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ROBERTSON RESEARCH INTERNATIONAL LIMITED

REPORT NO. 5293P/D

RESULTS OF ROCK-EVAL ANALYSIS OF SIDEWALL CORE SAMPLES

FROM THE INTERVAL 4109m TO 4339m

IN THE 2/5-7 NORWEGIAN NORTH SEA WELL

for

A/S Norske Shell,
Forus Kontor,
Postboks 10,
N 40 33 Forus
Norway.

Project No. RRPS/845/D/25106

Norske Shell Order No. S3826

APRIL, 1984

I

SUMMARY

Eight samples of sidewall core material from the interval 4109m to 4339m in the Norske Shell 2/5-7 Norwegian North Sea Well have been analysed for total organic carbon content followed by Rock-Eval pyrolysis. The samples were reanalysed after solvent extraction. Tabulated data and figured pyrograms are presented.

INTRODUCTION

This report contains the results of pyrolysis analysis carried out on eight small fragments of sidewall core material received from the Norske Shell 2/5-7 Norwegian North Sea Well.

The project was initiated by telephone conversation of 31st January, 1984, between personnel of A/S Norske Shell and Robertson Research International Limited. Instructions for analysis were received by telex reference FOR 270201 of 27th February, 1984, and confirmed on A/S Norske Shell Service Order number S3826, received 1st March, 1984. Samples were sent airfreight and were received into RRI geochemistry laboratories on 1st March, 1984. The personnel involved during the course of the project were Mr. B.M. Thomas of A/S Norske Shell and Mr. P. C. Barnard and Mr. A.G. Collins of RRI.

Initial results were sent by facsimile message of 21st March, 1984, followed by a complete set of results by facsimile message of 12th April, 1984.

III

RESULTS

1. METHODS

The samples received for analysis were all small fragments of sidewall core material, mainly comprising dark shales and siltstones. All samples were carefully cleaned to remove mudcake and any other visible contamination and were then dried in an air oven at 40°C, given a brief lithological description and crushed to pass through a 60 mesh sieve.

The resulting powders were analysed for total organic carbon content in a Leco carbon analyser and by pyrolysis in the IFP-Fina Rock-Eval apparatus. There remained sufficient material from seven out of the eight samples for solvent extraction using dichloromethane/methanol after which, total organic carbon and pyrolysis analyses were repeated.

2. RESULTS

The results are presented in Table 1 and show that most of the oil contamination was removed by solvent extraction. The weights of extracted material are also listed. Copies of Rock-Eval pyrograms are figured in Appendix I.

