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Vitrinite reflectance (Ro)
of dispersed organics
from
Shell
Tantallon M-41

Report No. EPGs-DOM.1-91MPA

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January 15, 1991

Vitrinite reflectance (Ro) of dispersed organics from Shell Tantallon M-41.

G.S.C. Locality No.: D293

Location: 43°50'56"N, 58°22'24.4"W

R.T. Elevation: 24m

Water Depth: 1516m

Total Depth: 5602m

Sampled Interval: 2270 - 5600m

Interval Studied: 2365 - 5600m

Depth Units: Metres referenced to R.T.

Rig Release Date: April 17, 1986

Vitrinite reflectance has been determined on 20 rotary cuttings samples and 6 conventional core samples (Table II) from Shell Tantallon M-41 which was classified as a wildcat well and is located on the Scotian Slope approximately 425 km east southeast of Halifax, Nova Scotia. Well status is plugged and abandoned.

Sample preparation followed the procedures listed in Appendix I. Data acquisition and manipulation for this report utilized the Zeiss Photometer III system with a custom interface to a microcomputer which provides reliable data acquisition and immediate statistical summaries.

The analysis of the well revealed the thermal maturation intervals given in Table I. The specific maturation levels, as set out in this report, are based on those of Dow (1977) with modified terminology (Appendix II).

Table I
Inferred Thermal Maturation Levels*

1516m (sea floor)	0.25	% Ro	immature
3187m	0.4	% Ro	immature approaching maturity
4002m	0.5	% Ro	marginally mature
4668m	0.6	% Ro	onset of significant oil generation
5719m	(0.8)	% Ro	peak of oil generation
6535m	(1.0)	% Ro	onset of significant wet gas generation
7201m	(1.2)	% Ro	onset of significant dry gas generation
7631m	(1.35)	% Ro	oil floor
9067m	(2.0)	% Ro	wet gas preservation limit
10549m	(3.0)	% Ro	dry gas preservation limit
5602m (T.D.)	0.77	% Ro	maturity at total depth

Note: ()'s indicate Ro has been extrapolated at 0.119 log Ro/km

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

Remarks

Sample coverage for vitrinite reflectance analysis (Figure 1, Table II) was very good over the section penetrated by Tantallon M-41. Six samples from three conventional core sections provided good control of the maturation trend since the significant problem of contamination from cavings is eliminated. The data are plotted on a log Ro vs. linear depth scale and a linear regression line was calculated by the least squares method (Figure 1). The 'error bars' plotted on the maturation 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 maturation line is 0.119 log Ro/km.

Remarks cont.

Selection of the reflectance population which represented the maturation of the sediments was aided by the histogram display plot (Figure 2). This interpretation tool helps to reveal linear trends (populations) in the Ro data. It also demonstrates the effects of cavings, geology, casing points and other factors on the vitrinite reflectance populations.


The lithology strip plot (Figure 1) was produced directly from the Basin Analysis Subdivision's LITHFILE database which extracts data from digitized CANSTRAT logs.

The vitrinite reflectance data provides evidence that the thermal regime at Tantallon M-41, between 4002 and 5602m (T.D.), is suitable for the generation and preservation of hydrocarbons within the drilled section assuming potential source rocks and traps were present.

References

Dow, W.G., 1977. Kerogen studies and geological interpretations. Journal of Geochemical Exploration, no. 7, p. 77-99

January 15, 1991


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Table II

Summary of kerogen - based vitrinite reflectance

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings	
				Total	Edited
1	K0777A	2355-2365	0.28 (±.03)	14	7
2	K0777B	2505-2515	0.35 (±.04)	16	8
3	K0777C	2655-2695	0.34 (±.07)	15	9
4	K0778A	2835-2845	0.45 (±.08)	10	9
5	K0778C	3165-3235	0.53 (±.02)	16	5
6	K0779A	3345-3385	0.41 (±.08)	29	13
7	K0779B	3525-3565	0.44 (±.07)	43	15
8	PH1745	3602.02	0.46 (±.08)	14	13
9	PH1746	3614.52	0.44 (±.03)	15	8
10	K0779C	3705-3745	0.41 (±.06)	28	9
11	K0780A	3885-3895	0.40 (±.03)	42	6
12	K0780B	4035-4075	0.49 (±.06)	25	10
13	K0780C	4215-4225	0.43 (±.05)	19	4
14	K0781A	4365-4405	0.53 (±.04)	40	11
15	K0781B	4545-4555	0.57 (±.04)	53	18
16	PH1747	4701.91	0.65 (±.04)	23	13
17	K0781C	4695-4705	0.62 (±.09)	34	14
18	PH1748	4715.67	0.67 (±.06)	21	17
19	K0782A	4845-4855	0.65 (±.04)	43	14
20	K0782B	4995-5005	0.69 (±.06)	49	25
21	K0782C	5145-5155	0.68 (±.05)	35	15
22	PH1749	5294.5	0.71 (±.06)	32	26
23	K0783A	5295-5305	0.71 (±.10)	20	5
24	PH1738	5306.8	0.70 (±.06)	29	17
25	K0783B	5445-5455	0.76 (±.07)	50	6
26	K0783C	5590-5600	0.82 (±.10)	27	5

Note: Labels with 'K' prefix are kerogen concentrate preparations.
 Labels with 'PH' prefix are whole rocks preparations from conv. cores.

Table III

Formation Tops (Wade, pers. comm.)

Formation	Depth
Banquereau	in casing
Wyandot	3124m
Unconformity	3214m
Logan Canyon equivalent	3214m
Missisauga equivalent	4225m
T.D.	5602m

