New Mexico Bureau of Mines and Mineral Resources
Open File Report No. OF-209

HYDROCARBON SOURCE-ROCK EVALUATION STUDY, GETTY OIL CO. NO. 1 WEST ELEPHANT BUTTE FEDERAL WELL SIERRA COUNTY, NEW MEXICO

by Douglas A. Muckelroy, Rudolf R. Schwarzer,
and Thomas J. Stiff, Jr.
GeoChem Laboratories, Inc.
Houston, Texas
April 8, 1983

Well File

GEOCHEMICAL SERVICE REPORT

GETTY OIL COMPANY
WEST ELEPHANT BUTTE FEDERAL 7 NO. 1

LOCATION: SEC. 7, T12S, R4W

SIERRA COUNTY, NEW MEXICO

Geochem Laboratories, Inc.

Prepared

for

GETTY OIL COMPANY
Midland, Texas

CONFIDENTIAL
FEBRUARY, 1983

1143-C BRITTMORE ROAD, HOUSTON, TEXAS 77043

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WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE I-A

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE

GeoChem Sample Number	Well Interval*	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
G259-001	1060 -1100	1.2	0.7	0.4	0.2	0.3	0.4	2.9	1.7	58.6	0.77
G259-002	1100 -1150	16.9	42.8	1.2	0.9	2.1	9.5	64.1	47.2	73.6	0.44
G259-003	1150 -1200	40.1	10.3	7.4	1.9	3.8	14.8	63.7	23.5	36.9	0.50
G259-004	1200 -1250	20.7	6.1	10.5	1.2	2.1	8.8	40.8	20.0	49.1	0.60
G259-005	1250 -1300	47.7	12.1	9.2	2.0	2.8	6.7	74.1	26.3	35.5	0.72
G259-006	1300 -1350	142.8	26.0	16.0	4.1	6.3	14.8	195.5	52.6	26.9	0.65
G259-007	1350 -1400	33.7	7.1	8.8	1.3	1.9	8.1	52.9	19.2	36.3	0.70
G259-008	1400 -1450	21.6	3.7	6.8	0.6	0.8	3.9	33.8	12.1	35.8	0.77
G259-009	1450 -1500	51.9	8.2	13.8	1.4	1.7	5.7	77.1	25.2	32.7	0.81
G259-010	1500 -1550	53.0	4.1	1.8	0.7	0.4	4.0	60.2	7.2	11.9	1.56
G259-011	1550 -1600	15.7	2.4	3.1	0.6	0.9	5.2	23.0	7.2	31.5	0.70
G259-012	1600 -1650	7.8	0.0	0.1	0.0	0.0	0.2	8.1	0.3	3.7	0.55
G259-013	1650 -1700	20.5	1.8	3.5	0.1	0.1	1.8	26.1	5.6	21.4	0.90
G259-014	1700 -1750	62.6	1.4	1.9	0.2	0.2	1.4	66.4	3.8	5.8	1.13
G259-015	1750 -1800	45.6	1.3	1.6	0.1	0.1	1.2	48.9	3.3	6.8	1.03
G259-016	1800 -1850	81.8	2.2	1.8	0.3	0.6	4.0	86.8	5.0	5.8	0.57
G259-019	1950 -2000	34.6	0.3	0.4	0.1	0.3	3.2	35.9	1.3	3.6	0.37
G259-020	2000 -2050	34.6	2.6	1.4	0.2	0.4	1.4	39.3	4.7	12.0	0.63
G259-022	2100 -2150	27.1	2.2	5.4	0.3	0.6	4.1	35.8	8.6	24.2	0.55
G259-024	2200 -2250	11.3	0.7	2.6	0.0	0.1	1.0	14.9	3.6	24.2	0.60
G259-026	2300 -2350	35.4	3.3	2.2	0.2	0.6	3.2	41.9	6.5	15.6	0.36
G259-028	2376 -2400	10.8	0.5	0.2	0.0	0.2	5.9	11.9	1.1	9.4	0.32
G259-029	2400 -2450	24.8	4.9	2.6	0.2	0.6	4.6	33.3	8.4	25.4	0.38
G259-031	2500 -2550	122.1	37.9	11.8	0.8	2.5	10.6	175.2	53.1	30.3	0.32
G259-033	2600 -2650	70.7	11.6	9.6	0.6	1.7	8.2	94.4	23.7	25.1	0.37
G259-035	2700 -2750	87.4	19.4	9.4	0.7	2.7	7.9	119.7	32.2	27.0	0.26
G259-037	2800 -2850	73.4	16.5	7.1	0.6	2.3	9.1	100.1	26.6	26.7	0.28
G259-039	2900 -2950	73.3	15.4	6.6	0.7	2.4	10.1	98.7	25.3	25.7	0.30
G259-041	3000 -3050	67.8	21.1	8.6	0.7	1.8	9.0	100.1	32.3	32.3	0.39
G259-043	3100 -3150	39.4	5.1	2.3	0.4	1.1	6.1	48.4	9.0	18.7	0.38
G259-045	3200 -3250	26.5	2.1	3.2	0.1	0.2	1.8	32.3	5.8	18.1	0.69
G259-047	3300 -3350	14.0	0.5	0.2	0.1	0.4	16.0	15.4	1.4	9.2	0.39
G259-049	3400 -3450	24.9	0.7	2.1	0.1	0.0	1.1	27.9	3.0	10.9	2.06
G259-051	3500 -3550	75.8	3.9	3.8	0.2	0.0	0.6	83.9	8.1	9.7	3.98
G259-053	3600 -3650	44.4	1.6	6.0	0.2	0.2	2.1	52.7	8.2	15.7	1.29
G259-055	3700 -3750	25.9	2.0	7.1	0.2	0.1	0.9	35.4	9.5	26.9	2.46
G259-057	3800 -3850	32.2	0.9	5.6	0.4	0.2	1.0	39.6	7.4	18.7	1.89
G259-059	3900 -3950	137.4	3.5	4.2	1.8	1.3	0.8	148.3	10.9	7.4	1.35
G259-061	4000 -4050	153.8	3.1	2.0	1.3	0.8	0.9	161.2	7.4	4.6	1.56
G259-063	4100 -4150	144.4	4.0	2.7	0.8	0.6	0.7	152.7	8.2	5.4	1.29
G259-065	4200 -4250	134.5	2.4	5.3	0.9	0.4	0.8	143.6	9.1	6.4	2.06
G259-067	4300 -4350	134.0	3.7	11.3	1.7	0.6	0.8	151.5	17.4	11.5	2.73
G259-069	4400 -4450	240.9	15.4	9.9	2.8	1.6	1.0	270.8	29.9	11.1	1.71
G259-071	4500 -4550	99.4	8.1	5.9	1.5	0.8	0.6	115.9	16.4	14.2	1.74
G259-073	4600 -4650	61.3	8.9	6.9	1.8	1.0	0.5	80.1	18.8	23.5	1.71
G259-075	4700 -4750	175.0	13.0	7.1	1.8	1.2	0.7	198.2	23.2	11.7	1.48
G259-077	4800 -4850	197.6	22.1	12.3	7.1	2.5	3.2	241.8	44.2	18.3	2.83
G259-079	4900 -4950	133.8	11.5	7.9	2.7	1.4	1.9	157.5	23.6	15.0	1.93

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE I-A

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE

GeoChem Sample Number	Well Interval*	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
G259-081	5000 -5050	100.9	7.0	6.7	2.6	1.0	5.9	118.4	17.5	14.8	2.59
G259-083	5100 -5150	125.7	5.6	8.0	2.5	0.8	2.4	142.7	17.0	12.0	3.06
G259-085	5200 -5250	212.0	5.0	3.6	1.9	0.6	2.6	223.3	11.3	5.1	2.81
G259-087	5300 -5350	141.4	7.5	8.0	1.0	0.7	13.9	158.8	17.3	11.0	1.34
G259-089	5400 -5450	248.5	5.0	4.5	0.5	0.4	1.2	259.1	10.5	4.1	1.22
G259-091	5500 -5550	287.1	4.6	4.8	0.3	0.2	0.8	297.2	10.1	3.4	1.32
G259-093	5600 -5650	153.0	3.7	4.8	0.2	0.2	1.9	162.2	9.1	5.6	1.20
G259-095	5700 -5750	183.8	4.8	2.2	0.1	0.1	1.6	191.2	7.3	3.9	1.14
G259-097	5800 -5850	308.9	8.8	3.7	0.3	0.3	1.4	322.2	13.2	4.1	0.98
G259-099	5900 -5950	225.7	7.7	1.9	0.2	0.2	3.5	235.8	10.0	4.3	1.08
G259-101	6000 -6050	337.5	6.3	1.2	0.1	0.1	0.0	345.5	7.9	2.3	1.18
G259-103	6100 -6150	5813.7	22.6	1.6	0.1	0.0	0.0	5838.2	24.4	0.4	1.38
G259-104	6150 -6200	1642.9	21.5	1.0	0.2	0.2	0.0	1666.0	23.0	1.4	0.86
G259-105	6200 -6250	475.9	7.7	0.4	0.1	0.0	0.0	484.2	8.3	1.7	1.28
G259-106	6250 -6300	420.9	6.3	0.4	0.0	0.0	0.4	427.8	6.8	1.6	1.51
G259-107	6300 -6350	975.0	15.2	0.7	0.2	0.1	0.1	991.4	16.3	1.7	1.71
G259-108	6350 -6400	405.4	6.6	0.7	0.0	0.0	0.0	412.9	7.4	1.8	1.50
G259-109	6400 -6450	329.0	5.6	2.9	0.3	0.1	0.7	338.0	9.0	2.7	1.94
G259-111	6500 -6550	874.4	7.9	0.6	0.1	0.1	0.6	883.2	8.8	1.0	1.18
G259-112	6550 -6600	123.2	85.7	1.2	0.7	0.3	214.4	211.3	88.1	41.7	1.98
G259-113	6600 -6650	876.7	7.1	2.5	0.3	0.0	3.8	886.8	10.1	1.1	4.11
G259-114	6650 -6700	257.4	4.0	0.7	0.2	0.0	2.0	262.6	5.2	2.0	3.18
G259-115	6700 -6750	65.0	1.1	4.4	1.2	0.1	1.1	72.0	6.9	9.7	11.76
G259-116	6750 -6800	74.1	1.1	1.9	0.0	0.0	4.5	77.4	3.2	4.2	0.79
G259-117	6800 -6850	62.9	0.7	0.2	0.0	0.0	0.5	63.9	1.0	1.6	0.00
G259-118	6850 -6900	83.9	1.2	1.4	0.2	0.3	0.9	87.2	3.3	3.8	0.86
G259-119	6900 -6950	39.9	0.7	1.8	0.1	0.1	0.7	42.8	2.9	6.9	0.81
G259-120	6950 -7000	107.1	1.8	2.8	0.1	0.0	1.4	111.9	4.8	4.3	1.73
G259-122	7050 -7100	64.8	1.2	1.2	0.0	0.4	0.5	67.8	3.0	4.4	0.10
G259-123	7100 -7150	131.2	3.0	1.4	0.1	0.0	1.2	136.0	4.7	3.5	1.79
G259-124	7150 -7200	175.0	3.8	2.4	0.4	0.8	0.2	182.7	7.7	4.2	0.49
G259-125	7200 -7215	170.4	5.1	0.7	0.2	0.1	2.3	176.7	6.3	3.6	1.25

PPM values expressed as volumes of gas per million volumes of cuttings

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE 1-B

C1-C7 HYDROCARBON ANALYSES OF CUTTINGS GAS

GeoChem Sample Number	Well Interval*	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
G259-001	1060 -1100	379.3	121.2	59.7	17.4	28.1	88.3	606.0	226.6	37.4	0.62
G259-002	1100 -1150	73.8	25.6	7.9	2.1	3.9	25.8	113.5	39.7	35.0	0.53
G259-003	1150 -1200	363.7	119.5	65.8	17.4	34.0	103.5	600.6	236.9	39.4	0.51
G259-004	1200 -1250	205.1	61.1	31.0	7.9	15.9	68.8	321.3	116.1	36.1	0.50
G259-005	1250 -1300	415.4	84.5	40.6	9.0	15.6	52.4	565.4	149.9	26.5	0.58
G259-006	1300 -1350	1499.9	269.1	124.4	35.6	63.4	135.5	1992.6	492.6	24.7	0.56
G259-007	1350 -1400	464.6	81.0	44.0	10.3	16.4	42.8	616.4	151.8	24.6	0.63
G259-008	1400 -1450	276.1	39.5	18.0	4.3	8.4	40.0	346.5	70.3	20.3	0.51
G259-009	1450 -1500	553.4	69.9	31.7	7.2	12.4	41.9	674.8	121.3	18.0	0.59
G259-010	1500 -1550	644.8	54.1	20.7	4.2	6.6	20.3	730.5	85.6	11.7	0.64
G259-011	1550 -1600	155.9	15.9	8.2	1.7	3.2	22.9	185.2	29.2	15.8	0.54
G259-012	1600 -1650	662.9	11.6	4.4	1.0	1.6	5.1	681.7	18.8	2.8	0.64
G259-013	1650 -1700	709.1	3.6	1.8	0.4	0.7	5.1	715.7	6.6	0.9	0.55
G259-014	1700 -1750	1042.1	3.9	2.5	0.6	1.1	5.7	1050.5	8.3	0.8	0.59
G259-015	1750 -1800	1659.2	1.8	2.1	0.5	0.8	3.8	1664.5	5.3	0.3	0.64
G259-016	1800 -1850	461.7	2.5	2.0	0.4	0.8	5.8	467.5	5.8	1.3	0.52
G259-019	1950 -2000	337.0	1.0	1.0	0.3	0.4	3.9	339.8	2.8	0.8	0.73
G259-020	2000 -2050	101.8	2.6	1.3	0.7	1.2	2.3	107.8	5.9	5.5	0.62
G259-022	2100 -2150	60.3	3.8	3.5	1.4	1.8	2.6	70.9	10.6	15.0	0.78
G259-024	2200 -2250	68.5	2.2	1.0	1.1	1.4	1.7	74.4	5.8	7.9	0.75
G259-026	2300 -2350	67.9	1.3	0.7	0.9	1.0	4.2	72.1	4.1	5.8	0.93
G259-028	2376 -2400	56.2	1.5	1.0	0.3	0.3	9.0	59.4	3.2	5.5	0.94
G259-029	2400 -2450	78.7	3.4	1.5	0.4	0.7	9.3	85.0	6.2	7.3	0.63
G259-031	2500 -2550	99.8	9.1	2.3	0.4	0.7	7.5	112.5	12.7	11.3	0.69
G259-033	2600 -2650	75.4	0.8	0.4	0.2	0.3	4.3	77.2	1.8	2.4	0.67
G259-035	2700 -2750	79.6	1.5	0.6	0.1	0.3	2.1	82.2	2.6	3.2	0.59
G259-037	2800 -2850	114.4	1.7	1.0	0.1	0.5	1.9	118.0	3.5	3.0	0.38
G259-039	2900 -2950	102.8	4.2	2.2	0.4	0.9	5.2	110.7	7.8	7.1	0.44
G259-041	3000 -3050	83.6	6.2	3.0	1.4	2.2	6.3	96.6	13.0	13.5	0.66
G259-043	3100 -3150	103.1	5.6	2.4	0.6	1.1	4.0	112.9	9.8	8.7	0.59
G259-045	3200 -3250	245.1	4.8	1.8	0.6	1.0	3.4	253.4	8.3	3.3	0.65
G259-047	3300 -3350	58.0	0.5	3.5	0.9	0.8	10.4	63.9	5.8	9.2	1.15
G259-049	3400 -3450	82.8	0.8	0.5	0.7	0.5	4.4	85.5	2.6	3.1	1.40
G259-051	3500 -3550	115.6	2.9	4.5	0.8	0.7	2.3	124.7	9.1	7.3	1.13
G259-053	3600 -3650	65.0	3.4	2.8	0.6	0.6	2.3	72.6	7.6	10.5	0.99
G259-055	3700 -3750	109.7	1.4	0.3	0.1	0.1	0.8	111.7	2.0	1.9	1.03
G259-057	3800 -3850	101.2	1.4	0.6	1.1	0.9	4.0	105.4	4.1	4.0	1.23
G259-059	3900 -3950	207.8	4.0	2.0	1.1	0.8	0.6	215.9	8.0	3.7	1.37
G259-061	4000 -4050	241.7	4.3	1.3	0.5	0.5	0.7	248.5	6.8	2.8	1.00
G259-063	4100 -4150	262.8	4.4	1.8	0.4	0.5	0.6	270.2	7.3	2.7	0.83
G259-065	4200 -4250	252.5	5.5	0.7	0.2	0.3	0.6	259.3	6.8	2.6	0.87
G259-067	4300 -4350	279.2	4.4	2.5	1.0	0.9	1.0	288.2	8.9	3.1	1.07
G259-069	4400 -4450	567.9	14.1	7.1	3.2	1.3	1.2	593.7	25.8	4.4	2.45
G259-071	4500 -4550	456.4	9.1	4.9	2.2	1.1	0.8	473.8	17.4	3.7	1.99
G259-073	4600 -4650	119.9	8.1	4.7	1.5	1.0	0.5	135.4	15.4	11.4	1.50
G259-075	4700 -4750	421.3	12.2	5.0	1.7	1.1	0.8	441.5	20.1	4.6	1.62
G259-077	4800 -4850	659.3	25.0	12.4	8.5	3.2	4.2	718.6	49.3	6.9	2.65
G259-079	4900 -4950	485.2	14.8	6.6	3.2	1.5	2.2	511.5	26.2	5.1	2.10

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIEERA COUNTY, NEW MEXICO

TABLE I-B

C1-C7 HYDROCARBON ANALYSES OF CUTTINGS GAS

GeoChem Sample Number	Well Interval*	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
G259-081	5000 -5050	434.3	8.1	3.4	1.9	1.3	3.9	449.3	15.0	3.3	1.44
G259-083	5100 -5150	394.3	5.8	2.6	1.0	0.8	1.8	404.7	10.3	2.6	1.19
G259-085	5200 -5250	601.4	7.1	3.3	1.2	0.9	2.4	614.1	12.7	2.1	1.25
G259-087	5300 -5350	419.0	7.7	3.4	1.4	1.0	10.3	432.7	13.6	3.2	1.29
G259-089	5400 -5450	1041.7	12.4	4.7	1.4	1.2	3.3	1061.7	19.9	1.9	1.14
G259-091	5500 -5550	1207.7	12.8	5.1	1.3	1.3	4.0	1228.4	20.6	1.7	0.97
G259-093	5600 -5650	837.0	7.6	2.8	0.8	0.8	1.7	849.2	12.1	1.4	0.96
G259-095	5700 -5750	1095.0	11.7	3.8	0.9	0.9	3.2	1112.5	17.5	1.6	0.95
G259-097	5800 -5850	1154.1	18.3	8.0	2.3	2.5	8.5	1185.5	31.3	2.6	0.92
G259-099	5900 -5950	1029.4	17.3	4.1	1.1	1.1	6.3	1053.2	23.7	2.3	1.02
G259-101	6000 -6050	1450.4	22.3	6.4	1.8	1.4	1.0	1482.6	32.1	2.2	1.29
G259-103	6100 -6150	3504.9	61.5	6.9	2.0	0.7	0.5	3576.1	71.1	2.0	2.70
G259-104	6150 -6200	1534.1	37.7	5.6	1.6	1.1	3.5	1580.3	46.2	2.9	1.45
G259-105	6200 -6250	1935.6	27.2	4.9	1.5	0.8	1.9	1970.1	34.5	1.8	1.73
G259-106	6250 -6300	1240.9	20.0	3.3	0.8	0.4	1.1	1265.6	24.7	2.0	1.84
G259-107	6300 -6350	2099.0	47.8	5.8	1.0	0.5	1.4	2154.3	55.3	2.6	1.92
G259-108	6350 -6400	5548.8	123.8	15.0	1.7	0.8	3.4	5690.3	141.5	2.5	2.05
G259-109	6400 -6450	8251.6	91.3	11.6	1.6	0.8	3.0	8357.1	105.5	1.3	1.82
G259-111	6500 -6550	2854.3	67.1	5.9	1.2	0.8	2.4	2929.5	75.1	2.6	1.56
G259-112	6550 -6600	1574.6	87.1	7.7	4.6	2.6	51.1	1676.7	102.1	6.1	1.74
G259-113	6600 -6650	4258.4	37.4	5.5	1.0	0.6	2.1	4303.1	44.6	1.0	1.49
G259-114	6650 -6700	1356.0	18.6	2.1	0.4	0.4	1.5	1377.6	21.6	1.6	1.00
G259-115	6700 -6750	901.4	14.7	1.5	0.2	0.2	1.3	918.2	16.7	1.8	1.04
G259-116	6750 -6800	770.6	9.8	0.9	0.2	0.2	0.7	781.8	11.2	1.4	1.00
G259-117	6800 -6850	848.0	5.4	1.1	0.2	0.2	1.1	855.1	7.0	0.8	0.81
G259-118	6850 -6900	534.2	9.9	1.0	0.1	0.2	1.0	545.6	11.3	2.1	0.84
G259-119	6900 -6950	257.9	2.9	0.6	0.1	0.1	1.1	261.7	3.8	1.5	0.87
G259-120	6950 -7000	498.5	10.4	1.2	0.2	0.3	1.5	510.8	12.2	2.4	0.92
G259-122	7050 -7100	408.8	8.2	0.9	0.1	0.1	1.8	418.4	9.5	2.3	0.96
G259-123	7100 -7150	273.3	6.1	0.9	0.2	0.3	0.5	281.0	7.6	2.7	0.60
G259-124	7150 -7200	424.9	6.9	1.4	0.4	0.7	0.0	434.4	9.5	2.2	0.68
G259-125	7200 -7215	936.8	18.1	2.6	0.6	0.5	0.3	958.8	21.9	2.3	1.03

PPM values expressed as volumes of gas per million volumes of cuttings

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE I-C

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE AND CUTTINGS GAS

GeoChem Sample Number	Well Interval*	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
G259-081	5000 -5050	535.2	15.2	10.2	4.6	2.4	9.8	567.8	32.5	5.7	1.93
G259-083	5100 -5150	520.0	11.5	10.6	3.5	1.7	4.2	547.5	27.4	5.0	2.10
G259-085	5200 -5250	813.4	12.1	6.9	3.1	1.6	5.1	837.4	24.0	2.9	1.90
G259-087	5300 -5350	560.4	15.2	11.5	2.4	1.8	24.2	591.5	31.0	5.3	1.31
G259-089	5400 -5450	1290.3	17.5	9.3	1.9	1.7	4.5	1320.8	30.5	2.3	1.16
G259-091	5500 -5550	1494.8	17.5	9.9	1.6	1.6	4.9	1525.6	30.7	2.0	1.03
G259-093	5600 -5650	990.1	11.4	7.6	1.1	1.0	3.7	1011.4	21.3	2.1	1.01
G259-095	5700 -5750	1278.8	16.5	6.1	1.0	1.1	4.9	1303.8	24.9	1.9	0.97
G259-097	5800 -5850	1463.1	27.1	11.7	2.7	2.9	10.0	1507.7	44.6	3.0	0.93
G259-099	5900 -5950	1255.2	25.0	6.0	1.3	1.3	9.8	1289.0	33.8	2.6	1.03
G259-101	6000 -6050	1788.0	28.6	7.7	2.0	1.6	1.1	1828.1	40.1	2.2	1.28
G259-103	6100 -6150	9318.7	84.1	8.5	2.1	0.8	0.5	9414.3	95.6	1.0	2.57
G259-104	6150 -6200	3177.0	59.3	6.6	1.8	1.4	3.6	3246.4	69.3	2.1	1.35
G259-105	6200 -6250	2411.5	34.9	5.3	1.6	0.9	2.0	2454.4	42.8	1.7	1.69
G259-106	6250 -6300	1661.8	26.3	3.8	0.8	0.4	1.5	1693.4	31.5	1.9	1.81
G259-107	6300 -6350	3074.1	63.0	6.6	1.3	0.7	1.6	3145.8	71.6	2.3	1.88
G259-108	6350 -6400	5954.3	130.4	15.7	1.8	0.9	3.4	6103.3	148.9	2.4	2.02
G259-109	6400 -6450	8580.6	96.9	14.6	1.9	1.0	3.7	8695.2	114.5	1.3	1.84
G259-111	6500 -6550	3728.7	75.0	6.6	1.4	0.9	3.0	3812.7	83.9	2.2	1.51
G259-112	6550 -6600	1697.9	172.9	8.9	5.3	3.0	265.5	1888.1	190.2	10.1	1.77
G259-113	6600 -6650	5135.1	44.5	8.1	1.3	0.7	6.0	5189.9	54.8	1.1	1.78
G259-114	6650 -6700	1613.5	22.7	2.8	0.7	0.5	3.6	1640.3	26.8	1.6	1.36
G259-115	6700 -6750	966.5	15.8	5.9	1.5	0.3	2.5	990.3	23.7	2.4	4.17
G259-116	6750 -6800	844.8	10.9	2.9	0.2	0.3	5.3	859.3	14.5	1.7	0.93
G259-117	6800 -6850	911.0	6.2	1.3	0.2	0.3	1.7	919.1	8.1	0.9	0.72
G259-118	6850 -6900	618.1	11.1	2.5	0.4	0.5	1.9	632.8	14.7	2.3	0.86
G259-119	6900 -6950	297.8	3.6	2.5	0.2	0.3	1.9	304.6	6.8	2.2	0.84
G259-120	6950 -7000	605.6	12.2	4.0	0.3	0.3	3.0	622.7	17.0	2.7	1.06
G259-122	7050 -7100	473.6	9.4	2.2	0.2	0.6	2.3	486.2	12.6	2.6	0.38
G259-123	7100 -7150	404.6	9.2	2.4	0.3	0.4	1.7	417.0	12.4	3.0	0.82
G259-124	7150 -7200	599.9	10.8	3.9	0.9	1.6	0.2	617.1	17.2	2.8	0.57
G259-125	7200 -7215	1107.3	23.3	3.3	0.8	0.7	2.7	1135.6	28.3	2.5	1.09

PPM values expressed as volumes of gas per million volumes of cuttings

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE I-C

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE AND CUTTINGS GAS

GeoChem Sample Number	Well Interval*	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
G259-001	1060 -1100	380.6	121.9	60.2	17.7	28.5	88.7	609.0	228.4	37.5	0.62
G259-002	1100 -1150	90.7	68.4	9.2	3.0	6.1	35.4	177.6	86.9	48.9	0.50
G259-003	1150 -1200	403.9	129.9	73.2	19.3	37.8	118.3	664.4	260.4	39.2	0.51
G259-004	1200 -1250	225.9	67.3	41.5	9.2	18.0	77.6	362.1	136.1	37.6	0.51
G259-005	1250 -1300	463.2	96.7	49.9	11.1	18.4	59.1	639.5	176.3	27.6	0.60
G259-006	1300 -1350	1642.8	295.2	140.5	39.7	69.8	150.4	2188.1	545.3	24.9	0.57
G259-007	1350 -1400	498.3	88.1	52.8	11.6	18.3	51.0	669.3	171.0	25.5	0.64
G259-008	1400 -1450	297.8	43.2	24.9	4.9	9.3	43.9	380.3	82.4	21.7	0.53
G259-009	1450 -1500	605.4	78.1	45.5	8.6	14.1	47.7	752.0	146.6	19.5	0.61
G259-010	1500 -1550	697.9	58.2	22.6	4.9	7.0	24.4	790.8	92.8	11.7	0.70
G259-011	1550 -1600	171.7	18.3	11.4	2.4	4.1	28.2	208.2	36.4	17.5	0.58
G259-012	1600 -1650	670.7	11.7	4.6	1.0	1.7	5.4	689.9	19.1	2.8	0.63
G259-013	1650 -1700	729.6	5.4	5.4	0.5	0.8	7.0	741.9	12.2	1.7	0.60
G259-014	1700 -1750	1104.8	5.3	4.4	0.9	1.3	7.2	1116.9	12.1	1.1	0.67
G259-015	1750 -1800	1704.8	3.1	3.7	0.6	0.9	5.0	1713.4	8.6	0.5	0.69
G259-016	1800 -1850	543.5	4.7	3.8	0.8	1.5	9.9	554.4	10.9	2.0	0.54
G259-019	1950 -2000	371.6	1.4	1.4	0.4	0.8	7.2	375.8	4.1	1.1	0.56
G259-020	2000 -2050	136.5	5.2	2.8	1.0	1.6	3.7	147.2	10.6	7.2	0.62
G259-022	2100 -2150	87.4	6.0	9.0	1.7	2.4	6.7	106.7	19.2	18.1	0.72
G259-024	2200 -2250	79.8	2.9	3.7	1.1	1.6	2.8	89.3	9.5	10.6	0.74
G259-026	2300 -2350	103.3	4.7	3.0	1.2	1.7	7.4	114.1	10.7	9.4	0.71
G259-028	2376 -2400	67.0	2.0	1.2	0.4	0.6	15.0	71.4	4.3	6.1	0.67
G259-029	2400 -2450	103.6	8.4	4.1	0.7	1.3	14.0	118.3	14.6	12.4	0.52
G259-031	2500 -2550	221.9	47.1	14.1	1.3	3.2	18.2	287.8	65.8	22.9	0.40
G259-033	2600 -2650	146.1	12.4	10.0	0.8	2.1	12.5	171.7	25.5	14.9	0.42
G259-035	2700 -2750	167.0	20.9	10.1	0.8	3.0	10.1	202.0	34.9	17.3	0.29
G259-037	2800 -2850	187.9	18.3	8.2	0.8	2.8	11.1	218.1	30.2	13.8	0.30
G259-039	2900 -2950	176.2	19.6	8.9	1.1	3.4	15.4	209.5	33.2	15.9	0.34
G259-041	3000 -3050	151.4	27.3	11.7	2.1	4.0	15.4	196.8	45.3	23.0	0.53
G259-043	3100 -3150	142.5	10.7	4.7	1.1	2.3	10.2	161.4	18.9	11.7	0.48
G259-045	3200 -3250	271.6	7.0	5.0	0.8	1.2	5.3	285.8	14.1	5.0	0.66
G259-047	3300 -3350	72.0	1.1	3.7	1.1	1.2	26.5	79.3	7.3	9.2	0.88
G259-049	3400 -3450	107.7	1.5	2.6	0.8	0.5	5.5	113.4	5.7	5.0	1.46
G259-051	3500 -3550	191.4	6.8	8.4	1.1	0.8	3.0	208.7	17.2	8.3	1.37
G259-053	3600 -3650	109.4	5.0	8.9	0.9	0.8	4.4	125.3	15.8	12.7	1.07
G259-055	3700 -3750	135.6	3.4	7.5	0.3	0.2	1.7	147.2	11.6	7.9	1.67
G259-057	3800 -3850	133.4	2.4	6.3	1.6	1.1	5.1	145.1	11.6	8.0	1.37
G259-059	3900 -3950	345.2	7.5	6.2	2.9	2.2	1.4	364.3	19.0	5.2	1.36
G259-061	4000 -4050	395.5	7.4	3.4	1.9	1.4	1.7	409.7	14.2	3.5	1.35
G259-063	4100 -4150	407.2	8.4	4.6	1.3	1.2	1.4	422.9	15.6	3.7	1.08
G259-065	4200 -4250	387.0	7.9	6.1	1.1	0.7	1.5	403.0	16.0	4.0	1.57
G259-067	4300 -4350	413.3	8.1	13.9	2.7	1.6	1.8	439.8	26.4	6.0	1.73
G259-069	4400 -4450	808.8	29.6	17.1	6.0	2.9	2.2	864.6	55.8	6.5	2.03
G259-071	4500 -4550	555.8	17.3	10.8	3.7	1.9	1.5	589.7	33.8	5.7	1.88
G259-073	4600 -4650	181.3	17.1	11.7	3.3	2.0	1.0	215.6	34.3	15.9	1.60
G259-075	4700 -4750	596.3	25.2	12.2	3.6	2.3	1.6	639.8	43.4	6.8	1.55
G259-077	4800 -4850	866.9	47.2	24.8	15.7	5.7	7.5	960.5	93.5	9.7	2.73
G259-079	4900 -4950	619.0	26.3	14.6	6.0	2.9	4.1	669.0	49.9	7.5	2.02

