Report No. EPGS-DOM.5-86MPA

Vitrinite reflectance (Ro) of dispersed organics from Shell MIC MAC H-86

Remarks

The sample coverage of vitrinite reflectance data (Figure 1,Table II) was adequate over most of the well. The lines through the data points represent the best fit established by the least squares method. The slope of the upper line is 0.145 log Ro/km and the lower is 0.419 log Ro/km.

Projection of the upper maturation curve to surface intersects the Ro scale at 0.25 % rather than the expected 0.2 Ro (Dow,1977). Erosion in the Tertiary section may account for this discrepancy. At the Mic Mac H-86 location, the upper part of the Tertiary Banquereau Formation has been removed by erosion and Pliocene - Pleistocene channel-fill clastics have been deposited. Extrapolations from reflection seismic profiles suggest that as much as 1000 m of the Banquereau formation may have been eroded in late Tertiary time (MacLean and Wade, personal communication 1986; also Jansa and Wade, 1975, Figure 22). However, late Tertiary tilting affected both deposition and erosion of the Banquereau Formation, so the true value for the missing section may be less. Erosion of the Banquereau Formation in the Mic Mac area terminated with the incision of channels which were filled with approximately 300 m of Pliocene - Pleistocene deposits.

The maturation profile for Mic Mac H-86 displays a significant increase in gradient at about 3840 m depth. This feature has also been observed in several other Scotian Shelf wells (Avery, 1983; 1984a; 1984b). A comparison of the pertinent data for this event in the four wells is presented in Table III. There is some similarity in the slope values in these wells, especially for the upper trends.In three of the four wells the inflection point is located in the Missisauga formation and only in the Mic Mac H-86 well was it reached at a stratigraphically lower Formation (Mic Mac) which in this well lies at a much shallower depth. The table shows that the inflection points occur within a depth range of 3840 m in Mic Mac H-86 to 5030 m in Venture B-43 and within an narrow Ro range of 0.9 in South Venture O-59 to 0.96 in Olympia A-12.

The lithology strip plot (Figure 1) was produced in its final ink copy form directly from the EPG 'LithFile' database which extracts data from digitized 'CanStrat' logs. Depth intervals were based on visually recognized major changes in lithology as seen in the standard 'CanStrat' log.

These vitrinite reflectance maturation data provide evidence that the thermal regime at Mic Mac H-86 was suitable for the generation and preservation of oil within the drilled section.

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April 30, 1986.

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Report No.EPGS-DOM.5-86MPA

Vitrinite Reflectance (Ro) of dispersed organics from Shell Mic Mac H-86

G.S.C. Locality No: D8 Location: 44°35'28.87"N, 59°27'02.47"W

R.T. Elevation: 85' Water Depth: 178' Total Depth: 15700'

Sample Interval: 964 - 15700' Interval Studied: 1890 -15030'

Release Date: December 2,1970 Depth Units: Feet referenced to R.T.

Vitrinite Reflectance has been determined on 25 samples (Table II) from Shell Mic Mac H-86, which was classified as a wildcat well and is located on the Scotian Shelf, approximately 16 km (10 mi) northeast of Sable Island and 1.6 km (1 mi) south of Mic Mac J-77. (Shell, 1971).

Data acquisition and manipulation for this report utilized the Zeiss Photomultiplier 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 with modified terminology (1977,Appendix II).

Table I
Inferred Thermal Maturation Levels

Determined

Seaflr-4558'	0.25 - 0.4	% Ro	immature
4558 - 6748'	0.4 - 0.5	% Ro	immature approaching maturity
6748 - 8539'	0.5 - 0.6	% Ro	marginally mature
8539'	0.6	% Ro	onset of significant oil generation
11363'	0.8	% Ro	peak of oil generation
12942'	1.0	% Ro	onset of significant wet gas generation
13562'	1.2	% Ro	onset of significant dry gas generation
13963'	1.35	% Ro	oil floor
15300'	2.0	% Ro	wet gas floor
15700'(T.D.)	2.25	% Ro	within dry gas window

Projected (at 0.419 log Ro/km)

16680'	3.0	% Ro	dry gas floor

Note: Ro = R_o or reflectance of the vitrinite observed under oil (546nm).

Table II

Summary of vitrinite reflectance

Seq. #	Sample #	Depth in feet	Mean Ro (SD) non-rotated	Number of readings Total	Edited
1	K0483A	1890-1920	.33(±.04)	10	7
2	K0483B	2090-2120	.32(±.07)	6	3
3	K0483C	4590-4620	.4 (±.02)	74	72
4	K0484A	5580-5610	.46(±.05)	72	62
5	K0484B	6090-6120	.47(±.04)	51	45
6	K0484C	6390-6410	.49(±.05)	99	54
7	K0485A	7300-7330	.5 (±.05)	52	35
8	K0485B	7800-7830	.55(±.05)	69	33
9	K0485C	8500-8630	.56(±.05)	55	53
10	K0486A	8890-8920	.59(±.05)	36	31
11	K0486B	9320-9350	.62(±.05)	50	32
12	K0487A	10000-10030	.62(±.08)	39	20
13	K0487B	10400-10530	.75(±.08)	58	41
14	K0487C	10800-10830	.73(±.08)	61	36
15	K0488A	11200-11230	.82(±.14)	98	66
16	K0488B	11500-11630	.81(±.08)	60	30
17	K0488C	11900-11930	.88(±.06)	66	25
18	K0489A	12200-12230	.92(±.07)	65	25
19	K0489B	12600-12630	.92(±.06)	67	38
20	K0489C	12800-12830	.99(±.09)	70	50
21	K0490A	13100-13130	1.02(±.08)	70	40
22	K0490B	13700-13730	1.23(±.08)	73	35
23	K0490C	14000-14030	1.45(±.08)	71	26
24	K0491A	14300-14330	1.61(±.07)	99	38
25	K0491B	14900-15030	1.74(±.07)	92	19

Note : All values are based on isolated kerogen mounts.

Table III

Comparison of inflection point data

Well name	Slope value (log Ro/km)		Inflection point	
	Upper	Lower	Depth	Ro
Mic Mac H-86	0.145	0.419	12595'	0.92
Venture B-43	0.119	0.465	16498'	0.91
South Venture O-59	0.123	0.306	15505'	0.90
Olympia A-12	0.129	0.292	15252'	0.96

Table IV

Formation Tops (Wade,1979)

Depth	Formation
in casing	Banquereau
2260'	Wyandot
2738'	Dawson Canyon
3150-3190'	Petrel Member
3512'	Logan Canyon
6422'	Naskapi Member
6562'	Missisauga
9925'	Mic Mac
14304'	Abenaki-Misaine Mbr.
14458'	-Scatarie Mbr.
14892'	Mohican
15700'	T.D.

Table V

Biostrat Tops (Ascoli,1975)

Depth	Top of
991'	Middle Eocene
1198'	Early Eocene to Late Paleocene
1600'	Early Paleocene
2220'	Maastrichtian
2311'	Campanian
2680'	Santonian
2746'	Coniacian
3000'	Probable Turonian to Cenomanian
4200'	Probable Albian and Possible Late Aptian
7300'	Aptian Barremian Neocomian
9690'	Tithonian to Kimmeridgian
11700'	Early Kimmeridgian to Oxfordian
12000'	Callovian and Possible Bathonian
14500'	Not datable

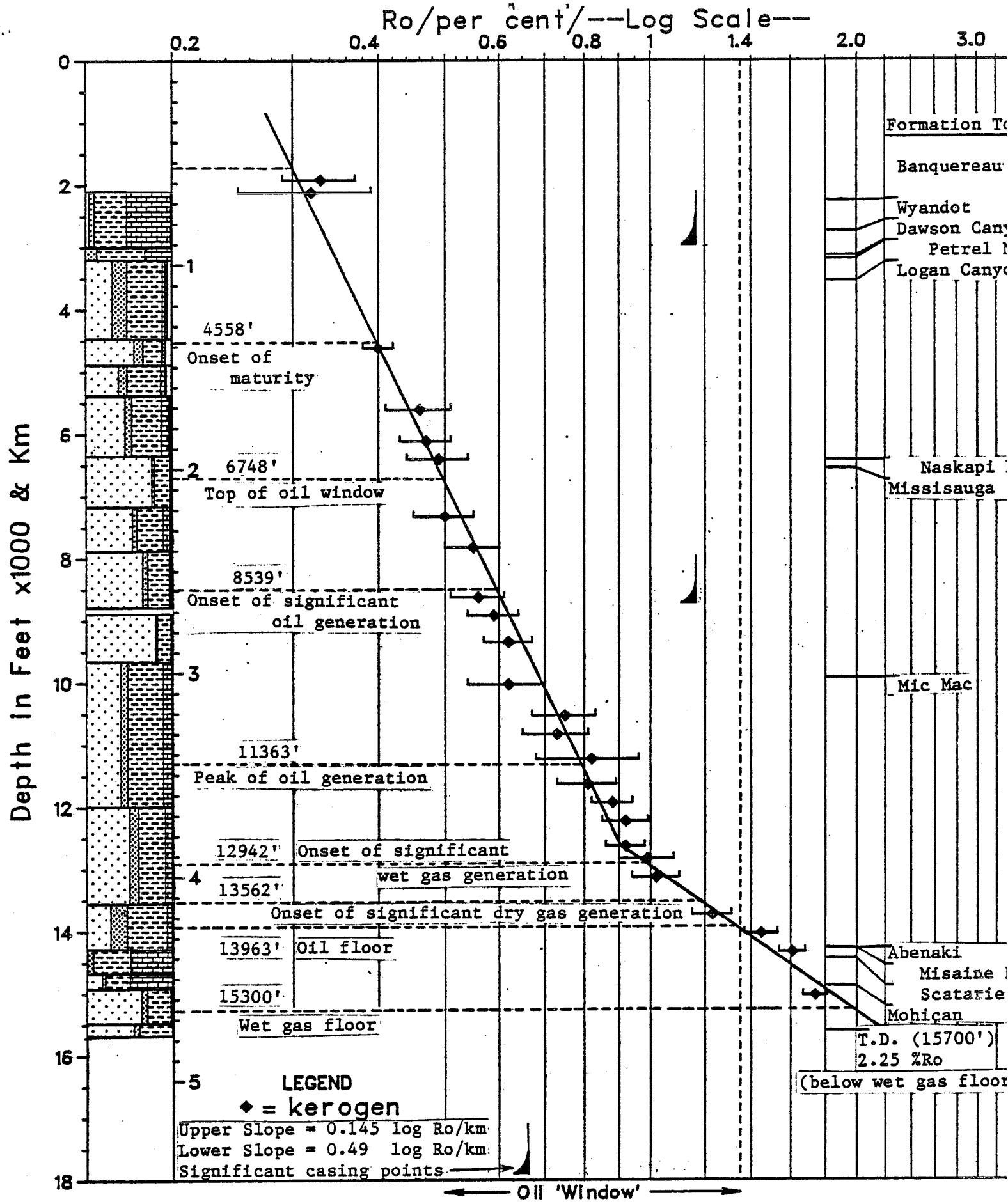


Fig. 1 Mic Mac H-86

APPENDIX I

Sample Preparation Method

COGLA Lab preparation

Preliminary Wash
Samples dried in oven
Split: a. all of coarse to Petrology Lab
b. ½ 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:

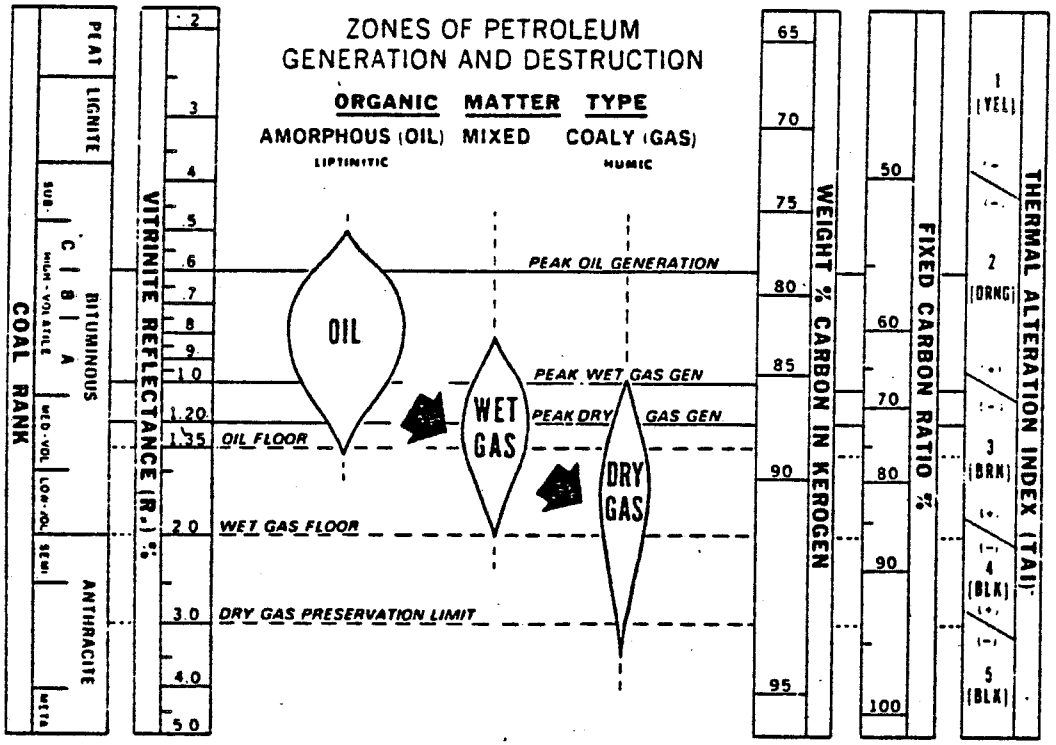
PALYNOLOGY Lab preparation

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 Ro is now used as the 'peak of oil generation' (Table I, Figure 1).

Vitrinite Reflectance Histograms

FILE >> K0483A DESCRIPTION FOLLOWS :
DEPTH 1890-1920', MICMAC H-86, MPA, APR-18-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.27	*.3	*.33	*.33	*.36	*.37	*.38	.47	.53
1	.72									

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	4.06	10	.27	.72	.41	.13
*EDIT >	2.34	7	.27	.38	.33	.04

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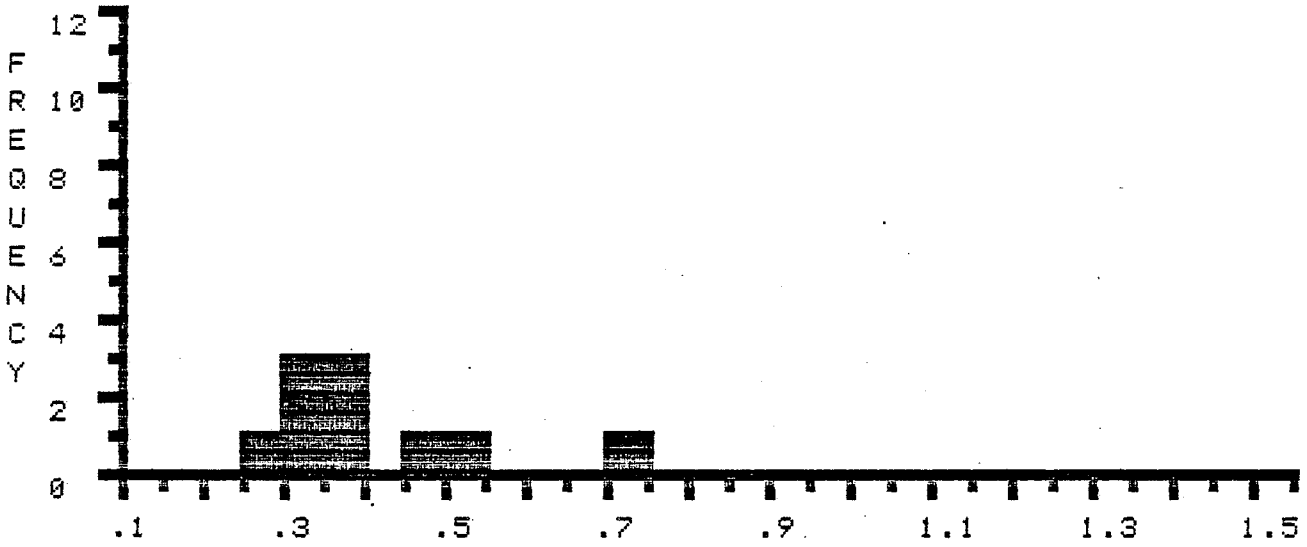

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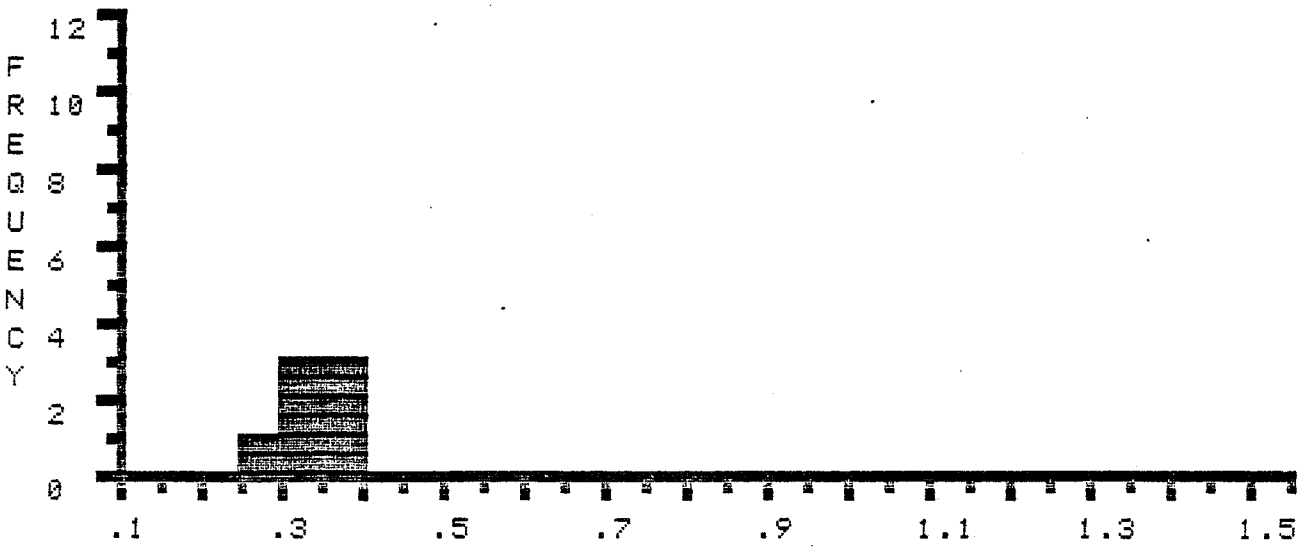
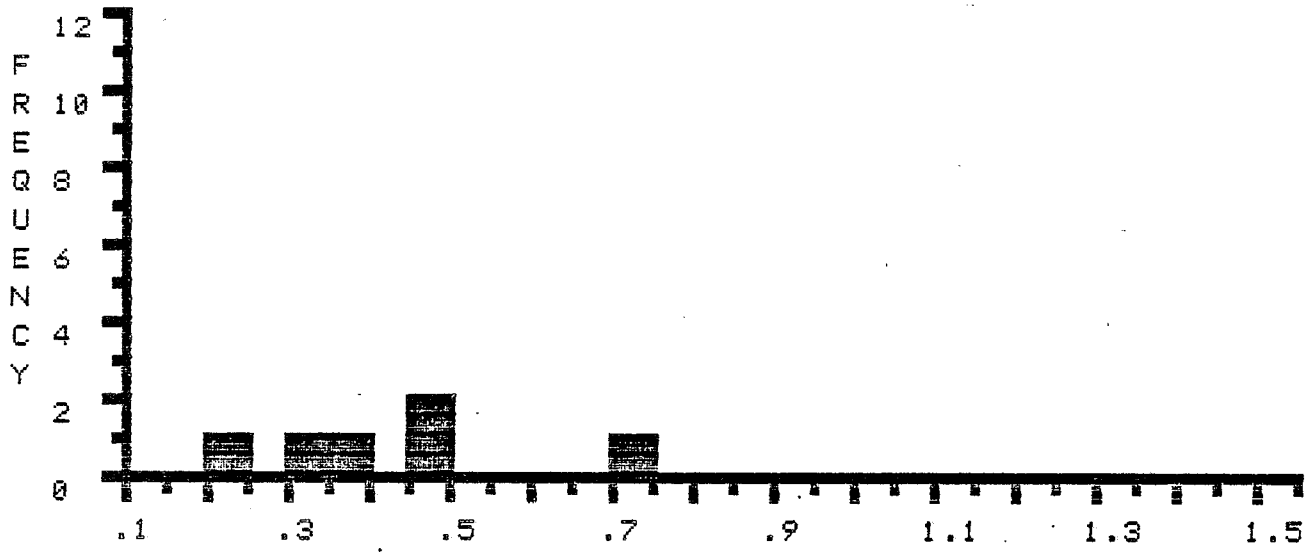


