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Vitrinite reflectance (Ro)
of dispersed organics
from
Elf et al.
Emerillon C-56

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Vitrinite reflectance (Ro) of dispersed organics from the Elf et al.
Emerillion C-56.

G.S.C. Locality No: D115 Location: 45°15'04.79"N, 54°23'16.85"W
R.T. Elevation: 98' Water Depth: 393' Total Depth: 10750'
Sample Interval: 1130-10750' Interval Studied: 1780-10740'
Information Release: Jan. 25, 1976 Depth Units: Feet referenced to R.T.

Vitrinite reflectance has been determined on 16 samples (20 attempted) (Table II) from Elf et al. Emerillion C-56, which was classified as a wildcat well and is located on the southern Grand Banks, approximately 287 km (178 mi) south-southwest of St. John's, Newfoundland.

Data acquisition and manipulation for this report utilized the Zeiss Photo-multiplier III Zonax microcomputer system with improvements in software to provide a dynamic histogram display as readings are acquired. Sample preparation followed the procedures listed in Appendix I. The analysis of the well revealed the thermal maturation intervals given in Table I. Specific maturation levels as set out in this report were based on those of Dow (1977) with modified terminology (Appendix II).

Table I
Inferred Thermal Maturation Levels*

Seafloor-3880'	0.24 - 0.4	% Ro	immature
3880-5568'	0.4 - 0.5	% Ro	immature approaching maturity
5568-6946'	0.5 - 0.6	% Ro	marginally mature
6946'	0.6	% Ro	onset of significant oil generation
9121'	0.8	% Ro	peak of oil generation
10750' T.D.	0.99	% Ro	within oil window
(10809')	1.0	% Ro	onset of significant wet gas generation
(12187')	1.2	% Ro	onset of significant dry gas generation
(13078')	1.35	% Ro	oil floor

Note: () indicate depths extrapolated at 0.188 log Ro/km

* Maturation levels provided for all types of organic matter. Actual hydrocarbon products depend on type of organic matter present.

Remarks

Sample coverage of vitrinite reflectance data (Figure 1, Table II) was adequate over most of the section penetrated by Emerillon C-56. The data are plotted on a log Ro vs. linear depth scale and the linear regression line was calculated by the least squares method. The 'error bars' plotted on the maturation profile (Figure 1) 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 maturation line is 0.188 log Ro/km.

Interpretation of the data was significantly aided by the recently developed histogram display plot (Figure 2). With this tool it is relatively easy to see linear trends in the data and it also demonstrates the effects of caving, geology, casing points and other factors on the vitrinite reflectance populations. The histogram plot for Emerillon C-56 (Figure 2) helps to show that the section between the unconformity at $\approx 3792'$ and the Avalon Unconformity at 6850' yielded vitrinite reflectance data of questionable value. In general, all of the points above the Avalon unconformity were more difficult to interpret.

The predominance of higher reflectance populations and an increase in scatter of the frequency classes probably indicates extensive reworking in the interval 3710 to 5700' (Figure 2, Table II, Appendix IV). The reworked populations show a reverse maturation gradient as would be expected when sediments exhibiting a normal maturation gradient are eroded and redeposited. This effect may be a regional phenomenon since it has been documented in the Tern A-86 and Puffin B-90 wells (Avery, 1985) and in the Hermine E-94 well (Avery, 1987). The reworking is also blamed for the inconsistent trends in the upper section (above $\approx 3792'$). Therefore the upper values (2609-3740') should be somewhat lower. This would allow the maturation gradient to pass closer to the theoretical 0.2 Ro minimum value which is expected at the surface for a section which is presently at its maximum burial depth.

TAI data for Emerillon C-56 (Bujak, pers. comm.) shows that a level of 2- ($\approx .44$ Ro) was reached at 6720' and a maximum of 2 ($\approx .6$ Ro) was reached at 10,720'. Maturation based on vitrinite reflectance at these depths are considerably higher at .58 Ro and .99 Ro respectively which indicates a much thicker oil window (Figure 1).

The lithology strip plot (Figure 1) was produced directly from the E.P.G. LITHFILE database which extracts data from digitized CANSTRAT logs.

These vitrinite reflectance data provide evidence that the thermal regime at Emerillon C-56 was suitable for the generation and preservation of hydrocarbons within the drilled section assuming potential source rocks and traps are present.

References

- Avery, M.P., 1987. Vitrinite reflectance (Ro) of dispersed organics from Elf Hermine E-94. Geological Survey of Canada, Open File report.
- Avery, M.P. and Bell, J.S., 1985. Vitrinite reflectance measurements from the South Whale Basin, Grand Banks, Eastern Canada, and implications for hydrocarbon exploration: in Current Research, Part A, Geological Survey of Canada, Paper 85-1B, p. 51-57.
- Dow, W.G., 1977. Kerogen studies and geological interpretations. Journal of Geochemical Exploration, no. 7, p. 79-99.
- Elf Oil Exploration and Production Canada Ltd., 1974. Well history report Elf et al. Emerillon C-56. Open File report, Department of Energy, Mines and Resources, Ottawa.

March 11, 1987

M.P. Avery
Eastern Petroleum Geology Subdivision

MPA/nk

- c.c. K.D. McAlpine, E.P.G.S., Dartmouth
J.A. Wade, E.P.G.S., Dartmouth
A.E. Jackson, E.P.G.S., Dartmouth
E.P.G.S. Files, Dartmouth
G.R. Campbell, COGLA, Ottawa
Central Technical Files, Ottawa
J.S. Bell, I.S.P.G., Calgary
L.R. Snowdon, I.S.P.G., Calgary
D. Skibo, I.S.P.G., Calgary
C. Beaumont, Dalhousie University, Halifax

Table II

Summary of kerogen - based vitrinite reflectance

Seq. #	Sample #	Depth in feet	Mean Ro (SD) non-rotated	Number of readings	
				Total	Edited
1	K0579A	1780-1790	.23(+.04)	43	13
2	K0320A	2600-2630	.34(+.06)	25	21
3	K0320B	3110-3140	.43(+.07)	42	34
4	K0320C	3410-3440	.44(+.06)	38	28
5	K0321A	3710-3740	.49(±.04)	57	16
6	K0321B	6120-6150	.50(±.05)	70	63
7	K0321C	6520-6550	.51(+.06)	86	37
8	K0322A	6820-6850	.58(+.02)	37	8
9	K0580C	7390-7400	.56(+.05)	70	11
10	K0581A	7790-7800	.61(+.05)	40	17
11	K0322B	8230-8250	.72(+.06)	68	27
12	K0581B	8590-8600	.73(+.07)	55	31
13	K0581C	8980-8990	.81(±.08)	71	43
14	K0322C	9620-9650	.89(±.04)	47	15
15	K0582A	10190-10200	.98(±.08)	41	19
16	K0582B	10730-10750	1.04(±.08)	59	26
Secondary populations					
1	K0321A	3710-3740	1.01(±.11)	57	22
2	K0579B	4250-4260	.92(±.11)	40	30
3	K0579C	4690-4700	.81(±.06)	19	9
4	K0580A	5190-5200	.83(±.12)	94	76
5	K0580B	5690-5700	.72(±.07)	99	44

Table III

Formation Tops (Wade, pers. comm.)

Formation	Depth
Banquereau	in casing
Tert/Cret UNCONFORMITY	3792'?
Wyandot equivalent	3792'
Dawson Canyon	4620'?
Petrel Member	5184-5588'
Logan Canyon	5858'
Eider Member	5858'
Naskapi Member	6316'
Missisauga	6355'
Avalon UNCONFORMITY	6850'
Verrill Canyon?	6850'
Whale Limestone	7160'
Mohican?	9400'
Intrusive	9749-9816'
Iroquois?	10214'
T.D.	10750'

Table IV

Biostrat (Ascoli, pers. comm.)

Age	Depth Interval
Campanian	4070-4150'
Santonian	4210-4660'
Coniacian	4720-4860'
Turonian	4920-5350'
Cenomanian	5420-5650'
Late Aptian-Albian	5720-6350'
Early Aptian	6420-6450'
Barremian	6520-6850'
Callovian-Early Oxfordian	6920-8050'
Bathonian	8120-9450'
Bajocian	9520-10050'
?Bajocian	10120-10630'
Early Jurassic (?Sinemurian)	10720-10750'

