TB Ex 5

CORE ANALYSIS REPORT

FOR

TOM BOLACK

BOLACK 6

SAN JUAN COUNTY, NEW MEXICO

LOCATION: SEC. 10 - T30N - R16W

CORE

t-mb

237

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY TOM BOLACK — DATE ON 10/20/57 — FILE NO. RP-3-628 PC

WELL BOLACK 6 — DATE OFF 10/20/57 — ENGRS. WJC, JE

FIELD — FORMATION MANCOS — ELEV. 5654' GL

COUNTY SAN JUAN — STATE NEW MEX. — DRLG. FLD. OIL EMULSION — CORES DIAMOND

LOCATION SEC 10-T30N-R16W — REMARKS SAMPLED BY REPRESENTATIVE OF CLIENT

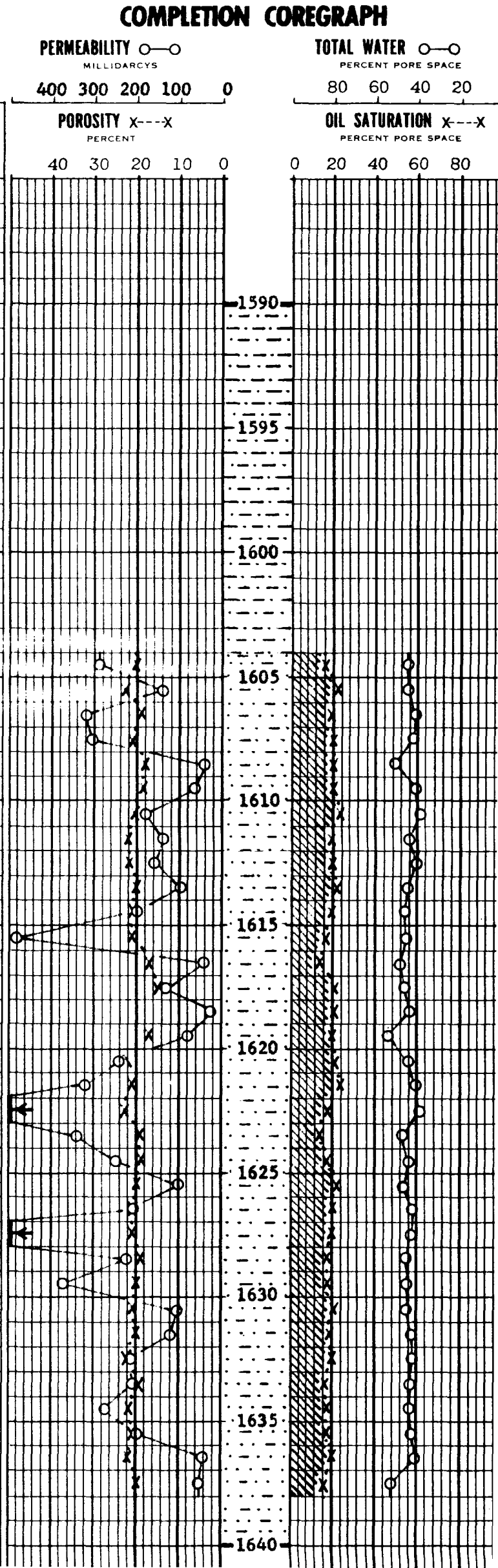
SAND | LIMESTONE | CONGLOMERATE | CHERT

SHALE | DOLOMITE

TABULAR DATA and INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE			PROD
				OIL	TOTAL WATER		
1	1604-05	290	20.0	16.0	44.0		
2	05-06	140	22.9	21.9	44.9		
3	06-07	320	19.0	18.9	41.0		
4	07-08	307	21.1	20.3	42.1		
5	08-09	44	17.6	19.9	50.6		
6	09-10	63	18.8	20.2	41.4		
7	10-11	181	20.7	23.1	37.6		
8	11-12	140	22.4	19.2	43.7		
9	12-13	157	22.1	19.4	40.3		
10	13-14	96	20.4	22.5	44.6		
11	14-15	202	20.8	19.3	45.6		
12	15-16	480	20.9	16.7	45.4		
13	16-17	21	17.3	14.4	48.5		
14	17-18	134	15.0	20.7	46.1		
15	18-19	26	19.5	21.0	44.0		
16	19-20	77	17.3	20.2	53.7		
17	20-21	243	22.0	20.9	44.5		
18	21-22	320	20.9	23.4	40.5		
19	22-23	505	22.7	18.4	38.7		
20	23-24	341	19.1	14.2	46.7		
21	24-25	248	19.3	18.2	43.5		
22	25-26	101	19.9	22.2	45.8		
23	26-27	207	21.1	20.0	42.2		
24	27-28	555	21.1	19.0	43.2		
25	28-29	222	19.1	17.8	45.0		
26	29-30	371	19.7	18.3	45.2		
27	30-31	106	21.1	20.9	45.0		
28	31-32	120	20.4	18.6	42.6		
29	32-33	212	21.8	20.2	41.8		
30	33-34	207	19.4	17.0	43.3		
31	34-35	269	21.5	17.7	43.3		
32	35-36	197	21.3	17.8	42.8		
33	36-37	39	22.3	19.8	40.8		
34	1637-38	53	20.1	15.9	52.5		

COMPLETION COREGRAPH



CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

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LOCATION SEC 10-T30N-R16W — REMARKS SAMPLED BY REPRESENTATIVE OF CLIENT

