LLOYD DAVIDSON
P. O. BOX 2182
SANTA FE, NEW MEXICO 87501
505-983-9689

SFP RRCO #20 6-20-16N-6W

June 17, 1985

Mr. Charles Gholson
Oil and Gas Inspector
Oil Conservation Division
Aztec, New Mexico 87410

Re: Well No. 20
Section 20
Township 16N, Range 6W
McKinley County, New Mexico

Dear Mr. Gholson:

Your letter of June 10, 1985, has been received.

This well was completed from open hole from 1172 feet to 1195 Feet. Casing is set from the surface to 1172 feet. Core analysis gave this well 1080 barrels oil per acre foot. See copy of Core Lab analysis attached as Exhibit 1, and electric log as Exhibit 2. The top of the sand is 1168 feet. The well has 22 feet oil sand. There are two small shale breaks. On this basis, using 10 acre spacing, this well has in place (1080 X 22 X 10) 237,600 barrels oil in place.

The well has a bottom hole pressure of 400 PSI. See report of Tefteller, Inc., attached as Exhibit 3. There is no gas. For many months after the well was completed we pumped the well using different sizes of pumps and pump jacks and stroke lengths but could never recover more than about 1% oil, the rest being fresh water. It was not until 1980 that we found the reason more oil was not being produced. It was discovered that the viscosity of the oil was too high to make for much production. A test of the oil was run by Core Lab and it was discovered that the viscosity of the oil was 600 cps. at 55 degrees F, which is the temperature of the fluid in the reservoir. This test, Exhibit 4, showed that by increasing the heat of the fluid by 100 degrees F, the viscosity dropped to 27 cps. which is well within the viscosity range for good oil production.

In 1983 a small steam flood was conducted on some of the Golden Oil wells in section 16, T16N, R6W. These wells are in the same reservoir as well No. 20. This experimental flood resulted in a big increase in oil production because of the lowered viscosity of the oil. This test only lasted a few days but it did prove that heat does lower the viscosity so that good, substantial production should result with a long term steam or other heat injection system.

Since that time I have been trying to get financing to steam flood well No. 20 or to generate heat in the formation using electric down-hole heaters or radio frequency heaters. See enclosed correspondence with Petrotherm Company about electric heaters and with Universal Energy Company about its newly patented process of generating heat down-hole by utilizing radio frequency heat.

My lease in this area covers some 1326 acres. This is colored in yellow on attached Exhibit 5. The diagonal red lines show 230 acres which I consider to have proven oil in place of some 6 million barrels.

I am working on testing well No. 20 with CO2 to see if this will lower the viscosity. The Shell Oil Company CO2 line from southeast Utah to the Permian Basin passes at one point only 23 miles from the Miguel Creek field. I have been in touch with Shell to try to get this company to test No. 20 with CO2 and, if successful, it would take over and develop my lease using CO2 from the big line. This is pending.

My principal reasons for being unable to get financing to test well No. 20 and then to develop the lease have been the big decline in oil prices, the large expense involved in any type of tertiary recovery and, more recently, the uncertainty of whether the tax bill now before Congress will permit the deduction of intangible expenses.

I am confidant that if given more time I can get well No. 20 to producing by reducing the oil viscosity in some manner and then to go ahead and develop the lease. It has been determined that fluid enters the well at about 140 barrels per day when the casing is empty. Lowered viscosity should result in wells making 50 to 70 barrels oil per day.

As you noticed on your trip out to the No. 20 well, the casing has a welded steel cap on the top. No fluid is escaping from the well nor will it so long as this plug is in place. In its present condition the well is causing no damage whatsoever.

So long as I have a reasonable chance of getting the well on production I hate to officially plug and abandon it. As matters stand now it would only be necessary to remove the welded cap and commence injecting steam.

With all the people I have contacted and who are now considering testing the well with heat or CO2 I feel strongly that I will be able to make a deal within the near future. But, after I make a deal, a hearing will have to be held before the Oil Conservation Commission and, of course, this takes time.

