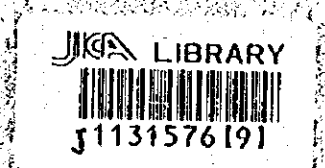


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
THE MINISTRY OF AGRICULTURE AND FISHERIES,  
THE GOVERNMENT OF THE UNITED ARAB EMIRATES

THE MASTER PLAN STUDY  
ON  
THE GROUNDWATER RESOURCES DEVELOPMENT  
FOR AGRICULTURE  
IN  
THE VICINITY OF AL DHAID  
IN  
THE UNITED ARAB EMIRATES

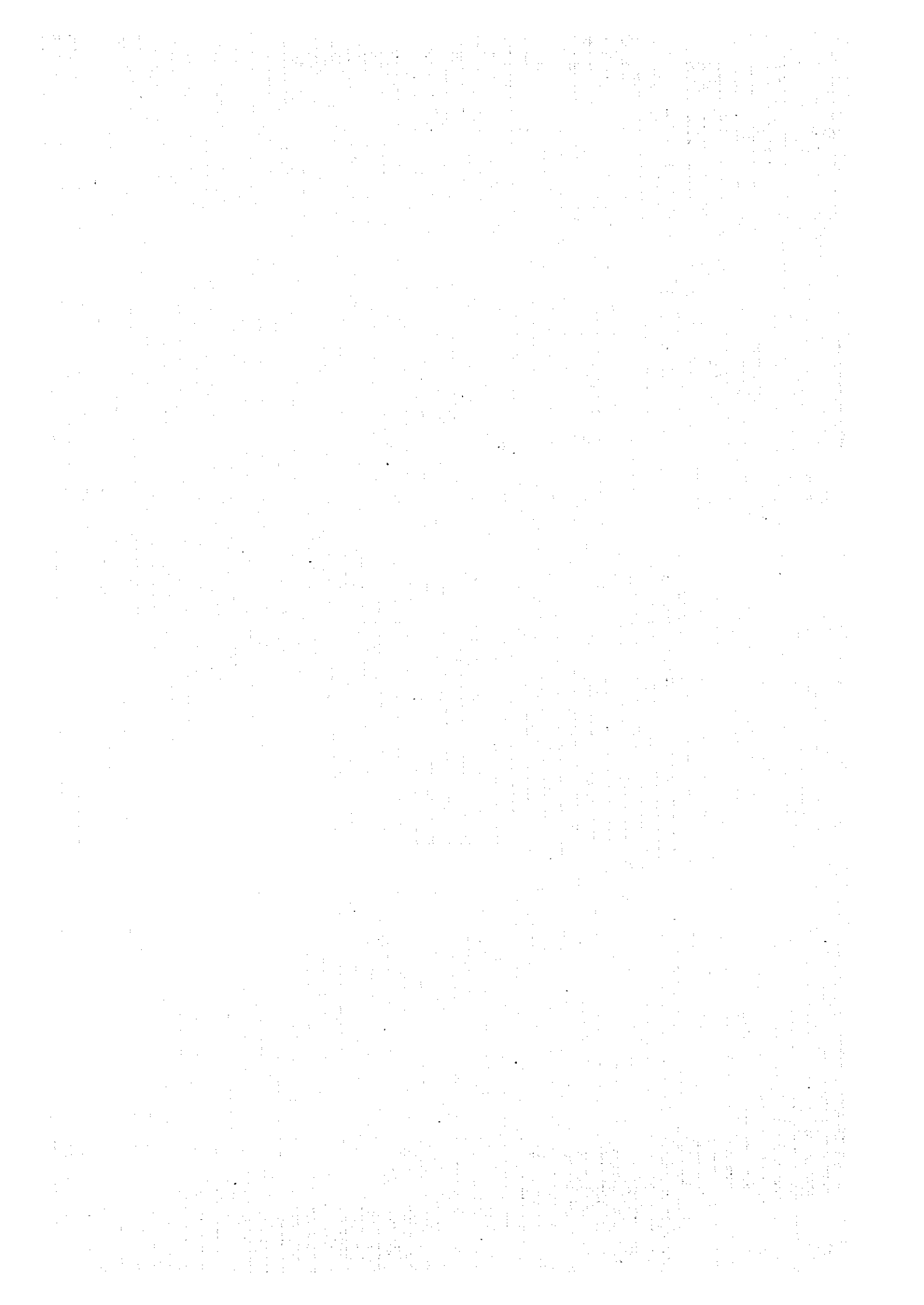
VOLUME FOUR:  
SUPPLEMENTARY DRAWINGS



NOVEMBER, 1996

SANYU CONSULTANTS INC.  
PACIFIC CONSULTANTS INTERNATIONAL

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE MINISTRY OF AGRICULTURE AND FISHERIES,  
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**FINAL REPORT**

