Geochemical summary log, TOC/Rock-Eval pyrolysis data, vitrinite reflectance data (410' - 7930' only), and organic matter maturation values of cuttings (220' - 11230') from the Alaska Consolidated Oil Iniskin Unit Zappa No. I well

Received 6 August 1990

Total of 33 pages in report

Alaska Geologic Materials Center Data Report No. 161

# RAPID EVALUATION
# GEOCHEMICAL LOG

WELL:

STATE: ALASKA

K.B.ELEVATION

TOTAL DEPTH:

COORDINATES:

OPERATOR: BELCO PETROLEUM CORP
ZAPPA/ ANTONIO NO 1
18 5S 23W SEWARD

DATES:

| SUMMARY OF RESULTS |
|---|
| TYPE OF DATA: UNEXTRACTED<br>DATA FROM: GEOTECH CENTER |

DEPTH (FEET) | OXYGEN INDEX: 100 × S3 / TOC | HYDROGEN INDEX: 100 × S2 / TOC (OIL PRONE / MIXED / GAS PRONE) | ORGANIC CARBON: TOC % WT (VERY HIGH / HIGH / AVG. / LOW) | WELL DATA: AGE, LITHOLOGY, SHOWS TESTS SAMPLE LOG | HYDROCARBON SOURCE POTENTIAL: HYDROCARBON YIELD S2 (WT/1000) (POOR / FAIR / GOOD / VERY GOOD); Sa / Ss (GAS / MIXED / OIL PRONE) | VITRINITE REFLECTANCE AND TMAX: TMAX (IMMATURE / WET OIL / WET GAS / DRY / BARREN) | HYDROCARBON INDICATIONS: MUD LOG GAS; FREE HYDROCARBONS ROCK-EVAL S1 (MG/GM); PRODUCTIVITY INDEX ROCK-EVAL S1/(S1+S2) | DEPTH METERS

1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
16000

500
1000
1500
2000
2500
3000
3500
4000
4500
5000

CREATED BY: KMK

DATE COMPLETED: OCT 24,1989

$S_1$ = HC's ALREADY IN ROCK  $S_2$ = HC's FROM KEROGEN PYROLYSIS.  $S_3$ = $CO_2$ FROM KEROGEN PYROLYSIS.

DATE:08/15/89

ditch cuttings

TABLE 1 TOC AND ROCK-EVAL PYROLYSIS

PROJECT: BELCO, ANTONIO ZAPPA NO. 1, ALASKA
CHARGE NUMBER: WC03A03

| DEPTH OR OUTCROP NO. | | S1 mg/g | S2 mg/g | S3 mg/g | TMAX C | TOC wt.% | HI | OI |
|---|---|---|---|---|---|---|---|---|
| 220-230 | | 0.04 | 0.15 | 0.45 | ~~445~~ | 0.35 | 42 | 128 |
| 340-350 | | 0.08 | 0.18 | 0.48 | ~~427~~ | 0.38 | 47 | 126 |
| 460-470 | | 0.00 | 0.00 | 0.56 | - | 0.14 | - | ~~400~~ 300 |
| 580-590 | | 0.05 | 0.11 | 0.52 | ~~436~~ | 0.24 | 45 | 216 |
| 670-680 | | 0.05 | 0.15 | 0.36 | ~~440~~ | 0.36 | 41 | 100 |
| 670-680 | D | 0.05 | 0.18 | 0.36 | ~~445~~ | 0.36 | 50 | 100 |
| 790-800 | | 0.06 | 0.06 | 0.59 | ~~427~~ | 0.30 | 20 | 196 |
| 910-920 | | 0.06 | 0.05 | 0.52 | ~~397~~ | 0.32 | 15 | 162 |
| 1050-1060 | | 0.01 | 0.03 | 0.62 | - | 0.18 | 16 | ~~344~~ 300 |
| 1170-1180 | | 0.04 | 0.13 | 0.56 | ~~460~~ | 0.46 | 28 | 121 |
| 1260-1270 | | 0.02 | 0.03 | 0.44 | - | 0.22 | 13 | 200 |
| STD:-920 | | 0.96 | 11.76 | 0.46 | 432 | 2.51 | ~~468~~ | 18 |
| 1390-1400 | | 0.09 | 0.21 | 0.56 | ?440 | 0.43 | 48 | 130 |
| 1510-1520 | | 0.06 | 0.19 | 0.56 | ?435 | 0.37 | 51 | 151 |
| 1690-1700 | | 0.03 | 0.18 | 0.57 | ?439 | 0.39 | 46 | 146 |
| 1810-1820 | | 0.03 | 0.20 | 0.55 | ?432 | 0.47 | 42 | 117 |
| 1840-1850 | | 0.07 | 0.26 | 0.57 | ~~436~~ | 0.52 | 50 | 109 |
| 1840-1850 | D | 0.08 | 0.26 | 0.59 | ?438 | 0.50 | 52 | 118 |
| 1990-2000 | | 0.07 | 0.39 | 0.54 | ?435 | 0.73 | 53 | 73 |
| 2110-2120 | | 0.04 | 0.25 | 0.40 | 445 | 0.40 | 62 | 100 |
| 2260-2270 | | 0.05 | 0.22 | 0.79 | 427 | 0.41 | 53 | 192 |
| 2410-2420 | | 0.05 | 0.17 | 0.51 | ~~438~~ | 0.44 | 38 | 115 |
| 2470-2480 | | 0.06 | 0.22 | 0.42 | 436 | 0.49 | 44 | 85 |
| STD.-920 | | 0.98 | 11.72 | 0.56 | 430 | 2.58 | ~~454~~ | 21 |

D DUPLICATE FILE NAME
- UNABLE TO CALCULATE VALUE
STANDARD 920: S1=0.87 S2=11.80 S3=0.57 T-MAX=430

DATE:08/15/89

TABLE 1 TOC AND ROCK-EVAL PYROLYSIS

PROJECT: BELCO, ANTONIO ZAPPA NO.1, ALASKA
CHARGE NUMBER: WC03A03

| DEPTH OR OUTCROP NO. | | S1 mg/g | S2 mg/g | S3 mg/g | TMAX C | TOC wt.% | HI | OI |
|---|---|---|---|---|---|---|---|---|
| 2590-2600 | | 0.02 | 0.13 | 0.54 | 435 | 0.43 | 30 | 125 |
| 2700-2710 | | 0.07 | 0.13 | 0.54 | 433 | 0.30 | 43 | 180 |
| 2870-2880 | | 0.03 | 0.04 | 0.31 | - | 0.06 | 66 | 516 |
| 2990-3000 | | 0.05 | 0.10 | 0.83 | 420 | 0.34 | 29 | 244 |
| 3140-3150 | | 0.04 | 0.16 | 0.50 | 436 | 0.46 | 34 | 108 |
| 3140-3150 | D | 0.04 | 0.17 | 0.51 | 437 | 0.44 | 38 | 115 |
| 3260-3270 | | 0.06 | 0.29 | 0.52 | 437 | 0.65 | 44 | 80 |
| 3370-3380 | | 0.01 | 0.11 | 0.45 | 426 | 0.39 | 28 | 115 |
| 3490-3500 | | 0.03 | 0.21 | 0.53 | 429 | 0.43 | 48 | 123 |
| 3610-3620 | | 0.03 | 0.19 | 0.39 | 433 | 0.43 | 44 | 90 |
| 3790-3800 | | 0.08 | 0.45 | 0.72 | 430 | 0.63 | 71 | 114 |
| STD. 920 | | 1.00 | 12.02 | 0.58 | 429 | 2.59 | 464 | 22 |
| 3910-3920 | | 0.08 | 0.45 | 0.55 | 432 | 0.50 | 90 | 110 |
| 3970-3980 | | 0.05 | 0.31 | 0.34 | 430 | 0.37 | 83 | 91 |
| 4090-4100 | | 0.08 | 0.38 | 0.47 | 426 | 0.42 | 90 | 111 |
| 4210-4220 | | 0.04 | 0.35 | 0.44 | 428 | 0.50 | 70 | 88 |
| 4270-4280 | | 0.05 | 0.29 | 0.49 | 434 | 0.49 | 59 | 100 |
| 4270-4280 | D | 0.05 | 0.30 | 0.49 | 428 | 0.50 | 60 | 98 |
| 4390-4400 | | 0.05 | 0.30 | 0.43 | 434 | 0.47 | 63 | 91 |
| 4510-4520 | | 0.04 | 0.22 | 0.49 | 432 | 0.36 | 61 | 136 |
| 4690-4700 | | 0.03 | 0.18 | 0.39 | 435 | 0.36 | 50 | 108 |
| 4810-4820 | | 0.07 | 0.38 | 0.41 | 434 | 0.53 | 71 | 77 |
| 4990-5000 | | 0.04 | 0.26 | 0.52 | 437 | 0.44 | 59 | 118 |
| STD. 920 | | 0.94 | 11.39 | 0.52 | 428 | 2.54 | 448 | 20 |

