

APPENDIX L TABLE OF CONTENTS

Geologic Log For Well AVB60-01
Geophysical Logs For Well AVB60-01
Geologic Log For Well AVB98-01
Geophysical Logs For Well AVB98-01
Geologic Log For Well AVB81-01
Geophysical Logs For Well AVB81-01
Geologic Log For Well AVB10-02
Geophysical Logs For Well AVB10-02
Geologic Log For Well DIMW-8D
Geophysical Logs For Well DIMW-8D
Geologic Log For Well AVB122-03
Geophysical Logs For Well AVB122-03
Geologic & Geophysical Logs For Well PTG-2B
Geologic Log For Well AVB108-02 (MW-11)
Geologic Log For Well AVB128-01
Geophysical Logs For Well AVB128-01
Geologic Log For Well RID-95
Geologic Log For Well AVB132-02
Geologic Log For Well AVB116-02
Geologic Log For Well AVB68-01
Geologic Log For Well AVB77-02
Geologic Log For Well OU3-11C
Geologic Log For Well AVB129-02
Geophysical Logs For Well AVB129-02
Geologic Log For Well AVB91-02
Geophysical Logs For Well AVB91-02
Geologic Log For Well AVB96-02
Geophysical Logs For Well AVB96-02
Geologic Log For Well AVB92-02
Geophysical Logs For Well AVB92-02
Geologic Log For Well AVB94-02
Geophysical Logs For Well AVB94-02
Geologic Log For Well AVB95-02
Geologic Log For Well P-1
Geologic Log For Well AVB61-01
Geophysical Logs For Well AVB61-01
Geologic Log For Well BTE-2
Geologic Log For Well VISS-2
Geologic Log For Well SRP-067
Geologic & Geophysical Logs For Well PTG-3B
Geologic Log For Well RID-86
Geologic Log For Well SRP-068
Geologic Log For Well KING-2
Geologic Log For Well RID-92
Geologic Log For Well RID-90
Geologic Log For Well AVB131-01
Geologic Log For Well AVB124-02
Geologic Log For Well AVB133-01
Geologic Log For Well AVB69-01
Geologic Log For Well RID-103
Geologic Log For Well DM-3-D

TIN, RIE, & II

40360-01

A(1,1) II ABC

GEOLOGIC LOG		ADEQ	West Van Buren Area
Well ID:	AVB60-01	Location:	SRP West Valley Maintenance parking lot
Northing (ft):	870626 .757	Drilling Co:	Layne Environmental Services
Easting (ft):	404912 .2565	Drilling Method:	Air percussion
Total Depth (ft):	500	Drilling Fluid:	Air
Top of Casing Elev (ft):	1028.50	Date Started:	20 Jun 94
Ground Surface Elev (ft):	1028.80	Date Finished:	23 Jun 94
		Logged by:	Jan Curtis and Rich Petrus
Comments: Southern portion of the paved parking lot at 79th Avenue and W. Van Buren.			
INTERVAL (FT)	USCS	VISUAL DESCRIPTION	
0-15	ML	Light brown silt (75%) and clay (25%). Low plasticity, dry, loose.	
15-30	ML	Light brown silt (95%) and clay (5%), non-plastic, dry, loose, moist.	
30-40	SM	Light brown coarse to fine gravel. 20% gravel, 50% sand, and silt (30%). Poorly sorted, non plastic, damp.	
40-50	MH	Dark brown silt (80%) and clay (20%), damp, soft.	
50-60	SM	Dark brown sand (70%), silt (20%) and clay (10%). Poorly sorted, low plasticity, wet at 55 feet.	
60-70	SM	Sand and silt mixture to 65 feet. Fining to silts and clays from 65-70 feet, wet at 60-62 feet.	
70-80	MH	Dark brown silt (70%) and clay (30%). Low plasticity, saturated.	
80-90	SM	Dark brown sand (40%), silt (40%) and clay wet. Poorly sorted, low plasticity. Coarse sand at 89.5 - 90 feet.	
90-100	SM	Same as above.	
100-110	CH	Dark brown clay (70%) and silt (30%), high plasticity, stiff, wet.	
110-120	CH-CL	Dark brown silt (50%) and clay (50%), stiff, high plasticity.	
120-140	CH	Dark brown clay (80%) and silt (20%), high plasticity, stiff, wet.	
140-210	CH	Dark brown clay (90%), silt (10%), wet.	
210-220	CH	Same as above with few large cobbles.	

220-230	CH	Same as 140-120 feet, with (5%) gravel, no cobble.
230-250	CL	Silty clay, caliche.
250-260	GW	Cobbles with sand and gravel, hard, slow drilling.
260-270	CL	Brown clay and caliche.
270-278	8 CL	As above with cemented sand.
278-280	2 SP	Coarse sand.
280-295	CL/SP	Brown clay and caliche, some cemented sand.
295-302	7 SP	Sandstone, tan to medium brown, soft to medium hard, weathered, fine to medium grained, trace gravel.
302-310	8 SW	Brown sand, some gravel, trace silt, well graded, fine to medium grain, gravel up to 0.25.
310-320	CL	Brown clay (90%), silt 10%, plastic, trace sand.
320-338	CL	Brown clay, trace silt, dry, lithified in places. Siltier with depth.
338-350	SP	Poorly graded, medium sand and gravel, reddish brown, cobbles to 3 inches. Wet, lots of water.
350-360	SW <i>GL</i>	Well graded gravel (70%) and sand (25%), wet, lots of water, 5% fines.
360-370	CL/SP	Interbedded medium brown clay and tan cemented v. fine-grained sand.
370-380	SW <i>GL</i>	Well graded gravel (70%) and sand (25%), wet, lots of water, 5% fines.
380-390	SP	Sand (70%) medium grained, some gravel, reddish brown. Gravel up to 2" in diameter, wet, lots of water.
390-402	SW	Well graded fine to medium grained sand, some silt, trace gravel and clay, lithified in places, subround to round.
402-410	8 CL/SM	Interbedded silty clay and very fine grained silty sandstone, friable, wet to moist.
410-420	SW	Reddish brown medium sand with gravel and cobbles, 10% silt. Lots of water.
420-430	SM	Upper 5 feet is weakly cemented brown slightly silty sandstone. Lower 5 feet is poorly graded sand.
430-440	SW	Sand, fine to medium grain, slightly silty, micaceous, subangular to subround. Trace gravel.
440-450	SW	Sandstone, very fine to medium grained, tan to medium brown, soft.
450-457	7 SW	Sandstone, fine grained, silty, soft to medium hard, slightly micaceous, trace gravel.

457-470	SC	Sand, fine grained, poorly graded, round, wet, micaceous, with interbedded medium brown silty clay (dry).
470-495	SC/SP	Interbedded silty clay and fine grained quartzitic sandstone.
495-500	SP	Fine sand and gravel. Poorly graded. Granitic and micaceous. Saturated and flowing. Producing water. Total depth 500 ft.



GAMMA NEUTRON LOG

FILING NO.	COMPANY	ROY F. WESTON, INC.					
	WELL	AVB60-01					
	FIELD	WEST PHOENIX					
	COUNTY	MARICOPA	STATE				ARIZONA
JOB NO.	LOCATION: SRP MAINTENANCE FACILITY				OTHER SERV:		
	79 AVE AND VAN BUREN				NONE		
20094	SEC	TWP	RGE				
PERMANENT DATUM: G.L.			ELEV:	ELEVATION:			
LOG MEASURED FROM G.L., 0 FT ABOVE PERM DATUM			DF.	KB.			
DRILLING MEASURED FROM G.L.			GL.				
DATE	6/24/94						
TYPE OF LOG	GAMMA NEUTRON						
RUN NO.	ONE						
DEPTH - DRILLER	490'						
DEPTH - LOGGER	488'						
BOTTOM LOGGED INT	488'						
TOP LOGGED INT	0'						
TYPE FLUID IN HOLE	WATER						
FLUID LEVEL	87'						
MAX TEMP DEG F	N/A						
OPERATING RIG TIME	N/A						
EQUIP.	LOCATION	L05	AZ				
OPERATOR	D. JACOVITCH						
WITNESSED BY	R. PETRUS						
RUN NO.	BORE HOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	TYPE	FROM TO	
1				9.75"	STEEL	0' T.D.	
				6"	STEEL	0' T.D.	

LOG TYPE	GAMMA-RAY	NEUTRON
RUN NO.	ONE	ONE
TOOL MODEL NO.	GCN27XL5A	GCN27XL5A
TOOL SERIAL NO.	274	274
DIAMETER	1 11/16"	1 11/16"
DETECTOR TYPE	SCINT.	He3
DETECTOR LENGTH	4"	6"
UNITS/DIV.	30	20, 40
SENSITIVITY	100/494	100/276,
TIME CONSTANT	3	4
ZERO DIV L OR R	4L	6L, 20L
SPEED-FPM	20	20
DATA SAMPLES/FT	2	2
FORMATION FACTOR	N/A	N/A
PUMP RATE-GPM	STATIC	STATIC
PUMP RATE-GPM		
PUMP RATE-GPM		

SOURCE TYPE	STRENGTH	SPACING	MODEL NO
AmBe 241	3 Ci	13"	71-1

PERFORATIONS:

REMARKS: NEUTRON ATTENUATED ABOVE FLUID PIPE INTER-CONNECTIONS, BUT NOT LEVEL.

NOTICE:

All interpretations are opinions based on in electrical or other measurements and we cannot guarantee the accuracy or correctness of pretations, and we shall not, except in the or willful negligence on our part, be liable ible for any loss, costs, damages or expense or sustained by anyone resulting from any in made by one of our officers, agents or emplo interpretations are also subject to our Gene Conditions as set out in our current Price S

EQUIPMENT DATA

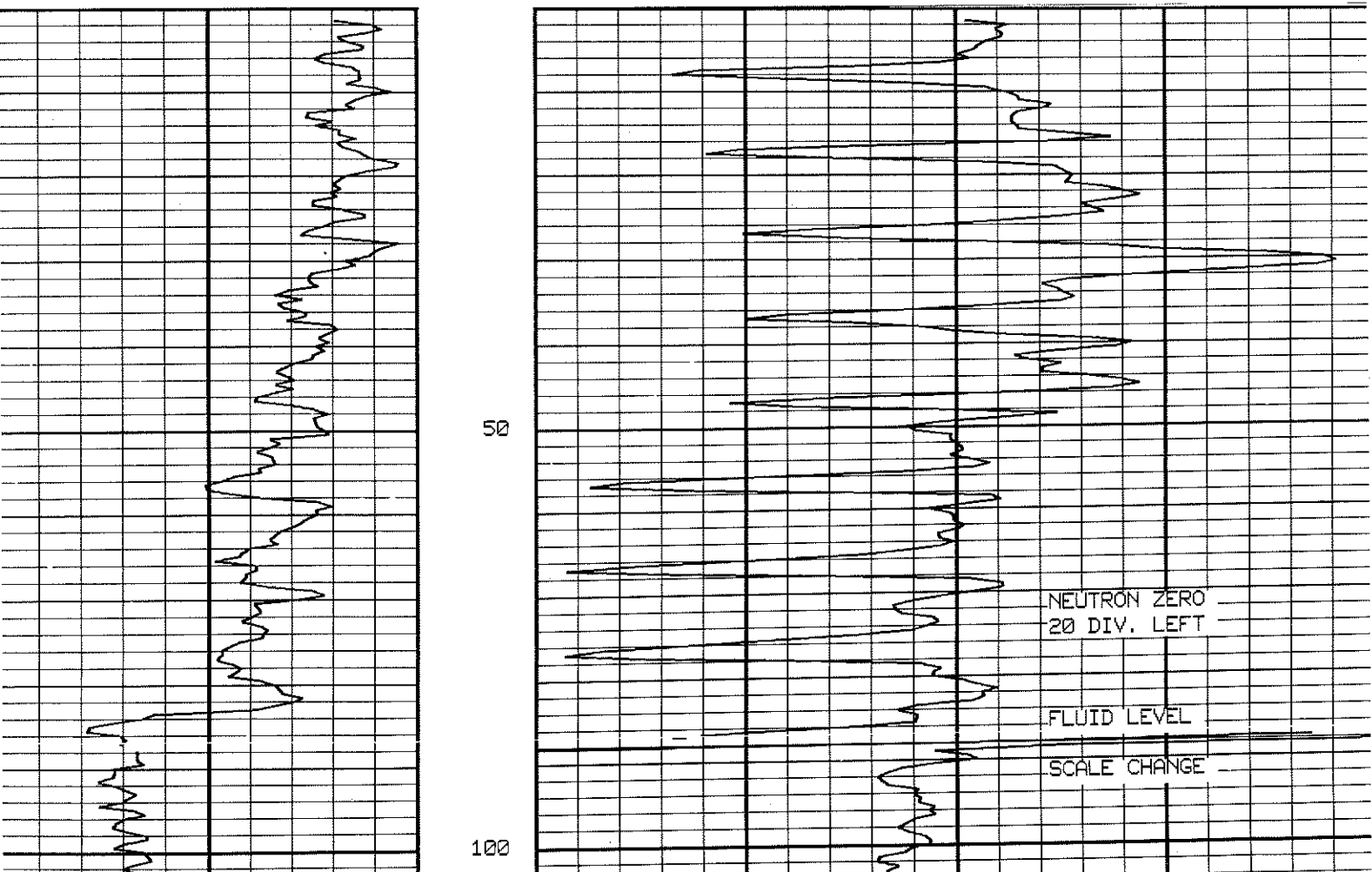
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	ONE	ONE	
NO.	GCN27XL5A	GCN27XL5A	
NO.	274	274	
	1 11/16"	1 11/16"	
PE	SCINT.	He3	
NGTH	4"	6"	
	30	20, 40	
	100/494	100/276,	500/692
NT	3	4	
OR R	4L	6L, 20L	
S/FT	2	2	
ACTOR	N/A	N/A	
PM	STATIC	STATIC	
PM			
PM			
STRENGTH	SPACING	MODEL NO	SERIAL NO.
3 CI	13"	71-1	119

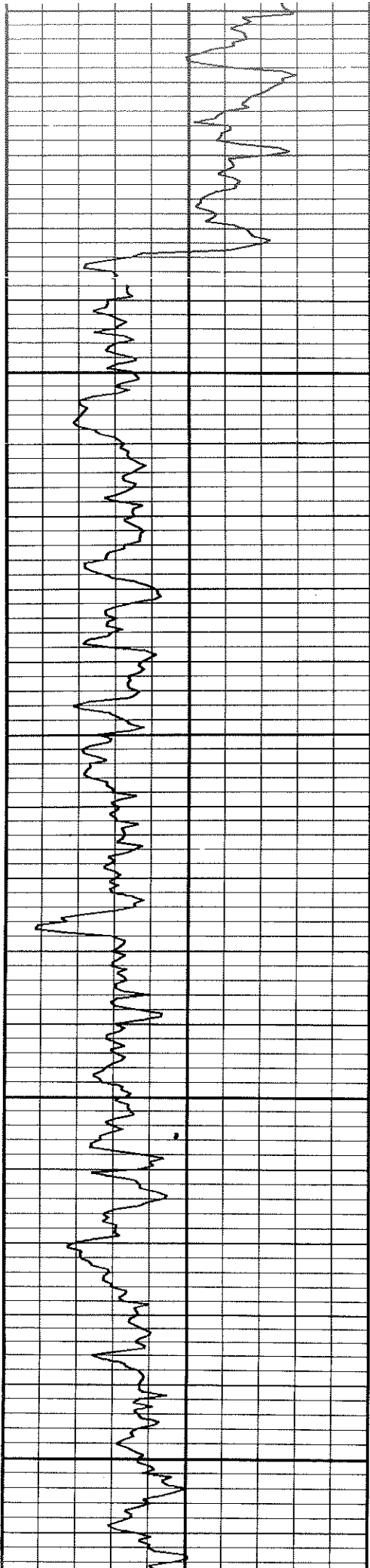
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NEUTRON ATTENUATED ABOVE FLUID LEVEL BY
PIPE INTER-CONNECTIONS, BUT NOT BELOW FLUID
LEVEL.

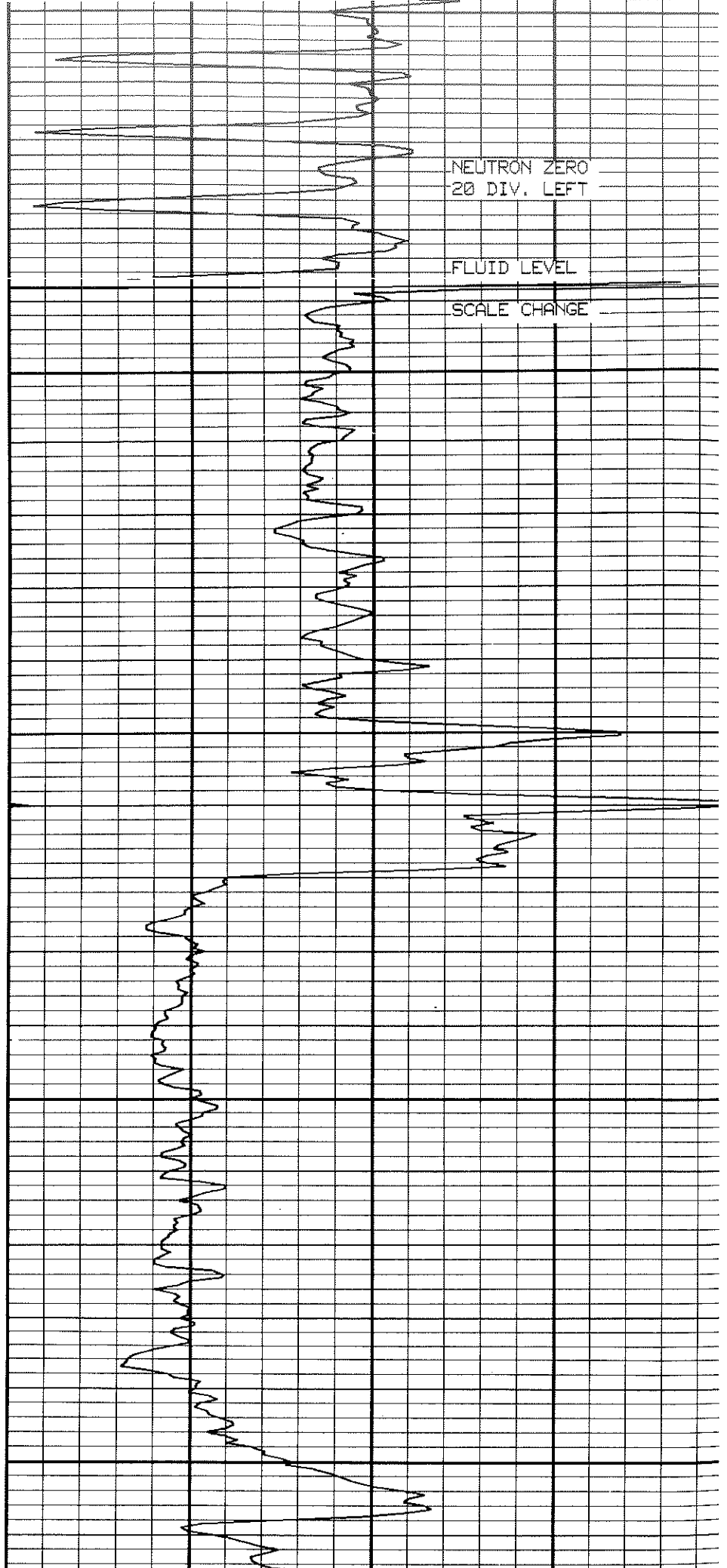
stations are opinions based on inferences from
or other measurements and we cannot, and do
be the accuracy or correctness of any inter-
and we shall not, except in the case of gross
negligence on our part, be liable or respons-
loss, costs, damages or expenses incurred
by anyone resulting from any interpretation
of our officers, agents or employees. These
ions are also subject to our General Terms and
is set out in our current Price Schedule.

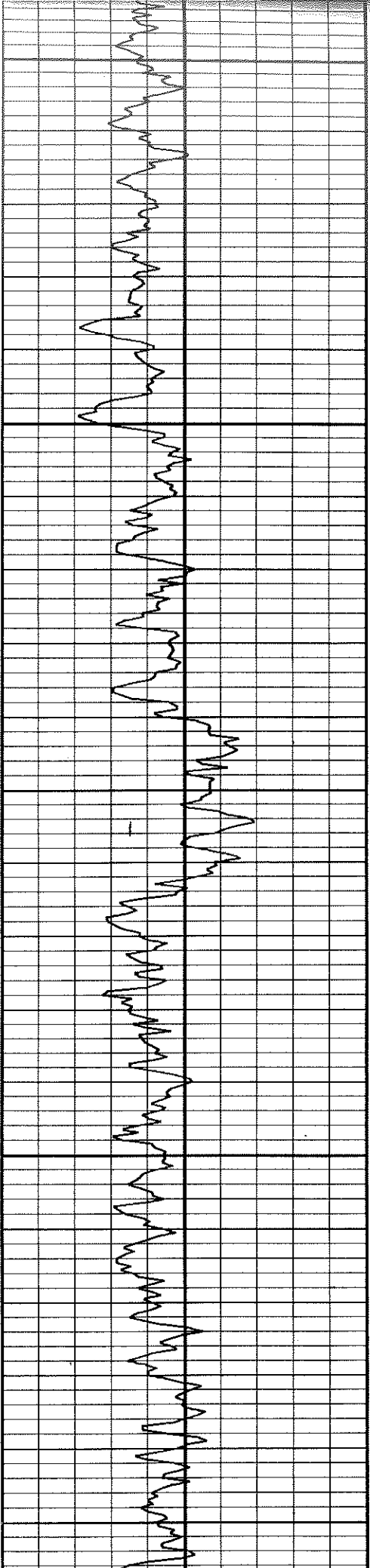
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1	1600
API UNITS	API UNITS
120	520



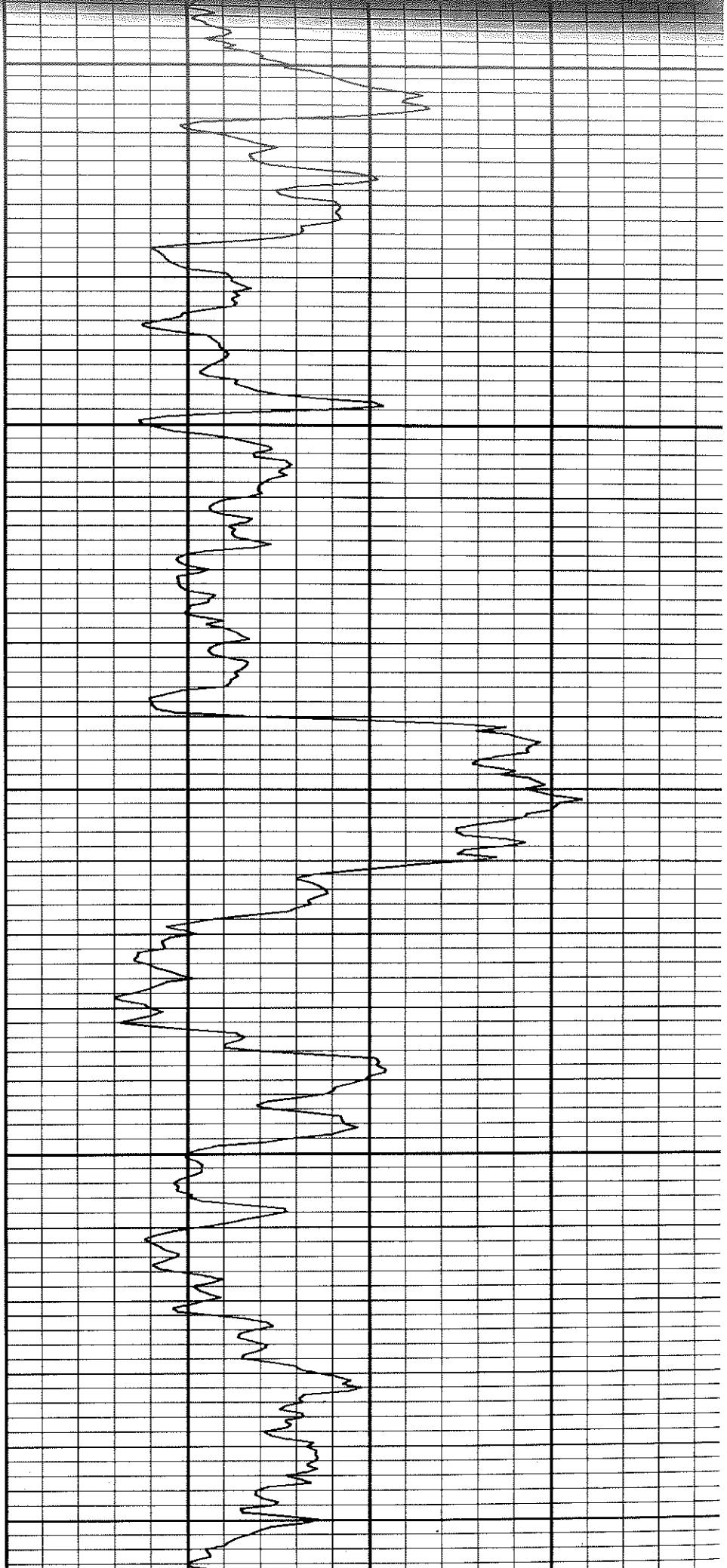


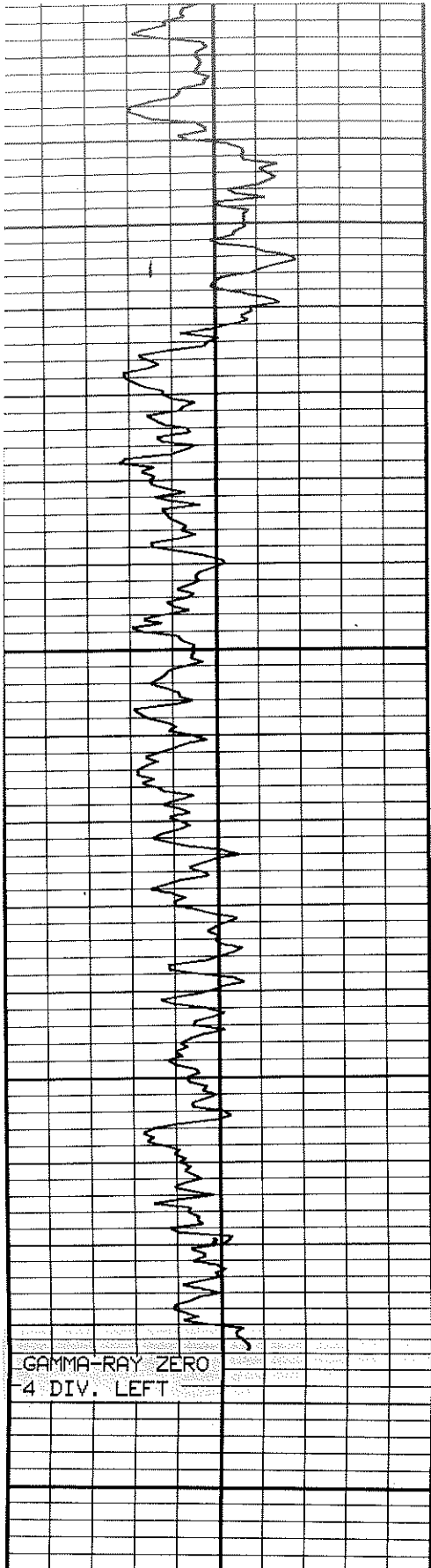
50
100
150
200
250



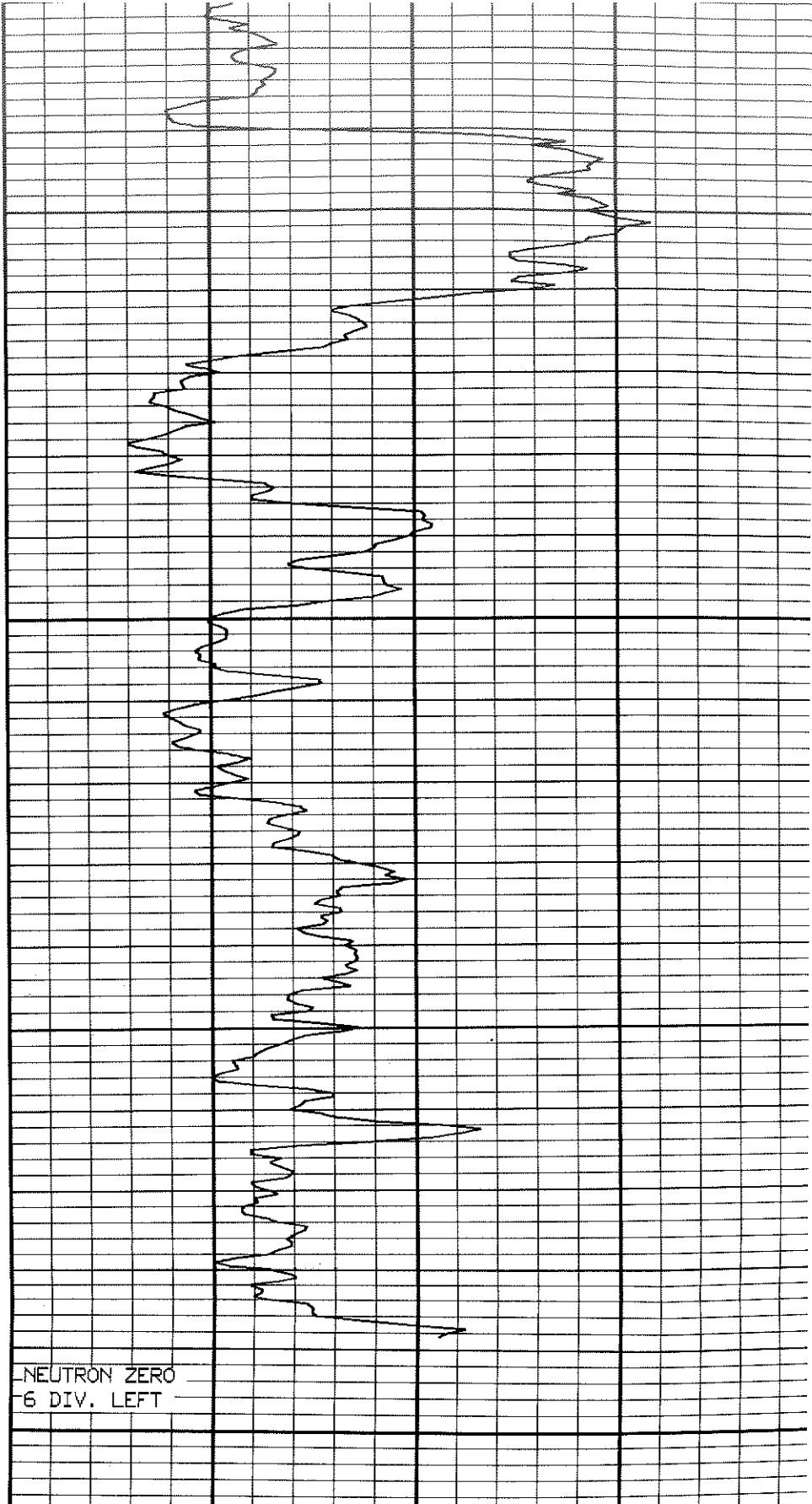


250
300
350
400
450

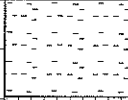




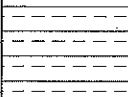
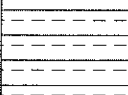
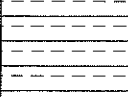
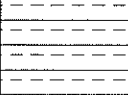
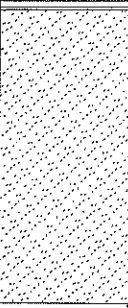
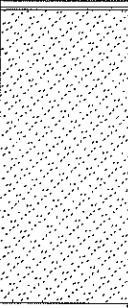
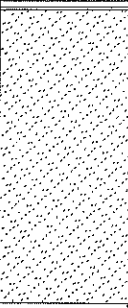
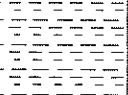
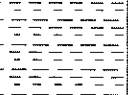
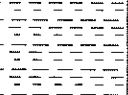




350
400
450
500



120	420	DEPTHS	120	520
API UNITS			API UNITS	
GAMMA-RAY LOG			NEUTRON LOG	
			800	1600

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5		SP	GRAVELLY COARSE SAND, TRACE PLASTIC FINES, DARK BRN.		SOME FILL MATERIAL
10		ML	SILTY FINE SAND, MED. BROWN, TRACE CLAY SLIGHTLY PLASTIC		
15		ML	SILTY FINE SAND, MED. BROWN, TRACE CLAY SLIGHTLY PLASTIC		
20		ML	SILTY FINE SAND, MED. BROWN, TRACE CLAY SLIGHTLY PLASTIC		
25		ML	SILTY FINE SAND (TRACE PEBBLES <5%) MED. BRN.	0.0	
30		SM	POORLY GRADED SILTY SAND (GRAVELLY <10-15%)		
35		SM	SILTY SAND MED. BRN.		
40		SM	SILTY SAND MED. BROWN (PEBBLES <10%)		
45		SM	MICACEOUS, SILTY SAND, DK. BRN. (MINOR PEBBLES <5%)	0.0	
50		SW	COARSE SAND, MED. BRN. (MINOR FINES <20%)		
55		SW	COARSE SAND, MED. BRN. (MINOR FINES <20%)		
60		SW	COARSE SAND, MED. BRN. (MINOR FINES / PLASTIC CLAY)		
65		SC	CLAYEY, FINE TO MED. SAND MICACEOUS (MINOR PEBBLES <10%)		
70		SC	CLAYEY FINE TO MED. SAND MICACEOUS, MED. BRN.		
75		SC	CLAYEY FINE TO MED. SAND MICACEOUS, MED. BRN.		

PROJ.#: E03103102-25 | DRILL DATE: 12/06/01
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 98.6'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 98-01
75TH AVE / MADISON
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80		CL	F. SANDY CLAY, MED. BRN. PLASTIC MICACEOUS		
85		CL	MICACEOUS F. SANDY CLAY, MED. BRN, PLASTIC		
90		CL	MICACEOUS F. SANDY CLAY, MED BRN, PLASTIC		
95		CL	MICACEOUS F. SANDY CLAY, MED BRN, PLASTIC	0.0	
100		SC	MICACEOUS CLAYEY SAND		
105		SP	CLAYEY, GRAVEL F. SAND		
110		CL	MICACEOUS FINE SANDY CLAY		
115		CL	MICACEOUS FINE SANDY CLAY		
120		CL	MICACEOUS FINE SANDY CLAY		
125		CL	MICACEOUS FINE SANDY CLAY (MINOR GRAVEL <5%)		
130		CL	MICACEOUS FINE SANDY CLAY (MINOR GRAVEL <10%)		
135		CL	GRAVELLY CLAY, F. SAND PLASTIC (GRAVEL <1" DIA. 10-20%)	0.0	
140		CL	GRAVELLY CLAY, F. SAND PLASTIC (GRAVEL <1" DIA. 10-20%)		
145		CL	GRAVELLY CLAY, FINE SAND, MED. BROWN PLASTIC		DRIVE CASING 148.5 BGS SWITCH TO MUD ROTARY
150		CL	SANDY CLAY, MD. BRN.		

PROJ.#: E03103102-25 | DRILL DATE: 2/06/01
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 98.6'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 98-01
75TH AVE/ MADISON
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155	[Diagonal Hatching]	GW	COARSE SANDY GRAVEL, ANGULAR <0.5"	0.0	
160		GW	COARSE SANDY GRAVEL, ANGULAR <0.5"		
165		GW	COARSE SANDY GRAVEL, ANGULAR <0.5"		
170	[Dotted Pattern]	SW	COARSE ANGULAR SAND	0.0	
175	[Diagonal Hatching]	GW	COARSE SANDY GRAVEL <.05"	0.0	
180		GW	COARSE SANDY GRAVEL		
185		GW	COARSE SANDY GRAVEL		
190		GW	COARSE SANDY GRAVEL	0.0	
195		GW	COARSE SANDY GRAVEL		
200		GW	COARSE SANDY GRAVEL		
205		GW	COARSE SANDY GRAVEL		
210		GW	COARSE SANDY GRAVEL		
215		GW	COARSE SANDY GRAVEL	0.0	
220		GW	COARSE SANDY GRAVEL		
225		GC	CLAYEY, COARSE SANDY GRAVEL		

PROJ.#:E03103102-25 | DRILL DATE: 02/06/01
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 98.6'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB98-01
75TH AVE/MADISON
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230	[Symbol]	CL	SANDY GRAVELLY CLAY		
235	[Symbol]	CL	SANDY, GRAVELLY LT BRN CLAY, PLASTIC		
240	[Symbol]	CL	CLAY		
245	[Symbol]	CL	CLAY		
250	[Symbol]	GC	CLAYEY SANDY GRAVEL		
255	[Symbol]	GC	CLAYEY SANDY GRAVEL		
260	[Symbol]	GC	CLAYEY COARSE SANDY GRAVEL		
265	[Symbol]	GC	CLAYEY COARSE SANDY GRAVEL		
270	[Symbol]	GC	CLAYEY GRAVEL		
275	[Symbol]	GC	CLAYEY COARSE SANDY GRAVEL, PLASTIC		
280	[Symbol]	GC	CLAYEY COARSE SANDY GRAVEL		
285	[Symbol]	GC	CLAYEY COARSE SANDY GRAVEL		
290	[Symbol]	SC	CLAYEY COARSE SAND, MINOR GRAVEL		
295	[Symbol]	CL	COARSE SANDY CLAY		
300	[Symbol]	CL	SANDY CLAY		

PROJ.#: E03103102-25 | DRILL DATE: 12/06/01
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 98.6'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 98-01
 75TH AVENUE / MADISON
 PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
305		CL	SANDY CLAY		
310		SC	CLAYEY SAND		
315		SC	CLAYEY SAND, MINOR GRAVEL		
320		SC	CLAYEY COARSE SAND		
325		CL	COARSE SANDY CLAY		
330		CL	COARSE SANDY CLAY		
335		CL	COARSE SANDY CLAY	0.0	
340		CL	SANDY CLAY		
345		CL	SANDY CLAY		
350		CL	SANDY CLAY		
355		CL	COARSE SANDY CLAY		
360		CL	COARSE SANDY CLAY	0.0	
365		CL	COARSE SANDY CLAY		
370		CL	COARSE SANDY CLAY		
375		CL	SANDY CLAY		

PROJ.# E03103102-25 | DRILL DATE: 12/06/01
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 98.6'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 98-01
 75TH AVENUE / MADISON
 PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
380		CL	SANDY CLAY		
385					
390					
395					
400					
405					
410					
415					
420					
425					
430					
435					
440					
445					
450					

PROJ.#:E03103102-25 | DRILL DATE: 12/06/01
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 98.6'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 98-01
75TH AVE / MADISON
PHOENIX, ARIZONA



5201 Woodmere Drive
 Bakersfield California 93313
 (800) 445 9914
 www.wenteco.com

ROBERTSON GEOLGGING TECHNOLGY

ELECTRIC - GAMMA RAY - TEMPERATURE LOG

AVB 98-01

OTHER SERVICES
 XY CALIPER
 NEUTRON

COMPANY BE & K TERRANEXT
 WELL AVB 98-01
 FIELD TOLLESON
 COUNTRY U.S.
 STATE AZ
 COUNTY MARICOPA
 LAT 33 26.80N
 LONG 112 13.32W

Perm Datum	GL	Elev	1177	KB	0.00
Log Datum	GL			DF	0.00
Drill Datum	GL			GL	1177.00

DATE	12/12/2001				
RUN#	1	ELOG	0	2	0
TYPE OF LOG					
DEPTH DRILLER	381.00		0.00		0.00
DEPTH LOGGER	381.00		0.00		0.00
LOG DEEPEST	380.00		0.00		0.00
LOG SHALLOW	120.00		0.00		0.00
FLUID IN HOLE	BENTONITE				
SALINITY			0		
DENSITY			0		
LEVEL		FULL	0		
MAX TEMP °C	71.00		0.00		0.00
RIG TIME	5 HR.		0		
RECORDED BY	William Smith				
WITNESSED BY	J. NAMLIK				

RUN#	BIT	BIT RECORD		SIZE	CASING RECORD		TO
		FROM	TO		WEIGHT	FROM	
1	9.88	148.00	381.00	12.75	0.00	0.00	148.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (C \BILL\34983e.hed)

JTN 34983

Sec Rm 5.0 @ 75F
 Twp Rmf 3.8 @ 75F
 Rge

Location Corner of 75th street and Madison in Tolleson, AZ
 Lat and Lon and Elev determined using a recreational GPS
 Driller Stewart Brothers Drilling

Depth = 124.4
 00 ft Time = 12 December 2001 10:24:17 Filename = "C \WINLOGGER\DATA\34983e LOG"

SP mV
 -100.00 0.00
 TEMP DEGF

64" OHM.M

SP mV
 100.00 0.00

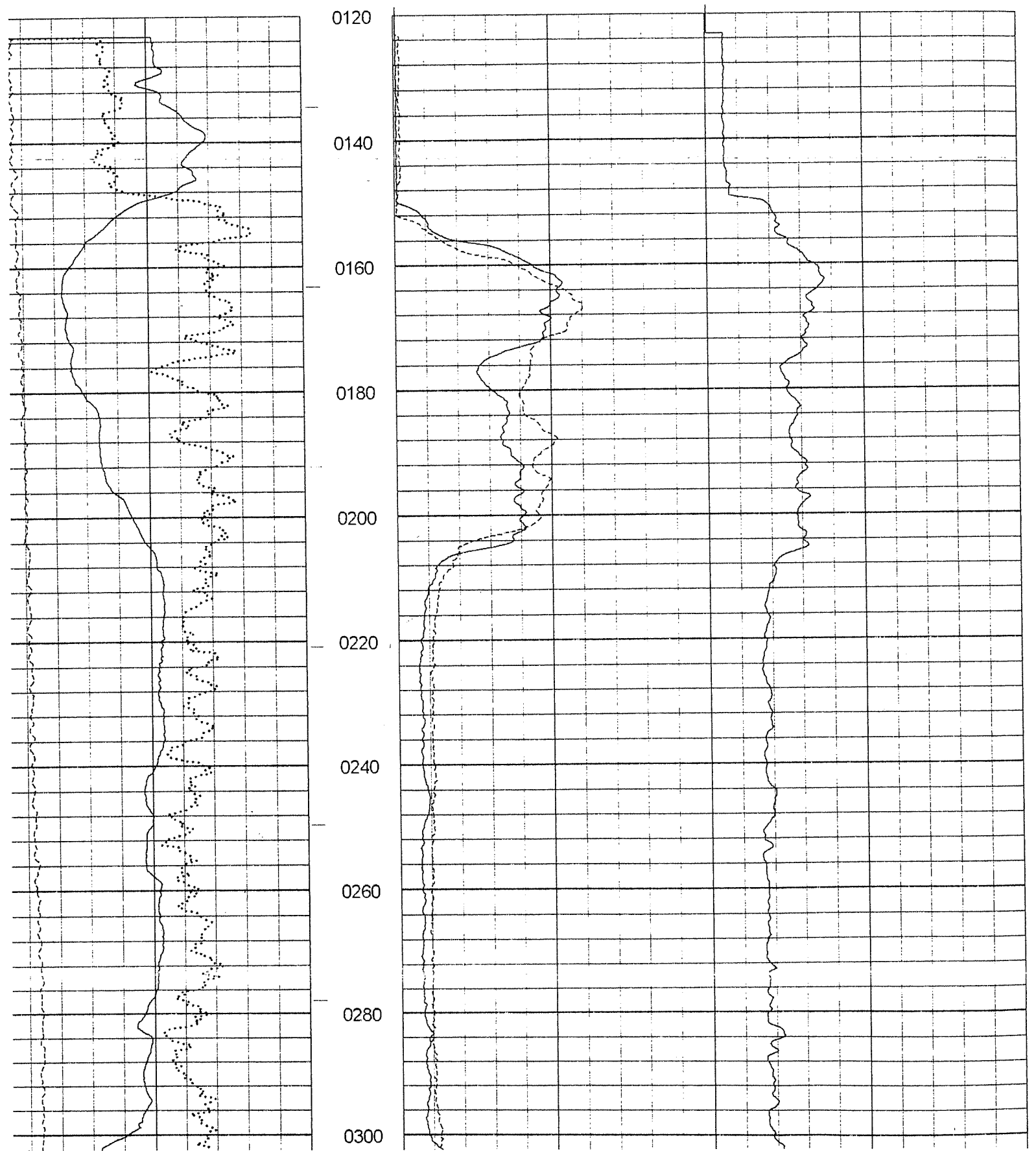
 TEMP DEGF
 0.00 75.00

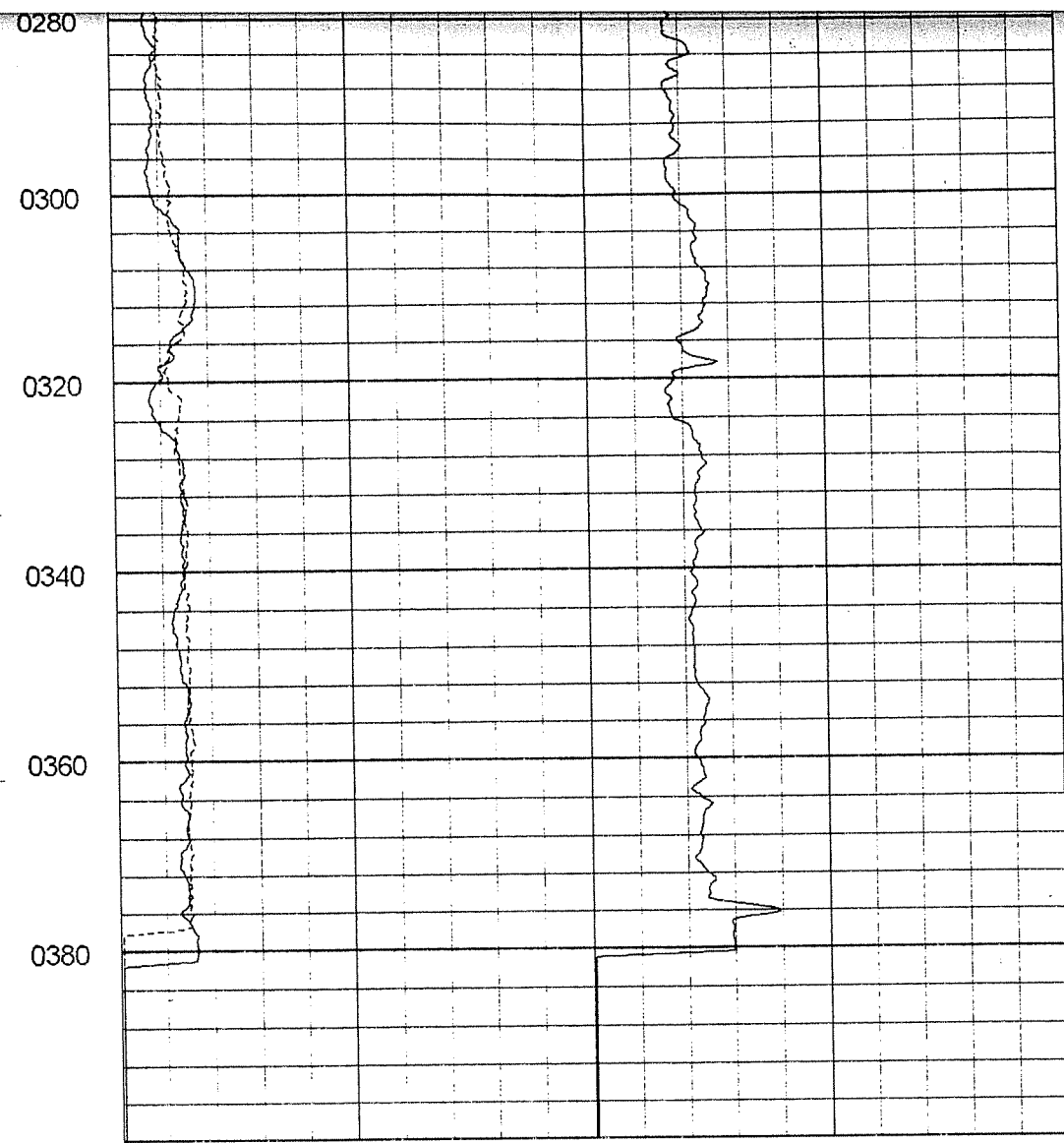
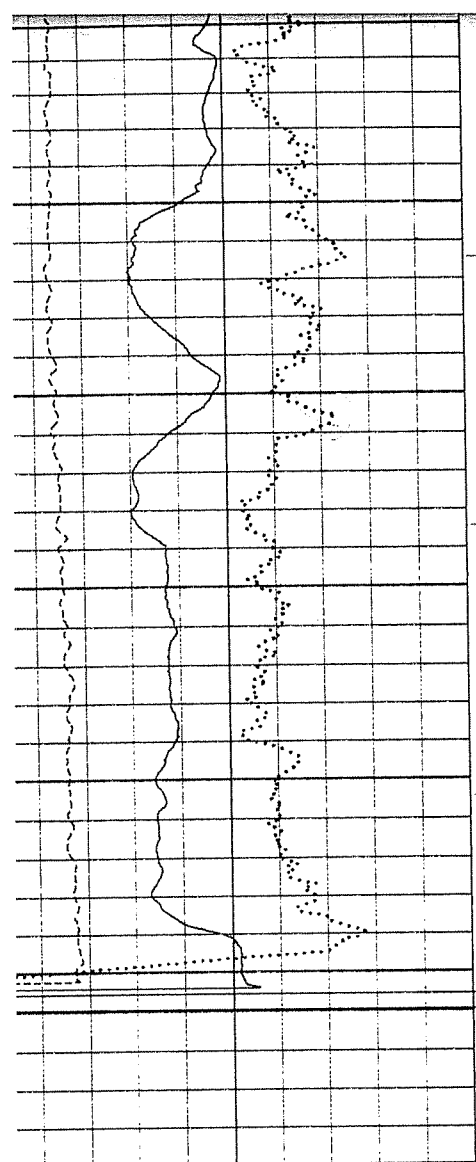
 NGAM API
 0.00 150.00

64" OHM.M
 0.00 100.00

 16" OHM.M
 0.00 100.00 0.00

 S.P.T OHM 65.00





SP mV	
-100.00	0.00
TEMP DEGF	
70.00	75.00
NGAM API	
0.00	150.00

64" OHM.M		S.P.T OHM	
0.00	100.00	0.00	65.00
16" OHM.M			
0.00	100.00	0.00	



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ROBERTSON GEOLOGGING TECHNOLOGY