Vitrinite Reflectance

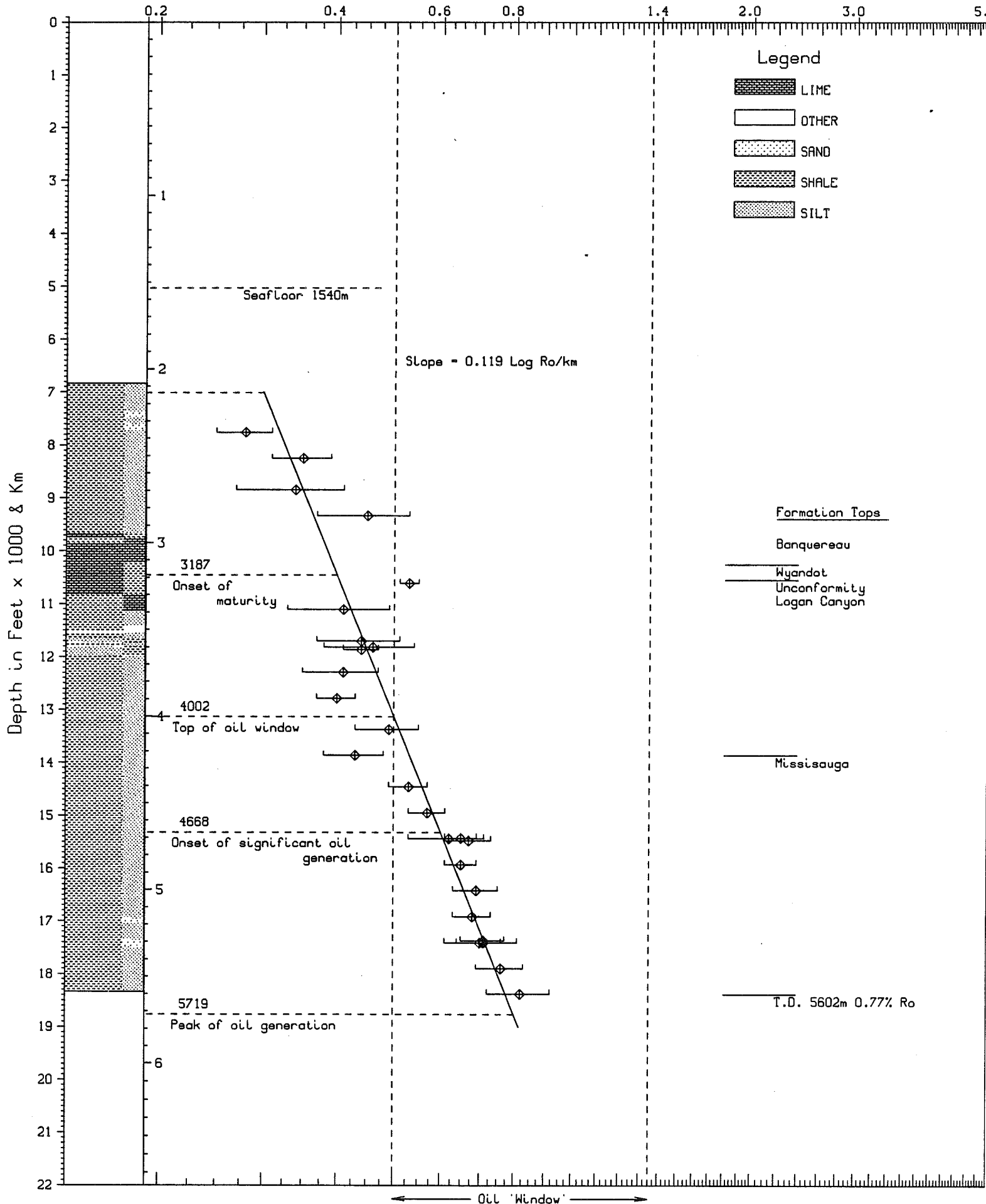


Fig. 1 Tantalon M-41 < Maturation Profile >

Vitrinite Reflectance

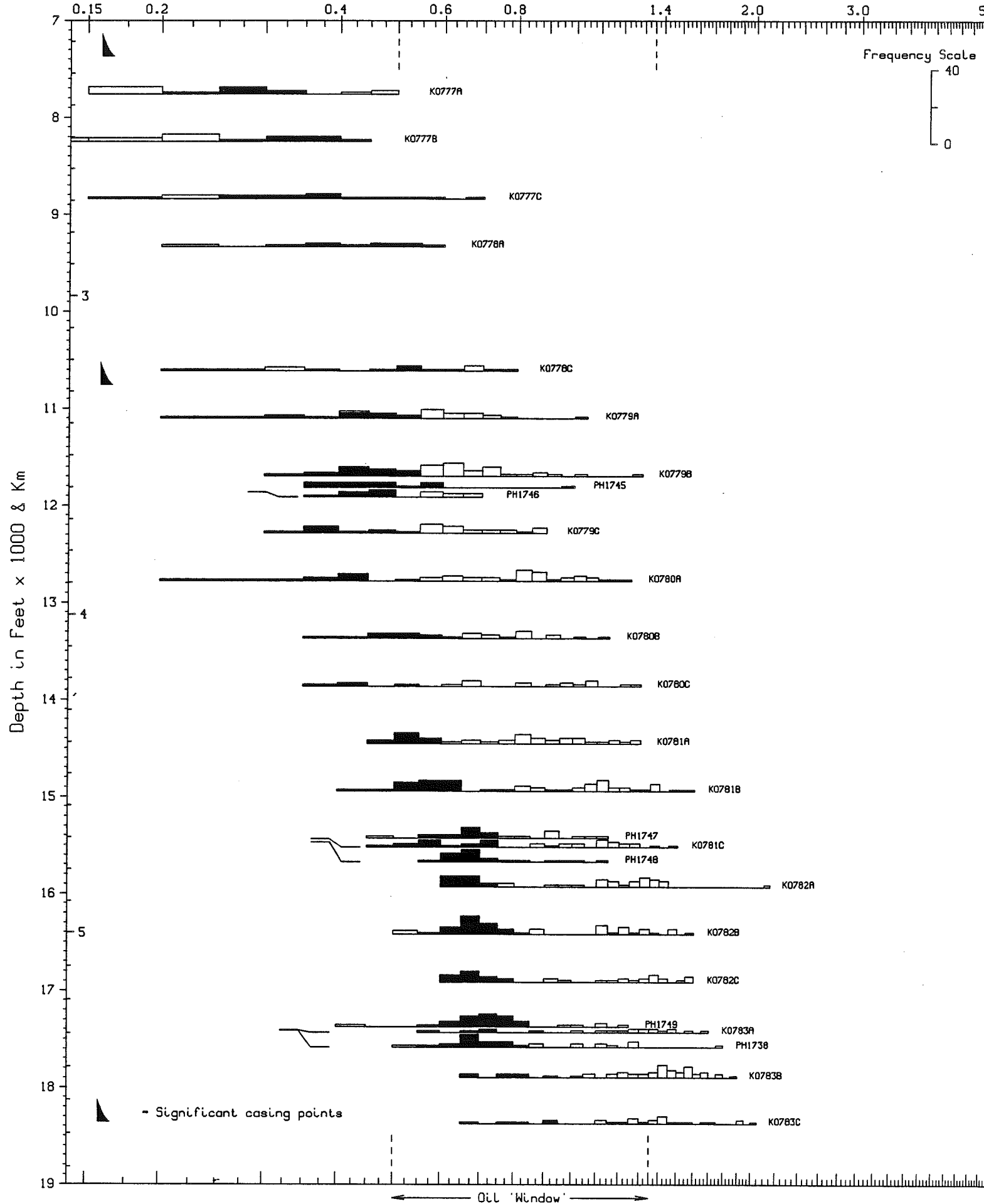


Fig. 2 Tantalion M-41 < Histograms >

APPENDIX I

Sample Preparation Method

Kerogen Concentrate

COGLA Lab preparation

Preliminary wash

Dry samples 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

Place 20-30 grams 250 ml plastic beaker.

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

Wash (rinsed) 3 times.