Vitrinite Reflectance

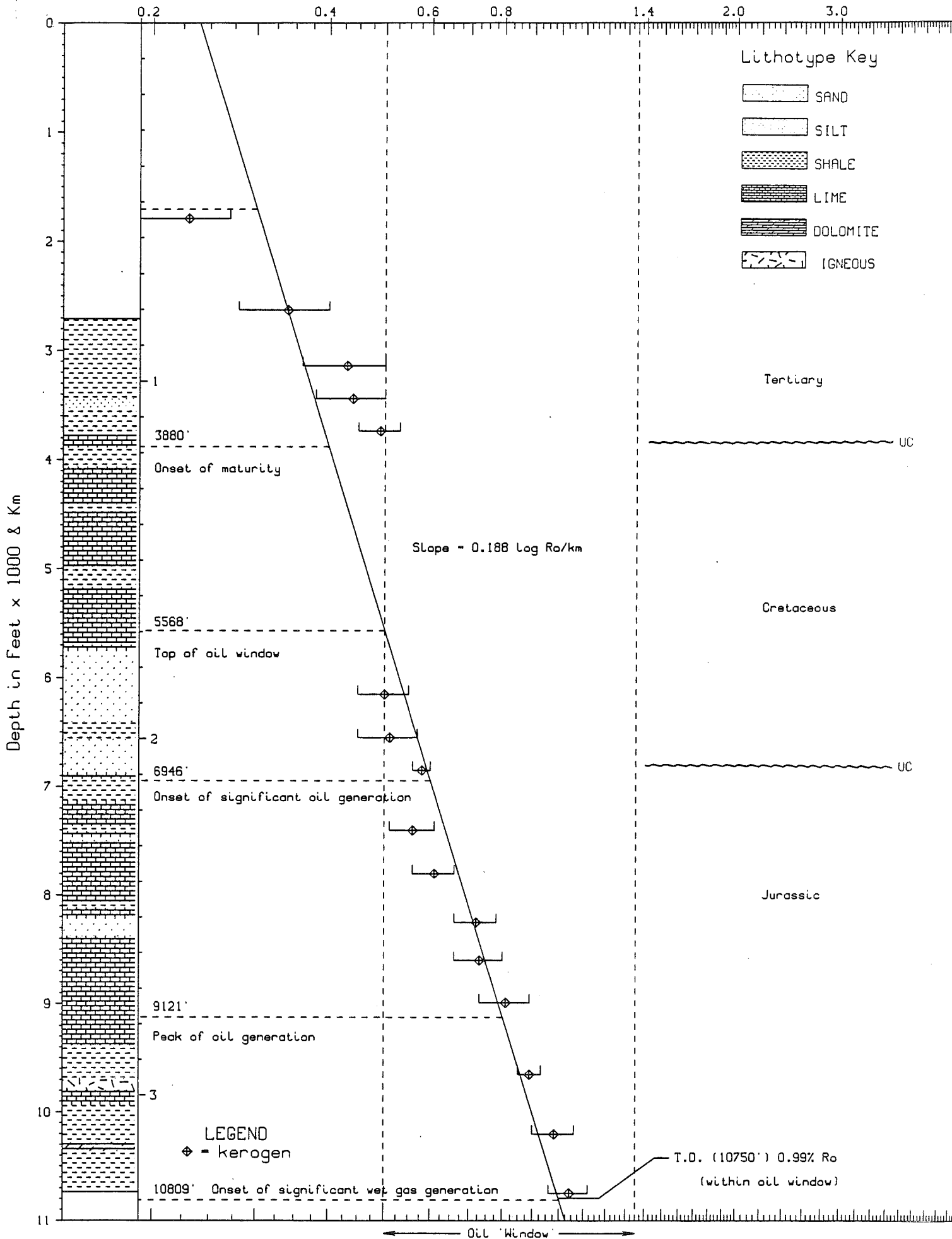


Fig. 1 Emerillon C-56

Vitrinite Reflectance

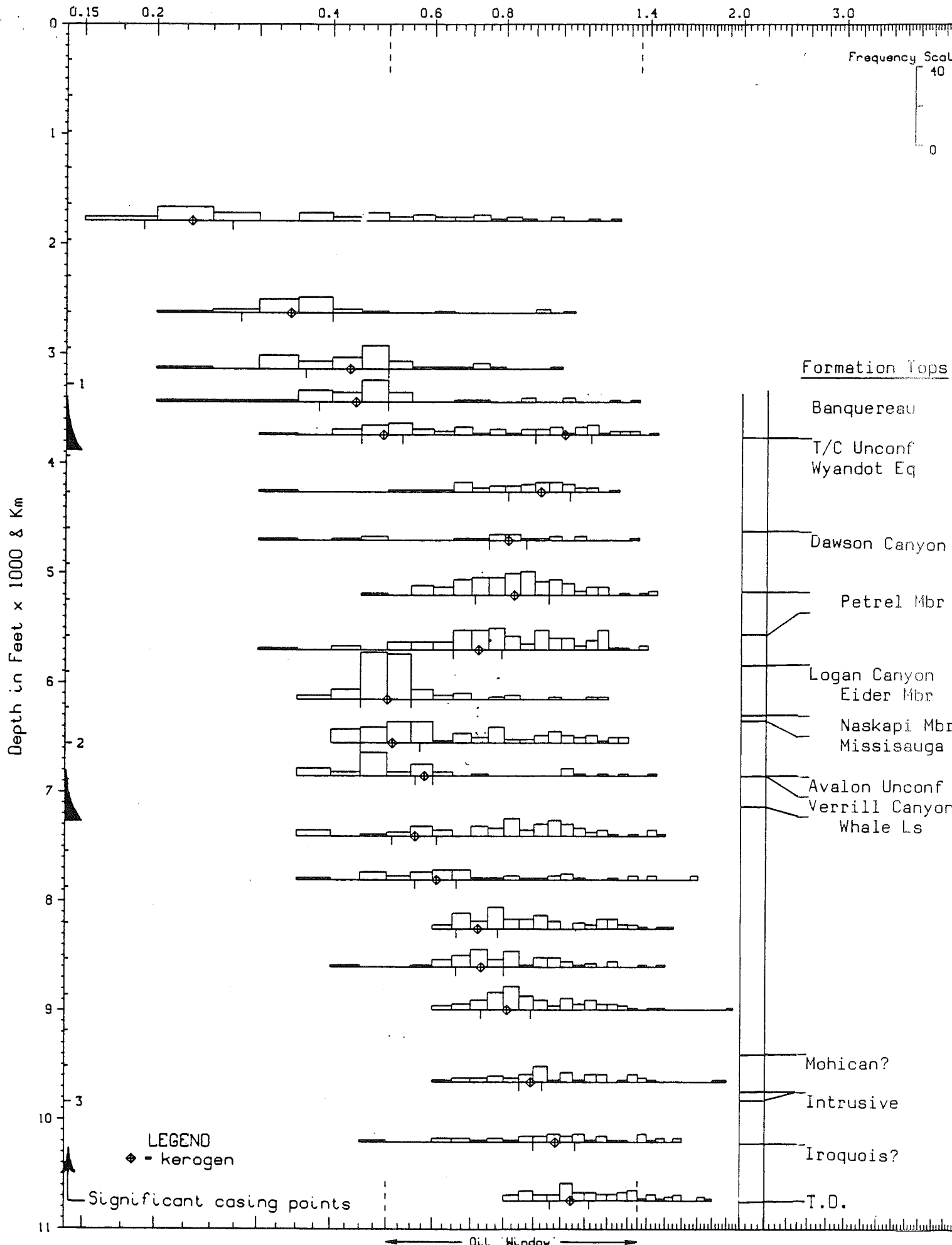


Fig. 2 Emerillon C-56 <histograms>

APPENDIX I

Sample Preparation Method

COGLA Lab preparation

Preliminary Wash

Samples dried in oven

Split: a. all of coarse to Petrology Lab

b. $\frac{1}{2}$ medium to Palynology Lab

c. rest of medium and all of fine combined for Micropaleo Lab

Split "b" is delivered to Palynology Lab and treated as follows:

PALYNOLOGY Lab preparation

20-30 grams placed in 250ml plastic beaker.

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

Washed (rinsed) 3 times.

Conc. HF overnight (removes silicates).

Washed (rinsed) 3 times.

Heated (60-65°C) conc. HCl (remove fluorides caused by HF).

Washed 3 times.

Then put into 15ml test tube with 4-5ml 4% Alconox.

Differential centrifuge at 1500rpm for 90 sec.

Decant.

Wash 3 times with centrifuging.

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

Centrifuge 1000rpm, 8 min.

Float fraction into second test tube.

Wash 3 times with centrifuging.

Kerogen smear slide made.

Remaining kerogen material delivered to Vitrinite Reflectance Lab.

VITRINITE REFLECTANCE Lab preparation

Excess water pipetted off.

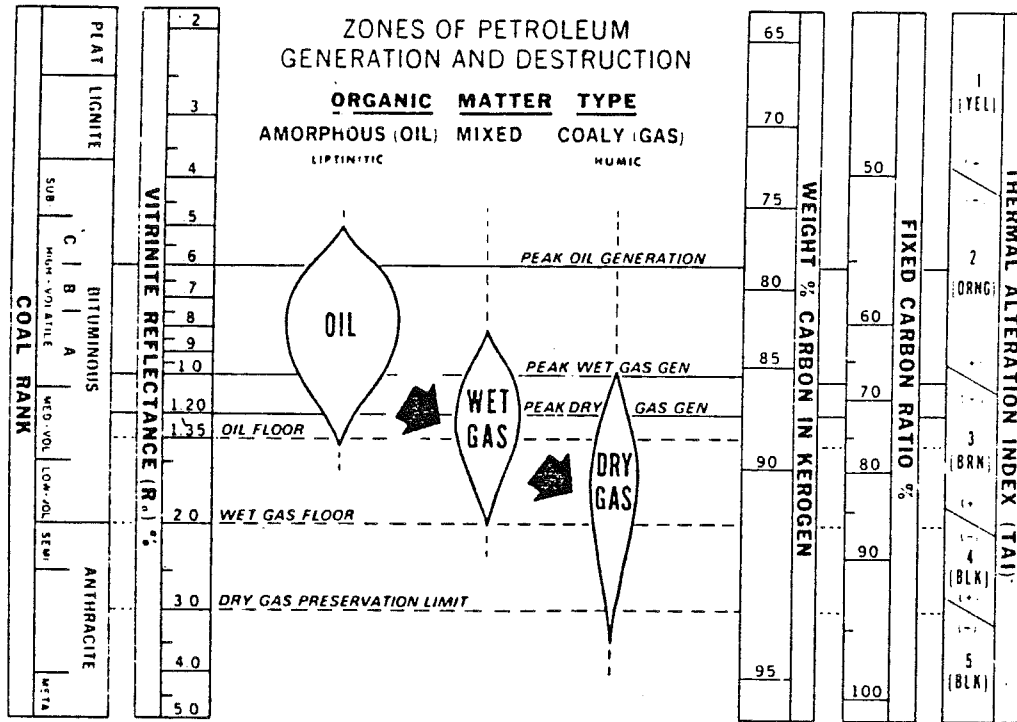
Freeze dried.

