155001

VITRINITE REFLECTANCE DATA, BASS-3, CORMORANT-1, DURROON-1, KONKON-1, PIPIPA-1, BASS BASIN

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CONTENTS

1. INTRODUCTION

Thirty-nine cuttings samples from five Bass Basin wells (Bass-3, Cormorant-1, Durroon-1, Konkon-1, Pipipa-1) were received for vitrinite reflectance determinations. This report presents the results of this study.

2. ANALYTICAL PROCEDURE

Representative portions of each sample (crushed to -14+35 BSS mesh) were obtained with a sample splitter and then mounted in cold setting Glasscraft resin using a 2.5 cm diameter mould. Each block was ground flat using diamond impregnated laps and carborundum paper. The surface was then polished with aluminium oxide and finally magnesium oxide.

Reflectance measurements were made with a Leitz MPV1.1 microphotometer fitted to a Leitz Ortholux microscope and calibrated against synthetic standards. All measurements were taken using oil immersion (n = 1.518) and incident monochromatic light (wavelength 546 nm) at a temperature of 23±1°C.

3. RESULTS

The vitrinite reflectance data are summarised in Table 1. Histogram plots of these data are presented in Appendix 1. Vitrinite reflectance versus depth plots are included for each well (Figures 1-5).

4. DISCUSSION

The vitrinite reflectance data indicates the presence of intrusions or extrusions (volcanics) in each of the wells examined. The following table lists some interpretative comments about these events.

Well	Certainty	Comments
Bass-3	2	Stratigraphically above 2000 feet depth
Cormorant-1	1	Between 7000-8000 feet depth; a thin unit probably a series of volcanic flows but my be a thin intrusion
Durroon-1	1	Around 4500 feet depth; probably a thin intrusion
Konkon-1	2	Between 3000-4000 feet depth probably a thin intrusion
Pipipa-1	1	Between 5120-5710 feet depth probably a large volcanic flow or a series of flows

Certainty:

1 Probable
2 Possible

TABLE 1: SUMMARY OF VITRINITE REFLECTANCE MEASUREMENTS, BASS BASIN

Depth (ft)	Mean Maximum Reflectance (%)	Standard Deviation	Range	Number of Determinations
BASS-3				
1026-1260	-	-	-	-
2010-2220	0.43	0.04	0.39-0.46	2
2940-3110	0.30	0.07	0.25-0.45	18
3980-4100	0.32	0.03	0.27-0.39	18
4990-5100	0.46	0.04	0.34-0.55	34
6000-6080	0.46	0.06	0.37-0.57	34
7000-7080	0.52	0.08	0.38-0.64	25
7890-7960	0.52	0.05	0.43-0.63	18
CORMORANT-1				
2000-2100	0.30	0.02	0.28-0.33	3
3000-3100	0.36	0.04	0.27-0.42	27
4000-4100	0.42	0.07	0.30-0.58	32
5000-5100	0.45	0.05	0.36-0.57	33
6010-6110	0.52	0.05	0.42-0.63	37
7000-7100	0.58	0.06	0.48-0.71	33
8000-8100	0.69*(1.31,1.61, 2.77,8.75)	0.05	0.63-0.82	18
9000-9100	0.86	0.05	0.78-0.99	15
9790-9845	0.95	0.09	0.75-1.15	32
DURROON-1				
1990-2170	0.31	0.02	0.28-0.33	8
2980-3130	0.32	0.02	0.29-0.35	4
4000-4120	0.52	0.04	0.46-0.58	8
4990-5100	0.61	0.04	0.56-0.66	7
5980-6130	0.42	0.07	0.30-0.50	4
7000-7100	0.44	0.04	0.35-0.50	17
8000-8090	0.57	0.08	0.43-0.71	24
9000-9100	0.60	0.06	0.45-0.70	33
9850-9900	0.67	0.10	0.49-0.82	24
KONKON-1				
980 -1040	-	-	-	-
2000-2090	0.38	0.00	0.38	1
2990-3100	0.47	0.07	0.31-0.56	12
3980-4040	0.47	0.05	0.36-0.59	32
4180-4200	0.46	0.05	0.35-0.57	46
4960-5043	0.50	0.05	0.40-0.59	34

*preferred value

( ) mean maximum reflectance of other populations of vitrinite present in this sample. These populations are probably cavings from depths closer to a nearby volcanic flow or series of flows

TABLE 1: (Continued)

Depth (ft)	Mean Maximum Reflectance (%)	Standard Deviation	Range	Number of Determinations
PIPIPA-1				
1378-1444	-	-	-	-
2789-2871	-	-	-	-
4134-4216	0.40	0.06	0.30-0.51	13
5102-5118	0.48	0.06	0.40-0.61	16
5735-5742	2.29	0.14	2.00-2.71	32
6152-6168	1.97	0.08	1.82-2.23	34
6710-6726	1.75	0.13	1.48-1.94	33

