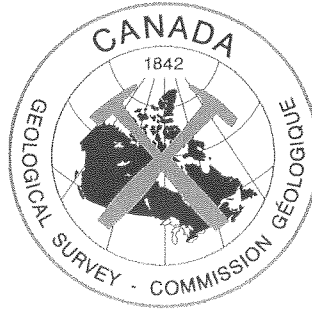


This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.



Geological Survey of Canada Open File # 1632

Vitrinite reflectance (R_o) of dispersed organic matter
from
Canterra PCI St. George J-55

M. P. Avery

2003

GEOLOGICAL SURVEY OF CANADA

OPEN FILE 1632

Vitrinite reflectance (R_o) of dispersed organic matter
from
Canterra PCI St. George J-55

M. P. Avery
Marine Resources Geoscience Subdivision
Geological Survey of Canada (Atlantic), Dartmouth

2003

© Her Majesty the Queen in Right of Canada, 2003
Available from
Geological Survey of Canada
Bedford Institute of Oceanography
1 Challenger Drive
Dartmouth, Nova Scotia B2Y 4A2
Price subject to change without notice

Important Notices

Open files are products that have not gone through the GSC formal publication process.
This report was released with the permission from the Director Geological Survey of Canada - Atlantic

Recommended citation

Avery, M.P.

2003: Vitrinite reflectance (R_o) of dispersed organic matter from Canterra PCI St.
George J-55; Geological Survey of Canada, Open File 1632, 15p.

Table of Contents

Well information	1
Introduction	1
Remarks	1
Discussion	2
References	2
Table I - Inferred Hydrocarbon Thermal Maturity Levels	1
Table II - Summary of kerogen - based vitrinite reflectance	3
Table III - Formation Tops	4

(List of remaining figures and appendices in order of appearance)

Figures 1-2 are Vitrinite Reflectance based Maturation Profiles

Figure 1 - St. George J-55

Figure 2 - St. George J-55 <histograms>

Appendix I - Sample Preparation Method

Appendix II - Zones of petroleum generation and destruction

Appendix III - Data listings and basic statistics

Well information

G.S.C. Locality No.: D298 Unique Well ID: 300 J55 45500 48150

Location: 45.7445°N, 48.38455°W

R.T. Elevation: 23.5 Water Depth: 104.5 m

Total Depth: 4100.2 m

Sampled Interval: 600 - 4100 m

Interval Studied: 830-4075 m

Depth Units: Metres referenced to R.T.

Rig Release Date: May 28, 1986

Introduction

Vitrinite reflectance has been determined on 32 rotary cutting samples from Canterra PCI St. George J-55, which was classified as an exploratory well and is located in the Carson Basin, Grand Banks, approximately 385 km southeast of St. John's, Newfoundland. Well status is Plugged and Abandoned.

Sample preparation followed the procedures listed in Appendix I. Data acquisition and manipulation was done with a Zeiss Photometer III system with a custom interface to a computer for data storage and statistical summaries.

Analysis of the well reveals thermal maturity intervals given in Table I. Specific maturity levels, as set out in this report, are based on those of Dow (1977) with modified terminology (Appendix II).

Table I
Inferred Hydrocarbon Thermal Maturity Levels*

Depth in metres*	Vitrinite Reflectance* %Ro	Hydrocarbon generation levels**
(upper slope)		
105 [Sea floor]	(0.19)	immature
1050	0.3	immature
1680	0.4	immature approaching maturity
2170	0.5	marginally mature
2560	0.6	onset of significant oil generation
(lower slope)		
2970	0.5	marginally mature
3430	0.6	onset of significant oil generation
4100 [T.D.]	(0.79)	within oil window

*()'s indicate Ro's or depths extrapolated from linear regression
(upper slope: 0.199 log Ro/km; lower slope: 0.173 log Ro/km).

**Actual hydrocarbon products depend on type of organic matter present.

Remarks

Sample coverage for vitrinite reflectance analysis (Figure 1, Table II) was very complete over the section penetrated below 830 m at St. George J-55. The data were plotted on a log Ro vs. linear depth scale and regression lines were calculated and plotted (Figure 1). The 'error bars' displayed on the maturity profile indicate one standard deviation on either side of the mean and may be deceptively small for samples with very few readings. The slope of the upper maturity line is 0.199 log Ro/km and the lower is 0.173 log Ro/km.

The histogram display shows the variability in the reflectance populations, which represent the maturity of the sediments with depth (Figure 2). Plotting reflectance histograms on a log scale may help reveal any trends present in the Ro data. It also can help to demonstrate the effects of cavings, geology, casing points and other influences on the vitrinite reflectance populations.

These vitrinite reflectance data show that the thermal regime of the lower section of St. George J-55 is suitable to generate and preserve liquid hydrocarbons within the drilled section, between 2170 and 4100 m (T.D.), provided potential source rocks and traps are present.

Discussion

This was a very difficult well to determine the autochthonous vitrinite and therefore measure and establish the maturation profile for this well. There was an abnormal amount of cavings present throughout the well. Cavings were also a problem for biostratigraphic analysis (Williams, G. L., pers. comm.).

A feature present in the profile is a significant retardation of the trend at approximately 2300 m depth. There does not seem to be any significant unconformity or tectonic feature at this depth that would help to explain the retardation of the Ro data. This level in the well coincides with evidence of an earlier 'overpressure' event in the well. The evidence is found in examining plots of wireline geophysical logs such as Sonic, Density and Resistivity (Wielens, H., pers. comm.). The relationship of vitrinite reflectance retardation and overpressure is addressed by A. D. Carr (2000).

References

Carr, A. D.

2000: Suppression and retardation of vitrinite reflectance, Part 1. Formation and significance for hydrocarbon generation. *Journal of Petroleum Geology*, vol. 23(3), pp 313-343.

Dow, W. G.