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

Table II

SCREEN ANALYSIS SUMMARY

GeoChem Sample Number	Well Interval (Feet)		Brief Lithological Description	Total Organic Carbon (% of Rock)
G259-001	1060-1100	100%	Dolomite, silty, brownish gray.	0.29
G259-002	1100-1150	100%	Siltstone, dolomitic, light gray to grayish red. Trace of dolomite.	0.07
G259-003	1150-2000	100%	Limestone grading to dolomite, silty, brownish gray to grayish red.	0.17/0.19
G259-004	1200-1250	100%	Limestone grading to dolomite, silty, brownish gray to grayish red.	0.21
G259-005	1250-1300	100%	Limestone grading to dolomite, silty, brownish gray to grayish red.	0.11
G259-006	1300-1350	100%	Limestone, silty, brownish gray.	0.14
G259-007	1350-1400	100%	Dolomite, silty, brownish gray to grayish red.	0.25
G259-008	1400-1450	60% 40%	Dolomite, brownish gray. Siltstone, grayish red.	0.13
G259-009	1450-1500	60% 40%	Dolomite, brownish gray. Siltstone, grayish red.	0.10
G259-010	1500-1550	70% 30%	Siltstone, light gray to grayish red. Dolomite, brownish gray.	0.10
G259-011	1550-1600	80% 20%	Siltstone, light gray to grayish red. Dolomite, brownish gray.	0.09
G259-012	1600-1650	60% 40%	Siltstone, light gray to grayish red. Dolomite, brownish gray.	0.14/0.13
G259-013	1650-1700	60% 40%	Siltstone, light gray to grayish red. Dolomite, brownish gray.	0.10
G259-014	1700-1750	70% 30%	Dolomite, brownish gray. Siltstone, grayish red.	0.15
G259-015	1750-1800	50% 50%	Siltstone, grayish red. Dolomite, brownish gray.	0.15

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

Table II

SCREEN ANALYSIS SUMMARY

GeoChem Sample Number	Well Interval (Feet)		Brief Lithological Description	Total Organic Carbon (% of Rock)
G259-016	1800-1850	100%	Siltstone, dolomitic, light gray to grayish red.	0.08
G259-017	-		No sample.	
G259-018	-		No sample.	
G259-019	1950-2000	100%	Siltstone, dolomite, light brownish gray.	0.09
G259-020	2000-2050	100%	Igneous rock?, pinkish gray.	0.08
G259-022	2100-2150	100%	Igneous rock?, pinkish gray.	0.05
G259-024	2200-2250	80% 20%	Igneous rock. Red shale and limestone, brownish gray.	0.06
G259-026	2300-2350	100%	Igneous rock?	0.05
G259-028	2376-2400	100%	Shale, chloritic, calcareous, greenish gray.	0.01/0.01
G259-029	2400-2450	100%	Igneous rock?	0.05
G259-031	2500-2550	60% 40%	Igneous rock? Red shale.	0.02
G259-033	2600-2650	60% 40%	Igneous rock? Red shale.	0.02
G259-035	2700-2750	60% 40%	Igneous rock? Red shale.	0.01
G259-037	2800-2850	50% 50%	Igneous rock? Red shale.	0.01
G259-039	2900-2950	50% 50%	Igneous rock? Red shale.	0.09
G259-041	3000-3050	50% 50%	Igneous rock? Red shale.	0.07/0.06
G259-043	3100-3150	50% 50%	Igneous rock? Red shale.	0.08
G259-045	3200-3250	100%	Shale, grading to siltstone, grayish red.	0.08

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

Table II

SCREEN ANALYSIS SUMMARY

GeoChem Sample Number	Well Interval (Feet)	Brief Lithological Description	Total Organic Carbon (% of Rock)
G259-047	3300-3350	100% Limestone, brownish gray.	0.08
G259-049	3400-3450	100% Limestone, brownish gray.	0.06
G259-051	3500-3550	60% Shale, medium dark gray to grayish red. 40% Limestone, brownish gray.	0.40
G259-053	3600-3650	60% Shale, medium dark gray to grayish red. 40% Limestone, brownish gray.	0.28
G259-055	3700-3750	60% Shale, medium dark gray to grayish red. 40% Limestone, brownish gray.	0.28/0.27
G259-057	3800-3850	60% Shale, medium dark gray to grayish red. 40% Limestone, brownish gray.	0.21
G259-059	3900-3950	60% Shale, pinkish red and dark gray. 40% Limestone, light brownish gray.	0.72
G259-061	4000-4050	50% Shale, pinkish red and dark gray. 50% Limestone, light brownish gray.	0.74
G259-063	4100-4150	60% Limestone, light brownish gray. 40% Shale, pinkish red and dark gray.	0.43
G259-065	4200-4250	80% Limestone, light brownish gray. 20% Shale, pinkish red and dark gray.	0.24
G259-067	4300-4350	70% Limestone, light brownish gray. 30% Shale, pinkish red and dark gray.	0.42/0.43
G259-069	4400-4450	60% Shale, pinkish red and dark gray. 40% Limestone, light brownish gray. Sample contaminated with mica.	3.02
G259-071	4500-4550	60% Shale, pinkish red and dark gray. 40% Limestone, light brownish gray. Sample contaminated with mica.	2.86
G259-073	4600-4650	60% Shale, dark gray. 40% Limestone, light brownish gray.	1.15
G259-075	4700-4750	50% Shale, light gray. 50% Limestone, light brownish gray.	1.68

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

Table II

SCREEN ANALYSIS SUMMARY

GeoChem Sample Number	Well Interval (Feet)	Brief Lithological Description	Total Organic Carbon (% of Rock)
G259-077	4800-4850	60% Shale, carbonaceous, dark gray to black. 40% Limestone, light brownish gray.	1.55
G259-079	4900-4950	50% Shale, carbonaceous, dark gray to black. 50% Limestone, light brownish gray.	1.74
G259-081	5000-5050	60% Shale, carbonaceous, dark gray to black. 40% Limestone, light brownish gray.	1.11
G259-083	5100-5150	85% Shale, pinkish red and medium dark gray. 15% Limestone, light brownish gray.	0.70/0.71
G259-085	5200-5250	60% Limestone, light brownish gray. 40% Shale, medium dark gray.	0.48
G259-087	5300-5350	60% Shale, medium dark gray and pinkish red. 40% Limestone, light brownish gray.	0.82
G259-089	5400-5450	70% Limestone, light brownish gray. 30% Shale, medium dark gray and pinkish red.	0.33
G259-091	5500-5550	70% Limestone, light brownish gray. 30% Shale, medium dark gray and pinkish red.	0.21
G259-093	5600-5650	70% Limestone, light brownish gray. 30% Shale, medium dark gray and pinkish red.	0.20
G259-095	5700-5750	70% Limestone, light brownish gray. 30% Shale, medium dark gray and pinkish red.	0.21
G259-097	5800-5850	70% Limestone, light brownish gray. 30% Shale, medium dark gray and pinkish red.	0.19/0.21
G259-099	5900-5950	80% Limestone, light brownish gray. 20% Shale, medium dark gray and pinkish red.	0.26
G259-101	6000-6050	70% Limestone, light brownish gray. 30% Shale, medium dark gray and pinkish red.	0.23
G259-103	6100-6150	60% Limestone, light brownish gray. 40% Shale, dark gray.	0.46

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

Table II

SCREEN ANALYSIS SUMMARY

GeoChem Sample Number	Well Interval (Feet)	Brief Lithological Description	Total Organic Carbon (% of Rock)
G259-103A	6100-6150	60% Shale, medium dark gray to dark gray. 40% Siltstone, light gray.	1.16
G259-104	6150-6200	60% Limestone, light brownish gray. 40% Shale, medium dark gray.	0.56
G259-105	6200-6250	60% Limestone, light brownish gray. 40% Shale, medium dark gray.	0.41
G259-106	6250-6300	60% Limestone, light brownish gray. 40% Shale, medium dark gray.	0.26
G259-106A	6250-6300	100% Limestone, light brownish gray to brownish gray.	0.10
G259-106B	6250-6300	100% Shale, dark gray.	1.64/1.63
G259-107	6300-6350	100% Dolomite, light brownish gray.	0.10
G259-108	6350-6400	100% Dolomite, light brownish gray.	0.11
G259-109	6400-6450	100% Dolomite, light brownish gray.	0.08/0.08
G259-111	6500-6550	60% Shale, pale red and medium dark gray. 40% Dolomite, light brownish gray.	0.36
G259-112	6550-6600	60% Shale, medium dark gray. 40% Dolomite, light brownish gray.	0.45
G259-113	6600-6650	100% Limestone, light brownish gray.	0.10
G259-114	6650-6700	100% Limestone, light brownish gray.	0.09
G259-115	6700-6750	100% Limestone, light brownish gray.	0.07
G259-116	6750-6800	100% Limestone, light brownish gray.	0.06
G259-117	6800-6850	100% Limestone, light brownish gray.	0.08
G259-118	6850-6900	100% Limestone, light brownish gray.	0.06/0.05

T.O.C. = Total organic carbon, wt. %
S1 = Free hydrocarbons, mg HC/g of rock
S2 = Residual hydrocarbon potential (mg HC/g of rock)
S3 = CO2 produced from kerogen pyrolysis (mg CO2/g of rock)
PC* = 0.083 ($S_1 + S_2$)

Hydrogen Index = mg HC/g organic carbon
Oxygen Index = mg CO2/g organic carbon
PI = S1/S1+S2
Tmax = Temperature Index, degrees C.

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE III

RESULTS OF ROCK-EVAL PYROLYSIS

GeoChem Sample No.	Depth Interval (Ft.)	Tmax (C)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	PI	PC*	T.O.C. (wt. %)	Hydrogen Index	Oxygen Index
G259-001	1060-1100	377	0.04	0.07	0.25	0.40	0.00	0.29	24	86
G259-002	1100-1150	234	0.00	0.00	0.16	0.00	0.00	0.07	0	228
G259-003	1150-1200	296	0.00	0.00	0.14	0.00	0.00	0.18	0	77
G259-004	1200-1250	274	0.02	0.05	0.17	0.33	0.00	0.21	23	80
G259-005	1250-1300	300	0.01	0.03	0.09	0.25	0.00	0.11	27	81
G259-006	1300-1350	316	0.00	0.03	0.15	0.00	0.00	0.14	21	107
G259-007	1350-1400	303	0.01	0.06	0.10	0.17	0.00	0.25	24	40
G259-008	1400-1450	264	0.00	0.00	0.14	0.00	0.00	0.13	0	107
G259-009	1450-1500	444	0.00	0.00	0.08	0.00	0.00	0.10	0	80
G259-010	1500-1550	433	0.00	0.01	0.08	0.00	0.00	0.10	10	80
G259-011	1550-1600	274	0.00	0.00	0.12	0.00	0.00	0.09	0	133
G259-012	1600-1650	274	0.00	0.01	0.21	0.00	0.00	0.14	7	150
G259-013	1650-1700	445	0.00	0.00	0.13	0.00	0.00	0.10	0	130
G259-014	1700-1750	316	0.00	0.01	0.27	0.00	0.00	0.15	6	180
G259-015	1750-1800	273	0.01	0.04	0.17	0.25	0.00	0.15	26	113
G259-016	1800-1850	263	0.00	0.01	0.13	0.00	0.00	0.08	12	162
G259-019	1950-2000	246	0.00	0.00	0.18	0.00	0.00	0.09	0	200
G259-020	2000-2050	439	0.00	0.07	0.37	0.00	0.00	0.08	87	462
G259-022	2100-2150	362	0.00	0.00	0.17	0.00	0.00	0.05	0	340
G259-024	2200-2250	226	0.00	0.00	0.17	0.00	0.00	0.06	0	283
G259-026	2300-2350	288	0.00	0.01	0.09	0.00	0.00	0.05	20	180
G259-028	2376-2400	248	0.00	0.00	0.00	0.00	0.00	0.01	0	0
G259-029	2400-2450	398	0.01	0.04	0.43	0.25	0.00	0.05	80	860
G259-031	2500-2550	312	0.00	0.00	0.38	0.00	0.00	0.02	0	1900
G259-033	2600-2650	443	0.01	0.00	0.41	0.01	0.00	0.02	0	2050
G259-035	2700-2750	323	0.01	0.02	0.49	0.50	0.00	0.01	200	4900
G259-037	2800-2850	224	0.00	0.00	0.28	0.00	0.00	0.01	0	2800
G259-039	2900-2950	335	0.00	0.00	0.30	0.00	0.00	0.09	0	333
G259-041	3000-3050	260	0.00	0.00	0.27	0.00	0.00	0.07	0	385
G259-043	3100-3150	224	0.00	0.00	0.21	0.00	0.00	0.08	0	262
G259-045	3200-3250	336	0.00	0.01	0.21	0.00	0.00	0.08	12	262

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1 WELL

LOCATION: SEC. 7, T12S, R4W

SIERRA COUNTY, NEW MEXICO

Enclosed please find the results of the organic geochemical analyses performed on a suite of eighty (80) wet canned cuttings samples from the West Elephant Butte Federal 7 No. 1 Well located in Sec. 7, T12S, R4W, Sierra County, New Mexico.

Douglas A. Muckelroy
Geologist
GEOCHEM LABORATORIES, INC.

T.O.C. = Total organic carbon, wt. %
S1 = Free hydrocarbons, mg HC/g of rock
S2 = Residual hydrocarbon potential (mg HC/g of rock)
S3 = CO2 produced from kerogen pyrolysis (mg CO2/g of rock)
PC* = 0.083 ($S_1 + S_2$)

Hydrogen Index = mg HC/g organic carbon
Oxygen Index = mg CO2/g organic carbon
PI = S1/S1+S2
Tmax = Temperature Index, degrees C.

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE III

RESULTS OF ROCK-EVAL PYROLYSIS

GeoChem Sample No.	Depth Interval (ft)	Tmax (C)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	PI	PC*	T.O.C. (wt. %)	Hydrogen Index	Oxygen Index
G259-047	3300-3350	323	0.01	0.05	0.37	0.17	0.00	0.08	62	462
G259-049	3400-3450	275	0.00	0.05	0.27	0.00	0.00	0.06	83	450
G259-051	3500-3550	446	0.00	0.04	0.28	0.00	0.00	0.40	10	70
G259-053	3600-3650	384	0.00	0.02	0.22	0.00	0.00	0.28	7	78
G259-055	3700-3750	275	0.00	0.01	0.18	0.00	0.00	0.28	3	64
G259-057	3800-3850	311	0.00	0.01	0.24	0.00	0.00	0.21	4	114
G259-059	3900-3950	441	0.01	0.12	0.11	0.08	0.01	0.72	16	15
G259-061	4000-4050	450	0.00	0.14	0.09	0.00	0.01	0.74	18	12
G259-063	4100-4150	378	0.00	0.10	0.08	0.00	0.00	0.43	23	18
G259-065	4200-4250	335	0.00	0.05	0.05	0.00	0.00	0.24	20	20
G259-067	4300-4350	445	0.00	0.05	0.09	0.00	0.00	0.43	11	20
G259-069	4400-4450	478	0.01	0.80	0.09	0.01	0.06	3.02	26	2
G259-071	4500-4550	484	0.01	0.80	0.13	0.01	0.06	2.86	27	4
G259-073	4600-4650	492	0.00	0.18	0.10	0.00	0.01	1.15	15	8
G259-075	4700-4750	494	0.02	0.40	0.18	0.05	0.03	1.68	23	10
G259-077	4800-4850	498	0.03	0.28	0.22	0.10	0.02	1.55	18	14
G259-079	4900-4950	494	0.03	0.37	0.23	0.07	0.03	1.74	21	13
G259-081	5000-5050	501	0.02	0.26	0.23	0.07	0.02	1.11	23	20
G289-083	5100-5150	472	0.00	0.09	0.17	0.00	0.00	0.71	12	23
G259-085	5200-5250	413	0.03	0.10	0.28	0.25	0.01	0.48	20	58
G259-087	5300-5350	500	0.06	0.27	0.26	0.19	0.02	0.82	32	31
G259-089	5400-5450	444	0.01	0.09	0.21	0.10	0.00	0.33	27	63
G259-091	5500-5550	353	0.00	0.02	0.28	0.00	0.00	0.21	9	133
G259-093	5600-5650	351	0.00	0.01	0.26	0.00	0.00	0.20	5	130
G259-095	5700-5750	275	0.01	0.03	0.18	0.25	0.00	0.21	14	85
G259-097	5800-5850	353	0.00	0.03	0.20	0.00	0.00	0.20	15	100
G259-099	5900-5950	363	0.00	0.05	0.23	0.00	0.00	0.26	19	88
G259-101	6000-6050	296	0.00	0.04	0.19	0.00	0.00	0.23	17	82
G259-103	6100-6150	327	0.01	0.07	0.17	0.12	0.00	0.46	15	36
G259-103A	6100-6150	325	0.02	0.01	0.11	1.00	0.00	1.16	0	9
G259-104	6150-6200	482	0.02	0.07	0.25	0.25	0.00	0.56	12	44
G259-105	6200-6250	377	0.02	0.07	0.25	0.25	0.00	0.41	17	60

WEST ELEPHANT BUTTE FEDERAL 7 NO. 1
SIERRA COUNTY, NEW MEXICO

TABLE III

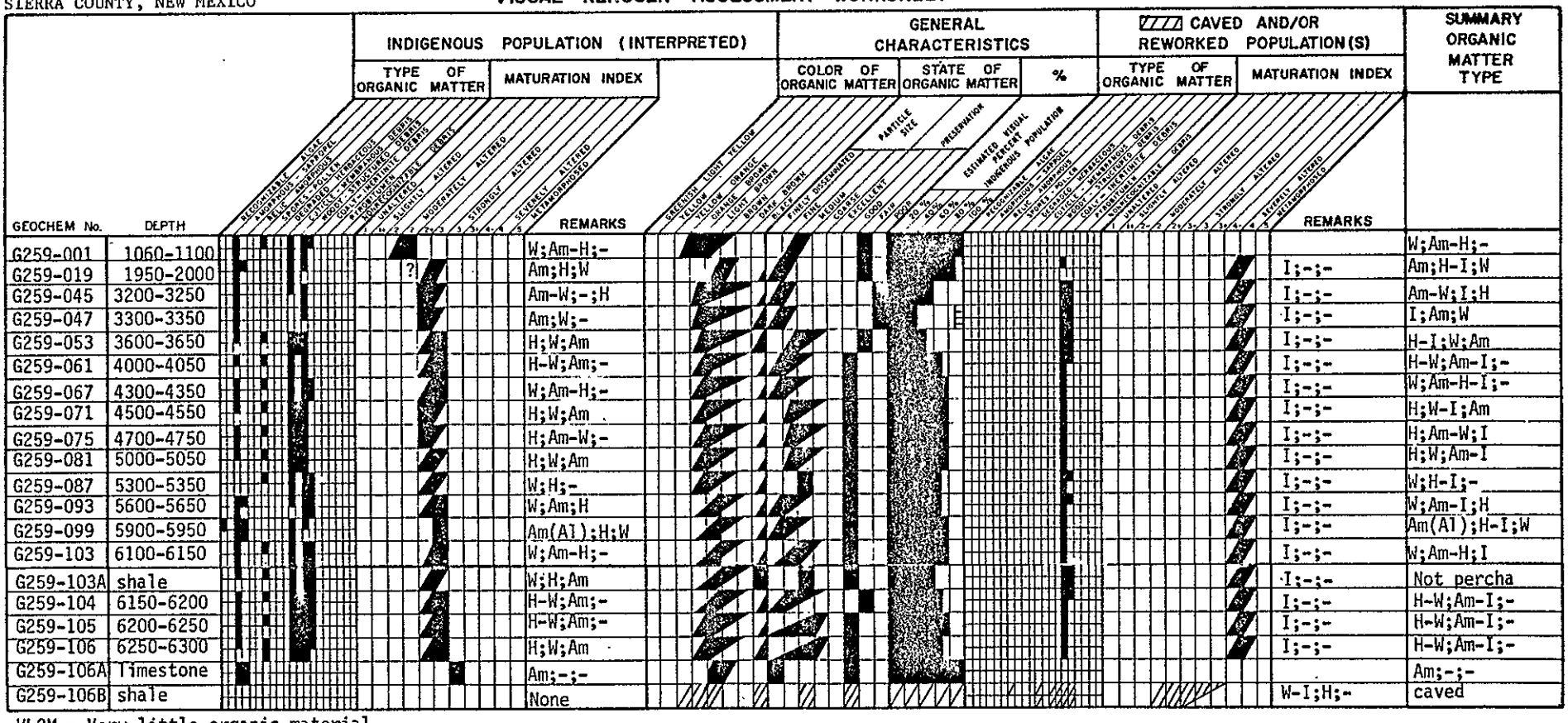
RESULTS OF ROCK-EVAL PYROLYSIS

T.O.C. = Total organic carbon, wt. %
S1 = Free hydrocarbons, mg HC/g of rock
S2 = Residual hydrocarbon potential (mg HC/g of rock)
S3 = CO2 produced from kerogen pyrolysis (mg CO2/g of rock)
PC* = $0.083\ (S_1 + S_2)$
Hydrogen Index = mg HC/g organic carbon
Oxygen Index = mg CO2/g organic carbon
PI = S1/S1+S2
Tmax = Temperature Index, degrees C.

GeoChem Sample No.	Depth Interval (Ft.)	Tmax (C)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	PI	PC*	T.O.C. (wt. %)	Hydrogen Index	Oxygen Index
G259-106	6250-6300	327	0.02	0.05	0.21	0.33	0.00	0.26	19	80
G259-106A	6250-6300	263	0.01	0.00	0.17	0.01	0.00	0.10	0	170
G259-106B	6250-6300	474	0.03	0.13	0.20	0.19	0.01	1.64	7	12
G259-107	6300-6350	260	0.02	0.04	0.19	0.33	0.00	0.10	40	190
G259-108	6350-6400	314	0.02	0.02	0.26	0.50	0.00	0.11	18	236
G259-109	6400-6450	445	0.00	0.03	0.19	0.00	0.00	0.08	37	237
G259-111	6500-6550	299	0.02	0.04	0.27	0.33	0.00	0.36	11	75
G259-112	6550-6600	343	0.04	0.06	0.25	0.40	0.00	0.45	13	55
G259-113	6600-6650	445	0.00	0.01	0.17	0.00	0.00	0.10	10	170
G259-114	6650-6700	309	0.01	0.06	0.17	0.17	0.00	0.09	66	188
G259-115	6700-6750	242	0.02	0.07	0.18	0.25	0.00	0.07	100	257
G259-116	6750-6800	222	0.01	0.03	0.13	0.25	0.00	0.06	50	216
G259-117	6800-6850	227	0.01	0.03	0.20	0.25	0.00	0.08	37	250
G259-118	6850-6900	381	0.01	0.05	0.21	0.17	0.00	0.06	83	350
G259-119	6900-6950	272	0.00	0.00	0.17	0.00	0.00	0.09	0	188
G259-120	6950-7000	315	0.01	0.04	0.16	0.25	0.00	0.06	66	266
G259-122	7050-7100	300	0.01	0.02	0.16	0.50	0.00	0.05	40	320

WEST ELEPHANT BUTTE FEDERAL 7 NO.1
SIERRA COUNTY, NEW MEXICO

TABLE IV
VISUAL KEROGEN ASSESSMENT WORKSHEET

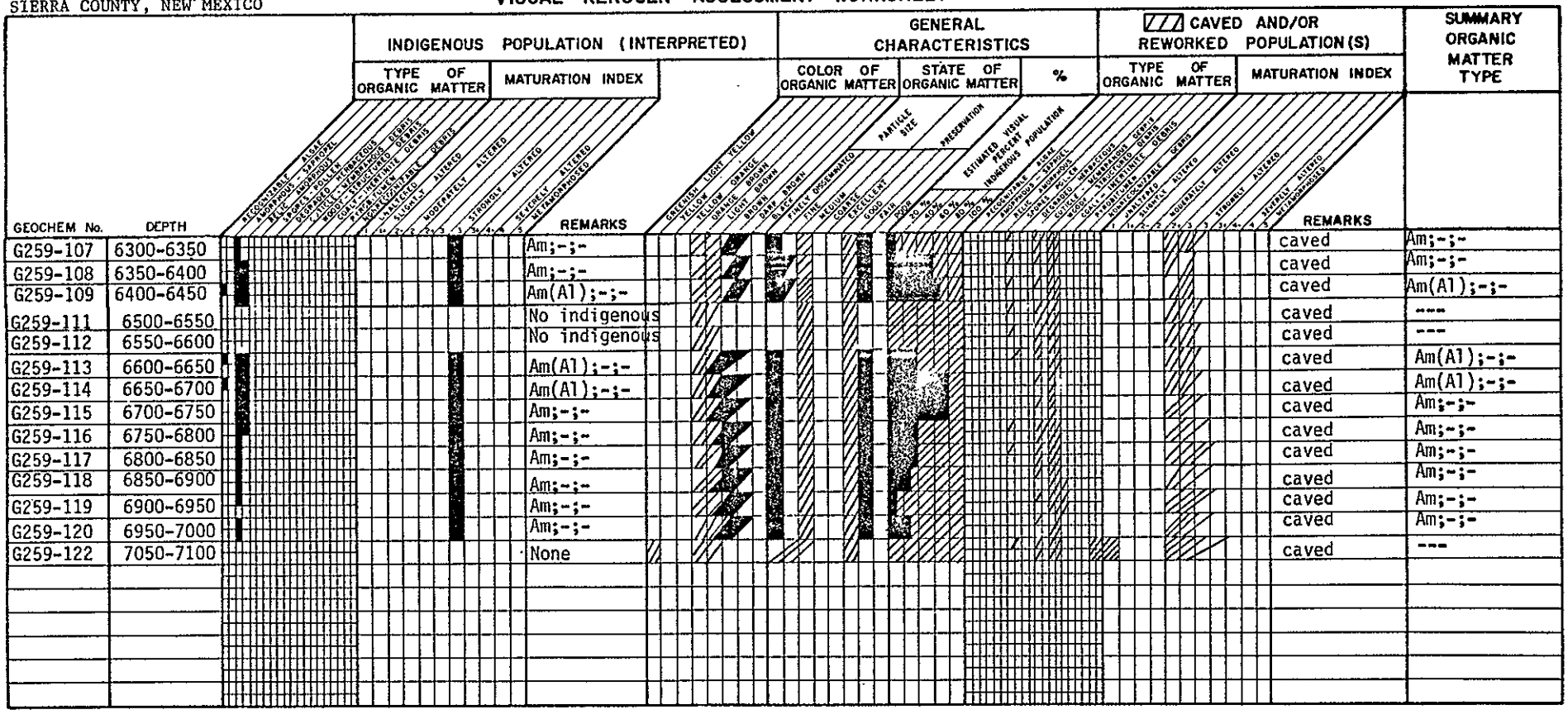


GEOCHEM No.	DEPTH	REMARKS	REMARKS	SUMMARY ORGANIC MATTER TYPE	
G259-001	1060-1100	W;Am-H;-		W;Am-H;-	
G259-019	1950-2000	Am;H;W	I;-;-	Am;H-I;W	VLOM
G259-045	3200-3250	Am-W;-;H	I;-;-	Am-W;I;H	VLOM
G259-047	3300-3350	Am;W;-	I;-;-	I;Am;W	VLOM
G259-053	3600-3650	H;W;Am	I;-;-	H-I;W;Am	
G259-061	4000-4050	H-W;Am;-	I;-;-	H-W;Am-I;-	
G259-067	4300-4350	W;Am-H;-	I;-;-	W;Am-H-I;-	
G259-071	4500-4550	H;W;Am	I;-;-	H;W-I;Am	
G259-075	4700-4750	H;Am-W;-	I;-;-	H;Am-W;I	
G259-081	5000-5050	H;W;Am	I;-;-	H;W;Am-I	
G259-087	5300-5350	W;H;-	I;-;-	W;H-I;-	
G259-093	5600-5650	W;Am;H	I;-;-	W;Am-I;H	
G259-099	5900-5950	Am(Al);H;W	I;-;-	Am(Al);H-I;W	
G259-103	6100-6150	W;Am-H;-	I;-;-	W;Am-H;I	
G259-103A	shale	W;H;Am	I;-;-	Not percha	
G259-104	6150-6200	H-W;Am;-	I;-;-	H-W;Am-I;-	
G259-105	6200-6250	H-W;Am;-	I;-;-	H-W;Am-I;-	
G259-106	6250-6300	H;W;Am	I;-;-	H-W;Am-I;-	
G259-106A	limestone	Am;-;-		Am;-;-	
G259-106B	shale	None	W-I;H;-	caved	

VLOM = Very little organic material.
In samples 053 and 087 above, the herbaceous kerogen may in part be degraded algal material. However, preservation is too poor to distinguish the two.