COMPANY: NORSKE SHELL **WELL:** 2/5-7 **LOCATION:** NORTH SEA

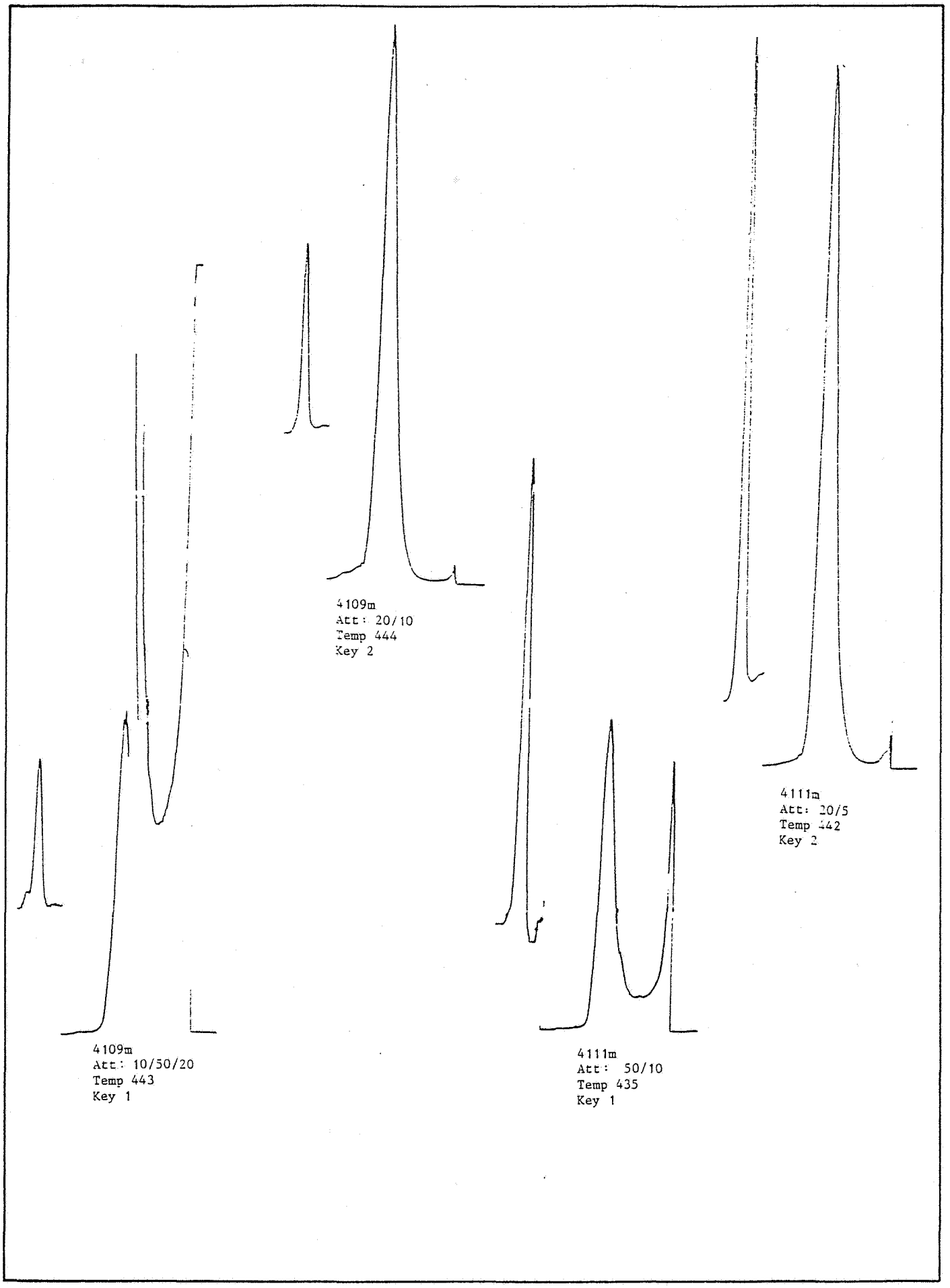
GENERAL DATA			CHEMICAL ANALYSIS DATA											
				PYROLYSIS					SOLVENT EXTRACTION					
SAMPLE DEPTH (METRES)	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TEMP – ERATURE °C	HYDROGEN INDEX	OXYGEN INDEX	PRODUCTION INDEX	POTENTIAL YIELD (ppm)	TOTAL EXTRACT (ppm)	HYDRO-CARBONS (ppm)	EXTRACT % OF ORGANIC CARBON	HYDROCARBONS mg/g OF ORGANIC CARBON	HYDROCARBONS % OF EXTRACT	ALKANES % OF HYDRO-CARBONS
4109	Swc	SH, gy-blk	4.11	443	322	19	.32	13270	11455		27.9			
	"	After extraction	3.30	444	174	13	.01	5770						
4111	"	SH, ol-blk	4.11	435	277	37	.31	11410	10045		24.4			
	"	After extraction	4.06	442	175	21	.02	7120						
4112.5	"	SH, a/a	7.30	432	345	23	.30	25210	17600		24.1			
	"	After extraction	6.95	442	273	19	.02	19020						
4113.5	"	SH, a/a	7.24	442	303	32	.30	21960	–		–			
	"	After extraction	–	INSUFFICIENT SAMPLE										
4155	"	SLTST, dk gy, calc	3.83	442	224	44	.31	8580	9030		23.6			
	"	After extraction	3.42	446	148	22	.03	5090						
4211	"	SLTST, dk gy	6.11	441	269	28	.36	16460	16000		26.2			
	"	After extraction	5.13	443	154	14	.02	7930						
4295.5	"	SLTST, gy-blk, calc	6.70	442	183	23	.44	12260	14665		21.9			
	"	After extraction	5.89	444	130	8	.01	7680						
4339	"	MDST, med-dk gy, calc	1.92	449	66	78	.42	1280	2250		11.7			
	"	After extraction	2.00	438	63	47	.12	1270						

TABLE 1 Chemical Analysis Data

APPENDIX I.