**VOLUME FOUR:  
SUPPLEMENTARY DRAWINGS**

NOVEMBER, 1996

SANYU CONSULTANTS INC.  
PACIFIC CONSULTANTS INTERNATIONAL



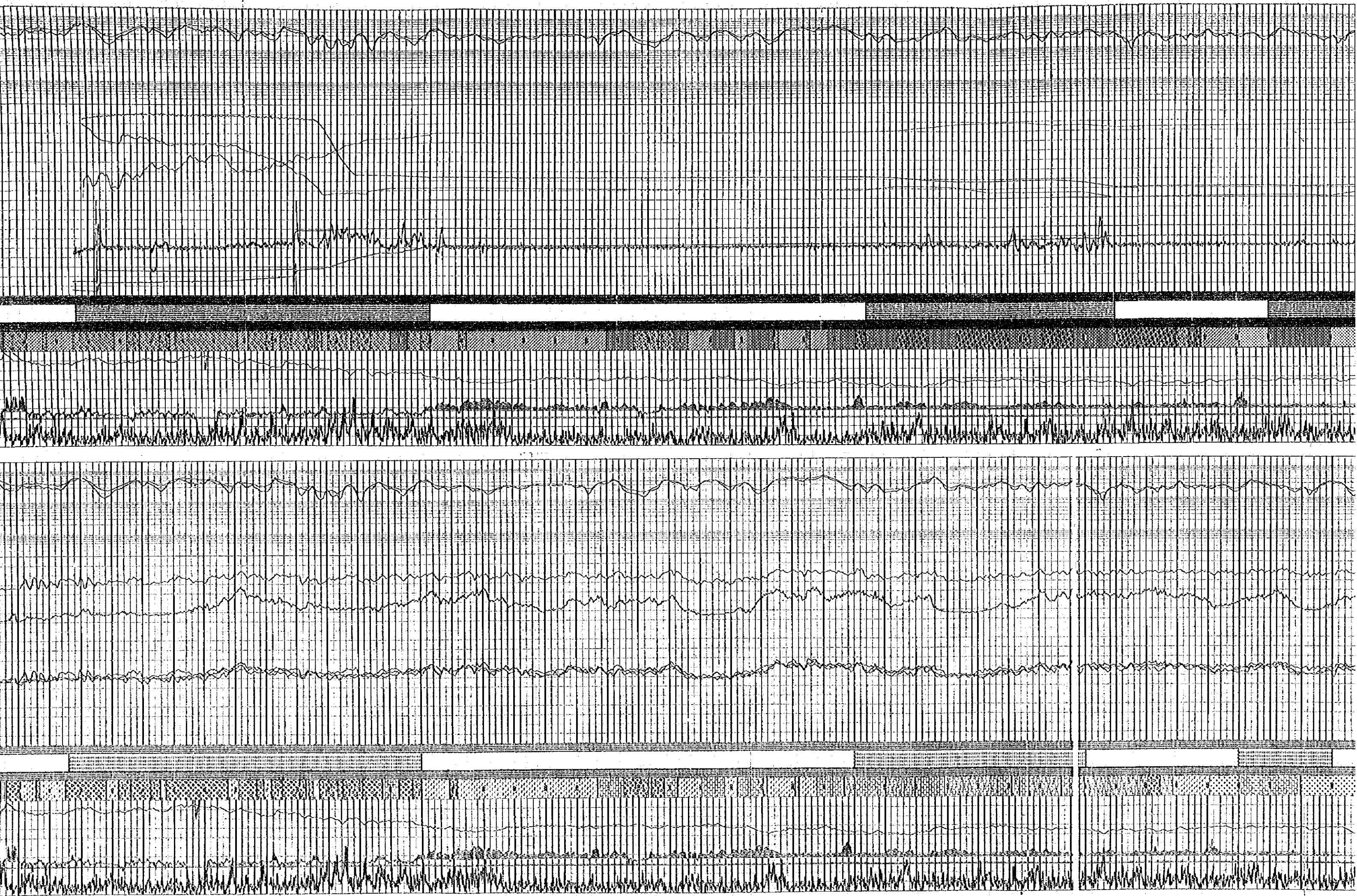