WEST ELEPHANT BUTTE FEDERAL 7 NO.1
SIERRA COUNTY, NEW MEXICO

TABLE IV
VISUAL KEROGEN ASSESSMENT WORKSHEET



GEOCHEM No.	DEPTH	INDIGENOUS POPULATION (INTERPRETED) REMARKS	CAVED AND/OR REWORKED POPULATION(S) REMARKS	SUMMARY ORGANIC MATTER TYPE
G259-107	6300-6350	Am;-;-	caved	Am;-;-
G259-108	6350-6400	Am;-;-	caved	Am;-;-
G259-109	6400-6450	Am(Al);-;-	caved	Am(Al);-;-
G259-111	6500-6550	No indigenous	caved	---
G259-112	6550-6600	No indigenous	caved	---
G259-113	6600-6650	Am(Al);-;-	caved	Am(Al);-;-
G259-114	6650-6700	Am(Al);-;-	caved	Am(Al);-;-
G259-115	6700-6750	Am;-;-	caved	Am;-;-
G259-116	6750-6800	Am;-;-	caved	Am;-;-
G259-117	6800-6850	Am;-;-	caved	Am;-;-
G259-118	6850-6900	Am;-;-	caved	Am;-;-
G259-119	6900-6950	Am;-;-	caved	Am;-;-
G259-120	6950-7000	Am;-;-	caved	Am;-;-
G259-122	7050-7100	None	caved	---

Table V

WEST ELEPHANT BUTTE FEDERAL 7 NO.1
SIERRA COUNTY, NEW MEXICO

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
G259-001	1100	CTG	(1)	5	0.49	0.56	0.52	0.027	INDIGENOUS
			(2)	14	0.61	0.95	0.75	0.110	REWORKED
			(3)	41	1.00	1.53	1.23	0.150	REWORKED
G259-019	2000	CTG	(1)	4	0.49	0.54	0.51	0.022	INDIGENOUS?
G259-045	3250	CTG	(1)	5	0.47	0.64	0.55	0.063	CAVED
			(2)	1	1.44	1.44	1.44	-	REWORKED
G259-047	3350	CTG	(1)	1	0.59	0.59	0.59	-	CAVED
			(2)	1	1.05	1.05	1.05	-	INDIGENOUS
G259-053	3650	CTG	(1)	40	0.88	1.08	0.99	0.058	INDIGENOUS
			(2)	20	1.37	1.75	1.60	0.113	REWORKED
G259-061	4050	CTG	(1)	5	0.57	0.64	0.61	0.029	CAVED
			(2)	42	0.87	1.06	0.96	0.049	INDIGENOUS
			(3)	13	1.14	1.25	1.20	0.042	REWORKED
G259-067	4350	CTG	(1)	9	0.45	0.65	0.54	0.066	CAVED
			(2)	25	0.83	1.06	0.95	0.061	INDIGENOUS
			(3)	26	1.13	1.36	1.25	0.063	REWORKED
G259-071	4550	CTG	(1)	18	0.91	1.09	0.99	0.049	INDIGENOUS
			(2)	42	1.13	1.48	1.33	0.106	REWORKED
G259-075	4750	CTG	(1)	23	0.92	1.09	1.00	0.056	INDIGENOUS
			(2)	37	1.13	1.56	1.33	0.118	REWORKED
G259-081	5050	CTG	(1)	28	0.92	1.08	0.97	0.043	INDIGENOUS
			(2)	32	1.13	1.46	1.29	0.100	REWORKED

Table V

WEST ELEPHANT BUTTE FEDERAL 7 NO.1
SIERRA COUNTY, NEW MEXICO

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
G259-087	5350	CTG	(1)	40	0.92	1.09	1.00	0.052	INDIGENOUS
			(2)	20	1.13	1.42	1.29	0.091	REWORKED
G259-093	5650	CTG	(1)	37	0.96	1.10	1.03	0.040	INDIGENOUS
			(2)	23	1.15	1.39	1.27	0.063	REWORKED
G259-099	5950	CTG	(1)	20	1.00	1.16	1.08	0.044	INDIGENOUS
			(2)	25	1.23	1.59	1.39	0.101	REWORKED
G259-103	6150	CTG	(1)	9	0.92	1.05	0.97	0.050	INDIGENOUS
			(2)	14	1.20	1.48	1.35	0.096	REWORKED
			(3)	37	1.51	1.96	1.75	0.128	REWORKED
G259-104	6200	CTG	(1)	1	0.65	0.65	0.65	-	CAVED
			(2)	10	1.05	1.14	1.09	0.031	INDIGENOUS
			(3)	49	1.20	1.95	1.56	0.226	REWORKED
G259-105	6250	CTG	(1)	1	0.60	0.60	0.60	-	CAVED
			(2)	11	0.95	1.12	1.05	0.054	INDIGENOUS
			(3)	48	1.17	1.95	1.50	0.226	REWORKED

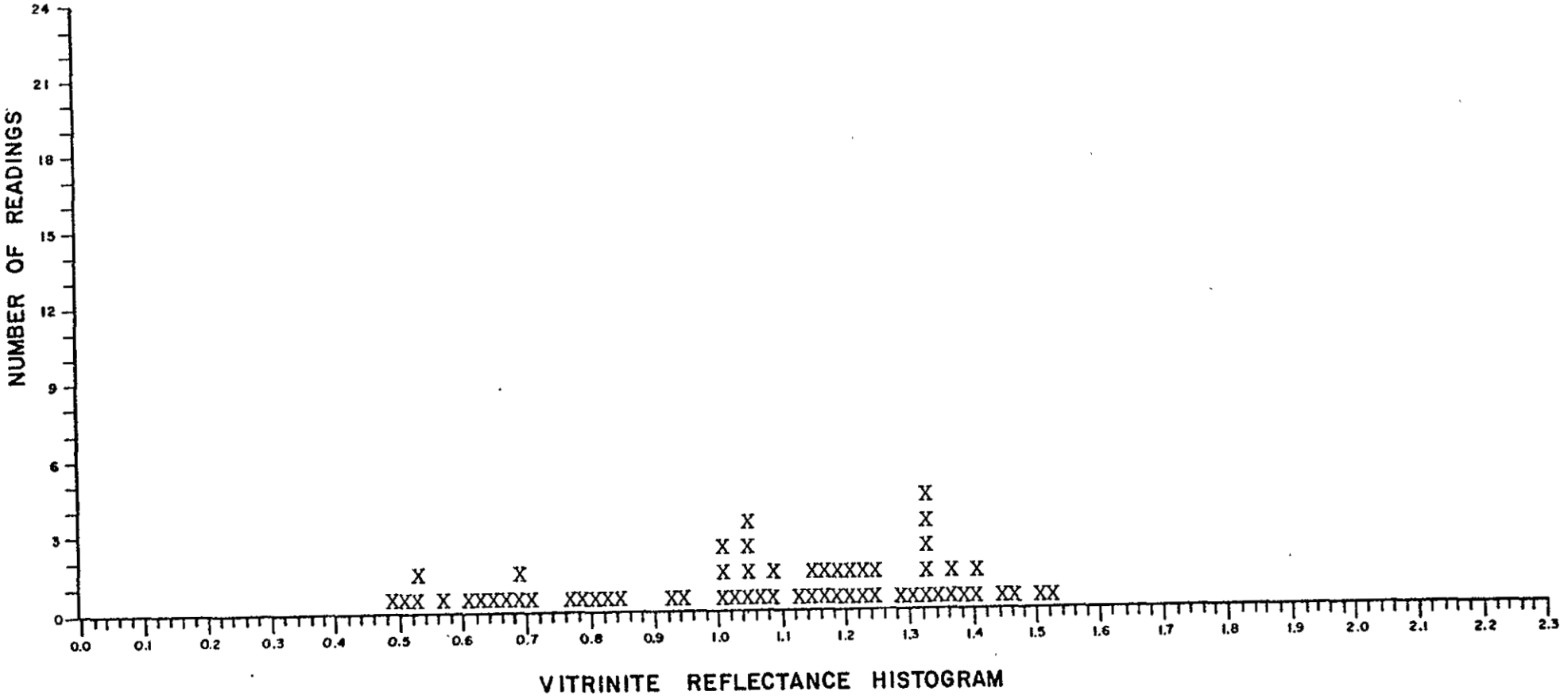
GEOCHEM NO. G259-001 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 1100

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60)

0.49	0.50	0.52	0.53	0.56	0.61	0.63	0.64	0.66	0.68	0.68	0.71	0.77	0.79		
0.81	0.83	0.85	0.92	0.95	1.00	1.01	1.01	1.02	1.04	1.04	1.05	1.05	1.06	1.08	1.09	1.13	1.14
1.15	1.16	1.17	1.18	1.18	1.20	1.21	1.22	1.23	1.24	1.24	1.29	1.31	1.32	1.32	1.33	1.33	1.33
1.34	1.36	1.37	1.39	1.40	1.41	1.45	1.46	1.50	1.53						

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	5	0.49	0.56	0.52	0.027	
(2)	14	0.61	0.95	0.75	0.110	
(3)	41	1.00	1.53	1.23	0.150	



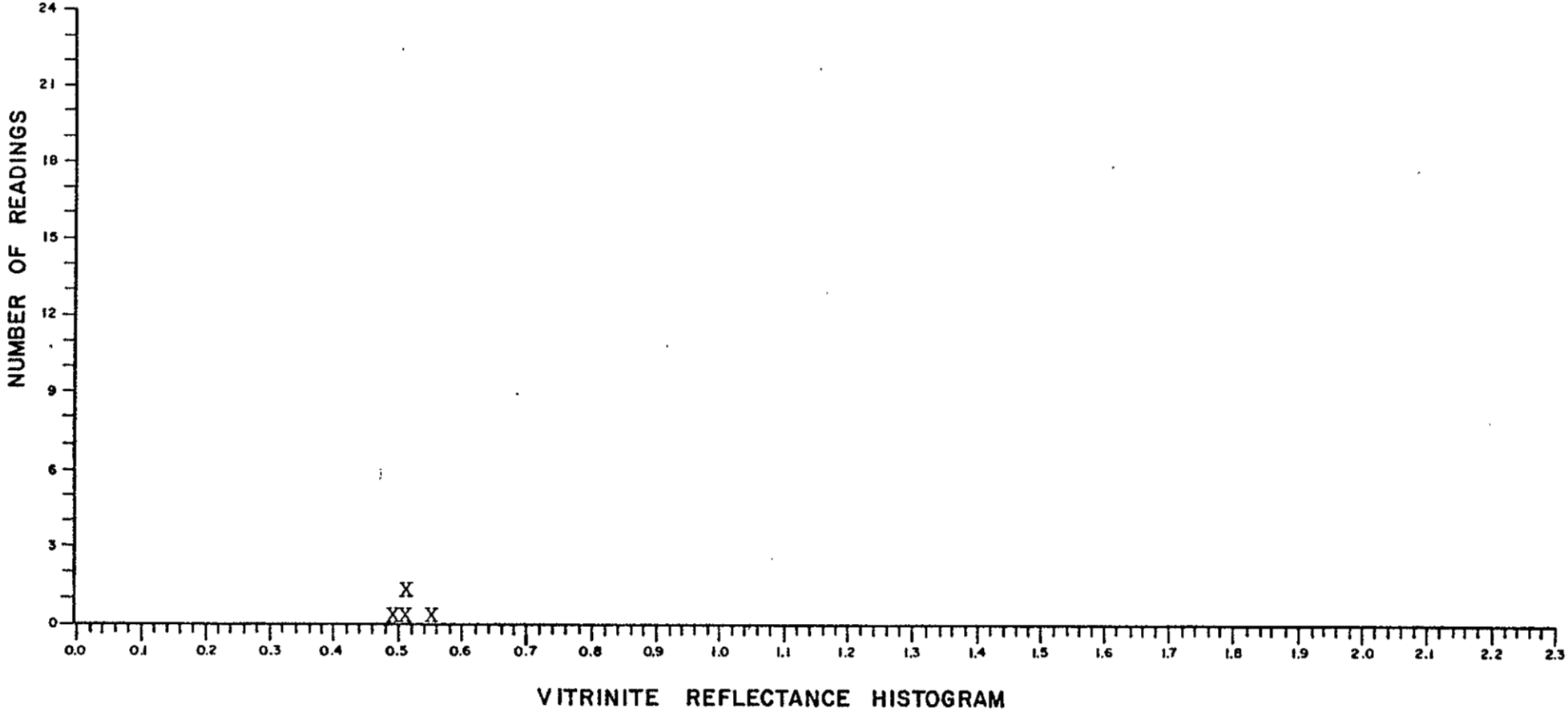
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. G259-019 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 2000

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 4) 0.49 0.50 0.51 0.54

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	4	0.49	0.54	0.51	0.022	

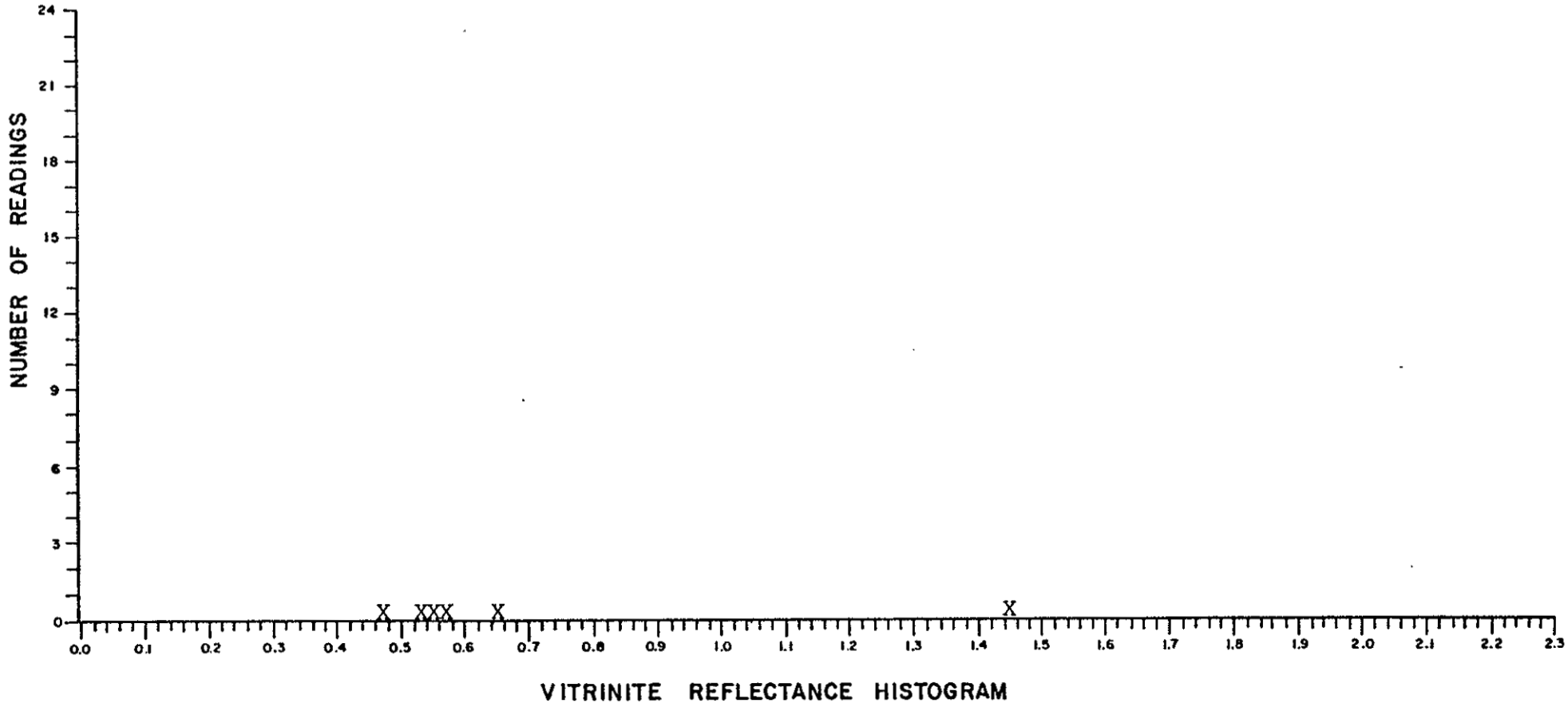


GEOCHEM NO. G259-045 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 3250

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 6) 0.47 0.52 0.54 0.57 0.64 1.44

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	5	0.47	0.64	0.55	0.063	
(2)	1	1.44	1.44	1.44	-	

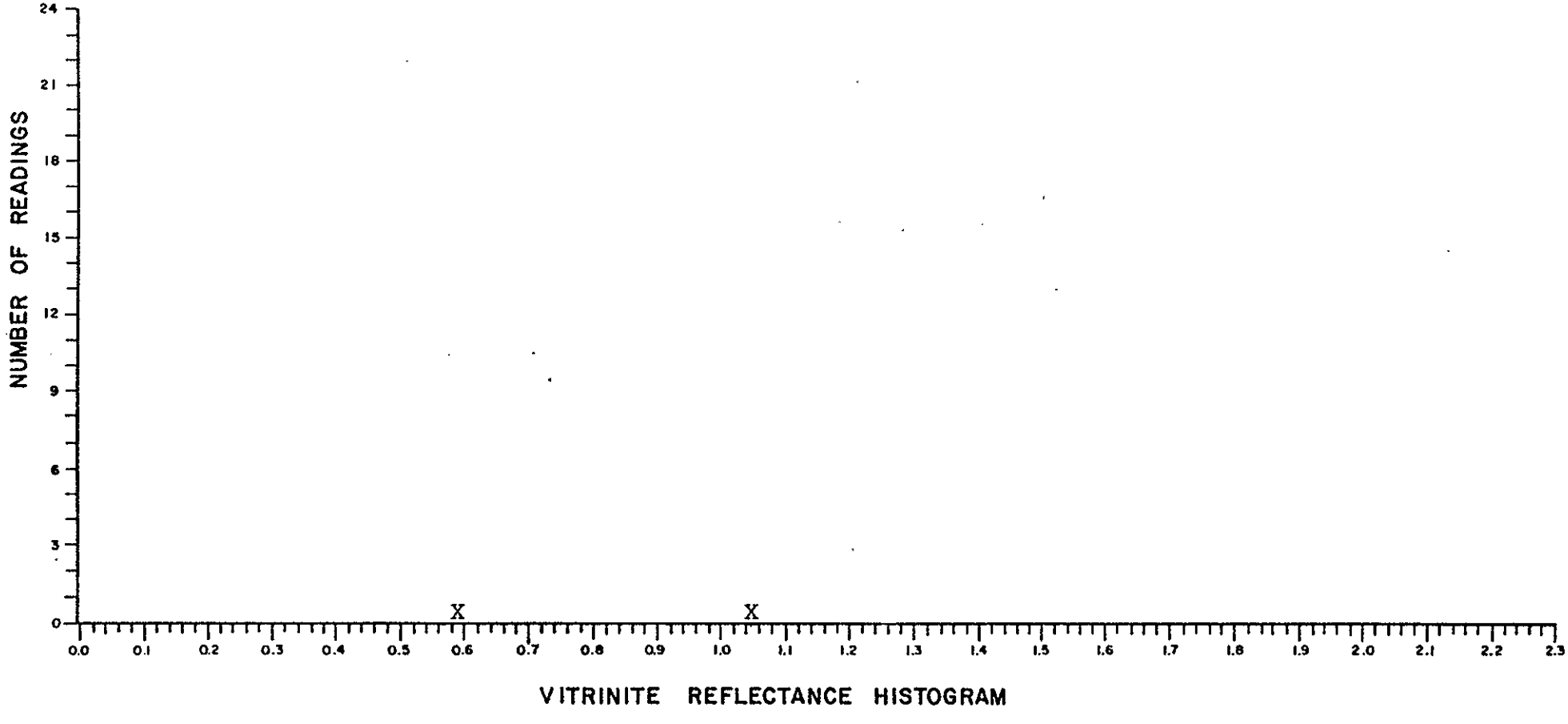


GEOCHEM NO. G259-047 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 3350

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 2) 0.59 1.05

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	1	0.59	0.59	0.59	-	
(2)	1	1.05	1.05	1.05	-	

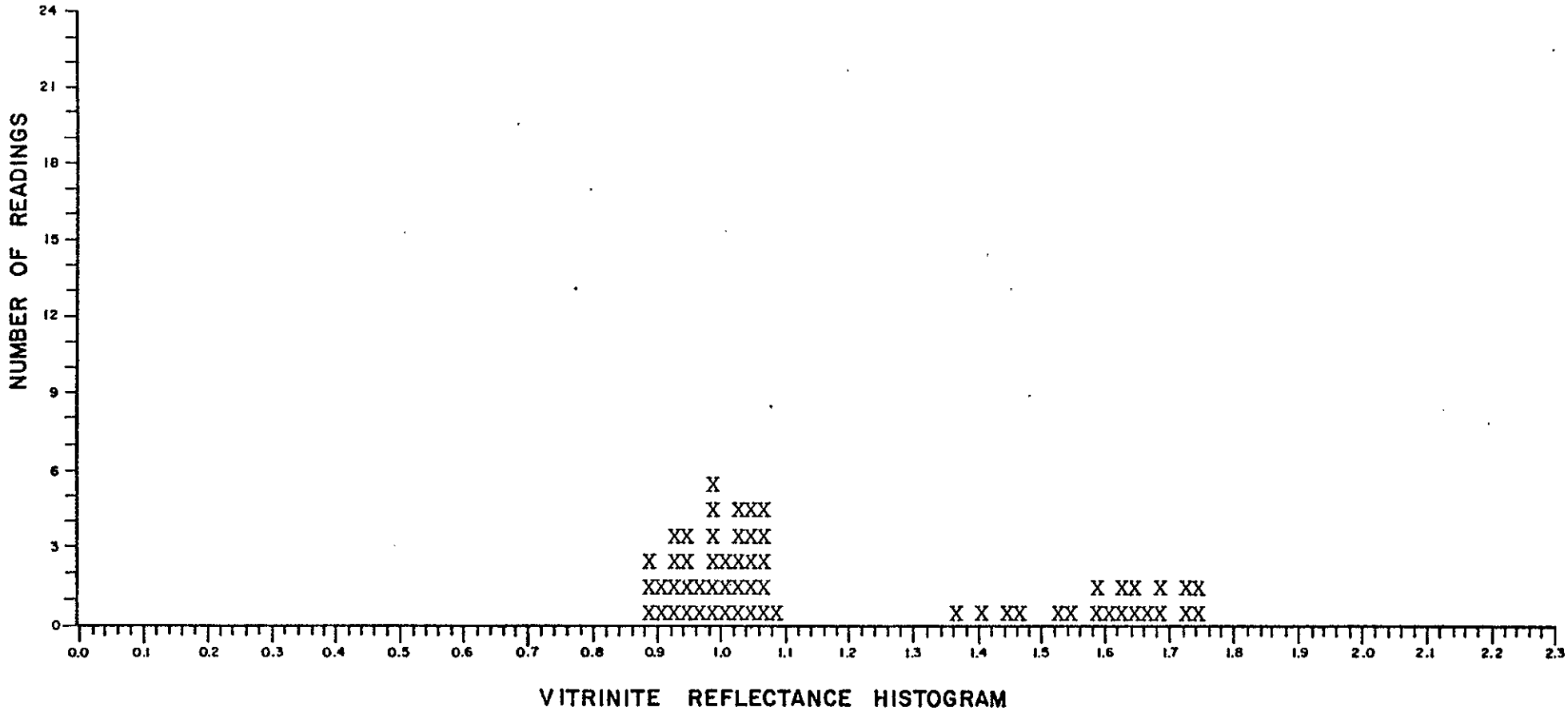


GEOCHEM NO. G259-053 TYPE OF SAMPLE: CTG DEPTH/SAMPLE NO. 3650

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.88 0.89 0.89 0.90 0.91 0.92 0.92 0.92 0.93 0.94 0.95 0.95 0.95 0.97
0.97 0.98 0.98 0.98 0.98 0.99 0.99 1.00 1.01 1.01 1.02 1.02 1.03 1.03 1.03 1.04 1.04 1.05
1.05 1.05 1.06 1.06 1.06 1.07 1.07 1.08 1.37 1.41 1.44 1.46 1.53 1.55 1.58 1.59 1.61 1.62
1.63 1.64 1.65 1.66 1.68 1.69 1.72 1.73 1.75 1.75

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	40	0.88	1.08	0.99	0.058	
(2)	20	1.37	1.75	1.60	0.113	

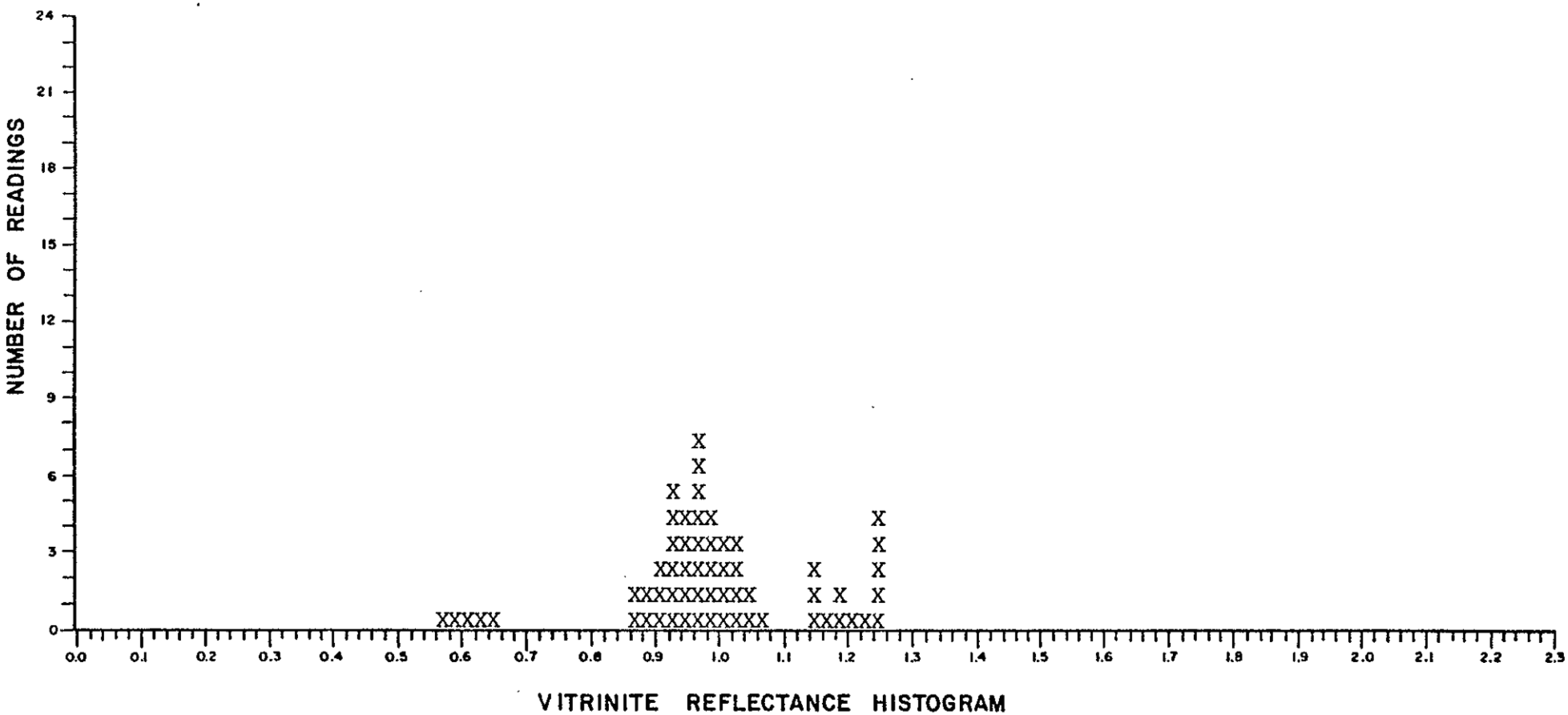


GEOCHEM NO. G259-061 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 4050

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.57 0.59 0.61 0.63 0.64 0.87 0.87 0.88 0.88 0.90 0.91 0.91 0.92 0.92
0.93 0.93 0.93 0.93 0.94 0.94 0.95 0.95 0.95 0.96 0.96 0.96 0.96 0.97 0.97 0.97 0.97 0.98
0.98 0.98 0.99 0.99 1.00 1.00 1.01 1.01 1.02 1.02 1.03 1.03 1.04 1.05 1.06 1.14 1.15 1.15
1.16 1.18 1.19 1.20 1.22 1.24 1.24 1.24 1.25 1.25

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	5	0.57	0.64	0.61	0.029	
(2)	42	0.87	1.06	0.96	0.049	
(3)	13	1.14	1.25	1.20	0.042	



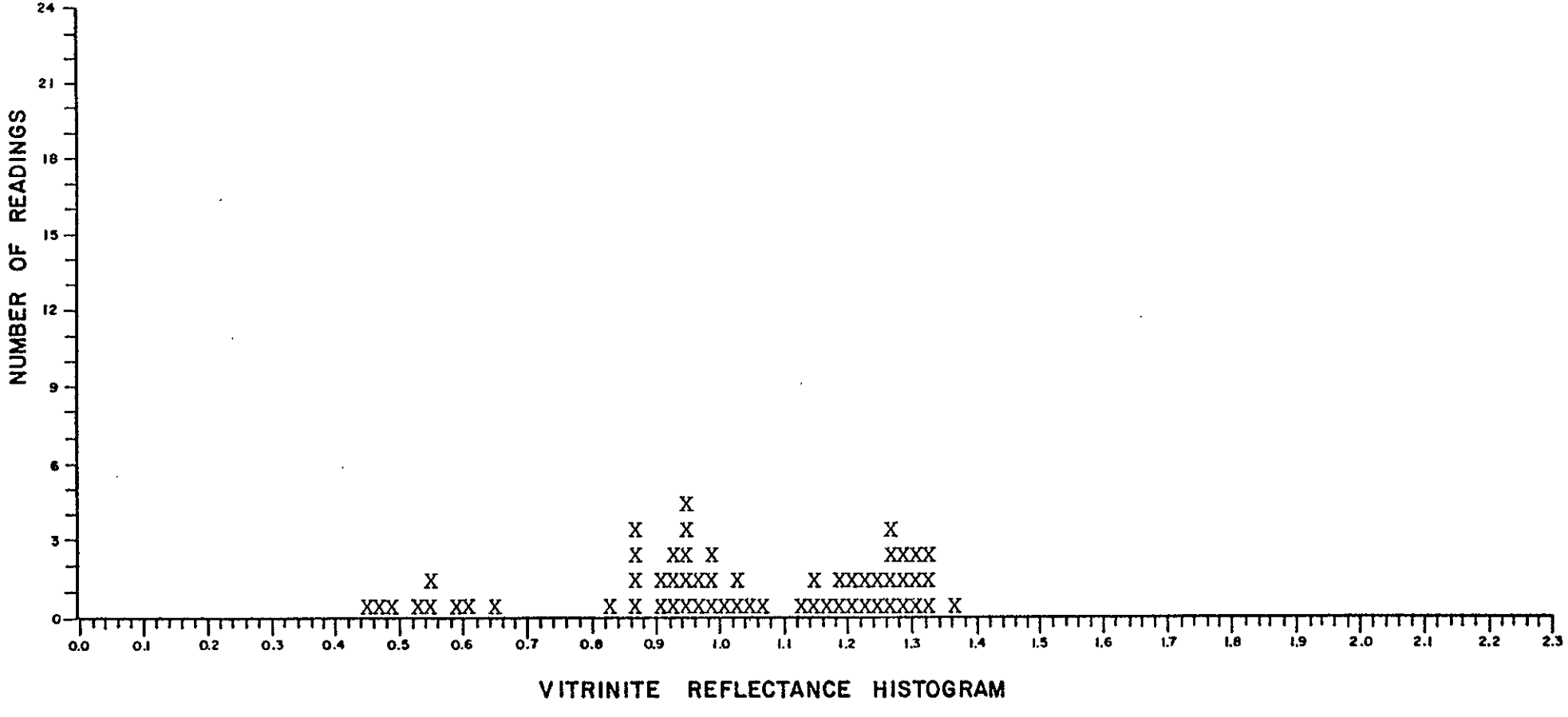
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. G259-067 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 4350

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.45 0.47 0.48 0.52 0.54 0.55 0.59 0.60 0.65 0.83 0.86 0.86 0.87 0.87
0.91 0.91 0.92 0.92 0.93 0.94 0.94 0.94 0.95 0.95 0.96 0.97 0.98 0.98 0.99 1.01 1.03 1.03
1.04 1.06 1.13 1.15 1.15 1.17 1.18 1.18 1.21 1.21 1.22 1.23 1.24 1.25 1.26 1.26 1.27 1.27
1.28 1.28 1.29 1.30 1.30 1.31 1.32 1.33 1.33 1.36

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	9	0.45	0.65	0.54	0.066	
(2)	25	0.83	1.06	0.95	0.061	
(3)	26	1.13	1.36	1.25	0.063	

