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NUMBER 8937

OEL 20 AND OEL 21

EROMANGA AND COOPER BASINS

WANCOOCHA 1

TEST REPORTS

Submitted by

Delhi Petroleum Pty Ltd and Santos Ltd
1993

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MINES AND ENERGY
SOUTH AUSTRALIA



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ENVELOPE 8937

TENEMENT: OEL 20 and OEL 21; Eromanga and Cooper Basins
TENEMENT HOLDER: Delhi Australian Petroleum Ltd (operator) and Santos Ltd

CONTENTS

	MESA NO.
REPORTS: Koutrouzas, A. and O'Leary, T., 1984. Results of source rock analysis of 51 drill cuttings samples from the depth interval 4000-6290 feet KB for total organic carbon and Rock-Eval pyrolysis parameters (Amdel Ltd report no. F 7015/84 - Part 2 (Final) for Delhi Petroleum Pty Ltd, 23/7/84).	8937 R 1 Pgs 3-20
Colour photographs of full hole cores 1 through 3 (Challenger Geological Services, 1984).	8937 R 2 Pgs 21-29
Wood, G.R., 1993. Brief palynological report no. 1993/40 on 2 Permian full hole core samples (Santos Ltd, October 1993).	8937 R 3 Pg. 30

END OF CONTENTS

000003

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amdel

23 July 1984

F3/5./0
F7015/84 - Part 2 (Final)

Delhi Petroleum Pty. Limited,
GPO Box 2364,
ADELAIDE SA 5001

Attention: M.P. Middleton

REPORT F7015/84 - Part 2 (Final)

CLIENT REFERENCE:	SA1-702:RSH/11f WP:LYN026/18
TITLE:	Preliminary source rock data, Wanoocha-1
SAMPLE IDENTIFICATION:	4000-6290' interval
MATERIAL:	Cuttings
LOCALITY:	WANOOCHA-1
DATE RECEIVED:	22 June 1984
WORK REQUIRED:	TOC and Rock-Eval

Investigation and Report by: Andrew Koutrouzas and T. O'Leary

Chief - Fuels Section: Dr Brian G. Steveson

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cah

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000004

SOURCE ROCK ANALYSIS

TOC AND ROCK-EVAL

Wancoocha 1

Bulldog Shale

4000-4030
4030-4060
4060-4090
4090-4120
4120-4150
4150-4180
4180-4210
4210-4230

Cadna-owie

4230-4260
4260-4290
4290-4320
4320-4350
4350-4380

Horta

4390-4420
4420-4450
4450-4480
4480-4510

McKinlay Member

4530-4560
4560-4590
4590-4620
4620-4650

Westbourne/Lake Namur

4720-4750

Birkhead

5210-5240
5240-5270
5270-5300

000005

SOURCE ROCK ANALYSIS

TOC AND ROCK-EVAL

Wancoocha 1

"Basal Jurassic"

5510-5540
5540-5570
5570-5600

Roseneath

5620-5650
5650-5680
5680-5700

Epsilon

5710-5740
5740-5770
5770-5790
5788-5813
5813-5829

Murluree

5838-5870
5880-5910
5910-5940
5940-5960

Patchawarra

5970-6000
6000-6030
6030-6060
6060-6090
6090-6120
6120-6150
6150-6176
6176-6201
6201-6219
6230-6250

Pre-Permian

6260-6290

KEY TO ROCK-EVAL PYROLYSIS DATA SHEET

PARAMETER		SPECIFICITY
T max	position of S ₂ peak in temperature program (°C)	Maturity/Kerogen type
S ₁	kg hydrocarbons (extractable)/tonne rock	Kerogen type/Maturity/Migrated oil
S ₂	kg hydrocarbons (kerogen pyrolysate)/tonne rock	Kerogen type/Maturity
S ₃	kg CO ₂ (organic)/tonne rock	Kerogen type/Maturity *
S ₁ + S ₂	Potential Yield	Organic richness/Kerogen type
PI	Production Index (S ₁ /S ₁ + S ₂)	Maturity/Migrated Oil
PC	Pyrolysable Carbon (wt. percent)	Organic richness/Kerogen type/Maturity
TOC	Total Organic Carbon (wt. percent)	Organic richness
HI	Hydrogen Index (mg h ⁻¹ c (S ₂)/g TOC)	Kerogen type/Maturity
OI	Oxygen Index (mg CO ₂ (S ₃)/g TOC)	Kerogen type/Maturity *

*Also subject to interference by CO₂ from decomposition of carbonate minerals.

Sample depths shown in Rock-Eval table correspond to the top depth of each 30' sample shown in the following pages.

000006

000007

AMDEL

Page 1

ROCK-EVAL PYROLYSIS

10/07/84

Client DELHI PETROLEUM

Well WANCODCHA #1

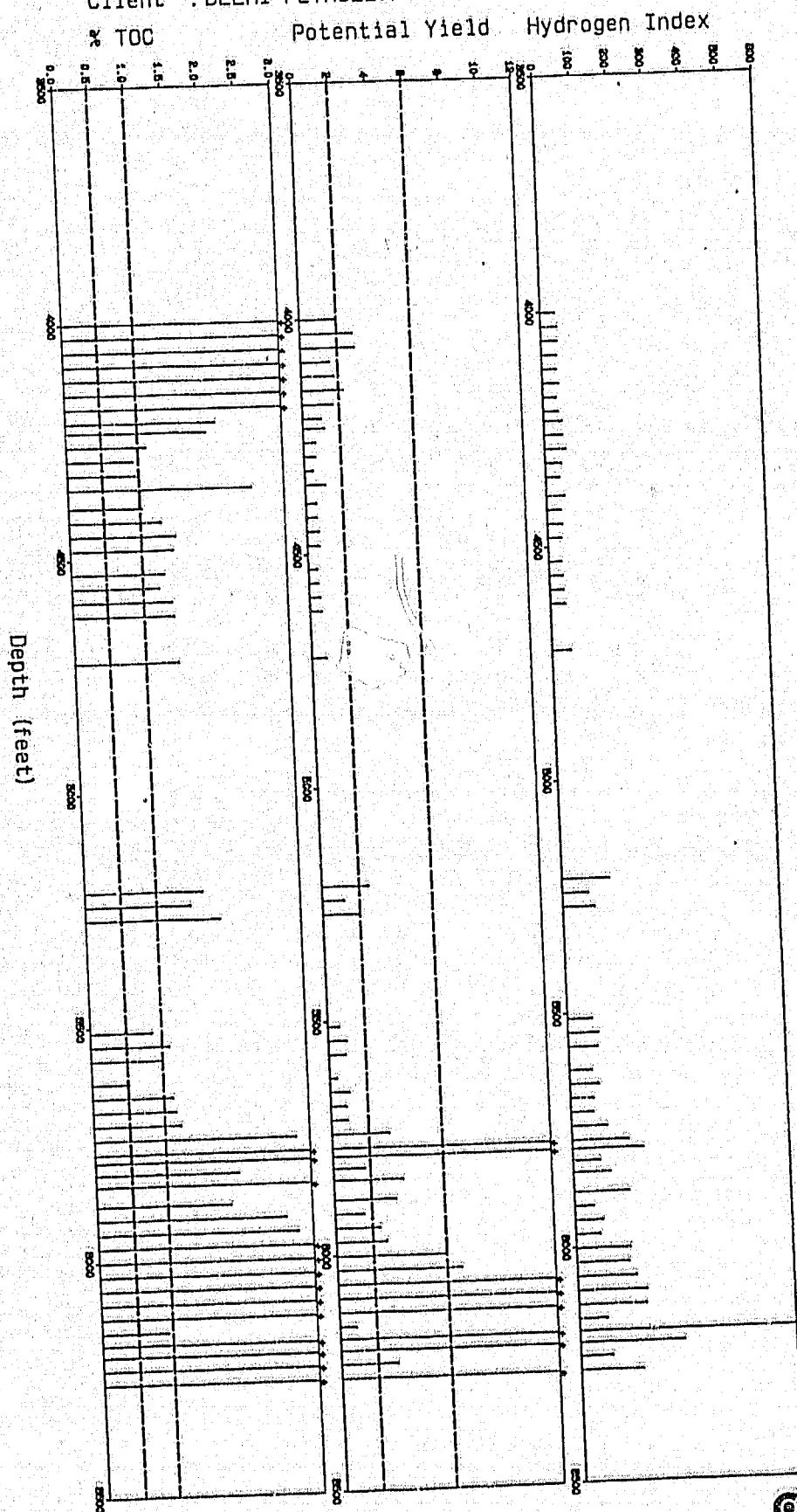
DEPTH	T MAX	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
+4000.00	435	0.14	1.78	5.50	1.92	0.07	0.32	0.16	4.35	41	126
+4030.00	436	0.22	2.60	8.26	2.82	0.08	0.31	0.23	5.80	45	142
+4060.00	437	0.15	2.79	8.34	2.94	0.05	0.33	0.24	6.40	44	130
4090.00	434	0.12	1.46	4.38	1.58	0.08	0.33	0.13	3.50	42	125
4120.00	433	0.14	1.63	5.30	1.77	0.08	0.30	0.14	4.00	41	132
4150.00	433	0.17	2.08	6.24	2.25	0.08	0.33	0.18	4.75	44	131
4180.00	433	0.31	1.37	4.73	1.68	0.18	0.28	0.14	3.68	37	129
4210.00	434	0.12	0.88	3.05	1.00	0.12	0.28	0.08	2.10	42	145
4230.00	432	0.18	0.98	3.05	1.16	0.16	0.32	0.09	1.97	50	155
4260.00	435	0.12	0.54	2.39	0.66	0.18	0.22	0.05	1.11	49	215
4290.00	436	0.09	0.54	2.07	0.62	0.13	0.26	0.05	0.93	58	223
4320.00	431	0.05	0.42	2.71	0.47	0.11	0.15	0.03	0.96	44	282
4350.00	432	0.14	0.95	4.03	1.09	0.13	0.33	0.09	2.54	37	159
4390.00	432	0.07	0.50	2.23	0.57	0.12	0.15	0.04	1.03	49	217
4420.00	432	0.07	0.49	2.57	0.56	0.12	0.19	0.04	1.29	38	199
4450.00	434	0.06	0.60	2.80	0.66	0.09	0.21	0.05	1.49	40	188
4480.00	430	0.13	0.52	3.48	0.65	0.20	0.14	0.05	1.45	36	240
4530.00	430	0.05	0.45	3.03	0.50	0.10	0.14	0.04	1.31	34	231
4560.00	429	0.09	0.45	3.59	0.54	0.17	0.12	0.04	1.22	37	294
4590.00	434	0.06	0.52	2.97	0.58	0.10	0.17	0.04	1.41	37	211
4620.00	431	0.06	0.58	3.40	0.64	0.09	0.17	0.05	1.43	41	238
4720.00	434	0.07	0.75	3.55	0.82	0.09	0.21	0.06	1.48	51	240
5210.00	438	0.36	2.19	3.09	2.55	0.14	0.70	0.21	1.87	131	185
5240.00	435	0.11	1.06	2.45	1.17	0.09	0.43	0.09	1.50	71	163
5270.00	436	0.22	1.66	2.45	1.88	0.12	0.67	0.15	1.90	87	129
5510.00	435	0.05	0.59	1.36	0.64	0.08	0.43	0.05	0.86	69	158
5540.00	435	0.09	0.93	2.11	1.02	0.09	0.44	0.08	1.11	84	190
5570.00	434	0.17	0.77	1.80	0.94	0.18	0.42	0.07	0.96	61	188
5620.00	429	0.08	0.33	1.41	0.41	0.20	0.23	0.03	0.52	63	271
5650.00	433	0.17	0.90	2.24	1.07	0.16	0.40	0.08	1.14	79	196
5680.00	434	0.11	0.75	2.01	0.86	0.13	0.37	0.07	1.18	64	170
5710.00	433	0.12	0.77	2.52	0.89	0.14	0.30	0.07	1.24	62	203
5740.00	438	0.37	2.78	3.97	3.15	0.12	0.75	0.26	2.82	99	141
+5770.00	436	0.92	12.08	4.14	13.00	0.07	2.91	1.08	7.55	160	55
+5788.00	436	3.06	53.36	5.64	56.42	0.05	9.46	4.70	26.70	200	21
5813.00	427	0.24	1.50	2.37	1.74	0.14	0.63	0.14	2.00	75	119
5838.00	437	0.53	3.28	3.25	3.81	0.14	1.00	0.31	3.18	103	102
5880.00	438	0.43	2.95	3.07	3.38	0.13	0.86	0.28	1.88	157	163
5910.00	433	0.18	1.41	5.13	1.59	0.11	0.27	0.13	2.64	53	194
5940.00	438	0.30	2.15	5.58	2.45	0.12	0.38	0.20	2.80	77	199
5970.00	439	0.42	2.36	3.60	2.78	0.15	0.65	0.23	3.48	68	103
6000.00	433	0.87	5.05	3.43	5.92	0.15	1.47	0.49	3.32	152	103
6030.00	431	0.96	5.86	3.02	6.82	0.14	1.84	0.56	3.94	149	77
+6060.00	434	2.32	13.73	5.01	18.05	0.14	2.74	1.33	8.25	166	61
+6090.00	435	2.05	18.09	2.42	20.14	0.18	7.47	1.67	9.30	195	26
6120.00	436	1.63	15.96	2.60	17.59	0.09	6.13	1.46	8.35	191	31
6150.00	441	0.15	0.75	0.17	0.90	0.17	4.41	0.07	0.94	79	18
*6176.00	435	12.47	170.67	3.70	183.14	0.07	46.12	15.26	19.90	857	18
*6201.00	437	8.20	121.60	2.80	129.80	0.06	43.42	10.81	41.50	293	7
6230.00	440	0.34	2.77	1.34	3.11	0.11	2.08	0.25	3.06	91	44
+6260.00	441	2.17	25.55	3.47	27.72	0.08	7.36	2.31	14.50	176	24

