exhibits, division orders and Participating Area revisions;

(c) Lease records located at the Bureau of Indian Affairs in Poplar, Montana;

(d) Internal lease records maintained by the Fort Peck Tribes in Poplar, Montana;

(e) Land title records maintained by Murphy Oil USA, Inc. in El Dorado, Arkansas, and interviews with Murphy personnel.

From our analysis of the above information, we prepared a chronological schedule of tribal and Indian allottee royalty

interests (Exhibit A). For the period prior to May, 1959, records were not available to document transactions, if any, affecting individual allottee lands. Also, we were unable to locate the first revision of Participating Area "B", effective sometime during the period November, 1952 - July, 1953. In our opinion, these items do not significantly affect the quantification of the amounts due to the Tribes and allottees.

II. Determination of basis for valuation of Indian royalty

We were instructed by counsel to determine royalties that should have been paid by applying the requisites of the lease terms and regulations affecting Indian mineral leases to the payments in question, recognizing the Secretary's trust responsibility to the Indians. The leases provide (Section 3C - "Rental and Royalty"): "During the period of supervision, 'value' for the purposes hereof may, in the discretion of the Secretary, be calculated on the basis of the highest price paid or offered...at the time of production for the major portion of the oil of the same gravity,...." The leases also provide that "[t]he actual amount realized by the lessee from the sale of said products may, in the discretion of the Secretary, be deemed mere evidence of or conclusive evidence of such values." The regulations, see 25 CFR 211.13 (1987 edition) repeat this language.

Based on these lease terms, regulations and instructions, we have used the highest price offered for the major portion of the oil as shown in posted prices as one test for determination of Indian royalties. As a second test we have used the gross proceeds received by Murphy. Where Murphy collected "gathering charges" for the sale of oil to its own pipeline affiliate or others, such fees were included in the gross proceeds from which royalties should have been determined.

The highest price offered for the major portion of the oil in the field is reflected in posted prices. AMOCO has been a major purchaser of oil in the area for the life of the Unit. AMOCO's postings provide a specific listing for Roosevelt County, Montana, the site of the EPU. MMS in its audit of the EPU established that AMOCO's postings reflect fair market value. Royalties to the Tribes and individual allottees, therefore, must not be less than the AMOCO or comparable posted prices.

With respect to gross proceeds, Murphy informed us that they have been collecting a gathering fee on EPU Crude Oil from their pipeline affiliate. These fees began in 1956 upon completion of the EPGS. Murphy provided a schedule of the fees which ranged from $.07 to $.23 per barrel. Murphy has never included this income as a part of the Indian royalty basis. We

have incorporated the gathering fees in our schedule of gross income for Indian royalty purposes (Exhibit C).

We also determined that Murphy reduced the Indian royalty basis by other gathering charges during certain periods. We have excluded all such charges from our calculations of Indian royalties due.

III. Department of Interior (DOI) Fiduciary Role

Audit of the East Poplar Unit

The Department of Interior's Minerals Management Service (MMS) performed an audit of Indian royalties paid on EPU production by Murphy. The audit period was January 1, 1978 through December 31, 1983. We traveled to the Tulsa, Oklahoma MMS Regional Royalty Compliance Division Office and read the audit report, accompanying exhibits and workpaper files. Our findings are detailed in the following paragraphs.

(a) We read the Minerals Management Service (MMS) /Royalty Compliance Division (RCD) October 29, 1984 Audit Issue Letter to Murphy (Issue Letter).

The Issue Letter is intended to notify the operator/lessee of preliminary audit findings and issues, and to give the operator an opportunity to respond to those findings. The Letter identifies EPU Indian royalty underpayments resulting from an RCD audit performed on those royalties. The Letter states that "apparent underpayments are attributed to pricing of oil at less than the value required by lease terms..." RCD's use of AMOCO posted prices for EPU Indian royalty basis for November, 1981 - May, 1982, December, 1982 and February, 1983 resulted in additional royalty due. MMS/RCD also computed underpayments resulting from Murphy's failure to use Total Petroleum's posting when it was the highest price in the field or area.

MMS/RCD also computed royalty underpayments resulting from disallowance of Murphy's deductions of $.07/barrel for gathering/marketing without approval. The MMS cited "Notice to Lessees 1-A" and Indian lease terms as the primary basis for this increase in royalty basis.

(b) We read Murphy's November 28, 1984 Response to MMS/RCD Issue Letter.

In this response, Murphy suggests that Total Petroleum's posted price is not a true reflection of market value due to Total's failure to actually buy crude oil in the area. Murphy is silent on RCD's use of the AMOCO posted price in their computations of royalty underpayment.

Murphy also admits to reducing EPU Indian royalty by $.07/barrel for gathering/marketing; however, they suggest that they solicited and obtained approval for this deduction from DOI prior to taking it. Murphy was unable to provide documentation supporting their contention that the deductions were approved by DOI.

(c) We read the MMS/RCD December 16, 1984 Formal Request to MMS/Royalty Valuation & Standards Division (RVSD) for Decision on proper valuation of EPU Indian Royalty and other audit issues.

This is normal procedures for MMS/RCD. Audit demands are held in abeyance until RVSD investigation is complete and a decision is rendered.

(d) We read the MMS/RVSD March 12, 1985 Product Value Decision.

This document establishes the AMOCO "North Dakota - Roosevelt County, MT" posted price as acceptable value for EPU Indian royalty: "It is MMS policy to accept posted prices for an area if those posted prices represent fair market value. MMS concludes that AMOCO's posting for North Dakota-Montana production reflects market value."

The RVSD cites Indian regulations 25 CFR 211, and "Notice to Lessees 1-A" as their support for their decision.

(e) We read the MMS/RCD April 19, 1985 Demand Letter to Murphy for underpaid EPU Indian royalties.

This letter is a formal demand for payment of underpaid royalties resulting from Murphy's failure to properly value EPU Indian royalty in compliance with lease terms and regulations, and further makes demand for additional underpaid royalties resulting from Murphy's unauthorized deductions from royalty basis for gathering/marketing.

MMS/RCD demanded a total of $7,856.12 in underpaid royalties for the period January 1, 1978 through December 31, 1983.

(f) We read the MMS internal "Request for Billing Action" dated April 19, 1985 and "Bill for Collection" for Audit Demands.

These documents establish that billing of demands for underpaid royalties identified in the audit was made on April 19, 1985.

(g) We read Murphy's May 21, 1985 letter response, remittance for underpaid royalties, and MMS Credit Memorandum for $7,856.12.

With their letter, Murphy makes payment for additional royalties "alleged to be owed by Murphy" in the amount of $7,856.12. Murphy states their intent to submit an appeal concerning disallowance of gathering charges which would affect $3,390.34 of the total payment submitted.

(h) We read MMS/RCD June 21, 1985 Internal Audit Memorandum located in the Audit Workpapers.

This document carries a notation referring to a May 23, 1985 Murphy Memorandum which supercedes Murphy's May 21, 1985 letter. The May 23, 1985 memo states that "Murphy does not intend to appeal the gathering charges."

The above-mentioned documents establish that the Department of Interior will accept AMOCO's crude oil posted price for "North Dakota - Montana" as basis for Indian royalties from the East Poplar Unit. The documents further establish that the DOI will disallow unauthorized deductions for gathering/marketing from EPU Indian royalty basis.

The MMS auditors did not expand their procedures to include testing of gross proceeds from the first "downstream" arms-length sales transaction. According to the federal defendants, Answers to Plaintiffs' Third Set of Interrogatories to the Secretary of Interior, "No verification was made of actual sales transactions outside the East Poplar Unit." The MMS did not attempt to determine the wellhead proceeds between the two Murphy entities. Contrary to regulations and lease terms, the MMS accepted 9-361 forms (Lessees Monthly Report of Sales and Royalty) that did not report the value of each crude run. Also, the MMS did not require or did not retain copies of many sales contracts involving arms-length purchasers of EPU oil. The audit did not mention or attempt to apply the findings to the earlier periods that included the vast majority of EPU crude oil production. Finally, the MMS did not assess interest on the underpaid amounts.

Distribution of Royalties

We did not verify distribution of EPU royalties by the BIA to individual allottees. However, certain procedures were applied to test the distribution of royalties by the MMS. Two distribution systems were utilized by the MMS during the periods covered by our procedures. Prior to December, 1983, royalty distribution was a function of the Royalty Accounting System (RAS), a lease-based system. Subsequent to November, 1983, a new

payor-based system, the Auditing and Financial System (AFS) was implemented.

We performed the following tests for periods covered by the RAS:

(a) Read MMS forms 9-1424, Statement of Account, for lease number 22-I-37-IND-013067 for the period September, 1961 through November, 1983 and determined that all payments were made within ninety days;

(b) We computed gross unit sales from the records maintained by the Bureau of Indian Affairs (BIA), Poplar, Montana and the MMS, Lakewood, Colorado for five tribal leases and one allotted lease. These computed unit sales were compared to unit sales reported on MMS forms 9-361, Monthly Report of Sales and Royalty, for the period September, 1961 through October, 1983. No exception was noted.

In order to test the timeliness of MMS royalty distributions under AFS, we obtained MMS distribution reports for five tribal and twenty allotted leases in the East Poplar Unit.

The MMS document provided for each lease in the sample was Report #ADH098001, entitled "Schedule of Prior Distributions to BIA". The document shows royalty data as reported by various "payors," and dates of distribution to BIA for each line item on the report. We tested collection and distribution information for a period of sales months beginning in December, 1983 and ending in May, 1987.

We restricted our review to reported lines for Payor #29210, Murphy Oil Corporation. We assumed that Murphy reported and paid the royalties indicated within 30 days of the last day of the sales month reflected on the MMS report. One tribal lease and one allotted lease were selected for detail testing.

For tribal lease number 523-004047, we prepared a schedule of royalties collected by sales-month, distribution due dates, dates of distribution, and the number of days late for each monthly distribution.

For a period of 42 months beginning in December, 1983 and ending in May, 1987, we found that in no instance were royalties distributed by MMS in accordance with Section 104(b) of the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA), which states:

> Deposits of any royalty funds derived from the production of oil or gas from or allocated to, Indian lands shall be made by the Secretary to the appropriate Indian account at the earliest practicable date after such funds are received by the Secretary but in no case later than the last business day of the month in which such funds are received.

The number of days distribution was made late ranged from eleven in October, 1984 to fifty in May, 1986.

For alloted lease number 622-013045, we prepared a similar schedule.

Again, we found that for the 42 months examined, MMS failed to distribute royalties from this lease in accordance with the timeliness requirements of FOGRMA 82. Royalties were distributed an average of seventeen days late across the period.

IV. Classification and Distribution of Tribal Royalties by the Department of Interior

We read the legislation applicable to the classification and distribution of Indian royalties by the Federal government. We noted one instance of apparent misclassification, described in the following paragraphs.

Upon unitization of the East Poplar Unit (EPU), there were four leases belonging to the Federal government (Bureau of Land Management (BLM) - acquired lands) that were made a part of the initial and all subsequent participating areas of the unit. These leases were assigned the following EPU tract numbers: 209, 210, 211 and 213. These tracts were given a total of 2.0693% decimal interest in EPU production effective with the approval of the 15th revision of the participating area (May 1, 1959).

The United States Congress passed a law (P.L. 94-114, 89 Stat. 577) that became effective October 17, 1975; this law transferred the ownership of the lands and minerals on the above-described tracts to the Tribes. In Section 5b, the law states: "All gross receipts (including but not limited to bonuses, rents and royalties) hereafter derived by the United States from any contract, permit or lease referred to in Section 4(a) of this Act, or otherwise, shall be administered in accordance with the laws and regulations applicable to receipts from property held in trust by the United States for Indian tribes."

The Department of Interior (DOI) published a notice in the Federal Register on May 22, 1977 (Federal Register Volume 42,

No. 103). The notice declared the specific lands to be held in trust for the use and benefit of the Assiniboine and Sioux Tribes, and transferred jurisdiction of the mineral leases from the Bureau of Land Management (BLM) to the Bureau of Indian Affairs (BIA) office in Poplar, Montana.

Murphy, as operator of the EPU, was apparently not instructed by letter from DOI to change their royalty reporting and payment procedures to effect proper classification and distribution of royalties associated with these transferred leases until two years and four months after the effective date of the law that transferred ownership of the lands from the Federal government to the Assiniboine and Sioux Tribes.

Based on our discussions with Murphy accounting personnel and our review of available records, we determined that Murphy used the following procedures to report and pay both Federal and Indian royalty on oil sales from the EPU:

- On a monthly basis, Murphy computed a royalties-due amount for each of two types of federal land participating in unit production: computations were mutually exclusive and the associated royalty dollars were reported and paid to DOI using two separate reporting documents and checks. Once all Federal (non-Indian) royalties were calculated, Murphy prepared a United States Geological Survey (USGS) Form 9-614A, "Rental and Royalty Remittance Advice" document listing only federal monies and submitted this form to DOI with a check to cover payment of these royalties only. Another separate 614A document and check were prepared for Indian-tribal and Indian-allotted royalties each month.

- Upon receipt of the 614A documents and checks, the USGS made deposits into treasury fund accounts that corresponded to the appropriate coding for the federal or Indian land-type as the source for the payments. From these treasury accounts, periodic distributions of monies were made to either federal-public accounts or through the BIA to the Tribes/allottees.

- Public Law 94-114 was effective October 17, 1975, and from that point on EPU royalties accruing to the federal tracts in question should have been identified as accruing to the Tribes. Murphy continued to report and pay royalties accruing to these tracts as federal via the 614A documents and check-payments from October, 1975 through February, 1978.

- In April 1978, Murphy accountants received verbal instructions from the DOI, USGS-Conservation Division office in Casper, Wyoming to begin reporting and paying royalties from the four EPU tracts as Indian-tribal instead of federal. Murphy's Forms 614A and checks for March 1978 were returned by the DOI, and per DOI instructions, Murphy resubmitted their reporting and

payment for March 1978 after recoding the royalties as Indian-tribal.

In our discussions with Murphy accounting personnel, we were informed that no amended reports were prepared or submitted to effect the proper reclassification of royalty monies from these tracts for the period October 18, 1975 through February 28, 1978.

Because the old "Royalty Accounting System" of the DOI (USGS-Conservation Division) was based on operator reporting, we concluded in the absence of any contrary information, that royalties reported and paid as federal by these four EPU tracts for the period October 18, 1975 through February 28, 1978 were improperly classified by the DOI and never distributed to the Tribes.

Findings

I. Royalty Underpayments: Exhibits "B", "C", "D" and "E"

Based on the background information and the preceding narrative in I - IV, we have quantified an amount of additional crude oil royalties due to the Tribes and allottees.

Exhibit "B" is the summary schedule of the total computed Indian royalty underpayment. The underpayment of $962,482 was determined as follows:

(1) We prepared a "Schedule of Indian Royalty Using Gross Sales Proceeds," labeled Exhibit "C". Gross sales proceeds is the sum of the sales value of EPU crude oil reported by Murphy plus gathering fees recorded by Murphy as additional income. Sales values and volumes for the period July, 1952 through December, 1980 and July, 1982 through November, 1983 were taken from MMS forms 9-361, Monthly Report of Sales and Royalty, submitted by Murphy. The MMS was unable to locate the 9-361's for the period January, 1981 through June, 1982. For that period we accumulated unit volumes and values from MMS form 9-1424, Statement of Account, lease number 22-I-37-IND-013067. We determined unit totals from the fractional interest of lease 22-I-IND-013067. For periods subsequent to November, 1983 unit volumes and values were provided by Murphy personnel since the MMS accounting system does not accumulate unit totals after November, 1983. Gathering fee income to Murphy was provided by Murphy personnel for all periods. We documented transactions between Murphy Oil USA, Inc. and Murphy Pipeline, including credits to Placid Oil, on a sample basis. We were unable to locate sales value data for May and June of 1952, so those months were excluded from the computation of total gross sales proceeds. Total Indian royalty decimal interest was taken from Exhibit "A";

we ignored the effect of participating area "C" for the six-day period ended October 31, 1953.

(2) We prepared a "Schedule of Indian Royalty Using Field Market Price," labeled Exhibit "D". In this schedule we determined unit values by multiplying unit volumes by field market price. Field market price was determined from two sources. For periods prior to 1960, we referred to Platts Oil Price Handbook and Oilmanac, using the mid-continent published posted prices. In those months that included a price change during the month, we computed a per barrel value using a daily or weekly weighted average of monthly prices. For all periods subsequent to 1959, we referred to AMOCO's posted price bulletins for North Dakota, which specifically include Roosevelt County, Montana. Posted prices for all periods were reduced by $.02/barrel to adjust the postings to a 39 degree gravity market value. In determining field market price for the period July 1, 1973 through January 28, 1981, we noted the following in determining market value:

(a) Federal price controls under the auspices of the Department of Energy (DOE) were in effect from July 1, 1973 through January 28, 1981. Our computed royalty basis, which includes documented gathering fee income to Murphy, may in some cases exceed the federal price ceilings in effect during this period. Since gross proceeds are controlling in determining Indian royalty basis, we did not reduce computations based on federal price controls.

(b) The EPU was certified as a marginal property for the period June, 1979 through January, 1980. The Base Production Control Level (BPCL) for marginal properties was computed in accordance with Department of Energy Mandatory Petroleum Price Regulations; Production Incentives for Marginal Properties (10 CFR Part 212) issued April 27, 1979 and as modified by Executive Order 12209, Base Production Control Level for Marginal Properties, issued April 16, 1980. In determining the appropriate posted price, we took account of these regulations.

(c) The EPU was certified as a stripper property effective February, 1980. In determining the appropriate posted price, we took account of this certification.

See (1) above for source of unit sales volumes. Total Indian royalty decimal interest was taken from Exhibit "A"; we ignored the effect of participating area "C" for the six-day period ending October 31, 1953. Again, May and June of 1952 were not included in the calculations.

(3) We prepared a schedule of total Indian royalty paid by Murphy, labeled Exhibit "E". See (1) above for source of

unit sales volumes and values. Total Indian royalty decimal interest is the same as Exhibits "C" and "D", with one exception. As discussed in Section IV, "Classification and Distribution of Tribal Royalties by the Department of Interior," Murphy did not prepare amended reports to give effect to the increased tribal royalty interest for the period October, 1975 through February, 1978. Therefore, we reduced the Exhibit "A" total Indian decimal and interest by 2.0693%, representing tracts 209, 210, 211 and 213, for the period October, 1975 through February, 1978. Consistent with Exhibits "C" and "D", we excluded May and June of 1952.

We assumed that royalties reported to the MMS were also the amounts paid by Murphy. We requested the USGS Forms 9-614A, (Royalty Remittance Advice) which would have been a more definitive record of these payments but were denied access to these documents by the DOI.

(4) Exhibit "B" accumulates, on a monthly basis, the higher of the bases for Indian royalty calculation - gross proceeds (Exhibit "C") and market value (Exhibit "D"). Royalties paid (Exhibit "E") is subtracted from the selected royalty bases to determine the additional royalty due on a monthly basis. Additional royalty due occurs, then, as a result of:

(a) Royalties paid on the basis of a posted price, less gathering deductions, that was less than our selected posted price with no deductions for gathering;

(b) Royalties paid on the basis of a posted price, less gathering deductions, that was less than our computation of a gross proceeds figure that included gathering income received by Murphy and excluded all deductions.

II. Montana Production Taxes Withheld from Tribal Royalties; Exhibits F(1), F(2), F(3) and F(4)

We were instructed by the Tribes' attorneys that the State of Montana under federal law has no right to tax tribal or allottee royalties.

During the course of our procedures, we read the correspondence in the files of both the Department of Interior (DOI) and Murphy concerning the taxability of tribal mineral royalties.

There are three pertinent Montana production taxes:

1. "Net Proceeds Tax" (Exhibit F(2)) - This is an ad valorem tax levied by Roosevelt County, Montana. The tax basis is the net proceeds from sales after

allowable deductions. In the case of royalty, there are no allowable deductions for tax purposes and the gross royalties become the tax basis.

2. "Gross Proceeds Tax" (Exhibit F(3)) - This is the state severance tax and the tax basis is the gross proceeds from sale (gross royalties).

3. "Oil Conservation Board Tax" (Exhibit F(4)) - This is a tax levied by the Montana Oil Conservation Board. Since 1959, the tax basis has predominately been gross sales value. For the period January, 1975 through June, 1977, the tax was levied on a cents-per-barrel basis.

In their "Response to Plaintiff's Second Interrogatories" dated August 13, 1985, Murphy stated that they had withheld Montana production taxes from tribal royalties until the issuance of the DOI Solicitor General's opinion in November, 1977. Apparently taxes were not withheld on allottee royalties. No records were available to establish the exact point at which Murphy stopped withholding taxes from tribal royalty; however, based on discussions with Murphy tax accounting personnel, our understanding is that 1977 was the last year in which production taxes were withheld.

After discussion with Murphy accounting personnel and reading of existing records on file at Murphy and the Montana Department of Revenue and Taxation, we have determined that Murphy used the following procedure to calculate, report, pay and withhold taxes on EPU tribal royalty:

- Murphy made quarterly and annual reports to the State of Montana on all oil sales from the EPU. The unit was reported as a single tax entity for all taxes. The filings establish that tribal royalty monies were included as taxable by Murphy, and became part of the total EPU tax basis for each of the three taxes.

- Internally, Murphy computed a monthly tax burden for all three taxes on each tract in the EPU, regardless of land-type or taxable status. From discussions with Murphy accounting personnel, we determined that even though a burden was computed for Indian-allotted and other tax-exempt tracts in the unit, actual taxes were only withheld from royalties on Indian-tribal and fee tracts, not allotted tracts.

For the period January, 1953 through December, 1977 we computed the production taxes withheld from EPU tribal royalties.

The source of the total unit sales values is described in Section V of this report. The tribal royalty decimal interest

is from Exhibit "A" except for the period November, 1975 through 1977. The tribal decimal interest for this period was 2.0693% less than indicated in Exhibit "A" because amended tax reports were not filed by Murphy giving effect to an increase in the tribal interest (see Sections IV and V(3)).

Tax rates for each type of tax were provided by the Montana Department of Revenue and Taxation.

Exhibit F(1) is a summation of the computed taxes withheld on Exhibits F(2), F(3) and F(4).

III. Interest

Legal counsel has instructed us to compute interest on the underpaid royalty amounts in accordance with state law. We calculated interest at the prime rate plus 6% as set forth in Montana Code Ann. 82-10-103(2), 31-1-107. Our source for prime rates for the period July, 1952 through December, 1985 is the 1986 President's Economic Report.

For 1986 and 1987, we computed an average annual rate from the prime rates published in the month-end editions of the Wall Street Journal. Interest was computed through May 31, 1987.

The rates used, including the 6% increment, are as follows:

1952	9.00%	1967	11.61%	1982	20.86%
1953	9.17	1968	12.30	1983	16.79
1954	9.05	1969	13.96	1984	18.04
1955	9.16	1970	13.91	1985	15.93
1956	9.77	1971	11.72	1986	14.40
1957	10.20	1972	11.25	1987	14.10
1958	9.83	1973	14.03		
1959	10.48	1974	16.81		
1960	10.82	1975	13.86		
1961	10.50	1976	12.84		
1962	10.50	1977	12.83		
1963	10.50	1978	15.06		
1964	10.50	1979	18.67		
1965	10.54	1980	21.27		
1966	11.63	1981	24.87		

Interest was compounded monthly from the first of the month following the month of reported sales for computed royalty underpayments. Credit was given for Murphy's payment in May, 1985 of the MMS audit findings. Interest was compounded monthly from the first of the year following the year of withholding for computed taxes withheld.

Summary

Total underpaid tribal EPU royalties and interest computations are as follows:

(1) Total underpaid royalties - Exhibit "B"	$962,482	
Less: Payment of MMS audit findings	7,856	
		$954,626
(2) Total taxes withheld - Exhibit "F(1)"		62,597
(3) Interest on underpaid royalties		13,714,200
(4) Interest on taxes withheld		2,797,470
(5) Total		17,578,893

In connection with the procedures referred to above, no additional matters came to our attention that caused us to believe that the EPU royalties paid to the Fort Peck Tribes and aggregate allottees should be adjusted. Had we performed additional procedures or had we made an examination of the financial statements of the EPU interest owners in accordance with generally accepted auditing standards, matters might have come to our attention that would have been reported. This report relates only to the items specified above and does not extend to any financial statements of any EPU interest owner taken as a whole.

June 1, 1988

ASSINIBOINE AND SIOUX TRIBES

SCHEDULE OF EPU ROYALTY INTERESTS

EXHIBIT A

Period		Tribal Decimal Interest	Aggregate Allottee Decimal Interest	Total
3/12/52 - 10/52	(initial PA)	-	.064584	.064584
11/52 - 3/52	(PA "A")	-	.063518	.063518
11/52 - 7/53	(PA "B")	.015933	.098883	.114816
4/53 - 7/53	(PA "A")	-	.056724	.056724
8/53 -	(PA "A")	-	.055373	.055373
8/53 -	(PA "B")	.024345	.077702	.102047
9/53 - 10/53	(PAA "A-B")	.006618	.057426	.064044
10/25/53 - 10/31/53	(PA "C")	-	.071429	.071429
11/53 - 2/54	(all PA's combined)	.007700	.057774	.065474
3/54 - 6/54		.010693	.060844	.071537
7/54 - 8/54		.012101	.055850	.067951
9/54		.013013	.053583	.066596
10/54 - 12/54		.014019	.053925	.067944
1/55 - 2/55		.013990	.053515	.067505
3/55 - 5/55		.015101	.052522	.067623
6/55 - 11/55		.014914	.052181	.067095
12/55 - 4/56		.003617	.062087	.065704
5/56 - 4/59		.003496	.061207	.064703
5/59 - 8/60		.003474	.058576	.062050
9/60 - 7/61		.003474	.058384	.061858
8/61 - 11/63		.003474	.058134	.061608
12/63 - 1/68		.003474	.057844	.061318
2/68 - 6/69		.003474	.057699	.061173
7/69 - 10/75		.003474	.057661	.061135
11/75 - 6/76	(Transfer of tracts 209, 210, 211, 213)	.024167	.057661	.081828
7/76 - 7/78		.024167	.056499	.080666
8/78 - 4/83		.024167	.056209	.080376
5/83 - 5/84		.024167	.055919	.080086
6/84 - 7/85		.024167	.055851	.080018
8/85 - 5/87		.024167	.055832	.079999

EXHIBIT B

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- COMPUTATION OF INDIAN ROYALTY UNDERPAYMENT
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
May-52	"A"					
Jun-52	"A"					
Jul-52	"A"	$2,355	$3,175	$3,175	$2,355	$820
Aug-52	"A"	5,399	7,280	7,280	5,399	1,881
Sep-52	"A"	3,855	5,197	5,197	3,855	1,342
Oct-52	"A"	3,357	8,828	8,828	3,357	5,471
Nov-52	"A"	4,835	6,519	6,519	4,835	1,684
	"B"	183	246	246	183	63
Dec-52	"A"	3,171	8,339	8,339	3,171	5,168
	"B"	404	532	532	405	127

EXHIBIT B

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- COMPUTATION OF INDIAN ROYALTY UNDERPAYMENT
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-53	"A"	5,157	6,747	6,747	5,157	1,590
	"B"	NOT AVAILABLE				
Feb-53	"A"	6,436	8,422	8,422	6,436	1,986
	"B"	1,240	1,622	1,622	1,240	382
Mar-53	"A"	4,610	6,032	6,032	4,610	1,422
	"B"	1,586	2,076	2,076	1,586	490
Apr-53	"A"	4,574	5,985	5,985	4,574	1,411
	"B"	1,665	2,179	2,179	1,665	514
May-53	"A"	4,439	5,808	5,808	4,439	1,369
	"B"	1,606	2,101	2,101	1,606	495
Jun-53	"A"	3,024	4,152	4,152	3,024	1,128
	"B"	1,164	1,596	1,596	1,164	432
Jul-53	"A"	3,240	4,643	4,643	3,240	1,403
	"B"	1,388	1,987	1,987	1,388	599
Aug-53	"A"	2,888	4,154	4,154	2,888	1,266
	"B"	1,906	2,741	2,741	1,906	835
Sep-53	"A-B"	10,257	15,653	15,653	10,257	5,396
Oct-53	"A-B"	14,391	21,471	21,471	14,391	7,080
Nov-53	MADISON	12,148	18,131	18,131	12,148	5,983
Dec-53	MADISON	13,415	19,635	19,635	13,415	6,220

ASSINIBOINE & SIOUX TRIBES
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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-54	MADISON	8,891	13,051	13,051	8,891	4,160
Feb-54	MADISON	10,647	15,628	15,628	10,647	4,981
Mar-53	MADISON	25,461	38,623	38,623	25,461	13,162
Apr-54	MADISON	20,687	31,491	31,491	20,687	10,804
May-54	MADISON	31,719	47,979	47,979	31,719	16,260
Jun-54	MADISON	36,961	56,071	56,071	36,961	19,110
Jul-54	MADISON	36,396	54,836	54,836	36,396	18,440
Aug-54	MADISON	34,049	51,116	51,116	34,049	17,067
Sep-54	MADISON	34,109	51,123	51,123	34,109	17,014
Oct-54	MADISON	35,404	53,133	53,133	35,404	17,729
Nov-54	MADISON	35,319	53,088	53,088	35,319	17,769
Dec-54	MADISON	36,117	52,876	52,876	36,117	16,759
Jan-55	MADISON	37,952	55,485	55,485	37,952	17,533
Feb-55	MADISON	33,169	48,503	48,503	33,169	15,334
Mar-55	MADISON	35,914	52,565	52,565	35,914	16,651
Apr-55	MADISON	37,516	51,957	51,957	37,516	14,441
May-55	MADISON	37,395	51,778	51,778	37,395	14,383
Jun-55	MADISON	26,604	35,158	35,158	26,604	8,554
Jul-55	MADISON	21,470	28,669	28,669	21,470	7,199
Aug-55	MADISON	26,024	34,560	34,560	26,024	8,536
Sep-55	MADISON	17,567	23,230	23,230	17,567	5,663
Oct-55	MADISON	22,061	29,279	29,279	22,061	7,218
Nov-55	MADISON	30,831	34,330	34,330	30,831	3,499
Dec-55	MADISON	43,394	48,398	48,398	43,394	5,004
Jan-56	MADISON	56,008	60,405	60,405	54,540	5,865
Feb-56	MADISON	53,252	57,459	57,459	51,856	5,603
Mar-56	MADISON	58,662	63,282	63,282	57,123	6,159
Apr-56	MADISON	54,762	59,288	59,288	53,321	5,967
May-56	MADISON	49,897	54,671	54,671	48,568	6,103
Jun-56	MADISON	50,641	55,103	55,103	49,302	5,801
Jul-56	MADISON	53,211	57,849	57,849	51,805	6,044
Aug-56	MADISON	29,000	31,541	31,541	28,234	3,307
Sep-56	MADISON	31,940	34,810	34,810	31,094	3,716
Oct-56	MADISON	34,218	37,878	37,878	33,297	4,581
Nov-56	MADISON	50,580	55,838	55,838	49,223	6,615
Dec-56	MADISON	60,998	67,014	67,014	59,369	7,645

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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-57	MADISON	67,801	73,274	73,274	66,119	7,155
Feb-57	MADISON	62,388	67,533	67,533	60,877	6,656
Mar-57	MADISON	70,456	75,885	75,885	68,759	7,126
Apr-57	MADISON	67,191	72,991	72,991	65,559	7,432
May-57	MADISON	65,656	70,776	70,776	64,074	6,702
Jun-57	MADISON	66,753	73,923	73,923	67,100	6,823
Jul-57	MADISON	65,765	71,024	71,024	64,177	6,847
Aug-57	MADISON	66,528	71,851	71,851	64,921	6,930
Sep-57	MADISON	63,097	68,087	68,087	61,575	6,512
Oct-57	MADISON	60,489	64,756	64,756	59,041	5,715
Nov-57	MADISON	62,713	67,413	67,413	61,206	6,207
Dec-57	MADISON	66,871	71,869	71,869	65,264	6,605
Jan-58	MADISON	64,547	69,214	69,214	62,999	6,215
Feb-58	MADISON	60,599	65,072	65,072	59,143	5,929
Mar-58	MADISON	65,986	70,920	70,920	64,400	6,520
Apr-58	MADISON	61,405	65,928	65,928	59,931	5,997
May-58	MADISON	61,467	65,585	65,585	60,000	5,585
Jun-58	MADISON	61,136	65,414	65,414	59,673	5,741
Jul-58	MADISON	60,333	65,900	65,900	58,859	7,041
Aug-58	MADISON	55,527	61,551	61,551	54,151	7,400
Sep-58	MADISON	52,718	58,276	58,276	51,415	6,861
Oct-58	MADISON	55,365	61,328	61,328	53,994	7,334
Nov-58	MADISON	50,557	53,839	53,839	49,301	4,538
Dec-58	MADISON	55,498	57,741	57,741	54,119	3,622
Jan-59	MADISON	60,343	62,887	62,887	58,841	4,046
Feb-59	MADISON	54,033	56,162	56,162	52,691	3,471
Mar-59	MADISON	59,058	61,462	61,462	57,589	3,873
Apr-59	MADISON	55,159	57,398	57,398	53,788	3,610
May-59	MADISON	52,284	54,384	54,384	50,985	3,399
Jun-59	MADISON	51,391	53,419	53,419	50,115	3,304
Jul-59	MADISON	47,855	49,781	49,781	46,666	3,115
Aug-59	MADISON	54,412	56,541	56,541	53,061	3,480
Sep-59	MADISON	53,025	55,026	55,026	51,711	3,315
Oct-59	MADISON	51,897	53,941	53,941	50,608	3,333
Nov-59	MADISON	51,715	53,557	53,557	50,435	3,122
Dec-59	MADISON	52,601	54,543	54,543	51,299	3,245

