Vitrinite Reflectance Measurement of Cuttings and Coal Outcrops from Alaska; Drill Cuttings being from the following Three Wells:

Mobil Oil Corp. Salmonberry Lake Unit No. 1,

Atlantic Refining Company Rainbow Federal No. 1, and

Atlantic Refining Company Rainbow Federal No. 2

27 July 1987

Total of 56 pages in report

Geologic Materials Center Data Report 67

Litton
Core Lab

VITRINITE REFLECTANCE MEASUREMENT OF CUTTINGS AND COAL OUTCROPS FROM ALASKA

Prepared for

UTAH INTERNATIONAL INC.

by
Core Laboratories
July 1987

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File: 87097A

Table 1

Kerogen Data Summary

BHP-UTAH INTERNATIONAL Salmonberry Lake Unit #1

Depth (ft)	Amorphous	Exinite	Woody	Inertinite	Thermal Alteration Index	Vitrinite Reflectance	Remarks
	(percent)						
170-190						0.58	Value checked in duplicate.
540-550						0.21	
770-780						0.32	
1780-1790						0.68	Value checked in duplicate.
3080-3120						0.31	

Amorphous = non-structured debris + amorphous sapropels; Exinite = waxy and resinous materials generally having a characteristic form; i.e., plant cuticle, pollen, spores, resins, etc.

File: 87097B

Table 2

Kerogen Data Summary

BHP-UTAH INTERNATIONAL Rainbow Federal #1

Depth (ft)	Amorphous	Exinite	Woody	Inertinite	Thermal Alteration Index	Vitrinite Reflectance	Remarks
	(percent)						
236-355						0.21	
1095-1124						0.23	
1422-1452						0.25	
1720-1809						0.25	
2780-2890						0.39	
2940-2960						0.38	

Amorphous = non-structured debris + amorphous sapropels; Exinite = waxy and resinous materials generally having a characteristic form; i.e., plant cuticle, pollen, spores, resins, etc.

File: 87097C

Table 3

Kerogen Data Summary

BHP-UTAH INTERNATIONAL Rainbow Federal #2

Depth (ft)	Amorphous	Exinite	Woody	Inertinite	Thermal Alteration Index	Vitrinite Reflectance	Remarks
	(percent)						
710-740						0.23	
1152-1211						0.21	
2189-2219						0.30	
2482-2512						0.41	
2572-2632						0.35	

Amorphous = non-structured debris + amorphous sapropels; Exinite = waxy and resinous materials generally having a characteristic form; i.e., plant cuticle, pollen, spores, resins, etc.

File: 87097

Table 4

Kerogen Data Summary

BHP-UTAH INTERNATIONAL Coal Outcrops (Alaska)

Sample Name	Amorphous	Exinite	Woody	Inertinite	Thermal Alteration Index	Vitrinite Reflectance	Remarks
	(percent)						
87AC-1						0.33	
87AC-2						0.38	
87AC-3						0.32	
87AC-5						0.35	
87AC-6						0.27	
87AC-7						0.44	
87AC-8						0.48	
87AC-9						0.44	
87AC-11						0.45	
87AC-12						0.49	
87AC-13						0.54	
87AC-14						0.37	
87AC-15						0.37	

Amorphous = non-structured debris + amorphous sapropels; Exinite = waxy and resinous materials generally having a characteristic form; i.e., plant cuticle, pollen, spores, resins, etc.

File: 87097

Table 4

Kerogen Data Summary

BHP-UTAH INTERNATIONAL Coal Outcrops (Alaska)

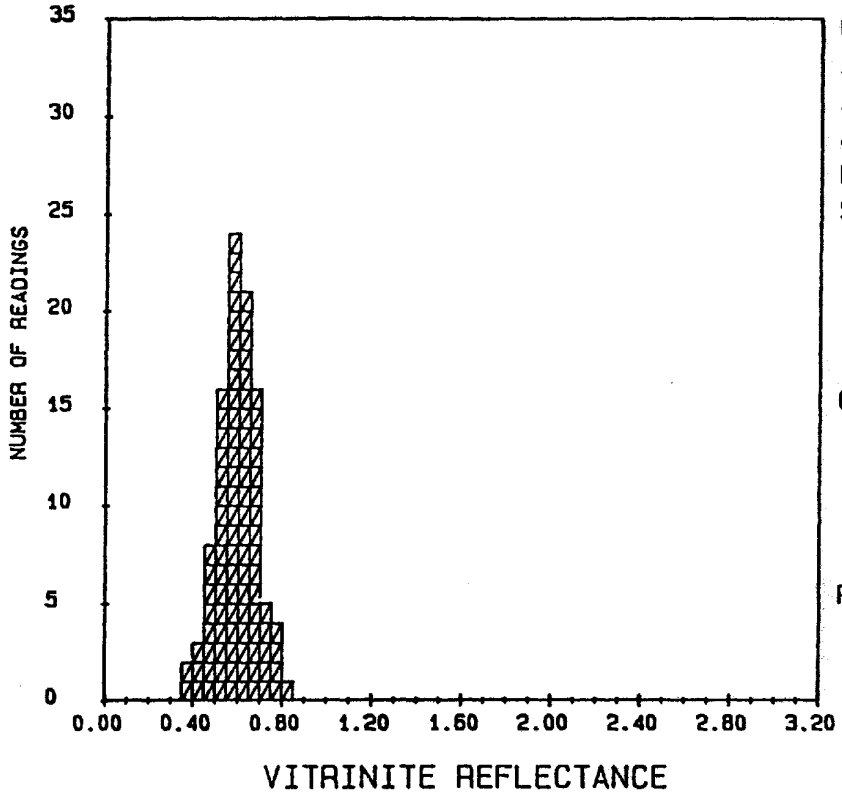
Sample Name	Amorphous	Exinite	Woody	Inertinite	Thermal Alteration Index	Vitrinite Reflectance	Remarks
	(percent)						
87AC-16						0.37	
87AC-18						0.46	
87AC-20						0.51	
87AC-21						1.84	
87AC-22						0.14	
87AC-24						0.47	
87AC-26						0.52	

Amorphous = non-structured debris + amorphous sapropels; Exinite = waxy and resinous materials generally having a characteristic form; i.e., plant cuticle, pollen, spores, resins, etc.

Vitrinite Reflectance

Histograms

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA
JOB # : 87097A
DEPTH : 170-190 FEET
SAMPLE: CUTTINGS

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

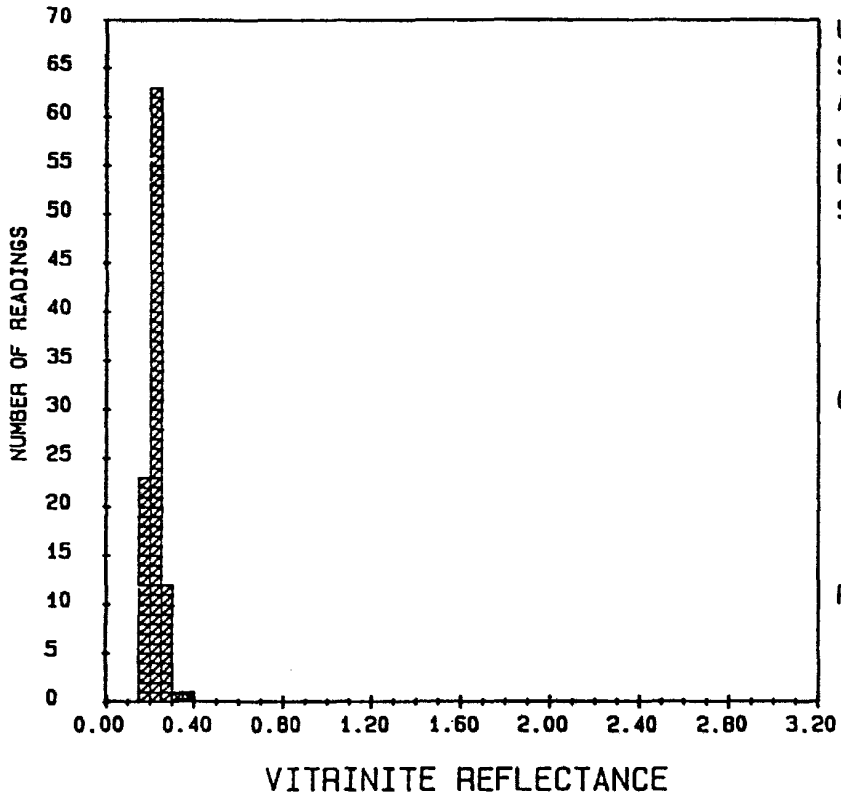
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.09
MEAN REF.	0.58 %	MEDIAN	0.58
MIN. REF.	0.36 %	MODE	0.57
MAX. REF.	0.81 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA
JOB # : 87097A
DEPTH : 540-550 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

⧄ INDIGENOUS

☒ RECYCLED - OXIDIZED

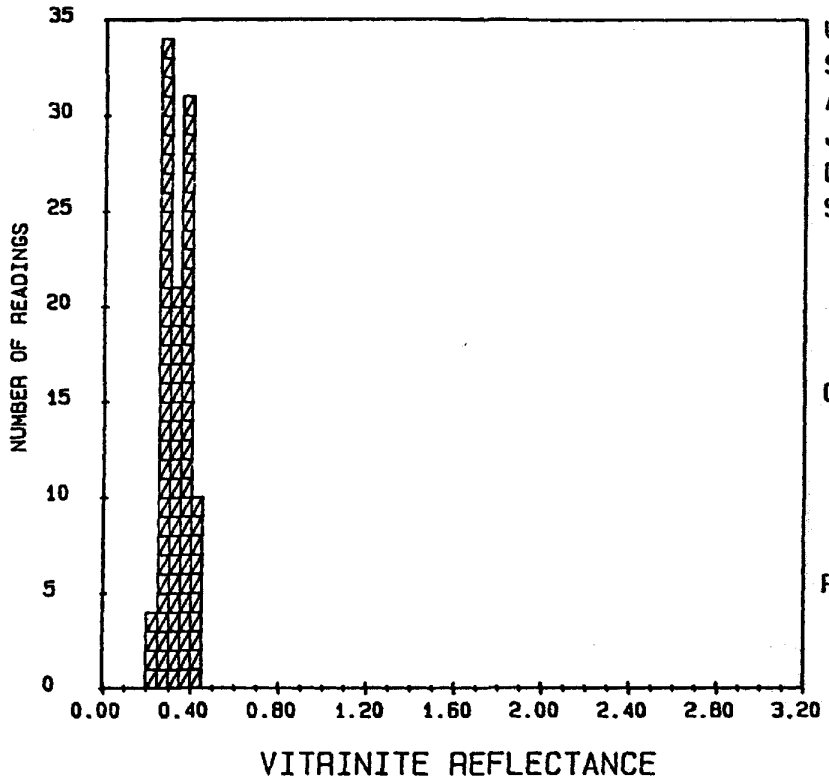
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	98	STANDARD DEVIATION	0.03
MEAN REF.	0.21 %	MEDIAN	0.21
MIN. REF.	0.16 %	MODE	0.22
MAX. REF.	0.28 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	98	INDIGENOUS	98.0 %
RECYCLED - OXIDIZED	2	RECYCLED - OXIDIZED	2.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA
JOB # : 87097A
DEPTH : 770-780 FEET
SAMPLE: CUTTINGS

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

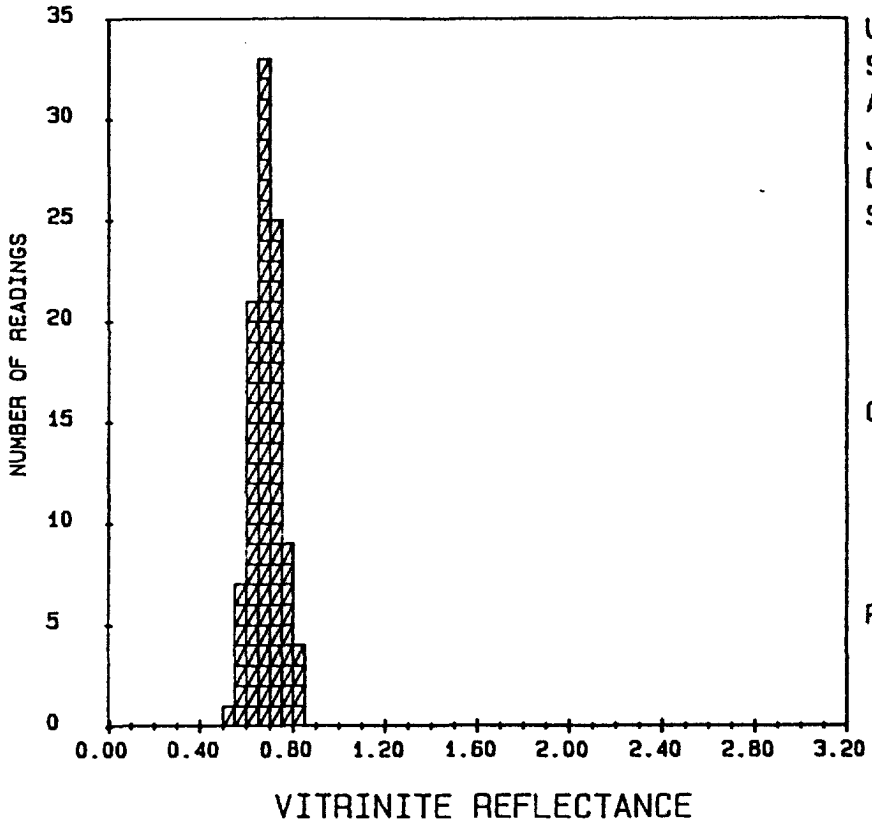
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.32 %	MEDIAN	0.32
MIN. REF.	0.21 %	MODE	0.29
MAX. REF.	0.44 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA
JOB # : 87097A
DEPTH : 1780-1790 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

