



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering

COMPANY THE ATLANTIC REFINING COMPANY FILE NO. RP-9-OSA-32
WELL LONG DRAW NO. 1 DATE 5-6-65 ENGRS DAVIS
FIELD _____ FORMATION _____ ELEV. _____
COUNTY Uintah STATE Utah DRLG. FLD. _____ CORES _____
LOCATION Sec 36, T12S-R24E REMARKS Elevation 6900'
Elevation, 6900' → 2450' FSL & 550' FEL

OIL SHALE ASSAY

Sample Number	Depth, Feet	OIL		Oil Specific Gravity	WATER		Spent Shale Wt. %	Gas Plus Loss Wt. %	Tendency to Coke	REMARKS
		Gal/Ton	Wt. %		Gal/Ton	Wt. %				
1.	20.5-21	6.1	2.3	.908	3.6	1.5	95.4	0.8	NIL	
2.	21-22	11.3	4.3	.918	3.6	1.5	93.3	0.9	NIL	
3.	22-23	9.1	3.5	.918	2.9	1.2	94.4	0.9	NIL	
4.	23-24	7.9	3.0	.916	2.6	1.1	95.0	0.9	NIL	
5.	24-25	21.8	8.3	.918	3.1	1.3	88.7	1.7	NIL	
6.	25-26	17.2	6.6	.918	2.9	1.2	90.8	1.4	NIL	
7.	26-27	13.6	5.2	.920	3.1	1.3	92.3	1.1	NIL	
8.	27-28	12.4	4.8	.922	3.4	1.4	93.0	0.8	NIL	
9.	28-29	11.8	4.5	.918	3.1	1.3	93.0	1.2	NIL	
10.	29-30	26.9	10.3	.918	3.4	1.4	86.5	1.8	NIL	
11.	30-31	13.8	5.3	.914	2.9	1.2	92.3	1.2	NIL	
12.	31-32	16.7	6.3	.908	2.6	1.1	92.2	0.4	NIL	
13.	32-33	33.1	12.4	.900	4.8	2.0	83.5	2.1	SLIGHT	
14.	33-34	10.4	3.9	.908	2.4	1.0	94.1	1.0	NIL	
15.	34-35	5.5	2.1	.916	2.6	1.1	96.1	0.7	NIL	
16.	35-36	5.7	2.2	.916	3.1	1.3	95.8	0.7	NIL	
17.	36-37	4.0	1.5	.910	2.4	1.0	96.8	0.7	NIL	
18.	37-38	2.7	1.1	.918	2.4	1.0	97.4	0.5	NIL	
19.	38-39	6.7	2.6	.926	2.4	1.0	95.6	0.8	NIL	
20.	39-40	3.2	1.2	.920	3.6	1.5	96.7	0.6	NIL	
21.	40-41	2.8	1.1	.922	2.4	1.0	97.3	0.6	NIL	
22.	41-42	1.5	0.6	*.918	1.9	0.8	98.1	0.5	NIL	
23.	42-43	1.6	0.6	*.918	1.9	0.8	98.1	0.5	NIL	
24.	43-44	3.4	1.3	.908	1.9	0.8	97.2	0.7	NIL	
25.	44-45	13.9	5.3	.908	2.9	1.2	92.2	1.3	NIL	
26.	45-46	12.5	4.7	.908	3.1	1.3	92.7	1.3	NIL	
27.	46-47	31.8	12.0	.910	4.3	1.8	83.7	2.5	NIL	
28.	47-48	12.0	4.5	.898	3.8	1.6	92.1	1.8	NIL	
29.	48-49	11.6	4.4	.910	2.6	1.1	93.2	1.3	NIL	
30.	49-50	9.3	3.5	.910	3.1	1.3	94.2	1.0	NIL	