"ROCK-EVAL" PYROGRAMS

COMPANY: NORSKE SHELL **WELL:** 2/5-7 **LOCATION: NORWEGIAN NORTH SEA**



KEY TO ABBREVIATIONS

A. Pyrogram of sample:- 1. As Received
2. After Extraction
3. After Decarbonation
4. After Extraction and Decarbonation

B. Att.:- Instrument Attenuation
C. Temp.:- "Rock-Eval" T Max.

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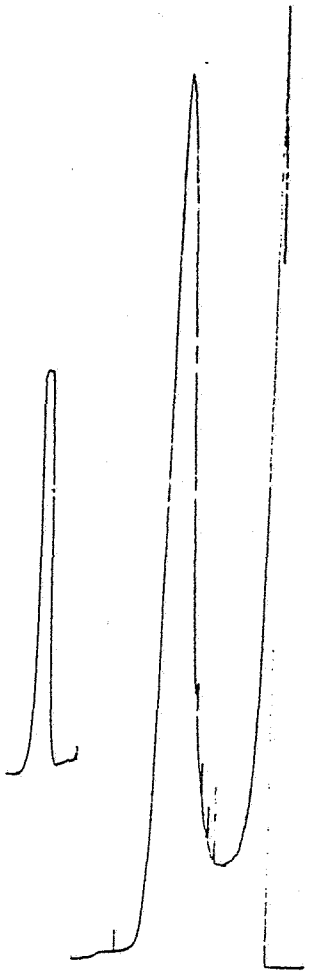
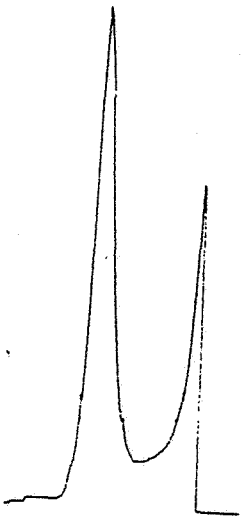
"ROCK-EVAL" PYROGRAMS

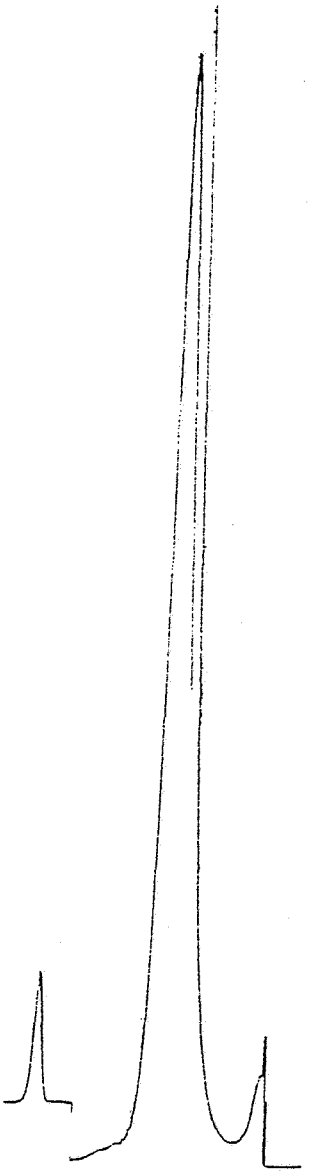
COMPANY: NORSKE SHELL **WELL: 2/5-7** **LOCATION: NORWEGIAN NORTH SEA**