* Denotes minor coal content

* Denotes major coal content

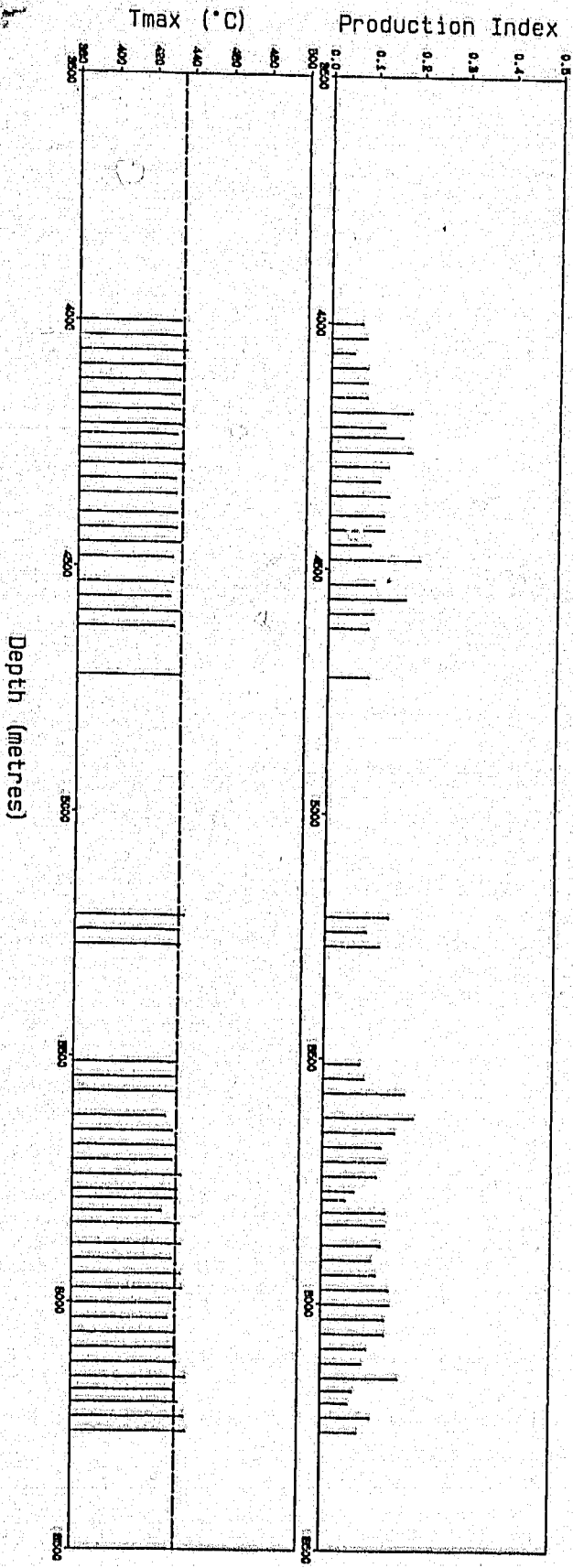
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Client : DELHI PETROLEUM Well name : WANCOOCHA #1



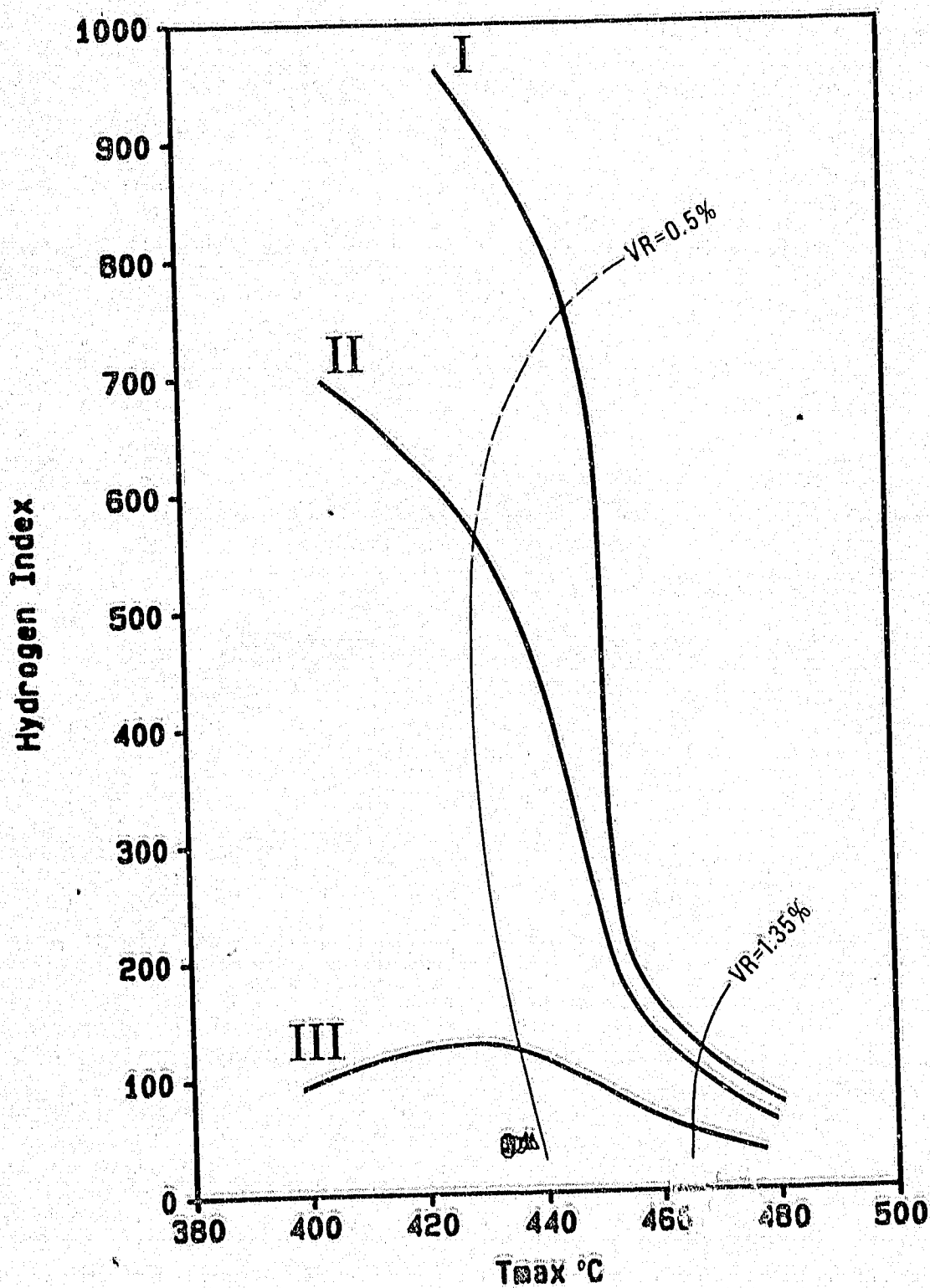
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KEY TO HYDROGEN INDEX vs Tmax PLOTS