FILE >> K0483B DESCRIPTION FOLLOWS :
DEPTH 2090-2120', MICMAC H-86, MPA, APR-18-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.24	*.34	*.38	.46	.48	.72			

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	2.62	6	.24	.72	.44	.16
*EDIT >	.96	3	.24	.38	.32	.07

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



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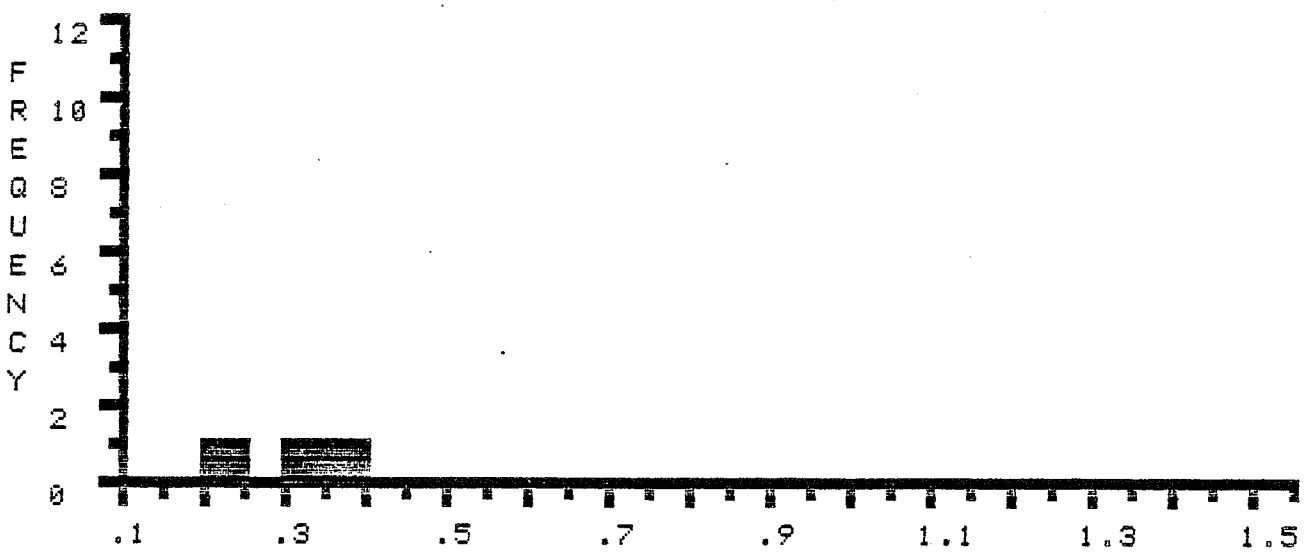

FILE >> K0483C DESCRIPTION FOLLOWS :
DEPTH 4590-4620', MICMAC H-86, MPA, APR-18-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.35	*.36	*.36	*.37	*.37	*.37	*.38	*.38	*.38
1	*.38	*.38	*.38	*.38	*.38	*.39	*.39	*.39	*.39	*.39
2	*.39	*.39	*.39	*.39	*.39	*.39	*.39	*.39	*.39	*.39
3	*.39	*.4	*.4	*.4	*.4	*.4	*.4	*.4	*.4	*.4
4	*.41	*.41	*.41	*.41	*.41	*.41	*.41	*.41	*.41	*.41
5	*.41	*.41	*.42	*.42	*.42	*.42	*.42	*.42	*.42	*.42
6	*.42	*.43	*.43	*.43	*.43	*.44	*.44	*.44	*.45	*.45
7	*.45	*.47	*.48	.52	.67					

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	30.29	74	.35	.67	.41	.04
*EDIT >	29.1	72	.35	.48	.4	.02

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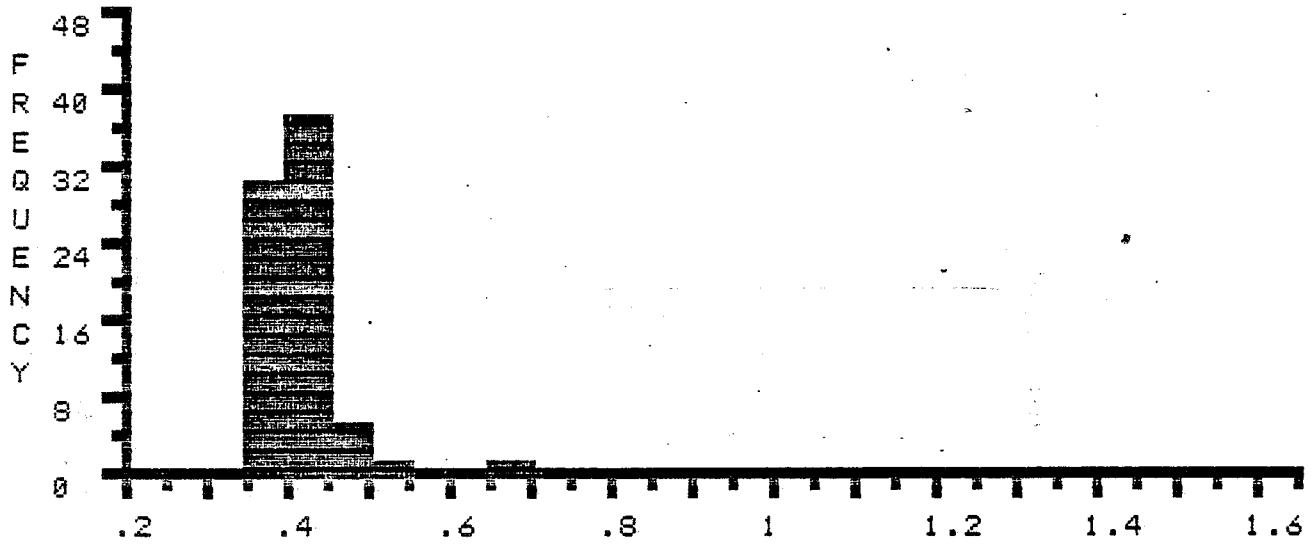

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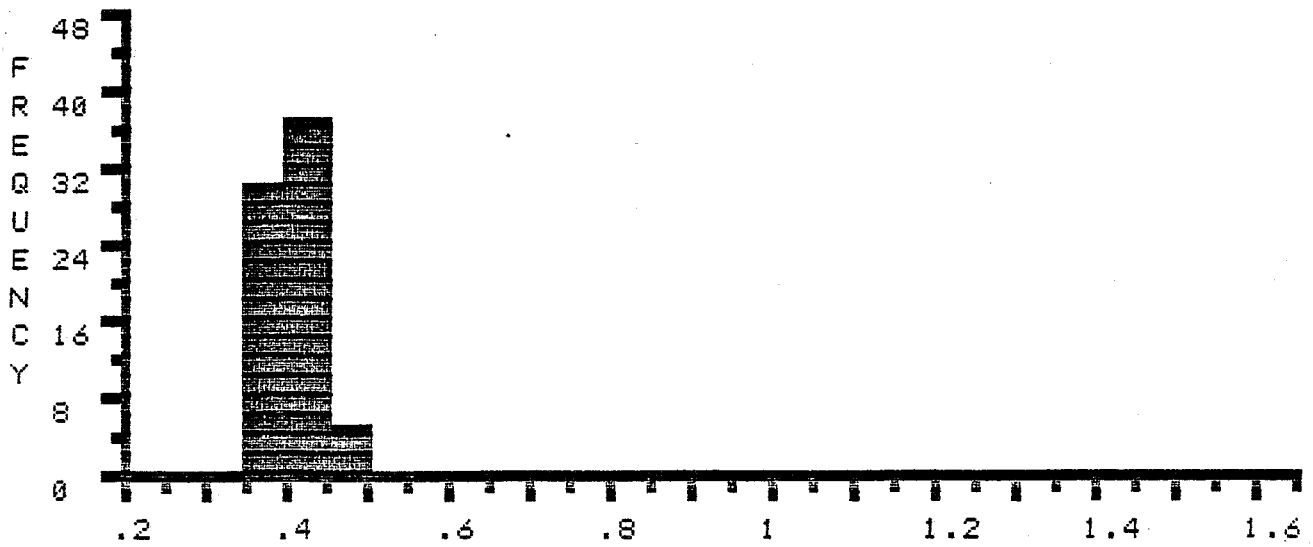
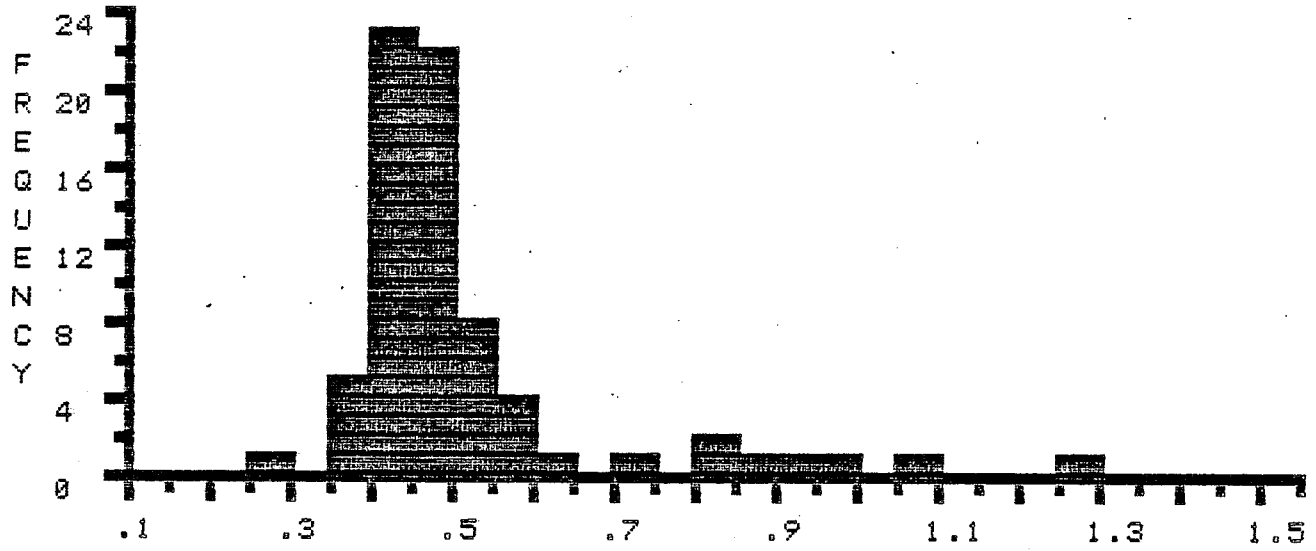


FILE >> K0484A DESCRIPTION FOLLOWS :
DEPTH 5580-5610', MICMAC H-86, MPA, APR-18-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		.27	*.37	*.37	*.39	*.39	*.39	*.4	*.4	*.4
1	*.4	*.41	*.41	*.41	*.42	*.42	*.42	*.42	*.42	*.43
2	*.43	*.43	*.43	*.43	*.43	*.44	*.44	*.44	*.44	*.44
3	*.45	*.45	*.45	*.45	*.45	*.45	*.45	*.46	*.46	*.46
4	*.46	*.46	*.47	*.47	*.47	*.47	*.48	*.48	*.48	*.49
5	*.49	*.49	*.5	*.5	*.51	*.52	*.53	*.54	*.54	*.54
6	*.56	*.57	*.59	*.59	.64	.72	.83	.83	.85	.92
7	.99	1.07	1.27							

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	36.74	72	.27	1.27	.51	.17
*EDIT >	28.35	62	.37	.59	.46	.05

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



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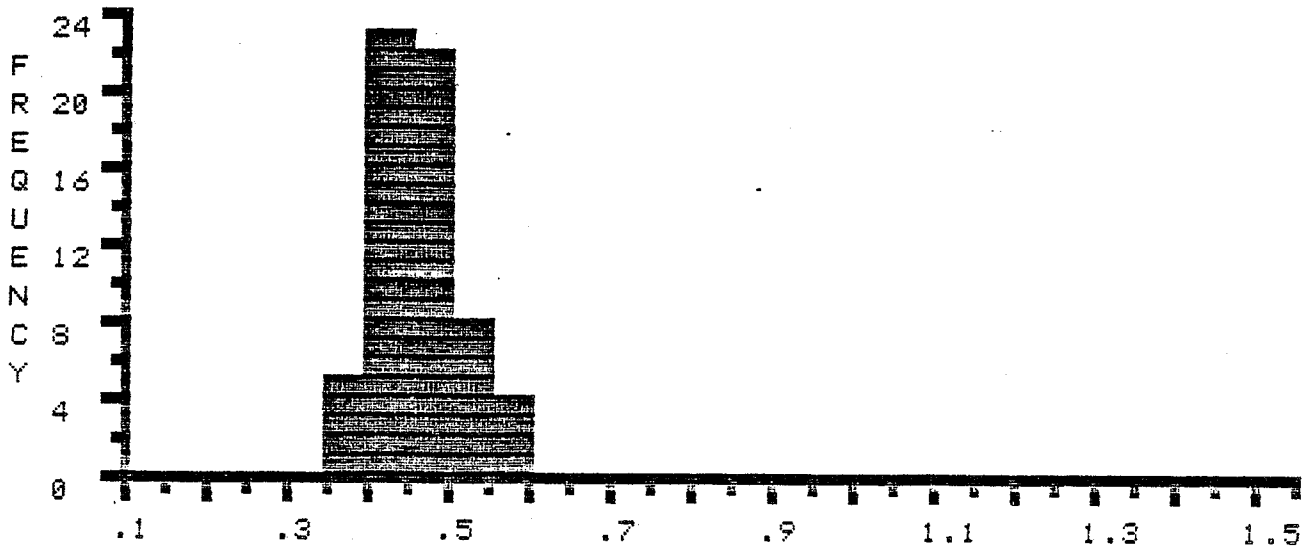
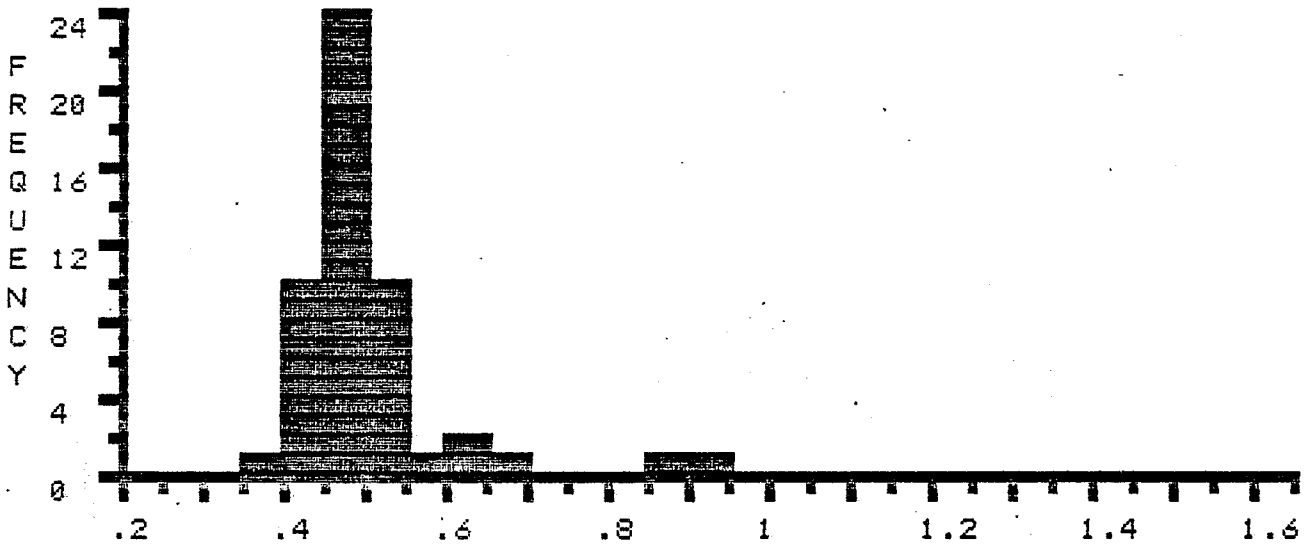


FILE >> K0484B DESCRIPTION FOLLOWS :
DEPTH 6090-6120', MICMAC H-86, MPA, APR-19-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.39	*.4	*.42	*.42	*.43	*.43	*.43	*.43	*.44
1	*.44	*.44	*.45	*.45	*.45	*.45	*.45	*.46	*.46	*.46
2	*.46	*.46	*.47	*.47	*.47	*.47	*.48	*.48	*.48	*.48
3	*.49	*.49	*.49	*.49	*.49	*.49	*.5	*.5	*.5	*.52
4	*.52	*.52	*.53	*.53	*.53	*.53	.57	.6	.61	.68
5	.86	.94								

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	25.4	51	.39	.94	.5	.1
*EDIT >	21.14	45	.39	.53	.47	.04