Mounted using epoxy resin (EPO-TEK 301) in predrilled plastic stubs.

Polished using modified coal petrology polishing methods.

Examined under oil lens at approximately 800x mag'n.

Appendix II (Dow,1977)



Note: For these reports, the terminology used to describe the various maturation levels has been modified. The 'peak' designation, as used in this figure, has been changed to 'onset of significant' and 0.8 R_o is now used as the 'peak of oil generation' (Table I, Figure 1).

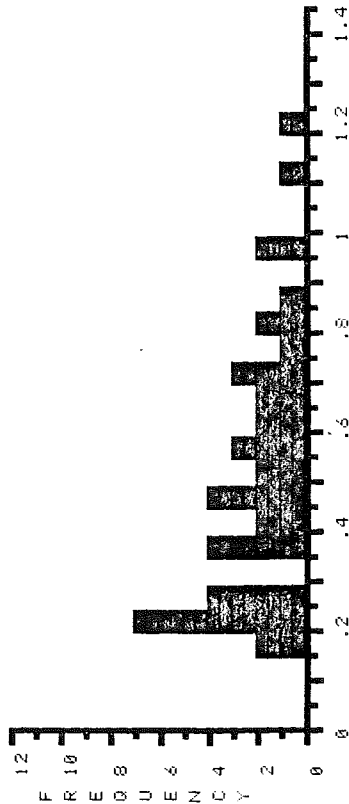
Appendix III
Sample Reports

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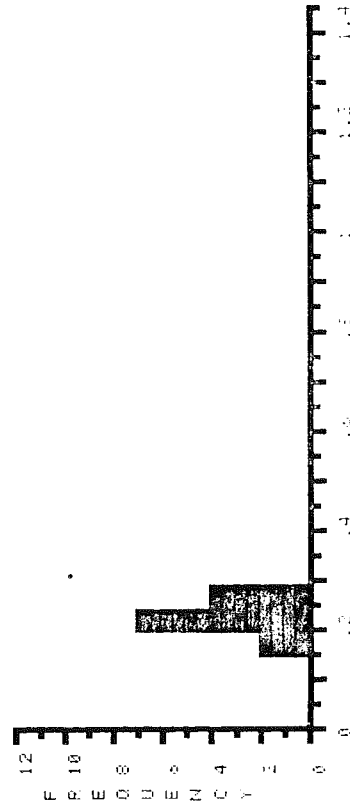
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1	*.26	*.27	*.29	.37	.37	.36	.39	.40	.40	.44
2	.45	.47	.48	.49	.50	.53	.57	.58	.59	.60
3	.62	.65	.68	.71	.72	.77	.81	.81	.83	.87
4	.97	.98	1.11	1.24						

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .52 .27 48 .17 1.24 22.22
 *EDIT > .23 .04 13 .17 .29 2.94

% REFLECTANCE



% REFLECTANCE ** EDITED **

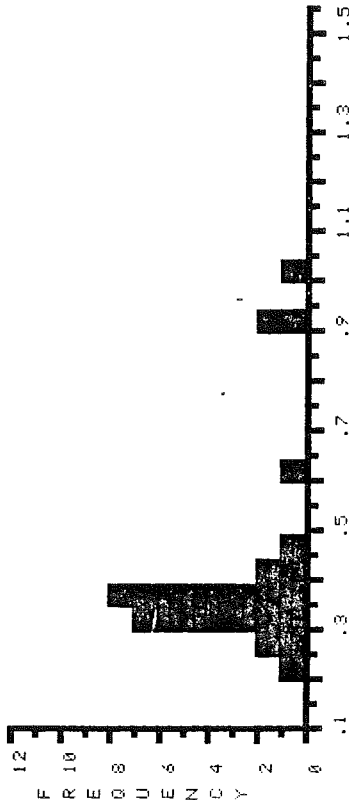


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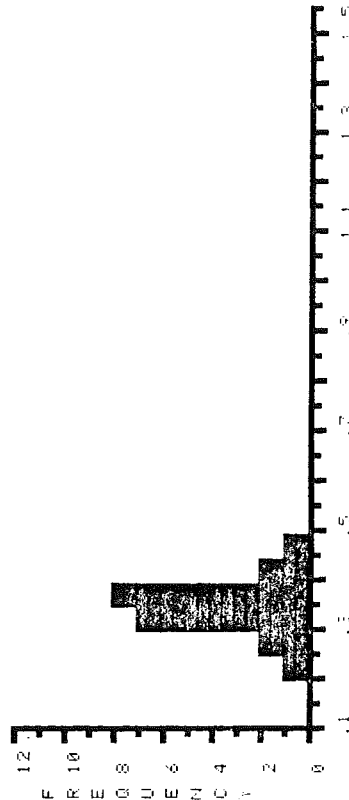
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1	*.34	*.35	*.36	*.37	*.37	*.37	*.37	*.37	*.39	*.40
2	*.42	*.47	.53	.93	1.01					

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .43 .21 25 .23 1.01 10.69
 *EDIT > .34 .05 21 .23 .47 7.19

% REFLECTANCE



% REFLECTANCE ** EDITED **



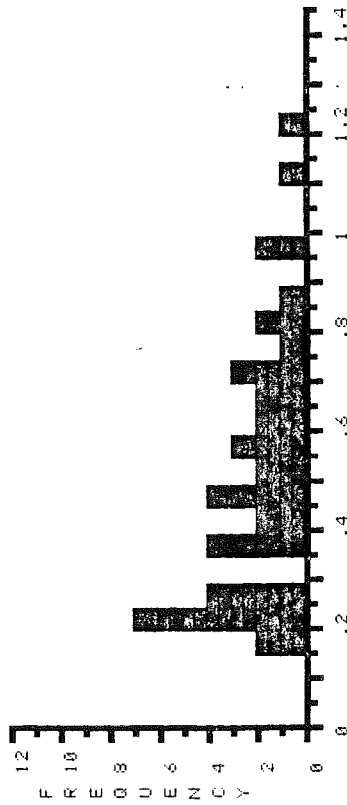
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ROW		*.17	*.18	*.20	*.21	*.21	*.21	*.21	*.22	*.23
1	*.26	*.27	*.29	*.29	.37	.38	.39	.40	.44	
2	.45	.47	.48	.49	.50	.53	.57	.58	.59	.60
3	.62	.65	.68	.71	.72	.77	.81	.83	.87	
4	.97	.98	1.11	1.24						

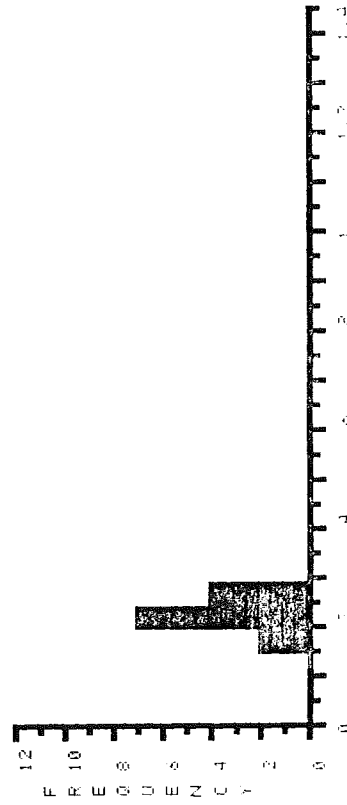
TOTAL > .52
 *EDIT > .23

MEAN STAND.DEV. PTS MIN MAX SUM
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 .04 13 .17 .29 2.94

% REFLECTANCE



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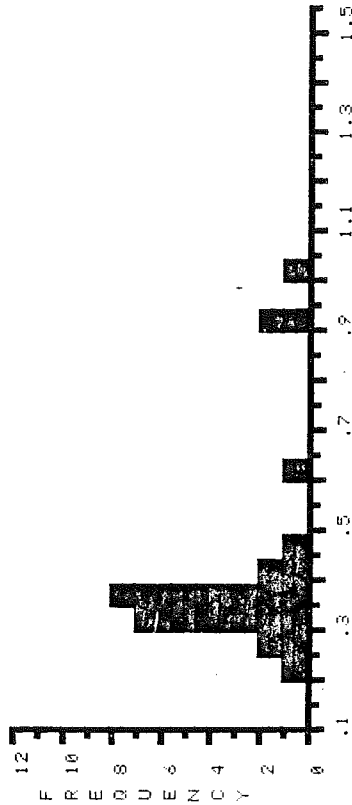
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1	*.34	*.35	*.36	*.37	*.37	*.37	*.37	*.37	*.39	*.40
2	*.42	*.47	.63	.93	.93	1.01				

TOTAL > .43
 *EDIT > .34

MEAN STAND.DEV. PTS MIN MAX SUM
 .21 25 .23 1.01 10.69
 .06 21 .23 .47 7.19

% REFLECTANCE



% REFLECTANCE ** EDITED **



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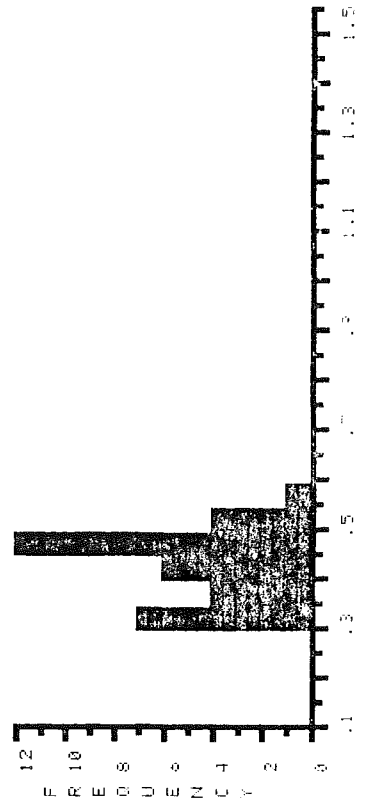
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1	*.36	*.37	*.38	*.41	*.42	*.42	*.43	*.43	*.43	*.45
2	*.45	*.46	*.47	*.47	*.47	*.47	*.48	*.48	*.49	*.49
3	*.49	*.51	*.51	*.52	*.54	*.55	.63	.67	.70	.72
4	.73	.78	.96							