<2% TOC	□
2-5% TOC	○
5-20% TOC	△
>20% TOC	◇

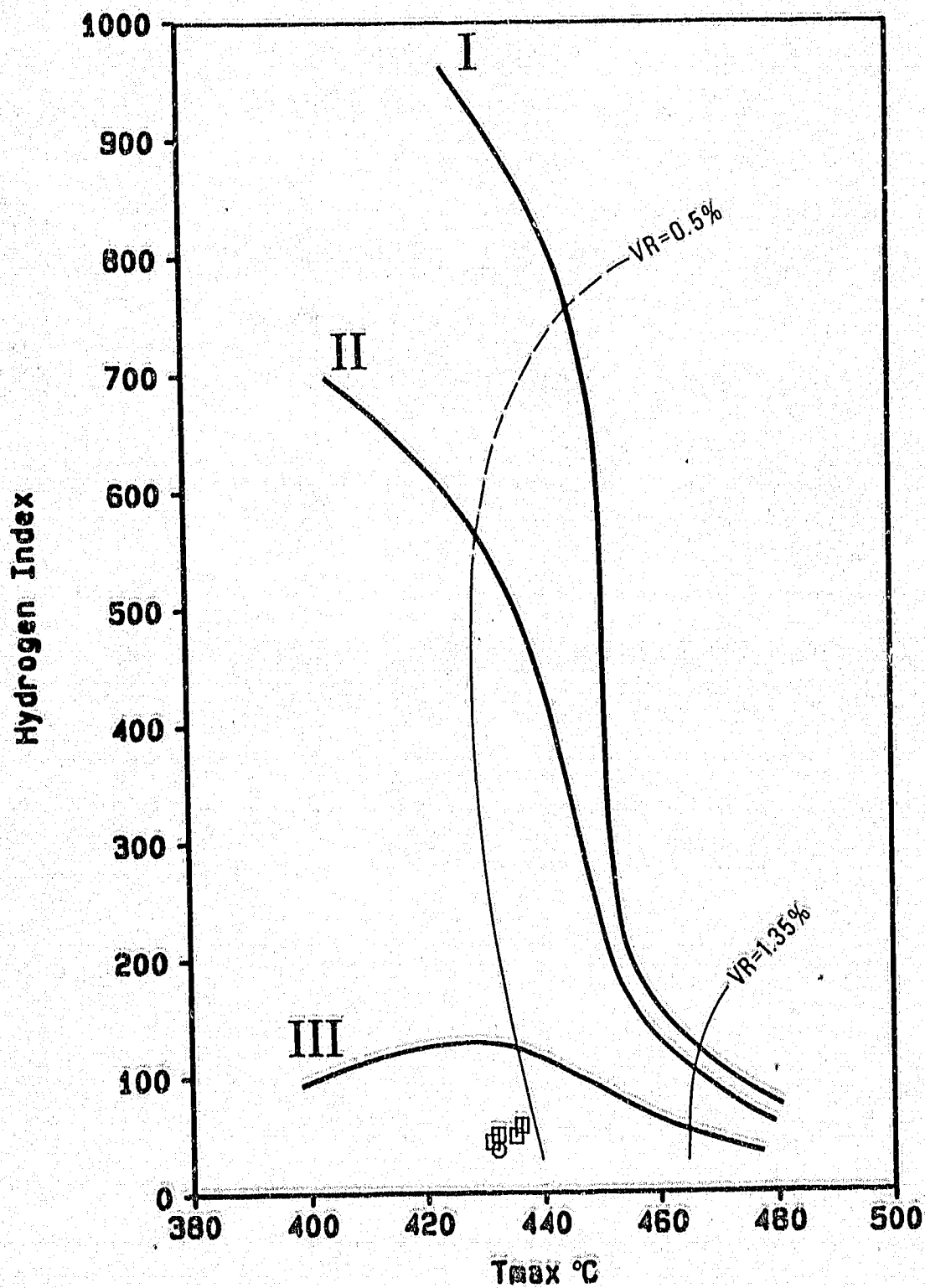
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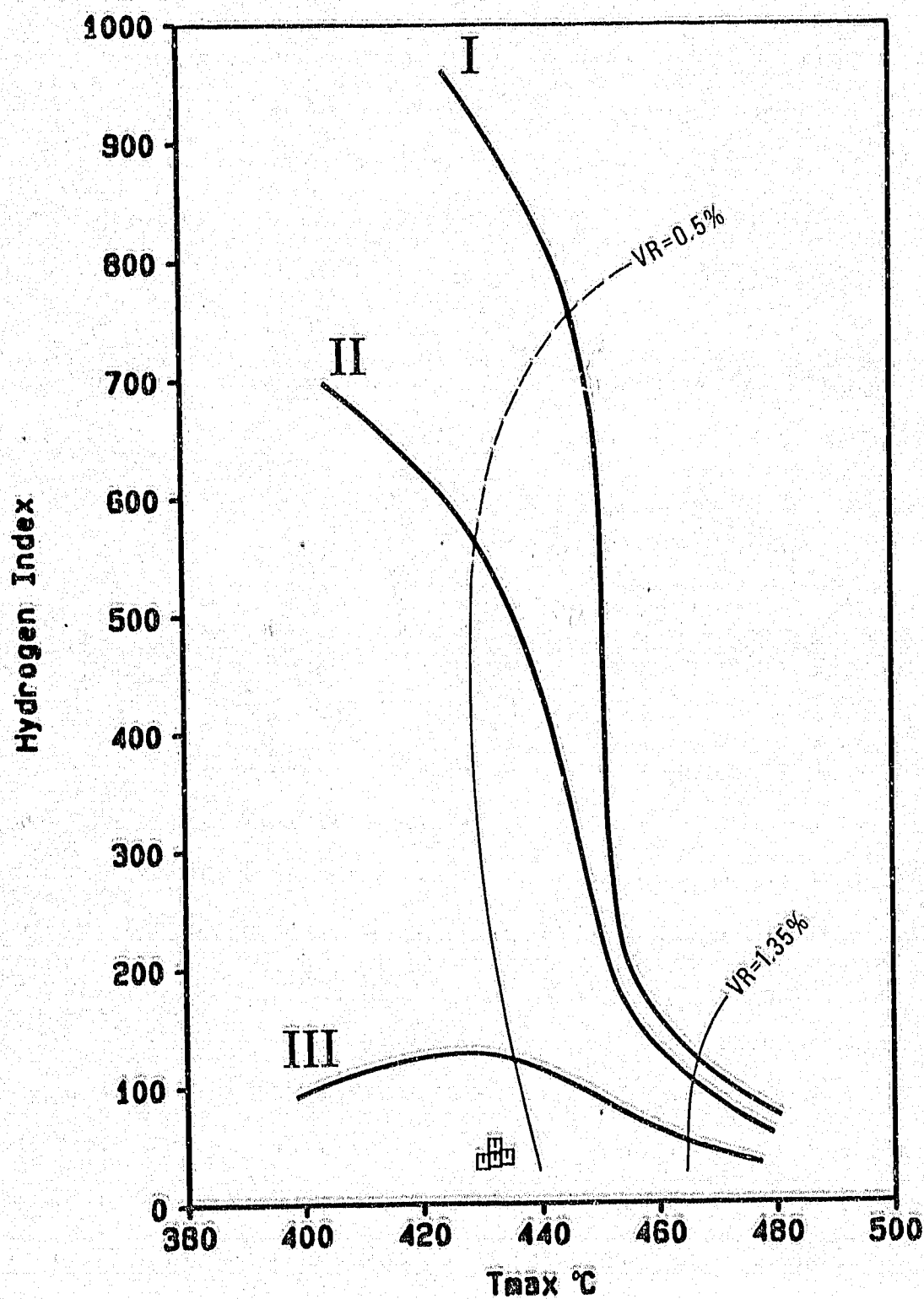
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Well name : WANCOOCHA #1
Interval : CADNA-OWIE FORMATION