My thinking is that I will be able to make a deal sometime this summer or fall, then have a hearing in the winter and get going on the test and development next spring. You know, of course, how bad the road is out to this area when it snows. It is very difficult to show a prospective investor the property or do much field work in this kind of weather.

For all of the foregoing reasons I wish to request an extension of your order to put the well on production or plug it within 60 days after June 10, the date of your letter, until July 1, 1986. If I have not been successful by that time I assure you that I will plug the well in accordance with the rules and regulations. I have the funds to plug the well. It will not be necessary to get the insurance company involved.

One other thing, many uranium wells that were drilled in this general area had good shows of oil. Some of these have been tested for oil with negative results. Maybe high viscosity was the problem in some of these wells. It is just possible that if, using a tertiary protype recovery process on No. 20, I can get this well on good production, there might be other fields developed in the area using this method of recovery. If I can produce only one-half of the oil estimated to be in place on my lease, severance taxes sould amount to several million dollars.

Kindly let me know as soon as you can conveniently do so, your decision on my extension request so that I can begin preparations now to plug the well or to continue trying to test the well and get my deal over. I can meet with you in Aztec at any time if you have questions or want to discuss this matter in person.

Sincerely,

Lloyd Davidson

Lloyd Davidson

EXHIBIT 1

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

NORTHERN MINERALS, INC.
SANTA FE PACIFIC NO. 20
WILDCAT
MC KINLEY COUNTY

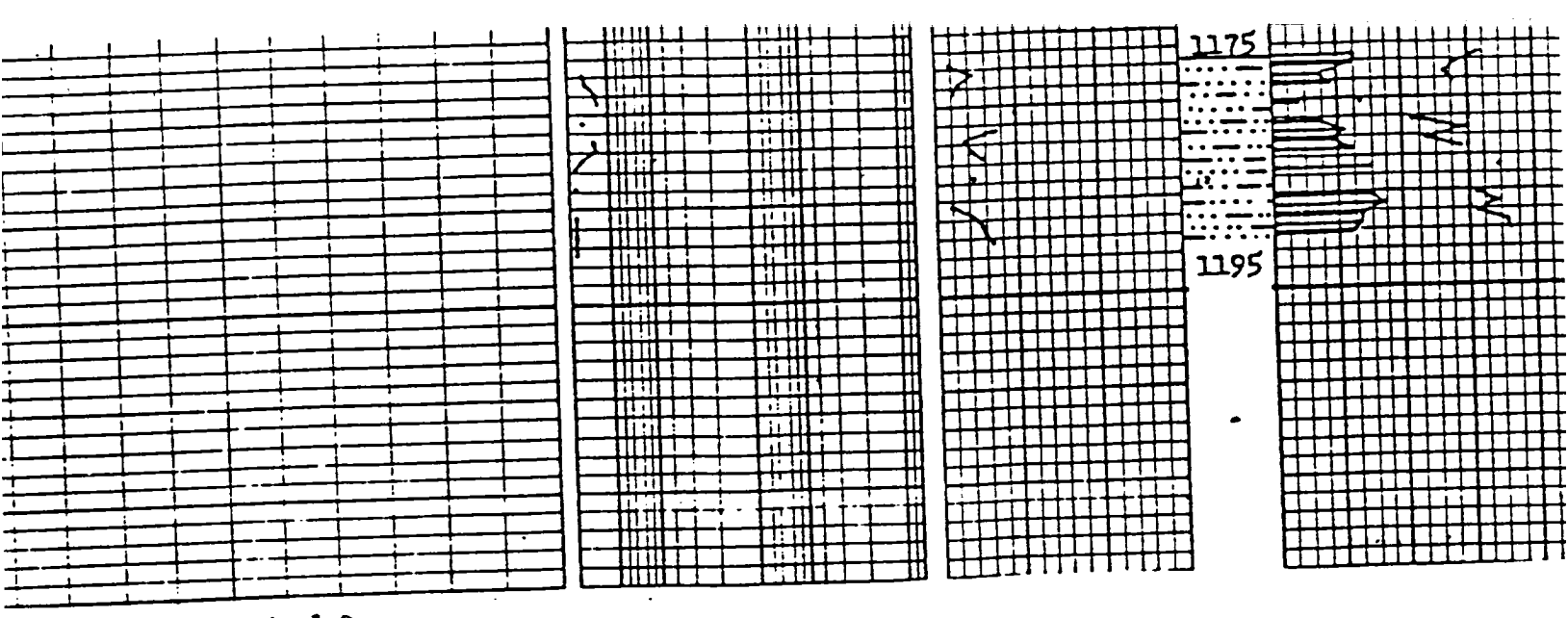
FORMATION : HOSPAH
DRLG. FLUID: WATER BASE MUD
LOCATION : SW NE SEC 20-T16N-R6W
STATE : NEW MEXICO