Conc. HF overnight (removes silicates).

Wash (rinsed) 3 times.

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

Wash 3 times.

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

Differential centrifuge at 1500 rpm for 90 sec.

Decant.

Wash 3 times with centrifuging.

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

Centrifuge 1000 rpm, 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

Pipette off excess water.

Freeze dry.

Mount using epoxy resin (Struer's EPOFIX) in predrilled plastic tubes.

Polish to obtain low relief, scratch free surface.

Examine under oil lens, incident light at approximately 800x mag'n.

Whole Rock (VR lab prep only)

Preliminary wash & Air dry.

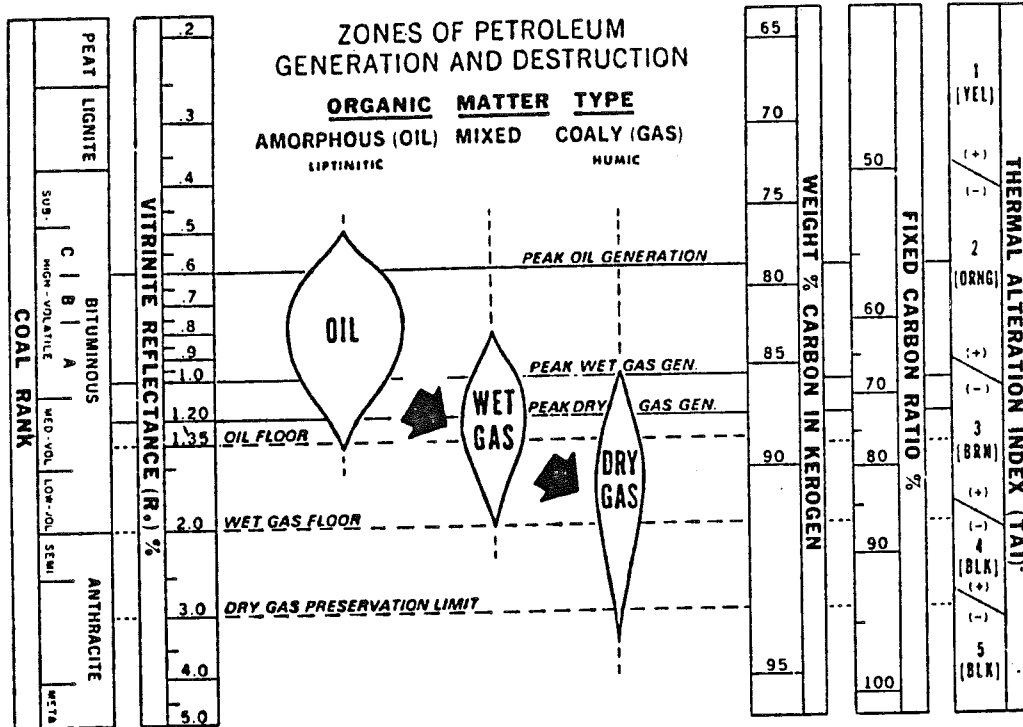
Crush to 1mm.

Mold into 1" stub with epoxy resin (EPOFIX).

Polish to obtain low relief, scratch free surface.

Examine under oil lens, incident light at approximately 800x mag'n.

Appendix II (Dow, 1977)



Note: In this report, 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 here used as the 'peak of oil generation' (Table I, Figure 1).

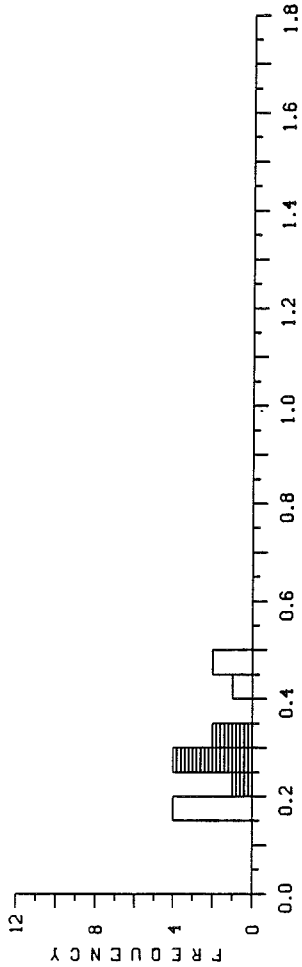
Appendix III
Reflectance Histograms

K0777A, 2355-2365M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.15	.18	.18	.19	.24	.25	.25	.29	.29	.32
1	.32	.43	.47	.49						

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.29	14	.15	.49	4.05
EDIT	.03	7	.24	.32	1.96

REFLECTANCE HISTOGRAM

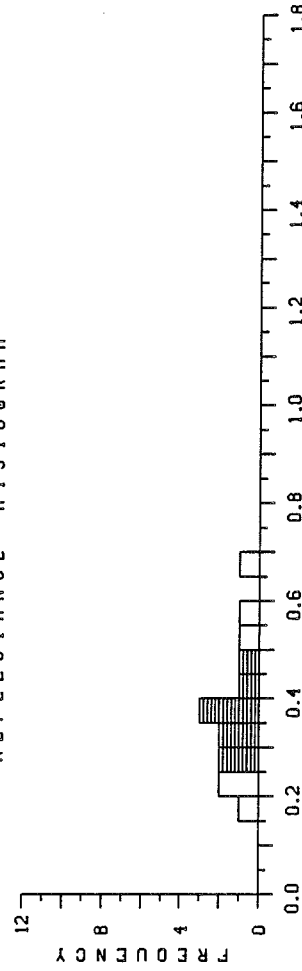


K0777C, 2655-2685M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.19	.21	.21	.25	.28	.30	.32	.35	.35	.36
1	.42	.46	.52	.55	.66					

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.36	15	.19	.66	5.43
EDIT	.34	9	.25	.46	3.09

REFLECTANCE HISTOGRAM

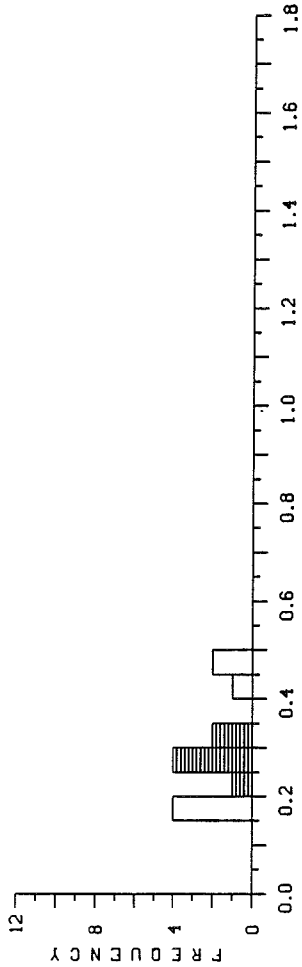


K0777B, 2505-2515M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.13	.14	.19	.19	.21	.22	.23	.24	.28	.31
1	.33	.34	.35	.36	.39	.40				