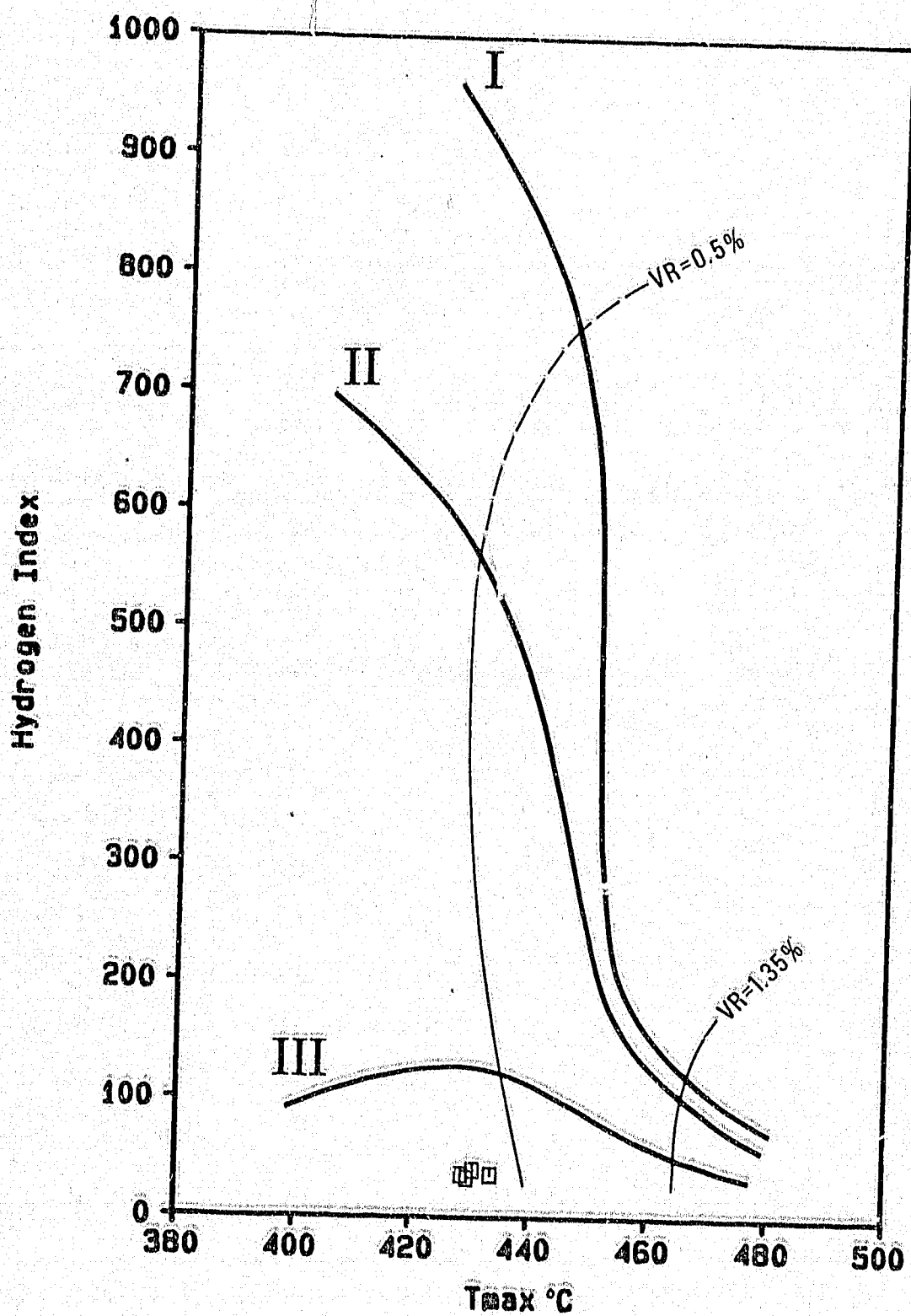
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Well name : WANCOOCHA #1
Interval : MURTA MEMBER



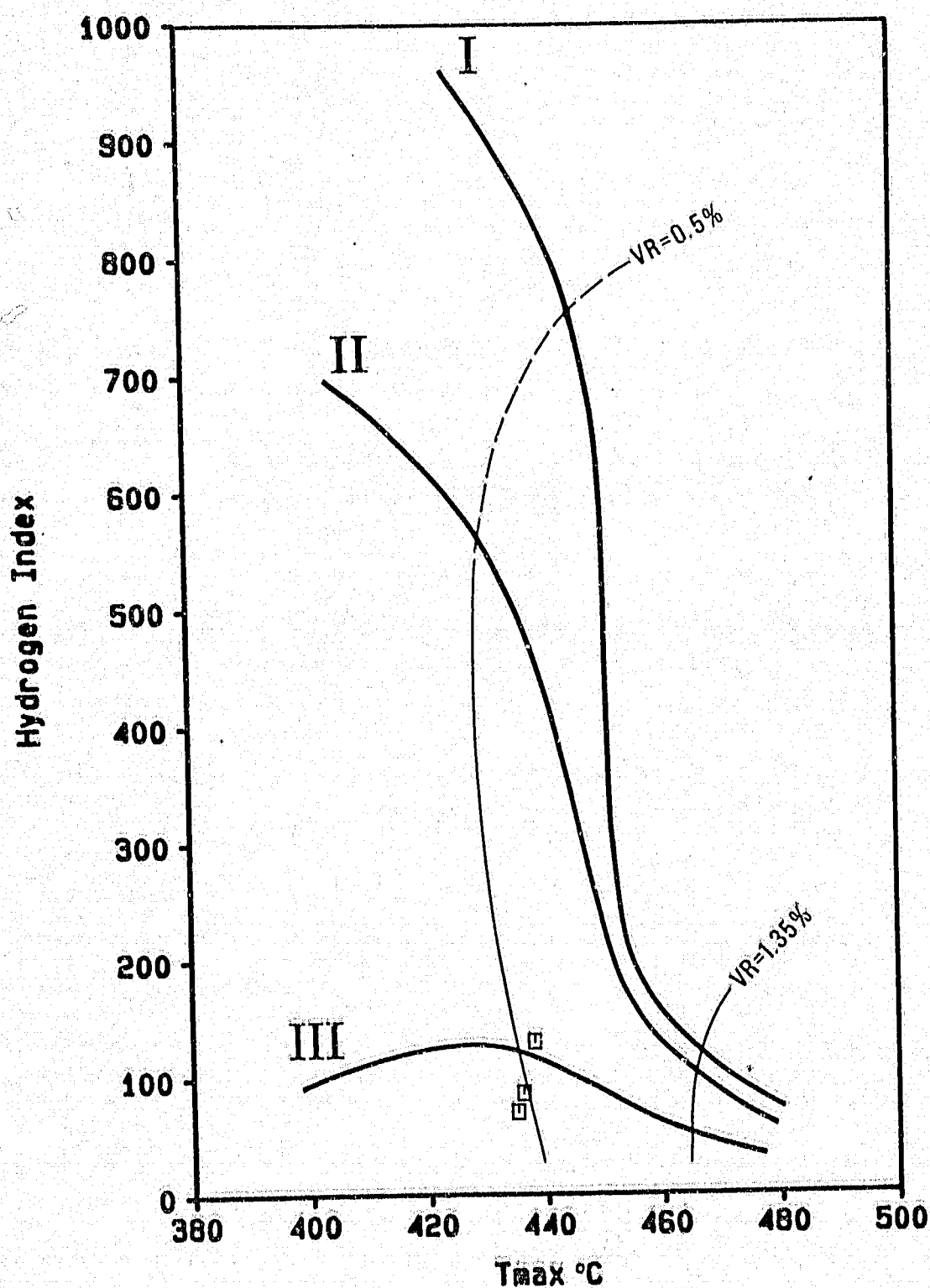
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Interval : MCKINLAY MEMBER

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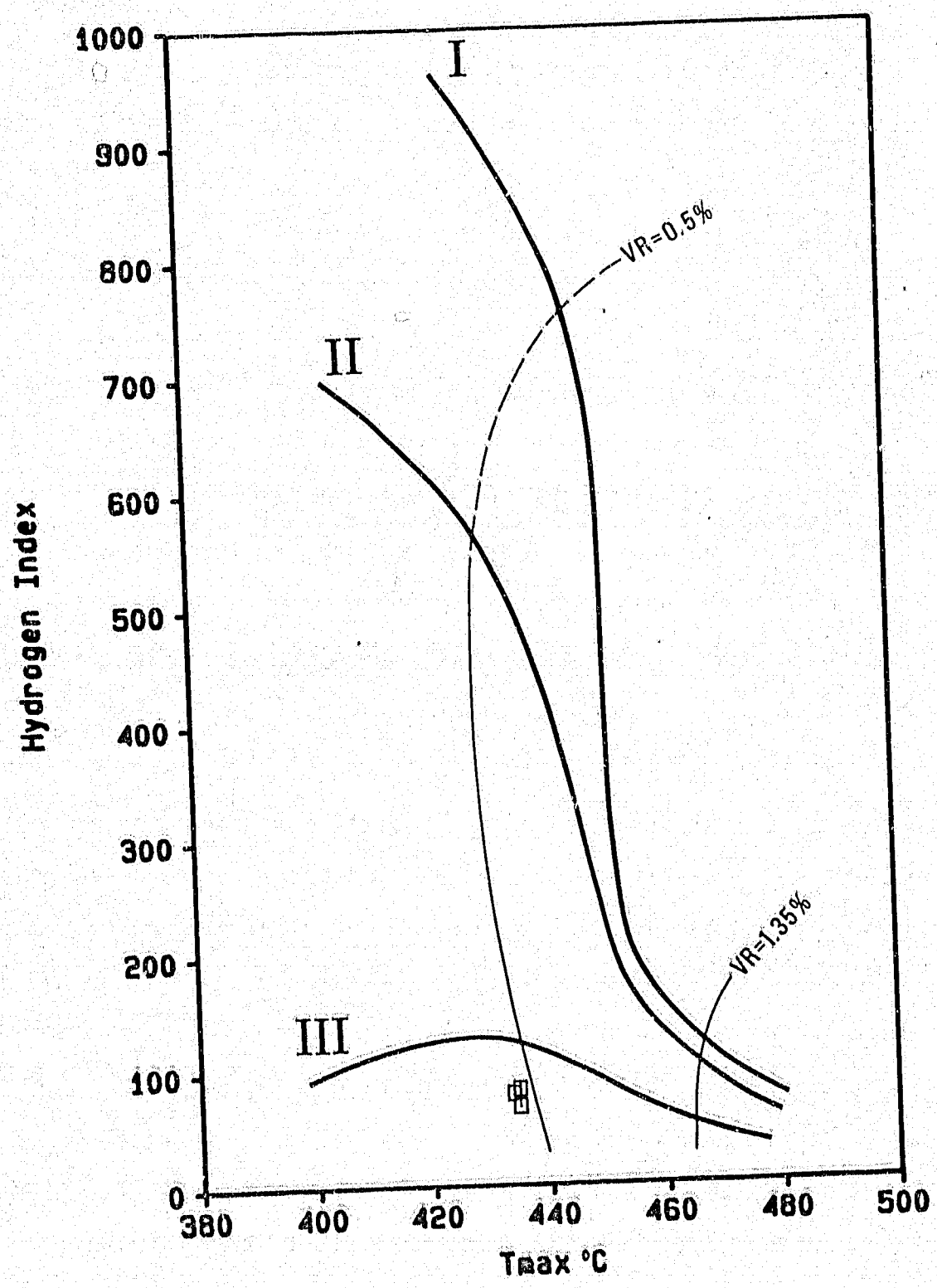
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Well name : WANCOOCHA #1
Interval : BIRKHEAD FORMATION



