New Mexico Bureau of Mines and Mineral Resources
Open-File Report No. OF-269

ORGANIC GEOCHEMICAL ANALYSES OF THE CHACE OIL CO. NO. 1 PIÑON UNIT WELL, SANTA FE COUNTY, NEW MEXICO

By Paige Herzon Spatz
Brown and Ruth Laboratories, Inc.
Houston, Texas

August 1, 1985

GEOCHEMICAL REPORT

TOC/Rock-Eval Pyrolysis Results

Biostudy 1455 p494/

Chace Oil No. 1 Pinon

Santa Fe County, New Mexico

110-4,228 ft

Sec. 31, T 14N, R 8E

BROWN & RUTH LABORATORIES, INC.
1790 West Belt North
Houston, Texas 77043
713/464-3284

BROWN & RUTH LABORATORIES, INC.
1760 WEST BELT NORTH, HOUSTON, TEXAS 77043 (713) 464 3284

August 1, 1985

Chevron, U.S.A.
Northern Region
P. O. Box 599
Denver, Colorado 80201

Attention: S. R. Jacobson

Gentlemen:

This report presents results of the total organic carbon (TOC) analysis and Rock-Eval pyrolysis you requested on 18 samples from the Chace Oil No. 1 Pinon well, Santa Fe County, New Mexico. The samples represent the well interval 110-4,228 ft and were received on July 29, 1985. The work was authorized by your project no. NR044094.

The unused sample material will be returned under separate cover.

We appreciate the opportunity to be of service to Chevron. If we can be of any further assistance, please contact us.

Very truly yours,

BROWN & RUTH LABORATORIES, INC.

Paige Herzon Spatz

PHS/amp/a9
Enclosures

TABLE I

Chace Oil No. 1 Pinon
Santa Fe County, New Mexico

Job No. 1825
August 1, 1985

Results of Organic Carbon Analysis and Rock-Eval Pyrolysis

Sample Number	Depth (ft.)	T.O.C. (% Wt.)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	Tmax (°C)	Production Index	S2/S3	Hydrogen Index	Oxygen Index	
P4941-001	110-270	0.13	---	---	---	---	---	---	---	---	
P4941-002	270-370	17.85	1.26	22.83	1.02	451	0.05	22.44	128	6	Prob. Coal
P4941-003	370-550	3.63	<0.10	1.43	0.59	451	---	2.43	39	16	
P4941-004	550-800	2.29	0.15	1.04	0.47	450	0.13	2.23	45	21	
P4941-005	800-1200	1.36	<0.10	0.27	0.13	459	---	2.03	20	10	
P4941-006	1200-1550	1.26	<0.10	0.20	0.10	459	---	1.91	16	8	
P4941-007	1550-1650	2.42	<0.10	0.79	0.38	443	---	2.09	33	16	
P4941-008	1650-1950	1.58	<0.10	0.78	0.21	442	---	3.80	49	13	
P4941-009	1950-2270	1.71	<0.10	1.10	0.17	443	---	6.66	65	10	
P4941-010	2270-2500	1.84	<0.10	0.97	0.22	444	---	4.31	53	12	
P4941-011	2500-2750	1.58	<0.10	1.39	0.32	440	---	4.40	88	20	
P4941-012	2750-3000	1.40	0.15	1.89	0.33	440	0.07	5.77	135	23	Prob. Coal
P4941-013	3000-3300	1.62	0.14	1.19	0.23	444	0.10	5.19	74	14	
P4941-014	3300-3650	1.47	0.11	0.96	0.17	447	0.11	5.51	65	12	
P4941-015	3650-3940	0.62	<0.10	<0.10	0.11	**	---	---	---	18	
P4941-016	3940-4070	0.89	<0.10	<0.10	0.11	**	---	---	---	13	
P4941-017	4070-4210	0.92	0.10	0.30	0.24	442	0.25	1.28	33	26	
P4941-018	4210-4228	1.23	<0.10	0.26	0.14	453	---	1.23	21	11	

FORMATIONS SAMPLED (Age and Name; Add sheet if necessary) Menefee 270', Pt Lookout 1557'
Mancos 1650', Gallup 2507', Juana Lopez 3307', Greenhorn 3655',
Graneros 3947', Dakota 4072', Burro Canyon 4210
– All Cretaceous –

**Unable to determine due to insufficient S2 yields, multiple peaks, etc.

GEOCOM ROCK EVAL II

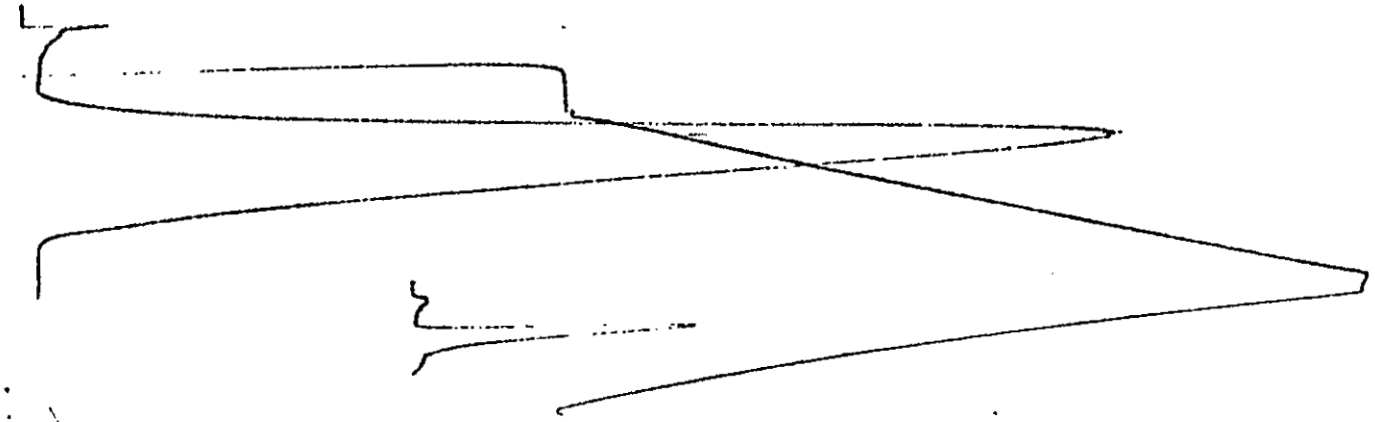
Control Sample

JUL 31, 1985
TIME= 1444
ID= 92091
FID ATTENUATION= 02
TCD ATTENUATION= 02

0%
100

50%
250

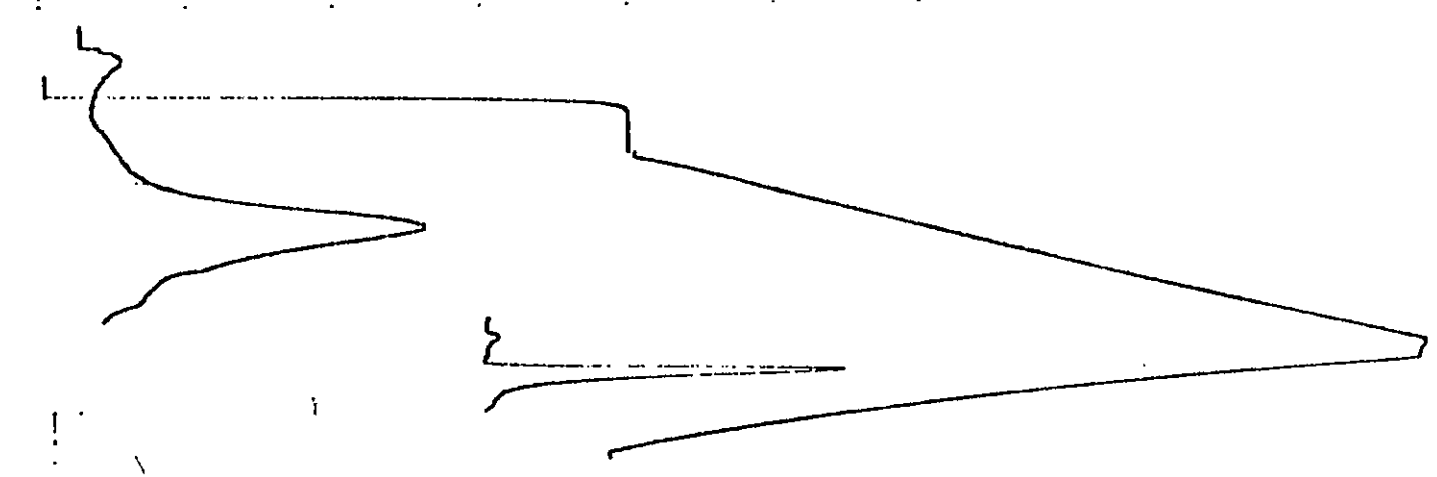
99%
990



GEOCOM ROCK EVAL II

P4941
270-370'