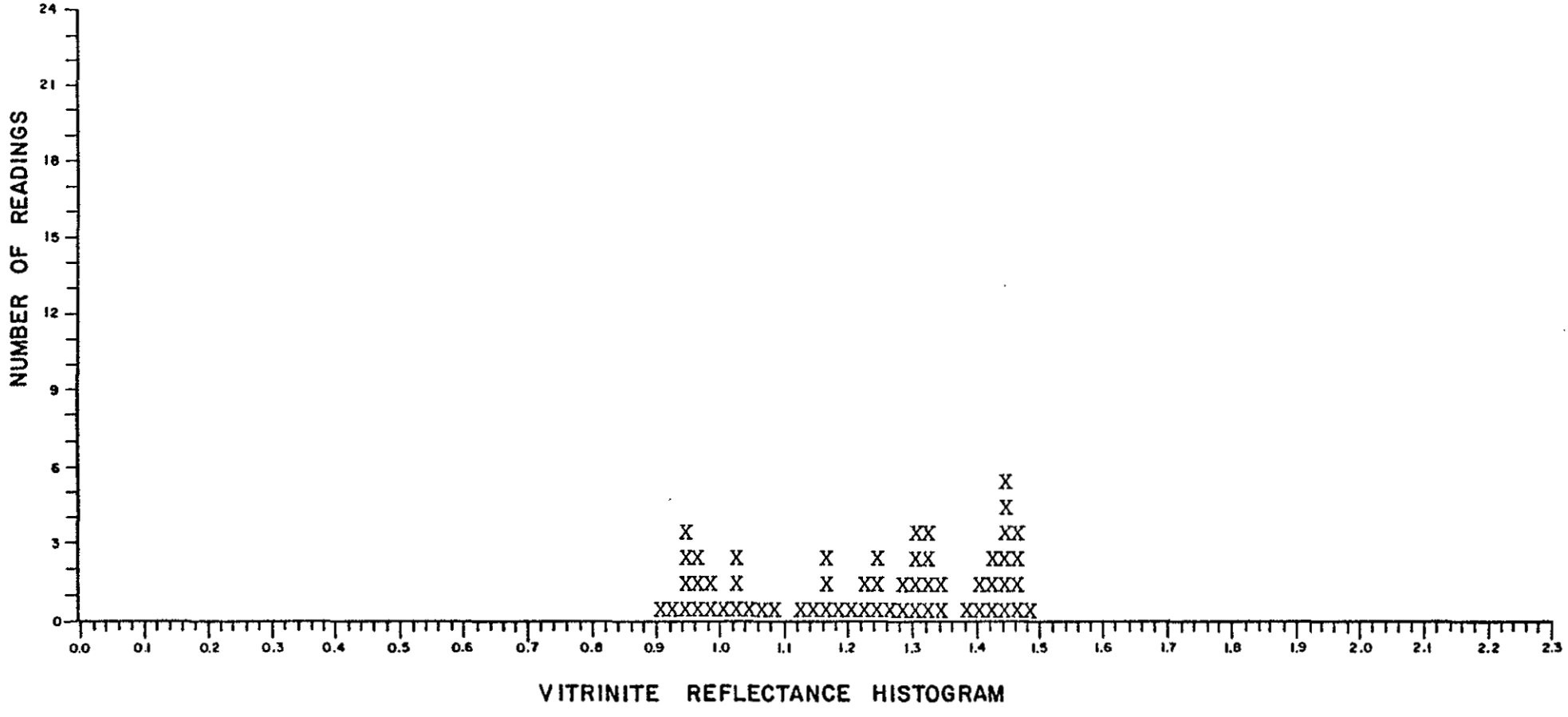


GEOCHEM NO. G259-071 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 4550

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.91 0.93 0.94 0.95 0.95 0.95 0.96 0.96 0.97 0.99 0.99 1.01 1.02 1.03
1.03 1.04 1.06 1.09 1.13 1.15 1.16 1.17 1.17 1.18 1.21 1.22 1.23 1.24 1.24 1.25 1.27 1.28
1.29 1.30 1.30 1.31 1.31 1.32 1.32 1.33 1.33 1.34 1.34 1.39 1.40 1.40 1.42 1.43 1.43 1.44
1.44 1.44 1.45 1.45 1.45 1.46 1.46 1.47 1.47 1.48

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	18	0.91	1.09	0.99	0.049	
(2)	42	1.13	1.48	1.33	0.106	

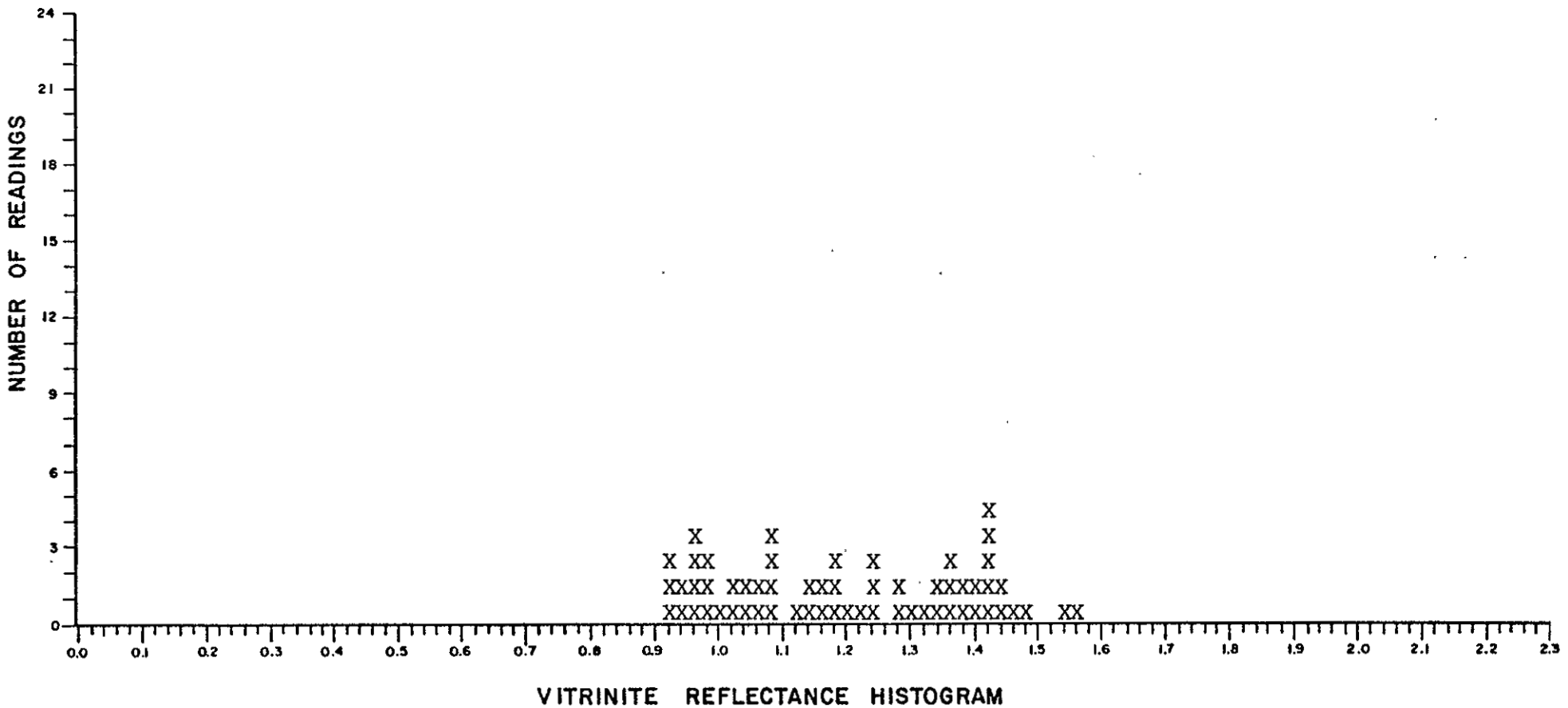


GEOCHEM NO. G259-075 TYPE OF SAMPLE: CTG DEPTH/SAMPLE NO. 4750

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.92 0.93 0.93 0.94 0.95 0.96 0.96 0.97 0.97 0.98 0.98 0.98 1.00 1.02
1.03 1.04 1.04 1.06 1.07 1.08 1.08 1.08 1.09 1.13 1.15 1.15 1.16 1.17 1.18 1.18 1.19 1.21
1.22 1.24 1.25 1.25 1.28 1.29 1.30 1.32 1.34 1.35 1.36 1.37 1.37 1.38 1.39 1.40 1.41 1.42
1.42 1.43 1.43 1.43 1.44 1.44 1.46 1.48 1.54 1.56

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	23	0.92	1.09	1.00	0.056	
(2)	37	1.13	1.56	1.33	0.118	



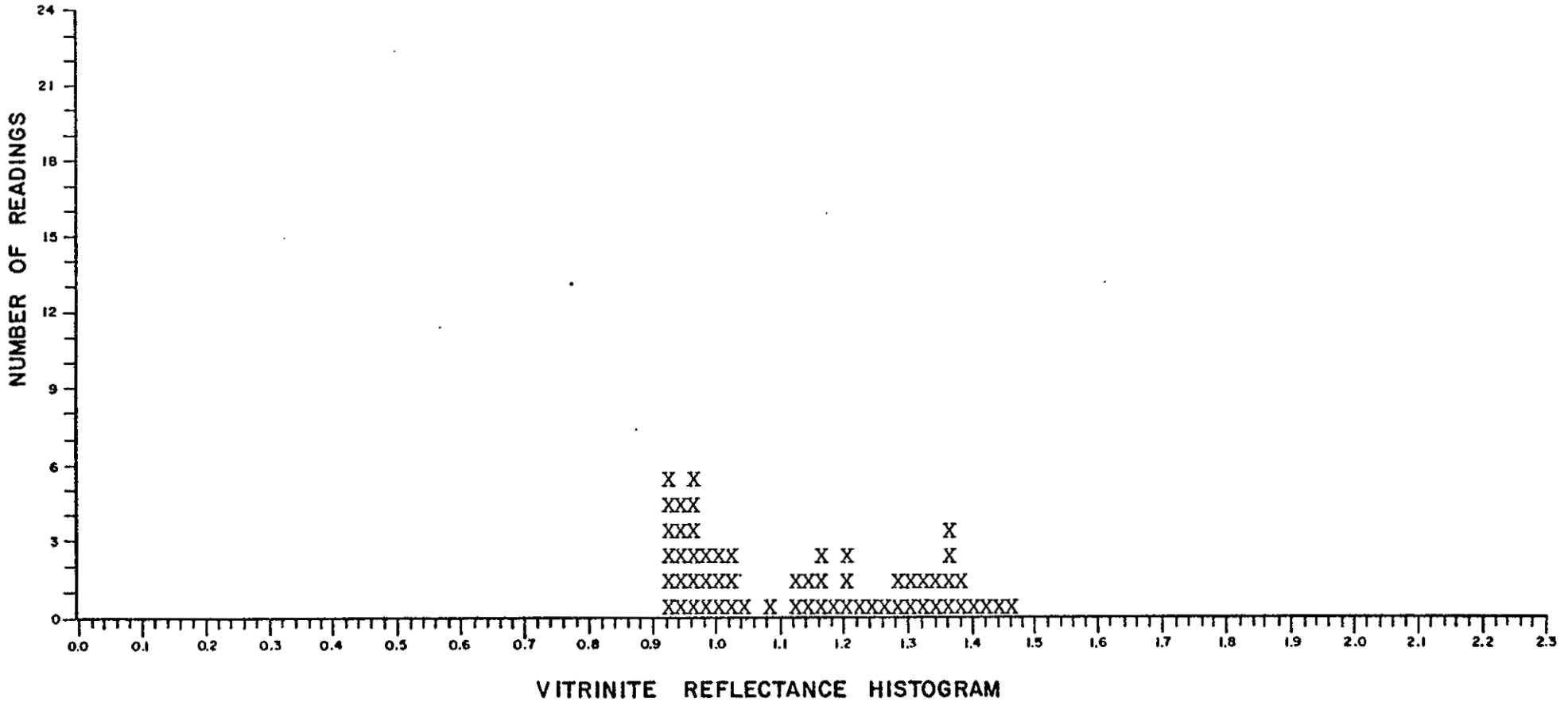
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. G259-081 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 5050

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.92 0.92 0.92 0.92 0.92 0.93 0.94 0.94 0.95 0.95 0.95 0.96 0.96 0.97
0.97 0.97 0.97 0.98 0.98 0.99 1.00 1.01 1.01 1.02 1.02 1.03 1.05 1.08 1.13 1.13 1.14 1.15
1.17 1.17 1.17 1.19 1.20 1.21 1.21 1.22 1.25 1.27 1.28 1.29 1.30 1.31 1.33 1.33 1.34 1.35
1.36 1.36 1.36 1.37 1.39 1.39 1.41 1.43 1.45 1.46

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	28	0.92	1.08	0.97	0.043	
(2)	32	1.13	1.46	1.29	0.100	



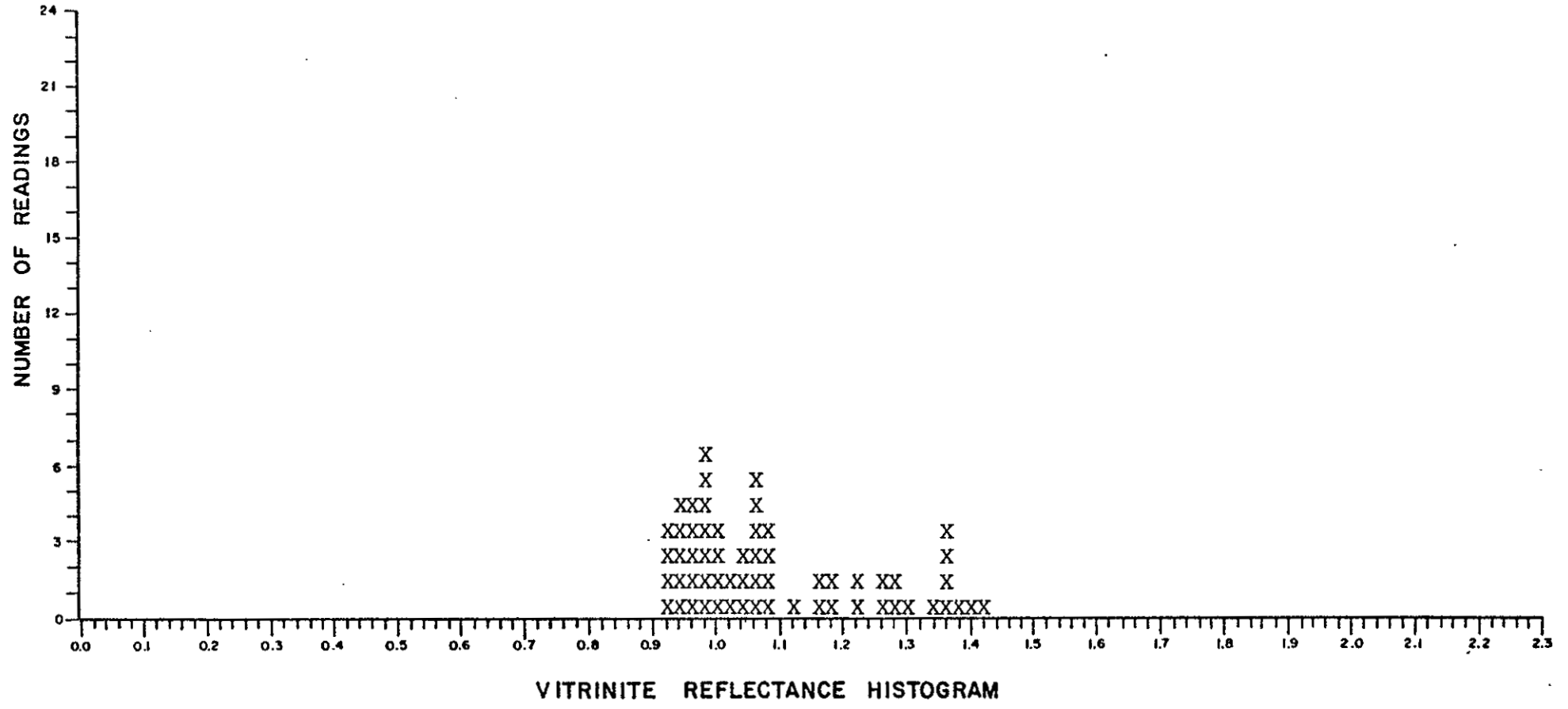
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. G259-087 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 5350

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.92 0.93 0.93 0.93 0.94 0.94 0.95 0.95 0.95 0.96 0.96 0.97 0.97 0.97
0.98 0.98 0.98 0.98 0.99 0.99 0.99 1.00 1.00 1.01 1.01 1.02 1.03 1.04 1.05 1.05 1.06 1.06
1.06 1.07 1.07 1.07 1.08 1.08 1.08 1.09 1.13 1.16 1.17 1.18 1.19 1.22 1.23 1.26 1.27 1.28
1.29 1.31 1.34 1.37 1.37 1.37 1.37 1.39 1.40 1.42

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	40	0.92	1.09	1.00	0.052	
(2)	20	1.13	1.42	1.29	0.091	

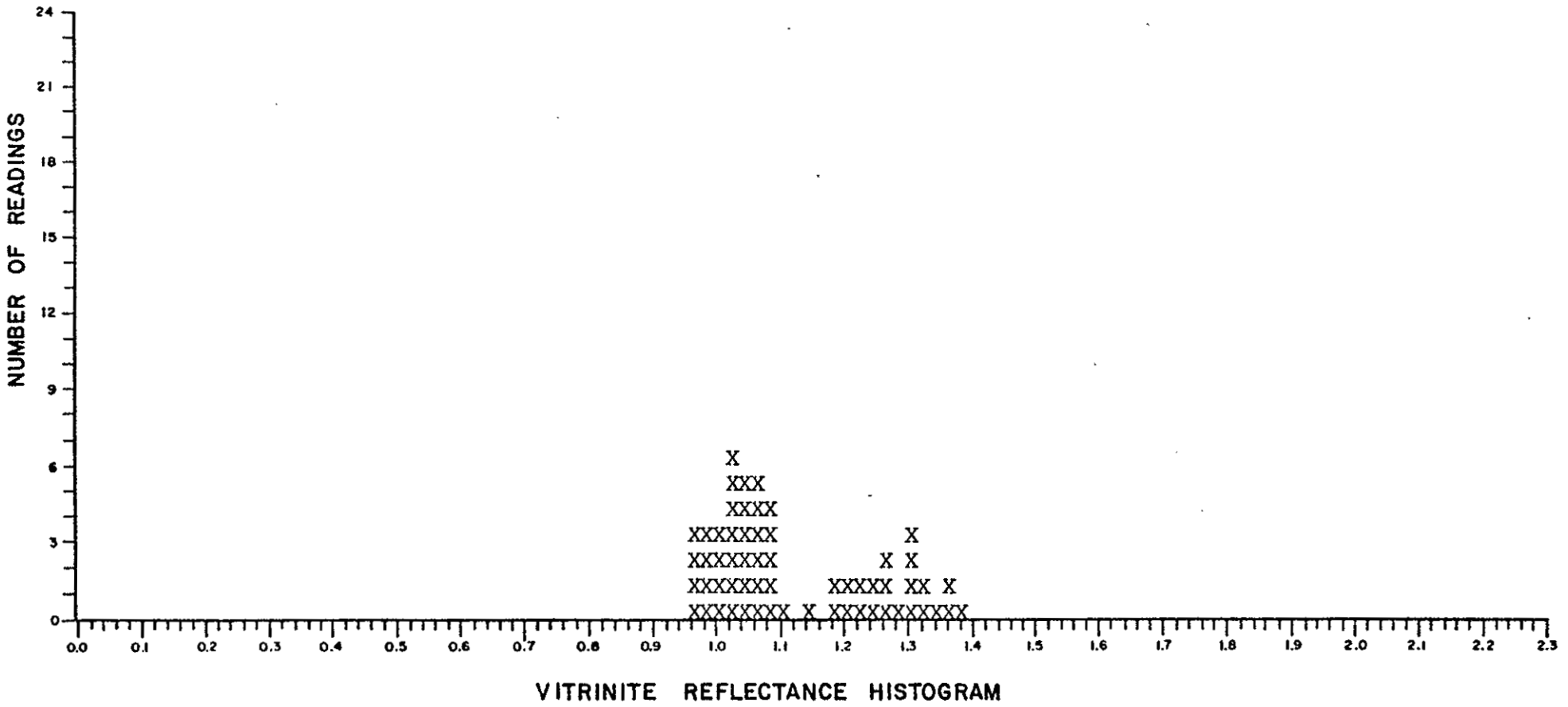


GEOCHEM NO. G259-093 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 5650

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.96 0.96 0.97 0.97 0.98 0.98 0.98 0.99 1.00 1.00 1.01 1.01 1.02 1.02
1.02 1.03 1.03 1.03 1.03 1.04 1.04 1.04 1.05 1.05 1.05 1.06 1.06 1.06 1.06 1.07 1.07 1.08
1.08 1.09 1.09 1.09 1.10 1.15 1.18 1.19 1.20 1.21 1.23 1.23 1.24 1.25 1.26 1.27 1.27 1.29
1.30 1.30 1.31 1.31 1.32 1.33 1.34 1.36 1.36 1.39

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	37	0.96	1.10	1.03	0.040	
(2)	23	1.15	1.39	1.27	0.063	

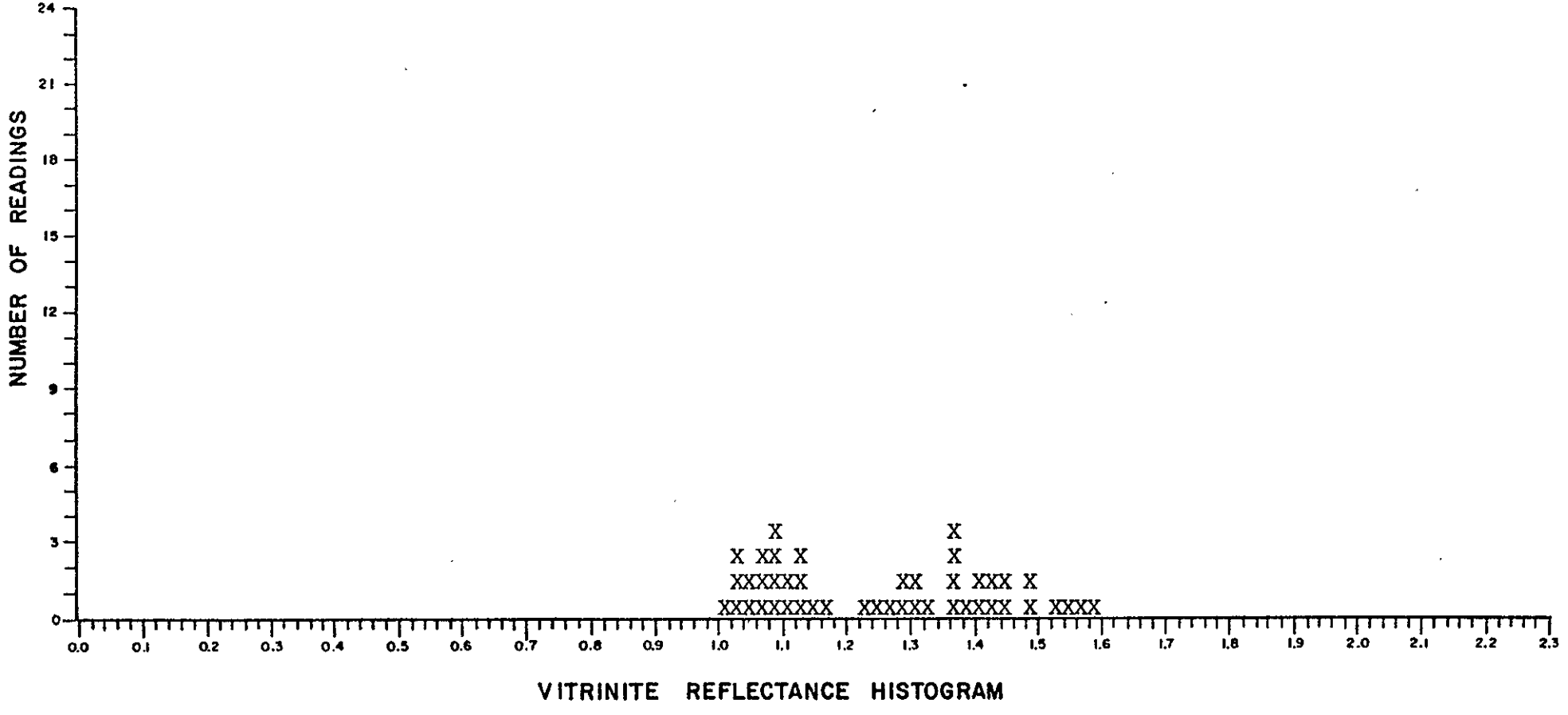


GEOCHEM NO. G259-099 TYPE OF SAMPLE: CTG DEPTH/SAMPLE NO. 5950

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 45) 1.00 1.02 1.03 1.03 1.04 1.04 1.06 1.06 1.07 1.08 1.09 1.09 1.09 1.10
1.10 1.12 1.13 1.13 1.14 1.16 1.23 1.24 1.26 1.29 1.29 1.30 1.31 1.33 1.36 1.36 1.36 1.37
1.38 1.41 1.41 1.42 1.43 1.44 1.45 1.49 1.49 1.52 1.55 1.56 1.59

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	20	1.00	1.16	1.08	0.044	
(2)	25	1.23	1.59	1.39	0.101	

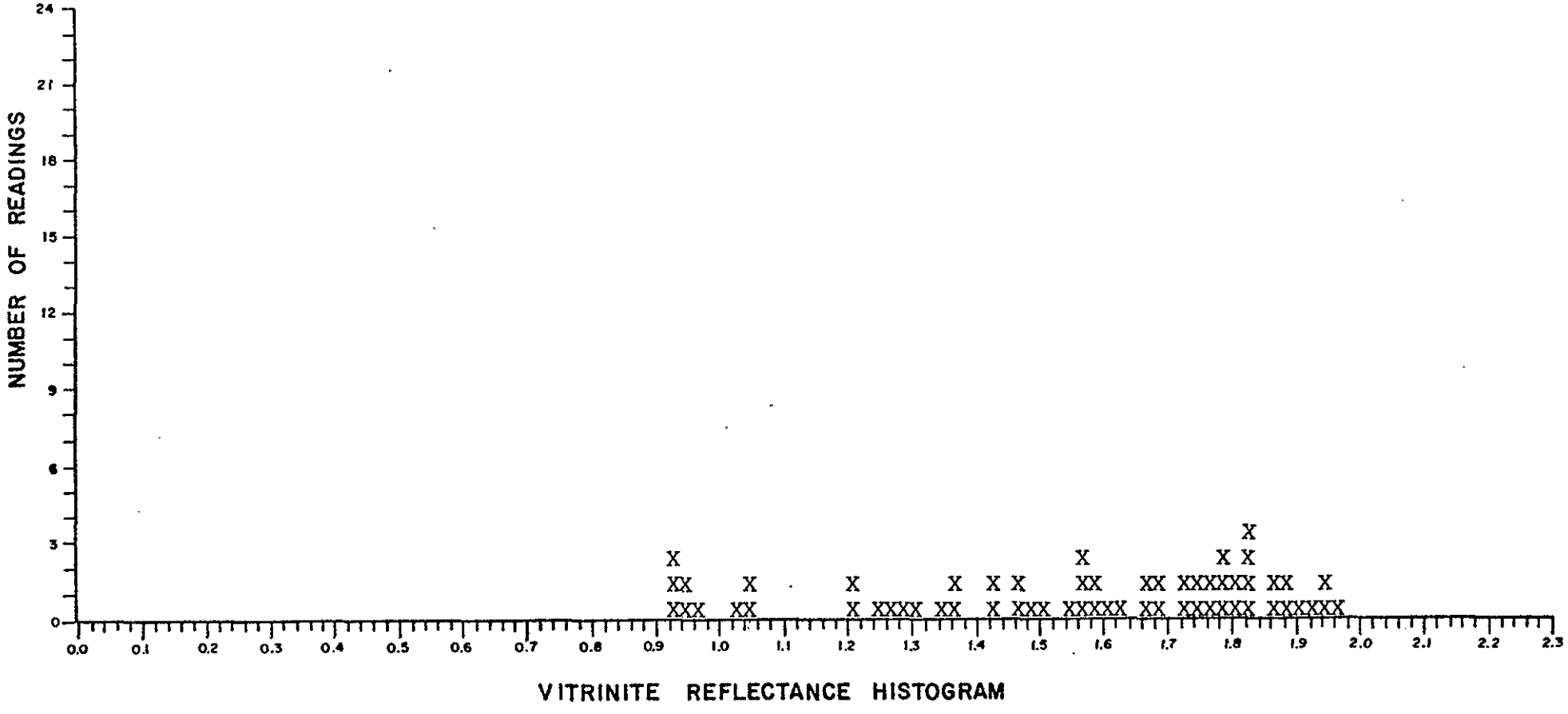


GEOCHEM NO. G259-103 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 6150

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.92 0.93 0.93 0.95 0.95 0.96 1.02 1.04 1.05 1.20 1.21 1.24 1.26 1.29
1.31 1.35 1.37 1.37 1.42 1.43 1.46 1.46 1.48 1.51 1.55 1.56 1.56 1.57 1.58 1.59 1.60 1.63
1.66 1.67 1.68 1.69 1.72 1.73 1.74 1.75 1.77 1.77 1.78 1.79 1.79 1.80 1.81 1.82 1.82 1.83
1.83 1.86 1.86 1.88 1.89 1.91 1.93 1.94 1.95 1.96

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	9	0.92	1.05	0.97	0.050	
(2)	14	1.20	1.48	1.35	0.096	
(3)	37	1.51	1.96	1.75	0.128	



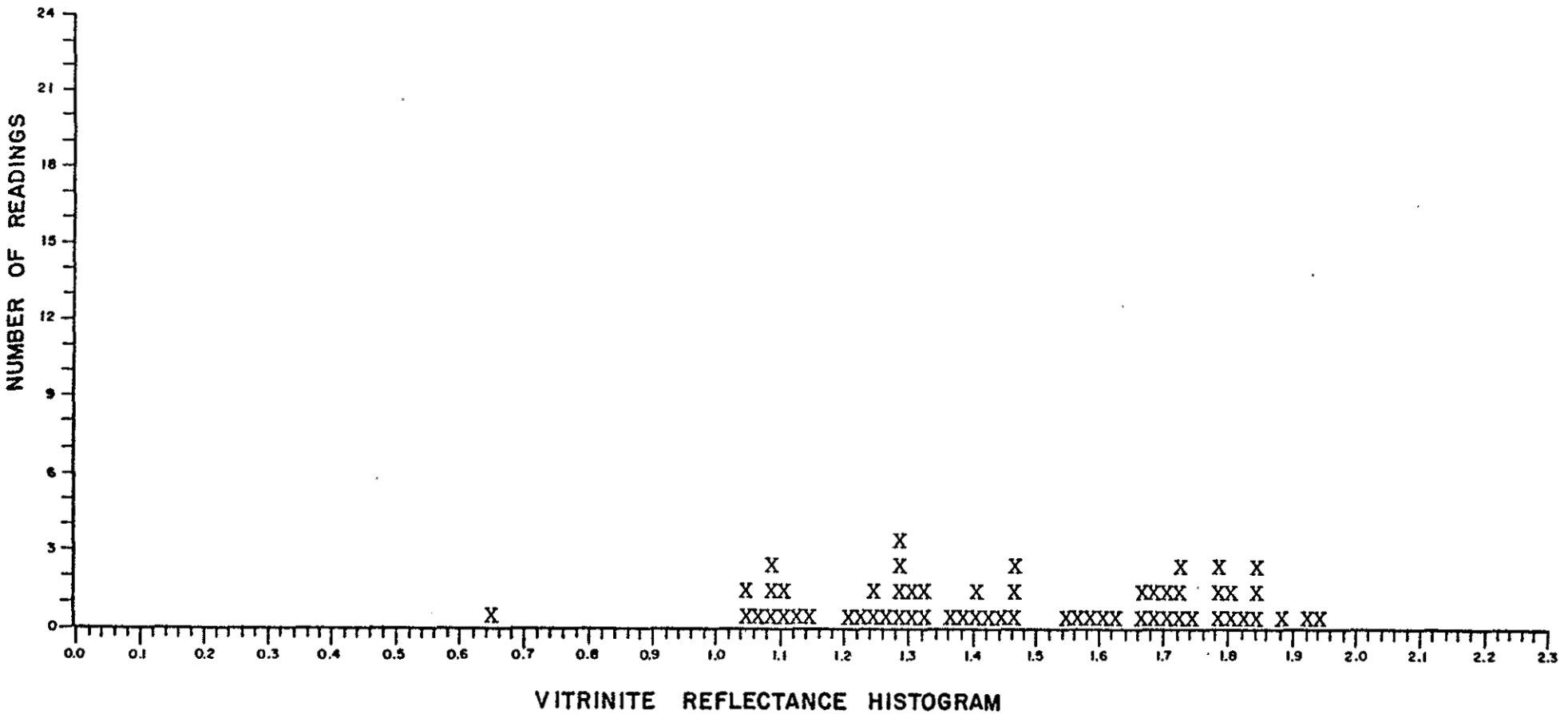
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. G259-104 TYPE OF SAMPLE: CTG DEPTH / SAMPLE NO. 6200