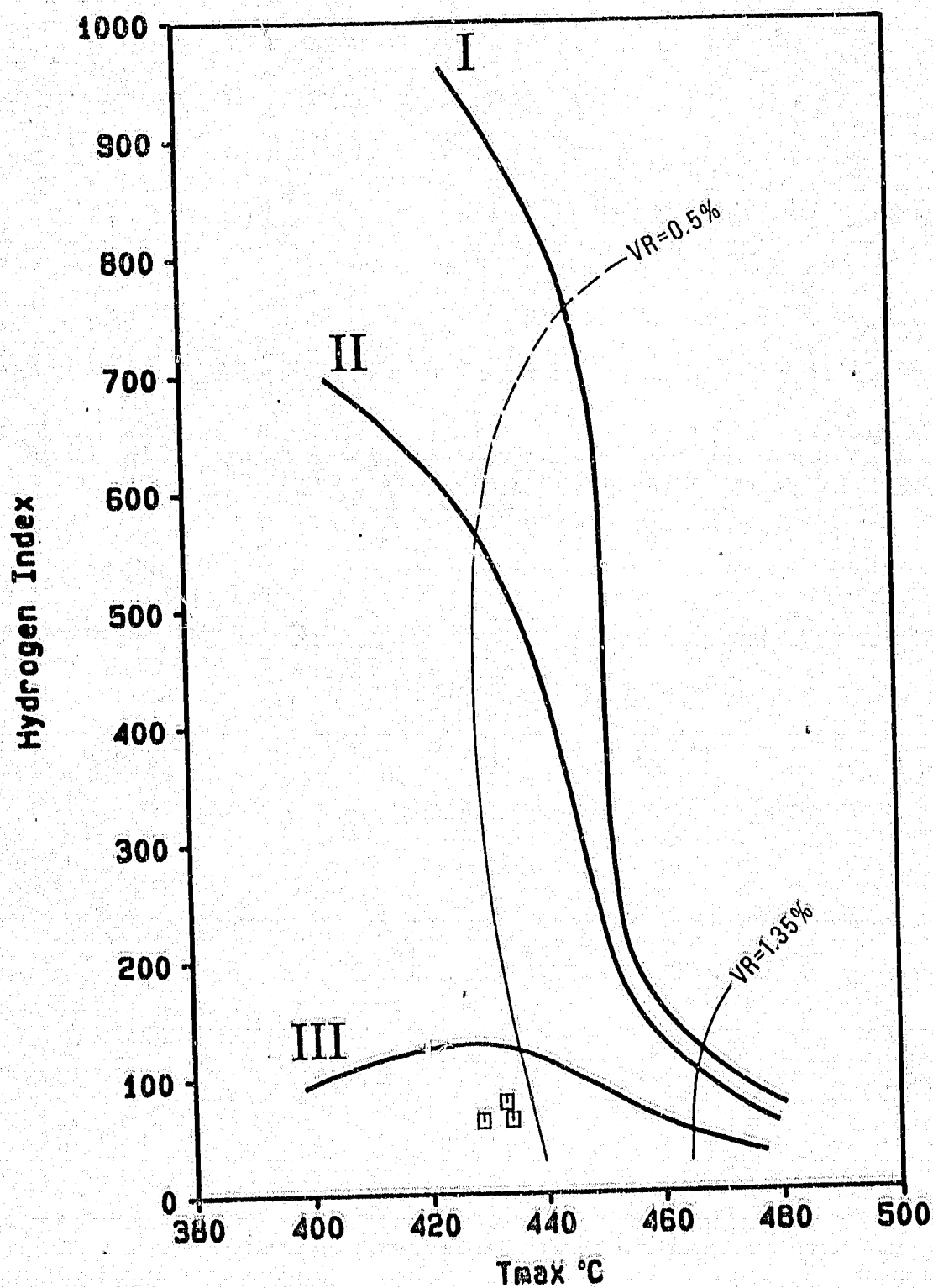
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Well name : WANCOOCHA #1
Interval : BASAL JURASSIC



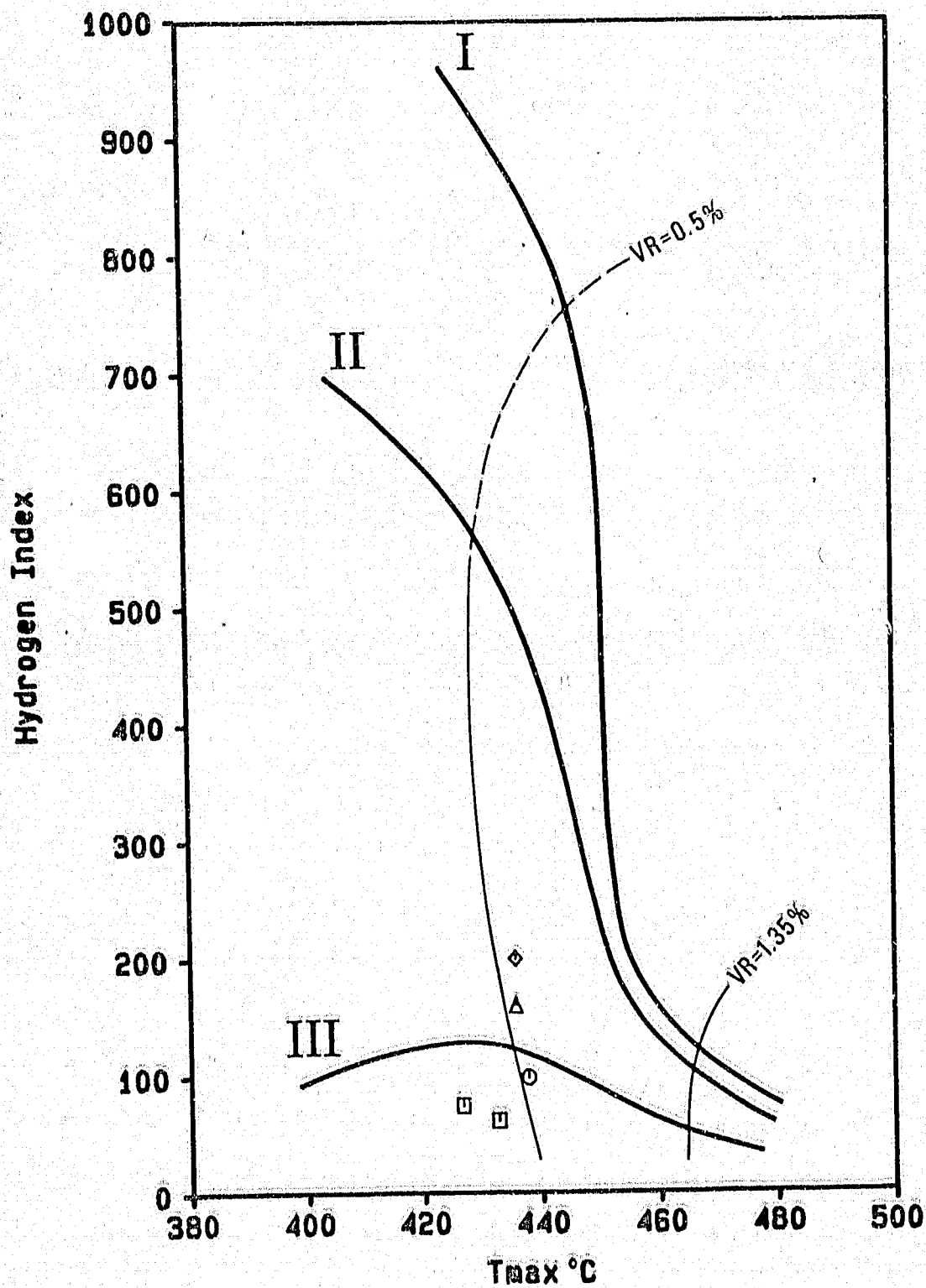
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Interval : ROSENEATH SHALE