☑ INDIGENOUS

☒ RECYCLED - OXIDIZED

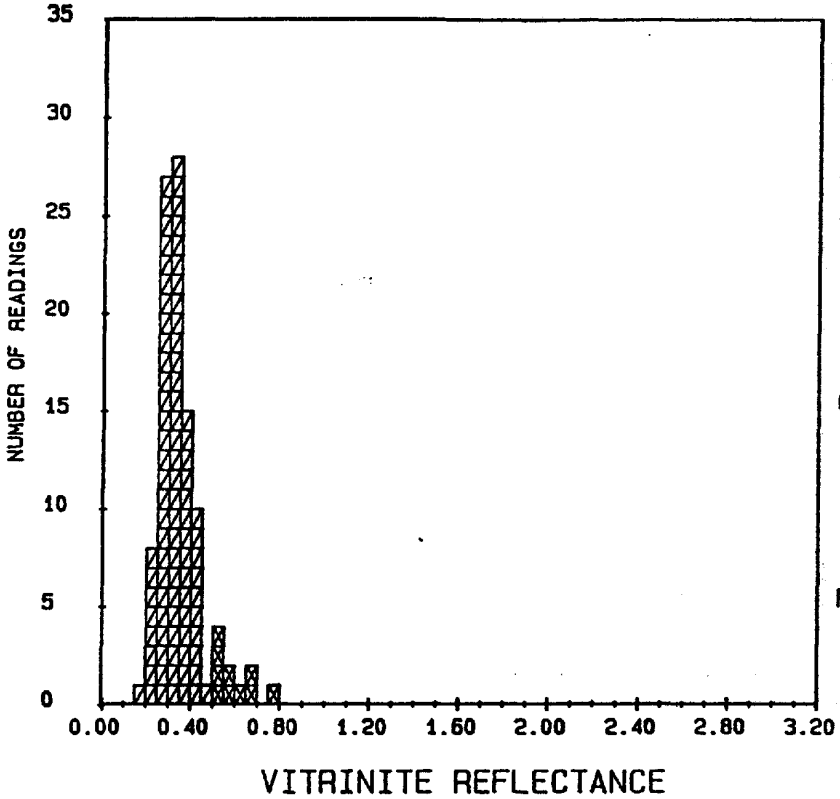
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.06
MEAN REF.	0.68 %	MEDIAN	0.67
MIN. REF.	0.53 %	MODE	0.68
MAX. REF.	0.84 %	SKEWNESS	0.50

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA
JOB # : 87097A
DEPTH : 3080-3120 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

▨ INDIGENOUS

☒ RECYCLED - OXIDIZED

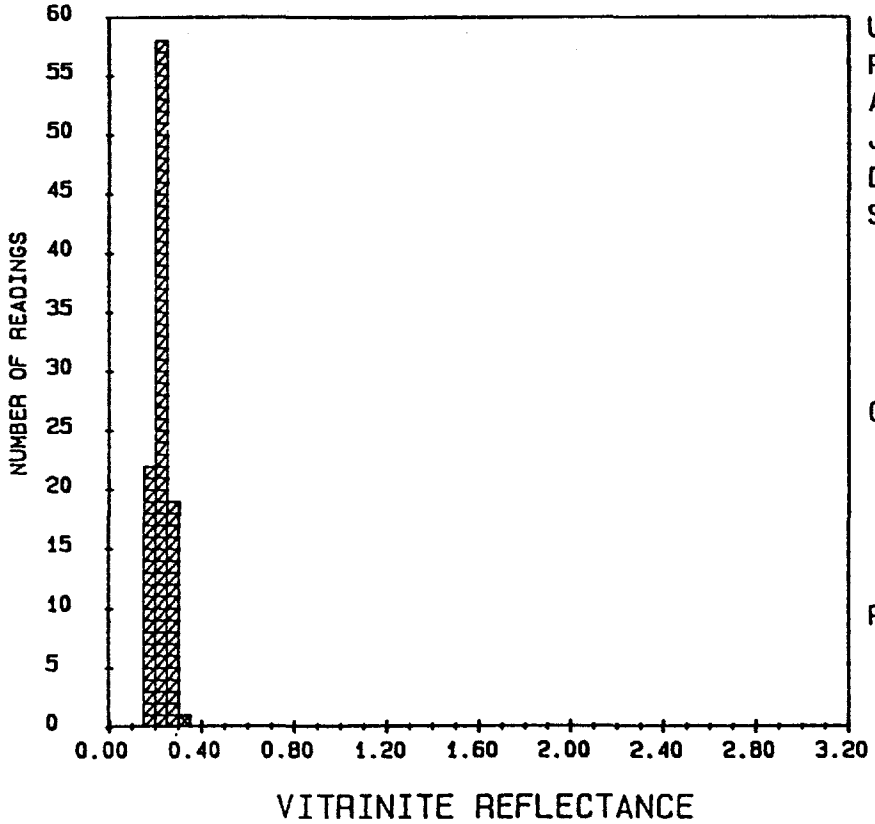
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	90	STANDARD DEVIATION	0.06
MEAN REF.	0.31 %	MEDIAN	0.30
MIN. REF.	0.18 %	MODE	0.30
MAX. REF.	0.49 %	SKEWNESS	0.48

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	90	INDIGENOUS	90.0 %
RECYCLED - OXIDIZED	10	RECYCLED - OXIDIZED	10.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA
JOB # : 870978
DEPTH : 236-355 FEET
SAMPLE: CUTTINGS

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

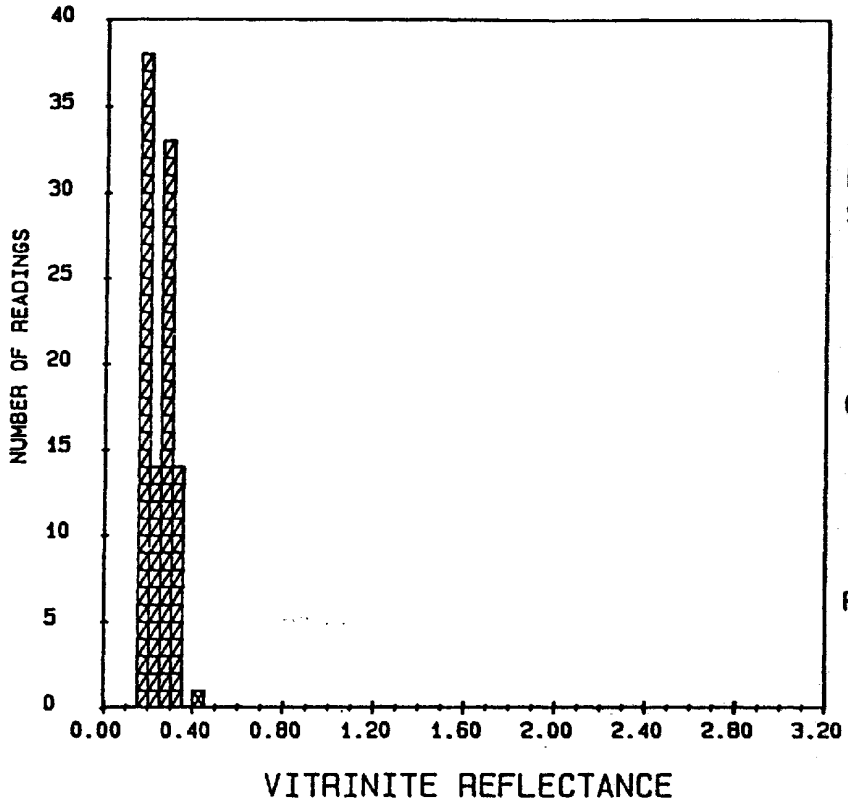
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	99	STANDARD DEVIATION	0.03
MEAN REF.	0.21 %	MEDIAN	0.21
MIN. REF.	0.15 %	MODE	0.21
MAX. REF.	0.29 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	99	INDIGENOUS	99.0 %
RECYCLED - OXIDIZED	1	RECYCLED - OXIDIZED	1.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA
JOB # : 870978
DEPTH : 1095-1124 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

☒ INDIGENOUS

☒ RECYCLED - OXIDIZED

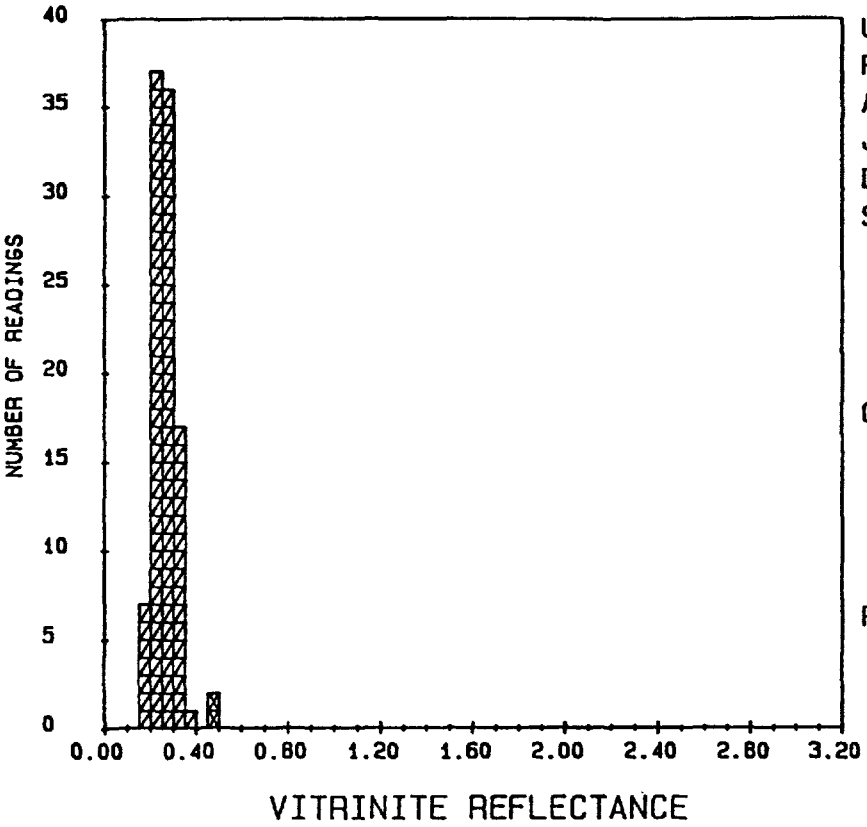
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	99	STANDARD DEVIATION	0.06
MEAN REF.	0.23 %	MEDIAN	0.23
MIN. REF.	0.15 %	MODE	0.16
MAX. REF.	0.34 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	99	INDIGENOUS	99.0 %
RECYCLED - OXIDIZED	1	RECYCLED - OXIDIZED	1.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA
JOB # : 87097B
DEPTH : 1422-1452 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

⧄ INDIGENOUS

☒ RECYCLED - OXIDIZED

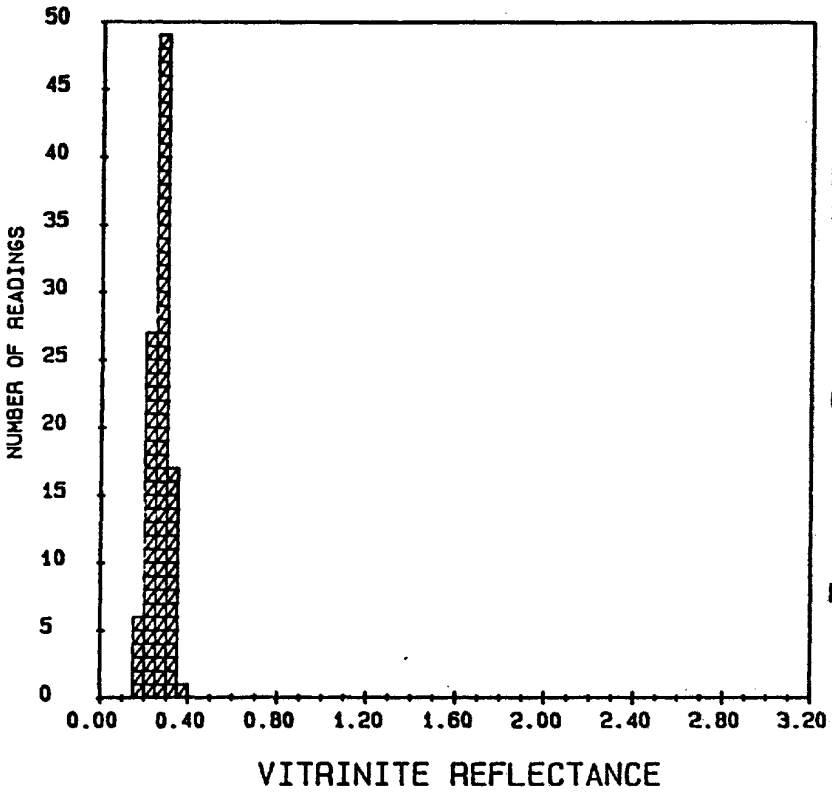
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	98	STANDARD DEVIATION	0.04
MEAN REF.	0.25 %	MEDIAN	0.24
MIN. REF.	0.17 %	MODE	0.24
MAX. REF.	0.38 %	SKEWNESS	0.74

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	98	INDIGENOUS	98.0 %
RECYCLED - OXIDIZED	2	RECYCLED - OXIDIZED	2.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA
JOB # : 870978
DEPTH : 1720-1809 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