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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-60	MADISON	52,419	54,441	54,441	51,118	3,323
Feb-60	MADISON	48,506	50,229	50,229	47,306	2,923
Mar-60	MADISON	51,008	52,938	52,938	49,743	3,195
Apr-60	MADISON	47,946	49,862	49,862	46,755	3,107
May-60	MADISON	46,126	48,160	48,160	45,011	3,149
Jun-60	MADISON	39,884	41,572	41,572	38,891	2,681
Jul-60	MADISON	46,778	48,704	48,704	45,615	3,089
Aug-60	MADISON	45,345	47,223	47,223	44,217	3,006
Sep-60	MADISON	42,990	44,938	44,938	41,916	3,022
Oct-60	MADISON	42,161	43,781	43,781	41,115	2,666
Nov-60	MADISON	40,889	42,476	42,476	39,874	2,602
Dec-60	MADISON	40,224	41,902	41,902	39,223	2,679
Jan-61	MADISON	37,996	39,663	39,663	37,049	2,614
Feb-61	MADISON	32,918	34,251	34,251	32,099	2,152
Mar-61	MADISON	36,756	38,278	38,278	35,841	2,437
Apr-61	MADISON	33,334	34,602	34,602	32,507	2,095
May-61	MADISON	34,729	35,888	35,888	33,872	2,016
Jun-61	MADISON	24,297	25,241	25,241	23,694	1,547
Jul-61	MADISON	35,725	37,179	37,179	34,836	2,343
Aug-61	MADISON	35,313	36,607	36,607	34,439	2,168
Sep-61	MADISON	32,523	33,802	33,802	31,716	2,086
Oct-61	MADISON	31,540	33,238	33,238	30,746	2,492
Nov-61	MADISON	27,677	29,455	29,455	26,973	2,482
Dec-61	MADISON	31,289	33,211	33,211	30,496	2,715
Jan-62	MADISON	27,605	29,799	29,799	27,094	2,705
Feb-62	MADISON	25,962	27,142	27,142	25,314	1,828
Mar-62	MADISON	27,090	28,622	28,622	26,407	2,215
Apr-62	MADISON	24,986	26,453	26,453	24,354	2,099
May-62	MADISON	25,459	26,967	26,967	24,815	2,152
Jun-62	MADISON	23,475	24,817	24,817	22,882	1,935
Jul-62	MADISON	25,655	26,381	26,381	25,025	1,356
Aug-62	MADISON	25,053	26,143	26,143	24,429	1,714
Sep-62	MADISON	24,898	26,013	26,013	24,276	1,737
Oct-62	MADISON	23,699	24,696	24,696	23,109	1,587
Nov-62	MADISON	24,329	25,471	25,471	23,721	1,750
Dec-62	MADISON	23,940	25,094	25,094	23,341	1,753

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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-63	MADISON	24,546	25,638	25,638	23,934	1,704
Feb-63	MADISON	21,100	22,218	22,218	20,570	1,648
Mar-63	MADISON	23,174	24,118	24,118	22,598	1,520
Apr-63	MADISON	22,223	23,347	23,347	21,665	1,682
May-63	MADISON	22,108	23,017	23,017	21,558	1,459
Jun-63	MADISON	21,072	21,935	21,935	20,548	1,387
Jul-63	MADISON	21,105	21,969	21,969	20,580	1,389
Aug-63	MADISON	21,680	22,317	22,317	21,147	1,170
Sep-63	MADISON	21,141	22,061	22,061	20,614	1,447
Oct-63	MADISON	20,323	21,101	21,101	19,819	1,282
Nov-63	MADISON	21,213	22,037	22,037	20,686	1,351
Dec-63	MADISON	21,609	22,447	22,447	21,072	1,375
Jan-64	MADISON	20,665	21,458	21,458	20,153	1,305
Feb-64	MADISON	18,833	19,648	19,648	18,364	1,284
Mar-64	MADISON	19,810	20,584	20,584	19,318	1,266
Apr-64	MADISON	17,736	18,551	18,551	17,293	1,258
May-64	MADISON	18,669	18,733	18,733	18,206	527
Jun-64	MADISON	19,767	19,906	19,906	19,274	632
Jul-64	MADISON	18,662	18,704	18,704	18,200	504
Aug-64	MADISON	17,983	18,201	18,201	17,532	669
Sep-64	MADISON	17,599	17,806	17,806	17,159	647
Oct-64	MADISON	17,063	17,245	17,245	16,637	608
Nov-64	MADISON	15,679	15,843	15,843	15,287	556
Dec-64	MADISON	15,785	15,932	15,932	15,391	541
Jan-65	MADISON	15,090	15,221	15,221	14,714	507
Feb-65	MADISON	14,115	14,270	14,270	13,762	508
Mar-65	MADISON	14,908	15,042	15,042	14,536	506
Apr-65	MADISON	14,844	14,992	14,992	14,474	518
May-65	MADISON	14,066	14,258	14,258	13,713	545
Jun-65	MADISON	14,233	14,324	14,324	13,879	445
Jul-65	MADISON	13,530	13,556	13,556	13,194	362
Aug-65	MADISON	14,408	14,325	14,408	14,053	355
Sep-65	MADISON	13,959	13,802	13,959	13,617	342
Oct-65	MADISON	12,564	13,164	13,164	12,238	926
Nov-65	MADISON	13,252	13,408	13,408	12,920	488
Dec-65	MADISON	14,376	14,549	14,549	14,018	531

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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-66	MADISON	12,809	13,015	13,015	12,487	528
Feb-66	MADISON	12,148	12,271	12,271	11,844	427
Mar-66	MADISON	12,888	13,184	13,184	12,561	623
Apr-66	MADISON	13,116	13,151	13,151	12,791	360
May-66	MADISON	12,581	12,611	12,611	12,269	342
Jun-66	MADISON	11,606	11,688	11,688	11,317	371
Jul-66	MADISON	12,424	12,522	12,522	12,114	408
Aug-66	MADISON	11,743	11,835	11,835	11,450	385
Sep-66	MADISON	11,369	11,460	11,460	11,086	374
Oct-66	MADISON	11,359	11,600	11,600	11,077	523
Nov-66	MADISON	11,180	11,427	11,427	10,902	525
Dec-66	MADISON	11,151	11,390	11,390	10,875	515
Jan-67	MADISON	10,130	10,422	10,422	9,876	546
Feb-67	MADISON	9,523	9,840	9,840	9,284	556
Mar-67	MADISON	10,548	10,652	10,652	10,290	362
Apr-67	MADISON	10,163	10,353	10,353	9,912	441
May-67	MADISON	9,940	10,169	10,169	9,693	476
Jun-67	MADISON	10,009	10,220	10,220	9,761	459
Jul-67	MADISON	9,862	10,071	10,071	9,617	454
Aug-67	MADISON	10,094	10,346	10,346	9,847	499
Sep-67	MADISON	9,535	9,751	9,751	9,302	449
Oct-67	MADISON	9,762	9,982	9,982	9,524	458
Nov-67	MADISON	9,143	9,357	9,357	8,920	437
Dec-67	MADISON	10,028	10,290	10,290	9,782	508
Jan-68	MADISON	9,321	9,539	9,539	9,093	446
Feb-68	MADISON	9,446	9,676	9,676	9,215	461
Mar-68	MADISON	9,228	9,436	9,436	9,003	433
Apr-68	MADISON	9,669	9,874	9,874	9,433	441
May-68	MADISON	9,748	9,976	9,976	9,510	466
Jun-68	MADISON	8,669	8,962	8,962	8,655	307
Jul-68	MADISON	9,796	9,728	9,796	9,564	232
Aug-68	MADISON	9,335	9,280	9,335	9,113	222
Sep-68	MADISON	8,935	9,037	9,037	8,723	314
Oct-68	MADISON	9,269	9,390	9,390	9,048	342
Nov-68	MADISON	8,708	8,814	8,814	8,501	313
Dec-68	MADISON	9,558	9,687	9,687	9,331	356

EXHIBIT B

ASSINIBOINE & SIOUX TRIBES
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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-69	MADISON	9,481	9,614	9,614	9,255	359
Feb-69	MADISON	7,844	7,949	7,949	7,658	291
Mar-69	MADISON	8,966	9,027	9,027	8,759	268
Apr-69	MADISON	8,640	8,730	8,730	8,442	288
May-69	MADISON	9,828	9,952	9,952	9,602	350
Jun-69	MADISON	9,573	9,694	9,694	9,353	341
Jul-69	MADISON	8,938	9,047	9,047	8,732	315
Aug-69	MADISON	8,998	9,090	9,090	8,791	299
Sep-69	MADISON	9,033	9,114	9,114	8,826	288
Oct-69	MADISON	9,170	9,131	9,170	8,963	207
Nov-69	MADISON	8,710	8,679	8,710	8,513	197
Dec-69	MADISON	9,549	9,504	9,549	9,333	216
Jan-70	MADISON	8,951	8,922	8,951	8,749	202
Feb-70	MADISON	8,844	8,811	8,844	8,644	200
Mar-70	MADISON	8,914	8,876	8,914	8,712	202
Apr-70	MADISON	8,860	8,815	8,860	8,660	200
May-70	MADISON	8,533	8,483	8,533	8,340	193
Jun-70	MADISON	8,738	8,685	8,738	8,541	197
Jul-70	MADISON	8,852	8,795	8,852	8,652	200
Aug-70	MADISON	9,000	8,803	9,000	8,800	200
Sep-70	MADISON	8,651	8,446	8,651	8,459	192
Oct-70	MADISON	9,060	8,852	9,060	8,859	201
Nov-70	MADISON	8,420	8,233	8,420	8,239	181
Dec-70	MADISON	9,798	9,575	9,798	9,596	202
Jan-71	MADISON	8,937	8,751	8,937	8,753	184
Feb-71	MADISON	8,381	8,188	8,381	8,209	172
Mar-71	MADISON	9,074	8,872	9,074	8,887	187
Apr-71	MADISON	8,605	8,409	8,605	8,429	176
May-71	MADISON	8,752	8,546	8,752	8,572	180
Jun-71	MADISON	8,804	8,594	8,804	8,623	181
Jul-71	MADISON	8,901	8,686	8,901	8,719	182
Aug-71	MADISON	8,176	7,984	8,176	8,008	168
Sep-71	MADISON	8,695	8,491	8,695	8,517	178
Oct-71	MADISON	8,653	8,456	8,653	8,475	178
Nov-71	MADISON	8,354	8,173	8,354	8,182	172
Dec-71	MADISON	8,478	8,305	8,478	8,303	175

EXHIBIT B

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Jan-72	MADISON	7,859	7,708	7,859	7,697	162
Feb-72	MADISON	7,201	7,062	7,201	7,052	149
Mar-72	MADISON	7,832	7,671	7,832	7,671	161
Apr-72	MADISON	7,892	7,721	7,892	7,730	162
May-72	MADISON	8,464	8,270	8,464	8,291	173
Jun-72	MADISON	7,857	7,674	7,857	7,696	161
Jul-72	MADISON	7,371	7,204	7,371	7,220	151
Aug-72	MADISON	8,494	8,292	8,494	8,320	174
Sep-72	MADISON	7,535	7,365	7,535	7,380	155
Oct-72	MADISON	8,199	8,016	8,199	8,030	169
Nov-72	MADISON	7,707	7,547	7,707	7,548	159
Dec-72	MADISON	7,236	7,103	7,236	7,087	149
Jan-73	MADISON	7,601	7,463	7,601	7,444	157
Feb-73	MADISON	7,369	7,204	7,369	7,218	151
Mar-73	MADISON	8,133	7,940	8,133	7,966	167
Apr-73	MADISON	7,718	7,634	7,718	7,574	144
May-73	MADISON	8,842	8,826	8,842	8,676	166
Jun-73	MADISON	8,299	8,252	8,299	8,143	156
Jul-73	MADISON	8,098	8,049	8,098	7,946	152
Aug-73	MADISON	9,034	8,873	9,034	8,871	163
Sep-73	MADISON	9,366	9,052	9,366	9,210	156
Oct-73	MADISON	9,792	9,735	9,792	9,624	168
Nov-73	MADISON	10,085	9,260	10,085	9,926	159
Dec-73	MADISON	12,542	10,251	12,542	12,382	160
Jan-74	MADISON	13,686	12,107	13,686	13,519	167
Feb-74	MADISON	13,484	11,309	13,484	13,327	157
Mar-74	MADISON	14,786	11,988	14,786	14,620	166
Apr-74	MADISON	11,034	9,984	11,034	10,896	138
May-74	MADISON	11,512	11,350	11,512	11,355	157
Jun-74	MADISON	11,407	11,266	11,407	11,252	155
Jul-74	MADISON	11,288	11,169	11,288	11,133	155
Aug-74	MADISON	12,425	12,329	12,425	12,254	171
Sep-74	MADISON	10,882	10,746	10,882	10,733	149
Oct-74	MADISON	11,968	11,843	11,968	11,805	163
Nov-74	MADISON	11,996	11,718	11,996	11,834	162
Dec-74	MADISON	11,236	10,970	11,236	11,084	152

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- COMPUTATION OF INDIAN ROYALTY UNDERPAYMENT
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-75	MADISON	11,712	11,470	11,712	11,554	158
Feb-75	MADISON	10,664	10,414	10,664	10,520	144
Mar-75	MADISON	11,249	10,938	11,249	11,097	152
Apr-75	MADISON	11,137	10,899	11,137	10,986	151
May-75	MADISON	10,442	10,217	10,442	10,300	142
Jun-75	MADISON	10,131	9,894	10,131	9,994	137
Jul-75	MADISON	11,225	10,967	11,225	11,073	152
Aug-75	MADISON	10,493	10,251	10,493	10,352	141
Sep-75	MADISON	10,001	9,767	10,001	9,866	135
Oct-75	MADISON	10,940	10,696	10,940	10,792	148
Nov-75	MADISON	11,937	11,638	11,937	8,798	3,139
Dec-75	MADISON	13,471	13,124	13,471	9,928	3,543
Jan-76	MADISON	12,777	12,359	12,777	9,263	3,514
Feb-76	MADISON	10,420	9,899	10,420	7,558	2,862
Mar-76	MADISON	12,591	12,057	12,591	9,133	3,458
Apr-76	MADISON	17,029	14,822	17,029	12,387	4,642
May-76	MADISON	18,365	15,726	18,365	13,368	4,997
Jun-76	MADISON	13,915	13,259	13,915	10,100	3,815
Jul-76	MADISON	15,318	14,639	15,318	11,064	4,254
Aug-76	MADISON	13,380	12,791	13,380	9,664	3,716
Sep-76	MADISON	18,941	16,661	18,941	13,713	5,228
Oct-76	MADISON	21,067	16,808	21,067	15,291	5,776
Nov-76	MADISON	17,284	14,985	17,284	12,519	4,765
Dec-76	MADISON	20,709	16,675	20,709	15,027	5,682
Jan-77	MADISON	14,400	13,750	14,400	10,401	3,999
Feb-77	MADISON	20,795	16,114	20,795	15,104	5,691
Mar-77	MADISON	21,801	17,150	21,801	15,828	5,973
Apr-77	MADISON	21,670	16,869	21,670	15,738	5,932
May-77	MADISON	18,253	15,625	18,253	13,225	5,028
Jun-77	MADISON	15,237	14,060	15,237	11,017	4,220
Jul-77	MADISON	15,860	14,584	15,860	11,469	4,391
Aug-77	MADISON	16,163	15,246	16,163	11,679	4,484
Sep-77	MADISON	15,852	13,803	15,852	11,482	4,370
Oct-77	MADISON	15,277	14,417	15,277	11,042	4,235
Nov-77	MADISON	14,786	13,959	14,786	10,689	4,097
Dec-77	MADISON	13,386	12,595	13,386	9,678	3,708

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- COMPUTATION OF INDIAN ROYALTY UNDERPAYMENT
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-78	MADISON	14,701	13,885	14,701	10,630	4,071
Feb-78	MADISON	13,083	12,359	13,083	9,461	3,622
Mar-78	MADISON	13,979	13,208	13,979	13,599	380
Apr-78	MADISON	13,742	12,987	13,742	13,370	372
May-78	MADISON	15,730	14,877	15,730	15,307	423
Jun-78	MADISON	15,766	14,910	15,766	15,344	422
Jul-78	MADISON	14,838	14,036	14,838	14,443	395
Aug-78	MADISON	15,066	14,256	15,066	14,665	401
Sep-78	MADISON	14,532	13,757	14,532	14,149	383
Oct-78	MADISON	13,679	12,956	13,679	13,322	357
Nov-78	MADISON	12,290	11,648	12,290	11,972	318
Dec-78	MADISON	13,290	12,604	13,290	12,948	342
Jan-79	MADISON	12,364	11,732	12,364	12,046	318
Feb-79	MADISON	9,854	9,353	9,854	9,603	251
Mar-79	MADISON	10,049	9,543	10,049	9,794	255
Apr-79	MADISON	7,772	7,383	7,772	7,576	196
May-79	MADISON	9,056	8,608	9,056	8,829	227
Jun-79	MADISON	17,593	16,815	17,593	17,357	236
Jul-79	MADISON	15,242	14,578	15,242	15,032	210
Aug-79	MADISON	16,741	16,007	16,741	16,515	226
Sep-79	MADISON	16,280	15,572	16,280	16,062	218
Oct-79	MADISON	12,440	11,897	12,440	12,263	177
Nov-79	MADISON	14,164	13,558	14,164	13,971	193
Dec-79	MADISON	16,852	16,133	16,852	16,630	222
Jan-80	MADISON	15,374	13,835	15,374	15,179	195
Feb-80	MADISON	48,255	44,532	48,255	48,073	182
Mar-80	MADISON	48,251	46,288	48,251	48,069	182
Apr-80	MADISON	53,448	53,212	53,448	53,239	209
May-80	MADISON	59,977	59,714	59,977	59,743	234
Jun-80	MADISON	56,544	56,297	56,544	56,323	221
Jul-80	MADISON	63,594	63,316	63,594	63,345	249
Aug-80	MADISON	69,048	68,731	69,048	68,767	281
Sep-80	MADISON	66,696	66,373	66,696	66,410	286
Oct-80	MADISON	65,718	65,265	65,718	65,301	417
Nov-80	MADISON	65,669	65,216	65,669	65,252	417
Dec-80	MADISON	59,079	58,682	59,079	58,714	365

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- COMPUTATION OF INDIAN ROYALTY UNDERPAYMENT
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-81	MADISON	67,558	67,113	67,558	67,151	407
Feb-81	MADISON	51,353	51,026	51,353	51,044	309
Mar-81	MADISON	68,444	68,005	68,444	68,032	412
Apr-81	MADISON	67,611	67,177	67,611	67,204	407
May-81	MADISON	62,671	62,427	62,671	62,283	388
Jun-81	MADISON	55,034	54,743	55,034	54,682	352
Jul-81	MADISON	52,310	51,935	52,310	51,969	341
Aug-81	MADISON	56,943	56,546	56,943	56,572	371
Sep-81	MADISON	64,689	64,230	64,689	64,267	422
Oct-81	MADISON	63,891	63,446	63,891	63,474	417
Nov-81	MADISON	56,180	56,593	56,593	55,813	780
Dec-81	MADISON	64,645	64,196	64,645	64,223	422
Jan-82	MADISON	54,273	53,906	54,273	53,918	355
Feb-82	MADISON	54,234	54,018	54,234	53,871	363
Mar-82	MADISON	53,581	54,053	54,053	53,204	849
Apr-82	MADISON	47,897	49,051	49,051	47,544	1,507
May-82	MADISON	49,128	50,303	50,303	48,766	1,537
Jun-82	MADISON	53,953	53,534	53,953	53,568	385
Jul-82	MADISON	53,626	53,213	53,626	53,244	382
Aug-82	MADISON	52,451	52,043	52,451	52,077	374
Sep-82	MADISON	52,177	51,773	52,177	51,804	373
Oct-82	MADISON	53,607	53,204	53,607	53,236	371
Nov-82	MADISON	52,121	51,730	52,121	51,760	361
Dec-82	MADISON	53,861	53,489	53,861	53,479	382
Jan-83	MADISON	51,284	50,889	51,284	50,918	366
Feb-83	MADISON	45,477	45,055	45,477	45,137	340
Mar-83	MADISON	47,917	47,521	47,917	47,553	364
Apr-83	MADISON	43,678	43,897	43,897	43,341	556
May-83	MADISON	44,754	44,381	44,754	44,405	349
Jun-83	MADISON	41,139	40,800	41,139	40,819	320
Jul-83	MADISON	40,556	40,237	40,556	40,242	314
Aug-83	MADISON	44,412	44,074	44,412	44,068	344
Sep-83	MADISON	43,233	42,901	43,233	42,899	334
Oct-83	MADISON	43,315	42,986	43,315	42,979	336
Nov-83	MADISON	40,390	40,072	40,390	40,078	312
Dec-83	MADISON	44,999	44,650	44,999	44,650	349

EXHIBIT B

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- COMPUTATION OF INDIAN ROYALTY UNDERPAYMENT
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-84	MADISON	38,996	38,698	38,996	38,695	301
Feb-84	MADISON	40,566	40,254	40,566	40,252	314
Mar-84	MADISON	40,352	40,033	40,352	40,036	316
Apr-84	MADISON	40,778	40,453	40,778	40,458	320
May-84	MADISON	40,926	40,597	40,926	40,606	320
Jun-84	MADISON	38,625	38,318	38,625	38,323	302
Jul-84	MADISON	40,032	39,710	40,032	39,718	314
Aug-84	MADISON	37,134	37,479	37,479	36,838	641
Sep-84	MADISON	38,822	39,190	39,190	38,513	677
Oct-84	MADISON	38,531	39,232	39,232	38,221	1,011
Nov-84	MADISON	33,423	34,467	34,467	33,138	1,329
Dec-84	MADISON	33,660	35,414	35,414	33,363	2,051
Jan-85	MADISON	32,180	34,605	34,605	31,883	2,722
Feb-85	MADISON	30,572	32,321	32,321	30,287	2,034
Mar-85	MADISON	34,830	36,243	36,243	34,511	1,732
Apr-85	MADISON	32,443	33,753	33,753	32,146	1,607
May-85	MADISON	33,132	34,466	34,466	32,829	1,637
Jun-85	MADISON	30,704	31,948	31,948	30,423	1,525
Jul-85	MADISON	31,679	32,963	32,963	31,389	1,574
Aug-85	MADISON	33,193	34,527	34,527	32,889	1,638
Sep-85	MADISON	29,536	30,540	30,540	29,267	1,273
Oct-85	MADISON	33,506	34,318	34,318	33,204	1,114
Nov-85	MADISON	31,178	32,226	32,226	30,900	1,326
Dec-85	MADISON	32,516	32,848	32,848	32,233	615
Jan-86	MADISON	29,229	32,159	32,159	28,944	3,215
Feb-86	MADISON	17,129	21,610	21,610	16,882	4,728
Mar-86	MADISON	14,635	14,575	14,635	14,355	280
Apr-86	MADISON	12,863	13,413	13,413	12,595	818
May-86	MADISON	14,715	14,608	14,715	14,435	280
Jun-86	MADISON	12,152	13,144	13,144	11,919	1,225
Jul-86	MADISON	11,762	12,893	12,893	11,501	1,392
Aug-86	MADISON	12,855	13,129	13,129	12,611	518
Sep-86	MADISON	12,663	13,315	13,315	12,439	876
Oct-86	MADISON	12,506	13,348	13,348	12,281	1,067
Nov-86	MADISON	13,403	14,307	14,307	13,162	1,145
Dec-86	MADISON	13,232	13,956	13,956	13,004	952

ASSINIBOINE & SIOUX TRIBES
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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL INDIAN ROYALTY DUE ON GROSS PROCEEDS	TOTAL INDIAN ROYALTY DUE ON HIGHEST PRICE (MARKET VALUE)	INDIAN ROYALTY: HIGHER OF GROSS PROCEEDS OR MARKET VALUE	TOTAL INDIAN ROYALTY PAID	TOTAL INDIAN ROYALTY UNDERPAYMENT
Jan-87	MADISON	16,557	17,116	17,116	16,315	801
Feb-87	MADISON	16,040	16,757	16,757	15,809	948
Mar-87	MADISON	17,492	18,385	18,385	17,238	1,147
Apr-87	MADISON	17,019	17,665	17,665	16,774	891
May-87	MADISON	16,800	17,384	17,384	16,568	816
TOTALS:		$11,015,366	$11,572,607	$11,682,214	$10,719,732	$962,482

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING GROSS SALES PROCEEDS
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
May-52	"A"	7,092						
Jun-52	"A"	5,857						
Jul-52	"A"	18,691			$36,462	$36,462	0.064584	$2,3
Aug-52	"A"	42,858			83,601	83,601	0.064584	5,39
Sep-52	"A"	30,597			59,685	59,685	0.064584	3,85
Oct-52	"A"	51,975			51,975	51,975	0.064584	3,357
Nov-52	"A"	39,022			76,124	76,124	0.063518	4,835
	"B"	816			1,590	1,590	0.114816	183
Dec-52	"A"	49,917			49,917	49,917	0.063518	3,171
	"B"	1,761			3,523	3,523	0.114816	404

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING GROSS SALES PROCEEDS
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-53	"A"	40,388			81,183	81,183	0.063518	5,
	"B"	NOT AVAILABLE						
Feb-53	"A"	50,414			101,331	101,331	0.063518	6,4
	"B"	5,370			10,804	10,804	0.114816	1,2
Mar-53	"A"	36,107			72,575	72,575	0.063518	4,6
	"B"	6,874			13,812	13,812	0.114816	1,5
Apr-53	"A"	40,118			80,636	80,636	0.056724	4,57
	"B"	7,217			14,499	14,499	0.114816	1,66
May-53	"A"	38,932			78,255	78,255	0.056724	4,43
	"B"	6,958			13,987	13,987	0.114816	1,606
Jun-53	"A"	26,519			53,307	53,307	0.056724	3,024
	"B"	5,037			10,134	10,134	0.114816	1,164
Jul-53	"A"	28,419			57,123	57,123	0.056724	3,240
	"B"	6,008			12,086	12,086	0.114816	1,388
Aug-53	"A"	26,047			52,147	52,147	0.055373	2,888
	"B"	9,327			18,676	18,676	0.102047	1,906
Sep-53	"A-B"	84,864			160,159	160,159	0.064044	10,257
Oct-53	"A-B"	116,406			224,707	224,707	0.064044	14,391
Nov-53	MADISON	96,155			185,541	185,541	0.065474	12,148
Dec-53	MADISON	104,131			204,890	204,890	0.065474	13,415

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING GROSS SALES PROCEEDS
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-54	MADISON	69,214			135,789	135,789	0.065474	8,8
Feb-54	MADISON	82,879			162,620	162,620	0.065474	10,6
Mar-53	MADISON	187,466			355,920	355,920	0.071537	25,4
Apr-54	MADISON	152,850			289,178	289,178	0.071537	20,6
May-54	MADISON	232,877			443,398	443,398	0.071537	31,71
Jun-54	MADISON	272,155			516,670	516,670	0.071537	36,96
Jul-54	MADISON	280,204			535,616	535,616	0.067951	36,39
Aug-54	MADISON	261,196			501,080	501,080	0.067951	34,04
Sep-54	MADISON	266,550			512,185	512,185	0.066596	34,10
Oct-54	MADISON	271,532			521,078	521,078	0.067944	35,40
Nov-54	MADISON	271,302			519,824	519,824	0.067944	35,31
Dec-54	MADISON	270,216			531,566	531,566	0.067944	36,11
Jan-55	MADISON	285,395			562,204	562,204	0.067505	37,952
Feb-55	MADISON	249,481			491,358	491,358	0.067505	33,169
Mar-55	MADISON	269,903			531,090	531,090	0.067623	35,914
Apr-55	MADISON	266,784			554,777	554,777	0.067623	37,516
May-55	MADISON	265,863			552,996	552,996	0.067623	37,395
Jun-55	MADISON	181,945			396,509	396,509	0.067095	26,604
Jul-55	MADISON	148,363			319,989	319,989	0.067095	21,470
Aug-55	MADISON	178,849			387,874	387,874	0.067095	26,024
Sep-55	MADISON	120,217			261,828	261,828	0.067095	17,567
Oct-55	MADISON	151,523			328,805	328,805	0.067095	22,061
Nov-55	MADISON	177,663			459,511	459,511	0.067095	30,831
Dec-55	MADISON	255,768			660,444	660,444	0.065704	43,394
Jan-56	MADISON	319,219	0.07	$22,345	830,091	852,436	0.065704	56,008
Feb-56	MADISON	303,649	0.07	21,255	789,231	810,486	0.065704	53,252
Mar-56	MADISON	334,425	0.07	23,410	869,406	892,816	0.065704	58,662
Apr-56	MADISON	313,317	0.07	21,932	811,535	833,467	0.065704	54,762
May-56	MADISON	293,386	0.07	20,537	750,634	771,171	0.064703	49,897
Jun-56	MADISON	295,706	0.07	20,699	761,974	782,673	0.064703	50,641
Jul-56	MADISON	310,440	0.07	21,731	800,662	822,393	0.064703	53,211
Aug-56	MADISON	169,262	0.07	11,848	436,358	448,206	0.064703	29,000
Sep-56	MADISON	186,805	0.07	13,076	480,558	493,634	0.064703	31,940
Oct-56	MADISON	203,269	0.07	14,229	514,619	528,848	0.064703	34,218
Nov-56	MADISON	299,651	0.07	20,976	760,747	781,723	0.064703	50,580
Dec-56	MADISON	359,623	0.07	25,174	917,562	942,736	0.064703	60,998