JUL 31, 1985
TIME= 1330
ID= 13252
FID ATTENUATION= 128
TCD ATTENUATION= 32

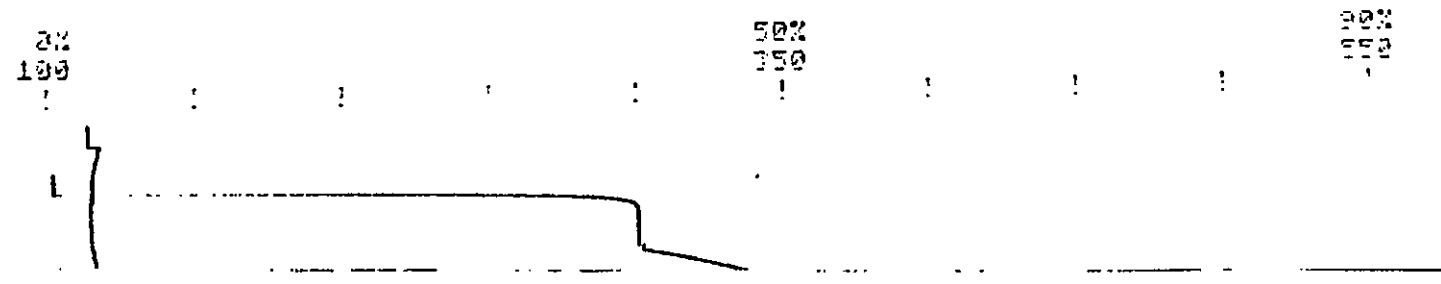


TOC = .81
WT = 61.1
TMAX = 433 DEGREES C
S1= +1.262E+00 SUM= +6.792E+03
S2= +2.232E+01 SUM= +1.227E+05
S3= +1.817E+00 SUM= +5.516E+03
UNKNOWN

GEOCOM ROCK EVAL II

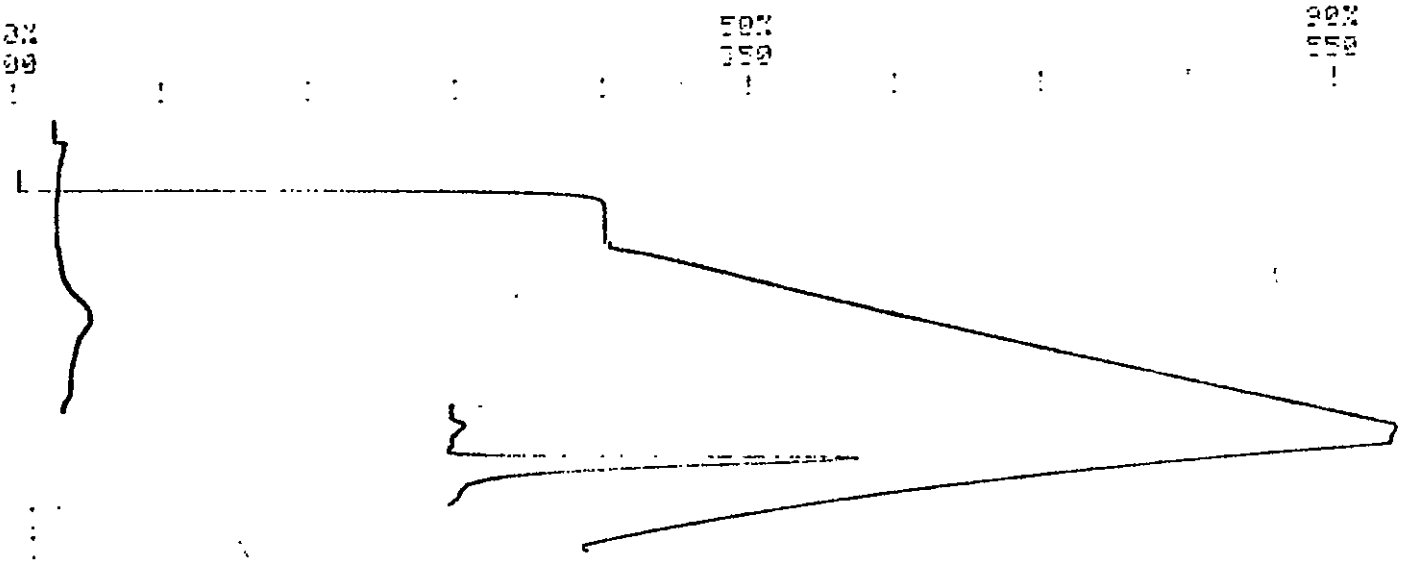
P4941
370-550'

JUL 31, 1985
TIME= 1355
ID= 3
FID ATTENUATION= 128
TCD ATTENUATION= 32



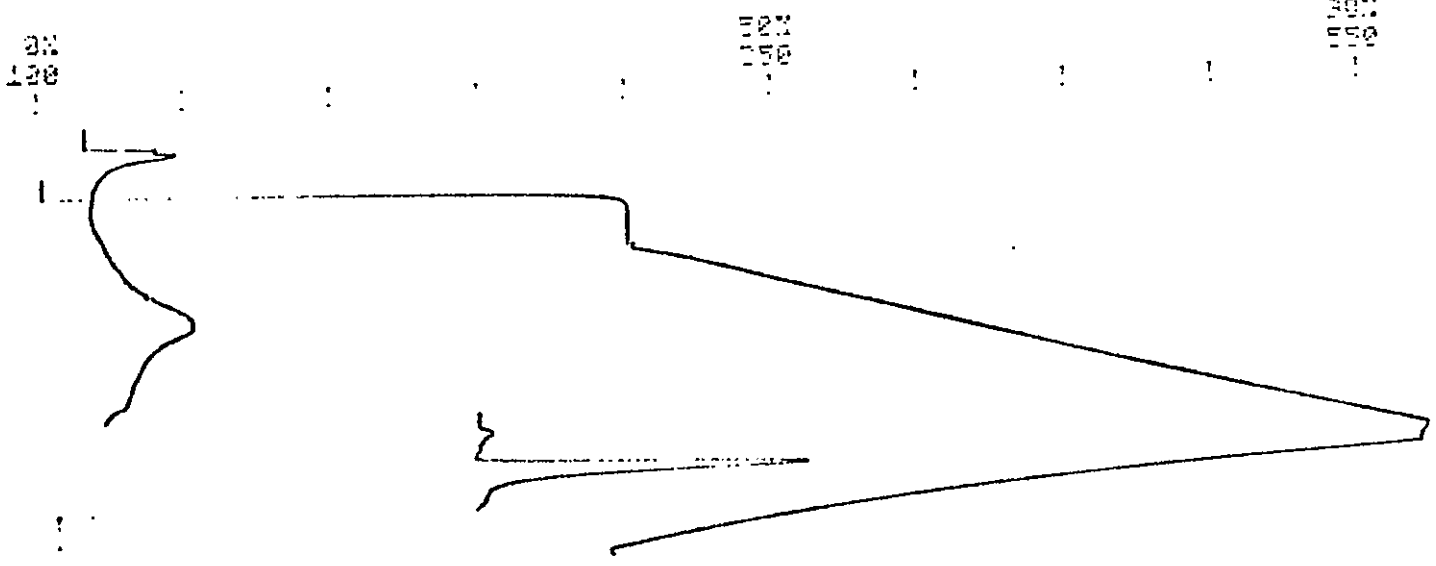
SEDCOM ROCK EVAL II

JUL 31, 1985
TIME= 1355
ID= 3
FID ATTENUATION= 100
TCD ATTENUATION= 32



TOC = .81
HI = 122.8
TMAX = 453 DEGREES C
S1= +7.375E-02 SUM= +8.453E+00
S2= +1.432E-00 SUM= +1.509E+04
S3= +5.884E-01 SUM= +6.212E+00
UNKNOWN