1977: Kerogen studies and geological interpretations. *Journal of Geochemical Exploration*, no. 7, p.77-99.

c.c. M. A. Williamson, MResG, Dartmouth
H. Wielens, MResG, Dartmouth
A. E. Jackson, MResG, Dartmouth
MResG Files, Dartmouth

P. Dennis, Director's Office, GSC(Atlantic)
K. Osadetz, GSC (Calgary)
N. DeSilva, CNOPB, St. John's (3 copies)
C. Beaumont, Dalhousie Univ., Halifax

Table II

Summary of kerogen - based vitrinite reflectance

Sample Labels	Depth in metres	Mean Ro (SD) non-rotated	Number of Readings	
			Total	Edited
K0927A	830-840	0.23 (± 0.04)	14	14
K0927B	950-960	0.24 (± 0.04)	16	16
K0927C	1050-1060	0.33 (± 0.05)	21	21
K0927D	1140-1150	0.34 (± 0.05)	22	22
K0928A	1240-1245	0.34 (± 0.04)	15	15
K0928B	1330-1335	0.38 (± 0.05)	21	21
K0928C	1420-1425	0.37 (± 0.04)	22	22
K0928D	1530-1535	0.42 (± 0.05)	23	23
K0929A	1660-1665	0.42 (± 0.04)	18	18
K0929B	1770-1775	0.39 (± 0.04)	14	14
K0929C	1860-1865	0.45 (± 0.07)	15	15
K0929D	1960-1965	0.46 (± 0.03)	17	17
K0930A	2050-2055	0.49 (± 0.05)	12	12
K0930B	2140-2145	0.48 (± 0.04)	15	15
K0930C	2250-2255	0.51 (± 0.05)	15	15
K0930D	2350-2355	0.49 (± 0.04)	9	9
K0931A	2620-2625	0.48 (± 0.05)	15	15
K0931B	2770-2775	0.46 (± 0.03)	16	16
K0931C	2860-2865	0.47 (± 0.03)	5	5
K0931D	2950-2955	0.49 (± 0.03)	7	7
K0932A	3040-3045	0.52 (± 0.03)	6	6
K0932B	3130-3135	0.54 (± 0.05)	12	12
K0932C	3220-3225	0.55 (± 0.05)	6	6
K0932D	3310-3315	0.53 (± 0.03)	14	14
K0933A	3400-3405	0.54 (± 0.04)	16	16
K0933B	3490-3495	0.63 (± 0.04)	19	19
K0933C	3580-3585	0.66 (± 0.05)	10	10
K0933D	3670-3675	0.64 (± 0.05)	13	12
K0934A	3770-3775	0.67 (± 0.04)	12	12
K0934B	3870-3875	0.72 (± 0.06)	13	13
K0934C	3980-3985	0.76 (± 0.09)	5	5
K0934D	4070-4075	0.85 (± 0.07)	2	2

Table III

Formation Tops (McAlpine, pers. comm.)

Formation	Depth in metres
Banquereau (unconformity)	in casing 1421
Wyandot fm	1421
Dawson Canyon fm	1457
(unconformity)	1479
Nautilus Shale	1479
(Unnamed L.Cretaceous Ss & Sh)	1857
Whiterose Shale (lower)	3006
(Unnamed Limestone)	3858
Fortune Bay Shale	3902
Total Depth	4100