NEUTRON LOG

AVB 98-01

OTHER SERVICES
X Y CALIPER
ELOG

COMPANY BE & K TERRANEXT
WELL AVB 98-01
FIELD TOLLESON
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT 33 26.80N
LONG 112 13.32W

Perm. Datum G.L. Elev 1177 KB 0.00
Log Datum G.L. DF 0.00
Drill Datum G.L. GL 1177.00

DATE 12/12/2001
RUN# 1
TYPE OF LOG NEUTRON
DEPTH DRILLER 381.00
DEPTH LOGGER 379.00
LOG DEEPEST 378.00
LOG SHALLOW 0.00
FLUID IN HOLE BENTONITE
SALINITY 0
DENSITY 0
LEVEL 0
MAX TEMP °C 71.00
RIG TIME 1 HR.
RECORDED BY William Smith
WITNESSED BY J. NAMLUCK

RUN#	BIT RECORD		TO	SIZE	CASING RECORD		TO
	BIT	FROM			WEIGHT	FROM	
1	9.88	148.00	381.00	12.75	0.00	0.00	148.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (C \BILL\34983N hed)

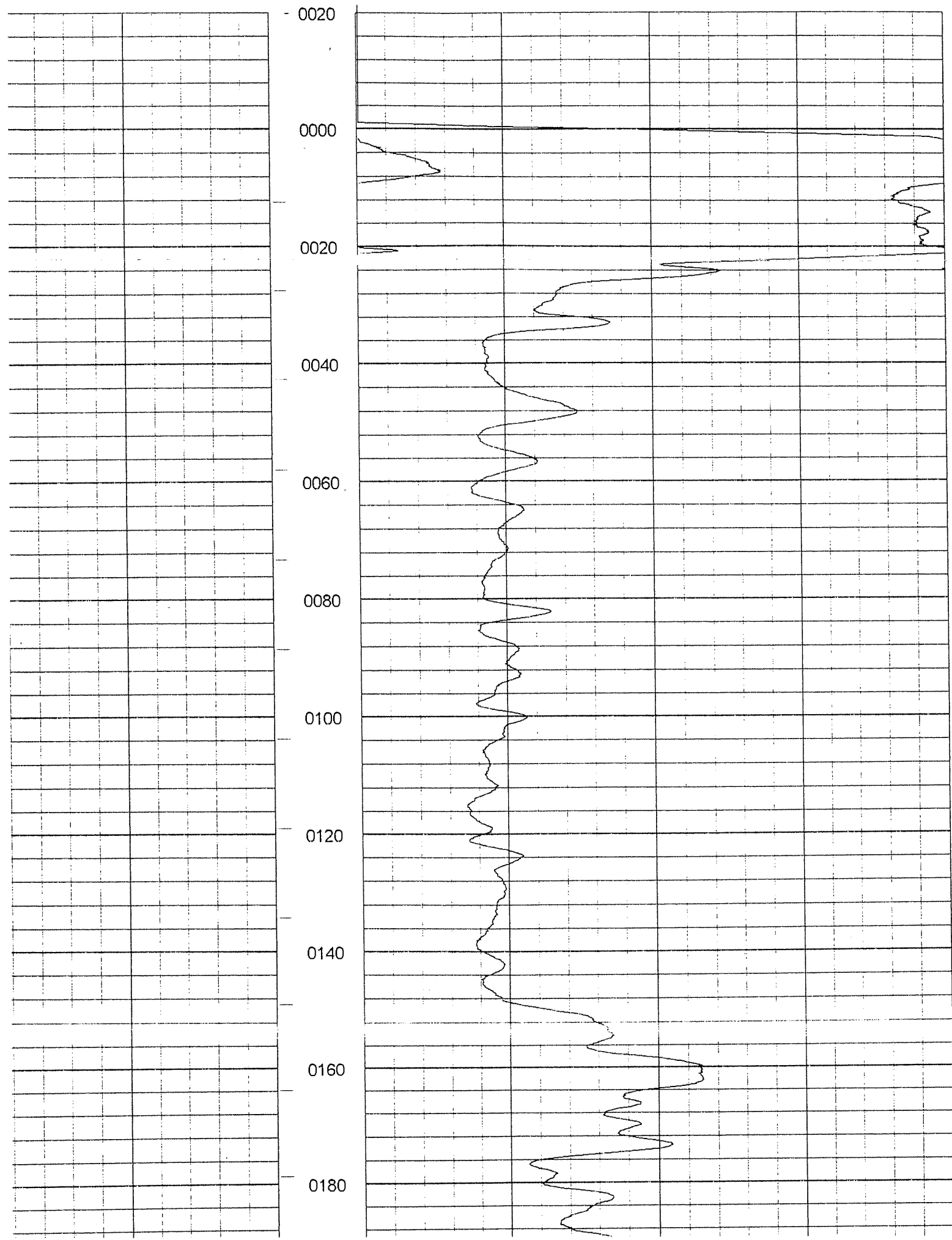
JTN 34983

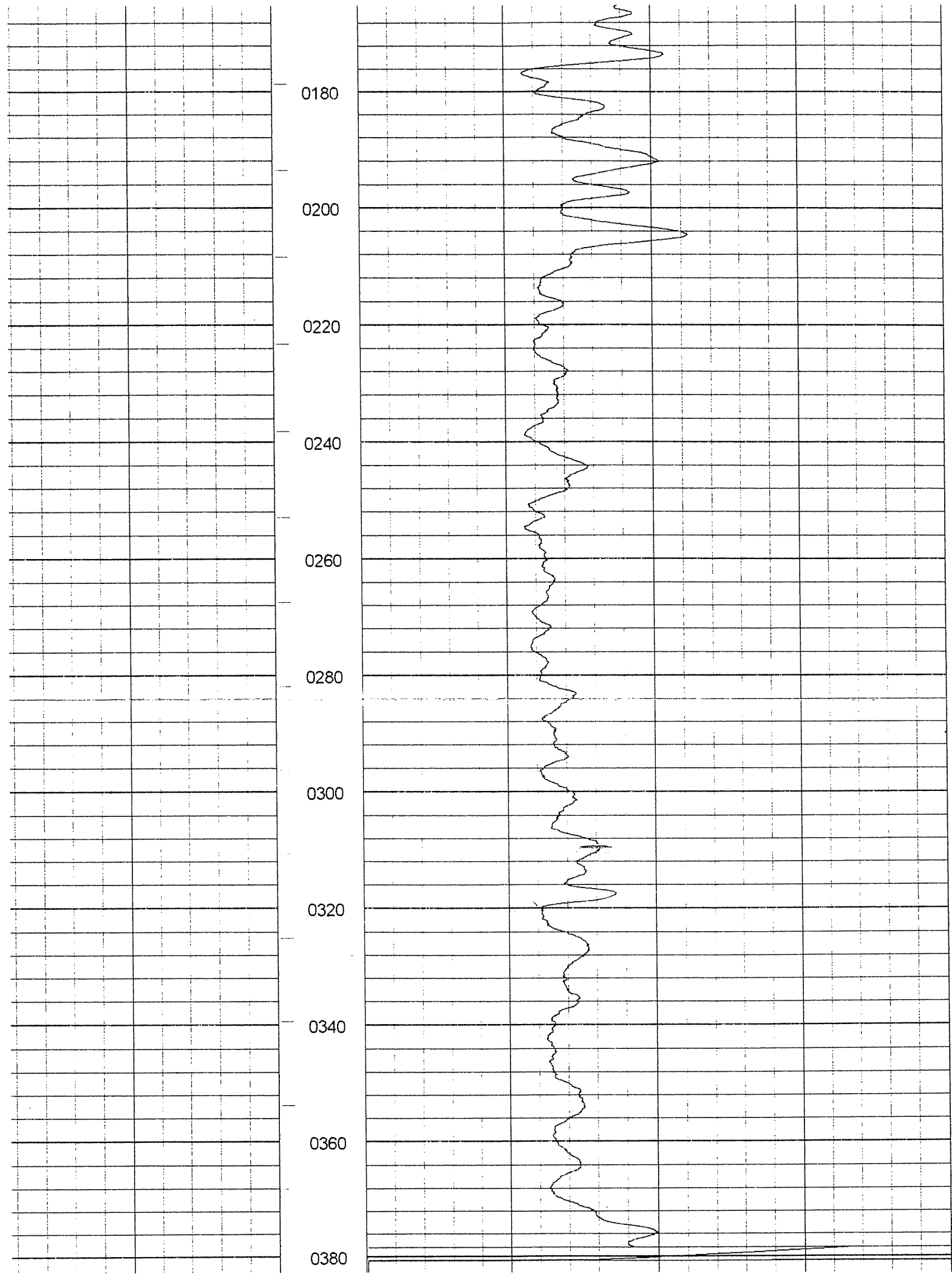
Sec Rm 50 @ 75F
Twp Rmf 38 @ 75F
Rge

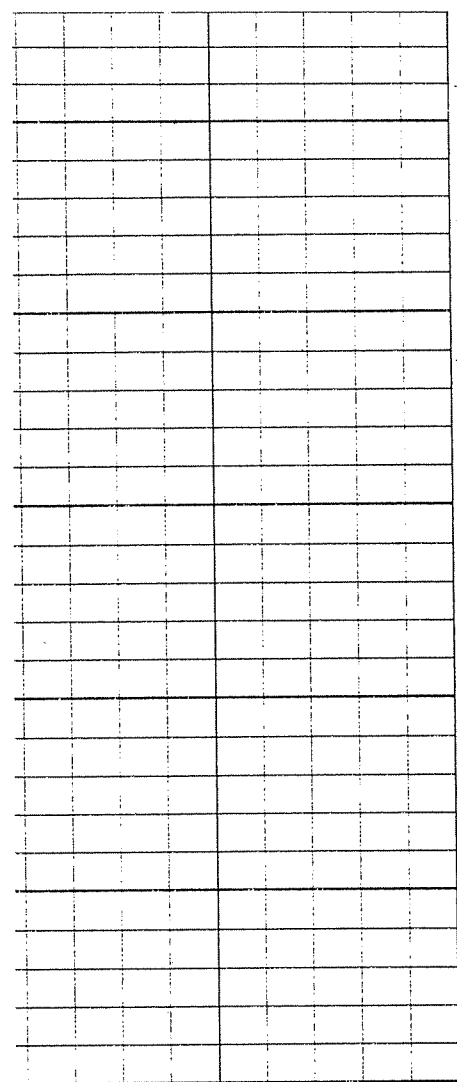
Location Corner of 75th street and Madison in Tolleson, AZ
Lat and Lon and Elev determined using a recreational GPS
Driller Stewart Brothers Drilling

Depth = - 1500 ft Time = 12 December 2001 12 23 46 Filename = "C \WINLOGGER\DATA\34983N LOG"

0.00 neut api 2000.00







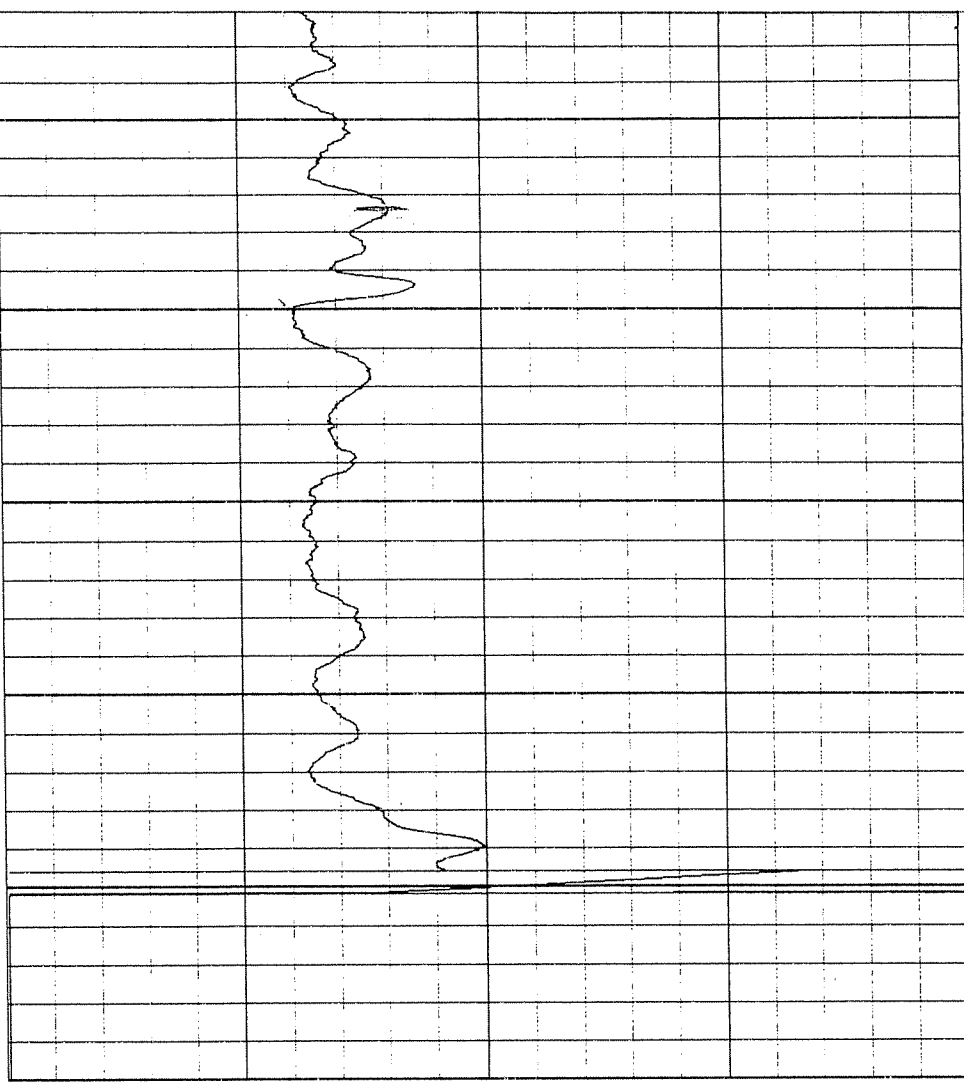
0300

0320

0340

0360

0380



0.00

neut api

2000.00



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ROBERTSON GEOLOGGING TECHNOLOGY

X - Y CALIPER LOG

AVB 98-01

OTHER SERVICES
NEUTRON
ELOG

COMPANY BE & K TERRANEXT
WELL AVB 98-01
FIELD TOLLESON
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT 33 26.80N
LONG 112 13.32W

Perm. Datum G.L. Elev 1177 KB 0.00
Log. Datum G.L. DF 0.00
Drill Datum G.L. GL 1177.00

DATE 12/12/2001
RUN# 1
TYPE OF LOG X-Y CALIPER
DEPTH DRILLER 381.00
DEPTH LOGGER 377.00
LOG DEEPEST 376.00
LOG SHALLOW 0.00
FLUID IN HOLE BENTONITE
SALINITY
DENSITY
LEVEL FULL
MAX TEMP °C 71.00
RIG TIME 75 HR.
RECORDED BY William Smith
WITNESSED BY J. NAMLIK

BIT RECORD	CASING RECORD	
BIT FROM TO SIZE	WEIGHT FROM TO	TO
1 9.88 148.00 381.00 12.75	0.00 0.00 0.00	148.00
2 0.00 0.00 0.00 0.00	0.00 0.00 0.00	0.00
1 0.00 0.00 0.00 0.00	0.00 0.00 0.00	0.00

REMARKS (C \BILL\34983CAL2 hed)

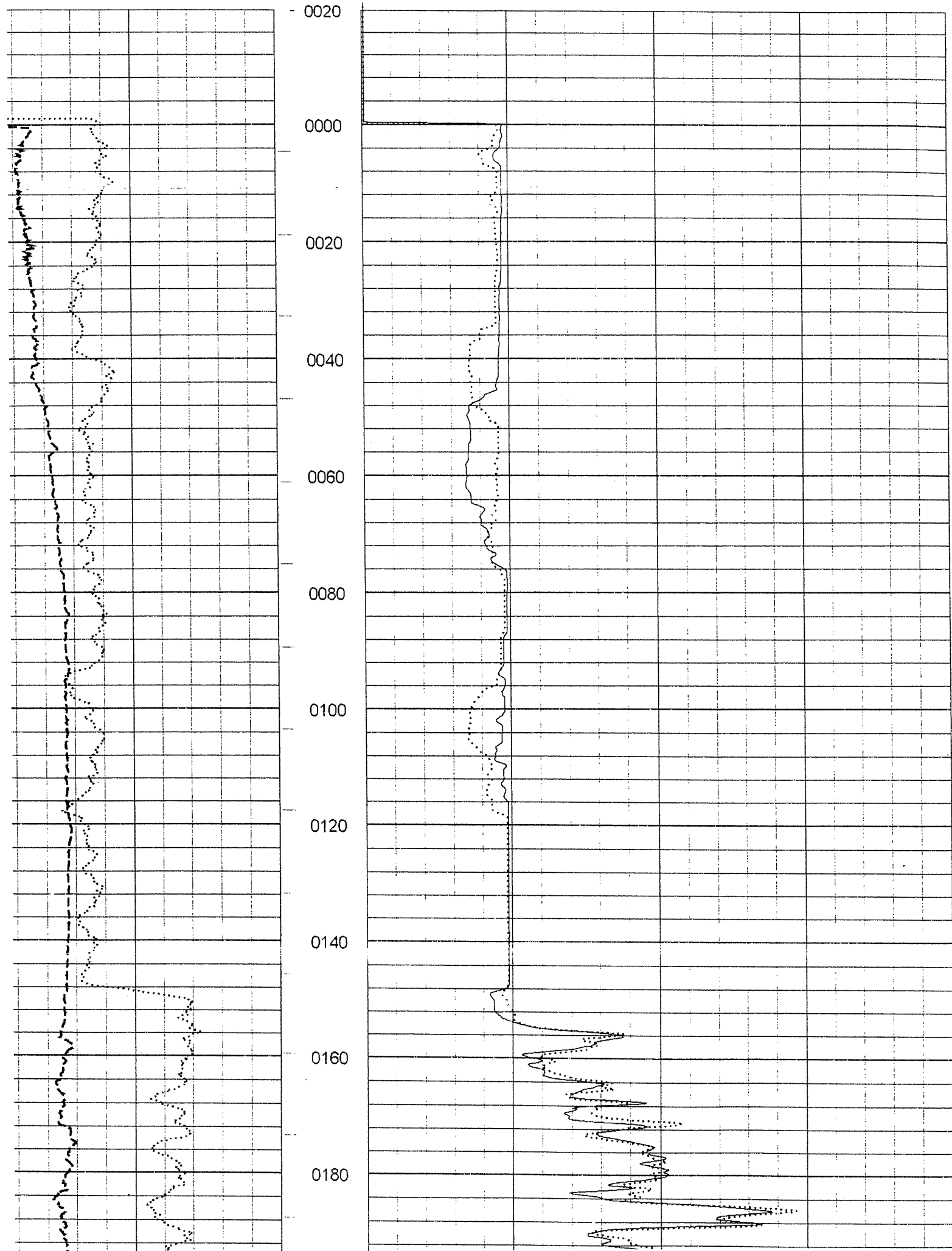
JTN 34983

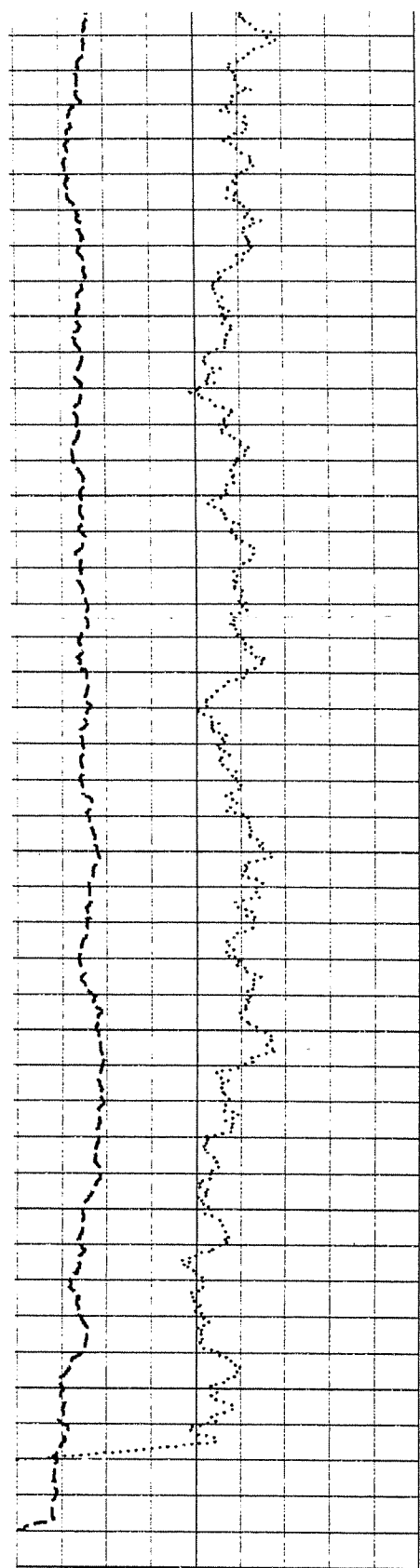
Sec Rm 50 @ 75F
Twp Rmf 38 @ 75F
Rge

Location: Corner of 75th street and Madison in Tolleson, AZ
Lat and Lon and Elev determined using a recreational GPS
Driller: Stewart Brothers Drilling

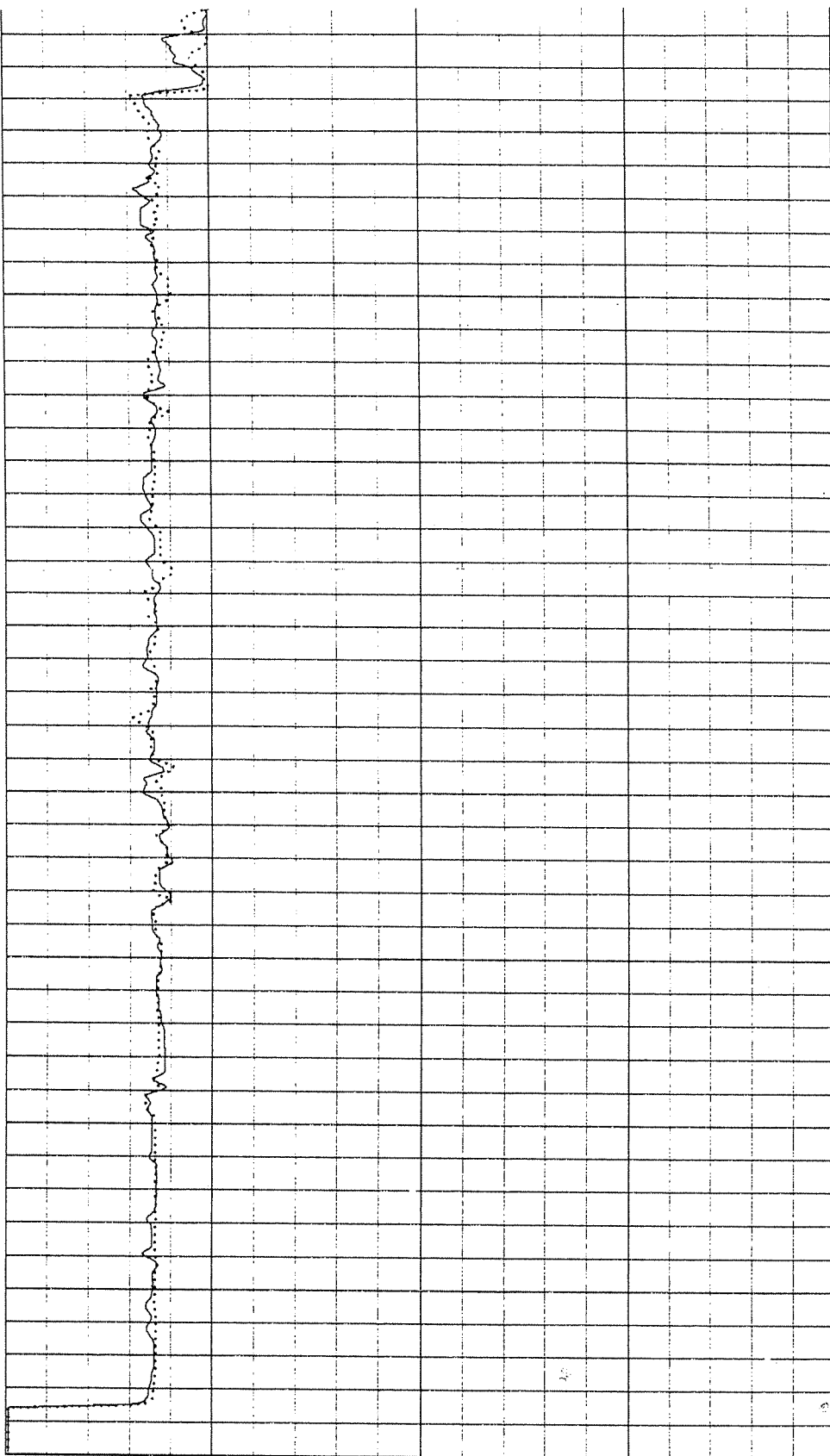
Depth = 0.35
00 ft Time = 12 December 2001 13 18 43 Filename = "C \WINLOGGER\DATA\34983CAL2 LOG"

00	ngam api	150.00	6.00	caly inch	26.00
00	incl deg	10.00	6.00	calx inch	26.00





0220
0240
0260
0280
0300
0320
0340
0360



ngam api
00 150.00

incl deg
00 10.00

caly inch
6.00 26.00

calx inch
6.00 26.00

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
2	[Diagonal hatching pattern]	SW	Well-graded sand, brown to reddish-brown.
4			
6			
8	[Dashed horizontal line pattern]	SP	Poorly-graded, medium-grained sand, brown to reddish-brown.
10			
12			
14	[Diagonal hatching pattern]	SW	Well-graded sand, brown to reddish-brown, with fine gravel.
16			
18		SW	Well-graded sand, brown to reddish-brown, with fine gravel.
20			
22			
24		SW	Well-graded sand, brown to reddish-brown, with fine gravel.
26			
28	[Horizontal dashed line pattern]	SC	Clayey sand, light-brown to brown, medium plasticity clay.
30			
32			
34		SC	Clayey sand, light-brown to brown, medium plasticity clay.
36			
38			
40	[Horizontal dashed line pattern]	SC	Clayey sand, light-brown to brown, medium plasticity clay.
42			
44			
46		SW	Gravelly sand, reddish-brown to brown.
48			
50		SW	Gravelly sand, brown to reddish-brown.
52			
54	[Diagonal hatching pattern]	SW	Gravelly sand, brown to reddish-brown.
56			
58			

PROJ.#: WVBA | DRILL DATE: 1/29-2/7/01
 LOGGED BY: Chris Robertson
 PROJECT MANAGER: Rich Petrus
 NOTES: N/A
 DEPTH TO WATER: 87.55'
 RIG TYPE: Rotary | DIAMETER: 9 7/8"
 DRILLER: Stewart Bros. | TOTAL DEPTH: 380'
 DRILLING METHOD: Mud Rotary



FIELD BOREHOLE LOG
AVB81-01
 7200 West Sherman Street
 PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
60	[Diagonal hatching pattern]	SW	Sand with minor clay, gray-brown, well-graded, moist.
62			
64	[Cross-hatching pattern]	GW	Sandy gravel, brown to dark-brown.
66			
68		GW	Sandy gravel, dark-red to dark-brown.
70			
72			
74			
76			
78			
80	[Diagonal hatching pattern]	SW	Gravelly sand, brown to reddish-brown.
82	[Cross-hatching pattern]	GW	Sandy gravel, brown to reddish brown.
84			
86			
88	GW	Gravel/cobbles with sand, brown to reddish brown.	
90			
92			
94			
96	GW	Gravel/cobbles with sand, brown to reddish brown.	
98			
100	[Vertical hatching pattern]	GP	Gravel with coarse-grained sand, reddish-brown, gravel angular.
102			
104			
106	GP	Gravel with coarse-grained sand, reddish-brown, gravel angular.	
108			
110			
112	GP	Gravel with coarse-grained sand, reddish-brown, gravel angular.	
114			
116	GP	Gravel with coarse-grained sand, reddish-brown, gravel angular.	

PROJ.#: WVBA | DRILL DATE: 1/29-2/7/01
 LOGGED BY: Chris Robertson
 PROJECT MANAGER: Rich Petrus
 NOTES: N/A
 DEPTH TO WATER: 87.56'
 RIG TYPE: Rotary | DIAMETER: 9 7/8"
 DRILLER: Stewart Bros. | TOTAL DEPTH: 380'
 DRILLING METHOD: Mud Rotary



FIELD BOREHOLE LOG
AVB81-01
7200 West Sherman Street
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
118		GP	Gravel with coarse-grained sand, reddish-brown, gravel angular.
120			
122			
124		GP	Gravel with coarse-grained sand, reddish-brown, gravel angular.
126			
128			
130		GP	Gravel, angular.
132			
134		GP	Gravel with clayey sand, brown to reddish-brown.
136			
138			
140		SC	Clayey sand, well-sorted, brown.
142			
144		SC	Clayey sand, well-sorted, brown.
146			
148			
150		SC	Clayey sand, well-sorted, brown.
152			
154		SC	Clayey sand with gravel, well-sorted, brown.
156			
158			
160			
162	SC	Clayey sand with gravel, brown to reddish-brown.	
164			
166		SW	Poorly-sorted clayey sand with gravel, brown to reddish-brown.
168			
170		GW	Gravel with clayey sand, brown to reddish-brown.
172			
174		GW	Gravel with clayey sand, brown to reddish-brown.

PROJ.#: WVBA DRILL DATE: 1/29-2/7/01
 LOGGED BY: Chris Robertson
 PROJECT MANAGER: Rich Petrus
 NOTES: N/A
 DEPTH TO WATER: 87.56'
 RIG TYPE: Rotary DIAMETER: 9 7/8"
 DRILLER: Stewart Bros. TOTAL DEPTH: 380'
 DRILLING METHOD: Mud Rotary



FIELD BOREHOLE LOG
AVB81-01
7200 West Sherman Street
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
176	[Symbol: Gravel with coarse sand]	GP	Gravel with coarse sand, brown to reddish-brown.
178			
180			
182	[Symbol: Clayey sand]	SC	Clayey sand, brown to reddish-brown.
184			
186			
188	[Symbol: Clayey sand]	SC	Clayey sand, brown.
190			
192			
194	[Symbol: Clayey sand]	SC	Clayey sand, brown.
196			
198			
200	[Symbol: Clayey sand]	SC	Clayey sand, brown.
202			
204			
206	[Symbol: Sandy clay]	CL	Sandy clay, brown to reddish-brown, medium plasticity, ~35% fine to medium-grained sand.
208			
210			
212	[Symbol: Sandy clay]	CL	Sandy clay, brown to reddish-brown, medium plasticity, ~30% medium-grained sand.
214			
216			
218	[Symbol: Sandy clay]	CL	Sandy clay, brown to reddish-brown, medium plasticity, ~30% fine to medium-grained sand.
220			
222			
224	[Symbol: Sandy clay]	CL	Sandy clay, brown to reddish-brown, medium to low-plasticity, ~40% fine to medium-grained sand.
226			
228			
230	[Symbol: Clay with sand]	CL	Clay with sand, brown to reddish-brown, low plasticity, ~20% fine to medium-grained sand.
232			

PROJ.#: WVBA DRILL DATE: 1/29-2/7/01
 LOGGED BY: Chris Robertson
 PROJECT MANAGER: Rich Petrus
 NOTES: N/A
 DEPTH TO WATER: 87.56'
 RIG TYPE: Rotary DIAMETER: 9 7/8"
 DRILLER: Stewart Bros. TOTAL DEPTH: 380'
 DRILLING METHOD: Mud Rotary



FIELD BOREHOLE LOG
AVB81-01
7200 West Sherman Street
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
232			
234		CL	Clay with sand, brown to reddish-brown, medium to low-plasticity, ~20% fine to medium-grained sand.
236			
238			
240		CL	Clay with sand, brown to reddish-brown, low to medium-plasticity, ~20% fine to medium-grained sand.
242			
244		CL	Clay with sand/sandy clay, brown to reddish-brown, medium plasticity, ~30% medium-grained sand.
246			
248			
250			
252			
254			
256			
258			
260		SC	Clayey sand, brown to reddish-brown, ~80% fine to medium-grained sand.
262			
264			
266		SP	Sand with <5% gravel and trace fines, brown to reddish-brown, well-graded, ~30% medium-grained sand.
268			
270		CL	Sandy clay, brown to reddish-brown, medium plasticity.
272			
274			
276			
278			
280		CL	Sandy clay, medium brown, medium plasticity, ~15% fine to medium-grained sand.
282			
284		CL	Sandy clay, medium brown, medium plasticity, ~10-20% fine to medium-grained sand.
286			
288			

PROJ.#: WVBA	DRILL DATE: 1/29-2/7/01
LOGGED BY: Chris Robertson	
PROJECT MANAGER: Rich Petrus	
NOTES: N/A	
DEPTH TO WATER: 87.56'	
RIG TYPE: Rotary	DIAMETER: 9 7/8"
DRILLER: Stewart Bros.	TOTAL DEPTH: 380'
DRILLING METHOD: Mud Rotary	



FIELD BOREHOLE LOG
AVB81-01
7200 West Sherman Street
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
290		CL	Clay with sand, medium brown, medium to low-plasticity, ~10-20% medium-grained sand.
292			
294			
296			
298			
300		CL	Clay with sand, medium brown, ~20% fine to medium-grained sand.
302			
304		CL	Clay with sand, medium brown.
306			
308			
310		SC	Clayey sand, brown to reddish-brown, ~60% medium-grained sand.
312			
314		SC	Clayey sand, brown to reddish-brown, ~80% medium-grained sand.
316			
318			
320			
322			
324		CL	Sandy clay, medium brown, medium to low-plasticity.
326			
328			
330			
332			
334		CL	Sandy clay, medium brown, medium plasticity, ~10-20% fine to medium-grained sand.
336			
338			
340		CL	Sandy clay, medium brown, medium plasticity, ~15% fine to medium-grained sand.
342			
344		CL	Sandy clay, medium brown, medium plasticity, ~5-10% fine to medium-grained sand.
346			

PROJ.#: WVBA | DRILL DATE: 1/29-2/7/01
 LOGGED BY: Chris Robertson
 PROJECT MANAGER: Rich Petrus
 NOTES: N/A
 DEPTH TO WATER: 87.56'
 RIG TYPE: Rotary | DIAMETER: 9 7/8"
 DRILLER: Stewart Bros. | TOTAL DEPTH: 380'
 DRILLING METHOD: Mud Rotary



FIELD BOREHOLE LOG
AVB81-01
7200 West Sherman Street
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION
348			
350		CL	Clay with sand, medium brown, medium to low-plasticity, ~15-20% medium-grained sand.
352			
354		CL	Clay with sand, medium brown, medium plasticity, ~10-15% medium-grained sand.
356			
358			
360		CL	Clay with sand, medium brown, medium plasticity, ~5-10% medium-grained sand.
362			
364		CL	Clay with sand, medium brown, medium plasticity, ~5-10% medium-grained sand.
366			
368			
370		CL	Clay with sand, medium brown, medium plasticity, ~5-10% fine to medium-grained sand.
372			
374		CL	Clay with sand, medium brown, low plasticity, ~10% fine to medium-grained sand.
376			
378			
380			Total drilling depth 380' bgs.
382			
384			
386			
388			
390			
400			
402			
404			
406			
408			
410			
412			

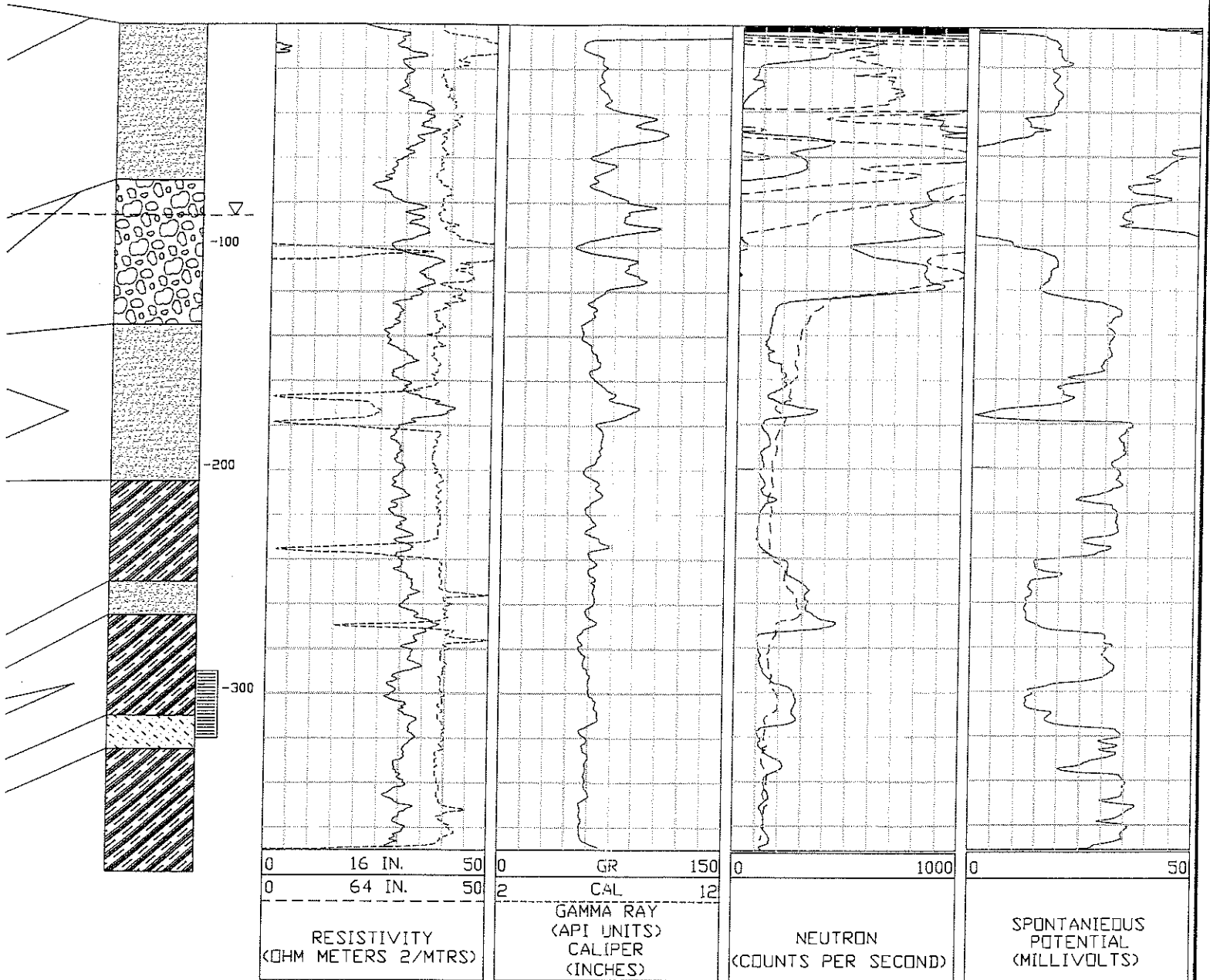
PROJ.#: WVBA | DRILL DATE: 1/29-2/7/01
 LOGGED BY: Chris Robertson
 PROJECT MANAGER: Rich Petrus
 NOTES: N/A
 DEPTH TO WATER: 87.56'
 RIG TYPE: Rotary | DIAMETER: 9 7/8"
 DRILLER: Stewart Bros. | TOTAL DEPTH: 380'
 DRILLING METHOD: Mud Rotary



FIELD BOREHOLE LOG
AVB81-01
 7200 West Sherman Street
 PHOENIX, ARIZONA

VIEW
EAST

AVB81-01



J. #:	03103102-09	DATE:	05/17/2001
OWN BY:	MPR	SCALE:	NA
SIGNED BY:	MPR		
APPROVED BY:	AJG		



FIGURE 2
SITE CROSS SECTION WITH
GENERAL GEOLOGICAL
AND GEOPHYSICAL LOGS
WEST VAN BUREN WHARF REGISTRY
PHOENIX, ARIZONA

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT	INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION	
		LABORATORY							FLD
		mg/kg	PID						vapor
0	10-inch diameter surface conductor casing to 20 feet						CL	Silty CLAY, brown (7.5YR 5/4), firm to stiff, with some sand, moist.	
5							CL	CLAY, brown (7.5YR 5/4), stiff to hard, dry.	
10	4-inch diameter steel casing						CL	Sandy CLAY, brown (7.5YR 5/4), very stiff to hard, with occasional layers of moderate calcareous cementation and trace gravel.	
15									
20									
25									
30									
35									
40									
45									
50								SC	Clayey Gravelly SAND, red-brown (5YR 4/4), dense, with occasional cobbles, dry.
55								GW	SAND, GRAVEL and COBBLES, dark red-brown (2.5YR 2.5/4), well graded, grains rounded to very angular. Material is primarily igneous and metamorphic in origin.
60	Neat cement/bentonite grout								
65									
70									
75	Static ground water level								
80							GW	SAND, GRAVEL, COBBLES and BOULDERS, dark red-brown (2.5YR 2.5/4), well-graded, grains rounded to very angular. Material is primarily igneous and metamorphic in origin. Significant caving of borehole and loss of drill fluid observed between 80 feet and 100 feet.	
85									
90	Benseal/EZ Mud Grout								
95									
100									

DRAFT

File #: 1015-02	Ground surface elevation (feet): 1035.2	Drilling method: Mud Rotary
Logged by: Steve Smelser	Total depth (feet): 850.0	Screen slot size: 0.125"
Date drilled: 11-19-91	Diameter of boring: 10"	Casing diameter: 4"



Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

**LOG OF BORING
MW-2**

**PLATE
B-1**

PROJECT NUMBER 52-1015-02(IRA)

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FLD				
		mg/kg	vapor PID ppm				
100	4-inch diameter steel casing					GW	SAND, GRAVEL, COBBLES and BOULDERS, dark red-brown (2.5YR 2.5/4), well-graded, grains rounded to very angular.
105							
110							
115							
120							
125							
130							
135							
140							
145							
150	Benseal/EZ Mud Grout					CL	CLAY, brown (7.5YR 5/4), very stiff to hard, with some sand (fine to medium grained).
155							
160							
165							
170							
175							
180							
185							
190							
195							
200	4-inch diameter steel casing					GW	SAND, GRAVEL, COBBLES and BOULDERS, dark red-brown (2.5YR 2.5/4), very dense. Slight caving and drilling fluid loss observed.
205							
210							

DRAFT



KLEINFELDER

PROJECT NUMBER 52-1015-02(TRA)

Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

**LOG OF BORING
MW-2 (CONT.)**

**PLATE
B-2**

PAGE 2 of 8

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FLD				
		mg/kg	vapor PID ppm				
215	Benseal/EZ Mud Grout						SAND, GRAVEL, COBBLES and BOULDERS , dark red-brown (2.5YR 2.5/4), very dense. Slight caving and drilling fluid loss observed.
220							
225	4-inch diameter steel casing					CL	CLAY , brown (7.5YR 5/4), hard, with some sand and isolated gravel and cobbles. Discontinuous thin layers of moderate to strong calcareous cementation.
230							
235							
240	Sand pack #10-20 Colorado Silica sand						
245							
250						GW	SAND, GRAVEL, COBBLES and BOULDERS , dark red-brown (2.5YR 3.5/4), very dense, with some clay.
255	Filter pack Tachna #8						
260							
265							
270							
275							
280						SP	SAND (coarse), red-brown (5YR 4/4), very dense, with occasional gravel and cobbles.
285							
290	4-inch diameter steel well screen (12 slots/foot)					SC	Clayey Gravelly SAND , brown (7.5YR 5/4), dense, clay content increases with depth.
295							
300							
305							
310							
315							
320							

DRAFT



KLEINFELDER

PROJECT NUMBER 52-1015-02(IRA)

Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

**LOG OF BORING
MW-2 (CONT.)**

**PLATE
B-3**

PAGE 3 of 8

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT	INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FLD					
		mg/kg	ppm					
325	Filter pack Tachna #8							
330							CL	Sandy Gravelly CLAY, brown (7.5YR 5/4), hard.
335	Neat cement/bentonite grout							
340								
345								
350								
355								
360							CL	CLAY, brown (7.5YR 5/4), hard.
365								
370								
375								
380							CL	CLAY, brown (7.5YR 5/4), hard, with some sand and fine gravel.
385								
390								
395	Benseal/EZ Mud Grout							
400								
405								
410								
415								
420								
425								
430								

DRAFT



KLEINFELDER

PROJECT NUMBER 52-1015-02(TRA)

Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

**LOG OF BORING
MW-2 (CONT.)**

**PLATE
B-4**

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT	INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION	
		LABORATORY	FLD						
		mg/kg	ppm						
435	Benseal/EZ Mud Grout						CL	CLAY, brown (7.5YR 5/4), hard, with some sand and fine gravel.	
440									
445									
450									
455									
460									
465									
470								CL	CLAY, brown (7.5YR 5/4), hard, with trace sand.
475									
480									
485									
490									
495									
500									
505							CL	Sandy CLAY, brown (7.5YR 5/4), hard, with some gravel. Isolated cobbles observed between 520 feet and 525 feet.	
510									
515	Benseal/EZ Mud Grout								
520									
525									
530									
535									
540									

DRAFT



KLEINFELDER

Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

LOG OF BORING

MW-2 (CONT.)

**PLATE
B-5**

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT	INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION	
		LABORATORY	FLD						
		mg/kg	PID						
			vapor						
			ppm						
545	Benseal/EZ Mud Grout						CL	CLAY, brown (7.5YR 5/4), hard, with trace clay and fine gravel.	
550									
555									
560									
565									
570									
575									
580									
585									
590									
595									
600							CL	CLAY, brown (7.5YR 5/4), hard, with trace clay and fine gravel.	
605									
610									
615									
620									
625	Benseal/EZ Mud Grout								
630									
635									
640								SP	SAND (fine to medium grained), brown (7.5YR 5/4), dense.
645									
650									

DRAFT



KLEINFELDER

Arizona Department of Environmental Quality
 West Van Buren Area
 Phoenix, Arizona

**LOG OF BORING
 MW-2 (CONT.)**

**PLATE
 B-6**

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT	INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FLD					
		mg/kg	PID					
			vapor					
			PPM					
655	Benseal/EZ Mud Grout						CL	Sandy CLAY, brown (7.5YR 5/4), very stiff to hard, with some fine gravel.
660								
665								
670								
675								
680								
685								
690								
695								
700								
705								
710								
715								
720								
725								
730	Benseal/EZ Mud Grout						CL	Clay, brown (7.5YR 5/4), hard, with trace sand.
735								
740								
745								
750								
755								
760								

DRAFT



KLEINFELDER

PROJECT NUMBER 52-1015-02(IRA)

Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

LOG OF BORING
MW-2 (CONT.)

PLATE

B-7

PAGE 7 of 8

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOWS/FOOT INTERVAL	SAMPLE NUMBER	U.S.C.S. DESIGNATION	SOIL DESCRIPTION	
		LABORATORY	FLD					
		mg/kg	PID ppm					
765	Benseal/EZ Mud Grout					CL	CLAY, brown (7.5YR 5/4), hard, with trace sand.	
770								
775								
780						CL	CLAY, brown (7.5YR 5/4), hard, with weak to moderate calcareous cementation.	
785								
790								
795								
800								
805								
810								
815								
820						CL	CLAY, brown (7.5YR 5/4), hard, with weak to moderate calcareous cementation.	
825								
830	Benseal/EZ Mud Grout							
835								
840								
845								
850								Boring terminated at 850 feet.
855								
860								
865								
870								

DRAFT



KLEINFELDER

PROJECT NUMBER 52-1015-02(IRA)

Arizona Department of Environmental Quality
West Van Buren Area
Phoenix, Arizona

**LOG OF BORING
MW-2 (CONT.)**

**PLATE
B-8**

PAGE 8 of 8



CALIPER

FILING NO. COMPANY KLEINFELDER, INC.
 WELL MW-2 AVB10-02
 FIELD WEST VAN BUREN
 COUNTY MARICOPA STATE ARIZONA

LOCATION:

OTHER SERV:

E-LOG

SEC _____ TWP _____ RGE _____

PERMANENT DATUM: G.L. ELEV: _____

ELEVATION:

LOG MEASURED FROM G.L., 0 FT ABOVE PERM DATUM

DRILLING MEASURED FROM G.L.

KB.

DF.

GL.

DATE	11/20/91
TYPE OF LOG	CALIPER
RUN NO.	ONE
DEPTH - DRILLER	850'
DEPTH - LOGGER	843'
BOTTOM LOGGED INT	842'
TOP LOGGED INT	0'
TYPE FLUID IN HOLE	BENTONITE
DENSITY	
LEVEL	
MAX TEMP DEG F	N/A
OPERATING RIG TIME	
OPERATOR	D. JACOVITCH
WITNESSED BY	S. SMELSER

RUN NO.	BORE HOLE RECORD			CASING RECORD		
	BIT	FROM	TO	SIZE	WGT.	FROM TO
1	9 7/8"	20'	850'	10 INCH		0' 20'

EQUIPMENT DATA

Run No.	ONE	Run No.	ONE
Tool Model No.		Log Type	CALIPER
Diameter		Speed Ft./Min.	40
Detector Model No.		T.C.Sec.	1
Type		Sens. Settings	
Length		Zero Div. L or R	
		API Units/Div.	
		Log Start Time	
		Log End Time	
		Pumping Rate	
		Fluid Level	
		Formation Factor	

General

Hoist Truck No. L05
 Instrument, Truck No. L05
 Tool Serial No.