D DUPLICATE FILE NAME
- UNABLE TO CALCULATE VALUE
STANDARD 920: S1=0.87 S2=11.80 S3=0.58 T-MAX=430

DATE:08/15/89

TABLE 1 TOC AND ROCK-EVAL PYROLYSIS

PROJECT: BELCO, ANTONIO ZAPPA NO. 1, ALASKA
CHARGE NUMBER: WC03A03

| DEPTH OR OUTCROP NO. | | S1 mg/g | S2 mg/g | S3 mg/g | TMAX C | TOC wt.% | HI | OI | |
|---|---|---|---|---|---|---|---|---|---|
| 5110-5120 | | 0.04 | 0.20 | 0.52 | 432 | 0.39 | 51 | 133 | |
| 5170-5180 | | 0.05 | 0.31 | 0.47 | 435 | 0.40 | 77 | 117 | |
| 5220-5230 | | 0.05 | 0.20 | 0.43 | ?432 | 0.37 | 54 | 116 | |
| 5410-5420 | | 0.06 | 0.26 | 0.47 | ?437 | 0.42 | 61 | 111 | |
| 5590-5600 | | 0.09 | 0.42 | 0.63 | ?432 | 0.62 | 67 | 101 | |
| 5590-5600 | D | 0.10 | 0.41 | 0.64 | ?432 | 0.65 | 63 | 98 | |
| 5700-5710 | | 0.22 | 0.66 | 0.84 | 424 | 0.92 | 71 | 91 | |
| 5760-5770 | | 0.10 | 0.62 | 0.79 | 435 | 0.69 | 89 | 114 | |
| 5940-5950 | | 0.09 | 0.31 | 0.48 | 433 | 0.47 | 65 | 102 | |
| 6060-6070 | | 0.10 | 0.43 | 0.87 | ?429 | 0.77 | 55 | 112 | |
| 6240-6250 | | 0.16 | 0.72 | 0.42 | 434 | 0.68 | 105 | 61 | |
| STD. 920 | | 0.97 | 11.85 | 0.52 | 428 | 2.61 | 454 | 19 | |
| 6360-6370 | | 0.08 | 0.30 | 0.84 | ?428 | 0.70 | 42 | 120 | |
| 6480-6490 | | 0.13 | 0.62 | 1.27 | 442 | 1.54 | 40 | 82 | |
| 6600-6610 | | 0.18 | 0.84 | 0.64 | 433 | 0.78 | 107 | 82 | |
| 6780-6790 | | 0.14 | 0.61 | 0.62 | 434 | 0.74 | 82 | 83 | |
| 6960-6970 | | 0.12 | 0.30 | 0.90 | 435 | 0.84 | 35 | 107 | |
| 6960-6970 | D | 0.10 | 0.27 | 0.92 | 434 | 0.82 | 32 | 112 | |
| 7080-7090 | | 0.25 | 0.95 | 0.68 | 438 | 1.07 | 88 | 63 | |
| 7200-7210 | | 0.54 | 1.08 | 1.01 | 436 | 1.11 | 97 | 90 | |
| 7380-7390 | | 0.57 | 1.83 | 0.62 | 440 | 1.17 | 156 | 52 | |
| 7500-7510 | | 0.29 | 1.20 | 0.68 | 436 | 1.26 | 95 | 53 | |
| 7680-7690 | | 0.28 | 0.81 | 0.78 | 441 | 1.16 | 69 | 67 | |
| STD. 920 | | 1.00 | 11.75 | 0.62 | 434 | 2.55 | 460 | 24 | |

D DUPLICATE FILE NAME
- UNABLE TO CALCULATE VALUE
STANDARD 920: S1=0.87 S2=11.80 S3=0.58 T-MAX=430

DATE:08/15/89

TABLE 1 TOC AND ROCK-EVAL PYROLYSIS

PROJECT: BELCO, ANTONIO ZAPPA NO. 1, ALASKA
CHARGE NUMBER: WC03A03

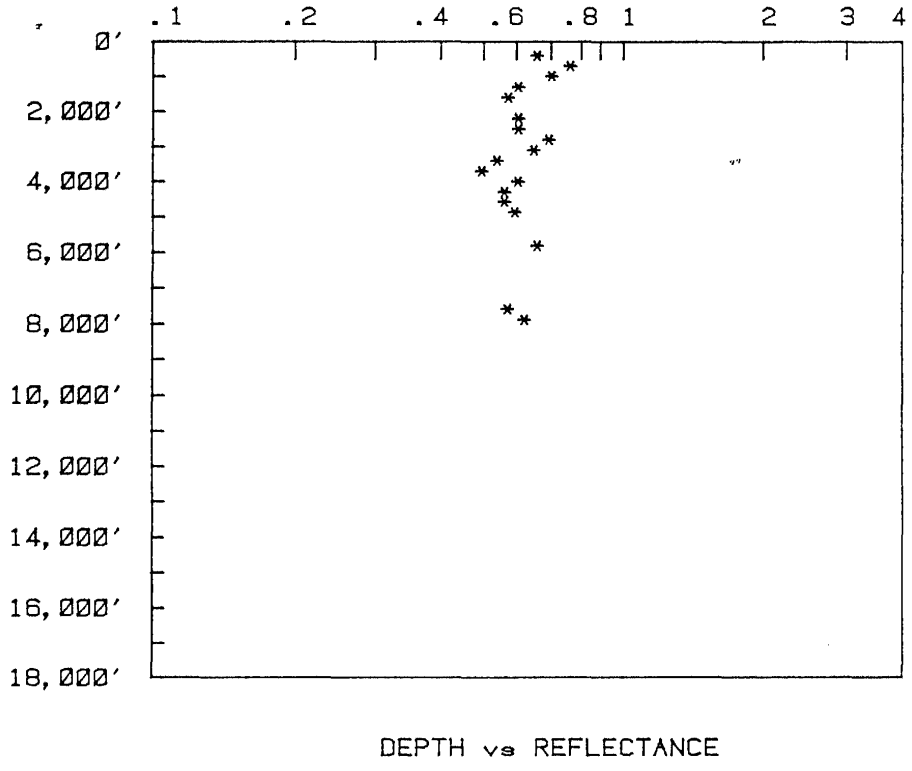
| DEPTH OR OUTCROP NO. | | S1 mg/g | S2 mg/g | S3 mg/g | TMAX C | TOC wt.% | HI | OI | |
|---|---|---|---|---|---|---|---|---|---|
| 7800-7810 | | 0.34 | 1.21 | 0.62 | 438 | 1.16 | 104 | 53 | |
| 7980-7990 | | 0.31 | 0.97 | 0.72 | 443 | 1.18 | 82 | 61 | |
| 8100-8110 | | 0.31 | 0.73 | 0.76 | 442 | 1.20 | 60 | 63 | |
| 8280-8290 | | 0.45 | 0.93 | 0.62 | 447 | 0.85 | 109 | 72 | |
| 8400-8410 | | 0.49 | 0.92 | 0.44 | 444 | 0.90 | 102 | 48 | |
| 8400-8410 | D | 0.51 | 0.96 | 0.42 | 440 | 1.04 | 92 | 40 | |
| 8590-8600 | | 0.44 | 0.84 | 0.55 | 438 | 0.97 | 86 | 56 | |
| 8710-8720 | | 0.18 | 0.42 | 0.83 | 439 | 1.04 | 40 | 79 | |
| 8900-8910 | | 0.34 | 0.90 | 0.60 | 438 | 0.92 | 97 | 65 | |
| 9020-9030 | | 0.31 | 0.75 | 0.53 | 439 | 1.03 | 72 | 51 | messy $S_2$ peak |
| 9190-9200 | | 0.28 | 0.81 | 0.42 | 440 | 0.84 | 96 | 50 | |
| STD. 920 | | 0.97 | 11.80 | 0.57 | 430 | 2.54 | 464 | 22 | |
| 9310-9320 | | 0.48 | 0.80 | 0.45 | 440 | 0.96 | 83 | 46 | |
| 9490-9500 | | 0.22 | 0.52 | 0.46 | 438 | 0.62 | 83 | 74 | |
| 9680-9690 | | 0.43 | 0.66 | 0.44 | 445 | 0.81 | 81 | 54 | messy $S_2$ peak |
| 10100-10150 | | 0.37 | 0.30 | 0.36 | 442 | 0.49 | 61 | 73 | |
| 10300-10350 | | 0.33 | 0.36 | 0.29 | 440 | 0.58 | 62 | 50 | flat $S_2$ |
| 10300-10350 | D | 0.30 | 0.32 | 0.32 | 440 | 0.53 | 60 | 60 | |
| 10500-10550 | | 0.70 | 0.84 | 0.48 | 439 | 1.21 | 69 | 39 | messy $S_2$ peak |
| 10700-10750 | | 0.33 | 0.32 | 0.44 | 431 | 0.52 | 61 | 84 | flat $S_2$ |
| 10900-10950 | | 0.14 | 0.08 | 0.32 | ~~427~~ | 0.27 | 29 | 118 | |
| 11100-11150 | | 0.15 | 0.15 | 0.22 | ~~442~~ | 0.28 | 53 | 78 | |
| 11200-11230 | | 0.15 | 0.09 | 0.23 | ~~433~~ | 0.20 | 45 | 115 | |
| STD 920 | | 0.98 | 11.58 | 0.53 | 424 | 2.64 | 438 | 20 | |

D DUPLICATE FILE NAME
- UNABLE TO CALCULATE VALUE
STANDARD 920: S1=0.87 S2=11.80 S3=0.58 T-MAX=430

Data from — Tom Edison. 3)

# BELCO PR. ANTONIO ZAPPA #1

| DEPTH | % REFL. |
|---|---|
| 410 | .67 |
| 710 | .79 |
| 1000 | .72 |
| 1310 | .61 |
| 1610 | .58 |
| 2210 | .61 |
| 2510 | .61 |
| 2810 | .71 |
| 3110 | .66 |
| 3410 | .55 |
| 3710 | .51 |
| 4010 | .61 |
| 4310 | .57 |
| 4580 | .57 |
| 4880 | .60 |
| 5820 | .67 |
| 7600 | .58 |
| 7900 | .63 |