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



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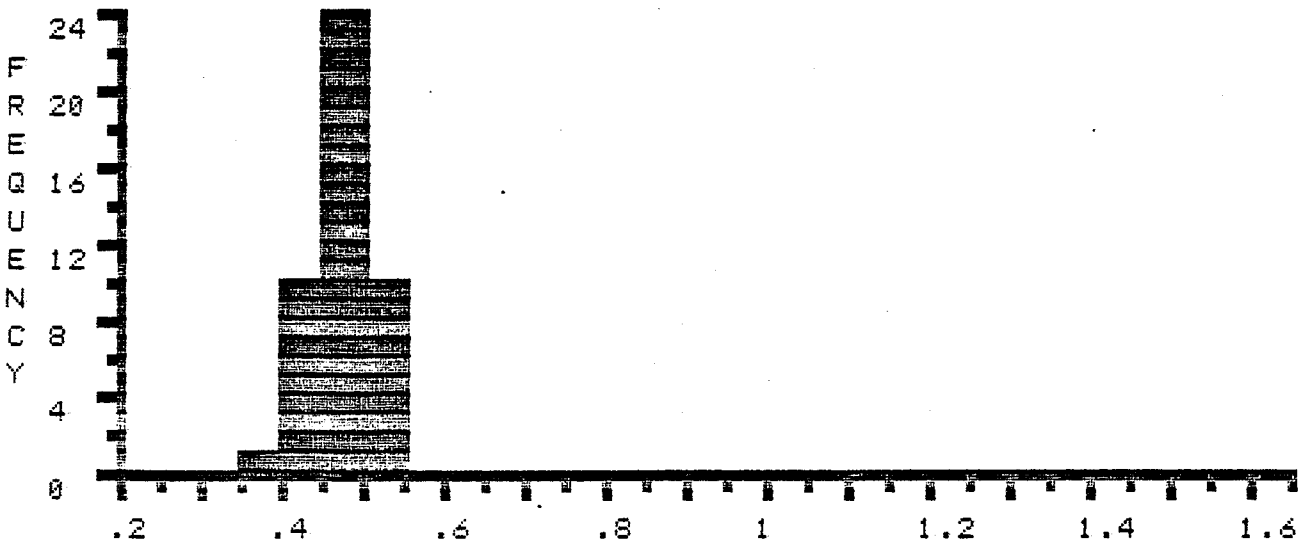
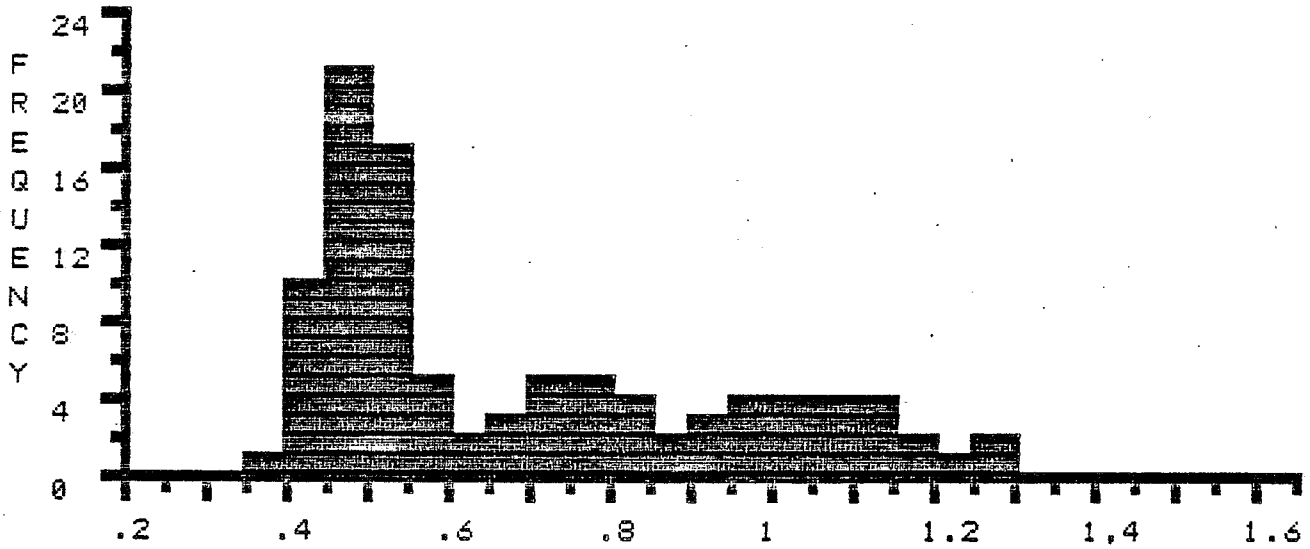


FILE >> K0484C DESCRIPTION FOLLOWS :
DEPTH 6390-6410', MICMAC H-86, MPA, APR-18-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.37	*.41	*.42	*.42	*.43	*.43	*.44	*.44	*.44
1	*.44	*.44	*.45	*.45	*.45	*.45	*.45	*.46	*.46	*.46
2	*.47	*.47	*.47	*.47	*.48	*.48	*.48	*.48	*.49	*.49
3	*.49	*.49	*.49	*.5	*.5	*.5	*.5	*.5	*.5	*.51
4	*.51	*.53	*.53	*.53	*.53	*.53	*.54	*.54	*.54	*.54
5	*.55	*.56	*.57	*.57	*.57	.6	.63	.65	.66	.69
6	.71	.72	.73	.73	.74	.75	.77	.78	.79	.79
7	.8	.8	.81	.81	.86	.87	.9	.91	.92	.95
8	.95	.95	.97	1	1	1.01	1.03	1.07	1.07	1.08
9	1.09	1.1	1.12	1.13	1.13	1.18	1.18	1.22	1.25	1.29

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	67.4	99	.37	1.29	.68	.25
*EDIT >	26.21	54	.37	.57	.49	.05

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



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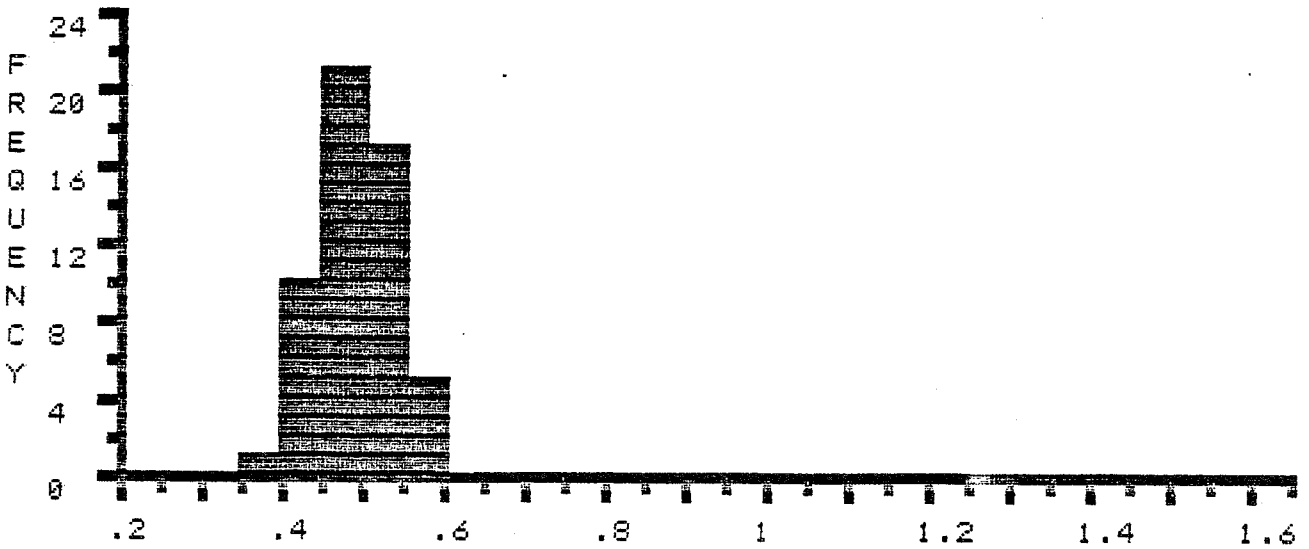
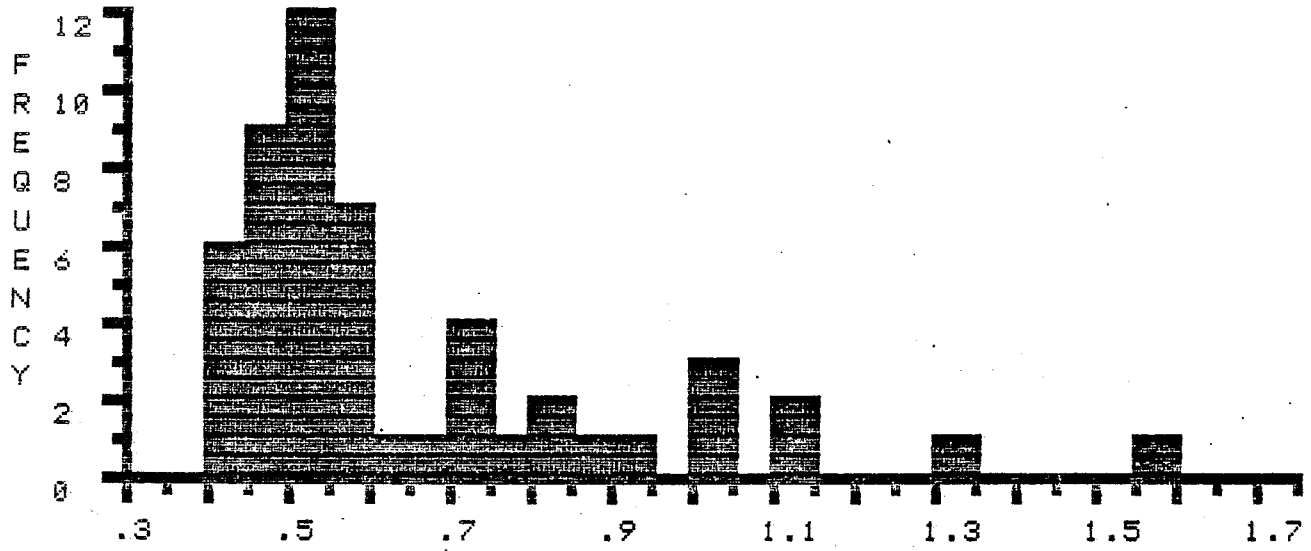


FILE >> K0485A DESCRIPTION FOLLOWS :
DEPTH 7300-7330', MICMAC H-86, MPA, APR-19-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.4	*.43	*.43	*.43	*.43	*.44	*.45	*.46	*.47
1	*.47	*.47	*.47	*.47	*.48	*.49	*.5	*.5	*.5	*.51
2	*.53	*.53	*.53	*.53	*.53	*.54	*.54	*.54	*.55	*.55
3	*.56	*.56	*.56	*.56	*.59	*.62	.67	.72	.73	.74
4	.74	.77	.8	.8	.85	.93	1	1	1	1.11
5	1.13	1.3	1.56							

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	33.47	52	.4	1.56	.64	.25
*EDIT >	17.62	35	.4	.62	.5	.05

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



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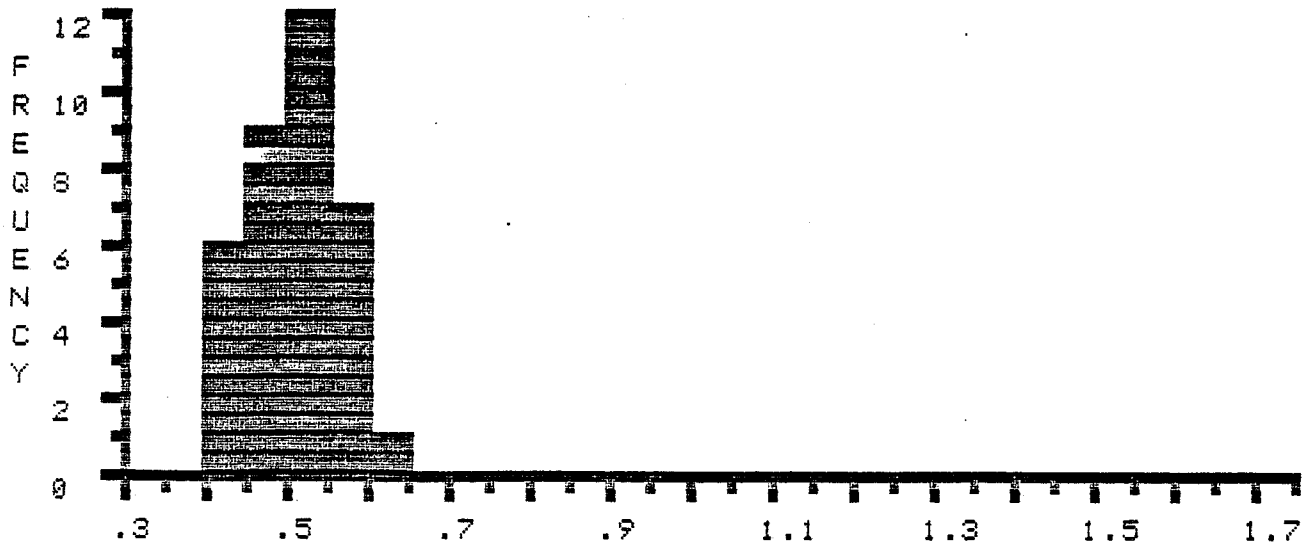
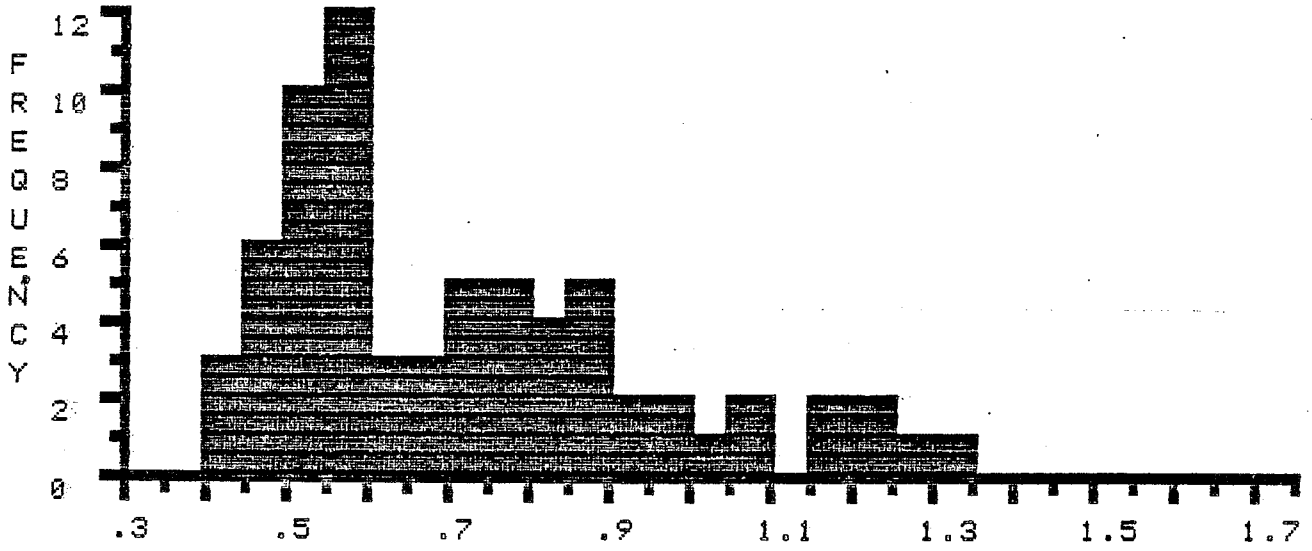


FILE >> K0485B DESCRIPTION FOLLOWS :
DEPTH 7800-7830', MICMAC H-86, MPA, APR-19-86

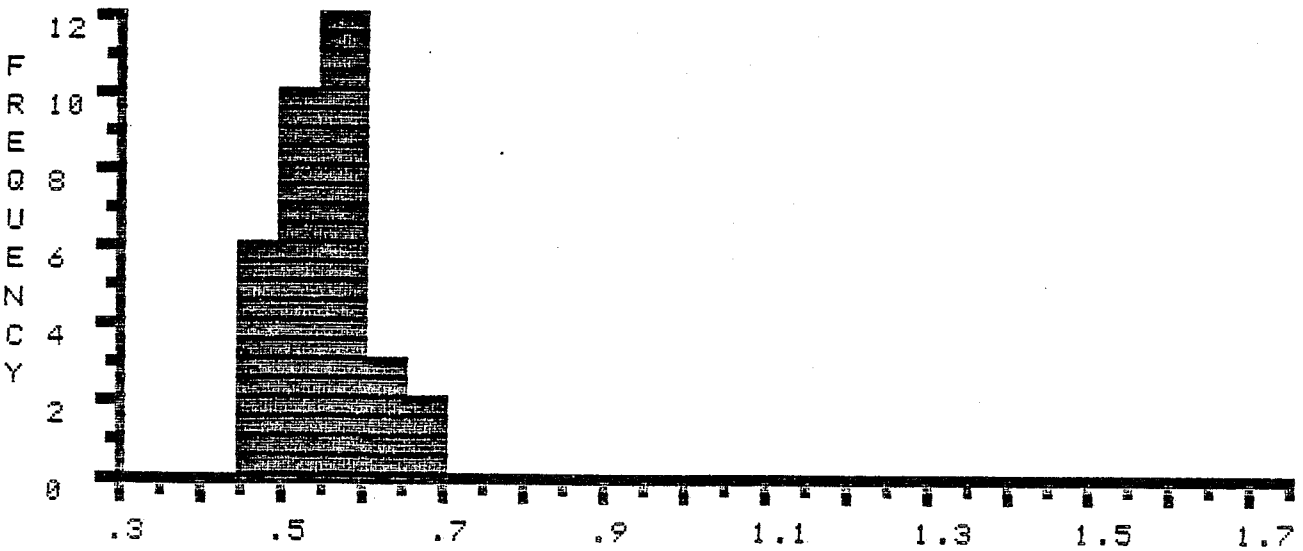
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.41	.42	.42	*.45	*.47	*.47	*.48	*.48	*.49
1	*.51	*.51	*.51	*.52	*.52	*.52	*.53	*.53	*.54	*.54
2	*.55	*.56	*.56	*.56	*.56	*.56	*.57	*.57	*.57	*.58
3	*.58	*.58	*.6	*.61	*.63	*.65	*.66	.69	.7	.72
4	.72	.74	.74	.75	.75	.77	.78	.78	.8	.81
5	.81	.84	.85	.86	.86	.86	.87	.94	.94	.97
6	.98	1	1.07	1.08	1.16	1.1[illegible]	1.33	1.23	1.28	1.31