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING GROSS SALES PROCEEDS
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-84	MADISON	16,391	0.23	3,770	483,162	486,932	0.080086	38,99
Feb-84	MADISON	17,050	0.23	3,922	502,612	506,534	0.080086	40,56
Mar-84	MADISON	17,160	0.23	3,947	499,913	503,860	0.080086	40,35
Apr-84	MADISON	17,340	0.23	3,988	505,186	509,174	0.080086	40,77
May-84	MADISON	17,402	0.23	4,002	507,025	511,027	0.080086	40,926
Jun-84	MADISON	16,439	0.23	3,781	478,929	482,710	0.080018	38,625
Jul-84	MADISON	17,036	0.23	3,918	496,367	500,285	0.080018	40,032
Aug-84	MADISON	16,079	0.23	3,698	460,377	464,075	0.080018	37,134
Sep-84	MADISON	16,813	0.23	3,867	481,298	485,165	0.080018	38,822
Oct-84	MADISON	16,831	0.23	3,871	477,653	481,524	0.080018	38,531
Nov-84	MADISON	15,483	0.23	3,561	414,132	417,693	0.080018	33,423
Dec-84	MADISON	16,164	0.23	3,718	416,939	420,657	0.080018	33,660
Jan-85	MADISON	16,167	0.23	3,718	398,442	402,160	0.080018	32,180
Feb-85	MADISON	15,458	0.23	3,555	378,505	382,060	0.080018	30,572
Mar-85	MADISON	17,334	0.23	3,987	431,292	435,279	0.080018	34,830
Apr-85	MADISON	16,143	0.23	3,713	401,736	405,449	0.080018	32,443
May-85	MADISON	16,484	0.23	3,791	410,271	414,062	0.080018	33,132
Jun-85	MADISON	15,280	0.23	3,514	380,201	383,715	0.080018	30,704
Jul-85	MADISON	15,765	0.23	3,626	392,277	395,903	0.080018	31,679
Aug-85	MADISON	16,517	0.23	3,799	411,116	414,915	0.079999	33,193
Sep-85	MADISON	14,610	0.23	3,360	365,848	369,208	0.079999	29,536
Oct-85	MADISON	16,417	0.23	3,776	415,049	418,825	0.079999	33,506
Nov-85	MADISON	15,127	0.23	3,479	386,252	389,731	0.079999	31,178
Dec-85	MADISON	15,419	0.23	3,546	402,915	406,461	0.079999	32,516
Jan-86	MADISON	15,485	0.23	3,562	361,808	365,370	0.079999	29,229
Feb-86	MADISON	13,466	0.23	3,097	211,023	214,120	0.079999	17,129
Mar-86	MADISON	15,208	0.23	3,498	179,438	182,936	0.079999	14,635
Apr-86	MADISON	14,516	0.23	3,339	157,445	160,784	0.079999	12,863
May-86	MADISON	15,204	0.23	3,497	180,442	183,939	0.079999	14,715
Jun-86	MADISON	12,668	0.23	2,914	148,986	151,900	0.079999	12,152
Jul-86	MADISON	14,187	0.23	3,263	143,768	147,031	0.079999	11,762
Aug-86	MADISON	13,289	0.23	3,056	157,635	160,691	0.079999	12,855
Sep-86	MADISON	12,211	0.23	2,809	155,484	158,293	0.079999	12,663
Oct-86	MADISON	12,242	0.23	2,816	153,510	156,326	0.079999	12,506
Nov-86	MADISON	13,121	0.23	3,018	164,522	167,540	0.079999	13,403
Dec-86	MADISON	12,390	0.23	2,850	162,547	165,397	0.079999	13,232

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
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FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-81	MADISON	21,985	0.23	5,057	835,463	840,520	0.080376	67,55
Feb-81	MADISON	16,715	0.23	3,844	635,071	638,915	0.080376	51,35
Mar-81	MADISON	22,277	0.23	5,124	846,418	851,542	0.080376	68,44
Apr-81	MADISON	22,006	0.23	5,061	836,121	841,182	0.080376	67,61
May-81	MADISON	21,003	0.23	4,831	774,895	779,726	0.080376	62,67
Jun-81	MADISON	19,062	0.23	4,384	680,323	684,707	0.080376	55,03
Jul-81	MADISON	18,472	0.23	4,249	646,573	650,822	0.080376	52,31
Aug-81	MADISON	20,112	0.23	4,626	703,836	708,462	0.080376	56,94
Sep-81	MADISON	22,845	0.23	5,254	799,578	804,832	0.080376	64,68
Oct-81	MADISON	22,566	0.23	5,190	789,712	794,902	0.080376	63,891
Nov-81	MADISON	19,845	0.23	4,564	694,399	698,963	0.080376	56,186
Dec-81	MADISON	22,833	0.23	5,252	799,036	804,288	0.080376	64,645
Jan-82	MADISON	19,173	0.23	4,410	670,827	675,237	0.080376	54,273
Feb-82	MADISON	19,634	0.23	4,516	670,241	674,757	0.080376	54,234
Mar-82	MADISON	20,379	0.23	4,687	661,941	666,628	0.080376	53,581
Apr-82	MADISON	19,083	0.23	4,389	591,524	595,913	0.080376	47,897
May-82	MADISON	19,570	0.23	4,501	606,728	611,229	0.080376	49,128
Jun-82	MADISON	20,827	0.23	4,790	666,466	671,256	0.080376	53,953
Jul-82	MADISON	20,702	0.23	4,761	662,433	667,194	0.080376	53,626
Aug-82	MADISON	20,247	0.23	4,657	647,914	652,571	0.080376	52,451
Sep-82	MADISON	20,142	0.23	4,633	644,526	649,159	0.080376	52,177
Oct-82	MADISON	20,071	0.23	4,616	662,335	666,951	0.080376	53,607
Nov-82	MADISON	19,515	0.23	4,488	643,978	648,466	0.080376	52,121
Dec-82	MADISON	20,648	0.23	4,749	665,360	670,109	0.080376	53,861
Jan-83	MADISON	19,798	0.23	4,554	633,498	638,052	0.080376	51,284
Feb-83	MADISON	18,391	0.23	4,230	561,572	565,802	0.080376	45,477
Mar-83	MADISON	19,721	0.23	4,536	591,627	596,163	0.080376	47,917
Apr-83	MADISON	18,217	0.23	4,190	539,225	543,415	0.080376	43,678
May-83	MADISON	18,959	0.23	4,361	554,468	558,829	0.080086	44,754
Jun-83	MADISON	17,358	0.23	3,992	509,691	513,683	0.080086	41,139
Jul-83	MADISON	17,043	0.23	3,920	502,488	506,408	0.080086	40,556
Aug-83	MADISON	18,668	0.23	4,294	550,255	554,549	0.080086	44,412
Sep-83	MADISON	18,171	0.23	4,179	535,659	539,838	0.080086	43,233
Oct-83	MADISON	18,207	0.23	4,188	536,664	540,852	0.080086	43,315
Nov-83	MADISON	16,973	0.23	3,904	500,433	504,337	0.080086	40,390
Dec-83	MADISON	18,912	0.23	4,350	557,529	561,879	0.080086	44,999

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
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FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-78	MADISON	32,357	0.155	5,015	177,242	182,257	0.080660	14,701
Feb-78	MADISON	28,694	0.155	4,448	157,752	162,200	0.080660	13,083
Mar-78	MADISON	30,493	0.155	4,726	168,580	173,306	0.080660	13,979
Apr-78	MADISON	29,817	0.155	4,622	165,743	170,365	0.080660	13,742
May-78	MADISON	33,968	0.155	5,265	189,757	195,022	0.080660	15,730
Jun-78	MADISON	33,856	0.155	5,248	190,213	195,461	0.080660	15,766
Jul-78	MADISON	31,696	0.155	4,913	179,043	183,956	0.080660	14,838
Aug-78	MADISON	32,131	0.155	4,980	182,461	187,441	0.080376	15,066
Sep-78	MADISON	30,728	0.155	4,763	176,034	180,797	0.080376	14,532
Oct-78	MADISON	28,681	0.155	4,446	165,740	170,186	0.080376	13,679
Nov-78	MADISON	25,560	0.155	3,962	148,944	152,906	0.080376	12,290
Dec-78	MADISON	27,510	0.155	4,264	161,088	165,352	0.080376	13,290
Jan-79	MADISON	25,473	0.155	3,948	149,875	153,823	0.080376	12,364
Feb-79	MADISON	20,202	0.155	3,131	119,470	122,601	0.080376	9,854
Mar-79	MADISON	20,470	0.155	3,173	121,858	125,031	0.080376	10,049
Apr-79	MADISON	15,728	0.155	2,438	94,252	96,690	0.080376	7,772
May-79	MADISON	18,214	0.155	2,823	109,846	112,669	0.080376	9,056
Jun-79	MADISON	18,929	0.155	2,934	215,949	218,883	0.080376	17,593
Jul-79	MADISON	16,884	0.155	2,617	187,022	189,639	0.080376	15,242
Aug-79	MADISON	18,099	0.155	2,805	205,475	208,280	0.080376	16,741
Sep-79	MADISON	17,488	0.155	2,711	199,833	202,544	0.080376	16,280
Oct-79	MADISON	14,197	0.155	2,201	152,576	154,777	0.080376	12,440
Nov-79	MADISON	15,491	0.155	2,401	173,821	176,222	0.080376	14,164
Dec-79	MADISON	17,811	0.155	2,761	206,905	209,666	0.080376	16,852
Jan-80	MADISON	15,694	0.155	2,433	188,845	191,278	0.080376	15,374
Feb-80	MADISON	14,588	0.155	2,261	598,105	600,366	0.080376	48,255
Mar-80	MADISON	14,587	0.155	2,261	598,054	600,315	0.080376	48,251
Apr-80	MADISON	16,769	0.155	2,599	662,378	664,977	0.080376	53,448
May-80	MADISON	18,818	0.155	2,917	743,292	746,209	0.080376	59,977
Jun-80	MADISON	17,741	0.155	2,750	700,749	703,499	0.080376	56,544
Jul-80	MADISON	19,953	0.155	3,093	788,112	791,205	0.080376	63,594
Aug-80	MADISON	22,515	0.155	3,490	855,570	859,060	0.080376	69,048
Sep-80	MADISON	22,951	0.155	3,557	826,243	829,800	0.080376	66,696
Oct-80	MADISON	22,568	0.23	5,191	812,442	817,633	0.080376	65,718
Nov-80	MADISON	22,551	0.23	5,187	811,832	817,019	0.080376	65,669
Dec-80	MADISON	19,743	0.23	4,541	730,491	735,032	0.080376	59,079

EXHIBIT C

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Jan-75	MADISON	37,077	0.07	2,595	188,985	191,580	0.061135	11,71
Feb-75	MADISON	33,664	0.07	2,356	172,084	174,440	0.061135	10,66
Mar-75	MADISON	35,359	0.07	2,475	181,524	183,999	0.061135	11,24
Apr-75	MADISON	35,232	0.07	2,466	179,698	182,164	0.061135	11,13
May-75	MADISON	33,027	0.07	2,312	168,487	170,799	0.061135	10,44
Jun-75	MADISON	31,985	0.07	2,239	163,470	165,709	0.061135	10,131
Jul-75	MADISON	35,452	0.07	2,482	181,126	183,608	0.061135	11,22
Aug-75	MADISON	33,139	0.07	2,320	169,323	171,643	0.061135	10,493
Sep-75	MADISON	31,573	0.07	2,210	161,382	163,592	0.061135	10,001
Oct-75	MADISON	34,578	0.07	2,420	176,531	178,951	0.061135	10,940
Nov-75	MADISON	28,107	0.07	1,967	143,914	145,881	0.081828	11,937
Dec-75	MADISON	31,696	0.07	2,219	162,402	164,621	0.081828	13,471
Jan-76	MADISON	29,848	0.155	4,626	151,520	156,146	0.081828	12,777
Feb-76	MADISON	23,907	0.155	3,706	123,629	127,335	0.081828	10,420
Mar-76	MADISON	28,947	0.155	4,487	149,387	153,874	0.081828	12,591
Apr-76	MADISON	35,377	0.155	5,483	202,624	208,107	0.081828	17,029
May-76	MADISON	37,245	0.155	5,773	218,659	224,432	0.081828	18,365
Jun-76	MADISON	31,221	0.155	4,839	165,208	170,047	0.081828	13,915
Jul-76	MADISON	34,969	0.155	5,420	184,487	189,907	0.080660	15,318
Aug-76	MADISON	30,554	0.155	4,736	161,141	165,877	0.080660	13,380
Sep-76	MADISON	39,800	0.155	6,169	228,659	234,828	0.080660	18,941
Oct-76	MADISON	40,151	0.155	6,223	254,963	261,186	0.080660	21,067
Nov-76	MADISON	35,797	0.155	5,549	208,736	214,285	0.080660	17,284
Dec-76	MADISON	39,832	0.155	6,174	250,568	256,742	0.080660	20,709
Jan-77	MADISON	32,846	0.155	5,091	173,434	178,525	0.080660	14,400
Feb-77	MADISON	38,492	0.155	5,966	251,844	257,810	0.080660	20,795
Mar-77	MADISON	40,967	0.155	6,350	263,927	270,277	0.080660	21,801
Apr-77	MADISON	40,296	0.155	6,246	262,412	268,658	0.080660	21,670
May-77	MADISON	37,325	0.155	5,785	220,511	226,296	0.080660	18,253
Jun-77	MADISON	33,586	0.155	5,206	183,694	188,900	0.080660	15,237
Jul-77	MADISON	34,837	0.155	5,400	191,234	196,634	0.080660	15,869
Aug-77	MADISON	36,419	0.155	5,645	194,737	200,382	0.080660	16,163
Sep-77	MADISON	32,782	0.155	5,081	191,451	196,532	0.080660	15,852
Oct-77	MADISON	34,045	0.155	5,277	184,117	189,394	0.080660	15,277
Nov-77	MADISON	32,777	0.155	5,080	178,234	183,314	0.080660	14,786
Dec-77	MADISON	29,573	0.155	4,584	161,373	165,957	0.080660	13,386

EXHIBIT C

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Jan-72	MADISON	37,860	0.07	2,650	125,900	128,550	0.061135	7,859
Feb-72	MADISON	34,690	0.07	2,428	115,357	117,785	0.061135	7,201
Mar-72	MADISON	37,680	0.07	2,638	125,479	128,117	0.061135	7,832
Apr-72	MADISON	37,927	0.07	2,655	126,434	129,089	0.061135	7,892
May-72	MADISON	40,622	0.07	2,844	135,611	138,455	0.061135	8,464
Jun-72	MADISON	37,696	0.07	2,639	125,884	128,523	0.061135	7,857
Jul-72	MADISON	35,386	0.07	2,477	118,097	120,574	0.061135	7,371
Aug-72	MADISON	40,731	0.07	2,851	136,086	138,937	0.061135	8,494
Sep-72	MADISON	36,176	0.07	2,532	120,719	123,251	0.061135	7,535
Oct-72	MADISON	39,377	0.07	2,756	131,354	134,110	0.061135	8,199
Nov-72	MADISON	37,073	0.07	2,595	123,471	126,066	0.061135	7,707
Dec-72	MADISON	34,890	0.07	2,442	115,922	118,364	0.061135	7,236
Jan-73	MADISON	36,657	0.07	2,566	121,768	124,334	0.061135	7,601
Feb-73	MADISON	35,385	0.07	2,477	118,060	120,537	0.061135	7,369
Mar-73	MADISON	39,002	0.07	2,730	130,308	133,038	0.061135	8,133
Apr-73	MADISON	33,658	0.07	2,356	123,890	126,246	0.061135	7,718
May-73	MADISON	38,913	0.07	2,724	141,908	144,632	0.061135	8,842
Jun-73	MADISON	36,381	0.07	2,547	133,194	135,741	0.061135	8,299
Jul-73	MADISON	35,489	0.07	2,484	129,980	132,464	0.061135	8,098
Aug-73	MADISON	38,192	0.07	2,673	145,102	147,775	0.061135	9,034
Sep-73	MADISON	36,471	0.07	2,553	150,652	153,205	0.061135	9,366
Oct-73	MADISON	39,221	0.07	2,745	157,422	160,167	0.061135	9,792
Nov-73	MADISON	37,309	0.07	2,612	162,357	164,969	0.061135	10,085
Dec-73	MADISON	37,427	0.07	2,620	202,532	205,152	0.061135	12,542
Jan-74	MADISON	39,139	0.07	2,740	221,130	223,870	0.061135	13,686
Feb-74	MADISON	36,559	0.07	2,559	218,000	220,559	0.061135	13,484
Mar-74	MADISON	38,753	0.07	2,713	239,138	241,851	0.061135	14,786
Apr-74	MADISON	32,276	0.07	2,259	178,234	180,493	0.061135	11,034
May-74	MADISON	36,691	0.07	2,568	185,741	188,309	0.061135	11,517
Jun-74	MADISON	36,419	0.07	2,549	184,046	186,595	0.061135	11,407
Jul-74	MADISON	36,107	0.07	2,527	182,108	184,635	0.061135	11,288
Aug-74	MADISON	39,856	0.07	2,790	200,441	203,231	0.061135	12,425
Sep-74	MADISON	34,739	0.07	2,432	175,566	177,998	0.061135	10,882
Oct-74	MADISON	38,283	0.07	2,680	193,091	195,771	0.061135	11,968
Nov-74	MADISON	37,880	0.07	2,652	193,575	196,227	0.061135	11,996
Dec-74	MADISON	35,461	0.07	2,482	181,306	183,788	0.061135	11,236

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING GROSS SALES PROCEEDS
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-69	MADISON	52,736	0.07	3,692	151,290	154,982	0.061173	9,481
Feb-69	MADISON	43,606	0.07	3,052	125,179	128,231	0.061173	7,844
Mar-69	MADISON	48,384	0.07	3,387	143,188	146,575	0.061173	8,966
Apr-69	MADISON	46,335	0.07	3,243	138,002	141,245	0.061173	8,640
May-69	MADISON	52,819	0.07	3,697	156,960	160,657	0.061173	9,828
Jun-69	MADISON	51,451	0.07	3,602	152,889	156,491	0.061173	9,573
Jul-69	MADISON	48,045	0.07	3,363	142,834	146,197	0.061135	8,938
Aug-69	MADISON	48,273	0.07	3,379	143,796	147,175	0.061135	8,998
Sep-69	MADISON	48,401	0.07	3,388	144,367	147,755	0.061135	9,033
Oct-69	MADISON	48,494	0.07	3,395	146,602	149,997	0.061135	9,170
Nov-69	MADISON	46,092	0.07	3,226	139,244	142,470	0.061135	8,710
Dec-69	MADISON	50,475	0.07	3,533	152,666	156,199	0.061135	9,549
Jan-70	MADISON	47,385	0.07	3,317	143,103	146,420	0.061135	8,951
Feb-70	MADISON	46,794	0.07	3,276	141,385	144,661	0.061135	8,844
Mar-70	MADISON	47,138	0.07	3,300	142,507	145,807	0.061135	8,914
Apr-70	MADISON	46,814	0.07	3,277	141,655	144,932	0.061135	8,860
May-70	MADISON	45,049	0.07	3,153	136,420	139,573	0.061135	8,533
Jun-70	MADISON	46,123	0.07	3,229	139,703	142,932	0.061135	8,738
Jul-70	MADISON	46,711	0.07	3,270	141,520	144,790	0.061135	8,852
Aug-70	MADISON	46,750	0.07	3,273	143,949	147,222	0.061135	9,000
Sep-70	MADISON	44,854	0.07	3,140	138,370	141,510	0.061135	8,651
Oct-70	MADISON	47,013	0.07	3,291	144,903	148,194	0.061135	9,060
Nov-70	MADISON	42,084	0.07	2,946	134,774	137,720	0.061135	8,420
Dec-70	MADISON	47,035	0.07	3,292	156,972	160,264	0.061135	9,798
Jan-71	MADISON	42,987	0.07	3,009	143,183	146,192	0.061135	8,937
Feb-71	MADISON	40,218	0.07	2,815	134,273	137,088	0.061135	8,381
Mar-71	MADISON	43,579	0.07	3,051	145,369	148,420	0.061135	9,074
Apr-71	MADISON	41,307	0.07	2,891	137,871	140,762	0.061135	8,605
May-71	MADISON	41,980	0.07	2,939	140,217	143,156	0.061135	8,752
Jun-71	MADISON	42,215	0.07	2,955	141,055	144,010	0.061135	8,804
Jul-71	MADISON	42,666	0.07	2,987	142,611	145,598	0.061135	8,901
Aug-71	MADISON	39,218	0.07	2,745	130,991	133,736	0.061135	8,176
Sep-71	MADISON	41,707	0.07	2,919	139,311	142,230	0.061135	8,695
Oct-71	MADISON	41,538	0.07	2,908	138,626	141,534	0.061135	8,653
Nov-71	MADISON	40,145	0.07	2,810	133,840	136,650	0.061135	8,354
Dec-71	MADISON	40,795	0.07	2,856	135,819	138,675	0.061135	8,478

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
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FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-66	MADISON	74,999	0.07	5,250	203,648	208,898	0.061318	12,8[illegible]
Feb-66	MADISON	70,714	0.07	4,950	193,157	198,107	0.061318	12,14[illegible]
Mar-66	MADISON	75,975	0.07	5,318	204,857	210,175	0.061318	12,88[illegible]
Apr-66	MADISON	75,783	0.07	5,305	208,602	213,907	0.061318	13,11[illegible]
May-66	MADISON	72,673	0.07	5,087	200,089	205,176	0.061318	12,58[illegible]
Jun-66	MADISON	67,355	0.07	4,715	184,562	189,277	0.061318	11,60[illegible]
Jul-66	MADISON	72,162	0.07	5,051	197,563	202,614	0.061318	12,42[illegible]
Aug-66	MADISON	68,202	0.07	4,774	186,738	191,512	0.061318	11,74[illegible]
Sep-66	MADISON	66,043	0.07	4,623	180,788	185,411	0.061318	11,36[illegible]
Oct-66	MADISON	65,686	0.07	4,598	180,650	185,248	0.061318	11,35[illegible]
Nov-66	MADISON	64,708	0.07	4,530	177,801	182,331	0.061318	11,18[illegible]
Dec-66	MADISON	64,499	0.07	4,515	177,346	181,861	0.061318	11,151
Jan-67	MADISON	59,014	0.07	4,131	161,068	165,199	0.061318	10,130
Feb-67	MADISON	55,723	0.07	3,901	151,401	155,302	0.061318	9,523
Mar-67	MADISON	60,316	0.07	4,222	167,806	172,028	0.061318	10,548
Apr-67	MADISON	58,623	0.07	4,104	161,646	165,750	0.061318	10,163
May-67	MADISON	57,584	0.07	4,031	158,070	162,101	0.061318	9,940
Jun-67	MADISON	57,870	0.07	4,051	159,188	163,239	0.061318	10,009
Jul-67	MADISON	57,029	0.07	3,992	156,842	160,834	0.061318	9,862
Aug-67	MADISON	57,586	0.07	4,031	160,588	164,619	0.061318	10,094
Sep-67	MADISON	54,274	0.07	3,799	151,704	155,503	0.061318	9,535
Oct-67	MADISON	55,561	0.07	3,889	155,317	159,206	0.061318	9,762
Nov-67	MADISON	52,082	0.07	3,646	145,464	149,110	0.061318	9,143
Dec-67	MADISON	57,274	0.07	4,009	159,535	163,544	0.061318	10,028
Jan-68	MADISON	53,097	0.07	3,717	148,298	152,015	0.061318	9,321
Feb-68	MADISON	53,983	0.07	3,779	150,638	154,417	0.061173	9,446
Mar-68	MADISON	52,645	0.07	3,685	147,168	150,853	0.061173	9,228
Apr-68	MADISON	55,087	0.07	3,856	154,205	158,061	0.061173	9,669
May-68	MADISON	55,660	0.07	3,896	155,462	159,358	0.061173	9,748
Jun-68	MADISON	50,002	0.07	3,500	141,487	144,987	0.061173	8,869
Jul-68	MADISON	54,277	0.07	3,799	156,339	160,138	0.061173	9,796
Aug-68	MADISON	51,777	0.07	3,624	148,978	152,602	0.061173	9,335
Sep-68	MADISON	49,572	0.07	3,470	142,592	146,062	0.061173	8,935
Oct-68	MADISON	51,507	0.07	3,605	147,909	151,514	0.061173	9,269
Nov-68	MADISON	48,350	0.07	3,385	138,966	142,351	0.061173	8,708
Dec-68	MADISON	53,137	0.07	3,720	152,528	156,248	0.061173	9,558

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
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FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-63	MADISON	142,031	0.07	9,942	388,482	398,424	0.061608	24,546
Feb-63	MADISON	123,084	0.07	8,616	333,878	342,494	0.061608	21,100
Mar-63	MADISON	133,608	0.07	9,353	366,795	376,148	0.061608	23,174
Apr-63	MADISON	129,336	0.07	9,054	351,662	360,716	0.061608	22,223
May-63	MADISON	127,509	0.07	8,926	349,929	358,855	0.061608	22,108
Jun-63	MADISON	121,517	0.07	8,506	333,530	342,036	0.061608	21,072
Jul-63	MADISON	121,702	0.07	8,519	334,053	342,572	0.061608	21,105
Aug-63	MADISON	123,634	0.07	8,654	343,250	351,904	0.061608	21,680
Sep-63	MADISON	122,213	0.07	8,555	334,597	343,152	0.061608	21,141
Oct-63	MADISON	116,896	0.07	8,183	321,699	329,882	0.061608	20,323
Nov-63	MADISON	122,080	0.07	8,546	335,772	344,318	0.061608	21,213
Dec-63	MADISON	124,939	0.07	8,746	343,658	352,404	0.061318	21,609
Jan-64	MADISON	119,434	0.07	8,360	328,658	337,018	0.061318	20,665
Feb-64	MADISON	109,362	0.07	7,655	299,489	307,144	0.061318	18,833
Mar-64	MADISON	114,569	0.07	8,020	315,048	323,068	0.061318	19,810
Apr-64	MADISON	103,256	0.07	7,228	282,015	289,243	0.061318	17,736
May-64	MADISON	107,951	0.07	7,557	296,909	304,466	0.061318	18,659
Jun-64	MADISON	114,714	0.07	8,030	314,331	322,361	0.061318	19,767
Jul-64	MADISON	107,787	0.07	7,545	296,809	304,354	0.061318	18,652
Aug-64	MADISON	104,884	0.07	7,342	285,926	293,268	0.061318	17,983
Sep-64	MADISON	102,613	0.07	7,183	279,837	287,020	0.061318	17,597
Oct-64	MADISON	99,380	0.07	6,957	271,316	278,273	0.061318	17,063
Nov-64	MADISON	91,296	0.07	6,391	249,314	255,705	0.061318	15,679
Dec-64	MADISON	91,812	0.07	6,427	251,000	257,427	0.061318	15,785
Jan-65	MADISON	87,712	0.07	6,140	239,962	246,102	0.061318	15,089
Feb-65	MADISON	82,236	0.07	5,757	224,435	230,192	0.061318	14,115
Mar-65	MADISON	86,681	0.07	6,068	237,057	243,125	0.061318	14,903
Apr-65	MADISON	86,395	0.07	6,048	236,041	242,089	0.061318	14,844
May-65	MADISON	82,163	0.07	5,751	223,639	229,390	0.061318	14,065
Jun-65	MADISON	82,545	0.07	5,778	226,342	232,120	0.061318	14,233
Jul-65	MADISON	78,120	0.07	5,468	215,180	220,648	0.061318	13,530
Aug-65	MADISON	82,553	0.07	5,779	229,185	234,964	0.061318	14,403
Sep-65	MADISON	79,536	0.07	5,568	222,075	227,643	0.061318	13,959
Oct-65	MADISON	75,858	0.07	5,310	199,589	204,899	0.061318	12,564
Nov-65	MADISON	77,267	0.07	5,409	210,706	216,115	0.061318	13,252
Dec-65	MADISON	83,844	0.07	5,869	228,616	234,485	0.061318	14,376

EXHIBIT C

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Jan-60	MADISON	299,447	0.07	20,961	823,821	844,782	0.062050	52,419
Feb-60	MADISON	276,279	0.07	19,340	762,383	781,723	0.062050	48,506
Mar-60	MADISON	291,176	0.07	20,382	801,657	822,039	0.062050	51,008
Apr-60	MADISON	274,261	0.07	19,198	753,508	772,706	0.062050	47,946
May-60	MADISON	264,899	0.07	18,543	725,401	743,944	0.062050	46,162
Jun-60	MADISON	228,659	0.07	16,006	626,770	642,776	0.062050	39,884
Jul-60	MADISON	267,888	0.07	18,752	735,126	753,878	0.062050	46,778
Aug-60	MADISON	259,745	0.07	18,182	712,604	730,786	0.062050	45,345
Sep-60	MADISON	247,940	0.07	17,356	677,621	694,977	0.061858	42,990
Oct-60	MADISON	241,558	0.07	16,909	664,661	681,570	0.061858	42,161
Nov-60	MADISON	234,360	0.07	16,405	644,612	661,017	0.061858	40,889
Dec-60	MADISON	231,192	0.07	16,183	634,075	650,258	0.061858	40,224
Jan-61	MADISON	218,838	0.07	15,319	598,933	614,252	0.061858	37,996
Feb-61	MADISON	188,978	0.07	13,228	518,920	532,148	0.061858	32,918
Mar-61	MADISON	211,194	0.07	14,784	579,411	594,195	0.061858	36,756
Apr-61	MADISON	190,913	0.07	13,364	525,518	538,882	0.061858	33,334
May-61	MADISON	198,008	0.07	13,861	547,577	561,438	0.061858	34,729
Jun-61	MADISON	139,265	0.07	9,749	383,037	392,786	0.061858	24,297
Jul-61	MADISON	205,130	0.07	14,359	563,168	577,527	0.061858	35,725
Aug-61	MADISON	202,798	0.07	14,196	558,995	573,191	0.061608	35,313
Sep-61	MADISON	187,259	0.07	13,108	514,802	527,910	0.061608	32,523
Oct-61	MADISON	184,132	0.07	12,889	499,057	511,946	0.061608	31,540
Nov-61	MADISON	163,174	0.07	11,422	437,816	449,238	0.061608	27,677
Dec-61	MADISON	183,983	0.07	12,879	494,993	507,872	0.061608	31,289
Jan-62	MADISON	165,083	0.07	11,556	439,773	451,329	0.061608	27,805
Feb-62	MADISON	150,364	0.07	10,525	410,889	421,414	0.061608	25,962
Mar-62	MADISON	158,559	0.07	11,099	428,622	439,721	0.061608	27,090
Apr-62	MADISON	146,547	0.07	10,258	395,307	405,565	0.061608	24,986
May-62	MADISON	149,395	0.07	10,458	402,785	413,243	0.061608	25,459
Jun-62	MADISON	137,484	0.07	9,624	371,420	381,044	0.061608	23,475
Jul-62	MADISON	146,147	0.07	10,230	406,193	416,423	0.061608	25,655
Aug-62	MADISON	144,830	0.07	10,138	396,519	406,657	0.061608	25,053
Sep-62	MADISON	144,105	0.07	10,087	394,043	404,130	0.061608	24,898
Oct-62	MADISON	136,810	0.07	9,577	375,102	384,679	0.061608	23,699
Nov-62	MADISON	141,106	0.07	9,877	385,025	394,902	0.061608	24,329
Dec-62	MADISON	139,014	0.07	9,731	378,859	388,590	0.061608	23,940

EXHIBIT C

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Jan-57	MADISON	371,300	0.07	25,991	1,021,892	1,047,883	0.064703	67,801
Feb-57	MADISON	333,465	0.07	23,343	940,872	964,215	0.064703	62,388
Mar-57	MADISON	374,701	0.07	26,229	1,062,691	1,088,920	0.064703	70,456
Apr-57	MADISON	360,412	0.07	25,229	1,013,229	1,038,458	0.064703	67,191
May-57	MADISON	349,475	0.07	24,463	990,273	1,014,736	0.064703	65,656
Jun-57	MADISON	365,013	0.07	25,551	1,037,040	1,062,591	0.064703	68,753
Jul-57	MADISON	350,702	0.07	24,549	991,867	1,016,416	0.064703	65,765
Aug-57	MADISON	354,786	0.07	24,835	1,003,366	1,028,201	0.064703	66,528
Sep-57	MADISON	336,200	0.07	23,534	951,652	975,186	0.064703	63,097
Oct-57	MADISON	319,749	0.07	22,382	912,495	934,877	0.064703	60,489
Nov-57	MADISON	332,869	0.07	23,301	945,947	969,248	0.064703	62,713
Dec-57	MADISON	354,875	0.07	24,841	1,008,669	1,033,510	0.064703	66,871
Jan-58	MADISON	341,764	0.07	23,923	973,668	997,591	0.064703	64,547
Feb-58	MADISON	321,310	0.07	22,492	914,073	936,565	0.064703	60,599
Mar-58	MADISON	350,189	0.07	24,513	995,318	1,019,831	0.064703	65,986
Apr-58	MADISON	325,536	0.07	22,788	926,243	949,031	0.064703	61,405
May-58	MADISON	323,846	0.07	22,669	927,317	949,986	0.064703	61,467
Jun-58	MADISON	322,999	0.07	22,610	922,262	944,872	0.064703	61,136
Jul-58	MADISON	325,398	0.07	22,778	909,682	932,460	0.064703	60,333
Aug-58	MADISON	303,925	0.07	21,275	836,911	858,186	0.064703	55,527
Sep-58	MADISON	287,755	0.07	20,143	794,632	814,775	0.064703	52,718
Oct-58	MADISON	302,825	0.07	21,198	834,488	855,686	0.064703	55,365
Nov-58	MADISON	277,366	0.07	19,416	761,958	781,374	0.064703	50,557
Dec-58	MADISON	304,575	0.07	21,320	836,421	857,741	0.064703	55,498
Jan-59	MADISON	331,717	0.07	23,220	909,395	932,615	0.064703	60,343
Feb-59	MADISON	296,244	0.07	20,737	814,357	835,094	0.064703	54,033
Mar-59	MADISON	324,203	0.07	22,694	890,059	912,753	0.064703	59,058
Apr-59	MADISON	302,765	0.07	21,194	831,303	852,497	0.064703	55,159
May-59	MADISON	299,129	0.07	20,939	821,668	842,607	0.062050	52,284
Jun-59	MADISON	293,822	0.07	20,568	807,659	828,227	0.062050	51,391
Jul-59	MADISON	273,815	0.07	19,167	752,067	771,234	0.062050	47,855
Aug-59	MADISON	310,997	0.07	21,770	855,137	876,907	0.062050	54,412
Sep-59	MADISON	302,661	0.07	21,186	833,372	854,558	0.062050	53,025
Oct-59	MADISON	296,697	0.07	20,769	815,601	836,370	0.062050	51,897
Nov-59	MADISON	294,582	0.07	20,621	812,819	833,440	0.062050	51,715
Dec-59	MADISON	300,003	0.07	21,000	826,716	847,716	0.062050	52,601