DEPTH vs REFLECTANCE

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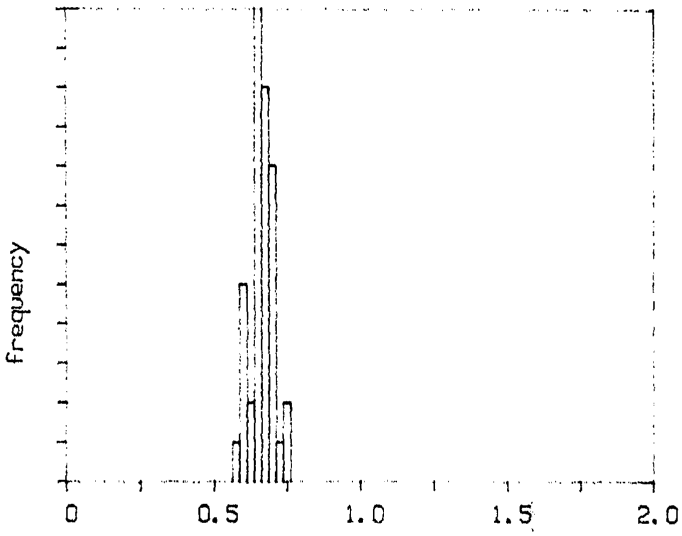
VALLEJO, CA 94590
(707) 554-8687



# Belco Prod. PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 410-440 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .59 | .60 | .60 | .61 | .62 | .62 | .63 |
| .64 | .65 | .65 | .65 | .66 | .66 | .66 |
| .66 | .66 | .66 | .67 | .67 | .67 | .67 |
| .68 | .68 | .68 | .68 | .69 | .69 | .69 |
| .69 | .69 | .69 | .70 | .70 | .71 | .71 |
| .71 | .72 | .72 | .72 | .74 | .75 | .76 |

TAI: 2.7-2.8
FLUORESCENCE: NONE

NO OF MEAS. = 42
AVG. REFL. = .67
STD. DEV. = .04
COMMENTS: MOSTLY VITRINITE; SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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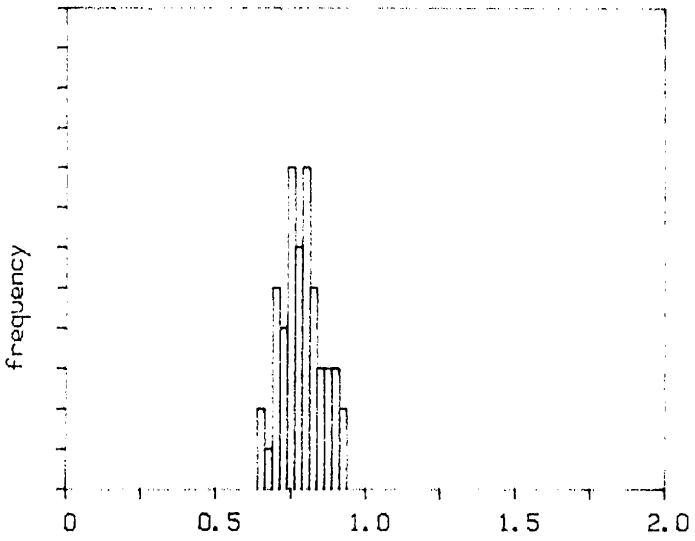
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 710-740 ft
PROJECT: COOK INLET




NO OF MEAS. = 50
AVG. REFL. = .79
STD. DEV. = .07

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .65 | .65 | .69 | .70 | .70 | .72 | .72 |
| .72 | .73 | .74 | .74 | .74 | .75 | .75 |
| .75 | .75 | .76 | .77 | .77 | .77 | .78 |
| .78 | .78 | .79 | .79 | .79 | .80 | .80 |
| .80 | .80 | .81 | .81 | .82 | .82 | .83 |
| .83 | .83 | .84 | .84 | .85 | .85 | .85 |
| .88 | .89 | .89 | .90 | .91 | .92 | .93 |
| .94 | | | | | | |

TAI: 2.8
FLUORESCENCE: NONE

COMMENTS: MOSTLY VITRINITE; SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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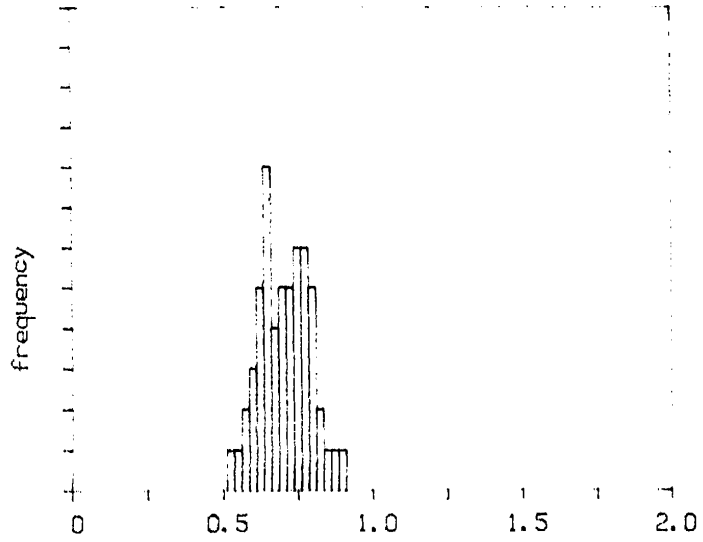
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA
COFRC: ALASKA DEPTH: 1000-30 ft
PROJECT: COOK INLET




NO OF MEAS. = 56
AVG. REFL. = .72
STD. DEV. = .08

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .54 | .56 | .58 | .59 | .60 | .60 | .62 |
| .63 | .63 | .63 | .64 | .64 | .65 | .65 |
| .65 | .65 | .66 | .66 | .67 | .67 | .68 |
| .68 | .68 | .69 | .70 | .70 | .71 | .72 |
| .72 | .73 | .73 | .74 | .74 | .74 | .75 |
| .76 | .76 | .76 | .76 | .77 | .78 | .78 |
| .78 | .78 | .79 | .79 | .80 | .80 | .80 |
| .81 | .81 | .83 | .83 | .85 | .88 | .90 |

TAI: 2.7-2.8
FLUORESCENCE: NONE

COMMENTS: MOSTLY VITRINITE; SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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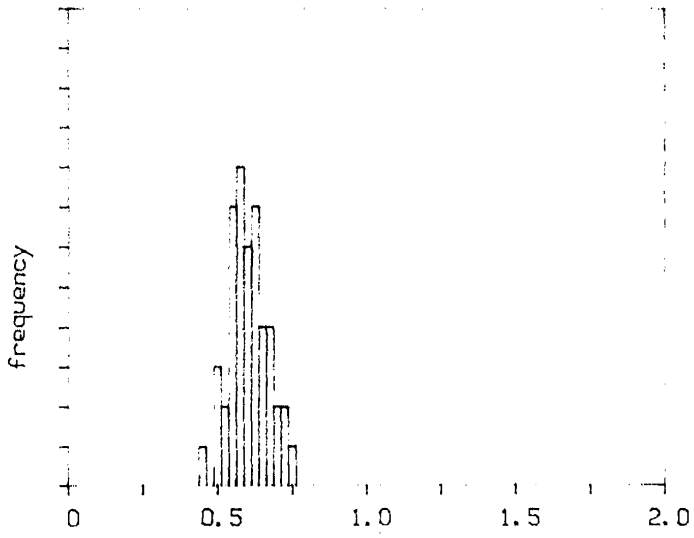
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA
COFRC: ALASKA DEPTH: 1310-40 ft
PROJECT: COOK INLET




NO OF MEAS. = 47
AVG. REFL. = .61
STD. DEV. = .07

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .46 | .50 | .50 | .51 | .53 | .54 | .55 |
| .55 | .55 | .56 | .56 | .56 | .57 | .58 |
| .58 | .58 | .58 | .58 | .59 | .59 | .59 |
| .60 | .60 | .60 | .61 | .61 | .62 | .63 |
| .63 | .64 | .64 | .64 | .64 | .64 | .65 |
| .66 | .66 | .67 | .68 | .68 | .69 | .69 |
| .71 | .72 | .73 | .74 | .76 | | |

TAI: 2.6-2.7

FLUORESCENCE: RARE BRIGHT PALE YELLOW (? SOLIDIFIED BITUMEN), RARE ORANGE (PALYNOMORPH).