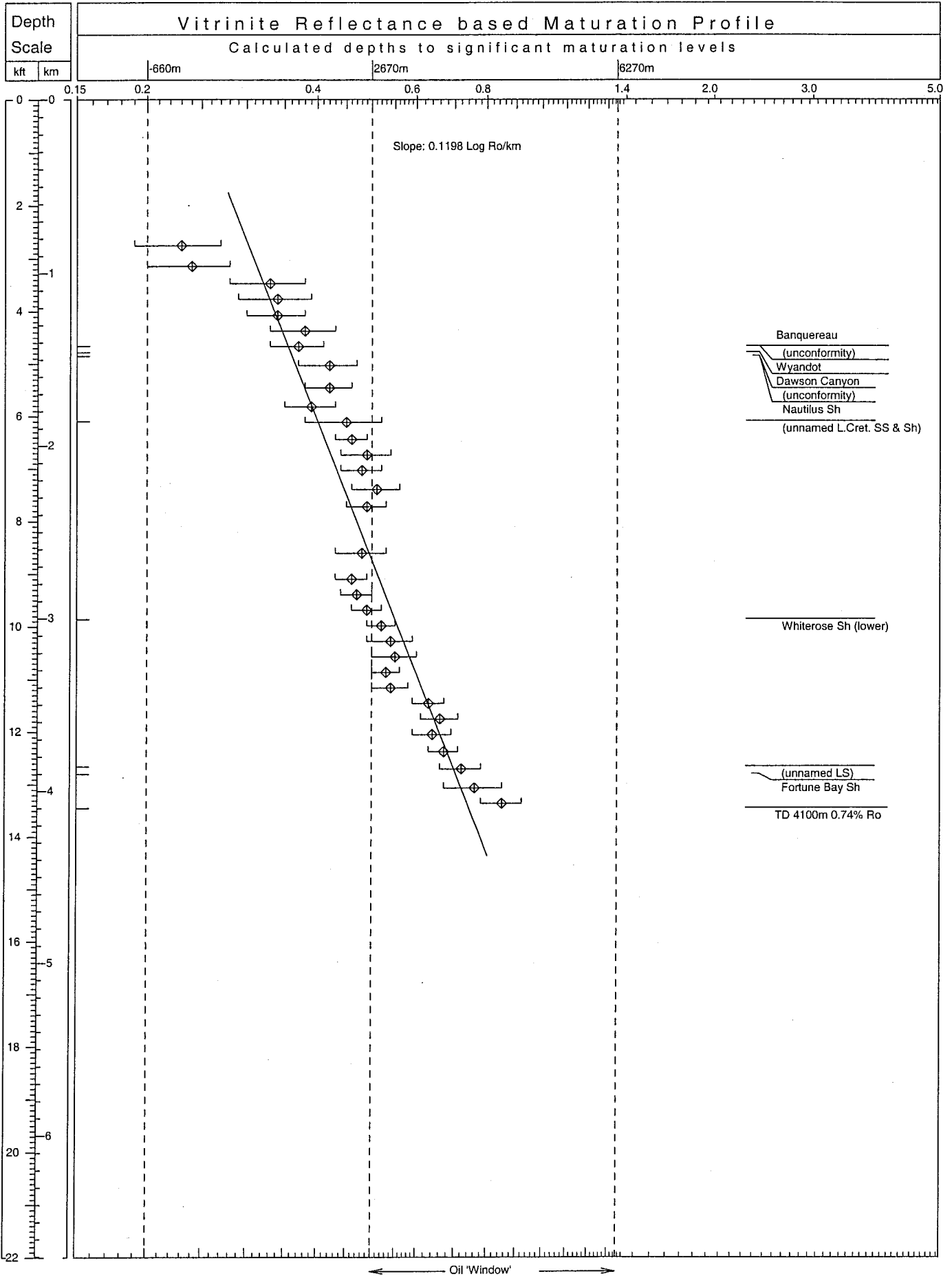


Fig. 1 St. George J-55

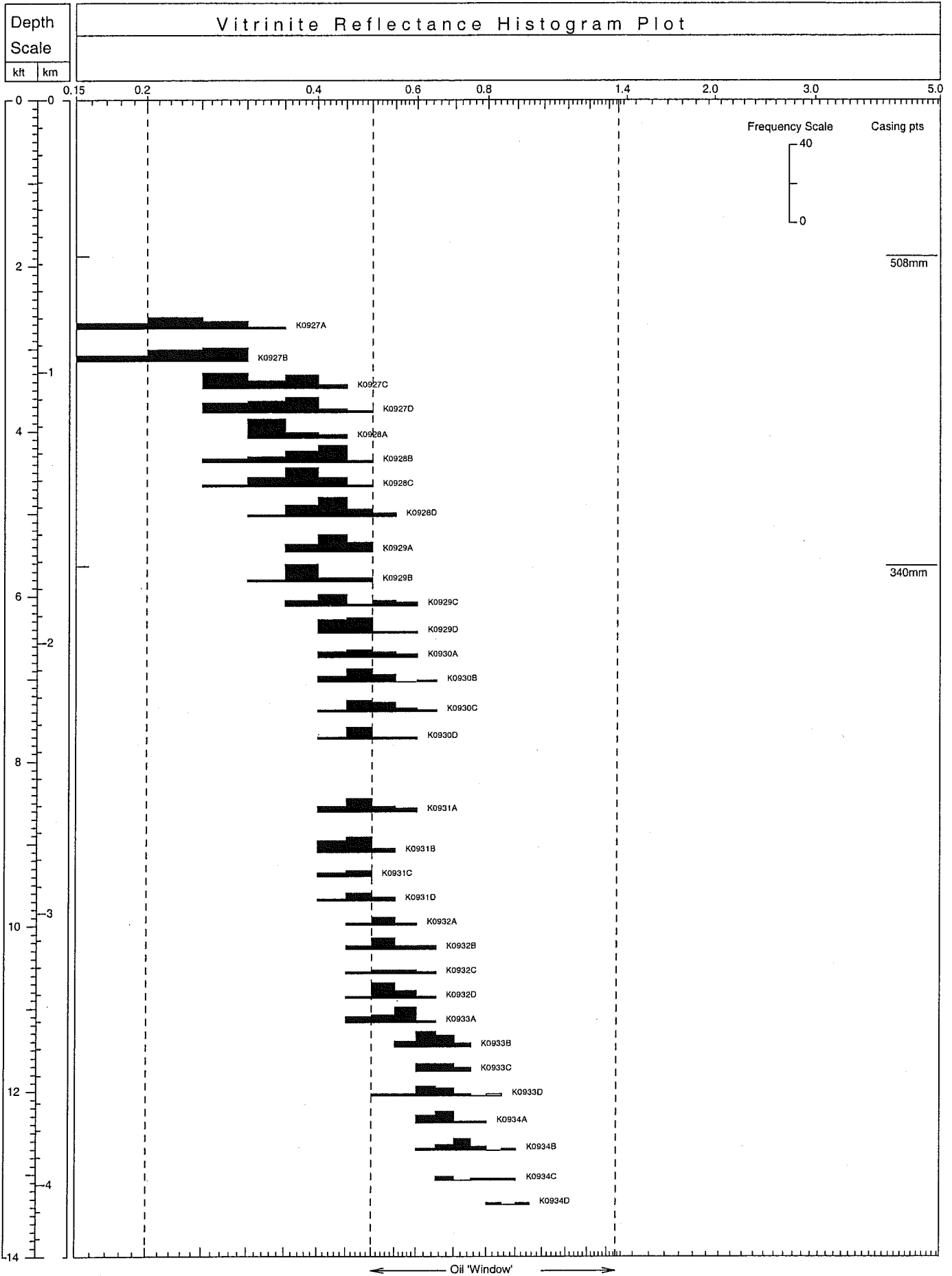


Fig. 2 St. George J-55 <Histograms>

Appendix I

Sample Preparation Method

Kerogen Concentrate

Preliminary wash (preparation for cuttings)

Dry samples in oven (25°C)

PALYNOLOGY Lab preparation

Place 20-30 grams in 250 ml plastic beaker.

Add 10% HCl till reaction ceases (removes carbonates).

Rinse 3 times.

Immerse in hot concentrated HF overnight (removes silicates).

Rinse 3 times.

Heat (60-65°C) in concentrated HCl (removes fluorides caused by HF).

Rinse 3 times.

Transfer to 15 ml test tube with 4-5 ml 4% Alconox.

Centrifuge at 1500 rpm for 90 sec.

Decant.

Rinse and centrifuge 3 times.

Float off organic fraction using 2.0 S.G. ZnBr solution.

Centrifuge at 1000 rpm for 8 min.

Float fraction into second test tube.

Wash and centrifuge 3 times.

Make kerogen smear slide.

Remaining kerogen material is made available to Organic Petrology Lab.

VITRINITE REFLECTANCE Lab preparation

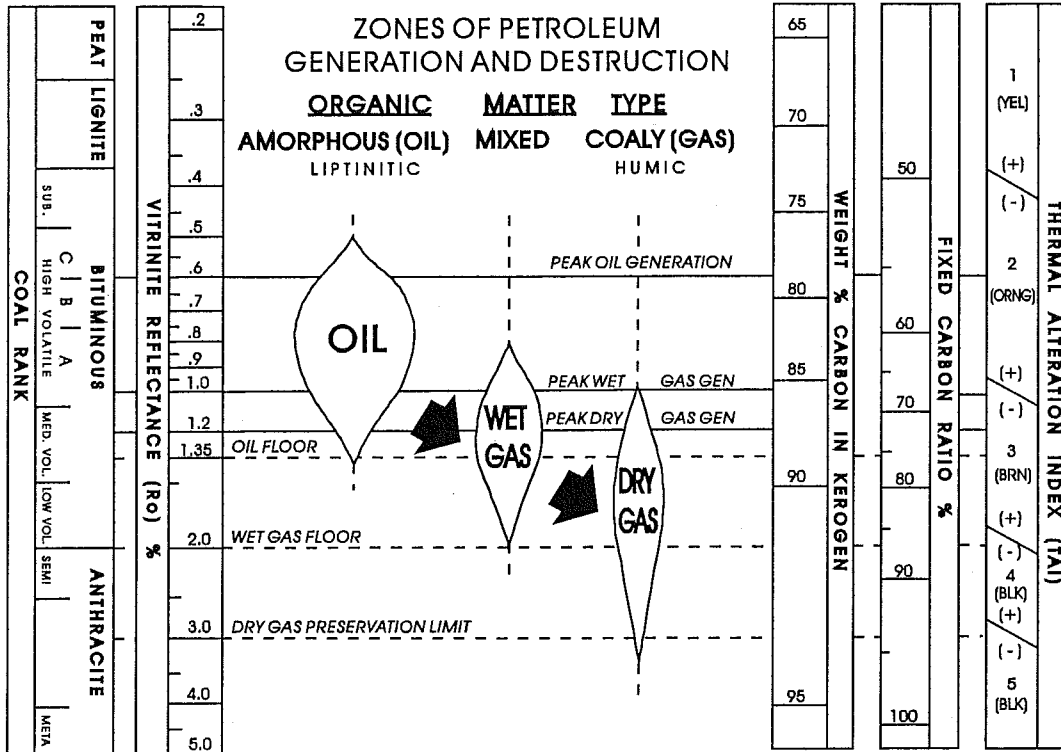
Pipette off excess water and prepare as 2.5 cm (1") diameter plastic stubs to fit polisher.