000017



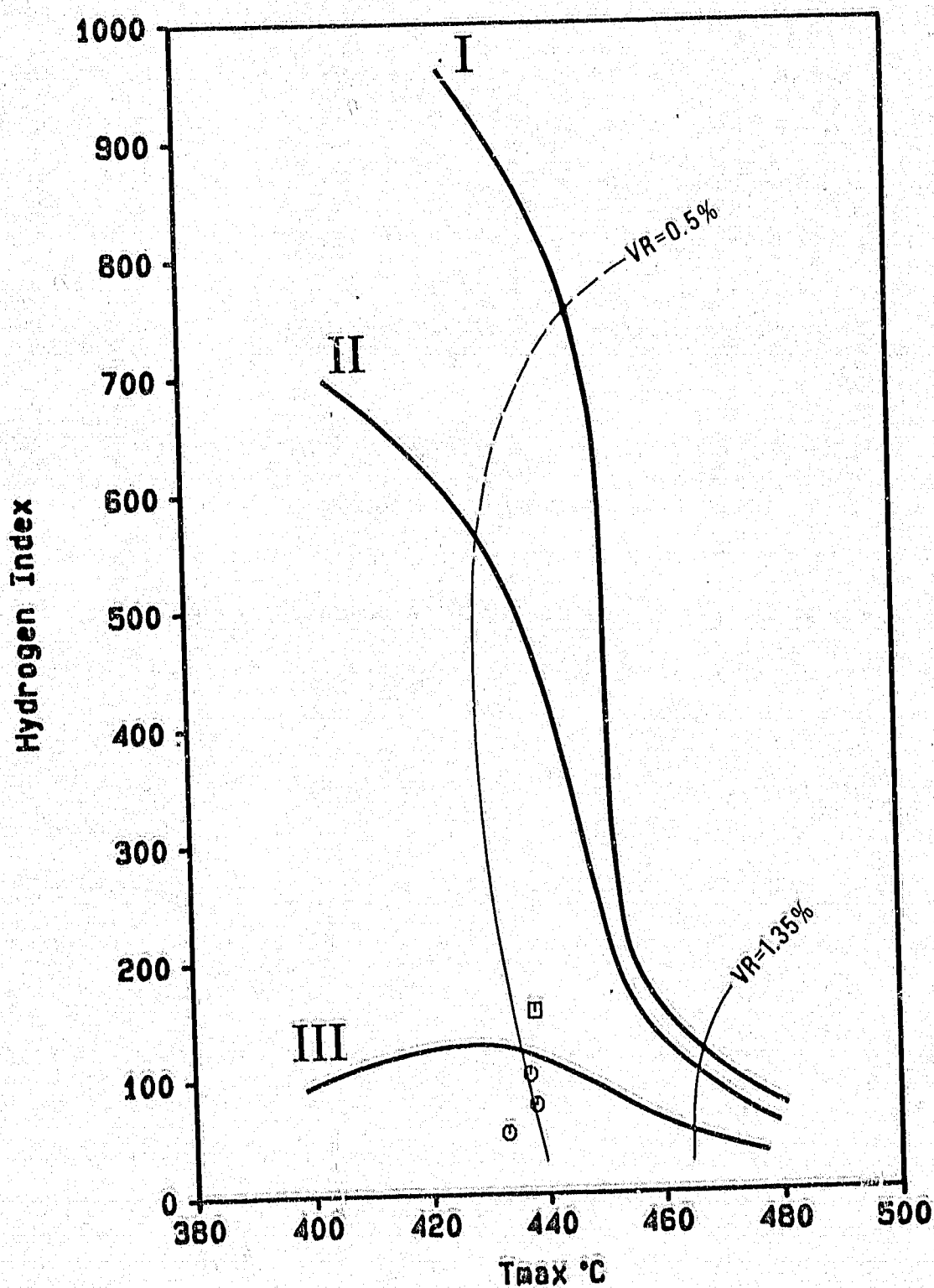
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Interval : EPSILON FORMATION.



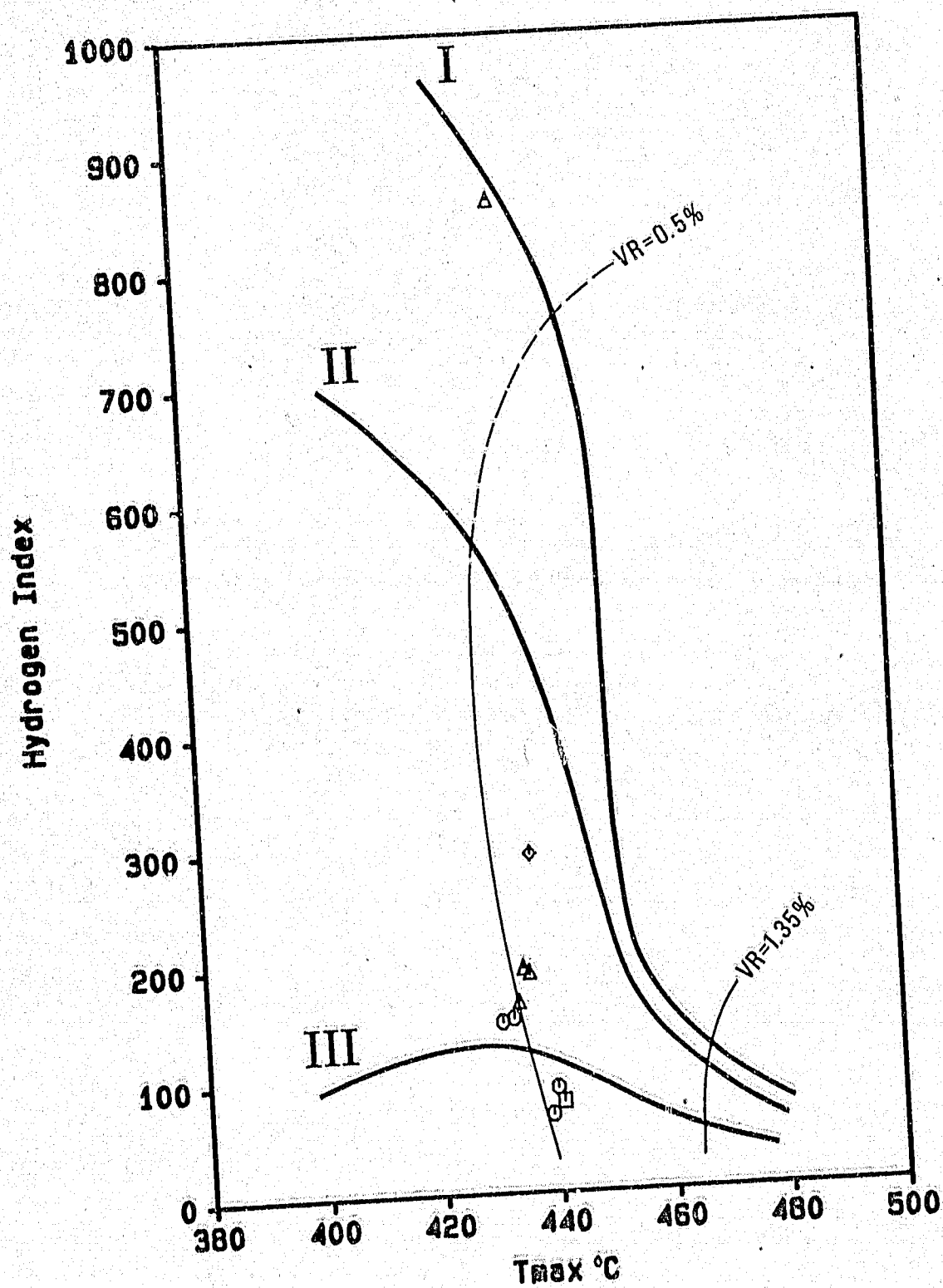
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Interval : MURTEREE SHALE



000020

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Interval : PATCHAWARRA FORMATION