MEAN STAND.DEV. PTS MIN MAX SUM
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 *EDIT > .43 .07 .30 .55 14.57

% REFLECTANCE



% REFLECTANCE ** EDITED **



FILE >> K0320C DESCRIPTION FOLLOWS :
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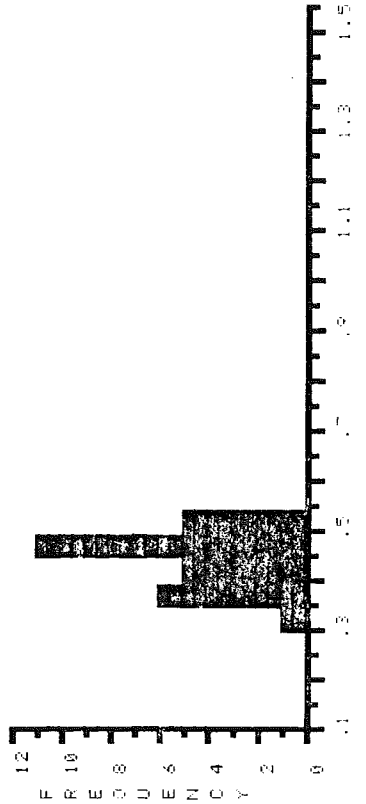
COL	0	1	2	3	4	5	6	7	8	9
ROW		.21	.26	*.32	*.35	*.36	*.38	*.38	*.39	*.39
1	*.40	*.40	*.41	*.42	*.43	*.45	*.46	*.47	*.47	*.48
2	*.48	*.48	*.48	*.48	*.49	*.49	*.50	*.50	*.50	*.51
3	*.53	.67	.71	.86	.87	1.00	1.04	1.21	.90	

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .54 .25 .32 38 20.53
 *EDIT > .44 .06 .32 .53 12.4

% REFLECTANCE



% REFLECTANCE ** EDITED **

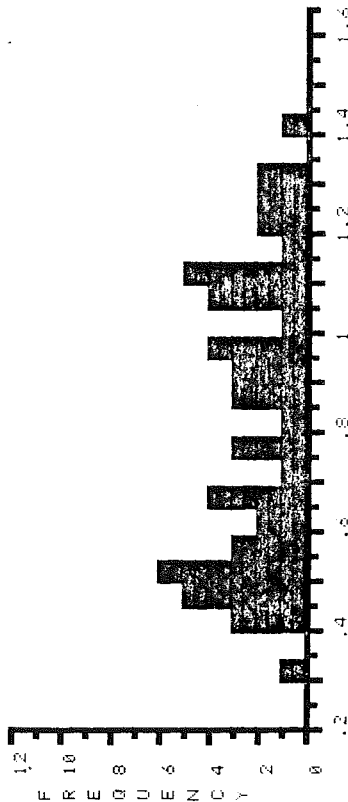


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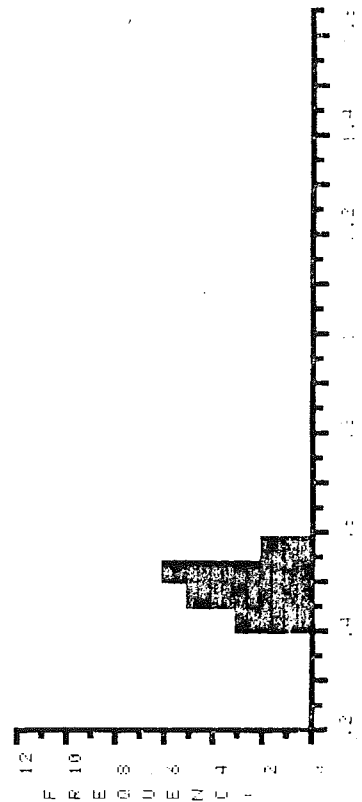
ROW	0	1	2	3	4	5	6	7	8	9
1	.34	*.42	*.43	*.43	*.45	*.47	*.47	*.48	*.48	*.49
2	*.50	*.50	*.50	*.51	*.52	*.55	*.55	*.55	*.59	.61
3	.64	.65	.66	.68	.69	.71	.75	.77	.78	.80
4	.86	.88	.89	.92	.93	.95	.95	.97	.97	.97
5	1.03	1.06	1.07	1.08	1.09	1.11	1.13	1.13	1.14	1.14
6	1.19	1.20	1.24	1.27	1.27	1.31	1.32	1.44		

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .82 .36 57 .34 1.44 46.93
 *EDIT > .49 .04 16 .42 .55 7.77

% REFLECTANCE



** REFLECTANCE ** EDITED **

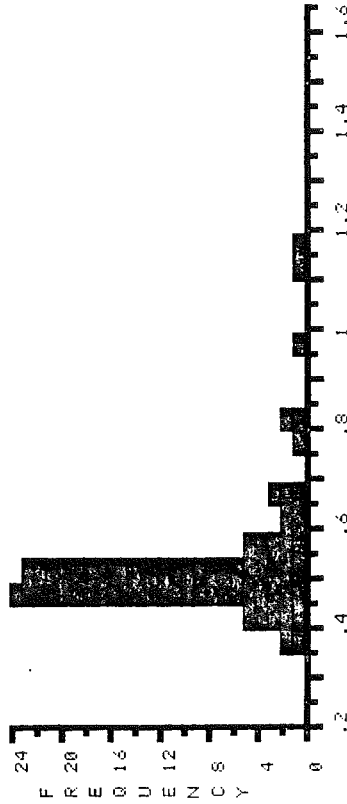


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2	*.45	*.45	*.46	*.46	*.47	*.47	*.47	*.47	*.47	*.47
3	*.47	*.47	*.48	*.48	*.49	*.49	*.49	*.49	*.49	*.49
4	*.49	*.49	*.50	*.50	*.50	*.50	*.50	*.50	*.51	*.51
5	*.51	*.51	*.51	*.52	*.52	*.52	*.52	*.52	*.52	*.53
6	*.53	*.53	*.53	*.54	*.54	*.55	*.55	*.55	*.56	*.58
7	*.61	*.62	*.65	*.65	.69	.75	.81	.83	.99	1.11

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .54 .14 70 .38 1.18 37.8
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% REFLECTANCE



** REFLECTANCE ** EDITED **

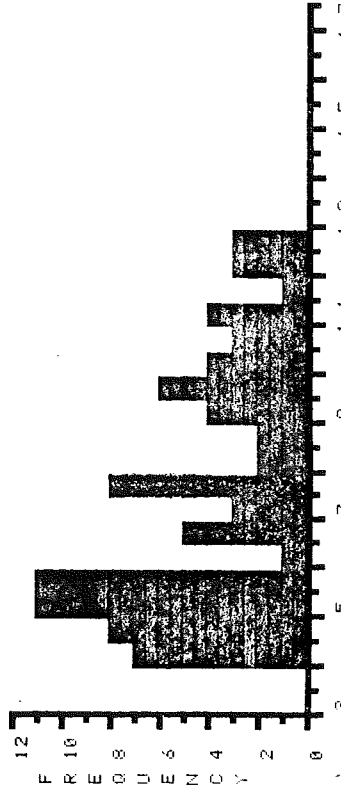


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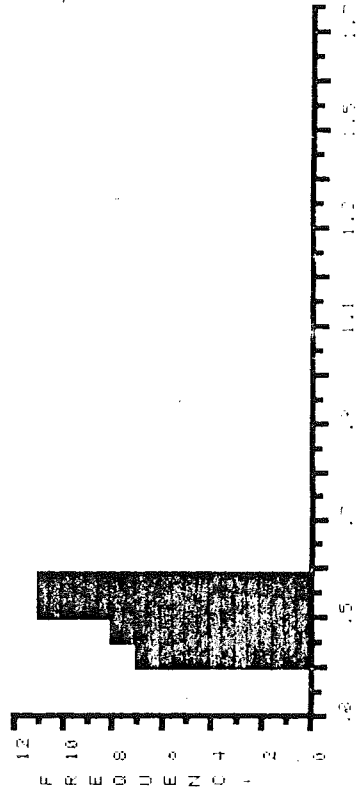
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2	*.53	*.53	*.54	*.54	*.54	*.54	*.55	*.55	*.55	*.55
3	*.57	*.57	*.57	*.57	*.58	*.58	*.58	*.58	*.63	*.66
4	*.66	*.67	*.68	*.68	*.70	*.73	*.75	*.75	*.76	*.76
5	*.77	*.78	*.79	*.79	*.82	*.84	*.88	*.89	*.89	*.91
6	*.92	*.92	*.93	*.95	*.95	*.95	*.96	*.97	*.97	*.97
7	1.00	1.01	1.03	1.06	1.07	1.08	1.10	1.10	1.12	1.12
8	1.17	1.20	1.26	1.23	1.26	1.27	1.28			

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .75 .26 86 .40 1.28 64.15
 *EDIT > .51 .06 .37 .40 .58 18.69