Remarks:

Fold Here

DEPTHS		CALIPER	
		HOLE DIAMETER IN INCHES	0

DEPTHS

CALIPER
HOLE DIAMETER IN INCHES

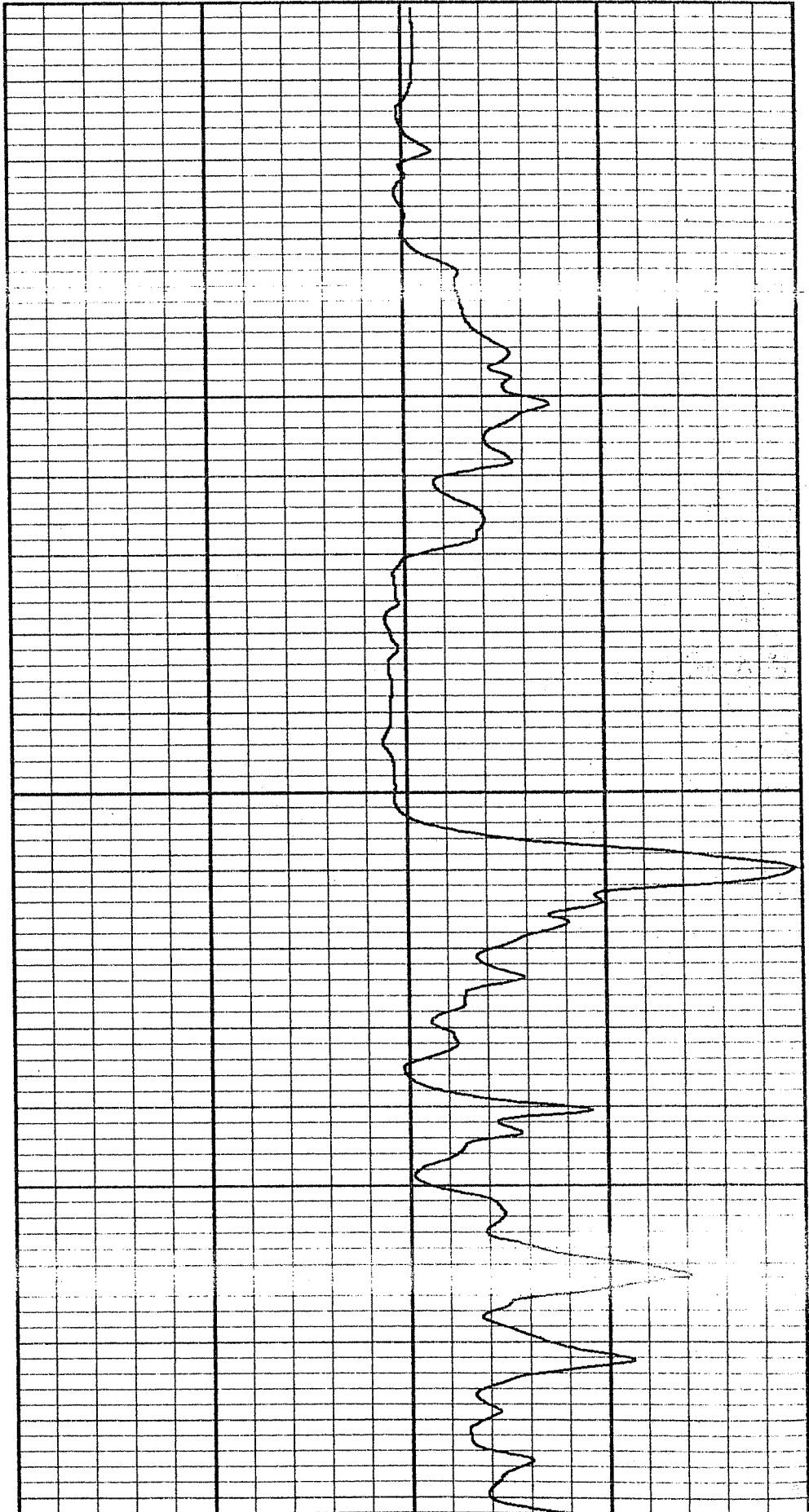
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20

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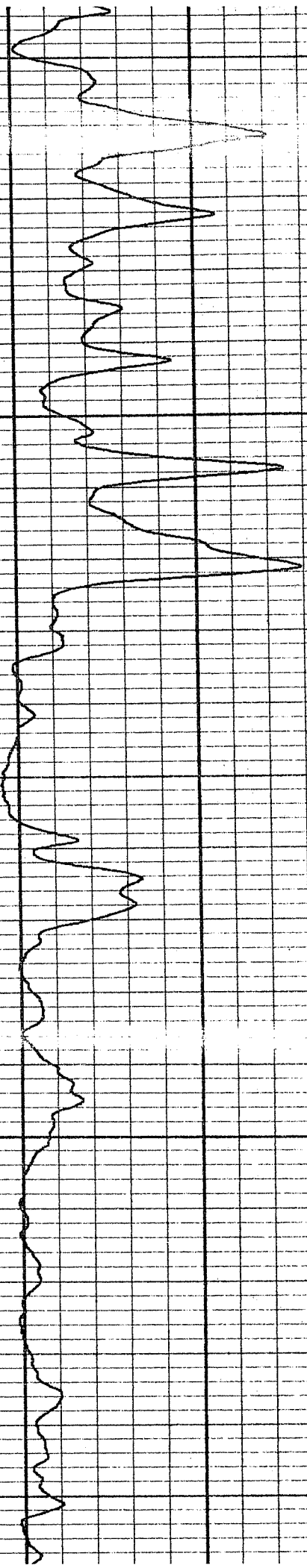
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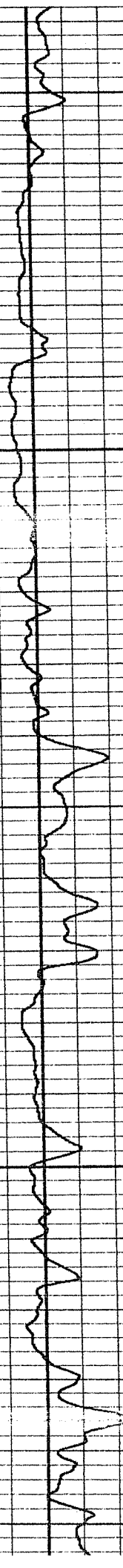
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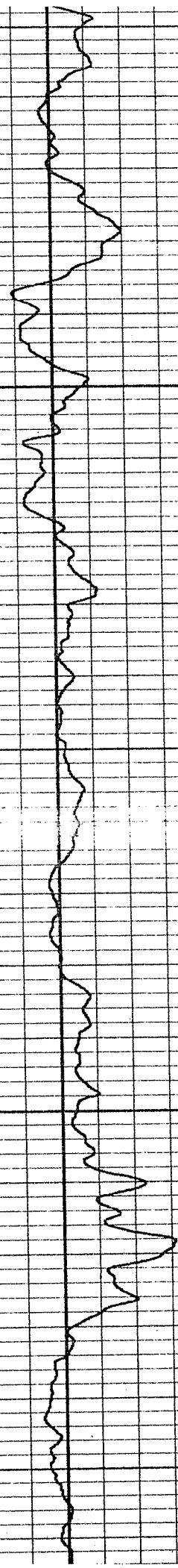
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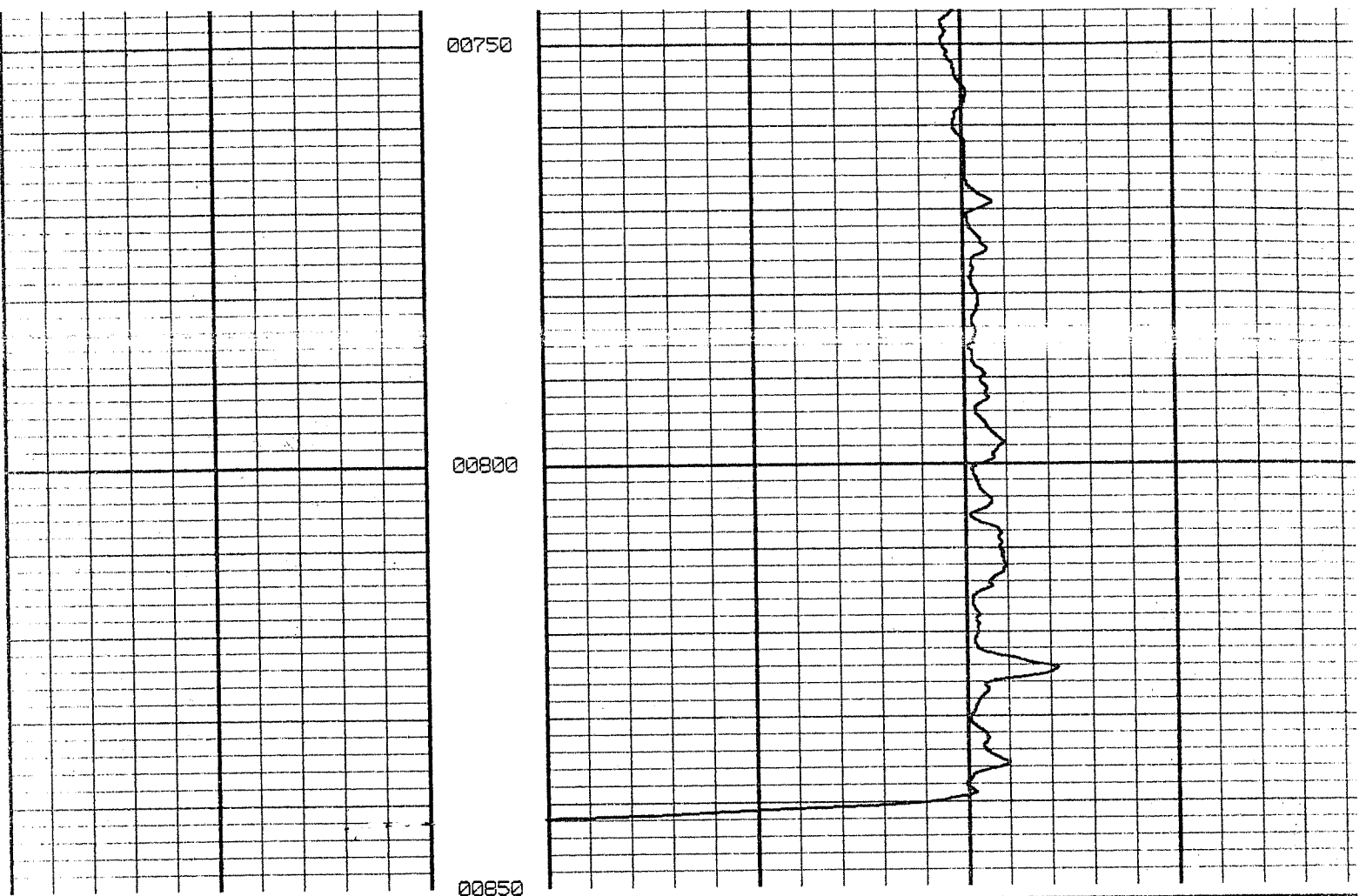
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		Ø
	DEPTHS	HOLE DIAMETER IN INCHES CALIPER



ELECTRIC LOG

FILING NO.	COMPANY	KLEINFELDER, INC.		
	WELL	MW-2 AVB10-02		
	FIELD	WEST VAN BUREN		
	STATE	ARIZONA	COUNTY	MARICOPA
LOCATION:		OTHER SERV:		
SEC	TWP	RGE	CALIPER	
Permanent Datum: G.L.		Elev: _____		K.B. _____
Log Measured From G.L., 0 Ft Above Perm Datum		D.F. _____		
Drilling Measured From G.L.		G.L. _____		
Date	11-20-91	- -	- -	
Run No.	ONE	TWO	THREE	
Depth - Driller	850'			
Depth - Logger	842'			
Btm. Log Inter.	842'			
Top Log Inter.	40'			
Casing-Driller	10" at 20'	at	at	
Casing-Logger	at	at	at	
Bit Size	9 7/8"			
Type Fluid In Hole	BENTONITE			
Dens.	Visc.	N/A	N/A	N/A
pH	Fluid Loss	N/A	N/A	N/A
Source of Sample	PIT			
Rm at Meas. Temp	4.54 at 68 F	at 68 F	at 68 F	
Rmf at Meas. Temp	at 68 F	at 68 F	at 68 F	
Rmc at Meas. Temp	N/A at F	N/A at F	N/A at F	
Source: Rmf Rmc	MEAS	MEAS	MEAS	
Rm at BHT	N/A at F	N/A at F	N/A at F	
Time Since Circ.	2 HRS.			
Max. Rec. Temp.	N/A	F	F	F
Equip	Location	L05 AZ	L05 AZ	L05 AZ
Recorded By	D. JACOVITCH			
Witnessed By	S. SMELSER			

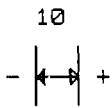
This Heading and Log Conform To API RP 31

Fold Here

REMARKS		Scale Changes		Equipment Data	
Date	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down
Depth-Driller					
Type Fluid in Hole					
Dens.	Visc.				
ph	Fluid Loss		ml		
Source of Sample					
Rm at Meas. Temp.		at	at	F Run No. ONE	Tool Type ELECTRIC
Rmf at Meas. Temp.		at	at	PadType	Tool Pos FREE
Rmc at Meas. Temp.		at	at		Other
Source: Rmf Rmc					
Rm at BHT		at	at		
Rmf at BHT		at	at		
Rmc at BHT		at	at		

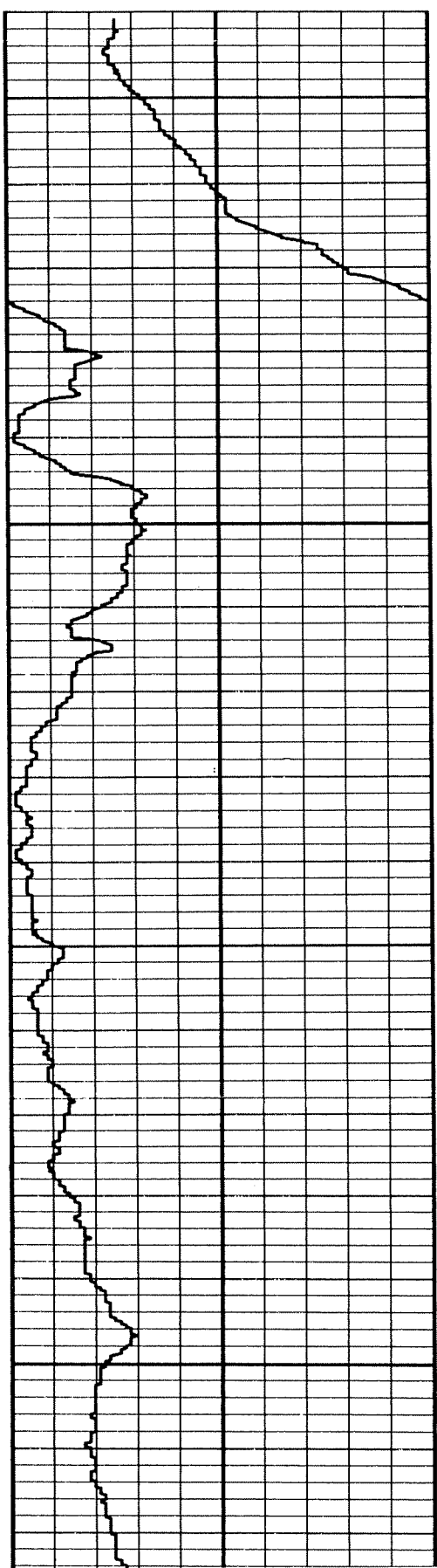
NOTE: TRUCK GROUNDED TO CASING AND RIG.

SPONTANEOUS POTENTIAL millivolts	DEPTHS	RESISTIVITY ohmmeters ² /meter	RESISTANCE ohms
-------------------------------------	--------	--	--------------------



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0		100
0	LONG NORMAL 64 Inch	1000
.....		
0		100

SINGLE POINT
Detail Curve

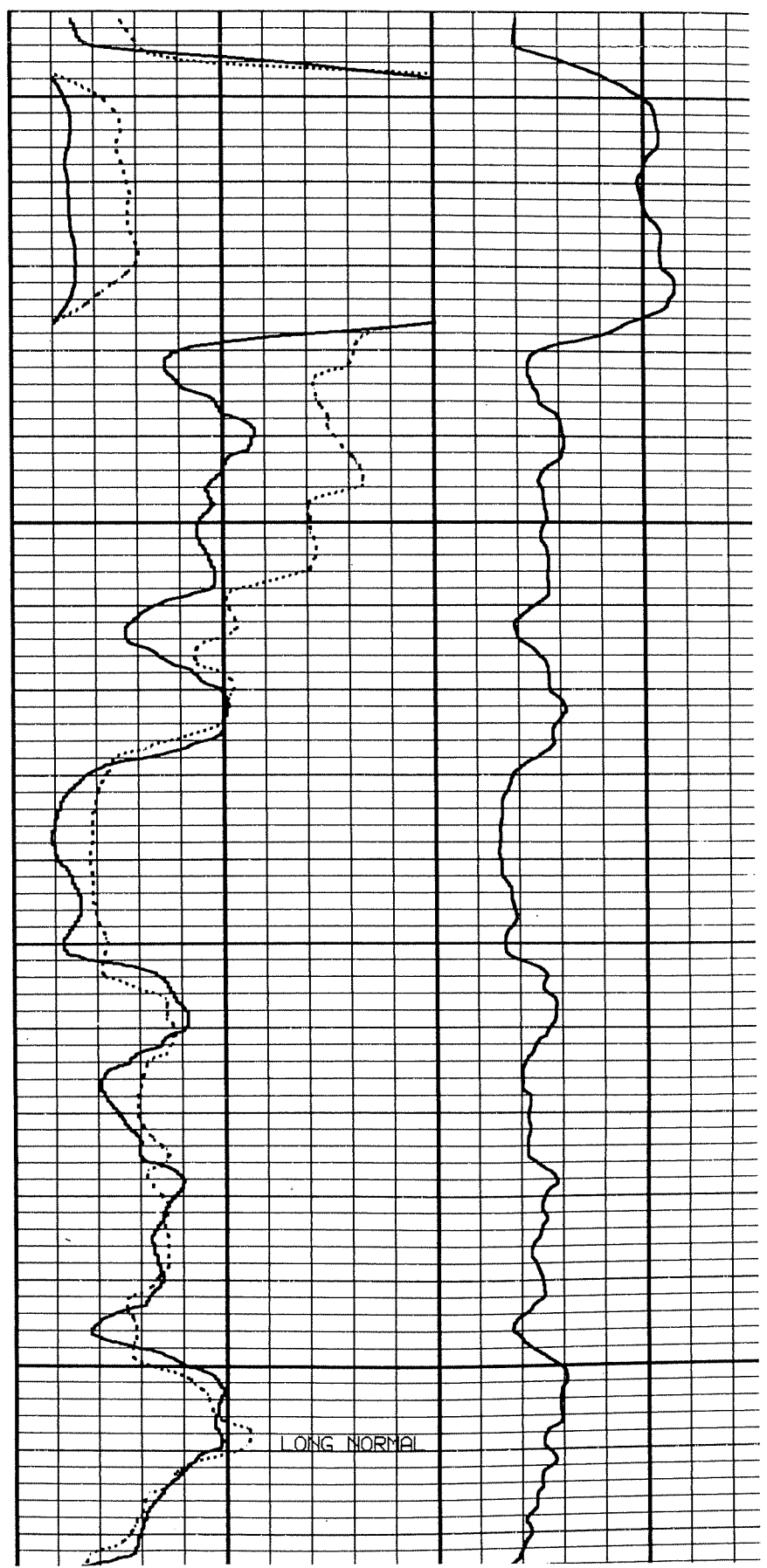


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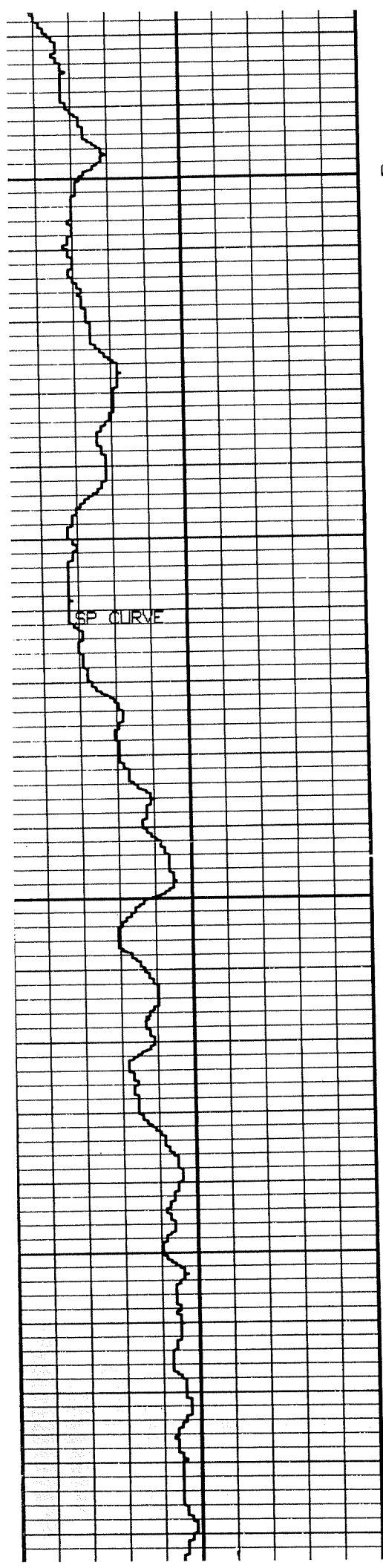
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LONG NORMAL

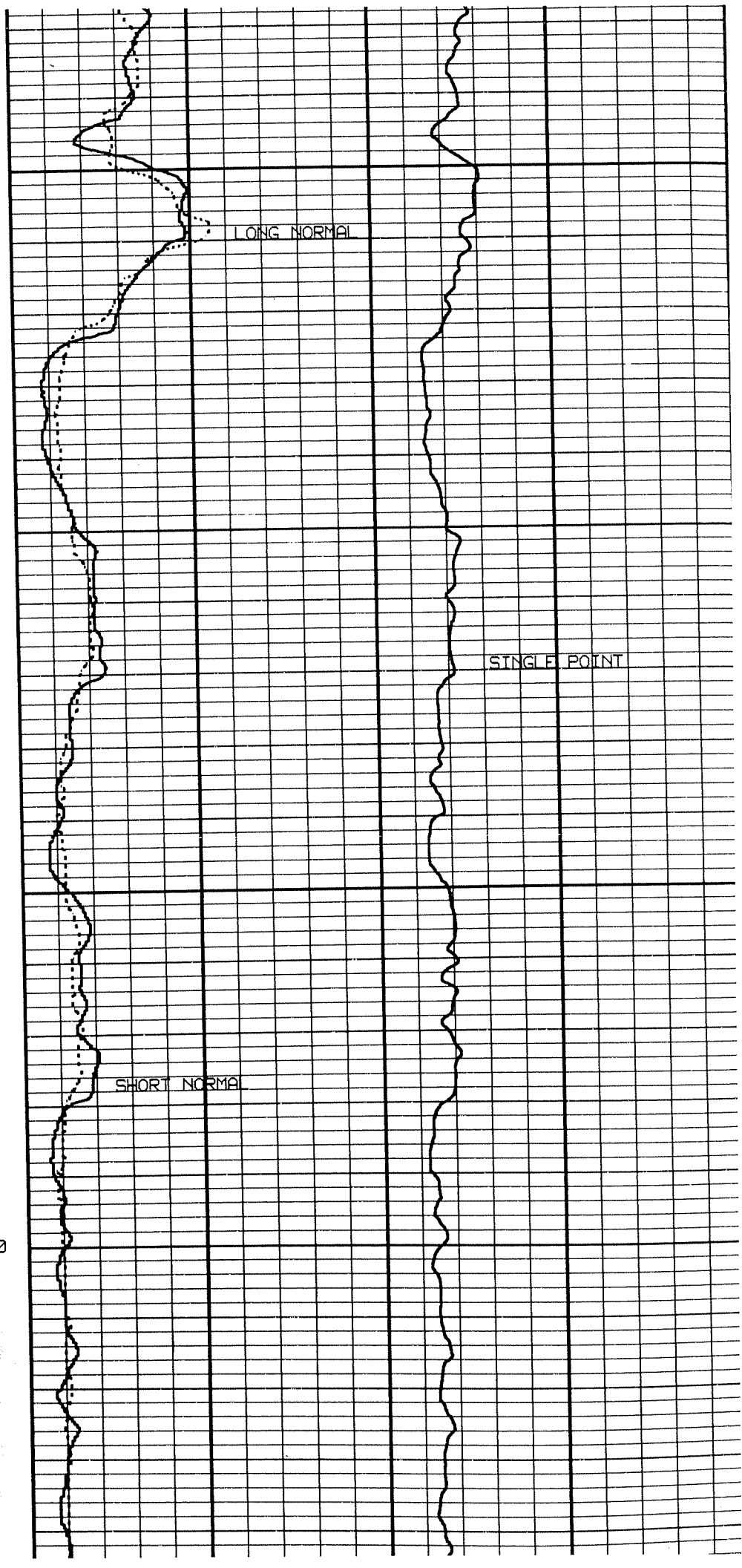


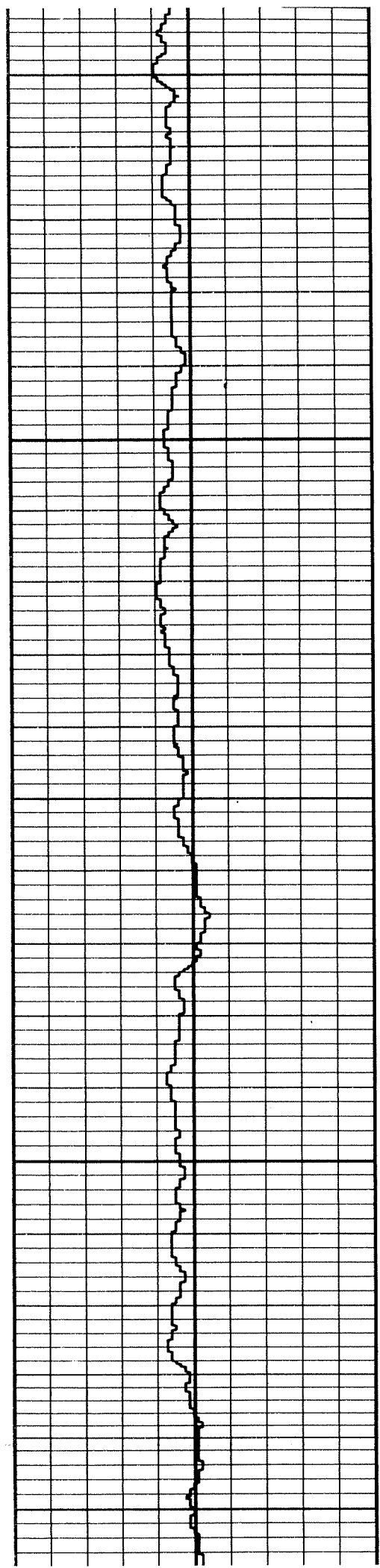
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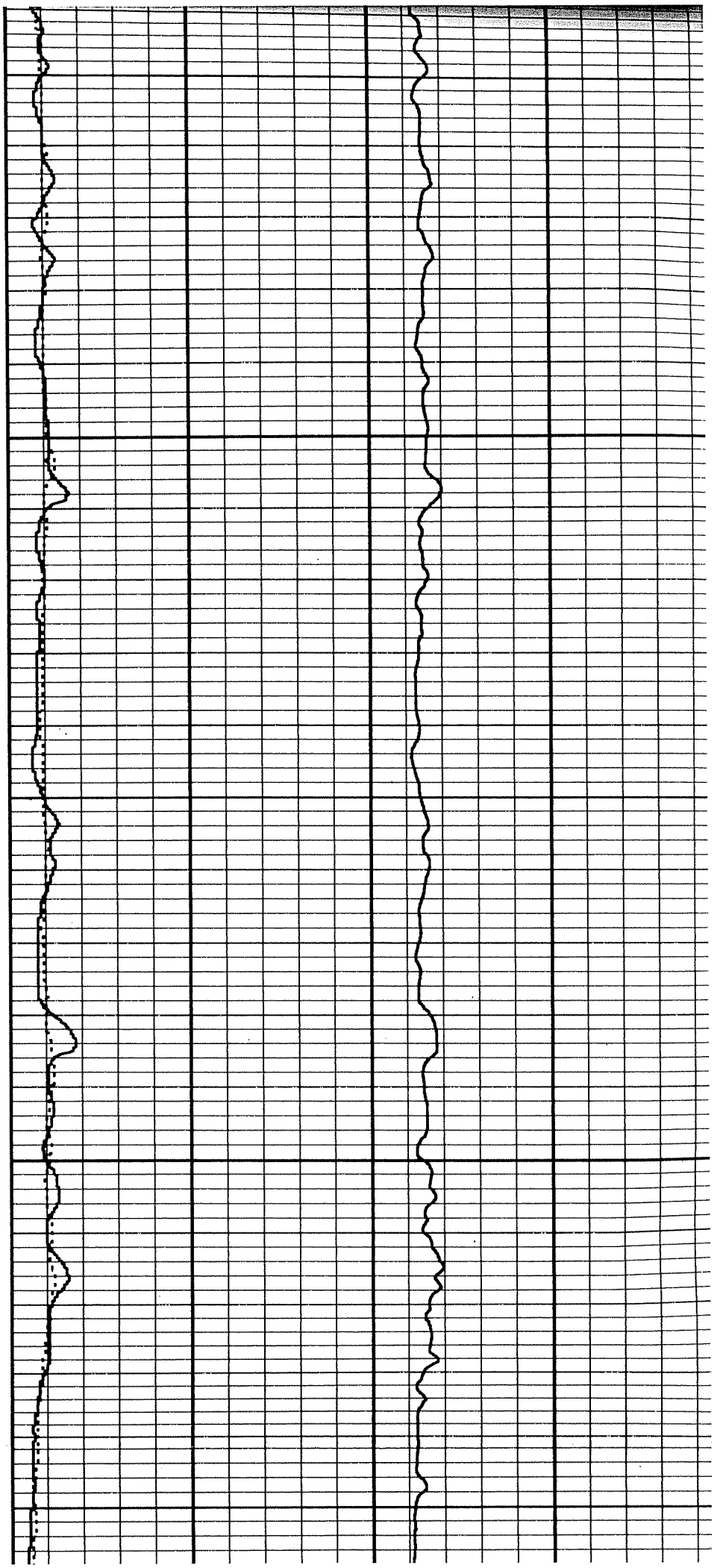
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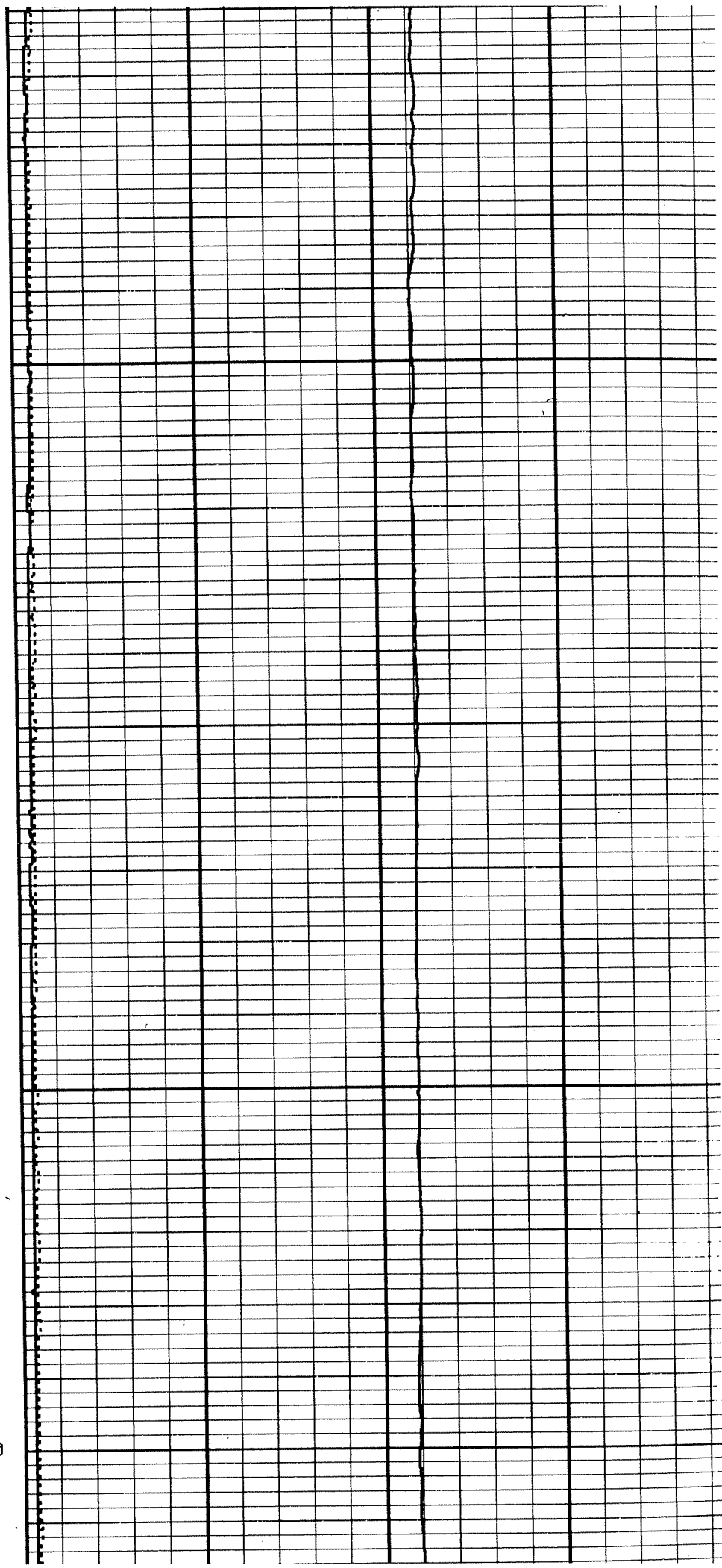
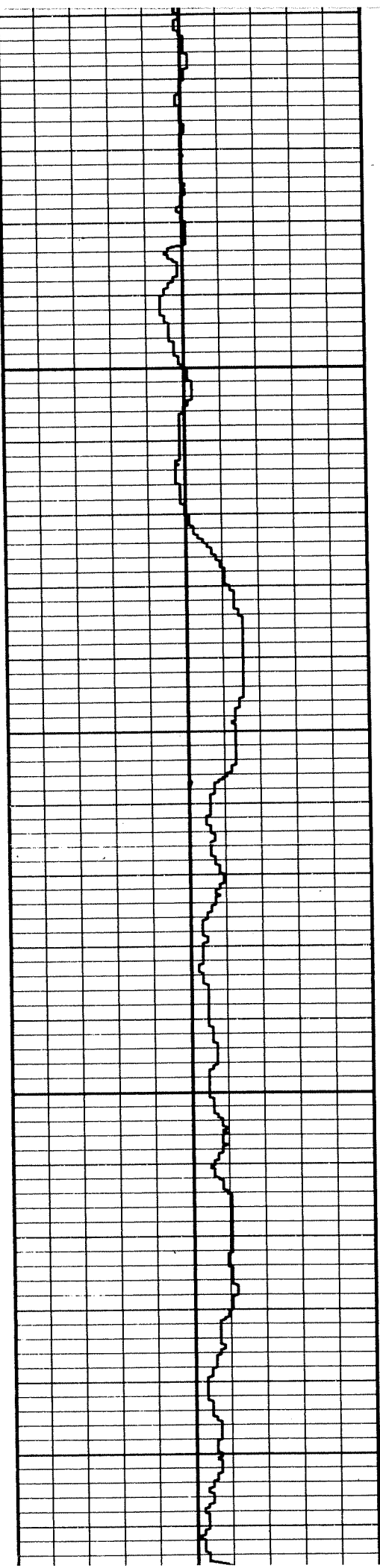
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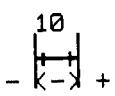
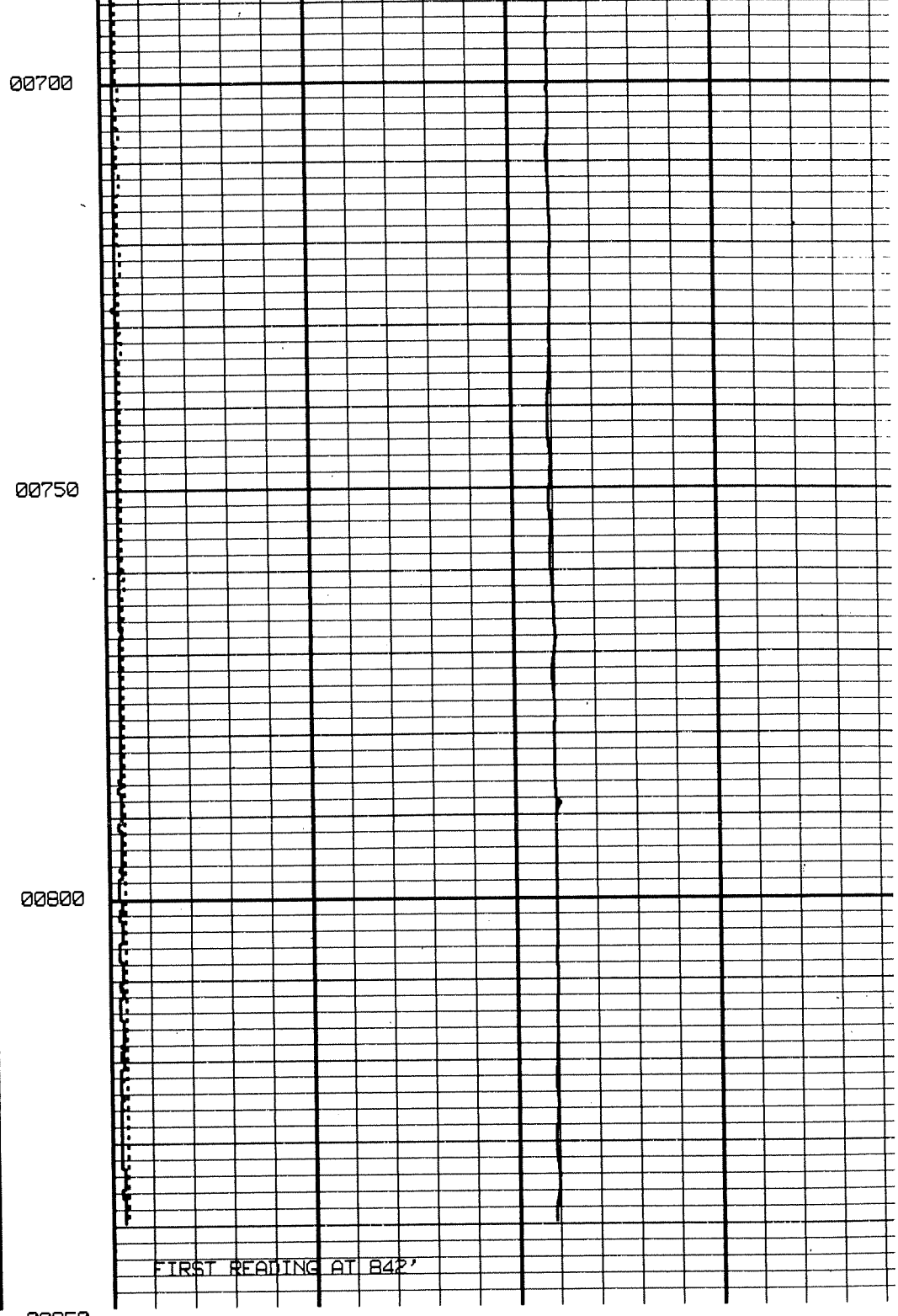
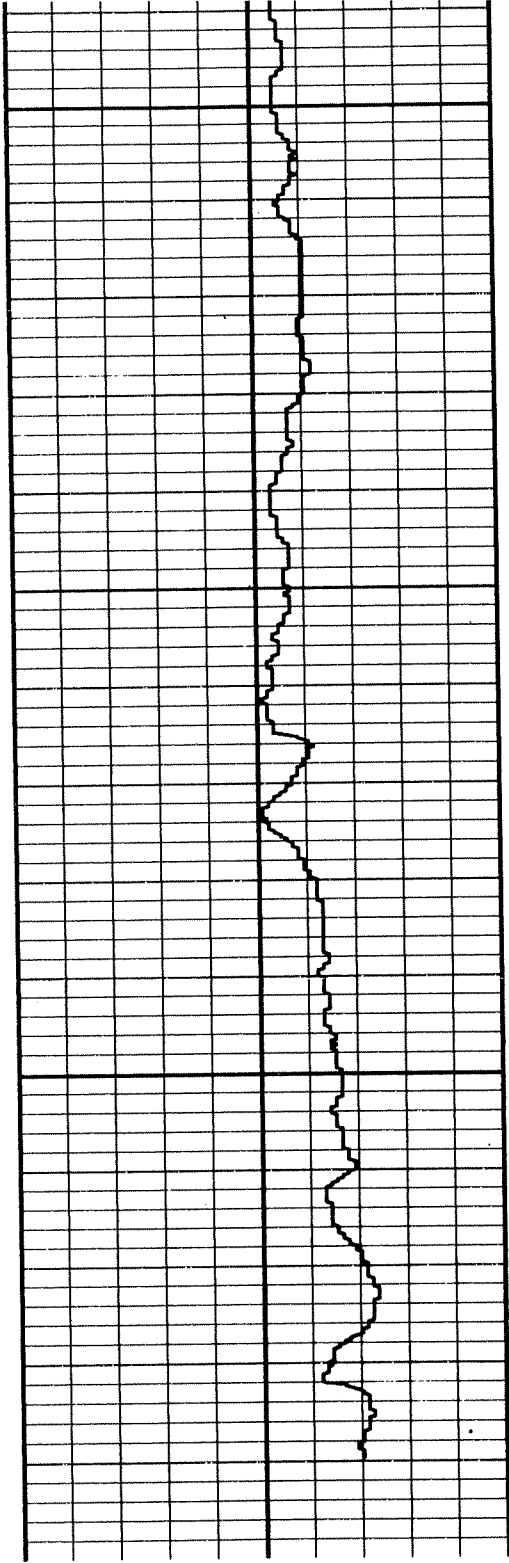
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00850

0	100
.....	
0	1000
64 Inch LONG NORMAL	
0	100
0	1000
16 Inch SHORT NORMAL	

Detail Curve
SINGLE POINT

millivolts
SPONTANEOUS POTENTIAL

DEPTHS

ohmmeters²/meter
RESISTIVITY

ohms
RESISTANCE

Project Name: Dolphin Phase II Hydrogeologic Investigation Project Number: 18799.400

Soil Boring Monitoring Well Boring/Well Number: DIMW-8D Sheet 1 of 11

Boring Location: West of Dolphin III in field along 61st Ave.		Elevation and Datum: 1038.68 ft amsl TOC	
Drilling Contractor: Layne Christensen	Driller: Bill Kinkle	Date Started: 5/10/00	Date Finished: 6/30/00
Drilling Equipment: Schramm 685	Borehole Diameter: 10"	Completed Depth: (feet) 426.0	Water Depth: (feet) 105.1
Sampling Method: California Method <input type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input type="checkbox"/>			
Drilling Method: Mud Rotary		Drilling Fluid: mud	
Backfill Material: Well		Type and Diameter of Well Casing: 4" Diameter PVC, sch 80	
Logged By: MAC		Checked By: MLD	
		Slot Size: 0.020 Filter Material: 10-20 Silica Sand	
Development Method: Bail/Swab/Pump			

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
0	SM	SILTY SAND. Reddish brown (10R4/6), damp, soft, poorly sorted, fine to course, no odor, no stain.						Begin drilling surface casing @ 0725	
5	SW	GRAVELLY SAND with cobbles. Pale brown (5YR5/2), dry, very loose, very poorly sorted, medium to course, subrounded to angular. Gravel (25%), to 20 mm, granitic, rounded, cobbles to 76 mm, granitic, subangular to subrounded, occasional boulders, no odor, no stain.							
10									
15	SM	SILTY SAND. Moderate brown (5YR3/4), soft, poorly sorted, fine to course, occasionally very course. Silt (20%), trace gravel, no odor, no stain.							
20	SW	GRAVELY SAND. Moderate brown (5YR4/4), fine to course, angular to subrounded. Gravel (30%), to 10 mm, granitic, angular to subrounded, no odor, no stain.						Base of 18-inch Low Carbon Steel surface casing. Begin mud rotary drilling on 6/13/00 @ 1245. Base of 20-ft Cement/Grout surface seal. Top of EnviroPlug Bentonite Grout.	
25								Drilling rate 18.2-ft/hr	
30	CL	SANDY CLAY with gravel. Moderate reddish brown (10YR4/6), stiff, moderately plastic. Sand (30%), fine to course, gravel (10%), to 8 mm, no odor, no stain.						Mud viscosity: 45 sec.	

Project Name: Dolphin Phase II Hydrogeologic Investigation

Project Number: 18799.400

Soil Boring

Monitoring Well

Boring/Well Number: DIMW-8D

Sheet 2 of 11

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log		FID Readings PPM	Remarks
					Sample	Lithology		
35								Drilling rate 13.3-ft/hr
40	SC	CLAYEY SAND with gravel. Moderate yellowish brown (10YR5/4), fine to medium. Clay (30%), moderately stiff, non-plastic, gravel (<5%), to 8 mm, granitic, subangular to subrounded, no odor, no stain.						Mud viscosity: 49 sec.
45								Drilling rate 20-ft/hr
50	SW	GRAVELLY SAND. Moderate brown (5YR4/4), fine to course, angular to subrounded. Gravel (30%), to 10 mm, granitic, angular to rounded, no odor, no stain.						Mud viscosity: 60 sec.
55								Drilling rate 15-ft/hr. Moderate rig chatter
60	GP	SANDY GRAVEL with cobbles. Moderate brown (5YR4/4), gravel to 12 mm, granitic, angular to subrounded. Sand (30%), fine to course, cobbles to 76 mm, granitic, angular to subrounded, no odor, no staining.						Mud viscosity: 55 sec.
65								Drilling rate 6.3-ft/hr. Heavy rig chatter, loosing drilling mud to formation.
70								

BORING_LOG_DOLPHI-1.GPJ BRN&CALD.GDT 8/3/00

Project Name: Dolphin Phase II Hydrogeologic Investigation Project Number: 18799.400




Soil Boring Monitoring Well Boring/Well Number: DIMW-8D Sheet 3 of 11

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
80	SW	GRAVELLY SAND with cobbles. Moderate brown (5YR4/4), fine to course, angular to subrounded. Gravel (35%), to 10 mm, granitic, angular to rounded, cobbles (5%) to 76 mm, granitic, angular to subrounded, no odor, no stain.						Drilling rate 8-ft/hr. Severe rig chatter, loosing drilling mud to formation. Mud viscosity: 110 sec.	
85								Drilling rate 12-ft/hr. Moderate rig chatter.	
90								Mud viscosity: 100 sec.	
95								Drilling rate 6-ft/hr. Heavy rig chatter.	
100	GP	SANDY GRAVEL with cobbles. Moderate brown (5YR4/4), gravel to 14 mm, granitic, angular to subrounded. Sand (30%), fine to course, cobbles (<5%), to 76 mm, granitic, angular to subrounded, no odor, no staining.						Stabilized water level @ 105.13 on 7/19/00. Drilling rate 10-ft/hr.	
105								Mud viscosity: 50 sec.	
110	SW	GRAVELLY SAND. Moderately brown (5YR4/4), fine to course, angular to subrounded. Gravel (35%), to 15 mm, granitic, angular to rounded, no odor, no stain.						Drilling rate 9.2-ft/hr, complete loss of circulation (approx. 2000 gallons), heavy rig chatter.	

BROWN AND CALDWELL
 1000 N. GILBERT ST.
 PHOENIX, ARIZONA 85007
 TEL: 602-261-1111 FAX: 602-261-1112

Project Name: Dolphin Phase II Hydrogeologic Investigation Project Number: 18799.400

Soil Boring Monitoring Well Boring/Well Number: DIMW-8D Sheet 4 of 11

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
120	GP	SANDY GRAVEL. Moderate brown (5YR4/4), gravel to 12 mm, granitic, angular to subrounded. Sand (30%), fine to course, no odor, no staining.						Mud viscosity: 180 sec.	
125								Drilling rate 19.35-ft/hr. Continue to lose drilling mud to formation. Heavy rig chatter.	
130	GW	GRAVEL & COBBLES. Color dependant on rock type, gravel to 60 mm, granitic, subrounded to angular. Cobbles (40%) to 180 mm, granitic, subrounded to angular, sand (<5%) medium to very course, no odor, no stain.						Mud viscosity: 166 sec.	
135								Drilling rate 8-ft/hr. Heavy rig chatter.	
140								Mud viscosity: 135 sec.	
145								Drilling rate 20-ft/hr. Moderate rig chatter.	
150	GW	GRAVEL & COBBLES. Color dependant on rock type, gravel to 60 mm, granitic, subrounded to angular. Cobbles (40%) to 180 mm, granitic, subrounded to angular, sand (<5%) medium to very course, no odor, no stain.						Mud viscosity: 115 sec.	
155								Drilling rate 20-ft/hr. Moderate rig chatter.	

BORING_LOG DOLPHI-1.GPJ BRN&CALD.GDT 8/3/00

Project Name: Dolphin Phase II Hydrogeologic Investigation

Project Number: 18799.400

Soil Boring

Monitoring Well

Boring/Well Number: DIMW-8D

DIMW-8D

Sheet 5 of 11

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
165	SW	SAND with gravel. Moderate brown (5YR4/4), fine to very course, subrounded to subangular. Gravel (10%) to 6 mm, granitic, subangular to rounded, no odor, no stain.						Drilling rate 21.4-ft/hr.	
170								Mud viscosity: 135 sec.	
175								Drilling rate 35.3-ft/hr.	
180	SW	AA - SAND, no gravel present in cuttings.						Mud viscosity: 101 sec.	
185								Drilling rate 20-ft/hr. Heavy rig chatter.	
190	GP	SANDY GRAVEL. Moderate brown (5YR3/4), gravel to 15 mm, granitic, rounded to angular. Sand (30%), fine to course, rounded to subangular, no odor, no stain.						Drilling rate 40-ft/hr. Moderate rig chatter.	
195									
200	GP	SANDY GRAVEL. Moderate brown (5YR3/4), gravel to 19 mm, granitic, rounded to subangular, no odor, no stain.						Mud viscosity: 134 sec.	