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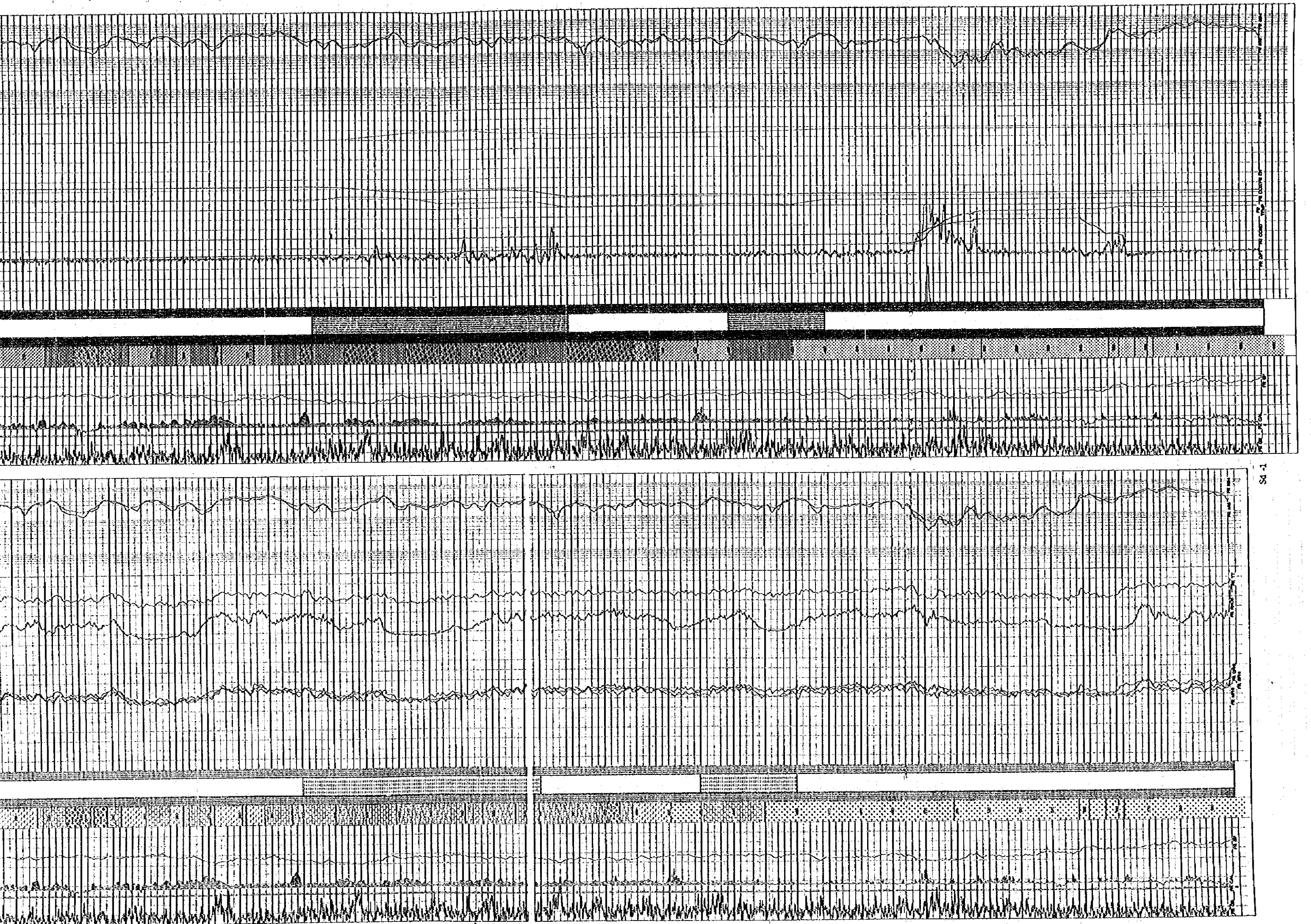
**VOLUME FOUR : SUPPLEMENTARY DRAWINGS**  
**TABLE OF CONTENTS**