% REFLECTANCE



% REFLECTANCE ** EDITED **

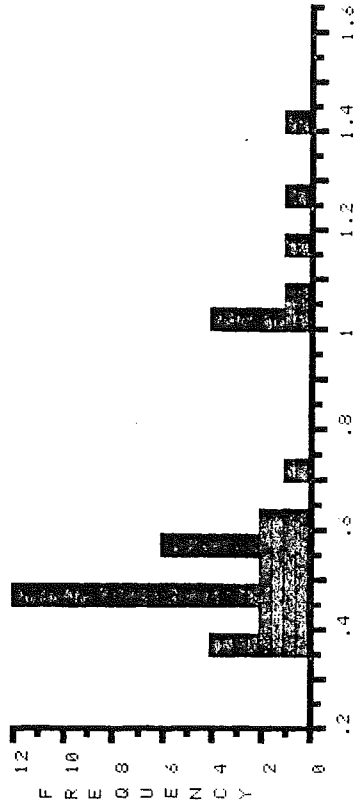


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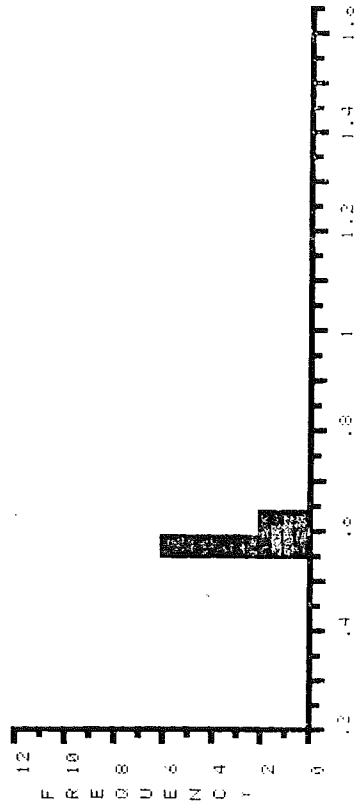
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ROW		.35	.38	.38	.38	.42	.42	.45	.45	.45
1	.45	.46	.46	.46	.47	.47	.48	.49	.49	.50
2	.58	*.55	*.56	*.56	*.56	*.57	*.59	*.60	*.61	.73
3	1.00	1.01	1.03	1.04	1.09	1.18	1.28	1.44		

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .69 .29 37 .35 1.44 23.31
 *EDIT > .58 .02 8 .55 .61 4.6

% REFLECTANCE



% REFLECTANCE ** EDITED **

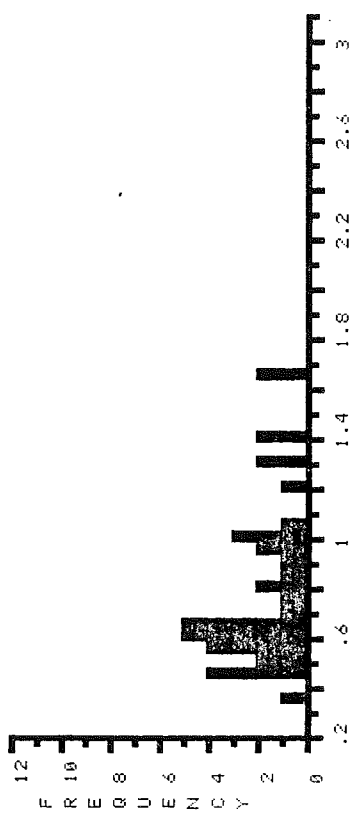


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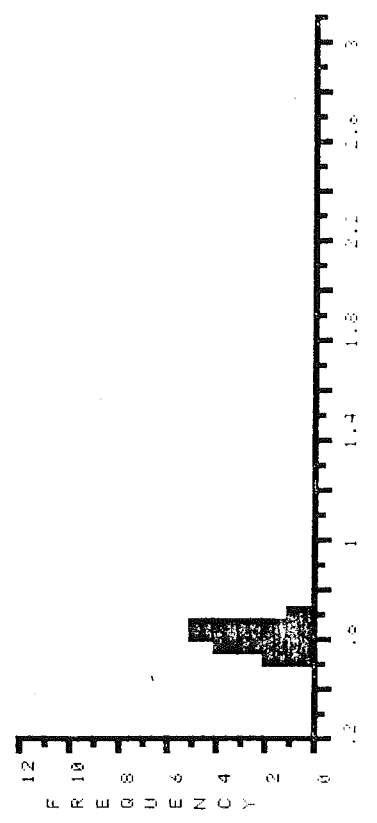
COL	0	1	2	3	4	5	6	7	8	9
ROW		.35	.45	.45	.46	.48	.52	.53	.56	.56
1		*.59	*.60	*.61	*.61	*.62	*.62	*.65	*.66	*.66
2		*.67	*.70	.78	.80	.83	.86	.94	.98	.99
3		1.01	1.03	1.04	1.09	1.23	1.34	1.42	1.43	1.68
4		1.69								

MEAN .83 STAND.DEV. .35 PTS 40 MIN .35 MAX 1.69 SUM 33.08
 *EDIT > .61 .05 17 .52 .70 10.42

% REFLECTANCE



% REFLECTANCE ** EDITED **

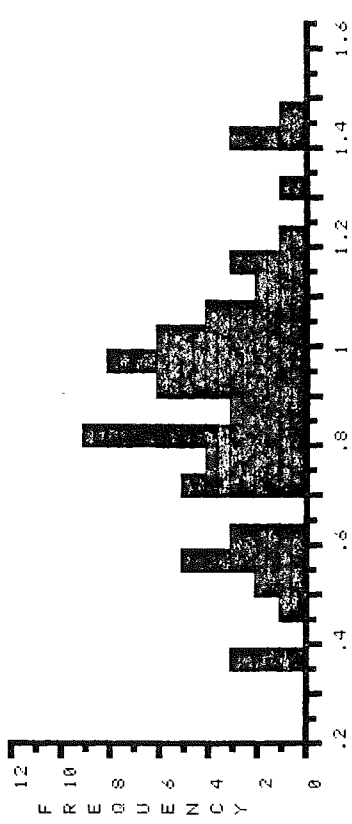


FILE >> K0580C DESCRIPTION FOLLOWS :
 DEPTH 7350-7400', EMERILLON E-49, MPA, OCT-30-80

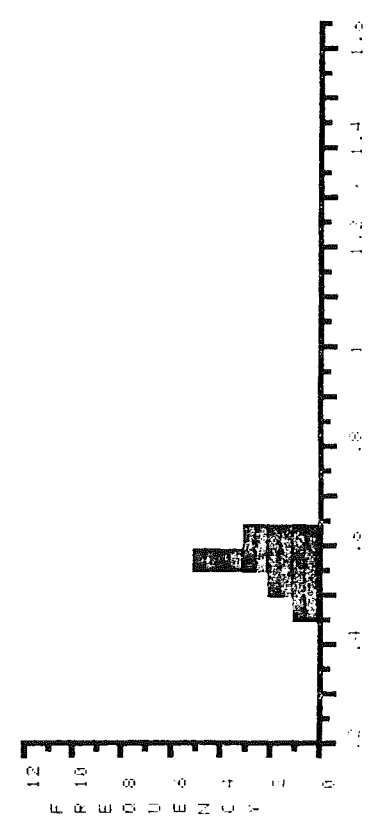
COL	0	1	2	3	4	5	6	7	8	9
ROW		.35	.38	.38	*.47	*.50	*.53	*.55	*.55	*.57
1		*.58	*.61	*.61	*.64	.70	.72	.72	.73	.73
2		.75	.76	.78	.80	.80	.81	.81	.81	.83
3		.83	.84	.84	.85	.86	.87	.90	.90	.92
4		.93	.94	.95	.96	.96	.98	.98	.99	.99
5		1.00	1.01	1.03	1.04	1.04	1.05	1.05	1.08	1.08
6		1.13	1.14	1.16	1.18	1.22	1.31	1.42	1.44	1.44
7		1.47								

MEAN .83 STAND.DEV. .25 PTS 70 MIN .35 MAX 1.47 SUM 61.7
 *EDIT > .56 .05 11 .47 .64 6.2

% REFLECTANCE



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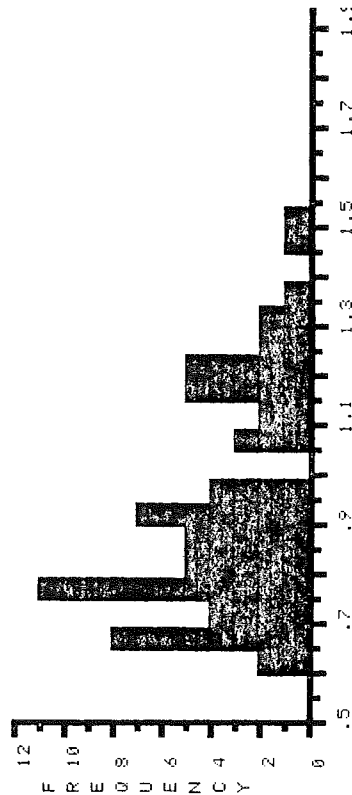


FILE >> K0322B DESCRIPTION FOLLOWS :
 DEPTH 8230-8250', EMERILLION C-56, MPA, OCT-27-86

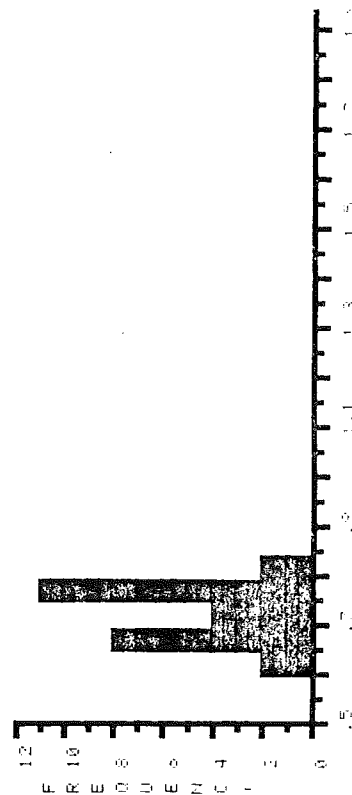
COL	0	1	2	3	4	5	6	7	8	9
ROW		.60	*.64	*.65	*.65	*.65	*.65	*.66	*.67	*.67
1		*.69	*.72	*.73	*.73	*.74	*.75	*.76	*.76	*.76
2		*.76	*.77	*.77	*.78	*.78	*.79	*.80	*.81	*.84
3		.84	.86	.87	.87	.88	.89	.91	.91	.91
4		.92	.94	.94	.95	.95	.97	.97	1.05	1.05
5		1.10	1.11	1.16	1.16	1.17	1.17	1.20	1.20	1.20
6		1.23	1.24	1.27	1.28	1.31	1.33	1.37	1.45	1.53