BROWNS LOG-DOLPHIN PHASE II HYDROGEOLOGIC INVESTIGATION

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
205								Drilling rate 35.3-ft/hr.	
210	SW	GRAVELLY SAND. Moderate brown (5YR4/4), medium to coarse, rounded to subangular. Gravel (35%) to 8 mm, granitic, subrounded to angular, no odor, no stain.						Mud viscosity: 142 sec.	
215								Drilling rate 46.2-ft/hr.	
220									
225								Drilling rate 50-ft/hr.	
230	SW	GRAVELLY SAND. Moderate brown (5YR4/4), medium to coarse, rounded to subangular. Gravel (30%) to 8 mm, granitic, subrounded to angular, no odor, no stain.							
235								Drilling rate 46.2-ft/hr.	
240									

BORING_LOG_DOLPHI-1.GPJ BRN&CALD.GDT 8/3/00

Project Name: Dolphin Phase II Hydrogeologic Investigation

Project Number: 18799.400

Soil Boring

Monitoring Well

Boring/Well Number: DIMW-8D

DIMW-8D

Sheet 7 of 11

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
250	CL	GRAVELLY CLAY. Moderate reddish brown (10R4/6), moderately stiff, moderately plastic. Gravel (15%) to 8 mm, granitic, rounded to subangular, no odor, no stain.						Drilling rate 22.2-ft/hr.	
255								Mud viscosity: 135 sec.	
260	CL	SILTY CLAY with gravel. Moderate reddish brown (10R4/6), moderately stiff, moderately plastic. Gravel (10%) to 8 mm, granitic, rounded to subangular, no odor, no stain.						Drilling rate 13.3-ft/hr.	
265								Drilling rate 33.3-ft/hr.	
270	CL	CLAY with gravel. Moderate reddish brown (10R4/6), moderately stiff, moderately plastic. Gravel (<5%) to 6 mm, granitic, rounded to subangular, no odor, no stain.						Drilling rate 35.3-ft/hr.	
275								Drilling rate 40-ft/hr.	
280									
285									

BORING LOG: DOLPHIN PHASE II HYDROGEOLOGIC INVESTIGATION - BRN&CALD (S&DT) - 8/3/00

BROWN AND CALDWELL BORING LOG

Phoenix, Arizona

Project Name: Dolphin Phase II Hydrogeologic Investigation

Project Number: 18799.400

DIMW-8D

Sheet 8 of 11

Soil Boring Monitoring Well Boring/Well Number: _____

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log		FID Readings PPM	Remarks
					Sample	Lithology		
290	CL	SANDY CLAY. Moderate reddish brown (10R4/6), moderately stiff, moderate to non-plastic. Sand (20%), fine to medium, gravel (<1%), no odor, no stain.						Mud viscosity: 204 sec.
295								Drilling rate 30-ft/hr.
300								
305								Drilling rate 15-ft/hr.
310								
315	CL AA							Drilling rate 17.1-ft/hr.
320								Mud viscosity: 160 sec.
325								Drilling rate 20-ft/hr.

ORING_LOG_DOLPHI-1.GPJ BRN&CALD.GDT 8/8/00

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log		FID Readings PPM	Remarks
					Sample	Lithology		
335	CL	SANDY CLAY. Moderate reddish brown (10R4/6), moderately stiff, moderate to non-plastic. Sand (20%), fine to medium, no odor, no stain.						Drilling rate 24-ft/hr.
340								
345								Drilling rate 20.7-ft/hr.
350	CL	SANDY CLAY. Moderate reddish brown (10R4/6), moderately stiff, moderate to non-plastic. Sand (20%), fine to medium, no odor, no stain.						Mud viscosity: 162 sec. Top of 20-ft Cement/Grout bottom seal. Base of EnviroPlug Grout.
355								Drilling rate 19.4-ft/hr.
360								
365	CL	SANDY CLAY. Moderate reddish brown (10R4/6), moderately stiff, moderate to non-plastic. Sand (20%), fine to medium, no odor, no stain.						Drilling rate 25-ft/hr.
370	SW	SAND, cement & sand associated with cement plug @ base of casing. Some formation clay.						Base of 12.75-inch Low Carbon Steel conductor casing @ 370-ft. Top of bentonite seal @ 370.5-ft

BORING LOG ID: BPH/14/GPT/BRN/CALD/GDT/ B/300

Project Name: Dolphin Phase II Hydrogeologic Investigation

Project Number: 18799.400

Soil Boring Monitoring Well

Boring/Well Number: DIMW-8D

DIMW-8D

Sheet 10 of 11

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
375	CL	SANDY CLAY. Moderate brown (5YR4/4) to light brown (5YR5/6), stiff, moderately plastic. Sand (15%), very fine to medium, rounded to subangular, no odor, no stain.						Drilling rate 25-ft/hr Top of filter pack @ 375.5-ft	
380								Mud viscosity: 30 sec.	
385								Drilling rate 8.6-ft/hr.	
390									
395								Drilling rate 40-ft/hr.	
400								Mud viscosity: 35 sec. Mud wieght: 8.8 lbs/gallon.	
405								Top of screen interval @ 405-ft Drilling rate 15.8-ft/hr	
410								Mud viscosity: 34 sec. Mud wieght: 9.08 lbs/gallon.	

BORING LOG DOLPHI-1.GPJ BRN&CALD.GDT 8/3/00

Soil Boring

Monitoring Well

Boring/Well Number: DIMW-8D

DIMW-8D

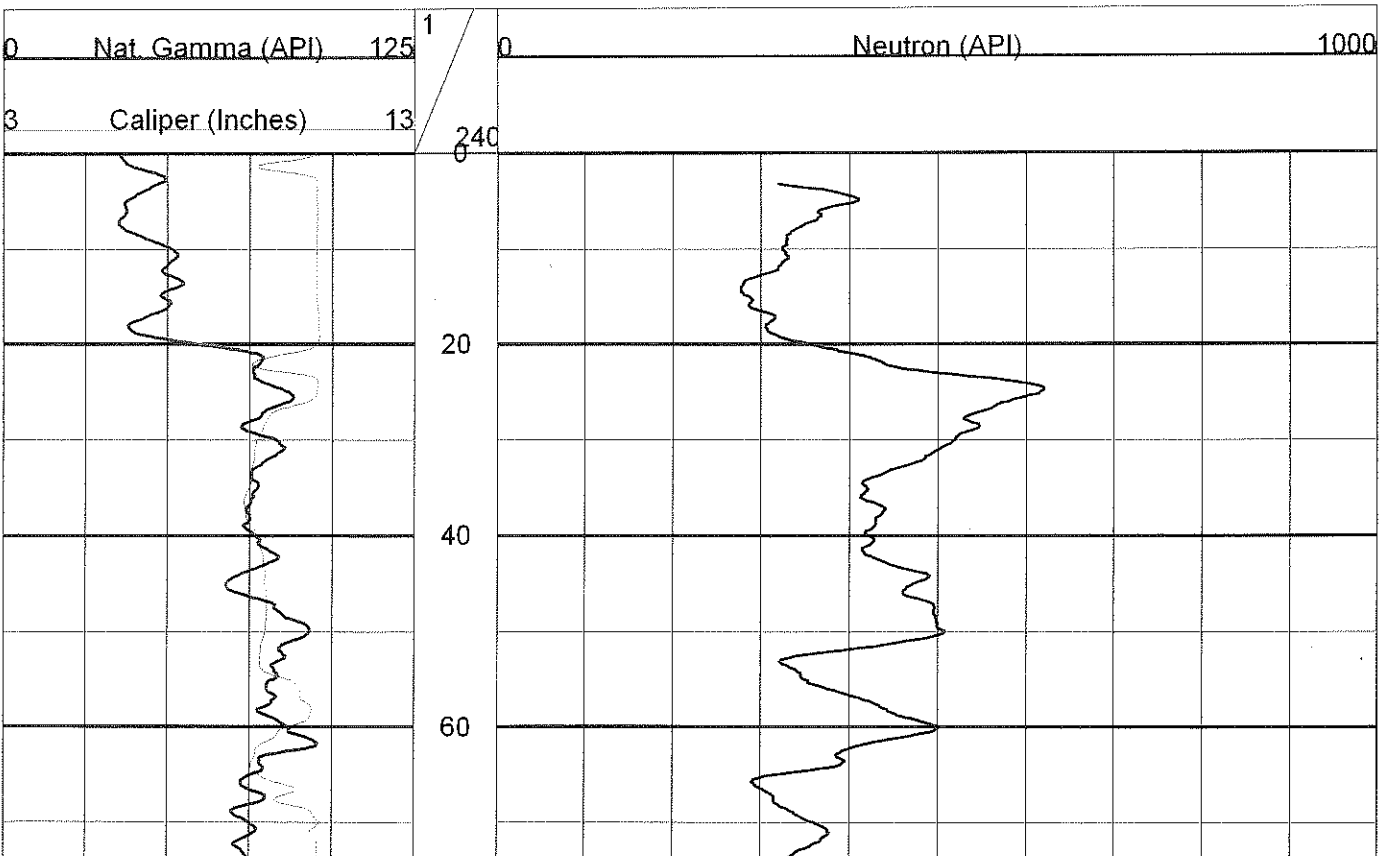
Sheet 11 of 11

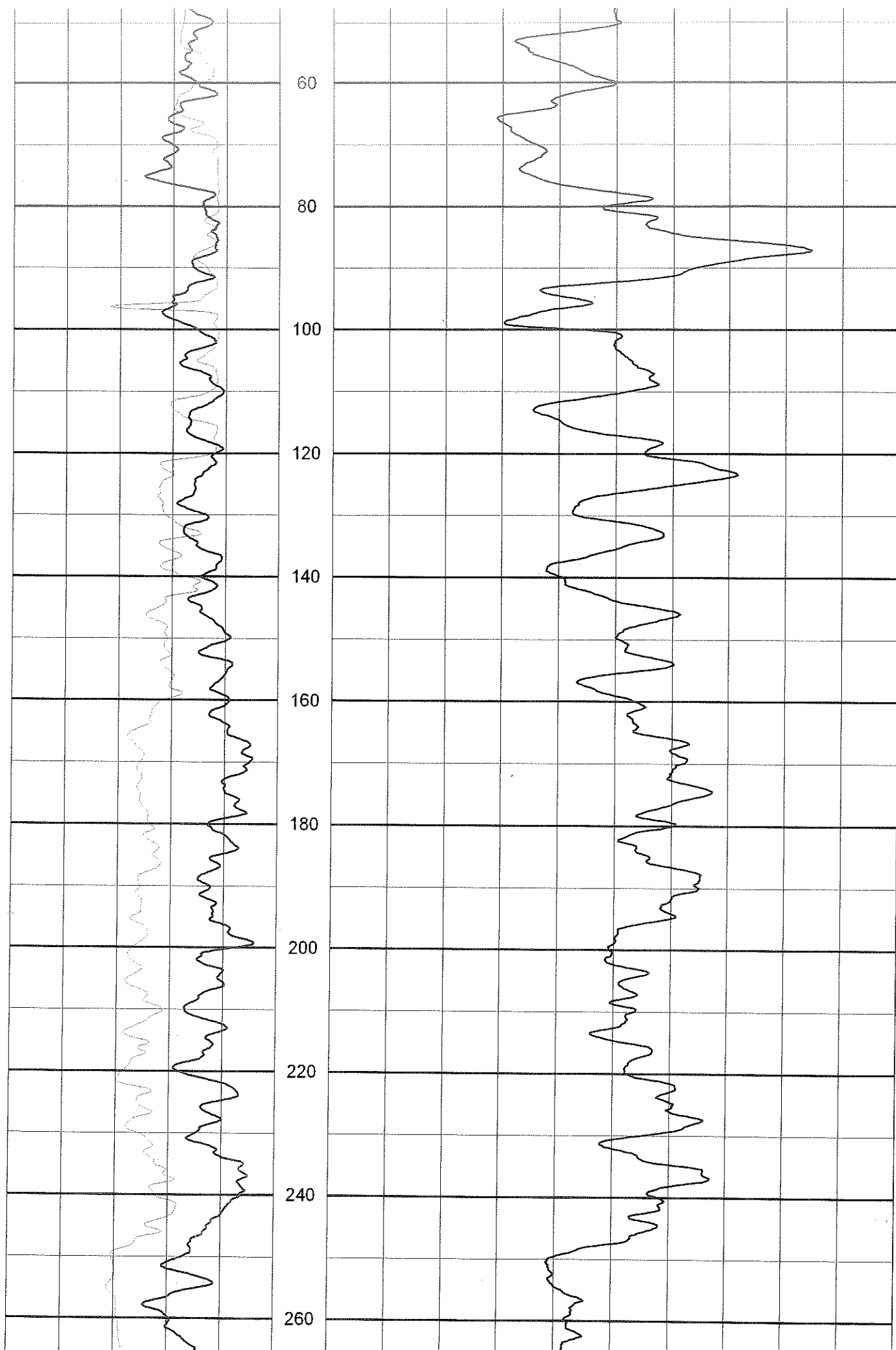
Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			FID Readings PPM	Remarks
					Sample	Lithology	Well		
420	CL	SANDY CLAY. Moderate brown (5YR4/4) to light brown (5YR5/6), stiff, moderately plastic. Sand (15%), very fine to medium, rounded to subangular, no odor, no stain.						Base of screen interval @ 415-ft Drilling rate 50-ft/hr.	
425								Base of well casing and well cap @ 420-ft TD of borehole @ 426-ft	

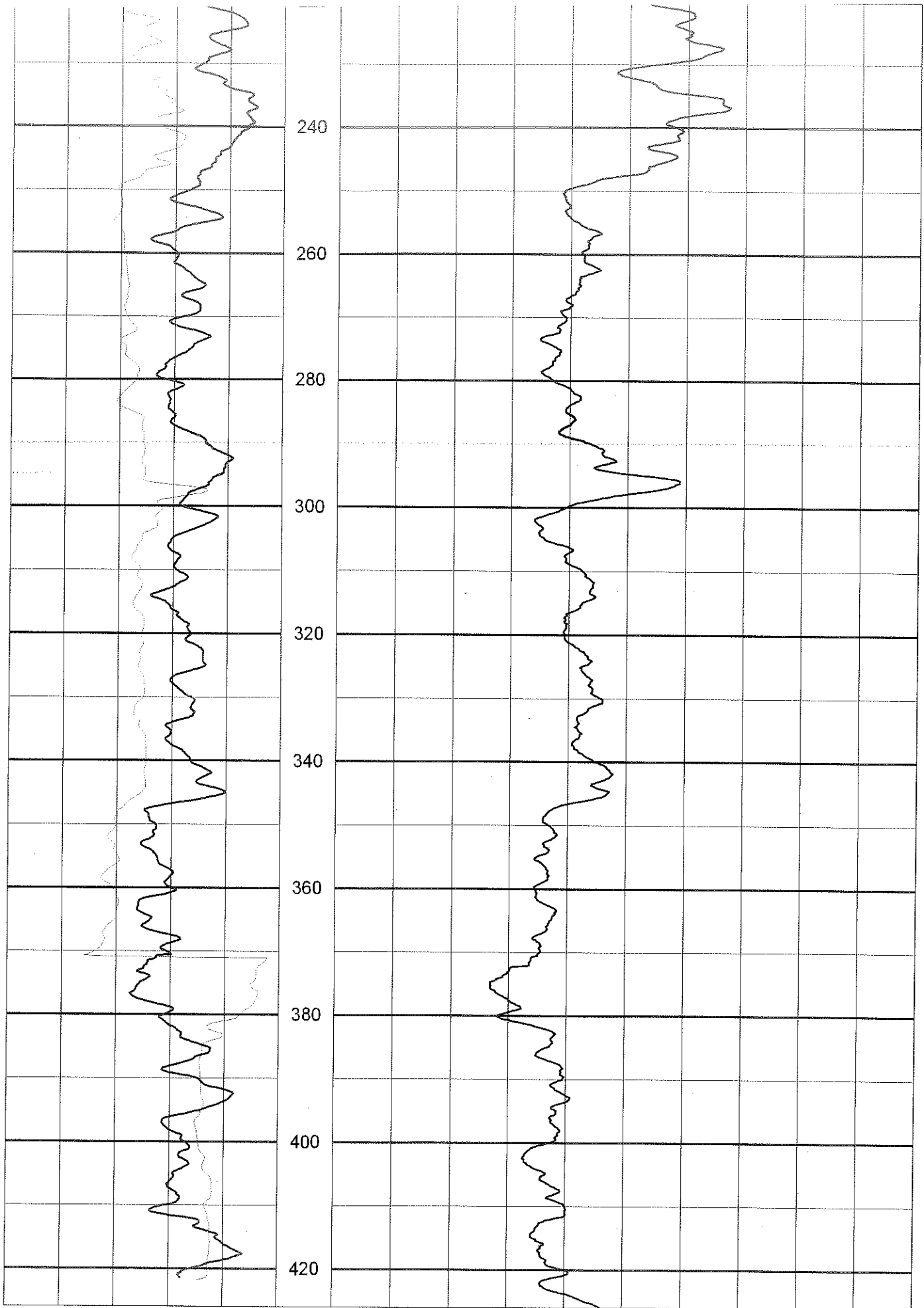
BORING LOG: DOLPHI-IGP-JBRN&CALD.GDT-8/2/00

Southwest Geophysical Services, Inc.

CO WELL FLD CTY STE FILING No		COMPANY BROWN & CALDWELL		WELL ID DIMW-8D		FIELD PHOENIX		COUNTY MARICOPA		STATE ARIZONA	
PERMANENT DATUM		ELEVATION		LOCATION		OTHER SERVICES		E-LOG		THIS LOG CONSISTS OF 2 SEPARATE RUNS COMBINED AT 372'	
LOG MEAS. FROM		GROUND LEVEL		ABOVE PERM. DATUM		D.F.		G.L.		FRESH MUD	
DRILLING MEAS. FROM		DATE		6-17 & 6-28-2000		TYPE FLUID IN HOLE		SALINITY		DENSITY	
RUN No		1		2		GAMMA-NEUTRON-CAL		LEVEL		MAX. REC. TEMP.	
DEPTH-DRILLER		380 FT		423 FT		DEPTH-LOGGER		376 FT		426 FT	
BIM LOGGED INTERVAL		376 FT		426 FT		TOP LOGGED INTERVAL		SURFACE			
OPERATING RIG TIME		RECORDED BY		K. MITCHELL		WITNESSED BY		M. DANIEL			
RUN		BOREHOLE RECORD		CASING RECORD		NO.		BIT		FROM	
1		AUGER		SURFACE		20 FT		24"		SURFACE	
2		9 7/8"		20 FT		TOTAL DEPTH					
LOWER SECTION		COMPLETION		423 FT		12"		SURFACE		372 FT	





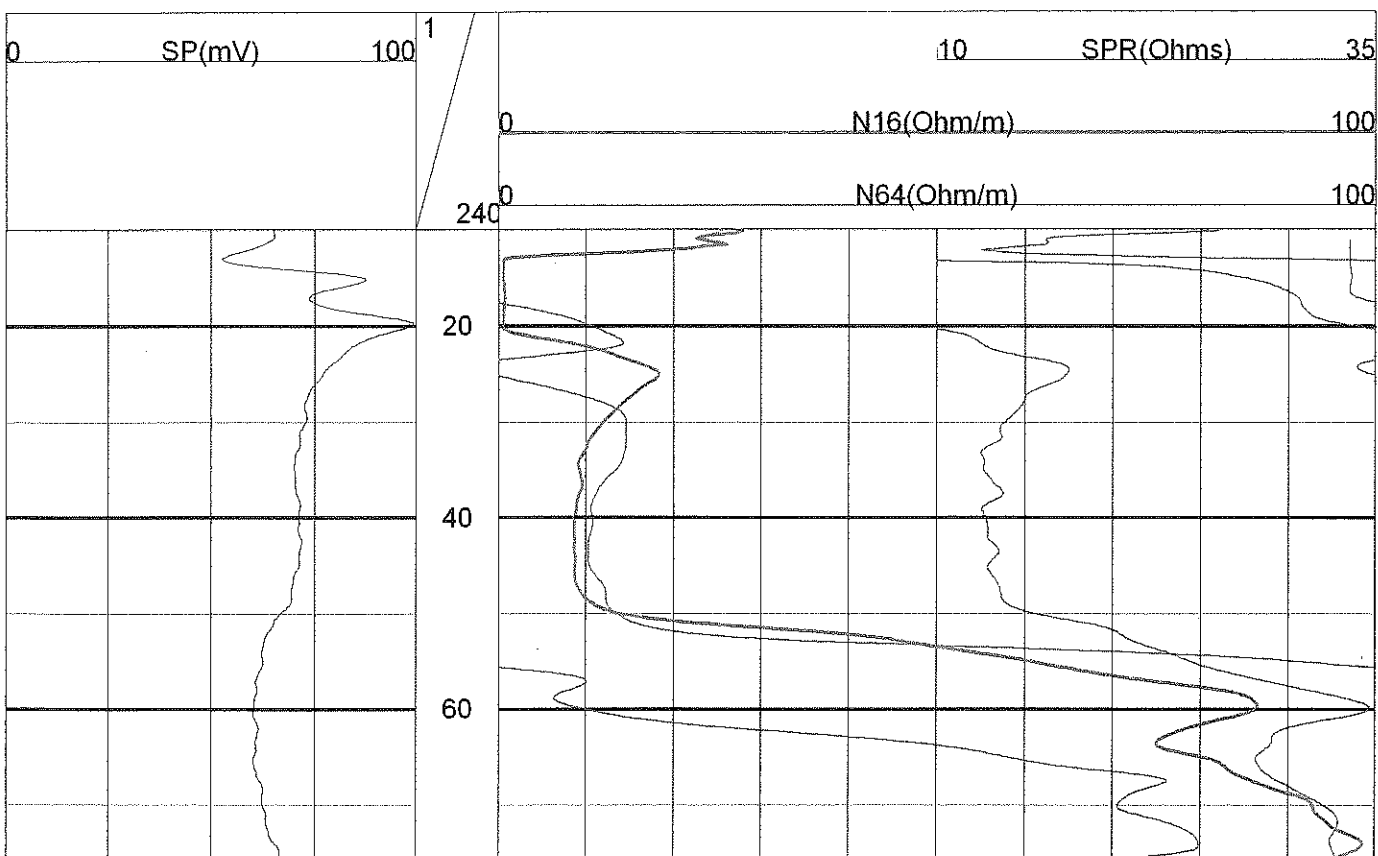


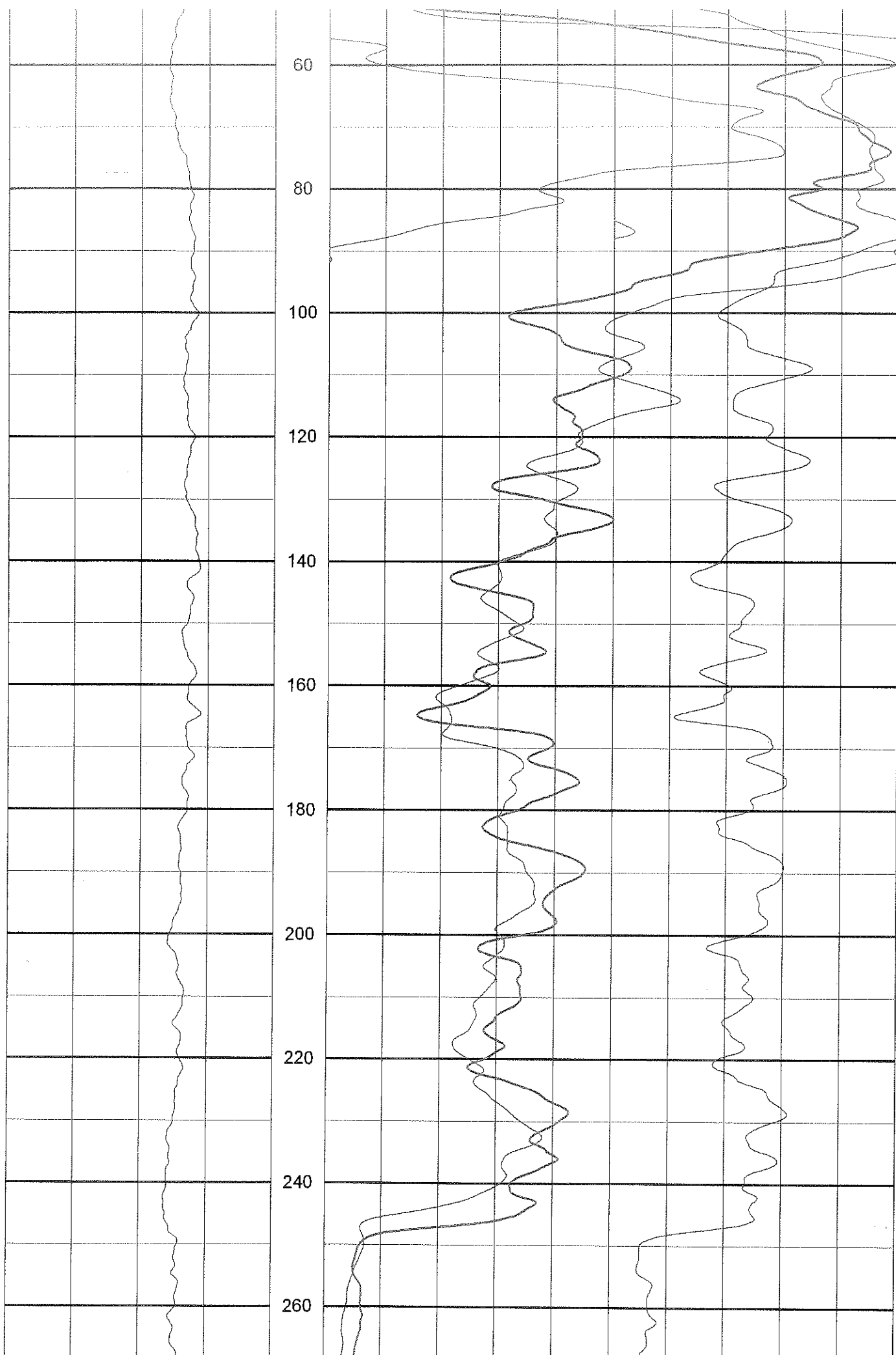
Southwest Geophysical Services, Inc.

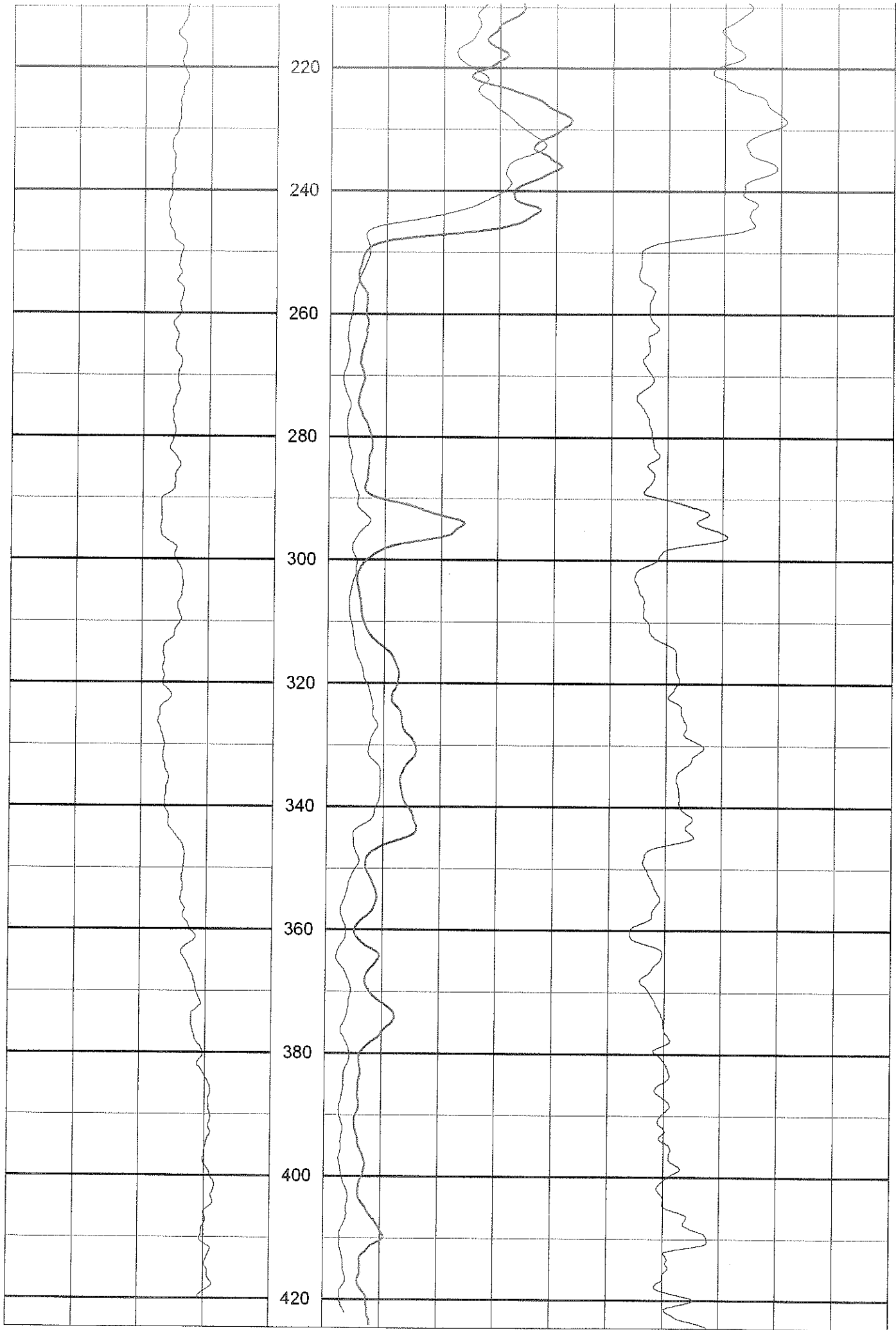
COMPANY BROWN & CALDWELL
 WELL ID DIMW-8D
 FIELD PHOENIX
 COUNTY MARICOPA STATE ARIZONA
 LOCATION
 FILING No A(1-2)7dxc
 SEC 7 TWP 1N RGE 2E
 OTHER SERVICES
 GAMMA
 NEUTRON
 CALIBER
 THIS LOG CONSISTS OF 2
 SEPARATE RUNS
 COMBINED AT 372'.

PERMANENT DATUM ELEVATION
 LOG MEAS. FROM GROUND LEVEL ABOVE PERM. DATUM
 DRAINING MEAS. FROM
 DATE 6-17 & 6-28-2000 TYPE FLUID IN HOLE FRESH MUD
 RUN No 1 2 SALINITY
 TYPE LOG E-LOG E-LOG DENSITY
 DEPTH-DRILLER 380 FT 423 FT LEVEL
 DEPTH-LOGGER 375 R 426 FT MAX. REC. TEMP.
 BITM LOGGED INTERVAL 375 FT 426 FT
 TOP LOGGED INTERVAL 10 FT 372 FT
 OPERATING RIG TIME
 RECORDED BY K. MITCHELL
 WITNESSED BY M. DANIEL

BOREHOLE RECORD				CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	AUGER	SURFACE	20 FT	24"		SURFACE	19 FT
2	9 7/8"	20 FT	TOTAL DEPTH				
LOWER SECTION		COMPLETION	423 FT	12"		SURFACE	372 FT
1	9 7/8"	372 FT					







DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5	[diagonal lines]		ASPHALT OVER ROAD BASE		7TH MAY 2004 AUGER DRILLED TO 20', SURFACE CASING INSTALLED
10	[diagonal lines]	SW	GRAVELLY SILTY SAND, SLIGHTLY MOIST		
15	[diagonal lines]				
20	[dashed lines]	SM	SILTY FINE TO MEDIUM SAND, MOIST		10TH MAY 2004
25	[dashed lines]				
30	[dashed lines]	SP	COARSE, POORLY GRADED SAND	0	
35	[dashed lines]				
40	[diagonal lines]	SW	GRAVELLY COARSE SAND	0	
45	[diagonal lines]				
50	[dashed lines]	SC	CLAYEY GRAVELLY COARSE SAND	0	
55	[dashed lines]				
60	[dashed lines]	SC	CLAYEY GRAVELLY COARSE SAND	0	11TH MAY 2004
65	[dashed lines]				
70	[circles]	GP	COARSE GRAVEL WITH COBBLES & TRACE CLAY	0	07:11
75	[circles]				

PROJ.#: 03103154-11 | DRILL DATE: 05-07/15-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 122-03
55TH AVENUE AND BUCHANAN
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80	o o o o o o o o	GP	FINE TO COARSE GRAVEL W/COBBLES	0	08:36
85	o o o o o o o o				
90	o o o o o o o o	GP	FINE GRAVEL	0	15:25
95	o o o o o o o o				12TH MAY 2004
100	o o o o o o o o	GP	COARSE GRAVEL WITH SOME COBBLES	0	09:08
105	o o o o o o o o				
110	o o o o o o o o	GW	SANDY, FINE TO COARSE GRAVEL	0	09:43
115	o o o o o o o o				
120	o o o o o o o o	GW	COARSE SANDY GRAVEL	0	10:44
125	o o o o o o o o				
130	o o o o o o o o	GW	COARSE SANDY GRAVEL		13:11
135	o o o o o o o o				
140	o o o o o o o o	GW	COARSE SANDY GRAVEL	0	14:00
145	o o o o o o o o				
150	o o o o o o o o	GP	POORLY GRADED GRAVEL	0	5:35

PROJ.#:03103154-11 DRILL DATE: 05-07/15/04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR DIAMETER: 10"
 DRILLER: WDC TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



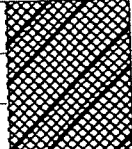
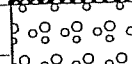
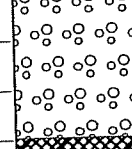

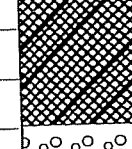
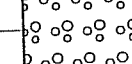
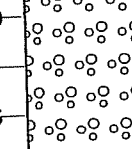
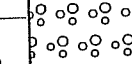
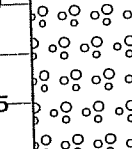
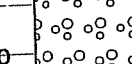
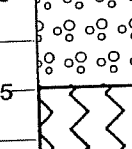

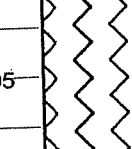
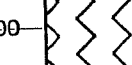
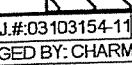
FIELD BOREHOLE LOG
AVB 122-03
55 AVENUE & BUCHANAN
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155	○ ○ ○ ○ ○ ○				
160	○ ○ ○ ○ ○ ○	GP	FINE GRAVEL	0	16:50
165	○ ○ ○ ○ ○ ○				13TH MAY 2004
170	○ ○ ○ ○ ○ ○	GP	FINE GRAVEL	0	07:47
175	○ ○ ○ ○ ○ ○				
180	○ ○ ○ ○ ○ ○	GP	FINE GRAVEL	0	07:55
185	○ ○ ○ ○ ○ ○				
190	■	GC	CLAYEY FINE GRAVEL	0	08:10
195	■				
200	■	GC	CLAYEY FINE GRAVEL	0	08:20
205	■				
210	■	GC	CLAYEY FINE GRAVEL	0	08:39
215	■				
220	■	GC	CLAYEY FINE GRAVEL	0	08:50
225	■				

PROJ.#:03103154-11 | DRILL DATE: 05-07/15-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 10"
 DRILLER: WDC | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 122-03
55TH AVENUE & BUCHANAN
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230		GC	CLAYEY FINE GRAVEL, TRACE SAND AND SILT		09:09 LOST CIRCULATION
235					14TH MAY 2004
240		GW	COARSE SANDY GRAVEL	14:48	
245					
250		GC	CLAYEY FINE GRAVEL W/TRACE COARSE SAND	15:21	
255					
260		GP	POORLY GRADED GRAVEL	15:26	
265					
270		GP	POORLY GRADED GRAVEL	15:40	
275					
280		GP	POORLY GRADED GRAVEL W/ MINOR COARSE SAND	15:52	
285					
290		GW/SW	GRAVELLY SAND/SANDY GRAVEL	16:10	
295					
300		GW/SW	GRAVELLY SAND/SANDY GRAVEL	16:25	

PROJ.#:03103154-11 | DRILL DATE: 05-07/15-05
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 10"
 DRILLER: WDC | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



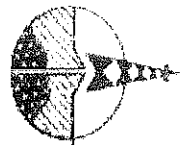
FIELD BOREHOLE LOG
AVB 122-03
55TH AVENUE AND BUCHANAN
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
310		GW/SW	GRAVELLY SAND/SANDY GRAVEL		17:00
315					
320		GP	POORLY GRADED GRAVEL		17:05
325					
330		GC	CLAYEY GRAVEL		17:40
335					
340		GC	CLAYEY SANDY GRAVEL		17:50
345					
350		GC	CLAYEY SANDY GRAVEL		18:00 TD = 350'
355					
360					
365					
370					
375					
380					

PROJ.#:03103154-1 | DRILL DATE: 05-07/15-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR DIAMETER: 10"
 DRILLER: WDC TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 122-03
55TH AVENUE AND BUCHANAN
PHOENIX, ARIZONA



Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY TERRANEXT

WELL ID AYP 122-05

FIELD PHOENIX

COUNTY MARICOPA

STATE ARIZONA

TYPE OF LOGS: E-LOGS - GAMMA

MORE:

LOCATION CALIPER
NETTRON
GAMMA

PERMANENT DATUM

LOG MEAN FROM TOP OF CASING

SPILLING MEAS FROM

DATE 05/20/08

WELL NO. 2

DEPTH/DEPTH

DEPTH/LOGGER

FIELD/LOG INTERVIEW

FIELD/LOG INTERVIEW

PERMANENT DATUM

ADDRESS/LOG

ADDRESS/LOG

LOG MEAN FROM

DATE

WELL NO.

DEPTH/DEPTH

DEPTH/LOGGER

FIELD/LOG INTERVIEW

FIELD/LOG INTERVIEW

PERMANENT DATUM

ADDRESS/LOG

ADDRESS/LOG

HEAVATON

LOG MEAN FROM

DATE

WELL NO.

DEPTH/DEPTH

DEPTH/LOGGER

FIELD/LOG INTERVIEW

FIELD/LOG INTERVIEW

PERMANENT DATUM

ADDRESS/LOG

ADDRESS/LOG

LOG MEAN FROM

DATE

WELL NO.

DEPTH/DEPTH

DEPTH/LOGGER

FIELD/LOG INTERVIEW

FIELD/LOG INTERVIEW

PERMANENT DATUM

ADDRESS/LOG

ADDRESS/LOG

KB

LOG MEAN FROM

DATE

WELL NO.

DEPTH/DEPTH

DEPTH/LOGGER

FIELD/LOG INTERVIEW

FIELD/LOG INTERVIEW

PERMANENT DATUM

ADDRESS/LOG

ADDRESS/LOG

LOG MEAN FROM

DATE

WELL NO.

DEPTH/DEPTH

DEPTH/LOGGER

FIELD/LOG INTERVIEW

FIELD/LOG INTERVIEW

PERMANENT DATUM

ADDRESS/LOG

ADDRESS/LOG

OTHER SERVICES

CALIPER
NETTRON
GAMMA

CALIPER
NETTRON
GAMMA

Nat. Gamma Ray

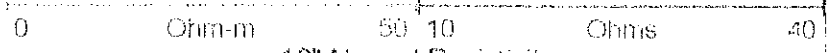


Spontaneous Potential

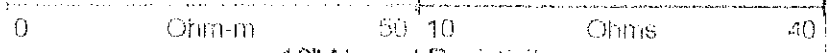


Depth
1in:20ft

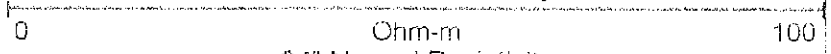
8" Normal Resistivity



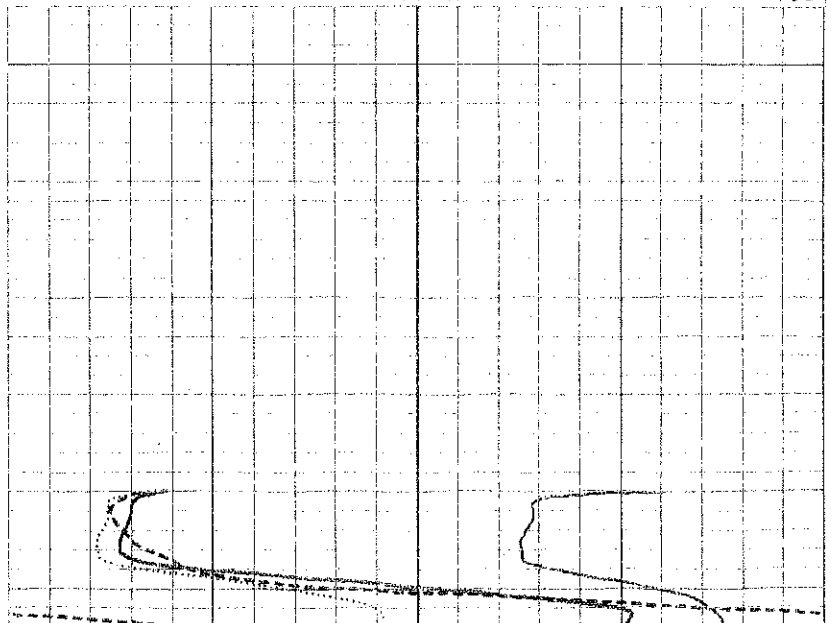
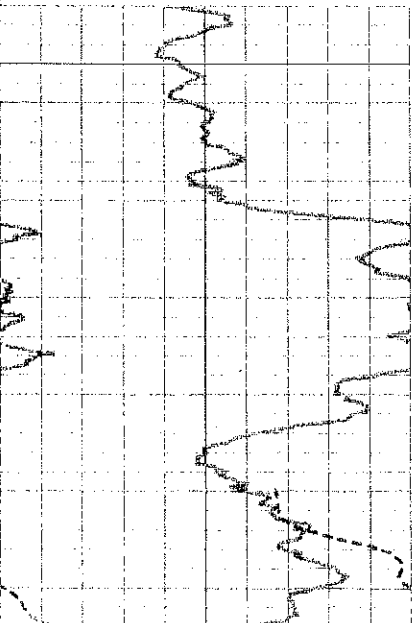
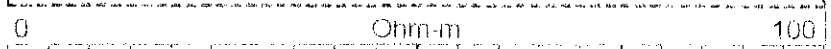
Single Point Resistance



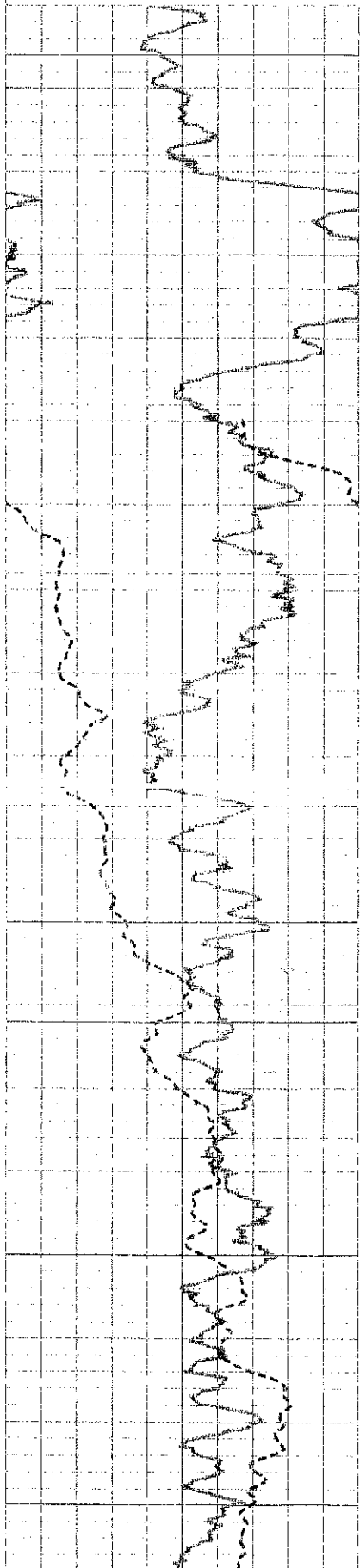
16" Normal Resistivity



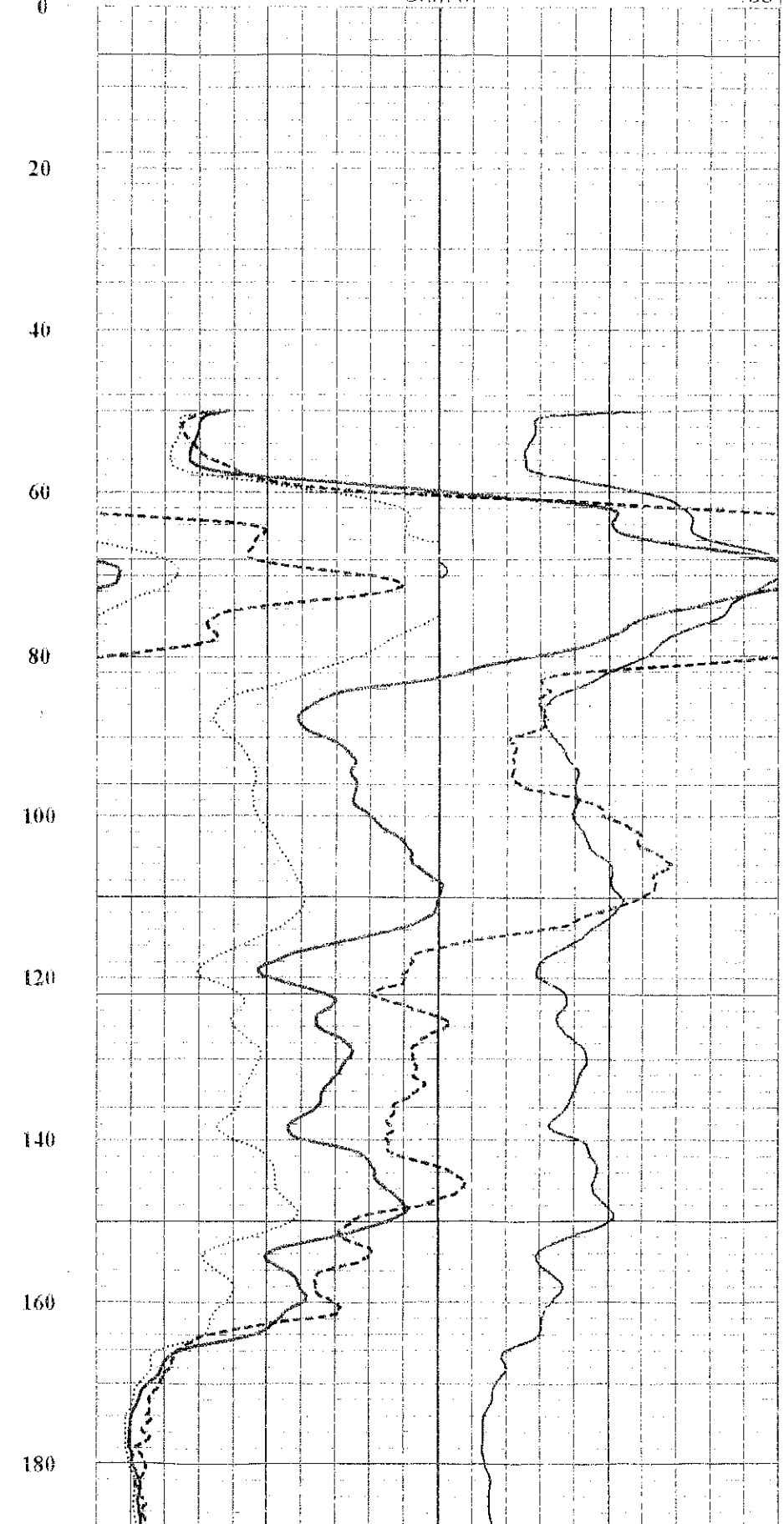
64" Normal Resistivity

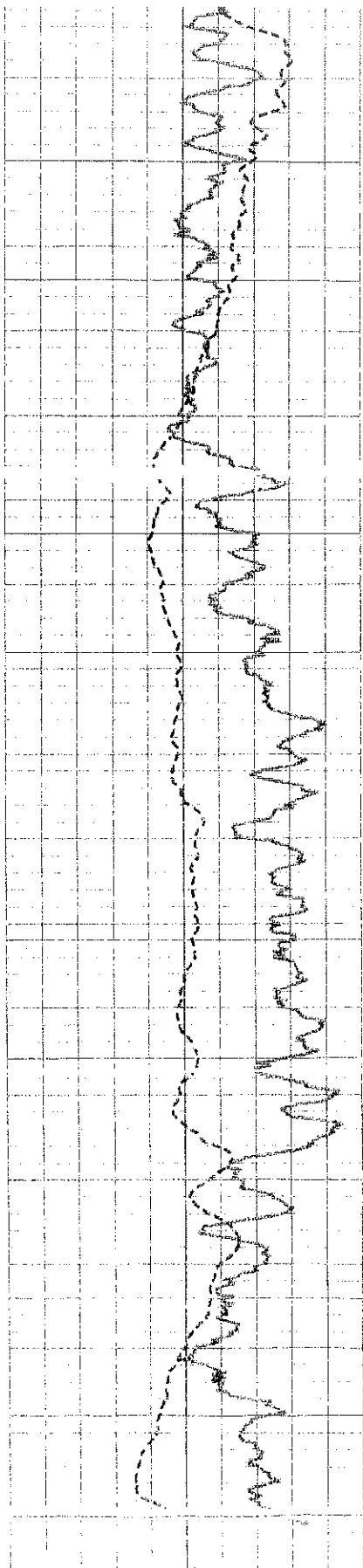


Nat. Gamma Ray
 0 API 100
 Spontaneous Potential
 750 mV 950

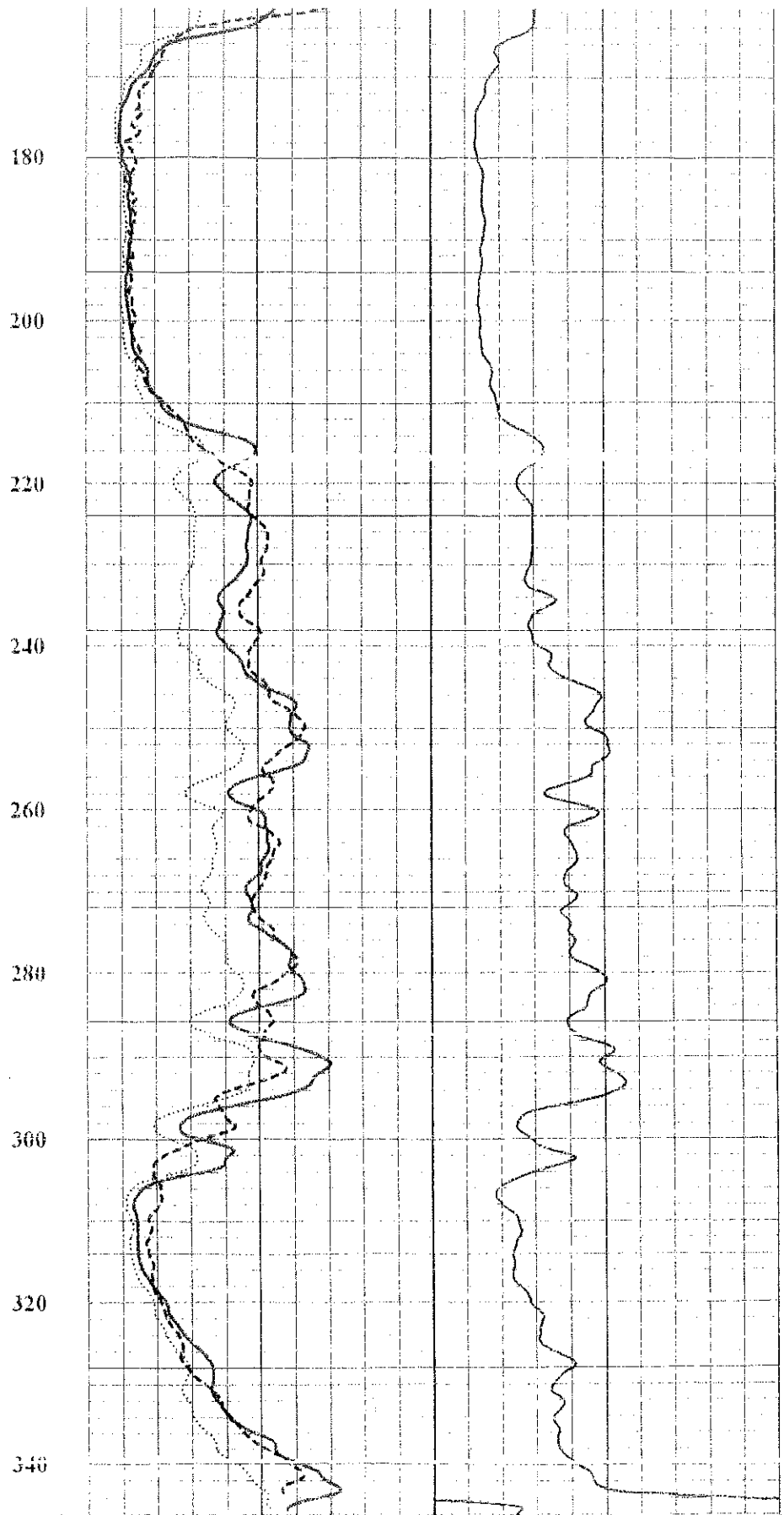


Depth
 in. 20ft
 8" Normal Resistivity
 0 Ohm-m 50 10 Ohms 40
 16" Normal Resistivity
 0 Ohm-m 100
 64" Normal Resistivity
 0 Ohm-m 100