4112.5m
Att: 50/20
Temp 432
Key 1



4113.5m
Att: 20/20
Temp 442
Key 1



4112.5m
Att: 20/50
Temp 442
Key 2

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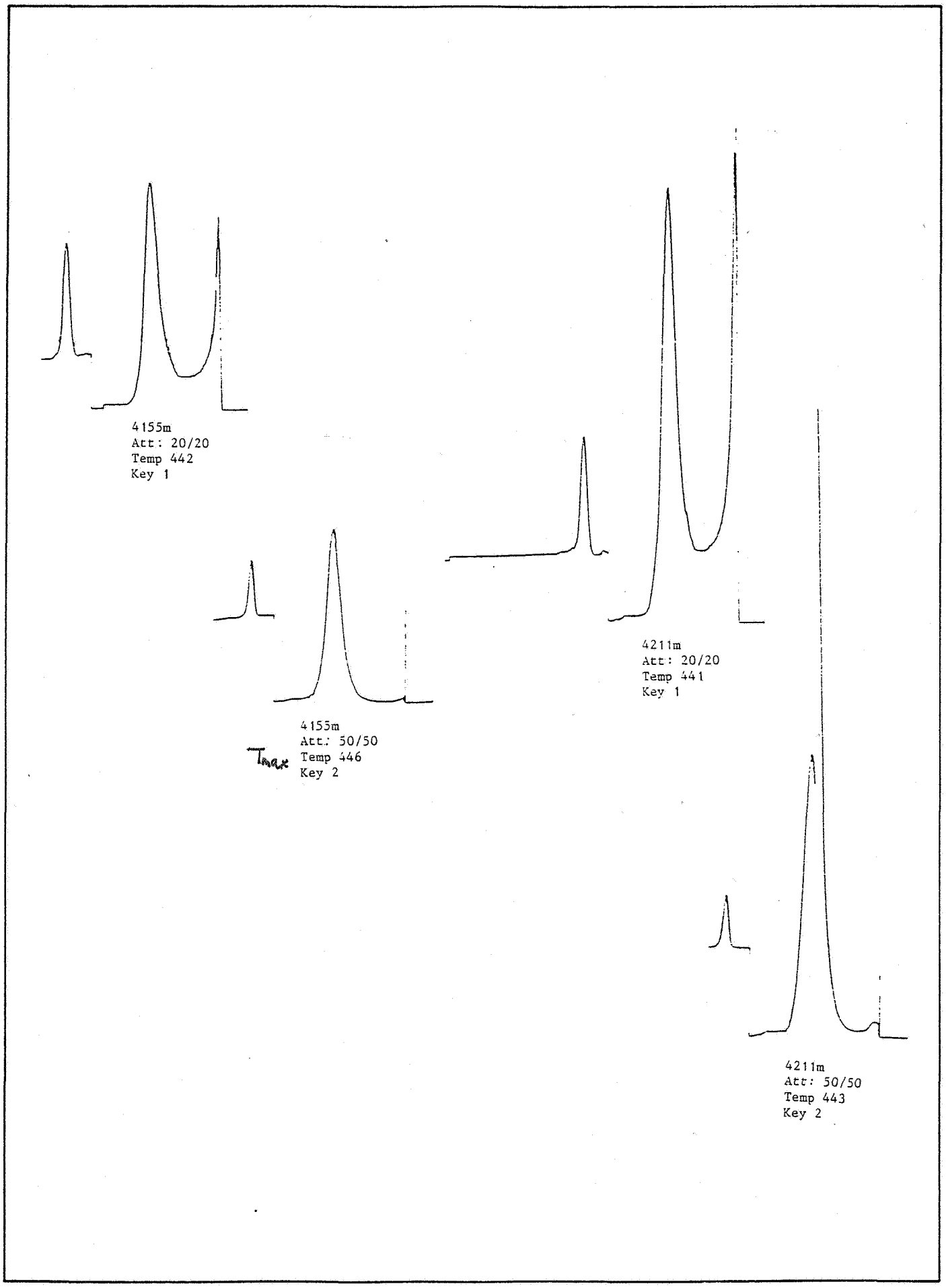