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.27	16	.13	.40	4.32
EDIT	.35	8	.29	.40	2.77

REFLECTANCE HISTOGRAM

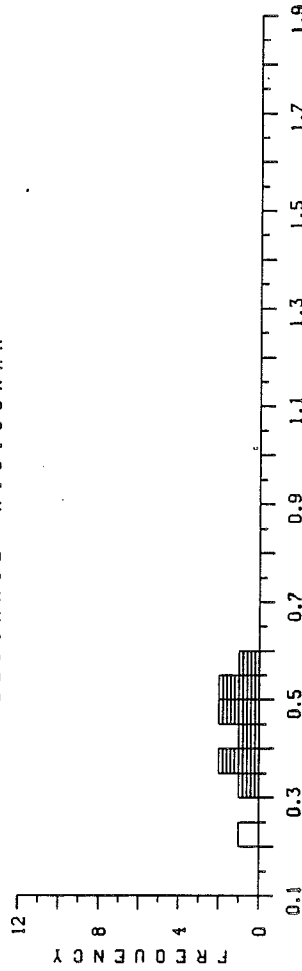


K0778A, 2635-2845M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.23	.33	.39	.39	.41	.47	.47	.52	.54	.56
1										

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.43	10	.23	.56	4.31
EDIT	.45	9	.33	.56	4.08

REFLECTANCE HISTOGRAM

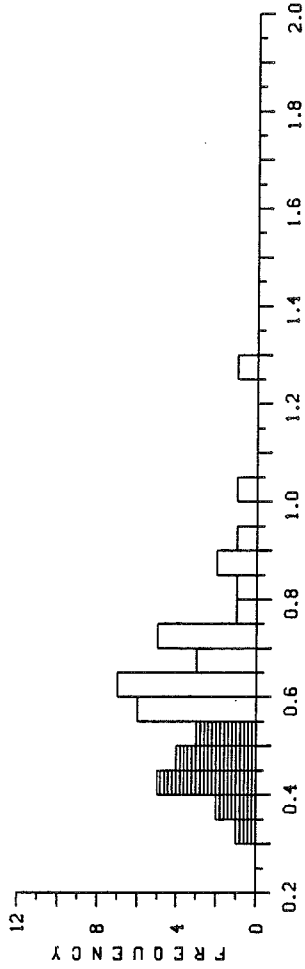


K0779B, 3525-3565M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.51<	.35<	.35<	.42<	.42<	.42<	.43<	.44<	.47<	.47<
1	.48<	.49<	.53<	.53<	.53<	.56<	.57<	.57<	.58<	.59<
2	.59	.61	.61	.62	.62	.62	.63	.64	.67	.68
3	.69	.70	.71	.72	.73	.74	.79	.82	.86	.87
4	.92	1.00	1.27							

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.62	43	.31	1.27	26.62
EDIT<	.44	15	.31	.53	6.64

REFLECTANCE HISTOGRAM

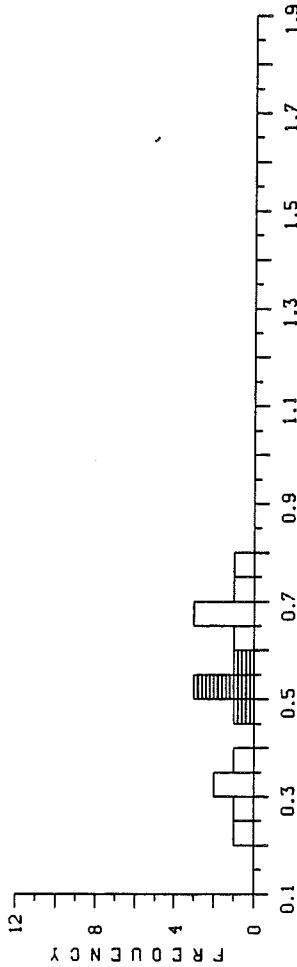


K0778C, 3165-3235M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.22	.25	.31	.33	.37	.49<	.52<	.53<	.54<	.55<
1	.64	.67	.69	.69	.72	.75				

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.52	16	.22	.75	8.27
EDIT<	.53	5	.49	.55	2.63

REFLECTANCE HISTOGRAM

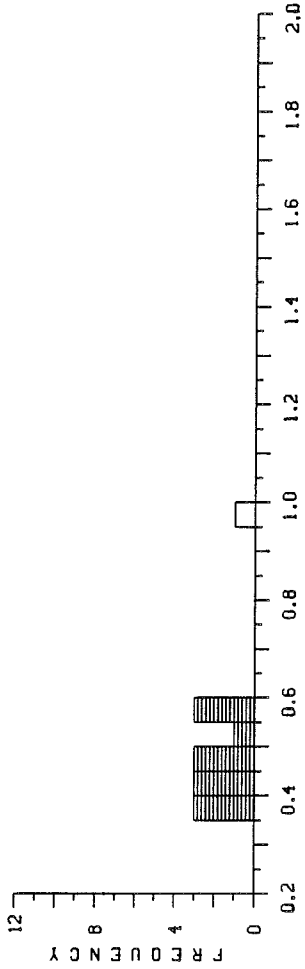


PH1745, 3602.02M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.35<	.39<	.39<	.40<	.42<	.43<	.45<	.47<	.48<	.52<
1	.55<	.59<	.59<	.59						

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.50	14	.35	.97	7.00
EDIT<	.46	13	.35	.59	6.03

REFLECTANCE HISTOGRAM

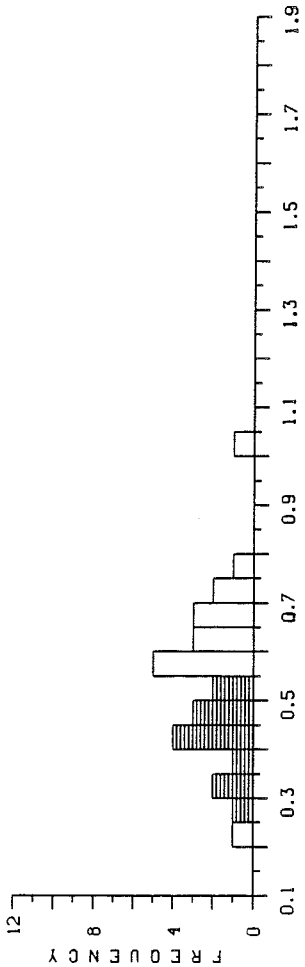


K0779A, 3345-3385M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.24	.27<	.31<	.31<	.36<	.41<	.42<	.42<	.43<	.45<
1	.47<	.49<	.50<	.51<	.55	.56	.57	.59	.59	.60
2	.63	.64	.67	.67	.69	.70	.71	.79	1.02	

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.54	29	.24	1.02	15.57
EDIT<	.41	13	.27	.51	5.35