Spontaneous Potential
 750 mV 950
 Nat. Gamma Ray
 0 API 100



64" Normal Resistivity
 0 Ohm-m 100
 16" Normal Resistivity
 0 Ohm-m 100
 8" Normal Resistivity
 0 Ohm-m 50 10
 Single Point Resistance
 0 Ohms 40

Depth
 1m/20ft



Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY TERRANEXT

WELL ID AVB 122-03

FIELD PHOENIX

COUNTY MARICOPA

STATE ARIZONA

TYPE OF LOGS: GAMMA-NEUTRON-CAL

OTHER SERVICES

MORE:

LOCATION

SEC	TWP	RGE	ELEVATION	KB

PERMANENT DATUM

ABOVE PERM DATUM

LOG MEAS FROM

DEPT

DATE	TIME	TYPE FLUID IN HOLE	FRESH WTD
05-16-01		SALINITY	

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER

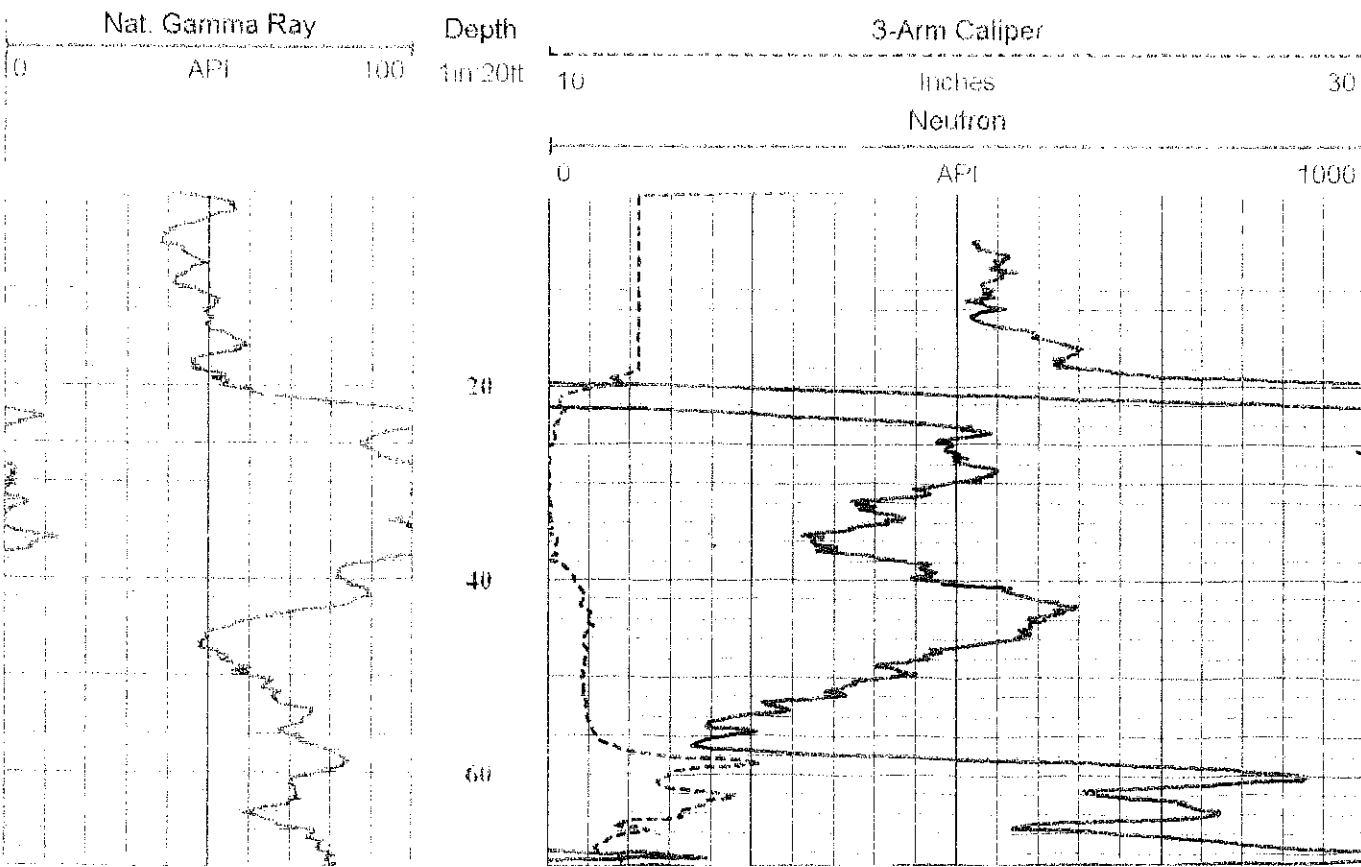
DEPTH-DRILLER

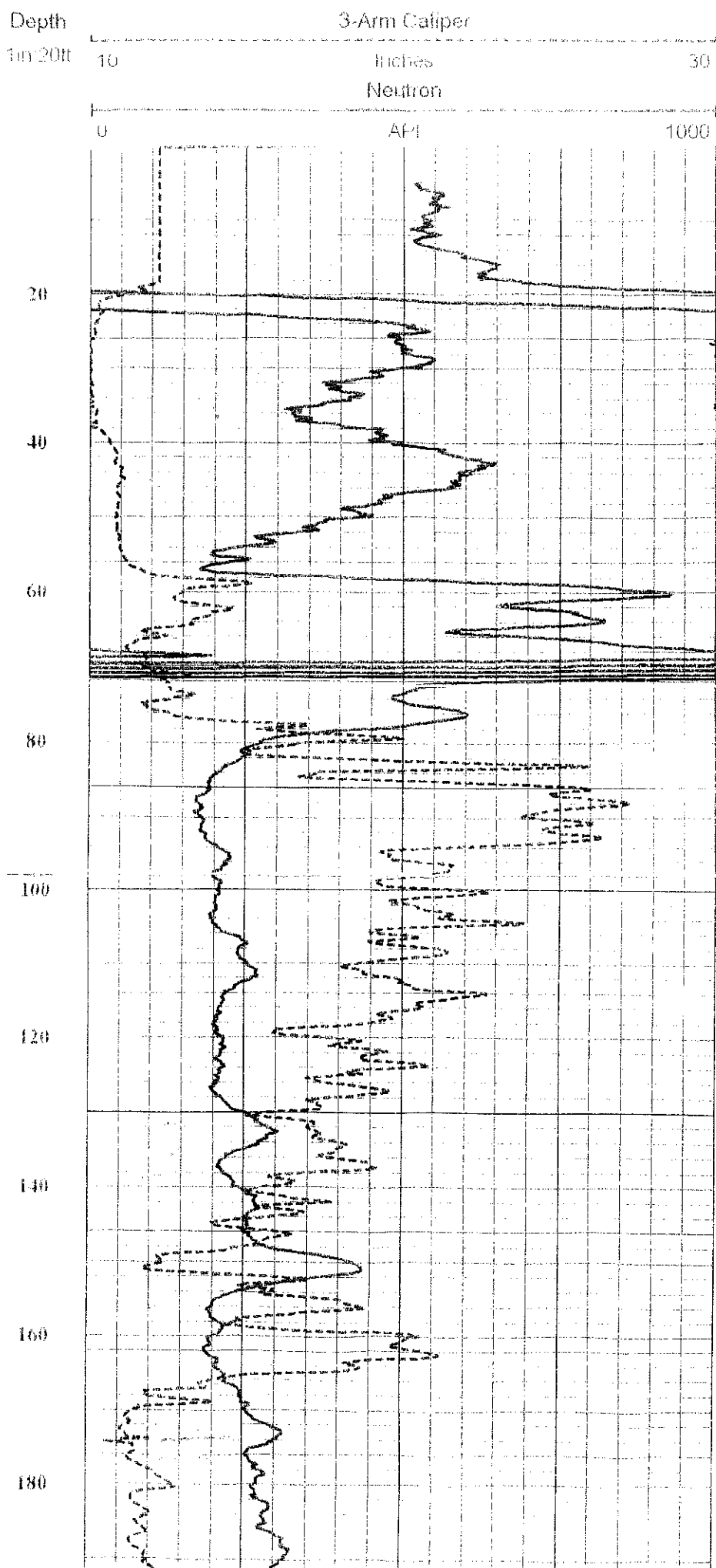
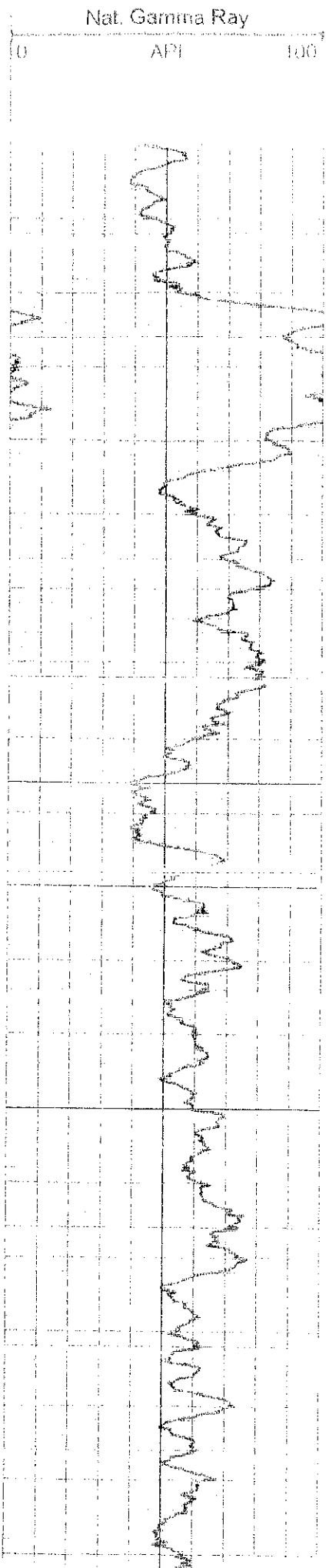
DEPTH-DRILLER

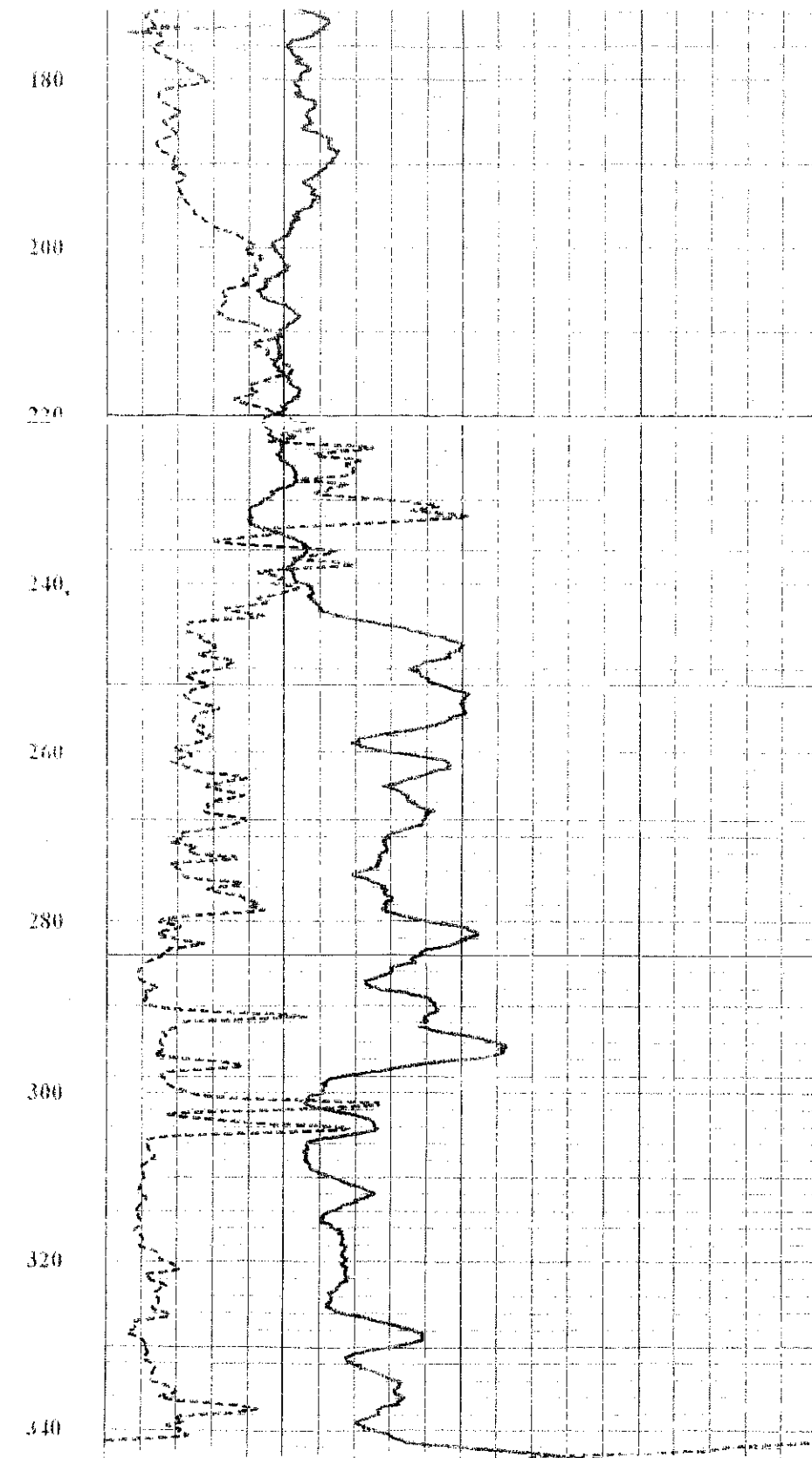
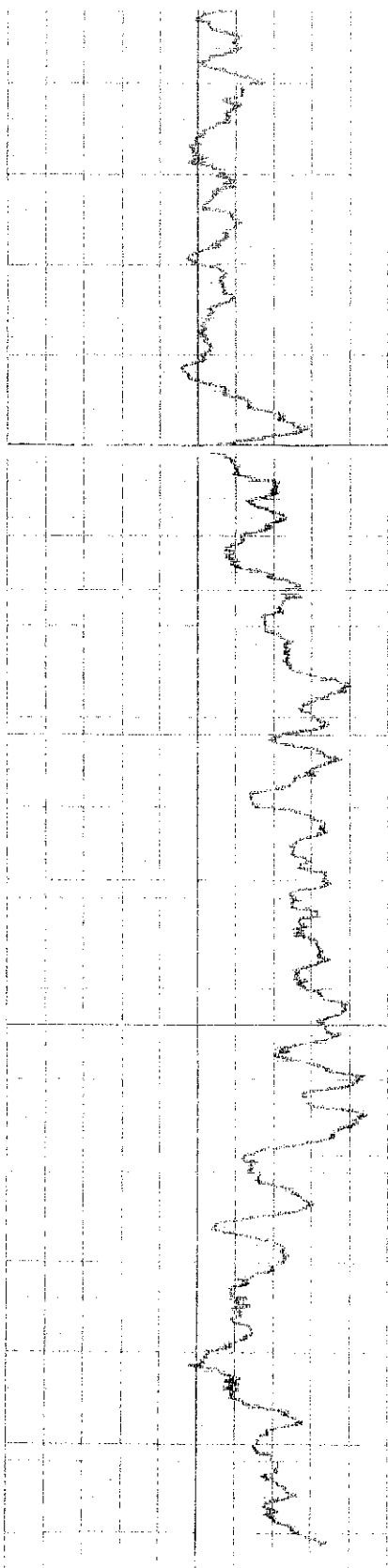
DEPTH-DRILLER

DEPTH-DRILLER

DEPTH-DRILLER







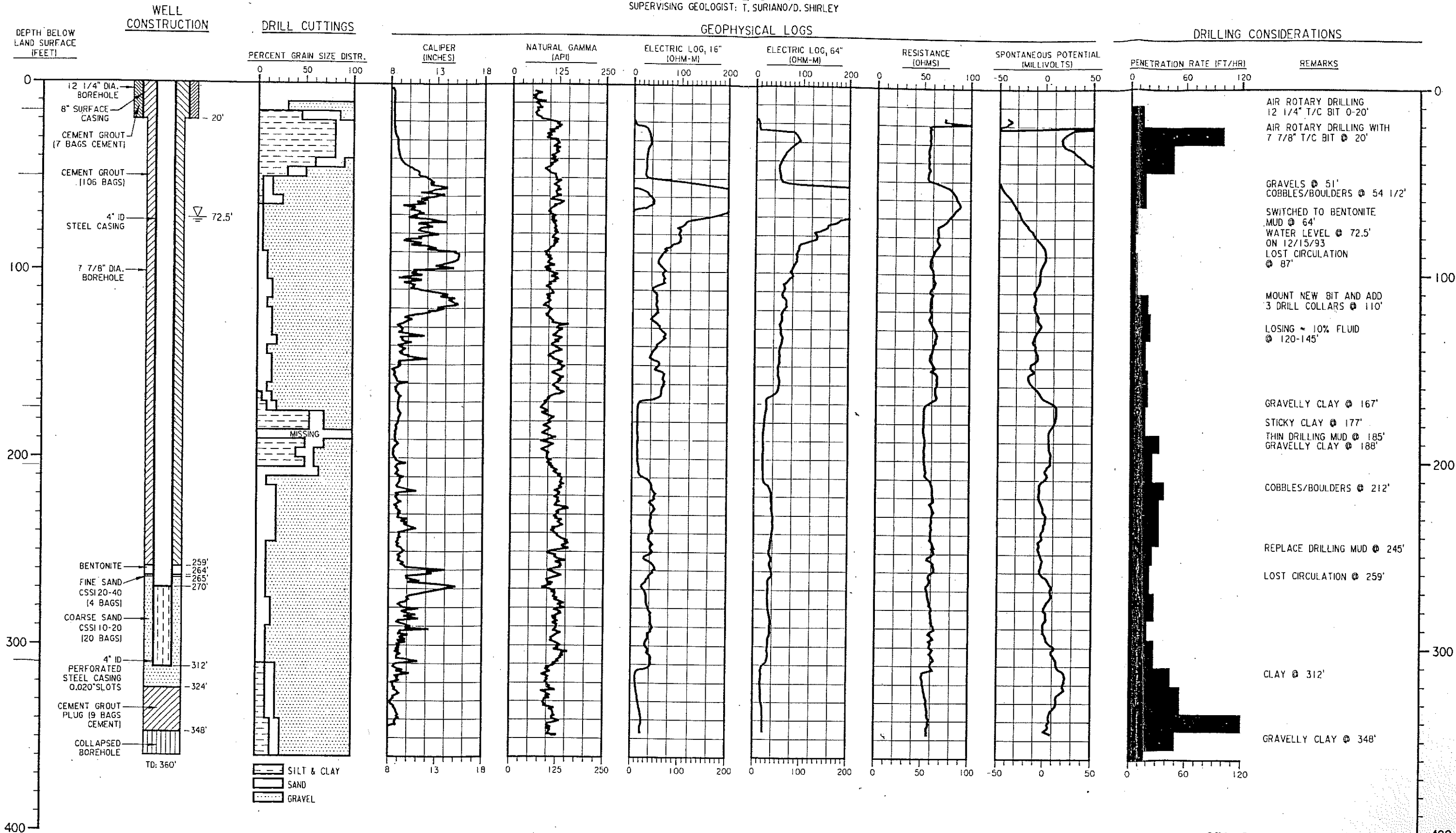
Nat. Gamma Ray
0 API 100

Depth
180ft 20ft
Neutron
0 API 1000
3-Arm Caliper
10 Inches 30

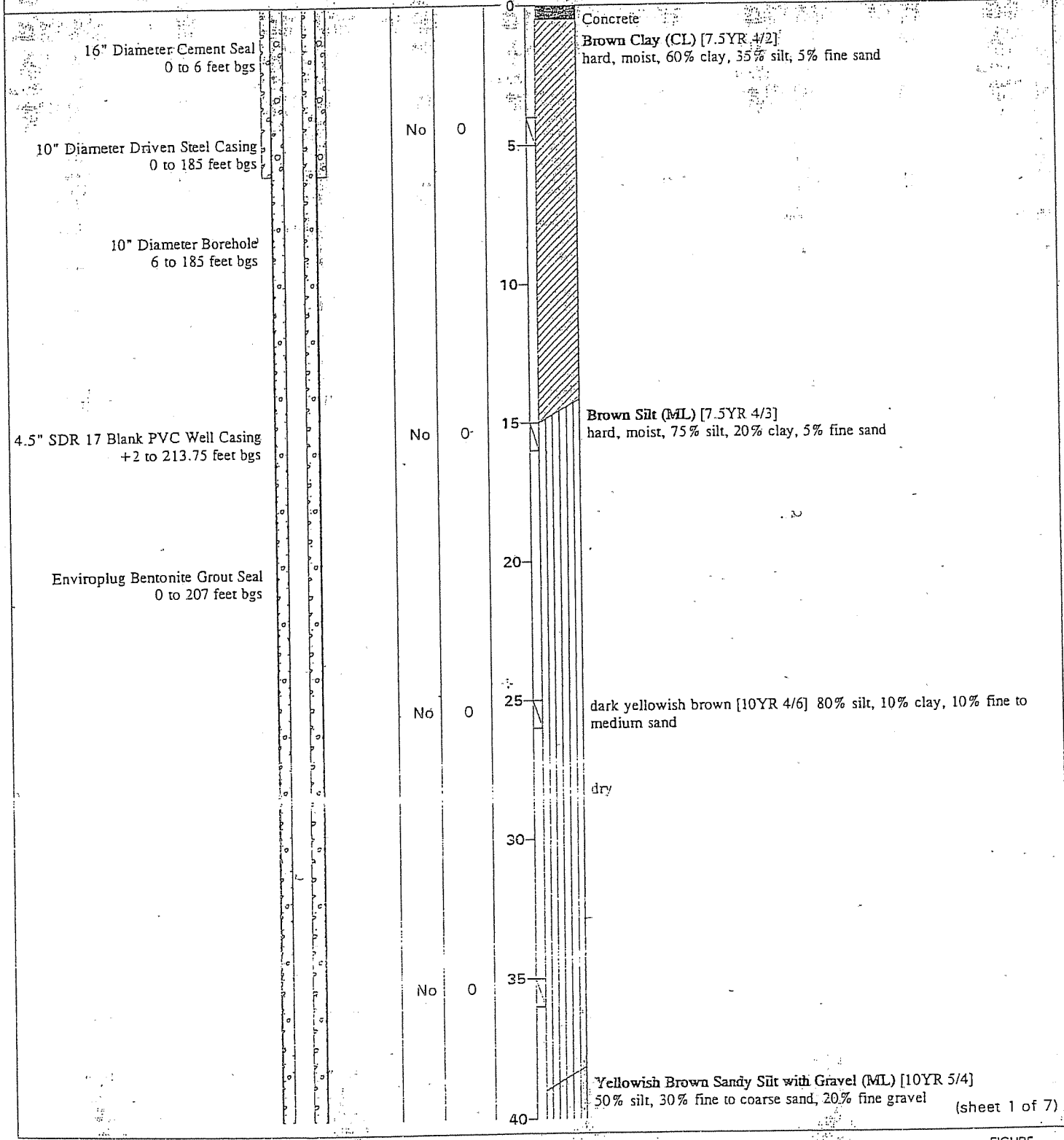
FIGURE 9. WELL DATA PROFILE WELL PTG-2B

ADWR REGISTRATION NO. 55-540987

DRILLING METHOD: AIR/MUD ROTARY
 DRILLING CONTRACTOR: B.J. DRILLING CO.
 START DRILLING DATE: 12/7/93
 WELL COMPLETION DATE: 12/14/93
 WELL DEVELOPMENT DATE: 12/15/93
 SUPERVISING GEOLOGIST: T. SURIANO/D. SHIRLEY



Sampler grab/2" split spoon
 Equipment Schramm
 Elevation 1055.69 Date 7/13/97



(sheet 1 of 7)

FIGURE

LOG OF BORING MW-11
 Van Waters & Rogers Inc.
 Phoenix, Arizona

A4

Harding Lawson Associates
 Engineering and
 Environmental Services

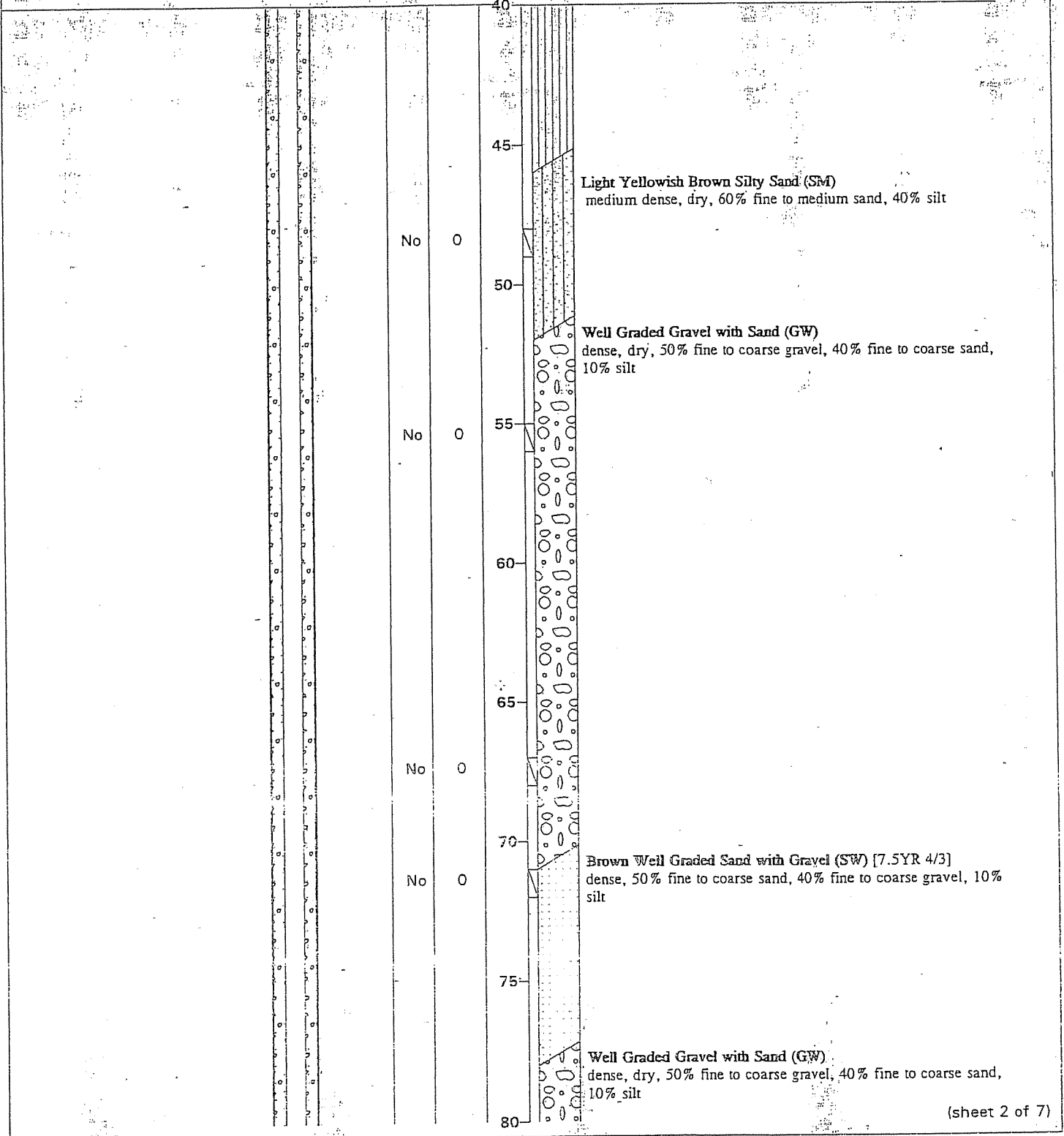
DRAWN: DBS
 PROJECT NUMBER: 36311-4

APPROVED **EC9**

DATE 7/8/97

REVISED DATE 10/22/97

Sampler: grab/2" split spoon
 Equipment: Schramm
 Elevation: 1055.69 Date: 7/13/97



(sheet 2 of 7)



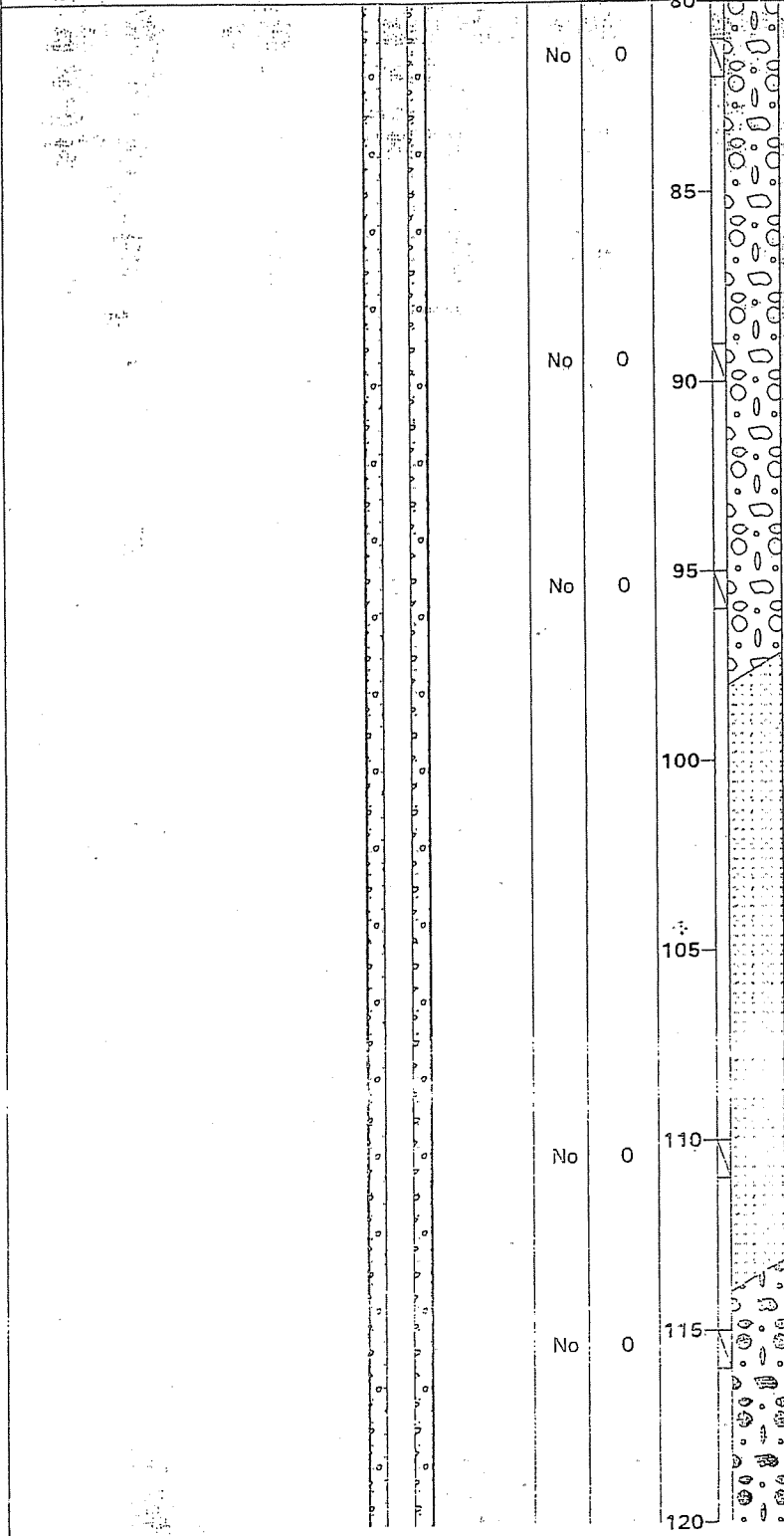
Harding Lawson Associates
 Engineering and
 Environmental Services

LOG OF BORING MW-11
 Van Waters & Rogers Inc.
 Phoenix, Arizona

FIGURE

A4

Sampler: grab/2" split spoon
 Equipment: Schramm
 Elevation: 1055.69 Date: 7/13/97



Brown Poorly Graded Sand with Gravel (SP) [7.5YR 4/3]
 dense, 60% fine to medium sand, 30% fine to coarse gravel, 10% silt

75% fine to medium sand, 15% fine gravel, 10% silt

Poorly Graded Gravel with Sand (GP)
 dense, wet, 60% fine to coarse gravel, 30% fine to coarse sand, 10% silt

(sheet 3 of 7)



Harding Lawson Associates
 Engineering and
 Environmental Services

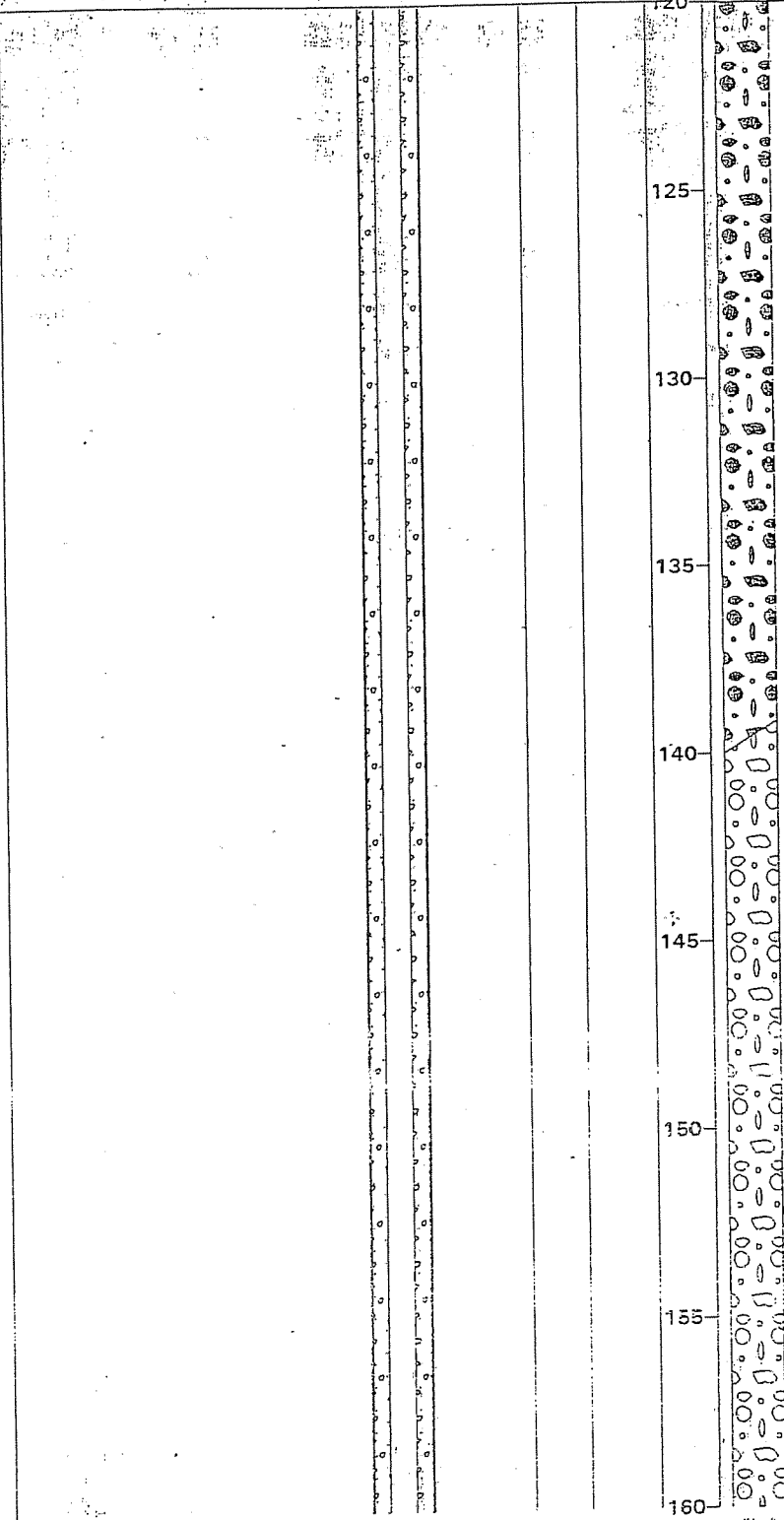
LOG OF BORING MW-11
 Van Waters & Rogers Inc.
 Phoenix, Arizona

FIGURE

A4

DRAWN DBS	PROJECT NUMBER 36311-4	APPROVED FCS	DATE 7/8/97	REVISED DATE 10/22/97
--------------	---------------------------	-----------------	----------------	--------------------------

Sampler grab/2" split spoon
 Equipment Schramm
 Elevation 1055.69 Date 7/13/97



Well Graded Gravel with Sand (GW)
 dense, wet, 60% fine to coarse gravel, 30% fine to coarse sand,
 10% silt

70% fine to coarse gravel, 20% fine to coarse sand, 10% silt

(sheet 4 of 7)

Harding Lawson Associates
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 Environmental Services

LOG OF BORING MW-11
 Van Waters & Rogers Inc.
 Phoenix, Arizona

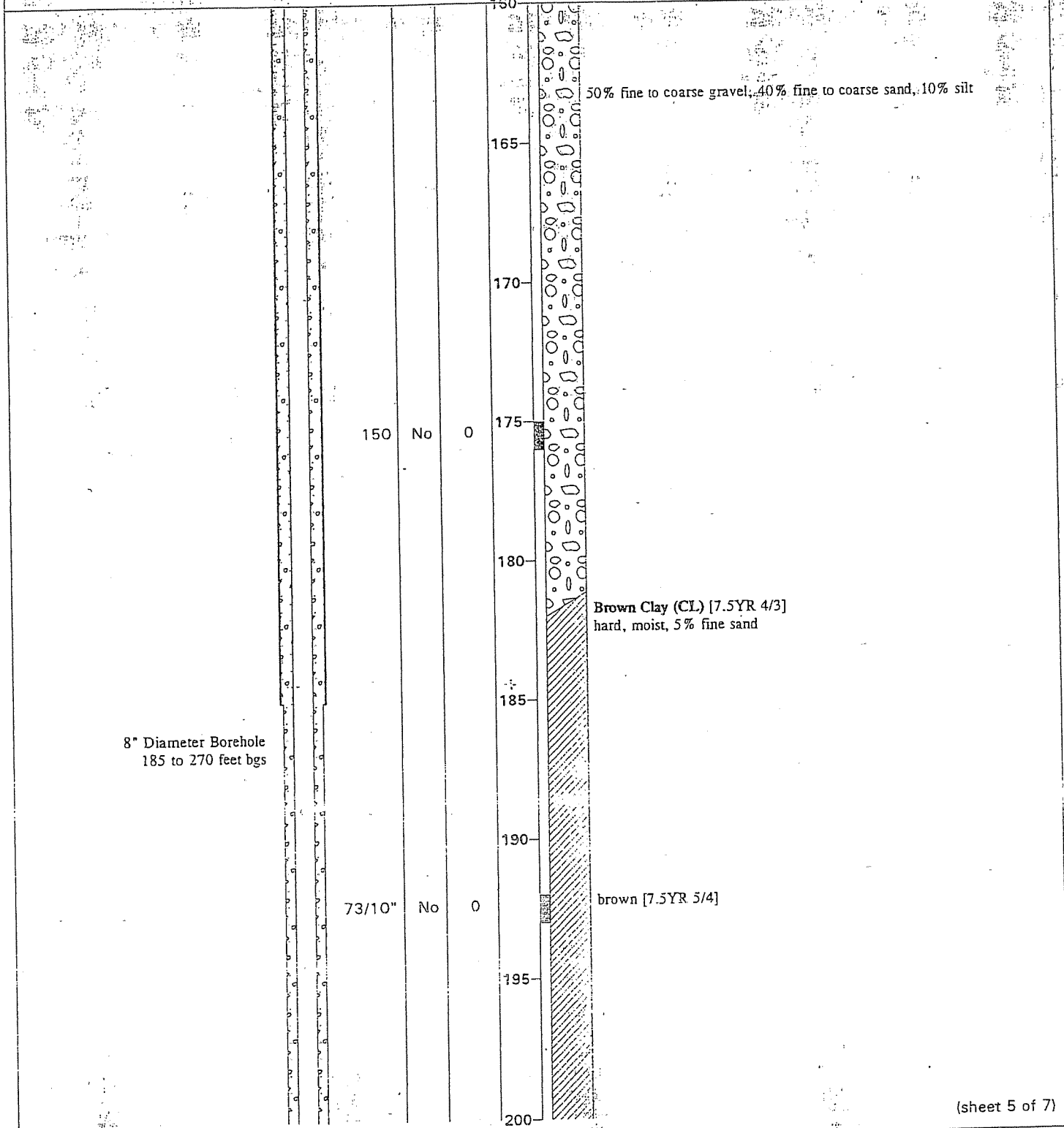
FIGURE

A4

DRAWN DBS	PROJECT NUMBER 36311-4	APPROVED <i>FLS</i>	DATE 7/8/97	REVISED DATE 10/22/97
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36311

Sampler: grab/2" split spoon
 Equipment: Schramm
 Elevation: 1055.69 Date: 7/13/97



8" Diameter Borehole
185 to 270 feet bgs

50% fine to coarse gravel, 40% fine to coarse sand, 10% silt

Brown Clay (CL) [7.5YR 4/3]
hard, moist, 5% fine sand

brown [7.5YR 5/4]

(sheet 5 of 7)

Harding Lawson Associates
Engineering and
Environmental Services

LOG OF BORING MW-11
Van Waters & Rogers Inc.
Phoenix, Arizona

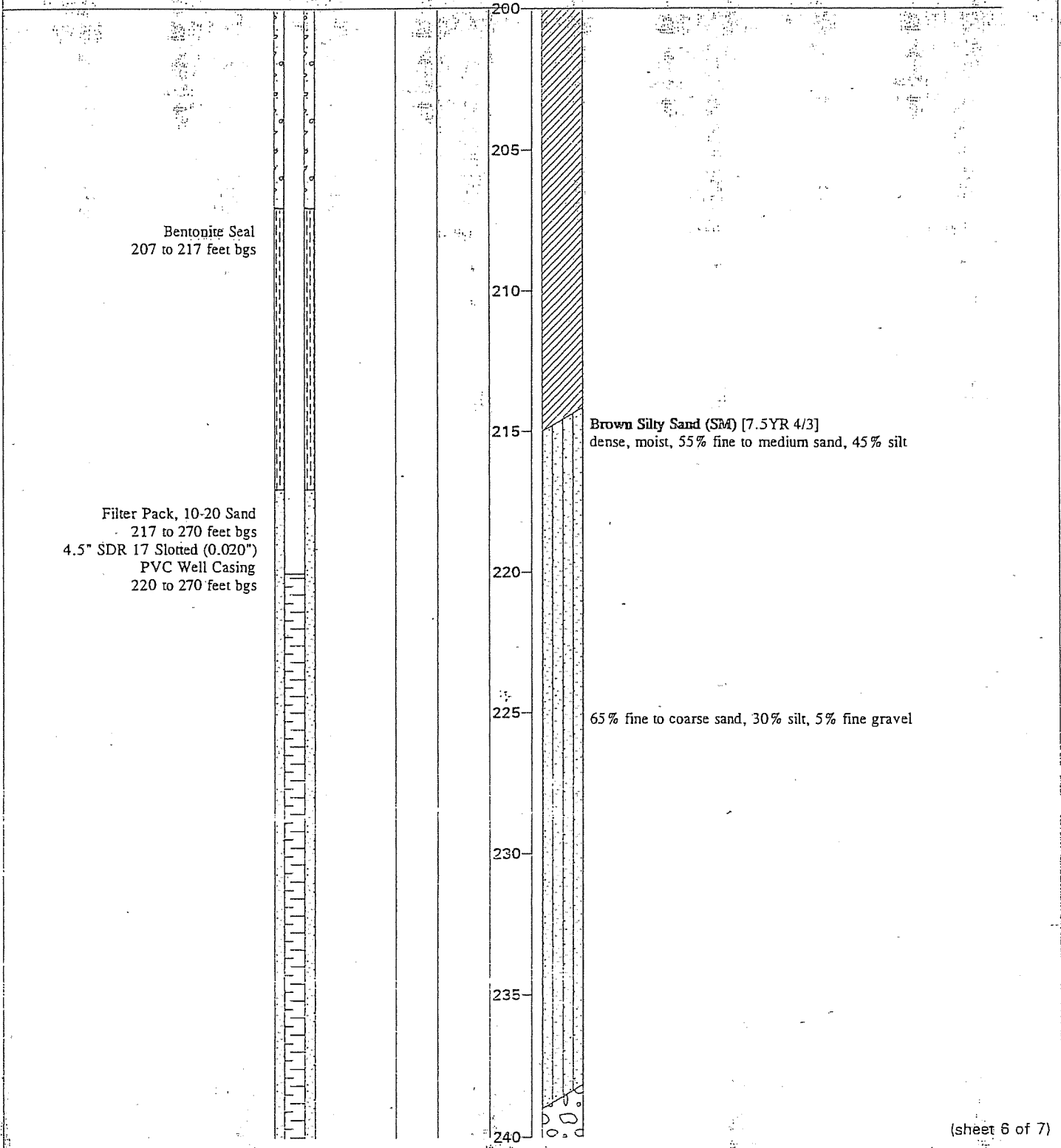
FIGURE

A4

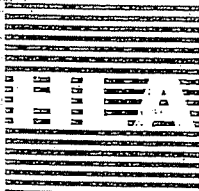
DRAWN: DBS	PROJECT NUMBER 36311-4	APPROVED FCS	DATE 7/8/97	REVISED DATE 10/22/97
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3631

Sampler grab/2" split spoon
 Equipment Schramm
 Elevation: 1055.69 Date 7/13/97



(sheet 6 of 7)



Harding Lawson Associates
 Engineering and
 Environmental Services

LOG OF BORING MW-11
 Van Waters & Rogers Inc.
 Phoenix, Arizona

FIGURE

A4

DRAWN
DBS

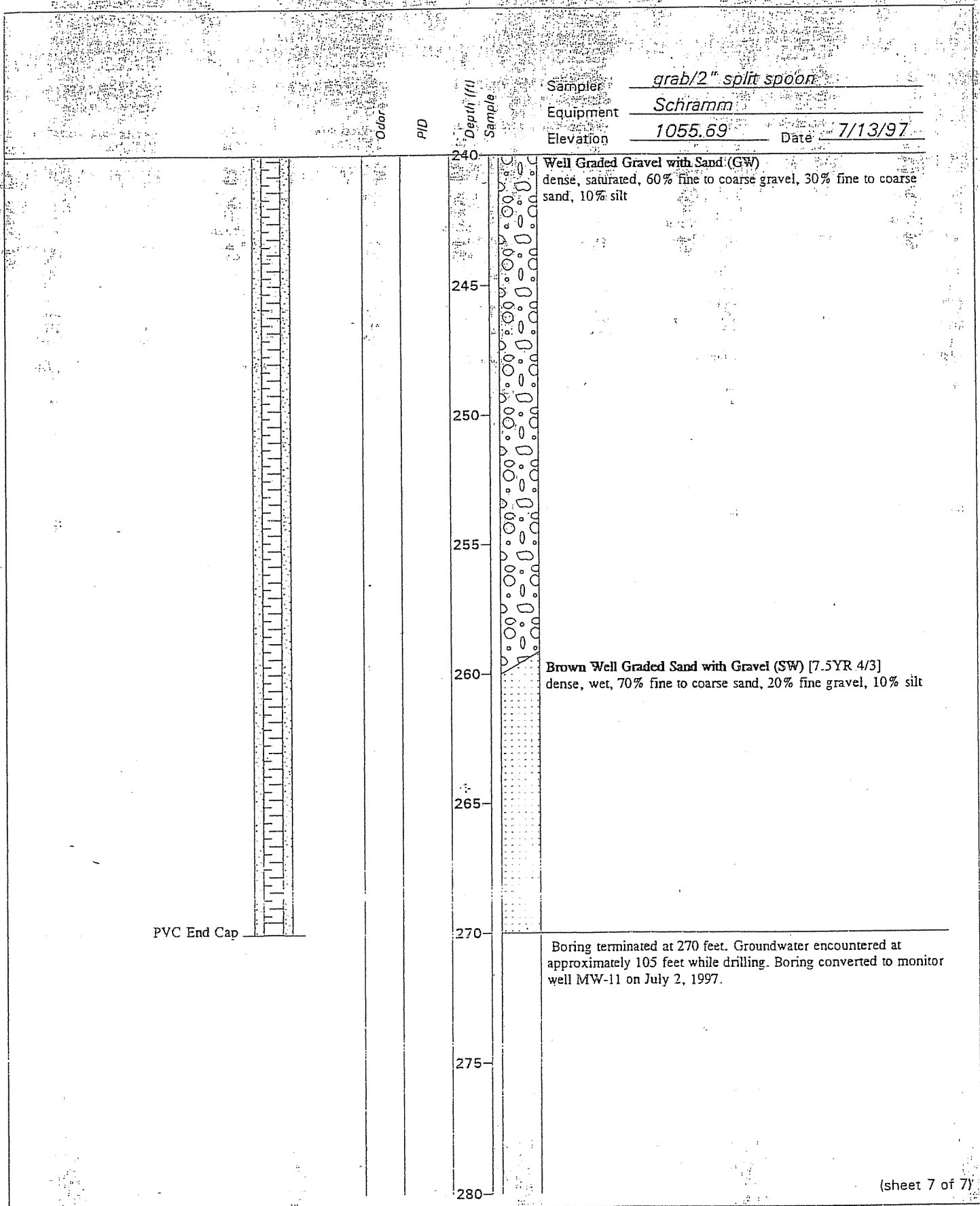
PROJECT NUMBER
36311-4

APPROVED
FCS

DATE
7/8/97

REVISED DATE
10/22/97

36311



(sheet 7 of 7)