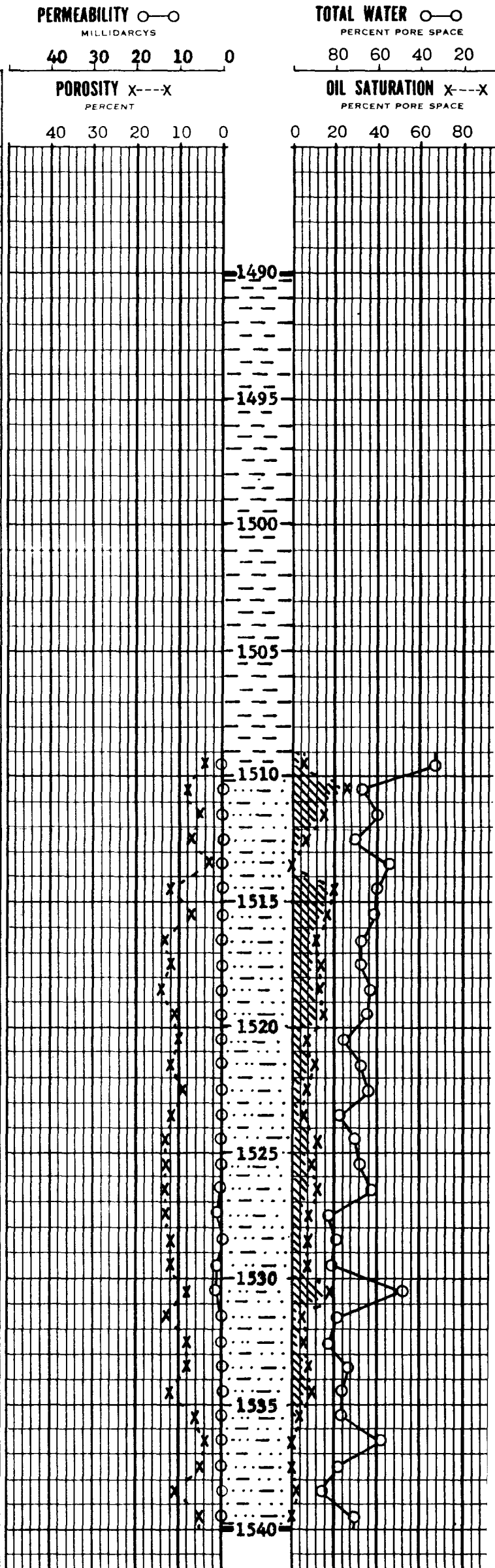
SAND — LIMESTONE — CONGLOMERATE — CHERT

SHALE — DOLOMITE

TABULAR DATA and INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	RESIDUAL SATURATION % PORE SPACE TOTAL WATER		PROD
1	1509-10	0.01	3.6	5.6	33.3		
2	10-11	0.03	8.3	26.5	67.5		
3	11-12	<0.01	4.8	14.6	60.4		
4	12-13	0.06	7.1	7.0	70.5		
5	13-14	0.01	3.1	0.0	54.9		
6	14-15	0.04	12.4	20.2	59.8		
7	15-16	0.02	7.5	17.3	61.3		
8	16-17	0.36	13.2	12.1	66.7		
9	17-18	0.30	12.5	14.4	67.2		
10	18-19	0.29	14.5	14.5	63.5		
11	19-20	0.12	10.7	15.0	65.5		
12	20-21	0.07	9.8	7.1	74.6		
13	21-22	0.08	12.3	11.4	66.7		
14	22-23	0.09	9.3	7.5	64.5		
15	23-24	0.03	11.8	5.9	78.0		
16	24-25	0.13	12.9	13.2	69.8		
17	25-26	0.16	13.4	10.4	68.5		
18	26-27	1.3	12.8	12.5	62.5		
19	27-28	0.21	13.2	9.1	81.8		
20	28-29	1.2	11.9	8.4	79.0		
21	29-30	1.3	12.4	8.1	80.8		
22	30-31	0.04	7.7	18.2	48.0		
23	31-32	0.09	12.7	5.5	78.8		
24	32-33	0.02	8.4	5.9	82.1		
25	33-34	0.48	8.3	8.4	73.5		
26	34-35	0.13	11.6	10.3	77.5		
27	35-36	0.06	5.8	3.4	77.5		
28	36-37	0.04	3.6	0.0	58.4		
29	37-38	0.02	4.7	0.0	78.7		
30	38-39	0.03	11.0	1.8	85.5		
31	1539-40	0.06	5.0	0.0	70.0		

COMPLETION COREGRAPH



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS 1, TEXAS

October 25, 1957

REPLY TO
706 PATTERSON BLDG.
DENVER, COLORADO

Mr. Tom Bolack
1010 North Dustin
Farmington, New Mexico

Subject: Core Analysis
Bolack 6 Well
San Juan County, New Mexico
Location: Sec. 10-T30N-R16W

Dear Sir:

Diamond coring equipment and oil emulsion mud were used to core the interval from 1590 to 1640 feet in the Bolack 6. Representatives of Tom Bolack selected samples of the recovered formation on which analysis was desired, and submitted these samples to the Farmington laboratory. The results of the analysis are presented in this report.

Mancos sand from 1604 to 1638 feet is characterized throughout by very favorable residual oil and total water saturations, and the interval is interpreted to be oil productive. Comparatively high permeability predominates in the zone, the observed values ranging from 21 to 555 millidarcys and averaging 207 millidarcys. The total observed productive capacity of the section is 7038 millidarcy-feet, entirely adequate to support excellent rates of oil production without the necessity of treatment. The average porosity in this zone is 20.3 per cent, and the empirically calculated connate water saturation is 39 per cent of pore space.