TIME = 1413
ID= 4
FID ATTENUATION= 32
TCD ATTENUATION= 32

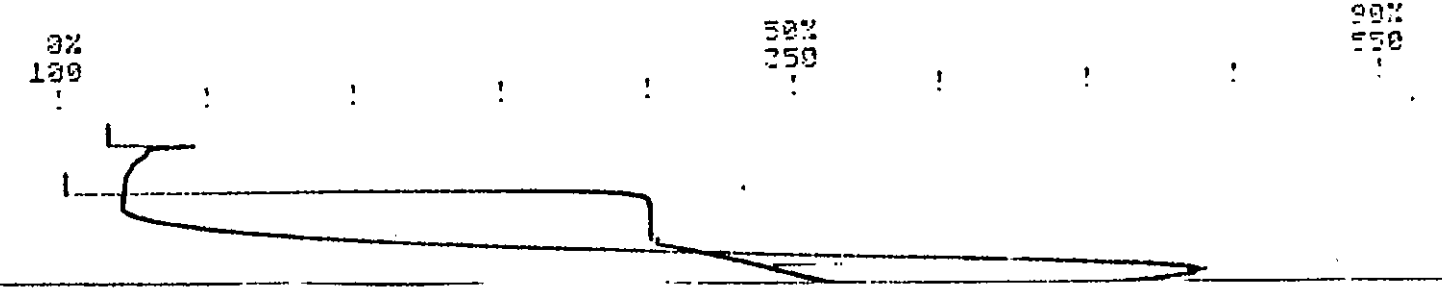


TCD = .81
MT = 121.3
TMAX = 449 DEGREES C
S1= +1.548E-21 SUM= +1.5E2E+03
S2= +1.041E+23 SUM= +1.1:3E+24
S3= +4.659E-21 SUM= -5.077E+03
UNKNOWN

SEDCOM ROCK EVAL II

Control Sample

JUL 31: 1985
TIME= 1444
ID= 92091
FID ATTENUATION= 32
TCD ATTENUATION= 32

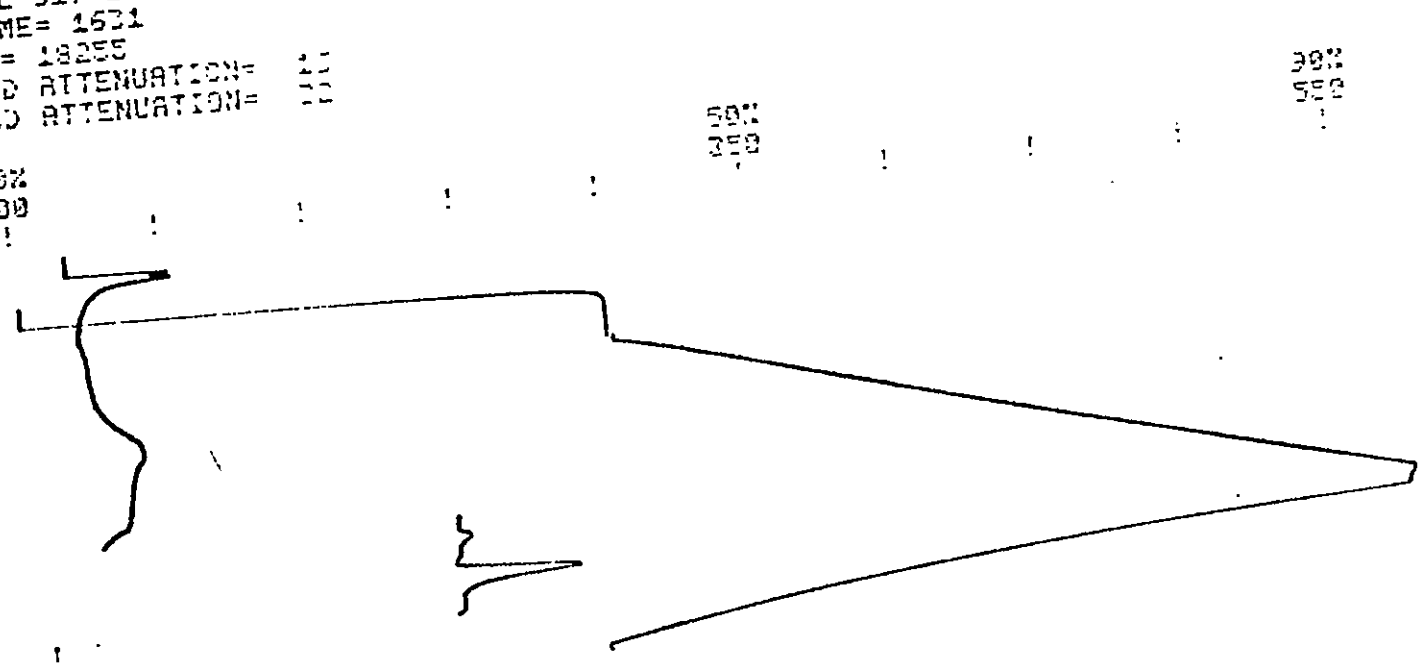


S3= +5.500E-02 SUM= +1.402E+02
BLANK

GEOCOM ROCK EVAL II

P49A1 800.1200'

JUL 31, 1980
TIME= 1631
ID= 18255
FID ATTENUATION= 11
TCD ATTENUATION= 11



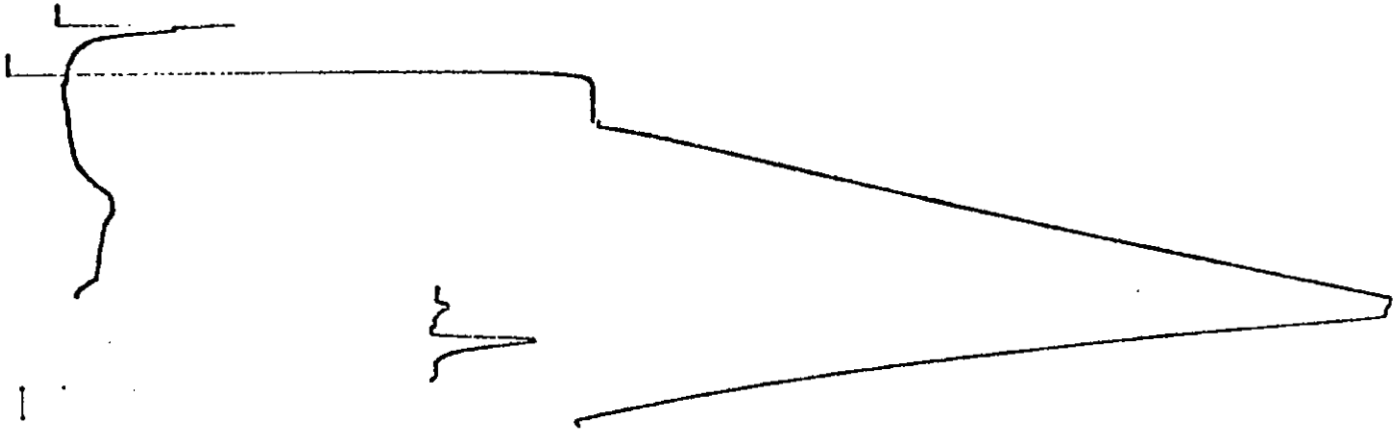
TOC = 1.05
WT = 125.5
TMAX = 456 DEGREES C
S1= +5.251E-01 SUM= +1.119E+02
S2= +2.102E-01 SUM= +9.991E+01
S3= +1.500E-01 SUM= +1.402E+02
UNKNOWN

GEOCOM ROCK EVAL II

P4941
1200- 1550'

JUL 31, 1985
TIME= 1556
ID= 6
FID ATTENUATION= 16
TCD ATTENUATION= 32

0% 50% 90%
100 350 550



TOC = 1.26
WT = 103.3
TMAX = 456 DEGREES C
S1= +7.092E-02 SUM= +8.110E+02
S2= +1.975E-01 SUM= +2.194E+03
S3= +1.831E-01 SUM= +1.433E+03
UNKNOWN

GEOCOM ROCK EVAL II

P4941
1550- 1650'