DATE : 12-18-75
FILE NO. : RP-3-2754
ANALYSTS : SS
ELEVATION: 7163' GL

CONVENTIONAL CORE ANALYSIS

SAMP. NO.	DEPTH	PERM. TO AIR (MD) HORZ.	PERM. TO AIR (MD) VERTICAL	POR. FLD.	FLUID SATS. OIL	FLUID SATS. WATER	GR. DNS.	DESCRIPTION
1	1175-76	372		28.7	24.1	38.2	✓	SS GY MG SHY CLAY
2	1176-77	343		25.7	23.1	44.3	✓	SS GY MG SHY CLAY
3	1177-78	202		27.6	12.8	48.7	✓	S GY MG SHY CLAY
4	1178-79	173		28.1	16.6	45.7		SS GY MG SHY CLAY
	1179-80							NO ANALYSIS
5	1180-81	374		20.8	6.7	74.2	✓	SS GY MG SHY CLAY
	1181-82							NO ANALYSIS
6	1182-83	245		23.1	12.6	58.5	✓	SS GY MG SHY CLAY
7	1183-84	202		27.0	20.7	42.1	✓	SS GY MG SHY CLAY
8	1184-85	392		26.2	16.9	54.5	✓	SS GY MG SHY CLAY
9	1185-86	692		24.8	22.8	43.7		SS BRN M/CG CLAY
	1186-87							NO ANALYSIS
10	1187-88	1270		25.9	28.6	32.5	✓	SS BRN M/CG CLAY
	1188-90							NO ANALYSIS
11	1190-91	1345		28.8	28.6	38.8	✓	SS BRN M/CG CLAY
12	1191-92	1355		26.2	32.9	32.9	✓	SS BRN M/CG CLAY
13	1192-93	1390		24.9	25.8	39.1	✓	SS BRN M/CG CLAY
14	1193-94	1540		24.5	25.5	29.7	✓	SS BRN M/CG CLAY
15	1194-95	990		23.6	22.5	29.0	✓	SS BRN M/CG CLAY

This well has 22 feet sand. Top of sand was 1168 feet. Coring did not begin until 1175 feet.



State 20

SL-000

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Hospah - 1175.0-1195.0 Feet

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	20	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	43.5
FEET OF CORE INCLUDED IN AVERAGES	15	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	35 (e)
AVERAGE PERMEABILITY: MILLIDARCYS	725.7	OIL GRAVITY: °API	40+ (e)
PRODUCTVE CAPACITY: MILLIDARCY-FEET	10885	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	200-1 (e)
AVERAGE POROSITY: PER CENT	25.7	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	1.20 (e
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	21.3	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	1080

Calculated maximum solution gas drive recovery is barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is barrels per acre-foot, assuming full maintenance of original reservoir pressure, 100% areal and vertical coverage, and continuation of production to 100% water cut. *(Please refer to footnotes for further discussion of recovery estimates.)*

(c) Calculated (e) Estimated (m) Measured (*) Refer to attached letter.

INTERPRETATION OF DATA

1175.0-1195.0 Feet - Interval interpreted as oil productive, however, a water cut may accompany production.