MEAN STAND. DEV. PTS MIN MAX SUM
 TOTAL > .93 .23 68 1.53 63.51
 *EDIT > .72 .06 27 .60 .81 19.49

% REFLECTANCE



% REFLECTANCE ** EDITED **

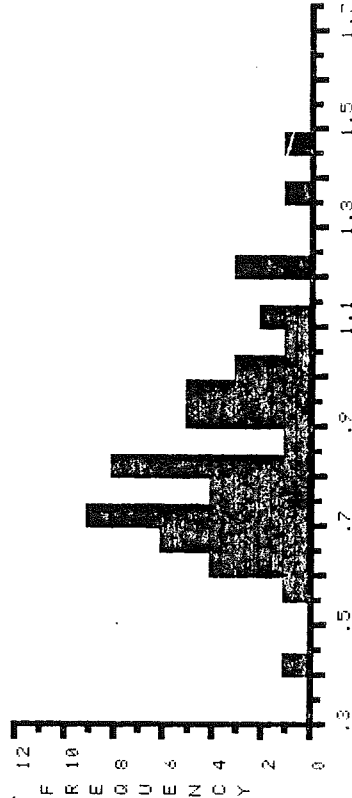


FILE > K0581B DESCRIPTION FOLLOWS :
 DEPTH 8590-8600', EMERILLION C-56, MPA, OCT-28-86

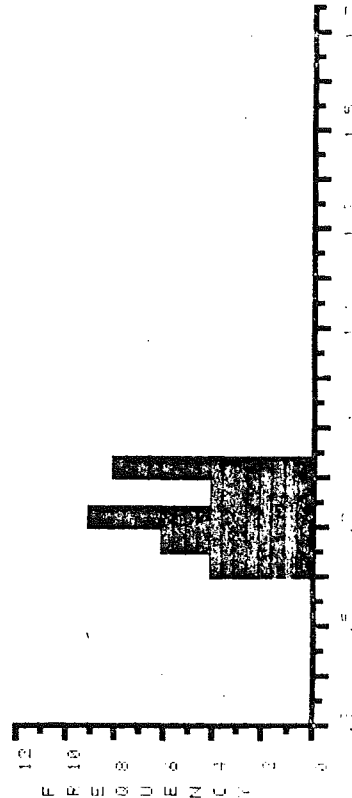
COL	0	1	2	3	4	5	6	7	8	9
ROW		.43	.55	*.61	*.61	*.62	*.63	*.65	*.65	*.66
1		*.66	*.68	*.69	*.72	*.72	*.73	*.74	*.74	*.74
2		*.74	*.74	*.75	*.78	*.79	*.80	*.81	*.81	*.82
3		*.82	*.82	*.83	*.84	.89	.90	.91	.92	.93
4		.95	.97	.98	.98	.99	1.00	1.02	1.05	1.11
5		1.12	1.20	1.21	1.22	1.37	1.48			

MEAN STAND. DEV. PTS MIN MAX SUM
 TOTAL > .95 .20 55 1.48 46.82
 *EDIT > .73 .07 31 .61 .84 22.72

% REFLECTANCE



% REFLECTANCE ** EDITED **

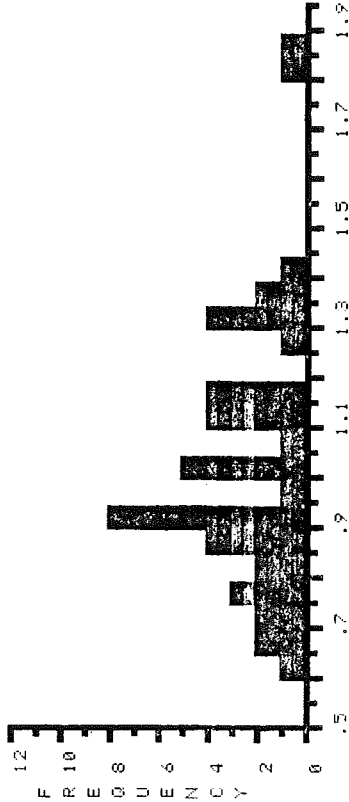


FILE >> K0322C DESCRIPTION FOLLOWS :
 DEPTH 9620-9650' , EMERILLION C-56, MPA, OCT-28-86

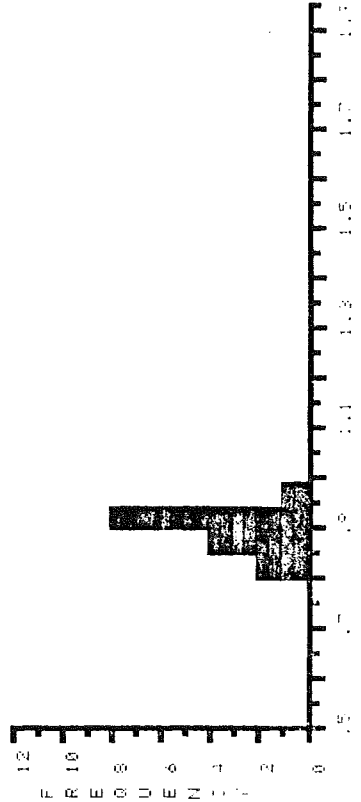
COL	0	1	2	3	4	5	6	7	8	9
ROW		.63	.65	.68	.74	.74	.75	.77	.78	*.83
1	*.84	*.85	*.85	*.86	*.86	*.90	*.91	*.91	*.92	*.93
2	*.93	*.93	*.94	*.95	1.01	1.01	1.01	1.03	1.03	1.07
3	1.11	1.13	1.13	1.14	1.15	1.16	1.17	1.19	1.26	1.30
4	1.30	1.33	1.34	1.36	1.43	1.43	1.83	1.87		

MEAN 1.04 STAND.DEV. .27 PTS 47 MIN .63 MAX 1.87 SUM 48.87
 *EDIT > .89 .04 15 .83 .95 13.41

% R E F L E C T A N C E



% R E F L E C T A N C E * * EDITED * *

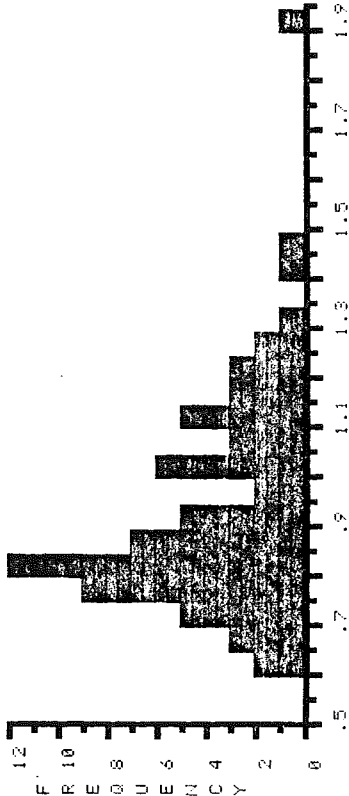


FILE >> K0581C DESCRIPTION FOLLOWS :
 DEPTH 8980-8990' , EMERILLION C-56, MPA, OCT-28-86

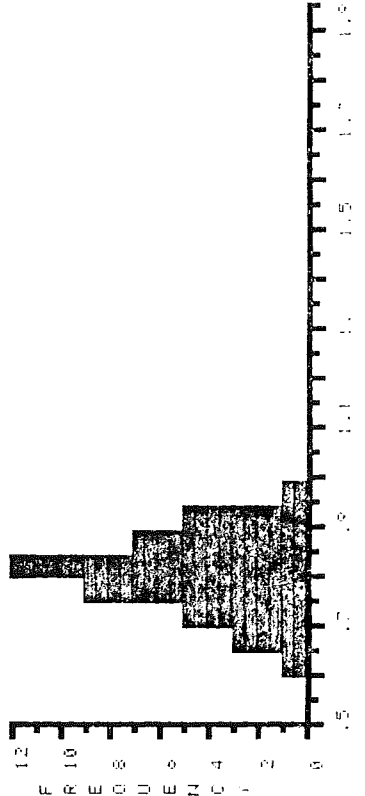
COL	0	1	2	3	4	5	6	7	8	9
ROW		.60	*.64	*.66	*.67	*.69	*.70	*.70	*.71	*.71
1	*.73	*.75	*.75	*.76	*.76	*.79	*.79	*.79	*.79	*.79
2	*.80	*.81	*.82	*.82	*.82	*.83	*.83	*.83	*.83	*.84
3	*.84	*.84	*.85	*.85	*.87	*.87	*.87	*.87	*.89	*.90
4	*.91	*.93	*.93	*.94	*.95	.99	1.01	1.01	1.03	1.04
5	1.04	1.04	1.05	1.07	1.08	1.10	1.10	1.13	1.13	1.13
6	1.15	1.19	1.19	1.20	1.23	1.24	1.25	1.29	1.32	1.40
7	1.45	1.90								