JUL 31, 1985
TIME= 1721
ID= 7
FID ATTENUATION= 32
TCD ATTENUATION= 32

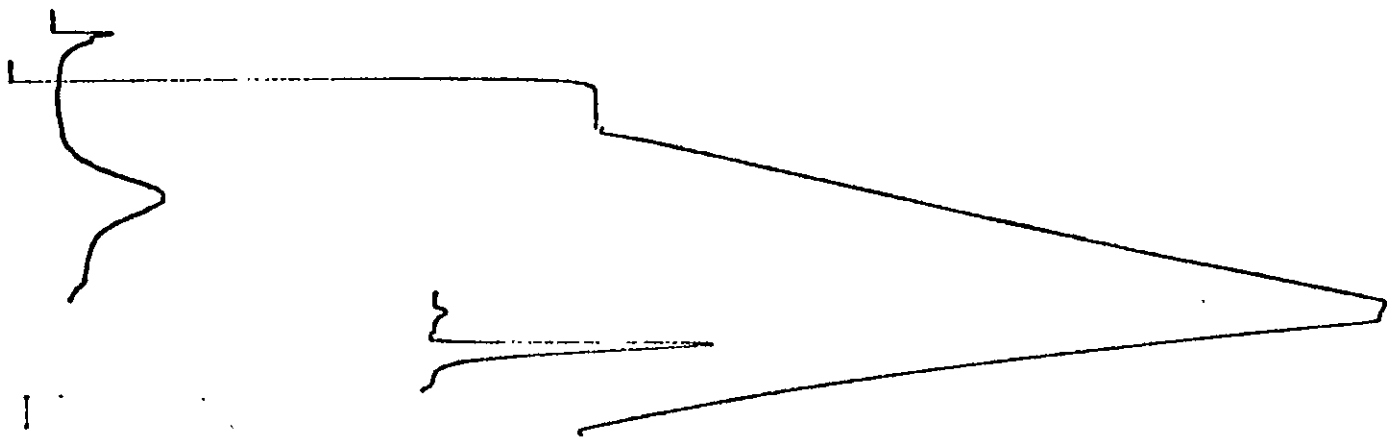
0% 50% 90%
100 350 550

DECCOM ROCK EVAL II

P4941
1550-1650

JUL 31, 1985
TIME= 1721
ID= 7
FID ATTENUATION= 32
TCD ATTENUATION= 32

0% 50% 90%
100 350 550



TOC = 2.42
WT = 121.5
TMAX = 443 DEGREES C
S1= +5.222E-02 SUM= +6.310E+01
S2= +7.940E-01 SUM= +9.600E+02
S3= +3.800E-01 SUM= +4.110E+02
UNKNOWN

DECCOM ROCK EVAL II

P 4941
4210 - 4228'

JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32

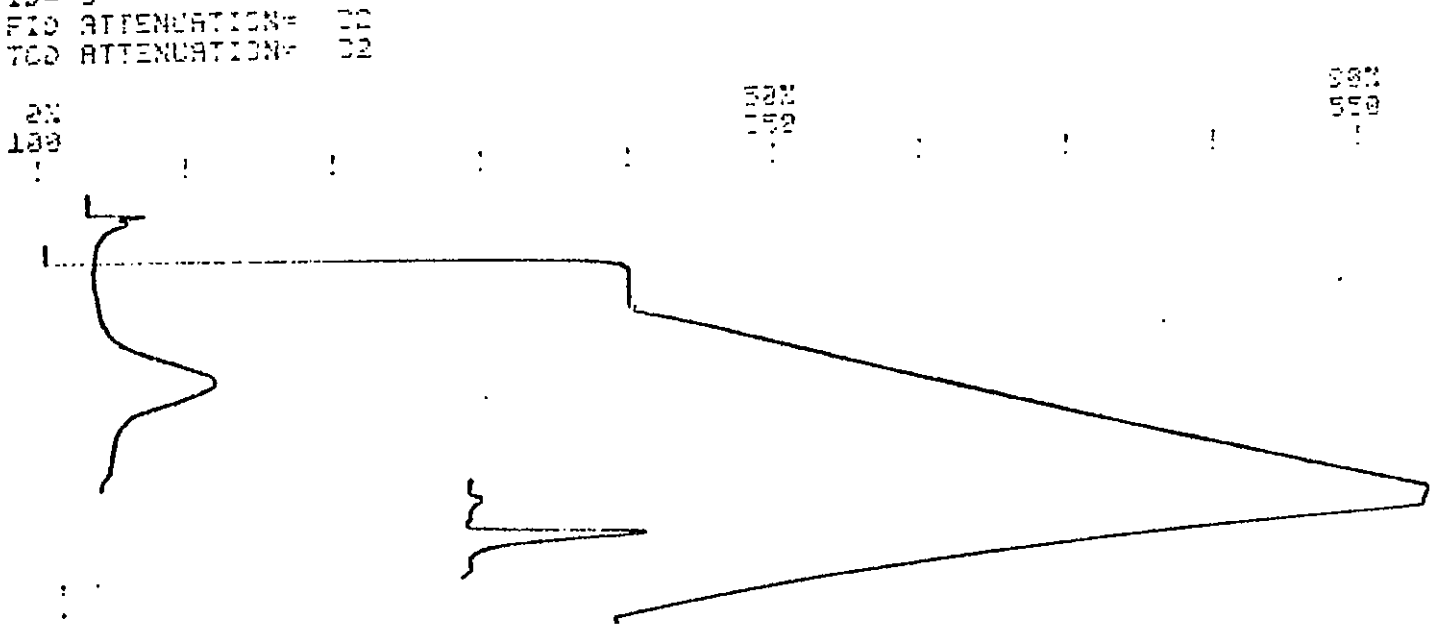
0% 50% 90%
100 350 550

TMAX = 443 DEGREES F
S1= +5.2222E-02 SUM= +2.3435E-02
S2= +7.943E-01 SUM= +8.6035E-02
S3= +3.80CE-01 SUM= +4.1105E-02
UNKNOWN

SECOM ROCK EVAL II

P4941 1650-1950'

JUL 31, 1985
TIME= 1745
ID= 8
FID ATTENUATION= 02
TCD ATTENUATION= 02

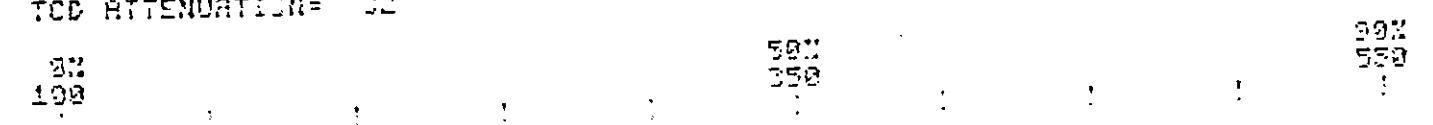


TOC = 1.55
WT = 122.2
TMAX = 432 DEGREES C
S1= +6.3675E-01 SUM= +7.1332E+00
S2= +7.7352E-01 SUM= +8.3585E+00
S3= +2.0515E-01 SUM= +2.4733E+00
UNKNOWN

SECOM ROCK EVAL II

P4941
1950-2270'

JUL 31, 1985
TIME= 1811
ID= 9
FID ATTENUATION= 02
TCD ATTENUATION= 02

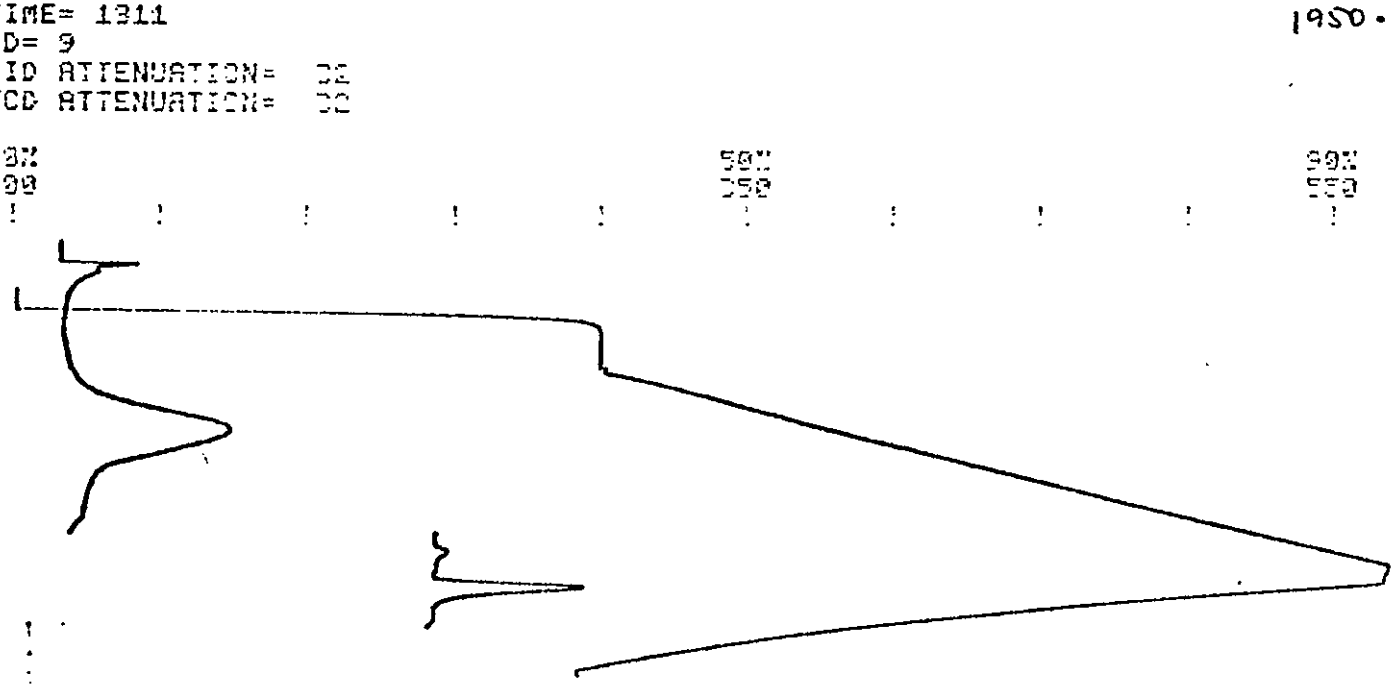


TMAX = 438 DEGREES C
S1= +6.587E-02 SUM= +7.258E-02
S2= +7.735E-01 SUM= +8.559E+00
S3= +2.051E-01 SUM= +2.405E+00
UNKNOWN