OIL SHALE ASSAY

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Sample Number	Depth, Feet	OIL		Oil Specific Gravity	WATER		Spent Shale Wt. %	Gas Plus Loss Wt. %	Tendency to Coke	REMARKS
		Gal/Ton	Wt. %		Gal/Ton	Wt. %				
31.	50-51	14.9	1.73	5.7	.918	4.8	2.0	91.1	1.1	NIL
32.	51-52	27.2	1.55	10.4	.916	4.1	1.7	85.9	2.0	NIL
33.	52-53	22.2	1.55	8.4	.908	2.6	1.1	88.7	1.8	NIL
34.	53-54	36.4	2.30	13.6	.898	2.6	1.1	83.0	2.0	NIL
35.	54-55	43.1	2.68	16.2	.900	4.3	1.8	79.6	2.4	SLIGHT
36.	55-56	21.6	1.55	8.1	.898	2.9	1.2	88.9	1.8	NIL
37.	56-57	17.2	1.24	6.5	.908	3.4	1.4	90.6	1.5	NIL
38.	57-58	11.3	.84	4.3	.916	2.2	0.9	93.4	1.4	NIL
39.	58-59	17.7	1.14	6.8	.916	2.4	1.0	90.5	1.7	NIL
40.	59-60	18.1	1.35	6.9	.908	2.4	1.0	90.8	1.3	NIL
41.	60-61	10.0	1.17	3.8	.914	2.2	0.9	94.4	0.9	NIL
42.	61-62	12.2	1.11	4.6	.908	2.2	0.9	93.4	0.9	NIL
43.	62-63	10.1	1.11	3.8	.916	4.3	1.7	93.6	0.9	NIL
44.	63-64	9.5	.73	3.6	.906	1.9	0.8	94.7	0.9	NIL
45.	64-65	10.2	.77	3.9	.906	1.9	0.8	94.4	0.9	NIL
46.	65-66	17.4	1.24	6.6	.906	1.9	0.8	91.6	1.0	NIL
47.	66-67	45.0	2.73	17.1	.910	3.6	1.5	78.7	2.7	SLIGHT
48.	67-68	19.5	1.40	7.3	.904	1.9	0.8	90.4	1.5	NIL
49.	68-69	19.2	1.33	7.2	.900	1.4	0.6	90.9	1.3	NIL
50.	69-70	24.0	1.10	9.0	.898	1.9	0.8	87.7	1.5	NIL
51.	70-71	39.7	2.17	15.0	.908	2.2	0.9	81.7	2.4	SLIGHT
52.	71-72	65.7	2.11	24.3	.888	3.4	1.4	71.8	2.5	MEDIUM
53.	72-73	51.4	2.70	19.0	.890	2.9	1.2	77.0	2.8	HIGH
54.	73-74	70.6	3.11	26.6	.902	4.8	2.0	67.3	4.1	HIGH
55.	74-75	61.8	3.35	23.1	.898	3.6	1.5	71.7	3.7	MEDIUM
56.	75-76	49.0	2.11	18.3	.898	2.9	1.2	78.0	2.5	SLIGHT
57.	76-77	45.1	2.11	17.0	.908	4.1	1.7	79.7	1.6	NIL
58.	77-78	45.7	2.77	17.5	.916	1.9	0.8	80.2	1.5	NIL
59.	78-79	39.0	2.45	14.9	.916	2.4	1.0	81.8	2.3	NIL
60.	79-80	22.3	1.52	8.5	.916	2.2	0.9	89.2	1.4	NIL
61.	80-81	15.0	1.13	5.7	.912	1.7	0.7	92.7	0.9	NIL
62.	81-82	16.7	1.22	6.3	.904	1.4	0.6	92.2	0.9	NIL
63.	82-83	46.7	2.77	17.5	.898	3.1	1.3	78.8	2.4	NIL
64.	83-84	41.0	2.55	15.4	.902	3.4	1.4	81.0	2.2	NIL
65.	84-85	16.9	1.22	6.3	.902	3.1	1.3	91.3	1.1	NIL

Core Lab.

Core Lab.

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OIL SHALE ASSAY

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Sample Number	Depth, Feet	OIL		Oil Specific Gravity	WATER		Spent Shale Wt. %	Gas Plus Loss Wt. %	Tendency to Coke	REMARKS
		Gal/Ton	Wt. %		Gal/Ton	Wt. %				
66.	85-86	38.8	24.5	14.6	.902	3.4	1.4	81.7	2.3	NIL
67.	86-87	17.8	1.306	6.7	.900	2.2	0.9	91.2	1.2	NIL
68.	87-88	17.7	1.306	6.8	.918	2.4	1.0	90.9	1.3	NIL
69.	88-89	47.9	2.944	18.3	.916	4.6	1.9	76.9	2.9	SLIGHT
70.	89-90	11.5	1.227	4.4	.908	2.4	1.0	93.8	0.8	NIL
71.	90-91	11.0	1.242	4.2	.910	1.9	0.8	94.2	0.8	NIL
72.	91-92	26.4	1.806	9.9	.900	2.2	0.9	87.7	1.5	NIL
73.	92-93	31.1	2.051	11.6	.898	2.2	0.9	85.8	1.7	NIL
74.	93-94	21.4	1.492	8.0	.898	1.9	0.8	90.0	1.2	NIL
75.	94-95	31.8	2.110	11.9	.898	2.6	1.1	85.2	1.8	NIL
76.	95-96	19.5	1.400	7.3	.898	2.4	1.0	90.3	1.4	NIL
77.	96-97	11.0	1.242	4.2	.918	1.9	0.8	94.0	1.0	NIL
78.	97-98	9.2	1.77	3.5	.918	1.9	0.8	94.9	0.8	NIL
79.	98-99	12.6		4.8	.916	2.4	1.0	92.8	1.4	NIL
80.	99-00	20.2		7.7	.918	2.6	1.1	89.9	1.3	NIL
81.	100-01	7.1		2.7	.918	2.2	0.9	95.4	1.0	NIL
82.	101-02	4.9		1.9	.916	1.7	0.7	96.6	0.8	NIL
83.	102-03	3.9		1.5	.910	1.9	0.8	97.3	0.4	NIL
84.	103-04	10.5		4.0	.914	1.9	0.8	94.3	0.9	NIL
85.	104-05	9.3		3.6	.918	6.0	2.5	93.0	0.9	NIL
86.	105-06	24.0		9.2	.920	2.9	1.2	88.2	1.4	NIL
87.	106-07	5.8		2.2	.902	2.4	1.0	96.0	0.8	NIL
88.	107-08	14.2		5.4	.908	2.2	0.9	92.4	1.3	NIL
89.	108-09	9.4		3.6	.912	1.9	0.8	94.9	0.7	NIL
90.	109-10	7.5		2.9	.908	1.9	0.8	95.5	0.8	NIL