☑ INDIGENOUS

☒ RECYCLED - OXIDIZED

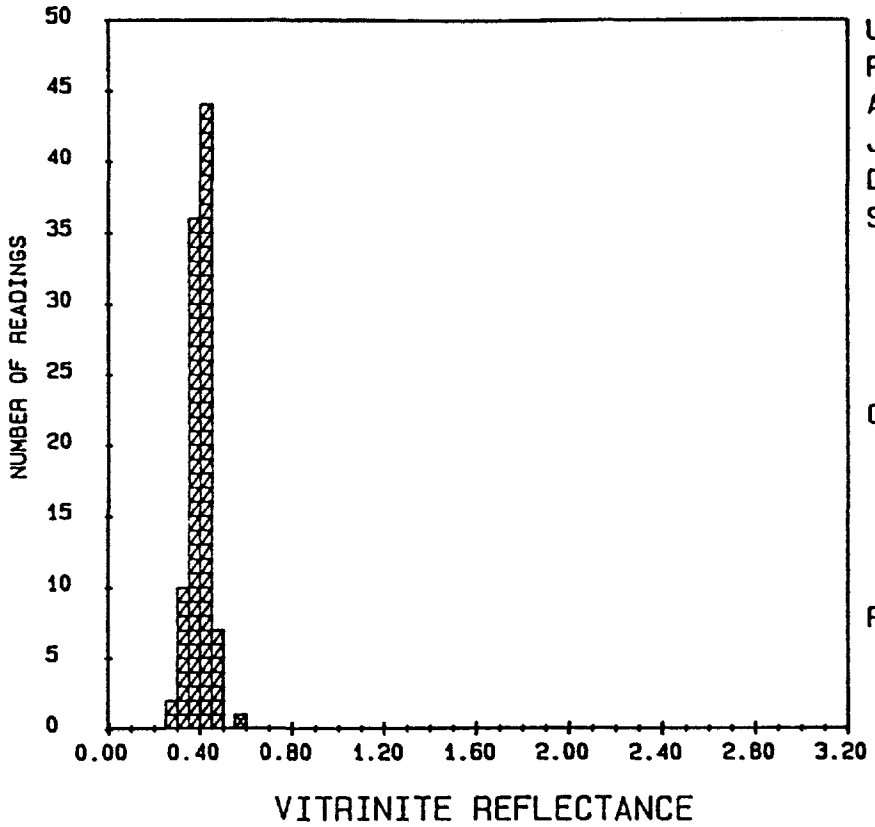
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.25 %	MEDIAN	0.25
MIN. REF.	0.16 %	MODE	0.25
MAX. REF.	0.37 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA
JOB # : 870978
DEPTH : 2780-2890 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

▨ INDIGENOUS

☒ RECYCLED - OXIDIZED

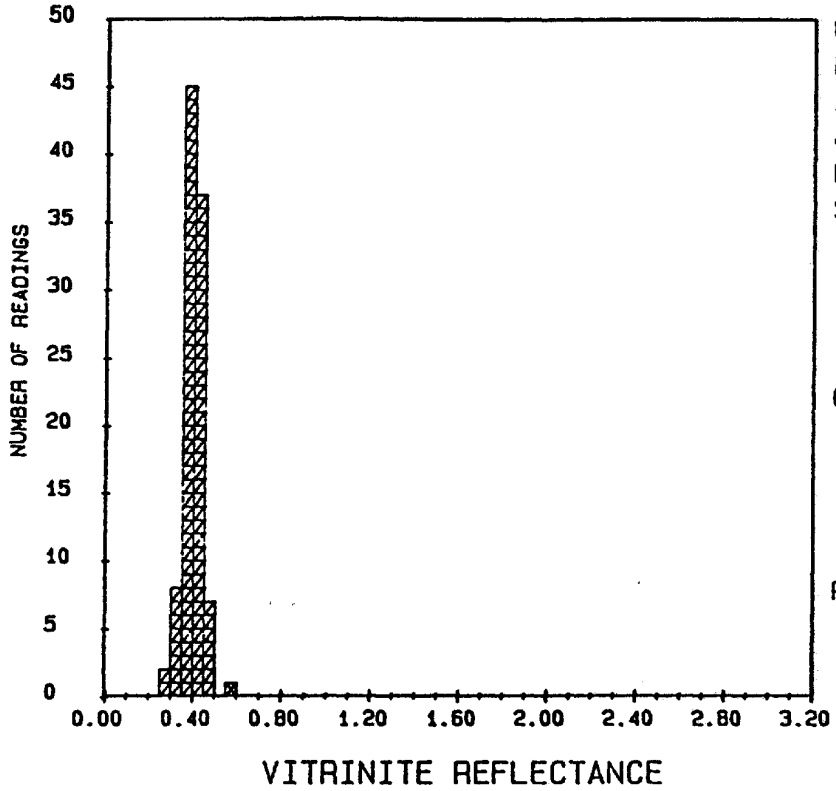
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	99	STANDARD DEVIATION	0.04
MEAN REF.	0.39 %	MEDIAN	0.39
MIN. REF.	0.29 %	MODE	0.40
MAX. REF.	0.49 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	99	INDIGENOUS	99.0 %
RECYCLED - OXIDIZED	1	RECYCLED - OXIDIZED	1.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA
JOB # : 870978
DEPTH : 2940-2960 FEET
SAMPLE: CUTTINGS

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

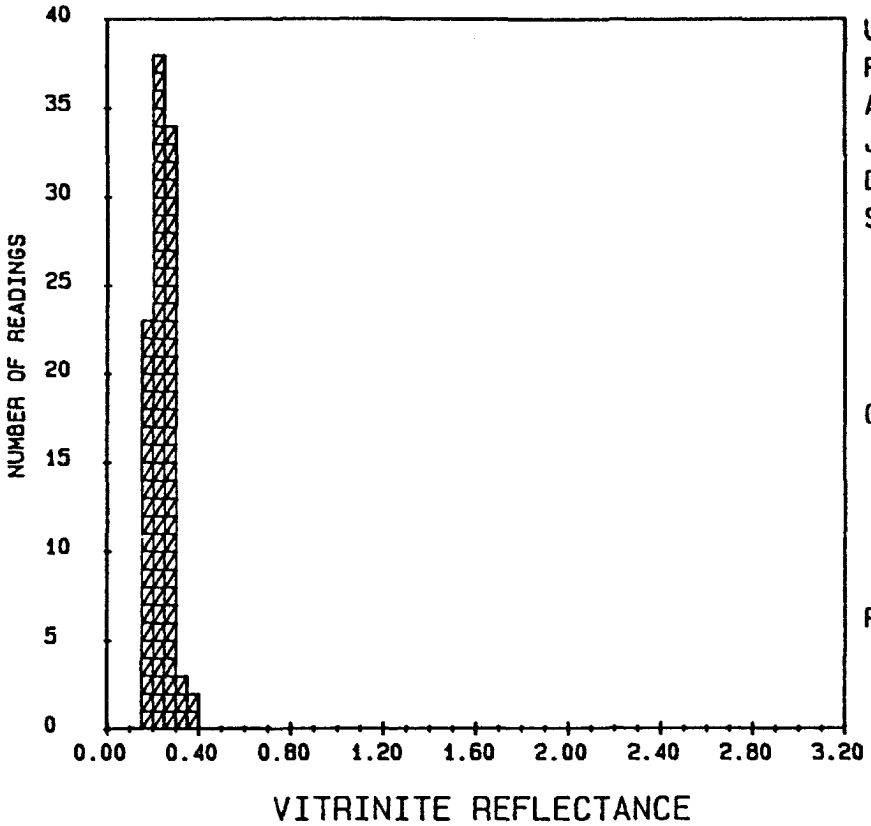
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	99	STANDARD DEVIATION	0.04
MEAN REF.	0.38 %	MEDIAN	0.38
MIN. REF.	0.27 %	MODE	0.38
MAX. REF.	0.48 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	99	INDIGENOUS	99.0 %
RECYCLED - OXIDIZED	1	RECYCLED - OXIDIZED	1.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA
JOB # : 87097C
DEPTH : 710-740 FEET
SAMPLE: CUTTINGS

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

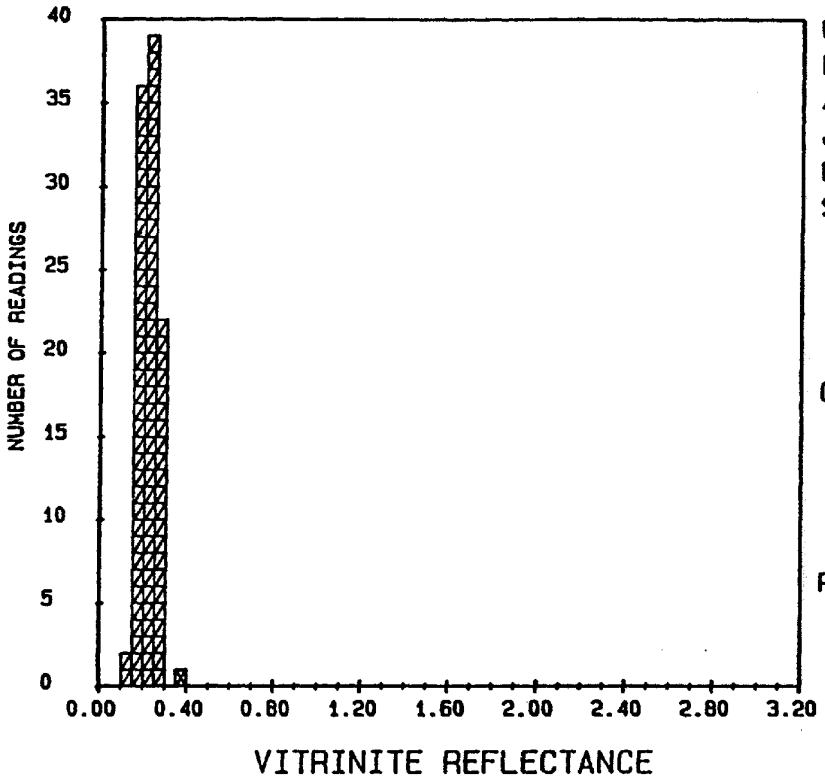
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.23 %	MEDIAN	0.22
MIN. REF.	0.15 %	MODE	0.22
MAX. REF.	0.37 %	SKEWNESS	0.68

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA
JOB # : 87097C
DEPTH : 1152-1211 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

▨ INDIGENOUS

☒ RECYCLED - OXIDIZED

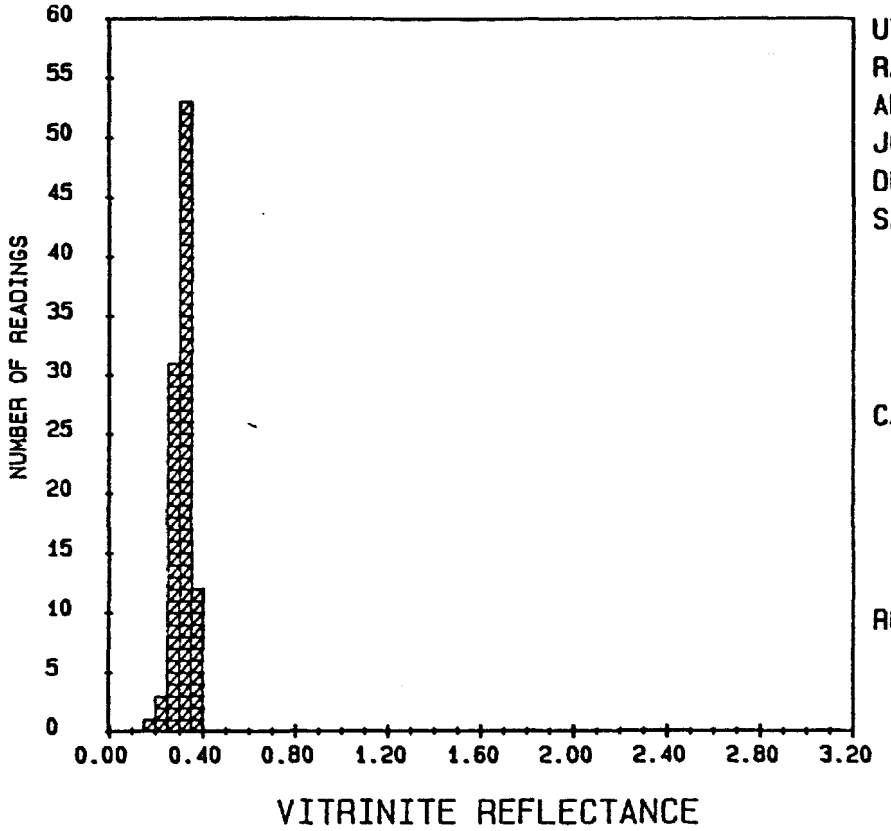
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	99	STANDARD DEVIATION	0.03
MEAN REF.	0.21 %	MEDIAN	0.19
MIN. REF.	0.13 %	MODE	0.19
MAX. REF.	0.29 %	SKEWNESS	1.74

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	99	INDIGENOUS	99.0 %
RECYCLED - OXIDIZED	1	RECYCLED - OXIDIZED	1.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA
JOB # : 87097C
DEPTH : 2189-2219 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

⧄ INDIGENOUS

☒ RECYCLED - OXIDIZED

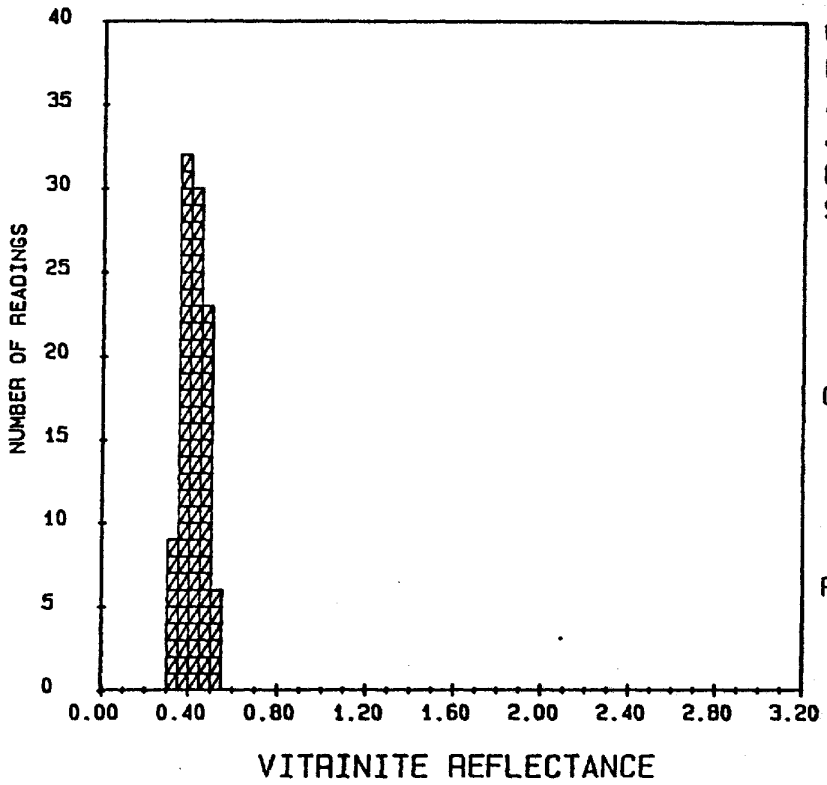
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.03
MEAN REF.	0.30 %	MEDIAN	0.30
MIN. REF.	0.19 %	MODE	0.30
MAX. REF.	0.39 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA
JOB # : 87097C
DEPTH : 2482-2512 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