BEDDOM ROCK EVAL II

P4941
1950 - 2270'

JUL 31, 1985
TIME= 1311
ID= 9
FID ATTENUATION= 32
TCD ATTENUATION= 32

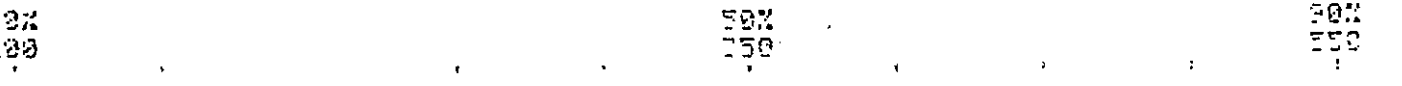


TOC = 1.71
WT = 122.9
TMAX = 440 DEGREES C
S1= +7.044E-02 SUM= +8.138E+00
S2= +1.102E+00 SUM= +1.220E+01
S3= +1.655E-01 SUM= +2.058E+00
UNKNOWN

BEDDOM ROCK EVAL II

P 4941
4210 - 4228'

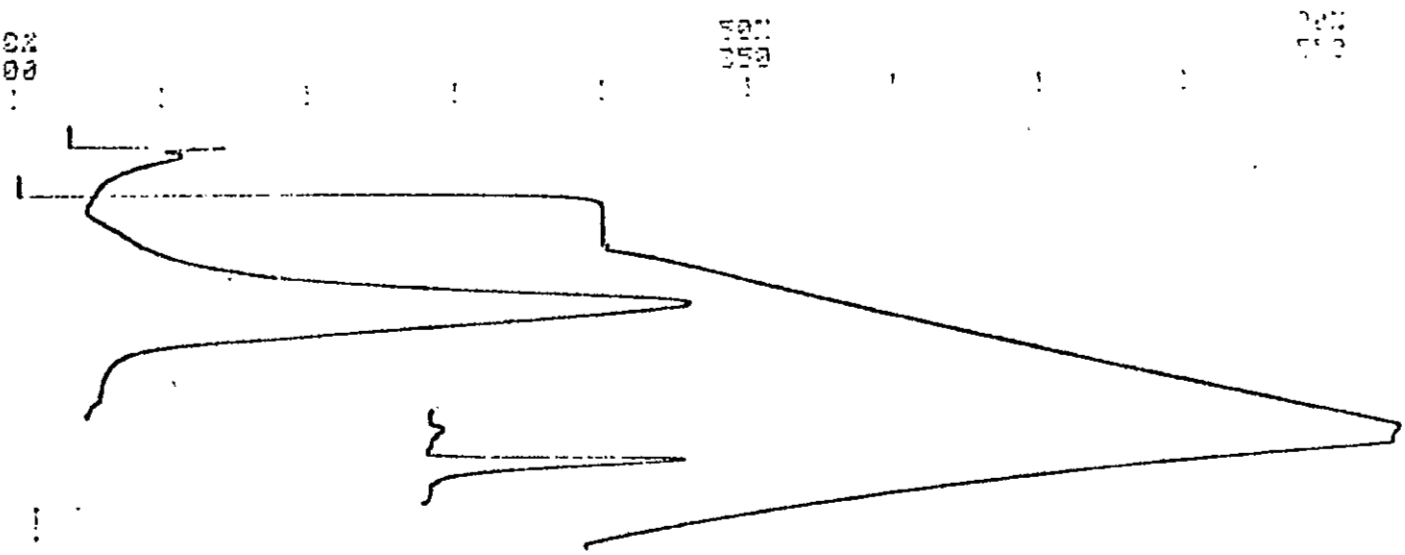
JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32



SEIDON ROCK EVAL II

P4944
2750 - 3000'

JUL 31, 1985
TIME= 1303
ID= 12
FID ATTENUATION= 16
TCD ATTENUATION= 32

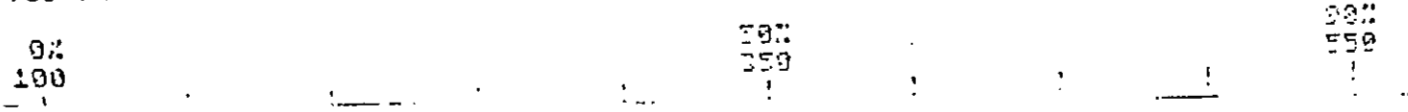


TOC = 1.49
WT = 122.8
TMAX = 437 DEGREES C
S1= +1.453E-01 SUM= +1.597E+02
S2= +1.98IE+00 SUM= +2.173E+01
S3= +3.270E-01 SUM= +3.613E+00
UNKNOWN

SEIDON ROCK EVAL II

P4941
3000 - 3300'

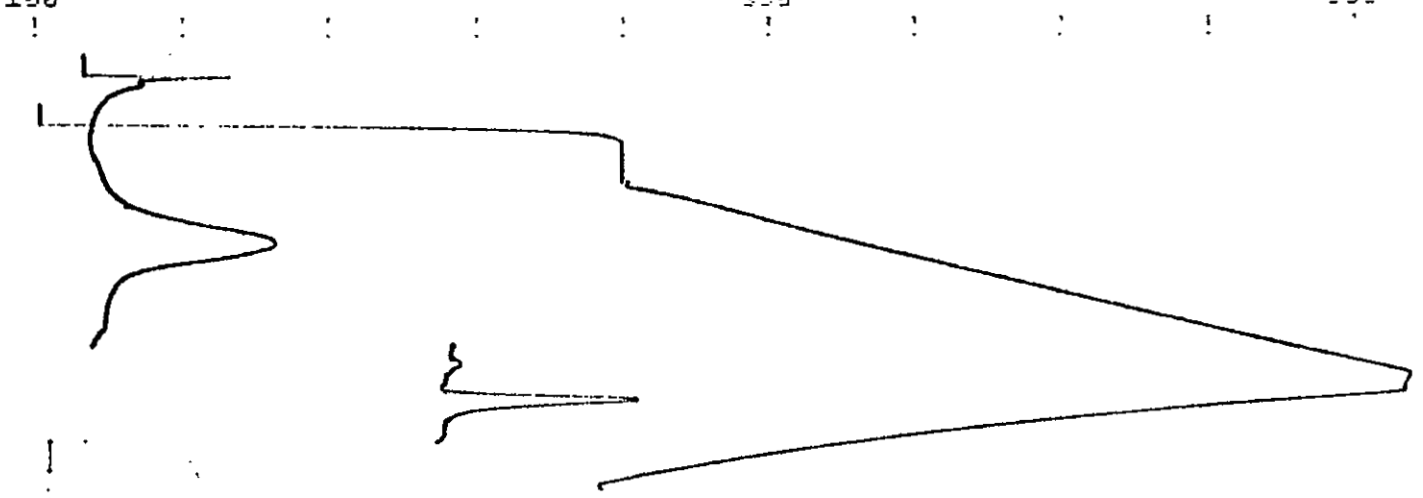
JUL 31, 1985
TIME= 1950
ID= 13
FID ATTENUATION= 32
TCD ATTENUATION= 32



SEDOM ROCK EVAL II

JUL 31, 1985
TIME= 1950
ID= 13
FID ATTENUATION= 32
TCD ATTENUATION= 32

P4941
3000. 3300'

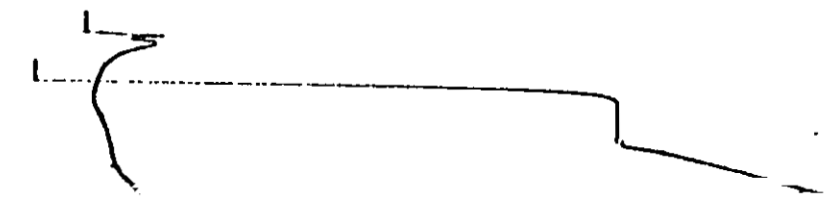


TOC = 1.62
WT = 122.4
TMAX = 441 DEGREES C
S1= +1.393E-01 SUM= +1.553E-01
S2= +1.191E+00 SUM= +1.347E+00
S3= +2.207E-01 SUM= +2.575E+00
UNKNOWN