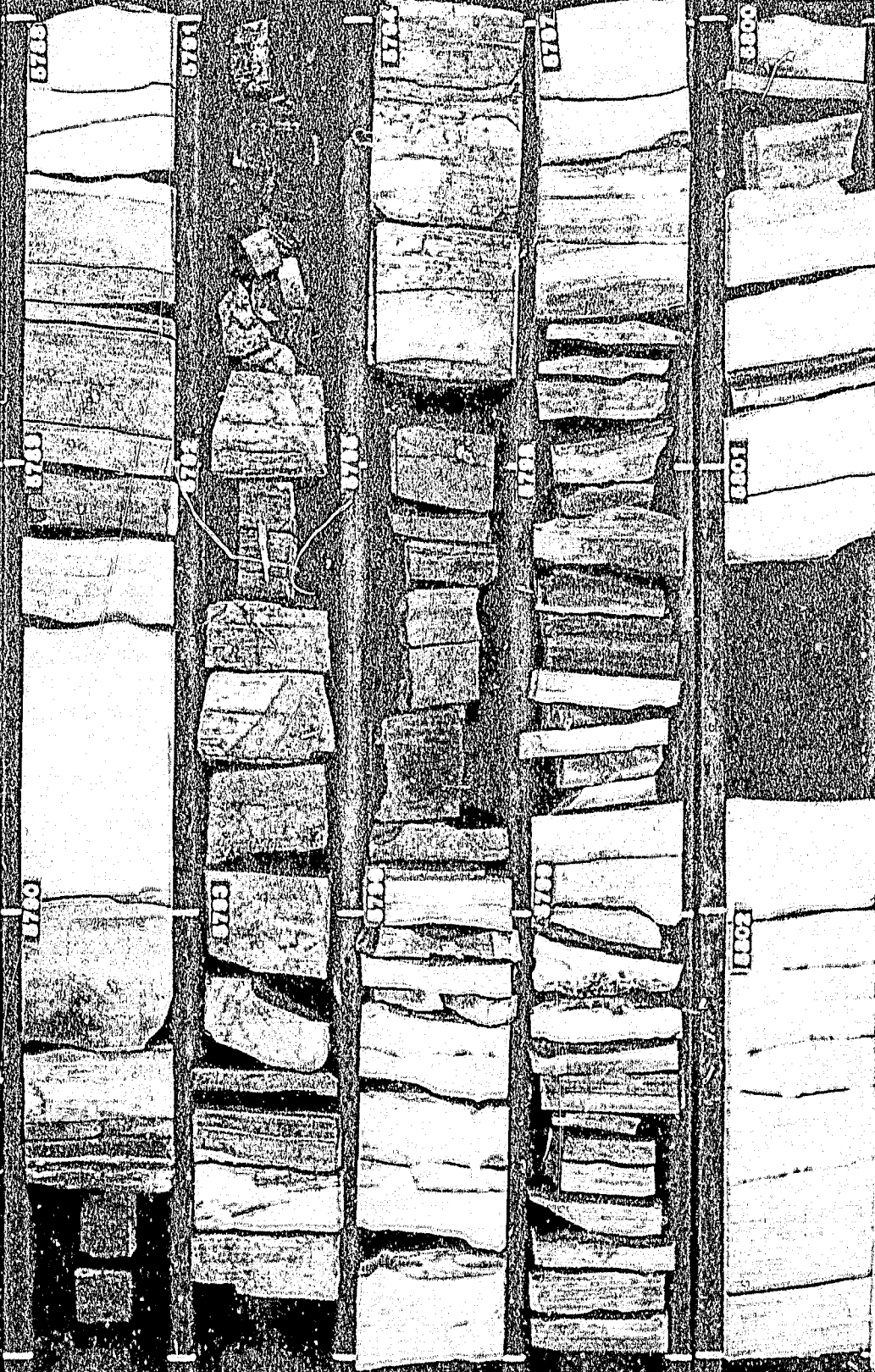
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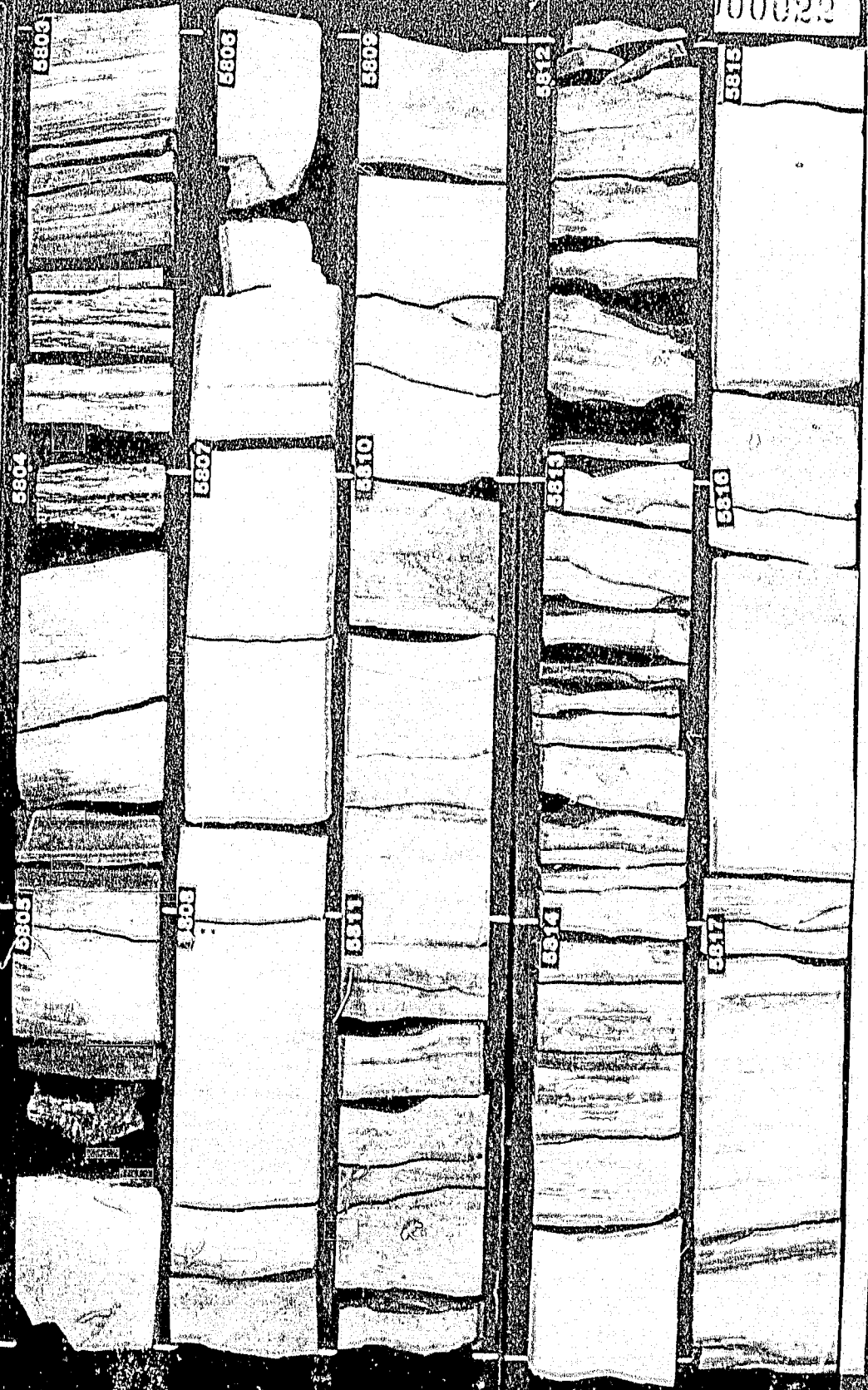
DELHI. WANCOOCHA. 1. 5788 to 5847

CORE. 1



DELHI. WANCOOCHA. 1. 5788 to 5847 FT.

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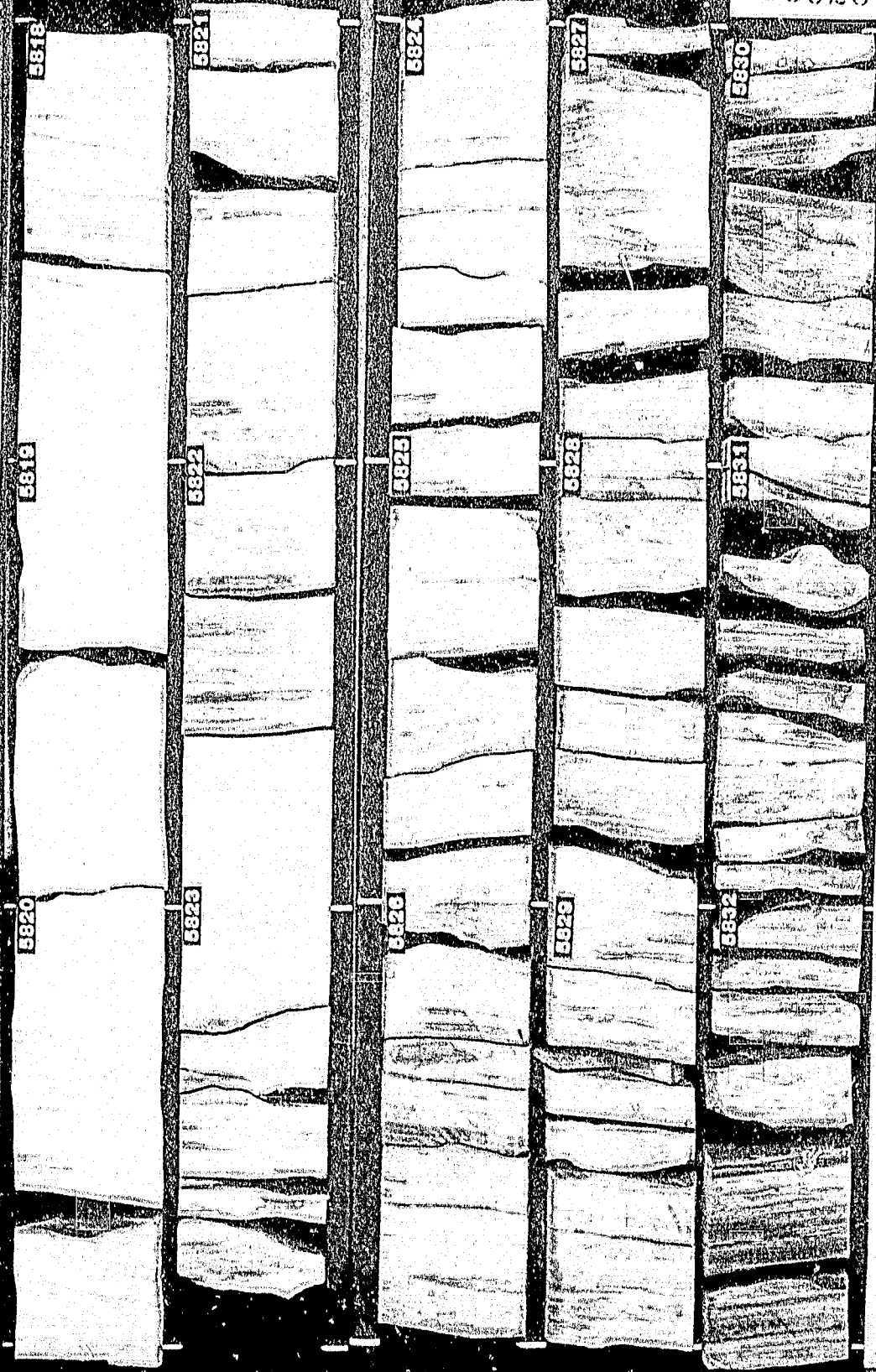


000022

DELHI. WANCOOCHA. 1. 5788^{ft} to 5847^{ft}



CORE: 1



000023

DELHI. WANCOCCHA. 1. 5788¹⁰ 5847¹¹

CORE 1

5833

5834

5835

5836

5837

5838

5839

5840

5841

5842

5843

5844

5845

5846

5847

000024

DELHI. WANCOOCHA. #1. 6160th 6219th

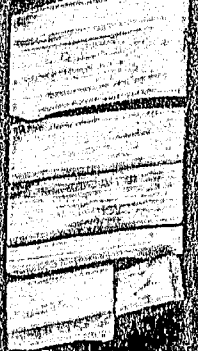


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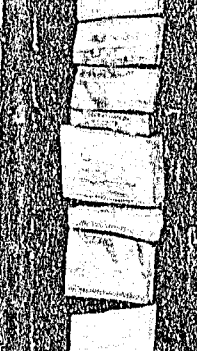
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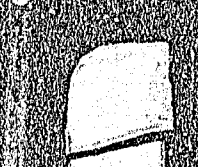
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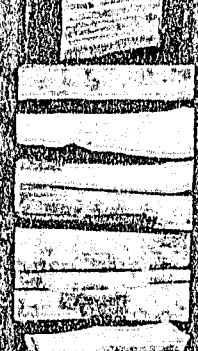
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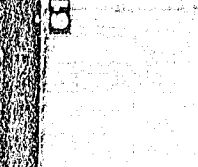
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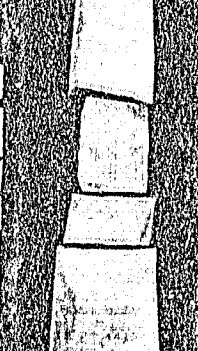
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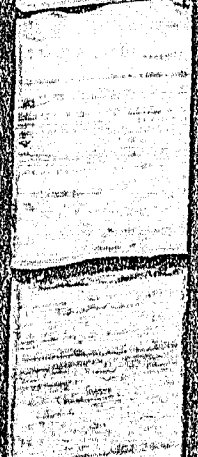
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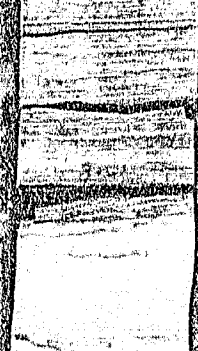
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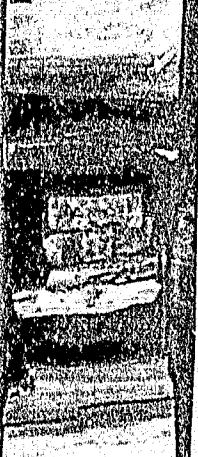
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6172