Freeze dry and fix material for polishing with epoxy resin.

Polish with diamond-based suspension to obtain low relief, scratch-free surface.

Examine under oil lens, incident light at approximately 1000x magnification.

Appendix II (Dow, 1977)



Note: In this report, the terminology used to describe the various maturity levels has been modified. The 'peak' designation, as used in this figure, has been changed to 'onset of significant' and 0.8 %Ro is herein used as the 'peak of oil generation' (Table I, Figure 1).

Appendix III

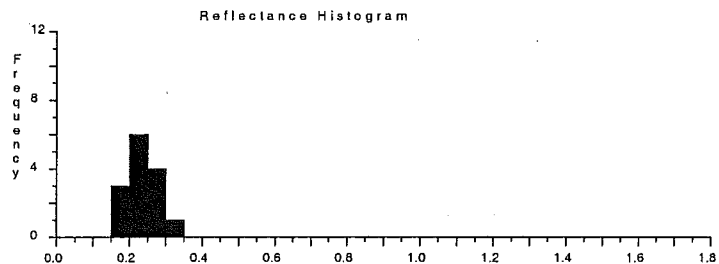
Data listings and basic statistics

Data listings and basic statistics for: St. George J-55

K0927A, 830-840m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.30)	(0.24)	(0.23)	(0.23)	(0.28)	(0.26)	(0.22)	(0.23)	(0.17)	(0.24)
1	(0.25)	(0.18)	(0.25)	(0.18)						

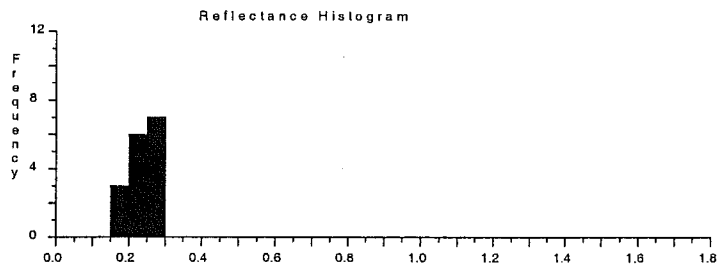
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.23	0.04	14	0.17	0.30	3.26
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0927B, 950-960m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.26)	(0.29)	(0.21)	(0.25)	(0.26)	(0.23)	(0.19)	(0.21)	(0.24)	(0.18)
1	(0.23)	(0.29)	(0.28)	(0.22)	(0.28)	(0.19)				

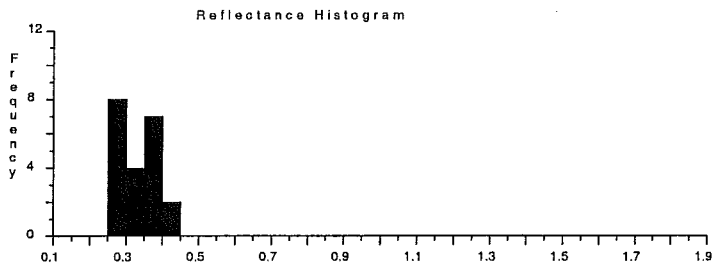
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.24	0.04	16	0.18	0.29	3.81
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0927C, 1050-1060m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.27)	(0.29)	(0.39)	(0.36)	(0.33)	(0.28)	(0.33)	(0.29)	(0.39)	(0.40)
1	(0.28)	(0.31)	(0.26)	(0.37)	(0.31)	(0.29)	(0.35)	(0.39)	(0.36)	(0.40)
2	(0.28)									

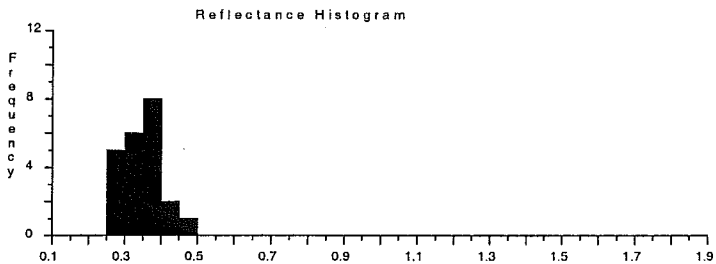
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.33	0.05	21	0.26	0.40	6.90
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0927D, 1140-1150m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.39)	(0.33)	(0.36)	(0.26)	(0.34)	(0.27)	(0.40)	(0.32)	(0.37)	(0.25)
1	(0.39)	(0.33)	(0.36)	(0.36)	(0.30)	(0.27)	(0.45)	(0.32)	(0.37)	(0.36)
2	(0.25)	(0.40)								

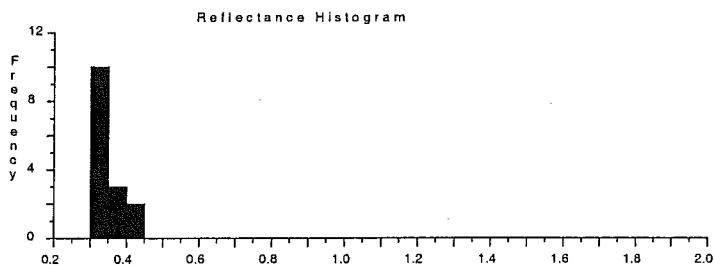
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.34	0.05	22	0.25	0.45	7.44
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0928A, 1240-1245m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.31)	(0.32)	(0.32)	(0.43)	(0.36)	(0.31)	(0.41)	(0.31)	(0.33)	(0.35)
1	(0.31)	(0.32)	(0.30)	(0.31)	(0.38)					