SEDOM ROCK EVAL II

JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32

P 4941
4210 - 4228'

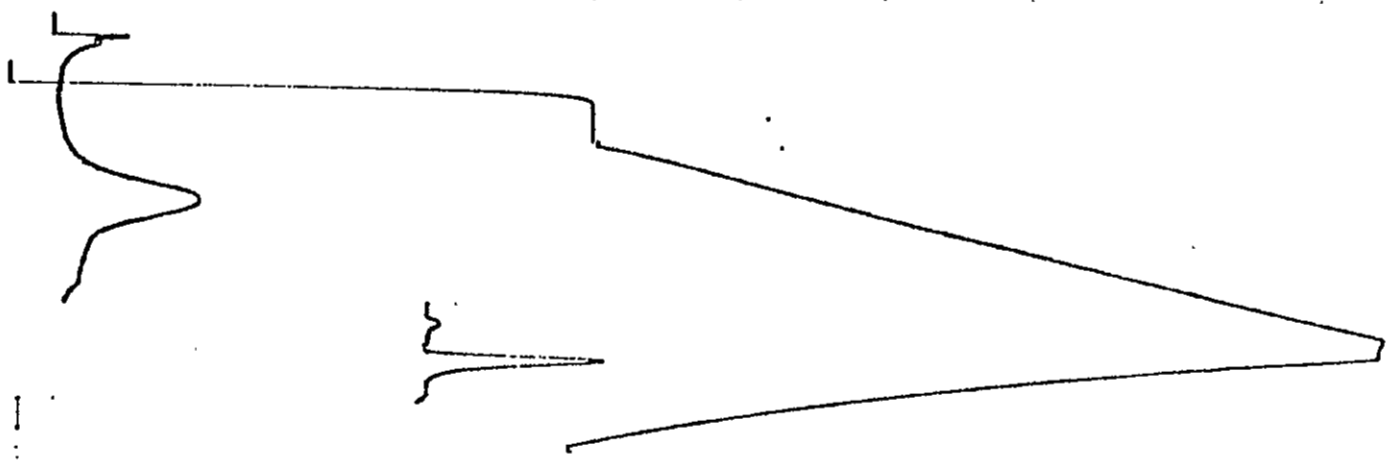


GEOCOM ROCK EVAL II

JUL 31, 1985
TIME= 1335
ID= 10
FID ATTENUATION= 02
TCD ATTENUATION= 02

P494)
2270 - 2500'

0% 50% 90%
100 750 550



TCC = 1.34
WT = 123.0
TMAX = 441 DEGREES C
S1= +0.860E-02 SUM= +0.900E+00
S2= +9.661E-01 SUM= +1.070E+01
S3= +2.242E-01 SUM= +2.500E+00
UNKNOWN

GEOCOM ROCK EVAL II

JUL 31, 1985
TIME= 1900
ID= 11
FID ATTENUATION= 02
TCD ATTENUATION= 02

P494)
2500 - 2750'

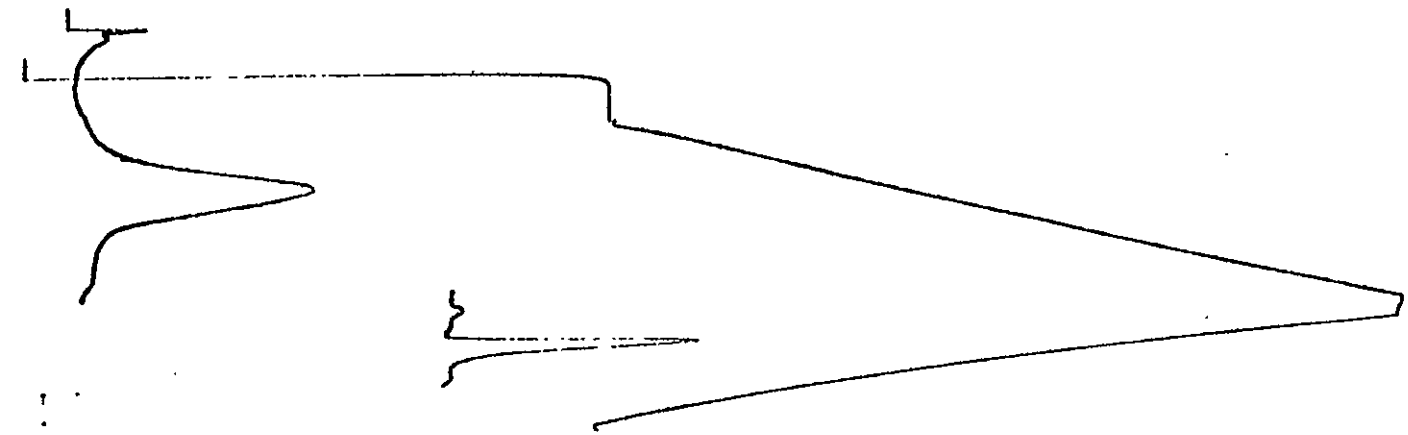
0% 50% 90%
100 750 550

SEDIMENT ROCK EVAL II

P4941
2500 - 2750'

JUL 31, 1985
TIME= 1909
ID= 11
FID ATTENUATION= 32
TCD ATTENUATION= 32

0%
100
50%
350
90%
550



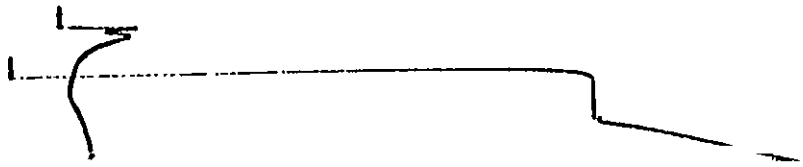
TOC = 1.59
WT = 122.7
TMAX = 407 DEGREES C
S1= +2.8842-02 SUM= +3.313E+02
S2= -1.3995-00 SUM= +1.5475-04
S3= +3.157E-01 SUM= +3.544E+03
UNKNOWN

SEDIMENT ROCK EVAL II

P 4941
4210 - 4228'

JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32

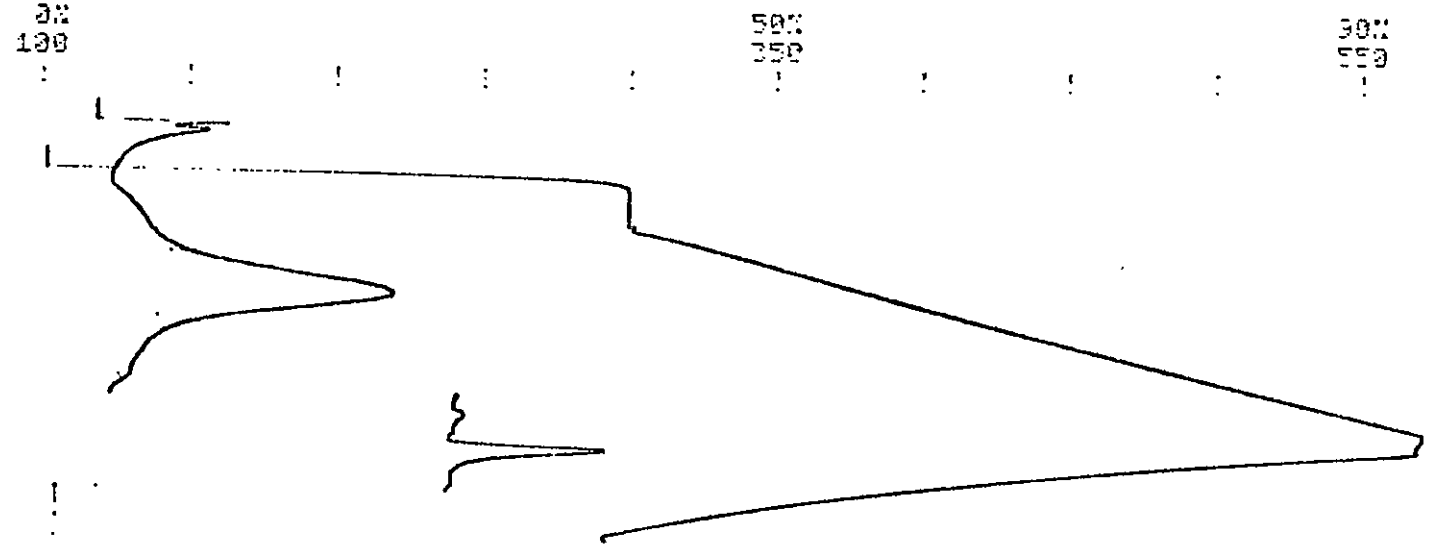
0%
100
50%
350
90%
550



GEOCOM ROCK EVAL II

JUL 31, 1985
TIME= 2015
ID= 14
FID ATTENUATION= 16
TCD ATTENUATION= 32

@ 4941
3300 - 3650'