COMMENTS: MOSTLY VITRINITE; SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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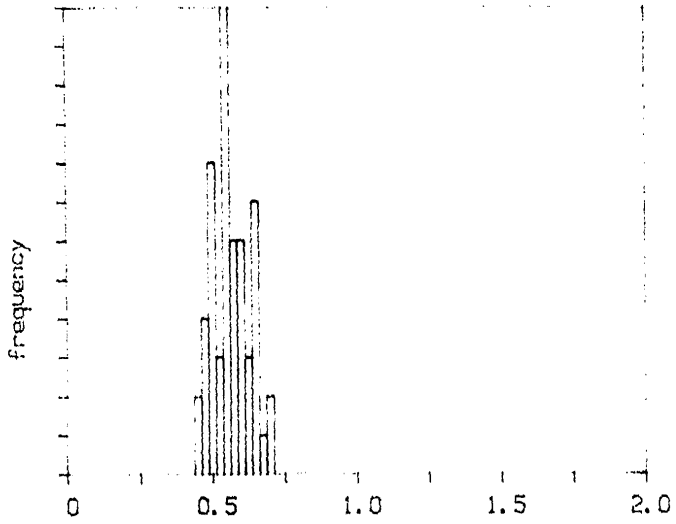
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 1610-40 ft
PROJECT: COOK INLRT




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .46 | .47 | .48 | .48 | .49 | .49 | .50 |
| .50 | .51 | .51 | .51 | .51 | .52 | .52 |
| .53 | .53 | .53 | .55 | .55 | .55 | .55 |
| .55 | .55 | .56 | .56 | .56 | .56 | .57 |
| .57 | .57 | .57 | .58 | .58 | .59 | .59 |
| .59 | .59 | .60 | .60 | .60 | .61 | .62 |
| .62 | .63 | .64 | .64 | .65 | .66 | .66 |
| .66 | .67 | .67 | .67 | .68 | .72 | .72 |

TAI: 2.6-2.7

FLUORESCENCE: NONE

NO OF MEAS. = 56
AVG. REFL. = .58
STD. DEV. = .06

COMMENTS: MOSTLY VITRINITE; SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE

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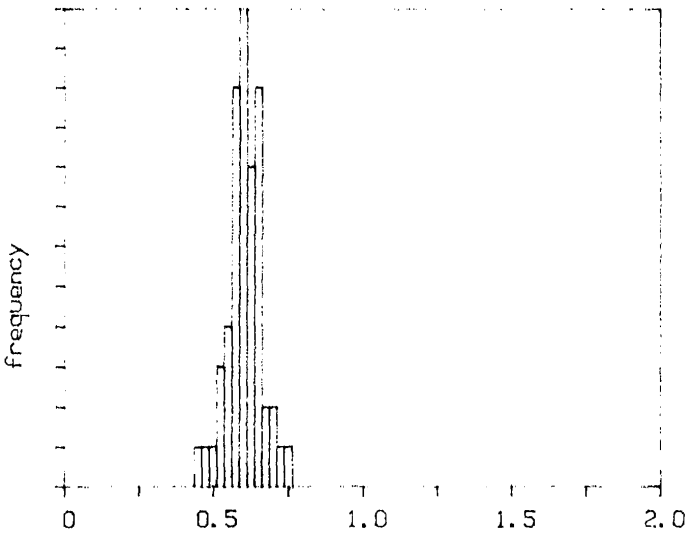
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 2210-40 ft
PROJECT: COOK INLET




NO OF MEAS. = 57
AVG. REFL. = .61
STD. DEV. = .06

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .45 | .49 | .50 | .53 | .53 | .54 | .57 |
| .57 | .57 | .57 | .58 | .58 | .58 | .58 |
| .59 | .59 | .59 | .59 | .59 | .59 | .60 |
| .60 | .60 | .61 | .61 | .61 | .61 | .61 |
| .62 | .62 | .62 | .62 | .62 | .63 | .63 |
| .63 | .63 | .63 | .64 | .64 | .64 | .65 |
| .65 | .65 | .65 | .65 | .66 | .66 | .67 |
| .67 | .67 | .68 | .69 | .70 | .70 | .74 |
| .76 | | | | | | |

TAI: 2.6-2.7
FLUORESCENCE: NONE

COMMENTS: MOSTLY VITRINITE; SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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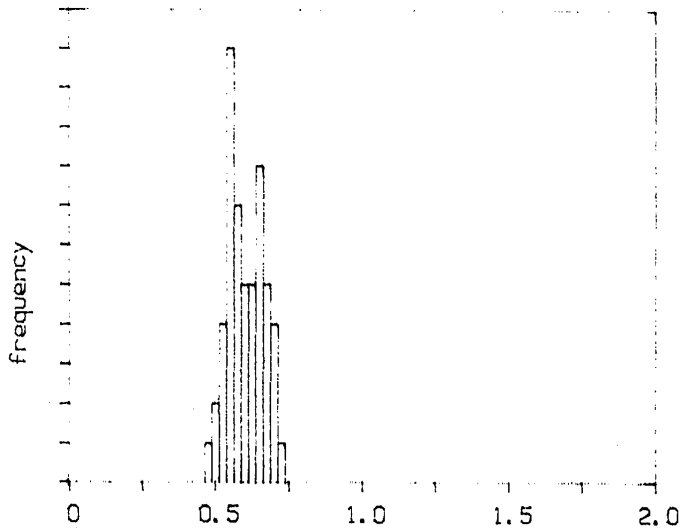
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 2510-40 ft
PROJECT: COOK INLET




NO OF MEAS. = 53
AVG. REFL. = .61
STD. DEV. = .06

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .48 | .50 | .50 | .53 | .53 | .54 | .54 |
| .55 | .56 | .56 | .56 | .56 | .57 | .57 |
| .57 | .57 | .57 | .57 | .58 | .58 | .58 |
| .58 | .58 | .59 | .59 | .60 | .60 | .60 |
| .60 | .61 | .63 | .63 | .63 | .64 | .64 |
| .65 | .66 | .66 | .67 | .67 | .67 | .67 |
| .67 | .68 | .69 | .69 | .69 | .69 | .70 |
| .71 | .72 | .72 | .73 | | | |

TAI: 2.6-2.7
FLUORESCENCE: RARE ORANGE AND DARK ORANGE

COMMENTS: MOSTLY VITRINITE (SOME PARTICLES ARE ELONGATE AND "STRINGY", SIMILAR TO DESMOCOLLINITE); SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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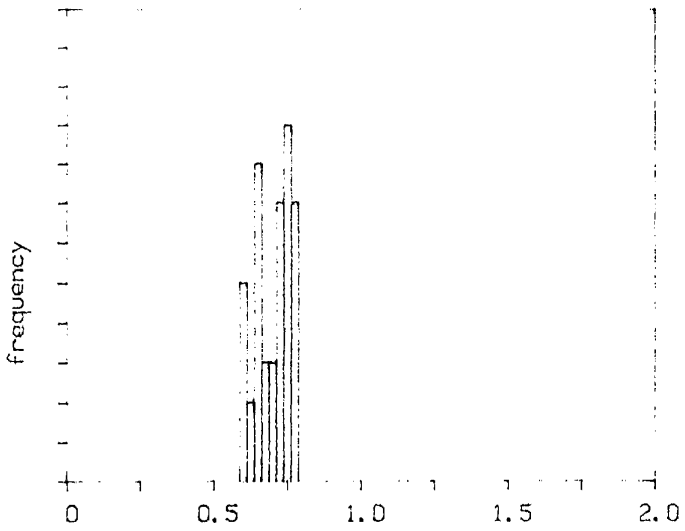
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 2810--20 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .60 | .60 | .61 | .61 | .62 | .63 | .64 |
| .65 | .65 | .65 | .67 | .67 | .67 | .67 |
| .67 | .68 | .68 | .68 | .70 | .70 | .71 |
| .73 | .73 | .73 | .73 | .73 | .74 | .74 |
| .75 | .75 | .75 | .75 | .75 | .75 | .75 |
| .76 | .76 | .78 | .78 | .78 | .79 | .79 |
| .79 | .79 | | | | | |

TAI: 2.6-2.7
FLUORESCENCE; RARE YELLOW-ORANGE TO DARK ORANGE.

NO OF MEAS. = 44
AVG. REFL. = .71
STD. DEV. = .06
COMMENTS: MOSTLY VITRINITE; SPORINITE RARE TO COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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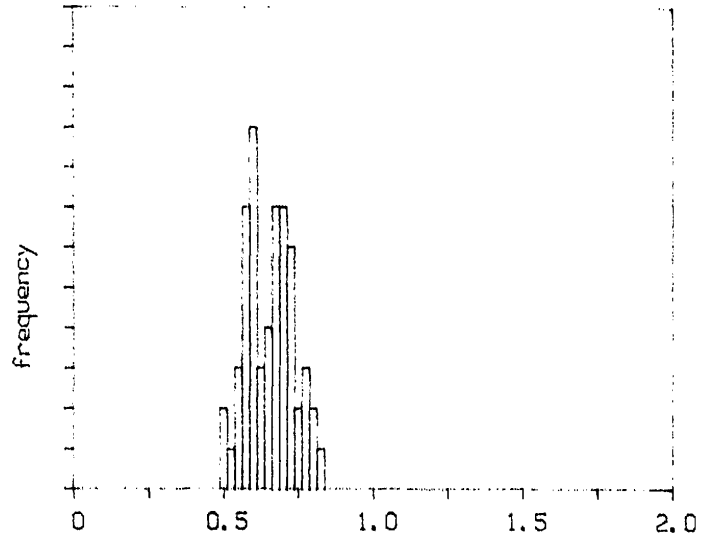
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 3110-30 ft
PROJECT: COOK INLET




NO OF MEAS. = 57
AVG. REFL. = .66
STD. DEV. = .08

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .52 | .52 | .53 | .55 | .55 | .55 | .58 |
| .58 | .58 | .58 | .59 | .59 | .59 | .60 |
| .60 | .61 | .62 | .62 | .62 | .62 | .62 |
| .62 | .63 | .63 | .64 | .65 | .66 | .67 |
| .67 | .68 | .68 | .68 | .69 | .69 | .69 |
| .69 | .70 | .70 | .70 | .70 | .70 | .72 |
| .72 | .73 | .73 | .73 | .74 | .74 | .74 |
| .75 | .76 | .78 | .78 | .79 | .81 | .81 |
| .84 | | | | | | |

TAI: 2.6-2.7

FLUORESCENCE: RARE TO COMMON ORANGE TO DARK ORANGE.