▨ INDIGENOUS

☒ RECYCLED - OXIDIZED

RECEIVED
APR 02 1990
Alaska Oil & Gas Cons. Commission
Anchorage

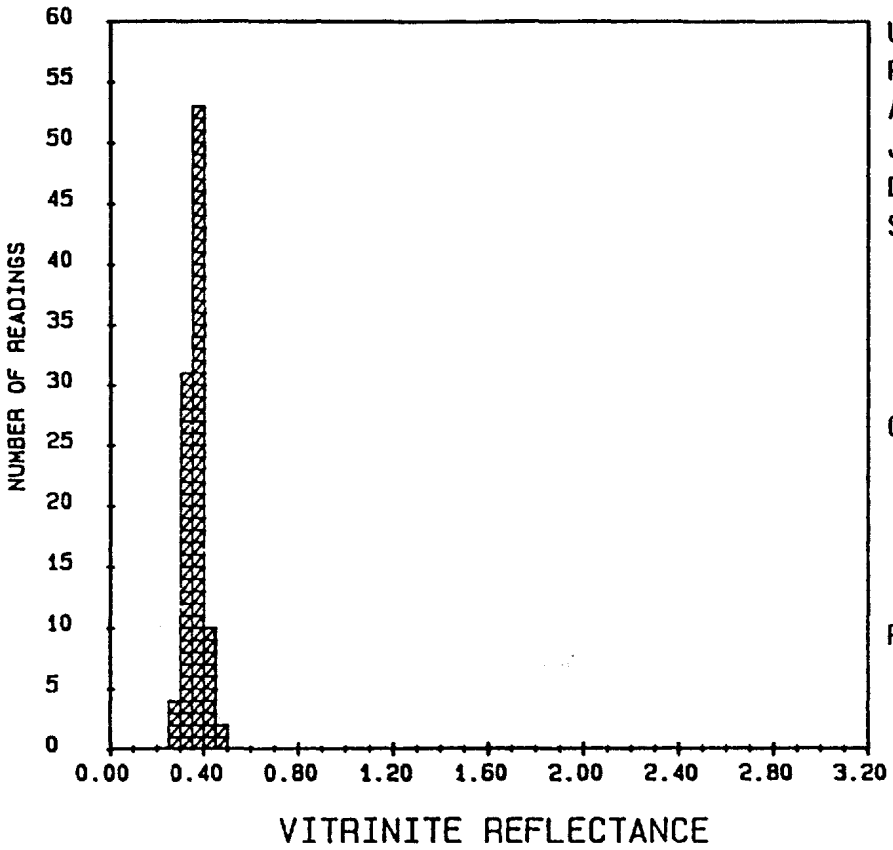
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.41 %	MEDIAN	0.40
MIN. REF.	0.31 %	MODE	0.39
MAX. REF.	0.53 %	SKEWNESS	0.60

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA
JOB # : 87097C
DEPTH : 2572-2632 FEET
SAMPLE: CUTTINGS

☐ CAVE OR CONTAMINANT

⧄ INDIGENOUS

☒ RECYCLED - OXIDIZED

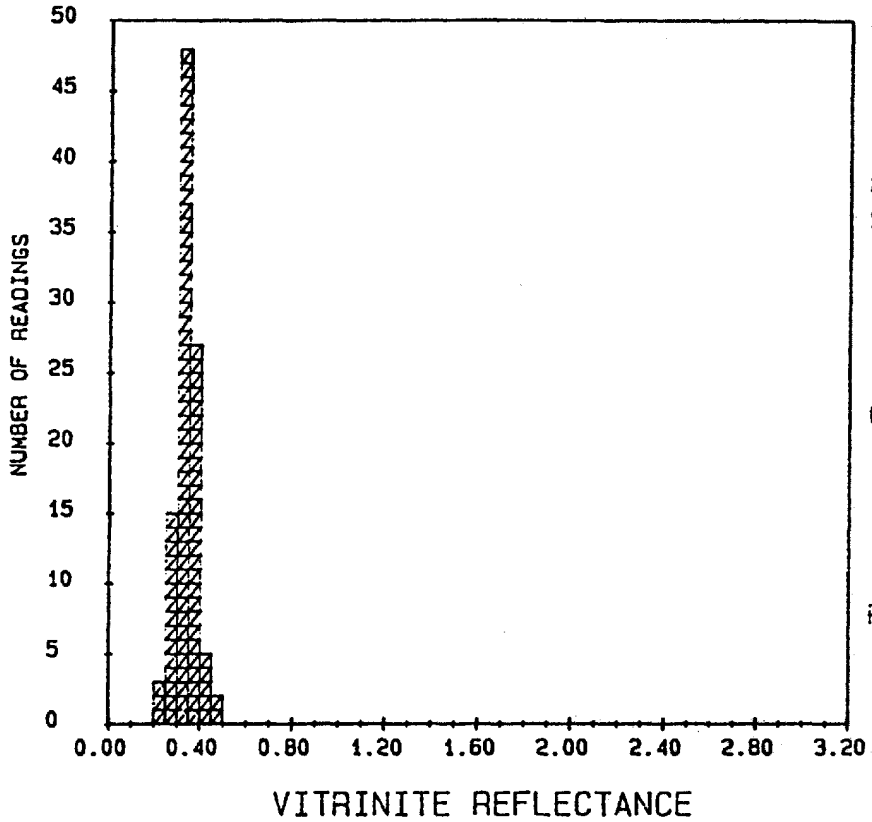
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.35 %	MEDIAN	0.35
MIN. REF.	0.27 %	MODE	0.36
MAX. REF.	0.46 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-1
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

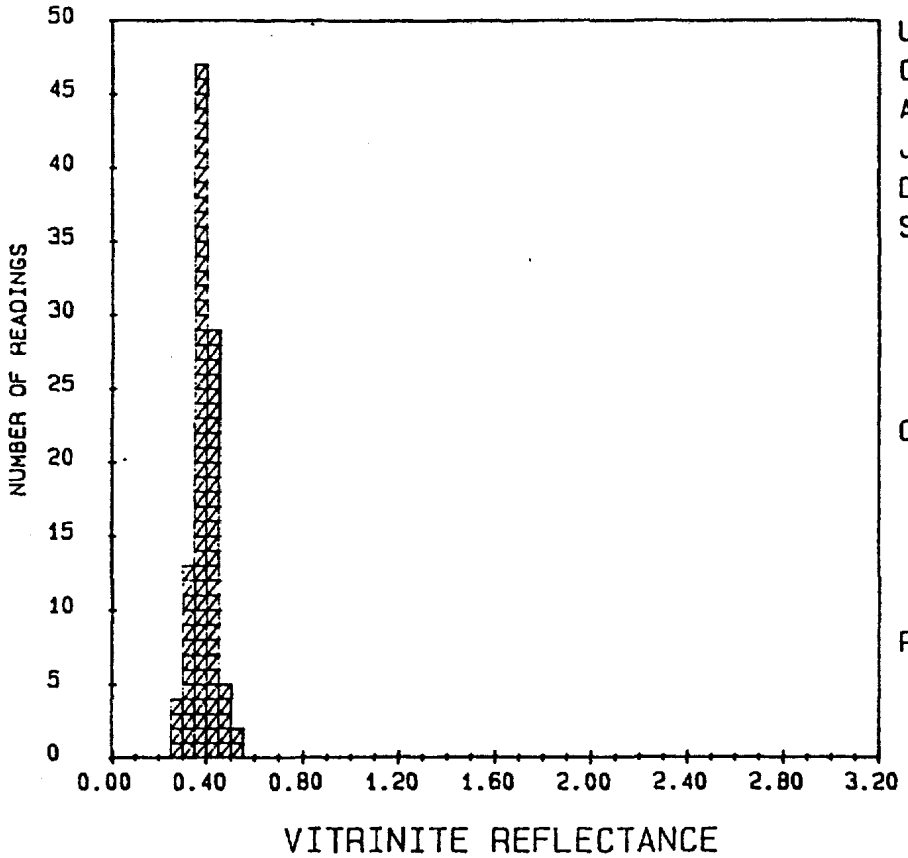
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.33 %	MEDIAN	0.32
MIN. REF.	0.22 %	MODE	0.32
MAX. REF.	0.49 %	SKEWNESS	0.67

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-2
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

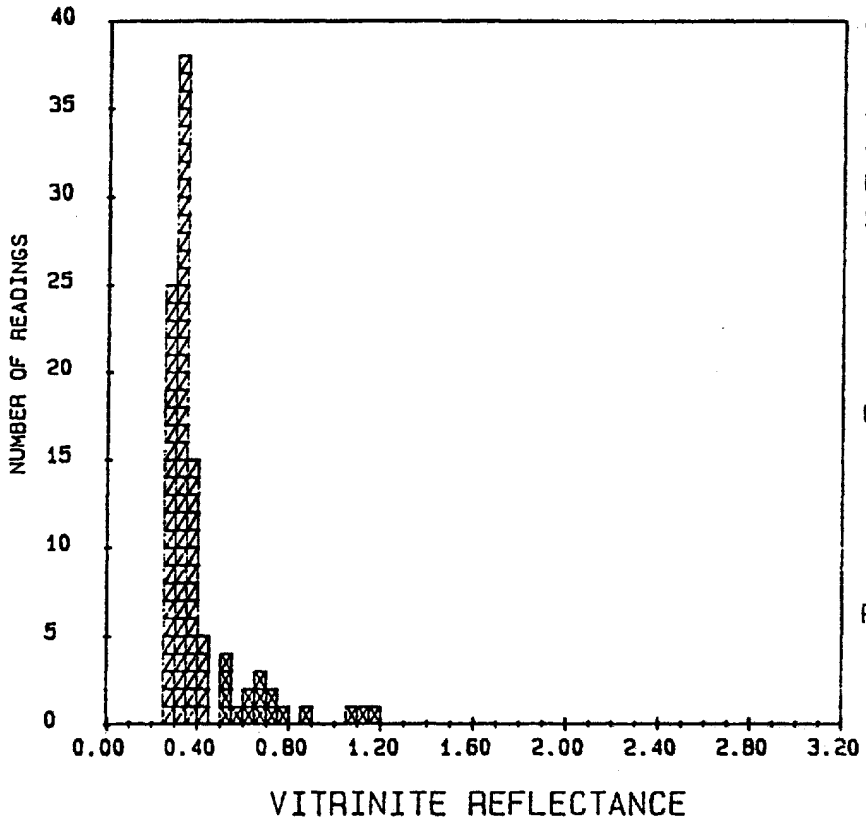
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.38 %	MEDIAN	0.37
MIN. REF.	0.27 %	MODE	0.35
MAX. REF.	0.50 %	SKEWNESS	0.67

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-3
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

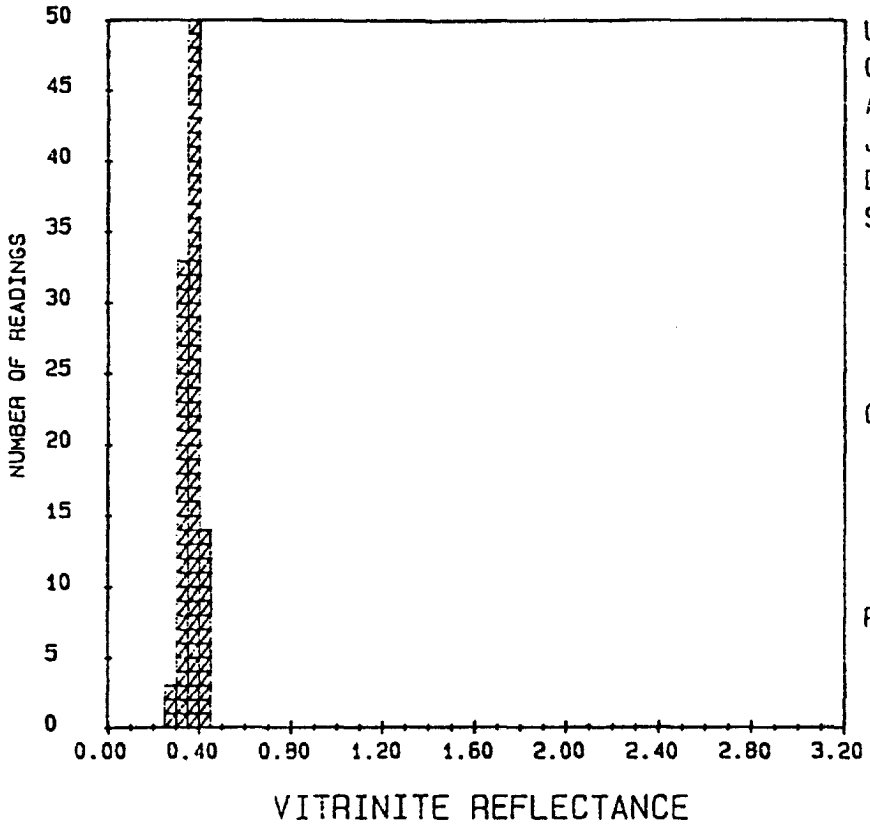
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	83	STANDARD DEVIATION	0.04
MEAN REF.	0.32 %	MEDIAN	0.31
MIN. REF.	0.25 %	MODE	0.30
MAX. REF.	0.44 %	SKEWNESS	0.68

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	83	INDIGENOUS	83.0 %
RECYCLED - OXIDIZED	17	RECYCLED - OXIDIZED	17.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-5
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