	page
PW1 Formation Logs	
Fluid Logs .....	Sd-1
OW2 Formation Logs	
Fluid Logs .....	Sd-2
OW3 Formation Logs	
Fluid Logs .....	Sd-3
PW4 Formation Logs	
Fluid Logs .....	Sd-4
PW5 Formation Logs	
Fluid Logs .....	Sd-5
B-1 Composite Well Log .....	Sd-6
B-2 Composite Well Log .....	Sd-7
SOIL MAP .....	Sd-8





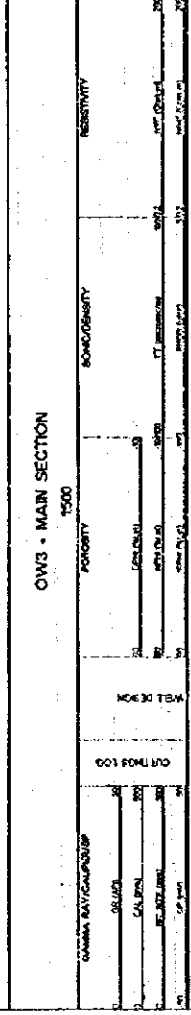




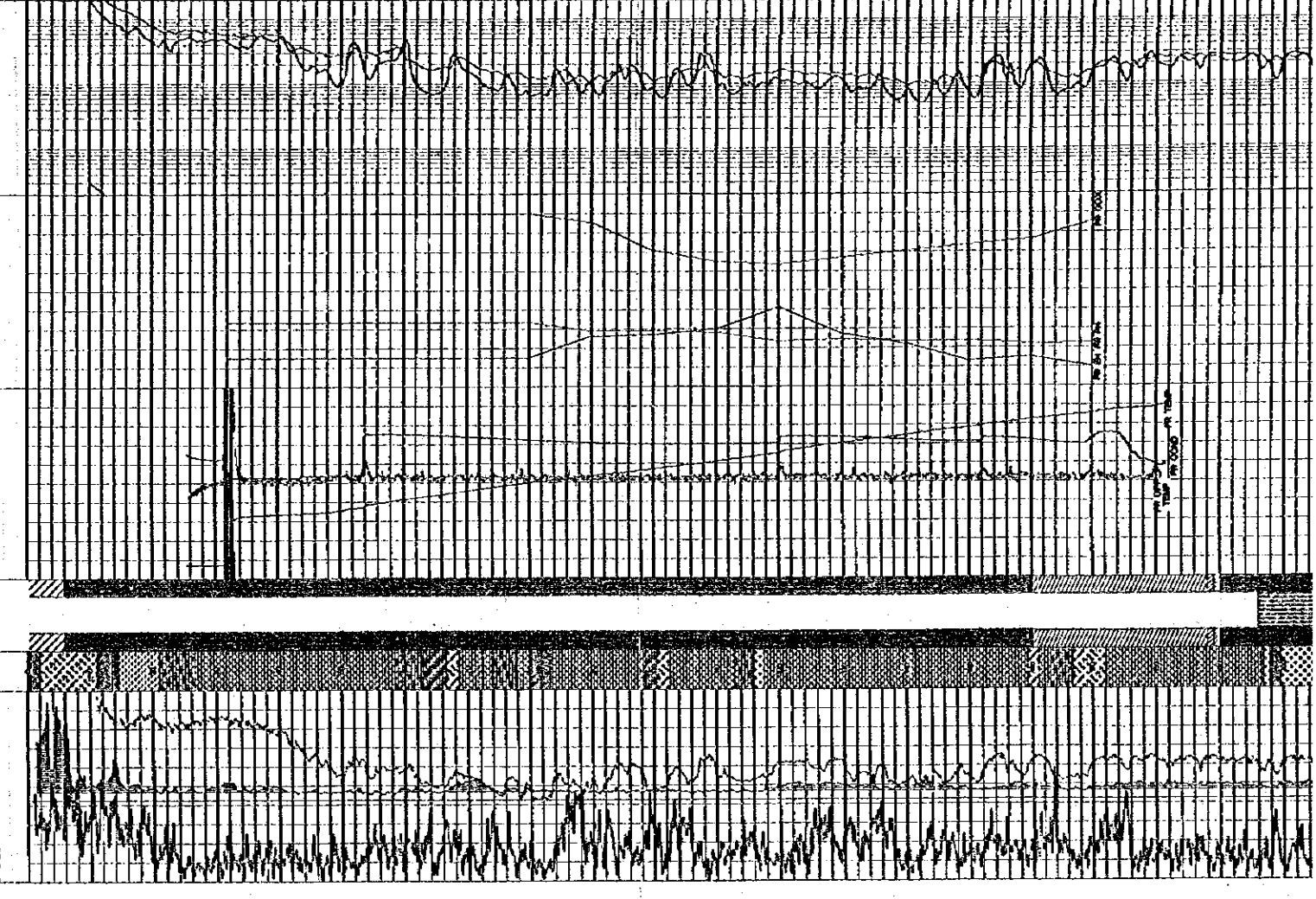
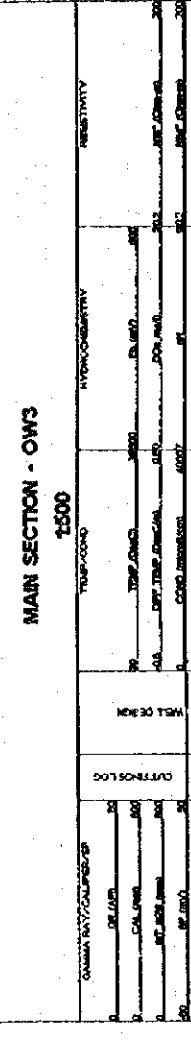