EXHIBIT C

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING GROSS SALES PROCEEDS
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	MURPHY OIL GATHERING FEES PER BARREL	TOTAL MURPHY OIL GATHERING FEES	TOTAL UNIT SALES VALUE	TOTAL GROSS SALES PROCEEDS	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-87	MADISON	13,142	0.23	3,023	203,940	206,963	0.079999	16,55
Feb-87	MADISON	12,596	0.23	2,897	197,611	200,508	0.079999	16,04
Mar-87	MADISON	13,819	0.23	3,178	215,472	218,650	0.079999	17,49
Apr-87	MADISON	13,278	0.23	3,054	209,681	212,735	0.079999	17,01
May-87	MADISON	12,634	0.23	2,906	207,098	210,004	0.079999	16,80
TOTALS:		40,571,884		2,766,781	$156,299,409	$159,066,190		$11,015,36

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
May-52	"A"	7,092				
Jun-52	"A"	5,857				
Jul-52	"A"	18,691	$2.63	$49,157	0.064584	$3,175
Aug-52	"A"	42,858	2.63	112,717	0.064584	7,280
Sep-52	"A"	30,597	2.63	80,470	0.064584	5,197
Oct-52	"A"	51,975	2.63	136,694	0.064584	8,828
Nov-52	"A"	39,022	2.63	102,628	0.063518	6,519
	"B"	816	2.63	2,146	0.114816	246
Dec-52	"A"	49,917	2.63	131,282	0.063518	8,339
	"B"	1,761	2.63	4,631	0.114816	532

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-53	"A"	40,388	2.63	106,220	0.063518	6,747
	"B"	NOT AVAILABLE				
Feb-53	"A"	50,414	2.63	132,589	0.063518	8,422
	"B"	5,370	2.63	14,123	0.114816	1,622
Mar-53	"A"	36,107	2.63	94,961	0.063518	6,032
	"B"	6,874	2.63	18,079	0.114816	2,076
Apr-53	"A"	40,118	2.63	105,510	0.056724	5,985
	"B"	7,217	2.63	18,981	0.114816	2,179
May-53	"A"	38,932	2.63	102,391	0.056724	5,808
	"B"	6,958	2.63	18,300	0.114816	2,101
Jun-53	"A"	26,519	2.76	73,192	0.056724	4,152
	"B"	5,037	2.76	13,902	0.114816	1,596
Jul-53	"A"	28,419	2.88	81,847	0.056724	4,643
	"B"	6,008	2.88	17,303	0.114816	1,987
Aug-53	"A"	26,047	2.88	75,015	0.055373	4,154
	"B"	9,327	2.88	26,862	0.102047	2,741
Sep-53	"A-B"	84,864	2.88	244,408	0.064044	15,653
Oct-53	"A-B"	116,406	2.88	335,249	0.064044	21,471
Nov-53	MADISON	96,155	2.88	276,926	0.065474	18,131
Dec-53	MADISON	104,131	2.88	299,897	0.065474	19,635

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-57	MADISON	371,300	3.05	1,132,465	0.064703	73,274
Feb-57	MADISON	333,465	3.13	1,043,745	0.064703	67,533
Mar-57	MADISON	374,701	3.13	1,172,814	0.064703	75,885
Apr-57	MADISON	360,412	3.13	1,128,090	0.064703	72,991
May-57	MADISON	349,475	3.13	1,093,857	0.064703	70,776
Jun-57	MADISON	365,013	3.13	1,142,491	0.064703	73,923
Jul-57	MADISON	350,702	3.13	1,097,697	0.064703	71,024
Aug-57	MADISON	354,786	3.13	1,110,480	0.064703	71,851
Sep-57	MADISON	336,200	3.13	1,052,306	0.064703	68,087
Oct-57	MADISON	319,749	3.13	1,000,814	0.064703	64,756
Nov-57	MADISON	332,869	3.13	1,041,880	0.064703	67,413
Dec-57	MADISON	354,875	3.13	1,110,759	0.064703	71,869
Jan-58	MADISON	341,764	3.13	1,069,721	0.064703	69,214
Feb-58	MADISON	321,310	3.13	1,005,700	0.064703	65,072
Mar-58	MADISON	350,189	3.13	1,096,092	0.064703	70,920
Apr-58	MADISON	325,536	3.13	1,018,928	0.064703	65,928
May-58	MADISON	323,846	3.13	1,013,638	0.064703	65,585
Jun-58	MADISON	322,999	3.13	1,010,987	0.064703	65,414
Jul-58	MADISON	325,398	3.13	1,018,496	0.064703	65,900
Aug-58	MADISON	303,925	3.13	951,285	0.064703	61,551
Sep-58	MADISON	287,755	3.13	900,673	0.064703	58,276
Oct-58	MADISON	302,825	3.13	947,842	0.064703	61,328
Nov-58	MADISON	277,366	3.00	832,098	0.064703	53,839
Dec-58	MADISON	304,575	2.93	892,405	0.064703	57,741
Jan-59	MADISON	331,717	2.93	971,931	0.064703	62,887
Feb-59	MADISON	296,244	2.93	867,995	0.064703	56,162
Mar-59	MADISON	324,203	2.93	949,915	0.064703	61,462
Apr-59	MADISON	302,765	2.93	887,101	0.064703	57,398
May-59	MADISON	299,129	2.93	876,448	0.062050	54,384
Jun-59	MADISON	293,822	2.93	860,898	0.062050	53,419
Jul-59	MADISON	273,815	2.93	802,278	0.062050	49,781
Aug-59	MADISON	310,997	2.93	911,221	0.062050	56,541
Sep-59	MADISON	302,661	2.93	886,797	0.062050	55,026
Oct-59	MADISON	296,697	2.93	869,322	0.062050	53,941
Nov-59	MADISON	294,582	2.93	863,125	0.062050	53,557
Dec-59	MADISON	300,003	2.93	879,009	0.062050	54,543

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-60	MADISON	299,447	2.93	877,380	0.062050	54,441
Feb-60	MADISON	276,279	2.93	809,497	0.062050	50,229
Mar-60	MADISON	291,176	2.93	853,146	0.062050	52,938
Apr-60	MADISON	274,261	2.93	803,585	0.062050	49,862
May-60	MADISON	264,899	2.93	776,154	0.062050	48,160
Jun-60	MADISON	228,659	2.93	669,971	0.062050	41,572
Jul-60	MADISON	267,888	2.93	784,912	0.062050	48,704
Aug-60	MADISON	259,745	2.93	761,053	0.062050	47,223
Sep-60	MADISON	247,940	2.93	726,464	0.061858	44,938
Oct-60	MADISON	241,558	2.93	707,765	0.061858	43,781
Nov-60	MADISON	234,360	2.93	686,675	0.061858	42,476
Dec-60	MADISON	231,192	2.93	677,393	0.061858	41,902
Jan-61	MADISON	218,838	2.93	641,195	0.061858	39,663
Feb-61	MADISON	188,978	2.93	553,706	0.061858	34,251
Mar-61	MADISON	211,194	2.93	618,798	0.061858	38,278
Apr-61	MADISON	190,913	2.93	559,375	0.061858	34,602
May-61	MADISON	198,008	2.93	580,163	0.061858	35,888
Jun-61	MADISON	139,265	2.93	408,046	0.061858	25,241
Jul-61	MADISON	205,130	2.93	601,031	0.061858	37,179
Aug-61	MADISON	202,798	2.93	594,198	0.061608	36,607
Sep-61	MADISON	187,259	2.93	548,669	0.061608	33,802
Oct-61	MADISON	184,132	2.93	539,507	0.061608	33,238
Nov-61	MADISON	163,174	2.93	478,100	0.061608	29,455
Dec-61	MADISON	183,983	2.93	539,070	0.061608	33,211
Jan-62	MADISON	165,083	2.93	483,693	0.061608	29,799
Feb-62	MADISON	150,364	2.93	440,567	0.061608	27,142
Mar-62	MADISON	158,559	2.93	464,578	0.061608	28,622
Apr-62	MADISON	146,547	2.93	429,383	0.061608	26,453
May-62	MADISON	149,395	2.93	437,727	0.061608	26,967
Jun-62	MADISON	137,484	2.93	402,828	0.061608	24,817
Jul-62	MADISON	146,147	2.93	428,211	0.061608	26,381
Aug-62	MADISON	144,830	2.93	424,352	0.061608	26,143
Sep-62	MADISON	144,105	2.93	422,228	0.061608	26,013
Oct-62	MADISON	136,810	2.93	400,853	0.061608	24,696
Nov-62	MADISON	141,106	2.93	413,441	0.061608	25,471
Dec-62	MADISON	139,014	2.93	407,311	0.061608	25,094

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-63	MADISON	142,031	2.93	416,151	0.061608	25,638
Feb-63	MADISON	123,084	2.93	360,636	0.061608	22,218
Mar-63	MADISON	133,608	2.93	391,471	0.061608	24,118
Apr-63	MADISON	129,336	2.93	378,954	0.061608	23,347
May-63	MADISON	127,509	2.93	373,601	0.061608	23,017
Jun-63	MADISON	121,517	2.93	356,045	0.061608	21,935
Jul-63	MADISON	121,702	2.93	356,587	0.061608	21,969
Aug-63	MADISON	123,634	2.93	362,248	0.061608	22,317
Sep-63	MADISON	122,213	2.93	358,084	0.061608	22,061
Oct-63	MADISON	116,896	2.93	342,505	0.061608	21,101
Nov-63	MADISON	122,080	2.93	357,694	0.061608	22,037
Dec-63	MADISON	124,939	2.93	366,071	0.061318	22,447
Jan-64	MADISON	119,434	2.93	349,942	0.061318	21,458
Feb-64	MADISON	109,362	2.93	320,431	0.061318	19,648
Mar-64	MADISON	114,569	2.93	335,687	0.061318	20,584
Apr-64	MADISON	103,256	2.93	302,540	0.061318	18,551
May-64	MADISON	107,951	2.83	305,501	0.061318	18,733
Jun-64	MADISON	114,714	2.83	324,641	0.061318	19,906
Jul-64	MADISON	107,787	2.83	305,037	0.061318	18,704
Aug-64	MADISON	104,884	2.83	296,822	0.061318	18,201
Sep-64	MADISON	102,613	2.83	290,395	0.061318	17,806
Oct-64	MADISON	99,380	2.83	281,245	0.061318	17,245
Nov-64	MADISON	91,296	2.83	258,368	0.061318	15,843
Dec-64	MADISON	91,812	2.83	259,828	0.061318	15,932
Jan-65	MADISON	87,712	2.83	248,225	0.061318	15,221
Feb-65	MADISON	82,236	2.83	232,728	0.061318	14,270
Mar-65	MADISON	86,681	2.83	245,307	0.061318	15,042
Apr-65	MADISON	86,395	2.83	244,498	0.061318	14,992
May-65	MADISON	82,163	2.83	232,521	0.061318	14,258
Jun-65	MADISON	82,545	2.83	233,602	0.061318	14,324
Jul-65	MADISON	78,120	2.83	221,080	0.061318	13,556
Aug-65	MADISON	82,553	2.83	233,625	0.061318	14,325
Sep-65	MADISON	79,536	2.83	225,087	0.061318	13,802
Oct-65	MADISON	75,858	2.83	214,678	0.061318	13,164
Nov-65	MADISON	77,267	2.83	218,666	0.061318	13,408
Dec-65	MADISON	83,844	2.83	237,279	0.061318	14,549

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-66	MADISON	74,999	2.83	212,247	0.061318	13,015
Feb-66	MADISON	70,714	2.83	200,121	0.061318	12,271
Mar-66	MADISON	75,975	2.83	215,009	0.061318	13,184
Apr-66	MADISON	75,783	2.83	214,466	0.061318	13,151
May-66	MADISON	72,673	2.83	205,665	0.061318	12,611
Jun-66	MADISON	67,355	2.83	190,615	0.061318	11,688
Jul-66	MADISON	72,162	2.83	204,218	0.061318	12,522
Aug-66	MADISON	68,202	2.83	193,012	0.061318	11,835
Sep-66	MADISON	66,043	2.83	186,902	0.061318	11,460
Oct-66	MADISON	65,686	2.88	189,176	0.061318	11,600
Nov-66	MADISON	64,708	2.88	186,359	0.061318	11,427
Dec-66	MADISON	64,499	2.88	185,757	0.061318	11,390
Jan-67	MADISON	59,014	2.88	169,960	0.061318	10,422
Feb-67	MADISON	55,723	2.88	160,482	0.061318	9,840
Mar-67	MADISON	60,316	2.88	173,710	0.061318	10,652
Apr-67	MADISON	58,623	2.88	168,834	0.061318	10,353
May-67	MADISON	57,584	2.88	165,842	0.061318	10,169
Jun-67	MADISON	57,870	2.88	166,666	0.061318	10,220
Jul-67	MADISON	57,029	2.88	164,244	0.061318	10,071
Aug-67	MADISON	57,586	2.93	168,727	0.061318	10,346
Sep-67	MADISON	54,274	2.93	159,023	0.061318	9,751
Oct-67	MADISON	55,561	2.93	162,794	0.061318	9,982
Nov-67	MADISON	52,082	2.93	152,600	0.061318	9,357
Dec-67	MADISON	57,274	2.93	167,813	0.061318	10,290
Jan-68	MADISON	53,097	2.93	155,574	0.061318	9,539
Feb-68	MADISON	53,983	2.93	158,170	0.061173	9,676
Mar-68	MADISON	52,645	2.93	154,250	0.061173	9,436
Apr-68	MADISON	55,087	2.93	161,405	0.061173	9,874
May-68	MADISON	55,660	2.93	163,084	0.061173	9,976
Jun-68	MADISON	50,002	2.93	146,506	0.061173	8,962
Jul-68	MADISON	54,277	2.93	159,032	0.061173	9,728
Aug-68	MADISON	51,777	2.93	151,707	0.061173	9,280
Sep-68	MADISON	49,572	2.98	147,725	0.061173	9,037
Oct-68	MADISON	51,507	2.98	153,491	0.061173	9,390
Nov-68	MADISON	48,350	2.98	144,083	0.061173	8,814
Dec-68	MADISON	53,137	2.98	158,348	0.061173	9,687

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-69	MADISON	52,736	2.98	157,153	0.061173	9,614
Feb-69	MADISON	43,606	2.98	129,946	0.061173	7,949
Mar-69	MADISON	48,384	3.05	147,571	0.061173	9,027
Apr-69	MADISON	46,335	3.08	142,712	0.061173	8,730
May-69	MADISON	52,819	3.08	162,683	0.061173	9,952
Jun-69	MADISON	51,451	3.08	158,469	0.061173	9,694
Jul-69	MADISON	48,045	3.08	147,979	0.061135	9,047
Aug-69	MADISON	48,273	3.08	148,681	0.061135	9,090
Sep-69	MADISON	48,401	3.08	149,075	0.061135	9,114
Oct-69	MADISON	48,494	3.08	149,362	0.061135	9,131
Nov-69	MADISON	46,092	3.08	141,963	0.061135	8,679
Dec-69	MADISON	50,475	3.08	155,463	0.061135	9,504
Jan-70	MADISON	47,385	3.08	145,946	0.061135	8,922
Feb-70	MADISON	46,794	3.08	144,126	0.061135	8,811
Mar-70	MADISON	47,138	3.08	145,185	0.061135	8,876
Apr-70	MADISON	46,814	3.08	144,187	0.061135	8,815
May-70	MADISON	45,049	3.08	138,751	0.061135	8,483
Jun-70	MADISON	46,123	3.08	142,059	0.061135	8,685
Jul-70	MADISON	46,711	3.08	143,870	0.061135	8,795
Aug-70	MADISON	46,750	3.08	143,990	0.061135	8,803
Sep-70	MADISON	44,854	3.08	138,150	0.061135	8,446
Oct-70	MADISON	47,013	3.08	144,800	0.061135	8,852
Nov-70	MADISON	42,084	3.20	134,669	0.061135	8,233
Dec-70	MADISON	47,035	3.33	156,627	0.061135	9,575
Jan-71	MADISON	42,987	3.33	143,147	0.061135	8,751
Feb-71	MADISON	40,218	3.33	133,926	0.061135	8,188
Mar-71	MADISON	43,579	3.33	145,118	0.061135	8,872
Apr-71	MADISON	41,307	3.33	137,552	0.061135	8,409
May-71	MADISON	41,980	3.33	139,793	0.061135	8,546
Jun-71	MADISON	42,215	3.33	140,576	0.061135	8,594
Jul-71	MADISON	42,666	3.33	142,078	0.061135	8,686
Aug-71	MADISON	39,218	3.33	130,596	0.061135	7,984
Sep-71	MADISON	41,707	3.33	138,884	0.061135	8,491
Oct-71	MADISON	41,538	3.33	138,322	0.061135	8,456
Nov-71	MADISON	40,145	3.33	133,683	0.061135	8,173
Dec-71	MADISON	40,795	3.33	135,847	0.061135	8,305

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-72	MADISON	37,860	3.33	126,074	0.061135	7,708
Feb-72	MADISON	34,690	3.33	115,518	0.061135	7,062
Mar-72	MADISON	37,680	3.33	125,474	0.061135	7,671
Apr-72	MADISON	37,927	3.33	126,297	0.061135	7,721
May-72	MADISON	40,622	3.33	135,271	0.061135	8,270
Jun-72	MADISON	37,696	3.33	125,528	0.061135	7,674
Jul-72	MADISON	35,386	3.33	117,835	0.061135	7,204
Aug-72	MADISON	40,731	3.33	135,634	0.061135	8,292
Sep-72	MADISON	36,176	3.33	120,466	0.061135	7,365
Oct-72	MADISON	39,377	3.33	131,125	0.061135	8,016
Nov-72	MADISON	37,073	3.33	123,453	0.061135	7,547
Dec-72	MADISON	34,890	3.33	116,184	0.061135	7,103
Jan-73	MADISON	36,657	3.33	122,068	0.061135	7,463
Feb-73	MADISON	35,385	3.33	117,832	0.061135	7,204
Mar-73	MADISON	39,002	3.33	129,877	0.061135	7,940
Apr-73	MADISON	33,658	3.71	124,871	0.061135	7,634
May-73	MADISON	38,913	3.71	144,367	0.061135	8,826
Jun-73	MADISON	36,381	3.71	134,974	0.061135	8,252
Jul-73	MADISON	35,489	3.71	131,664	0.061135	8,049
Aug-73	MADISON	38,192	3.80	145,130	0.061135	8,873
Sep-73	MADISON	36,471	4.06	148,072	0.061135	9,052
Oct-73	MADISON	39,221	4.06	159,237	0.061135	9,735
Nov-73	MADISON	37,309	4.06	151,475	0.061135	9,260
Dec-73	MADISON	37,427	4.48	167,673	0.061135	10,251
Jan-74	MADISON	39,139	5.06	198,043	0.061135	12,107
Feb-74	MADISON	36,559	5.06	184,989	0.061135	11,309
Mar-74	MADISON	38,753	5.06	196,090	0.061135	11,988
Apr-74	MADISON	32,276	5.06	163,317	0.061135	9,984
May-74	MADISON	36,691	5.06	185,656	0.061135	11,350
Jun-74	MADISON	36,419	5.06	184,280	0.061135	11,266
Jul-74	MADISON	36,107	5.06	182,701	0.061135	11,169
Aug-74	MADISON	39,856	5.06	201,671	0.061135	12,329
Sep-74	MADISON	34,739	5.06	175,779	0.061135	10,746
Oct-74	MADISON	38,283	5.06	193,712	0.061135	11,843
Nov-74	MADISON	37,880	5.06	191,673	0.061135	11,718
Dec-74	MADISON	35,461	5.06	179,433	0.061135	10,970

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-75	MADISON	37,077	5.06	187,610	0.061135	11,470
Feb-75	MADISON	33,664	5.06	170,340	0.061135	10,414
Mar-75	MADISON	35,359	5.06	178,917	0.061135	10,938
Apr-75	MADISON	35,232	5.06	178,274	0.061135	10,899
May-75	MADISON	33,027	5.06	167,117	0.061135	10,217
Jun-75	MADISON	31,985	5.06	161,844	0.061135	9,894
Jul-75	MADISON	35,452	5.06	179,387	0.061135	10,967
Aug-75	MADISON	33,139	5.06	167,683	0.061135	10,251
Sep-75	MADISON	31,573	5.06	159,759	0.061135	9,767
Oct-75	MADISON	34,578	5.06	174,965	0.061135	10,696
Nov-75	MADISON	28,107	5.06	142,221	0.081828	11,638
Dec-75	MADISON	31,696	5.06	160,382	0.081828	13,124
Jan-76	MADISON	29,848	5.06	151,031	0.081828	12,359
Feb-76	MADISON	23,907	5.06	120,969	0.081828	9,899
Mar-76	MADISON	28,947	5.09	147,340	0.081828	12,057
Apr-76	MADISON	35,377	5.12	181,130	0.081828	14,822
May-76	MADISON	37,245	5.16	192,184	0.081828	15,726
Jun-76	MADISON	31,221	5.19	162,037	0.081828	13,259
Jul-76	MADISON	34,969	5.19	181,489	0.080660	14,639
Aug-76	MADISON	30,554	5.19	158,575	0.080660	12,791
Sep-76	MADISON	39,800	5.19	206,562	0.080660	16,661
Oct-76	MADISON	40,151	5.19	208,384	0.080660	16,808
Nov-76	MADISON	35,797	5.19	185,786	0.080660	14,985
Dec-76	MADISON	39,832	5.19	206,728	0.080660	16,675
Jan-77	MADISON	32,846	5.19	170,471	0.080660	13,750
Feb-77	MADISON	38,492	5.19	199,773	0.080660	16,114
Mar-77	MADISON	40,967	5.19	212,619	0.080660	17,150
Apr-77	MADISON	40,296	5.19	209,136	0.080660	16,869
May-77	MADISON	37,325	5.19	193,717	0.080660	15,625
Jun-77	MADISON	33,586	5.19	174,311	0.080660	14,060
Jul-77	MADISON	34,837	5.19	180,804	0.080660	14,584
Aug-77	MADISON	36,419	5.19	189,015	0.080660	15,246
Sep-77	MADISON	32,782	5.22	171,122	0.080660	13,803
Oct-77	MADISON	34,045	5.25	178,736	0.080660	14,417
Nov-77	MADISON	32,777	5.28	173,063	0.080660	13,959
Dec-77	MADISON	29,573	5.28	156,145	0.080660	12,595

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-78	MADISON	32,357	5.32	172,139	0.080660	13,885
Feb-78	MADISON	28,694	5.34	153,226	0.080660	12,359
Mar-78	MADISON	30,493	5.37	163,747	0.080660	13,208
Apr-78	MADISON	29,817	5.40	161,012	0.080660	12,987
May-78	MADISON	33,968	5.43	184,446	0.080660	14,877
Jun-78	MADISON	33,856	5.46	184,854	0.080660	14,910
Jul-78	MADISON	31,696	5.49	174,011	0.080660	14,036
Aug-78	MADISON	32,131	5.52	177,363	0.080376	14,256
Sep-78	MADISON	30,728	5.57	171,155	0.080376	13,757
Oct-78	MADISON	28,681	5.62	161,187	0.080376	12,956
Nov-78	MADISON	25,560	5.67	144,925	0.080376	11,648
Dec-78	MADISON	27,510	5.70	156,807	0.080376	12,604
Jan-79	MADISON	25,473	5.73	145,960	0.080376	11,732
Feb-79	MADISON	20,202	5.76	116,364	0.080376	9,353
Mar-79	MADISON	20,470	5.80	118,726	0.080376	9,543
Apr-79	MADISON	15,728	5.84	91,852	0.080376	7,383
May-79	MADISON	18,214	5.88	107,098	0.080376	8,608
Jun-79	MADISON					
Lower Tier		6,045	5.92	35,786	0.080376	2,876
Upper Tier		12,884	13.46	173,419	0.080376	13,939
Jul-79	MADISON					
Lower Tier		6,247	5.96	37,232	0.080376	2,993
Upper Tier		10,637	13.55	144,131	0.080376	11,585
Aug-79	MADISON					
Lower Tier		6,247	6.00	37,482	0.080376	3,013
Upper Tier		11,852	13.64	161,661	0.080376	12,994
Sep-79	MADISON					
Lower Tier		6,045	6.04	36,512	0.080376	2,935
Upper Tier		11,443	13.74	157,227	0.080376	12,637
Oct-79	MADISON					
Lower Tier		6,247	6.08	37,982	0.080376	3,053
Upper Tier		7,950	13.84	110,028	0.080376	8,844
Nov-79	MADISON					
Lower Tier		6,045	6.12	36,995	0.080376	2,974
Upper Tier		9,446	13.94	131,677	0.080376	10,584
Dec-79	MADISON					
Lower Tier		6,247	6.16	38,482	0.080376	3,093
Upper Tier		11,564	14.03	162,243	0.080376	13,040

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-83	MADISON	19,798	31.98	633,140	0.080376	50,889
Feb-83	MADISON	18,391	30.48	560,558	0.080376	45,055
Mar-83	MADISON	19,721	29.98	591,236	0.080376	47,521
Apr-83	MADISON	18,217	29.98	546,146	0.080376	43,897
May-83	MADISON	18,959	29.23	554,172	0.080086	44,381
Jun-83	MADISON	17,358	29.35	509,457	0.080086	40,800
Jul-83	MADISON	17,043	29.48	502,428	0.080086	40,237
Aug-83	MADISON	18,668	29.48	550,333	0.080086	44,074
Sep-83	MADISON	18,171	29.48	535,681	0.080086	42,901
Oct-83	MADISON	18,207	29.48	536,742	0.080086	42,986
Nov-83	MADISON	16,973	29.48	500,364	0.080086	40,072
Dec-83	MADISON	18,912	29.48	557,526	0.080086	44,650
Jan-84	MADISON	16,391	29.48	483,207	0.080086	38,698
Feb-84	MADISON	17,050	29.48	502,634	0.080086	40,254
Mar-84	MADISON	17,160	29.13	499,871	0.080086	40,033
Apr-84	MADISON	17,340	29.13	505,114	0.080086	40,453
May-84	MADISON	17,402	29.13	506,920	0.080086	40,597
Jun-84	MADISON	16,439	29.13	478,868	0.080018	38,318
Jul-84	MADISON	17,036	29.13	496,259	0.080018	39,710
Aug-84	MADISON	16,079	29.13	468,381	0.080018	37,479
Sep-84	MADISON	16,813	29.13	489,763	0.080018	39,190
Oct-84	MADISON	16,831	29.13	490,287	0.080018	39,232
Nov-84	MADISON	15,483	27.82	430,737	0.080018	34,467
Dec-84	MADISON	16,164	27.38	442,570	0.080018	35,414
Jan-85	MADISON	16,167	26.75	432,467	0.080018	34,605
Feb-85	MADISON	15,458	26.13	403,918	0.080018	32,321
Mar-85	MADISON	17,334	26.13	452,937	0.080018	36,243
Apr-85	MADISON	16,143	26.13	421,817	0.080018	33,753
May-85	MADISON	16,484	26.13	430,727	0.080018	34,466
Jun-85	MADISON	15,280	26.13	399,266	0.080018	31,948
Jul-85	MADISON	15,765	26.13	411,939	0.080018	32,963
Aug-85	MADISON	16,517	26.13	431,589	0.079999	34,527
Sep-85	MADISON	14,610	26.13	381,759	0.079999	30,540
Oct-85	MADISON	16,417	26.13	428,976	0.079999	34,318
Nov-85	MADISON	15,127	26.63	402,832	0.079999	32,226
Dec-85	MADISON	15,419	26.63	410,608	0.079999	32,848

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-80	MADISON					
Lower Tier		6,247	6.20	38,731	0.080376	3,113
Upper Tier		9,447	14.12	133,392	0.080376	10,722
Feb-80	MADISON	14,588	37.98	554,052	0.080376	44,532
Mar-80	MADISON	14,587	39.48	575,895	0.080376	46,288
Apr-80	MADISON	16,769	39.48	662,040	0.080376	53,212
May-80	MADISON	18,818	39.48	742,935	0.080376	59,714
Jun-80	MADISON	17,741	39.48	700,415	0.080376	56,297
Jul-80	MADISON	19,953	39.48	787,744	0.080376	63,316
Aug-80	MADISON	22,515	37.98	855,120	0.080376	68,731
Sep-80	MADISON	22,951	35.98	825,777	0.080376	66,373
Oct-80	MADISON	22,568	35.98	811,997	0.080376	65,265
Nov-80	MADISON	22,551	35.98	811,385	0.080376	65,216
Dec-80	MADISON	19,743	36.98	730,096	0.080376	58,682
Jan-81	MADISON	21,985	37.98	834,990	0.080376	67,113
Feb-81	MADISON	16,715	37.98	634,836	0.080376	51,026
Mar-81	MADISON	22,277	37.98	846,080	0.080376	68,005
Apr-81	MADISON	22,006	37.98	835,788	0.080376	67,177
May-81	MADISON	21,003	36.98	776,691	0.080376	62,427
Jun-81	MADISON	19,062	35.73	681,085	0.080376	54,743
Jul-81	MADISON	18,472	34.98	646,151	0.080376	51,935
Aug-81	MADISON	20,112	34.98	703,518	0.080376	56,546
Sep-81	MADISON	22,845	34.98	799,118	0.080376	64,230
Oct-81	MADISON	22,566	34.98	789,359	0.080376	63,446
Nov-81	MADISON	19,845	35.48	704,101	0.080376	56,593
Dec-81	MADISON	22,833	34.98	798,698	0.080376	64,196
Jan-82	MADISON	19,173	34.98	670,672	0.080376	53,906
Feb-82	MADISON	19,634	34.23	672,072	0.080376	54,018
Mar-82	MADISON	20,379	33.00	672,507	0.080376	54,053
Apr-82	MADISON	19,083	31.98	610,274	0.080376	49,051
May-82	MADISON	19,570	31.98	625,849	0.080376	50,303
Jun-82	MADISON	20,827	31.98	666,047	0.080376	53,534
Jul-82	MADISON	20,702	31.98	662,050	0.080376	53,213
Aug-82	MADISON	20,247	31.98	647,499	0.080376	52,043
Sep-82	MADISON	20,142	31.98	644,141	0.080376	51,773
Oct-82	MADISON	20,071	32.98	661,942	0.080376	53,204
Nov-82	MADISON	19,515	32.98	643,605	0.080376	51,730
Dec-82	MADISON	20,648	32.23	665,485	0.080376	53,489

EXHIBIT D

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF INDIAN ROYALTY USING FIELD MARKET PRICE
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	FIELD MARKET PRICE PER BARREL	TOTAL UNIT VALUE USING FIELD MARKET PRICE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY DUE
Jan-86	MADISON	15,485	25.96	401,991	0.079999	32,159
Feb-86	MADISON	13,466	20.06	270,128	0.079999	21,610
Mar-86	MADISON	15,208	11.98	182,192	0.079999	14,575
Apr-86	MADISON	14,516	11.55	167,660	0.079999	13,413
May-86	MADISON	15,204	12.01	182,600	0.079999	14,608
Jun-86	MADISON	12,668	12.97	164,304	0.079999	13,144
Jul-86	MADISON	14,187	11.36	161,164	0.079999	12,893
Aug-86	MADISON	13,289	12.35	164,119	0.079999	13,129
Sep-86	MADISON	12,211	13.63	166,436	0.079999	13,315
Oct-86	MADISON	12,242	13.63	166,858	0.079999	13,348
Nov-86	MADISON	13,121	13.63	178,839	0.079999	14,307
Dec-86	MADISON	12,390	14.08	174,451	0.079999	13,956
Jan-87	MADISON	13,142	16.28	213,952	0.079999	17,116
Feb-87	MADISON	12,596	16.63	209,471	0.079999	16,757
Mar-87	MADISON	13,819	16.63	229,810	0.079999	18,385
Apr-87	MADISON	13,278	16.63	220,813	0.079999	17,665
May-87	MADISON	12,634	17.20	217,305	0.079999	17,384
TOTALS:		40,571,884		$167,630,168		$11,572,607