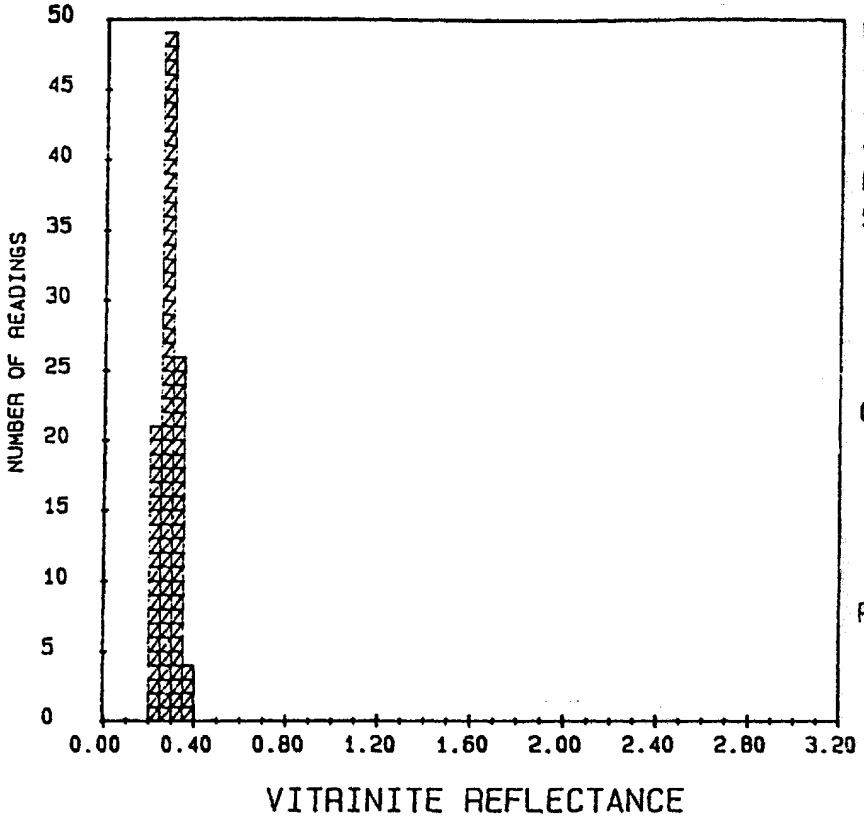
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.03
MEAN REF.	0.35 %	MEDIAN	0.35
MIN. REF.	0.29 %	MODE	0.39
MAX. REF.	0.43 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-6
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

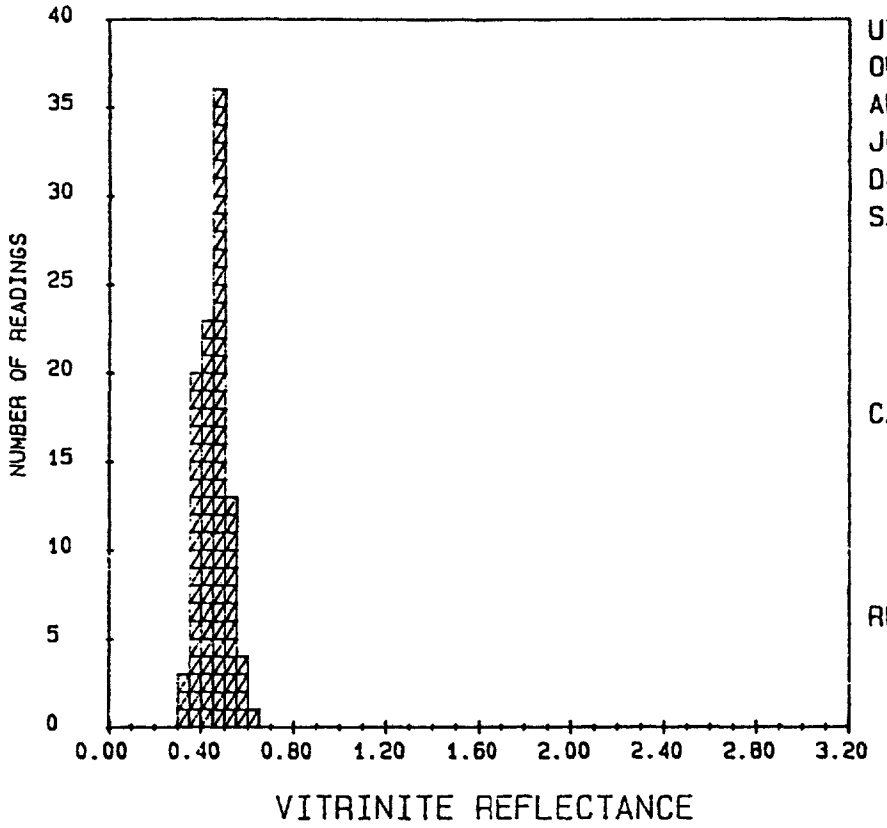
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.27 %	MEDIAN	0.26
MIN. REF.	0.21 %	MODE	0.26
MAX. REF.	0.38 %	SKEWNESS	0.82

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-7
SAMPLE: OUTCROP

☐ CAVE OR CONTAMINANT

☑ INDIGENOUS

☒ RECYCLED - OXIDIZED

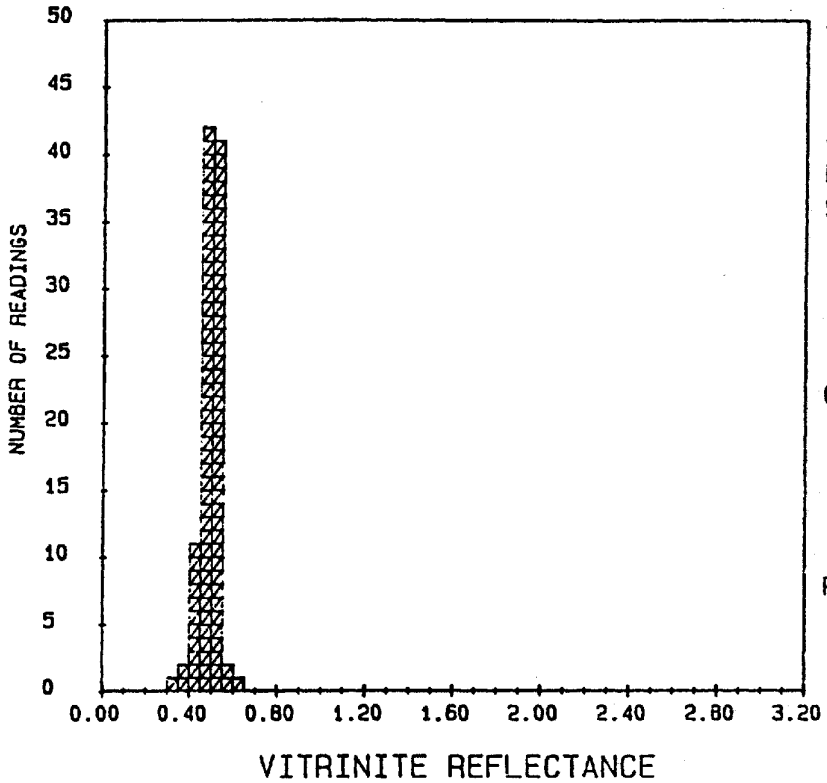
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.06
MEAN REF.	0.44 %	MEDIAN	0.45
MIN. REF.	0.32 %	MODE	0.48
MAX. REF.	0.61 %	SKEWNESS	-0.53

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-8
SAMPLE: OUTCROP

☐ CAVE OR CONTAMINANT

☐ INDIGENOUS

☒ RECYCLED - OXIDIZED

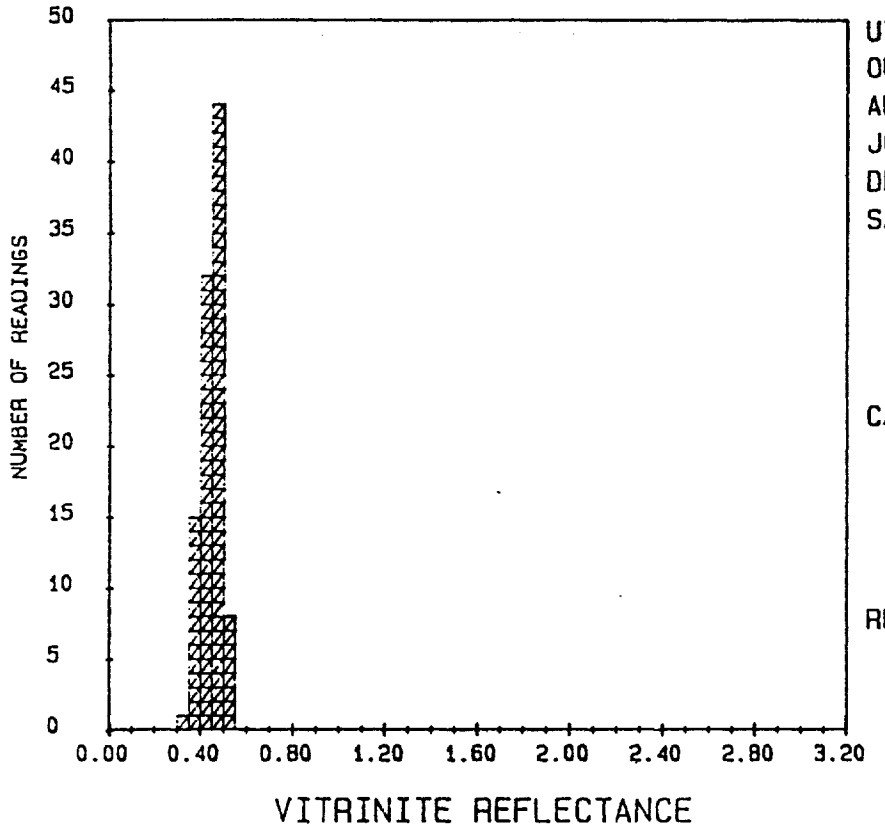
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.48 %	MEDIAN	0.48
MIN. REF.	0.33 %	MODE	0.52
MAX. REF.	0.61 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-9
SAMPLE: OUTCROP

☐ CAVE OR CONTAMINANT

⧄ INDIGENOUS

☒ RECYCLED - OXIDIZED

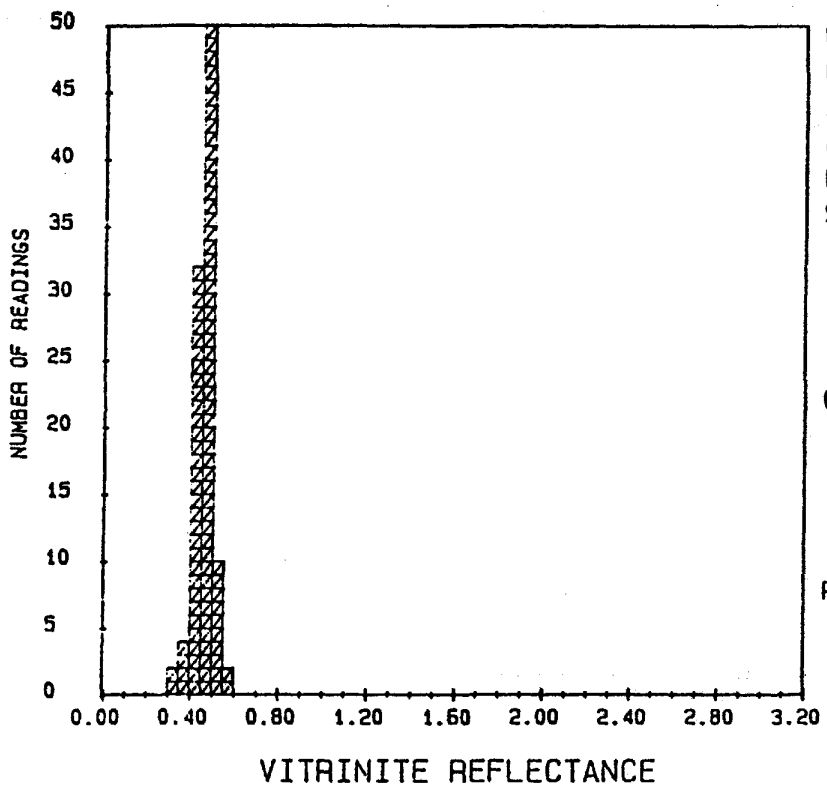
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.44 %	MEDIAN	0.44
MIN. REF.	0.33 %	MODE	0.45
MAX. REF.	0.51 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-11
SAMPLE: OUTCROP

☐ CAVE OR CONTAMINANT

☐ INDIGENOUS

☒ RECYCLED - OXIDIZED

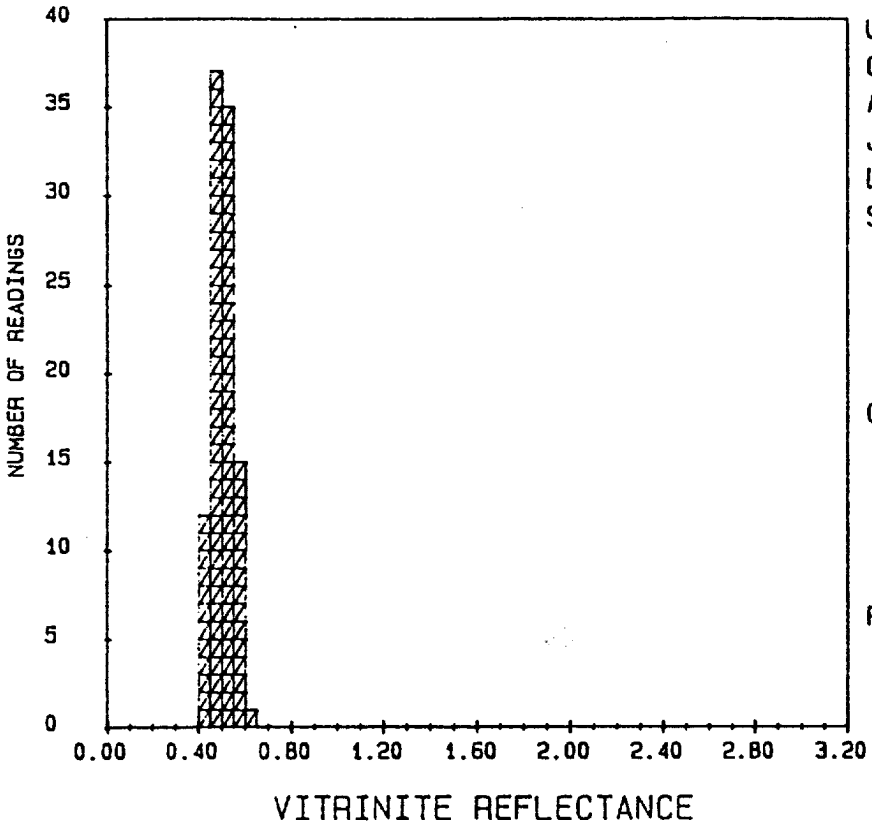
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.45 %	MEDIAN	0.44
MIN. REF.	0.33 %	MODE	0.48
MAX. REF.	0.56 %	SKEWNESS	0.73