FIGURE 1

VITRINITE REFLECTANCE Vs. DEPTH, BASS-3

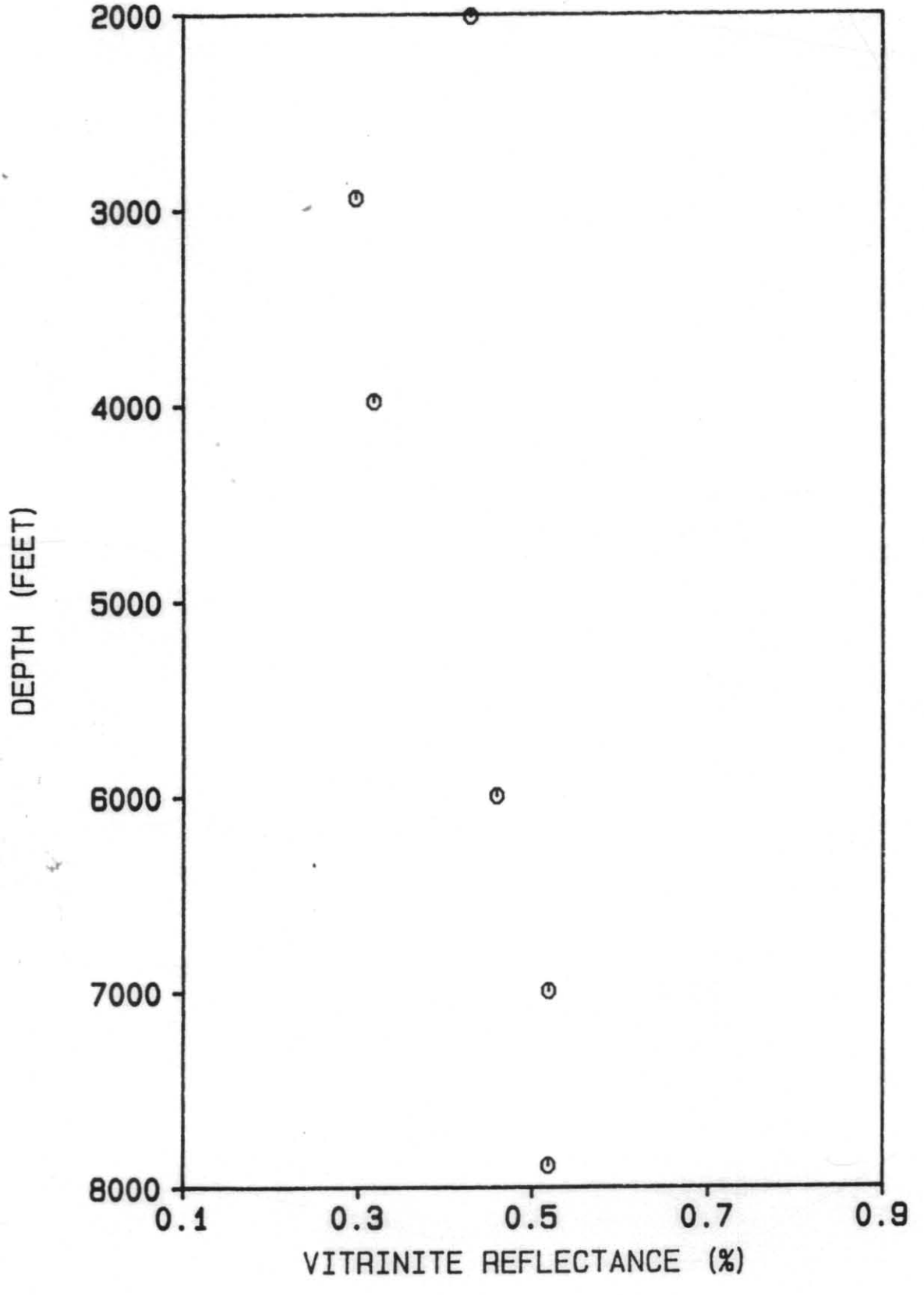

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FIGURE 2