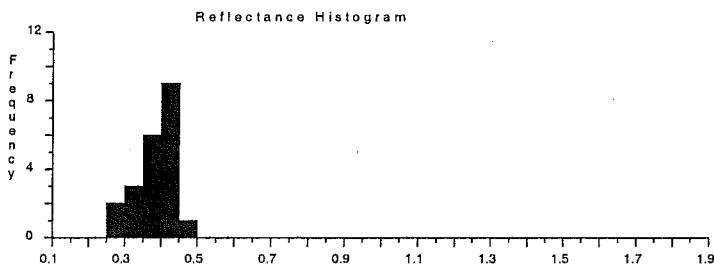
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.34	0.04	15	0.30	0.43	5.07
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0928B, 1330-1335m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.40)	(0.29)	(0.42)	(0.39)	(0.44)	(0.33)	(0.40)	(0.38)	(0.31)	(0.35)
1	(0.28)	(0.47)	(0.43)	(0.40)	(0.37)	(0.38)	(0.34)	(0.41)	(0.37)	(0.43)
2	(0.42)									

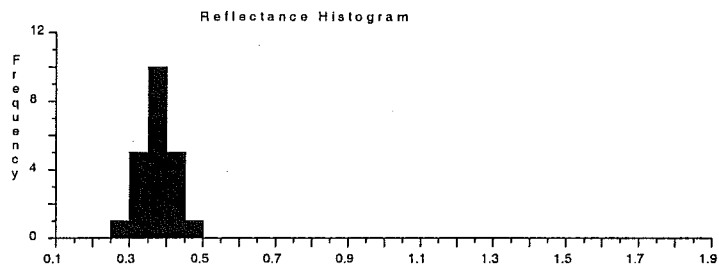
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.38	0.05	21	0.28	0.47	8.01
(Edit)	0.00	0.00	0	0.00	0.00	0.00



Data listings and basic statistics for: St. George J-55

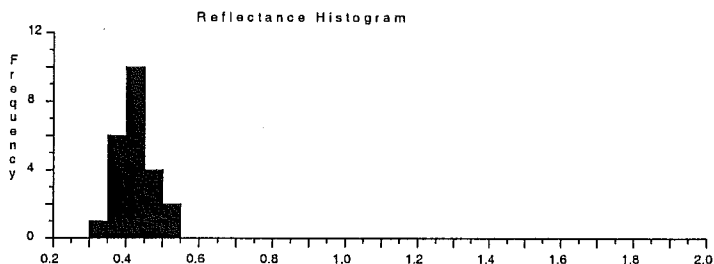
K0928C, 1420-1425m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.32)	(0.41)	(0.39)	(0.33)	(0.34)	(0.37)	(0.35)	(0.39)	(0.43)	(0.45)
1	(0.38)	(0.33)	(0.42)	(0.37)	(0.29)	(0.39)	(0.40)	(0.37)	(0.44)	(0.35)
2	(0.31)	(0.38)								
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.37	0.04	22	0.29	0.45	8.21				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				



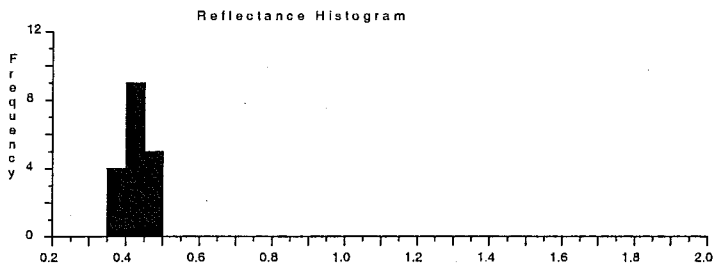
K0928D, 1530-1535m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.47)	(0.39)	(0.36)	(0.43)	(0.33)	(0.39)	(0.43)	(0.35)	(0.41)	(0.44)
1	(0.39)	(0.41)	(0.52)	(0.48)	(0.47)	(0.50)	(0.43)	(0.44)	(0.36)	(0.41)
2	(0.40)	(0.46)	(0.41)							
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.42	0.05	23	0.33	0.52	9.68				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				



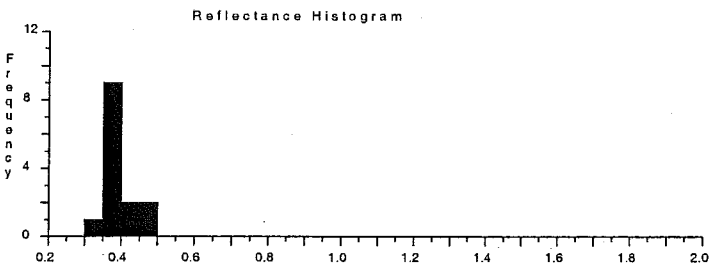
K0929A, 1660-1665m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.35)	(0.49)	(0.41)	(0.42)	(0.42)	(0.35)	(0.46)	(0.47)	(0.38)	(0.45)
1	(0.41)	(0.47)	(0.44)	(0.42)	(0.40)	(0.41)	(0.39)	(0.42)		
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.42	0.04	18	0.35	0.49	7.56				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				



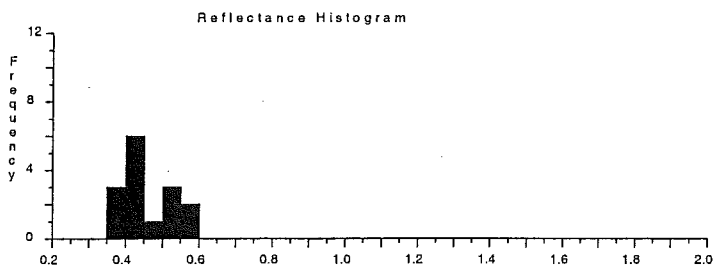
K0929B, 1770-1775m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.39)	(0.38)	(0.39)	(0.37)	(0.35)	(0.35)	(0.31)	(0.49)	(0.40)	(0.38)
1	(0.36)	(0.39)	(0.41)	(0.45)						
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.39	0.04	14	0.31	0.49	5.42				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				



