

CORE LABORATORIES, INC.  
*Petroleum Reservoir Engineering*  
DALLAS, TEXAS  
April 15, 1958



REPLY TO  
706 PATTERSON BLDG.  
DENVER, COLORADO



Mr. John McDermott  
Dickens Route  
North Platte, Nebraska

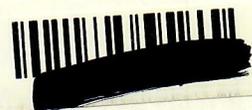
Subject: Core Analysis  
McDermott & Most  
Kejr No. 1 Well  
Last Chance Field  
Washington County, Colorado

Gentlemen:

Diamond coring equipment and water base mud were used to core the interval, 4878 to 4895 feet, in the Kejr No. 1. A representative of McDermott & Most selected and sealed in plastic bags samples of recovered formation on which analysis was desired and submitted these samples to the Sterling laboratory. Complete analysis results are presented in this report.

"J" sand analyzed from 4878 to 4880 feet and from 4882 to 4890 feet is characterized by very high total water saturations and it is, therefore, anticipated that these zones are predominantly water productive. The measured residual oil saturations in this interval, however, indicate that some minor amounts of oil might also accompany water produced.

From 4891 to 4895 feet, "J" sand exhibits residual fluid saturations which are in a somewhat more favorable range. The lowermost sample in this interval from 4894 to 4895 feet exhibits unfavorable residual fluid distribution and has been excluded from further consideration. Due to the limited thickness of this horizon and the possibility of a large water cut, the commercial possibilities are considered to be extremely doubtful. A completion in this interval does not appear to be warranted. For your convenience, a summary of average core analysis data for this zone is presented on page one.



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Page 1 of 1 File RP-2-1848 PC  
 Well Kejr No. 1

**CORE SUMMARY AND CALCULATED RECOVERABLE OIL**

**FORMATION NAME AND DEPTH INTERVAL:** "J" Sand 4891.0-4895.0

<b>FEET OF CORE RECOVERED FROM ABOVE INTERVAL</b>	4.0	<b>AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE</b>	47.1
<b>FEET OF CORE INCLUDED IN AVERAGES</b>	3.0	<b>AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE</b>	
<b>AVERAGE PERMEABILITY: MILLIDARCY</b>	201	<b>OIL GRAVITY: °API</b>	
<b>PRODUCTIVE CAPACITY: MILLIDARCY-FEET</b>	603	<b>ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL</b>	
<b>AVERAGE POROSITY: PER CENT</b>	17.3	<b>ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL</b>	
<b>AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE</b>	11.8	<b>CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT</b>	

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.)*

**FORMATION NAME AND DEPTH INTERVAL:**

<b>FEET OF CORE RECOVERED FROM ABOVE INTERVAL</b>		<b>AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE</b>	
<b>FEET OF CORE INCLUDED IN AVERAGES</b>		<b>AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE</b>	
<b>AVERAGE PERMEABILITY: MILLIDARCY</b>		<b>OIL GRAVITY: °API</b>	
<b>PRODUCTIVE CAPACITY: MILLIDARCY-FEET</b>		<b>ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL</b>	
<b>AVERAGE POROSITY: PER CENT</b>		<b>ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL</b>	
<b>AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE</b>		<b>CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT</b>	

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.

*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.*

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc., and its officers and employees assume no responsibility and make no warranty or representation as to the accuracy of the data.