* Oil Specific Gravity is estimated when an insufficient amount of oil is recovered to measure the gravity.

$$A-B-52' = 90.723 - 1.797 = 25.39\text{pt}$$

$$A-B-31' = 64.512 - 2.021 = 31.69\text{pt}$$

$$A-B-17-53' = 5.02\text{pt}$$

Core Lab.
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CORE LABORATORIES, Inc.
Petroleum Reservoir Engineering
Denver, Colorado

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Company THE ATLANTIC REFINING COMPANY County _____
Well LONG DRAW NO. 1 State _____
Location 36-125-246 Elevation _____

Core Analysis Data

Core
Lab.

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Lab.

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Lab.

Sample Number	Depth, Feet	Permeability, Millidarcys Before Ext. After Ext.		Porosity, Per Cent	Residual Liquid Saturation			Oil Gal Per Ton	
					Per Cent Volume	Oil			Total Water Per Cent Pore
						Per Cent Pore	Per Cent by Weight		
1.	136-37	19	513	32.1	25.8	80.4	11.0	27.8	
2.	137-38	15	652	34.4	27.6	78.0	12.4	31.2	
3.	138-39	37	2315	43.3	36.5	82.1	16.6	42.0	
4.	139-40	17	188	34.1	25.6	75.0	11.4	28.8	
5.	140-41	15	3180	38.9	31.6	81.3	15.0	37.9	
6.	141-42	17	2180	23.3	17.5	75.2	8.2	20.6	
7.	142-43	8.6	1625	40.8	31.4	76.8	14.7	37.0	
8.	143-44	35	1320	40.5	32.1	79.3	14.7	37.0	
9.	144-45	24	1022	30.1	16.0	53.2	6.9	17.3	
10.	145-46	12	1128	34.5	25.5	74.0	11.4	28.8	
11.	146-47	7.3	535	39.3	29.8	75.1	13.3	33.6	
12.	147-48	16	707	34.9	25.5	73.2	11.4	28.8	
13.	154-55	39	1480	39.9	26.8	67.2	12.7	32.2	
14.	155-56	24	1012	36.3	26.1	74.0	11.7	29.5	
15.	156-57	19	930	38.2	28.4	74.3	12.9	32.6	
16.	157-58	30	940	40.2	30.0	74.7	14.0	35.3	
17.	158-59	28	1275	39.8	28.5	71.6	13.3	33.6	
18.	159-60	17	1119	38.0	27.5	72.3	12.6	31.6	
19.	160-61	21	1402	38.1	29.1	76.4	13.3	33.6	
20.	161-62	43	744	41.0	29.8	72.7	13.9	35.0	

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Petroleum Reservoir Engineering
Denver, Colorado

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Company THE ATLANTIC REFINING COMPANY County _____
Well LONG DRAW NO. 1 State _____
Location _____ Elevation _____

Core Analysis Data

Residual Liquid Saturation

Sample Number	Depth, Feet	Permeability, Millidarcys		Porosity, Per Cent	Residual Liquid Saturation				Oil Gal Per Ton
		Before Ext.	After Ext.		Per Cent Volume	Oil	Per Cent by Weight	Total	
						Per Cent Pore		Water Per Cent Pore	
21.	162-63	37	897	41.0	30.2	73.7	13.8	15.1	34.8
22.	163-64	29	792	35.2	25.0	71.0	10.9	17.3	27.6
23.	164-65	72	276	30.6	20.2	66.0	8.9	21.2	22.3
24.	165-66	72	402	31.1	20.4	65.6	9.1	20.6	23.0
25.	166-67	67	406	37.0	23.8	64.4	10.9	19.7	27.4
26.	167-68	58	209	30.6	18.3	59.8	8.2	24.2	20.6

For calculations on Oil Per Cent by Weight, an oil specific gravity of 1.05 is assumed.