	SUM	NUMBER	MIN	MAX		
TOTAL >	49.32	69	.41	1.31	.71	.23
*EDIT >	18.02	33	.45	.66	.55	.05

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



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

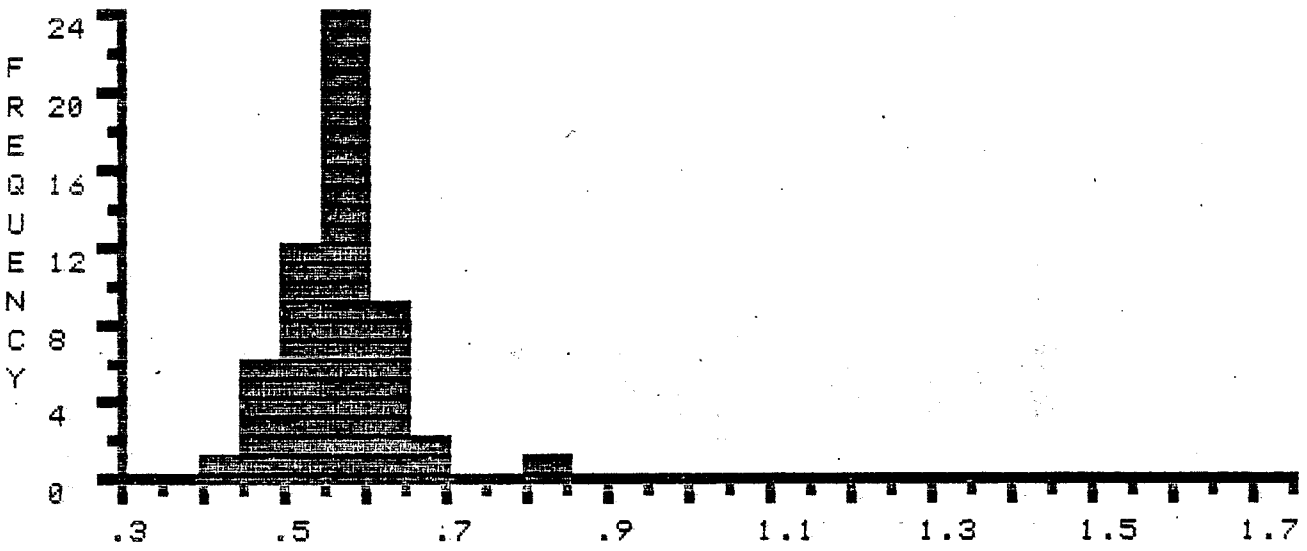


FILE >> K0485C DESCRIPTION FOLLOWS :
DEPTH 8500-8630', MICMAC H-86, MPA, APR-19-86

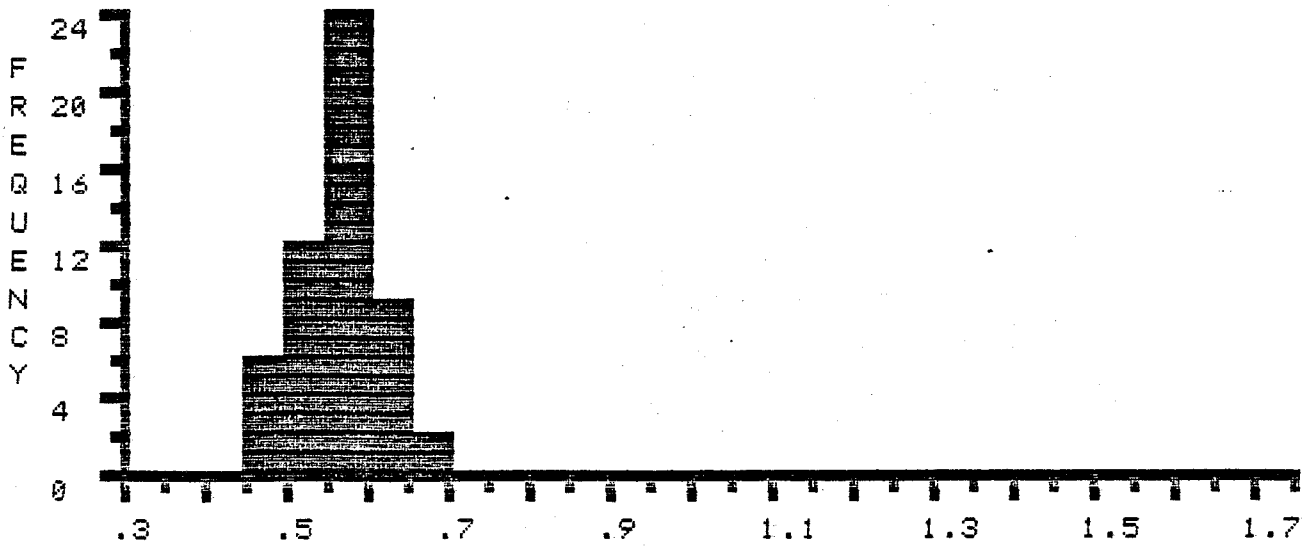
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.4	*.45	*.47	*.47	*.48	*.48	*.48	*.5	*.5
1	*.5	*.51	*.51	*.52	*.53	*.53	*.53	*.53	*.53	*.54
2	*.55	*.55	*.55	*.56	*.56	*.56	*.56	*.56	*.56	*.57
3	*.57	*.57	*.57	*.58	*.58	*.58	*.58	*.58	*.58	*.58
4	*.58	*.59	*.59	*.59	*.6	*.6	*.6	*.61	*.62	*.63
5	*.63	*.64	*.64	*.68	*.68	.83				

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	30.92	55	.4	.83	.56	.07
*EDIT >	29.69	53	.45	.68	.56	.05

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



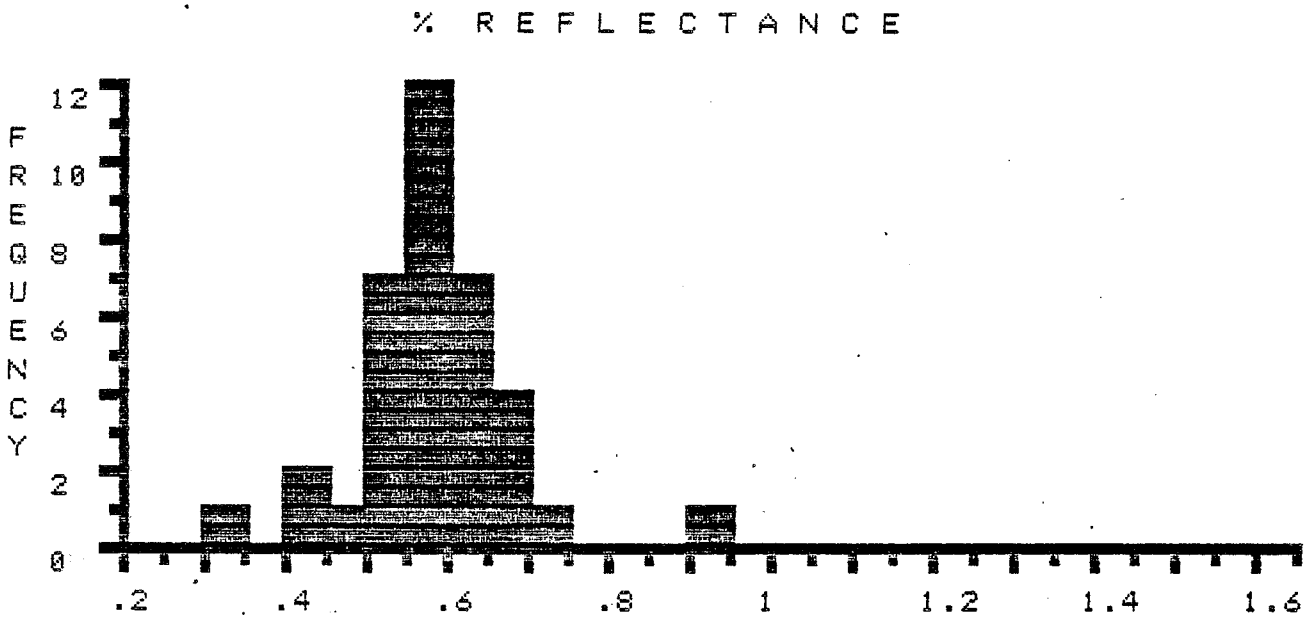
% R E F L E C T A N C E * * EDITED * *

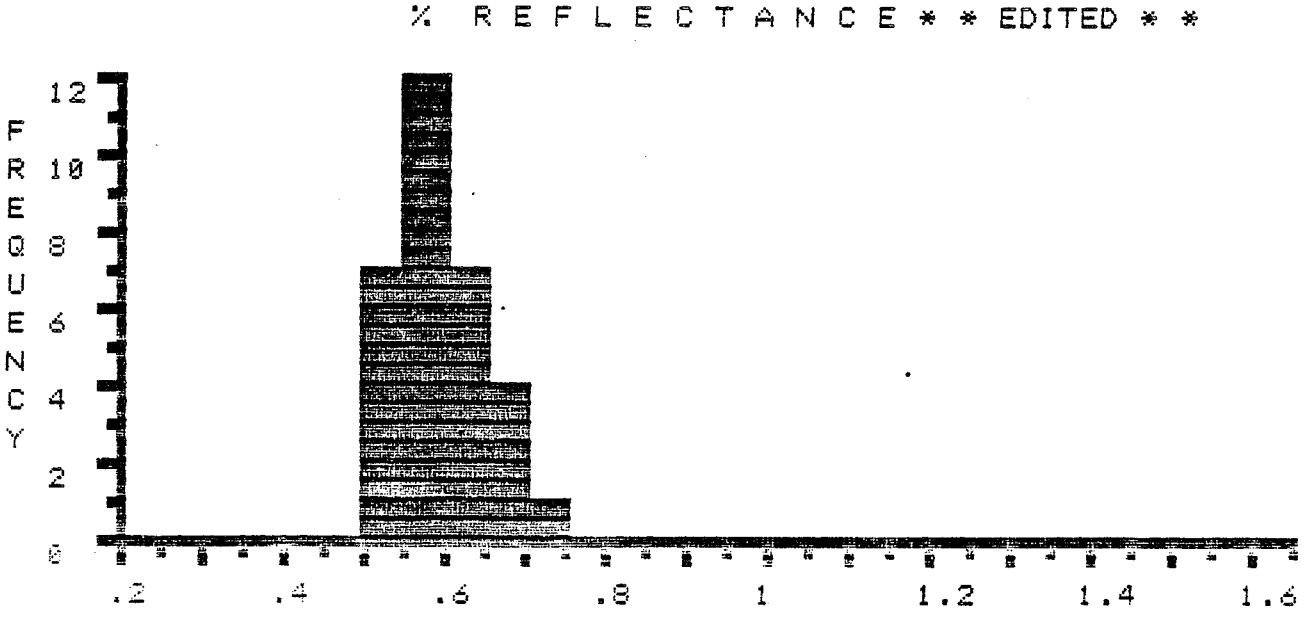


FILE >> K0486A DESCRIPTION FOLLOWS :
DEPTH 8890-8920', MICMAC H-86, MPA, APR-19-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		.34	.4	.43	.45	*.51	*.51	*.51	*.52	*.53
1	*.54	*.54	*.55	*.55	*.55	*.55	*.56	*.57	*.58	*.58
2	*.59	*.59	*.59	*.59	*.6	*.6	*.61	*.62	*.63	*.63
3	*.64	*.65	*.66	*.67	*.67	*.7	.93			

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	20.74	36	.34	.93	.58	.1
*EDIT >	18.19	31	.51	.7	.59	.05



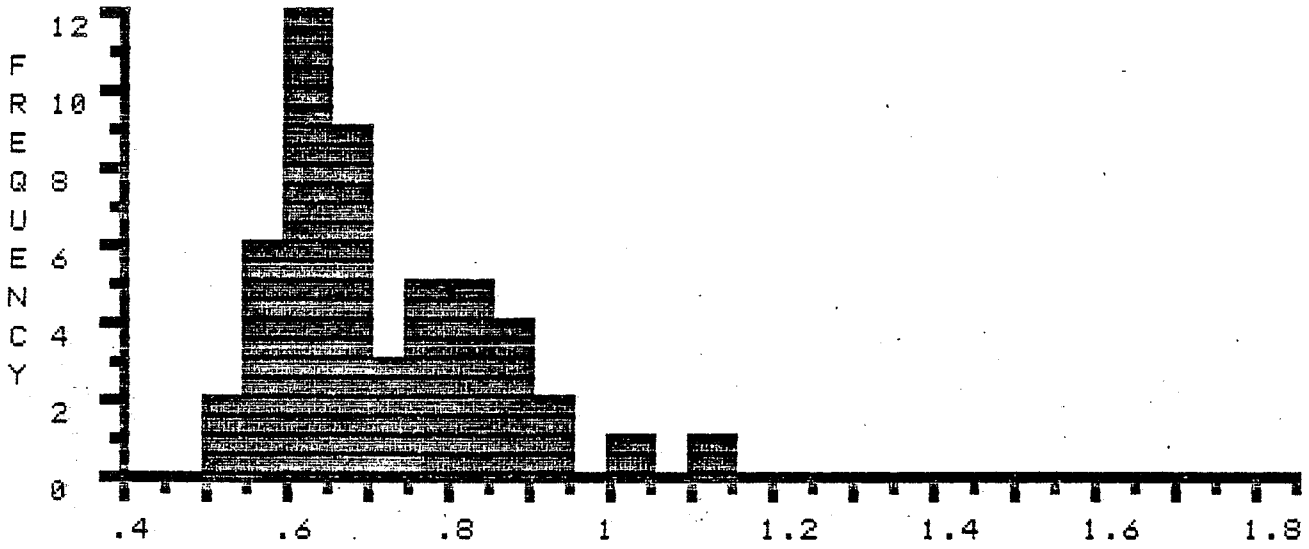


FILE >> K0486B DESCRIPTION FOLLOWS :
DEPTH 9320-9350', MICMAC H-86, MPA, APR-19-86

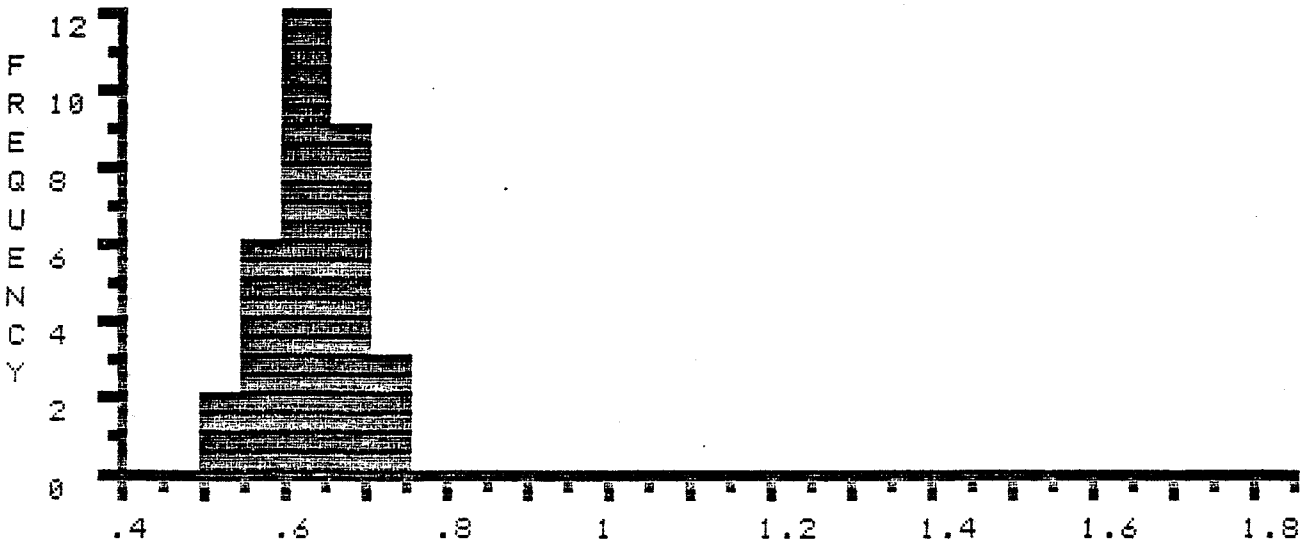
COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.5	*.54	*.55	*.55	*.56	*.56	*.58	*.58	*.6
1	*.6	*.6	*.6	*.61	*.61	*.61	*.61	*.62	*.62	*.63
2	*.63	*.65	*.65	*.65	*.65	*.66	*.66	*.67	*.69	*.69
3	*.71	*.71	*.72	.75	.75	.76	.78	.79	.8	.81
4	.82	.83	.84	.86	.86	.87	.87	.9	.94	1.01
5	1.14									

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	35.25	50	.5	1.14	.7	.13
*EDIT >	19.87	32	.5	.72	.62	.05

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



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

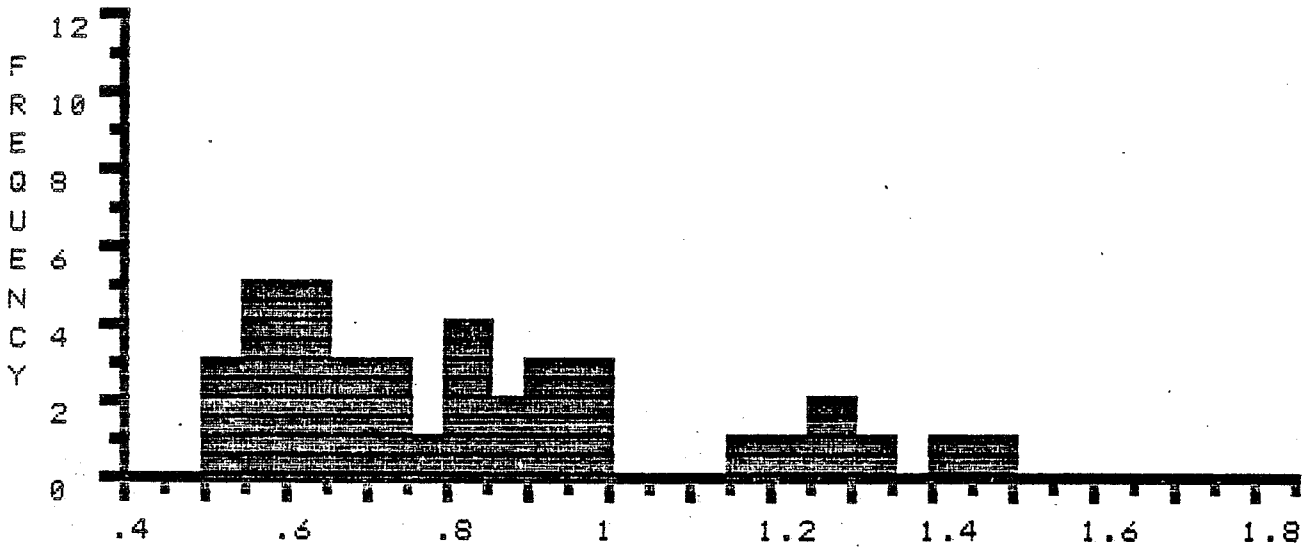


FILE >> K0487A DESCRIPTION FOLLOWS :
DEPTH 10000-10030', MICMAC H-86, MPA, APR-19-86

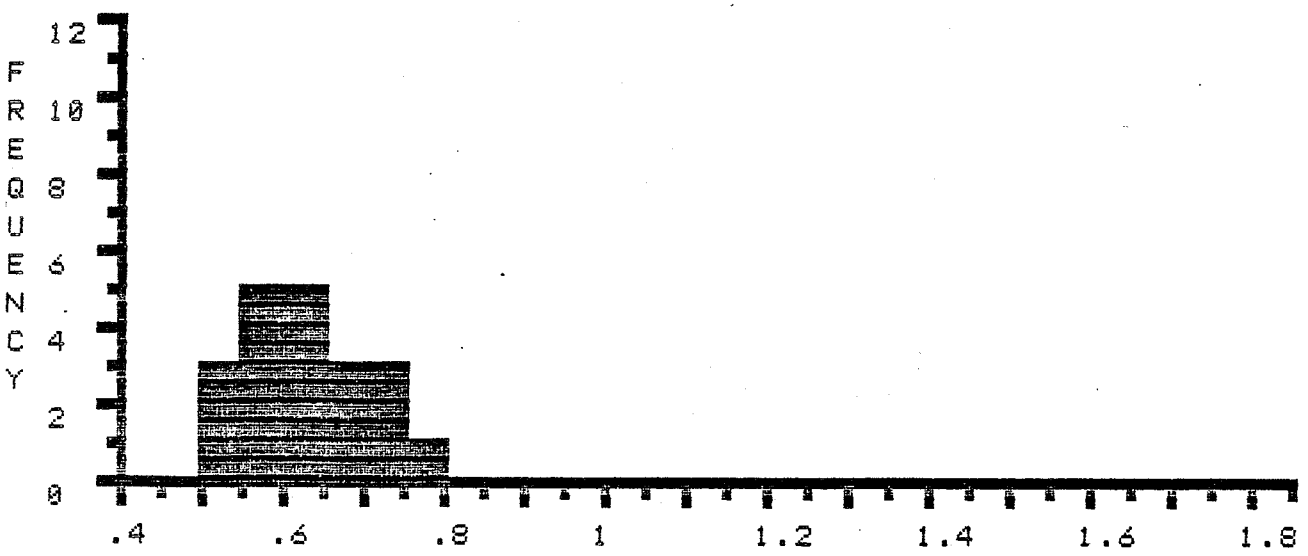
COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.52	*.53	*.54	*.55	*.56	*.56	*.58	*.58	*.6
1	*.6	*.6	*.62	*.63	*.66	*.66	*.69	*.73	*.73	*.74
2	*.76	.8	.82	.84	.84	.85	.86	.9	.91	.91
3	.96	.98	.99	1.19	1.2	1.25	1.27	1.34	1.41	1.46