VITRINITE REFLECTANCE Vs. DEPTH, CORMORANT-1

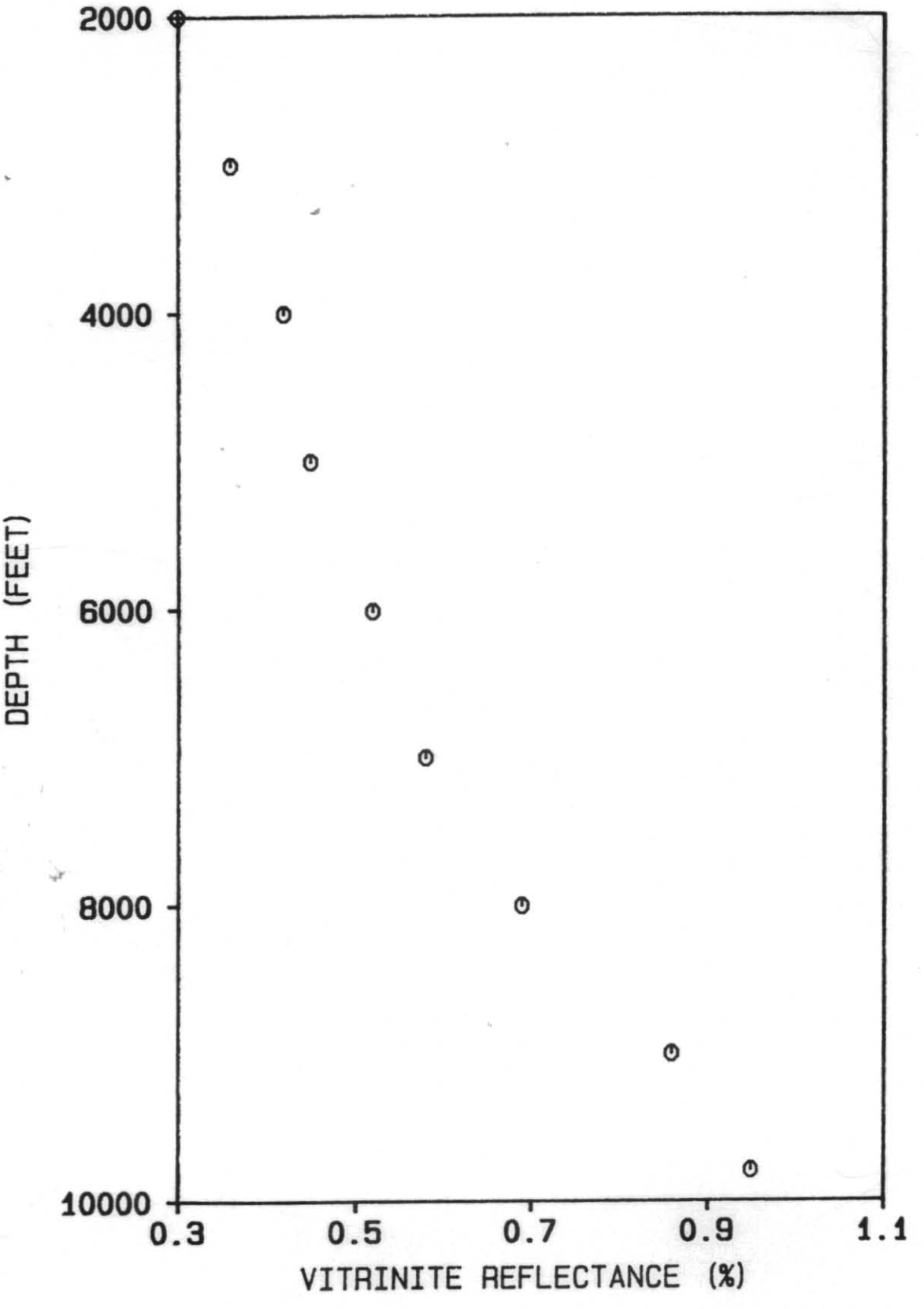

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FIGURE 3

VITRINITE REFLECTANCE Vs. DEPTH, DURROON-1