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.65 1.05 1.05 1.07 1.08 1.08 1.09 1.10 1.11 1.13 1.14 1.20 1.23 1.24
1.25 1.27 1.28 1.28 1.29 1.29 1.30 1.31 1.32 1.33 1.36 1.39 1.40 1.40 1.42 1.44 1.46 1.46
1.46 1.55 1.56 1.58 1.61 1.63 1.67 1.67 1.68 1.69 1.71 1.71 1.72 1.72 1.73 1.74 1.78 1.79
1.79 1.80 1.81 1.83 1.84 1.84 1.85 1.89 1.92 1.95

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	1	0.65	0.65	0.65	-	
(2)	10	1.05	1.14	1.09	0.031	
(3)	49	1.20	1.95	1.56	0.226	

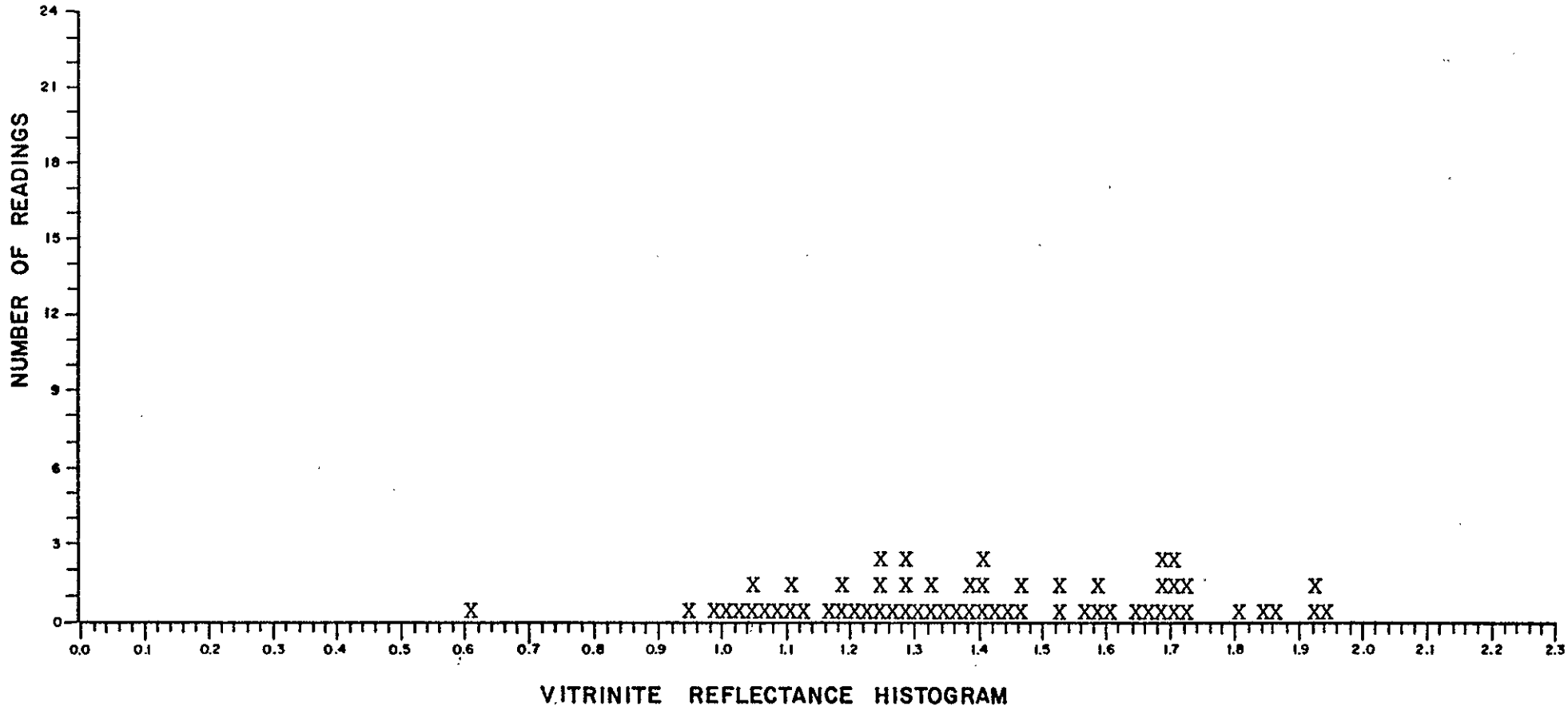


GEOCHEM NO. G259-105 TYPE OF SAMPLE: CTG DEPTH/SAMPLE NO. 6250

CLIENT'S NAME GETTY OIL WELL NAME West Elephant Butte Federal 7 No. 1

(NO. OF READINGS = 60) 0.60 0.95 0.99 1.01 1.03 1.04 1.05 1.07 1.09 1.10 1.11 1.12 1.17 1.18
1.19 1.20 1.22 1.24 1.25 1.25 1.27 1.28 1.28 1.29 1.31 1.33 1.33 1.35 1.36 1.38 1.38 1.40
1.40 1.41 1.43 1.45 1.46 1.47 1.53 1.53 1.56 1.58 1.59 1.61 1.65 1.67 1.68 1.68 1.69 1.70
1.71 1.71 1.73 1.73 1.80 1.85 1.87 1.92 1.93 1.95

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	1	0.60	0.60	0.60	-	
(2)	11	0.95	1.12	1.05	0.054	
(3)	48	1.17	1.95	1.50	0.226	



GETTY OIL COMPANY

WEST ELEPHANT BUTTE FEDERAL 7 NO.1

by

GEOCHEM LABORATORIES, INC.
1143-C Brittmoore Road
Houston, Texas 77043

Job No. : G259
Date: April 8, 1983
Reporting: Rudolph R. Schwarzer, Ph.D
Thomas J. Sciff, Jr.

TABLE OF CONTENTS

INTRODUCTION

This report on Getty Oil Company's West Elephant Butte Federal 7 No.1 Well is composed of three sections as described below.

SECTION I - Computerized Geochemical Interpretations

A. A computerized formation by formation interpretation is using selected goechemical data that are available on all samples. The geochemical interpretation of each formation uses the following geochemical information from samples within a given formation:

(1) sample lithology

(2) thermal maturity (TAI)

(3) total organic carbon content (TOC)

(4) volatile hydrocarbon (S1 peak)

(5) kerogen type

The formation interpretations are computed for a shale source, a carbonate source, and a sand/silt nonsource when present. The formation interpretation section is comprised of three tables:

Table I Foramtion Interpretation

Table II Formation Summary Interpretation

Table III Formation Summary of Geochemical Data

B. A computerized sample by sample interpretation is presented using selected geochemical data that are available on all samples. The geochemical interpretation of each sample uses the following geochemical information:

(1) sample lithology

(2) thermal maturity (TAI)

(3) total organic crbon content (TOC)

(4) volatile hydrocarbon (S1 peak)

(5) kerogen type

The sample interpretation section is composed of three tables and two figures:

Table IV	Sample Interpretation
Table V	Sample Summary Interpretation
Table VI	Sample Summary of Geochemical Data
Figure 1	Thermal Alteration Index (TAI) Maturitry Profile
Figure 2	Vitrinite Reflectance (% Ro) Maturity Profile (No data; samples not run)

SECTION II

Section II consists of a series of data tables which display the original data along with all tops (formational, zone, paleontological, and seismic) inserted in proper order. The data tables included are as follows:

Table I	C1-C7 Hydrocarbon Analyses
	A. Air Space
	B. Cuttings Gas
	C. Air Space and Cuttings Gas
Table II	Summary of Organic Carbon and Visual Kerogen Analysis
Table III	(No Data)
Table IV	(No Data)
Table V	(No Data)
Table VI	Vitrinite Reflectance Summary
Table VII	Results of Rock-Eval Pyrolysis

SECTION III Data Plots (separate)

A. A series of large computer generated diagrams of the geochemical data plotted in well profile format is provided. The sample lithology and formational tops are presented in every plot. The diagrams are labeled as follows:

Figure 1 Summary of Organic Analyses - C1-C7 Hydrocarbons

Figure 2 Summary of Organic Analysis - C4-C7 Hydrocarbons (no data)

Figure 3 Summary of Organic Analyses - Source Character

Figure 4 C15+ Paraffin-Naphthene Gas Chromatograms (reduced)/ with lithology diagram (no data)

Figure 5 Thermal Maturity Profiles

Figure 6 Summary of Pyrolysis Analyses

Figure 7B Tissot Diagram - Hydrogen Index vs. Oxygen Index

B. Other Computer Generated Plots

1. GEOCHEM LOG

2. Cross Sections displaying the geochemical data

TABLE OF FORMATION TOPS

DEPTH (Feet)	FORMATION
55	Tertiary
581	Cretaceous
1055	Permian
3328	Pennsylvanian
6110	Mississippian
6244	Ordovician
6925	Cambrian
7069	Precambrian
7230	T.D.

Simplified Flow Diagram

STEP I/DATA INPUT

1. Sample ID
2. Depth
3. Lithology
   a. % Sandstone (Ss)
   b. % Siltstone (St)
   c. % Shale (Sh)
   d. % Carbonate (Cb)
   e. % Evaporite (E)
   f. % Coal (C)
   g. % Other (Ot)
   h. % Metamorphic (M)
4. Geochemical parameters
   a. Pyrolysis data
      1. Volatile hydrocarbon (S1)
      2. Generated hydrocarbon (S2)
      3. Temperature (°C) of S2 peak (TMAX)
   b. Total organic carbon (TOC)
   c. Kerogen type
      1. % Amorphous (Am)
      2. % Herbaceous (H)
      3. % Woody (W)
      4. % Coaly (C)
   d. Thermal maturity indicators
      1. Thermal alteration index (TAI)
      2. Vitrinite reflectance (%Ro)

Output

Formations:
Table III
Samples:
Table VI
Fig. 1
Fig. 2

STEP II/LITHOLOGY CHECK

If the sample is uninterpretable because it contains coal, mud additives, or metamorphics, a statement is printed to that effect. If a significant portion of the sample is composed of "other" lithologies, the interpretation is referred to a footnote. If the sample is composed of 60% or more of either source rocks (shale and/or carbonate) or nonsource rocks (siltstones and/or sandstones) the sample is interpreted in Step III below.

STEP III/INTERPRETATION PROCEDURES

Interpretations are based on the following parameters:

1. Lithology
2. Thermal maturity using TAI
3. Total organic carbon (TOC)
4. Volatile hydrocarbon (S1)
5. Kerogen type

If a particular sample lacks only a TAI value, a TAI value is taken from a three term moving averge curve (Figure 1). The descriptive terminology used relative to the parameter values is given below.

Output

Formations
Table I
Table II
Samples
Table IV
Table V

INTERPRETIVE DESCRIPTIVE TERMINOLOGY

Thermal Alteration Index (TAI)

Value	Descriptive Terminology
1.0 - 1.7	Immature
1.8 - 2.1	Moderately Immature
2.2 - 2.5	Moderately Mature
2.6 - 3.5	Mature
3.6 - 4.1	Very Mature
4.2 - 4.9	Severely Altered
$\geq$ 5.0	Metamorphosed

Value	Associated Hydrocarbon Type
1.3 - 1.5	Biogenic Gas
1.5 - 2.2	Biogenic Gas and Immature Oil
2.2 - 2.5	Immature Heavy Oil
2.5 - 3.2	Mature Oil
3.2 - 3.4	Mature Oil, Condensate, and Wet Gas
3.4 - 3.8	Condensate and Wet Gas
$\geq$ 3.8	Petrogenic Methane Gas

Total Organic Carbon (TOC)

Value in %	Descriptive Terminology	
	Shale	Carbonate
$\leq$ 0.12	Poor	Poor
0.13 - 0.25	Poor	Fair
0.26 - 0.50	Poor	Good
0.51 - 1.00	Fair	Very Good
1.01 - 2.00	Good	Excellent
2.01 - 4.00	Very Good	Excellent
$\geq$ 4.00	Excellent	Excellent

Volatile Hydrocarbon (S1)

Value in ppm	Descriptive Terminology
< 200	Very Poor
201 - 400	Poor
401 - 800	Fair
801 - 1600	Good
1601 - 3200	Very Good
> 3200	Excellent

Kerogen Oil/Gas Factor

% Oil = (% Am) + 0.6 (% H) + 0.3 (%W) + 0.1 (% C)

% Gas = 100 - % Oil

Vitrinite Reflectance (% Ro)

Value	Descriptive Terminology
0.0 - 0.42	Immature
0.43 - 0.55	Moderately Immature
0.56 - 0.80	Moderately Mature
0.81 - 1.62	Mature
1.63 - 2.37	Very Mature
2.38 - 4.50	Severely Altered
> 4.50	Metamorphosed

Value	Associated Hydrocarbon Type
0.30 - 0.35	Biogenic Gas
0.35 - 0.60	Biogenic Gas and Immature Oil
0.60 - 0.80	Immature Heavy Oil
0.80 - 1.20	Mature Oil
1.20 - 1.50	Mature Oil, Condensate and Wet Gas
1.50 - 2.00	Condensate and Wet Gas
$\geq$ 2.00	Petrogenic Methane Gas

TABLE I

FORMATION INTERPRETATION

This table gives a formation by formation interpretation based on the following parameters:

(1) Lithology
(2) Thermal alteration index (TAI)
(3) Total organic carbon (TOC)
(4) Volatile hydrocarbon (S1)
(5) Kerogen type

If a TAI value is lacking for an otherwise interpretable sample, a TAI value is taken from a three term moving average plot of all the TAI data for this well (see Figure 1).

The kerogen type oil/gas factor expressed as a percentage should be used as a modifier to the interpretation; i.e., a high oil factor will enhance the oil quality of the sample whereas correspondingly, a high gas factor will enhance the gas ratio of the sample and diminish the oil prospectiveness.

WELL NAME: WEB FEDRL 7 NO. 1

FORMATION INTERPRETATION*

GEOCHEM SAMPLE NUMBER***	DEPTH	INTERPRETATION
	55	---------- TOP OF TERTIARY ----------
	581	---------- TOP OF CRETACEOUS ----------
	1055	---------- TOP OF PERMIAN ----------
03SH	1055- 3328	SHALE , MATURE NONSOURCE FOR OIL AND ASSOCIATED GAS KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 64% GAS TYPE 36%
03CB	1055- 3328	CARB , MODERATELY MATURE POOR IMMATURE OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 68% GAS TYPE 32%
03NS	1055- 3328	SAND NONSOURCE - NO EVIDENCE OF RESERVOIRED HYDROCARBON KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 75% GAS TYPE 25%
	3328	---------- TOP OF PENNSYLVANIAN ----------
04SH	3328- 6110	SHALE , MATURE VERY POOR OIL SOURCE - GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 54% GAS TYPE 46%
04CB	3328- 6110	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 63% GAS TYPE 37%
	6110	---------- TOP OF MISSISSIPPIAN ----------
	6244	---------- TOP OF ORDOVICIAN ----------
	6925	---------- TOP OF CAMBRIAN ----------
	7069	---------- TOP OF PRE-CAMBRIAN ----------

* Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** All footnotes typed on separate sheets.
*** Sample Type: CB-Carbonate Source, SH-Shale Source, NS-Sand/Silt Non-Source.

TABLE II

FORMATION SUMMARY INTERPRETATION

This table gives a formation by formation interpretation of each parameter used in Table I. The descriptive terminology used for each parameter is listed in the introduction.

FORMATION SUMMARY INTERPRETATION*

GEOCHEM SAMPLE NUMBER****	DEPTH	LITHOLOGY	TAI	THERMAL*** MATURITY	%R0	TOC RICHNESS	HC RICHNESS	PRODUCTIVITY INDEX	% OIL FACTOR	% GAS FACTOR
	55	---------- TOP OF TERTIARY ----------								
	581	---------- TOP OF CRETACEOUS ----------								
	1055	---------- TOP OF PERMIAN ----------								
03SH	1055- 3328	SHALE	M	M		POOR	VERY POOR	0.00	64	36
03CB	1055- 3328	CARB	MM	MM		FAIR	VERY POOR	0.23	68	32
03NS	1055- 3328	SAND	MM	MI		POOR	VERY POOR	0.00	75	25
	3328	---------- TOP OF PENNSYLVANIAN ----------								
04SH	3328- 6110	SHALE	M	M		GOOD	VERY POOR	0.05	54	46
04CB	3328- 6110	CARB	M	M		GOOD	VERY POOR	0.09	63	37
	6110	---------- TOP OF MISSISSIPPIAN ----------								
	6244	---------- TOP OF ORDOVICIAN ----------								
	6925	---------- TOP OF CAMBRIAN ----------								
	7069	---------- TOP OF PRE-CAMBRIAN ----------								

*Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** Value taken from a 3 term running average for all values of this parameter.
*** Thermal Maturity Abbreviations: I=Immature, MI=Moderately Immature, MM=Moderately Mature, M=Mature, VM=Very Mature, SA=Severly Altered, MT=Metamorphosed.
**** Sample Type: CB-Carbonate Source, SH-Shale Source, NS-Sand/Silt Non-Source.
***** All footnotes typed on separate sheets.

TABLE III

FORMATION SUMMARY OF GEOCHEMICAL DATA

This table gives a formation by formation listing of the data used in the computerized interpretations. The information given for each formation is as follows:

(1) Sample number
(2) Depth
(3) Lithology
(4) Volatile hydrocarbon (S1, ppm)
(5) Generated hydrocarbon (S2, ppm)
(6) Maximum temperature of S2 peak
(7) Total organic carbon (TOC, %)
(8) Kerogen composition (amorphous (Am), herbaceous (H), woody (W), and coaly (C))
(9) Thermal alteration index (TAI)
(10) Vitrinite reflectance (%Ro)

FORMATION SUMMARY OF GEOCHEMICAL DATA

FORMATION NAME: TERTIARY (55- 581)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	NOT PRESENT IN THIS FORMATION													
CARBONATE SOURCE	NOT PRESENT IN THIS FORMATION													
SAND-SILT NON-SOURCE	NOT PRESENT IN THIS FORMATION													

FORMATION NAME: CRETACEOUS (581- 1055)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	NOT PRESENT IN THIS FORMATION													
CARBONATE SOURCE	NOT PRESENT IN THIS FORMATION													
SAND-SILT NON-SOURCE	NOT PRESENT IN THIS FORMATION													

FORMATION NAME: PERMIAN (1055- 3328)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	(2/ 11)													
AVG		0.	10.	210.	292	0.05	2.7	0.86	40	20	40	0	64	36
MIN		0.	10.	210.	248	0.01	2.7	0.66						
MAX		0.	10.	210.	336	0.08	2.8	1.05						
CARBONATE SOURCE	(10/ 53)													
AVG		9.	30.	176.	321	0.17	2.3	0.58	46	19	36	0	68	32
MIN		0.	0.	80.	264	0.08	2.1	0.51						
MAX		40.	70.	370.	444	0.29	2.8	1.05						

* Number of samples and percent occurrence in this Formation.
** Value taken from a 3 term smoothing for all values for this parameter.
*** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite.

WELL NAME: WEB FEDRL 7 NO. 1

FORMATION SUMMARY OF GEOCHEMICAL DATA

FORMATION NAME: PERMIAN (1055- 3328)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN %A	%H	%H	%C	%OIL FACTOR	%GAS FACTOR
SAND-SILT NON-SOURCE	(7/ 37)													
AVG		0.	4.	144.	309	0.10	2.5	0.52	50	33	17	0	75	25
MIN		0.	0.	80.	234	0.07	2.1	0.51						
MAX		0.	10.	210.	445	0.14	2.8	0.52						

FORMATION NAME: PENNSYLVANIAN (3328- 6110)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	(12/ 48)													
AVG		12.	240.	186.	440	1.10	2.8	0.99	10	57	33	0	54	46
MIN		0.	10.	90.	275	0.21	2.7	0.96						
MAX		60.	800.	280.	501	3.02	2.9	1.00						
CARBONATE SOURCE	(13/ 52)													
AVG		5.	53.	192.	354	0.29	2.9	1.02	36	26	38	0	63	37
MIN		0.	10.	50.	275	0.06	2.8	0.95						
MAX		30.	100.	280.	445	0.48	3.0	1.05						

SAND-SILT NON-SOURCE NOT PRESENT IN THIS FORMATION

FORMATION NAME: MISSISSIPPIAN (6110- 6244)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	NOT PRESENT IN THIS FORMATION													
CARBONATE SOURCE	(2/100)													
AVG		-------	-------	-------	---	0.49	3.1	1.05	18	45	36	0	56	44
MIN		-------	-------	-------	---	0.41	3.0	1.04						
MAX		-------	-------	-------	---	0.56	3.1	1.05						

* Number of samples and percent occurrence in this Formation.
** Value taken from a 3 term smoothing for all values for this parameter.
*** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite.

WELL NAME: WEB FEDRL 7 NO. 1

FORMATION SUMMARY OF GEOCHEMICAL DATA

FORMATION NAME: MISSISSIPPIAN (6110- 6244)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN %A	%H	%H	%C	%OIL FACTOR	%GAS FACTOR
SAND-SILT NON-SOURCE NOT PRESENT IN THIS FORMATION														

FORMATION NAME: ORDOVICIAN (6244- 6925)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	(2/ 15)													
AVG		-------	-------	-------	---	0.41	3.4	1.05	---	---	---	---	---	---
MIN		-------	-------	-------	---	0.36	3.4	1.05						
MAX		-------	-------	-------	---	0.45	3.4	1.05						
CARBONATE SOURCE	(11/ 85)													
AVG		-------	-------	-------	---	0.10	3.3	1.05	10	60	30	0	55	45
MIN		-------	-------	-------	---	0.06	3.1	1.04						
MAX		-------	-------	-------	---	0.26	3.4	1.05						
SAND-SILT NON-SOURCE NOT PRESENT IN THIS FORMATION														

FORMATION NAME: CAMBRIAN (6925- 7069)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	%R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	NOT PRESENT IN THIS FORMATION													
CARBONATE SOURCE	(2/100)													
AVG		-------	-------	-------	---	0.06	3.4	1.05	---	---	---	---	---	---
MIN		-------	-------	-------	---	0.05	3.4	1.05						
MAX		-------	-------	-------	---	0.06	3.4	1.05						
SAND-SILT NON-SOURCE NOT PRESENT IN THIS FORMATION														

* Number of samples and percent occurrence in this Formation.
** Value taken from a 3 term smoothing for all values for this parameter.
*** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite.

WELL NAME: WEB FEDRL 7 NO. 1

FORMATION SUMMARY OF GEOCHEMICAL DATA

FORMATION NAME: PRE-CAMBRIAN (7069- 7230)

SEDIMENT FACIES	(NO/ %)*	PYROLYSIS DATA (PPM) S1	S2	S3	TMAX	TOC	MATURITY TAI**	MATURITY %R0**	KEROGEN TYPE *** %A	%H	%W	%C	%OIL FACTOR	%GAS FACTOR
SHALE SOURCE	NOT PRESENT IN THIS FORMATION													
CARBONATE SOURCE	(3/100)													
AVG		-------	-------	-------	---	0.08	3.4	1.05	---	---	---	---	---	---
MIN		-------	-------	-------	---	0.07	3.4	1.05						
MAX		-------	-------	-------	---	0.08	3.4	1.05						
SAND-SILT NON-SOURCE	NOT PRESENT IN THIS FORMATION													

* Number of samples and percent occurrence in this Formation.
** Value taken from a 3 term smoothing for all values for this parameter.
*** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite.

TABLE IV

SAMPLE INTERPRETATION

This table gives a sample by sample interpretation based on the following parameters:

(1) Lithology
(2) Thermal alteration index (TAI)
(3) Total organic carbon (TOC)
(4) Volatile hydrocarbon (S1)
(5) Kerogen type

If a TAI value is lacking for an otherwise interpretable sample, a TAI value is taken from a three term moving average plot of all the TAI data for this well (see Figure 1).

The kerogen type oil/gas factor expressed as a percentage should be used as a modifier to the interpretation; i.e., a high oil factor will enhance the oil quality of the sample whereas correspondingly, a high gas factor will enhance the gas ratio of the sample and diminish the oil prospectiveness.

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

TABLE IV
SAMPLE INTERPRETATION*

GEOCHEM SAMPLE NUMBER***	DEPTH	INTERPRETATION
	55	---------- TOP OF TERTIARY ----------
	581	---------- TOP OF CRETACEOUS ----------
	1055	---------- TOP OF PERMIAN ----------
001	1060- 1100	CARB , MODERATELY IMMATURE POOR BIOGENIC GAS SOURCE - GOOD POTENTIAL FOR OIL AND GAS KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 59% GAS TYPE 41%
002	1100- 1150	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED HYDROCARBON KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
003	1150- 2000	CARB , MODERATELY IMMATURE POOR BIOGENIC GAS SOURCE - FAIR POTENTIAL FOR OIL AND GAS KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
004	1200- 1250	CARB , MODERATELY IMMATURE POOR BIOGENIC GAS SOURCE - FAIR POTENTIAL FOR OIL AND GAS KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
005	1250- 1300	CARB , MODERATELY IMMATURE VERY POOR TO POOR BIOGENIC GAS SOURCE - POOR POTENTIAL FOR OIL AND GAS KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
006	1300- 1350	CARB , MODERATELY IMMATURE POOR BIOGENIC GAS SOURCE - FAIR POTENTIAL FOR OIL AND GAS KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
007	1350- 1400	CARB , MODERATELY IMMATURE POOR BIOGENIC GAS SOURCE - FAIR POTENTIAL FOR OIL AND GAS KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
008	1400- 1450	CARB , MODERATELY MATURE POOR IMMATURE OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
009	1450- 1500	CARB , MODERATELY MATURE VERY POOR IMMATURE OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
010	1500- 1550	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED HYDROCARBON KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE

* Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** All footnotes typed on separate sheets.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

TABLE IV
SAMPLE INTERPRETATION*

GEOCHEM SAMPLE NUMBER***	DEPTH	INTERPRETATION
011	1550- 1600	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED HYDROCARBON KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
012	1600- 1650	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED HYDROCARBON KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
013	1650- 1700	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED HYDROCARBON KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
014	1700- 1750	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
015	1750- 1800	MIXED SOURCE/NONSOURCE LITHO
016	1800- 1850	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED OIL KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
019	1950- 2000	SILT NONSOURCE - NO EVIDENCE OF RESERVOIRED OIL KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 75% GAS TYPE 25%
020	2000- 2050	LITHOLOGY-OTHER FOOTNOTE # 1
022	2100- 2150	LITHOLOGY-OTHER FOOTNOTE # 2
024	2200- 2250	LITHOLOGY-OTHER FOOTNOTE # 3
026	2300- 2350	LITHOLOGY-OTHER FOOTNOTE # 4
029	2400- 2450	LITHOLOGY-OTHER FOOTNOTE # 5
031	2500- 2550	LITHOLOGY-OTHER FOOTNOTE # 6
033	2600- 2650	LITHOLOGY-OTHER FOOTNOTE # 7
035	2700- 2750	LITHOLOGY-OTHER FOOTNOTE # 8

* Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** All footnotes typed on separate sheets.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

TABLE IV
SAMPLE INTERPRETATION*

GEOCHEM SAMPLE NUMBER***	DEPTH	INTERPRETATION
037	2800- 2850	LITHOLOGY-OTHER FOOTNOTE # 9
039	2900- 2950	LITHOLOGY-OTHER FOOTNOTE #10
041	3000- 3050	LITHOLOGY-OTHER FOOTNOTE #11
043	3100- 3150	LITHOLOGY-OTHER FOOTNOTE #12
045	3200- 3250	SHALE , MATURE NONSOURCE FOR OIL AND ASSOCIATED GAS KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 64% GAS TYPE 36%
047	3300- 3350	CARB , MATURE VERY POOR TO POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 77% GAS TYPE 23%
	3328	---------- TOP OF PENNSYLVANIAN ----------
049	3400- 3450	CARB , MATURE VERY POOR TO POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
051	3500- 3550	SHALE , MATURE VERY POOR OIL SOURCE - POOR TO FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
053	3600- 3650	SHALE , MATURE VERY POOR OIL SOURCE - POOR TO FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 58% GAS TYPE 42%
055	3700- 3750	SHALE , MATURE VERY POOR OIL SOURCE - POOR TO FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
057	3800- 3850	SHALE , MATURE NONSOURCE FOR OIL AND ASSOCIATED GAS KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
059	3900- 3950	SHALE , MATURE VERY POOR TO POOR OIL SOURCE - FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
061	4000- 4050	SHALE , MATURE VERY POOR TO POOR OIL SOURCE - FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 57% GAS TYPE 43%
063	4100- 4150	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE

* Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** All footnotes typed on separate sheets.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

TABLE IV
SAMPLE INTERPRETATION*

GEOCHEM SAMPLE NUMBER***	DEPTH	INTERPRETATION
065	4200- 4250	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
067	4300- 4350	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 55% GAS TYPE 45%
069	4400- 4450	SHALE , MATURE VERY POOR OIL SOURCE - VERY GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
071	4500- 4550	SHALE , MATURE VERY POOR OIL SOURCE - VERY GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 58% GAS TYPE 42%
073	4600- 4650	SHALE , MATURE VERY POOR OIL SOURCE - GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
075	4700- 4750	SHALE , MATURE VERY POOR OIL SOURCE - GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 62% GAS TYPE 38%
077	4800- 4850	SHALE , MATURE VERY POOR OIL SOURCE - GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
079	4900- 4950	SHALE , MATURE VERY POOR OIL SOURCE - GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
081	5000- 5050	SHALE , MATURE VERY POOR OIL SOURCE - GOOD GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 58% GAS TYPE 42%
083	5100- 5150	SHALE , MATURE VERY POOR TO POOR OIL SOURCE - FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
085	5200- 5250	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
087	5300- 5350	SHALE , MATURE VERY POOR TO POOR OIL SOURCE - FAIR GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 43% GAS TYPE 57%
089	5400- 5450	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
091	5500- 5550	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
093	5600- 5650	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 61% GAS TYPE 39%

* Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** All footnotes typed on separate sheets.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

TABLE IV
SAMPLE INTERPRETATION*

GEOCHEM SAMPLE NUMBER***	DEPTH	INTERPRETATION
095	5700- 5750	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
097	5800- 5850	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
099	5900- 5950	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 81% GAS TYPE 19%
101	6000- 6050	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR NOT AVAILABLE
103	6100- 6150	CARB , MATURE POOR OIL AND ASSOCIATED GAS SOURCE KEROGEN TYPE OIL/GAS FACTOR: OIL TYPE 55% GAS TYPE 45%
	6110	---------- TOP OF MISSISSIPPIAN ----------
	6244	---------- TOP OF ORDOVICIAN ----------
	6925	---------- TOP OF CAMBRIAN ----------
	7069	---------- TOP OF PRE-CAMBRIAN ----------

* Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** All footnotes typed on separate sheets.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.