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	32.22	39	.52	1.46	.83	.27
*EDIT >	12.44	20	.52	.76	.62	.08

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



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

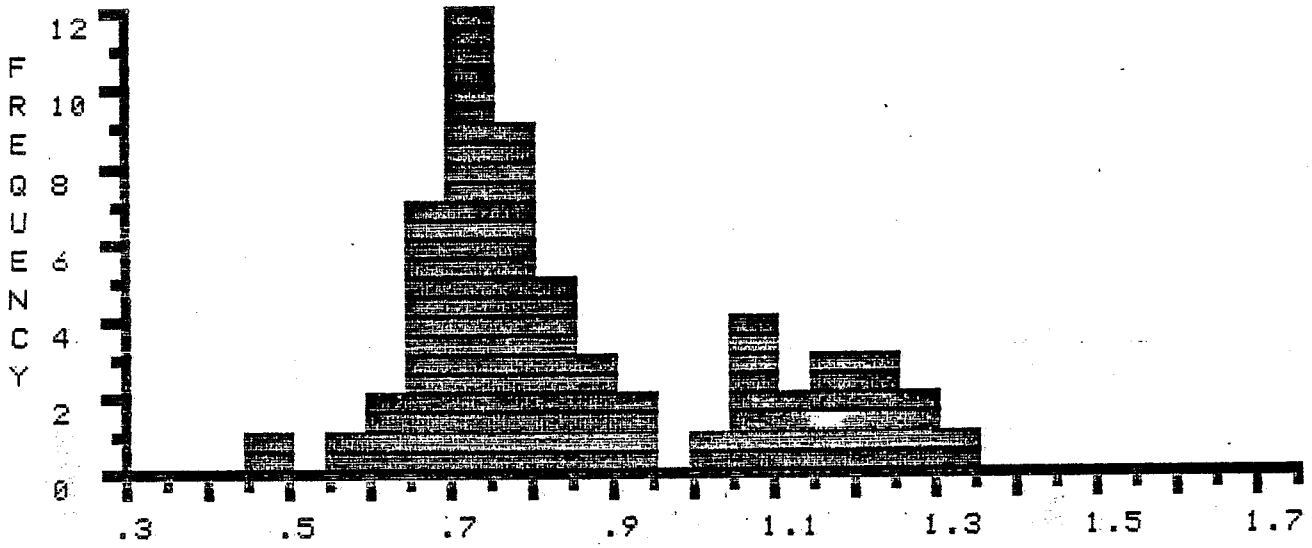


FILE >> K0487B DESCRIPTION FOLLOWS :
DEPTH 10400-10530', MICMAC H-86, MPA, APR-19-86

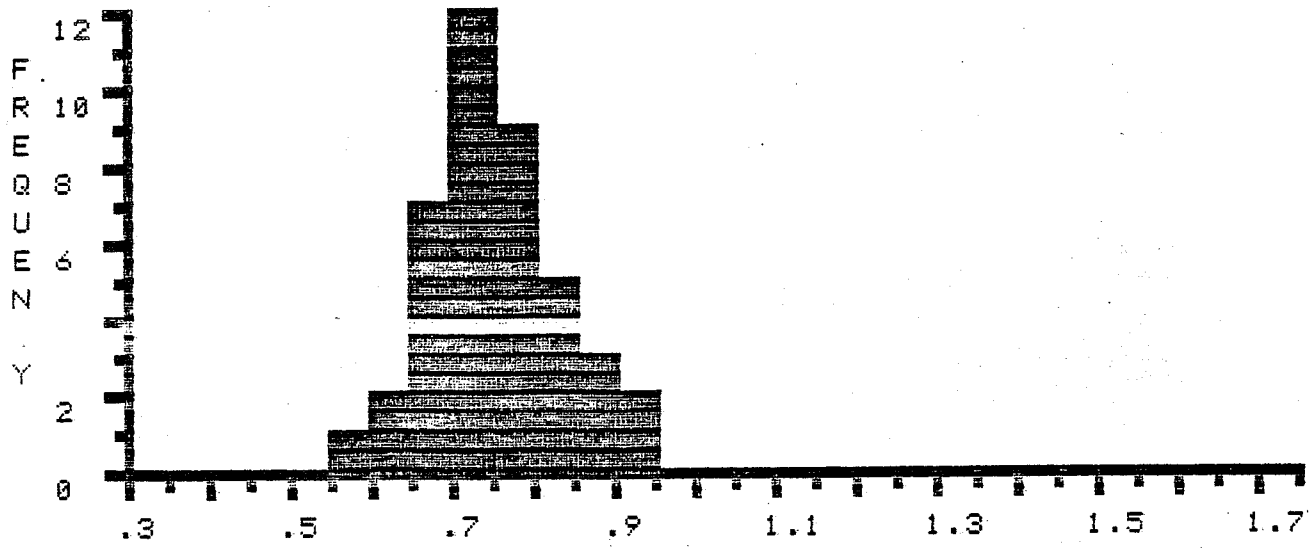
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.48	*.56	*.61	*.61	*.65	*.65	*.67	*.69	*.69
1	*.69	*.69	*.71	*.71	*.72	*.72	*.72	*.72	*.73	*.73
2	*.73	*.74	*.74	*.74	*.75	*.75	*.75	*.75	*.78	*.78
3	*.79	*.79	*.79	*.8	*.8	*.83	*.84	*.84	*.85	*.87
4	*.89	*.92	*.94	1.03	1.05	1.07	1.08	1.09	1.13	1.14
5	1.15	1.16	1.19	1.22	1.23	1.24	1.25	1.28	1.34	

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	49.86	58	.48	1.34	.86	.21
*EDIT >	30.73	41	.56	.94	.75	.08

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



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

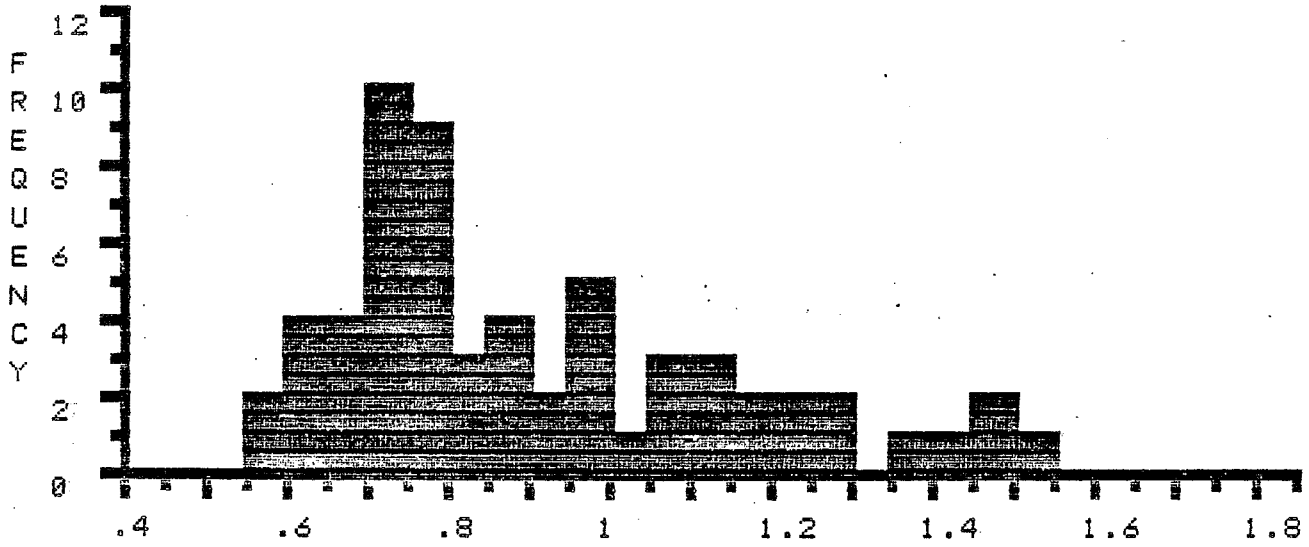


FILE >> K0487C DESCRIPTION FOLLOWS :
DEPTH 10800-10830', MICMAC H-86, MPA, APR-19-86

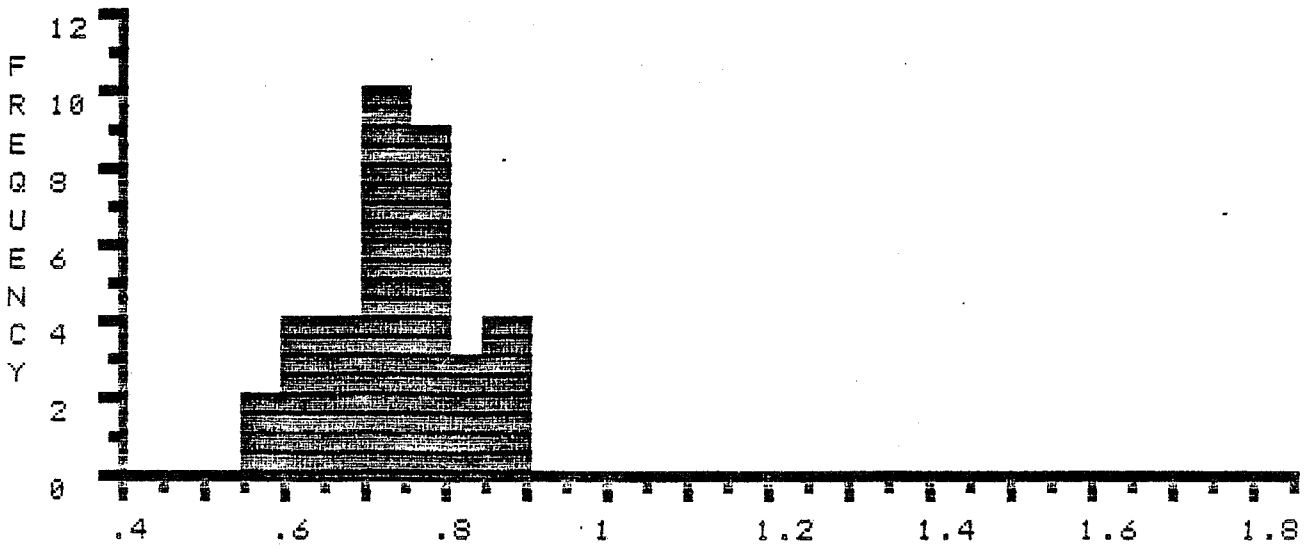
COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.59	*.59	*.6	*.61	*.61	*.62	*.65	*.65	*.67
1	*.69	*.7	*.7	*.72	*.73	*.73	*.73	*.74	*.74	*.74
2	*.74	*.75	*.75	*.75	*.76	*.76	*.77	*.79	*.79	*.79
3	*.8	*.82	*.84	*.85	*.85	*.86	*.87	.9	.9	.95
4	.95	.95	.97	.98	1.03	1.06	1.07	1.08	1.1	1.12
5	1.12	1.15	1.15	1.2	1.21	1.25	1.25	1.37	1.43	1.48
6	1.48	1.5								

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	55	61	.59	1.5	.9	.24
*EDIT >	26.35	36	.59	.87	.73	.08

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



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

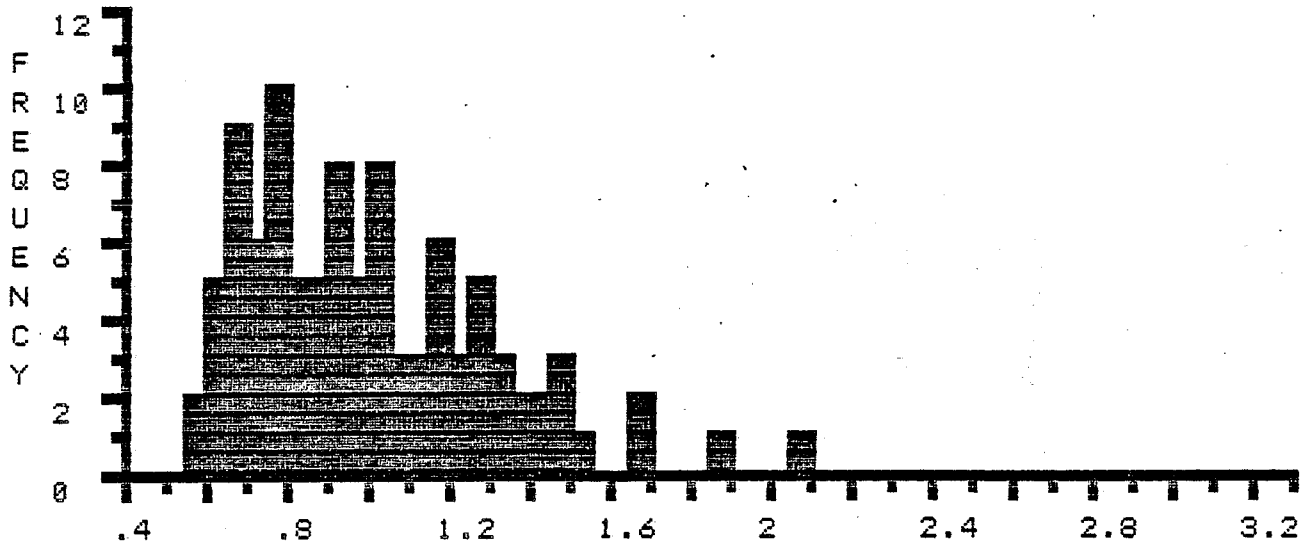


FILE >> K0488A DESCRIPTION FOLLOWS :
DEPTH 11200-11230', MICMAC H-86, MPA, APR-22-86

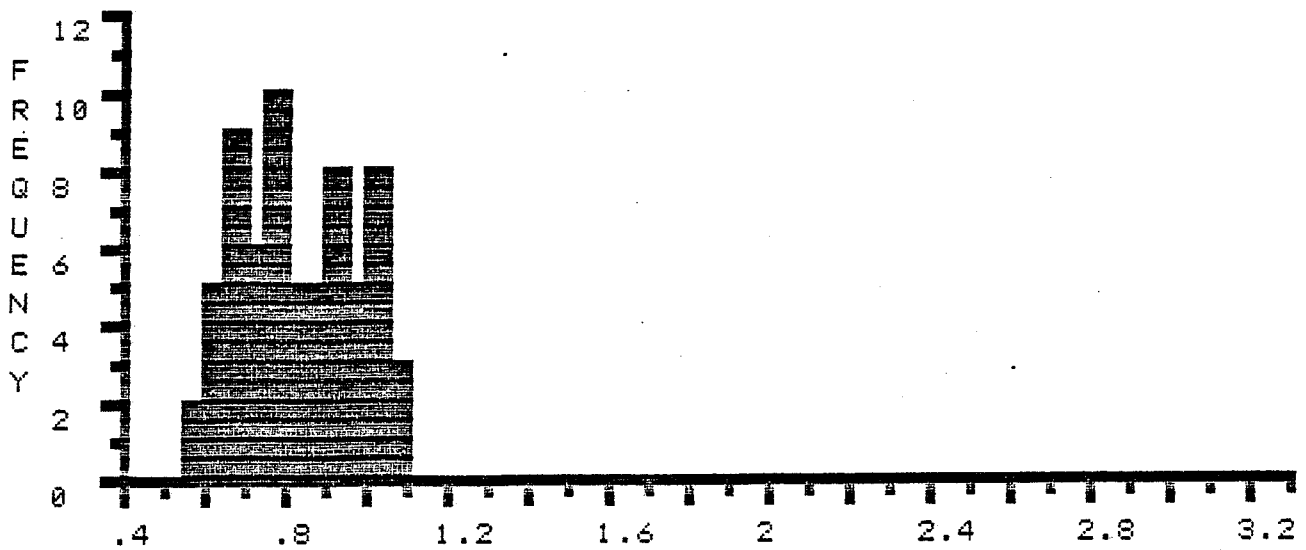
COL>	0	1	2	3	4	5	6	7	8	9
ROW		*.56	*.59	*.61	*.62	*.62	*.63	*.64	*.65	*.65
1	*.66	*.66	*.66	*.67	*.67	*.67	*.69	*.7	*.71	*.71
2	*.71	*.72	*.74	*.76	*.77	*.77	*.77	*.77	*.77	*.77
3	*.78	*.78	*.79	*.83	*.83	*.83	*.84	*.84	*.85	*.89
4	*.89	*.89	*.89	*.9	*.91	*.91	*.92	*.92	*.92	*.93
5	*.94	*.95	*.95	*.96	*.97	*.98	*1	*1	*1	*1.02
6	*1.02	*1.04	*1.04	*1.04	*1.06	*1.07	*1.07	1.11	1.13	1.14
7	1.15	1.16	1.16	1.17	1.18	1.19	1.2	1.23	1.23	1.25
8	1.26	1.27	1.28	1.28	1.31	1.31	1.34	1.37	1.39	1.41
9	1.42	1.45	1.48	1.49	1.51	1.65	1.67	1.86	2.06	

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	97.48	98	.56	2.06	.99	.3
*EDIT >	54.37	66	.56	1.07	.82	.14