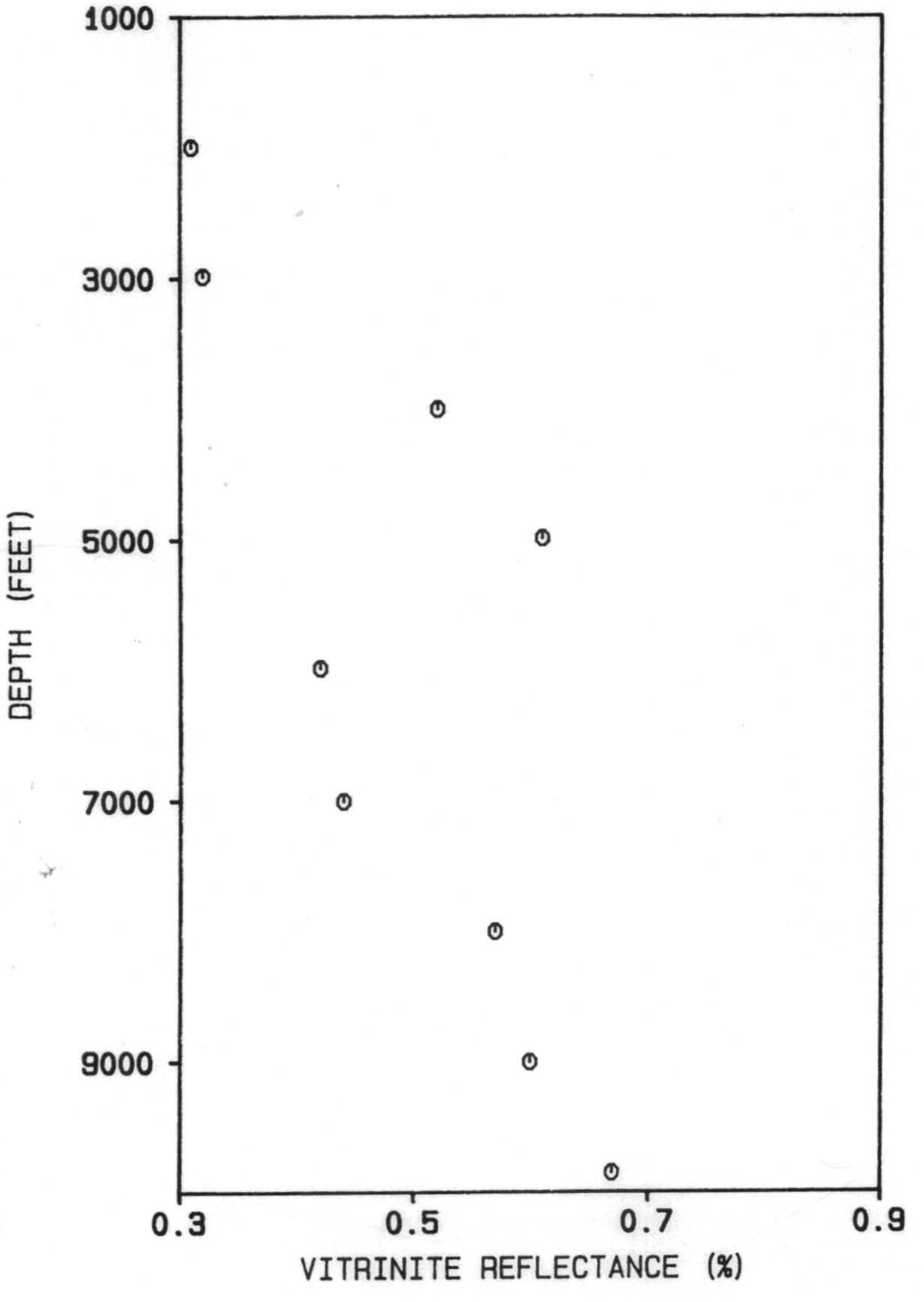


FIGURE 4

VITRINITE REFLECTANCE Vs. DEPTH, KONKON.1

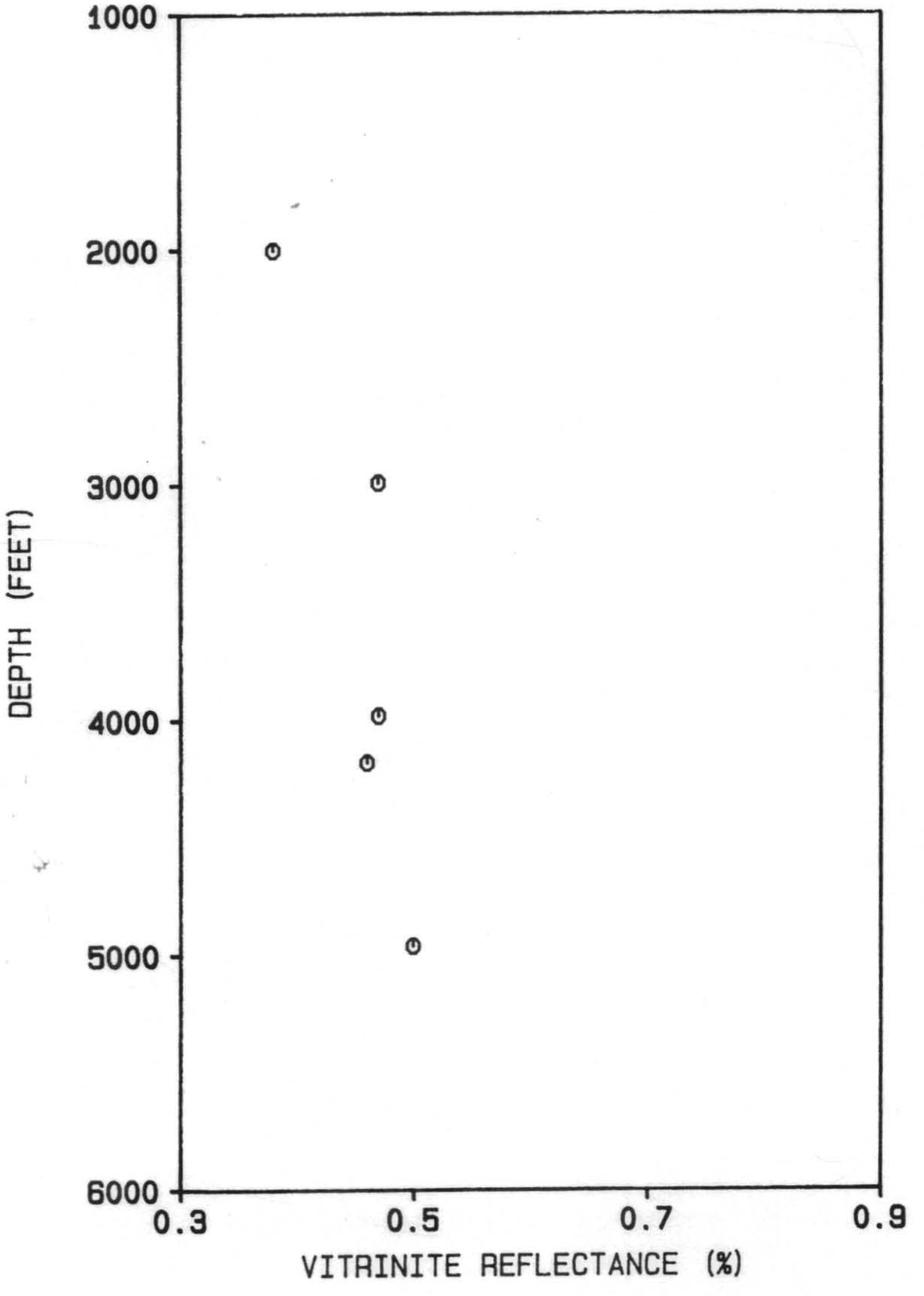
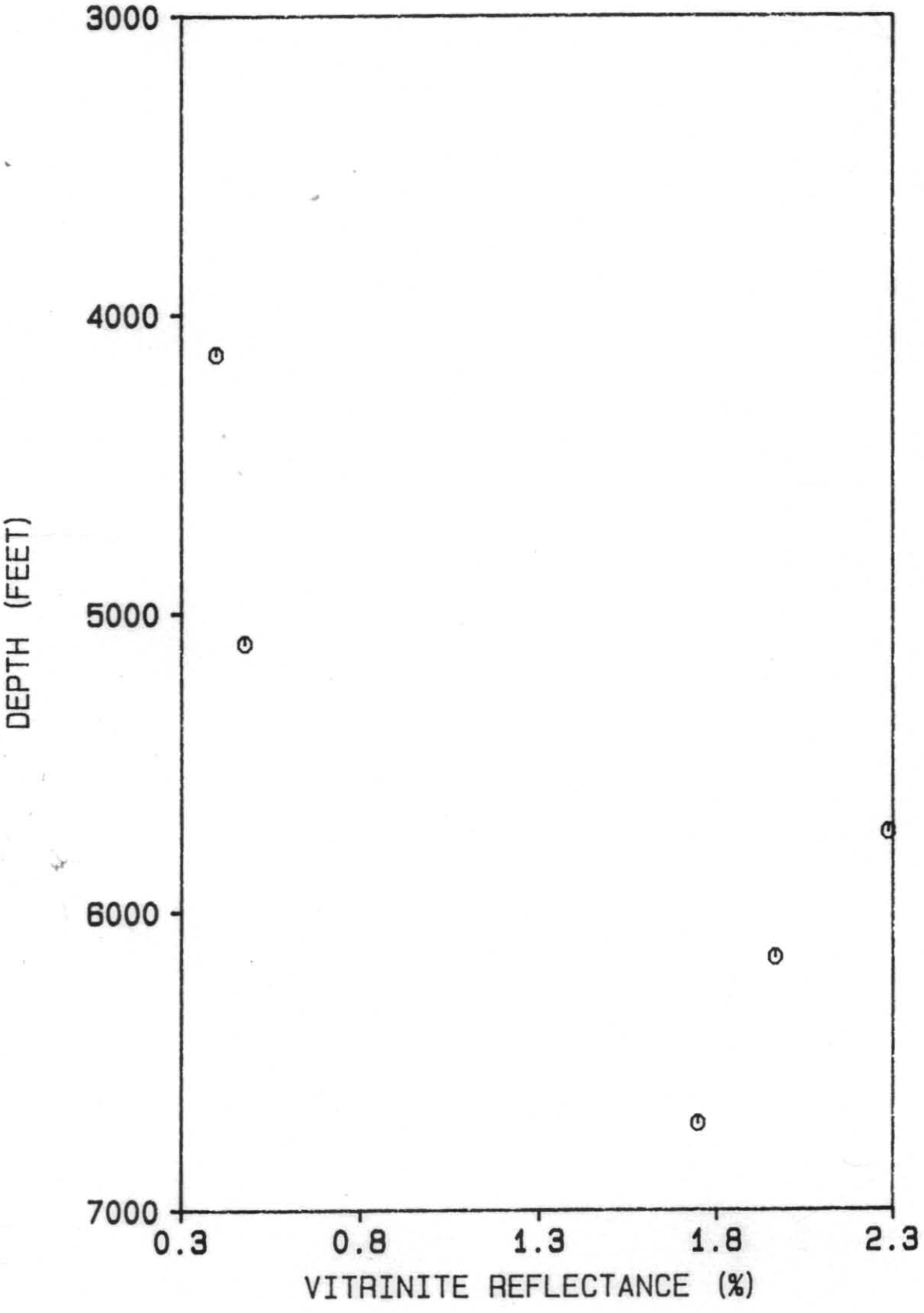