COMMENTS: MOSTLY VITRINITE; SPORINITE RARE TO COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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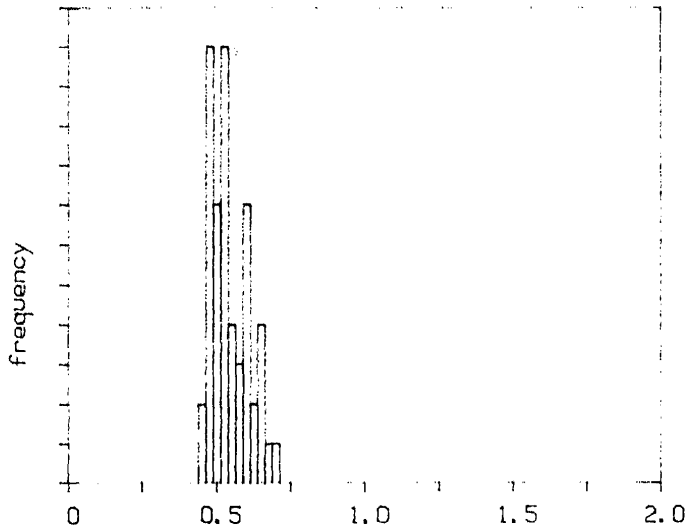
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 3410-40 ft
PROJECT: COOK INLET




NO OF MEAS. = 53
AVG. REFL. = .55
STD. DEV. = .06

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .45 | .47 | .48 | .48 | .48 | .48 | .48 |
| .49 | .49 | .49 | .49 | .49 | .49 | .50 |
| .50 | .50 | .51 | .51 | .51 | .52 | .53 |
| .53 | .53 | .53 | .53 | .54 | .54 | .54 |
| .54 | .54 | .54 | .55 | .55 | .56 | .56 |
| .58 | .58 | .59 | .60 | .61 | .61 | .61 |
| .62 | .62 | .62 | .63 | .64 | .65 | .66 |
| .66 | .67 | .68 | .71 | | | |

TAI: 2.6-2.7
FLUORESCENCE: RARE DARK ORANGE TO BROWN.

COMMENTS: MOSTLY VITRINITE (INCREASE IN DESMOCOLLINITE); SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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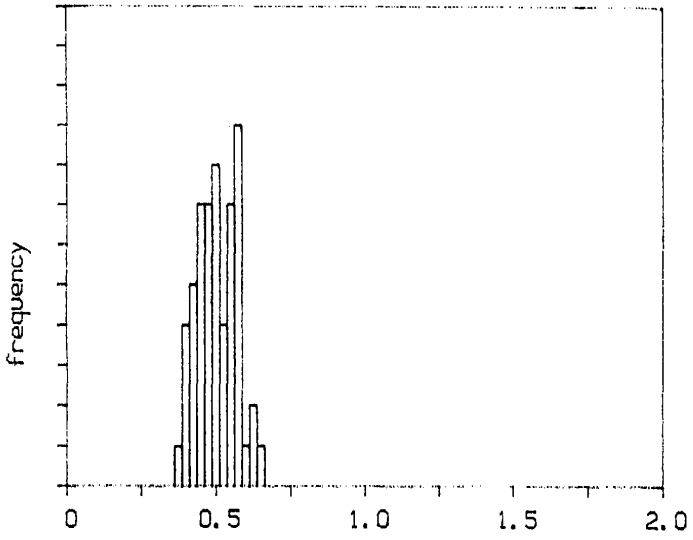
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 3710-40 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .39 | .40 | .40 | .41 | .42 | .43 | .43 |
| .44 | .44 | .44 | .45 | .45 | .45 | .45 |
| .46 | .46 | .47 | .48 | .48 | .48 | .48 |
| .49 | .49 | .49 | .50 | .50 | .50 | .51 |
| .51 | .52 | .52 | .52 | .53 | .54 | .54 |
| .54 | .55 | .56 | .56 | .56 | .57 | .57 |
| .57 | .58 | .58 | .58 | .58 | .59 | .59 |
| .59 | .59 | .59 | .61 | .63 | .64 | .66 |

TAI: 2.6 - 2.7
FLUORESCENCE: SINGLE LARGE BRIGHT YELLOW ? SOLIDIFIED BITUMEN PARTICLE; COMMON ORANGE TO DARK ORANGE.

NO OF MEAS. = 56
AVG. REFL. = .51 (MAY BE LOW DUE TO DESMOCOLLINITE; SPORINITE $R_o$ IS ~ 0.16 - 0.18 %, WHICH IS ≃ 0.6 % VR.
STD. DEV. = .07
COMMENTS: MOSTLY VITRINITE (DESMOCOLLINITE INCREASE); SPORINITE COMMON; ABUNDANT FRAMBOIDAL PYRITE.

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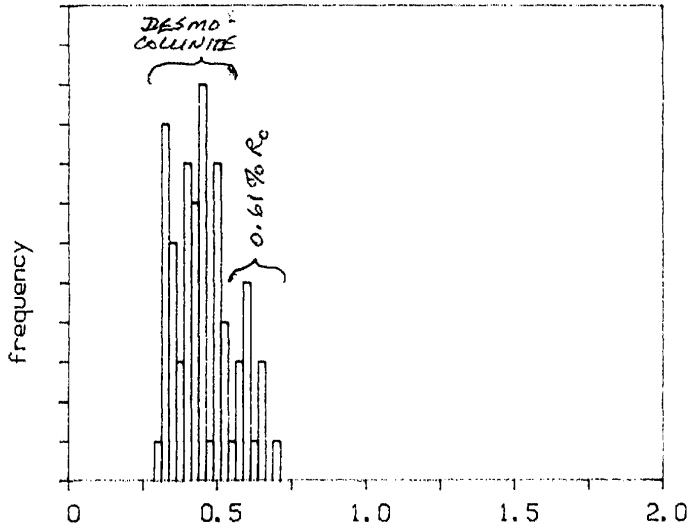
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 4010-40 ft
PROJECT: COOK INLET




NO OF MEAS. = 71
AVG. REFL. = ~~.46~~ 0.61
STD. DEV. = .1

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .32 | .33 | .33 | .33 | .33 | .34 | .34 |
| .34 | .34 | .34 | .35 | .35 | .35 | .36 |
| .36 | .37 | .38 | .38 | .39 | .40 | .40 |
| .40 | .41 | .41 | .41 | .42 | .42 | .43 |
| .43 | .44 | .44 | .44 | .44 | .44 | .45 |
| .45 | .45 | .45 | .46 | .47 | .47 | .47 |
| .47 | .47 | .49 | .50 | .50 | .50 | .51 |
| .51 | .52 | .52 | .52 | .53 | .53 | .53 |
| .54 | .57 | .58 | .58 | .59 | .60 | .60 |
| .60 | .60 | .60 | .63 | .65 | .66 | .66 |
| .70 | | | | | | |

TAI: 2.6-2.7

FLUORESCENCE: RARE BRIGHT YELLOW (?SOLIDIFIED BITUMEN)

COMMENTS: MOSTLY VITRINITE, INCLUDING ABUNDANT DESMOCOLLINITE; COMMON SPORINITE; RARE ACRITARCHS (? MICRHYSTRIDIUM); ABUNDANT FRAMBOIDAL PYRITE.

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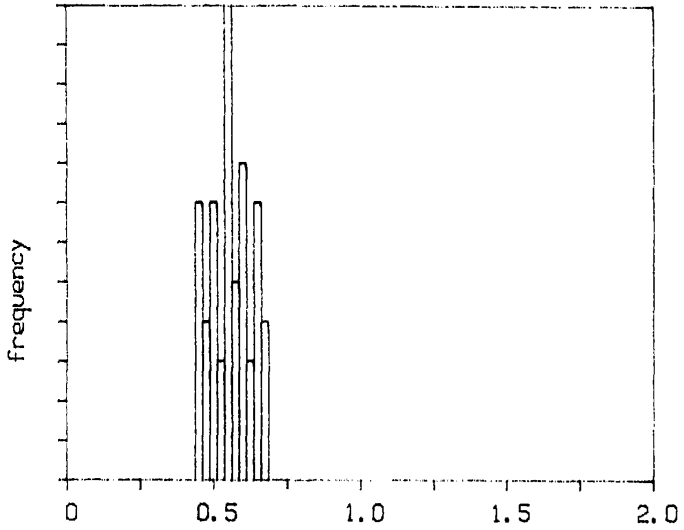
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 4310-40 ft
PROJECT: COOK INLET




NO OF MEAS. = 62
AVG. REFL. = .57
STD. DEV. = .07

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .45 | .45 | .45 | .46 | .47 | .47 | .47 |
| .48 | .48 | .49 | .49 | .50 | .50 | .50 |
| .51 | .51 | .52 | .52 | .53 | .53 | .54 |
| .55 | .55 | .55 | .55 | .56 | .56 | .56 |
| .56 | .56 | .57 | .57 | .57 | .57 | .57 |
| .58 | .58 | .58 | .59 | .59 | .60 | .60 |
| .60 | .61 | .62 | .62 | .62 | .62 | .63 |
| .63 | .64 | .65 | .65 | .65 | .66 | .66 |
| .67 | .67 | .68 | .68 | .68 | .68 | |

THI: 2.6-2.7

FLUORESCENCE: RARE DULL ORANGE-BROWN

COMMENTS: MOSTLY VITRINITE, INCLUDING ABUNDANT DESMOCOLLINITE; COMMON SPORINITE; RARE ACRITARCHS (?MICRHYSTRIDIUM); ABUNDANT FRAMBOIDAL PYRITE.