REFLECTANCE HISTOGRAM

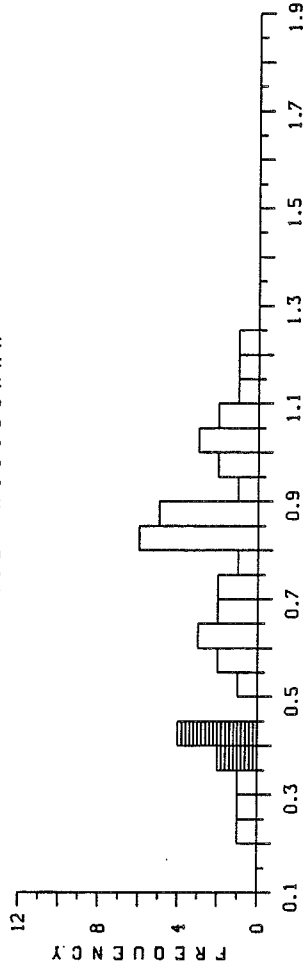


K0780A, 3885-3895M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.21	.27	.30	.36<	.37<	.40<	.41<	.42<	.44<	.52
1	.58	.59	.61	.61	.63	.65	.69	.72	.74	.78
2	.82	.83	.83	.84	.84	.84	.85	.86	.86	.88
3	.89	.90	.96	.98	1.01	1.01	1.04	1.07	1.08	1.11
4	1.16	1.21								

	MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.74	.26	42	.21	1.21	31.17
EDIT<	.40	.03	6	.36	.44	2.40

REFLECTANCE HISTOGRAM

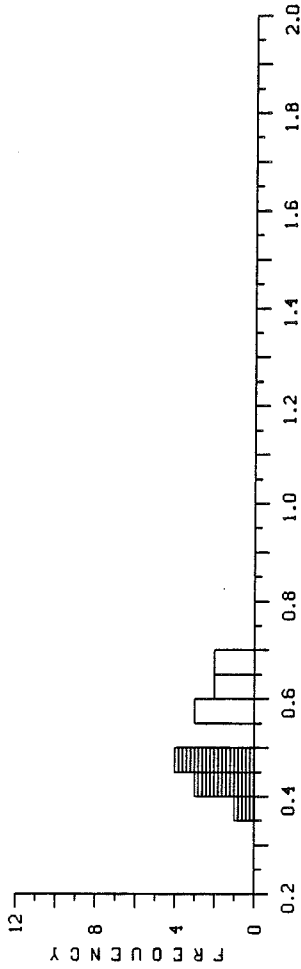


PH1746, 3614.52M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.39<	.40<	.43<	.44<	.45<	.46<	.47<	.47<	.55	.56
1	.59	.62	.63	.66	.66					

	MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.52	.10	15	.39	.66	7.78
EDIT<	.44	.03	8	.39	.47	3.51

REFLECTANCE HISTOGRAM

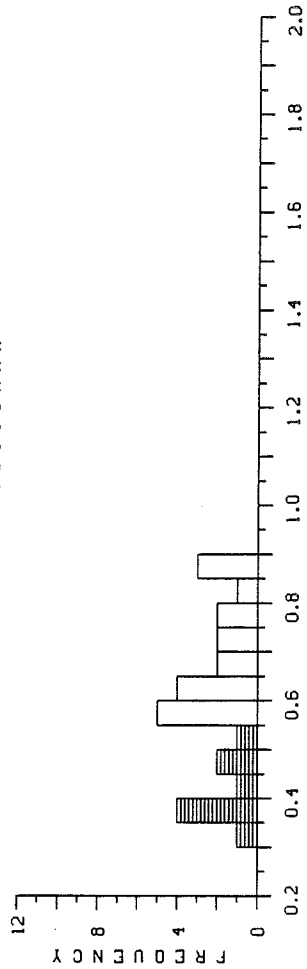


K0779C, 3705-3745M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.34<	.35<	.37<	.39<	.39<	.41<	.49<	.49<	.50<	.55
1	.56	.58	.59	.59	.63	.63	.64	.64	.67	.68
2	.71	.73	.75	.79	.83	.85	.86	.89		

	MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.60	.16	28	.34	.89	16.90
EDIT<	.41	.06	9	.34	.50	3.73

REFLECTANCE HISTOGRAM

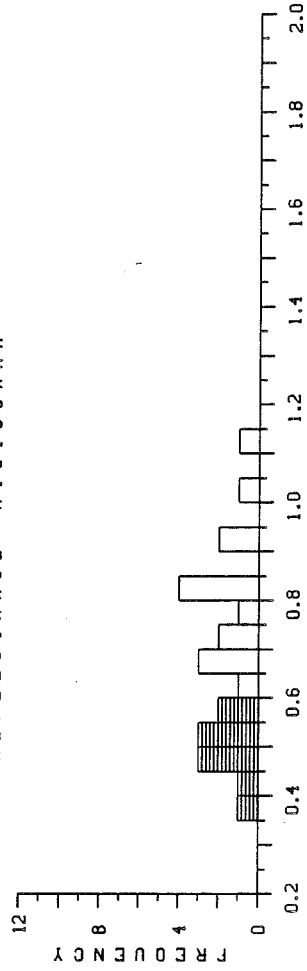


K0780B, 4035-4075M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.39<	.41<	.46<	.49<	.49<	.50<	.52<	.52<	.57<	.58<
1	.63	.65	.66	.67	.70	.73	.79	.81	.82	.82
2	.82	.90	.93	1.04	1.12					

	MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.68	.19	25	.39	1.12	17.02
EDIT<	.49	.06	10	.39	.58	4.93

REFLECTANCE HISTOGRAM

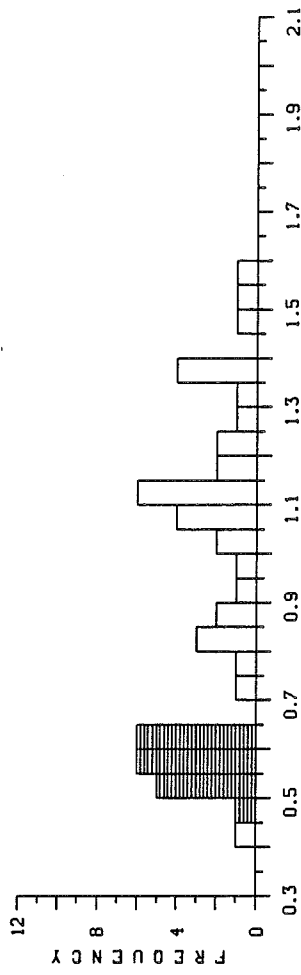


K0781B, 4545-4555M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.44	.49<	.54<	.54<	.54<	.54<	.54<	.56<	.57<	.57<
1	.57<	.59<	.59<	.60<	.60<	.60<	.62<	.62<	.64<	.70
2	.75	.81	.82	.83	.88	.89	.91	.95	1.04	1.04
3	1.05	1.06	1.08	1.08	1.10	1.10	1.10	1.13	1.14	1.14
4	1.18	1.18	1.21	1.23	1.26	1.30	1.37	1.37	1.37	1.39
5	1.49	1.53	1.58							