FIGURE 5

VITRINITE REFLECTANCE Vs. DEPTH, PIPIPA-1



APPENDIX 1

HISTOGRAM PLOTS OF VITRINITE REFLECTANCE MEASUREMENTS

BASS-3

2010-2220 FT

SORTED LIST
.39 .46
Number of values= 2

MEAN OF VALUES .425
STD DEVIATION .035

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
39 - 41    |▒
42 - 44    |
45 - 47    |▒
```

BASS-3

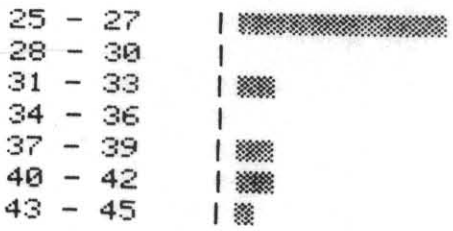
2940-3110 FT

SORTED LIST

.25 .25 .25 .25 .25 .26 .26 .26 .26 .26
.27 .31 .31 .37 .38 .4 .42 .45
Number of values= 18

MEAN OF VALUES .303
STD DEVIATION .066

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



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BASS-3

3980-4100 FT

SORTED LIST

.27 .3 .3 .3 .3 .3 .3 .31 .32 .32
.32 .32 .34 .34 .36 .37 .38 .39

Number of values= 18

MEAN OF VALUES .324
STD DEVIATION .032

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

BASS-3

4990-5100 FT

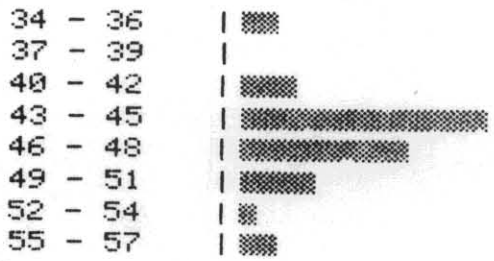
SORTED LIST

.34	.34	.4	.41	.42	.43	.43	.44	.44	.44
.44	.44	.44	.45	.45	.45	.45	.45	.46	.47
.47	.47	.47	.47	.48	.48	.48	.49	.49	.49
.49	.52	.55	.55						

Number of values= 34

MEAN OF VALUES .456
STD DEVIATION .044

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



BASS-3

6000-6080 FT

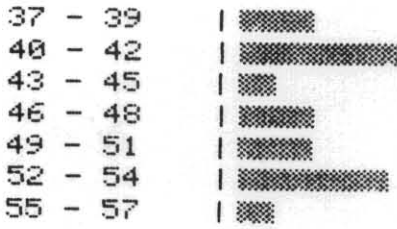
SORTED LIST

.37	.38	.38	.39	.4	.4	.4	.41	.41	.41
.42	.42	.42	.42	.45	.45	.46	.46	.47	.48
.49	.49	.51	.51	.52	.52	.52	.52	.52	.53
.53	.54	.55	.57						

Number of values= 34

MEAN OF VALUES .462
STD DEVIATION .057

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



BASS-3

7000-7080 FT

SORTED LIST

.38 .39 .41 .43 .43 .43 .46 .5 .51 .51
.51 .52 .53 .53 .55 .55 .55 .57 .58 .58
.6 .61 .62 .64 .64
Number of values= 25

MEAN OF VALUES .521
STD DEVIATION .076

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

38 - 40 | ▓▓
41 - 43 | ▓▓▓▓
44 - 46 | ▓
47 - 49 |
50 - 52 | ▓▓▓▓▓
53 - 55 | ▓▓▓▓▓
56 - 58 | ▓▓▓
59 - 61 | ▓▓
62 - 64 | ▓▓▓

BASS-3

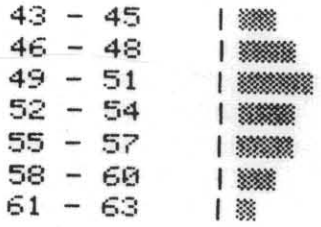
7890-7960 FT

SORTED LIST

.43 .45 .46 .46 .48 .49 .49 .5 .51 .52
.53 .54 .56 .57 .57 .58 .6 .63
Number of values= 18

MEAN OF VALUES .521
STD DEVIATION .054

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



155019

CORMORANT-1

2000-2100 FT

SORTED LIST
.28 .29 .33
Number of values= 3

MEAN OF VALUES .3
STD DEVIATION .022

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

28 - 30 |▓▓
31 - 33 |▓

CORMORANT—1

3000-3100 FT

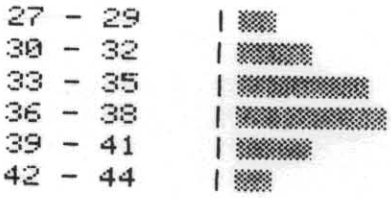
SORTED LIST

.27 .29 .3 .31 .31 .32 .34 .35 .35 .35
.35 .35 .35 .36 .36 .36 .36 .36 .36 .37
.37 .4 .4 .41 .41 .42 .42

Number of values= 27

MEAN OF VALUES .356
STD DEVIATION .038

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



CORMORANT—1

4000-4100 FT

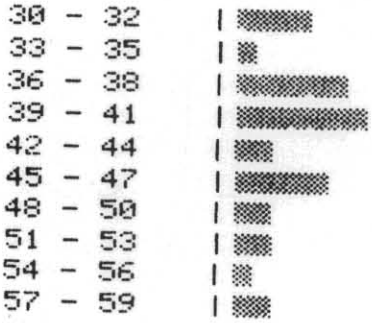
SORTED LIST

.3 .31 .32 .32 .33 .36 .37 .37 .38 .38
.38 .39 .4 .4 .41 .41 .41 .41 .44 .44
.45 .46 .46 .47 .47 .48 .49 .52 .52 .55
.57 .58

Number of values= 32

MEAN OF VALUES .423
STD DEVIATION .074

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



CORMORANT-1

5000-5100 FT

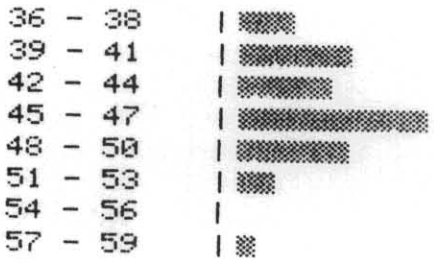
SORTED LIST

.36	.37	.38	.39	.39	.4	.41	.41	.41	.42
.43	.43	.44	.44	.45	.46	.46	.46	.46	.46
.47	.47	.47	.47	.48	.49	.49	.49	.49	.5
.51	.53	.57							

Number of values= 33

MEAN OF VALUES .45
STD DEVIATION .047

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



155023

CORMORANT—1

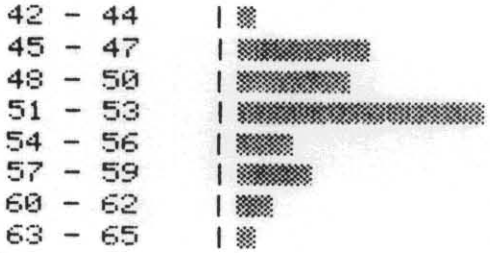
6010-6110 FT

SORTED LIST

.42 .45 .45 .46 .46 .47 .47 .47 .49 .5
.5 .5 .5 .5 .51 .51 .51 .51 .51 .51
.52 .52 .52 .53 .53 .53 .53 .54 .55 .55
.57 .57 .58 .59 .6 .6 .63
Number of values= 37

MEAN OF VALUES .518
STD DEVIATION .046

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



155024

CORMORANT-1

7000-7100 FT

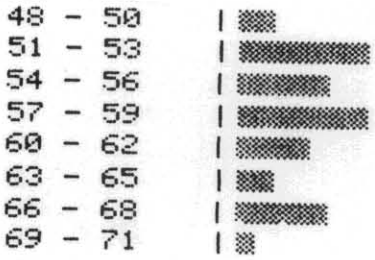
SORTED LIST

.48 .5 .51 .51 .52 .52 .53 .53 .53 .55
.55 .55 .56 .56 .57 .58 .58 .59 .59 .59
.59 .6 .61 .61 .62 .63 .65 .66 .67 .67
.68 .68 .71

Number of values= 33

MEAN OF VALUES .584
STD DEVIATION .059

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



CORMORANT—1

8000-8100 FT POPULATION NO.1

SORTED LIST

.63 .64 .64 .64 .65 .65 .66 .67 .67 .69
.69 .69 .7 .71 .71 .71 .78 .82
Number of values= 18

MEAN OF VALUES .686
STD DEVIATION .048

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
63 - 65    | ▓▓▓▓▓▓
66 - 68    | ▓▓▓▓
69 - 71    | ▓▓▓▓▓▓▓▓
72 - 74    |
75 - 77    |
78 - 80    | ▓
81 - 83    | ▓
```