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



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

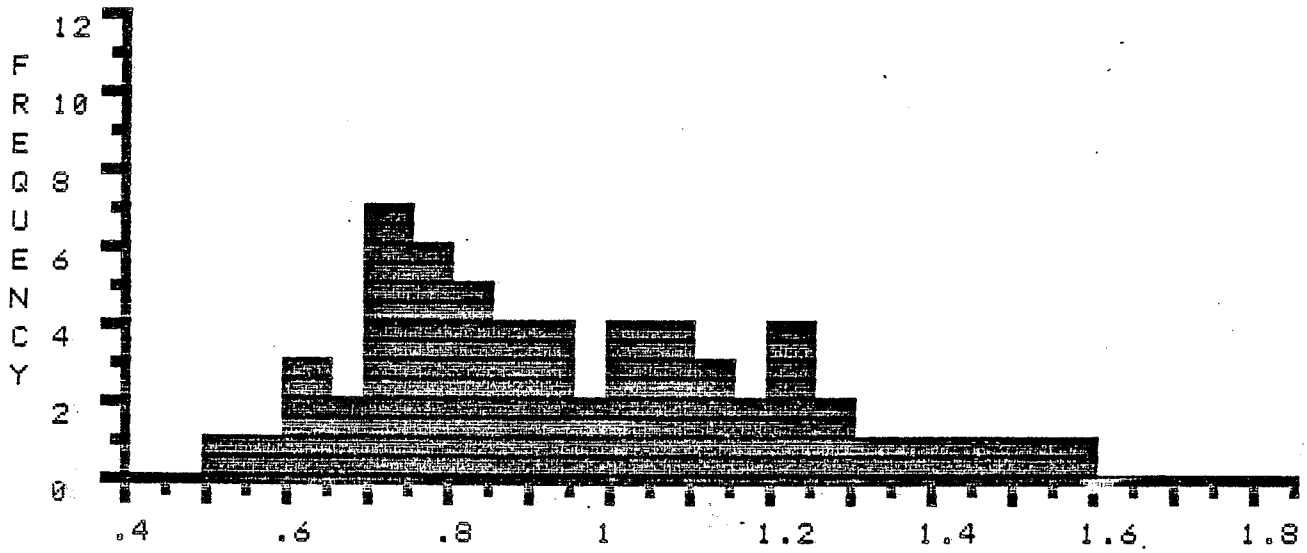


FILE >> K0488B DESCRIPTION FOLLOWS :
DEPTH 11500-11630', MICMAC H-86, MPA, APR-22-86

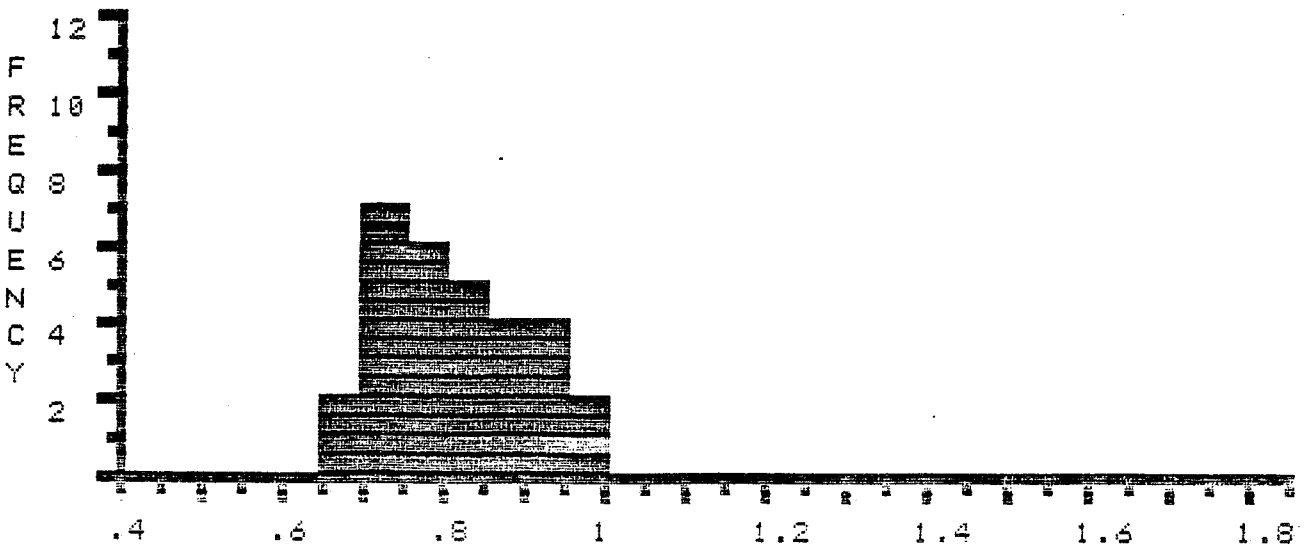
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.54	.59	.64	.64	.64	*.69	*.69	*.71	*.71
1	*.72	*.73	*.73	*.74	*.74	*.75	*.76	*.77	*.78	*.78
2	*.79	*.8	*.82	*.82	*.83	*.83	*.85	*.86	*.87	*.89
3	*.9	*.91	*.93	*.94	*.96	*.99	1	1.01	1.02	1.03
4	1.06	1.06	1.08	1.08	1.1	1.1	1.1	1.17	1.19	1.2
5	1.22	1.23	1.23	1.26	1.28	1.32	1.39	1.44	1.47	1.5
6	1.57									

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	57.45	60	.54	1.57	.96	.25
*EDIT >	24.29	30	.69	.99	.81	.08

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



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

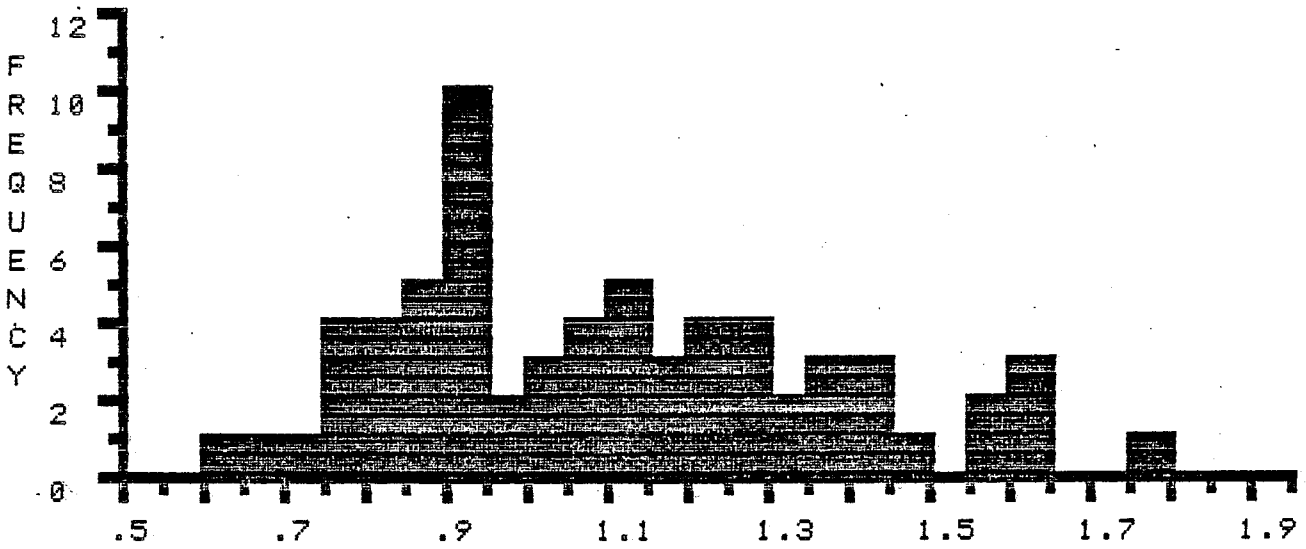


FILE >> K0488C DESCRIPTION FOLLOWS :
DEPTH 11900-11930', MICMAC H-86, MPA, APR-22-86

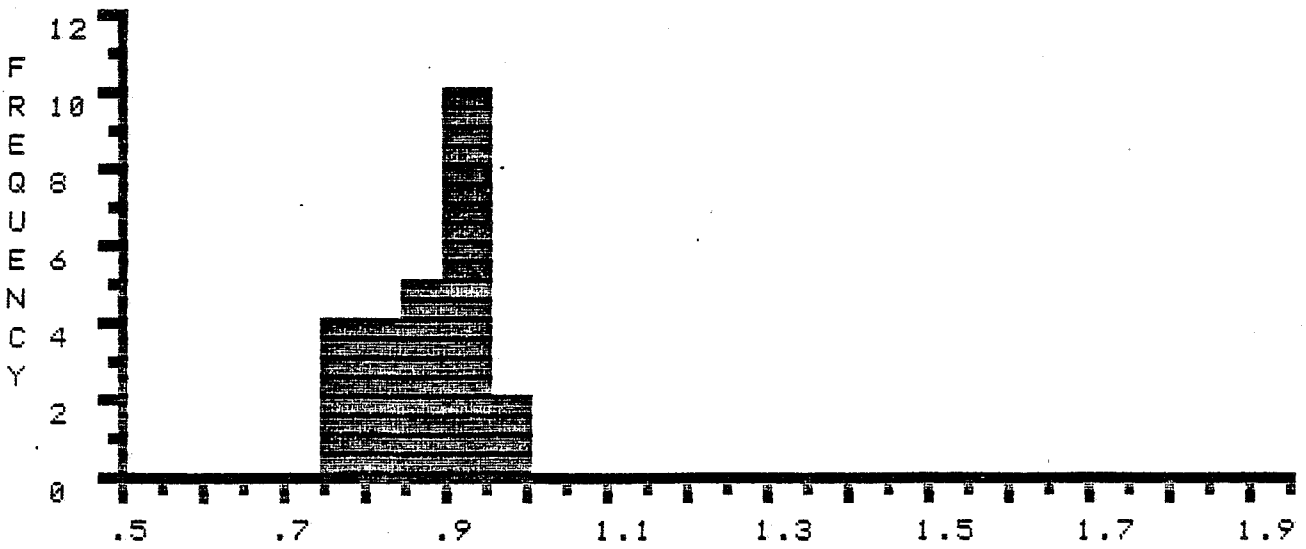
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.63	.69	.71	*.76	*.77	*.77	*.79	*.83	*.83
1	*.84	*.84	*.85	*.85	*.87	*.88	*.88	*.9	*.91	*.91
2	*.92	*.92	*.92	*.92	*.93	*.93	*.94	*.96	*.97	1
3	1.01	1.01	1.07	1.08	1.09	1.09	1.1	1.11	1.12	1.12
4	1.13	1.16	1.18	1.19	1.2	1.21	1.23	1.23	1.25	1.27
5	1.28	1.29	1.3	1.31	1.36	1.37	1.39	1.42	1.42	1.43
6	1.46	1.55	1.57	1.6	1.6	1.62	1.79			

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	72.53	66	.63	1.79	1.1	.26
*EDIT >	21.89	25	.76	.97	.88	.06

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



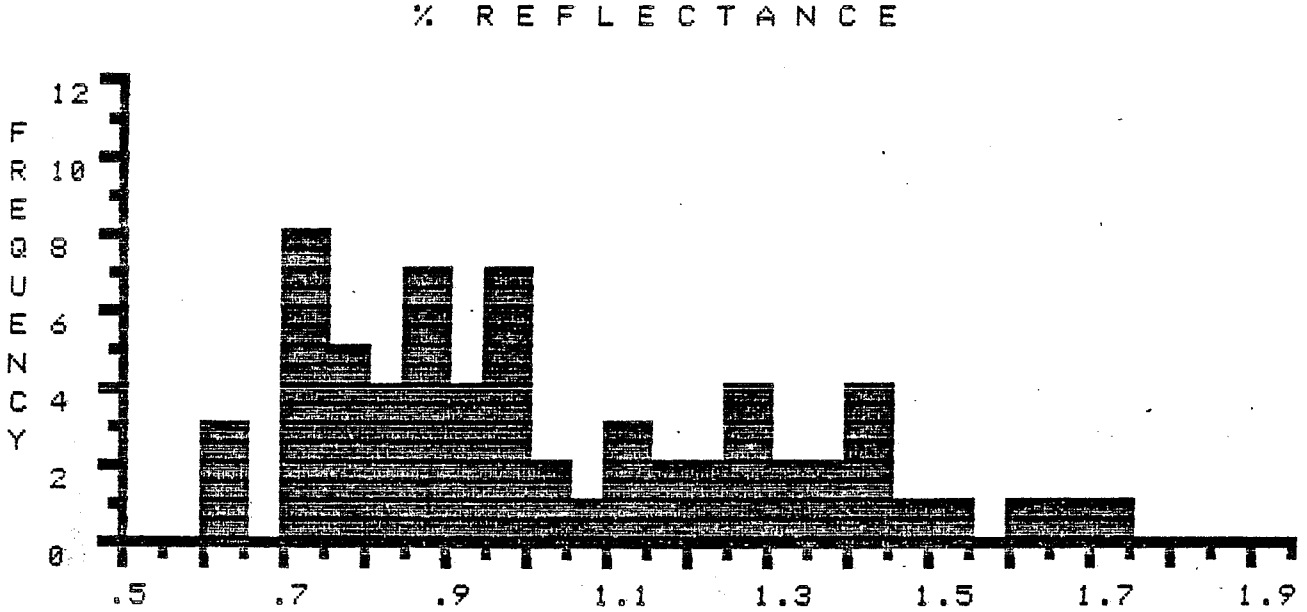
% R E F L E C T A N C E * * EDITED * *

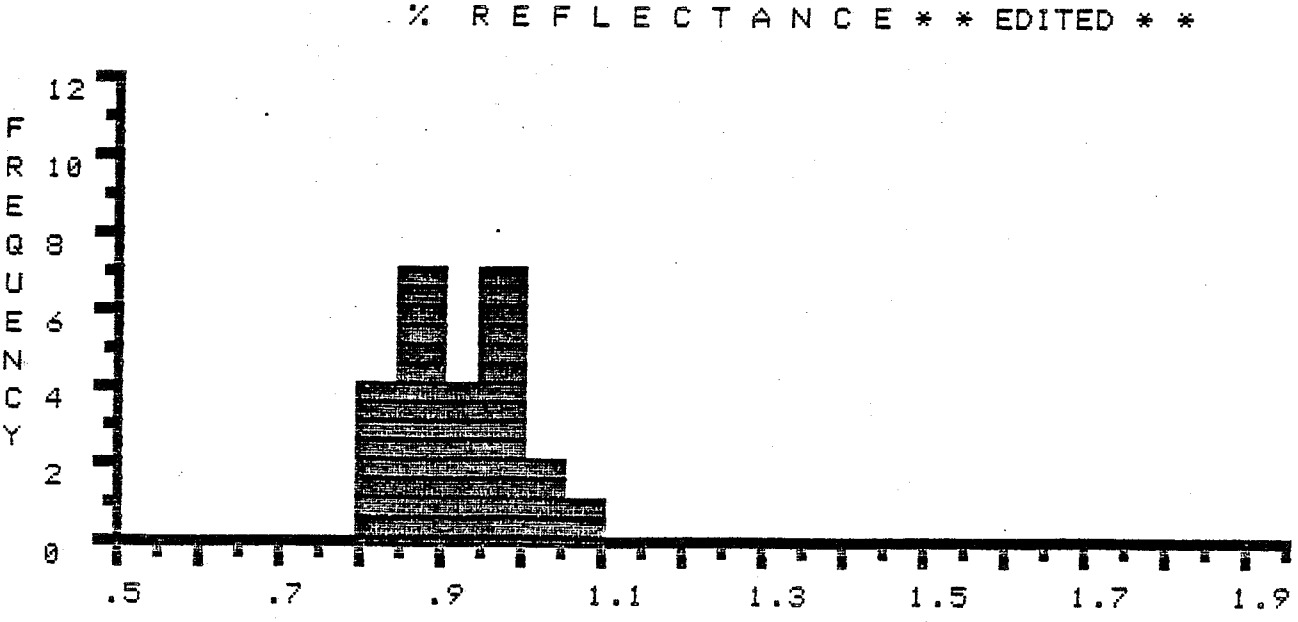


FILE >> K0489A DESCRIPTION FOLLOWS :
DEPTH 12200-12230', MICMAC H-86, MPA, APR-23-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		.61	.61	.62	.71	.71	.72	.72	.72	.72
1	.74	.74	.77	.77	.79	.79	.79	*.82	*.83	*.84
2	*.84	*.85	*.85	*.85	*.87	*.88	*.89	*.89	*.93	*.94
3	*.94	*.94	*.95	*.96	*.96	*.97	*.97	*.99	*.99	*1.02
4	*1.02	*1.05	1.1	1.13	1.13	1.15	1.16	1.2	1.23	1.26
5	1.28	1.29	1.29	1.31	1.33	1.35	1.37	1.41	1.43	1.43
6	1.43	1.48	1.5	1.61	1.65	1.74				

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	66.83	65	.61	1.74	1.03	.28
*EDIT >	23.04	25	.82	1.05	.92	.07



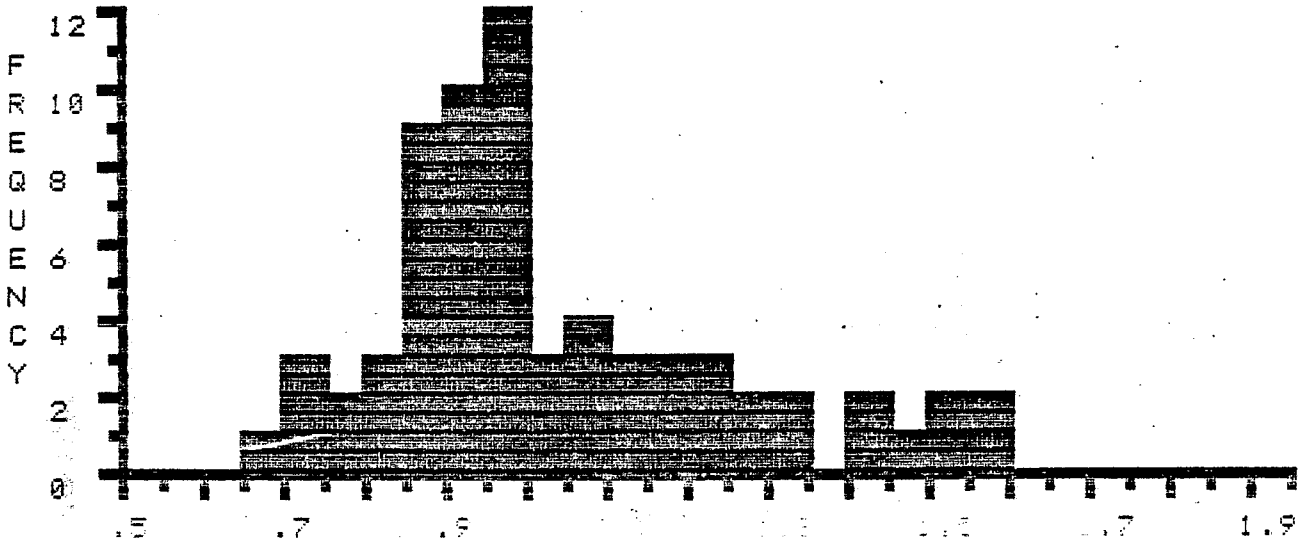


FILE >> K0489B DESCRIPTION FOLLOWS :
DEPTH 12600-12630', MICMAC H-86, MPA, APR-23-86

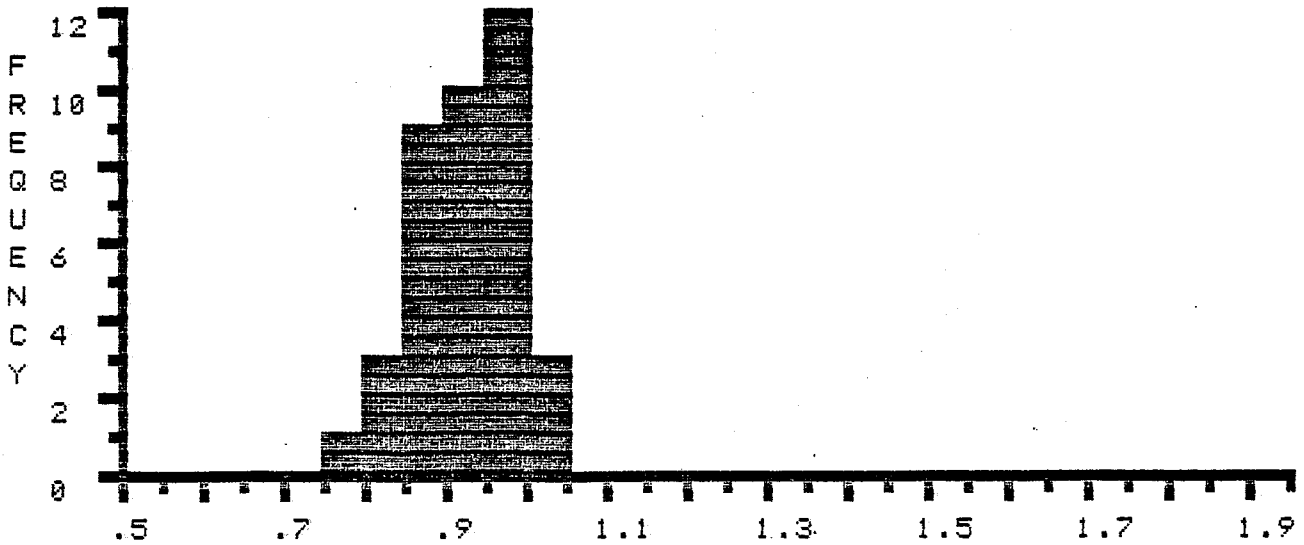
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.68	.74	.74	.74	.76	*.79	*.81	*.81	*.83
1	*.85	*.86	*.86	*.87	*.87	*.88	*.88	*.89	*.89	*.9
2	*.9	*.91	*.91	*.92	*.92	*.92	*.92	*.92	*.93	*.95
3	*.96	*.96	*.96	*.96	*.97	*.97	*.97	*.98	*.98	*.99
4	*.99	*1	*1.02	*1.03	1.07	1.07	1.08	1.09	1.11	1.13
5	1.13	1.16	1.16	1.16	1.2	1.22	1.22	1.25	1.26	1.31
6	1.33	1.43	1.43	1.46	1.51	1.53	1.55	1.56		