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COMPANY **MC DERMOTT & MOST** DATE ON **4/3/58** FILE NO. **RP-2-1848 PC**  
 WELL **KEJR NO. 1** DATE OFF **4/3/58** ENGRS. **WEH**  
 FIELD **LAST CHANCE** FORMATION **"J" SAND** ELEV. **4822' KB**  
 COUNTY **WASHINGTON** STATE **COLORADO** DRLG. FLD. **WATER BASE MUD** CORES **DIAMOND**  
 LOCATION **C SE SE SEC. 26-3S-56W** REMARKS **SAMPLED BY REPRESENTATIVE OF CLIENT.**

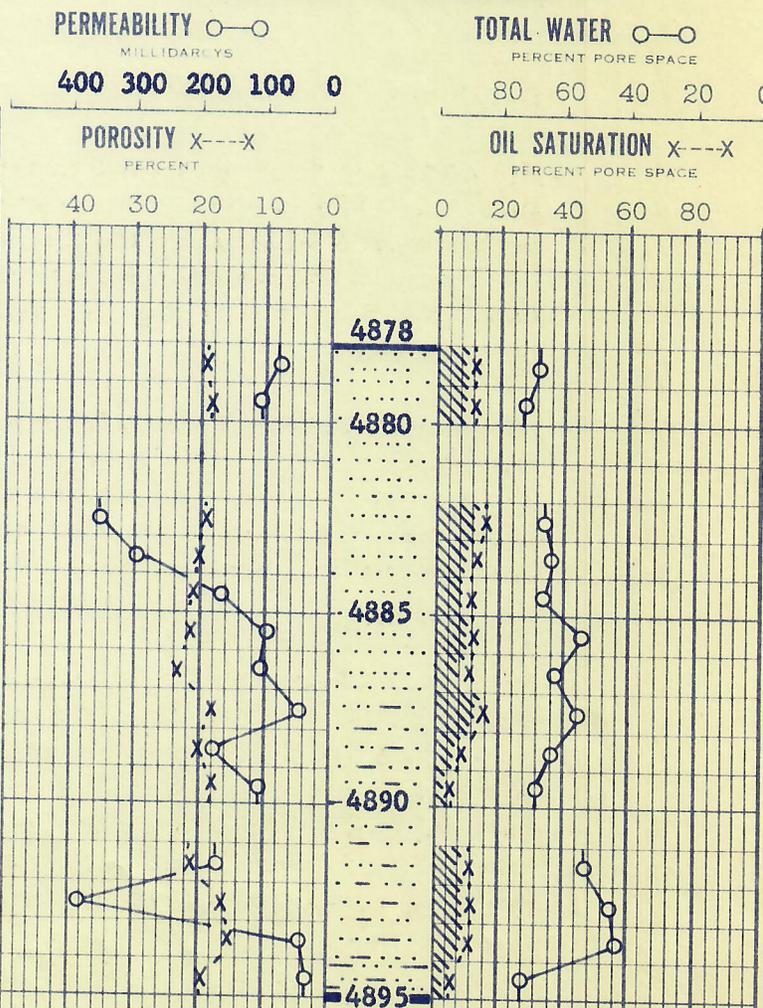


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**TABULAR DATA and INTERPRETATION**

SAMPLE NUMBER	DEPTH FEET	PERM MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE		VERTICAL PERMEABILITY	PROD.
				OIL	TOTAL WATER		
1	4878-79	79	19.2	13.0	66.7	47	(*)
2	4879-80	106	18.3	12.6	71.0	86	(*)
3	4882-83	351	19.2	15.6	65.6	197	(*)
4	83-84	299	19.8	14.2	64.1	150	(*)
5	84-85	162	21.5	12.1	65.8	142	(*)
6	85-86	99	20.7	12.6	54.3	74	(*)
7	86-87	106	23.4	11.5	62.0	48	(*)
8	87-88	48	18.2	15.4	55.0	0.0	(*)
9	88-89	180	19.7	9.1	63.1	116	(*)
10	4889-90	106	18.1	5.5	68.6	63	(*)
11	4891-92	174	21.2	11.3	52.8	140	(*)
12	92-93	381	16.0	12.5	45.0	215	(*)
13	93-94	48	14.7	11.5	43.5	21	(*)
14	4894-95	33	19.2	6.3	72.0	18	(*)

**COMPLETION COREGRAPH**



(\*) REFER TO ATTACHED LETTER FOR CLARIFICATION OF INTERPRETATION.