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-12
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

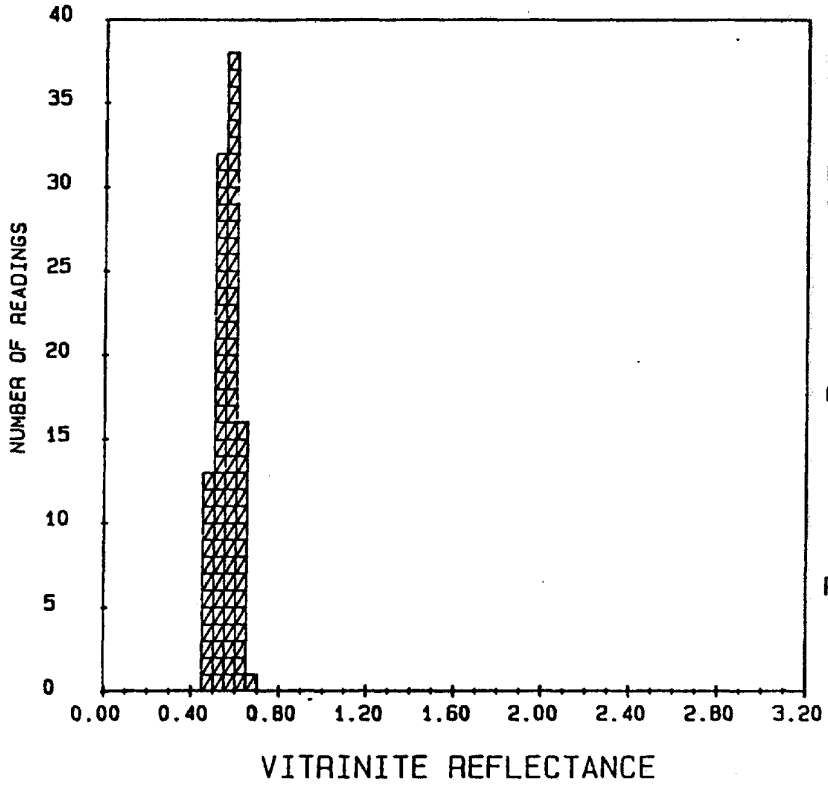
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.49 %	MEDIAN	0.49
MIN. REF.	0.41 %	MODE	0.48
MAX. REF.	0.60 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-13
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

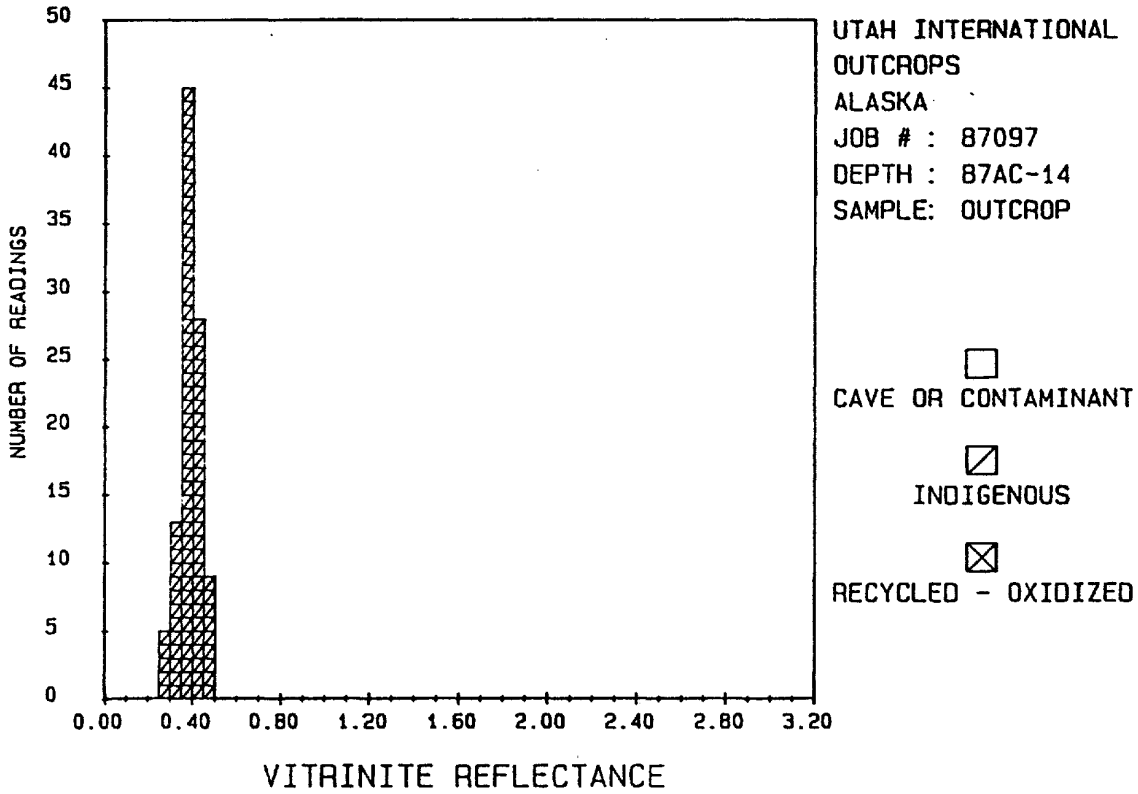
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.54 %	MEDIAN	0.54
MIN. REF.	0.45 %	MODE	0.55
MAX. REF.	0.66 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



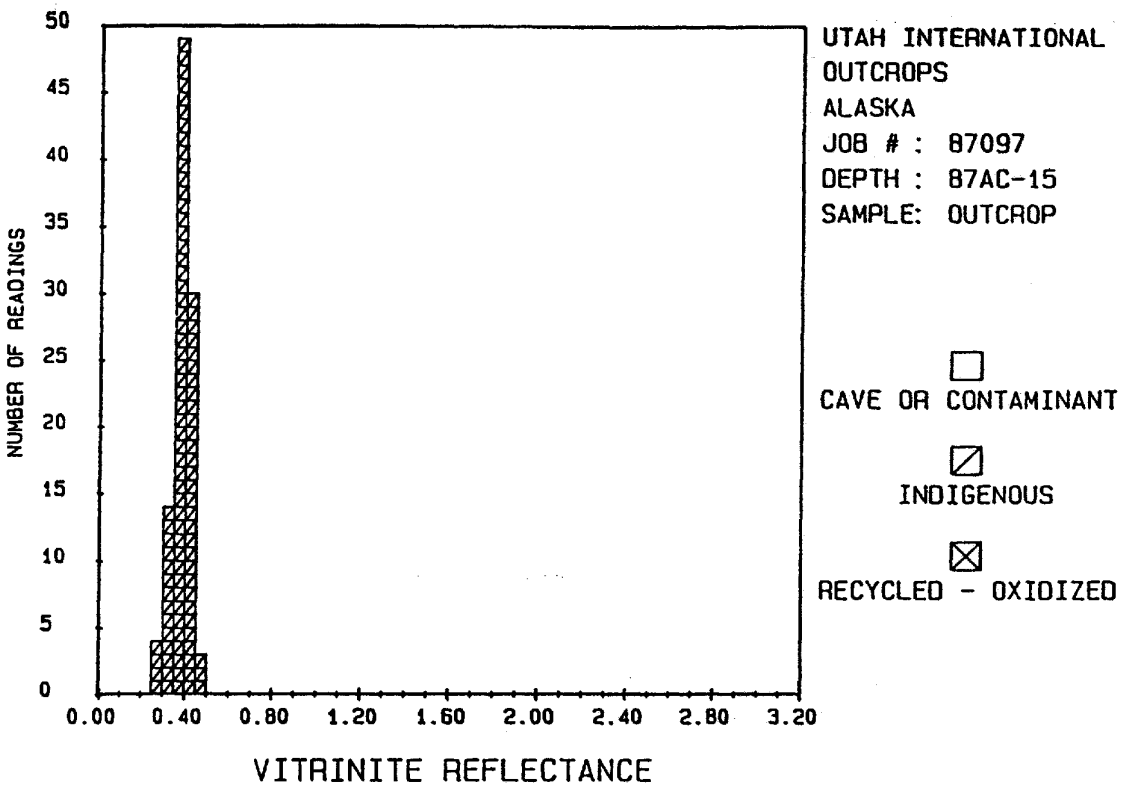
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.37 %	MEDIAN	0.37
MIN. REF.	0.26 %	MODE	0.36
MAX. REF.	0.49 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



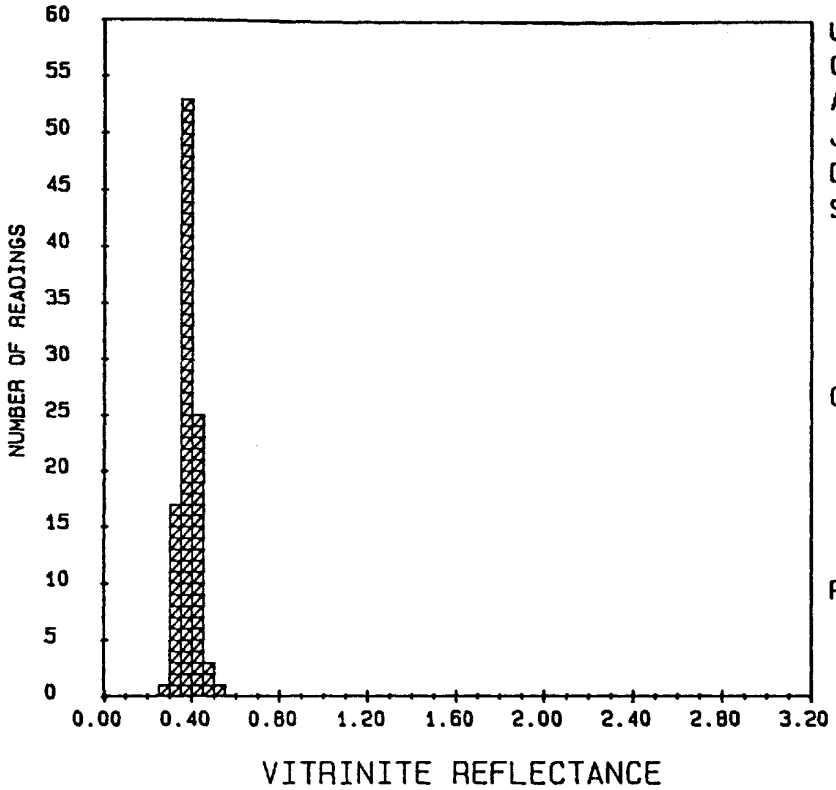
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.37 %	MEDIAN	0.37
MIN. REF.	0.27 %	MODE	0.37
MAX. REF.	0.49 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-16
SAMPLE: OUTCROP

☐ CAVE OR CONTAMINANT

☐ INDIGENOUS

☒ RECYCLED - OXIDIZED

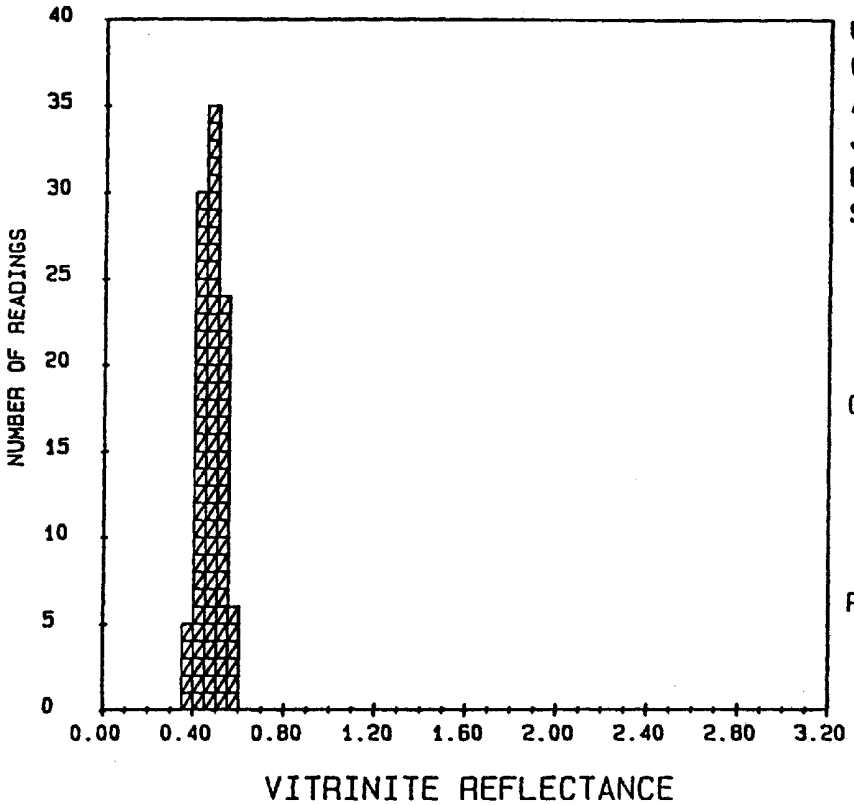
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.04
MEAN REF.	0.37 %	MEDIAN	0.36
MIN. REF.	0.26 %	MODE	0.37
MAX. REF.	0.54 %	SKEWNESS	0.74