155026

CORMORANT—1

8000-8100 FT POPULATION NO.2

SORTED LIST

1.23 1.24 1.27 1.28 1.28 1.3 1.35 1.37 1.37 1.41
.69

Number of values= 10

MEAN OF VALUES 1.31
STD DEVIATION .058

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
123 - 125  | ▒▒
126 - 128  | ▒▒▒
129 - 131  | ▒
132 - 134  |
135 - 137  | ▒▒▒
138 - 140  |
141 - 143  | ▒
```

CORMORANT—1

8000-8100 FT POPULATION NO.3

SORTED LIST

1.47 1.54 1.54 1.55 1.58 1.59 1.59 1.59 1.63 1.68
1.73 1.78

Number of values= 12

MEAN OF VALUES 1.606
STD DEVIATION .083

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
147 - 151  | ▒
152 - 156  | ▒▒▒
157 - 161  | ▒▒▒▒▒
162 - 166  | ▒
167 - 171  | ▒
172 - 176  | ▒
177 - 181  | ▒
```

CORMORANT—1

8000-8100 FT POPULATION NO.4

SORTED LIST
2.76 2.78
Number of values= 2

MEAN OF VALUES 2.77
STD DEVIATION .01

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

276 - 280 |▓▓

CORMORANT-1

8000-8100 FT POPULATION NO.5

SORTED LIST
8.74 8.76
Number of values= 2

MEAN OF VALUES 8.75
STD DEVIATION .01

CORMORANT—1

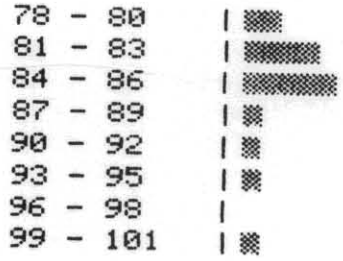
9000-9100 FT

SORTED LIST

.78 .79 .81 .82 .83 .83 .84 .85 .85 .86
.86 .87 .91 .93 .99
Number of values= 15

MEAN OF VALUES .855
STD DEVIATION .053

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



CORMORANT-1

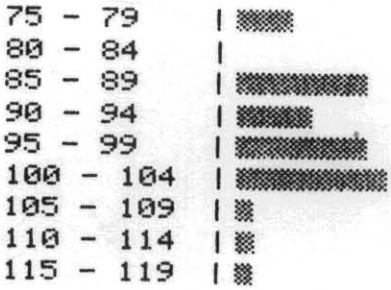
9790-9845 FT

SORTED LIST

.75 .77 .79 .85 .85 .87 .88 .88 .89 .89
.91 .92 .94 .94 .95 .97 .97 .97 .98 .99
.99 1.01 1.01 1.02 1.02 1.03 1.03 1.03 1.04 1.09
1.14 1.15
Number of values= 32