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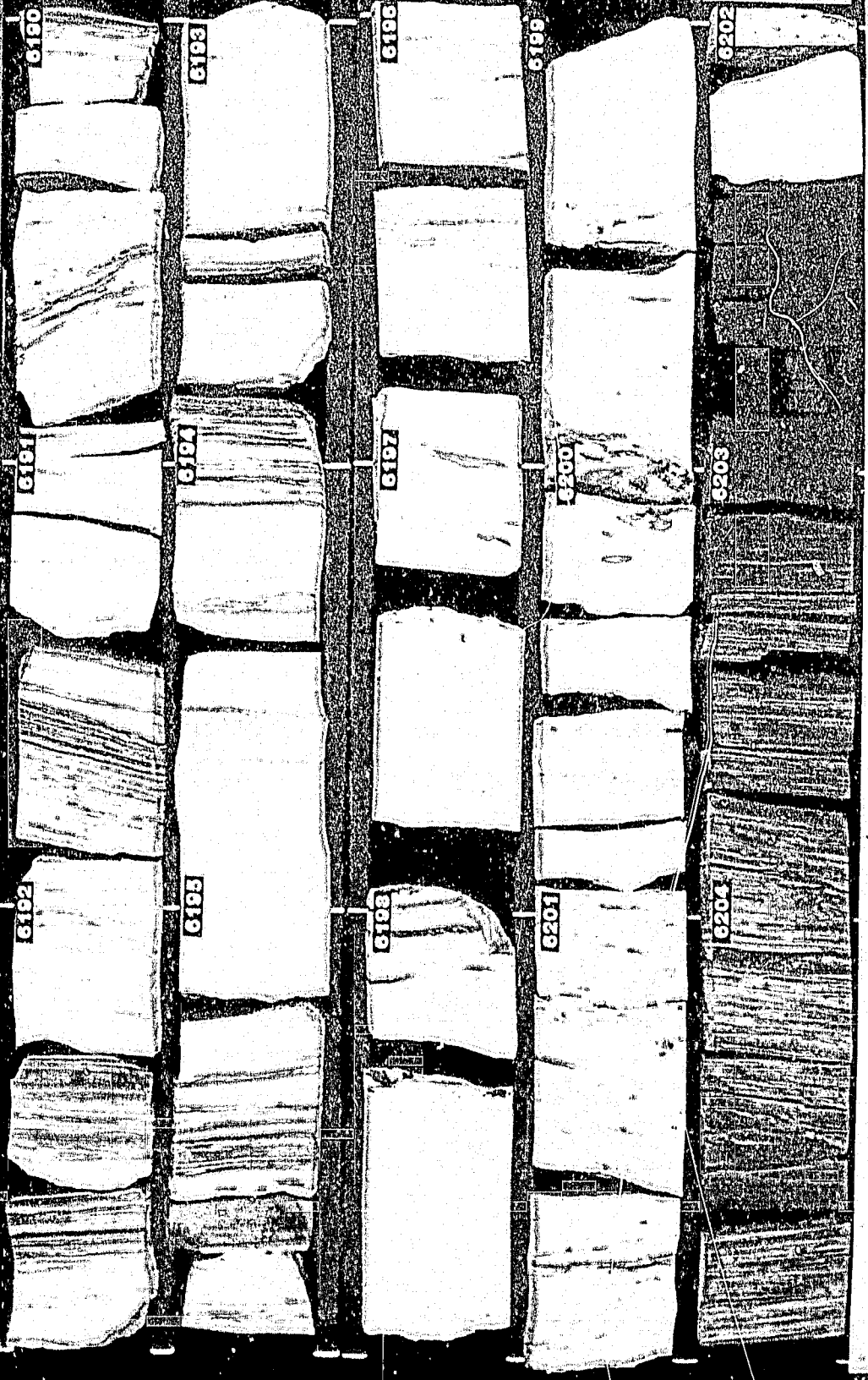
DELHI, WANCOOCHA. 1. 6160^{FT.} TO 6219

CORE: 2



DELHI. WANCOOCHA. 1. 6160^{FT} TO 6219^{FT}

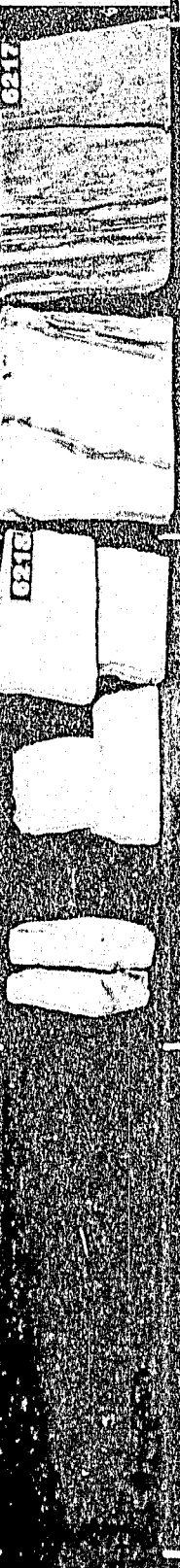
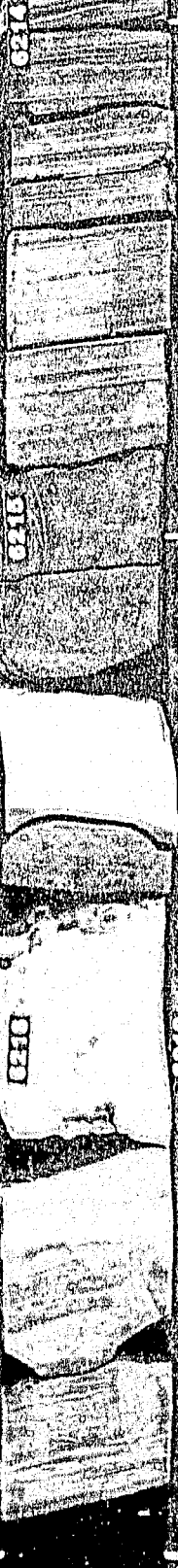
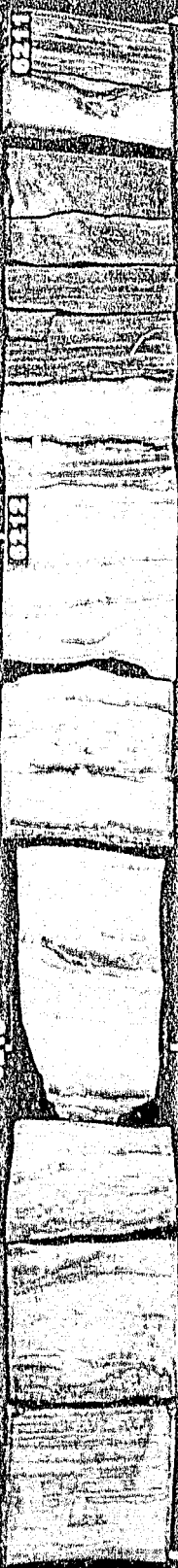
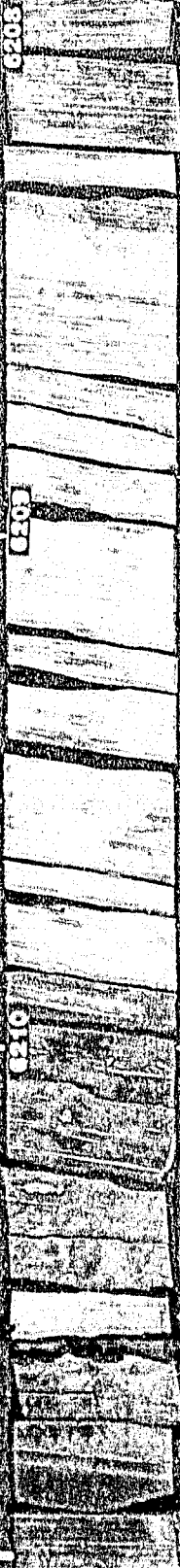
CORE. 2



DELHI. WANCOOCHÁ. 1. 6160^{to} 6219^{ft.}



CORE 2



000028

DELHI. WANCOOCHA. 1. 6500 to 6515 FT.

CORE. 3



000020

END

OF

REPORT

SANTOS LIMITED

BRIEF PALYNOLOGICAL REPORT

REPORT NO. 1993/40 STUDY: WANCOOCHA NO. 1

SAMPLE	DEPTH (LOGGERS)	AGE	STRATIGRAPHY		REMARKS
			BIOSTRATIGRAPHICAL UNIT	INFERRED STRATIGRAPHICAL LIMIT	
FHC	6213*	EARLY PERMIAN	PP3.1-PP3.2	UPPER PATCHAWARRA (BROWN UNIT)	Bisaccate pollen abundant, <u>Granulatisporites</u> spp. frequent. <u>P. cicaltricosus</u> present.
FHC	6228*		PP3.2		Bisaccate pollen abundant, <u>M. tentula</u> and <u>M. triradiatus</u> common. <u>G. ewingtonensis</u> frequent. <u>P. sinuosus</u> present.

000030

EXPLS-R-PAL001/10

G. WOOD
OCTOBER, 1993

**END
OF
REPORT**