Harding Lawson Associates
Engineering and
Environmental Services

LOG OF BORING MW-11
Van Waters & Rogers Inc.
Phoenix, Arizona

FIGURE

A4

DRAWN DBS	PROJECT NUMBER 36311-4	APPROVED KCS	DATE 7/8/97	REVISED DATE 10/22/97
--------------	---------------------------	-----------------	----------------	--------------------------

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5			ASPHALT OVER ROAD BASE		17TH MAY 04
10		SM	SILTY FINE SAND, SLIGHTLY MOIST, TAN	0.5	
15					
20		SM	SILTY FINE SAND, MOIST, LT. BROWN	0.6	AUGER DRILLED TO 20' SURFACE CASING INSTALLED 19TH MAY 04
25					
30		SM	SILTY FINE SAND W/TRACE GRAVEL	0	11:40
35					
40		GW	CLAYEY COARSE SANDY GRAVEL	0	11:51
45					
50		GC	CLAYEY GRAVEL W/COBBLES	0	12:24
55					
60		GP	COARSE GRAVEL W/COBBLES	0	13:05
65					
70		GP	COARSE GRAVEL W/COBBLES	0	13:40
75					

PROJ.#:03103154-11 | DRILL DATE:05-17/24-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 95'
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 301'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 128-01
39TH AVENUE & WASHINGTON
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80	○○○○○○○○○○	GP	COARSE GRAVEL W/COBBLES	0	16:40
85	○○○○○○○○○○				20TH MAY 2004
90	○○○○○○○○○○	GP	GRAVEL W/COBBLES	0	08:22
95	○○○○○○○○○○				
100	○○○○○○○○○○	GW	FINE TO COARSE SANDY GRAVEL	0	09:15
105	○○○○○○○○○○				
110	○○○○○○○○○○	GW	FINE TO COARSE SANDY GRAVEL	0	10:19
115	○○○○○○○○○○				
120	○○○○○○○○○○	GW	COARSE SANDY GRAVEL W/COBBLES	0	10:40
125	○○○○○○○○○○				MUD PUMP DOWN
130	○○○○○○○○○○	GP	COARSE GRAVEL W/COBBLES	0	09:43
135	○○○○○○○○○○				
140	○○○○○○○○○○	GP	COARSE GRAVEL W/COBBLES	0	10:15
145	○○○○○○○○○○				
150	○○○○○○○○○○	GP	COARSE GRAVEL W/COBBLES	0	11:03

PROJ.#:03103154-11 DRILL DATE: 05-17/24-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 95'
 RIG TYPE: SPEEDSTAR DIAMETER: 9 7/8"
 DRILLER: WDC TOTAL DEPTH: 301'
 DRILLING METHOD: MUD ROTARY



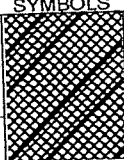
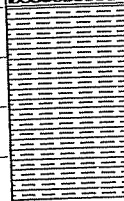
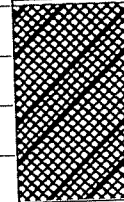

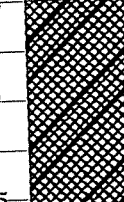
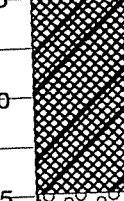
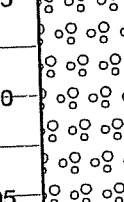
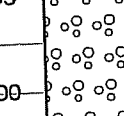
FIELD BOREHOLE LOG
AVB 128-01
39TH AVENUE & WASHINGTON
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155					
160		GC	CLAYEY COARSE GRAVEL W/COBBLES	0	11:14
165					
170		CL	GRAVELLY CLAY W/COBBLES	0	11:21
175					
180		CL	GRAVELLY CLAY	0	11:30
185					
190		CL	GRAVELLY CLAY	0	11:53
195					
200		GC	CLAYEY, COARSE SANDY GRAVEL	0	12:46
205					BREAK FOR WEEKEND
210		GC	CLAYEY GRAVEL	0	12:02 24TH MAY 2004
215					
220		GC	CLAYEY COARSE GRAVEL	0	12:19
225					

PROJ.#:03103154-11 | DRILL DATE: 05-07/24-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 95'
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 301'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 128-01
39TH AVENUE & WASHINGTON
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230		GC	CLAYEY COARSE GRAVEL	0	13:42
235		CL	GRAVELLY CLAY	0	14:00
240					
245					
250		GC	CLAYEY COARSE GRAVEL	0	14:18
255		CL	GRAVELLY CLAY	0	14:33
260					
265					
270		GC	CLAYEY FINE-COARSE GRAVEL	0	15:03
275					
280		GC	CLAYEY FINE GRAVEL	0	15:22
285		GP	FINE-COARSE WELL SORTED GRAVEL		16:33
290					
295		GP	FINE WELL SORTED GRAVEL		16:52
300					TD = 300'

PROJ.#:03103154-11 DRILL DATE: 05-07/24-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 95'
 RIG TYPE: SPEEDSTAR DIAMETER: 9 7/8"
 DRILLER: WDC TOTAL DEPTH: 301'
 DRILLING METHOD: MUD ROTARY



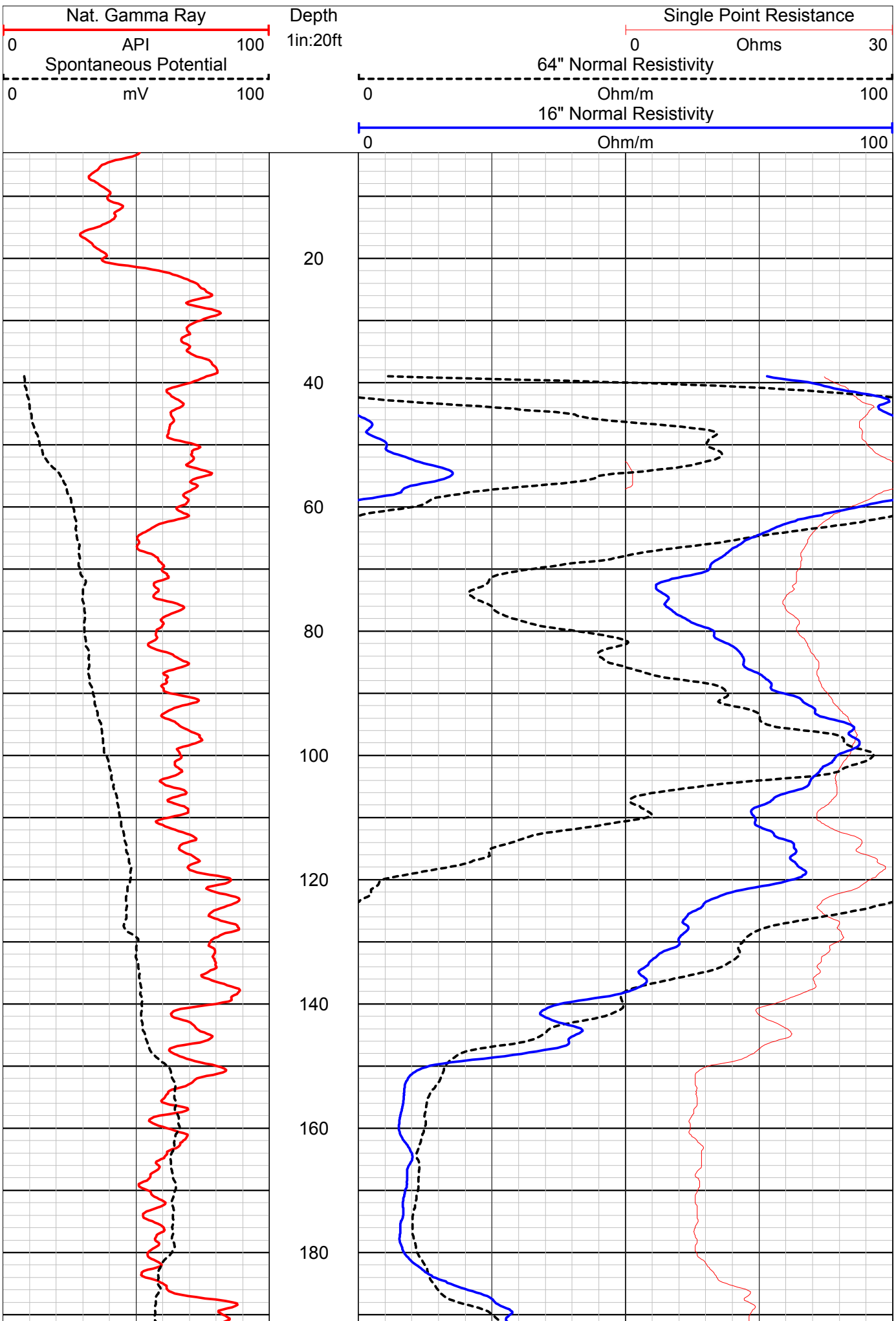
FIELD BOREHOLE LOG
AVB 128-01
39TH AVENUE & WASHINGTON
PHOENIX, ARIZONA

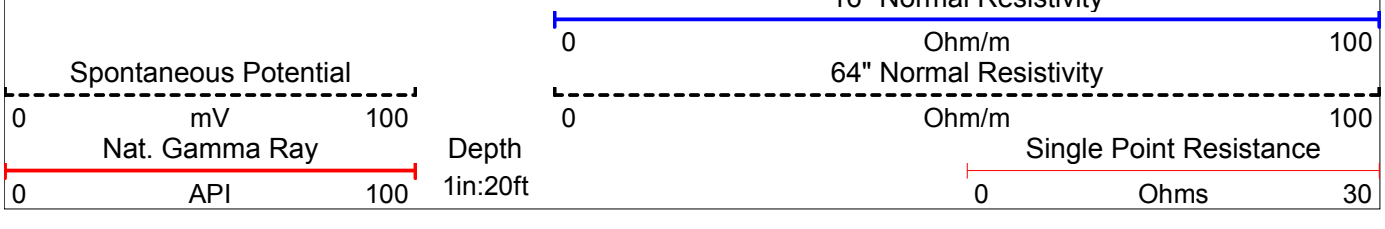
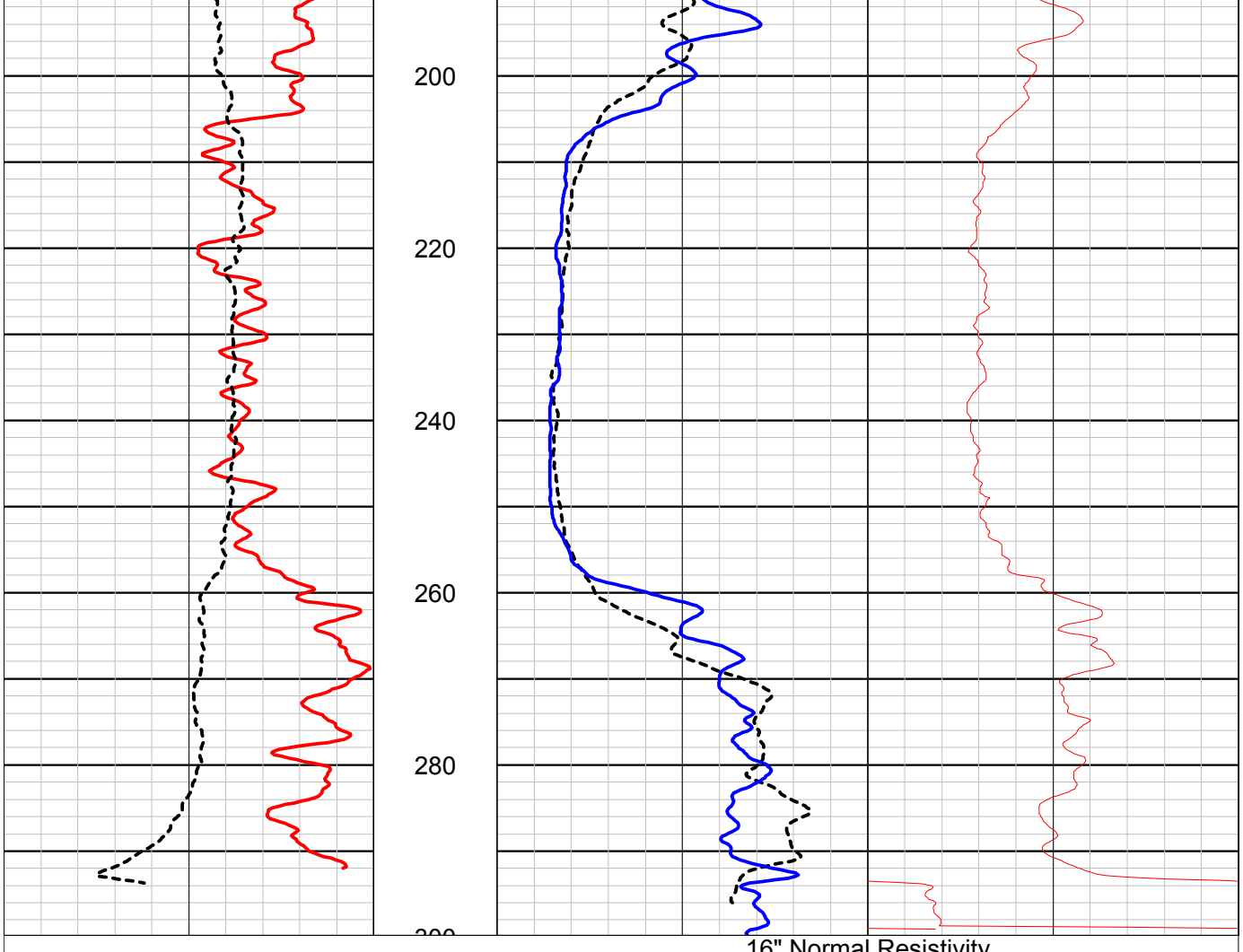


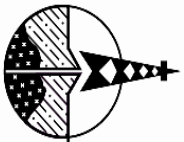
Southwest Exploration Services, LLC

borehole geophysics & video services

PERMANENT DATUM		SEC 10	TWP 1N	RGE 2E	ELEVATION	K.B.
LOG MEAS. FROM		TOP OF CASING		ABOVE PERM. DATUM		D.F.
DRILLING MEAS. FROM						G.L.
DATE	5-25-04			TYPE FLUID IN HOLE		FRESH MUD
RUN No	1			SALINITY		
TYPE LOG	ELOG-GAMMA			DENSITY		
DEPTH-DRILLER	300 FT			LEVEL		FULL
DEPTH-LOGGER	297 FT			MAX. REC. TEMP.		
BITM LOGGED INTERVAL	297 FT					
TOP LOGGED INTERVAL	SURFACE					
OPERATING RIG TIME						
RECORDED BY	A HEDRICK					
WITNESSED BY	WDC					
BOREHOLE RECORD		CASING RECORD				
NO.	BIT	FROM	TO	SIZE	WGT.	FROM
1	17.5"	SURFACE	20 FT	12"		SURFACE
2	9 7/8"	20 FT	TOTAL DEPTH			
3						



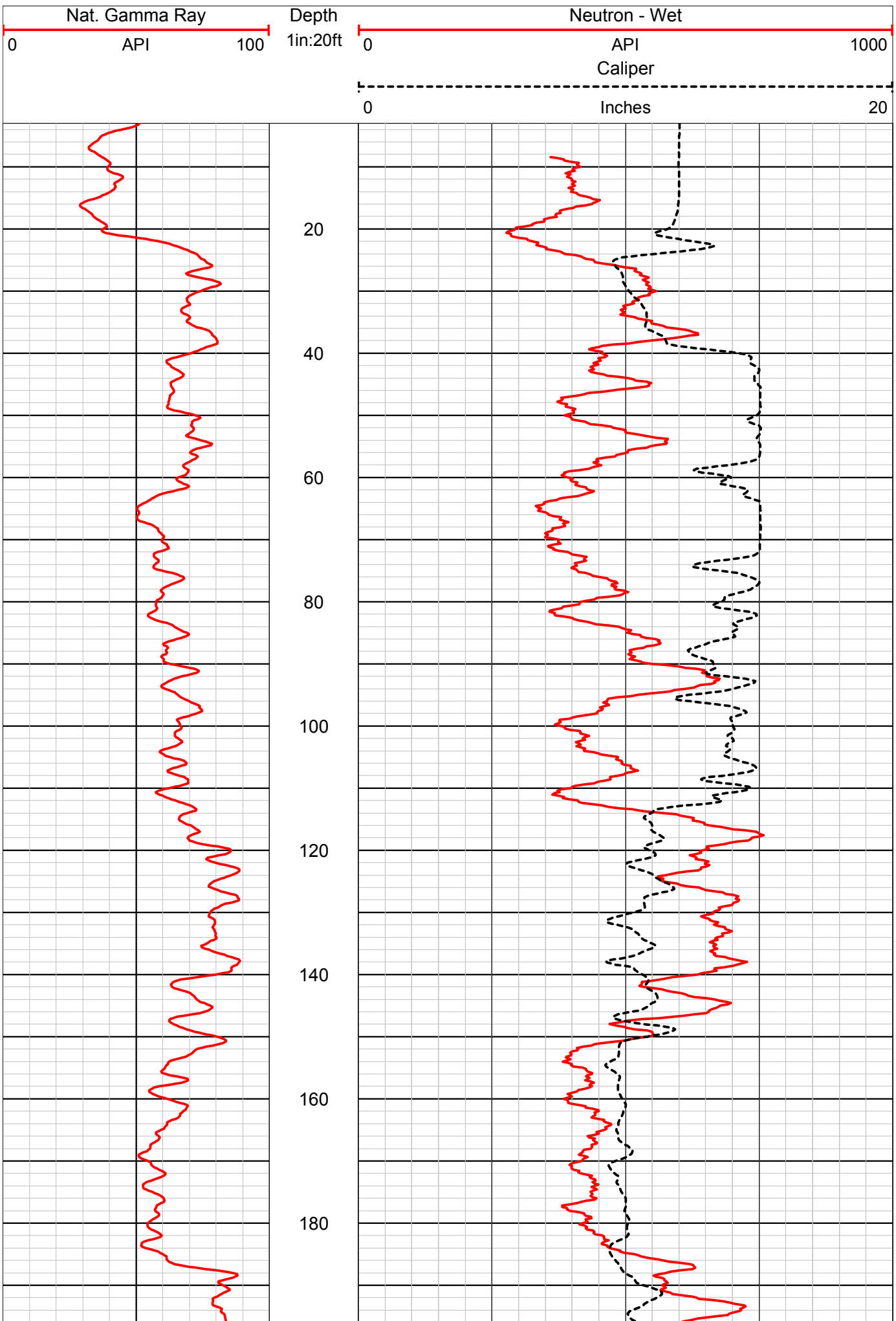


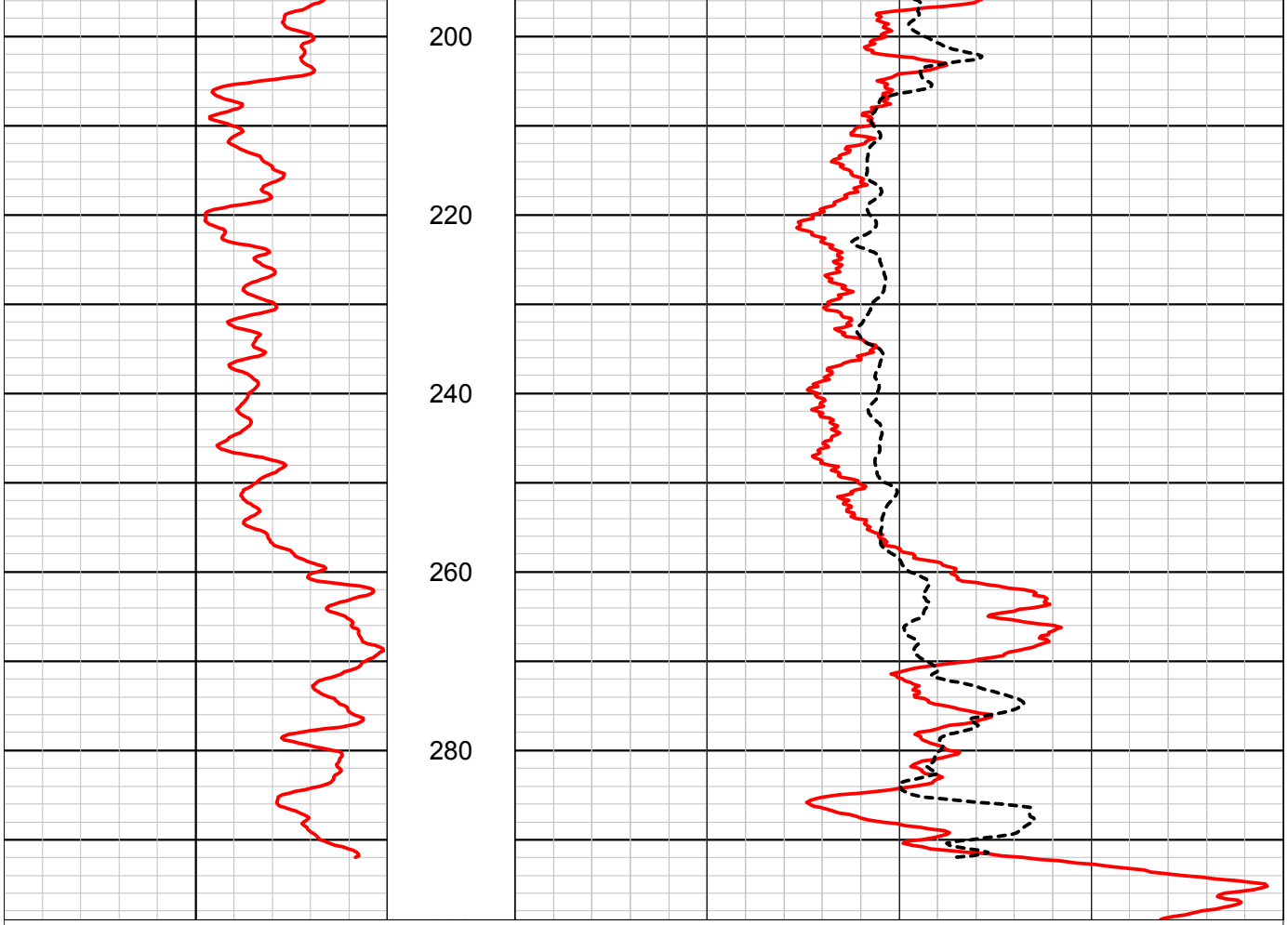


Southwest Exploration Services, LLC

borehole geophysics & video services

PERMANENT DATUM		ELEVATION		K.B.		
LOG MEAS. FROM	TOP OF CASING	ABOVE PERM. DATUM		D.F.		
DRILLING MEAS. FROM		TYPE FLUID IN HOLE		G.L.		
DATE	5-25-04	TYPE FLUID IN HOLE		FRESH MUD		
RUN No	1	SALINITY				
TYPE LOG	GAMMA-NEUT-CAL	DENSITY LEVEL		FULL		
DEPTH-DRILLER	300 FT	MAX. REC. TEMP.				
DEPTH-LOGGER	297 FT					
BTM LOGGED INTERVAL	297 FT					
TOP LOGGED INTERVAL	SURFACE					
OPERATING RIG TIME						
RECORDED BY	A HEDRICK					
WITNESSED BY	WDC					
BOREHOLE RECORD		CASING RECORD				
RUN NO.	BIT FROM	TO	SIZE	WGT.	FROM	TO
1	17.5" SURFACE	20 FT	12"		SURFACE	20 FT
2	9 7/8" 20 FT	TOTAL DEPTH				
3						





ROOSEVELT IRRIGATION DISTRICT

RedrillREPORT ON WELL 10E-4¹/₂EN (#95)

Work started - July 7, 1964
 Work Completed - December 29, 1964
 Total Depth - 1800 feet
 Depth of Casing - 1800 feet

4548

LOG OF WELL

0 - 12 Top soil
 12 - 114 sand and boulders
 114 - 253 Loose sand and gravel
 253 - 280 clay and gravel
 280 - 350 caliche, clay and gravel
 350 - 360 sand and gravel.
 360 - 385 sticky clay with hard streaks
 385 - 410 sandy clay, coarse gravel
 410 - 485 sticky clay, hard streaks
 485 - 760 sticky gray clay
 760 - 775 sand and gravel
 775 - 795 sticky clay
 795 - 807 sand and gravel
 807 - 915 sticky clay, sandy streaks
 915 - 1185 sand and gravel, some clay
 1185- 1240 tight gravel, some clay
 1240- 1530 granite, rock embedded in clay
 1530- 1800 conglomerate, or hill formation.

PERFORATION

24" - 180' to 815' 12 holes per 5 inches
 20" - 836' to 1470' 10 holes per 5 inches
 16" - 1497' to 1775' 8 holes per 4 inches
 Moss Hydraulic perforator used
 Diameter of Perforations 5/16"
 Length of Perforations 2 1/4"
 Depth at which water first found 135'
 Standing level before perforating 71'
 Standing level after perforating 89'

836' of 24" 6 & 8 ga. casing used and left in well
 678' of 20" 8 ga. casing used and left in well
 317' of 16" 8 ga. casing used and left in well

REMARKS

Drilled by Roscoe Moss Company
 Drillers - H.C. Cope, J.E. Garner, & M.G. Cope
 Cable Tool Rig No. 47

Cost \$65,273.88

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		ML	BROWN SANDY SILT, SLIGHTLY MOIST, SOFT, NO PLASTICITY	08:45A	12TH OCTOBER, 2005 START DRILLING
		CL	BROWN SILTY CLAY, SLIGHTLY MOIST, SOFT, SLIGHT PLASTICITY		
10		SM	LT BROWN, SILTY FINE SAND, SLIGHTLY MOIST, LOOSE		
		ML	LT BROWN, FINE SANDY SILT, SLIGHTLY MOIST, SOFT, NO PLASTICITY		
		SM	SILTY FINE-COARSE SAND W/ SOME FINE SUB ANGULAR-ANGULAR GRAVEL, GREY BROWN, DENSE, SLIGHTLY MOIST	09:00A	STOP DRILLING TO UNLOAD DRILL SUPPLIES
20		SW	FINE-COARSE SAND W/ SOME FINE-COARSE SUB ROUNDED-ROUNDED GRAVEL, RED BROWN, VERY DENSE, SLIGHTLY MOIST	01:20P	
			AS ABOVE		
30		ML	SILT W/ FINE-COARSE SAND & SOME FINE ANGULAR GRAVEL, HARD, SLIGHTLY MOIST, GREY BROWN		
		GW/GM	SANDY FINE-COARSE GRAVEL W/ SOME CLAY, SILT & COBBLES, VERY DENSE, GREY BROWN, MOIST		
		CL	FINE-COARSE GRAVELLY CLAY W/ FINE-COARSE SAND & SOME SILT, DARK BROWN, HARD, MOIST	03:05P	
		GW	FINE-COARSE SANDY FINE-COARSE SUB ROUNDED GRAVEL W/ SOME SILT & OCCASIONAL COBBLES, GREY BROWN, VERY DENSE, SLIGHTLY MOIST		
40		SW	FINE-COARSE SAND W/ SOME FINE-COARSE SUB ANGULAR-SUB ROUNDED GRAVEL, SILT & TR CLAY, GREY BROWN, VERY DENSE, SLIGHTLY MOIST	03:30P	
50		GW	FINE-COARSE SANDY FINE-COARSE ROUNDED-SUB ROUNDED GRAVEL W/ SOME SILT, GREY BROWN, VERY DENSE, SLIGHTLY MOIST	04:15P	
		SM	SILTY FINE-COARSE SAND W/ SOME FINE-COARSE GRAVEL & TR CLAY, VERY DENSE, DRY		
		GW	FINE-COARSE SANDY FINE-COARSE SUB ROUNDED GRAVEL W/ SOME SILT, GREY BROWN, VERY DENSE, MOIST		13TH OCTOBER, 2005

PROJECT #: 0310-3154 DRILL DATE: 10/12-21/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: CHUCK GORDON
 NOTES:
 DEPTH TO WATER: 114FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 300'
 DRILLING METHOD: ROTOSONIC



FIELD BOREHOLE LOG
AVB 132-02
55-208663
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		GW			
		CL	CLAY W/ TR SILT & FINE SAND, BROWN, HARD, MOIST, MODERATE PLASTICITY	07:20A	
70			AS ABOVE EXCEPT SOME SILT, LOW-MODERATE PLASTICITY		
			AS ABOVE EXCEPT SOME FINE SAND	07:55A	
		ML	SILT W/ SOME FINE SAND & CLAY, BROWN, HARD, SLIGHTLY MOIST, VERY LOW PLASTICITY		
80					
		SP	FINE-MEDIUM SAND W/ SOME SILT & TR CLAY, VERY DENSE, RED GREY, MOIST		
		SW	AS ABOVE W/ SOME FINE-COARSE SUB-ROUNDED-SUB-ANGULAR GRAVEL & OCCASIONAL COBBLES	09:00A	
		GW	FINE-COARSE SUB-ROUNDED-SUB-ANGULAR GRAVEL W/ SOME SAND & SILT & SOME COBBLES, GREY BROWN, VERY DENSE, MOIST		
90		SW	FINE-COARSE SAND W/ FINE-COARSE GRAVEL & SOME SILT, GREY BROWN, VERY DENSE, MOIST		
			GRADING TO GRAVELLY SAND		
		GW	FINE-COARSE ROUNDED-SUB-ROUNDED SANDY GRAVEL W/ SOME COBBLES & SILT, GREY BROWN, VERY DENSE, SLIGHTLY MOIST		
			AS ABOVE EXCEPT BROWN	09:30A	
100			AS ABOVE W/ SOME SAND		
				10:05A	
			AS ABOVE EXCEPT VARIABLE AMOUNTS OF SAND		
		SM	FINE-COARSE SAND W/ SILT, FINE-COARSE GRAVEL & TR CLAY, GREY BROWN, VERY DENSE, SLIGHTLY MOIST		
110		GW	FINE-COARSE SANDY FINE-COARSE GRAVEL W/ SILT & ROUNDED COBBLES, GREY BROWN, VERY DENSE, SLIGHTLY MOIST		
				11:50A	
			AS ABOVE W/ SOME COBBLES		GROUND WATER STABILIZED AT 114'
		ML	FINE-COARSE SANDY SILT W/ GRAVEL & ROUNDED COBBLES, GREY BROWN, VERY DENSE, SLIGHTLY MOIST		
		GW	SAND, GRAVEL & COBBLES W/ SOME SILT, BROWN, VERY DENSE, VERY MOIST		

PROJECT #: 0310-3154 DRILL DATE: 10/12-21/05
 LOGGED BY: AJG/BS
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 NOTES:
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FIELD BOREHOLE LOG
AVB 132-02
55-208663
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		GW/GM	AS ABOVE W/ SOME CLAY & SILT		
		SP	FINE-MEDIUM SAND W/ TR SILT, RED GREY, VERY DENSE, WET	12:35P	GROUNDWATER FIRST ENCOUNTERED
		SW	FINE-COARSE SAND W/ SOME SILT & FINE-COARSE ROUNDED GRAVEL, DK RED GREY, VERY DENSE, WET		
130		GW	FINE-COARSE GRAVEL W/ SAND & COBBLES, GREY BROWN, VERY DENSE, WET		
		SW	FINE-COARSE ROUNDED GRAVELLY FINE-COARSE SAND W/ SOME COBBLES & TRACE SILT, GREY BROWN, VERY DENSE, WET	01:25P	
		SC	AS ABOVE WITH CLAY & SOME SILT, BROWN, VERY DENSE, WET		
140		CL	SILTY CLAY W/ SOME FINE SAND, BROWN, HARD, WET		
		GC	SAND, GRAVEL & COBBLES WITH CLAY & SOME SILT, GREY BROWN, VERY DENSE, WET		
		GW	GRAVEL & COBBLES W/ SOME SAND & SILT	02:00P	
150		GC	SAND, GRAVEL & COBBLES W/ CLAY & SOME SILT		
		GW	GRAVEL & COBBLES W/ SAND & SOME SILT, LT BROWN SANDY LAYER		
160		GM	SAND, GRAVEL & COBBLES W/ SILT & SOME CLAY, GREY BROWN, VERY DENSE, WET		
		GW	AS ABOVE EXCEPT SOME SILT & CLAY		
		GM	SAND, GRAVEL & COBBLES W/ SILT & SOME CLAY, GREY BROWN, VERY DENSE, WET		
		SW	FINE-COARSE SAND W/ TR SILT & FINE GRAVEL, DK RED GREY, VERY DENSE, WET		
170		GW	SAND, GRAVEL & COBBLES W/ SILT & SOME CLAY, GREY BROWN, VERY DENSE, WET	07:50P	14TH OCTOBER, 2005
		CL	BROWN SANDY SILTY CLAY, HARD, WET		

PROJECT #: 0310-3154 DRILL DATE: 10/12-21/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: CHUCK GORDON
 NOTES:
 DEPTH TO WATER: 114FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 300'
 DRILLING METHOD: ROTOSONIC



FIELD BOREHOLE LOG
AVB 132-02
55-208663
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		CL		08:30A	14TH OCTOBER
		SP	WELL SORTED FINE SAND W/ SILT, BROWN, MEDIUM DENSE, WET		
		SC	CLAYEY FINE SAND, BROWN, MEDIUM DENSE, WET		
190		CL	FINE SANDY CLAY, LT BROWN, HARD, WET		
			DECREASING SAND		
		SC	CLAYEY MEDIUM SAND, BROWN-REDDISH BROWN, MEDIUM DENSE, WET		
			DECREASING CLAY		
200		SM	SILTY FINE SAND, TR CLAY, BROWN-REDDISH BROWN, MEDIUM DENSE, WET		
		CL	SILTY CLAY W/ TRACE SAND, BROWN, HARD, WET		
		CH	FINE SANDY CLAY, HIGH PLASTICITY, BROWN, HARD, WET		
210			DECREASING SAND		
		CL	SILTY CLAY, BROWN, HARD, WET		
		SM	CLAYEY SILTY FINE SAND W/ TRACE GRAVEL, BROWN, DENSE, WET		
220		SP	COARSE WELL SORTED SAND, BROWN, DENSE, WET	12:00P	
			INCREASING GRAVEL		
		GW	SANDY GRAVEL W/ TRACE CLAY, BROWN, DENSE, WET		
			INCREASING CLAY		
		CL	SILTY CLAY, BROWN, HARD, WET		
230		SC	CLAYEY MEDIUM SAND, BROWN, DENSE, WET		
		CL	SILTY CLAY W/ CLAYEY SAND LAYERS, BROWN, HARD, WET	02:00P	

PROJECT #: 0310-3154 DRILL DATE: 10/12-21/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: CHUCK GORDON
 NOTES:
 DEPTH TO WATER: 114FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 300'
 DRILLING METHOD: ROTOSONIC



FIELD BOREHOLE LOG
AVB 132-02
55-208663
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		SC	CLAYEY FINE SAND, BROWN, DENSE, WET		
		CL	SILTY CLAY, BROWN, HARD, WET		
250		ML	CLAYEY SILT W/TRACE SAND, BROWN, STIFF, WET		
				02:30P	STOP FOR WEEKEND
		CL	SILTY CLAY W/ TRACE SAND, BROWN, HARD, WET	08:00A	17TH OCTOBER
260			INCREASING SAND		
		ML	CLAYEY SILT, BROWN, HARD, WET		
		CH	HIGH PLASTICITY CLAY, BROWN, HARD, WET	09:10A	
		ML/CL	CLAYEY SILT / SILTY CLAY, BROWN, HARD, WET		
270		SP	WELL SORTED FINE-COARSE SAND W/TRACE CLAY, LOOSE, WET		
		ML	CLAYEY SILT, BROWN, HARD, WET		
		CL	SILTY CLAY, BROWN, HARD, WET		
		ML	CLAYEY SILT W/TRACE SAND, BROWN, STIFF, WET		
280		SM	SILTY FINE SAND W/ CLAY, BROWN, DENSE, WET		
		ML	CLAYEY SILT W/ TRACE SAND, BROWN, STIFF, WET		
		SM	SILTY FINE SAND, BROWN, LOOSE, WET		
					NO RECOVERY
290					NO RECOVERY
		CL	SILTY CLAY W/ SOME GRAVEL, BROWN, HARD, WET		
		ML	CLAYEY SANDY SILT, BROWN, MEDIUM DENSE, WET		
		SM	SILTY FINE-MEDIUM SAND, BROWN, DENSE, WET		
		ML	CLAYEY SILT, BROWN, HARD, WET	11:30A	TOTAL DEPTH 300'

PROJECT #: 0310-3154 DRILL DATE: 10/12-21/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: CHUCK GORDON
 NOTES:
 DEPTH TO WATER: 114FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 300'
 DRILLING METHOD: ROTOSONIC



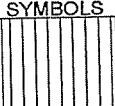
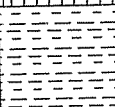
FIELD BOREHOLE LOG
AVB 132-02
55-208663
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5			ASPHALT OVER ROAD BASE		09:20 19TH APRIL 2004
10		SW	COARSE GRAVELLY SAND, DRY, LT. BROWN	0	09:25
15					
20		SW	COARSE GRAVELLY SAND, DRY, LT. BROWN	0	09:30 RIG DOWN FOR REPAIR 20TH APRIL 2004
25					
30		GW	COARSE SANDY GRAVEL W/COBBLES, DRY	0	11:18
35					
40		SW	COARSE GRAVELLY SAND, DRY, BROWN		11:25
45					
50		SW	COARSE GRAVELLY SAND, DRY, BROWN	0	11:45
55					
60		SC	CLAYEY GRAVELLY SAND, SLIGHTLY MOIST		11:50
65		GW	COARSE SANDY GRAVEL W/COBBLES, DRY	0	11:55
70		SM	SILTY SAND WITH TRACE CLAY, BRN., SLIGHTLY MOIST	0	12:10
75					

PROJ.#:03103154-11 | DRILL DATE: 04-19/21-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE: SPEEDSTAR | DIAMETER: 10"
 DRILLER: WDC | TOTAL DEPTH: 232'
 DRILLING METHOD: ARCH



FIELD BOREHOLE LOG
AVB 116-02
JACKSON & 21ST AVENUE
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
225		ML	FINE SANDY CLAYEY SILT, WET, LT. BROWN	0	11:32 21ST APRIL 2004
230		SC	CLAYEY SAND W/TRACE GRAVEL, LT. BROWN, WET TD = 232'	0	11:47
240					
245					
250					
255					
260					
265					
270					
275					
280					
285					
290					
295					
300					

PROJ.#:03103154-1 | DRILL DATE: 04-19/21-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE: SPEEDSTAR | DIAMETER: 10"
 DRILLER: WDC | TOTAL DEPTH: 232'
 DRILLING METHOD: ARCH



FIELD BOREHOLE LOG
AVB 116-02
JACKSON & 21ST AVENUE
PHOENIX, ARIZONA

Drilling Log

AVB 68-01 (MW-1)

Monitoring Well MAU Production Well



Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588
 Surface Elev. _____ Total Hole Depth 304 ft. Diameter 12 in.
 Top of Casing 1075.56 ft. Water Level Initial 55 ft. Static 80.6 ft.
 Screen: Dia 6 in. Length 50 ft. Type/Size 0.020 in.
 Casing: Dia 6 in. Length 250.5 ft. Type Low Carbon Steel
 Fill Material Colorado Sand 10/20 Rig/Core AP 1000
 Drill Co. Layne Environmental Method Air Hammer
 Driller D. Peterson Log By M. Nation Date 5/12/97 Permit # 55-562206
 Checked By _____ License No. AZ 21616

See Site Map For Boring Location
 COMMENTS:
 All USCS soil type boundaries are gradational. All percentages are approximate.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ x Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
0							0 - 20 Feet: Gravelly Clayey/Silty Sand Light tan, dry, moderately sorted, semi-hard. Sand is fine to coarse grained, subrounded. Gravel is fine, subrounded. No petroleum hydrocarbon odors. Sand 60%, clay/silt 20-30%, gravel 0-20%.
2							
4							
6							
8							
10						SW	
12							
14							Low gravel content below 14 feet
16							
18							
20							20 - 87 Feet: Sandy Gravel/Cobbles Tan, dry, poorly sorted, semi-hard to hard. Gravel are medium to coarse, rounded to subrounded. Cobbles 4 inches maximum size Sand is fine to coarse grained, subrounded to subangular. Gravel/cobbles 60-70%, sand 30-40%.
22						GW	
24							



Drilling Log

Monitoring Well MAU Production Well

Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%. Little 10% to 20%. Some 20% to 35%. And 35% to 50%
24							Sandy Gravel/Cobbles (continued)
26							
28							
30							30 - 67 Feet Bimodal sorted cobbles and sand. Cobbles greater than 6 inches in size. Trace of clay/silt ≤10% present.
32							
34							
36							
38							
40						GW	
42							
44							
46							
48							
50							
52							
54							
56							



Drilling Log

Monitoring Well MAU Production Well

Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56							Sandy Gravel/Cobbles (continued)
58							
60							
62						GW	
64							
66							
68							87 - 75 Feet: Gravelly Sandy Clay/Silt Light brown, damp to moist, well sorted, semi-hard. Sand is fine grained, subrounded. Gravel is fine to medium, subrounded. No odors detected Clay/silt 70-80% sand ≤20%, gravel ≤20%.
70						CL	
72							
74							
76							75 - 118 Feet: Clayey/Silty Sandy Gravel/Cobbles Light brown, moist to saturated, moderate to poorly sorted, hard. Gravel is medium to coarse, rounded to subangular Sand is fine to coarse grained Gravel/cobbles 40-50%, sand 30-40%, clay/silt ≤10-20%
78							
80							
82						GC	
84							
86							
88							



Drilling Log

Monitoring Well MAU Production Well

Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Block Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
88							Clayey/Silty Sandy Gravel/Cobbles (continued)
90							
92							
94							
96							
98							
100							
102							
104							
106							
108							
110							
112							
114							
116							
118							
120						GC	118 - 178 Feet: Sandy Gravel/Cobbles Saturated, poorly sorted, hard. Gravel is fine to coarse, rounded to angular. Most gravel is coarse. Cobbles are up to 9 inches maximum size. Sand is fine to coarse grained, subangular. Gravel/cobbles 60-80% sand 20% clay/silt <10%



Drilling Log

Monitoring Well MAU Production Well

Project ADEG/West Van Buren WGARF Owner ADEG
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PTD (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152			NR	ADEGWB -PHCI composite		GW	Sandy Gravel/Cobbles (continued)

AUB68-01

Drilling Log

Monitoring Well MAU Production Well



Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
152							Sandy Gravel/Cobbles (continued)	
154								
156								
158								
160								
162								
164								
166								
168								
170								
172								
174								
176							Cobble size decreases to 178	
178								
180								
182								
184								
178						SC		178 - 190 Feet: Gravelly Clayey/Silty Sand Light brown, saturated, well sorted, semi-hard to hard. Sand is medium to coarse grained, subrounded to subangular. Gravel is medium, rounded to subrounded, low percentage below 180'. Sand 78-80% clay/silt 20-30%, gravel ≤20-30%.
180								
182								
184								
186								

AVB68-01



Drilling Log

Monitoring Well MAU Production Well

Project ADEQ/West Van Buren HQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PTD (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
184							Gravelly Clayey/Silty Sand (continued)
186						SC	
188							
190							190 - 198 Feet: Sandy Gravel/Cobbles Tan gray, saturated, moderate to poorly sorted, well graded, semi-hard. Gravel is fine to coarse, rounded to subrounded. Sand is fine to coarse grained, mostly medium, subrounded to subangular. Gravel/cobbles 40-70%, sand 30-50% clay/silt ≤10%
192						SM	
194							
196							
198						SC	198 - 200 Feet: Clayey/Silty Sand Tan gray, saturated, well sorted, soft to semi-hard. Sand is fine to coarse grained, subrounded to subangular. Sand 80%, clay/silt ≤20%.
200							200 - 224 Feet: Sandy Gravel/Cobbles Gray/tan, saturated, poorly sorted, semi-hard to hard. Gravel is fine to coarse, rounded to subrounded. Sand is medium grained, subrounded. Gravel/cobbles 70-80%, sand 20-30%
202							
204							
206							
208						GW	
210							210 - 224 Feet: Gravel/cobbles 80%, sand ≤20%.
212							
214							
216							

ADEQWVB
-PWC2
Composite

AUB68-01



Drilling Log

Monitoring Well MAU Production Well

Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
216							Sandy Gravel/Cobbles (continued)
218							
220						GW	
222							
224	MAU					SC	224 - 227 Feet: Clayey/Silty Sand Tan/gray saturated, well sorted, semi-hard. Sand is fine to coarse grained subrounded to subangular. Sand 80%. clay/silt 20%
226							
228							227 - 240 Feet: Sandy Clay/Silt Light brown, moist to wet, well sorted, semi-hard. Sand is fine to medium grained, subrounded to subangular. Approximately 50% of fines are silt Clay/silt 60-70%. sand 30-40%
230							
232						ML	
234							
236							
238							
240							240 - 254 Feet: Clayey/Silty Sand Light brown/gray, damp, very well to well sorted, very hard, brittle. Sand is fine to medium grained, mostly medium gravel, subrounded to subangular. Sand is moderately indurated and laminae are present in some fragments. Sand 90%. clay/silt ≤10%.
242							
244						SC	
246							
248							

AUB68-01



Drilling Log

Monitoring Well MAU Production Well

Project ADEQ/West Van Buren WQARF Owner ADEQ
 Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ x Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%. Some 20% to 35%, And 35% to 50%
248							Clayey/Silty Sand (continued)
250						SC	
252							
254							254 - 304 Feet: Sandy Clay/Silt Light brown, moist, well sorted, semi-hard. Sand is fine grained Clay 50-60%, silt 20-30%, sand 10-20%.
256							
258							
260							
262							
264							
266						CL	
268							
270							270 - 290 Feet: Light brown, moist to wet, very well to well sorted hard. Sand is fine grained subrounded. Clay 40-50%, silt 30% sand 20-30%
272							
274							
276							
278							
280							

AUB 68-01



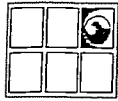
Drilling Log
Monitoring Well MAU Production Well

Project ADEQ/West Van Buren WQARF Owner ADEQ
Location 13th Avenue and Madison, Phoenix, Arizona Proj. No. 023300588

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ X Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
280							Sandy Clay/Silt (continued)
282							
284							
286							
288							
290							290 - 304 Feet: Brown tan damp to wet, very well to well sorted. hard. Sand is fine grained, subrounded to subangular Clay 40-60% silt 30% sand 20-40%.
292						CL	
294							
296							
298							
300							
302							
304							304 Feet: Total Depth of Drilling for MAU Production Well
306							
308							
310							
312							

ADEQWB
-P4C3
composite

AV B-77-02 TIN, R3E Sec 7



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well UAU-MW5-D

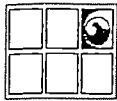
Project ADEQ/ALSCo Owner Arizona Dept of Environmental Quality
 Location 720 W. Buchanan St., Phoenix, AZ Proj. No. 103260
 Surface Elev. _____ Total Hole Depth 230 ft. Diameter 8 in.
 Top of Casing 1076.12 ft. Water Level Initial 73 ft. Static 75.26 ft.
 Screen: Dia 4 in. Length 20 ft. Type/Size SCH 80 PVC/0.020 in.
 Casing: Dia 4 in. Length 205 ft. Type SCH 80 PVC
 Fill Material Colorado 10/20 Sand Rig/Core RT - 1800
 Drill Co. THF Method ODEX Air Rotary
 Driller V. Christensen Log By M. Nation Date 04/13/98 Permit # 55-567445
 Checked By _____ License No. AZ21616

See Site Map
For Boring Location

COMMENTS:

All USCS soil type boundaries are gradational. All percentages are approximate.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2							
4		8					
6		5					
8						SP SM	
10		4					
12							
14							
16		4					
18							
20						SP	
22							
24							



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **UAU-MW5-D**

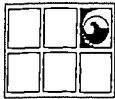
Project ADEQ/ALSCo

Owner Arizona Dept of Environmental Quality

Location T20 W. Buchanan St., Phoenix, AZ

Proj. No. 103260

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24		3				SP	25 – 30 Feet: Clayey Silty Sand Brown, damp, well to moderately well sorted, loose. Trace of gravel is fine to coarse, rounded to subangular. Sand is fine to medium grained, subangular to angular. Sand 80%, silt 10%, clay 10%.
26							
28							
30							
32							
34	3				SW	30 – 35 Feet: Cobbley Gravelly Sand Brown, damp, poorly sorted, loose. Cobble is rounded to subrounded. Gravel is fine to coarse, subrounded. Sand is fine to medium grained, subrounded to subangular. Sand 60%, gravel 30%, cobble 10%.	
36							
38							
40	9				SP	35 – 45 Feet: Silty Gravelly Sand Brown, dry to damp, poorly sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to medium grained, subangular to angular. Sand 50%, gravel 30%, silt 20%.	
42							
44							
46							
48							
50	9				SM	45 – 50 Feet: Gravelly Silty Sand Brownish red, moist, moderately well sorted, loose. Gravel is fine, subrounded to subangular. Sand is fine to coarse grained, subrounded to subangular. Sand 60%, silt 25%, gravel 15%.	
52							
54							
56	13				SC	50 – 80 Feet: Silty Sandy Clay Brown, moist to wet, well to moderately well sorted, loose. Sand is fine grained. Clay 45%, sand 35%, silt 20%.	