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.92	53	.44	1.58	48.82
EDIT<	.57	18	.49	.64	10.32

REFLECTANCE HISTOGRAM

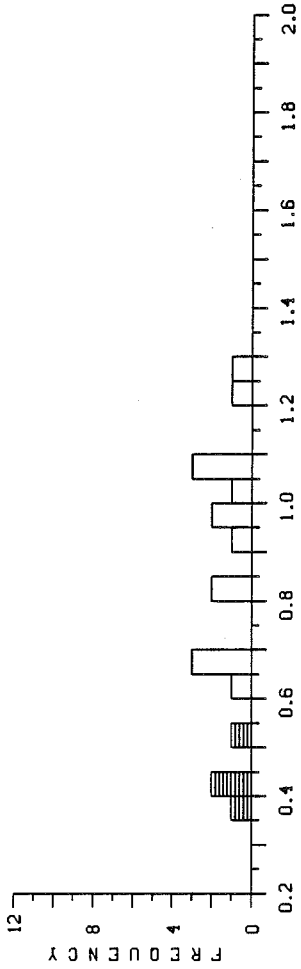


K0780C, 4215-4225M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.39<	.40<	.42<	.51<	.63	.66	.67	.67	.80	.81
1	.91	.95	.98	1.04	1.06	1.08	1.08	1.22	1.25	

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.82	19	.39	1.25	15.53
EDIT<	.43	4	.39	.51	1.72

REFLECTANCE HISTOGRAM

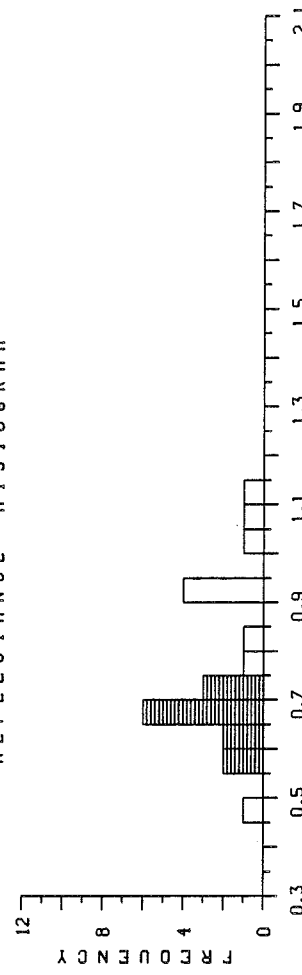


PH1747, 4701.91M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.49	.59<	.59<	.62<	.62<	.65<	.65<	.65<	.66<	.66<
1	.67<	.70<	.71<	.72<	.79	.82	.91	.93	.93	.94
2	1.00	1.09	1.11							

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.76	23	.49	1.11	17.50
EDIT<	.65	13	.59	.72	8.49

REFLECTANCE HISTOGRAM

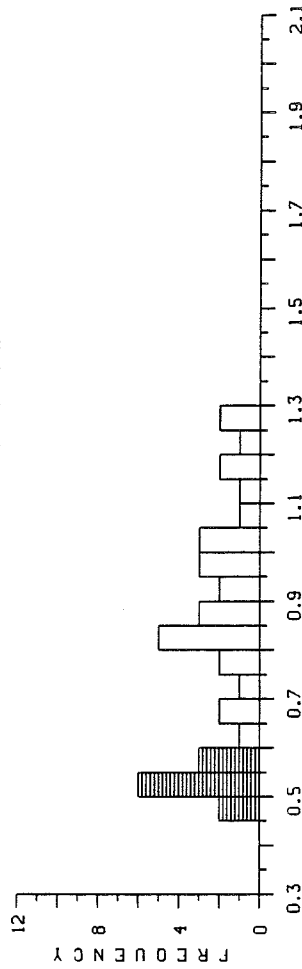


K0781A, 4365-4405M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.46<	.48<	.50<	.52<	.53<	.53<	.53<	.54<	.56<	.56<
1	.59<	.64	.65	.69	.72	.79	.79	.82	.83	.84
2	.84	.84	.85	.85	.89	.93	.94	.97	.98	.98
3	1.02	1.03	1.03	1.07	1.11	1.15	1.16	1.20	1.26	1.26

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.82	40	.46	1.26	32.95
EDIT<	.53	11	.46	.59	5.82

REFLECTANCE HISTOGRAM

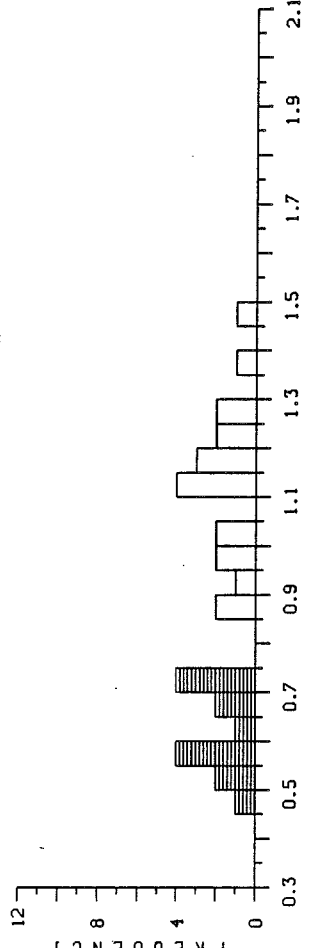


K0781C, 4695-4705M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROM	.49<	.51<	.53<	.56<	.56<	.56<	.57<	.61<	.65<	.67<
1	.71<	.73<	.73<	.74<	.88	.89	.90	.98	.99	1.02
2	1.02	1.11	1.12	1.13	1.14	1.16	1.17	1.17	1.20	1.21
3	1.26	1.28	1.36	1.46						

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.91	34	.49	1.46	31.07
EDIT<	.62	14	.49	.74	8.62