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	69.01	67	.68	1.56	1.03	.21
*EDIT >	34.93	38	.79	1.03	.92	.06

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



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

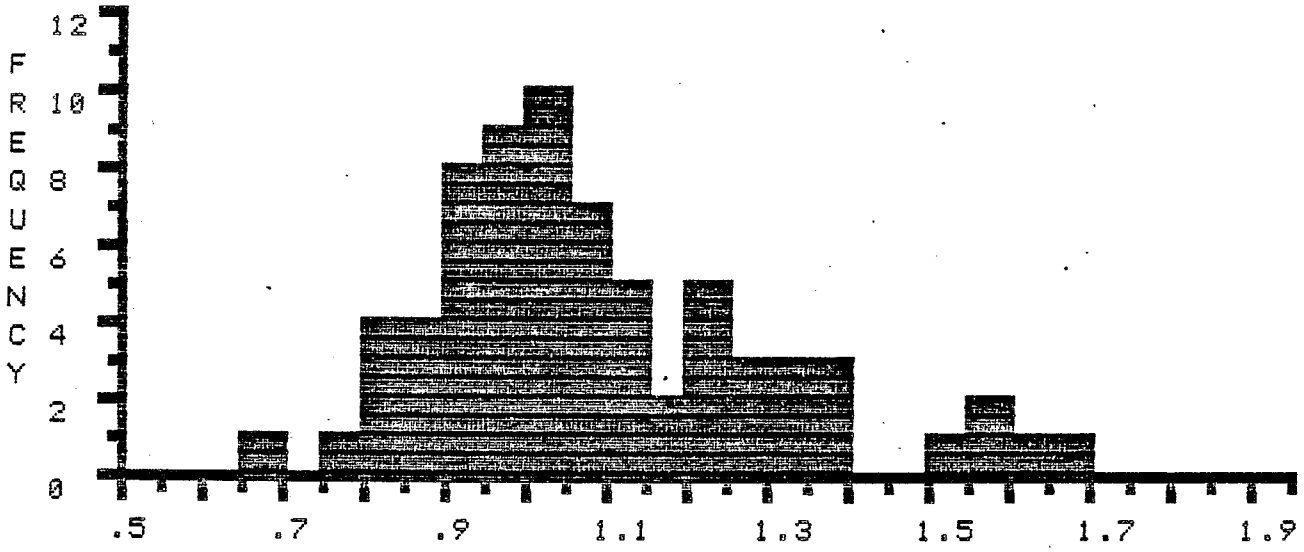


FILE >> K0489C DESCRIPTION FOLLOWS :
DEPTH 12800-12830', MICMAC H-86, MPA, APR-23-86

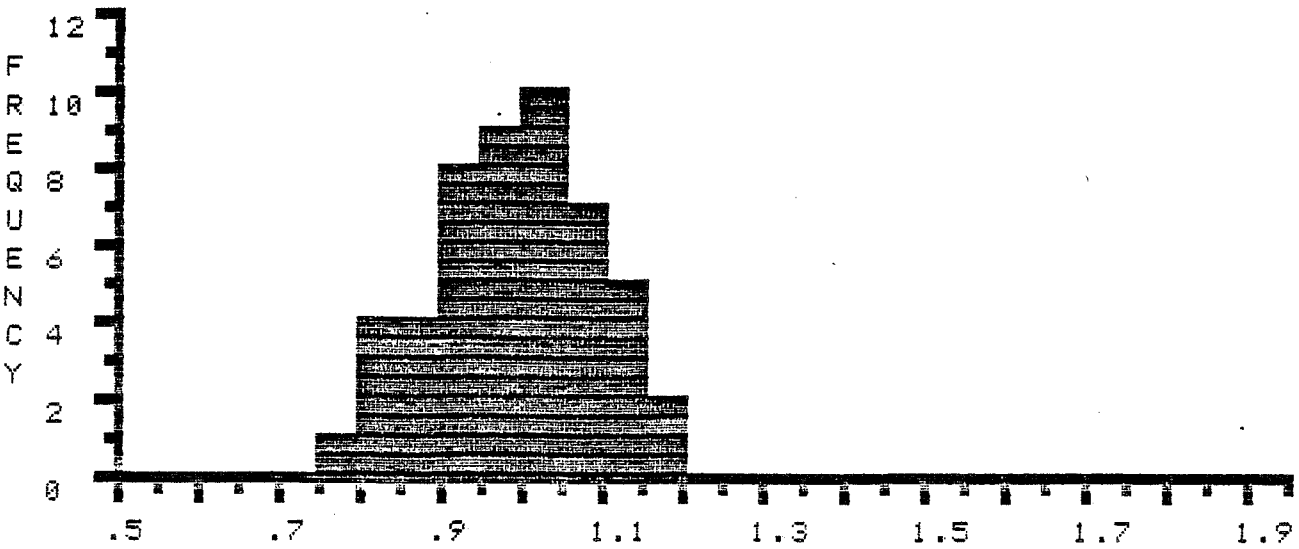
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.69	*.79	*.81	*.83	*.83	*.84	*.85	*.87	*.88
1	*.89	*.9	*.91	*.91	*.93	*.93	*.93	*.94	*.94	*.95
2	*.96	*.97	*.98	*.98	*.98	*.99	*.99	*.99	*1	*1.01
3	*1.01	*1.01	*1.02	*1.02	*1.03	*1.04	*1.04	*1.04	*1.05	*1.06
4	*1.06	*1.07	*1.08	*1.08	*1.09	*1.1	*1.11	*1.11	*1.12	*1.13
5	*1.16	*1.16	1.2	1.22	1.22	1.22	1.23	1.27	1.29	1.29
6	1.32	1.33	1.33	1.37	1.38	1.39	1.54	1.56	1.59	1.6
7	1.68									

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	76.09	70	.69	1.68	1.09	.21
*EDIT >	49.37	50	.79	1.16	.99	.09

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



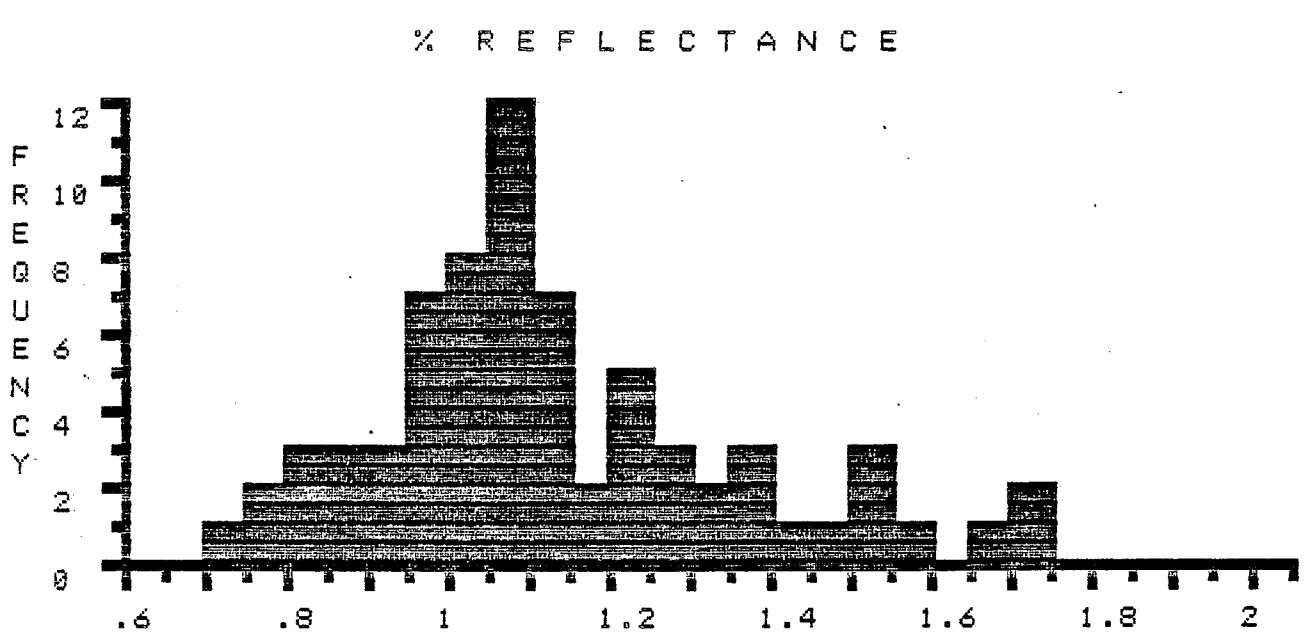
% R E F L E C T A N C E * * EDITED * *

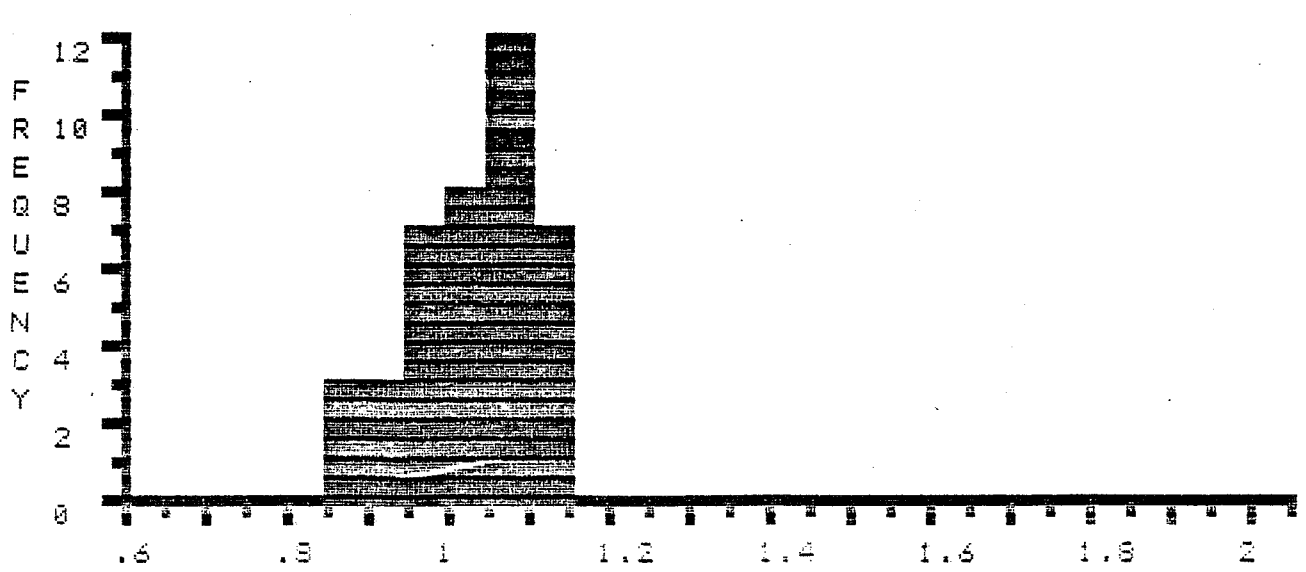


FILE >> K0490A DESCRIPTION FOLLOWS :
DEPTH 13100-13130', MICMAC H-86, MPA, APR-23-86

COL>	0	1	2	3	4	5	6	7	8	9
ROW		.7	.78	.79	.83	.83	.84	*.88	*.89	*.89
1	*.9	*.92	*.94	*.95	*.95	*.95	*.96	*.96	*.97	*.99
2	*1	*1	*1	*1.01	*1.01	*1.01	*1.03	*1.04	*1.05	*1.05
3	*1.05	*1.05	*1.07	*1.07	*1.07	*1.08	*1.08	*1.09	*1.09	*1.09
4	*1.11	*1.11	*1.12	*1.13	*1.13	*1.14	*1.14	1.17	1.19	1.21
5	1.22	1.23	1.24	1.24	1.26	1.26	1.27	1.3	1.33	1.35
6	1.37	1.37	1.4	1.46	1.51	1.52	1.54	1.55	1.67	1.7
7	1.71									

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	78.81	70	.7	1.71	1.13	.22
*EDIT >	40.97	40	.88	1.14	1.02	.08



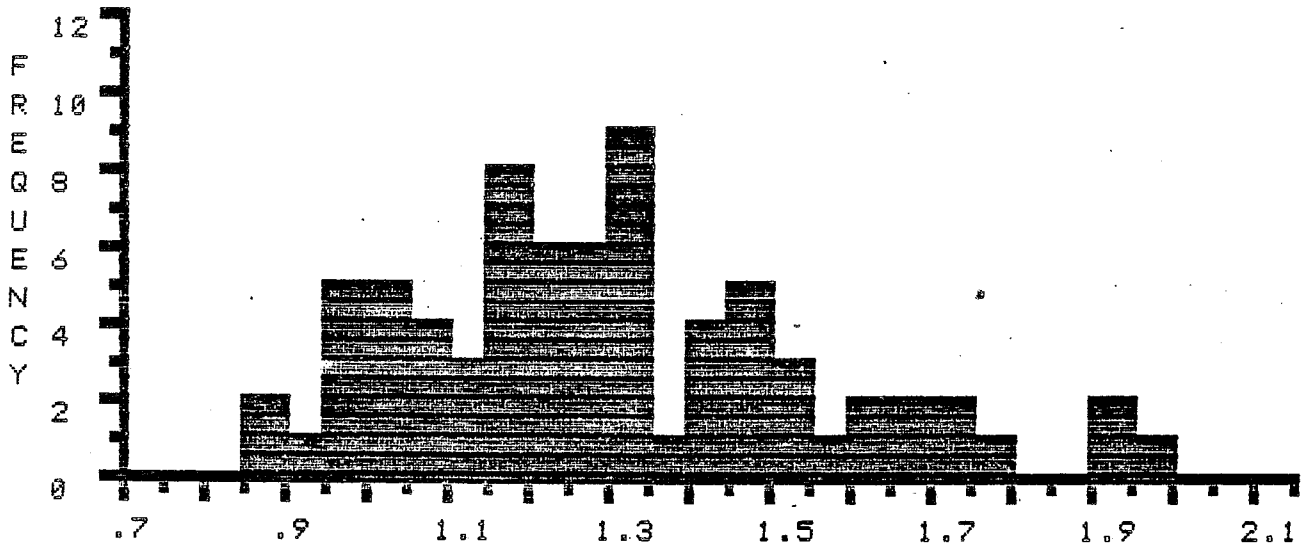


FILE >> K0490B DESCRIPTION FOLLOWS :
DEPTH 13700-13730', MICMAC H-86, MPA, APR-23-86

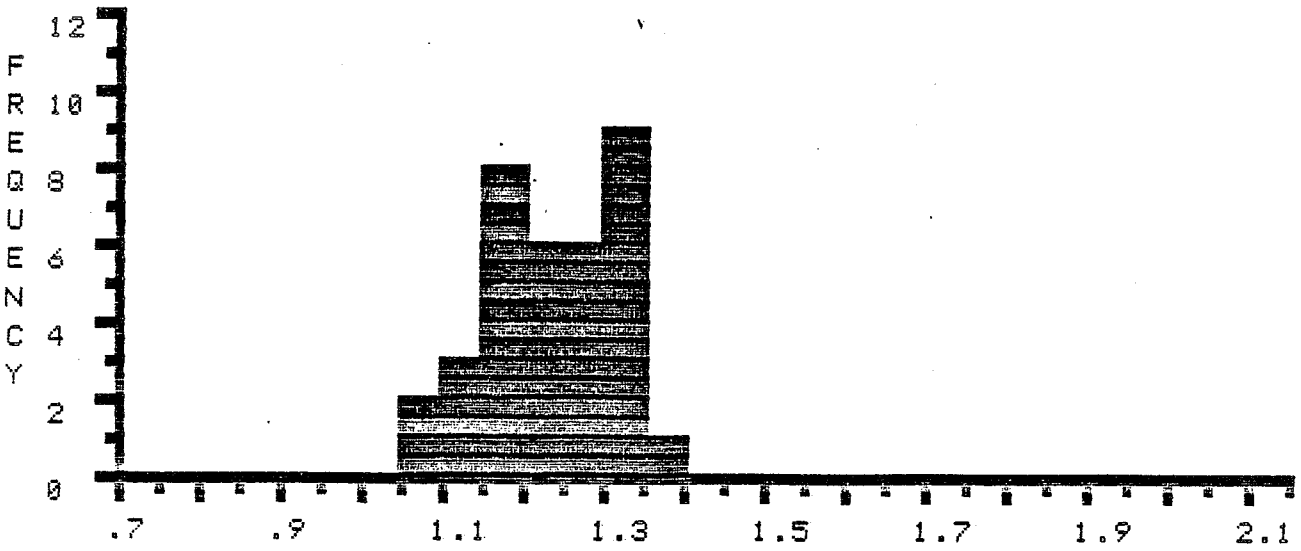
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.88	.88	.93	.97	.97	.98	.98	.98	1
1	1.03	1.04	1.04	1.04	1.05	1.06	*1.09	*1.09	*1.11	*1.12
2	*1.13	*1.15	*1.15	*1.16	*1.18	*1.18	*1.18	*1.18	*1.19	*1.2
3	*1.21	*1.21	*1.22	*1.23	*1.23	*1.25	*1.25	*1.25	*1.26	*1.27
4	*1.29	*1.3	*1.3	*1.31	*1.31	*1.32	*1.32	*1.33	*1.33	*1.34
5	*1.36	1.4	1.41	1.41	1.42	1.45	1.48	1.48	1.49	1.49
6	1.5	1.51	1.51	1.57	1.6	1.62	1.68	1.69	1.7	1.71
7	1.76	1.93	1.94	1.96						

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	94.54	73	.88	1.96	1.3	.25
*EDIT >	43	35	1.09	1.36	1.23	.08