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
May-52	"A"	7,092			
Jun-52	"A"	5,857			
Jul-52	"A"	18,691	$36,462	0.064584	$2,355
Aug-52	"A"	42,858	83,601	0.064584	5,399
Sep-52	"A"	30,597	59,685	0.064584	3,855
Oct-52	"A"	51,975	51,975	0.064584	3,357
Nov-52	"A"	39,022	76,124	0.063518	4,835
	"B"	816	1,590	0.114816	183
Dec-52	"A"	49,917	49,917	0.063518	3,171
	"B"	1,761	3,523	0.114816	405

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-53	"A"	40,388	81,183	0.063518	5,157
	"B"	NOT AVAILABLE			
Feb-53	"A"	50,414	101,331	0.063518	6,436
	"B"	5,370	10,804	0.114816	1,240
Mar-53	"A"	36,107	72,575	0.063518	4,610
	"B"	6,874	13,812	0.114816	1,586
Apr-53	"A"	40,118	80,636	0.056724	4,574
	"B"	7,217	14,499	0.114816	1,665
May-53	"A"	38,932	78,255	0.056724	4,439
	"B"	6,958	13,987	0.114816	1,606
Jun-53	"A"	26,519	53,307	0.056724	3,024
	"B"	5,037	10,134	0.114816	1,164
Jul-53	"A"	28,419	57,123	0.056724	3,240
	"B"	6,008	12,086	0.114816	1,388
Aug-53	"A"	26,047	52,147	0.055373	2,888
	"B"	9,327	18,676	0.102047	1,906
Sep-53	"A-B"	84,864	160,159	0.064044	10,257
Oct-53	"A-B"	116,406	224,707	0.064044	14,391
Nov-53	MADISON	96,155	185,541	0.065474	12,148
Dec-53	MADISON	104,131	204,890	0.065474	13,415

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-54	MADISON	69,214	135,789	0.065474	8,891
Feb-54	MADISON	82,879	162,620	0.065474	10,647
Mar-53	MADISON	187,466	355,920	0.071537	25,461
Apr-54	MADISON	152,850	289,178	0.071537	20,687
May-54	MADISON	232,877	443,398	0.071537	31,719
Jun-54	MADISON	272,155	516,670	0.071537	36,961
Jul-54	MADISON	280,204	535,616	0.067951	36,396
Aug-54	MADISON	261,196	501,080	0.067951	34,049
Sep-54	MADISON	266,550	512,185	0.066596	34,109
Oct-54	MADISON	271,532	521,078	0.067944	35,404
Nov-54	MADISON	271,302	519,824	0.067944	35,319
Dec-54	MADISON	270,216	531,566	0.067944	36,117
Jan-55	MADISON	285,395	562,204	0.067505	37,952
Feb-55	MADISON	249,481	491,358	0.067505	33,169
Mar-55	MADISON	269,903	531,090	0.067623	35,914
Apr-55	MADISON	266,784	554,777	0.067623	37,516
May-55	MADISON	265,863	552,996	0.067623	37,395
Jun-55	MADISON	181,945	396,509	0.067095	26,604
Jul-55	MADISON	148,363	319,989	0.067095	21,470
Aug-55	MADISON	178,849	387,874	0.067095	26,024
Sep-55	MADISON	120,217	261,828	0.067095	17,567
Oct-55	MADISON	151,523	328,805	0.067095	22,061
Nov-55	MADISON	177,663	459,511	0.067095	30,831
Dec-55	MADISON	255,768	660,444	0.065704	43,394
Jan-56	MADISON	319,219	830,091	0.065704	54,540
Feb-56	MADISON	303,649	789,231	0.065704	51,856
Mar-56	MADISON	334,425	869,406	0.065704	57,123
Apr-56	MADISON	313,317	811,535	0.065704	53,321
May-56	MADISON	293,386	750,634	0.064703	48,568
Jun-56	MADISON	295,706	761,974	0.064703	49,302
Jul-56	MADISON	310,440	800,662	0.064703	51,805
Aug-56	MADISON	169,262	436,358	0.064703	28,234
Sep-56	MADISON	186,805	480,558	0.064703	31,094
Oct-56	MADISON	203,269	514,619	0.064703	33,297
Nov-56	MADISON	299,651	760,747	0.064703	49,223
Dec-56	MADISON	359,623	917,562	0.064703	59,369

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-57	MADISON	371,300	1,021,892	0.064703	66,119
Feb-57	MADISON	333,465	940,872	0.064703	60,877
Mar-57	MADISON	374,701	1,062,691	0.064703	68,759
Apr-57	MADISON	360,412	1,013,229	0.064703	65,559
May-57	MADISON	349,475	990,273	0.064703	64,074
Jun-57	MADISON	365,013	1,037,040	0.064703	67,100
Jul-57	MADISON	350,702	991,867	0.064703	64,177
Aug-57	MADISON	354,786	1,003,366	0.064703	64,921
Sep-57	MADISON	336,200	951,652	0.064703	61,575
Oct-57	MADISON	319,749	912,495	0.064703	59,041
Nov-57	MADISON	332,869	945,947	0.064703	61,206
Dec-57	MADISON	354,875	1,008,669	0.064703	65,264
Jan-58	MADISON	341,764	973,668	0.064703	62,999
Feb-58	MADISON	321,310	914,073	0.064703	59,143
Mar-58	MADISON	350,189	995,318	0.064703	64,400
Apr-58	MADISON	325,536	926,243	0.064703	59,931
May-58	MADISON	323,846	927,317	0.064703	60,000
Jun-58	MADISON	322,999	922,262	0.064703	59,673
Jul-58	MADISON	325,398	909,682	0.064703	58,859
Aug-58	MADISON	303,925	836,911	0.064703	54,151
Sep-58	MADISON	287,755	794,632	0.064703	51,415
Oct-58	MADISON	302,825	834,488	0.064703	53,994
Nov-58	MADISON	277,366	761,958	0.064703	49,301
Dec-58	MADISON	304,575	836,421	0.064703	54,119
Jan-59	MADISON	331,717	909,395	0.064703	58,841
Feb-59	MADISON	296,244	814,357	0.064703	52,691
Mar-59	MADISON	324,203	890,059	0.064703	57,589
Apr-59	MADISON	302,765	831,303	0.064703	53,788
May-59	MADISON	299,129	821,668	0.062050	50,985
Jun-59	MADISON	293,822	807,659	0.062050	50,115
Jul-59	MADISON	273,815	752,067	0.062050	46,666
Aug-59	MADISON	310,997	855,137	0.062050	53,061
Sep-59	MADISON	302,661	833,372	0.062050	51,711
Oct-59	MADISON	296,697	815,601	0.062050	50,608
Nov-59	MADISON	294,582	812,819	0.062050	50,435
Dec-59	MADISON	300,003	826,716	0.062050	51,298

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
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SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-60	MADISON	299,447	823,821	0.062050	51,118
Feb-60	MADISON	276,279	762,383	0.062050	47,306
Mar-60	MADISON	291,176	801,657	0.062050	49,743
Apr-60	MADISON	274,261	753,508	0.062050	46,755
May-60	MADISON	264,899	725,401	0.062050	45,011
Jun-60	MADISON	228,659	626,770	0.062050	38,891
Jul-60	MADISON	267,888	735,126	0.062050	45,615
Aug-60	MADISON	259,745	712,604	0.062050	44,217
Sep-60	MADISON	247,940	677,621	0.061858	41,916
Oct-60	MADISON	241,558	664,661	0.061858	41,115
Nov-60	MADISON	234,360	644,612	0.061858	39,874
Dec-60	MADISON	231,192	634,075	0.061858	39,223
Jan-61	MADISON	218,838	598,933	0.061858	37,049
Feb-61	MADISON	188,978	518,920	0.061858	32,099
Mar-61	MADISON	211,194	579,411	0.061858	35,841
Apr-61	MADISON	190,913	525,518	0.061858	32,507
May-61	MADISON	198,008	547,577	0.061858	33,872
Jun-61	MADISON	139,265	383,037	0.061858	23,694
Jul-61	MADISON	205,130	563,168	0.061858	34,836
Aug-61	MADISON	202,798	558,995	0.061608	34,439
Sep-61	MADISON	187,259	514,802	0.061608	31,716
Oct-61	MADISON	184,132	499,057	0.061608	30,746
Nov-61	MADISON	163,174	437,816	0.061608	26,973
Dec-61	MADISON	183,983	494,993	0.061608	30,496
Jan-62	MADISON	165,083	439,773	0.061608	27,094
Feb-62	MADISON	150,364	410,889	0.061608	25,314
Mar-62	MADISON	158,559	428,622	0.061608	26,407
Apr-62	MADISON	146,547	395,307	0.061608	24,354
May-62	MADISON	149,395	402,785	0.061608	24,815
Jun-62	MADISON	137,484	371,420	0.061608	22,882
Jul-62	MADISON	146,147	406,193	0.061608	25,025
Aug-62	MADISON	144,830	396,519	0.061608	24,429
Sep-62	MADISON	144,105	394,043	0.061608	24,276
Oct-62	MADISON	136,810	375,102	0.061608	23,109
Nov-62	MADISON	141,106	385,025	0.061608	23,721
Dec-62	MADISON	139,014	378,859	0.061608	23,341

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
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FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-63	MADISON	142,031	388,482	0.061608	23,934
Feb-63	MADISON	123,084	333,878	0.061608	20,570
Mar-63	MADISON	133,608	366,795	0.061608	22,598
Apr-63	MADISON	129,336	351,662	0.061608	21,665
May-63	MADISON	127,509	349,929	0.061608	21,558
Jun-63	MADISON	121,517	333,530	0.061608	20,548
Jul-63	MADISON	121,702	334,053	0.061608	20,580
Aug-63	MADISON	123,634	343,250	0.061608	21,147
Sep-63	MADISON	122,213	334,597	0.061608	20,614
Oct-63	MADISON	116,896	321,699	0.061608	19,819
Nov-63	MADISON	122,080	335,772	0.061608	20,686
Dec-63	MADISON	124,939	343,658	0.061318	21,072
Jan-64	MADISON	119,434	328,658	0.061318	20,153
Feb-64	MADISON	109,362	299,489	0.061318	18,364
Mar-64	MADISON	114,569	315,048	0.061318	19,318
Apr-64	MADISON	103,256	282,015	0.061318	17,293
May-64	MADISON	107,951	296,909	0.061318	18,206
Jun-64	MADISON	114,714	314,331	0.061318	19,274
Jul-64	MADISON	107,787	296,809	0.061318	18,200
Aug-64	MADISON	104,884	285,926	0.061318	17,532
Sep-64	MADISON	102,613	279,837	0.061318	17,159
Oct-64	MADISON	99,380	271,316	0.061318	16,637
Nov-64	MADISON	91,296	249,314	0.061318	15,287
Dec-64	MADISON	91,812	251,000	0.061318	15,391
Jan-65	MADISON	87,712	239,962	0.061318	14,714
Feb-65	MADISON	82,236	224,435	0.061318	13,762
Mar-65	MADISON	86,681	237,057	0.061318	14,536
Apr-65	MADISON	86,395	236,041	0.061318	14,474
May-65	MADISON	82,163	223,639	0.061318	13,713
Jun-65	MADISON	82,545	226,342	0.061318	13,879
Jul-65	MADISON	78,120	215,180	0.061318	13,194
Aug-65	MADISON	82,553	229,185	0.061318	14,053
Sep-65	MADISON	79,536	222,075	0.061318	13,617
Oct-65	MADISON	75,858	199,589	0.061318	12,238
Nov-65	MADISON	77,267	210,706	0.061318	12,920
Dec-65	MADISON	83,844	228,616	0.061318	14,018

EXHIBIT E

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SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-66	MADISON	74,999	203,648	0.061318	12,487
Feb-66	MADISON	70,714	193,157	0.061318	11,844
Mar-66	MADISON	75,975	204,857	0.061318	12,561
Apr-66	MADISON	75,783	208,602	0.061318	12,791
May-66	MADISON	72,673	200,089	0.061318	12,269
Jun-66	MADISON	67,355	184,562	0.061318	11,317
Jul-66	MADISON	72,162	197,563	0.061318	12,114
Aug-66	MADISON	68,202	186,738	0.061318	11,450
Sep-66	MADISON	66,043	180,788	0.061318	11,086
Oct-66	MADISON	65,686	180,650	0.061318	11,077
Nov-66	MADISON	64,708	177,801	0.061318	10,902
Dec-66	MADISON	64,499	177,346	0.061318	10,875
Jan-67	MADISON	59,014	161,068	0.061318	9,876
Feb-67	MADISON	55,723	151,401	0.061318	9,284
Mar-67	MADISON	60,316	167,806	0.061318	10,290
Apr-67	MADISON	58,623	161,646	0.061318	9,912
May-67	MADISON	57,584	158,070	0.061318	9,693
Jun-67	MADISON	57,870	159,188	0.061318	9,761
Jul-67	MADISON	57,029	156,842	0.061318	9,617
Aug-67	MADISON	57,586	160,588	0.061318	9,847
Sep-67	MADISON	54,274	151,704	0.061318	9,302
Oct-67	MADISON	55,561	155,317	0.061318	9,524
Nov-67	MADISON	52,082	145,464	0.061318	8,920
Dec-67	MADISON	57,274	159,535	0.061318	9,782
Jan-68	MADISON	53,097	148,298	0.061318	9,093
Feb-68	MADISON	53,983	150,638	0.061173	9,215
Mar-68	MADISON	52,645	147,168	0.061173	9,003
Apr-68	MADISON	55,087	154,205	0.061173	9,433
May-68	MADISON	55,660	155,462	0.061173	9,510
Jun-68	MADISON	50,002	141,487	0.061173	8,655
Jul-68	MADISON	54,277	156,339	0.061173	9,564
Aug-68	MADISON	51,777	148,978	0.061173	9,113
Sep-68	MADISON	49,572	142,592	0.061173	8,723
Oct-68	MADISON	51,507	147,909	0.061173	9,048
Nov-68	MADISON	48,350	138,966	0.061173	8,501
Dec-68	MADISON	53,137	152,528	0.061173	9,331

EXHIBIT E

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Jan-69	MADISON	52,736	151,290	0.061173	9,255
Feb-69	MADISON	43,606	125,179	0.061173	7,658
Mar-69	MADISON	48,384	143,188	0.061173	8,759
Apr-69	MADISON	46,335	138,002	0.061173	8,442
May-69	MADISON	52,819	156,960	0.061173	9,602
Jun-69	MADISON	51,451	152,889	0.061173	9,353
Jul-69	MADISON	48,045	142,834	0.061135	8,732
Aug-69	MADISON	48,273	143,796	0.061135	8,791
Sep-69	MADISON	48,401	144,367	0.061135	8,826
Oct-69	MADISON	48,494	146,602	0.061135	8,963
Nov-69	MADISON	46,092	139,244	0.061135	8,513
Dec-69	MADISON	50,475	152,666	0.061135	9,333
Jan-70	MADISON	47,385	143,103	0.061135	8,749
Feb-70	MADISON	46,794	141,385	0.061135	8,644
Mar-70	MADISON	47,138	142,507	0.061135	8,712
Apr-70	MADISON	46,814	141,655	0.061135	8,660
May-70	MADISON	45,049	136,420	0.061135	8,340
Jun-70	MADISON	46,123	139,703	0.061135	8,541
Jul-70	MADISON	46,711	141,520	0.061135	8,652
Aug-70	MADISON	46,750	143,949	0.061135	8,800
Sep-70	MADISON	44,854	138,370	0.061135	8,459
Oct-70	MADISON	47,013	144,903	0.061135	8,859
Nov-70	MADISON	42,084	134,774	0.061135	8,239
Dec-70	MADISON	47,035	156,972	0.061135	9,596
Jan-71	MADISON	42,987	143,183	0.061135	8,753
Feb-71	MADISON	40,218	134,273	0.061135	8,209
Mar-71	MADISON	43,579	145,369	0.061135	8,887
Apr-71	MADISON	41,307	137,871	0.061135	8,429
May-71	MADISON	41,980	140,217	0.061135	8,572
Jun-71	MADISON	42,215	141,055	0.061135	8,623
Jul-71	MADISON	42,666	142,611	0.061135	8,719
Aug-71	MADISON	39,218	130,991	0.061135	8,008
Sep-71	MADISON	41,707	139,311	0.061135	8,517
Oct-71	MADISON	41,538	138,626	0.061135	8,475
Nov-71	MADISON	40,145	133,840	0.061135	8,182
Dec-71	MADISON	40,795	135,819	0.061135	8,303

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
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Jan-72	MADISON	37,860	125,900	0.061135	7,697
Feb-72	MADISON	34,690	115,357	0.061135	7,052
Mar-72	MADISON	37,680	125,479	0.061135	7,671
Apr-72	MADISON	37,927	126,434	0.061135	7,730
May-72	MADISON	40,622	135,611	0.061135	8,291
Jun-72	MADISON	37,696	125,884	0.061135	7,696
Jul-72	MADISON	35,386	118,097	0.061135	7,220
Aug-72	MADISON	40,731	136,086	0.061135	8,320
Sep-72	MADISON	36,176	120,719	0.061135	7,380
Oct-72	MADISON	39,377	131,354	0.061135	8,030
Nov-72	MADISON	37,073	123,471	0.061135	7,548
Dec-72	MADISON	34,890	115,922	0.061135	7,087
Jan-73	MADISON	36,657	121,768	0.061135	7,444
Feb-73	MADISON	35,385	118,060	0.061135	7,218
Mar-73	MADISON	39,002	130,308	0.061135	7,966
Apr-73	MADISON	33,658	123,890	0.061135	7,574
May-73	MADISON	38,913	141,908	0.061135	8,676
Jun-73	MADISON	36,381	133,194	0.061135	8,143
Jul-73	MADISON	35,489	129,980	0.061135	7,946
Aug-73	MADISON	38,192	145,102	0.061135	8,871
Sep-73	MADISON	36,471	150,652	0.061135	9,210
Oct-73	MADISON	39,221	157,422	0.061135	9,624
Nov-73	MADISON	37,309	162,357	0.061135	9,926
Dec-73	MADISON	37,427	202,532	0.061135	12,382
Jan-74	MADISON	39,139	221,130	0.061135	13,519
Feb-74	MADISON	36,559	218,000	0.061135	13,327
Mar-74	MADISON	38,753	239,138	0.061135	14,620
Apr-74	MADISON	32,276	178,234	0.061135	10,896
May-74	MADISON	36,691	185,741	0.061135	11,355
Jun-74	MADISON	36,419	184,046	0.061135	11,252
Jul-74	MADISON	36,107	182,108	0.061135	11,133
Aug-74	MADISON	39,856	200,441	0.061135	12,254
Sep-74	MADISON	34,739	175,566	0.061135	10,733
Oct-74	MADISON	38,283	193,091	0.061135	11,805
Nov-74	MADISON	37,880	193,575	0.061135	11,834
Dec-74	MADISON	35,461	181,306	0.061135	11,084

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-75	MADISON	37,077	188,985	0.061135	11,554
Feb-75	MADISON	33,664	172,084	0.061135	10,520
Mar-75	MADISON	35,359	181,524	0.061135	11,097
Apr-75	MADISON	35,232	179,698	0.061135	10,986
May-75	MADISON	33,027	168,487	0.061135	10,300
Jun-75	MADISON	31,985	163,470	0.061135	9,994
Jul-75	MADISON	35,452	181,126	0.061135	11,073
Aug-75	MADISON	33,139	169,323	0.061135	10,352
Sep-75	MADISON	31,573	161,382	0.061135	9,866
Oct-75	MADISON	34,578	176,531	0.061135	10,792
Nov-75	MADISON	28,107	143,914	0.061135	8,798
Dec-75	MADISON	31,696	162,402	0.061135	9,928
Jan-76	MADISON	29,848	151,520	0.061135	9,263
Feb-76	MADISON	23,907	123,629	0.061135	7,558
Mar-76	MADISON	28,947	149,387	0.061135	9,133
Apr-76	MADISON	35,377	202,624	0.061135	12,387
May-76	MADISON	37,245	218,659	0.061135	13,368
Jun-76	MADISON	31,221	165,208	0.061135	10,100
Jul-76	MADISON	34,969	184,487	0.059973	11,064
Aug-76	MADISON	30,554	161,141	0.059973	9,664
Sep-76	MADISON	39,800	228,659	0.059973	13,713
Oct-76	MADISON	40,151	254,963	0.059973	15,291
Nov-76	MADISON	35,797	208,736	0.059973	12,519
Dec-76	MADISON	39,832	250,568	0.059973	15,027
Jan-77	MADISON	32,846	173,434	0.059973	10,401
Feb-77	MADISON	38,492	251,844	0.059973	15,104
Mar-77	MADISON	40,967	263,927	0.059973	15,828
Apr-77	MADISON	40,296	262,412	0.059973	15,738
May-77	MADISON	37,325	220,511	0.059973	13,225
Jun-77	MADISON	33,586	183,694	0.059973	11,017
Jul-77	MADISON	34,837	191,234	0.059973	11,469
Aug-77	MADISON	36,419	194,737	0.059973	11,679
Sep-77	MADISON	32,782	191,451	0.059973	11,482
Oct-77	MADISON	34,045	184,117	0.059973	11,042
Nov-77	MADISON	32,777	178,234	0.059973	10,689
Dec-77	MADISON	29,573	161,373	0.059973	9,678

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-78	MADISON	32,357	177,242	0.059973	10,630
Feb-78	MADISON	28,694	157,752	0.059973	9,461
Mar-78	MADISON	30,493	168,580	0.080666	13,599
Apr-78	MADISON	29,817	165,743	0.080666	13,370
May-78	MADISON	33,968	189,757	0.080666	15,307
Jun-78	MADISON	33,856	190,213	0.080666	15,344
Jul-78	MADISON	31,696	179,043	0.080666	14,443
Aug-78	MADISON	32,131	182,461	0.080376	14,665
Sep-78	MADISON	30,728	176,034	0.080376	14,149
Oct-78	MADISON	28,681	165,740	0.080376	13,322
Nov-78	MADISON	25,560	148,944	0.080376	11,972
Dec-78	MADISON	27,510	161,088	0.080376	12,948
Jan-79	MADISON	25,473	149,875	0.080376	12,046
Feb-79	MADISON	20,202	119,470	0.080376	9,603
Mar-79	MADISON	20,470	121,858	0.080376	9,794
Apr-79	MADISON	15,728	94,252	0.080376	7,576
May-79	MADISON	18,214	109,846	0.080376	8,829
Jun-79	MADISON	18,929	215,949	0.080376	17,357
Jul-79	MADISON	16,884	187,022	0.080376	15,032
Aug-79	MADISON	18,099	205,475	0.080376	16,515
Sep-79	MADISON	17,488	199,833	0.080376	16,062
Oct-79	MADISON	14,197	152,576	0.080376	12,263
Nov-79	MADISON	15,491	173,821	0.080376	13,971
Dec-79	MADISON	17,811	206,905	0.080376	16,630
Jan-80	MADISON	15,694	188,845	0.080376	15,179
Feb-80	MADISON	14,588	598,105	0.080376	48,073
Mar-80	MADISON	14,587	598,054	0.080376	48,069
Apr-80	MADISON	16,769	662,378	0.080376	53,239
May-80	MADISON	18,818	743,292	0.080376	59,743
Jun-80	MADISON	17,741	700,749	0.080376	56,323
Jul-80	MADISON	19,953	788,112	0.080376	63,345
Aug-80	MADISON	22,515	855,570	0.080376	68,767
Sep-80	MADISON	22,951	826,243	0.080376	66,410
Oct-80	MADISON	22,568	812,442	0.080376	65,301
Nov-80	MADISON	22,551	811,832	0.080376	65,252
Dec-80	MADISON	19,743	730,491	0.080376	58,714

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-81	MADISON	21,985	835,463	0.080376	67,151
Feb-81	MADISON	16,715	635,071	0.080376	51,044
Mar-81	MADISON	22,277	846,418	0.080376	68,032
Apr-81	MADISON	22,006	836,121	0.080376	67,204
May-81	MADISON	21,003	774,895	0.080376	62,283
Jun-81	MADISON	19,062	680,323	0.080376	54,682
Jul-81	MADISON	18,472	646,573	0.080376	51,969
Aug-81	MADISON	20,112	703,836	0.080376	56,572
Sep-81	MADISON	22,845	799,578	0.080376	64,267
Oct-81	MADISON	22,566	789,712	0.080376	63,474
Nov-81	MADISON	19,845	694,399	0.080376	55,813
Dec-81	MADISON	22,833	799,036	0.080376	64,223
Jan-82	MADISON	19,173	670,827	0.080376	53,918
Feb-82	MADISON	19,634	670,241	0.080376	53,871
Mar-82	MADISON	20,379	661,941	0.080376	53,204
Apr-82	MADISON	19,083	591,524	0.080376	47,544
May-82	MADISON	19,570	606,728	0.080376	48,766
Jun-82	MADISON	20,827	666,466	0.080376	53,568
Jul-82	MADISON	20,702	662,433	0.080376	53,244
Aug-82	MADISON	20,247	647,914	0.080376	52,077
Sep-82	MADISON	20,142	644,526	0.080376	51,804
Oct-82	MADISON	20,071	662,335	0.080376	53,236
Nov-82	MADISON	19,515	643,978	0.080376	51,760
Dec-82	MADISON	20,648	665,360	0.080376	53,479
Jan-83	MADISON	19,798	633,498	0.080376	50,918
Feb-83	MADISON	18,391	561,572	0.080376	45,137
Mar-83	MADISON	19,721	591,627	0.080376	47,553
Apr-83	MADISON	18,217	539,225	0.080376	43,341
May-83	MADISON	18,959	554,468	0.080086	44,405
Jun-83	MADISON	17,358	509,691	0.080086	40,819
Jul-83	MADISON	17,043	502,488	0.080086	40,242
Aug-83	MADISON	18,668	550,255	0.080086	44,068
Sep-83	MADISON	18,171	535,659	0.080086	42,899
Oct-83	MADISON	18,207	536,664	0.080086	42,979
Nov-83	MADISON	16,973	500,433	0.080086	40,078
Dec-83	MADISON	18,912	557,529	0.080086	44,650

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-84	MADISON	16,391	483,162	0.080086	38,695
Feb-84	MADISON	17,050	502,612	0.080086	40,252
Mar-84	MADISON	17,160	499,913	0.080086	40,036
Apr-84	MADISON	17,340	505,186	0.080086	40,458
May-84	MADISON	17,402	507,025	0.080086	40,606
Jun-84	MADISON	16,439	478,929	0.080018	38,323
Jul-84	MADISON	17,036	496,367	0.080018	39,718
Aug-84	MADISON	16,079	460,377	0.080018	36,838
Sep-84	MADISON	16,813	481,298	0.080018	38,513
Oct-84	MADISON	16,831	477,653	0.080018	38,221
Nov-84	MADISON	15,483	414,132	0.080018	33,138
Dec-84	MADISON	16,164	416,939	0.080018	33,363
Jan-85	MADISON	16,167	398,442	0.080018	31,883
Feb-85	MADISON	15,458	378,505	0.080018	30,287
Mar-85	MADISON	17,334	431,292	0.080018	34,511
Apr-85	MADISON	16,143	401,736	0.080018	32,146
May-85	MADISON	16,484	410,271	0.080018	32,829
Jun-85	MADISON	15,280	380,201	0.080018	30,423
Jul-85	MADISON	15,765	392,277	0.080016	31,389
Aug-85	MADISON	16,517	411,116	0.079999	32,889
Sep-85	MADISON	14,610	365,848	0.079999	29,267
Oct-85	MADISON	16,417	415,049	0.079999	33,204
Nov-85	MADISON	15,127	386,252	0.079999	30,900
Dec-85	MADISON	15,419	402,915	0.079999	32,233
Jan-86	MADISON	15,485	361,808	0.079999	28,944
Feb-86	MADISON	13,466	211,023	0.079999	16,882
Mar-86	MADISON	15,208	179,438	0.079999	14,355
Apr-86	MADISON	14,516	157,445	0.079999	12,595
May-86	MADISON	15,204	180,442	0.079999	14,435
Jun-86	MADISON	12,668	148,986	0.079999	11,919
Jul-86	MADISON	14,187	143,768	0.079999	11,501
Aug-86	MADISON	13,289	157,635	0.079999	12,611
Sep-86	MADISON	12,211	155,484	0.079999	12,439
Oct-86	MADISON	12,242	153,510	0.079999	12,281
Nov-86	MADISON	13,121	164,522	0.079999	13,162
Dec-86	MADISON	12,390	162,547	0.079999	13,004

EXHIBIT E

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF TOTAL INDIAN ROYALTY PAID BY MURPHY OIL CORPORATION
FOR THE PERIOD 5/1/52 THROUGH 5/31/87

SALES MO./YR.	UNIT PARTICIPATING AREA	TOTAL UNIT SALES BARRELS	TOTAL UNIT SALES VALUE	TOTAL INDIAN ROYALTY DECIMAL INTEREST	TOTAL INDIAN ROYALTY PAID
Jan-87	MADISON	13,142	203,940	0.079999	16,315
Feb-87	MADISON	12,596	197,611	0.079999	15,809
Mar-87	MADISON	13,819	215,472	0.079999	17,238
Apr-87	MADISON	13,278	209,681	0.079999	16,774
May-87	MADISON	12,634	207,098	0.079999	16,568
TOTALS:		40,571,884	$156,299,409		$10,719,732

EXHIBIT F (1)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- MONTANA PRODUCTION TAXES WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL ROOSEVELT COUNTY, MONTANA NET PROCEEDS TAX WITHHELD FROM ROYALTY	TOTAL MONTANA GROSS PROCEEDS TAX WITHHELD FROM ROYALTY	TOTAL MONTANA OIL CONSERVATION BOARD TAX WITHHELD FROM ROYALTY	TOTAL MONTANA PRODUCTION TAXES WITHHELD FROM TRIBAL ROYALTIES
1/53 -- 7/53	$152	$30	$2	$184
8/53	58	11	1	70
9/53 -- 10/53	323	64	4	391
11/53 -- 12/53	382	75	5	462
1/54 -- 2/54	179	57	4	240
3/54 -- 6/54	1,338	429	27	1,794
7/54 -- 8/54	976	314	20	1,312
9/54	519	167	10	696
10/54 -- 12/54	1,718	551	34	2,303
1/55 -- 2/55	1,198	368	23	1,589
3/55 -- 5/55	2,012	619	39	2,670
6/55 -- 11/55	2,612	803	50	3,465
12/55	194	60	4	258
1/56 -- 4/56	1,015	298	19	1,332
5/56 -- 12/56	1,612	474	30	2,116

EXHIBIT F (1)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- MONTANA PRODUCTION TAXES WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL ROOSEVELT COUNTY, MONTANA NET PROCEEDS TAX WITHHELD FROM ROYALTY	TOTAL MONTANA GROSS PROCEEDS TAX WITHHELD FROM ROYALTY	TOTAL MONTANA OIL CONSERVATION BOARD TAX WITHHELD FROM ROYALTY	TOTAL MONTANA PRODUCTION TAXES WITHHELD FROM TRIBAL ROYALTIES
1957	3,358	1,038	65	4,461
1958	3,109	929	58	4,096
1/59 -- 4/59	1,041	301	19	1,361
5/59 -- 12/59	1,960	567	35	2,562
1960	3,190	744	46	3,980
1961	2,366	540	34	2,940
1962	2,013	416	26	2,455
1963	1,889	359	22	2,270
1964	1,725	301	19	2,045
1965	1,352	234	15	1,601
1966	1,208	199	12	1,419
1967	1,042	164	10	1,216
1968	1,089	155	10	1,254
1969	1,009	160	10	1,179