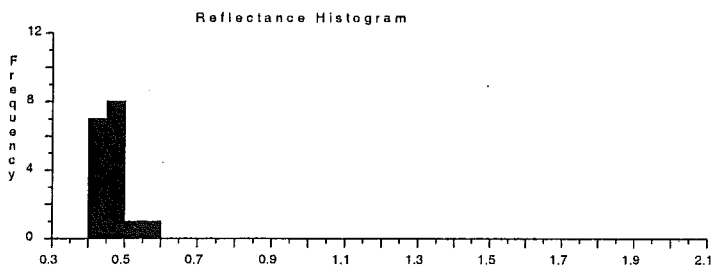
K0929C, 1860-1865m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.43)	(0.37)	(0.44)	(0.40)	(0.42)	(0.56)	(0.50)	(0.58)	(0.36)	(0.43)
1	(0.39)	(0.52)	(0.48)	(0.40)	(0.50)					
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.45	0.07	15	0.36	0.58	6.78				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				



K0929D, 1960-1965m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.46)	(0.45)	(0.44)	(0.44)	(0.43)	(0.44)	(0.49)	(0.55)	(0.43)	(0.48)
1	(0.44)	(0.44)	(0.50)	(0.49)	(0.47)	(0.49)	(0.46)			
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.46	0.03	17	0.43	0.55	7.90				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				

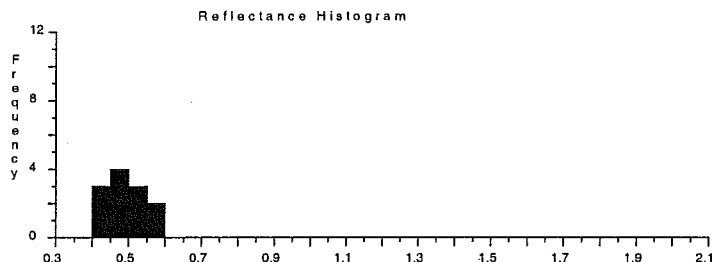


Data listings and basic statistics for: St. George J-55

K0930A, 2050-2055m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.48)	(0.42)	(0.55)	(0.44)	(0.47)	(0.52)	(0.47)	(0.43)	(0.45)	(0.57)
1	(0.52)	(0.53)								

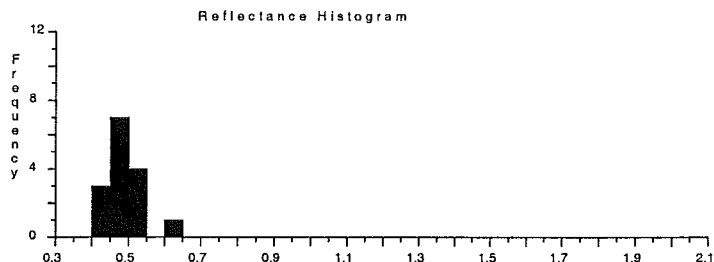
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.49	0.05	12	0.42	0.57	5.85
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0930B, 2140-2145m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.46)	(0.46)	(0.43)	(0.50)	(0.45)	(0.50)	(0.50)	(0.44)	(0.43)	(0.47)
1	(0.47)	(0.53)	(0.60)	(0.46)	(0.46)					

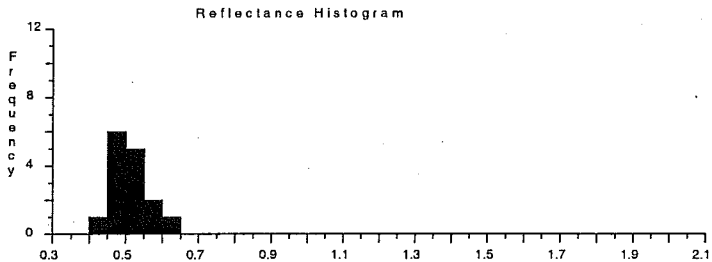
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.48	0.04	15	0.43	0.60	7.16
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0930C, 2250-2255m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.43)	(0.49)	(0.59)	(0.47)	(0.47)	(0.50)	(0.58)	(0.52)	(0.51)	(0.54)
1	(0.48)	(0.45)	(0.50)	(0.48)	(0.62)					

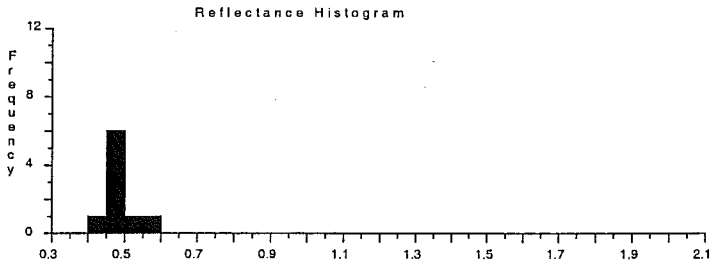
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.51	0.05	15	0.43	0.82	7.63
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0930D, 2350-2355m

Col >	1	2	3	4	5	6	7	8	9
Row	(0.48)	(0.43)	(0.48)	(0.53)	(0.48)	(0.55)	(0.46)	(0.49)	(0.47)
1									

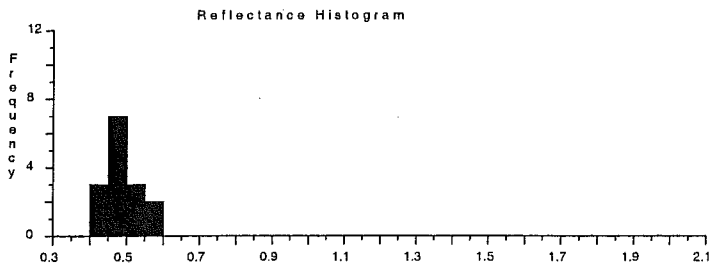
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.49	0.04	9	0.43	0.55	4.37
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0931A, 2620-2625m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.52)	(0.40)	(0.49)	(0.46)	(0.44)	(0.55)	(0.57)	(0.45)	(0.46)	(0.48)
1	(0.52)	(0.48)	(0.46)	(0.41)	(0.52)					

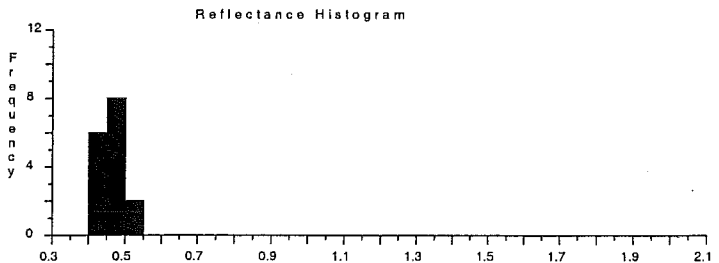
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.48	0.05	15	0.40	0.57	7.21
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0931B, 2770-2775m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.47)	(0.49)	(0.52)	(0.47)	(0.44)	(0.42)	(0.44)	(0.45)	(0.48)	(0.50)
1	(0.48)	(0.45)	(0.48)	(0.43)	(0.43)	(0.44)				