MEAN .94 STAND.DEV. .23 PTS 71 MIN .60 MAX 1.90 SUM 67.04
 *EDIT > .81 .08 43 .64 .95 34.68

% R E F L E C T A N C E



% R E F L E C T A N C E * * EDITED * *

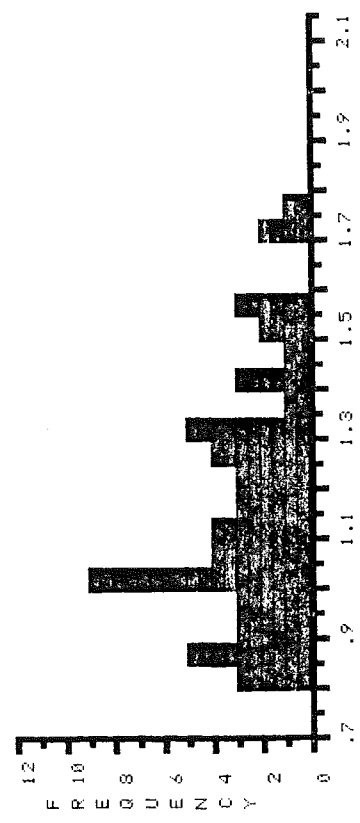


FILE >> K0582B DESCRIPTION FOLLOWS :
 DEPTH 10730-10740', EMERILLION C-56, MPA, OCT-29-86

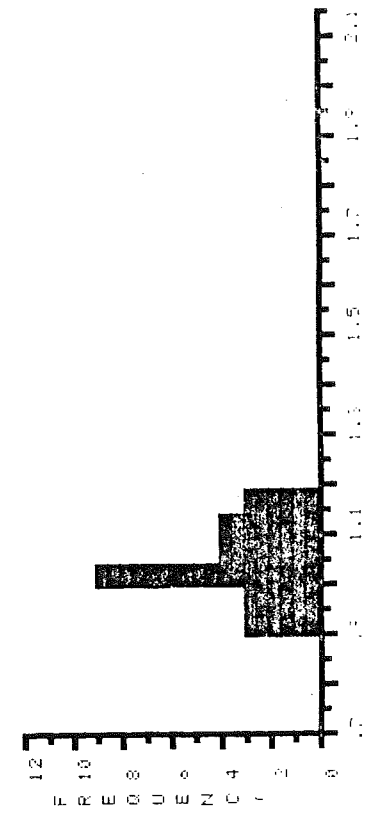
COL	0	1	2	3	4	5	6	7	8	9
ROW		.83	.83	.83	.86	.87	.87	.87	.89	*.91
1	*.92	*.93	*.95	*.96	*.98	*1.00	*1.00	*1.00	*1.01	*1.02
2	*1.02	*1.03	*1.04	*1.04	*1.05	*1.06	*1.06	*1.07	*1.11	*1.12
3	*1.12	*1.12	*1.16	*1.18	*1.18	1.23	1.24	1.24	1.27	1.27
4	1.29	1.29	1.30	1.30	1.33	1.34	1.34	1.38	1.40	1.44
5	1.44	1.49	1.52	1.52	1.56	1.57	1.59	1.71	1.71	1.77

MEAN 1.18
 STAND.DEV. .25
 PTS 59
 TOTAL > 1.18
 *EDIT > 1.04
 MAX 1.77
 MIN .83
 SUM 69.42
 26
 27.04

% REFLECTANCE



% REFLECTANCE ** EDITED **

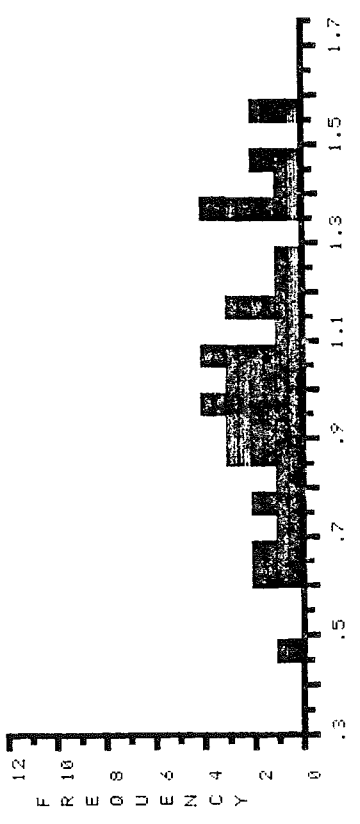


FILE >> K0582A DESCRIPTION FOLLOWS :
 DEPTH 10190-10200', EMERILLION C-56, MPA, OCT-29-86

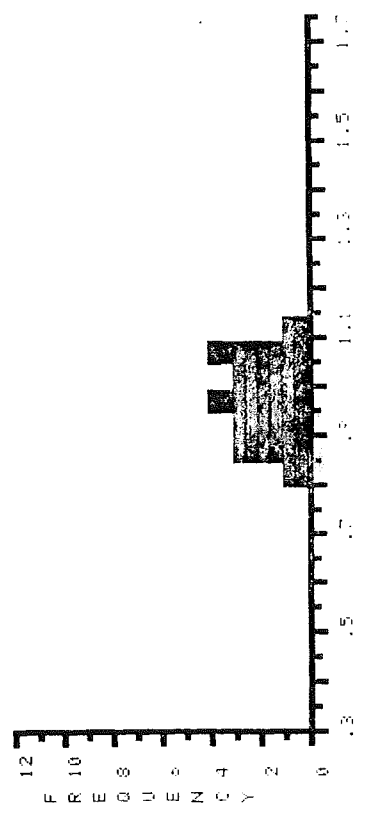
COL	0	1	2	3	4	5	6	7	8	9
ROW		.48	.63	.64	.68	.68	.73	.77	.78	*.84
1	*.86	*.87	*.89	*.91	*.91	*.94	*.97	*.97	*.98	*.99
2	*1.00	*1.01	*1.04	*1.08	*1.08	*1.09	*1.09	*1.11	1.17	1.18
3	1.19	1.22	1.26	1.35	1.35	1.36	1.39	1.44	1.48	1.48
4	1.55	1.58								

MEAN 1.05
 STAND.DEV. .27
 PTS 41
 TOTAL > 1.05
 *EDIT > .98
 MAX 1.58
 MIN .48
 SUM 43.01
 19
 19.62

% REFLECTANCE



% REFLECTANCE ** EDITED **



Appendix IV
Sample Reports
(reworked populations)

FILE >> K0321A DESCRIPTION FOLLOWS :
 DEPTH 3710-3740', EMERILLION C-56, MPA, OCT-21-86

COL	0	1	2	3	4	5	6	7	8	9
ROW		.34	.42	.43	.43	.45	.47	.47	.48	.49
1		.50	.50	.50	.51	.52	.55	.55	.59	.61
2		.64	.65	.66	.68	.69	.71	.75	.78	.80
3		*.85	*.88	*.89	*.92	*.93	*.93	*.95	*.97	*.97
4		*1.03	*1.05	*1.07	*1.08	*1.09	*1.11	*1.13	*1.14	*1.14
5		*1.19	1.20	1.24	1.27	1.31	1.32	1.32	1.44	

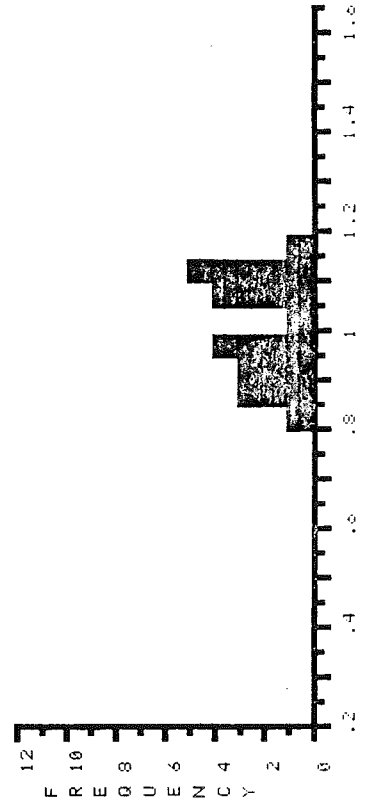
TOTAL > .82
 *EDIT > 1.01

MEAN STAND.DEV. PTS MIN MAX SUM
 .30 .11 22 .80 1.19 46.93
 .11 .11 22 .80 1.19 22.24

% REFLECTANCE



% REFLECTANCE ** EDITED **



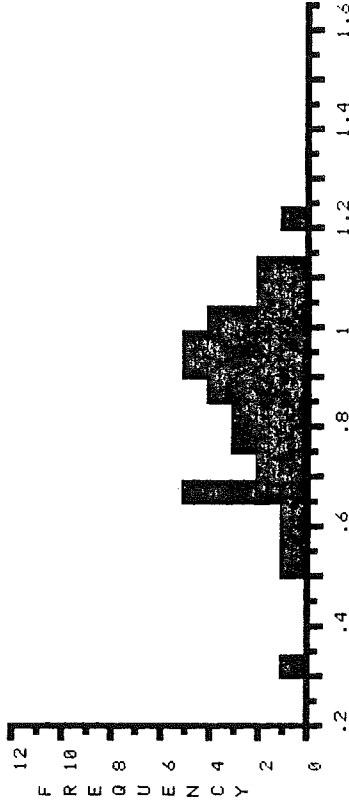
FILE >> K0579B DESCRIPTION FOLLOWS :
 DEPTH 4250-4260', EMERILLION C-56, MPA, OCT-21-86

COL	0	1	2	3	4	5	6	7	8	9
ROW		.33	.51	.59	.61	.65	.66	.66	.67	.67
1		*.72	*.74	*.77	*.78	*.81	*.81	*.82	*.85	*.85
2		*.88	*.89	*.90	*.91	*.93	*.94	*.96	*.97	*.97
3		*.99	*1.00	*1.01	*1.03	*1.04	*1.07	*1.09	*1.11	*1.14
4		1.20								