EXHIBIT F (1)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SUMMARY SCHEDULE -- MONTANA PRODUCTION TAXES WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL ROOSEVELT COUNTY, MONTANA NET PROCEEDS TAX WITHHELD FROM ROYALTY	TOTAL MONTANA GROSS PROCEEDS TAX WITHHELD FROM ROYALTY	TOTAL MONTANA OIL CONSERVATION BOARD TAX WITHHELD FROM ROYALTY	TOTAL MONTANA PRODUCTION TAXES WITHHELD FROM TRIBAL ROYALTIES
1970	971	157	9	1,137
1971	897	153	9	1,059
1972	814	138	8	960
1973	1,026	156	10	1,194
1974	1,515	217	6	1,738
1975	1,006	189	5	1,200
1976	1,411	212	6	1,629
1977	1,722	226	11	1,959
TOTALS:	$50,003	$11,877	$717	$62,597

Exhibit F(2)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "NET PROCEEDS" TAX (COUNTY AD VALOREM TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	ROOSEVELT COUNTY SCHOOL DISTRICT # 9-R MILL LEVY	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1/53 -- 7/53	$75,322	0.015933	$1,200	0.12692	$152
8/53	16,676	0.024345	455	0.12692	58
9/53 -- 10/53	384,866	0.006618	2,547	0.12692	323
11/53 -- 12/53	390,431	0.007700	3,006	0.12692	382
1/54 -- 2/54	298,409	0.007700	2,298	0.07794	179
3/54 -- 6/54	1,605,166	0.010693	17,164	0.07794	1,338
7/54 -- 8/54	1,036,696	0.012101	12,545	0.07794	978
9/54	512,185	0.013013	6,665	0.07794	519
10/54 -- 12/54	1,572,468	0.014019	22,044	0.07794	1,716
1/55 -- 2/55	1,053,562	0.013990	14,739	0.08129	1,198
3/55 -- 5/55	1,638,863	0.015101	24,748	0.08129	2,012
6/55 -- 11/55	2,154,516	0.014914	32,132	0.08129	2,612
12/55	660,444	0.003617	2,389	0.08129	194
1/56 -- 4/56	3,300,263	0.003617	11,937	0.08505	1,015
5/56 -- 12/56	5,423,114	0.003496	18,959	0.08505	1,612

Exhibit F (2)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "NET PROCEEDS" TAX (COUNTY AD VALOREM TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	ROOSEVELT COUNTY SCHOOL DISTRICT # 9-R MILL LEVY	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1957	11,879,993	0.003496	41,532	0.08086	3,358
1958	10,632,973	0.003496	37,173	0.08364	3,109
1/59 -- 4/59	3,445,114	0.003496	12,044	0.08646	1,041
5/59 -- 12/59	6,525,039	0.003474	22,668	0.08646	1,960
1960	8,562,239	0.003474	29,745	0.10724	3,190
1961	6,222,127	0.003474	21,616	0.10947	2,366
1962	4,784,537	0.003474	16,621	0.12112	2,013
1963	4,137,305	0.003474	14,373	0.13143	1,889
1964	3,470,652	0.003474	12,057	0.14303	1,725
1965	2,692,827	0.003474	9,355	0.14456	1,352
1966	2,295,801	0.003474	7,976	0.15140	1,208
1967	1,888,629	0.003474	6,561	0.15879	1,042
1968	1,784,570	0.003474	6,200	0.17571	1,089
1969	1,737,017	0.003474	6,034	0.16716	1,009

Exhibit F (2)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "NET PROCEEDS" TAX (COUNTY AD VALOREM TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	ROOSEVELT COUNTY SCHOOL DISTRICT # 9-R MILL LEVY	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1970	1,705,261	0.003474	5,924	0.16390	971
1971	1,663,166	0.003474	5,778	0.15521	897
1972	1,500,314	0.003474	5,212	0.15618	814
1973	1,717,176	0.003474	5,965	0.17196	1,026
1974	2,352,376	0.003474	8,172	0.18538	1,515
1975	2,048,926	0.003474	7,118	0.14135	1,006
1976	2,299,581	0.003474	7,989	0.17667	1,411
1977	2,456,978	0.003474	8,536	0.20169	1,722
TOTALS:	$105,927,582		$471,477		$50,003

Exhibit F(3)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "GROSS PROCEEDS" TAX (STATE SEVERANCE TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	MONTANA SEVERANCE TAX RATE	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1/53 -- 7/53	$75,322	0.015933	$1,200	0.0250	$30
8/53	16,676	0.024345	455	0.0250	11
9/53 -- 10/53	384,866	0.006618	2,547	0.0250	64
11/53 -- 12/53	390,431	0.007700	3,006	0.0250	75
1/54 -- 2/54	298,409	0.007700	2,298	0.0250	57
3/54 -- 6/54	1,605,166	0.010693	17,164	0.0250	429
7/54 -- 8/54	1,038,696	0.012101	12,545	0.0250	314
9/54	512,185	0.013013	6,665	0.0250	167
10/54 -- 12/54	1,572,468	0.014019	22,044	0.0250	551
1/55 -- 2/55	1,053,562	0.013990	14,739	0.0250	368
3/55 -- 5/55	1,638,863	0.015101	24,748	0.0250	619
6/55 -- 11/55	2,154,516	0.014914	32,132	0.0250	803
12/55	660,444	0.003617	2,389	0.0250	60
1/56 -- 4/56	3,300,263	0.003617	11,937	0.0250	298
5/56 -- 12/56	5,423,114	0.003496	18,959	0.0250	474

Exhibit F (3)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "GROSS PROCEEDS" TAX (STATE SEVERANCE TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	MONTANA SEVERANCE TAX RATE	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1957	11,879,993	0.003496	41,532	0.0250	1,038
1958	10,632,973	0.003496	37,173	0.0250	929
1/59 -- 4/59	3,445,114	0.003496	12,044	0.0250	301
5/59 -- 12/59	6,535,039	0.003474	22,668	0.0250	567
1960	8,562,239	0.003474	29,745	0.0250	744
1961	6,222,127	0.003474	21,616	0.0250	540
1962	4,784,537	0.003474	16,621	0.0250	416
1963	4,137,305	0.003474	14,373	0.0250	359
1964	3,470,652	0.003474	12,057	0.0250	301
1965	2,692,627	0.003474	9,355	0.0250	234
1966	2,295,801	0.003474	7,976	0.0250	199
1967	1,888,629	0.003474	6,561	0.0250	164
1968	1,784,570	0.003474	6,200	0.0250	155
1969	1,737,017	0.003474	6,034	0.0265	160

Exhibit F (3)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "GROSS PROCEEDS" TAX (STATE SEVERANCE TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	MONTANA SEVERANCE TAX RATE	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1970	1,705,261	0.003474	5,924	0.0265	157
1971	1,663,166	0.003474	5,778	0.0265	153
1972	1,500,314	0.003474	5,212	0.0265	138
1973	1,717,176	0.003474	5,965	0.0265	158
1974	2,352,376	0.003474	8,172	0.0265	217
1975	2,048,926	0.003474	7,118	0.0265	189
1976	2,299,581	0.003474	7,989	0.0265	212
1977	2,456,978	0.003474	8,536	0.0265	226
TOTALS:	$105,927,562		$471,477		$11,877

Exhibit F(4)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "OIL CONSERVATION BOARD" TAX (STATE CONSERVATION TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	MONTANA OIL CONSERVATION BOARD TAX RATE	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1/53 -- 7/53	$75,322	0.015933	$1,200	0.00156	$2
8/53	$16,676	0.024345	455	0.00156	1
9/53 -- 10/53	$384,866	0.006618	2,547	0.00156	4
11/53 -- 12/53	$390,431	0.007700	3,006	0.00156	5
1/54 -- 2/54	$298,409	0.007700	2,298	0.00156	4
3/54 -- 6/54	$1,605,166	0.010693	17,164	0.00156	27
7/54 -- 8/54	$1,036,696	0.012101	12,545	0.00156	20
9/54	$512,185	0.013013	6,665	0.00156	10
10/54 -- 12/54	$1,572,468	0.014019	22,044	0.00156	34
1/55 -- 2/55	$1,053,562	0.013990	14,739	0.00156	23
3/55 -- 5/55	$1,638,863	0.015101	24,748	0.00156	39
6/55 -- 11/55	$2,154,516	0.014914	32,132	0.00156	50
12/55	$660,444	0.003617	2,389	0.00156	4
1/56 -- 4/56	$3,300,263	0.003617	11,937	0.00156	19

Exhibit F (4)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "OIL CONSERVATION BOARD" TAX (STATE CONSERVATION TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	MONTANA OIL CONSERVATION BOARD TAX RATE	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1957	$11,879,993	0.003496	41,532	0.00156	65
1958	$10,632,973	0.003496	37,173	0.00156	58
1/59 -- 4/59	$3,445,114	0.003496	12,044	0.00156	19
5/59 -- 12/59	$6,525,039	0.003474	22,668	0.00156	35
1960	$8,562,239	0.003474	29,745	0.00156	46
1961	$6,222,127	0.003474	21,616	0.00156	34
1962	$4,784,537	0.003474	16,621	0.00156	26
1963	$4,137,305	0.003474	14,373	0.00156	22
1964	$3,470,652	0.003474	12,057	0.00156	19
1965	$2,692,827	0.003474	9,355	0.00156	15
1966	$2,295,601	0.003474	7,976	0.00156	12
1967	$1,888,629	0.003474	6,561	0.00160	10
1968	$1,784,570	0.003474	6,200	0.00160	10
1969	$1,737,017	0.003474	6,034	0.00160	10

Exhibit F (4)

ASSINIBOINE & SIOUX TRIBES
EAST POPLAR UNIT, ROOSEVELT COUNTY, MONTANA
SCHEDULE OF MONTANA "OIL CONSERVATION BOARD" TAX (STATE CONSERVATION TAX)
WITHHELD FROM TRIBAL ROYALTIES
FOR THE PERIOD 1/1/53 THROUGH 12/31/77

PRODUCTION PERIOD	TOTAL UNIT SALES VALUE PER MURPHY OIL	TOTAL INDIAN ROYALTY DECIMAL INTEREST (TRIBAL ONLY)	TOTAL TRIBAL ROYALTY PROCEEDS (TAX BASIS)	MONTANA OIL CONSERVATION BOARD TAX RATE	TOTAL TAX WITHHELD FROM TRIBAL ROYALTIES
1970	$1,705,261	0.003474	5,924	0.00160	9
1971	$1,663,166	0.003474	5,778	0.00160	9
1972	$1,500,314	0.003474	5,212	0.00160	8
1973	$1,717,176	0.003474	5,965	0.00160	10
1974	$2,352,376	0.003474	8,172	0.00070	6
1975	400,889	0.003474	1,393	0.00380	5
1976	437,496	0.003474	1,520	0.00380	6
1/77 -- 6/77	223,512	0.003474	776	0.00380	3
7/77 -- 12/77	$1,101,146	0.003474	3,825	0.00200	8
TOTAL TAX:					$717

NOTE: FOR THE PERIOD 1/75 THROUGH 6/77, "OCB" TAX WAS LEVIED ON A PER-BARREL BASIS

Memorandum

RECEIVED
JUN 13 '88
Office of Field Solicitor
Billings, Montana

Subject
ASSINIBOINE & SIOUX TRIBE v. Murphy Oil USA, et al
CLIFFORD W. MELBOURNE, et al v. Murphy Oil USA, et al

Date
6/10/88
CV 84-002-GF 84V0022
CV 84-001-GF 84V0023

To
GENERAL LITIGATION
Land & Natural Resources
Room 2133, Main Justice Bldg.

From
GEORGE F. DARRAGH, JR.
Assistant U. S. Attorney
212 Federal Building
P.O. Box 3446
Great Falls, MT 59403

Enclosed are copies of the REPORT ON TRUST ROYALTIES ON THE EAST POPLAR UNIT, MONTANA, MAY 1952 THROUGH MAY 1987, received in our office on today's date.

sje

Enc.

cc: Field Solicitor
Department of the Interior
P.O. Box 31394
Billings, MT 59107-1394

Office of Solicitor
Department of the Interior
ATTN: Howard Chalker
Washington, DC 20240

United States Department of the Interior
OFFICE OF THE SOLICITOR
P.O. BOX 31394
BILLINGS, MONTANA 59107-1394

TAKE PRIDE IN AMERICA

ROUTING			DATE OUT
S			
ASD			
LAW ENF			
EEO			
PA			
MR			
L&RR			
OPR			
ADM			

ACTION
FILING

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
1988 JUL -8 AM 9:00
RECEIVED
MONTANA STATE OFFICE
BILLINGS, MONTANA

July 7, 1988

BIA.BL.0105, BIA.BL.0108 (our file nos.)

MEMORANDUM

TO: State Director, Bureau of Land Management
Area Director, Bureau of Indian Affairs

FROM: Richard K. Aldrich, Field Solicitor
Pacific Northwest Region (Billings)

SUBJECT: Assiniboine and Sioux Tribes v. Murphy Oil USA, et al., CV B4-002-6F, and Melbourne, et al., v. Murphy Oil Usa, et. al, CV 84-001-6F

"Report on Trust Royalties on the East Poplar Unit, Montana" for the period May 1952 through May, 1987

In the above-referenced litigation, the Tribes' accountants filed their "Report on Trust Royalties on the East Poplar Unit, Montana" for the period of May 1952 through May 1987 concluding royalty underpayments of $962,482 (of which $7856 has been paid), w/interest of $13,714,200, and State taxes of $62,597 w/interest of $2,797,470, all totaling $17,578,893, are due from the defendants. The defendants include 5 oil companies and the United States.

A settlement conference is set for Sept. 8 and a pre-trial conference is set for Sept. 9 so the case will move rapidly towards trial unless defendants need more time to analyze and litigate procedural aspects of the case. A copy of the report is enclosed.

Among other points in the report, you may wish to note part IV on page 14 wherein P.L. 94-114 is submitted as authorization for transfer of East Poplar Unit tracts 209, 210, 211, and 213. The accountants assert royalties for those tracts were not paid to the Indians until after February, 1978, and that the lands were not transferred to the Indians until May 22, 1977.

Please review the report and provide comments by July 15. Since the Court has ordered that discovery by one party of facts, documents, etc., in the possession of another party be completed

by August 26, any discovery inquiries you wish to make have to be served by the U.S. Attorney on the Tribes or Murphy, et al. by July 26. If you desire any discovery, advise promptly.

If you have questions, please advise. Thank you.

Roger W. Thonas
For the Field Solicitor

Enclosure

cc: Associate Solicitor, Energy and Resources
Attn: Howard Chalker
George F. Darragh Jr., Assistant United States Attorney

(8)

UNITED STATES GOVERNMENT

memorandum

DATE: October 27, 1988

REPLY TO ATTN OF: Land Operations Officer, BIA, Fort Peck Agency

SUBJECT: Murphy Oil

TO: Assistant District Manager, Division of Mineral Resource
BLM, Box 940, Miles City, MT 59301

East Poplar Unit (N1/2 Sec 13-29-50) had a pipeline leak. It is being worked on. They are putting about 300' of fiberglass line in. This leak was never reported to the BIA or Tribal Minerals Office.

Any questions can be directed to Albert Kirn of the Tribal Minerals Resource Office at 768-5155 ext. 2358.

Larry L. Travis

Attachment: (1) Photo of Leak Area

AK/lm

Sec 13-29-50

10-26-88

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

1988

1989

UNITED STATES GOVERNMENT

memorandum

DATE: May 12, 1989

REPLY TO ATTN OF: Land Operations Officer, BIA, Fort Peck Agency

SUBJECT: Murphy Oil

TO: Assistant District Manager, Division of Mineral Resource
BLM, Box 940, Miles City, MT 59301

Lightening started a fire at the East Poplar Unit, R. Battery (NESE Sec 10-28-51). Gas fumes burned and went out. The Poplar Fire Department ran foam in Tank #1402. No one was hurt. The tank is in good condition. No oil was lost as the tank was empty.

Any questions can be directed to Albert Kirn of the Tribal Minerals Resource Office, 768-5155, ext. 2358.

Larry L. Travis

Attachment: 1 photo of tank

MAY 1989
Bureau of Land Management
Miles City, Montana

Murphy EPU R. Battery

NESE Sec 10-28-51

Tank #1402

Murphy EPU R Battery
NESE Sec 10-28-51
Tank 1402

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

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.)

1. OIL WELL ☐ GAS WELL ☐ OTHER

2. NAME OF OPERATOR: Murphy Oil USA, Inc.

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

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

5. LEASE DESIGNATION AND SERIAL NO.: East Poplar Unit

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME: East Poplar Unit

8. FARM OR LEASE NAME:

9. WELL NO.: R Battery

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

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: NE SE Section 10, T28N, R51E

14. PERMIT NO.:

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

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*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			☐
(Other) Report Of Fire	X			(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

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

At 9:15 A.M. on May 12, 1989 Tank No. 1403 at R Battery, East Poplar Unit Field was struck by lighting. The Poplar Fire Department was called. The fire died before the arrival of the fire department but foam was put in the tank as a precautionary measure. There was no personal injuries, no property damage or loss of oil from the fire.

MAY 1989
Bureau of Land Management
Miles City, Montana

MURPHY OIL USA, INC. REPORTED INCIDENCE TO MCDO 5/12/89 PR.

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

SIGNED Raymond Reed TITLE District Manager DATE May 16, 1989

(This space for Federal or State office use)

APPROVED BY Arnold E. Donogan TITLE ADM-Minerals DATE MAY 18 1989

CONDITIONS OF APPROVAL, IF ANY:

ACCEPTED

WP 5-18-89
PR 5-17-89

*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(7) ✓

UNITED STATES GOVERNMENT

memorandum

DATE: September 18, 1989

REPLY TO ATTN OF: Land Operations Officer, BIA Fort Peck Agency

SUBJECT: Murphy Leaking flow line.

SEP 1989
Bureau of Land Management
Miles City, Montana

TO: Assistant District Manager, Division of Minerals Resources
BLM, Box #940, Miles City, 59301

Iron Bear #4 (NWNE Section 12, T29, R50), this well had a fow line leak between well and battery. Well is down until work is being done. This leak was not reported.

Any questions can be directed to Albert Kirn at the Tribal Minerals office. Poplar, MT 59255, (406) 768-5155, ext. 2358.

Attachment: One photo

Murphy [redacted] Iron Bear #4
flow line leak
sec 12-29-50 9-15-89

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

1990

1991

MURPHY
OIL USA, INC.

POST OFFICE BOX 547
POPLAR, MONTANA 59255

November 20, 1991

NOV 1991
Bureau of Land Management
Miles City, Montana

Mr. Charles E. Lansko
Bureau of Land Management
P.O. Box 940
Miles City, Montana 59301

RE: Letter Dated September 26, 1991 East Poplar Unit - Roosevelt County, Montana Shut-In Wells

Dear Mr. Lansko:

The East Poplar Unit is a viable asset to Murphy Oil USA, Inc., the Bureau of Land Management, and the Royalty Owners including the Sioux and Assiniboine Tribes of the Fort Peck Indian Reservation.

Murphy, as Operator since discovery of the field, has produced the field in compliance with environmental requirements. We have plugged and abandoned wells as it became apparent they were mechanically damaged, which required plugging, or as they became uneconomic with no anticipated future use as a utility well. However, since wellbores are a vital asset of oil and gas operations, especially in Unit Operations where secondary and/or tertiary recovery programs can be implemented very easily and quickly when economic and reservoir conditions are economically compatible, Murphy desires to keep as many well bores in the field as possible.

Also, the East Poplar Field has three reservoirs with varying bottom hole pressures and reservoir conditions which complicate and add additional risks during workover and recompletion attempts. Because of this, along with the maturity of the field and low oil prices, workovers and recompletions are performed at a deliberate pace in an attempt to keep the East Poplar Unit in a positive economic condition while continuing to produce the Unit to its maximum ultimate recovery of oil.

Below is a proposed schedule of rework and/or recompletions for the list of wells in your subject letter. This schedule could be altered if economic conditions change.

WELL NO.	LEASE	PROPOSED WORK	PROPOSED SHCEDULE
62	137IND13045	Test B-1 Zone	August - 1992
96	137IND13045	Test C Zone	September - 1992
57	137IND13080	Sqz. & Retest A-Zone	April - 1992
110	137IND12873	Currently Producing	--
5-G	137IND12873	P & A	July - 1992
28	137IND12716	Test A-Zone	September - 1992
77	137IND13089	Sqz. & Retest B-1	November - 1991
16	137IND12715	Sqz.&Retest B-1&B-2	October - 1993
24	14202564047	Repair Eq. & Test	December - 1991
22	137IND12878	Test B-2 Zone	May - 1993
32	14202564047	Test C & B Zones	June - 1993
65	137IND13056	Test C Zone	July - 1993
94	137IND12872	Test C Zone	August - 1993
92	137IND13066	P & A	June - 1992
19	137IND12874	Sqz.& Retest A Zone	May - 1992

Hopefully, this wil fulfill the requirements set out in your September 26, 1991 letter.

Yours very truly,

Murphy Oil USA, Inc.

Raymond F. Reede
District Manager

RR/jh

cc: Mr. Paul Ramsey (Manager-Onshore Operations)
New Orleans, LA

(6)

montana.svc

MURPHY
OIL USA, INC.

P.O. Box 61780
New Orleans, LA 70161-9969

December 13, 1991

DEC 1991
Bureau of Land Management
Miles City, Montana

Montana Department of Health
& Environmental Services
Cogswell Building - Room A-206
Helena, Montana 59260

Attn: Mr. Mike Pasichnyk

Re: **Poplar Gathering System**
Roosevelt County, Montana
Report of Leak (12/5/91)

Dear Sir:

This written report is pursuant to the telephone conversation of December 5, 1991 reporting a leak, which was contained within the permanent dike or firewall around a 20,000 barrel tank in the subject system. The resulting release of crude oil was all contained on Murphy property. A report of the leak is shown below. Also, all agencies are being furnished a copy of this written report.

REPORT OF INCIDENT

Date: The leak in 20,002 tank was found at 7:00 AM, December 5, 1991.
-Reported to BLM at 2:15 PM (MST) - talked to Jackie Anderson.
-Reported to Montana Oil & Gas Commission at 9:50 AM (CST) - talked to Floyd Podoll.
-Reported to MDHES at 10:30 AM (CST) - talked to Mike Pasichnyk.
-Reported to U. S. Coast Guard National Response Center at 3:00 PM (CST) - talked to Dispatcher.

Location: SE¼ SE¼ Section 30, T29N, R51E, Roosevelt County, Montana. Murphy Oil USA, Inc. owns surface.

Cause: Split in sidewall of 20,000 barrel tank. Split possibly due to internal corrosion.

Damage: Oil flowed into containment dike and was picked up.

Clean-Up Action: The majority of the oil was shipped down the pipeline. An on-site pump and a vacuum truck was used to pickup the remaining oil. Oil was cleaned up at 4:00 PM.

Volumes: 500± Barrels was discharged and 6 to 8 barrels were estimated unrecovered.

SPUR

Injuries: No injuries.

Preventive Action: Tank will be cleaned, inspected and repaired as necessary.

Agencies Notified:
a) Montana Oil and Gas Commission
b) U.S.G.S.
c) BLM
d) Montana Department of Health and Environmental Services
e) U. S. Coast Guard

If you need additional information, please call me at (504) 561-2594.

Yours very truly,

MURPHY OIL USA, INC.

Sidney W. Campbell

SIDNEY W. CAMPBELL
Staff Operations Coordinator

SWC/pcy

Encl.

cc: Mr. John Hallett - El Dorado, AR
Mr. Paul Ramsey - New Orleans, LA
Mr. Ray Reede - Poplar, MT
Mr. Chuck Bedell - New Orleans, LA

LIST OF AGENCIES

Montana Department of Health and Environmental Services
Cogswell Building, Room A-206
Helena, Montana 59260
Attn: Mike Pasichnyk

Montana Oil and Gas Commission
2535 St. Johns Avenue
Billings, Montana 59102
Attn: Floyd Podoll

Bureau of Land Management - Miles City District
P. O. Box 940
Miles City, Montana 59301
Attn: Jackie Anderson

1992

March 9. 1992

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MONTANA STATE OFFICE

Notice to Lessees
NTL-MSO-1-92

Report of Undesirable Events

This Notice, which supersedes NTL-3 dated January 1, 1975, and NTL-3A dated March 1, 1979, is issued pursuant to the authority prescribed in Title 43 CFR 3164.2. Operators of onshore Federal and Indian oil and gas leases shall report all spills, discharges, or other undesirable events in accordance with the requirements of this Notice. All such events which occur on State or private land leases within Federally-supervised unit or communitized areas must likewise be reported in accordance with the requirements of this Notice. However, compliance with this Notice does not relieve an operator from the obligation of complying with the applicable rules and regulations of any State or any other Federal agencies regarding notification and reporting of undesirable events.

As used in this Notice, the term Authorized Officer (AO) means that officer of the United States Bureau of Land Management (BLM) having supervisory jurisdiction for the geographic area in which the undesirable event occurs.

I. Major Undesirable Events Requiring Immediate Notification

Major undesirable events are defined as those incidents listed below in subsections A through F. These incidents, when occurring on a lease supervised by the BLM, must be reported to the appropriate AO as soon as practical, but within a maximum of 24 hours:

A. Oil, saltwater, and toxic liquid spills, or any combination thereof, which result in the discharge (spilling) of 100 or more barrels of liquid. However, discharges of such magnitude, if entirely contained within the facility firewall, may be reported only in writing pursuant to Section III of this Notice;

B. Equipment failures or other accidents which result in the venting of 500 or more MCF of gas;

C. Any fire which consumes the volumes as specified in I.A and I.B above;

D. Any spill, venting, or fire, regardless of the volume involved, which occurs in a sensitive area; e.g., areas such as parks, recreation sites, wildlife refuges, lakes, reservoirs, streams, and urban or suburban areas;

E. Each accident which involved a fatal injury; and

F. Every blowout (loss of control of any well) that occurs.

II. Written Reports

A written report shall be submitted, in duplicate, to the AO no later than 15 days following all major undesirable events identified in Section I. When required by the AO, interim reports will be submitted until final containment and cleanup operations have been accomplished. The final written report for each such event shall, as appropriate, provide:

A. The date and time of occurrence, and the date and time reported to the BLM;

B. The location where the incident occurred, including surface ownership and lease number;

C. The specific nature and cause of the incident;

D. A description of the resultant damage;

E. The action taken and the length of time required for control of the incident, for containing the discharged fluids, and for subsequent cleanup;

F. The estimated volumes discharged and the volumes lost;

G. The cause of death when fatal injuries are involved;

H. Actions that have been or will be taken to prevent a recurrence of the incident;

I. Other Federal or State agencies notified of the incident; and

J. Other pertinent comments or additional information as requested by the AO.

III. Other-Than-Major Undesirable Events

Other-than-major undesirable events, as identified below in subsections A through D, do not have to be reported orally within 24 hours. However, a written report, as required for major undesirable events in Section II of this Notice, must be provided for the following incidents:

A. Oil, saltwater, and toxic liquid spills, or any combination thereof, which result in the discharge (spilling) of at least 10 but less than 100 barrels of liquid in nonsensitive areas, and all discharges of 100 or more barrels when the spill is entirely contained by the facility firewall;

B. Equipment failures or other accidents which result in the venting of at least 50 but less than 500 MCF of gas in nonsensitive areas;

C. Any fire which consumes volumes in the ranges specified in III.A and III.B above; and

D. Each accident involving a major or life-threatening injury.

Spills or discharges in nonsensitive areas involving less than 10 barrels of liquid or 50 MCF of gas do not require an oral or written report. However, the volumes discharged or vented as a result of all such minor incidents must be reported in accordance with Section V hereof.

IV. Contingency Plans

Upon request of the AO, a copy of any Spill Prevention Control and Countermeasure Plan required by the Environmental Protection Agency, pursuant to Title 40 CFR 112 or other acceptable contingency plans, must be submitted. All plans shall provide the names, addresses, and telephone numbers (both business and private) of at least two technically competent company or contract personnel authorized to order equipment or supplies and to expend funds necessary to control emergencies.

V. Monthly Report of Operations/Monthly Report of Sales and Royalty

All volumes of oil spilled, gas vented, and all hydrocarbons consumed by fire or otherwise lost, must be reported monthly on the Monthly Report of Operations (MMS Form 3160). The volume and value of such losses must also be reported in the Monthly Report of Sales and Royalty (MMS Form 2014).

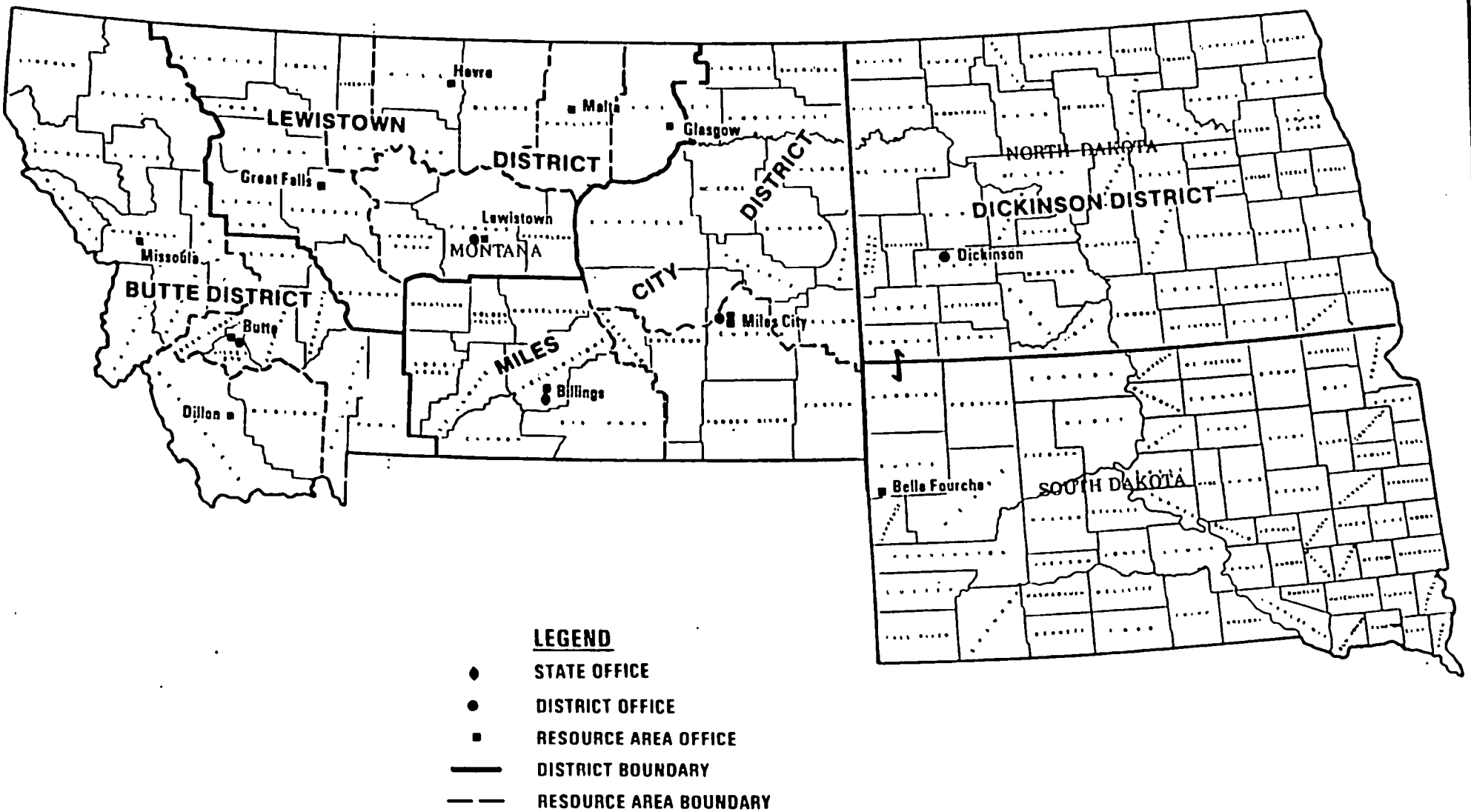
VI. Liquidated Damages

Failure to provide the necessary notification, reports, or contingency plan (when required) as provided for by this Notice, may result in other measures being taken to secure compliance, such as those provided by Title 43 CFR 3163.1.