TABLE V

SAMPLE SUMMARY INTERPRETATION

This table gives a sample by sample interpretation of each parameter used in Table IV. The descriptive terminology used for each parameter is listed in the introduction.

JOB NUMBER: G259
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TABLE V
SAMPLE SUMMARY INTERPRETATION*

GEOCHEM SAMPLE NUMBER****	DEPTH	LITHOLOGY	THERMAL*** TAI	THERMAL*** MATURITY	%R0	TOC RICHNESS	HC RICHNESS	PRODUCTIVITY INDEX	% OIL FACTOR	% GAS FACTOR
	55	---------- TOP OF TERTIARY ----------								
	581	---------- TOP OF CRETACEOUS ----------								
	1055	---------- TOP OF PERMIAN ----------								
001	1060- 1100	CARB	MI	MI		GOOD	VERY POOR	0.36	59	41
002	1100- 1150	SILT	MI**	MI**		POOR	VERY POOR	----	--	--
003	1150- 2000	CARB	MI**	MI**		FAIR	VERY POOR	----	--	--
004	1200- 1250	CARB	MI**	MI**		FAIR	VERY POOR	0.29	--	--
005	1250- 1300	CARB	MI**	MI**		POOR	VERY POOR	0.25	--	--
006	1300- 1350	CARB	MI**	MI**		FAIR	VERY POOR	0.00	--	--
007	1350- 1400	CARB	MI**	MI**		FAIR	VERY POOR	0.14	--	--
008	1400- 1450	CARB	MM**	MI**		FAIR	VERY POOR	----	--	--
009	1450- 1500	CARB	MM**	MI**		POOR	VERY POOR	----	--	--
010	1500- 1550	SILT	MM**	MI**		POOR	VERY POOR	0.00	--	--
011	1550- 1600	SILT	MM**	MI**		POOR	VERY POOR	----	--	--
012	1600- 1650	SILT	MM**	MI**		POOR	VERY POOR	0.00	--	--
013	1650- 1700	SILT	MM**	MI**		POOR	VERY POOR	----	--	--
014	1700- 1750	CARB	M **	MI**		FAIR	VERY POOR	0.00	--	--
015	1750- 1800	MIXED SOURCE/NONSOURCE LITHOLOGY								
016	1800- 1850	SILT	M **	MI**		POOR	VERY POOR	0.00	--	--
019	1950- 2000	SILT	M	MI		POOR	VERY POOR	----	75	25

*Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** Value taken from a 3 term running average for all values of this parameter.
*** Thermal Maturity Abbreviations: I=Immature, MI=Moderately Immature, MM=Moderately Mature, M=Mature,
VM=Very Mature, SA=Severly Altered, MT=Metamorphosed.
**** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.
***** All footnotes typed on separate sheets.

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

TABLE V
SAMPLE SUMMARY INTERPRETATION*

GEOCHEM SAMPLE NUMBER****	DEPTH	LITHOLOGY	THERMAL*** TAI	THERMAL*** MATURITY	THERMAL*** %R0	TOC RICHNESS	HC RICHNESS	PRODUCTIVITY INDEX	% OIL FACTOR	% GAS FACTOR
020	2000- 2050	OTHER	SEE FOOTNOTE * 1 *****							
022	2100- 2150	OTHER	SEE FOOTNOTE * 2 *****							
024	2200- 2250	OTHER	SEE FOOTNOTE * 3 *****							
026	2300- 2350	OTHER	SEE FOOTNOTE * 4 *****							
029	2400- 2450	OTHER	SEE FOOTNOTE * 5 *****							
031	2500- 2550	OTHER	SEE FOOTNOTE * 6 *****							
033	2600- 2650	OTHER	SEE FOOTNOTE * 7 *****							
035	2700- 2750	OTHER	SEE FOOTNOTE * 8 *****							
037	2800- 2850	OTHER	SEE FOOTNOTE * 9 *****							
039	2900- 2950	OTHER	SEE FOOTNOTE *10 *****							
041	3000- 3050	OTHER	SEE FOOTNOTE *11 *****							
043	3100- 3150	OTHER	SEE FOOTNOTE *12 *****							
045	3200- 3250	SHALE	M		M **	POOR	VERY POOR	0.00	64	36
047	3300- 3350	CARB	M		M	POOR	VERY POOR	0.17	77	23
	3328	---------- TOP OF PENNSYLVANIAN ----------								
049	3400- 3450	CARB	M **		M **	POOR	VERY POOR	0.00	--	--
051	3500- 3550	SHALE	M **		M **	POOR	VERY POOR	0.00	--	--
053	3600- 3650	SHALE	M		M	POOR	VERY POOR	0.00	58	42
055	3700- 3750	SHALE	M **		M **	POOR	VERY POOR	0.00	--	--
057	3800- 3850	SHALE	M **		M **	POOR	VERY POOR	0.00	--	--

*Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** Value taken from a 3 term running average for all values of this parameter.
*** Thermal Maturity Abbreviations: I=Immature, MI=Moderately Immature, MM=Moderately Mature, M=Mature, VM=Very Mature, SA=Severly Altered, MT=Metamorphosed.
**** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.
***** All footnotes typed on separate sheets.

JOB NUMBER: G259
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TABLE V
SAMPLE SUMMARY INTERPRETATION*

GEOCHEM SAMPLE NUMBER****	DEPTH	LITHOLOGY	THERMAL*** MATURITY TAI	THERMAL*** MATURITY %R0	TOC RICHNESS	HC RICHNESS	PRODUCTIVITY INDEX	% OIL FACTOR	% GAS FACTOR
059	3900- 3950	SHALE	M **	M **	FAIR	VERY POOR	0.08	--	--
061	4000- 4050	SHALE	M	M	FAIR	VERY POOR	0.00	57	43
063	4100- 4150	CARB	M **	M **	GOOD	VERY POOR	0.00	--	--
065	4200- 4250	CARB	M **	M **	FAIR	VERY POOR	0.00	--	--
067	4300- 4350	CARB	M	M	GOOD	VERY POOR	0.00	55	45
069	4400- 4450	SHALE	M **	M **	VERY GOOD	VERY POOR	0.01	--	--
071	4500- 4550	SHALE	M	M	VERY GOOD	VERY POOR	0.01	58	42
073	4600- 4650	SHALE	M **	M **	GOOD	VERY POOR	0.00	--	--
075	4700- 4750	SHALE	M	M	GOOD	VERY POOR	0.05	62	38
077	4800- 4850	SHALE	M **	M **	GOOD	VERY POOR	0.10	--	--
079	4900- 4950	SHALE	M **	M **	GOOD	VERY POOR	0.07	--	--
081	5000- 5050	SHALE	M	M	GOOD	VERY POOR	0.07	58	42
083	5100- 5150	SHALE	M **	M **	FAIR	VERY POOR	0.00	--	--
085	5200- 5250	CARB	M **	M **	GOOD	VERY POOR	0.23	--	--
087	5300- 5350	SHALE	M	M	FAIR	VERY POOR	0.18	43	57
089	5400- 5450	CARB	M **	M **	GOOD	VERY POOR	0.10	--	--
091	5500- 5550	CARB	M **	M **	FAIR	VERY POOR	0.00	--	--
093	5600- 5650	CARB	M	M	FAIR	VERY POOR	0.00	61	39
095	5700- 5750	CARB	M **	M **	FAIR	VERY POOR	0.25	--	--
097	5800- 5850	CARB	M **	M **	FAIR	VERY POOR	0.00	--	--

*Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** Value taken from a 3 term running average for all values of this parameter.
*** Thermal Maturity Abbreviations: I=Immature, MI=Moderately Immature, MM=Moderately Mature, M=Mature, VM=Very Mature, SA=Severly Altered, MT=Metamorphosed.
**** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.
***** All footnotes typed on separate sheets.

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WELL NAME: WEB FEDRL 7 NO. 1

TABLE V
SAMPLE SUMMARY INTERPRETATION*

GEOCHEM SAMPLE NUMBER****	DEPTH	LITHOLOGY	TAI	THERMAL*** MATURITY	%R0	TOC RICHNESS	HC RICHNESS	PRODUCTIVITY INDEX	% OIL FACTOR	% GAS FACTOR
099	5900- 5950	CARB	M		M	GOOD	VERY POOR	0.00	81	19
101	6000- 6050	CARB	M **		M **	FAIR	VERY POOR	0.00	--	--
103	6100- 6150	CARB	M		M	GOOD	VERY POOR	0.13	55	45
	6110	---------- TOP OF MISSISSIPPIAN ----------								
	6244	---------- TOP OF ORDOVICIAN ----------								
	6925	---------- TOP OF CAMBRIAN ----------								
	7069	---------- TOP OF PRE-CAMBRIAN ----------								

*Rating parameters as defined in GeoChem's Source Rock Reference Manual.
** Value taken from a 3 term running average for all values of this parameter.
*** Thermal Maturity Abbreviations: I=Immature, MI=Moderately Immature, MM=Moderately Mature, M=Mature, VM=Very Mature, SA=Severly Altered, MT=Metamorphosed.
**** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core.
***** All footnotes typed on separate sheets.

TABLE VI

SAMPLE SUMMARY OF GEOCHEMICAL DATA

This table gives a sample by sample listing of the data used in the computerized interpretations. The information given for each formation is as follows:

(1) Sample number
(2) Depth
(3) Lithology
(4) Volatile hydrocarbon (S1, ppm)
(5) Generated hydrocarbon (S2, ppm)
(6) Maximum temperature of S2 peak
(7) Total organic carbon (TOC, %)
(8) Kerogen composition (amorphous (Am), herbaceous (H), woody (W), and coaly (C))
(9) Thermal alteration index (TAI)
(10) Vitrinite reflectance (%Ro)

The TAI and %Ro values are plotted on Figures 1 and 2 respectively; values of TAI or %Ro indicated with an asterisk (*) are taken from the three term moving average plot of the respective parameter. Sample types are indicated by "blank" (cuttings), "C" (conventional core) and "S" (sidewall core). Casing points and the tops of all formations penetrated by the well are displayed on all tables with associated depths.

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TABLE VI: SAMPLE SUMMARY OF GEOCHEMICAL DATA

GEOCHEM SAMPLE NUMBER***	DEPTH	LITHOLOGY**	PYROLYSIS DATA (PPM) TMAX	S1	S2	S3	TOC	KEROGEN TYPE**** %Am	%H	%W	%C	THERMAL MATURITY TAI	%R0
	55	---------- TOP OF TERTIARY ----------											
	581	---------- TOP OF CRETACEOUS ----------											
	1055	---------- TOP OF PERMIAN ----------											
001	1060- 1100	100Cb	377	40.	70.	250.	0.29	25	38	38	0	2.1	0.52
002	1100- 1150	100St	234	0.	0.	160.	0.07	--	--	--	--	(2.1)*	(0.52)*
003	1150- 2000	100Cb	296	0.	0.	140.	0.17	--	--	--	--	(2.1)*	(0.52)*
004	1200- 1250	100Cb	274	20.	50.	170.	0.21	--	--	--	--	(2.1)*	(0.52)*
005	1250- 1300	100Cb	300	10.	30.	90.	0.11	--	--	--	--	(2.1)*	(0.52)*
006	1300- 1350	100Cb	316	0.	30.	150.	0.14	--	--	--	--	(2.1)*	(0.52)*
007	1350- 1400	100Cb	303	10.	60.	100.	0.25	--	--	--	--	(2.1)*	(0.52)*
008	1400- 1450	60Cb 40St	264	0.	0.	140.	0.13	--	--	--	--	(2.3)*	(0.52)*
009	1450- 1500	60Cb 40St	444	0.	0.	80.	0.10	--	--	--	--	(2.3)*	(0.52)*
010	1500- 1550	70St 30Cb	433	0.	10.	80.	0.10	--	--	--	--	(2.3)*	(0.52)*
011	1550- 1600	80St 20Cb	274	0.	0.	120.	0.09	--	--	--	--	(2.6)*	(0.51)*
012	1600- 1650	60St 40Cb	274	0.	10.	210.	0.14	--	--	--	--	(2.6)*	(0.51)*
013	1650- 1700	60St 40Cb	445	0.	0.	130.	0.10	--	--	--	--	(2.6)*	(0.51)*
014	1700- 1750	70Cb 30St	316	0.	10.	270.	0.15	--	--	--	--	(2.8)*	(0.51)*
015	1750- 1800	50St 50Cb	273	10.	40.	170.	0.15	--	--	--	--	(2.8)*	(0.51)*
016	1800- 1850	100St	263	0.	10.	130.	0.08	--	--	--	--	(2.8)*	(0.51)*
019	1950- 2000	100St	246	0.	0.	180.	0.09	50	33	17	0	2.8	0.51

* Value taken from a 3 term smoothing for this parameter.
** Lithologies: Ss-Sandstone, St-Siltstone, Sh-Shale, Cb-Carbonate, E-Evaporite, C-Coal, Ot-Other.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core
**** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite

JOB NUMBER: G259
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TABLE VI: SAMPLE SUMMARY OF GEOCHEMICAL DATA

GEOCHEM SAMPLE NUMBER***	DEPTH	LITHOLOGY**	PYROLYSIS DATA (PPM) TMAX	S1	S2	S3	TOC	KEROGEN TYPE**** %Am	%H	%W	%C	THERMAL MATURITY TAI	%R0
020	2000- 2050	100Ot	439	0.	70.	370.	0.08	--	--	--	--	(2.8)*(	0.51)*
022	2100- 2150	100Ot	362	0.	0.	170.	0.05	--	--	--	--	(2.8)*(	0.51)*
024	2200- 2250	100Ot	226	0.	0.	170.	0.06	--	--	--	--	(2.8)*(	0.59)*
026	2300- 2350	100Ot	288	0.	10.	90.	0.05	--	--	--	--	(2.8)*(	0.66)*
028	2376- 2400	100Sh	248	-------	-------	-------	0.01	--	--	--	--	---	----
029	2400- 2450	100Ot	398	10.	40.	430.	0.05	--	--	--	--	(2.8)*(	0.66)*
031	2500- 2550	60Ot 40Sh	312	0.	0.	380.	0.02	--	--	--	--	(2.8)*(	0.74)*
033	2600- 2650	60Ot 40Sh	443	10.	0.	410.	0.02	--	--	--	--	(2.7)*(	0.82)*
035	2700- 2750	60Ot 40Sh	323	10.	20.	490.	0.01	--	--	--	--	(2.7)*(	0.82)*
037	2800- 2850	50Sh 50Ot	224	0.	0.	280.	0.01	--	--	--	--	(2.7)*(	0.90)*
039	2900- 2950	50Sh 50Ot	335	0.	0.	300.	0.09	--	--	--	--	(2.7)*(	0.97)*
041	3000- 3050	50Sh 50Ot	260	0.	0.	270.	0.07	--	--	--	--	(2.7)*(	0.97)*
043	3100- 3150	50Sh 50Ot	224	0.	0.	210.	0.08	--	--	--	--	(2.7)*(	1.05)*
045	3200- 3250	100Sh	336	0.	10.	210.	0.08	40	20	40	0	2.7	(1.05)*
047	3300- 3350	100Cb	323	10.	50.	370.	0.08	67	0	33	0	2.7	1.05
	3328	---------- TOP OF PENNSYLVANIAN ----------											
049	3400- 3450	100Cb	275	0.	50.	270.	0.06	--	--	--	--	(2.8)*(	1.02)*
051	3500- 3550	60Sh 40Cb	446	0.	40.	280.	0.40	--	--	--	--	(2.9)*(	0.99)*
053	3600- 3650	60Sh 40Cb	384	0.	20.	220.	0.28	13	62	25	0	2.9	0.99
055	3700- 3750	60Sh 40Cb	275	0.	10.	180.	0.28	--	--	--	--	(2.9)*(	0.99)*

* Value taken from a 3 term smoothing for this parameter.
** Lithologies: Ss-Sandstone, St-Siltstone, Sh-Shale, Cb-Carbonate, E-Evaporite, C-Coal, Ot-Other.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core
**** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite

JOB NUMBER: G259
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TABLE VI: SAMPLE SUMMARY OF GEOCHEMICAL DATA

GEOCHEM SAMPLE NUMBER***	DEPTH	LITHOLOGY**	PYROLYSIS DATA (PPM) TMAX	S1	S2	S3	TOC	KEROGEN TYPE**** %Am	%H	%W	%C	THERMAL MATURITY TAI	%R0
057	3800- 3850	60Sh 40Cb	311	0.	10.	240.	0.21	--	--	--	--	(2.9)*(	0.96)*
059	3900- 3950	60Sh 40Cb	441	10.	120.	110.	0.72	--	--	--	--	(2.9)*(	0.96)*
061	4000- 4050	50Sh 50Cb	450	0.	140.	90.	0.74	17	50	33	0	2.9	0.96
063	4100- 4150	60Cb 40Sh	378	0.	100.	80.	0.43	--	--	--	--	(2.9)*(	0.95)*
065	4200- 4250	80Cb 20Sh	335	0.	50.	50.	0.24	--	--	--	--	(2.9)*(	0.95)*
067	4300- 4350	70Cb 30Sh	445	0.	50.	90.	0.42	22	33	44	0	2.9	0.95
069	4400- 4450	60Sh 40Cb	478	10.	800.	90.	3.02	--	--	--	--	(2.8)*(	0.97)*
071	4500- 4550	60Sh 40Cb	484	10.	800.	130.	2.86	13	62	25	0	2.7	0.99
073	4600- 4650	60Sh 40Cb	492	0.	180.	100.	1.15	--	--	--	--	(2.7)*(	0.99)*
075	4700- 4750	50Sh 50Cb	494	20.	400.	180.	1.68	22	56	22	0	2.7	1.00
077	4800- 4850	60Sh 40Cb	498	30.	280.	220.	1.55	--	--	--	--	(2.7)*(	1.00)*
079	4900- 4950	50Sh 50Cb	494	30.	370.	230.	1.74	--	--	--	--	(2.8)*(	0.98)*
081	5000- 5050	60Sh 40Cb	501	20.	260.	230.	1.11	13	62	25	0	2.8	0.97
083	5100- 5150	85Sh 15Cb	472	0.	90.	170.	0.70	--	--	--	--	(2.8)*(	0.97)*
085	5200- 5250	60Cb 40Sh	413	30.	100.	280.	0.48	--	--	--	--	(2.8)*(	0.98)*
087	5300- 5350	60Sh 40Cb	500	60.	270.	260.	0.82	0	43	57	0	2.8	1.00
089	5400- 5450	70Cb 30Sh	444	10.	90.	210.	0.33	--	--	--	--	(2.8)*(	1.00)*
091	5500- 5550	70Cb 30Sh	353	0.	20.	280.	0.21	--	--	--	--	(2.8)*(	1.01)*
093	5600- 5650	70Cb 30Sh	351	0.	10.	260.	0.20	38	13	50	0	2.9	1.03
095	5700- 5750	70Cb 30Sh	275	10.	30.	180.	0.21	--	--	--	--	(2.9)*(	1.03)*

* Value taken from a 3 term smoothing for this parameter.
** Lithologies: Ss-Sandstone, St-Siltstone, Sh-Shale, Cb-Carbonate, E-Evaporite, C-Coal, Ot-Other.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core
**** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite

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TABLE VI: SAMPLE SUMMARY OF GEOCHEMICAL DATA

GEOCHEM SAMPLE NUMBER***	DEPTH	LITHOLOGY**	PYROLYSIS DATA (PPM) TMAX	S1	S2	S3	TOC	KEROGEN TYPE**** %Am	%H	%W	%C	THERMAL MATURITY TAI	%R0
097	5800- 5850	70Cb 30Sh	353	0.	30.	200.	0.19	--	--	--	--	(3.0)*	(1.05)*
099	5900- 5950	80Cb 20Sh	363	0.	50.	230.	0.26	62	25	13	0	3.0	1.08
101	6000- 6050	70Cb 30Sh	296	0.	40.	190.	0.23	--	--	--	--	(3.0)*	(1.05)*
103	6100- 6150	60Cb 40Sh	327	10.	70.	170.	0.46	22	33	44	0	2.9	0.97
	6110	TOP OF MISSISSIPPIAN											
104	6150- 6200	60Cb 40Sh	---	-------	-------	-------	0.56	18	45	36	0	2.9	1.09
105	6200- 6250	60Cb 40Sh	---	-------	-------	-------	0.41	18	45	36	0	2.9	1.05
	6244	TOP OF ORDOVICIAN											
106	6250- 6300	60Cb 40Sh	---	-------	-------	-------	0.26	10	60	30	0	2.9	----
107	6300- 6350	100Cb	---	-------	-------	-------	0.10	--	--	--	--	3.4	----
108	6350- 6400	100Cb	---	-------	-------	-------	0.11	--	--	--	--	3.4	----
109	6400- 6450	100Cb	---	-------	-------	-------	0.08	--	--	--	--	3.4	----
111	6500- 6550	60Sh 40Cb	---	-------	-------	-------	0.36	--	--	--	--	---	----
112	6550- 6600	60Sh 40Cb	---	-------	-------	-------	0.45	--	--	--	--	---	----
113	6600- 6650	100Cb	---	-------	-------	-------	0.10	--	--	--	--	3.4	----
114	6650- 6700	100Cb	---	-------	-------	-------	0.09	--	--	--	--	3.4	----
115	6700- 6750	100Cb	---	-------	-------	-------	0.07	--	--	--	--	3.4	----
116	6750- 6800	100Cb	---	-------	-------	-------	0.06	--	--	--	--	3.4	----
117	6800- 6850	100Cb	---	-------	-------	-------	0.08	--	--	--	--	3.4	----
118	6850- 6900	100Cb	---	-------	-------	-------	0.06	--	--	--	--	3.4	----

* Value taken from a 3 term smoothing for this parameter.
** Lithologies: Ss-Sandstone, St-Siltstone, Sh-Shale, Cb-Carbonate, E-Evaporite, C-Coal, Ot-Other.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core
**** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite

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TABLE VI: SAMPLE SUMMARY OF GEOCHEMICAL DATA

GEOCHEM SAMPLE NUMBER***	DEPTH	LITHOLOGY**	PYROLYSIS DATA (PPM) TMAX	S1	S2	S3	TOC	KEROGEN TYPE**** %Am	%H	%W	%C	THERMAL MATURITY TAI	%R0
119	6900- 6950	60Cb 40Ss	---	-------	-------	-------	0.09	--	--	--	--	3.4	----
	6925	---------- TOP OF CAMBRIAN ----------											
120	6950- 7000	60Cb 40Ss	---	-------	-------	-------	0.06	--	--	--	--	3.4	----
122	7050- 7100	100Cb	---	-------	-------	-------	0.05	--	--	--	--	---	----
	7069	---------- TOP OF PRE-CAMBRIAN ----------											
123	7100- 7150	100Cb	---	-------	-------	-------	0.07	--	--	--	--	---	----
124	7150- 7200	100Cb	---	-------	-------	-------	0.08	--	--	--	--	---	----
125	7200- 7250	100Cb	---	-------	-------	-------	0.07	--	--	--	--	---	----

* Value taken from a 3 term smoothing for this parameter.
** Lithologies: Ss-Sandstone, St-Siltstone, Sh-Shale, Cb-Carbonate, E-Evaporite, C-Coal, Ot-Other.
*** Sample Type: Blank-Cuttings, C-Core, S-Sidewall Core
**** Kerogen Type: Am-Amorphous-Sapropel, H-Herbaceous, W-Woody, C-Coaly/Inertinite

FIGURE 1

THERMAL MATURITY PROFILE

USING THE THERMAL ALTERATION INDEX (TAI)

This figure displays a thermal maturity profile for the well using the thermal alteration index (TAI). The raw data plot displays the TAI values of individual samples plotted versus depth (150 foot intervals). Within a particular interval an "A" indicates one TAI values and a "B" indicates two TAI determinations of the same value, etc. The "AVG" gives the average TAI value for that interval.

The three term moving average plot displays a TAI profile smoothed by a three term moving average. The "AVG" gives the average for the particular interval. When a sample lacks a TAI value for interpretation, a TAI value is taken from this smoothed curve for that sample depth.

The descriptive terminology used to define thermal maturity, the associated hydrocarbon type, and the numerical values of TAI corresponding to this terminology is given below.

TAI Value	Descriptive Terminology
1.0 - 1.7	Immature (I)
1.8 - 2.1	Moderately Immature (MI)
2.2 - 2.5	Moderately Mature (MM)
2.6 - 3.5	Mature (M)
3.6 - 4.1	Very Mature (VM)
4.2 - 4.9	Severely Altered (SA)
$\geq$ 5.0	Metamorphosed

TAI Value	Associated Hydrocarbon Type
1.3 - 1.5	Biogenic Gas
1.5 - 2.2	Biogenic Gas and Immature Oil
2.2 - 2.5	Immature Heavy Oil
2.5 - 3.2	Mature Oil
3.2 - 3.4	Mature Oil, Condensate and Wet Gas
$\geq$ 3.8	Petrogenic Methane Gas

Seismic tops are shown by a dashed line (---) and the names are indicated along the right hand margin. The exact depth of the seismic tops are given in the Introduction. Total well depth is indicated and labeled with appropriate depth.

FIGURE 1: TAI MATURITY PROFILE

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

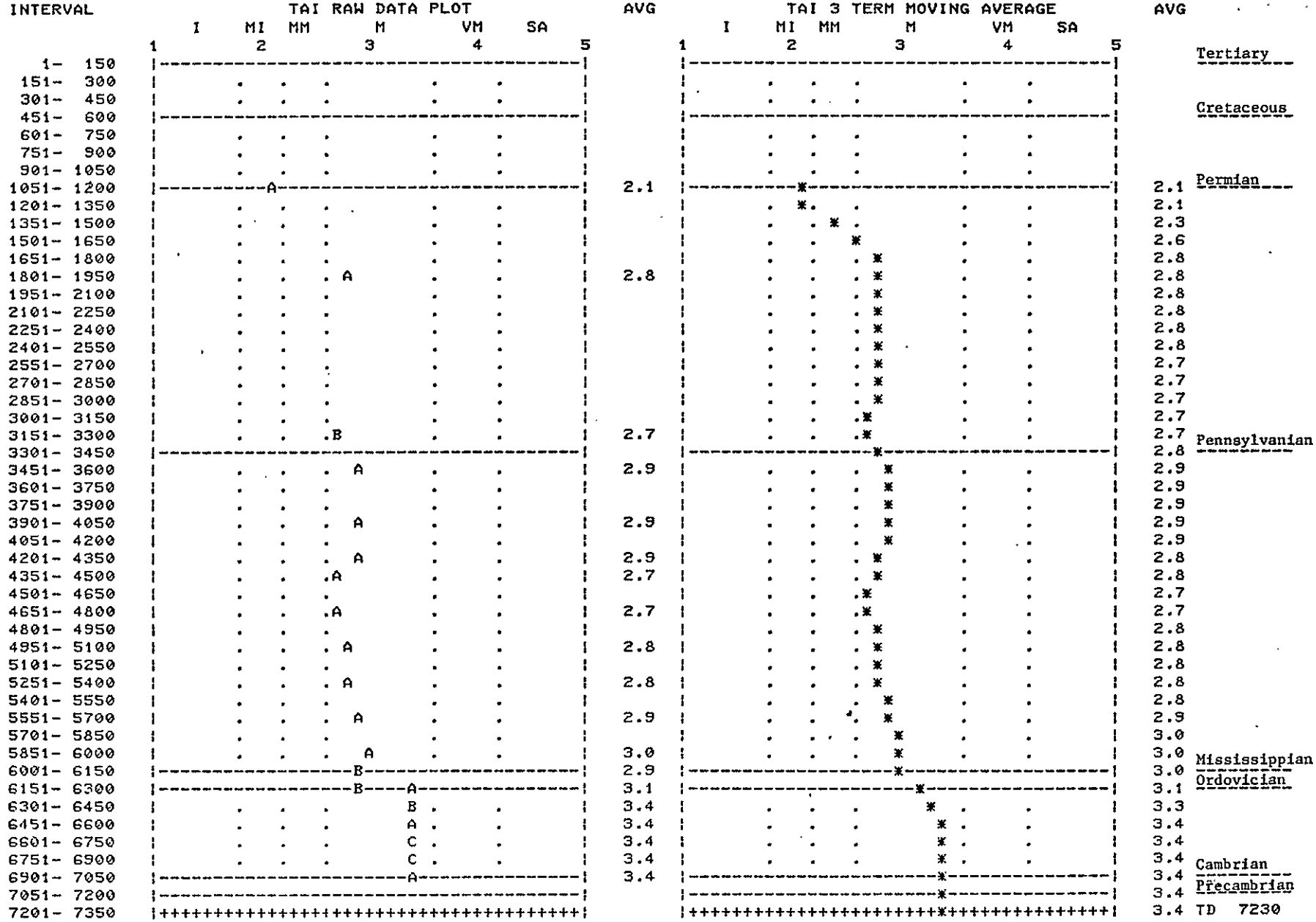


FIGURE 2: %R0 MATURITY PROFILE

JOB NUMBER: G259
WELL NAME: WEB FEDRL 7 NO. 1

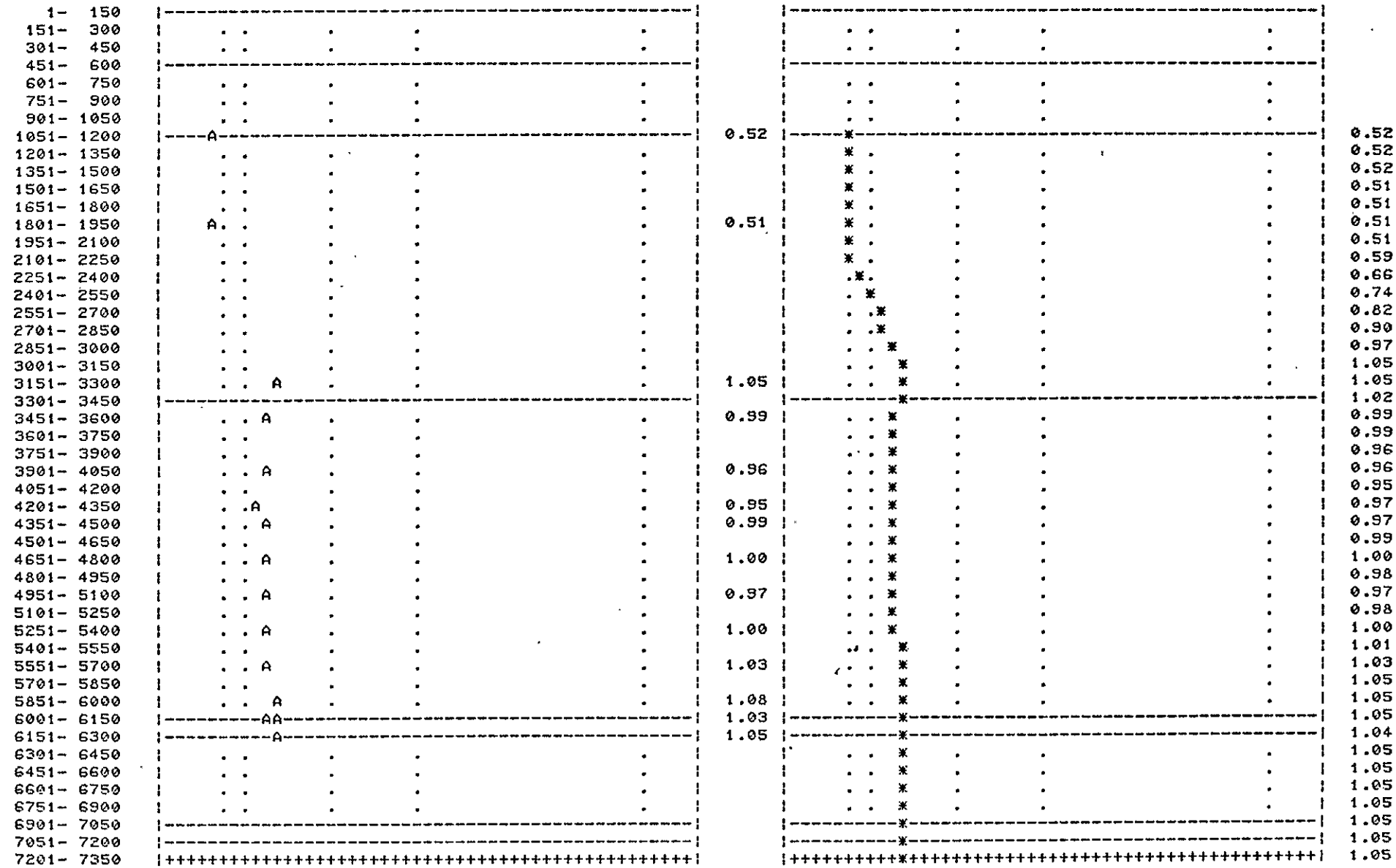


FIGURE 2

THERMAL MATURITY PROFILE

USING VITRINITE REFLECTANCE

This figure displays a thermal maturity profile for the well using vitrinite reflectance (%Ro). The raw data plot displays the %Ro values of individual samples plotted versus depth (150 foot intervals). Within a particular interval an "A" indicates one %Ro value, a "B" indicates two %Ro determinations of the same value, etc. The "AVG" gives the average %Ro value for that interval.