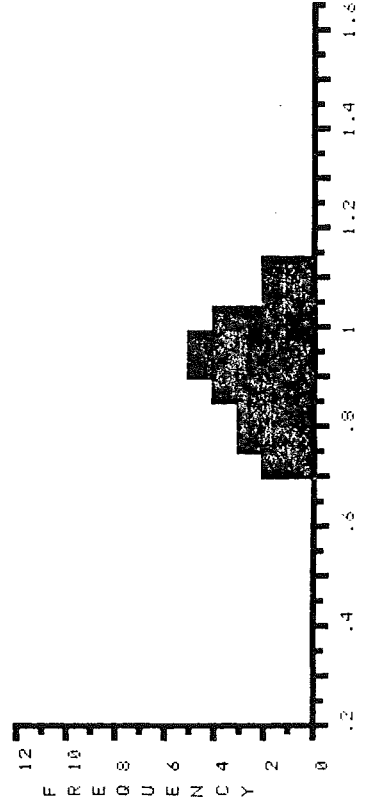
TOTAL > .86
 *EDIT > .92

MEAN STAND.DEV. PTS MIN MAX SUM
 .19 .11 30 .72 1.14 34.2
 .11 .11 30 .72 1.14 27.65

% REFLECTANCE



% REFLECTANCE ** EDITED **

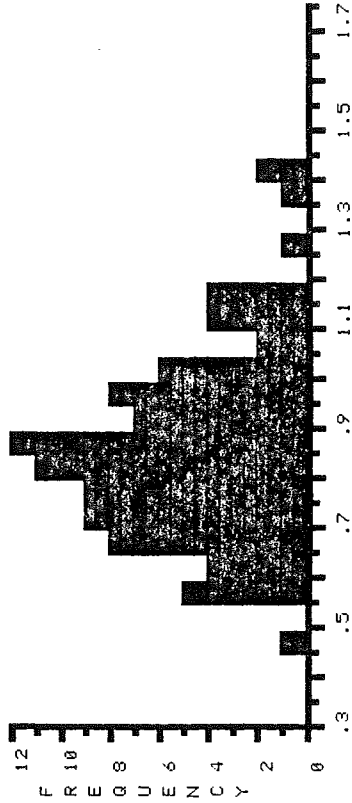


FILE >> K0530A DESCRIPTION FOLLOWS :
 DEPTH 5190-5200', EMERILLION C-56, MPA, OCT-23-86

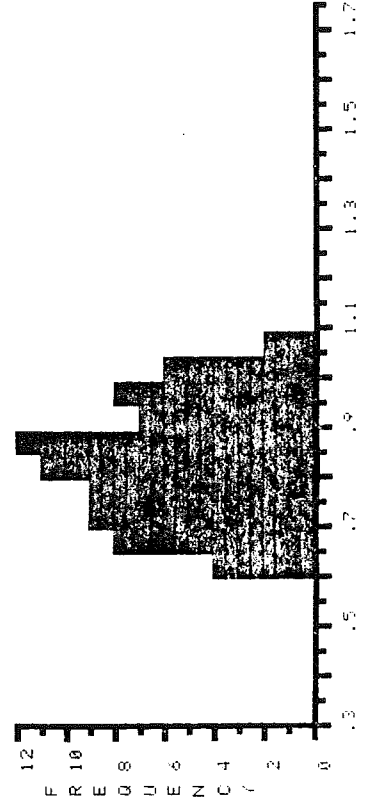
COL	0	1	2	3	4	5	6	7	8	9
ROW		.49	.55	.56	.57	.57	.59	.62	.63	.64
1	*.64	*.65	*.65	*.65	*.65	*.67	*.69	*.69	*.69	*.71
2	*.71	*.72	*.73	*.73	*.74	*.74	*.74	*.74	*.75	*.76
3	*.76	*.77	*.77	*.77	*.78	*.79	*.79	*.80	*.80	*.80
4	*.81	*.81	*.83	*.84	*.84	*.84	*.84	*.84	*.85	*.85
5	*.85	*.86	*.86	*.86	*.87	*.87	*.87	*.87	*.87	*.89
6	*.90	*.90	*.90	*.93	*.94	*.94	*.94	*.94	*.96	*.97
7	*.97	*.97	*.98	*.98	*.99	*.99	*.99	*.99	*.99	*.99
8	*1.04	*1.06	*1.07	*1.10	*1.10	*1.11	*1.12	*1.15	*1.03	*1.03
9	1.18	1.25	1.35	1.41	1.43					

MEAN STAND. DEV. PTS MIN MAX SUM
 TOTAL > .86 .19 94 1.43 .81.13
 *EDIT > .83 .12 76 .62 1.07 63.3

% REFLECTANCE



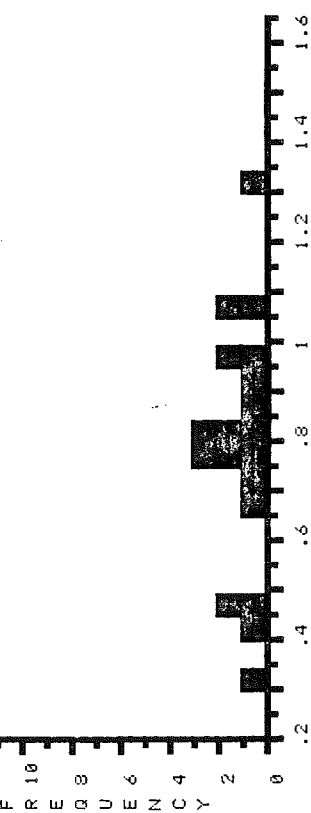
% REFLECTANCE ** EDITED **



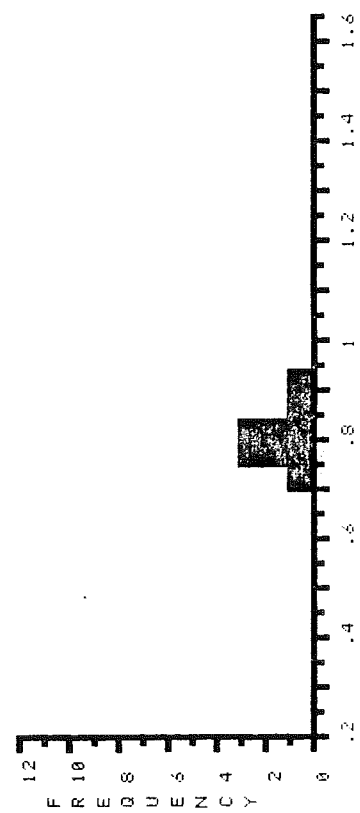
FILE >> K0579C DESCRIPTION FOLLOWS :
 DEPTH 4590-4700', EMERILLION E-94, MPA, OCT-22-86

COL	0	1	2	3	4	5	6	7	8	9
ROW		.30	.43	.46	.48	.66	.73	.76	.77	.78
1	*.60	*.84	*.84	*.87	*.90	.97	.99	1.05	1.06	1.31
TOTAL >	.79	.25	.25	.19	.30	.30	1.31	15		
*EDIT >	.81	.06	.06	.09	.73	.90	.90	7.29		

% REFLECTANCE



% REFLECTANCE ** EDITED **

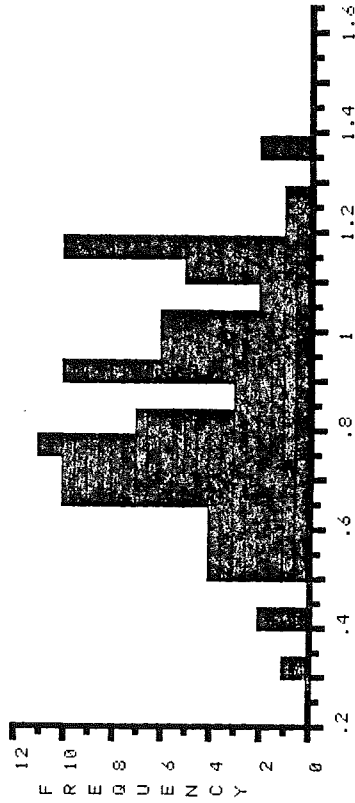


FILE >> K0580B DESCRIPTION FOLLOWS :
 DEPTH 5690-5700', EMERILLION C-56, MPA, OCT-23-86

COL	0	1	2	3	4	5	6	7	8	9
ROW		.34	.42	.42	.50	.52	.54	.54	.55	.56
1	*.53	*.59	*.61	*.64	*.64	*.64	*.65	*.66	*.66	*.66
2	*.67	*.67	*.67	*.68	*.69	*.69	*.70	*.70	*.70	*.71
3	*.71	*.71	*.73	*.74	*.74	*.74	*.75	*.75	*.75	*.76
4	*.76	*.76	*.77	*.77	*.78	*.78	*.79	*.80	*.81	*.82
5	*.82	*.82	*.83	*.84	.88	.88	.89	.90	.91	.91
6	.91	.93	.93	.94	.94	.94	.94	.95	.96	.98
7	.98	.98	.99	1.00	1.00	1.01	1.01	1.02	1.02	1.07
8	1.08	1.10	1.11	1.11	1.14	1.14	1.15	1.17	1.17	1.17
9	1.17	1.17	1.18	1.18	1.19	1.23	1.23	1.28	1.38	1.39

MEAN STAND.DEV. PTS MIN MAX SUM
 TOTAL > .86 .22 99 .34 1.39 84.7
 *EDIT > .72 .07 44 .58 .84 31.74

% REFLECTANCE



% REFLECTANCE ** EDITED **