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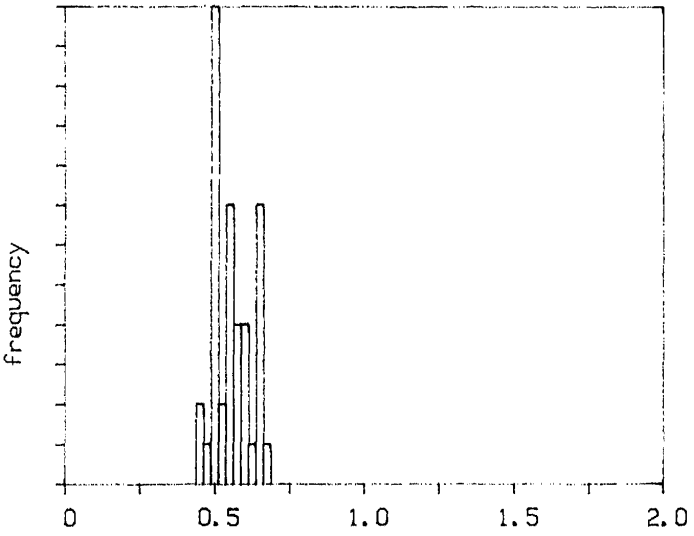
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 4580-4640 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .46 | .47 | .49 | .50 | .50 | .50 | .51 |
| .51 | .51 | .51 | .52 | .52 | .52 | .52 |
| .52 | .54 | .54 | .55 | .55 | .56 | .56 |
| .56 | .56 | .57 | .58 | .59 | .59 | .59 |
| .60 | .61 | .61 | .62 | .64 | .65 | .65 |
| .66 | .66 | .67 | .67 | .67 | .68 | |

TAI: 2.6

FLUORESCENCE: SINGLE VERY LARGE BRIGHT YELLOW "BILLOWY" MASS (? SOLIDIFIED BITUMEN).

NO OF MEAS. = 41
AVG. REFL. = .57
STD. DEV. = .06

COMMENTS: MOSTLY VITRINITE (ABUNDANT DESMOCOLLINITE); COMMON SPORINITE; RARE ACRITARCHS (? MICRHYSTRIDIUM); RARE NEWTON RINGS; ABUNDANT FRAMBOIDAL PYRITE.

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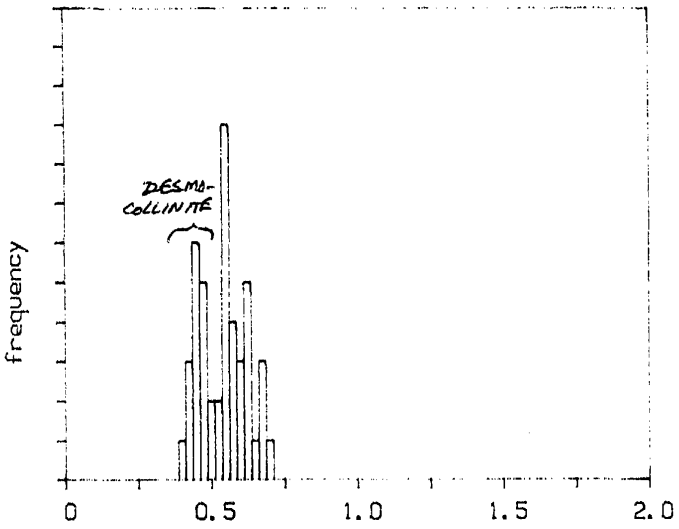
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 4880-4940 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .41 | .43 | .44 | .44 | .45 | .45 | .46 |
| .46 | .47 | .47 | .48 | .48 | .48 | .49 |
| .49 | .50 | .51 | .53 | .53 | .55 | .55 |
| .55 | .56 | .56 | .57 | .57 | .57 | .57 |
| .58 | .59 | .59 | .59 | .60 | .61 | .62 |
| .63 | .63 | .64 | .64 | .64 | .66 | .68 |
| .68 | .69 | .72 | | | | |

TAI: 2.6-2.7
FLUORESCENCE: RARE ORANGE

NO OF MEAS. = 45
AVG. REFL. = ~~.55~~ .6
STD. DEV. = .08

COMMENTS: MOSTLY VITRINITE (ABUNDANT ~~DESMOCOLLINITE~~); COMMON SPORINITE; RARE ALGINITARCHS (? MICRHYSTRIDIUM); ABUNDANT FRAMBOIDAL PYRITE.

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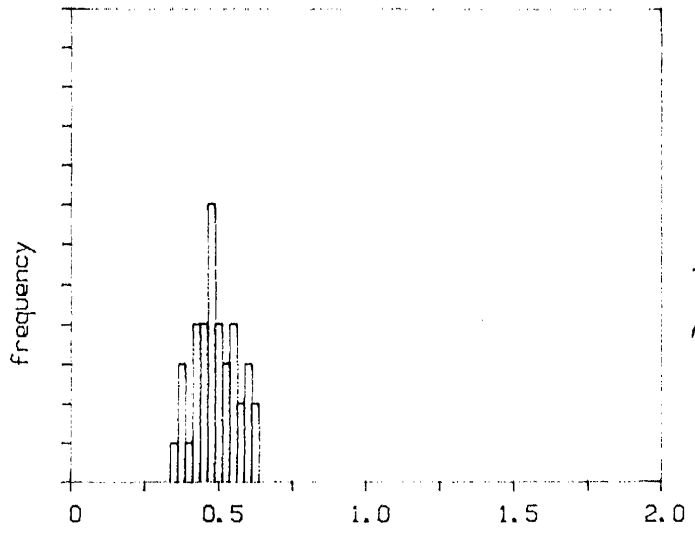
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 5210-40 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .37 | .38 | .39 | .39 | .42 | .44 | .44 |
| .44 | .44 | .45 | .45 | .45 | .45 | .48 |
| .48 | .48 | .48 | .49 | .49 | .49 | .50 |
| .51 | .51 | .52 | .53 | .53 | .54 | .55 |
| .55 | .55 | .56 | .58 | .58 | .60 | .60 |
| .60 | .63 | .64 | | | | |

TAI: 2.6-2.7

FLUORESCENCE: RARE BRIGHT YELLOW (? SOLIDIFIED BITUMEN); RARE ORANGE.

NO OF MEAS. = 38
AVG. REFL. = .5 (PROBABLY LOW DUE TO DESMOCOLLINITE)
STD. DEV. = .07

COMMENTS: MOSTLY DESMOCOLLINITE; SPORINITE COMMON; RARE ACRITARCHS (? MICRHYSTRIDIUM ABUNDANT FRAMBOIDAL PYRITE.

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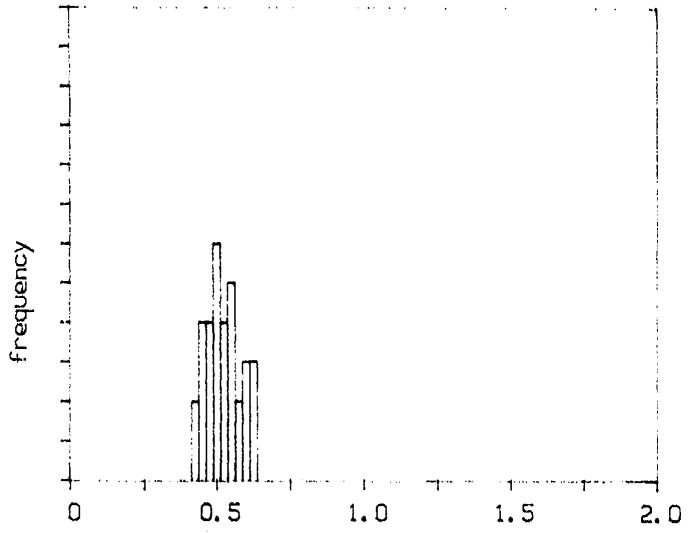
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 5510-40 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .44 | .44 | .45 | .47 | .47 | .47 | .48 |
| .48 | .49 | .49 | .50 | .51 | .51 | .52 |
| .52 | .52 | .53 | .53 | .54 | .54 | .55 |
| .55 | .55 | .57 | .57 | .58 | .58 | .60 |
| .60 | .61 | .63 | .63 | .63 | | |

TAI: 2.7

FLUORESCENCE: RARE YELLOW-ORANGE.

NO OF MEAS. = 33
AVG. REFL. = .53 (PROBABLY LOW DUE TO DESMOCOLLINITE AND AMORPHOUS ALGINITE 2)
STD. DEV. = .05

COMMENTS: MOSTLY DESMOCOLLINITE AND SOME AMORPHOUS ALGINITE 2; SPORINITE RARE TO COMMON; RARE ACRITARCHS (?MICRHYSTRIDIUM); ABUNDANT FRAMBOIDAL PYRITE.