MEAN OF VALUES .954
STD DEVIATION .095

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



DURROON-1

1990-2170 FT

SORTED LIST
.28 .28 .3 .3 .3 .31 .32 .33
Number of values= 8

MEAN OF VALUES .303
STD DEVIATION .016

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

28 - 30 | ▓▓▓▓▓
31 - 33 | ▓▓▓

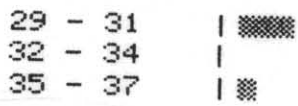
DURROON-1

2980-3130 FT

SORTED LIST
.29 .31 .31 .35
Number of values= 4

MEAN OF VALUES .315
STD DEVIATION .022

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



DURROON-1

4000-4120 FT

SORTED LIST
.46 .48 .49 .51 .53 .54 .55 .58
Number of values= 8

MEAN OF VALUES .518
STD DEVIATION .037

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

46 - 48	▓▓
49 - 51	▓▓
52 - 54	▓▓
55 - 57	▓
58 - 60	▓

DURROON-1

4990-5100 FT

SORTED LIST
.56 .56 .58 .63 .63 .65 .66
Number of values= 7

MEAN OF VALUES .61
STD DEVIATION .039

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
56 - 58    | ▓▓▓
59 - 61    |
62 - 64    | ▓▓
65 - 67    | ▓▓
```

DURROON-1

5980-6130 FT

SORTED LIST
.3 .42 .45 .5
Number of values= 4

MEAN OF VALUES .418
STD DEVIATION .074

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
30 - 32    |▒
33 - 35    |
36 - 38    |
39 - 41    |
42 - 44    |▒
45 - 47    |▒
48 - 50    |▒
```

DURROON-1

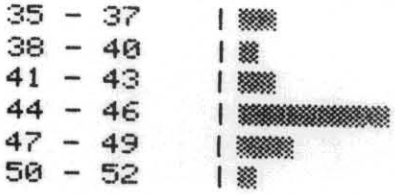
7000-7100 FT

SORTED LIST

.35 .37 .4 .41 .41 .44 .44 .45 .45 .45
.45 .45 .46 .47 .47 .47 .5
Number of values= 17

MEAN OF VALUES .438
STD DEVIATION .037

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



DURROON-1

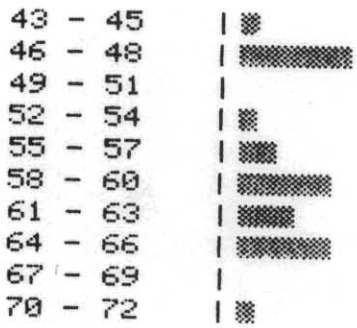
8000-8090 FT

SORTED LIST

.43 .46 .47 .47 .48 .48 .48 .54 .56 .57
.58 .58 .59 .6 .6 .61 .62 .62 .64 .65
.65 .65 .66 .71
Number of values= 24

MEAN OF VALUES .571
STD DEVIATION .076

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



DURROON-1

8000-8090 FT

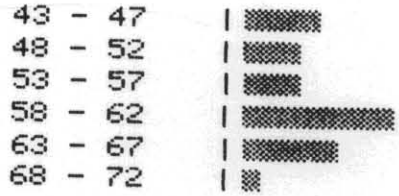
SORTED LIST

.43 .46 .47 .47 .48 .48 .48 .54 .56 .57
.58 .58 .59 .6 .6 .61 .62 .62 .64 .65
.65 .65 .66 .71

Number of values= 24

MEAN OF VALUES .571
STD DEVIATION .076

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



DURROCN-1

9000-9100 FT

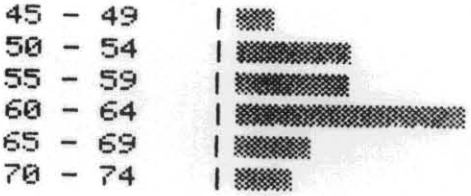
SORTED LIST

.45 .48 .51 .52 .52 .52 .51 .54 .55 .55
.57 .58 .59 .59 .6 .6 .6 .61 .61 .61
.61 .62 .63 .63 .63 .64 .66 .66 .67 .67
.7 .7 .7

Number of values= 33

MEAN OF VALUES .596
STD DEVIATION .063

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



DURROON-1

9850 9900 FT

SORTED LIST

.49	.53	.53	.54	.55	.56	.6	.62	.63	.64
.65	.65	.69	.71	.72	.75	.76	.77	.77	.77
.79	.79	.81	.82						

Number of values= 24

MEAN OF VALUES .673
STD DEVIATION .101

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

49 - 53	▓▓
54 - 58	▓▓
59 - 63	▓▓
64 - 68	▓▓
69 - 73	▓▓
74 - 78	▓▓▓▓
79 - 83	▓▓▓

KONKON—1

2000-2090 FT

SORTED LIST
.38
Number of values= 1

MEAN OF VALUES .38
STD DEVIATION 0

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

38 - 40 |▒

KONKON—1

2990-3100 FT

SORTED LIST

.31 .38 .4 .45 .45 .46 .49 .49 .53 .54
.55 .56

Number of values= 12

MEAN OF VALUES .468
STD DEVIATION .073

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

```
31 - 33    | ▒
34 - 36    |
37 - 39    | ▒
40 - 42    | ▒
43 - 45    | ▒▒
46 - 48    | ▒
49 - 51    | ▒▒
52 - 54    | ▒▒
55 - 57    | ▒▒
```