<b>SWISSBORING OVERSEAS CORPORATION</b>		<b>FORMATION LOGS</b>	
<b>CLIENT:</b> JAPANESE INTERNATIONAL CO-OPERATION AGENCY <b>WELL:</b> OW-3 <b>PROJECT:</b> MASTER PLAN STUDY - AL DHAD <b>AREA:</b> SHARJAH <b>COUNTRY:</b> U.A.E.	<b>OTHER SERVICES:</b>  	<b>UTM COORDINATE:</b> N. 2 782 300 E. 297 000	<b>ELEVATION:</b> 103.0m
<b>PERMANENT DATUM:</b> Ground Level <b>LOG MEASURED FROM:</b> Ground Level <b>ONLINE MEASURED FROM:</b> Ground Level	<b>DATE:</b> 11.02.88 <b>WELL NO.:</b> 202m <b>DEPTH - TOTAL:</b> 202m <b>DEPTH - LOGGING:</b> 202m <b>LAST READING:</b> 202m <b>CASING - COLLAR:</b> 202m <b>CASING - LOGGING:</b> 202m <b>WELL TYPE:</b> 202m <b>WELL IDENTITY:</b> 202m <b>FLUID IDENTITY:</b> 202m <b>FLUID LEVEL:</b> 202m <b>RECORDED BY:</b> AA <b>WITNESSED BY:</b> AA	<b>UTM COORDINATE:</b> N. 2 782 300 E. 297 000	<b>ELEVATION:</b> 103.0m
<b>ADDITIONAL RECORD:</b> <b>WELL NO.:</b> 202m <b>DEPTH:</b> 202m <b>TYPE:</b> 202m <b>FROM:</b> 202m <b>TO:</b> 202m	<b>REMARKS:</b> Using Compressor - International Water Well Using Log corrected for barometric variations.	<b>LEGEND</b> 	



<b>SWISSBORING OVERSEAS CORPORATION</b>		<b>FLUID LOGS</b>	
<b>CLIENT:</b> JAPANESE INTERNATIONAL CO-OPERATION AGENCY <b>WELL:</b> OW-3 <b>PROJECT:</b> MASTER PLAN STUDY - AL DHAD <b>AREA:</b> SHARJAH <b>COUNTRY:</b> U.A.E.	<b>OTHER SERVICES:</b>  	<b>UTM COORDINATE:</b> N. 2 782 300 E. 297 000	<b>ELEVATION:</b> 103.0m
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<b>ADDITIONAL RECORD:</b> <b>WELL NO.:</b> 202m <b>DEPTH:</b> 202m <b>TYPE:</b> 202m <b>FROM:</b> 202m <b>TO:</b> 202m	<b>REMARKS:</b> Using Compressor - International Water Well Using Log corrected for barometric variations. Temperature displayed at 10m depth in this program. Hydrobarometer logged in hole 100 cm above array due to problems in OWS.	<b>LEGEND</b> 	







SWISSBORING OVERSEAS CORPORATION

FORMATION LOGS

CLIENT: JAPANESE INTERNATIONAL CO-OPERATION AGENCY  
 WELLS: PW-4  
 PROJECT: MASTER PLAN STUDY - AL DHAD  
 AREA: SHARJAH  
 COUNTRY: U.A.E.

CLIENT: JAPANESE INTERNATIONAL CO-OPERATION AGENCY  
 WELLS: PW-4  
 PROJECT: MASTER PLAN STUDY - AL DHAD  
 AREA: SHARJAH  
 COUNTRY: U.A.E.

PERMANENT DATUM LOG MEASURED FROM:	Ground Level	ELEVATION:	UTM COORDINATE:
DRILLING MEASURED FROM:	Ground Level		
DATE:	03.88		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		

PERMANENT DATUM LOG MEASURED FROM:	Ground Level	ELEVATION:	UTM COORDINATE:
DRILLING MEASURED FROM:	Ground Level		
DATE:	03.88		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		
DEPTH - CHILLER	30m		
DEPTH - LOGGING	30m		
DEPTH - RECORDING	30m		

FORMER RECORD	DATE	TIME	FROM	TO	TYPE	FROM	TO

FORMER RECORD	DATE	TIME	FROM	TO	TYPE	FROM	TO

REMARKS: Logging Contractor - International Water Well Drilling  
 Logs corrected for barometric variations  
 Field logs tagged in PWMA 25m. Drill rods tagged in PWMA.