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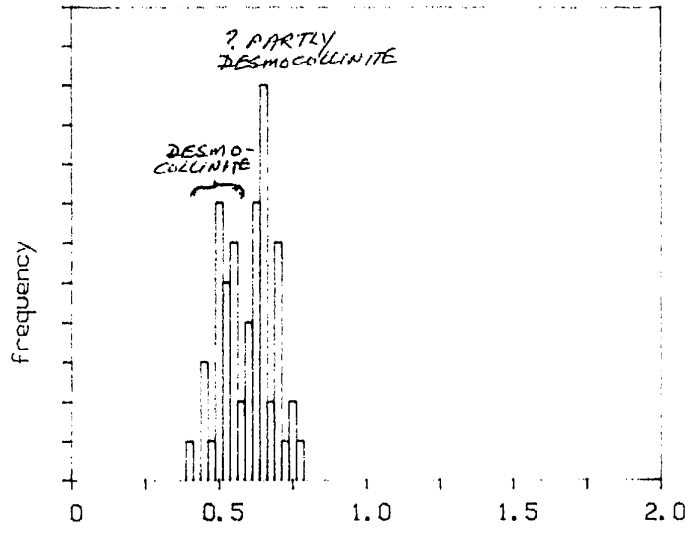
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 5820-90 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .42 | .45 | .47 | .47 | .49 | .50 | .50 |
| .50 | .50 | .51 | .51 | .52 | .53 | .53 |
| .53 | .54 | .54 | .56 | .56 | .57 | .57 |
| .57 | .57 | .59 | .59 | .60 | .61 | .61 |
| .62 | .63 | .63 | .63 | .63 | .63 | .63 |
| .64 | .65 | .65 | .65 | .65 | .65 | .65 |
| .66 | .66 | .67 | .67 | .69 | .69 | .71 |
| .71 | .71 | .71 | .72 | .72 | .73 | .76 |
| .76 | .78 | | | | | |

TAI: 2.7-2.8
FLUORESCENCE: NONE

NO OF MEAS. = 58
AVG. REFL. = ~~.61~~ .67 (MAY BE LOW DUE TO DESMOCOLLINITE)
STD. DEV. = .08
COMMENTS: MOSTLY DESMOCOLLINITE AND SOME AMORPHOUS ALGINITE 2; SPORINITE RARE TO COMMON; RARE ACRITARCHS (? MICRHYSTRIDIUM); ABUNDANT FRAMBOIDAL PYRITE.

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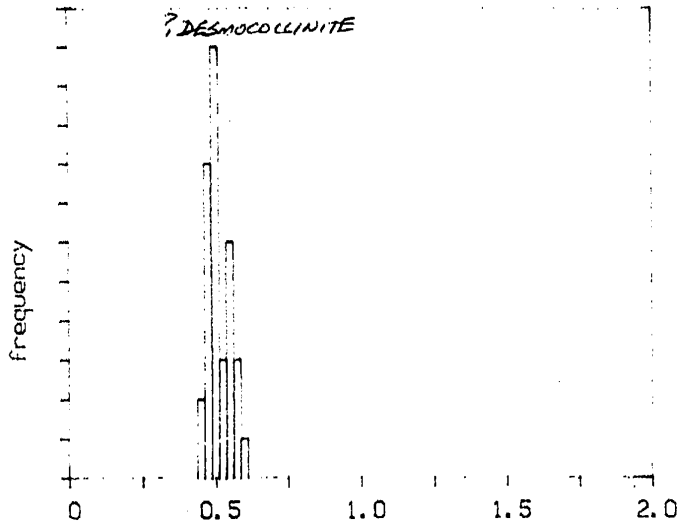
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 6100-90 ft
PROJECT: COOK INLET

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .47 | .47 | .48 | .48 | .49 | .49 | .49 |
| .49 | .49 | .49 | .50 | .50 | .51 | .51 |
| .51 | .52 | .52 | .52 | .52 | .52 | .52 |
| .53 | .54 | .54 | .55 | .55 | .56 | .56 |
| .57 | .57 | .58 | .59 | .59 | .60 | |




TAI: 2.7-2.8
FLUORESCENCE: NONE

NO OF MEAS. = 34
AVG. REFL. = .52 (PROBABLY DESMOCOLLINITE)
STD. DEV. = .04
COMMENTS: MOSTLY DESMOCOLLINITE; SPORINITE COMMON; RARE ACRITARCHS (? MICRHYSTRIDIUM)
ABUNDANT FRAMBOIDAL PYRITE. RARE ? MICRO FORAMINIFERA.

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# PERCENT REFLECTANCE @ 546 nm

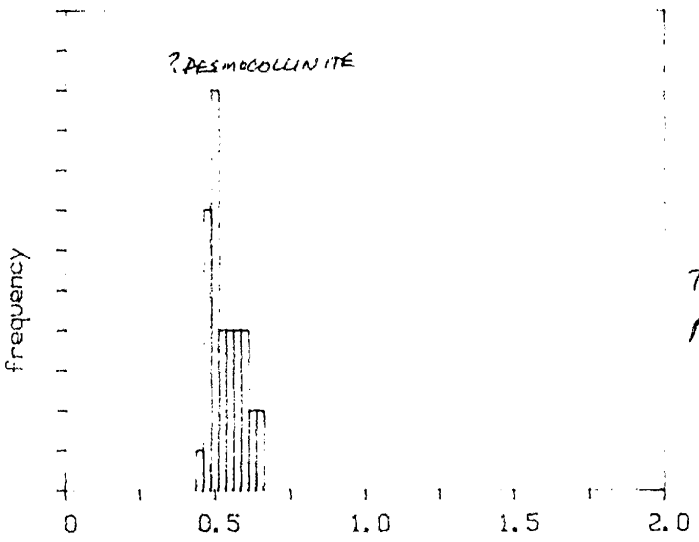
ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 6400-30 ft
PROJECT: COOK INLET

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .46 | .48 | .48 | .48 | .49 | .49 | .49 |
| .49 | .50 | .50 | .50 | .50 | .51 | .51 |
| .51 | .52 | .52 | .52 | .53 | .53 | .54 |
| .54 | .56 | .56 | .56 | .57 | .58 | .58 |
| .58 | .58 | .60 | .61 | .61 | .61 | .63 |
| .63 | .65 | .66 | | | | |

TAI: 2.8

FLUORESCENCE: NONE




NO OF MEAS. = 38
AVG. REFL. = .54 ? DESMOCOLLINITE
STD. DEV. = .05

COMMENTS: MOSTLY ~~DESMOCOLLINITE~~ WITH SOME AMORPHOUS ALGINITE 2; SPORINITE RARE; RARE ACRITARCH (? MICRHYSTRIDIUM); ABUNDANT FRAMBOIDAL PYRITE.

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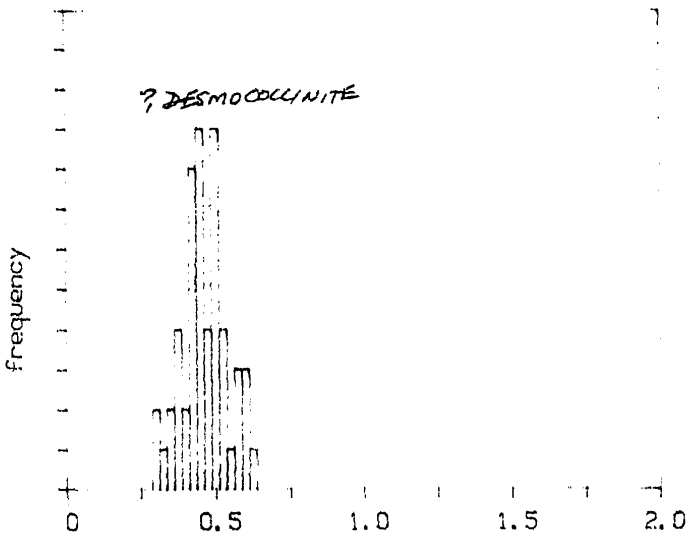
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 6700-30 ft
PROJECT: COOK INLET




NO OF MEAS. = 53
AVG. REFL. = .47 (? DESMOCOLLINITE)
STD. DEV. = .07

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .30 | .32 | .33 | .35 | .35 | .38 | .39 |
| .39 | .39 | .40 | .41 | .43 | .43 | .43 |
| .44 | .44 | .44 | .44 | .44 | .45 | .46 |
| .46 | .46 | .46 | .46 | .47 | .47 | .47 |
| .48 | .48 | .49 | .49 | .50 | .50 | .50 |
| .50 | .51 | .51 | .51 | .52 | .52 | .53 |
| .54 | .54 | .54 | .55 | .58 | .58 | .58 |
| .60 | .60 | .61 | .64 | | | |

TAI: 2.7-2.8
FLUORESCENCE: NONE

COMMENTS: MOSTLY DESMOCOLLINITE AND AMORPHOUS ALGINITE 2; RARE MICROFORAMINIFERA; ABUNDANT FRAMBOIDAL PYRITE.

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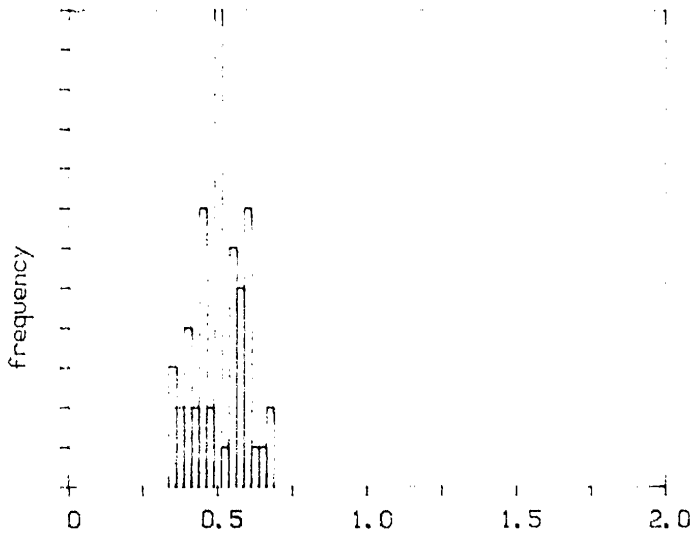
# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 7000-30 ft
PROJECT: COOK INLET




REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .35 | .35 | .36 | .38 | .39 | .40 | .40 |
| .41 | .42 | .43 | .43 | .45 | .45 | .45 |
| .45 | .46 | .47 | .47 | .48 | .49 | .50 |
| .50 | .50 | .51 | .51 | .51 | .51 | .52 |
| .52 | .52 | .52 | .52 | .52 | .54 | .55 |
| .55 | .56 | .57 | .57 | .57 | .58 | .58 |
| .59 | .59 | .59 | .60 | .61 | .61 | .61 |
| .62 | .62 | .62 | .63 | .66 | .68 | .68 |