KONKON-1

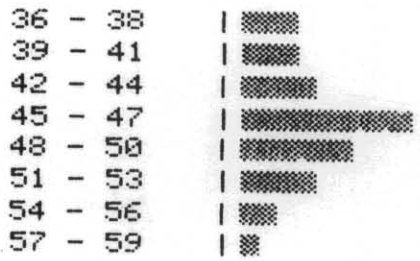
3980-4040 FT

SORTED LIST

.36 .37 .38 .4 .41 .41 .43 .43 .44 .44
.45 .45 .45 .45 .45 .47 .47 .47 .47 .48
.48 .49 .49 .5 .5 .52 .52 .53 .53 .54
.54 .59
Number of values= 32

MEAN OF VALUES .466
STD DEVIATION .052

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



KONKON—1

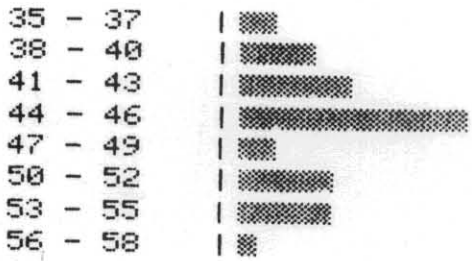
4180-4200 FT

SORTED LIST

.35 .37 .38 .39 .4 .4 .41 .41 .42 .42
.43 .43 .44 .44 .45 .45 .45 .45 .45 .46
.46 .46 .46 .46 .48 .49 .5 .5 .51 .51
.51 .53 .53 .54 .55 .55 .57
Number of values= 37

MEAN OF VALUES .46
STD DEVIATION .054

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



KONKON-1

4960-5043 FT

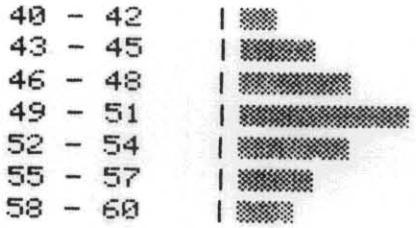
SORTED LIST

.4 .41 .43 .43 .43 .45 .46 .46 .47 .47
.48 .48 .49 .49 .49 .5 .5 .51 .51 .51
.51 .52 .52 .52 .53 .53 .54 .55 .56 .56
.56 .58 .58 .59

Number of values= 34

MEAN OF VALUES .501
STD DEVIATION .049

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



PIPIPA-1

1260-1285 FT

SORTED LIST

.3 .35 .36 .36 .36 .37 .41 .42 .43 .43
.44 .47 .51

Number of values= 13

MEAN OF VALUES .401
STD DEVIATION .055

HISTOGRAM OF RESULTS

Values are reflectance multiplied by 100

```
30 - 32    | ▒
33 - 35    | ▒
36 - 38    | ▒▒▒▒
39 - 41    | ▒
42 - 44    | ▒▒▒▒
45 - 47    | ▒
48 - 50    |
51 - 53    | ▒
```

PIPIPA-1

1555-1560 FT

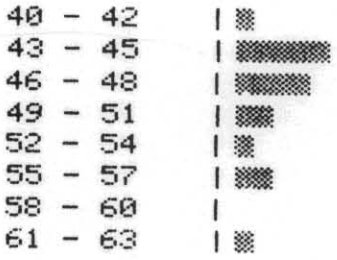
SORTED LIST

.4 .43 .43 .44 .44 .45 .46 .47 .47 .48
.5 .51 .53 .55 .57 .61

Number of values= 16

MEAN OF VALUES .484
STD DEVIATION .056

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



PIPIPA-1

1748-1750 FT

SORTED LIST

2 2.16 2.16 2.18 2.18 2.2 2.2 2.21 2.21 2.21
2.21 2.22 2.23 2.23 2.25 2.25 2.26 2.28 2.29 2.29
2.3 2.3 2.31 2.32 2.32 2.33 2.4 2.51 2.51 2.52
2.61 2.71
Number of values= 32

MEAN OF VALUES 2.293
STD DEVIATION .142

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100

PIPIPA-1

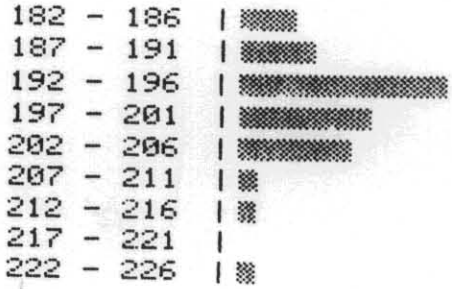
1875-1880 FT

SORTED LIST

1.82 1.84 1.85 1.88 1.89 1.89 1.9 1.92 1.93 1.93
1.94 1.94 1.94 1.95 1.95 1.96 1.96 1.96 1.97 1.97
1.98 1.99 2 2 2 2.02 2.03 2.05 2.05 2.06
2.06 2.08 2.14 2.23
Number of values= 34

MEAN OF VALUES 1.973
STD DEVIATION .083

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100



155051

PIPIPA-1

2045-2050 FT

SORTED LIST

1.48	1.56	1.56	1.57	1.58	1.59	1.61	1.61	1.62	1.63
1.66	1.72	1.73	1.77	1.79	1.79	1.79	1.8	1.81	1.82
1.83	1.84	1.84	1.85	1.85	1.85	1.86	1.87	1.87	1.89
1.91	1.91	1.94							

Number of values= 33

MEAN OF VALUES 1.752
STD DEVIATION .127

HISTOGRAM OF RESULTS
Values are reflectance multiplied by 100