These recovery estimates represent theoretical maximum values for solution gas and water drive. They assume that production is started at original reservoir pressure; i.e., no account is taken of production to date or of prior drainage to other areas. The effects of factors tending to reduce actual ultimate recovery, such as economic limits on oil production rates, gas-oil ratios, or water-oil ratios, have not been taken into account. Neither have factors been considered which may result in actual recovery intermediate between solution gas and complete water drive recoveries, such as gas cap expansion, gravity drainage, or partial water drive. Detailed predictions of ultimate oil recovery to specific abandonment conditions may be made in an engineering study in which consideration is given to overall reservoir characteristics and economic factors.

ELEVATION

LSON'S LOGGING COMPANY
GRANTS, NEW MEXICO

12-17-75

CLIENT: Northern Minerals
BORE HOLE NO: SFP-20
AREA: Miguel Creek
COUNTY: McKinley
SECTION: 20
TOWNSHIP: 16N
RANGE: 6W
STATE: New Mexico
LOG MEASURED FROM: Ground Level
UNIT NO: 01
CHARGEABLE STDY:
OPERATION: Chuck Dunbar
BORE HOLE FLUID: H2O + Mud
DENSITY:
VISCOSITY:
DRIVE TIME:
STAND BY:
TIME IN: 16:30
TIME OUT: 17:30
DRILLING COMPANY: Jerry McGrath

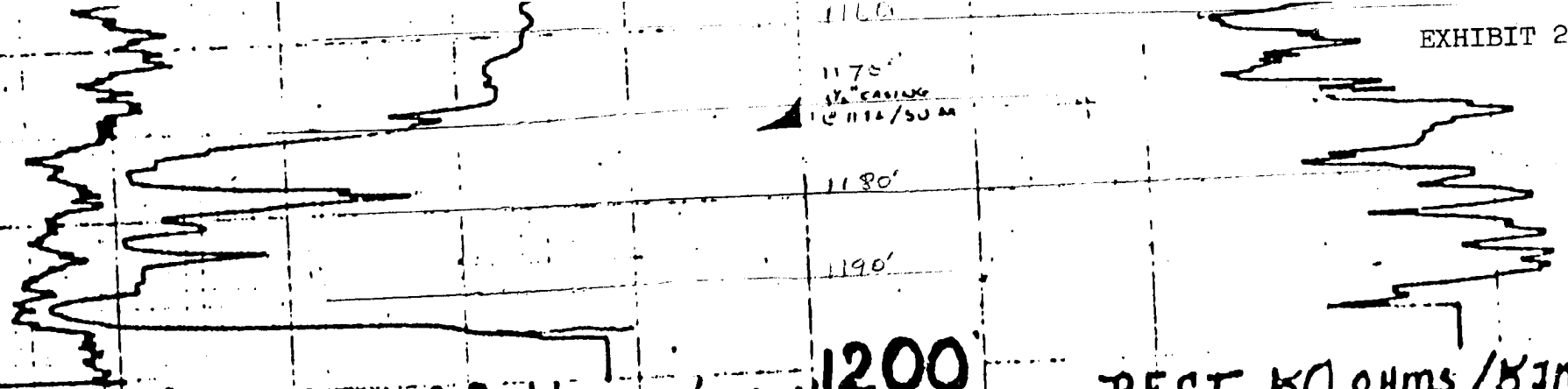
DRILLED: 1200 FT	GAMA SCALE: 25 cps/inch	DETECTOR: Scint.	TYPE & SIZE: 1"x1"	DEAD TIME: 12.44	K FACTOR: .0000248	RESISTANCE SCALE: 50 ohms/5 INCH
LOGGED: 1196 FT	LOGGING SPEED: 20 FT/MIN	PROBE NO: 4-4-75	PROBE SIZE: 1/4	WATER FACTOR	AIR FACTOR	SELF POTENTIAL SCALE: 7.5 MV/INCH
FOOTAGE LOGGED: 1196 FT	CALIBRATION SOURCE: 2	SOURCE NO: 192	SOURCE VALUE: 104.e	BIT SIZE: 5"	CASING	
ULTIMATE FLUID LEVEL:	SCALE DATA: 1000 cps/inch					

GAMA RERUNS (INITIAL RUN OFF SCALE)

SCALE	LOGGING SPEED	T.C.	SEC.	FT/MIN	TO	FROM	TOTAL

REMARKS CONCERNING BORE HOLE:

EXHIBIT 2



GAMMA S.P. 5mv./INCH 1200' REST 50 OHMS/5 INCHS

25 CPS/INCH

TC 2 @ 20'/MIN.