Estimates of recoverable oil have been calculated for the Mancos sand between 1604 and 1638 feet using the observed core analysis data in conjunction with estimated reservoir fluid characteristics considered applicable. These estimates are presented on page one of the report, and are subject to the conditions set forth in the body of and in the footnotes to the summary page.

We sincerely appreciate this opportunity to be of service to you, and trust that this report will prove useful in making a preliminary evaluation of the Mancos sand analyzed from this zone.

Very truly yours,

Core Laboratories, Inc.

J. D. Harris

J. D. Harris,
District Manager

JDH:TLK:sw
7 cc. - Addressee

Form F-11B

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Page 1 of 1 File RP-3-628 PC
Well Bolack 6

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME AND DEPTH INTERVAL: Mancos 1604.0-1638.0

FEET OF CORE RECOVERED FROM ABOVE INTERVAL	34.0	AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE		44.1
FEET OF CORE INCLUDED IN AVERAGES	34.0	AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE	(c)	39
AVERAGE PERMEABILITY: MILLIDARCYS	207	OIL GRAVITY: °API	(e)	42
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	7038	ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL	(e)	100
AVERAGE POROSITY: PER CENT	20.3	ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL	(e)	1.11
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	19.2	CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT		866

Calculated maximum solution gas drive recovery is 209 barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. Calculated maximum water drive recovery is 564 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:

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

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.