REFLECTANCE HISTOGRAM

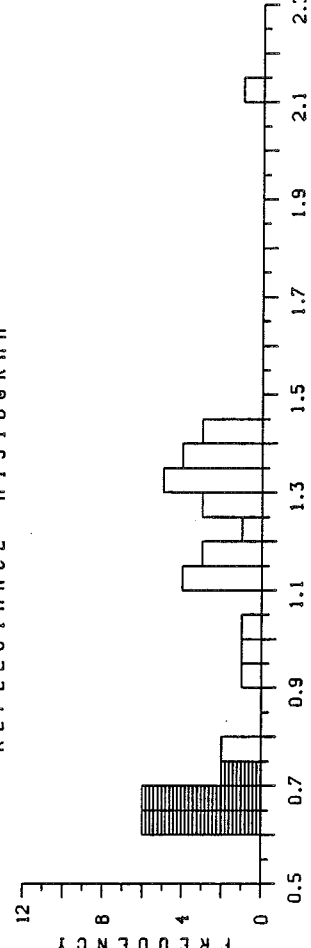


K0782R, 4845-4855M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROM	.60<	.60<	.61<	.61<	.64<	.64<	.65<	.65<	.66<	.68<
1	.68<	.69<	.70<	.70<	.77	.78	.92	.96	1.00	1.12
2	1.13	1.14	1.14	1.15	1.19	1.19	1.21	1.27	1.29	1.29
3	1.31	1.31	1.33	1.33	1.34	1.37	1.38	1.39	1.39	1.40
4	1.42	1.42	2.11							

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	1.05	43	.60	2.11	45.17
EDIT<	.65	14	.60	.70	9.11

REFLECTANCE HISTOGRAM

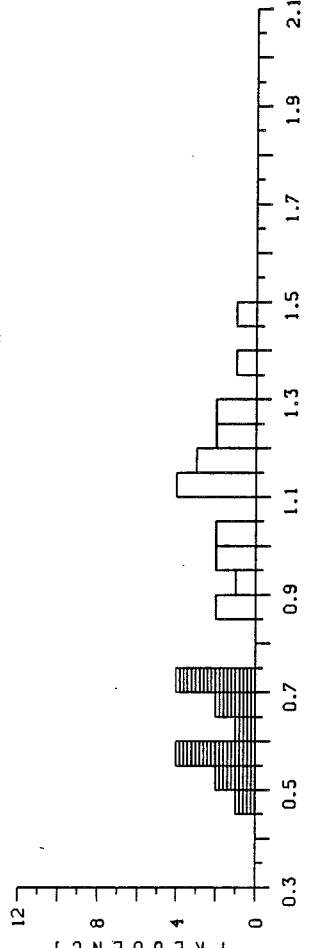


K0781C, 4695-4705M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROM	.49<	.51<	.53<	.56<	.56<	.56<	.57<	.61<	.65<	.67<
1	.71<	.73<	.73<	.74<	.88	.89	.90	.98	.99	1.02
2	1.02	1.11	1.12	1.13	1.14	1.16	1.17	1.17	1.20	1.21
3	1.26	1.28	1.36	1.46						

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.91	34	.49	1.46	31.07
EDIT<	.62	14	.49	.74	8.62

REFLECTANCE HISTOGRAM

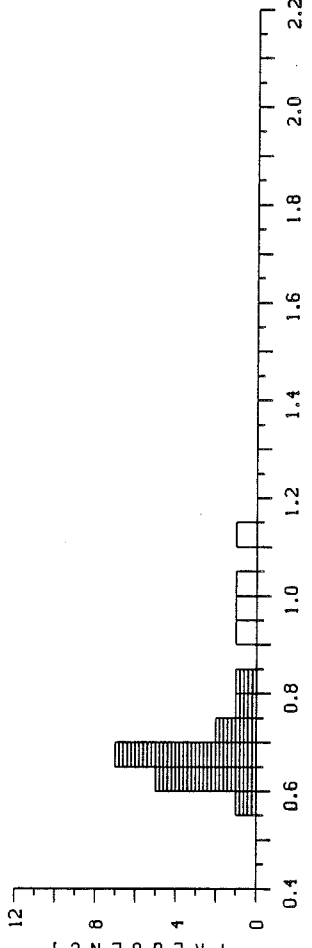


PHI74B, 4715.67M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROM	.58<	.60<	.61<	.62<	.64<	.64<	.66<	.66<	.67<	.67<
1	.67<	.68<	.68<	.71<	.73<	.76<	.82<	.90	.97	1.03
2	1.13									

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.73	21	.58	1.13	15.43
EDIT<	.67	17	.58	.82	11.40

REFLECTANCE HISTOGRAM

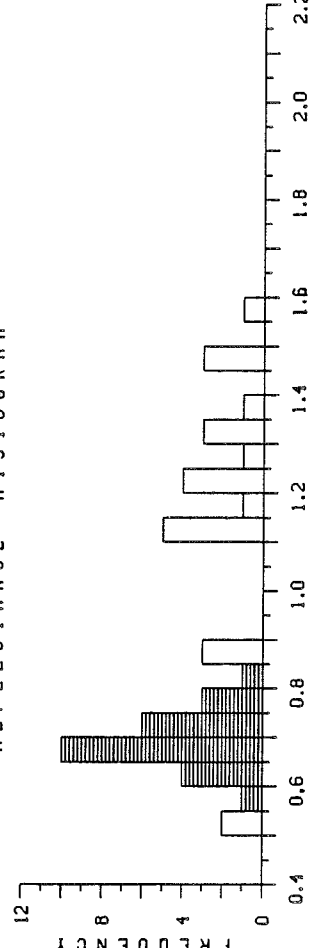


K0782B, 4995-5005M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROM	.53	.54	.58<	.62<	.63<	.63<	.63<	.65<	.65<	.65<
1	.65<	.66<	.67<	.67<	.67<	.68<	.69<	.70<	.72<	.73<
2	.73<	.74<	.74<	.75<	.76<	.77<	.81<	.86	.86	.86
3	1.11	1.12	1.13	1.14	1.14	1.16	1.20	1.20	1.21	1.24
4	1.29	1.33	1.33	1.33	1.37	1.45	1.45	1.49	1.57	

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.92	49	.53	1.57	45.11
EDIT<	.69	25	.58	.81	17.18

REFLECTANCE HISTOGRAM

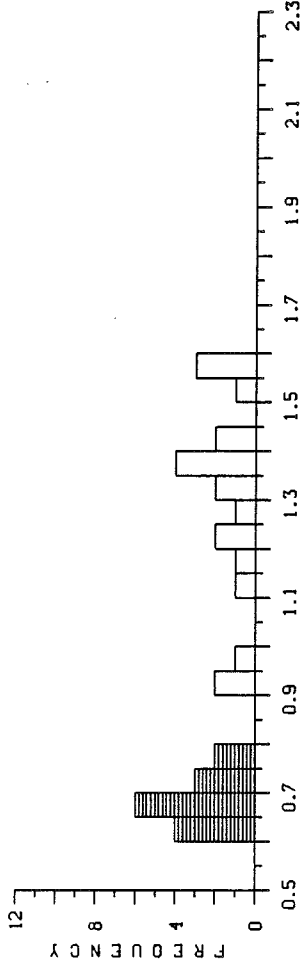


K0782C, 5145-5155M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.63<	.63<	.63<	.64<	.66<	.66<	.66<	.66<	.67<	.68<
1	.70<	.74<	.74<	.75<	.77<	.90	.94	.97	1.14	1.19
2	1.21	1.22	1.28	1.33	1.33	1.36	1.36	1.37	1.38	1.43
3	1.44	1.51	1.56	1.57	1.57					