March 9, 1992
Date

Robert H. Lawton
State Director
Montana State Office

BUREAU OF LAND MANAGEMENT
DISTRICT BOUNDARIES AND OFFICE LOCATIONS (4 DISTRICTS)



LEGEND

- ♦ STATE OFFICE
- ● DISTRICT OFFICE
- ■ RESOURCE AREA OFFICE
- ━━ DISTRICT BOUNDARY
- — — RESOURCE AREA BOUNDARY

4/96

LEWISTOWN DISTRICT OFFICE
Dave Mari, District Manager
Airport Road
Lewistown, MT 59457-9699
Telephone: (406) 538-7461

GREAT FALLS RESOURCE AREA
Richard L. Hopkins
812 14th Street North
P.O. Box 2865
Great Falls, MT 59403-2865
Telephone: (406) 727-0503

PHILLIPS RESOURCE AREA
Richard M. Hotaling, Area Manager
501 South Second Street, East
P.O. Box B
Malta, MT 59538-0047
Telephone: (406) 654-1240

HAVRE RESOURCE AREA
Owen Billingsley, Area Manager
West Second Street
Drawer 911
Havre, MT 59501-0911
Telephone: (406) 265-5891

VALLEY RESOURCE AREA
Michael Holbert, Area Manager
Route #1-4775
Glasgow, MT 59230-9796
Telephone: (406) 228-4316

JUDITH RESOURCE AREA
Charles Otto, Area Manager
Airport Road
Lewistown, MT 59457-1300
Telephone: (406) 538-7461

DAKOTAS DISTRICT OFFICE
Douglas Burger, District Manager
2933 Third Avenue West
Dickinson, ND 58601-2619
Telephone: (701) 225-9148

SOUTH DAKOTA RESOURCE AREA
Thomas Steger, Area Manager
310 Roundup Street
Belle Fourche, SD 57717-1698
Telephone: (605) 892-2526

MONTANA STATE OFFICE
222 North 32nd Street
P.O. Box 36800
Billings, MT 59107-6800

State Director	Larry E. Hamilton	255-2904
Associate State Director	Francis Cherry, Jr.	255-2983
Director, External Affairs	Trudie Olson	255-2913
Deputy State Directors		
Resources	Thomas P. Lonnie	255-2805
Support Services	Janet Singer	255-2742

MILES CITY DISTRICT OFFICE
Tim Murphy, District Manager
111 Garryowen Road
Miles City, MT 59301
Telephone (406) 232-4333

BILLINGS RESOURCE AREA
Burton D. Williams, Area Manager
810 East Main Street
Billings, MT 59105-3395
Telphone: (406) 238-1540

POWDER RIVER RESROUCE AREA
Todd Christensen, Area Manager
111 Garryowen Road
Miles City, MT 59301
Telephone: (406) 232-4333

BIG DRY RESOURCE AREA
Area Manager
111 Garryowen Road
Miles City, MT 59301
Telephone: (406) 232-4333

MINERALS DIVISION
Location: 305 South 4th Street
Mailing Address: 111 Garryowen Road
Miles City, MT 59301
Telephone: (406) 232-7001

BUTTE DISTRICT OFFICE
Jim Owings, District Manager
106 North Parkmont
P.O. Box 3388
Butte, MT 59702-3388
Telephone: (406) 494-5059

DILLON RESOURCE AREA
Scott Powers, Area Manager
1005 Selway Drive
Dillon, MT 59725
Telephone: (406) 683-2337

HEADWATERS RESOURCE AREA
Merle N. Good, Area Manager
106 North Parkmont
P.O. Box 3388
Butte, MT 59702-3388
Telephone: (406) 494-5059

GARNET RESOURCE AREA
Area Manager
3255 Fort Missoula Road
Missoula, MT 59801-729
Telephone (406) 329-3914

1993

1994

1995

E. Poplar Unit
I37IND13080

(9) ✓
(5) ✓

MURPHY
EXPLORATION & PRODUCTION COMPANY

POST OFFICE BOX 547
POPLAR, MONTANA 59255

March 10, 1995

Bernice Knopp
Bureau of Land Management
Miles City District Office
P.O. BOx 940
Miles City, MT 59301

Dear Bernice:

This letter is to inform you of an undesirable event which occurred as required under NTL-3A:

A. A spill was found at 6:45 a.m. March 8, 1995 and was reported to BLM at 10:00 a.m. March 10, 1995.

B. The location was EPU No. 57 SW SW Section 27, T29N, R31E.

C. A 2" check valve froze up and broke. Fluid went into the dike.

D. The fluid was contained in the dike.

E. A vacuum truck picked up the lost fluid 170 barrels water and 2 barrels oil.

H. A new check valve was installed and it took about 5 hours to clean up.

I. None

MAR 1995
Bureau of Land Management
Miles City, Montana

Sincerely,

Raymond Reede
District Manager

RR/jh

SPUR

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City District Office
P.O. Box 940
Miles City, Montana 59301-0940

IN REPLY REFER TO:
3160

SEP 2 0 1995

Certified Mail-Return Receipt Requested

Murphy Exploration & Production
Attn: Ray Reede
P.O. Box 547
Poplar, Montana 59255

Written Order:
Facilities: Tank Battery, SE SE Sec. 2, T28N, R51E
Tank Battery, SE NE Sec.13, T29N, R50E
Tank Battery, NE SW Sec.29, T29N, R51E

Dear Mr. Reede:

The above referenced sites were inspected during August, 1995. The inspections showed that the Tank Batteries appear to be abandoned and are no longer in use for benefit of Unit operations.

A Sundry Notice must be submitted to this office describing the proposed clean-up and reclamation actions at each site. The Sundry Notices must be submitted within 20 days after receipt of this letter.

You may request a State Director Review (SDR) of this Written Order under 43 CFR 3165.3. Your request must be filed within 20 business days after receipt of the letter with the BLM Montana State Director, P.O. Box 36800, Billings, Montana 59107. The SDR decision may be appealed to the Office of Hearings and Appeals, Washington, D.C. under 43 CFR 3165.4. Failure to timely request an SDR or file an appeal with IBLA will preclude any further administrative review of this Written Order.

We appreciate your cooperation in this matter. Please contact David Breisch at (406)232-7001 if you have any questions or if you would like to schedule a site inspection.

Sincerely,

MARY ALICE SPENCER

Assistant District Manager
Division of Mineral Resources

cc: BIA, T. Anketell

APD or SN

CONSTRUCTION _____ DRILLING _____ PRODUCING _____ ABANDONED X

LEASE _____ ~~[illegible]~~ Sec 29 TnkBHy UNIT/CA/PA _____

1/4 1/4 SW SECTION 29 TWN 29N RGE 51E STATE MT

OPERATOR Murphy SMA/SURFACE OWNER BIA

****

ROAD: gravel surfaced, raised & ditched

PAD: gravel surfaced

PIT: 1 on east side (unlined)

FACILITIES: treater, pumps, metal shed, flowlines
utility line

PIPELINE: _____

ROW: _____

OTHER: remove equipment, etc, & reclaim

INSPECTOR: D Breach DATE: 8/9/95

OFFICE TIME: _____ TRAVEL TIME: _____ INSPECTION TIME: _____

****

FOLLOW-UP: VERBAL _____ LETTER _____ NOTIFY PET _____ OTHER _____
INSPECTION _____ target date _____

1996

(3)

MURPHY
EXPLORATION & PRODUCTION COMPANY

POST OFFICE BOX 547
POPLAR, MONTANA 59255

July 15, 1996

JUL 1996
Bureau of Land Management
Miles City, Montana

Russ Hampton
Bureau Of Land Management
P.O. Box 940
Miles City, Mt. 59301

Dear Russ:

Enclosed you will find the written report on a spill incident as required by NTL-3A. This incident happened in the East Poplar Unit.

If any other information is required, please contact us and we will try to supply you with it.

Yours very truly

Raymond Reede
District Manager

RR/sb
enclosures
cc: Sidney Campbell
Fort Peck Tribe

SPUR

E. Poplar Unit

A. 4-28-96 7:00 A.M. Occurred
4-29-96 10:15 A.M. Notified

B. East Poplar Unit North Central Tank Battery
SE SE Section 30, T29N, R51E, Roosevelt County, Montana
Owned by Murphy Exploration and Production Company

C. Micro Switch on Free Water Knockout failed.

D. 80 Bbls. went into dike

E. The oil was pumped back into system. It took approximately 2 hours to clean up oil.

F. Approximately 80 barrels discharged. Approximately 5 bbls. lost.

G. None

H. A new micro switch and filter was put on Free Water Knowkout

I. Fort Peck Tribe

A. July 7, 1996 8:00A.M.
Reported leak to Russ Hampton July 8, 1996

B. East Poplar Unit
NE SE Section 19, T29N, R51E
Frank Kollenbaum

C. External corrosion on 5-1/2" line

D. Water and oil ran in field.

E. Producing wells were shut in. A bell hole was dug and water and oil was picked up. A leak clamp was installed on pipe. Wells were put back into production.

F. 10 Barrels oil and 200 barrels water

G. There were no injuries

H. A new line will be installed

I. Fort Peck Tribe

JUL 1996
Bureau of Land Management
Miles City, Montana

BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT
ABANDONED FACILITY INSPECTION REPORT

Lease East Poplar Unit
Legal SE SE Sec 2, T28N, R51E
Surface FEE

Facility G Battery
Operator Murphy Oil Co

Yes	No	Comments	
			Access Road
			A. As per APD/Surface Owner Agreement Name _____ Phone _____
X			B. Surfacing material removed
	X		C. Road and ditches recontoured
	X		D. Topsoil spread over recontoured areas
	X	in wheat field	E. Recontoured areas reseeded
		not needed	F. Waterbars properly constructed
		none	G. Culverts removed
		none	H. Cattleguards removed
	X		I. Active erosion
	X		J. Noxious weeds present
			Well Pad
			A. As per APD /Surface Owner Agreement Name: _____ Phone _____
X			B. Surfacing material removed
		none	C. Well pulling anchors removed
X			D. Pits backfilled (liner buried)
X			E. Recontoured
X			F. Topsoil spread over recontoured areas
	X		G. Mulch in place over recontoured areas
	X	in wheat field	H. Recontoured areas reseeded vegetation is established & specified species present
			I. Noxious weeds present
	X		J. Waterbars properly constructed
		not needed	K. Active erosion
	X		L. Area free of debris, materials, equipment, facilities
X			M. Abandonment marker installed with required information
		not needed	N. Area fenced as required
		not needed	
			Related Facilities
X			A. Utility poles removed
X			B. Above ground flowlines removed
X			C. Buried flowline routes revegetated

Comments

* Approve Sundry Notice

onsite 1230

Inspector D Breisch Inspection Date 10/28/96

Office Time 1/2 hr Travel Time 2 hrs Inspection Time 1/4 hr

TA-22

BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT
OIL & GAS SURFACE INSPECTION

CONST.____ DRILL.____ PROD.____ ABND. X UNDS. EVENT____

LEASE____ UNIT/CA/PA East Poplar Unit

FACILITY P Battery OPERATOR Murphy

1/4 1/4 SE NE SECTION 13 TWN 29N RGE 50E STATE MT

SMA/SURFACE OWNER ____

ROAD: not abd

PAD: not abd

PIT: small pit

FACILITIES: heater, storage tank
misc equipment & pipe

PIPELINE: ____

ROW: ____

OTHER: DO NOT APPOVE

on site at 1315

INSPECTOR: D Breisch DATE: 10/28/96

OFFICE TIME: 3/4 hr TRAVEL TIME: 3/4 hr INSPECTION TIME: 1/4 hr

FOLLOW-UP: VERBAL ____ LETTER X NOTIFY PET ____ OTHER ____
INSPECTION ____ target date ____

TA-21

BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT
OIL & GAS SURFACE INSPECTION

CONST.____ DRILL.____ PROD.____ ABND. X UNDS. EVENT____

LEASE____ UNIT/CA/PA East Poplar

FACILITY J Battery OPERATOR Murphy

1/4 1/4 NESW SECTION 29 TWN 29N RGE 51E STATE MT

SMA/SURFACE OWNER ____

ROAD: ok- not abandoned

PAD: ok

PIT: 1 unlined pit

FACILITIES: heater, recycle pump, misc pipe & small equipment scattered

PIPELINE: ____

ROW: ____

OTHER: need to complete and remove equipment
backfill pit
seed location

*DO NOT APPROVE
on site at 1300

INSPECTOR: D Breuer DATE: 10/28/96

OFFICE TIME: 3/4 hr TRAVEL TIME: 3/4 hr INSPECTION TIME: 1/4 hr

FOLLOW-UP: VERBAL ____ LETTER X NOTIFY PET ____ OTHER ____
INSPECTION ____ target date ____

BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT
OIL & GAS SURFACE INSPECTION

CONST.____ DRILL.____ PROD. X ABND.____ UNDS. EVENT____

LEASE 137 IND 12873 UNIT/CA/PA East Poplar

FACILITY Well 110 OPERATOR Murphy

1/4 1/4 NESW SECTION 29 TWN 29N RGE 51E STATE MT

SMA/SURFACE OWNER ____

ROAD: ok

PAD: ok

PIT: repair fence to keep out livestock (if needed)
close pit if not needed

FACILITIES: pump unit

PIPELINE: buried flowline to sw

ROW: ____

OTHER: ____

onsite at 1245

INSPECTOR: D Brewer DATE: 10/29/96

OFFICE TIME: 3/4 hr TRAVEL TIME: 1/2 hr INSPECTION TIME: 1/4 hr

FOLLOW-UP: VERBAL ____ LETTER X NOTIFY PET ____ OTHER ____
INSPECTION ____ target date ____

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City District Office
P. O. Box 940
Miles City, Montana 59301-0940

Breisch 10/31/96

IN REPLY REFER TO:

3160

Certified Mail-Return Receipt Requested
Murphy Exploration & Production Company
Attn: R. Reede
P.O. Box 547
Poplar, Montana 59255

OCT 31 1996

WRITTEN ORDER
RE: Lease : 137 IND 12873
Facility: Well No. 110
Legal : NE SW Sec. 29, T29N, R51E

Dear Mr. Reede:

The above referenced site was inspected on October 29, 1996. The inspection showed a pit with oil in it on the east side of the well pad. The inspection also showed that the fence around the pit is in a state of disrepair and evidence of livestock in the pit. A review of our records showed that we do not have a copy of any written authorization for the pit.

If the pit is needed, please provide us a copy of any authorization you might have or submit an application in accordance with Onshore Order No. 7 (copy enclosed) for approval.

If the pit is not needed, please provide us your proposal for properly closing the pit, including disposal or treatment of any contaminated soils.

Your application for use or your proposal for closure of the pit must be submitted to this office within 30 days after receipt of this letter. The fence around the pit must be repaired to keep out livestock within 15 days after receipt of this letter.

You may request a State Director Review (SDR) of this Written Order under 43 CFR 3165.3. Your request must be filed within 20 business days after receipt of the letter with the BLM Montana State Director, P.O. Box 36800, Billings, Montana 59107. The SDR decision may be appealed to the Office of Hearings and Appeals, Washington, D.C. under 43 CFR 3165.4. Failure to timely request an SDR or file an appeal with IBLA will preclude any further administrative review of this Written Order.

We appreciate your cooperation in this matter. If you have any questions, please contact David Breisch at (406)232-7001.

Sincerely,

Charles E. Laakso
Team Leader
Division of Mineral Resources

U.S.MA

ode here

ament
ad
301

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City District Office
P. O. Box 940
Miles City, Montana 59301-0940

Breisch 10/31/96

IN REPLY REFER TO:

3160

OCT 31 1996

Certified Mail-Return Receipt Requested
Murphy Exploration & Production Company
Attn: R. Reede
P.O. Box 547
Poplar, Montana 59255

WRITTEN ORDER

RE: Lease :	East Poplar Unit	East Poplar Unit
Facility:	J Battery	P Battery
Legal :	NE SW Sec. 29, T29N, R51E	SE NE Sec. 13, T29N, R50E

Dear Mr. Reede:

The above referenced sites were inspected on October 29, 1996 in response to Sundry Notices addressing reclamation of the sites. The inspections showed that clean up and reclamation work at the sites has not been completed. The clean up and reclamation work, including any seeding of the sites and access roads, must be completed by June 1, 1997.

The equipment remaining at the sites for production must be maintained in a safe and orderly manner. The production equipment may need to be fenced to provide protection for livestock and wildlife.

You may request a State Director Review (SDR) of this Written Order under 43 CFR 3165.3. Your request must be filed within 20 business days after receipt of the letter with the BLM Montana State Director, P.O. Box 36800, Billings, Montana 59107. The SDR decision may be appealed to the Office of Hearings and Appeals, Washington, D.C. under 43 CFR 3165.4. Failure to timely request an SDR or file an appeal with IBLA will preclude any further administrative review of this Written Order.

We appreciate your cooperation in this matter. We will approve your Sundry Notices after successful completion of the clean up and reclamation work. These same measures should be taken at all other battery sites which are no longer needed for production. If you have any questions, please contact David Breisch at (406)232-7001.

Sincerely,

Charles E. Laakso

Team Leader
Division of Mineral Resources

E. Poplar

1997

MURPHY
EXPLORATION &
PRODUCTION
COMPANY

131 SOUTH ROBERTSON STREET
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811

July 1, 1997

CERTIFIED MAIL #P 190 467 931

Bureau of Land Management
Miles City District Office
111 Garryowen Road
Miles City, Montana 59301-0940

JUL 1997
Bureau of Land
Management
Miles City,
Montana

Attn: Mr. Dex A. Hight
Team Leader
406-232-7001

RE: East Poplar Unit (EPU)
Shut-in Wells
BLM #3160
Roosevelt County, Montana

Dear Mr. Hight:

This is written in response to your letter of May 29, 1997 (received 6/2/97) where you indicate that the one year shut-in status of the following wells has expired:

Well#	Location
16	SWSE, 33, T29N, R51E
19	SESE, 19, T29N, R51E
22	SWSW, 14, T28N, R51E
24	SWSW, 12, T28N, R51E
57	SWSW, 27, T29N, R51E
62	NENE, 21, T29N, R51E
94	SWNE, 18, T29N, R51E
96	SWSW, 21, T29N, R51E

As you are aware, we shot 3-D seismic over the East Poplar field during the winter of 1995. We had the data processed by a contractor, evaluated same in-house, mapped the area and developed prospects during 1996 (cost $1.0 MM). Based on the 3-D work, we drilled three "deep" wells below the Madison Formation (cost $2.55 MM). The 1996-1997 drilling campaign resulted in 1 marginal discovery deep, 1 dry hole deep that was completed in the Madison interval and 1 pure dry hole that was drilled and abandoned. We plan to re-evaluate the seismic data based on the extensive information gained from the 3 wells to see if there are further locations to be drilled.

This hopefully will result in a geological model that can explain the drilling results and possibly reveal additional exploratory drilling locations. We are also looking into the possibility of drilling a horizontal well from a new wellbore or kicking out of an existing cased wellbore. This program needs additional engineering work following the seismic re-evaluation.

Due to our commitment to fully develop the Unit and the possible upcoming work in the area, we desire to hold the above wells in their current status. These wellbores may be necessary to fully and economically exploit the remaining potential of the East Poplar Field. Therefore Murphy requests that we be allowed to retain EPU Nos. 16, 19, 22, 24, 57, 62, 94 and 96 in their current shut-in status for a further 1 year period.

Your letter also cites three other wells lacking shut-in approval (i.e. EPU Nos. 4, 11 & 85). As can be seen by the attached wellbore schematics, all wells have surface casing set at ± 1000' through the Judith River Formation with cement returns seen at the surface. Murphy requests shut-in status for EPU Nos. 4 and 85.

We have no further use for EPU No. 11. Therefore, we propose to permanently plug and abandon the well during the summer or fall of this year. We agree to submit a plugging plan during August and P&A the well within 60 days of plan approval.

It is Murphy's desire to avoid prematurely abandoning useable wellbores that would leave potentially recoverable oil in the ground. We are also aware of and share your concern for not jeopardizing the existing subsurface or surface environment. It is our opinion that the remaining shut-in wells are not jeopardizing the environment and the granting of our request is therefore consistent with the duties and responsibilities of the BLM. If there are any questions concerning our intentions, please write or call me in New Orleans at 504-561-2594.

Yours truly,

Sidney W. Campbell

Sidney W. Campbell
Manager, Onshore Operations

SWC/BDM/ebh

cc: Ray Reede
Poplar District Manager

(EPUSIWls.SWC)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City District Office
111 Garryowen Road
Miles City, Montana 59301

IN REPLY TO:

3160

JUL 1 4 1997

7-14-97

Murphy Oil Exploration & Production Co.
Attn: Sidney Campbell, Manager Operations
131 South Robertson Street
New Orleans, La. 70161-1780

Subject: Shut-In Wells
East Poplar Unit
Roosevelt County, Montana

Dear Mr. Campbell:

In reponse to your letter dated July 1, 1997 whereby you request approval of the shut-in status of several wells in the East Poplar Unit, we are hereby granting approval for the following wells until June 1, 1998:

Well #	Location	Lease
62	NENE, 21, T29N, R51E	I37IND13045
96	SWSW, 21, T29N, R51E	I37IND13045
57	SWSW, 27, T29N, R51E	I37IND13080
16	SWSE, 33, T29N, R51E	I37IND12715
24	SWSW, 12, T28N, R51E	14202564047
22	SWSW, 14, T28N, R51E	I37IND12878
94	SWNE, 18, T29N, R51E	I37IND12872
19	SWSE, 19, T29N, R51E	I37IND12874
4	SWNE, 33, T29N, R51E	I37IND12715
85	SWSW, 33, T29N, R51E	I37IND12719

If production is restored from any of the wells, you must notify this office within five days of the date production is established.

Because your letter states that Well No. 11 located in Lease I37IND12897 has no further beneficial use, please submit a Notice of Intent to Abandon this well no later than September 1, 1997.

If you have any questions regarding this matter, please contact Charles Laakso or Bernice Knopp at 406-232-7001, Ext.223 or 212.

Sincerely yours,

Charles E. Laakso
Team Leader
Miles City District Minerals Team

bc: WF(10)
Chron
Tickler
BIA

I37IND12715
#16

1998

United States Department of the Interior
Bureau of Land Management
Miles City District Office

Report of Telephone Conversation

To		**From**	
Name	: Chuck Laakso	Name	: Ray Reede
Office	: BLM	Company	: Murphy
Location	: MCDO	Location	: Poplar
Telephone	: (406) 232-7001	Telephone	: 406-768-3612

Purpose of Call: Ray called to get an OK to squeeze a casing leak on the #16 well (SW SE sec33-29N-51E). While placing a CIBP to TA this well they discovered a casing leak at approximately 3375 feet. They will place a CICR at 3365 feet and squeeze the leak with 100 sx of cement. Then they will place 2 sx on top of the CICR and the well will be TAd.

I gave them a verbal OK to do this.

Explanatory Remarks:

Date: 10/27/98 Signature: Charles E Laakso

1999

①

MILES CITY BLM DISTRICT OFFICE

Subject: Verbal Report of ~~Undesirable~~ Event (NTL-3A)

From: (name) Ray Reede
(company) Murphy Exploration & Production
(telephone)

Date of Occurrence: 1-22-99 Time of Occurrence: 8:30 AM
Date Reported/BLM: 1-25-99 Time Reported/BLM: 2:35 PM

Location: State: Montana County: Roosevelt
Section: NE¼, Sec. 10 T 28 N. R 51 E.
Lease: Unit or CA: So. Poplar

Surface Owner: FEDERAL, FEE, (INDIAN), STATE

Type of Event: BLOWOUT, FIRE, ~~FATALITY~~, INJURY, PROPERTY DAMAGE, OIL SPILL, (SALTWATER SPILL), PRODUCED WATER SPILL, OIL & PRODUCED WATER SPILL, TOXIC FLUID SPILL, OIL & TOXIC FLUID SPILL, GAS VENTING, OTHER

Volume Discharged: 30 bbl. Volume Recovered: approx. 25 bbl.
Size: Class I Event, Class II Event, Class III Event

Cause of Event: Bolts on coupling corroded up.

Time to Control Event: Immediately
Action to Control Event: Shut in part of field

Description of Damage & Clean-Up Actions: Vac'd up as much as possible. Temporarily repaired line.

Repair Actions: Have abandoned the line pending main office decision on repairing or replacing.
Personal Injury:

Other Agencies Notified:

Royalty: Avoidably/Unavoidably Lost Royalty Due:

Royalty Decision made by:

General Remarks:

Report Taken By: Title: LE
Signature: Bernice Knopp Date: 1-25-99

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

SEP 1999
Bureau of Land Management
Miles City, Montana

AUG 31 1999

Of Land Managem
Great Falls Resource Area
RECEIVED
SEP 02 1999
Great Falls, Montana

Ref: 8ENF-T

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Sid Campbell, Manager Onshore Operations
Murphy Exploration & Production Company
P.O. Box 61780
New Orleans, LA 70161

Re: UNDERGROUND INJECTION CONTROL (UIC)
Notice of Noncompliance
Excess Injection Pressure
Poplar East 5-D (EPA # MT00021-2021)
Roosevelt County, MT

Dear Mr. Campbell:

During a field inspection by representatives of the Environmental Protection Agency on July 13, 1999, the 5-D injection well in the Poplar East Field was found to be injecting at a pressure of 450 psig, which is 15 psig above the allowable surface injection pressure of 435 psig. Operation of an injection well at pressures greater than authorized is a violation of the Safe Drinking Water Act and CFR 40 §144.51(a).

Therefore, you are directed to maintain the surface injection pressure of this well at or below the maximum allowable limit. If you require a higher injection pressure for continued operation of the well, you may conduct a step-rate test for the injection zone and request an increase based on the test results. However, this test may, or may not, indicate that a higher injection pressure can be approved for the well.

Within thirty (30) days of receipt of this letter, please respond in writing describing: 1) what action has been taken to correct this situation; 2) how you intend to prevent any recurrence in the future; or 3) why the pressure information is in error.

Failure to comply with the Permit and its conditions and the UIC regulations found at 40 C.F.R. 144, 146, are violations of the Safe Drinking Water Act, 42 U.S.C. §300h and subject to further enforcement by EPA.

Printed on Recycled Paper

If you have any questions regarding this letter, you may contact Bahram Jafari at (303) 312-6459. Also, please direct all correspondence to the attention of Bahram Jafari at Mail Code 8ENF-T.

Sincerely,

Connally E. Mears

Connally E. Mears, Director
Technical Enforcement Program

cc: Richard Hopkins, Field Manager
Bureau of Land Management

William Old Chief, Chairman
Bureau of Indian Affairs

Gerald Wagner, Director
Blackfeet Tribe

Gary Madman
Blackfeet Tribe

Jim Boyter
Montana Office

2000

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, Montana 59301

IN REPLY TO:
3160

Bmeisele 3/17/00

MAR 17 2000

Sonosky, Chambers, Sachse & Endreson Law Offices
Attn: James T. Meggesto
1250 Eye Street, N.W.
Washington, D.C. 20005

Dear Mr. Meggesto:

On behalf of our oil and gas staffs in Miles City and Billings, I would like to thank you for meeting with us in Billings on March 14, 2000 to discuss the results of the inspection of the East Poplar Unit by Holm Technical Services, Inc.

The issues of concern identified in the report prepared by Holm Technical Services, Inc. are traditionally items of concern to us as well, and are items we include in our inspections of oil and gas operations on Indian or Federal leases. As we conduct our inspections of the Unit, we will pay particular attention to the items identified in the Holm report as well as our other inspection items and notify Murphy E&P of any violations or areas of concern which need corrective action.

As we mentioned at the meeting, we are inspecting certain Unit operations this week. We will also conduct a detailed environmental inspection of the Unit later this spring after the vegetation has begun growing to better ascertain the effects of spills and the results of previous remediation work. Additional inspections by our staff will be conducted throughout the year and at the request of the Tribes. We will provide copies of correspondence regarding results of our inspections.

We appreciate your interest in this matter and the opportunity to meet with you, Debbie Madison and Darrell Holm to discuss issues related to the operation of the East Poplar Unit. We look forward to working with representatives of the Tribes regarding Tribal concerns and resolving problems associated with oil and gas operations over which the BLM has jurisdiction. If you have any questions or need additional information, please contact me at (406)233-3644.

Sincerely,

Fred O'Ferrall

Assistant Field Manager
Division of Mineral Resources

cc: Ft. Peck Tribes, D. Madison

E. Poplar
Corres

TA-4

2000-56

MURPHY
EXPLORATION & PRODUCTION COMPANY

REGULATORY COMPLIANCE PROGRAM

MONTANA
OIL OR HAZARDOUS SUBSTANCES
SPILL REPORT

Person Reporting Spill: Jim Cooke (Name) Prod Foreman (Title)

Owner of Material Spilled: Murphy Oil

Address: Box 547 Poplar Mt. Phone #: 768-3812

Date of Spill: 3-14-00 Time of Spill: AM

Notified (Circle):
Montana Disaster & Emerg. Svcs., Helena (406) 444-6911
Montana Board of Oil & Gas Conservation (406) 656-0040
Montana Emergency Response Comm. (406) 444-3948
National Response Center 1-800-424-8802

MAR 2000
Bureau of Land Management
Miles City, Montana

Other Federal & State Agencies Notified of Incident:

Date & Time of Initial Notification:

Amount or rate of discharge: Oil: 0 BBl Water: 1 Bbl Hrs:

Amount entered water: None

Distance & Direction to nearest stream: 3 Miles

Distance & Direction to nearest Town: 12 Miles

Field Name: East Poplar Lease Name:

Well Name: #111 Flow Line - NW SW Line

Exact Location: County: Roosevelt Sec: 13 Type: 29N Range: 50E

Area/Size of Damage: 10' Wide 30' Long

Size & type of pipe damaged: 4" Fiber Glass

Nature or Cause of Incident: Rock Bruise

Effect on Environment:

Method of Containment:

Measures taken to clean up pollutants: Wait until Mud Dry's Up

Clean up team (Name and Address): Richards Roustabouts

Action taken to prevent recurrence: Replace Bad Section With New Pipe

SIGNATURE [signature] DATE 3-17-00

1A-3

MURPHY
EXPLORATION & PRODUCTION COMPANY

REGULATORY COMPLIANCE PROGRAM
MONTANA
OIL OR HAZARDOUS SUBSTANCES SPILL REPORT

Person Reporting Spill: Jim Corne (Name) Prod Foreman (Title)

Owner of Material Spilled: Murphy Oil

Address: Box 547 Poplar Mt. Phone #: 768-3612

Date of Spill: 3-9-00 Time of Spill: AM

Notified (Circle):
Montana Disaster & Emerg. Svcs., Helena (406) 444-6911
Montana Board of Oil & Gas Conservation (406) 656-0040
Montana Emergency Response Comm. (406) 444-3948
National Response Center 1-800-424-8802

MAR 2000 Bureau of Land Management Miles City, Montana

Other Federal & State Agencies Notified of Incident:

Date & Time of Initial Notification:

Amount or rate of discharge: Oil: 1 BBl Water: 5 BBls Hrs:

Amount entered water:

Distance & Direction to nearest stream: 3 Miles

Distance & Direction to nearest Town: 12 Miles

Field Name: East Poplar Lease Name:

Well Name: #111 Flow Line - N.W 9/W Line

Exact Location: County: Roosevelt Sec: 13 Type: 29 N Range: 50 E

Area/Size of Damage: 30' X 30'

Size & type of pipe damaged: 4" Fiber-Glass

Nature or Cause of Incident: Rock Bruise

Effect on Environment:

Method of Containment:

Measures taken to clean up pollutants: Wait till Mud Dry's up

Clean up team (Name and Address): Richards Roustabouts

Action taken to prevent recurrence: Replace Bad Section with New Pipe

SIGNATURE DATE 3-17-00

Attn: John Bramhall

TA-2

MURPHY
EXPLORATION & PRODUCTION COMPANY

REGULATORY COMPLIANCE PROGRAM

MONTANA
OIL OR HAZARDOUS SUBSTANCES
SPILL REPORT

Person Reporting Spill: Ray Reedle (Name) District Manager (Title)

Owner of Material Spilled: Murphy E & P

Address: Box 547 Poplar montana 59255 Phone #: 406-768-3615

Date of Spill: 3-17-0 Time of Spill: 7:30 A.M

Notified (Circle):
Montana Disaster & Emerg. Svcs., Helena (406) 444-6911
Montana Board of Oil & Gas Conservation (406) 656-0040
Montana Emergency Response Comm. (406) 444-3948
National Response Center 1-800-424-8802

Other Federal & State Agencies Notified of Incident:
BLM

Date & Time of Initial Notification: 7:30 A.M. 3-17-0

Amount or rate of discharge: Oil: 1/2 Bbl Water: 7 Bbl Hrs:

Amount entered water: None

Distance & Direction to nearest stream: 2 Miles North West

Distance & Direction to nearest Town: 8 Miles

Field Name: East Poplar Lease Name: EPU

Well Name: EPU #7

Exact Location: County: Roos Sec: 7 Type: 29N Range: 51E

Area/Size of Damage: 30' x 30'

Size & type of pipe damaged: 3" steel pipe

Nature or Cause of Incident: out side corosion

Effect on Environment: Salt water & oil mixed in The dirt

Method of Containment: Diked

Measures taken to clean up pollutants: Picked up with Vac Trailer

Clean up team (Name and Address): Richards Roust Poplar montana

Action taken to prevent recurrence: replaced pipe with Fiberglass

Ray Reedle
SIGNATURE

3-22-0
DATE

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, Montana 59301

IN REPLY TO:
3160

JWB 3/27/00

MAR 27 2000

Sonosky, Chambers, Sachse, & Endreson Law Offices
Attn: James T. Meggesto
1250 Eye Street, N.W.
Washington, D.C. 20005

Dear Mr. Meggesto:

This office conducted a routine production inspection on the East Poplar Unit, Agreement No. 8920008690, located in Roosevelt County, Montana, on March 14 thru 17, 2000.