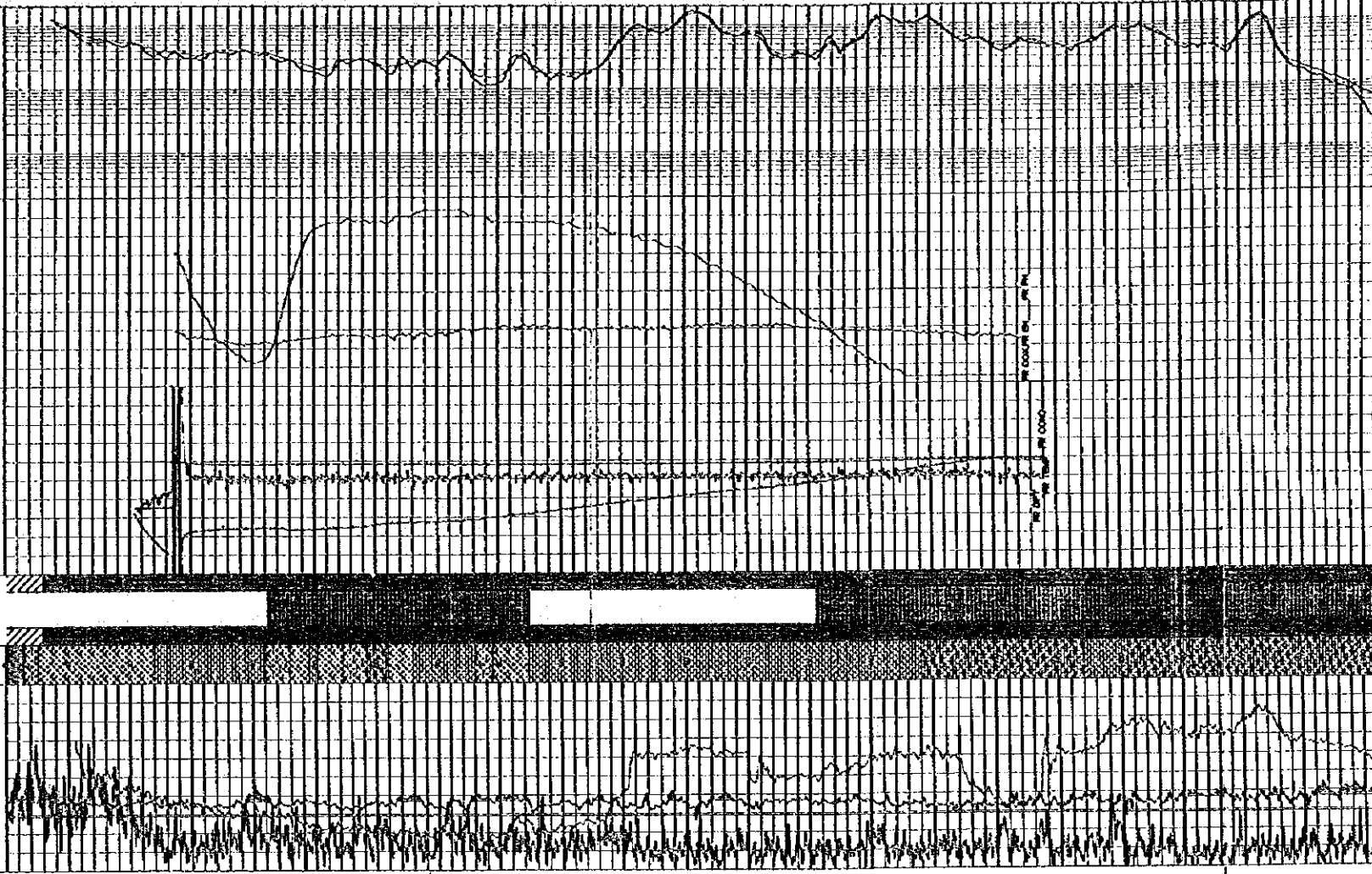
REMARKS: Logging Contractor - International Water Well Drilling  
 Logs corrected for barometric variations  
 Field logs tagged in PWMA 25m. Drill rods tagged in PWMA.

MAIN SECTION - PW4

DEPTH	0	10	20	30	40	50	60	70	80	90	100
TEMPERATURE											
RESISTIVITY											

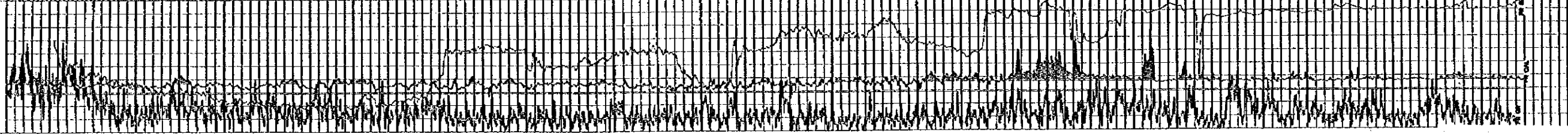
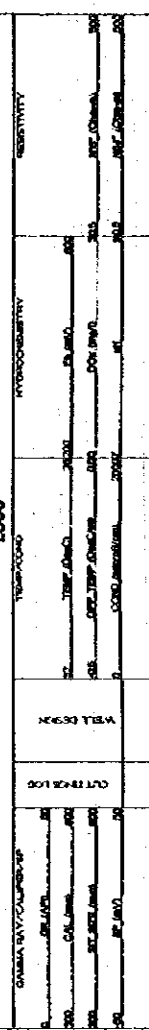
MAIN SECTION - PW4