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	1.04	35	.63	1.57	36.28
EDIT<	.68	15	.63	.77	10.22

REFLECTANCE HISTOGRAM

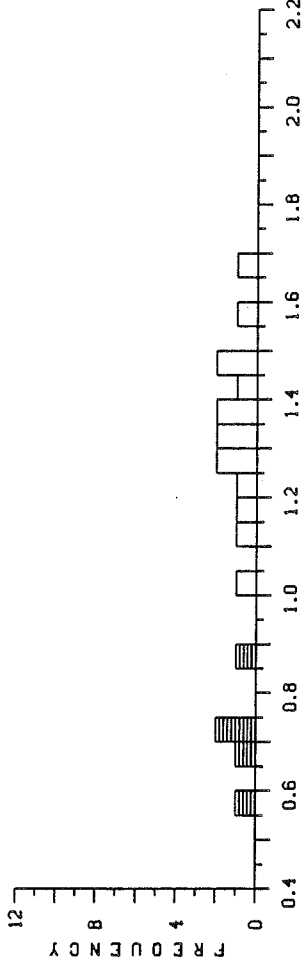


K0783B, 5295-5305M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.58<	.68<	.72<	.72<	.86<	1.04	1.10	1.17	1.20	1.28
1	1.29	1.32	1.34	1.35	1.39	1.44	1.46	1.48	1.59	1.68

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	1.18	20	.58	1.68	23.69
EDIT<	.71	5	.58	.86	3.56

REFLECTANCE HISTOGRAM

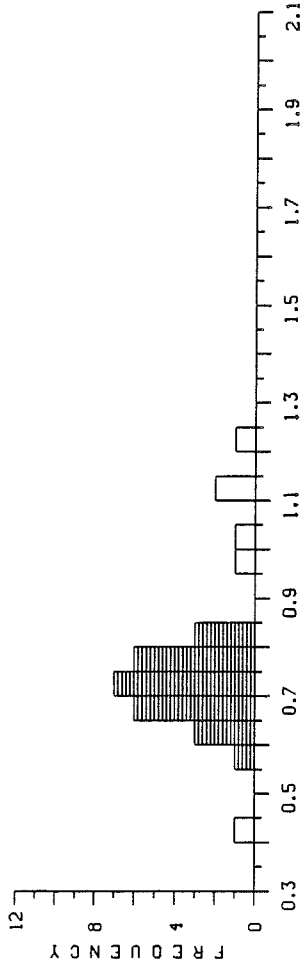


PHI749, 5294.5M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.43	.59<	.60<	.62<	.62<	.65<	.66<	.67<	.69<	.69<
1	.69<	.70<	.70<	.70<	.70<	.72<	.72<	.72<	.75<	.75<
2	.75<	.76<	.76<	.77<	.80<	.82<	.82<	.98	1.04	1.13
3	1.14	1.23								

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.76	32	.43	1.23	24.35
EDIT<	.71	26	.59	.82	18.40

REFLECTANCE HISTOGRAM

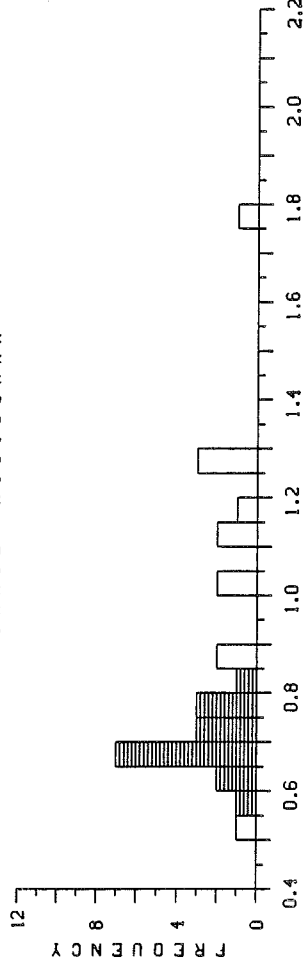


PHI739, 5306.8M, TANTALLON M-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.54	.59<	.64<	.64<	.66<	.66<	.66<	.67<	.68<	.69<
1	.69<	.71<	.74<	.74<	.75<	.76<	.77<	.81<	.85	.87
2	1.00	1.03	1.10	1.10	1.16	1.26	1.27	1.27	1.75	1.75

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	.86	29	.54	1.75	25.06
EDIT<	.70	17	.59	.81	11.86

REFLECTANCE HISTOGRAM

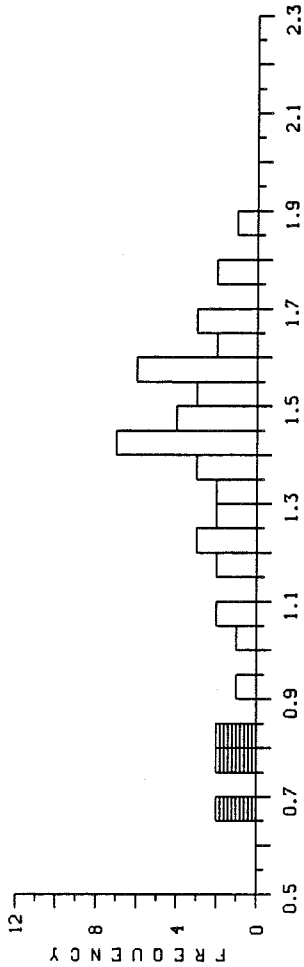


K0783B,5445-5455M,TANTALLON N-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.66<	.69<	.78<	.79<	.83<	.84<	.92	1.03	1.07	1.09
1	1.19	1.19	1.21	1.22	1.23	1.26	1.28	1.32	1.33	1.37
2	1.39	1.39	1.40	1.41	1.41	1.42	1.43	1.43	1.44	1.47
3	1.47	1.48	1.48	1.50	1.52	1.54	1.56	1.56	1.57	1.57
4	1.57	1.58	1.61	1.64	1.65	1.68	1.68	1.75	1.76	1.86

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	1.35	.29	.66	1.86	67.52
EDIT<	.77	.07	.66	.84	4.59

REFLECTANCE HISTOGRAM



K0783C,5590-5600M,TANTALLON N-41

COL >	1	2	3	4	5	6	7	8	9	0
ROW	.67<	.79<	.80<	.92<	.92<	1.10	1.13	1.16	1.22	1.26
1	1.27	1.29	1.33	1.35	1.39	1.40	1.41	1.41	1.41	1.45
2	1.51	1.58	1.68	1.71	1.90	1.90	2.03			

MEAN	STAND DEV	PTS	MIN	MAX	SUM
TOTAL	1.33	.34	.67	2.03	35.99
EDIT<	.82	.10	.67	.92	4.10

REFLECTANCE HISTOGRAM