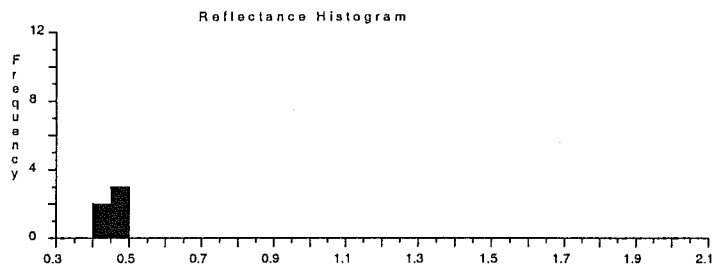
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.46	0.03	16	0.42	0.52	7.39
(Edit)	0.00	0.00	0	0.00	0.00	0.00



Data listings and basic statistics for: St. George J-55

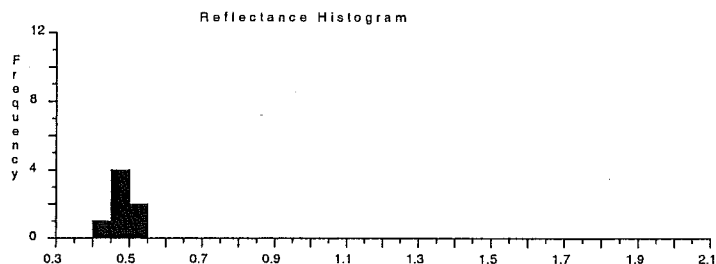
K0931C, 2860-2865m

Col >	1	2	3	4	5	
Row	(0.49)	(0.49)	(0.42)	(0.49)	(0.44)	
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.47	0.03	5	0.42	0.49	2.33
(Edit)	0.00	0.00	0	0.00	0.00	0.00



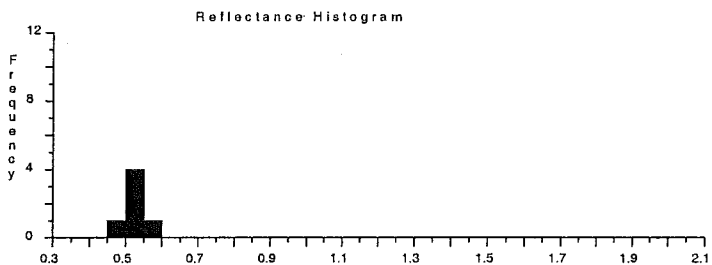
K0931D, 2950-2955m

Col >	1	2	3	4	5	6	7
Row	(0.52)	(0.54)	(0.49)	(0.49)	(0.48)	(0.48)	(0.43)
	Mean	Stand Dev	Pts	Min	Max	Sum	
Total	0.49	0.03	7	0.43	0.54	3.43	
(Edit)	0.00	0.00	0	0.00	0.00	0.00	



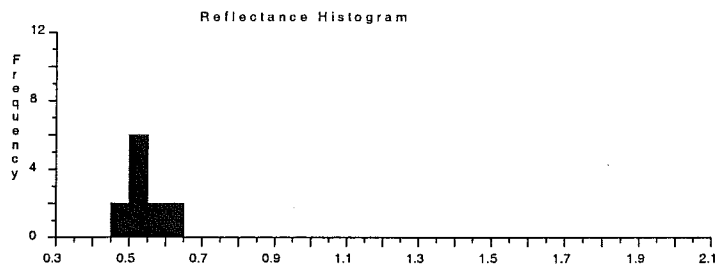
K0932A, 3040-3045m

Col >	1	2	3	4	5	6
Row	(0.49)	(0.53)	(0.50)	(0.53)	(0.53)	(0.56)
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.52	0.03	6	0.49	0.56	3.14
(Edit)	0.00	0.00	0	0.00	0.00	0.00



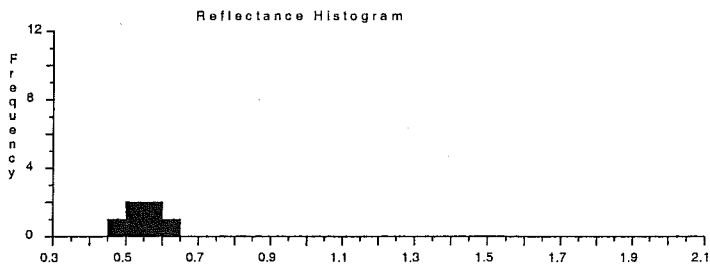
K0932B, 3130-3135m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.57)	(0.53)	(0.53)	(0.45)	(0.52)	(0.51)	(0.59)	(0.63)	(0.60)	(0.49)
1	(0.53)	(0.52)								
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.54	0.05	12	0.45	0.63	6.47				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				



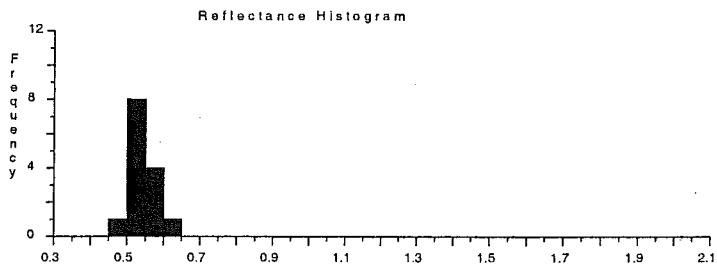
K0932C, 3220-3225m

Col >	1	2	3	4	5	6
Row	(0.52)	(0.48)	(0.56)	(0.52)	(0.56)	(0.64)
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.55	0.05	6	0.48	0.64	3.28
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0932D, 3310-3315m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.55)	(0.52)	(0.52)	(0.51)	(0.55)	(0.57)	(0.49)	(0.53)	(0.61)	(0.52)
1	(0.52)	(0.50)	(0.56)	(0.52)						
	Mean	Stand Dev	Pts	Min	Max	Sum				
Total	0.53	0.03	14	0.49	0.61	7.47				
(Edit)	0.00	0.00	0	0.00	0.00	0.00				