DEPTH	0	10	20	30	40	50	60	70	80	90	100
TEMPERATURE											
RESISTIVITY											



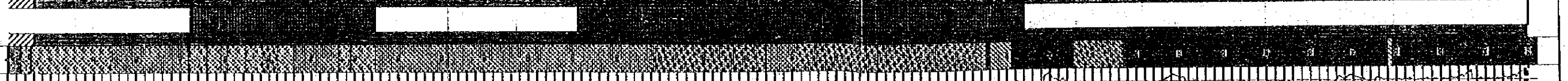
MAIN SECTION - PW4

2500



MAIN SECTION - PWA

2500



Sd 4







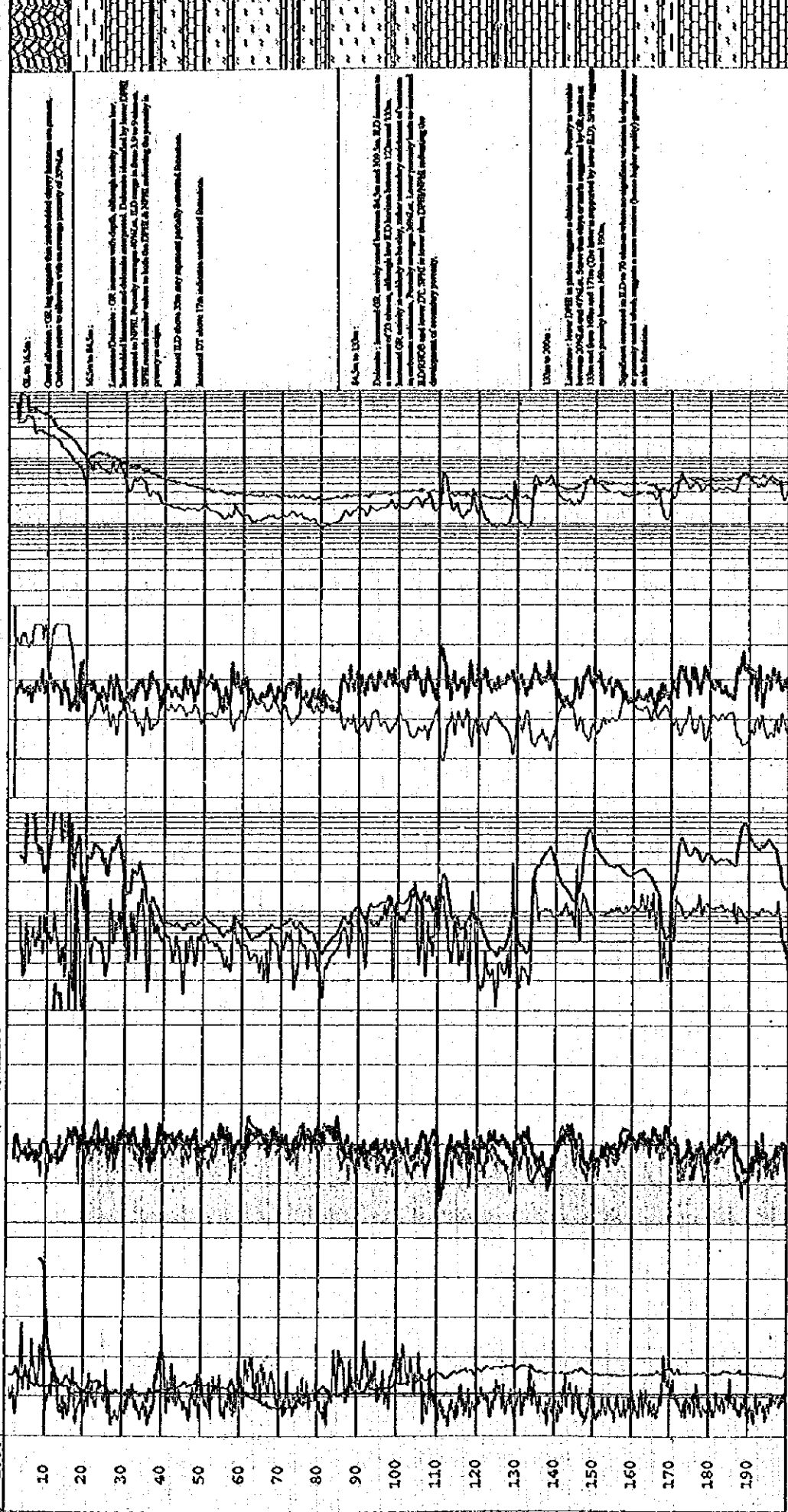
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## COMPOSITE WELL LOG

### Geophysics and Water Resources

Date	August 1995	Driller	ADL	Remarks		Drilling Method	Heavy Core	Logging Schedule	Conditions Applied
WELL ID	SH-1	Bitlog	430m	Sh	From To	Feed Type	Year	GRICAL, THORCONOMAT, PVL, MICROLOGICAL, INTRACALIBER, APPROPRIATE, SURFACE, REPORT	GRICAL, THORCONOMAT and PVL, MICROLOGICAL, INTRACALIBER, APPROPRIATE, SURFACE, REPORT
APVR ID		Down Z	900m	OL	OL	Level	As surface		
Numbering	ZTR048	TD Driller	300m	OL	OL	Roof			
Logging	SH08	TD Logger	300m	OL	OL	Run			
Location	All Dred	Top Logger	ADL	OL	OL	Roof/TMP			
Region	Surfch USE	Recorded By	ADL	OL	OL	Run TMP			