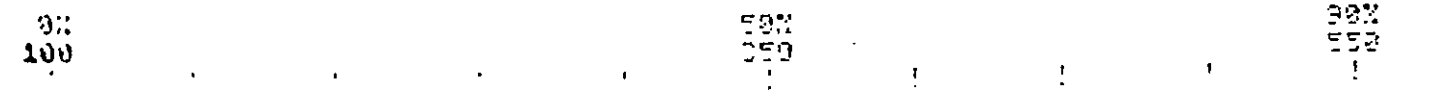


TOC = 1.47
WT = 109.0
TMAX = 444 DEGREES C
S1= +4.107E-01 SUM= +1.282E+02
S2= +9.595E-01 SUM= +1.114E+03
S3= +1.741E-01 SUM= +1.282E+02
UNKNOWN

GEOCOM ROCK EVAL II

JUL 31, 1985
TIME= 2040
ID= 15
FID ATTENUATION= 8
TCD ATTENUATION= 32

@ 4941
3650 - 3940'

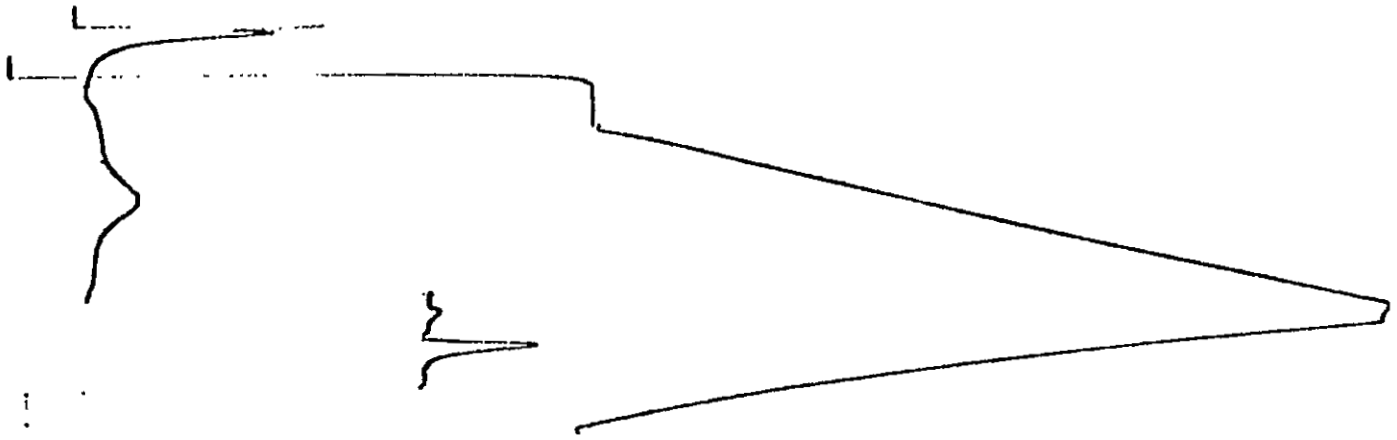


DECCAN ROCK EVAL II

P4941
8650 - 3940'

JUL 31, 1985
TIME= 2042
ID= 15
FID ATTENUATION= 1
TCD ATTENUATION= 32

0% 50% 90%
100 350 550



TOC = .62
MT = 121.4
TMAX = 440 DEGREES C
S1= +6.529E-02 SUM= +7.142E+02
S2= +2.530E-02 SUM= +2.850E+02
S3= +1.093E-01 SUM= +1.407E-03
UNKNOWN

DECCAN ROCK EVAL II

P 4941
4210 - 4228'

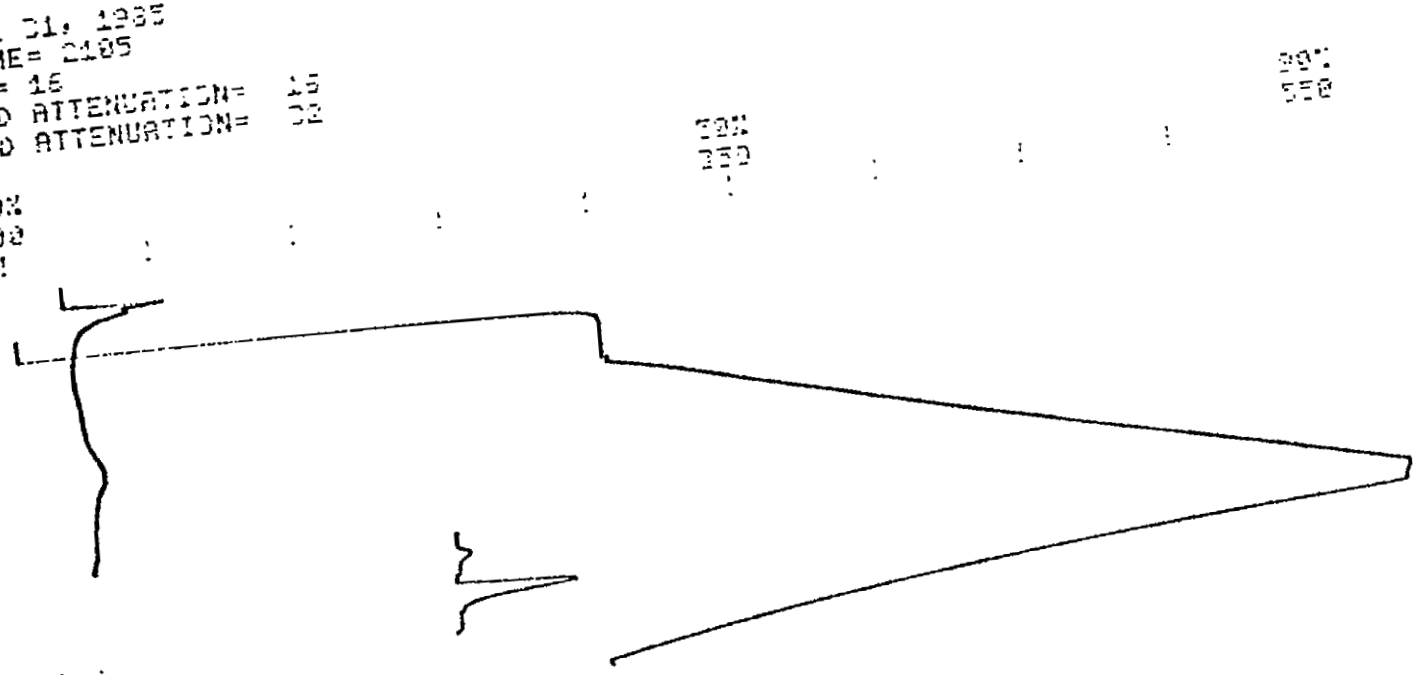
JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32