The three term moving average plot displays a %Ro profile smoothed by a three term moving average. The "AVG" gives the average for the particular interval.

The descriptive terminology used to define thermal maturity, the associated hydrocarbon type, and the numerical values of %Ro corresponding to this terminology is given below.

%Ro Value	Descriptive Terminology	%Ro Value	Associated Hydrocarbon Type
0.0 - 0.42	Immature (I)	0.30 - 0.35	Biogenic Gas
0.43 - 0.55	Moderately Immature (MI)	0.35 - 0.60	Biogenic Gas and Immature Oil
0.56 - 0.80	Moderately Mature (MM)		
0.81 - 1.62	Mature (M)	0.60 - 0.80	Immature Heavy Oil
1.63 - 2.37	Very Mature (VM)	0.80 - 1.20	Mature Oil
2.38 - 4.50	Severely Altered (SA)	1.20 - 1.50	Mature Oil, Condensate and Wet Gas
> 4.50	Metamorphosed	1.50 - 2.00	Condensate and Wet Gas
		$\geq$ 2.00	Petrogenic Methane Gas

Moderately immature and moderately mature are plotted together on the profile under MM.

Seismic tops are shown by a dashed line (---) with the names are indicated. The exact depth of the seismic tops are given in the Introduction. Total well depth is indicated and labeled with appropriate depth.

WELL NAME: HEB PEDRL 7 NO.1

TABLE 1-A

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	METHANE C1 (PPM)	ETHANE C2 (PPM)	PROPANE C3 (PPM)	ISOBUTANE IC4 (PPM)	BUTANE NC4 (PPM)	TOTAL C5-C7 (PPM)	TOTAL C1-C4 (PPM)	TOTAL C2-C4 (PPM)	GAS WETNESS (%)	IC4/NC4	C1-C7 NORMALIZED DATA %C1	%C2-C4	%C5-C7
	55	** TOP OF TERTIARY												
	581	** TOP OF CRETACEOUS												
	1055	** TOP OF PERMIAN												
G259-001	1060- 1100	1	1	0	0	0	0	2	1	50.0	-	50.0	50.0	0.0
G259-002	1100- 1150	17	43	1	1	2	10	64	47	73.4	0.50	23.0	63.5	13.5
G259-003	1150- 2000	40	10	7	2	4	15	63	23	36.5	0.50	51.3	29.5	19.2
G259-004	1200- 1250	21	6	11	1	2	9	41	20	48.8	0.50	42.0	40.0	18.0
G259-005	1250- 1300	48	12	9	2	3	7	74	26	35.1	0.67	59.3	32.1	8.6
G259-006	1300- 1350	143	26	16	4	6	15	195	52	26.7	0.67	68.1	24.8	7.1
G259-007	1350- 1400	34	7	9	1	2	8	53	19	35.8	0.50	55.7	31.1	13.1
G259-008	1400- 1450	22	4	7	1	1	4	35	13	37.1	1.00	56.4	33.3	10.3
G259-009	1450- 1500	52	8	14	1	2	6	77	25	32.5	0.50	62.7	30.1	7.2
G259-010	1500- 1550	53	4	2	1	0	4	60	7	11.7	-	82.8	10.9	6.3
G259-011	1550- 1600	16	2	3	1	1	5	23	7	30.4	1.00	57.1	25.0	17.9
G259-012	1600- 1650	8	0	0	0	0	0	8	0	0.0	-	100.0	0.0	0.0
G259-013	1650- 1700	21	2	4	0	0	2	27	6	22.2	-	72.4	20.7	6.9
G259-014	1700- 1750	63	1	2	0	0	1	66	3	4.5	-	94.0	4.5	1.5
G259-015	1750- 1800	46	1	2	0	0	1	49	3	6.1	-	92.0	6.0	2.0
G259-016	1800- 1850	82	2	2	0	1	4	87	5	5.7	0.00	90.1	5.5	4.4
G259-019	1950- 2000	35	0	0	0	0	3	35	0	0.0	-	92.1	0.0	7.9
G259-020	2000- 2050	35	3	1	0	0	1	39	4	10.3	-	87.5	10.0	2.5
G259-022	2100- 2150	27	2	5	0	1	4	35	8	22.9	0.00	69.2	20.5	10.3
G259-024	2200- 2250	11	1	3	0	0	1	15	4	26.7	-	68.8	25.0	6.3
G259-026	2300- 2350	35	3	2	0	1	3	41	6	14.6	0.00	79.5	13.6	6.8
G259-028	2376- 2400	11	1	0	0	0	6	12	1	8.3	-	61.1	5.6	33.3
G259-029	2400- 2450	25	5	3	0	1	5	34	9	26.5	0.00	64.1	23.1	12.8
G259-031	2500- 2550	122	38	12	1	3	11	176	54	30.7	0.33	65.2	28.9	5.9
G259-033	2600- 2650	71	12	10	1	2	8	96	25	26.0	0.50	68.3	24.0	7.7
G259-035	2700- 2750	87	19	9	1	3	8	119	32	26.9	0.33	68.5	25.2	6.3
G259-037	2800- 2850	73	17	7	1	2	9	100	27	27.0	0.50	67.0	24.8	8.3
G259-039	2900- 2950	73	15	7	1	2	10	98	25	25.5	0.50	67.6	23.1	9.3
G259-041	3000- 3050	68	21	9	1	2	9	101	33	32.7	0.50	61.8	30.0	8.2
G259-043	3100- 3150	39	5	2	0	1	6	47	8	17.0	0.00	73.6	15.1	11.3
G259-045	3200- 3250	27	2	3	0	0	2	32	5	15.6	-	79.4	14.7	5.9
G259-047	3300- 3350	14	1	0	0	0	16	15	1	6.7	-	45.2	3.2	51.6
	3328	** TOP OF PENNSYLVANIAN												
G259-049	3400- 3450	25	1	2	0	0	1	28	3	10.7	-	86.2	10.3	3.4
G259-051	3500- 3550	76	4	4	0	0	1	84	8	9.5	-	89.4	9.4	1.2
G259-053	3600- 3650	44	2	6	0	0	2	52	8	15.4	-	81.5	14.8	3.7
G259-055	3700- 3750	26	2	7	0	0	1	35	9	25.7	-	72.2	25.0	2.8
G259-057	3800- 3850	32	1	6	0	0	1	39	7	17.9	-	80.0	17.5	2.5
G259-059	3900- 3950	137	4	4	2	1	1	148	11	7.4	2.00	91.9	7.4	0.7
G259-061	4000- 4050	154	3	2	1	1	1	161	7	4.3	1.00	95.1	4.3	0.6
G259-063	4100- 4150	144	4	3	1	1	1	153	9	5.9	1.00	93.5	5.8	0.6
G259-065	4200- 4250	135	2	5	1	0	1	143	8	5.6	-	93.8	5.6	0.7
G259-067	4300- 4350	134	4	11	2	1	1	152	18	11.8	2.00	87.6	11.8	0.7

WELL NAME: WEB FEDRL 7 NO.1

TABLE I-A

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	METHANE C1 (PPM)	ETHANE C2 (PPM)	PROPANE C3 (PPM)	ISOBUTANE IC4 (PPM)	BUTANE NC4 (PPM)	TOTAL C5-C7 (PPM)	TOTAL C1-C4 (PPM)	TOTAL C2-C4 (PPM)	GAS WETNESS (%)	IC4/NC4	C1-C7 NORMALIZED DATA %C1	%C2-C4	%C5-C7
G259-069	4400- 4450	241	15	10	3	2	1	271	30	11.1	1.50	88.6	11.0	0.4
G259-071	4500- 4550	99	8	6	2	1	1	116	17	14.7	2.00	84.6	14.5	0.9
G259-073	4600- 4650	61	9	7	2	1	1	80	19	23.7	2.00	75.3	23.5	1.2
G259-075	4700- 4750	175	13	7	2	1	1	198	23	11.6	2.00	87.9	11.6	0.5
G259-077	4800- 4850	198	22	12	7	3	3	242	44	18.2	2.33	80.8	18.0	1.2
G259-079	4900- 4950	134	12	8	3	1	2	158	24	15.2	3.00	83.7	15.0	1.3
G259-081	5000- 5050	101	7	7	3	1	6	119	18	15.1	3.00	80.8	14.4	4.8
G259-083	5100- 5150	126	6	8	3	1	2	144	18	12.5	3.00	86.3	12.3	1.4
G259-085	5200- 5250	212	5	4	2	1	3	224	12	5.4	2.00	93.4	5.3	1.3
G259-087	5300- 5350	141	8	8	1	1	14	159	18	11.3	1.00	81.5	10.4	8.1
G259-089	5400- 5450	249	5	5	1	0	1	260	11	4.2	-	95.4	4.2	0.4
G259-091	5500- 5550	287	5	5	0	0	1	297	10	3.4	-	96.3	3.4	0.3
G259-093	5600- 5650	153	4	5	0	0	2	162	9	5.6	-	93.3	5.5	1.2
G259-095	5700- 5750	184	5	2	0	0	2	191	7	3.7	-	95.3	3.6	1.0
G259-097	5800- 5850	309	9	4	0	0	1	322	13	4.0	-	95.7	4.0	0.3
G259-099	5900- 5950	226	8	2	0	0	4	236	10	4.2	-	94.2	4.2	1.7
G259-101	6000- 6050	338	6	1	0	0	0	345	7	2.0	-	98.0	2.0	0.0
G259-103	6100- 6150	5814	23	2	0	0	0	5839	25	0.4	-	99.6	0.4	0.0
	6110	** TOP OF MISSISSIPPIAN												
G259-104	6150- 6200	1643	22	1	0	0	0	1666	23	1.4	-	98.6	1.4	0.0
G259-105	6200- 6250	476	8	0	0	0	0	484	8	1.7	-	98.3	1.7	0.0
	6244	** TOP OF ORDOVICIAN												
G259-106	6250- 6300	421	6	0	0	0	0	427	6	1.4	-	98.6	1.4	0.0
G259-107	6300- 6350	975	15	1	0	0	0	991	16	1.6	-	98.4	1.6	0.0
G259-108	6350- 6400	405	7	1	0	0	0	413	8	1.9	-	98.1	1.9	0.0
G259-109	6400- 6450	329	6	3	0	0	1	338	9	2.7	-	97.1	2.7	0.3
G259-111	6500- 6550	874	8	1	0	0	1	883	9	1.0	-	98.9	1.0	0.1
G259-112	6550- 6600	123	86	1	1	0	214	211	88	41.7	-	28.9	20.7	50.4
G259-113	6600- 6650	877	7	3	0	0	4	887	10	1.1	-	98.4	1.1	0.4
G259-114	6650- 6700	257	4	1	0	0	2	262	5	1.9	-	97.3	1.9	0.8
G259-115	6700- 6750	65	1	4	1	0	1	71	6	8.5	-	90.3	8.3	1.4
G259-116	6750- 6800	74	1	2	0	0	5	77	3	3.9	-	90.2	3.7	6.1
G259-117	6800- 6850	63	1	0	0	0	1	64	1	1.6	-	96.9	1.5	1.5
G259-118	6850- 6900	84	1	1	0	0	1	86	2	2.3	-	96.6	2.3	1.1
G259-119	6900- 6950	40	1	2	0	0	1	43	3	7.0	-	90.9	6.8	2.3
	6925	** TOP OF CAMBRIAN												
G259-120	6950- 7000	107	2	3	0	0	1	112	5	4.5	-	94.7	4.4	0.9
G259-122	7050- 7100	65	1	1	0	0	1	67	2	3.0	-	95.6	2.9	1.5
	7069	** TOP OF PRE-CAMBRIAN												
G259-123	7100- 7150	131	3	1	0	0	1	135	4	3.0	-	96.3	2.9	0.7
G259-124	7150- 7200	175	4	2	0	1	0	182	7	3.8	0.00	96.2	3.8	0.0
G259-125	7200- 7250	170	5	1	0	0	2	176	6	3.4	-	95.5	3.4	1.1
	7230	** TOTAL DEPTH												

WELL NAME: WEB FEDRL 7 NO.1

TABLE I-B

C1-C7 HYDROCARBON ANALYSES OF CUTTINGS GAS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	METHANE C1 (PPM)	ETHANE C2 (PPM)	PROPANE C3 (PPM)	ISOBUTANE IC4 (PPM)	BUTANE NC4 (PPM)	TOTAL C5-C7 (PPM)	TOTAL C1-C4 (PPM)	TOTAL C2-C4 (PPM)	GAS WETNESS (%)	IC4/NC4	C1-C7 NORMALIZED DATA %C1	%C2-C4	%C5-C7
	55	** TOP OF TERTIARY												
	581	** TOP OF CRETACEOUS												
	1055	** TOP OF PERMIAN												
G259-001	1060- 1100	379	121	60	17	28	88	605	226	37.4	0.61	54.7	32.6	12.7
G259-002	1100- 1150	74	26	8	2	4	26	114	40	35.1	0.50	52.9	28.6	18.6
G259-003	1150- 2000	364	120	66	17	34	104	601	237	39.4	0.50	51.6	33.6	14.8
G259-004	1200- 1250	205	61	31	8	16	69	321	116	36.1	0.50	52.6	29.7	17.7
G259-005	1250- 1300	415	85	41	9	16	52	568	151	26.7	0.56	67.2	24.4	8.4
G259-006	1300- 1350	1500	269	124	36	63	136	1992	492	24.7	0.57	70.5	23.1	6.4
G259-007	1350- 1400	465	81	44	10	16	43	616	151	24.5	0.63	70.6	22.9	6.5
G259-008	1400- 1450	276	40	18	4	8	40	346	70	20.2	0.50	71.5	18.1	10.4
G259-009	1450- 1500	553	70	32	7	12	42	674	121	18.0	0.58	77.2	16.9	5.9
G259-010	1500- 1550	645	54	21	4	7	20	731	86	11.8	0.57	85.9	11.5	2.7
G259-011	1550- 1600	156	16	8	2	3	23	185	29	15.7	0.67	75.0	13.9	11.1
G259-012	1600- 1650	663	12	4	1	2	5	682	19	2.8	0.50	96.5	2.8	0.7
G259-013	1650- 1700	709	4	2	0	1	5	716	7	1.0	0.00	98.3	1.0	0.7
G259-014	1700- 1750	1042	4	3	1	1	6	1051	9	0.9	1.00	98.6	0.9	0.6
G259-015	1750- 1800	1659	2	2	1	1	4	1665	6	0.4	1.00	99.4	0.4	0.2
G259-016	1800- 1850	462	3	2	0	1	6	468	6	1.3	0.00	97.5	1.3	1.3
G259-019	1950- 2000	337	1	1	0	0	4	339	2	0.6	-	98.3	0.6	1.2
G259-020	2000- 2050	102	3	1	1	1	2	108	6	5.6	1.00	92.7	5.5	1.8
G259-022	2100- 2150	60	4	4	1	2	3	71	11	15.5	0.50	81.1	14.9	4.1
G259-024	2200- 2250	69	2	1	1	1	2	74	5	6.8	1.00	90.8	6.6	2.6
G259-026	2300- 2350	68	1	1	1	1	4	72	4	5.6	1.00	89.5	5.3	5.3
G259-028	2376- 2400	56	2	1	0	0	9	59	3	5.1	-	82.4	4.4	13.2
G259-029	2400- 2450	79	3	2	0	1	9	85	6	7.1	0.00	84.0	6.4	9.6
G259-031	2500- 2550	100	9	2	0	1	8	112	12	10.7	0.00	83.3	10.0	6.7
G259-033	2600- 2650	75	1	0	0	0	4	76	1	1.3	-	93.8	1.2	5.0
G259-035	2700- 2750	80	2	1	0	0	2	83	3	3.6	-	94.1	3.5	2.4
G259-037	2800- 2850	114	2	1	0	1	2	118	4	3.4	0.00	95.0	3.3	1.7
G259-039	2900- 2950	103	4	2	0	1	5	110	7	6.4	0.00	89.6	6.1	4.3
G259-041	3000- 3050	84	6	3	1	2	6	96	12	12.5	0.50	82.4	11.8	5.9
G259-043	3100- 3150	103	6	2	1	1	4	113	10	8.8	1.00	88.0	8.5	3.4
G259-045	3200- 3250	245	5	2	1	1	3	254	9	3.5	1.00	95.3	3.5	1.2
G259-047	3300- 3350	58	1	4	1	1	10	65	7	10.8	1.00	77.3	9.3	13.3
	3328	** TOP OF PENNSYLVANIAN												
G259-049	3400- 3450	83	1	1	1	1	4	87	4	4.6	1.00	91.2	4.4	4.4
G259-051	3500- 3550	116	3	5	1	1	2	126	10	7.9	1.00	90.6	7.8	1.6
G259-053	3600- 3650	65	3	3	1	1	2	73	8	11.0	1.00	86.7	10.7	2.7
G259-055	3700- 3750	110	1	0	0	0	1	111	1	0.9	-	98.2	0.9	0.9
G259-057	3800- 3850	101	1	1	1	1	4	105	4	3.8	1.00	92.7	3.7	3.7
G259-059	3900- 3950	208	4	2	1	1	1	216	8	3.7	1.00	95.9	3.7	0.5
G259-061	4000- 4050	242	4	1	1	1	1	249	7	2.8	1.00	96.8	2.8	0.4
G259-063	4100- 4150	263	4	2	0	1	1	270	7	2.6	0.00	97.0	2.6	0.4
G259-065	4200- 4250	253	6	1	0	0	1	260	7	2.7	-	96.9	2.7	0.4
G259-067	4300- 4350	279	4	3	1	1	1	288	9	3.1	1.00	96.5	3.1	0.3
G259-069	4400- 4450	568	14	7	3	1	1	593	25	4.2	3.00	95.6	4.2	0.2

WELL NAME: WEB FEDRL 7 NO.1

TABLE I-B

C1-C7 HYDROCARBON ANALYSES OF CUTTINGS GAS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	METHANE C1 (PPM)	ETHANE C2 (PPM)	PROPANE C3 (PPM)	ISOBUTANE IC4 (PPM)	BUTANE NC4 (PPM)	TOTAL C5-C7 (PPM)	TOTAL C1-C4 (PPM)	TOTAL C2-C4 (PPM)	GAS WETNESS (%)	IC4/NC4	C1-C7 NORMALIZED DATA %C1	%C2-C4	%C5-C7
G259-071	4500- 4550	456	9	5	2	1	1	473	17	3.6	2.00	96.2	3.6	0.2
G259-073	4600- 4650	120	8	5	2	1	1	136	16	11.8	2.00	87.6	11.7	0.7
G259-075	4700- 4750	421	12	5	2	1	1	441	20	4.5	2.00	95.2	4.5	0.2
G259-077	4800- 4850	669	25	12	9	3	4	718	49	6.8	3.00	92.7	6.8	0.6
G259-079	4900- 4950	485	15	7	3	2	2	512	27	5.3	1.50	94.4	5.3	0.4
G259-081	5000- 5050	434	8	3	2	1	4	448	14	3.1	2.00	96.0	3.1	0.9
G259-083	5100- 5150	394	6	3	1	1	2	405	11	2.7	1.00	96.8	2.7	0.5
G259-085	5200- 5250	601	7	3	1	1	2	613	12	2.0	1.00	97.7	2.0	0.3
G259-087	5300- 5350	419	8	3	1	1	10	432	13	3.0	1.00	94.8	2.9	2.3
G259-089	5400- 5450	1042	12	5	1	1	3	1061	19	1.8	1.00	97.9	1.8	0.3
G259-091	5500- 5550	1208	13	5	1	1	4	1228	20	1.6	1.00	98.1	1.6	0.3
G259-093	5600- 5650	837	8	3	1	1	2	850	13	1.5	1.00	98.2	1.5	0.2
G259-095	5700- 5750	1095	12	4	1	1	3	1113	18	1.6	1.00	98.1	1.6	0.3
G259-097	5800- 5850	1154	18	8	2	3	9	1185	31	2.6	0.67	96.6	2.6	0.8
G259-099	5900- 5950	1029	17	4	1	1	6	1052	23	2.2	1.00	97.3	2.2	0.6
G259-101	6000- 6050	1450	22	6	2	1	1	1481	31	2.1	2.00	97.8	2.1	0.1
G259-103	6100- 6150	3505	62	7	2	1	1	3577	72	2.0	2.00	98.0	2.0	0.0
	6110	** TOP OF MISSISSIPPIAN												
G259-104	6150- 6200	1534	38	6	2	1	4	1581	47	3.0	2.00	96.8	3.0	0.3
G259-105	6200- 6250	1936	27	5	2	1	2	1971	35	1.8	2.00	98.1	1.8	0.1
	6244	** TOP OF ORDOVICIAN												
G259-106	6250- 6300	1241	20	3	1	0	1	1265	24	1.9	-	98.0	1.9	0.1
G259-107	6300- 6350	2099	48	6	1	1	1	2155	56	2.6	1.00	97.4	2.6	0.0
G259-108	6350- 6400	5549	124	15	2	1	3	5691	142	2.5	2.00	97.5	2.5	0.1
G259-109	6400- 6450	8252	91	12	2	1	3	8358	106	1.3	2.00	98.7	1.3	0.0
G259-111	6500- 6550	2854	67	6	1	1	2	2929	75	2.6	1.00	97.4	2.6	0.1
G259-112	6550- 6600	1575	87	8	5	3	51	1678	103	6.1	1.67	91.1	6.0	2.9
G259-113	6600- 6650	4258	37	6	1	1	2	4303	45	1.0	1.00	98.9	1.0	0.0
G259-114	6650- 6700	1356	19	2	0	0	2	1377	21	1.5	-	98.3	1.5	0.1
G259-115	6700- 6750	901	15	2	0	0	1	918	17	1.9	-	98.0	1.8	0.1
G259-116	6750- 6800	771	10	1	0	0	1	782	11	1.4	-	98.5	1.4	0.1
G259-117	6800- 6850	848	5	1	0	0	1	854	6	0.7	-	99.2	0.7	0.1
G259-118	6850- 6900	534	10	1	0	0	1	545	11	2.0	-	97.8	2.0	0.2
G259-119	6900- 6950	258	3	1	0	0	1	262	4	1.5	-	98.1	1.5	0.4
	6925	** TOP OF CAMBRIAN												
G259-120	6950- 7000	498	10	1	0	0	2	510	11	2.2	-	97.5	2.1	0.4
G259-122	7050- 7100	409	8	1	0	0	2	418	9	2.2	-	97.4	2.1	0.5
	7069	** TOP OF PRE-CAMBRIAN												
G259-123	7100- 7150	273	6	1	0	0	1	280	7	2.5	-	97.2	2.5	0.4
G259-124	7150- 7200	425	7	1	0	1	0	434	9	2.1	0.00	97.9	2.1	0.0
G259-125	7200- 7250	937	18	3	1	1	0	960	23	2.4	1.00	97.6	2.4	0.0
	7230	** TOTAL DEPTH												

WELL NAME: WEB FEDRL 7 NO.1

TABLE I-C

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE AND CUTTINGS GAS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	METHANE C1 (PPM)	ETHANE C2 (PPM)	PROPANE C3 (PPM)	ISOBUTANE IC4 (PPM)	BUTANE NC4 (PPM)	TOTAL C5-C7 (PPM)	TOTAL C1-C4 (PPM)	TOTAL C2-C4 (PPM)	GAS WETNESS (%)	IC4/NC4	C1-C7 NORMALIZED DATA %C1	%C2-C4	%C5-C7
	55	** TOP OF TERTIARY												
	581	** TOP OF CRETACEOUS												
	1055	** TOP OF PERMIAN												
G259-001	1060- 1100	380	122	60	17	28	88	607	227	37.4	0.61	54.7	32.7	12.7
G259-002	1100- 1150	91	69	9	3	6	36	178	87	48.9	0.50	42.5	40.7	16.8
G259-003	1150- 2000	404	130	73	19	38	119	664	260	39.2	0.50	51.6	33.2	15.2
G259-004	1200- 1250	226	67	42	9	18	78	362	136	37.6	0.50	51.4	30.9	17.7
G259-005	1250- 1300	463	97	50	11	19	59	640	177	27.7	0.58	66.2	25.3	8.4
G259-006	1300- 1350	1643	295	140	40	69	151	2187	544	24.9	0.58	70.3	23.3	6.5
G259-007	1350- 1400	499	88	53	11	18	51	669	170	25.4	0.61	69.3	23.6	7.1
G259-008	1400- 1450	298	44	25	5	9	44	381	83	21.8	0.56	70.1	19.5	10.4
G259-009	1450- 1500	605	78	46	8	14	48	751	146	19.4	0.57	75.7	18.3	6.0
G259-010	1500- 1550	698	58	23	5	7	24	791	93	11.8	0.71	85.6	11.4	2.9
G259-011	1550- 1600	172	18	11	3	4	28	208	36	17.3	0.75	72.9	15.3	11.9
G259-012	1600- 1650	671	12	4	1	2	5	690	19	2.8	0.50	96.5	2.7	0.7
G259-013	1650- 1700	730	6	6	0	1	7	743	13	1.7	0.00	97.3	1.7	0.9
G259-014	1700- 1750	1105	5	5	1	1	7	1117	12	1.1	1.00	98.3	1.1	0.6
G259-015	1750- 1800	1705	3	4	1	1	5	1714	9	0.5	1.00	99.2	0.5	0.3
G259-016	1800- 1850	544	5	4	0	2	10	555	11	2.0	0.00	96.3	1.9	1.8
G259-019	1950- 2000	372	1	1	0	0	7	374	2	0.5	-	97.6	0.5	1.8
G259-020	2000- 2050	137	6	2	1	1	3	147	10	6.8	1.00	91.3	6.7	2.0
G259-022	2100- 2150	87	6	9	1	3	7	106	19	17.9	0.33	77.0	16.8	6.2
G259-024	2200- 2250	80	3	4	1	1	3	89	9	10.1	1.00	87.0	9.8	3.3
G259-026	2300- 2350	103	4	3	1	2	7	113	10	8.8	0.50	85.8	8.3	5.8
G259-028	2376- 2400	67	3	1	0	0	15	71	4	5.6	-	77.9	4.7	17.4
G259-029	2400- 2450	104	8	5	0	2	14	119	15	12.6	0.00	78.2	11.3	10.5
G259-031	2500- 2550	222	47	14	1	4	19	288	66	22.9	0.25	72.3	21.5	6.2
G259-033	2600- 2650	146	13	10	1	2	12	172	26	15.1	0.50	79.3	14.1	6.5
G259-035	2700- 2750	167	21	10	1	3	10	202	35	17.3	0.33	78.8	16.5	4.7
G259-037	2800- 2850	187	19	8	1	3	11	218	31	14.2	0.33	81.7	13.5	4.8
G259-039	2900- 2950	176	19	9	1	3	15	208	32	15.4	0.33	78.9	14.3	6.7
G259-041	3000- 3050	152	27	12	2	4	15	197	45	22.8	0.50	71.7	21.2	7.1
G259-043	3100- 3150	142	11	4	1	2	10	160	18	11.2	0.50	83.5	10.6	5.9
G259-045	3200- 3250	272	7	5	1	1	5	286	14	4.9	1.00	93.5	4.8	1.7
G259-047	3300- 3350	72	2	4	1	1	26	80	8	10.0	1.00	67.9	7.5	24.5
	3328	** TOP OF PENNSYLVANIAN												
G259-049	3400- 3450	108	2	3	1	1	5	115	7	6.1	1.00	90.0	5.8	4.2
G259-051	3500- 3550	192	7	9	1	1	3	210	18	8.6	1.00	90.1	8.5	1.4
G259-053	3600- 3650	109	5	9	1	1	4	125	16	12.8	1.00	84.5	12.4	3.1
G259-055	3700- 3750	136	3	7	0	0	2	146	10	6.8	-	91.9	6.8	1.4
G259-057	3800- 3850	133	2	7	1	1	5	144	11	7.6	1.00	89.3	7.4	3.4
G259-059	3900- 3950	345	8	6	3	2	2	364	19	5.2	1.50	94.3	5.2	0.5
G259-061	4000- 4050	396	7	3	2	2	2	410	14	3.4	1.00	96.1	3.4	0.5
G259-063	4100- 4150	407	8	5	1	2	2	423	16	3.8	0.50	95.8	3.8	0.5
G259-065	4200- 4250	388	8	6	1	0	2	403	15	3.7	-	95.8	3.7	0.5
G259-067	4300- 4350	413	8	14	3	2	2	440	27	6.1	1.50	93.4	6.1	0.5