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



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

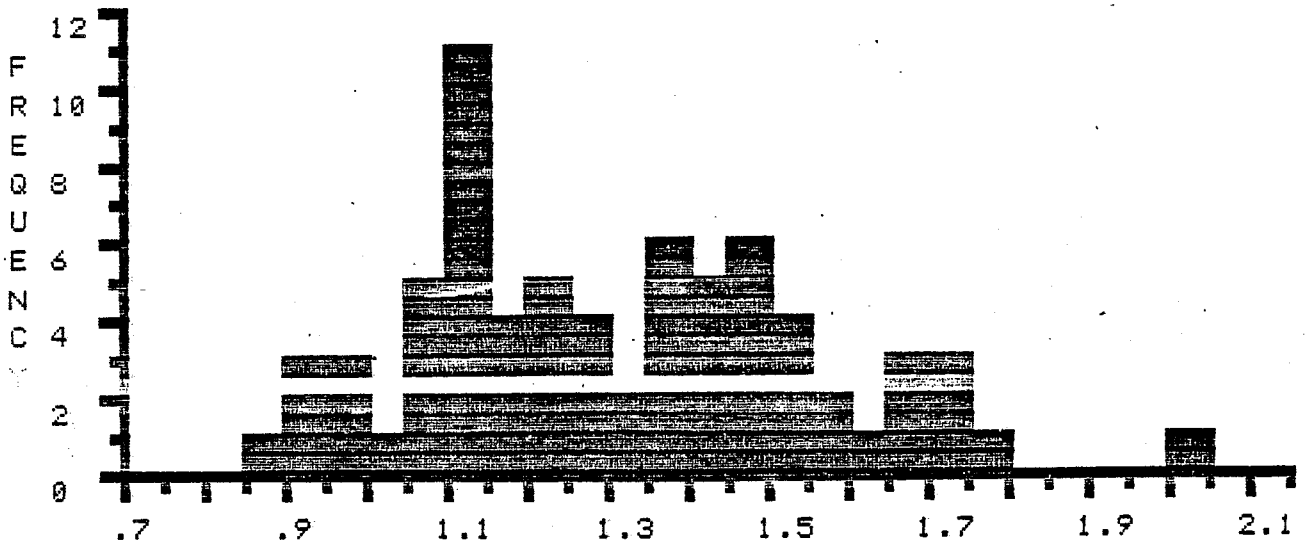


FILE >> K0490C DESCRIPTION FOLLOWS :
DEPTH 14000-14030', MICMAC H-86, MPA, APR-23-86

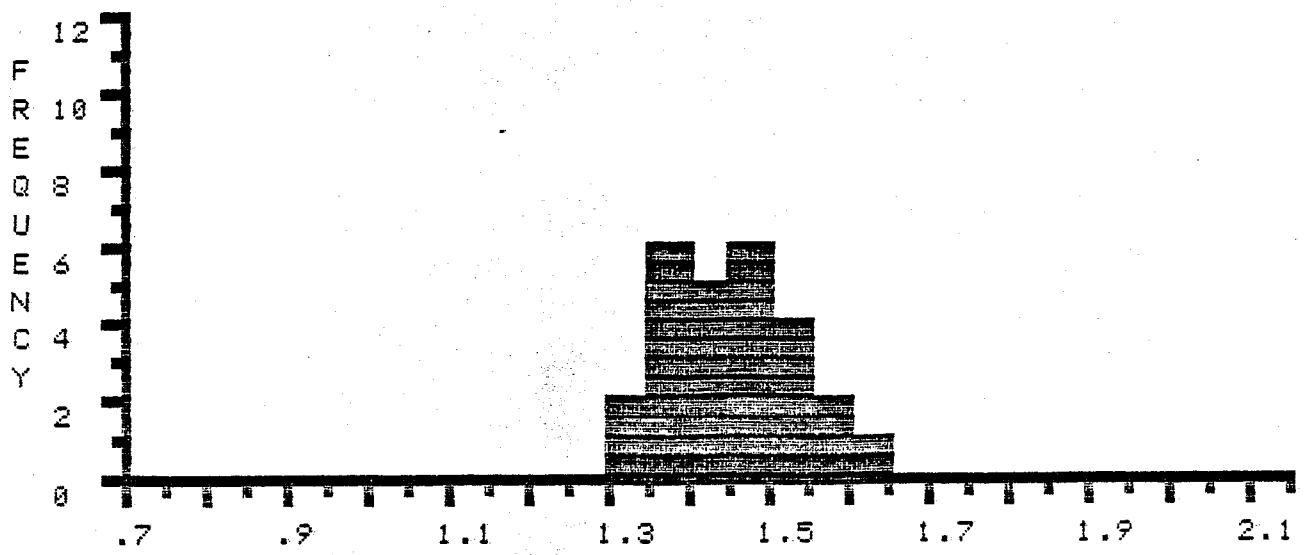
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.85	.93	.94	.94	.96	.99	.99	1.01	1.05
1	1.05	1.05	1.06	1.08	1.1	1.11	1.11	1.12	1.12	1.12
2	1.13	1.13	1.13	1.13	1.14	1.15	1.18	1.18	1.19	1.21
3	1.23	1.24	1.24	1.24	1.25	1.25	1.25	1.27	*1.32	*1.34
4	*1.35	*1.36	*1.37	*1.38	*1.38	*1.39	*1.4	*1.41	*1.42	*1.43
5	*1.43	*1.46	*1.46	*1.48	*1.48	*1.48	*1.48	*1.51	*1.51	*1.52
6	*1.53	*1.56	*1.57	*1.6	1.66	1.68	1.68	1.7	1.71	1.73
7	1.77	2								

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	92.67	71	.85	2	1.31	.24
*EDIT >	37.62	26	1.32	1.6	1.45	.08

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



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

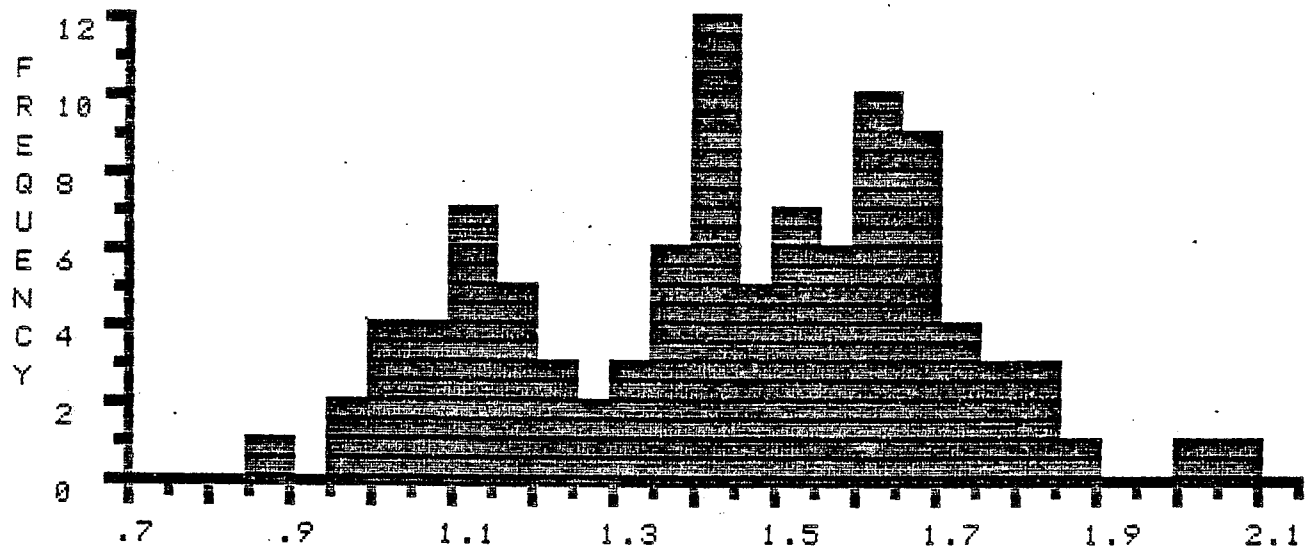


FILE >> K0491A DESCRIPTION FOLLOWS :
DEPTH 14300-14330', MICMAC H-86, MPA, APR-26-86

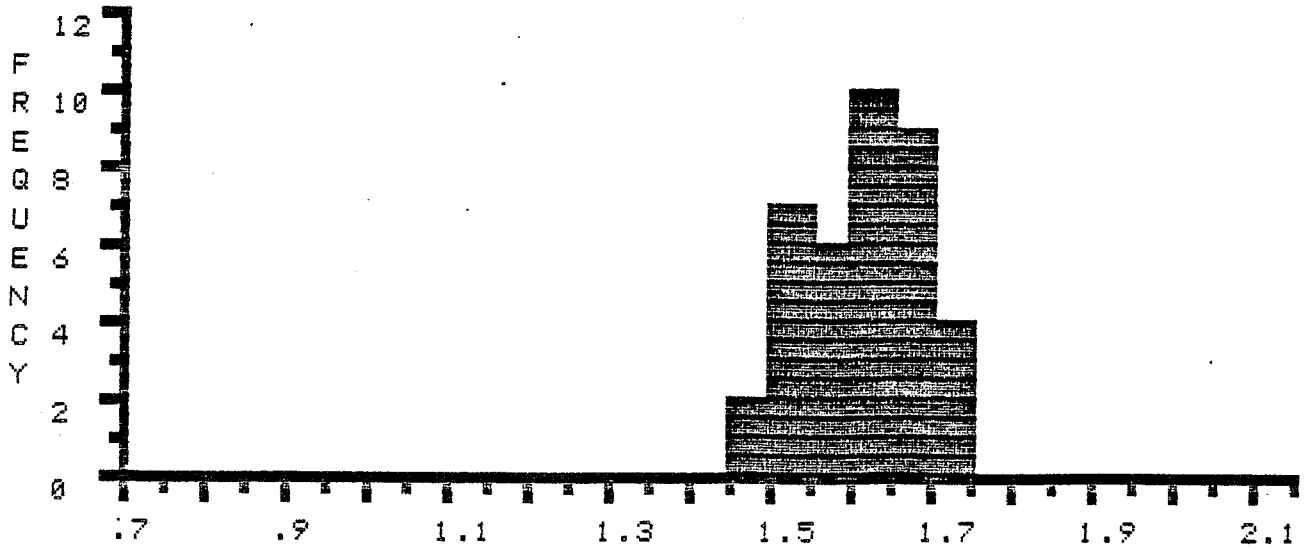
COL>	0	1	2	3	4	5	6	7	8	9
ROW		.88	.95	.96	1	1.01	1.02	1.03	1.06	1.07
1	1.07	1.09	1.11	1.11	1.13	1.13	1.14	1.14	1.14	1.16
2	1.18	1.18	1.19	1.19	1.2	1.23	1.24	1.26	1.27	1.31
3	1.32	1.33	1.35	1.35	1.36	1.36	1.37	1.39	1.4	1.4
4	1.4	1.41	1.41	1.42	1.42	1.43	1.43	1.43	1.44	1.44
5	1.46	1.46	1.47	*1.48	*1.49	*1.5	*1.51	*1.52	*1.53	*1.53
6	*1.54	*1.54	*1.55	*1.55	*1.56	*1.56	*1.57	*1.59	*1.6	*1.61
7	*1.61	*1.62	*1.62	*1.62	*1.62	*1.64	*1.64	*1.64	*1.65	*1.66
8	*1.67	*1.67	*1.68	*1.68	*1.68	*1.68	*1.69	*1.7	*1.71	*1.71
9	*1.74	1.78	1.78	1.78	1.8	1.82	1.84	1.86	2	2.07

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	142.59	99	.88	2.07	1.44	.25
*EDIT >	61.16	38	1.48	1.74	1.61	.07

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



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

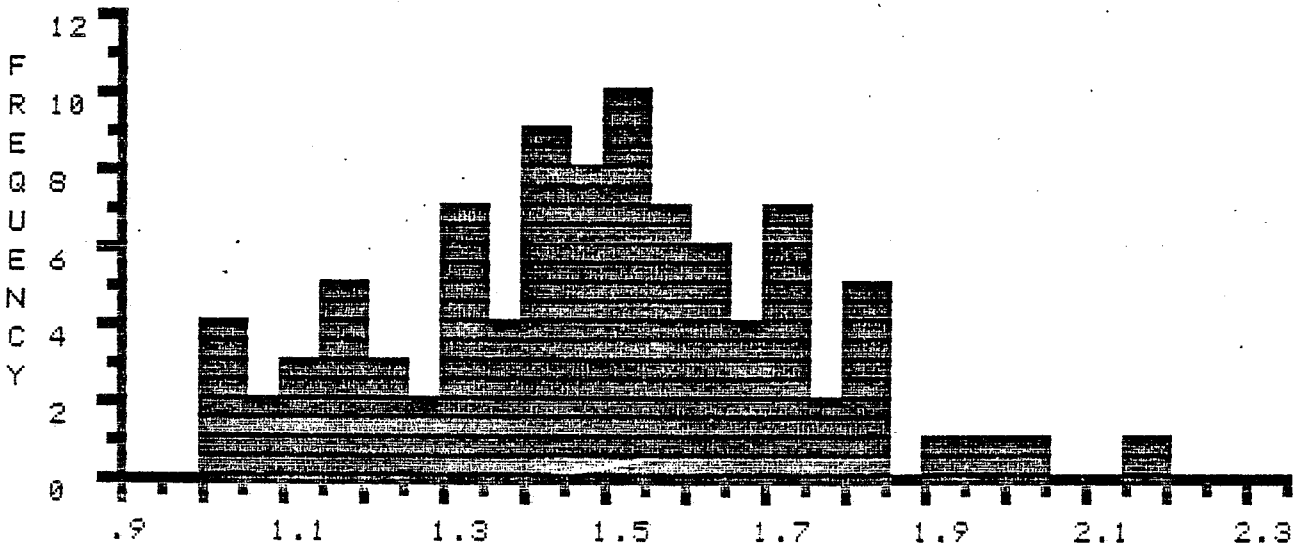


FILE >> K0491B DESCRIPTION FOLLOWS :
DEPTH 14900-15030', MICMAC H-86, MPA, APR-26-86

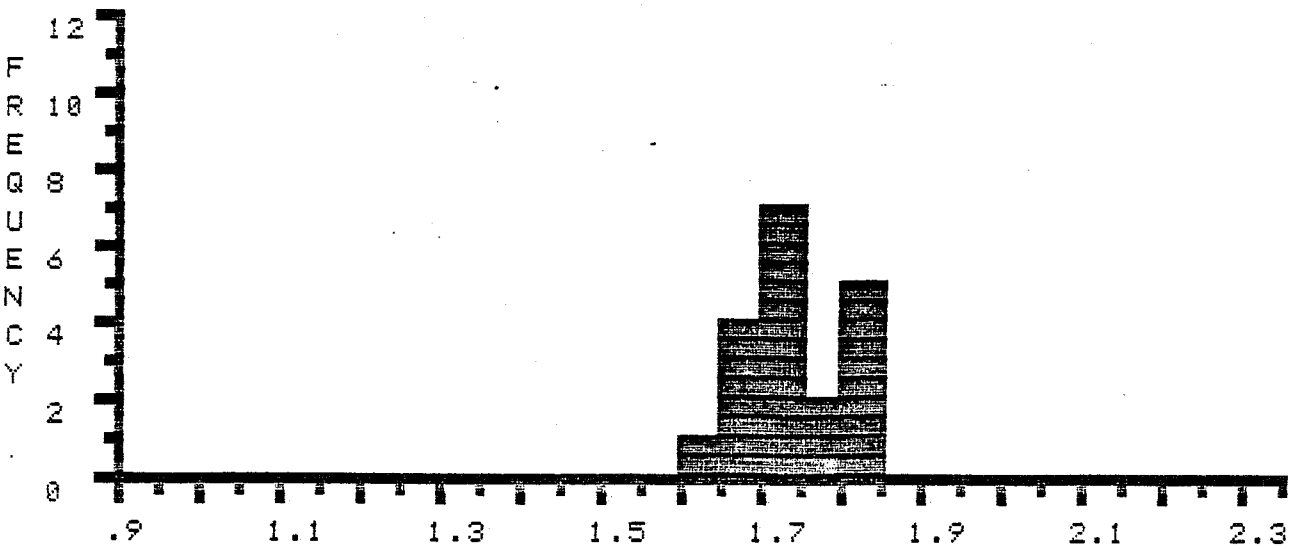
COL>	0	1	2	3	4	5	6	7	8	9
ROW		1	1.01	1.03	1.04	1.08	1.09	1.14	1.14	1.14
1	1.15	1.16	1.19	1.19	1.19	1.22	1.22	1.24	1.27	1.27
2	1.3	1.31	1.32	1.33	1.33	1.34	1.34	1.35	1.39	1.39
3	1.39	1.4	1.41	1.41	1.41	1.42	1.42	1.43	1.43	1.44
4	1.45	1.45	1.45	1.46	1.47	1.47	1.49	1.49	1.5	1.5
5	1.5	1.51	1.51	1.52	1.52	1.54	1.54	1.54	1.55	1.57
6	1.57	1.57	1.58	1.58	1.58	1.6	1.6	1.63	1.63	1.63
7	*1.64	*1.65	*1.66	*1.66	*1.66	*1.7	*1.7	*1.72	*1.73	*1.74
8	*1.74	*1.74	*1.75	*1.79	*1.82	*1.82	*1.82	*1.83	*1.84	1.93
9	1.95	2.03	2.17							

	SUM	NUMBER	MIN	MAX	MEAN	STAND.DEV.
TOTAL >	136.42	92	1	2.17	1.48	.24
*EDIT >	33.01	19	1.64	1.84	1.74	.07

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



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



Report No.EPGS-DOM.5-86MPA

Vitrinite Reflectance (Ro) of dispersed organics from Shell Mic Mac H-86

G.S.C. Locality No: D8 Location: 44°35'28.87"N, 59°27'02.47"W

R.T. Elevation: 85' Water Depth: 178' Total Depth: 15700'

Sample Interval: 964 - 15700' Interval Studied: 1890 -15030'

Release Date: December 2,1970 Depth Units: Feet referenced to R.T.

Vitrinite Reflectance has been determined on 25 samples (Table II) from Shell Mic Mac H-86, which was classified as a wildcat well and is located on the Scotian Shelf, approximately 16 km (10 mi) northeast of Sable Island and 1.6 km (1 mi) south of Mic Mac J-77. (Shell, 1971).

Data acquisition and manipulation for this report utilized the Zeiss Photomultiplier 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 with modified terminology (1977,Appendix II).

Table I
Inferred Thermal Maturation Levels

Determined

Seaflr-4558'	0.25 - 0.4	% Ro	immature
4558 - 6748'	0.4 - 0.5	% Ro	immature approaching maturity
6748 - 8539'	0.5 - 0.6	% Ro	marginally mature
8539'	0.6	% Ro	onset of significant oil generation
11363'	0.8	% Ro	peak of oil generation
12942'	1.0	% Ro	onset of significant wet gas generation
13562'	1.2	% Ro	onset of significant dry gas generation
13963'	1.35	% Ro	oil floor
15300'	2.0	% Ro	wet gas floor
15700'(T.D.)	2.25	% Ro	within dry gas window

Projected (at 0.419 log Ro/km)

16680'	3.0	% Ro	dry gas floor

Note: Ro = R_o or reflectance of the vitrinite observed under oil (546nm).