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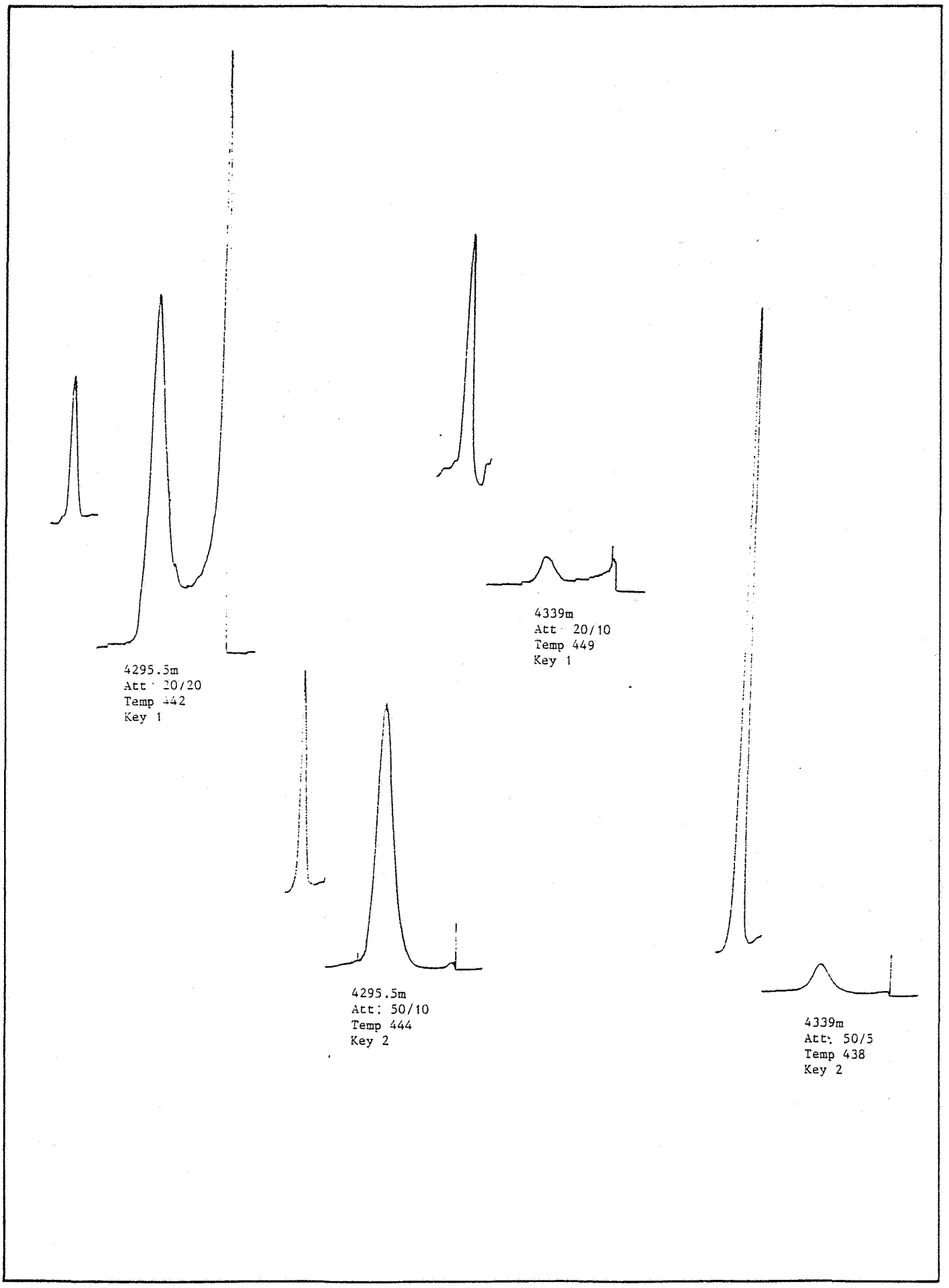

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