WELL NAME: WEB FEDRL 7 NO.1

TABLE I-C

C1-C7 HYDROCARBON ANALYSES OF AIR SPACE AND CUTTINGS GAS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	METHANE C1 (PPM)	ETHANE C2 (PPM)	PROPANE C3 (PPM)	ISOBUTANE IC4 (PPM)	BUTANE NC4 (PPM)	TOTAL C5-C7 (PPM)	TOTAL C1-C4 (PPM)	TOTAL C2-C4 (PPM)	GAS WETNESS (%)	IC4/NC4	C1-C7 NORMALIZED DATA %C1	%C2-C4	%C5-C7
G259-069	4400- 4450	809	29	17	6	3	2	864	55	6.4	2.00	93.4	6.4	0.2
G259-071	4500- 4550	555	17	11	4	2	2	589	34	5.8	2.00	93.9	5.8	0.3
G259-073	4600- 4650	181	17	12	4	2	2	216	35	16.2	2.00	83.0	16.1	0.9
G259-075	4700- 4750	596	25	12	4	2	2	639	43	6.7	2.00	93.0	6.7	0.3
G259-077	4800- 4850	867	47	24	16	6	7	960	93	9.7	2.67	89.7	9.6	0.7
G259-079	4900- 4950	619	27	15	6	3	4	670	51	7.6	2.00	91.8	7.6	0.6
G259-081	5000- 5050	535	15	10	5	2	10	567	32	5.6	2.50	92.7	5.5	1.7
G259-083	5100- 5150	520	12	11	4	2	4	549	29	5.3	2.00	94.0	5.2	0.7
G259-085	5200- 5250	813	12	7	3	2	5	837	24	2.9	1.50	96.6	2.9	0.6
G259-087	5300- 5350	560	16	11	2	2	24	591	31	5.2	1.00	91.1	5.0	3.9
G259-089	5400- 5450	1291	17	10	2	1	4	1321	30	2.3	2.00	97.4	2.3	0.3
G259-091	5500- 5550	1495	18	10	1	1	5	1525	30	2.0	1.00	97.7	2.0	0.3
G259-093	5600- 5650	990	12	8	1	1	4	1012	22	2.2	1.00	97.4	2.2	0.4
G259-095	5700- 5750	1279	17	6	1	1	5	1304	25	1.9	1.00	97.7	1.9	0.4
G259-097	5800- 5850	1463	27	12	2	3	10	1507	44	2.9	0.67	96.4	2.9	0.7
G259-099	5900- 5950	1255	25	6	1	1	10	1288	33	2.6	1.00	96.7	2.5	0.8
G259-101	6000- 6050	1788	28	7	2	1	1	1826	38	2.1	2.00	97.9	2.1	0.1
G259-103	6100- 6150	9319	85	9	2	1	1	9416	97	1.0	2.00	99.0	1.0	0.0
	6110	** TOP OF MISSISSIPPIAN												
G259-104	6150- 6200	3177	60	7	2	1	4	3247	70	2.2	2.00	97.7	2.2	0.1
G259-105	6200- 6250	2412	35	5	2	1	2	2455	43	1.8	2.00	98.2	1.8	0.1
	6244	** TOP OF ORDOVICIAN												
G259-106	6250- 6300	1662	26	3	1	0	1	1692	30	1.8	-	98.2	1.8	0.1
G259-107	6300- 6350	3074	63	7	1	1	1	3146	72	2.3	1.00	97.7	2.3	0.0
G259-108	6350- 6400	5954	131	16	2	1	3	6104	150	2.5	2.00	97.5	2.5	0.0
G259-109	6400- 6450	8581	97	15	2	1	4	8696	115	1.3	2.00	98.6	1.3	0.0
G259-111	6500- 6550	3728	75	7	1	1	3	3812	84	2.2	1.00	97.7	2.2	0.1
G259-112	6550- 6600	1698	173	9	6	3	265	1889	191	10.1	2.00	78.8	8.9	12.3
G259-113	6600- 6650	5135	44	9	1	1	6	5190	55	1.1	1.00	98.8	1.1	0.1
G259-114	6650- 6700	1613	23	3	0	0	4	1639	26	1.6	-	98.2	1.6	0.2
G259-115	6700- 6750	966	16	6	1	0	2	989	23	2.3	-	97.5	2.3	0.2
G259-116	6750- 6800	845	11	3	0	0	6	859	14	1.6	-	97.7	1.6	0.7
G259-117	6800- 6850	911	6	1	0	0	2	918	7	0.8	-	99.0	0.8	0.2
G259-118	6850- 6900	618	11	2	0	0	2	631	13	2.1	-	97.6	2.1	0.3
G259-119	6900- 6950	298	4	3	0	0	2	305	7	2.3	-	97.1	2.3	0.7
	6925	** TOP OF CAMBRIAN												
G259-120	6950- 7000	606	12	4	0	0	3	622	16	2.6	-	97.0	2.6	0.5
G259-122	7050- 7100	474	9	2	0	0	3	485	11	2.3	-	97.1	2.3	0.6
	7069	** TOP OF PRE-CAMBRIAN												
G259-123	7100- 7150	404	9	2	0	0	2	415	11	2.7	-	96.9	2.6	0.5
G259-124	7150- 7200	600	11	3	0	2	0	616	16	2.6	0.00	97.4	2.6	0.0
G259-125	7200- 7250	1107	23	4	1	1	2	1136	29	2.6	1.00	97.3	2.5	0.2
	7230	** TOTAL DEPTH												

WELL NAME: WEB FEDRL 7 NO.1

TABLE II

SUMMARY OF ORGANIC CARBON AND VISUAL KEROGEN ANALYSIS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	PERCENT ORGANIC CARBON	PERCENT TOTAL CARBON	VISUAL KEROGEN	
				ORGANIC MATTER TYPE (%)	ALTERATION INDEX, TAI (1-5 SCALE)
	55	** TOP OF TERTIARY			
	581	** TOP OF CRETACEOUS			
	1055	** TOP OF PERMIAN			
G259-001	1060 - 1100	0.29	-	H(38)W(38)Am(25)	2.1
G259-002	1100 - 1150	0.07	-		-
G259-003	1150 - 2000	0.17; 0.19R	-		-
G259-004	1200 - 1250	0.21	-		-
G259-005	1250 - 1300	0.11	-		-
G259-006	1300 - 1350	0.14	-		-
G259-007	1350 - 1400	0.25	-		-
G259-008	1400 - 1450	0.13	-		-
G259-009	1450 - 1500	0.10	-		-
G259-010	1500 - 1550	0.10	-		-
G259-011	1550 - 1600	0.09	-		-
G259-012	1600 - 1650	0.14; 0.13R	-		-
G259-013	1650 - 1700	0.10	-		-
G259-014	1700 - 1750	0.15	-		-
G259-015	1750 - 1800	0.15	-		-
G259-016	1800 - 1850	0.08	-		-
G259-019	1950 - 2000	0.09	-	Am(50)H(33)W(17)	2.8
G259-020	2000 - 2050	0.08	-		-
G259-022	2100 - 2150	0.05	-		-
G259-024	2200 - 2250	0.06	-		-
G259-026	2300 - 2350	0.05	-		-
G259-028	2376 - 2400	0.01; 0.01R	-		-
G259-029	2400 - 2450	0.05	-		-
G259-031	2500 - 2550	0.02	-		-
G259-033	2600 - 2650	0.02	-		-
G259-035	2700 - 2750	0.01	-		-
G259-037	2800 - 2850	0.01	-		-
G259-039	2900 - 2950	0.09	-		-
G259-041	3000 - 3050	0.07; 0.06R	-		-
G259-043	3100 - 3150	0.08	-		-
G259-045	3200 - 3250	0.08	-	Am(40)W(40)H(20)	2.7
G259-047	3300 - 3350	0.08	-	Am(66)W(33)	2.7

WELL NAME: WEB FEDRL 7 NO.1

TABLE II

SUMMARY OF ORGANIC CARBON AND VISUAL KEROGEN ANALYSIS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	PERCENT ORGANIC CARBON	PERCENT TOTAL CARBON	VISUAL KEROGEN ORGANIC MATTER TYPE (%)	VISUAL KEROGEN ALTERATION INDEX, TAI (1-5 SCALE)
	3328	** TOP OF PENNSYLVANIAN			
G259-049	3400 - 3450	0.06	-		-
G259-051	3500 - 3550	0.40	-		-
G259-053	3600 - 3650	0.28	-	H(63)W(25)Am(13)	2.9
G259-055	3700 - 3750	0.28; 0.27R	-		-
G259-057	3800 - 3850	0.21	-		-
G259-059	3900 - 3950	0.72	-		-
G259-061	4000 - 4050	0.74	-	H(50)W(33)Am(17)	2.9
G259-063	4100 - 4150	0.43	-		-
G259-065	4200 - 4250	0.24	-		-
G259-067	4300 - 4350	0.42; 0.43R	-	W(44)H(33)Am(22)	2.9
G259-069	4400 - 4450	3.02	-		-
G259-071	4500 - 4550	2.86	-	H(63)W(25)Am(13)	2.7
G259-073	4600 - 4650	1.15	-		-
G259-075	4700 - 4750	1.68	-	H(56)Am(22)W(22)	2.7
G259-077	4800 - 4850	1.55	-		-
G259-079	4900 - 4950	1.74	-		-
G259-081	5000 - 5050	1.11	-	H(63)W(25)Am(13)	2.8
G259-083	5100 - 5150	0.70; 0.71R	-		-
G259-085	5200 - 5250	0.48	-		-
G259-087	5300 - 5350	0.82	-	W(57)H(43)	2.8
G259-089	5400 - 5450	0.33	-		-
G259-091	5500 - 5550	0.21	-		-
G259-093	5600 - 5650	0.20	-	W(50)Am(38)H(13)	2.9
G259-095	5700 - 5750	0.21	-		-
G259-097	5800 - 5850	0.19; 0.21R	-		-
G259-099	5900 - 5950	0.26	-	Am(63)H(25)W(13)	3.0
G259-101	6000 - 6050	0.23	-		-
G259-103	6100 - 6150	0.46	-	W(44)H(33)Am(22)	2.9
	6110	** TOP OF MISSISSIPPIAN			
G259-104	6150 - 6200	0.56	-	H(45)W(36)Am(18)	2.9
G259-105	6200 - 6250	0.41	-	H(45)W(36)Am(18)	2.9
	6244	** TOP OF ORDOVICIAN			
G259-106	6250 - 6300	0.26	-	H(60)W(30)Am(10)	2.9
G259-107	6300 - 6350	0.10	-		3.4

WELL NAME: WEB FEDRL 7 NO.1

TABLE II

SUMMARY OF ORGANIC CARBON AND VISUAL KEROGEN ANALYSIS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	PERCENT ORGANIC CARBON	PERCENT TOTAL CARBON	VISUAL KEROGEN	
				ORGANIC MATTER TYPE (%)	ALTERATION INDEX, TAI (1-5 SCALE)
G259-108	6350 - 6400	0.11	-		3.4
G259-109	6400 - 6450	0.08; 0.08R	-		3.4
G259-111	6500 - 6550	0.36	-		-
G259-112	6550 - 6600	0.45	-		-
G259-113	6600 - 6650	0.10	-		3.4
G259-114	6650 - 6700	0.09	-		3.4
G259-115	6700 - 6750	0.07	-		3.4
G259-116	6750 - 6800	0.06	-		3.4
G259-117	6800 - 6850	0.08	-		3.4
G259-118	6850 - 6900	0.06; 0.05R	-		3.4
G259-119	6900 - 6950	0.09	-		3.4
	6925	** TOP OF CAMBRIAN			
G259-120	6950 - 7000	0.06	-		3.4
G259-122	7050 - 7100	0.05	-		-
	7069	** TOP OF PRE-CAMBRIAN			
G259-123	7100 - 7150	0.07	-		-
G259-124	7150 - 7200	0.08	-		-
G259-125	7200 - 7250	0.07; 0.07R	-		-
	7230	** TOTAL DEPTH			

TABLE VI

VITRINITE REFLECTANCE SUMMARY

GRI SAMPLE NUMBER	DEPTH (FEET)	NUMBER OF READINGS	MINIMUM REFLECTANCE (% R0)	MAXIMUM REFLECTANCE (% R0)	MEAN REFLECTANCE (% R0)	STD. DEV. (% R0)
	55	** TOP OF TERTIARY				
	581	** TOP OF CRETACEOUS				
	1055	** TOP OF PERMIAN				
G259-001	1060- 1100	5	0.49	0.56	0.52	0.027
G259-019	1950- 2000	4	0.49	0.54	0.51	0.022
G259-047	3300- 3350	1	1.05	1.05	1.05	-
	3328	** TOP OF PENNSYLVANIAN				
G259-053	3600- 3650	40	0.88	1.08	0.99	0.058
G259-061	4000- 4050	42	0.87	1.06	0.96	0.049
G259-067	4300- 4350	25	0.83	1.06	0.95	0.061
G259-071	4500- 4550	18	0.91	1.09	0.99	0.049
G259-075	4700- 4750	23	0.92	1.09	1.00	0.056
G259-081	5000- 5050	28	0.92	1.08	0.97	0.043
G259-087	5300- 5350	40	0.92	1.09	1.00	0.052
G259-093	5600- 5650	37	0.96	1.10	1.03	0.040
G259-099	5900- 5950	20	1.00	1.16	1.08	0.044
G259-103	6100- 6150	9	0.92	1.05	0.97	0.050
	6110 '	** TOP OF MISSISSIPPIAN				
G259-104	6150- 6200	10	1.05	1.14	1.09	0.031
G259-105	6200- 6250	11	0.95	1.12	1.05	0.054
	6244	** TOP OF ORDOVICIAN				
	6925	** TOP OF CAMBRIAN				
	7069	** TOP OF PRE-CAMBRIAN				
	7230	** TOTAL DEPTH				

WELL NAME: WEB FEDRL 7 NO.1

TABLE VII

RESULTS OF ROCK-EVAL PYROLYSIS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	PERCENT ORGANIC CARBON	S1 (MG/G)	S2 (MG/G)	S3 (MG/G)	S1+S2 (MG/G)	HYDROGEN INDEX	OXYGEN INDEX	S1/S1+S2	TMAX (C)
	55	** TOP OF TERTIARY								
	581	** TOP OF CRETACEOUS								
	1055	** TOP OF PERMIAN								
G259-001	1060 - 1100	0.29	0.0	0.07	0.25	0.11	24	86	0.36	377
G259-002	1100 - 1150	0.07	0.0	0.00	0.16	0.00	0	229	-	234
G259-003	1150 - 2000	0.17; 0.19R	0.0	0.00	0.14	0.00	0	82	-	296
G259-004	1200 - 1250	0.21	0.02	0.05	0.17	0.07	24	81	0.29	274
G259-005	1250 - 1300	0.11	0.01	0.03	0.09	0.04	27	82	0.25	300
G259-006	1300 - 1350	0.14	0.00	0.03	0.15	0.03	21	107	0.00	316
G259-007	1350 - 1400	0.25	0.01	0.06	0.10	0.07	24	40	0.14	303
G259-008	1400 - 1450	0.13	0.00	0.00	0.14	0.00	0	108	-	264
G259-009	1450 - 1500	0.10	0.00	0.00	0.08	0.00	0	80	-	444
G259-010	1500 - 1550	0.10	0.00	0.01	0.08	0.01	10	80	0.00	433
G259-011	1550 - 1600	0.09	0.00	0.00	0.12	0.00	0	133	-	274
G259-012	1600 - 1650	0.14; 0.13R	0.00	0.01	0.21	0.01	7	150	0.00	274
G259-013	1650 - 1700	0.10	0.00	0.00	0.13	0.00	0	130	-	445
G259-014	1700 - 1750	0.15	0.00	0.01	0.27	0.01	7	180	0.00	316
G259-015	1750 - 1800	0.15	0.01	0.04	0.17	0.05	27	113	0.20	273
G259-016	1800 - 1850	0.08	0.00	0.01	0.13	0.01	12	163	0.00	263
G259-019	1950 - 2000	0.09	0.00	0.00	0.18	0.00	0	200	-	246
G259-020	2000 - 2050	0.08	0.00	0.07	0.37	0.07	88	462	0.00	439
G259-022	2100 - 2150	0.05	0.00	0.00	0.17	0.00	0	340	-	362
G259-024	2200 - 2250	0.06	0.00	0.00	0.17	0.00	0	283	-	226
G259-026	2300 - 2350	0.05	0.00	0.01	0.09	0.01	20	180	0.00	288
G259-028	2376 - 2400	0.01; 0.01R	0.00	0.00	0.00	0.00	0	0	-	248
G259-029	2400 - 2450	0.05	0.01	0.04	0.43	0.05	80	860	0.20	398
G259-031	2500 - 2550	0.02	0.00	0.00	0.38	0.00	0	*00	-	312
G259-033	2600 - 2650	0.02	0.01	0.00	0.41	0.01	0	*50	1.00	443
G259-035	2700 - 2750	0.01	0.01	0.02	0.49	0.03	200	*00	0.33	323
G259-037	2800 - 2850	0.01	0.00	0.00	0.28	0.00	0	*00	-	224
G259-039	2900 - 2950	0.09	0.00	0.00	0.30	0.00	0	333	-	335
G259-041	3000 - 3050	0.07; 0.06R	0.00	0.00	0.27	0.00	0	386	-	260
G259-043	3100 - 3150	0.08	0.00	0.00	0.21	0.00	0	262	-	224
G259-045	3200 - 3250	0.08	0.00	0.01	0.21	0.01	12	262	0.00	336
G259-047	3300 - 3350	0.08	0.01	0.05	0.37	0.06	63	462	0.17	323
	3328	** TOP OF PENNSYLVANIAN								
G259-049	3400 - 3450	0.06	0.00	0.05	0.27	0.05	83	450	0.00	275
G259-051	3500 - 3550	0.40	0.00	0.04	0.28	0.04	10	70	0.00	446
G259-053	3600 - 3650	0.28	0.00	0.02	0.22	0.02	7	79	0.00	384
G259-055	3700 - 3750	0.28; 0.27R	0.00	0.01	0.18	0.01	4	64	0.00	275
G259-057	3800 - 3850	0.21	0.00	0.01	0.24	0.01	5	114	0.00	311
G259-059	3900 - 3950	0.72	0.01	0.12	0.11	0.13	17	15	0.08	441
G259-061	4000 - 4050	0.74	0.00	0.14	0.09	0.14	19	12	0.00	450
G259-063	4100 - 4150	0.43	0.00	0.10	0.08	0.10	23	19	0.00	378
G259-065	4200 - 4250	0.24	0.00	0.05	0.05	0.05	21	21	0.00	335
G259-067	4300 - 4350	0.42; 0.43R	0.00	0.05	0.09	0.05	12	21	0.00	445

WELL NAME: WEB FEDRL 7 NO.1

TABLE VII

RESULTS OF ROCK-EVAL PYROLYSIS

GRI SAMPLE NUMBER	WELL INTERVAL (FEET)	PERCENT ORGANIC CARBON	S1 (MG/G)	S2 (MG/G)	S3 (MG/G)	S1+S2 (MG/G)	HYDROGEN INDEX	OXYGEN INDEX	S1/S1+S2	TMAX (C)
G259-069	4400 - 4450	3.02	0.01	0.80	0.09	0.81	26	3	0.01	478
G259-071	4500 - 4550	2.86	0.01	0.80	0.13	0.81	28	5	0.01	484
G259-073	4600 - 4650	1.15	0.00	0.18	0.10	0.18	16	9	0.00	492
G259-075	4700 - 4750	1.68	0.02	0.40	0.18	0.42	24	11	0.05	494
G259-077	4800 - 4850	1.55	0.03	0.28	0.22	0.31	18	14	0.10	498
G259-079	4900 - 4950	1.74	0.03	0.37	0.23	0.40	21	13	0.07	494
G259-081	5000 - 5050	1.11	0.02	0.26	0.23	0.28	23	21	0.07	501
G259-083	5100 - 5150	0.70; 0.71R	0.00	0.09	0.17	0.09	13	24	0.00	472
G259-085	5200 - 5250	0.48	0.03	0.10	0.28	0.13	21	58	0.23	413
G259-087	5300 - 5350	0.82	0.06	0.27	0.26	0.33	33	32	0.18	500
G259-089	5400 - 5450	0.33	0.01	0.09	0.21	0.10	27	64	0.10	444
G259-091	5500 - 5550	0.21	0.00	0.02	0.28	0.02	10	133	0.00	353
G259-093	5600 - 5650	0.20	0.00	0.01	0.26	0.01	5	130	0.00	351
G259-095	5700 - 5750	0.21	0.01	0.03	0.18	0.04	14	86	0.25	275
G259-097	5800 - 5850	0.19; 0.21R	0.00	0.03	0.20	0.03	16	105	0.00	353
G259-099	5900 - 5950	0.26	0.00	0.05	0.23	0.05	19	88	0.00	363
G259-101	6000 - 6050	0.23	0.00	0.04	0.19	0.04	17	83	0.00	296
G259-103	6100 - 6150	0.46	0.01	0.07	0.17	0.08	15	37	0.13	327
	6110	** TOP OF MISSISSIPPIAN								
	6244	** TOP OF ORDOVICIAN								
	6925	** TOP OF CAMBRIAN								
	7069	** TOP OF PRE-CAMBRIAN								
	7230	** TOTAL DEPTH								

GEO-CHEMLOG

COMPANY GETTY OIL CO
WELL NAME WEB FEDRL 7 NO.1
LOCATION
CO-ORDINATES

FEET ☒ METERS ☐
TOTAL DEPTH 7230
CHEMLOG INTERVAL 0 - TOTAL DEPTH
WELL STATUS
CHEMLOG COMPLETION DATE 4/8/83

SHALE
SAND
SILT
CARBONATE
COAL
OTHER

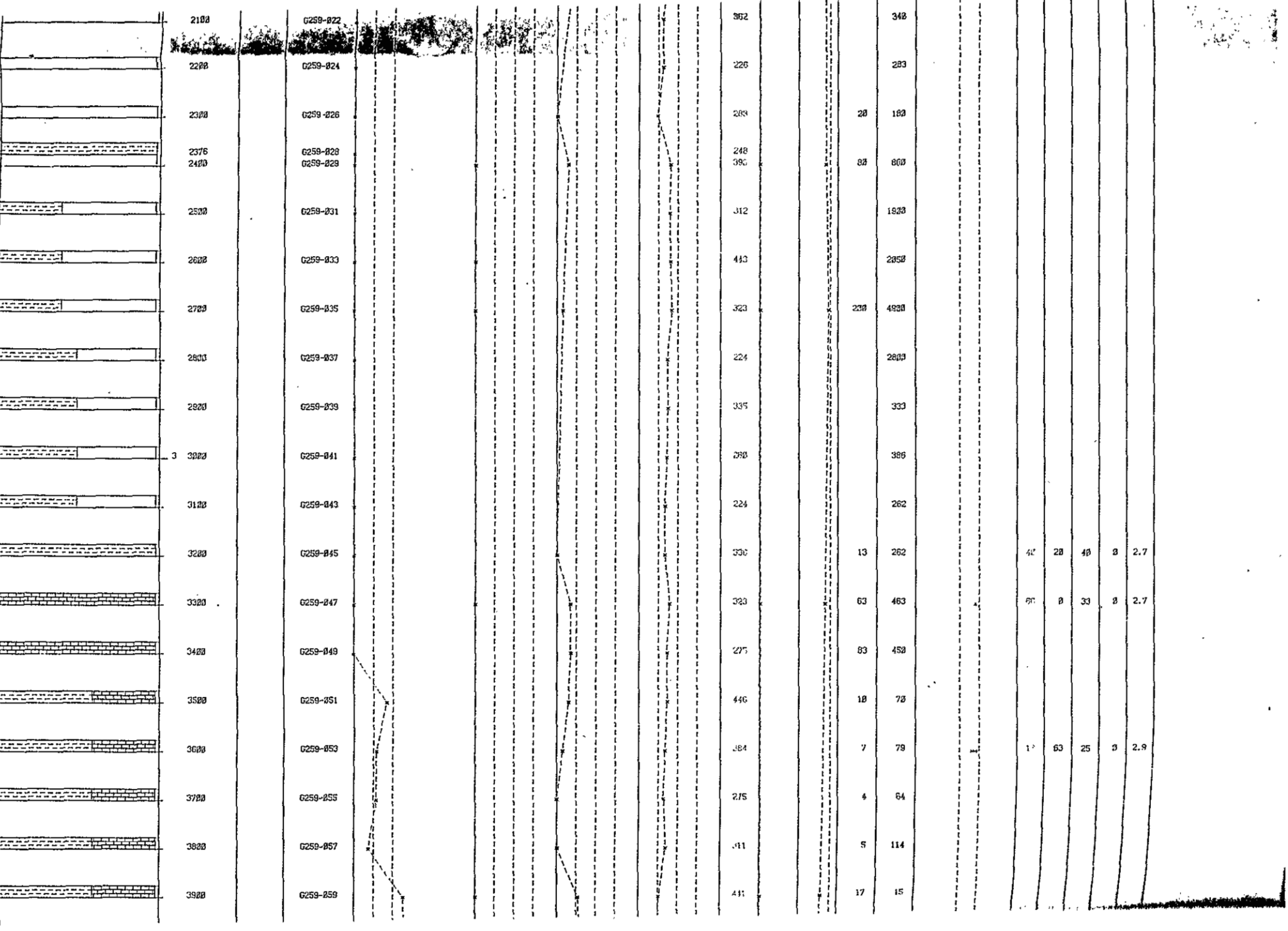
SAMPLE TYPE
☒ CUTTINGS
☐ CONVENTIONAL CORE
☐ SIDEWALL CORE

CHEMLOG TYPE
☒ BASIC
☐ DETAILED
☐ COMPOSITE

T°C MAX = MAX. TEMP. S2
T°C MAX 435 - 450 OIL ZONE
450 - 470 GAS
TAI THERMAL ALTERATION INDEX

S1 = VOLATILE HYDROCARBON S2 = GENERATED HYDROCARBON
S3 = ORGANIC CO_2
PC = PETROLEUM POTENTIAL PC = K (S1 + S2) K = 0.083
PI = PRODUCTIVITY INDEX PI = S1 / (S1 + S2)
HI = HYDROGEN INDEX = 100 x S2 / TOC
OI = OXYGEN INDEX = 100 x S3 / TOC

LITHOLOGY PERCENT 20 40 60 80 100	DEPTH FEET	% MUD DIESEL	SAMPLE NUMBER	ORGANIC CARBON PERCENT OF ROCK .25 .50 1 2 4 8	PYROLYSIS (mg/g ROCK) S1 .1 1 10 100	S2 .1 1 10 100	S3 .1 1 10 100	T°C MAX	PC 1 10 100	PI .1 1	HI	OI	VITRINITE REFLECTANCE .25 .50 1 2 4	KEROGEN EFFECTIVE % Ro	% H	% W	OTHER % I	TAI	REMARKS
	1060		G259-001					377			24	86		3	38	38	0	2.1	
	1100		G259-002					234				229							
	1150		G259-003					286				82							
	1200		G259-004					274			24	81							
	1250		G259-005					303			27	82							
	1300		G259-006					316			21	107							
	1350		G259-007					383			24	40							
	1400		G259-008					264				108							
	1450		G259-009					444				80							
	1500		G259-010					433			10	80							
	1550		G259-011					274				133							
	1600		G259-012					274			7	150							
	1650		G259-013					445				130							
	1700		G259-014					310			7	180							
	1750		G259-015					273			27	113							
	1800		G259-016					283			13	163							
	1950		G259-019					246				200		5	33	17	0	2.3	
	2000		G259-020					439			88	463							
	2100		G259-022									340							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2420
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2500
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312
1930
2600
G259-033
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2850
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G259-035
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230
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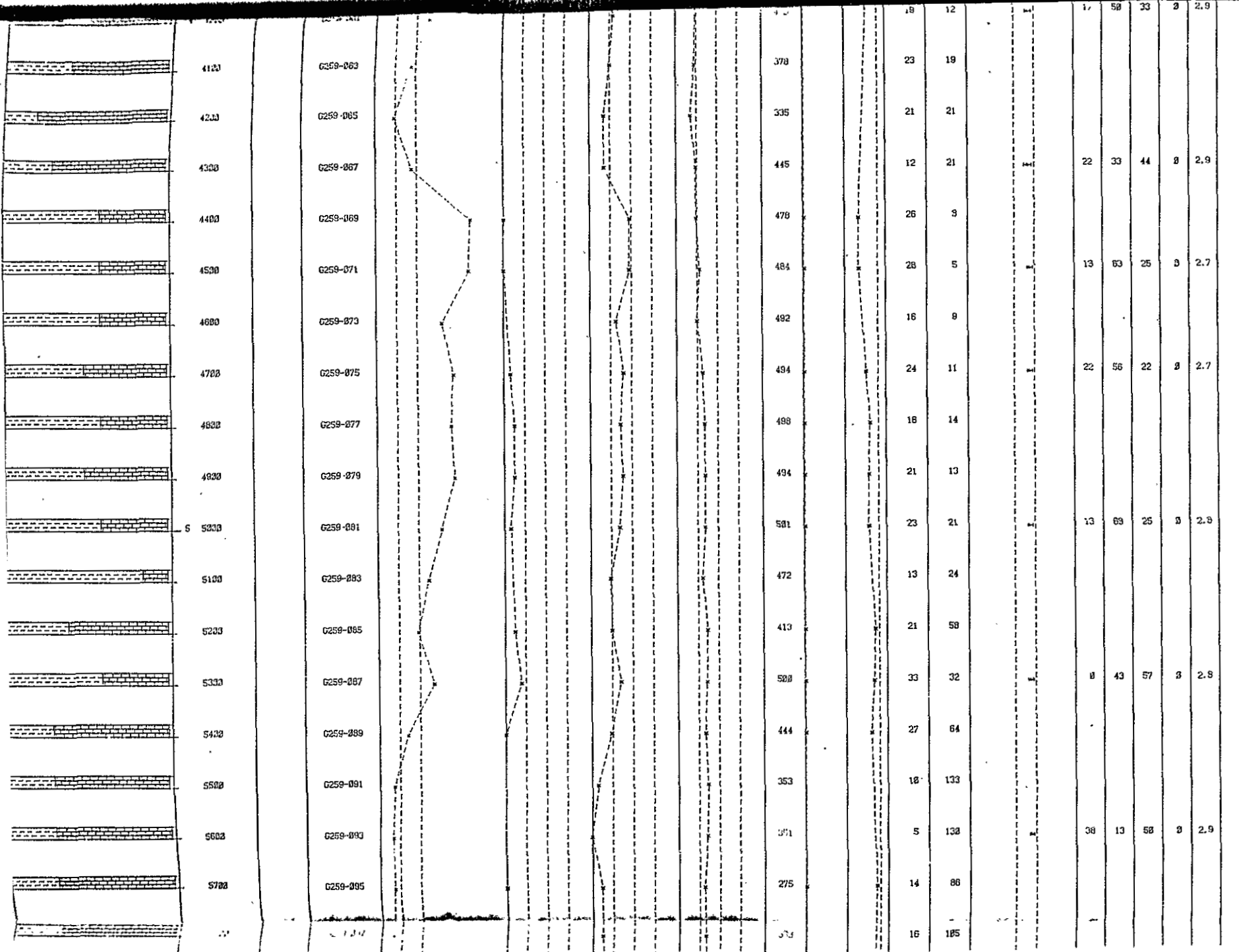
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12 21
26 9
28 5
16 9
24 11
18 14
21 13
23 21
13 24
21 58
33 32
27 64
18 133
5 138
14 86
16 185
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13 63 25 0 2.7
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0 43 57 0 2.8
38 13 50 0 2.9

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6 6000	G259-101	296	17	83					
6100	G259-103	327	15	37	22	33	44	0	2.9
6150	G259-104				18	45	36	0	2.9
6200	G259-105				18	45	36	0	2.9
6250	G259-106				10	60	30	0	2.9
6300	G259-107								3.4
6350	G259-108								3.4
6400	G259-109								3.4
6500	G259-111								
6550	G259-112								
6600	G259-113								3.4
6650	G259-114								3.4
6700	G259-115								3.4
6750	G259-116								3.4
6800	G259-117								3.4
6850	G259-118								3.4
6900	G259-119								3.4
6950	G259-120								3.4
7									
7050	G259-122								
7100	G259-123								
7150	G259-124								
7200	G259-125								