0% 50% 90%
350 550

DECCOM ROCK EVAL II

3940 - 4070

JUL 31, 1985
TIME= 2105
ID= 16
FID ATTENUATION= 16
TCD ATTENUATION= 32

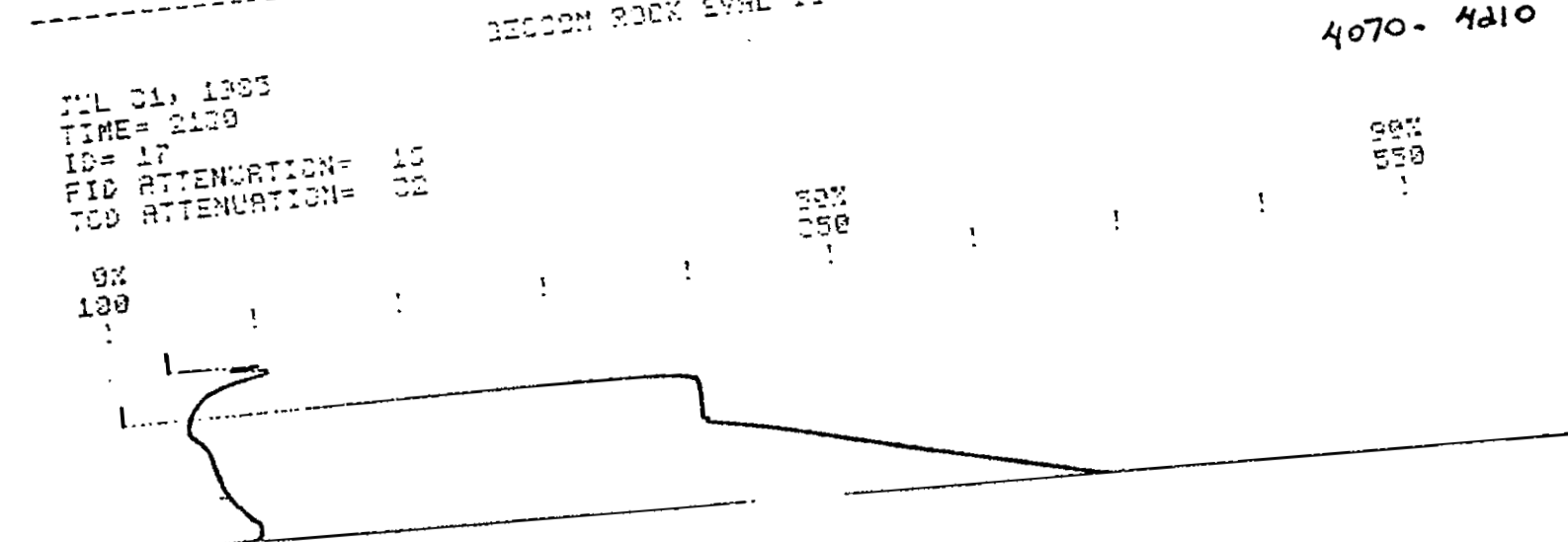


TOC = .32
WT = 122.1
S1= +4.730E-02 SUM= +5.253E+02
S2= +2.231E-01 SUM= +2.523E+02
S3= +1.140E-01 SUM= +1.043E+02
UNKNOWN

DECCOM ROCK EVAL II

P4941
4070 - 4210'

JUL 31, 1985
TIME= 2120
ID= 17
FID ATTENUATION= 16
TCD ATTENUATION= 32

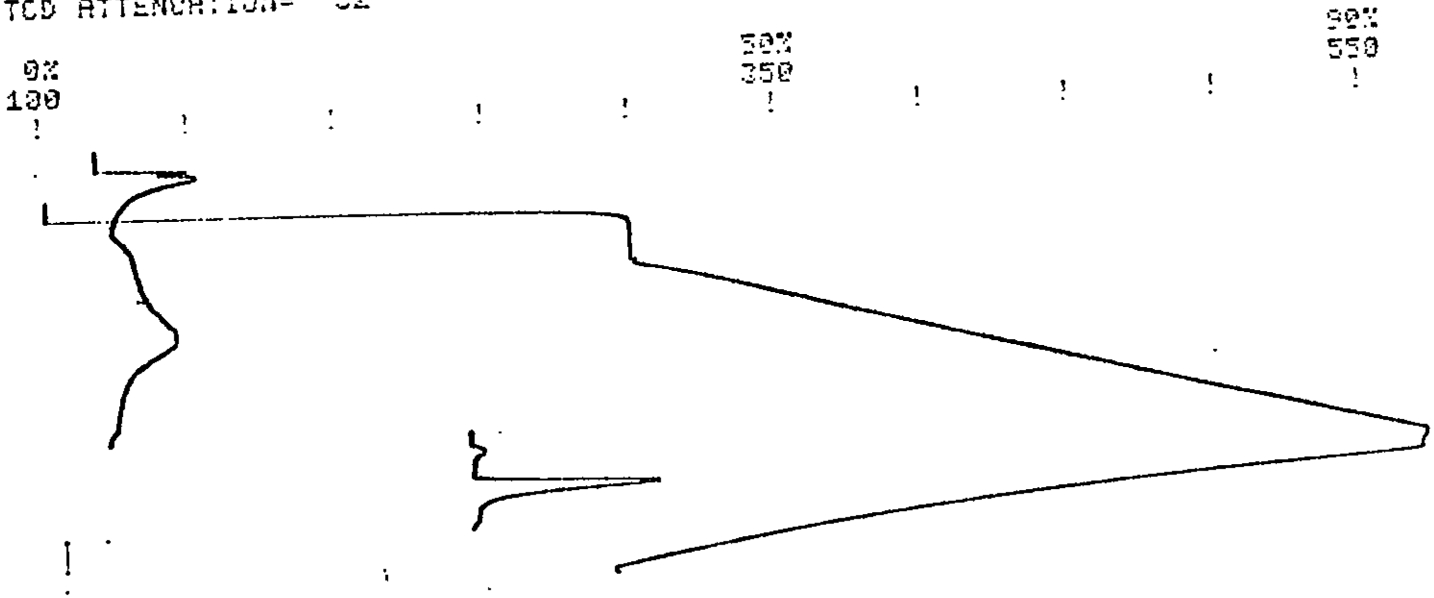


UNKNOWN

GEOCOM ROCK EVAL II

P4941
4070 - 4210'

JUL 31, 1985
TIME= 2139
ID= 17
FID ATTENUATION= 16
TCD ATTENUATION= 32

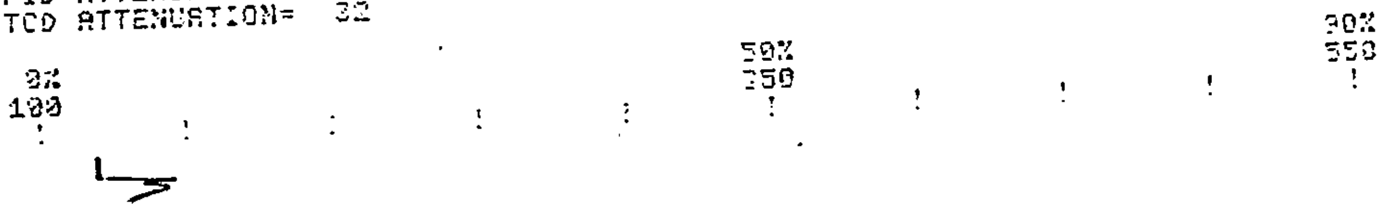


TOC = .92
WT = 123.2
TMAX = 439 DEGREES C
S1= +1.025E-01 SUM= +1.108E+02
S2= +3.030E-01 SUM= +3.363E+02
S3= +2.070E-01 SUM= +2.751E+02
UNKNOWN

GEOCOM ROCK EVAL II

P 4941
4210 - 4228'

JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32



TMAX = 439 DEGREES C
S1= +1.625E-01 SUM= +1.123E+00
S2= +3.820E-01 SUM= +2.505E+00
S3= +2.378E-01 SUM= +2.751E+00
UNKNOWN

DECOM ROCK EVAL II

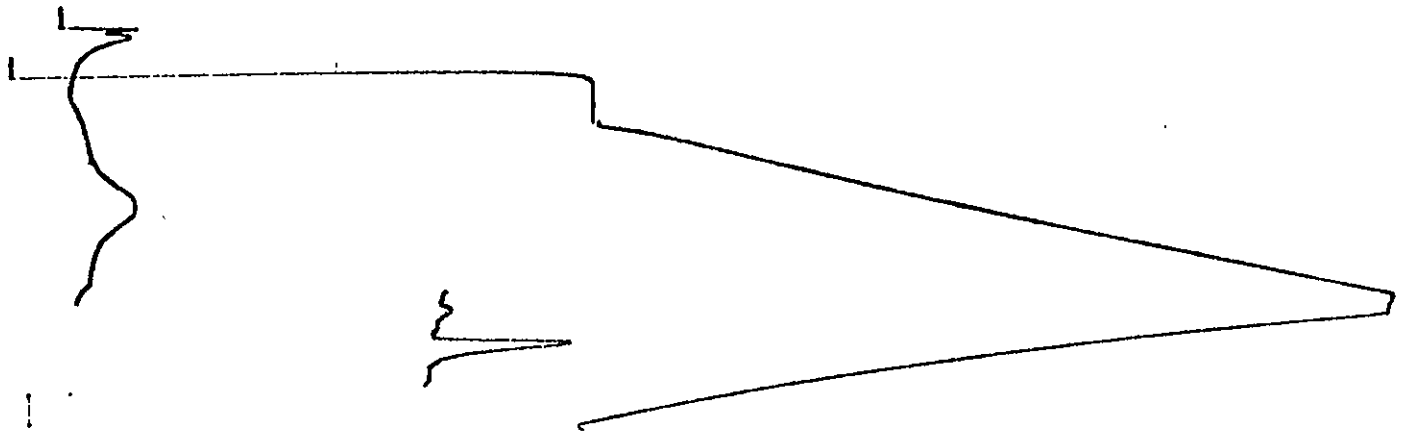
P 4941
4210 - 4228'

JUL 31, 1985
TIME= 2155
ID= 18
FID ATTENUATION= 16
TCD ATTENUATION= 32

3%
100

50%
350

90%
550



TOC = 1.21
WT = 122.4
TMAX = 450 DEGREES C
S1= +5.529E-02 SUM= +6.123E-02
S2= +2.555E-01 SUM= +2.343E-03
S3= +1.096E-01 SUM= +1.311E-03
UNKNOWN