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **UAU-MW5-D**

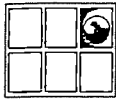
Project ADEQ/ALSCO

Owner Arizona Dept of Environmental Quality

Location 720 W. Buchanan St., Phoenix, AZ

Proj. No. 103260

Depth (ft.)	Well Completion	PI0 (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56						SC	Silty Sandy Clay (continued)
58							
60						GM	60 - 70 Feet: Gravelly Silty Sand Reddish brown, moist, moderately well to poorly sorted, loose. Gravel is coarse, rounded to subangular. Sand is fine to coarse grained, subrounded to angular. Sand 50%, silt 30%, gravel 20%.
62							
64							
66							
68						SP	70 - 75 Feet: Silty Gravelly Sand Light brown, dry to damp, poorly sorted, loose. Gravel is fine to coarse, rounded to subrounded. Sand is fine to medium grained, subrounded to angular. Sand 60%, gravel 30%, silt 10%.
70		2.6					
72						SM	75 - 80 Feet: Gravelly Silty Sand Reddish brown, moist, poorly sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to medium grained, subrounded to angular. Sand 50%, silt 30%, gravel 20%.
74							
76		7.1				SP	80 - 80 Feet: Silty Gravelly Sand Reddish brown, moist to wet, moderately well to poorly sorted. Gravel is fine to coarse, subrounded to angular. Sand is fine to medium grained, subrounded to angular. Sand 50-60%, gravel 30-40%, silt 10%.
78							
80		4.2					
82		2.7					
84						SP	
86		2.3					
88							



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **UAU-MW5-D**

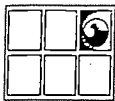
Project ADEQ/ALSCo

Owner Arizona Dept of Environmental Quality

Location 720 W. Buchanan St., Phoenix, AZ

Proj. No. 103260

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%				
88		2.0				SP	Silty Gravelly Sand (continued)				
90						SW	90 - 95 Feet: Gravelly Sand Brown, wet, well to moderately well sorted. Gravel is fine, rounded to subangular. Sand is fine to medium grained, subangular to angular. Sand 80%, gravel 10%, silt <10%.				
92						2.8	SP	95 - 100 Feet: Silty Gravelly Sand Brown, wet to saturated, poorly sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to coarse grained, rounded to angular. Sand 50%, gravel 30%, silt 20%.			
94							SW	100 - 110 Feet: Silty Gravelly Sand Brown, wet, moderately well sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to medium grained, subrounded to subangular. Sand 70%, gravel 20%, silt 10%.			
96							SP				
98						1.4	SW	110 - 115 Feet: Gravelly Silty Sand Reddish brown, loose to soft. Gravel is fine, subrounded to subangular. Sand is fine to medium grained, subangular to angular. Sand 70%, silt, 20%, gravel 10%.			
100							8		SP SM	115 - 120 Feet: Silty Gravelly Sand Brown, wet, moderately well to poorly sorted, loose to soft. Gravel is fine, rounded to subangular. Sand is fine to medium grained, subrounded to angular. Sand 60%, gravel 20%, silt 20%.	
102											2.7
104											
106											
108											
110											
112											
114											
116											
118											
120											



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **UAU-MW5-D**

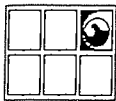
Project ADEQ/ALSCo

Owner Arizona Dept of Environmental Quality

Location 720 W. Buchanan St., Phoenix, AZ

Proj. No. 103260

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
120		1.3			SW	120 - 125 Feet: Silty Gravelly Sand Brown, wet, moderately well sorted, loose. Gravel is fine to coarse, subrounded to subangular. Sand is fine to coarse grained, subrounded to angular. Sand 60%, gravel 30%, silt 10%.	
122							
124		1.0			SW SM	125 - 130 Feet: Silty Gravelly Sand Brown, wet, moderately well sorted, loose to soft. Gravel is fine to coarse, subrounded to subangular. Sand is fine to coarse grained, subangular to angular. Sand 50%, gravel 30%, silt 20%.	
126							
128		1			SM	130 - 135 Feet: Silty Gravelly Sand Brown, wet to saturated, moderately well sorted, loose to soft. Gravel is fine to coarse, subrounded to subangular. Sand is fine to coarse grained, subrounded to angular. Sand 50%, gravel 40%, silt 10%.	
132							
134							
136	1.2		SM	135 - 140 Feet: Silty Gravelly Sand Brown, wet to saturated, moderately well sorted, loose. Gravel is fine, subrounded to subangular. Sand is fine to coarse grained, subrounded to angular. Sand 50%, gravel 30%, silt 20%.			
138							
140	1.3		SM	140 - 150 Feet: Gravelly Silty Sand Brown, wet, well to moderately well sorted, loose. Gravel is fine, subrounded to subangular. Sand is fine to medium grained, subrounded to angular. Sand 65%, silt 25%, gravel <10%.			
142							
144							
146	1.1		SM				
148							
150	1.2		SW SM	150 - 155 Feet: Silty Gravelly Sand Brown, moderately well to poorly sorted, loose. Gravel is fine to coarse, subrounded to angular. Sand is fine to coarse grained, subrounded to angular. Sand 65%, gravel 20%, silt 15%.			
152							



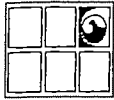
GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well UAU-MW5-D

Project ADEQ/ALSCo Owner Arizona Dept of Environmental Quality
 Location 720 W. Buchanan St., Phoenix, AZ Proj. No. 103260

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
152							
154						SM	
156		1.1				SW	155 – 180 Feet: Silty Gravelly Sand Brown, saturated, poorly sorted, loose. Gravel is fine to coarse, rounded to angular. Sand is fine to coarse grained, rounded to angular. Sand 60%, gravel 30%, silt 10%.
158							
160		1.7					
162						SM	180 – 185 Feet: Silty Sand Brown, saturated, well to moderately well sorted, loose. Sand is fine to medium grained, subangular to angular. Sand 75%, silt 20%, gravel 5%.
164							
166		1.1					
168							185 – 180 Feet: Gravelly Sand Brown, saturated, well to moderately well sorted, loose. Gravel is fine to coarse, rounded to angular. Sand is fine to coarse grained, subrounded to angular. Sand 70-75%, gravel 20%, silt 5-10%.
170		1.5					
172						SW	
174							
176		1.0					
178							
180		1.1					
182						SM SP	180 – 185 Feet: Gravelly Silty Sand Brown, saturated, moderately well to poorly sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to coarse grained, subrounded to angular. Sand 60%, silt 20%, gravel 20%.
184							



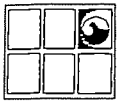
GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **UAU-MW5-D**

Project ADEQ/ALSCo Owner Arizona Dept of Environmental Quality
 Location 720 W. Buchanan St., Phoenix, AZ Proj. No. 103260

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
184						SM SP	
186		1.7				SW	185 - 190 Feet: Silty Gravelly Sand Brown, saturated, moderately well to poorly sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to coarse grained, subrounded to angular. Sand 70%, gravel 20%, silt 10%.
188							
190		1.2				SM	190 - 195 Feet: Silty Sand Tannish brown, saturated, well to moderately well sorted, loose. Gravel is fine, rounded to subangular. Sand is fine to medium grained, subangular to angular. Sand 50%, silt 40%, gravel 5%, clay ≤5%.
192							
194							
196		1.4					195 - 210 Feet: Silty Gravelly Sand Brown, saturated, poorly sorted, loose. Gravel is fine to coarse, rounded to subangular. Sand is fine to coarse grained, subangular to angular. Sand 60%, gravel 30%, silt 10%.
198							
200		1.5					
202							
204						SW	
206							
208							
210							210 - 224 Feet: Gravelly Sand Light tan, saturated, moderately well sorted, semi-hard to hard. Gravel is fine to medium, subrounded to subangular. Sand is fine to coarse grained, subrounded to subangular. Sand 60-70%, gravel 20-30%, clay-silt ≤10%.
212							
214							
216							



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **UAU-MW5-D**

Project ADEQ/ALSCo

Owner Arizona Dept of Environmental Quality

Location 720 W. Buchanan St., Phoenix, AZ

Proj. No. 103260

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
216						SW	Gravelly Sand (continued)
218							
220							
222							
224							
226						SC	224 - 229 Feet: Silty Clayey Sand Light tan, moist, very well sorted, semi-hard to hard. Sand is fine to medium grained, subrounded to subangular. Water sealing off in hole below 224 feet. Thin layer of coarse, dry sand with low percentage of silt or clay from 225 to 226 feet. Sand 50%, clay 25-45%, silt 15-25%.
228							
230						SP	229 - 230 Feet: Gravelly Sand Light tan, moist to wet, well sorted, semi-hard. Gravel is fine, subrounded. Combined clay and silt are 10%. Sand is medium to coarse grained, subangular. Sand flowing into hole during drilling and after completed at 230 feet. Sand 80%, gravel 10%, clay-silt 10%.
232							230 Feet: Total depth of well UAU-MW5-D
234							
236							
238							
240							
242							
244							
246							
248							



Boring Log

Soil Boring **OU3-11C**

Page: 1 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA
 Location Phoenix, Arizona Proj. No. 784820
 Surface Elev. 1078.5 ft. Total Hole Depth 230.0 ft. North _____ East _____
 Top of Casing NA Water Level Initial ▽ 88.0 ft. Static ▽ 86.5 ft. Diameter 8 in.
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Bentonite Grout Backfill Rig/Core #1521/ 6-inch core barrel
 Drill Co. Boart Longyear Method Roto-sonic
 Driller Ron Cain Log By Ryan Pollyea Date 3/17/03 Permit # NA
 Checked By Don Bransford License No. _____

COMMENTS
 Sample recovery = 100% unless otherwise specified on boring log.
 Basin Fill encountered at 217 feet bgs.
 OU3-11 Well Screen Intervals
 OU3-11S: 70 - 120 feet bgs.
 OU3-11M: 154 - 174 feet bgs.
 OU3-11M2: 197 - 217 feet bgs.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
0						Asphalt Surface	1078.5
0						12-inches asphalt.	1078
2						Engineered fill: Silty clay. Appears to be lime-treated between 1 and 10 feet.	1076
4							1074
6							1072
8							1070
10	0						1068
12							1066
14							1064
16						Well-graded GRAVEL with silt and sand; multi-color, brown, black, white and red; dry; 55% coarse gravel, maximum grain size to 3-inches diameter, rounded, granitic; 35% fine to coarse sand, rounded, arkosic; 10% fines, brown (7.5yr 4/4). Gravel includes cobbles to 4-inches maximum diameter between 16 and 45 feet.	1062
18							1060
20							1058
22							1056
24							1054
26	0						1052
28							1050
30							

DRILLING LOG Rev: 4/19/03 MOTOROLA PH2 LOGS.GPJ SHAW.IT.GDT 3/17/03

Continued Next Page



Boring Log

Soil Boring **OU3-11C**

Page: 2 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA

Location Phoenix, Arizona Proj. No. 784820

Depth (ft.)	PID (ppm)	Sample ID, % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
30						<i>Continued</i>	1048
32							1046
34							1044
36	0						1042
38							1040
40					GW GM		1038
42							1036
44	0						1034
46						Gravel includes cobbles to 6-inches maximum diameter between 45 and 50 feet.	1032
48							1030
50						SILT; dark yellowish brown (10yr 4/6); moist; no dilatancy; no plasticity; dry.	1028
52					ML		1026
54							1024
56	2.3						1022
58					GC	Clayey GRAVEL with sand; multi-color, brown, black, white and red; well-graded; dry; 50% fine to coarse gravel, maximum grain size to 3-inches diameter, rounded, granitic; 35% fines, brown (7.5yr 5/3); 15% fine to coarse sand, rounded, arkosic.	1020
60							1018
62						Well-graded GRAVEL with clay and sand; multi-color, brown, black and white; 55% fine to coarse gravel, maximum grain size to 3-inches diameter, granitic; 35% fine to coarse sand, rounded, arkosic; 10% fines, brown (5yr 5/3).	1016
64	0				GW GC		1014
66							1012
68							1010
70							

DRILLING LOG Rev: 4/9/03 MOTOROLA PH2 LOGS.GPJ SHAW/IT.GDT 9/17/03.

Continued Next Page



Boring Log

Soil Boring **OU3-11C**
Page: 3 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA
Location Phoenix, Arizona Proj. No. 784820

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
70						Continued Gravel is angular between 70 and 75 feet.	1008
72							1006
74							1004
76							1002
78							1000
80	2.7						998
82							996
84							994
86							992
88							990
90						GW GC	988
92						986	
94						984	
96	0					982	
98						980	
100						978	
102						976	
104						974	
106	0					972	
108						970	
110							

DRILLING LOG Rev. 4/9/03 MOTOROLA PH2 LOGS.GPJ SHAW.IT.GDT 9/17/03

Continued Next Page



Boring Log

Soil Boring **OU3-11C**
Page: 4 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA
Location Phoenix, Arizona Proj. No. 784820

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
110					GW GC	<i>Continued</i>	968
112					GC	Clayey GRAVEL with sand; wet; 50% fine to coarse gravel; 35% fines, brown; 15% fine to coarse sand.	966
114					GW	Well-graded GRAVEL with sand; wet; 65% fine to coarse gravel; 35% fine to coarse sand.	964
116						Clayey GRAVEL with sand; multi-color, brown, black, white, red; well-graded; wet; 50% fine to coarse gravel, maximum grain size to 3-inches diameter, rounded, granitic; 35% medium to coarse sand, rounded, arkosic; 15% fines, brown (7.5yr 4/2).	962
118							960
120							958
122	0						956
124					GC		954
126							952
128							950
130	22						948
132					SW SM	Well-graded SAND with silt; multi-color, brown, black, white, red; wet; 80% medium to coarse sand, rounded, arkosic; 10% fine to coarse gravel, maximum grain size to 2-inches diameter; rounded, granitic; 10% fines, brown.	946
134							944
136							942
138						Clayey GRAVEL with sand; multi-color, brown and white; wet; 50% fine to coarse gravel, maximum grain size to 3-inches diameter, rounded, granitic; 35% fine to coarse sand, rounded to subangular, arkosic; 15% fines, brown (7.4yr 4/2).	940
140							938
142	0						936
144					GC		934
146							932
148						67% core recovery between 147 and 153 feet.	930
150							

DRILLING LOG Rev: 4/9/03 MOTOROLA PH2 LOGS.GPJ SHAW.IT.GDT 9/17/03

Continued Next Page



Boring Log

Soil Boring **OU3-11C**
Page: 5 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA
Location Phoenix, Arizona Proj. No. 784820

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
150						<i>Continued</i>	928
152							926
154							924
156	7.7						922
158							920
160					GC		918
162							916
164	10.1						914
166							912
168							910
170	0						908
172					GP	Poorly graded GRAVEL; black; wet; 95% fine gravel; subangular; granitic; 5% fines.	906
174							904
176						Clayey GRAVEL with sand; black and white, wet; well-graded; 50% fine to coarse gravel, maximum grain size to 3-inches diameter, rounded, granitic; 35% fine to medium sand, rounded, arkosic; 15% fines, brown (7.5yr 5/3).	902
178							900
180	0						898
182					GC		896
184							894
186							892
188							890
190							

DRILLING LOG Rev: 4/9/03 MOTOROLA PH2 LOGS.GPJ SHAW IT.GDT 9/17/03

Continued Next Page



Boring Log

Soil Boring **OU3-11C**
Page: 6 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA
Location Phoenix, Arizona Proj. No. 784820

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
190	0				GC	<i>Continued</i>	888
192			886				
194			884				
196			882				
198			880				
200	0				SM	Silty SAND; multi-color, brown, black, white, red; wet; 65% medium sand, rounded, arkosic; 35% fines, brown (7.5yr 5/3).	878
202			876				
204					ML	Sandy SILT; white and brown; wet; rapid dilatancy; 65% silt, brown (7.5yr 5/3); 35% fine sand, rounded, quartz.	874
206	0		872				
208			870				
210					SM	Silty SAND; wet; medium to coarse sand, rounded, arkosic.	868
212	0		866				
214					CL	Lean CLAY; moist; slow dilatancy; low toughness; no reaction with HCl; medium plasticity; 100% fines. BASIN FILL CONTACT	864
216			862				
218			860				
220			858				
222	0		856				
224				854			
226				852			
228				850			
230							

DRILLING LOG Rev: 4/9/03 MOTOROLA PH2 LOGS.GPJ SHAW.IT.GDT 9/17/03

Continued Next Page



Boring Log

Soil Boring **OU3-11C**

Page: 7 of 7

Project Motorola 52nd Street Superfund Site - OU3 Owner USEPA

Location Phoenix, Arizona Proj. No. 784820

Depth (ft.)	PIID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.	Elevation (ft.)
230						<i>Continued</i>	848
						TOTAL DEPTH = 230 feet bgs.	
232							846
234							844
236							842
238							840
240							838
242							836
244							834
246							832
248							830
250							828
252							826
254							824
256							822
258							820
260							818
262							816
264							814
266							812
268							810
270							

DRILLING LOG Rev: 4/9/03 MOTOROLA PH2 LOGS.GPJ SHAW.IT.GDT 9/17/03

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5			ASPHALT OVER ROAD BASE	0	14:00 3RD MAY 04
10		SW	COARSE GRAVELLY SAND, DRY, LT. BROWN	0	14:10
15					
20		SM	SILTY SAND W/TRACE CLAY, LT. BROWN, SL. MOIST	0	AUGER DRILLED TO 20', SURFACE CASING INSTALLED 4TH MAY 04
25					
30		SM	SILTY COARSE SAND, BROWN	0	09:00
35					
40		SM	SILTY COARSE SAND, BROWN	0	09:07
45					
50		SW	GRAVELLY COARSE SAND, BROWN	0	09:20
55					
60		SW	GRAVELLY COARSE SAND	0	09:28
65					
70		SW	GRAVELLY COARSE SAND	0	09:39
75					

PROJ.#:03103154-11 | DRILL DATE: 05-03/04-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 320'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 129-02
ROOSEVELT & 79TH AVENUE
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80		CL	FINE GRAVELLY CLAY	0	09:45
85					
90		CL	FINE GRAVELLY CLAY, BROWN	0	09:50
95					
100		CL	FINE GRAVELLY CLAY, BROWN	0	09:58
105					
110		CL	FINE GRAVELLY CLAY, BROWN	0	10:06
115					
120		CL	BROWN CLAY	0	10:10
125					
130		CL	BROWN CLAY	0	10:18
135					
140		CL	GRAVELLY CLAY	0	10:25
145					
150		CL	GRAVELLY CLAY	0	10:32

PROJ.#:03103154-11 | DRILL DATE: 05-03/04-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 320'
 DRILLING METHOD: MUD ROTARY



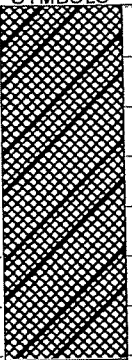
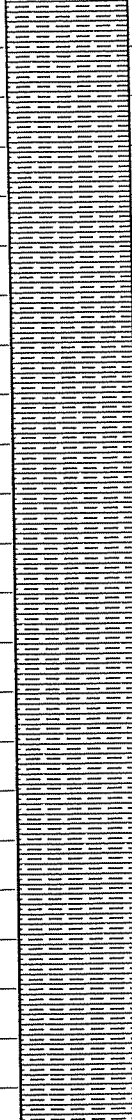
FIELD BOREHOLE LOG
AVB 129-02
ROOSEVELT & 79TH AVENUE
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155					
160		CL	GRAVELLY CLAY, BROWN	0	10:40
165					
170		GC	CLAYEY FINE TO COARSE GRAVEL	0	10:50
175					
180		GW	COARSE SANDY GRAVEL		10:58
185					
190		GC	CLAYEY GRAVEL	0	11:10
195					
200		GC	CLAYEY GRAVEL	0	11:20
205					
210		GC	CLAYEY GRAVEL	0	11:40
215					
220		GC	CLAYEY GRAVEL	0	11:48
225					

PROJ.#:03103154-1 | DRILL DATE: 05-03/04-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 320'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 129-02
ROOSEVELT & 79TH AVENUE
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230		GC	CLAYEY GRAVEL	0	11:59
235					
240		GC	CLAYEY GRAVEL	0	12:08
245					
250		CL	BROWN GRAVELLY CLAY	0	13:30
255					
260		CL	BROWN GRAVELLY CLAY	0	13:37
265					
270		CL	BROWN GRAVELLY CLAY	0	13:48
275					
280		CL	SILTY SANDY CLAY, TAN/LT. BROWN	0	13:56
285					
290		CL	SILTY SANDY CLAY, LT. BROWN/TAN	0	14:09
295					
300	CL	SILTY SANDY CLAY, LT. BROWN, TAN	0	14:14	

PROJ.#:03103154-11 | DRILL DATE: 05-03/04-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 320'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 129-02
ROOSEVELT & 79TH AVENUE
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
310	[Hatched Pattern]	CL	LT. BROWN/TAN CLAY		14:24
315					
320	[Blank]	CL	FINE GRAVELLY CLAY, LT. BROWN/TAN TD = 320'		14:41
325					
330					
335					
340					
345					
350					
355					
360					
365					
370					
375					
380					

PROJ.#: 03103154-11 | DRILL DATE: 05-03/04-04
 LOGGED BY: CHARMAN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER:
 RIG TYPE: SPEEDSTAR | DIAMETER: 9 7/8"
 DRILLER: WDC | TOTAL DEPTH: 320'
 DRILLING METHOD: MUD ROTARY



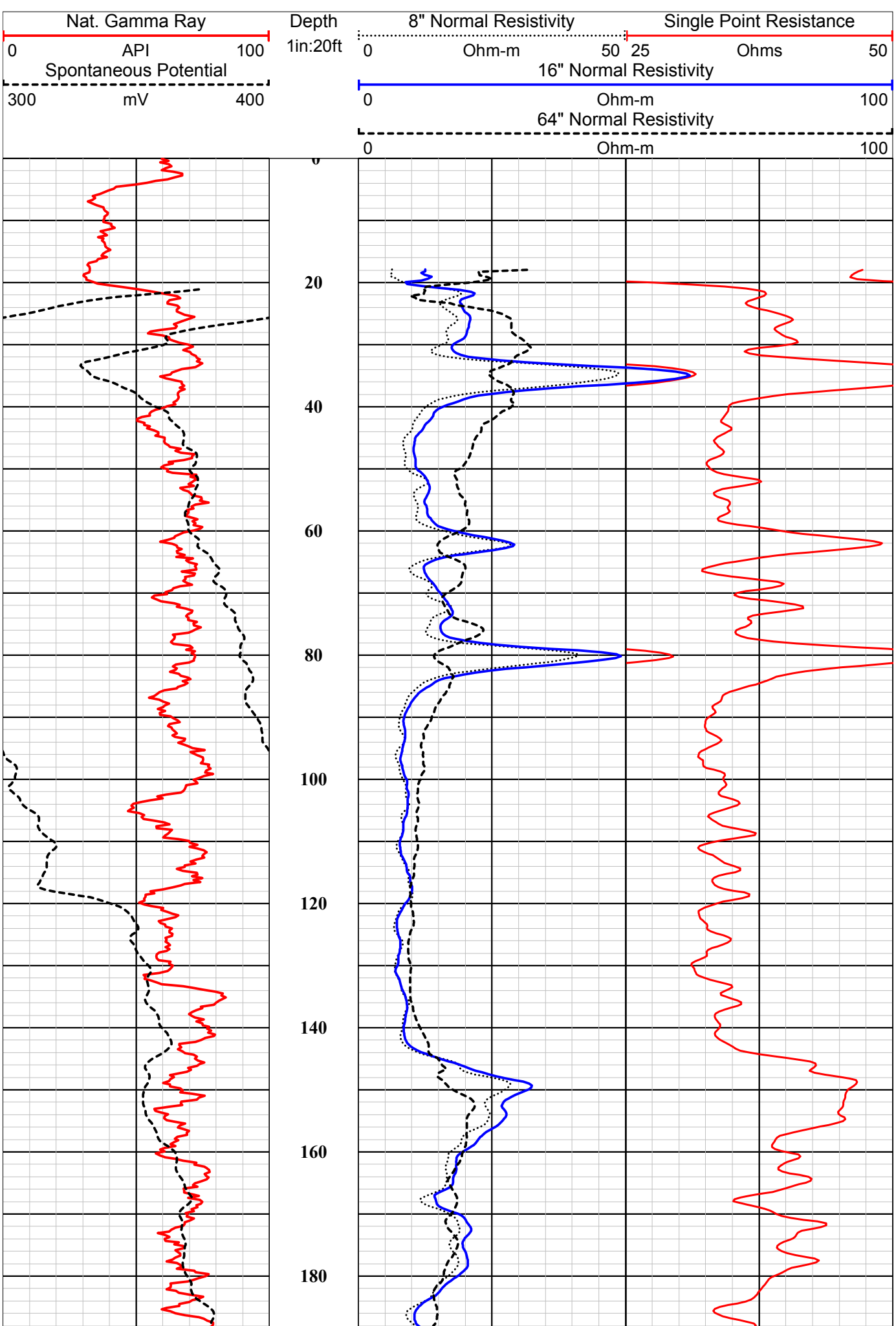
FIELD BOREHOLE LOG
AVB 129-02
ROOSEVELT & 79TH AVENUE
PHOENIX, ARIZONA

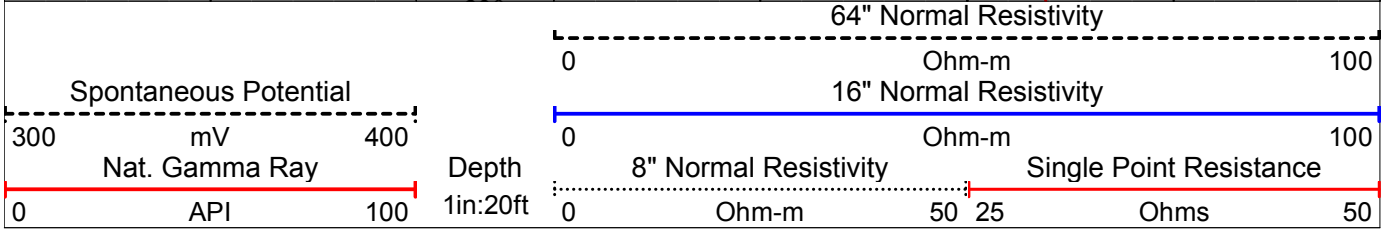
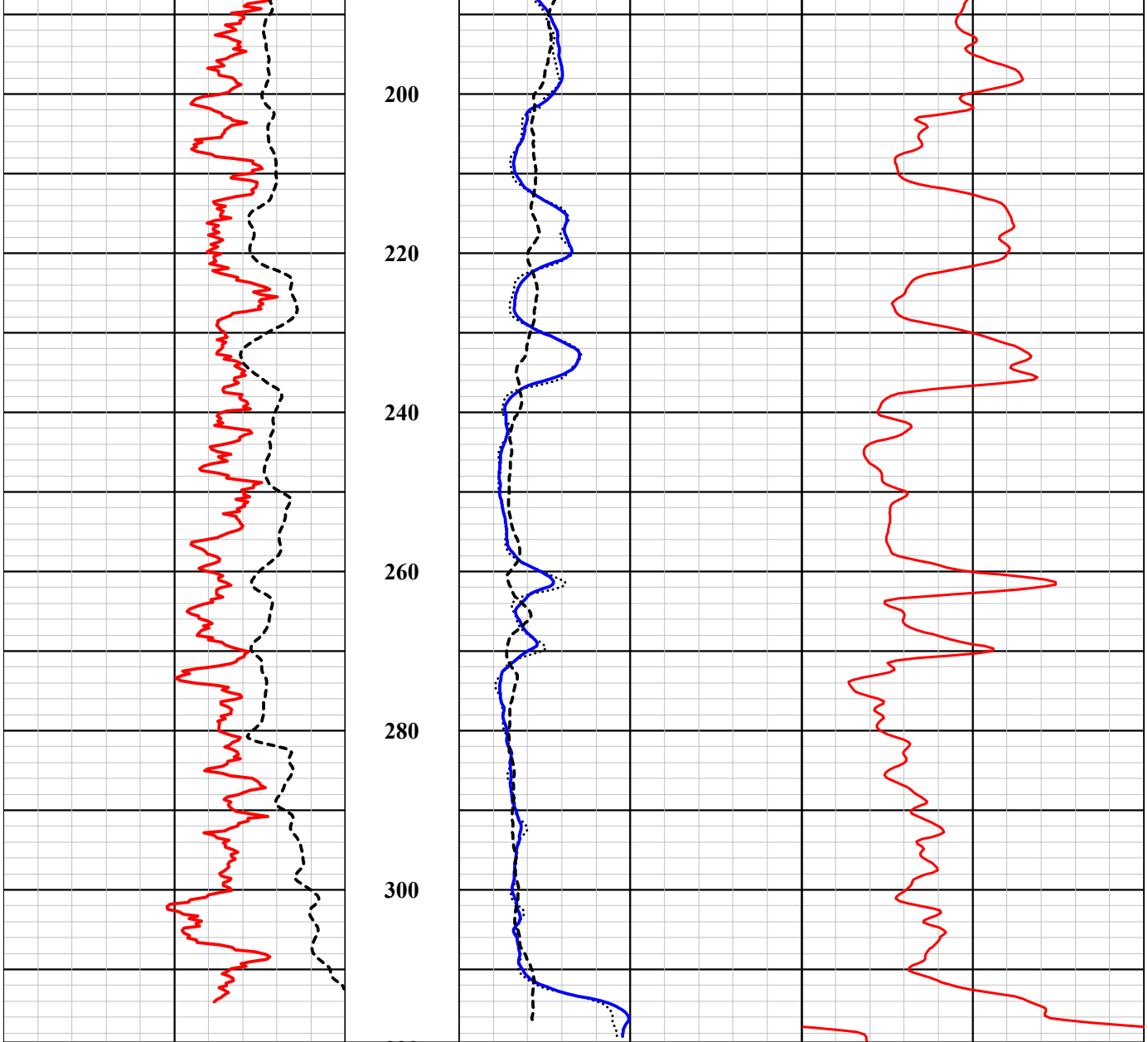


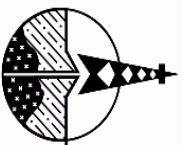
Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY TERRANEXT WELL ID AVB129-02 FIELD PHOENIX COUNTY MARICOPA STATE ARIZONA		TYPE OF LOGS: E-LOGS - GAMMA MORE: LOCATION ADWR- 55-202282		SEC 2 TWP 1N RGE 1E ELEVATION ABOVE PERM. DATUM		OTHER SERVICES NEUTRON CALIPER	
PERMANENT DATUM LOG MEAS. FROM GROUND LEVEL DRILLING MEAS. FROM		ELEVATION ABOVE PERM. DATUM		K.B. D.F. G.L.		FRESH MUD	
DATE	5-5-04	TYPE FLUID IN HOLE					
RUN No	1	SALINITY					
TYPE LOG	E-LOGS -GAMMA	DENSITY LEVEL					
DEPTH-DRILLER	320 FT	PULL					
DEPTH-LOGGER	319 FT	MAX. REC. TEMP.					
BITM LOGGED INTERVAL	319 FT						
TOP LOGGED INTERVAL	SURFACE						
OPERATING RIG TIME							
RECORDED BY	K. MITCHELL						
WITNESSED BY	TERRANEXT						
BOREHOLE RECORD		CASING RECORD					
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	12"	SURFACE	20 FT	12"		SURFACE	20 FT
2	9 7/8"	20 FT	TOTAL DEPTH				
3							



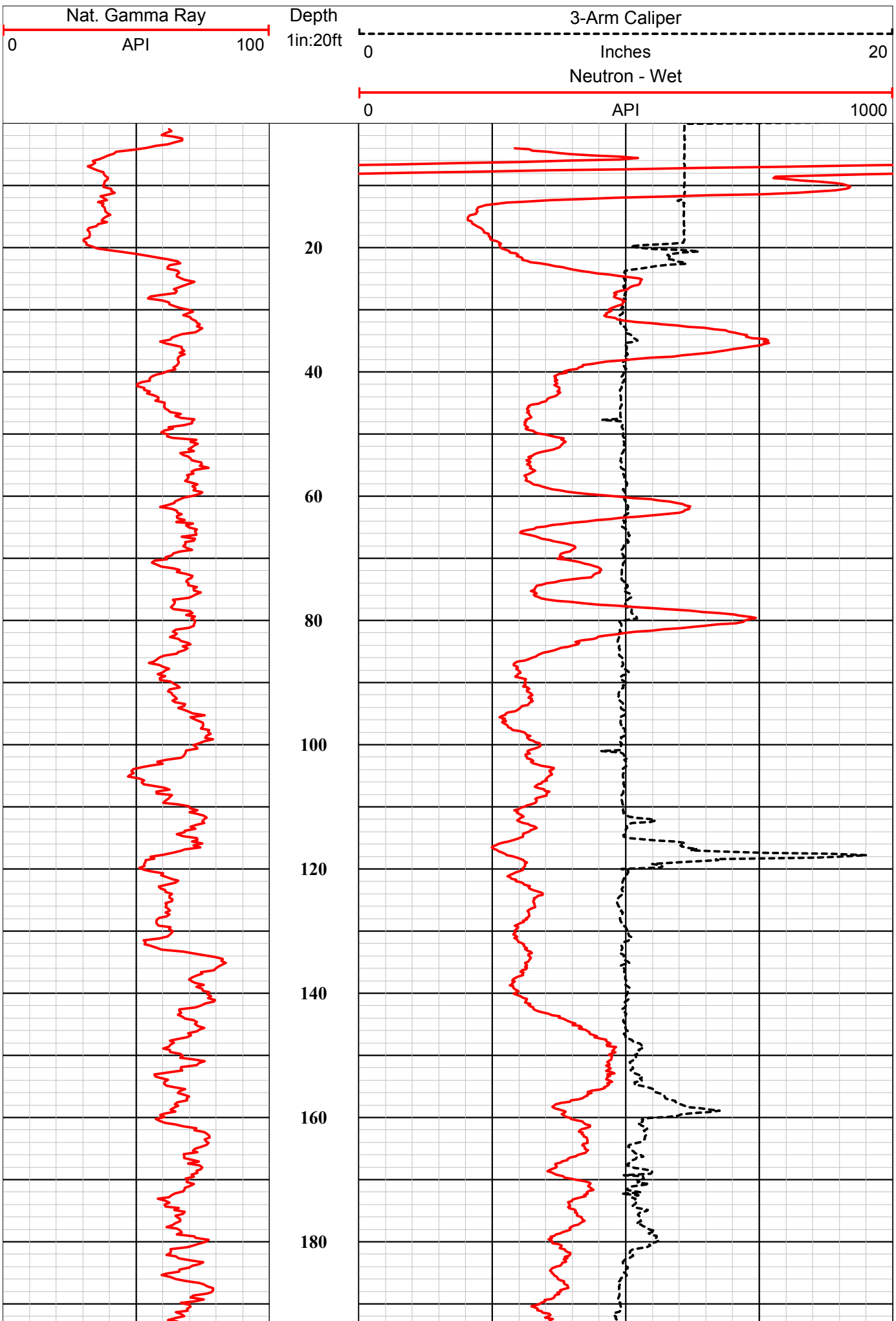


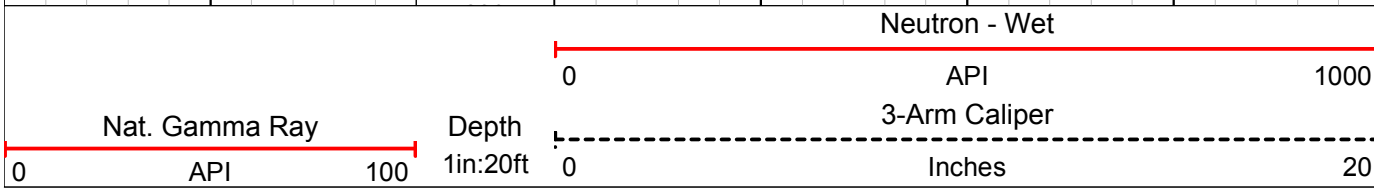
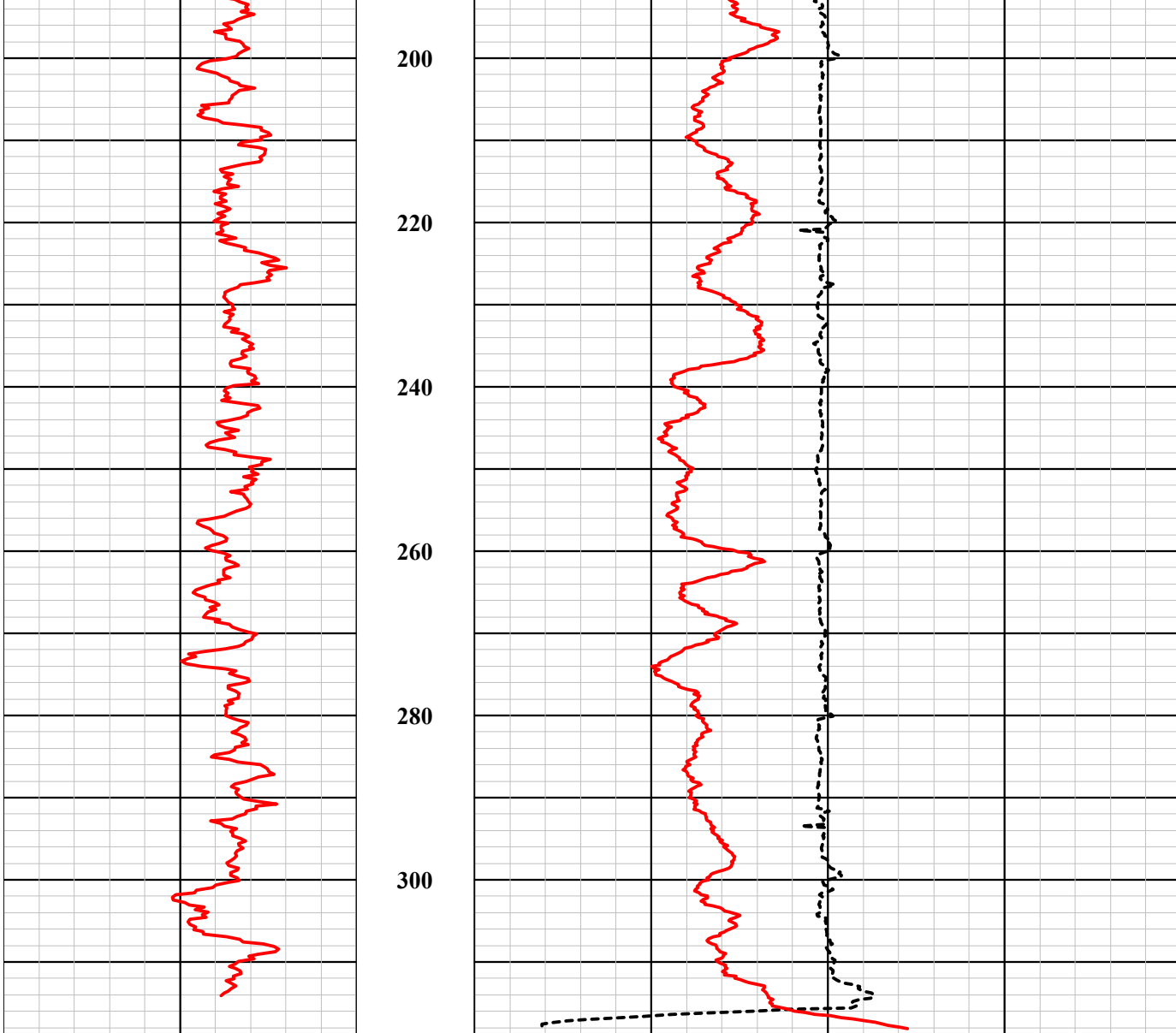




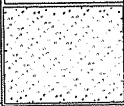
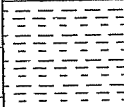
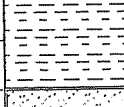
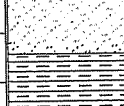

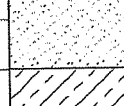

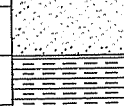
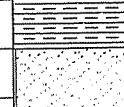
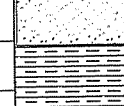
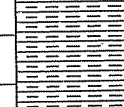
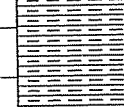
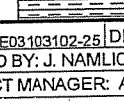
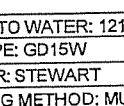
Southwest Exploration Services, LLC

borehole geophysics & video services

PERMANENT DATUM		SEC 2	TWP 1N	RGE 1E	ELEVATION	K.B.
LOG MEAS. FROM		GROUND LEVEL		ABOVE PERM. DATUM		D.F.
DRILLING MEAS. FROM						G.L.
DATE	5-5-04			TYPE FLUID IN HOLE	FRESH MUD	
RUN No	1			SALINITY		
TYPE LOG	GAMMA-NEUT-CAL			DENSITY LEVEL	FULL	
DEPTH-DRILLER	320 FT			MAX. REC. TEMP.		
DEPTH-LOGGER	319 FT					
BITM LOGGED INTERVAL	319 FT					
TOP LOGGED INTERVAL	SURFACE					
OPERATING RIG TIME						
RECORDED BY	K. MITCHELL					
WITNESSED BY	TERRANEXT					
BOREHOLE RECORD		CASING RECORD				
NO.	BIT FROM	TO	SIZE	WGT.	FROM	TO
1	12" SURFACE	20 FT	12"		SURFACE	20 FT
2	9 7/8" SURFACE	20 FT	TOTAL DEPTH			
3						




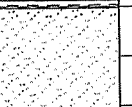
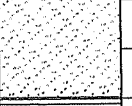

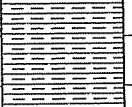

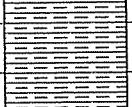




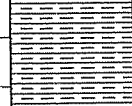
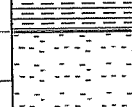
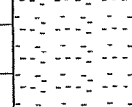
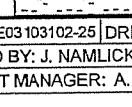


DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5		CL	MED. BROWN CLAY, TRACE SILTY OCCASIONAL GRAVEL, MOIST	0.0	SOME FILL MATERIAL
10		CL	LT. BRN. GRAVELY, SANDY CLAY NON-PLASTIC		
15		SW	GRAVELLY SAND MINOR SILT, CLAY <20%		
20		SC	CLAYEY, GRAVELLY SAND MODERATELY PLASTIC		
25		SC	COARSE SANDY CLAY, LT. BRN <40% SAND MED. PLASTICITY		
30		SW	COARSE SILTY SAND MED. PLASTICITY	0.0	
33		CL	SILTY CLAY, MED. PLASTICITY		
35		CL	SANDY, SILTY CLAY (<30% SAND LOW PLASTICITY)		
40		SW	SILTY COARSE SAND, MED. BRN MINOR CLAY		
45		GC	SILTY, CLAYEY SAND, MINOR GRAVEL MED. PLASTICITY		
50		SW	GRAVELLY SAND, SUB ANGULAR		
55		CL	GRAVELLY, SANDY CLAY		
60		SW	GRAVELLY COARSE SAND		
65		CL	SILTY CLAY		
70		CL	FINE SANDY CLAY, MED. BRN.	0.0	
75		CL	MICACEOUS SILTY CLAY MOD. PLASTICITY		

PROJ.#: F03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
 AVB 91-02
 73RD AVE / ROOSEVELT
 PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80		CL	MICACEOUS SILTY CLAY MOD. PLASTICITY		
85		SW	CLAYEY COARSE SAND, MED. BROWN, SUB ANGULAR		
90		SW	CLAYEY COARSE SAND		
95		CL	SILTY, SANDY CLAY <20% SAND		
100		CL	SILTY CLAY		
105		CL	SILTY CLAY		
110		CL	SILTY CLAY		
115		CL	SILTY CLAY		
120		CL	SILTY CLAY		
125		CL	SANDY, GRAVELLY CLAY COARSE FRACTION <20%		
130		CL	SILTY, SANDY CLAY		
135		CL	SILTY, SANDY CLAY		
140		CL	CLAYEY COARSE SAND, MED. BRN. MOD. PLASTIC CLAY		
145		SP	CLAYEY, GRAVELLY SAND SUB ANGULAR		
150		SP	SILTY, GRAVELLY COARSE SAND		

PROJ.#: E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 91-02
73RD AVE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155	[Symbol]	CL	SILTY, FINE SANDY CLAY LOW PLASTICITY		
160	[Symbol]	CL	SILTY, FINE SANDY CLAY LOW PLASTICITY		
165	[Symbol]	CL	SILTY, FINE SANDY CLAY, LOW PLASTICITY 16:50		
170	[Symbol]	SC	SILTY, CLAYEY, COARSE SAND		
175	[Symbol]	GC	SILTY COARSE SANDY CLAY MINOR GRAVEL <15%		
180	[Symbol]	CL	COARSE SANDY CLAY		
185	[Symbol]	CL	COARSE SANDY CLAY MINOR GRAVEL <15%		
190	[Symbol]	CL	COARSE SANDY CLAY	0.0	
195	[Symbol]	CL	COARSE SANDY CLAY MED. BROWN		
200	[Symbol]	CL	SILTY SANDY CLAY		
205	[Symbol]	CL	SILTY CLAY MED. PLASTICITY		
210	[Symbol]	CL	COARSE SANDY CLAY		
215	[Symbol]	CL	SILTY CLAY, MED. BRN. MOD. PLASTICITY		
220	[Symbol]	CL	COARSE SANDY CLAY	0.0	
225	[Symbol]	GW	COARSE, SANDY GRAVEL ANGULAR		

PROJ.#: E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
 AVB 91-02
 73RD AVE / ROOSEVELT
 PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230	[Diagonal Hatching]	GW	COARSE, SANDY GRAVEL ANGULAR	0.0	
235		GW	COARSE, SANDY GRAVEL ANGULAR		
240		GW	COARSE, SANDY GRAVEL ANGULAR W/MINOR CLAY <15%		
245	[Diagonal Hatching]	GC	CLAYEY SANDY GRAVEL		
250	[Horizontal Dashed Hatching]	CL	SILTY, COARSE SANDY CLAY (SAND <30%) LOW-MED. PLASTICITY		
255		CL	SILTY, SANDY CLAY		
260		CL	SILTY, SANDY CLAY		
265		CL	SILTY, SANDY CLAY		
270		SC	CLAYEY, SILTY SAND		
275		SC	CLAYEY, SILTY SANDY		
280		CL	SILTY, SANDY CLAY		
285		CL	SILTY, SANDY CLAY	0.0	
290	[Horizontal Dashed Hatching]	SC	SILTY, CLAYEY COARSE SAND(SAND 40-50%)		
295		SC	SILTY, CLAYEY COARSE SAND(SAND 40-50%)		
300	[Horizontal Dashed Hatching]	CL	SILTY, COARSE SANDY CLAY		

PROJ.#:E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE:GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 91-02
73RD AVE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
305	[SOIL SYMBOLS]	CL	SILTY, COARSE SANDY CLAY		
310		CL	SILTY CLAY (MINOR SAND <20%)		
315		CL	SILTY CLAY (MINOR SAND <20%)		
320		CL	SILTY SANDY CLAY		
325		CL	SILTY, SANDY CLAY (MINOR SAND <30%)	0.0	
330		CL	SILTY, SANDY CLAY		
335		CL	SILTY, FINE SANDY CLAY		
340		CL	SILTY, FINE, SANDY CLAY		
345		CL	SILTY, SANDY CLAY	0.0	
350		CL	SILTY SANDY CLAY		
355		CL	SILTY SANDY CLAY (SAND <20%)		
360		CL	SILTY SANDY CLAY (SAND <20%)	0.0	
365		CL	SILTY, SANDY CLAY MED. BROWN		
370		CL	SILTY, FINE SANDY CLAY		
375		CL	SILTY CLAY (<10% SAND)		

PROJ.#:E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 121'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 380'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 91-02
73RD AVE/ ROOSEVELT
PHOENIX, ARIZONA



5201 Woodcreek Drive
Bakersfield, California 93313
(800) 445-9914
www.wellenco.com

ROBERTSON GEOLOGGING TECHNOLOGY

ELECTRIC - TEMPERATURE - GAMMA RAY LOG

AVB 91-02

COMPANY BE&K TERRANEXT OTHER SERVICES
WELL AVB 91-02
FIELD TOLLESON NEUTRON
COUNTRY U.S. XY CALIPER
STATE AZ
COUNTY MARICOPA
LAT.: 33 27.52 N
LONG.: 112 12.96 W

Perm. Datum G.L. Elev 1010 KB 0.00
Log. Datum G.L. DF 0.00
Drill Datum G.L. GL 1010.00

DATE 12-30-2001
RUN# 1
TYPE OF LOG ELOG
DEPTH DRILLER 380.00 0.00 0.00
DEPTH LOGGER 380.00 0.00 0.00
LOG DEEPEST 379.00 0.00 0.00
LOG SHALLOW 40.00 0.00 0.00
FLUID IN HOLE BENTONITE
SALINITY
DENSITY
LEVEL 0
MAX TEMP °C 0.00 0.00 0.00
RIG TIME .5 HR
RECORDED BY CRAIG CORBELL
WITNESSED BY J. NAMLIK

RUN#	BIT RECORD		BIT	CASING RECORD		TO
	BIT FROM	TO		WEIGHT FROM	TO	
1	9.88	148.00	381.00	12.75	0.00	148.00
1	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00