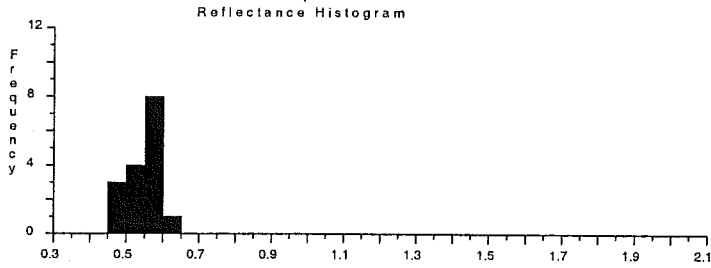


Data listings and basic statistics for: St. George J-55

K0933A, 3400-3405m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.57)	(0.58)	(0.48)	(0.59)	(0.57)	(0.61)	(0.49)	(0.56)	(0.56)	(0.53)
1	(0.53)	(0.55)	(0.57)	(0.50)	(0.51)	(0.48)				

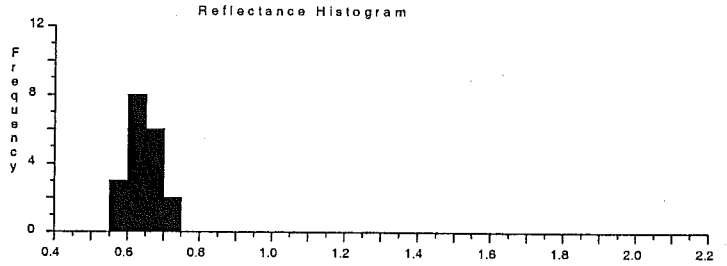
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.54	0.04	16	0.48	0.61	8.68
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0933B, 3490-3495m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.70)	(0.60)	(0.71)	(0.60)	(0.60)	(0.69)	(0.58)	(0.64)	(0.67)	(0.65)
1	(0.58)	(0.65)	(0.65)	(0.60)	(0.68)	(0.55)	(0.60)	(0.62)	(0.63)	

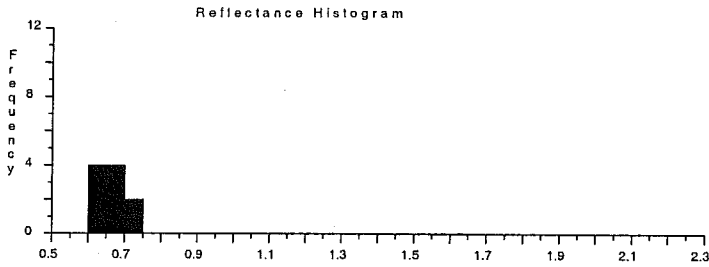
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.63	0.04	19	0.55	0.71	12.00
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0933C, 3580-3585m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.66)	(0.60)	(0.68)	(0.69)	(0.74)	(0.73)	(0.61)	(0.61)	(0.61)	(0.68)

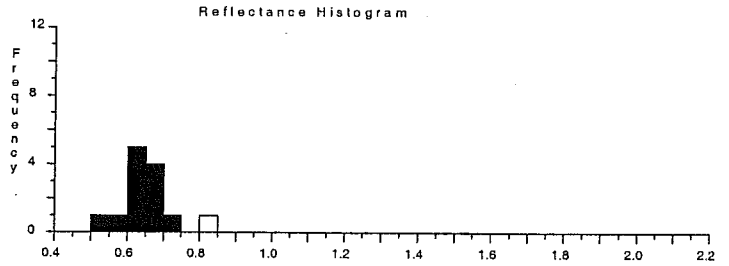
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.66	0.05	10	0.60	0.74	6.61
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0933D, 3670-3675m

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.80	(0.67)	(0.67)	(0.64)	(0.71)	(0.58)	(0.61)	(0.63)	(0.61)	(0.53)
1	(0.68)	(0.69)	(0.62)							

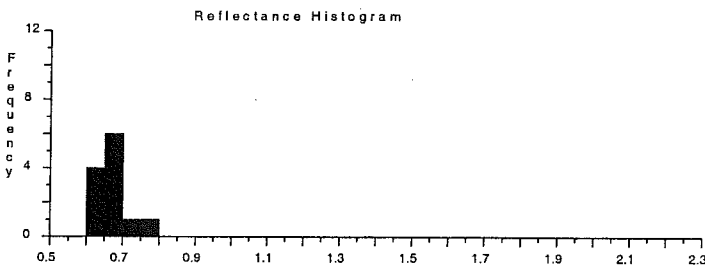
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.65	0.07	13	0.53	0.80	8.44
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0934A, 3770-3775m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.70)	(0.67)	(0.64)	(0.64)	(0.76)	(0.67)	(0.62)	(0.65)	(0.64)	(0.69)
1	(0.68)	(0.67)								

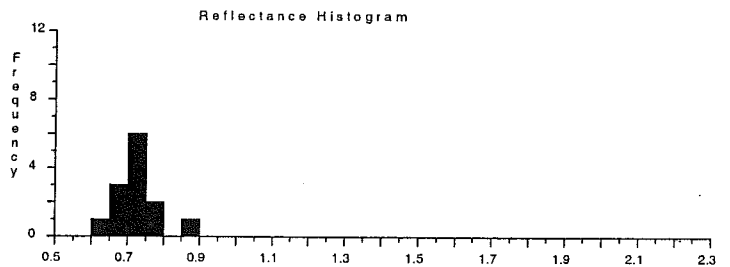
	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.67	0.04	12	0.62	0.76	8.03
(Edit)	0.00	0.00	0	0.00	0.00	0.00



K0934B, 3870-3875m

Col >	1	2	3	4	5	6	7	8	9	0
Row	(0.74)	(0.86)	(0.78)	(0.65)	(0.73)	(0.74)	(0.78)	(0.67)	(0.67)	(0.70)
1	(0.62)	(0.73)	(0.71)							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.72	0.06	13	0.62	0.86	9.38
(Edit)	0.00	0.00	0	0.00	0.00	0.00



Data listings and basic statistics for: St. George J-55

K0934C, 3980-3985m

Col >	1	2	3	4	5	
Row	(0.87)	(0.81)	(0.68)	(0.66)	(0.76)	
	Mean	Stand Dev	Pls	Min	Max	Sum
Total	0.78	0.09	5	0.66	0.87	3.78
(Edit)	0.00	0.00	0	0.00	0.00	0.00

K0934D, 4070-4075m

Col >	1	2				
Row	(0.80)	(0.90)				
	Mean	Stand Dev	Pls	Min	Max	Sum
Total	0.85	0.07	2	0.80	0.90	1.70
(Edit)	0.00	0.00	0	0.00	0.00	0.00