1	GR(APT)	50	0	NRHI (k1st)	100	100	DT (us/m)	600	1	NR64 (ohm-m)	1000	Remarks	Core
	CAI (mm)	500	0	DEHI (k1st)	100	1	TRM (ohm-m)	100	3	NR16 (ohm-m)	1000		
	SP (mV)	750	0	SEHI (k1st)	100								



GRICAL: Increased GR, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

CAI: 4.5m to 10m

SP: Increased SP, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

NRHI: Increased NRHI, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

DEHI: Increased DEHI, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

SEHI: Increased SEHI, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

DT: Increased DT, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

TRM: Increased TRM, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

NR64: Increased NR64, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

NR16: Increased NR16, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

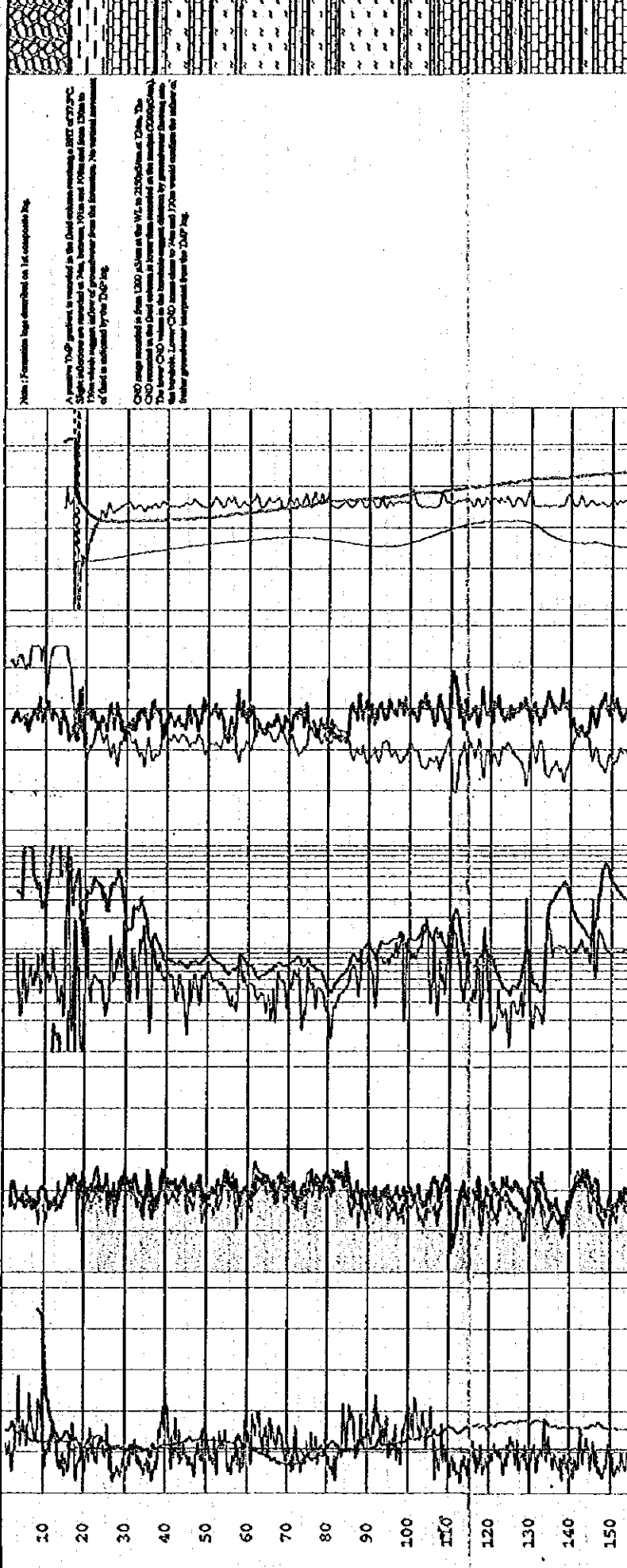
# Hydrotechnica Limited

## COMPOSITE WELL LOG

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APVR ID		Down Z	900m	OL	OL	Level	As surface		
Numbering	ZTR048	TD Driller	300m	OL	OL	Roof			
Logging	SH08	TD Logger	300m	OL	OL	Run			
Location	All Dred	Top Logger	ADL	OL	OL	Roof/TMP			
Region	Surfch USE	Recorded By	ADL	OL	OL	Run TMP			

1	GR(APT)	50	0	NRHI (k1st)	100	100	DT (us/m)	600	30	TMP (°C)	40	Remarks	Core
	CAI (mm)	500	0	DEHI (k1st)	100	1	TRM (ohm-m)	100	3	CND (us/cm)	50.00		
	SP (mV)	750	0	SEHI (k1st)	100					CND (us/cm)	0.5		



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TMP: Increased TMP, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.

CND: Increased CND, log indicates that consolidated clay formation is present. Claystone matrix is observed with an average porosity of 20%.