TAI; 2.7-2.8
FLUORESCENCE; NONE

NO OF MEAS. = 56
AVG. REFL. = .52 (PROBABLY DESMOCOLLINITE)
STD. DEV. = .08

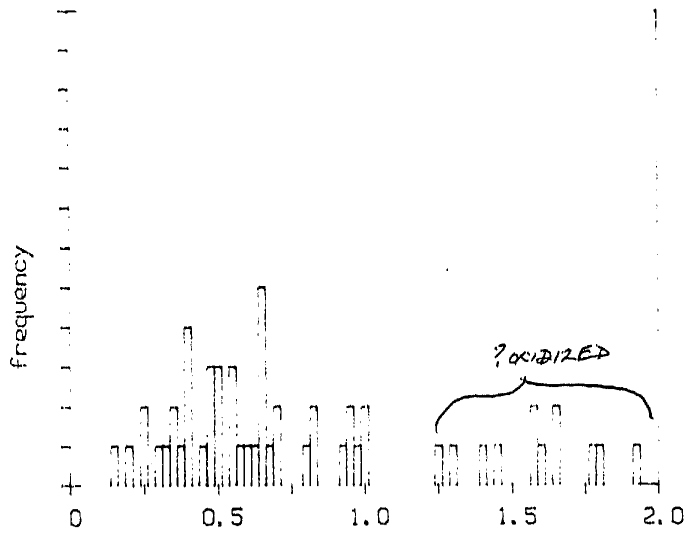
COMMENTS: MOSTLY DESMOCOLLINITE WITH SOME AMORPHOUS ALGINITE 2; SPORINITE RARE TO COMMON; RARE MICROFORAMINIFERA; ABUNDANT FRAMBOIDAL PYRITE.

# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 7300-60 ft
PROJECT: COOK INLET

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .15 | .22 | .25 | .26 | .32 | .34 | .35 |
| .35 | .39 | .40 | .40 | .41 | .42 | .47 |
| .48 | .48 | .48 | .50 | .50 | .52 | .56 |
| .56 | .57 | .58 | .61 | .64 | .65 | .65 |
| .66 | .66 | .67 | .69 | .72 | .72 | .82 |
| .84 | .84 | .93 | .96 | .97 | .99 | 1.00 |
| 1.02 | 1.25 | 1.32 | 1.42 | 1.46 | 1.58 | 1.59 |
| 1.61 | 1.65 | 1.67 | 1.78 | 1.82 | 1.94 | |




TAI: NO PALYNOMORPHS
FLUORESCENCE: NONE

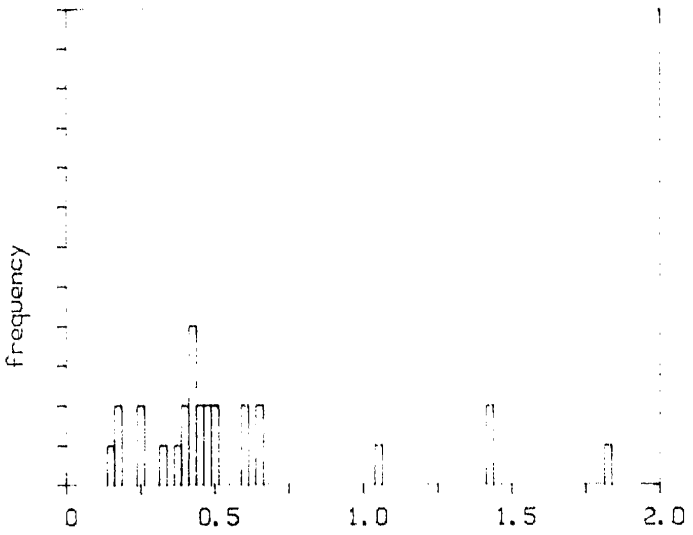
NO OF MEAS. = 55
AVG. REFL. = ~~.8~~ REFLECTOGRAM, SHOWING INTERGRADATIONAL VALUES; % $R_o$ CANNOT BE DETERMINED.
STD. DEV. = .47
COMMENTS: MOSTLY OXIDIZED ORGANIC MATTER (FEW OXIDATION RIMS PRESENT), ABUNDANT UNDISSOLVED MINERAL MATTER

# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 7600-60 ft
PROJECT: COOK INLET

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .15 | .18 | .18 | .27 | .27 | .34 | .38 |
| .42 | .42 | .44 | .44 | .44 | .44 | .45 |
| .46 | .48 | .49 | .50 | .50 | .60 | .61 |
| .66 | .67 | 1.06 | 1.43 | 1.44 | 1.83 | |



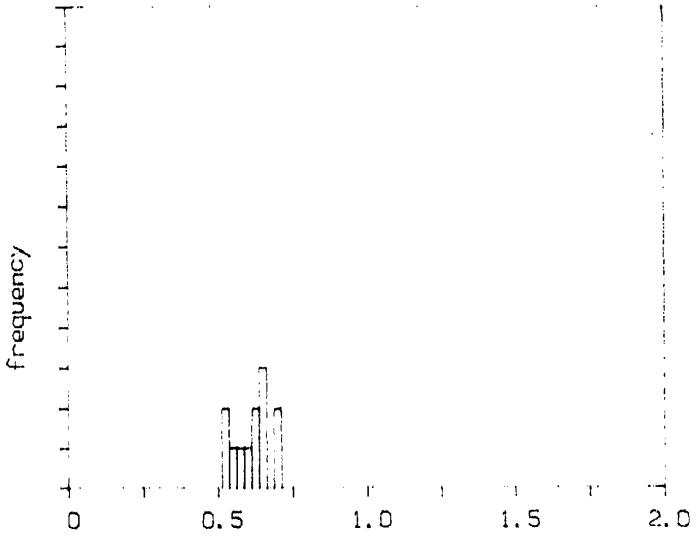

NO OF MEAS. = 27
AVG. REFL. = .58
STD. DEV. = .39
COMMENTS:

# PERCENT REFLECTANCE @ 546 nm

ANTONIO ZAPPA #1
COFRC: ALASKA DEPTH: 7900--30 ft
PROJECT: COOK INLET

REFLECTANCE VALUES

| | | | | | | |
|---|---|---|---|---|---|---|
| .53 | .53 | .57 | .59 | .61 | .64 | .64 |
| .66 | .66 | .66 | .70 | .71 | | |




NO OF MEAS. = 12
AVG. REFL. = .63
STD. DEV. = .06
COMMENTS:

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BELCO PROD, ANTONIO ZAPPA #1, COOK INLET, ALASKA
ORGANIC MATTER MATURATION VALUES

| | GEOTHERMAL ALTERATION | | HYDROTHERMAL ALTERATION |
|---|---|---|---|
| DEPTH (FT) | % $R_o$ | TAI | TAI |
| 110-200 | | 2.6-2.7 | — |
| 410-40 | .67 | 2.7-2.8 | — |
| 710'-40 | .79 | 2.8 | — |
| 1000-30 | .72 | 2.7 | — |
| 1310-40 | .61 | 2.6-2.7 | 3.6 |
| 1610-40 | .58 | 2.6-2.7 | 3.7 |
| 1910-40 | | 2.7 | 3.7-3.8 |
| 2210-40 | .61 | 2.6-2.7 | — |
| 2510-40 | .61 | 2.6-2.7 | 3.6-3.7 |
| 2810-20 | .71 | 2.6-2.7 | 3.7 |
| 3110-30 | .66 | 2.6-2.7 | 3.7 |
| 3410-40 | .55 | 2.6-2.7 | 3.6 |
| 3710-40 | .51 | 2.6-2.7 | — |
| 4010-40 | .61 | 2.6-2.7 | — |
| 4310-40 | .57 | 2.6-2.7 | 3.7 |
| 4580-4640 | .57 | — | — |
| 4880-4940 | .55 | 2.6-2.7 | — |
| 5210-40 | .5 | 2.6-2.7 | 3.6-3.7 |
| 5510-40 | .53 | 2.7 | 3.7 |
| 5820-90 | .67 | 2.7-2.8 | 3.7-3.8 |
| 6100-90 | .52 | 2.7-2.8 | 3.6 |
| 6400-30 | .54 | 2.6-2.7 | 3.6 |

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(2)

BELCO PROD. ANTONIO ZAPPA #1, COOK INLET ALASKA
ORANIC MATTER MATURATION VALUES (CONTINUED)

| | GEOTHERMAL ALTERATION | | HYDROTHERMAL ALTERATION |
|---|---|---|---|
| DEPTH (FT.) | %Ro | TAI | TAI |
| 7000-30 | .52 | 2.7-2.8 | 3.6 |
| 7300-60 | .62 | — | — |
| 7600-60 | .58 | — | 3.6-3.7 |
| 7900-30 | .63 | 2.7-2.8 | 3.6-3.7 |
| 8206-30 | .6 | 2.7-2.8 | 3.7-3.8 |
| 8510-60 | .55 | 2.9-3.0 | 3.6 |
| 8870-40 | .61 | 2.9-3.0 | 3.8 |
| 9120-50 | .54 | 3.0 | 3.9 |
| 9410-70 | .52 | 3.0 | 3.7-3.8 |
| 9710-9950 | .63 | 2.7-2.8 | 3.6-3.7 |
| 10,000-50 | .65 | 3.0 | 3.7 |
| 10,300-50 | .57 | 3.0 | 3.9 |
| 10,600-50 | .65 | — | — |
| 10,900-50 | .75 | — | — |
| 11,200-30 | .81 | — | — |