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-18
SAMPLE: OUTCROP

☐ CAVE OR CONTAMINANT

▨ INDIGENOUS

☒ RECYCLED - OXIDIZED

RECEIVED
APR 02 1990
Alaska Oil & Gas Cons. Commission
Anchorage

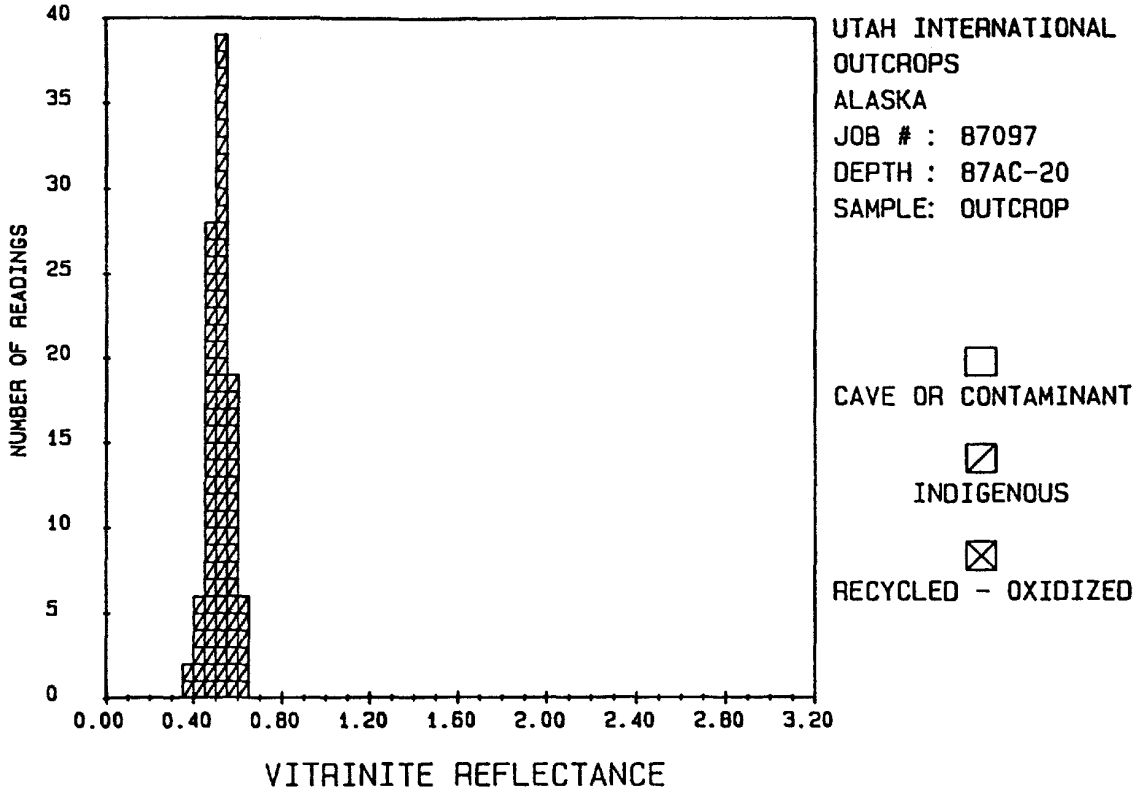
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.46 %	MEDIAN	0.46
MIN. REF.	0.35 %	MODE	0.44
MAX. REF.	0.57 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



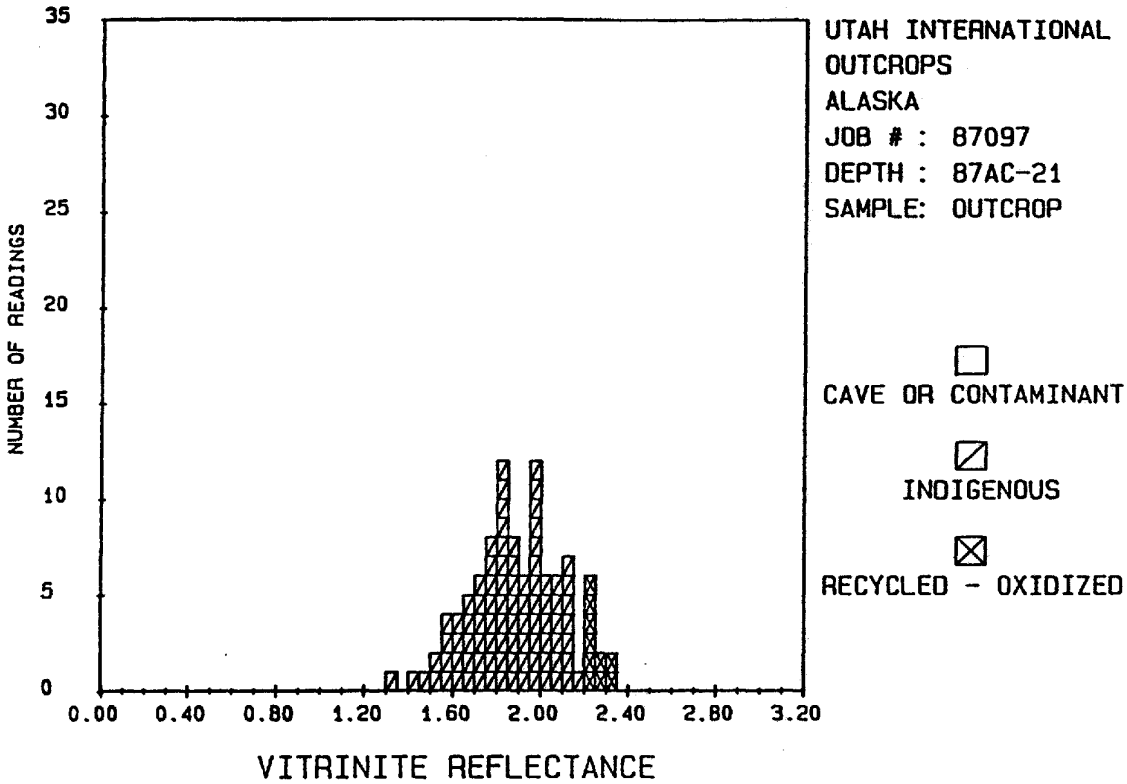
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.51 %	MEDIAN	0.51
MIN. REF.	0.39 %	MODE	0.49
MAX. REF.	0.64 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



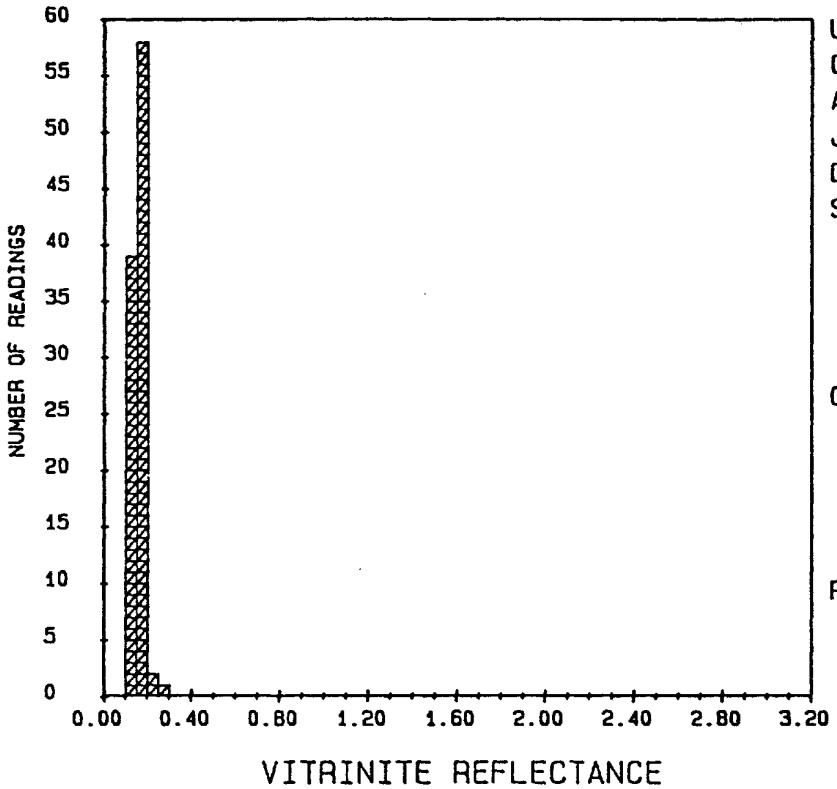
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	90	STANDARD DEVIATION	0.18
MEAN REF.	1.84 %	MEDIAN	1.85
MIN. REF.	1.33 %	MODE	1.81
MAX. REF.	2.16 %	SKEWNESS	-0.16

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	90	INDIGENOUS	90.0 %
RECYCLED - OXIDIZED	10	RECYCLED - OXIDIZED	10.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



UTAH INTERNATIONAL
OUTCROPS
ALASKA
JOB # : 87097
DEPTH : 87AC-22
SAMPLE: OUTCROP

CAVE OR CONTAMINANT

INDIGENOUS

RECYCLED - OXIDIZED

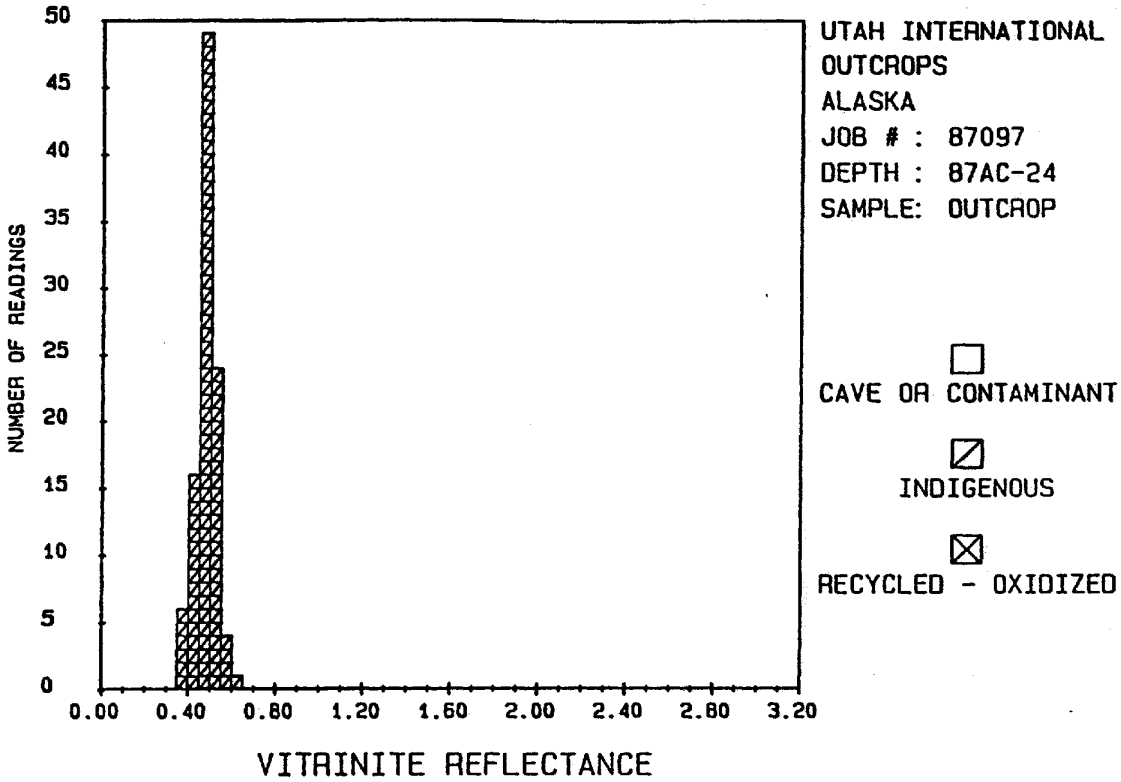
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.02
MEAN REF.	0.14 %	MEDIAN	0.14
MIN. REF.	0.10 %	MODE	0.15
MAX. REF.	0.25 %	SKEWNESS	0.00

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



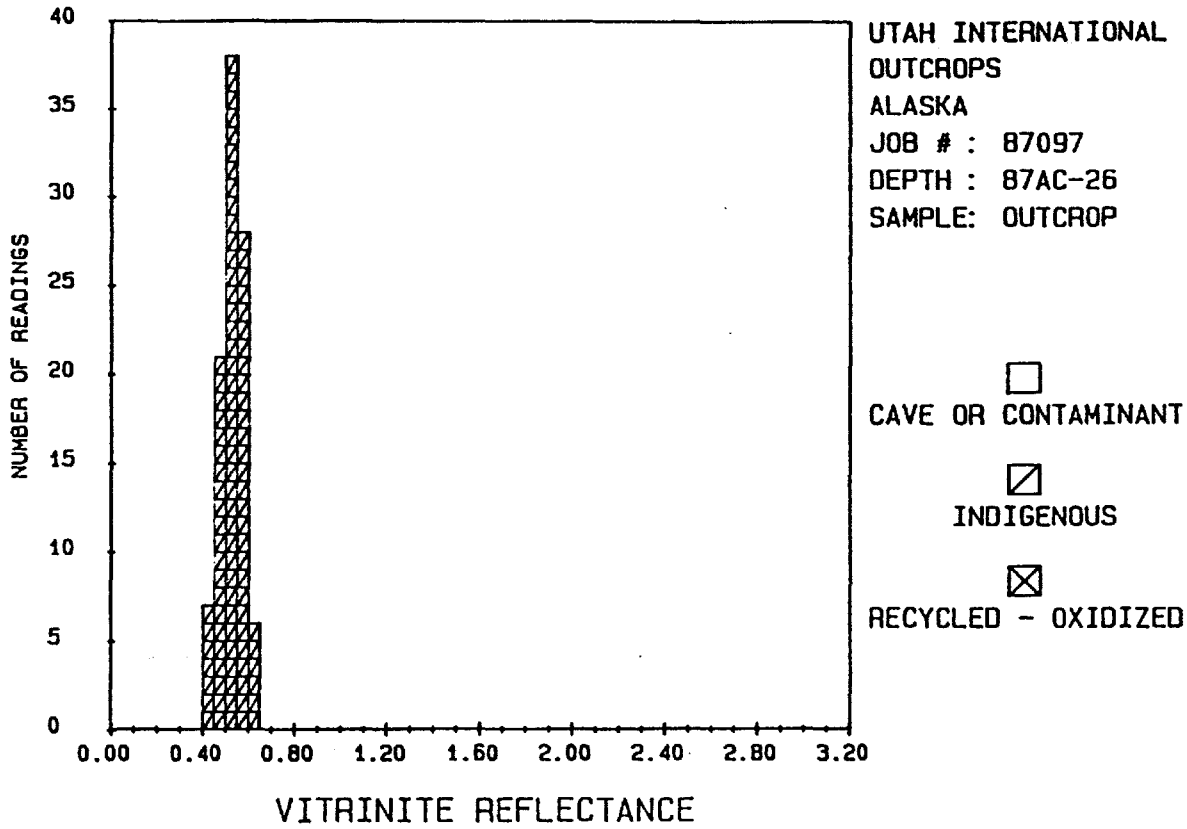
STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.47 %	MEDIAN	0.46
MIN. REF.	0.35 %	MODE	0.45
MAX. REF.	0.62 %	SKEWNESS	0.66