Several sites have had significant changes since the last inspection. Damaged or defective tanks have been replaced and old batteries/facilities have been removed or dismantled. Some sites still need further removal of excess or abandoned material, but overall the clean-up effort has been very effective. Cursory environmental observations during the production inspection identified some spill areas, i.e. flowline leaks, that required surface disturbance and will have to be rehabilitated this spring.

Incidents of Noncompliance (INC) were issued for:

1) Twelve (12) facility diagrams needing updates because of changes or new installations.
2) Two (2) seal violations for missing or improper equalizer valve seals (minor).
3) Two (2) reference point violations (minor).
4) Two (2) well sign violations (minor).

Our representative contacted Mr. Ray Reede about procedural paperwork that needs to be submitted to our office based on items identified during the inspection and subsequent file review, including the requirements of NTL-3A addressing reporting spills and/or other undesirable events. Sundry Notices need to be submitted requesting approval:

1) to use a new disposal well, Huber #5 for unit water disposal.
2) to commingle well #101 with unit production at S. Central Battery.
3) to dispose of well #101 water in Huber #5.

In addition, five (5) wells still have the old BLM lease numbers. In order to be correct, the signs need to have the replacement Indian lease numbers stenciled on them. Although fee wells in the Unit do not come under federal supervision except for royalty related items, anything found out of compliance with federal regulations is always brought to the attention of the Unit Operator's representative. Two (2) well signs are missing the Operator name, four (4) signs are laying on the ground and two (2) signs have an Indian lease number but the wells have reverted to Fee ownership. A flow line leak from well # 7 (Fee non-unit) was being repaired 3/17/00.

If you have any questions, or would like to discuss any of the items identified in this letter, please contact John Bramhall at 406-233-3643.

Sincerely,

David J. Breisch

Acting Assistant Field Manager
Division of Minerals

cc: Fort Peck Tribes, D. Madison
Murphy Exp. & Prod, R. Reede
bc: East Poplar Unit File, Chron

United States Department of the Interior

DZH 8/8/00

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, Montana 59301

IN REPLY TO:
3160

AUG 8 2000

Sonosky, Chambers, Sachse, & Endreson Law Offices
Attn.: James T. Meggesto
1250 Eye Street, N.W
Washington, D.C. 20005

Dear Mr. Meggesto:

On August 1, 2000, this office conducted an environmental inspection of the East Poplar Unit. Areas of concern have been rehabilitated and major improvements have been made since the initial report by Holm Technical Services, Inc.

Clean-up efforts in this field are ongoing, and Murphy Oil has been actively working to improve the conditions. They are in the process of removing unnecessary equipment and performing remediation on spills and facilities within the unit. Murphy Oil has conducted Mechanical Integrity Tests (MITs) of wells in the unit and are currently receiving approval to plug wells that failed the MITs.

The Incidents of Noncompliance listed in our letter of March 27, 2000, have all been corrected.

Murphy Oil has filed a request to commingle production from Well #101, which is producing from a non-unitized formation, with unit production. This request was denied by our office. As a result of that denial, the #101 well is now being produced into a separate facility. The disposal of produced water from the #101 well into the Huber #5 has been approved by this office. Our office also approved Murphy's request to dispose of unit water into the Huber #5 well (which is an EPA approved disposal well).

This office plans to conduct additional environmental inspections of the Unit and further production inspections are also planned. We will keep you informed of the progress made regarding operations in this unit.

If you have any questions or would like to discuss this matter, please contact Dennis Hutchings at 406-233-3651 or Charles Laakso at 406-233-3659.

Sincerely,

Fred O'Ferrall

Assistant Field Manager
Division of Minerals

cc: Ft. Peck Tribes
Murphy E&P, D. Madison

E. Poplar Corres

MURPHY
EXPLORATION & PRODUCTION COMPANY

REGULATORY COMPLIANCE PROGRAM
MONTANA
OIL OR HAZARDOUS SUBSTANCES
SPILL REPORT

AUG 2000 Bureau of Land Management Miles City Montana

(2)

Person Reporting Spill: Ray Reede (Name) Dist. Manager (Title)

Owner of Material Spilled: Murphy E & P

Address: Box 547 Poplar Montana Phone #: 406-768-3612

Date of Spill: 8-19-0 Time of Spill: 7:10 A.M.

Notified (Circle):
Montana Disaster & Emerg. Svcs., Helena (406) 444-6911
Montana Board of Oil & Gas Conservation (406) 656-0040
Montana Emergency Response Comm. (406) 444-3948
National Response Center 1-800-424-8802

Other Federal & State Agencies Notified of Incident: BLM Fort Peck Tribe

Date & Time of Initial Notification: 8-21-0 8:25 A.M.

Amount or rate of discharge: Oil: 0 Water: 200 Hrs:

Amount entered water: None

Distance & Direction to nearest stream: 1 1/4 mile North West

Distance & Direction to nearest Town: 11 1/2 Miles South West

Field Name: East Poplar Lease Name: E P U

Well Name: C-Batt

Exact Location: County: Roos Sec: 3 Type: 28 N Range: 51 E

Area/Size of Damage:

Size & type of pipe damaged: 4" ~~Fiber~~ Transite

Nature or Cause of Incident: Pipe deterioration

Effect on Environment: Water ran in Field, will haul in Straw + Farm

Method of Containment: Dug a Hole

Measures taken to clean up pollutants: Picked up with Vac Trailer

Clean up team (Name and Address): Richards Roustabout Box 335 Poplar Montana 59255

Action taken to prevent recurrence: Line shut in

Ray Reede
SIGNATURE

8-21-0
DATE

2001

MURPHY
EXPLORATION &
PRODUCTION
COMPANY

131 SOUTH ROBERTSON ST. (70112)
P.O. BOX 61780
NEW ORLEANS, LA 70161-0780
(504) 561-2811
FAX (504) 561-2837

01 MAR 8 AM 8 33

March 1, 2001

CERTIFIED MAIL – 7000 0520 0017 4005 6508

CERTIFIED RECEIPT REQUESTED

Chun C. Wong, Chief
Reservoir Management & Operations Section
United States Department of the Interior
Bureau of Land Management
222 North 32nd Street
Billings, Montana 59107-6800

RE: East Poplar Unit - Roosevelt County, MT
2000 Review of Operations and Plan of Development for 2001
Your Refs. (MTM 68721X) (922.PL)

Dear Mr. Wong:

Murphy continues to operate the East Poplar Unit while we are in litigation with Union Pacific Resources Company (UPRC). We are copying this letter to UPRC to keep them informed of the POD.

I. Summary of Operations

The latest maps showing wells and geological interpretations that were submitted with prior reviews are still current; therefore, no geological maps are being attached. However, a map showing individual well locations within and just outside the Unit is attached. Also attached is the updated Monthly Production Graph showing oil and water production through the end of 2000. Included as Table No. 2, is the tabulated Annual Production data from 1978 through 2000.

Well work or zone changes have been performed as reported on USGS Forms 9-331 in order to maintain rate and achieve maximum economical recovery.

Murphy contines to review the SI and TA wells in conjunction with your Miles City Office. We Have permanently abandoned four wells this past year. The EPU No.37 and No.81 were abandoned after testing sands within the Heath Sands. The EPU No. 41 and No.62 were abandoned without any additional testing.

II. Production Facility Schematic and Field Maps

No changes in well locations, flowlines or roads have taken place since our last submittal.

III. Well Status

The status of all wells that have not been plugged and abandoned as of January 1, 2001 is attached and marked as Table No. 1. There are two Heath Sand wells. The No.7 well has not been included in previous tables. The Heath Sands are in the Federal Unit, but each well has a separate Participating Area. Therefore, we have included these two wells in this years Table No.1.

IV. Plans for Development

Plans for 2001 presently call for doing normal surface and subsurface maintenance in order to maintain production at an economical rate:

1. Wells currently not producing will be evaluated for possible rework or zone changes. Also, if present zone problems arise in currently active wells, they will be reviewed for zone change.

2. We continue to work with the Miles City Office in monitoring temporarily abondoned wells. We are running casing integrity tests as required. Wells that do not pass will be put back into service, repaired, or plugged and abandoned. Sundry notices will be filed for approval of all work.

Yours truly,

Sidney W. Campbell

Sidney W. Campbell
Manager, Onshore Operations

Encl.

cc: Mr. Ray Reede, Murphy Production
Mr. Jim Krig, Murphy Land

UPRC
Attn: Mr. James J. O'Malley, Land Manager
P. O. Box 7, MS 3704
Fort Worth, TX 76101-0007

MURPHY EXPRO - EAST POPLAR UNIT
CURRENT WELL STATUS YEAR END 1997
TABLE NO.1

Well No.	Current Producing Zone(s)	Status
1	C-3	Flowing
3	A-3	Flowing
4	B-1	T.A.
5	B-1, B-2	Pumping
6	C-3	Flowing
7	Heath Sd.	Pumping
9	B-1, B-2, C-3	Pumping
10	B-1	Pumping
11	B-1, B-2, C	P.A.
12	B-1, B-2	Pumping
14	B-1	T.A.
15	B-1, B-2	Pumping
16	B-1, B-2	T.A.
17	B-1	P&A
18	A-4	Pumping
19	A-4	T.A.
20	B-1, B-2, C-3	Pumping
21	C-3	Flowing
22	C-1	T.A.
23	B-2	Flowing
24	A-3	T.A.
27	B-2, C-2	Shut In
28	B-1	P&A
30	B-1, B-2	T.A.
31	B-1	Pumping
32	A-2, A-3	T.A.
34	B-1	P.A.
36	B-1	Shut In
37	B-1, B-4	P.A.
38	A-3	Shut-In
39	B-1	Shut-In
40	B-1, B-2	T.A.
41	A-2	P.A.
42	B-2	Producing
43	B-1, B-2	Shut-In
45	B-2	Flowing
47	B-1	Shut-In
48	C-1	Flowing
54	B-2, B-4	Shut-In

55	C-1	Flowing
56	B-1	Pumping
57	A-4	Shut-In
58	B-1, B-2	Shut-In
60	A-4	Shut-In
62	B-2	P.A.
65	B-4	T.A.
66	B-1, B-2	Pumping
68	A-4, B-1	Shut-In
69	B-1	Shut-In
70	B-1	Pumping
71	B-2	Shut-In
73	B-1, B-2	Shut-In
77	B-1	Pumping
78	A-1, 2, 3, 4	Shut-In
79	B-3	Shut-In
81	B-1	P.A.
83	B-1	Pumping
84	B-1	Pumping
85	B-1, B-2	P.A.
88	B-3	Pumping
89	B-2	Shut-In
90	B-1, B-3	Shut-In
91	B-1	Shut-In
93	B-3	T.A.
94	B-1	T.A.
95	B-2, B-4	Flowing
96	A-4	P.A.
97	B-1	Pumping
98	A-4	Shut-In
100	B-1	Pumping
101	Heath Sd	Flowing
102	C-3	Flowing
103	B-2, B-4	Shut-In
104	C-3	Flowing
105	B-1	Pumping
106	B-2	Shut-In
107	B-1	Pumping
110	B-1	Shut-In
111	C-3	Pumping
112	B-2	Pumping
114	Nisku	Shut-In
116	C-2	Pumping

NOTE: All T.A. and SI wells are currently inactive because of high water cut; however, they are being maintained for possible future tertiary oil recovery.

SALTWATER DISPOSAL WELLS

1-D	Dakota	Injecting
5-D	Dakota	Injecting
8-D	Judith River	Emergency Use Only
80-D	Dakota	Injecting

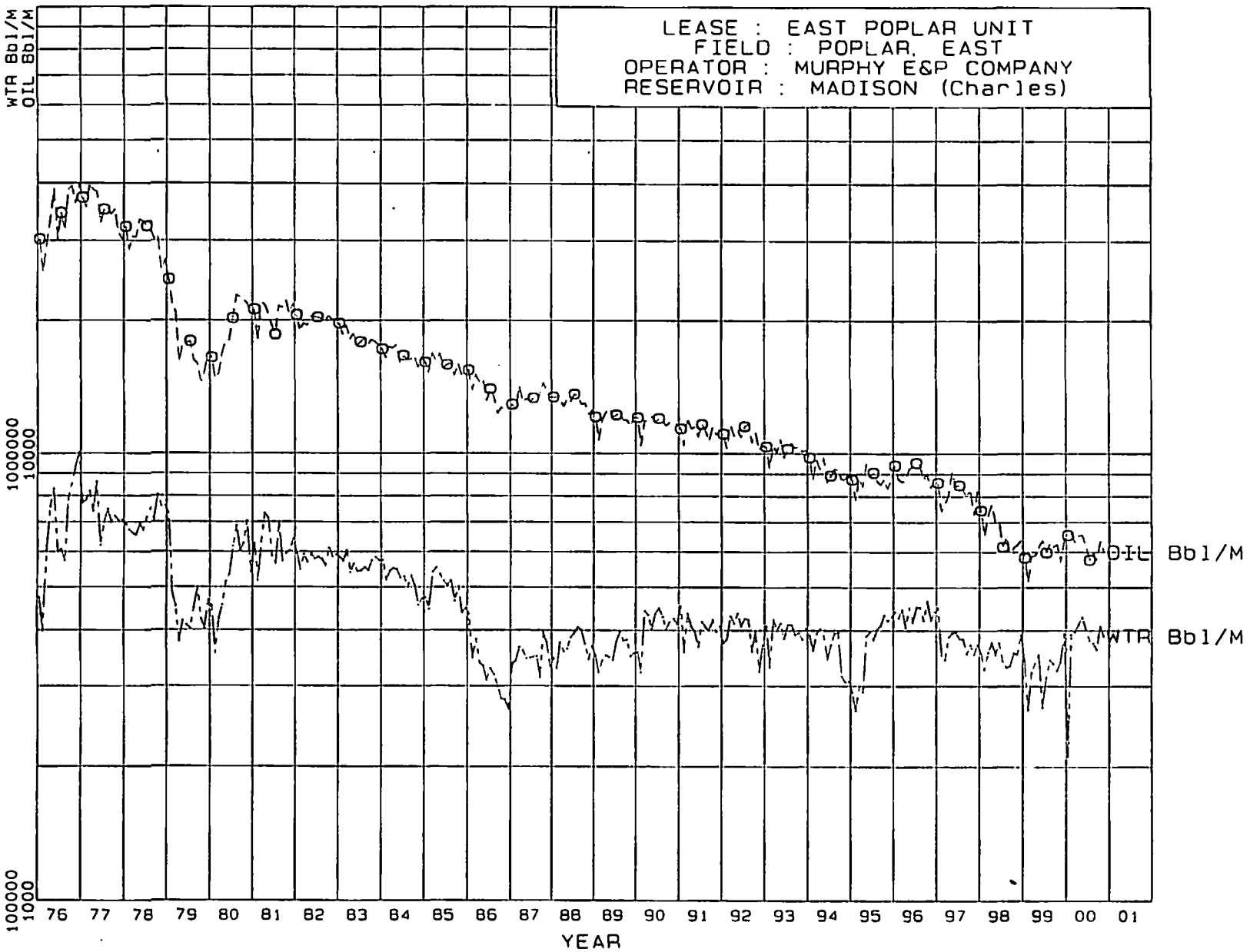
Huber No. 5 was converted to a saltwater disposal well during November 1997. Murphy commenced injection during the 1st quarter 1998. Note that the Huber No.5 SWD is not designated as a unit well.

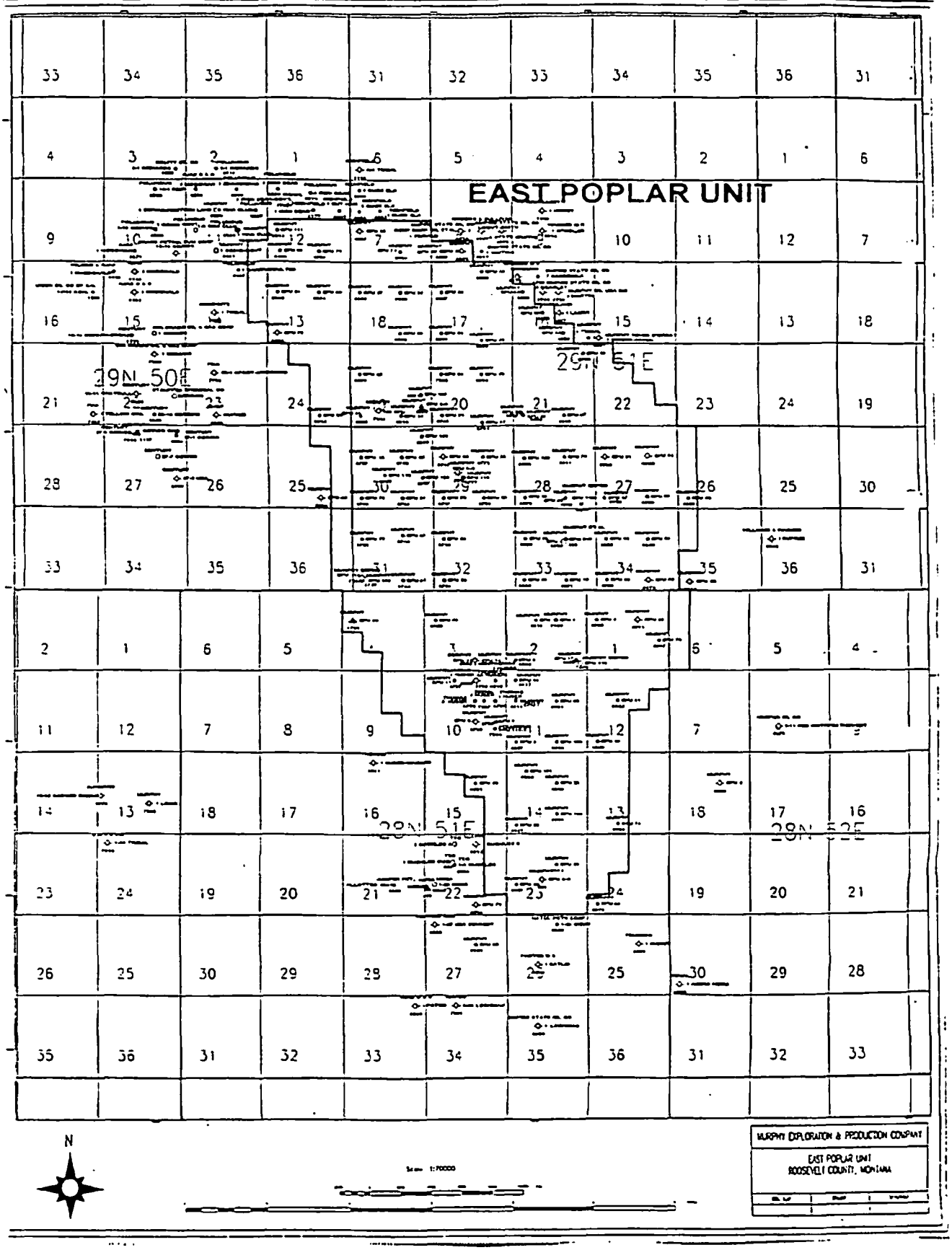
TOTAL WELLS

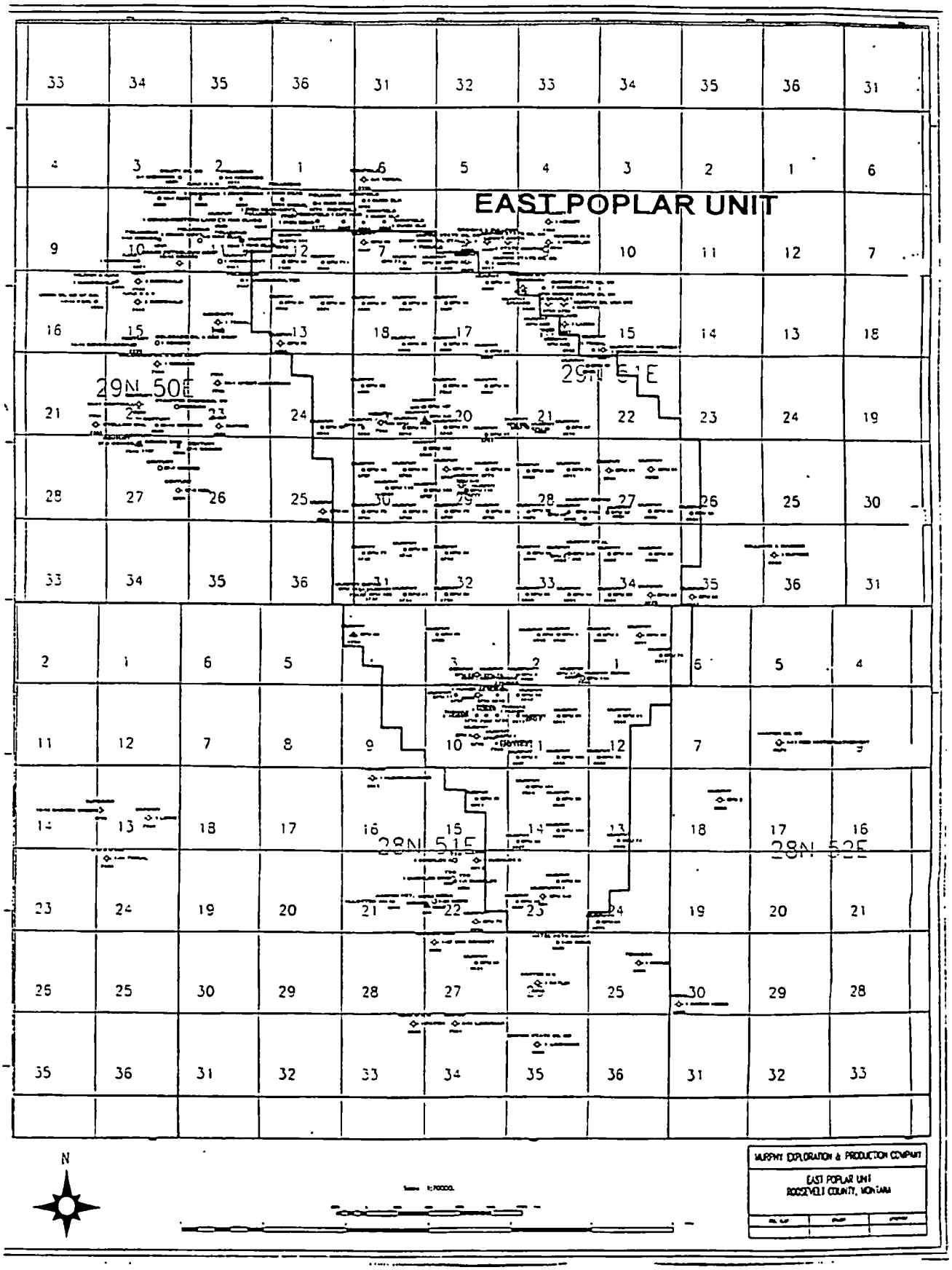
24	Pumping Wells
10	Flowing Wells
37	Temporarily Abandoned or Shut-In Wells
4	Salt Water Disposal

ANNUAL PRODUCTION FOR THE REPORT PERIOD
TABLE NO. 2

YR	OIL	WATER
1978	366,96	8,722,650
1979	215,702	5,675,639
1980	229,309	6,687,339
1981	249,698	7,027,561
1982	240,584	6,979,274
1983	225,182	6,919,731
1984	207,060	6,389,872
1985	196,538	6,078,517
1986	170,524	4,075,104
1987	163,008	4,235,930
1988	162,929	4,620,317
1989	154,086	4,804,644
1990	149,718	5,215,724
1991	148,707	5,375,602
1992	147,043	5,332,093
1993	128,299	5,092,728
1994	123,887	5,362,988
1995	111,307	4,645,013
1996	117,243	5,419,281
1997	115,251	4,983,293
1998	96,183	4,256,160
1999	86,149	4,325,686
2000	80,175	4,685,148


LEASE : EAST POPLAR UNIT
FIELD : POPLAR, EAST
OPERATOR : MURPHY E&P COMPANY
RESERVOIR : MADISON (Charles)
WTR Bbl/M
OIL Bbl/M
1000000
10000
100000
1000
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01
YEAR
OIL Bbl/M
WTR Bbl/M


EAST POPLAR UNIT
29N 50E
29N 51E
29N 52E
N
MURPHY EXPLORATION & PRODUCTION COMPANY
EAST POPLAR UNIT
ROOSEVELT COUNTY, MONTANA


EAST POPLAR UNIT
29N 50E
29N 51E
28N 51E
28N 52E
N
MURPHY EXPLORATION & PRODUCTION COMPANY
EAST POPLAR UNIT
ROOSEVELT COUNTY, MONTANA

Wells Found

Case Number	T	Operator	API Number	Well Name	Num	Stat	St	County	TWP/LAT	RGE/LON	SEC	QTR
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505048 00S1	CARTER	14	TA	MT	ROOSEVELT	28N	51E	3	SESE
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505032 00S1	CARTER	24	TA	MT	ROOSEVELT	28N	51E	12	SWSW
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505024 00S1	CARTER	32	TA	MT	ROOSEVELT	28N	51E	15	SWNE
1420C562442	L	MURPHY EXPLORATION & PROD CO	2508521108 00S1	IRON BEAR	3	TA	MT	ROOSEVELT	29N	50E	12	NWNW
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505084 00S1	MURPHY	16	TA	MT	ROOSEVELT	29N	51E	33	SWSE
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505103 00S1	MURPHY	19	TA	MT	ROOSEVELT	29N	51E	19	SWSE
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505019 00S1	MURPHY	22	TA	MT	ROOSEVELT	28N	51E	14	SWSW
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505394 00S1	MURPHY	4	TA	MT	ROOSEVELT	29N	51E	33	SWNE
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505163 00S1	MURPHY	65	TA	MT	ROOSEVELT	29N	51E	7	NWSW
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505116 00S1	MURPHY	93	TA	MT	ROOSEVELT	29N	51E	19	SWNW
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505139 00S1	MURPHY	94	TA	MT	ROOSEVELT	29N	51E	18	SWNE
8920008690	A	MURPHY EXPLORATION & PROD CO	2508505105 00S1	WELCH	47	TA	MT	ROOSEVELT	29N	51E	21	SWSE

WELL LIST BY COMPANY AS OF:03/23/2001
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OPERATOR	LEASE NO.	WELL NO.	S	TYPE	APV DATE	MIT DATE
MURPHY E&P COMPANY	I37IND12719	85	SI	OIL	08/03/1998	
MURPHY E&P COMPANY	I37IND12715	4	TA	OIL	07/10/2000	06/28/2000
MURPHY E&P COMPANY	1420C562442	3	TA	OIL	04/05/2000	03/14/2000
MURPHY E&P COMPANY	I37IND12860	37	TA	OIL	01/05/1999	03/14/2000
MURPHY E&P COMPANY	I37IND13066	93	TA	OIL	04/05/2000	03/14/2000
MURPHY E&P COMPANY	I37IND12965	81	TA	OIL	01/05/1999	03/14/2000
MURPHY E&P COMPANY	I37IND12883	41	TA	OIL	01/05/1999	03/14/2000
MURPHY E&P COMPANY	14202564047	14	TA	OIL	04/05/2000	03/14/2000
MURPHY E&P COMPANY	I37IND13045	96	SI	OIL	08/03/1998	
MURPHY E&P COMPANY	I37IND13080	57	SI	OIL	08/03/1998	
MURPHY E&P COMPANY	I37IND12715	16	TA	OIL	07/14/2000	06/28/2000
MURPHY E&P COMPANY	14202564047	24	TA	OIL	10/22/1999	10/06/1999
MURPHY E&P COMPANY	I37IND12878	22	TA		10/22/1999	10/06/1999
MURPHY E&P COMPANY	14202564047	32	TA	OIL	04/05/2000	03/14/2000
MURPHY E&P COMPANY	I37IND13056	65	TA	OIL	04/05/2000	03/14/2000
MURPHY E&P COMPANY	I37IND12872	94	TA	OIL	10/22/1999	10/09/1999
MURPHY E&P COMPANY	I37IND12874	19	TA	OIL	07/14/2000	06/28/2000

35 I wells
14 - TA wells

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Montana State Office
5001 Southgate Drive, P.O. Box 36800
Billings, Montana 59107-6800
http://www.mt.blm.gov/

IN REPLY TO:

East Poplar Unit
MTM 68721X (922.TC)

March 8, 2001

Memorandum

To: Field Manager, Miles City Field Office 3/19/01

From: Acting Chief, Reservoir Management and Operations Section

Subject: Plan of Development (POD) for the East Poplar Unit

We are forwarding a copy of the subject POD for your review and comments in accordance with IM No. MT-84-103.

If you find the POD to be adequate, check the concurrence block on this memorandum below, retain a copy of this memorandum with your determination and the attached POD for your files. If you recommend that changes be made, please return the POD with your comments listed below and retain a copy of this memorandum with your determination for your files. You will receive copies of subsequent actions made by this office including approval correspondence.

Jay R. Spielman, Acting Chief

1 Attachment
1- POD

__X__ Concurrence CEL 4/2/01

_____ Non-concurrence. This office has reviewed the POD and does not concur for the following reasons:

Signature Title Date
Acting AFM - Minerals

TA-1

MURPHY
EXPLORATION & PRODUCTION COMPANY

REGULATORY COMPLIANCE PROGRAM

MONTANA
OIL OR HAZARDOUS SUBSTANCES
SPILL REPORT

MAY 2001 Bureau of Land Management Miles City Montana

Person Reporting Spill: Raymond Reede (Name) District Manager (Title)

Owner of Material Spilled: Murphy EXPRO

Address: P.O. Box 547 Poplar, MT 59255 **Phone #:** 406+768-3612

Date of Spill: 4-29-01 **Time of Spill:** 7:10 A.M.

Notified (Circle):
Montana Disaster & Emerg. Svcs., Helena (406) 444-6911
mail Montana Board of Oil & Gas Conservation (406) 656-0040
Montana Emergency Response Comm. (406) 444-3948
National Response Center 1-800-424-8802

Other Federal & State Agencies Notified of Incident:
BLM

Date & Time of Initial Notification: 4-29-01 8:00 A.M.

Amount or rate of discharge: Oil: 2 bbls **Water:** 300 bbls **Hrs:**

Amount entered water: None

Distance & Direction to nearest stream: 1 Mile

Distance & Direction to nearest Town: 7 Miles

Field Name: East Poplar Unit **Lease Name:** East Poplar Unit

Well Name: East Poplar Unit No. 80-D

Exact Location: County: Roosevelt **Sec:** 3 **Type:** 28N **Range:** 51E

Area/Size of Damage:

Size & type of pipe damaged:

Nature or Cause of Incident: Salt water pump went down. Pit ran over and filled dike

Effect on Environment: Put fluid in dike

Method of Containment: Fluid went in dike

Measures taken to clean up pollutants: Pumped fluid out of dike.

Clean up team (Name and Address): Murphy Personnel

Action taken to prevent recurrence: Replaced fuses in switch box and cleaned up all contacts.

Raymond Reede
SIGNATURE

5-7-01
DATE

Undesirable Events

Event Num	Case Number	Operator	API	Fac	Type	Date	Insp Open	Insp Close
99-43	8920008690	MURPHY EXPLORATION & PROD CO		H	SALTWATER SPILL	01/22/1999		
2000-56	8920008690	MURPHY EXPLORATION & PROD CO	250852111400S1		SALTWATER SPILL	03/14/2000		
2000-99	8920008690	MURPHY EXPLORATION & PROD CO		E	SALTWATER SPILL	08/19/2000		
2000-57	8920008690	MURPHY EXPLORATION & PROD CO	250852162100X1		SALTWATER SPILL	03/17/2000		