NORTHERN MINERALS

HOLE NO. SFP-20

DATE: 12-17-75 (20'/INCH)

OPERATOR: C. TURNBOW

UNIT: OI

PROBE: 4-4-75

TEFTELLER, INC.
reservoir engineering data

MIDLAND, TEXAS / FARMINGTON, NEW MEXICO

EXHIBIT 3

P. O. Box 5247
Midland, Texas 79701

April 12, 1976

Northern Minerals
P. O. Box 537
Farmington, New Mexico 87401

Attention: Mr. Mark Weidler

Subject: Fluid Level Measurements
Santa Fe Pacific No. 20
Sandoval County, New Mexico
Our File No. 2-6836-FL

Gentlemen:

Attached hereto are the results of fluid level measurements which were made on the above captioned well March 25, 1976.

The data presented are in tabular form.

It has been our pleasure to have conducted this service for you. If we may be of further assistance, please call us at any time.

Respectfully submitted,

TEFTELLER, INC.

Neil Teftellor

Neil Tefteller

NT/jw

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Company : NORTHERN MINERALS

Field :

File 2-6836

TEST DATA

1976 Date	Lease and Well Number	Status	Casing Pressure Psi	Average Tubing Length Feet	Number Joints to Fluid	Fluid Level Feet
3-25	Santa Fe Pacific #20	Shut in	0	31	8	248
"	"	Pumping 1 hr.	0	31	9.5	295

Bottom Hole Pressure:

1172 (casing setting) minus 248 (fluid level) equals 924.

924 times .433 (pounds square inch - foot) equals 400 P. S. I. Bottom Hole Pressure

7501 STEMMONS FREEWAY BOX 47547 DALLAS TEXAS 75247 · 214/631 8270

EXHIBIT 4

CORE LABORATORIES, INC.
Reservoir Fluid Analysis

June 24, 1980

Northern Minerals, Inc.
P.O. Box 2182
Santa Fe, NM 87501

Attention: Mr. Lloyd Davidson

Subject: Viscosity Determinations
Santa Fe-Pacific No. 20 Well
McKinley County, New Mexico
Our File Number: RFL 80401

Gentlemen:

On June 5, 1980, a sample of stock tank oil obtained from the subject well was delivered to our Dallas laboratory for determination of the oil gravity and viscosity measurements at 56°F., 72°F. and 100°F. Presented below are the results of these determinations.

The sample was submitted to our Dallas laboratory in a one-quart metal can. Upon receiving the sample, the container was immersed in a warm water bath at about 100°F. for several hours in order to allow for the separation of any water that may be present. The gravity of the clean oil was measured to be 21.6°API at 60°F. and viscosity determinations were performed at 56°F., 72°F. and 100°F. as requested. These results were then reported by telephone and we were requested to extrapolate these viscosities to elevated temperatures in order to see the viscosity reduction that may take place during a hot water or steam flood project. The measured viscosity data was then plotted on ASTM standard viscosity - temperature chart paper and extrapolated to temperatures of 150°F., 210°F. and 300°F. The results of these measured and extrapolated viscosity data are as follows:

Temperature, °F.	Kinematic Viscosity, Centistokes	Absolute Viscosity, Centipoises
56	650.	601.
72	314.	289.
100	115.	105.
150*	30.5	27.2
210*	10.6	9.2
300*	3.9	3.3

*Extrapolated data.

It has been our pleasure to perform these measurements and extrapolations for Northern Minerals, Inc. Should you have any questions concerning the data, please do not hesitate to contact us.

Very truly yours,

CORE LABORATORIES, INC.

P. L. Moses, Manager
Reservoir Fluid Analysis

PLM:HLS:bt
7 cc: Addressee

EXHIBIT 5

Mc KINLEY COUNTY, NEW MEXICO