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

TOTAL VITRINITE REFLECTANCE HISTOGRAM



STATISTICS FOR THE INDIGENOUS POPULATION

NUMBER OF READINGS	100	STANDARD DEVIATION	0.05
MEAN REF.	0.52 %	MEDIAN	0.51
MIN. REF.	0.43 %	MODE	0.55
MAX. REF.	0.64 %	SKEWNESS	0.62

STATISTICS FOR THE TOTAL POPULATION

READINGS		PERCENT OF POPULATION	
CAVE OR CONTAMINANT	0	CAVE OR CONTAMINANT	0.0 %
INDIGENOUS	100	INDIGENOUS	100.0 %
RECYCLED - OXIDIZED	0	RECYCLED - OXIDIZED	0.0 %
TOTAL	100	TOTAL	100.0 %

Tabulated Reflectance

Values

UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA

DEPTH RANGE 170-190 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.36	1	.53	2	.65	4
.39	1	.54	4	.66	5
.41	1	.55	4	.67	5
.43	1	.56	3	.68	2
.44	1	.57	7	.70	3
.45	1	.58	6	.72	1
.46	1	.59	4	.74	1
.48	3	.60	6	.75	1
.49	3	.61	4	.77	1
.50	3	.62	5	.78	2
.51	3	.63	3	.81	1
.52	4	.64	3		

DEPTH RANGE 540-550 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.16	4	.21	13	.26	2
.17	3	.22	22	.27	3
.18	7	.23	14	.28	1
.19	9	.24	11	.32	1
.20	3	.25	5	.36	1

DEPTH RANGE 770-780 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.21	1	.30	3	.38	2
.23	1	.31	3	.39	4
.24	2	.32	4	.40	2
.25	5	.33	5	.41	2
.26	6	.34	6	.42	1
.27	6	.35	9	.43	2
.28	5	.36	10	.44	3
.29	12	.37	6		

UTAH INTERNATIONAL
SALMONBERRY LAKE UNIT #1
ALASKA

DEPTH RANGE 1780-1790 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.53	1	.65	5	.74	7
.55	1	.66	5	.75	3
.57	2	.67	5	.76	3
.59	4	.68	11	.77	2
.60	3	.69	7	.79	1
.61	2	.70	4	.80	1
.62	3	.71	3	.81	1
.63	4	.72	7	.83	1
.64	9	.73	4	.84	1

DEPTH RANGE 3030-3120 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.19	1	.31	3	.44	2
.20	1	.32	6	.49	1
.22	1	.33	6	.50	2
.23	2	.34	5	.51	1
.24	4	.35	3	.52	1
.25	4	.36	1	.56	1
.26	3	.37	5	.57	1
.27	6	.39	6	.61	1
.28	7	.40	1	.66	1
.29	7	.42	4	.67	1
.30	8	.43	3	.75	1

UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA

DEPTH RANGE 236-355 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.15	1	.21	14	.26	3
.16	3	.22	13	.27	2
.17	5	.23	8	.28	5
.18	1	.24	11	.29	4
.19	12	.25	5	.31	1
.20	12				

DEPTH RANGE 1035-1124 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.15	8	.22	3	.29	4
.16	10	.23	2	.30	2
.17	10	.24	4	.31	2
.18	8	.25	4	.32	6
.19	2	.26	8	.34	4
.20	1	.27	8	.40	1
.21	4	.28	9		

DEPTH RANGE 1422-1452 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.17	1	.24	14	.31	6
.18	3	.25	12	.32	5
.19	3	.26	9	.33	2
.20	6	.27	7	.38	1
.21	2	.28	6	.48	1
.22	10	.29	2	.49	1
.23	5	.30	4		

UTAH INTERNATIONAL
RAINBOW FEDERAL #1
ALASKA

DEPTH RANGE 1720-1809 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.16	1	.24	4	.30	3
.18	2	.25	16	.31	7
.19	3	.26	8	.32	2
.20	4	.27	6	.33	3
.21	3	.28	7	.34	2
.22	11	.29	12	.37	1
.23	5				

DEPTH RANGE 2730-2890 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.29	2	.37	4	.44	5
.30	1	.38	8	.45	3
.32	1	.39	10	.47	2
.33	3	.40	15	.48	1
.34	5	.41	13	.49	1
.35	4	.42	7	.56	1
.36	10	.43	4		

DEPTH RANGE 2940-2960 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.27	1	.36	8	.43	9
.29	1	.37	11	.44	3
.31	1	.38	12	.45	4
.32	2	.39	8	.46	2
.33	1	.40	8	.49	1
.34	4	.41	7	.56	1
.35	6	.42	10		

UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA

DEPTH RANGE 710-740 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.15	1	.21	8	.27	10
.16	5	.22	11	.28	6
.17	5	.23	7	.29	6
.18	6	.24	5	.30	3
.19	6	.25	9	.35	1
.20	7	.26	3	.37	1

DEPTH RANGE 1152-1211 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.13	1	.19	15	.25	7
.14	1	.20	12	.26	8
.15	1	.21	7	.27	5
.16	5	.22	9	.28	1
.17	1	.23	8	.29	1
.19	14	.24	3	.35	1

DEPTH RANGE 2189-2219 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.19	1	.28	4	.34	6
.23	1	.29	12	.35	6
.24	2	.30	14	.36	1
.25	2	.31	13	.37	2
.26	4	.32	12	.38	1
.27	9	.33	8	.39	2

UTAH INTERNATIONAL
RAINBOW FEDERAL #2
ALASKA

DEPTH RANGE 2482-2512 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.31	1	.38	3	.45	8
.32	1	.39	14	.46	3
.33	6	.40	6	.47	5
.34	1	.41	5	.48	7
.35	4	.42	9	.50	4
.36	6	.43	5	.52	1
.37	5	.44	4	.53	1

DEPTH RANGE 2572-2632 FEET

SAMPLE TYPE CUTTINGS

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.27	2	.35	7	.40	5
.29	2	.36	15	.41	1
.31	7	.37	8	.42	4
.32	9	.38	10	.45	1
.33	6	.39	13	.46	1
.34	9				

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-1

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.22	1	.31	7	.38	7
.24	2	.32	12	.39	1
.25	2	.33	11	.40	3
.26	1	.34	9	.41	1
.27	3	.35	6	.42	1
.28	2	.36	4	.45	1
.29	7	.37	9	.49	1
.30	9				

DEPTH RANGE 87AC-2

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.27	1	.36	9	.43	12
.28	2	.37	8	.44	1
.29	1	.38	7	.45	1
.32	1	.39	10	.46	3
.33	5	.40	5	.48	1
.34	7	.41	4	.50	2
.35	13	.42	7		

DEPTH RANGE 87AC-3

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.25	4	.36	3	.60	1
.26	2	.37	7	.61	1
.27	7	.38	2	.65	1
.28	6	.39	1	.69	2
.29	6	.40	1	.70	1
.30	10	.42	1	.72	1
.31	4	.43	1	.75	1
.32	10	.44	2	.88	1
.33	8	.51	2	1.07	1
.34	6	.52	2	1.10	1
.35	2	.55	1	1.18	1

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-5

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.29	3	.34	12	.39	13
.30	3	.35	12	.40	6
.31	4	.36	6	.41	6
.32	4	.37	12	.42	1
.33	10	.38	7	.43	1

DEPTH RANGE 87AC-6

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.21	4	.27	11	.32	2
.23	8	.28	9	.33	5
.24	9	.29	8	.34	4
.25	6	.30	7	.35	3
.26	15	.31	8	.38	1

DEPTH RANGE 87AC-7

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.32	1	.43	6	.52	4
.34	2	.44	7	.53	1
.36	1	.45	4	.54	1
.37	5	.46	9	.55	1
.38	7	.47	7	.56	1
.39	7	.48	10	.58	1
.40	3	.49	6	.59	1
.41	3	.50	5	.61	1
.42	4	.51	2		

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-8

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.33	1	.44	2	.51	12
.38	1	.45	8	.52	15
.39	1	.46	9	.53	4
.40	2	.47	7	.54	1
.41	2	.48	10	.55	1
.42	2	.49	8	.57	1
.43	3	.50	9	.61	1

DEPTH RANGE 87AC-9

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.33	1	.40	1	.46	9
.35	1	.41	11	.47	8
.36	1	.42	7	.48	10
.37	3	.43	7	.49	5
.38	3	.44	6	.50	5
.39	7	.45	14	.51	3

DEPTH RANGE 87AC-11

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.33	1	.42	4	.49	6
.34	1	.43	10	.50	2
.36	1	.44	9	.51	3
.38	2	.45	13	.52	3
.39	1	.46	9	.54	2
.40	2	.47	8	.55	1
.41	7	.48	14	.56	1

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-12

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.41	2	.48	12	.54	4
.42	4	.49	11	.55	7
.43	3	.50	10	.57	3
.44	3	.51	10	.58	3
.45	3	.52	3	.59	2
.46	3	.53	8	.60	1
.47	8				

DEPTH RANGE 87AC-13

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.45	1	.52	7	.59	3
.46	1	.53	8	.60	6
.47	2	.54	7	.61	5
.48	3	.55	13	.62	4
.49	6	.56	9	.64	1
.50	3	.57	7	.66	1
.51	7	.58	6		

DEPTH RANGE 87AC-14

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.26	2	.34	2	.41	11
.28	1	.35	9	.42	4
.29	2	.36	13	.43	2
.30	3	.37	6	.44	4
.31	2	.38	5	.45	2
.32	4	.39	12	.46	6
.33	2	.40	7	.49	1

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-15

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.27	1	.34	5	.40	15
.29	3	.35	7	.41	5
.30	2	.36	9	.42	7
.31	3	.37	15	.43	3
.32	1	.38	9	.47	2
.33	3	.39	9	.49	1

DEPTH RANGE 87AC-16

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.28	1	.36	10	.43	1
.30	1	.37	17	.44	5
.31	1	.38	10	.46	1
.32	4	.39	10	.48	1
.33	2	.40	7	.49	1
.34	9	.41	9	.54	1
.35	6	.42	3		

DEPTH RANGE 87AC-18

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.35	1	.44	10	.51	7
.37	2	.45	5	.52	3
.38	2	.46	10	.53	2
.40	4	.47	10	.54	2
.41	2	.48	6	.55	2
.42	8	.49	4	.56	2
.43	6	.50	10	.57	2

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-20

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.39	2	.48	5	.56	4
.40	1	.49	13	.57	3
.42	2	.50	9	.59	4
.43	2	.51	5	.60	2
.44	1	.52	7	.61	1
.45	3	.53	11	.62	2
.46	3	.54	7	.64	1
.47	4	.55	8		

DEPTH RANGE 87AC-21

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
1.33	1	1.79	3	2.01	1
1.40	1	1.80	2	2.03	1
1.45	1	1.81	5	2.04	1
1.50	1	1.82	2	2.05	2
1.53	1	1.84	3	2.06	3
1.55	2	1.85	1	2.08	1
1.56	1	1.86	1	2.10	2
1.59	1	1.87	3	2.11	1
1.60	1	1.88	2	2.12	2
1.61	1	1.89	1	2.13	1
1.62	1	1.90	2	2.14	1
1.64	1	1.91	1	2.16	1
1.65	2	1.93	2	2.20	3
1.67	2	1.94	1	2.21	1
1.68	1	1.95	2	2.22	1
1.70	2	1.96	3	2.24	1
1.72	3	1.97	3	2.26	1
1.73	1	1.98	2	2.27	1
1.75	1	1.99	2	2.32	1
1.77	1	2.00	3	2.34	1
1.78	3				

UTAH INTERNATIONAL
OUTCROPS
ALASKA

DEPTH RANGE 87AC-22

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.10	2	.14	12	.18	5
.11	1	.15	26	.20	1
.12	7	.16	20	.21	1
.13	17	.17	7	.25	1

DEPTH RANGE 87AC-24

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.35	2	.44	5	.51	12
.36	1	.45	14	.52	2
.38	2	.46	10	.54	2
.39	1	.47	10	.55	2
.40	2	.48	5	.56	1
.41	3	.49	10	.57	1
.42	2	.50	8	.62	1
.43	3				

DEPTH RANGE 87AC-26

SAMPLE TYPE OUTCROP

RO VALUE	COUNT	RO VALUE	COUNT	RO VALUE	COUNT
.43	2	.50	8	.57	5
.44	5	.51	10	.58	5
.45	5	.52	6	.59	2
.46	5	.53	9	.61	4
.47	3	.54	5	.62	1
.48	5	.55	11	.64	1
.49	3	.56	5		