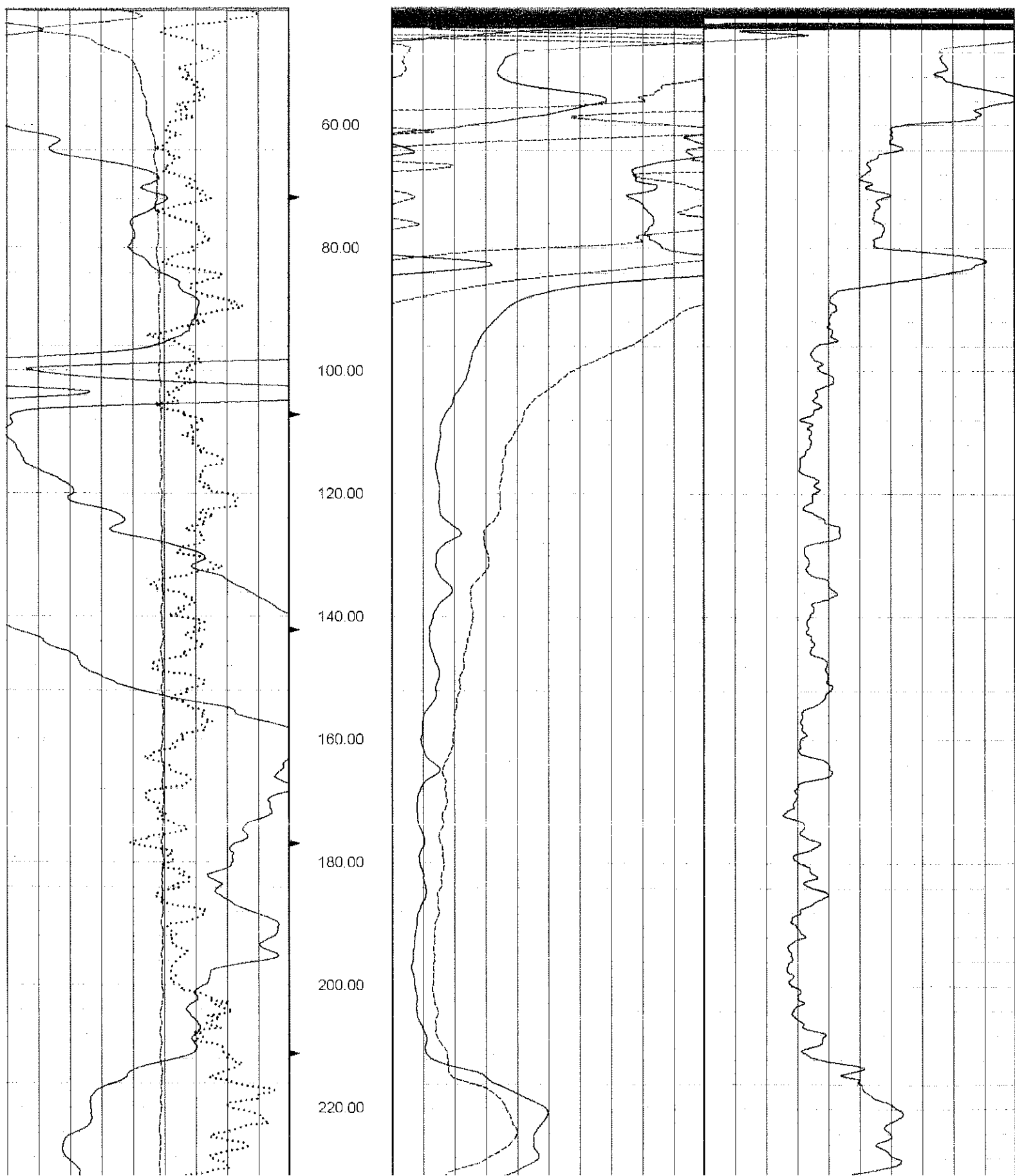
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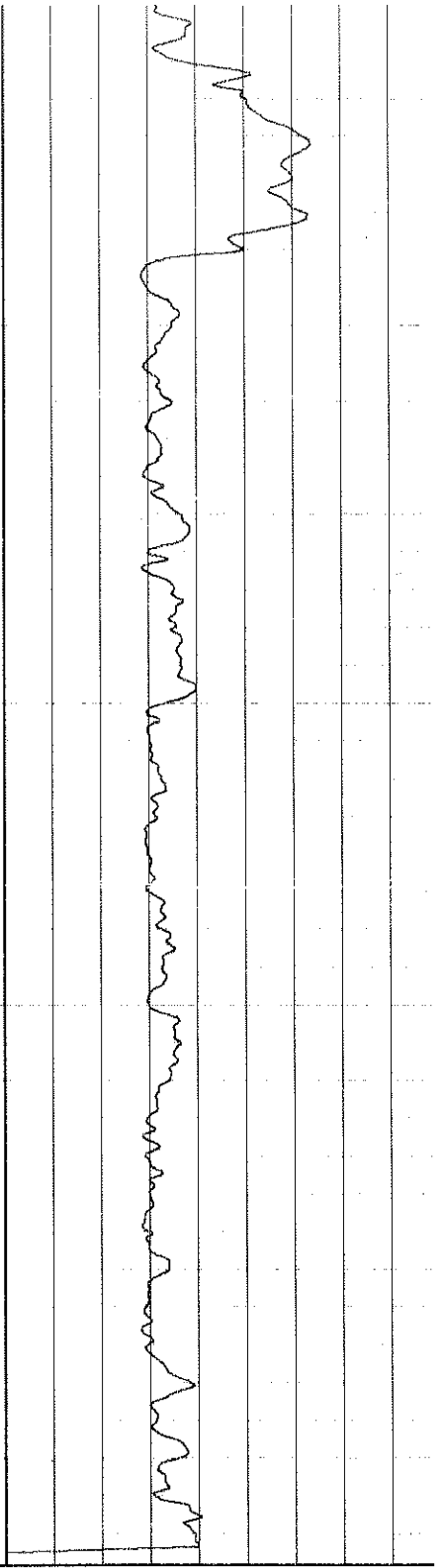
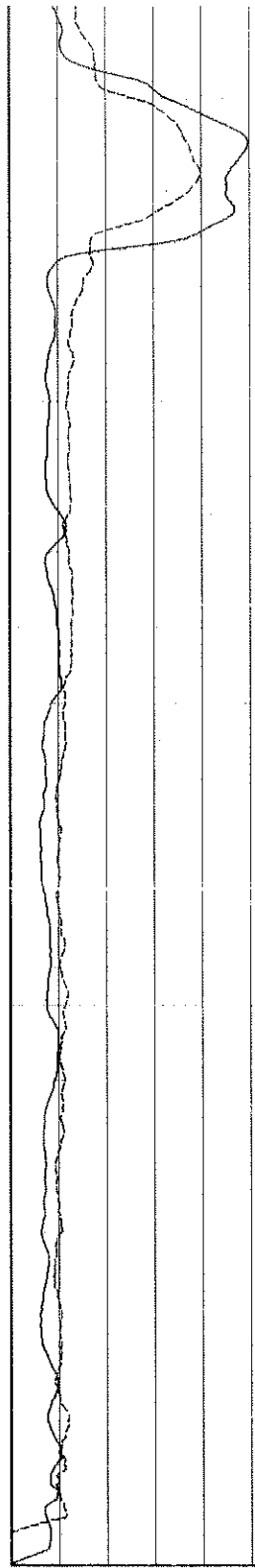
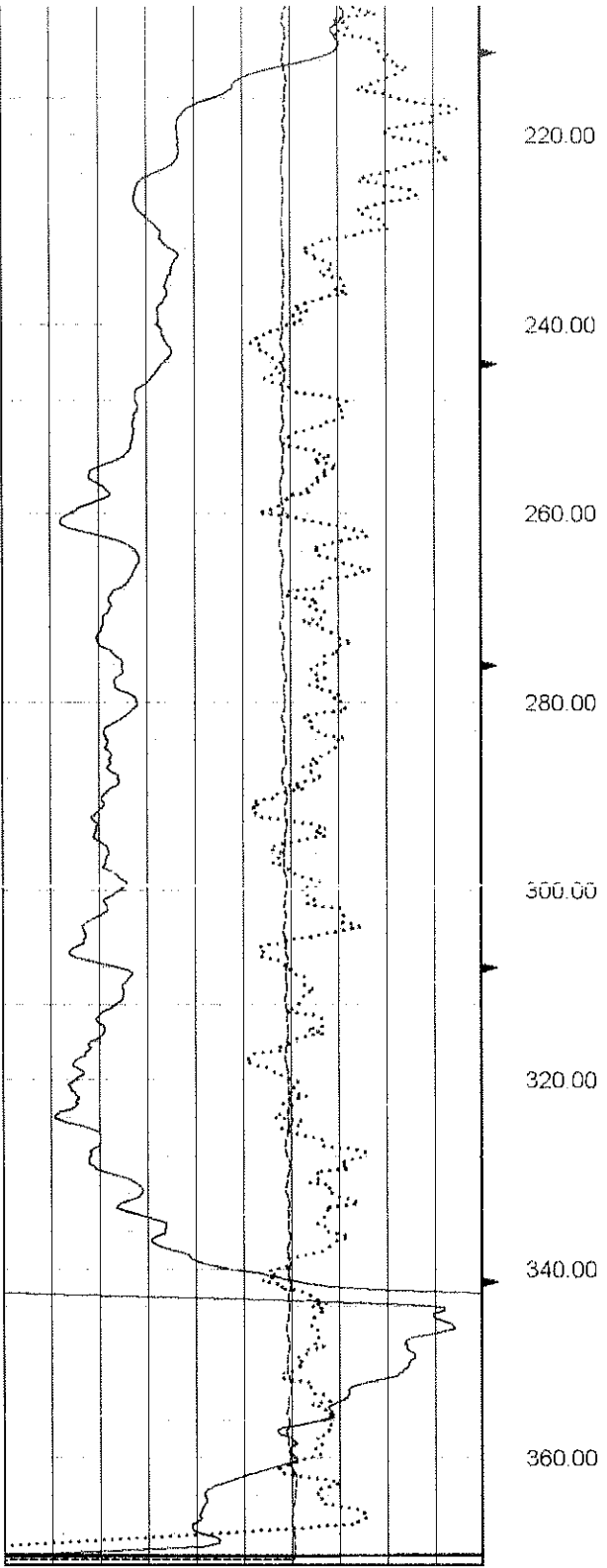
JTN: 35047

Sec: Rm: 7.4 @ 75 Deg F
Twp: Rm: 7.5 @ 75 Deg F
Rge:

Elev., Lat. and Lon. determined using recreational GPS unit.
Location: 73 rd AVE and Roosevelt
Driller: Stewart Bros. Drilling

NGAM API	150.00	0.00	16" OHM.M	100.00	0.00	SPT OHM	50.00
TEMP DEG F	75.00	0.00	64" OHM.M	100.00			
S.P. mV	400.00						







5201 Woodmere Drive
Bakersfield, California 93313
(800) 445-9914
www.welenco.com

ROBERTSON GEOLOGGING TECHNOLOGY

NEUTRON LOG

AVB 91-02

COMPANY BE&K TERRANEXT
WELL AVB 91-02
FIELD TOLLESON
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT.: 33 27.52 N
LONG.: 112 12.96 W

OTHER SERVICES
ELOG
XY CALIPER

Perm. Datum	G.L.	Elev	1010	KB	0.00
Log. Datum	G.L.			DF	0.00
Drill Datum	G.L.			GL	1010.00

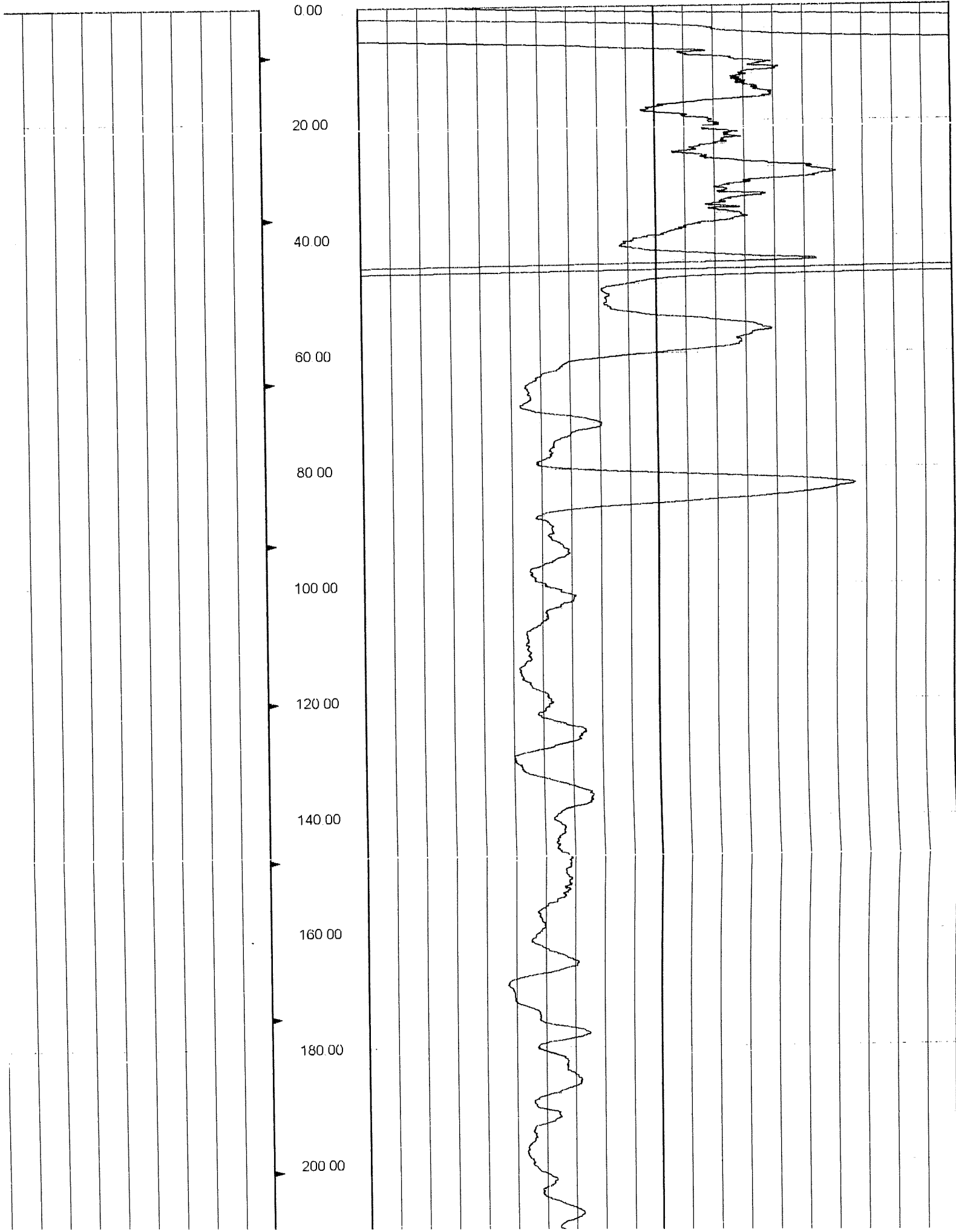
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RUN#	1	1	1
TYPE OF LOG	NEUTRON		
DEPTH DRILLER	380.00	0.00	0.00
DEPTH LOGGER	380.00	0.00	0.00
LOG DEEPEST	371.00	0.00	0.00
LOG SHALLOW	0.00	0.00	0.00
FLUID IN HOLE	BENTONITE		
SALINITY			
DENSITY			
LEVEL	0		
MAX TEMP °C	0.00	0.00	0.00
RIG TIME	.5 HR		
RECORDED BY	CRAIG CORBELL		
WITNESSED BY	J. NAMLICK		

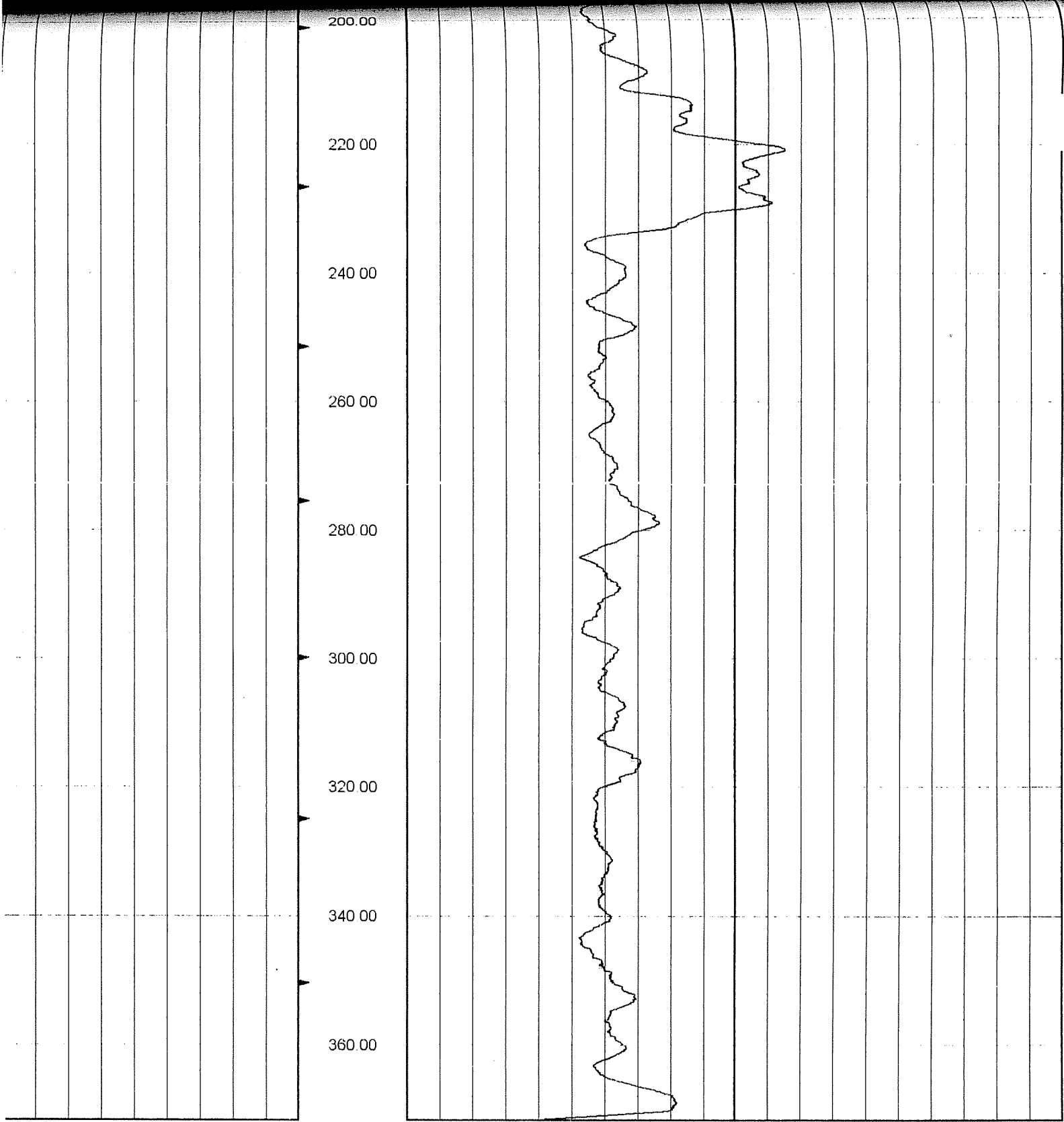
RUN#	BIT RECORD			CASING RECORD			
	BIT	FROM	TO	BIT	WEIGHT	FROM	TO
1	9.88	148.00	381.00	12.75	0.00	0.00	148.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (C:\DansLogs\35047\35047N.hed)

JTN: 35047

Sec: Rm:7.4 @ 75 Deg F
Twp: Rmf:7.5 @ 75 Deg F
Rge:
Elev., Lat. and Lon. determined using recreational GPS unit.
Location:73 rd AVE and Roosevelt
Driller: Stewart Bros. Drilling





incl deg

00 10 00

calx inch

6 00

16.0

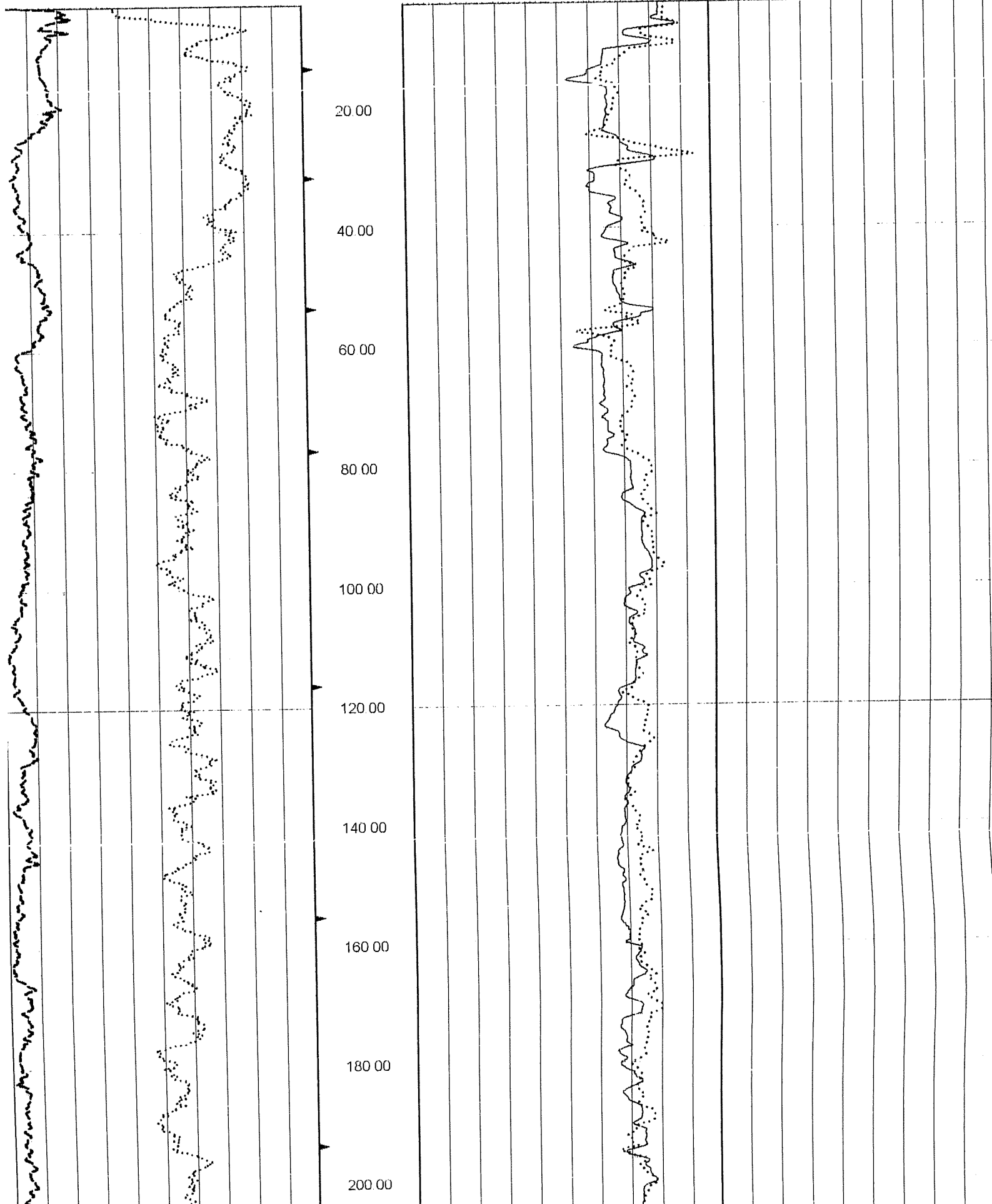
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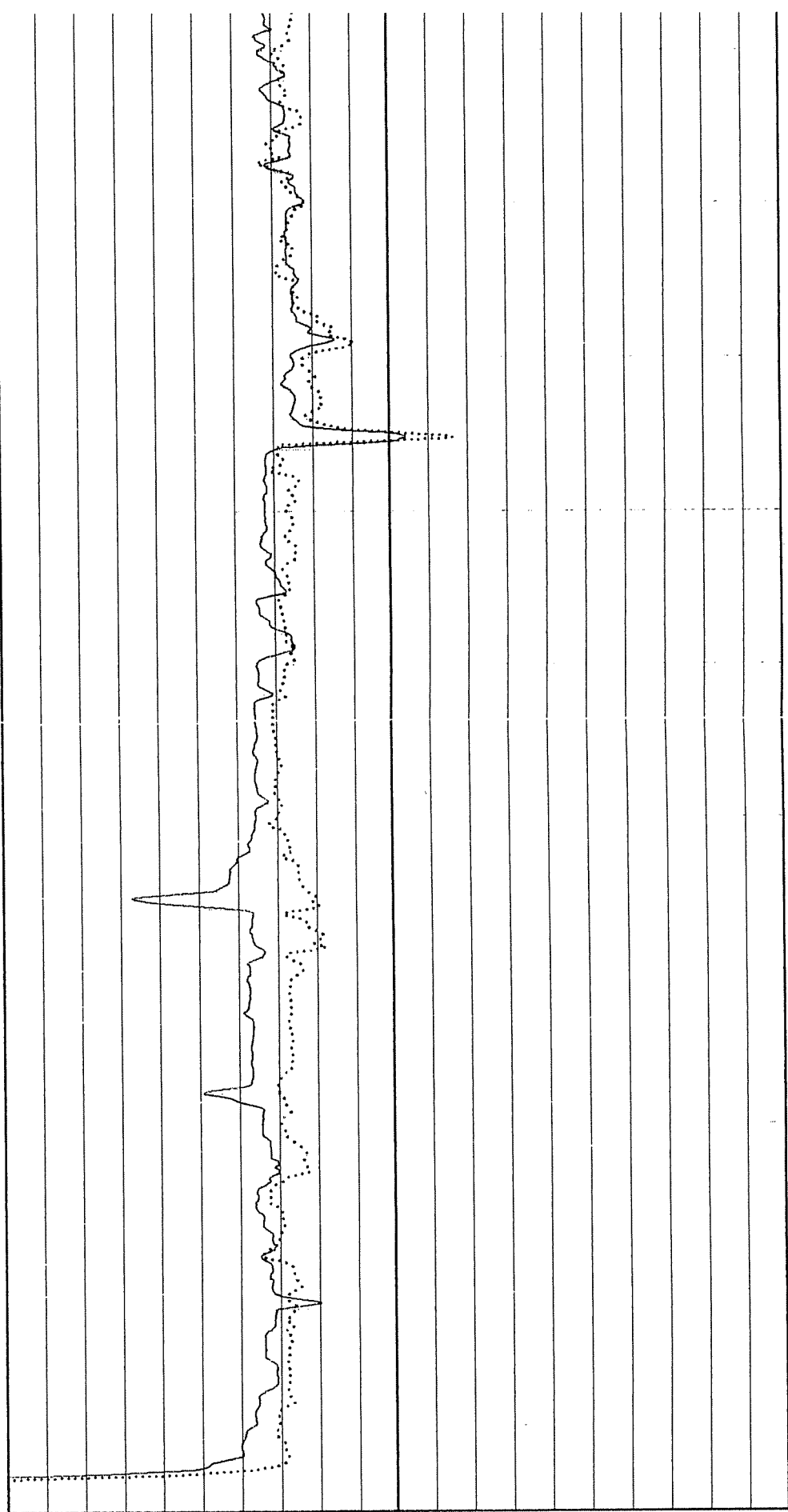
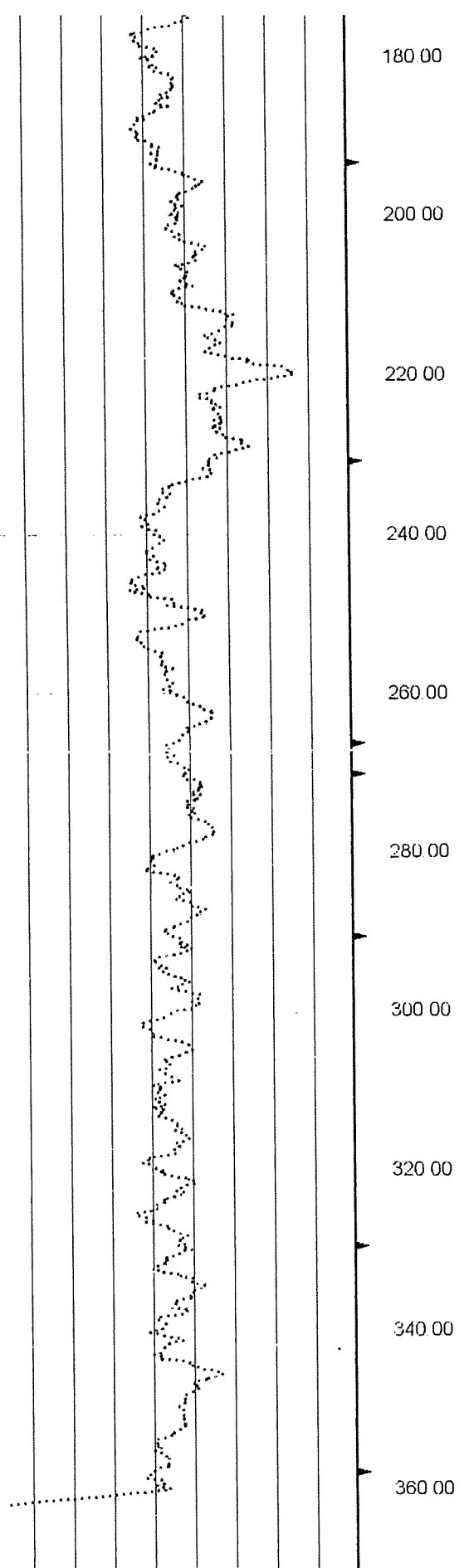
00 150 00

caly inch

6 00

16.0





DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5		SM	SILTY FINE SAND		
10		GP	SANDY GRAVEL <3/8" SUB ANGULAR		
15		CL	SILTY CLAY, MED. BROWN MOD. PLASTICITY		
20		CL	SILTY CLAY, MED. BROWN MOD. PLASTICITY	0.0	
25		CL	SILTY CLAY, MED. BROWN MOD. PLASTICITY (S <10%)		
30		CL	FINE SANDY, SILTY CLAY (S <10%)		
35		CL	FINE SANDY SILTY CLAY (S <10 - 20%)		
40		SW	COARSE SAND (<1/4") SUB ANGULAR		
45		SM	SILTY, CLAYEY SAND		
50		CL	SILTY CLAY, MED. BROWN		
55		CL	SILTY FINE SANDY CLAY (S <40%)		
60		CL	SILTY FINE SANDY CLAY MINOR GRAVEL <5%		
65		SW	COARSE SAND		
70		ML	FINE SANDY SILT (S <30%)		
75		ML	FINE SANDY SILT (S <30%)		

PROJ.#:03103102-25 DRILL DATE: 01/29/02
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 116.7 (1/27/02)
 RIG TYPE:GD15W DIAMETER:10"
 DRILLER: STEWART TOTAL DEPTH: 368'
 DRILLING METHOD: MUD ROTARY











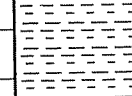




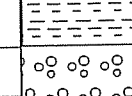
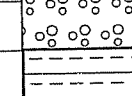
FIELD BOREHOLE LOG
AVB 96-02
63RD AVE/MCKINLEY
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80		CL	FINE SANDY SILTY CLAY (S <20%)		
85		SC	CLAYEY SAND (CLAY <30%) MOD. PLASTICITY	0.0	
90		CL	SANDY SILTY CLAY (SAND <30% FINE TO MED. GRAINED)		
95		CL	SANDY SILTY CLAY (SAND <30% FINE TO MED. GRAINED)		
100		SP	GRAVELLY SAND (G <10%)		
105		SP	COARSE SAND		
110		SP	COARSE SAND		
115		SP	GRAVELLY SAND (<3/8) (G< 30%)		
120		CL	MED. SANDY, SILTY CLAY (SAND <20%)		
125		CL	MED. SANDY SILTY CLAY (SAND <20%)		
130		SC	CLAYEY COARSE SAND (C <20%) (MINOR GRAVEL 5%)		
135		SW	GRAVELLY SAND (G <1/2" = <30%)		
140		GW	SANDY GRAVEL (G <1/2" >60%)		
145		GW	SANDY GRAVEL <1"		
150		GW	SANDY GRAVEL <3/8" ANG.	0.0	

PROJ.#:E03103102-25 DRILL DATE: 1/29/02	
LOGGED BY: JMN	
PROJECT MANAGER: A. GORDON	
NOTES:	
DEPTH TO WATER: 116.7 (1/27/02)	
RIG TYPE:GD15W	DIAMETER: 10"
DRILLER: STEWART	TOTAL DEPTH: 368'
DRILLING METHOD: MUD ROTARY	



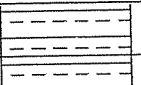
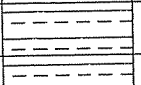
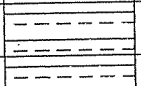


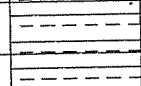
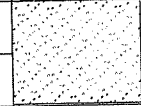
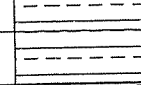
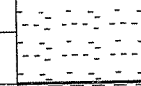
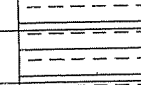
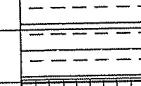
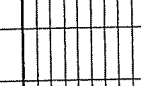



FIELD BOREHOLE LOG
AVB 96-02
63RD AVE / MCKINLEY
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155		GW	SANDY GRAVEL <3/8" ANG.		
160		SW	COARSE GRAVEL (<5% 3/8 GRAVEL)		HOLE SLOUGHING IN W/ FLUID LOSS
165		GW	SANDY GRAVEL (<3/8" SAND <50%)		HOLE SLOUGHING IN W/ FLUID LOSS
170		GW	SANDY GRAVEL <1/2" (SAND <50%)		HOLE SLOUGHING IN W/ FLUID LOSS
175		GW	SANDY GRAVEL <1/2" (SAND <50%)		FLUID LOSS
180		GW	SANDY GRAVEL <1/2" (SAND <50%)	0.0	
185		GW	SANDY GRAVEL (<3/4" SAND <50/50)		
190		SC	CLAYEY SILTY SAND (FINES <40%)		
195		SC	CLAYEY SILTY SAND (FINES <40%)		
200		GC	CLAYEY SANDY GRAVEL (<1/2" C <20%)		
205		SC	CLAYEY SAND (<1/2" C <20%)		
210		GC	CLAYEY SANDY GRAVEL (<1/2")		
215		SC	CLAYEY SILTY SAND		
220		GM	SILTY SANDY GRAVEL (S <30%)		
225		SM	CLAYEY, SILTY COARSE SAND (FINES <40%)		

PROJ.#:E03103120-25 | DRILL DATE:1/29/02
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 116.7 (1/27/02)
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH:368'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 96-02
63RD AVE / MCKINLEY
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230		SM	CLAYEY, SILTY COARSE SAND (FINES <40%)		
235		SM	CLAYEY, SILTY COARSE SAND (FINES <40%)		
240		SM	SILTY COARSE SAND (FINES <40%)		
245		SM	SILTY COARSE SAND (SILT < 30%)		
250		SM	SILTY COARSE SAND (FINES <20%)		
255		SM	SILTY COARSE SAND (FINES <20%)		
260		SW	GRAVELLY SAND (G <30% <3/8")		MINOR FLUID LOSS
265		SM	CLAYEY SILTY COARSE SAND (FINES <%)		
270		SP	CLAY / SILT GRAVELLY SAND (FINES <20%) (GRAVEL <3/8" <30%)		
275		SM	CLAYEY SILTY COARSE SAND (FINES <20%) <1/4"		
280		SM	CLAYEY SILTY COARSE SAND INCREASING SILT / CLAY TO 40-50%		
285		ML	CLAYEY SILT (MINOR FINE / MED. SAND <20%)		
290		ML	CLAYEY SILT (MINOR FINE / MED. SAND <20%)		
295		CL	SILTY CLAY		
300		CL	SILTY CLAY (MINOR SAND <10%)		

PROJ.#:E03103102-25 | DRILL DATE: 01/29/02
 LOGGED BY: JMN
 PROJECT MANAGER: A.GORDON
 NOTES:
 DEPTH TO WATER: 116.7' (01/27/02)
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 368'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 96-02
63RD AVE / MCKINLEY
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
305	[Hatched Pattern]	CL	SILTY CLAY, MED. BROWN		
310	[Hatched Pattern]	CL	SILTY CLAY, MED. BROWN		
315	[Hatched Pattern]	CL	SILTY CLAY, MED. BROWN MINOR FINE SAND <20-30%		
320	[Vertical Lines]	ML	SANDY CLAYEY SILT (INCREASING SAND <30-40%)		
325	[Vertical Lines]	SW	SILTY (MED.) SAND MINOR CLAY <10%		
330	[Vertical Lines]	SW	SILTY SAND (MED. - FINE)		
335	[Vertical Lines]	SW	SAND (MINOR SILT) <1/4"		
340	[Vertical Lines]	SW	SILTY SAND (MINOR CLAY <10%) <3/16"		
345	[Vertical Lines]	SW	GRAVELLY SAND <3/8"		
350	[Cross-hatch Pattern]	GW	SANDY GRAVEL <3/8" MINOR 1/2"		
355	[Cross-hatch Pattern]	GW	SANDY GRAVEL <3/8" MINOR 1/2"		
360	[Cross-hatch Pattern]	GW	SANDY GRAVEL <1/2"		
365	[Cross-hatch Pattern]	GW	SILTY SANDY GRAVEL <1/2" (SILT <20%) MINOR CLAY		
370	[Blank]				
375	[Blank]				

PROJ.#:E03103102-25 | DRILL DATE: 01/29/02
 LOGGED BY: JMN
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 116.7' (01/27/02)
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 368'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 96-02
63RD AVE/MCKINLEY
PHOENIX, ARIZONA



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 Bakersfield California 93313
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NEUTRON LOG

AVB 96-02

COMPANY BE&K TERRANEXT
 WELL AVB 96-02
 FIELD PHOENIX
 COUNTRY U.S.
 STATE AZ
 COUNTY MARICOPA
 LAT.: 33 27.87 N
 LONG.: 112 11.63 W

OTHER SERVICES

X Y CALIPER
 ELOG

Perm. Da.. G.L. Elev 1077 KB 0.00
 Log. Datum G.L. DF 0.00
 Drill Datum G.L. GL 1077.00

DATE 01/25/2002 0 0
 RUN# 1 1 1
 TYPE OF LOG NEUTRON
 DEPTH DRILLER 368.00 0.00 0.00
 DEPTH LOGGER 361.00 0.00 0.00
 LOG DEEPEST 360.00 0.00 0.00
 LOG SHALLOW 0.00 0.00 0.00
 FLUID IN HOLE BENTONITE
 SALINITY
 DENSITY
 LEVEL FULL
 MAX TEMP °C 0.00 0.00 0.00
 RIG TIME .5 HR
 RECORDED BY WILLIAM SMITH
 WITNESSED BY J. NAMLICK

RUN#	BIT RECORD			CASING RECORD			
	SIZE	FROM	TO	SIZE	WEIGHT	FROM	TO
1	9.88	0.00	368.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (D:\Video Reports\Bill\logs\35805\35805N.hed)

JTN: 35805

Sec: Rm: 5.1 @ 75 Deg F
 Twp: Rmf: 5.2 @ 75 Deg F
 Rge:
 Elev., Lat. and Lon. determined using recreational GPS unit.
 Location: 63rd Ave. and McKinley
 Driller: Stewart Brothers Drilling

0 00

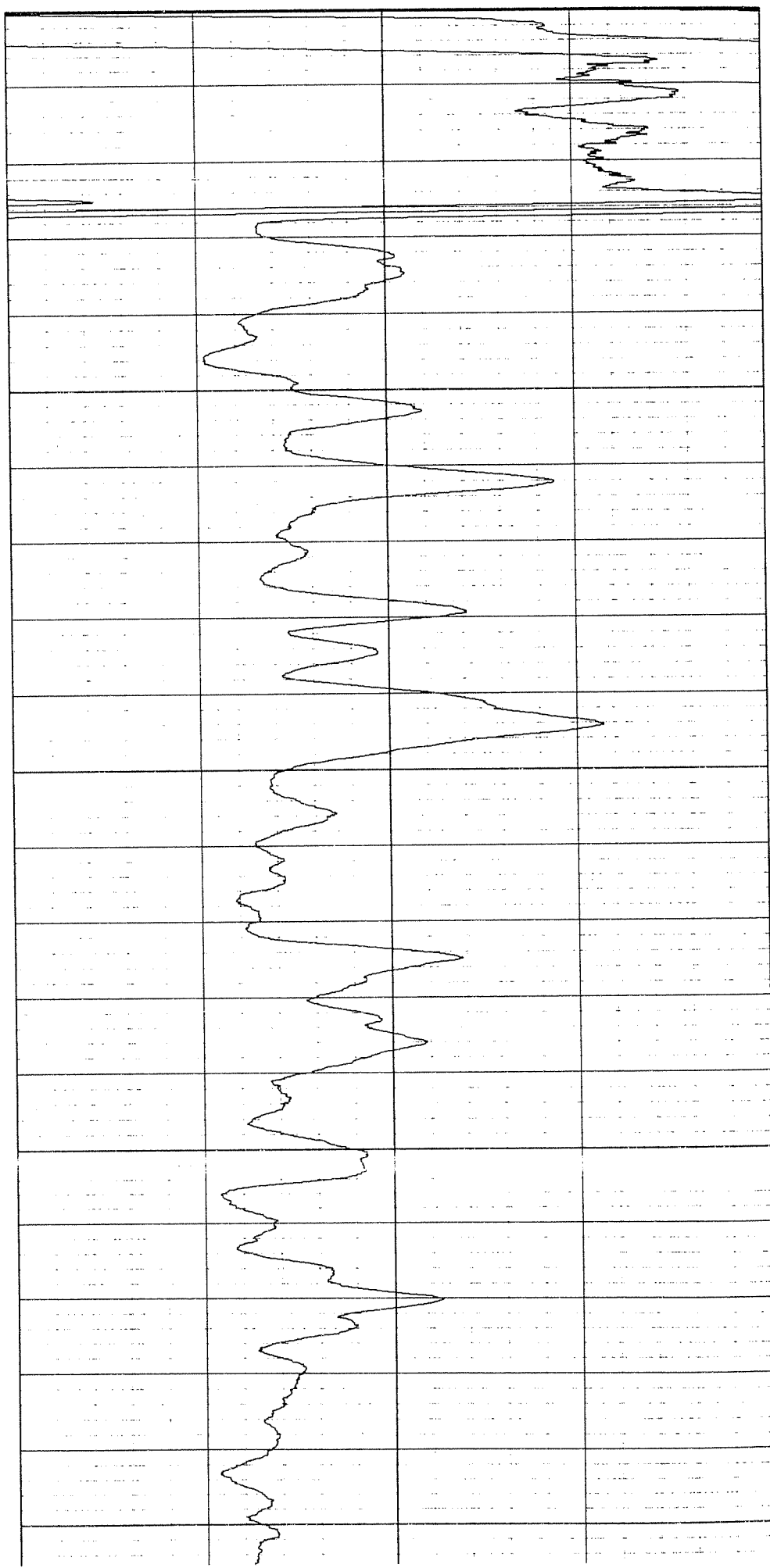
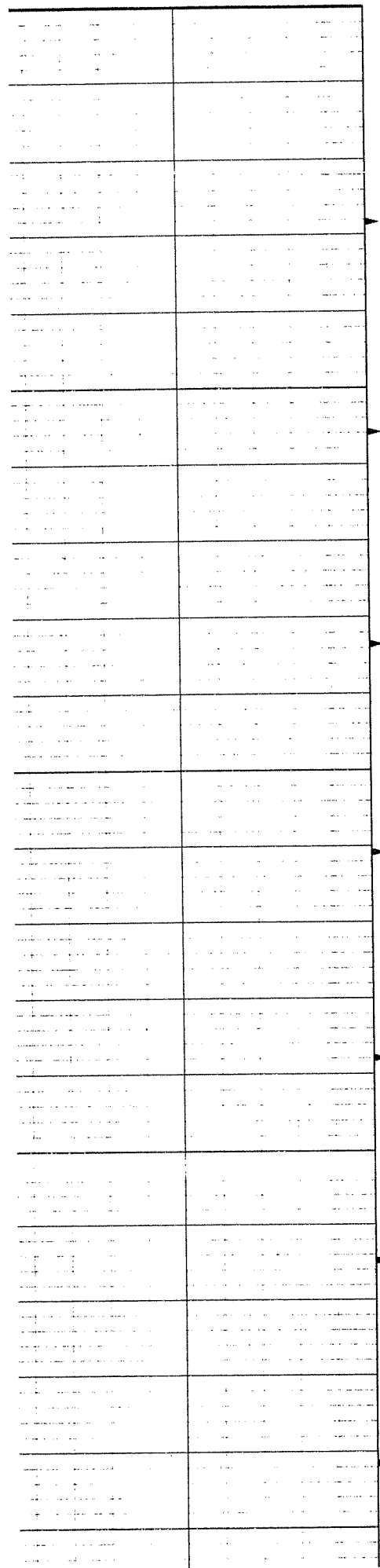
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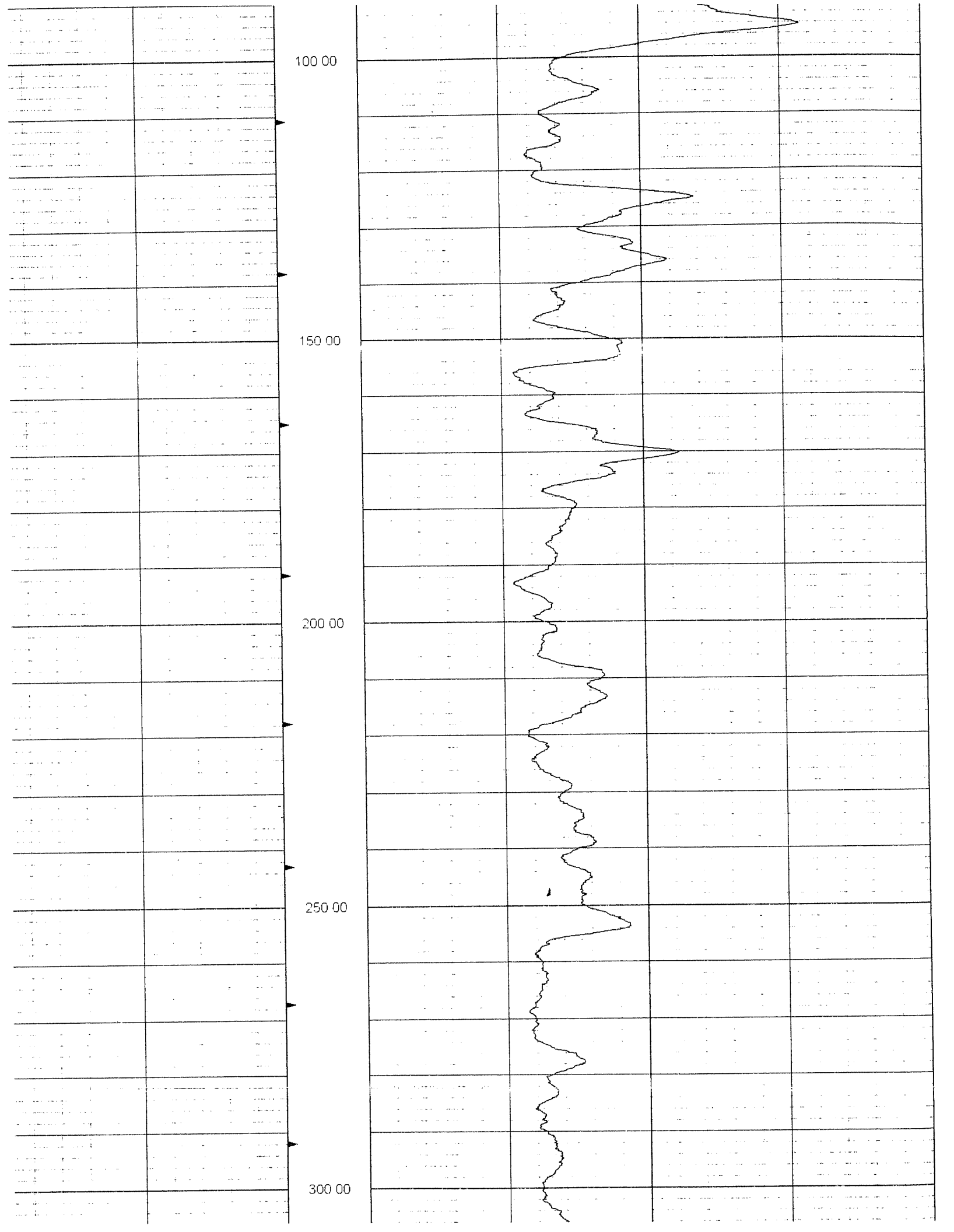
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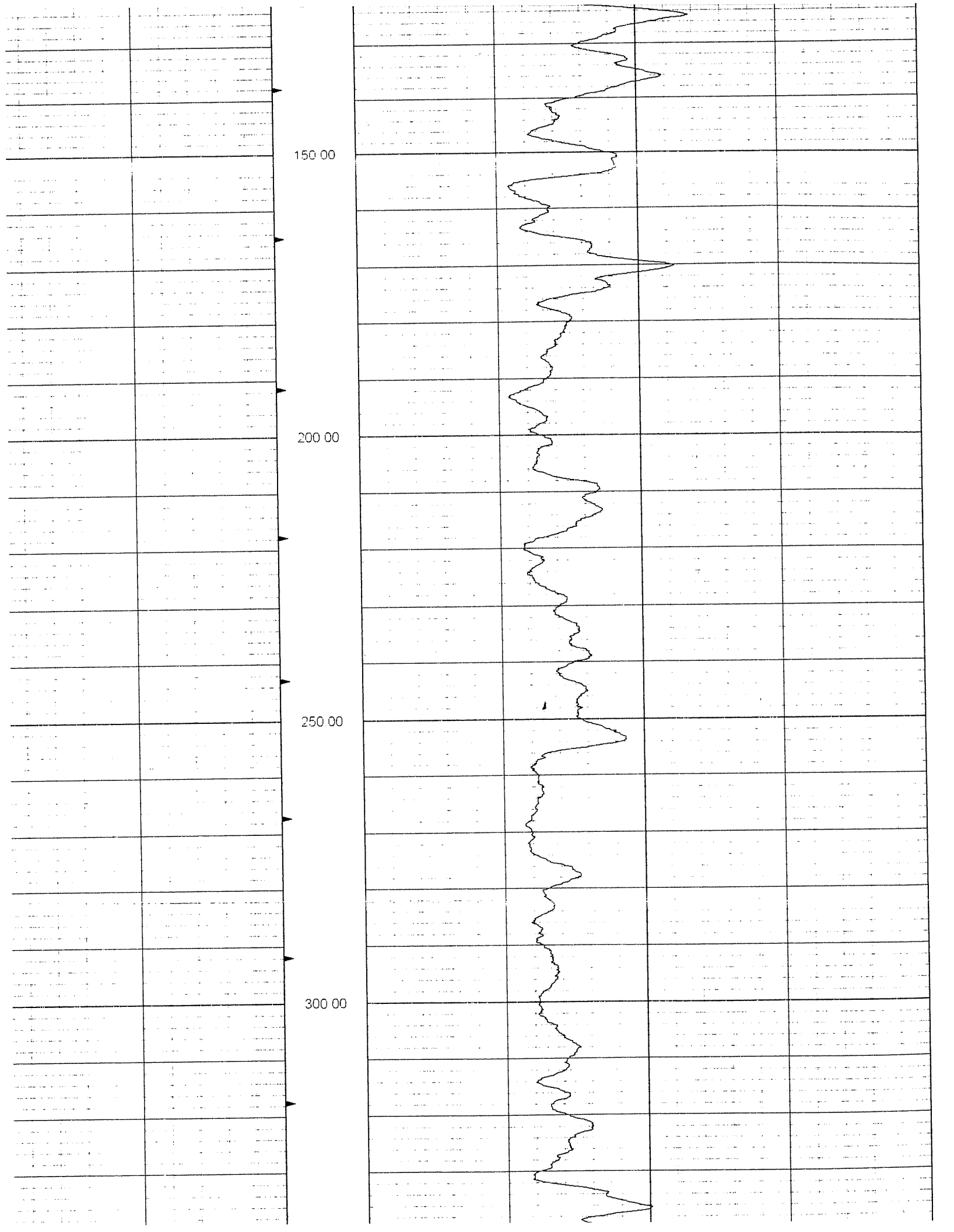
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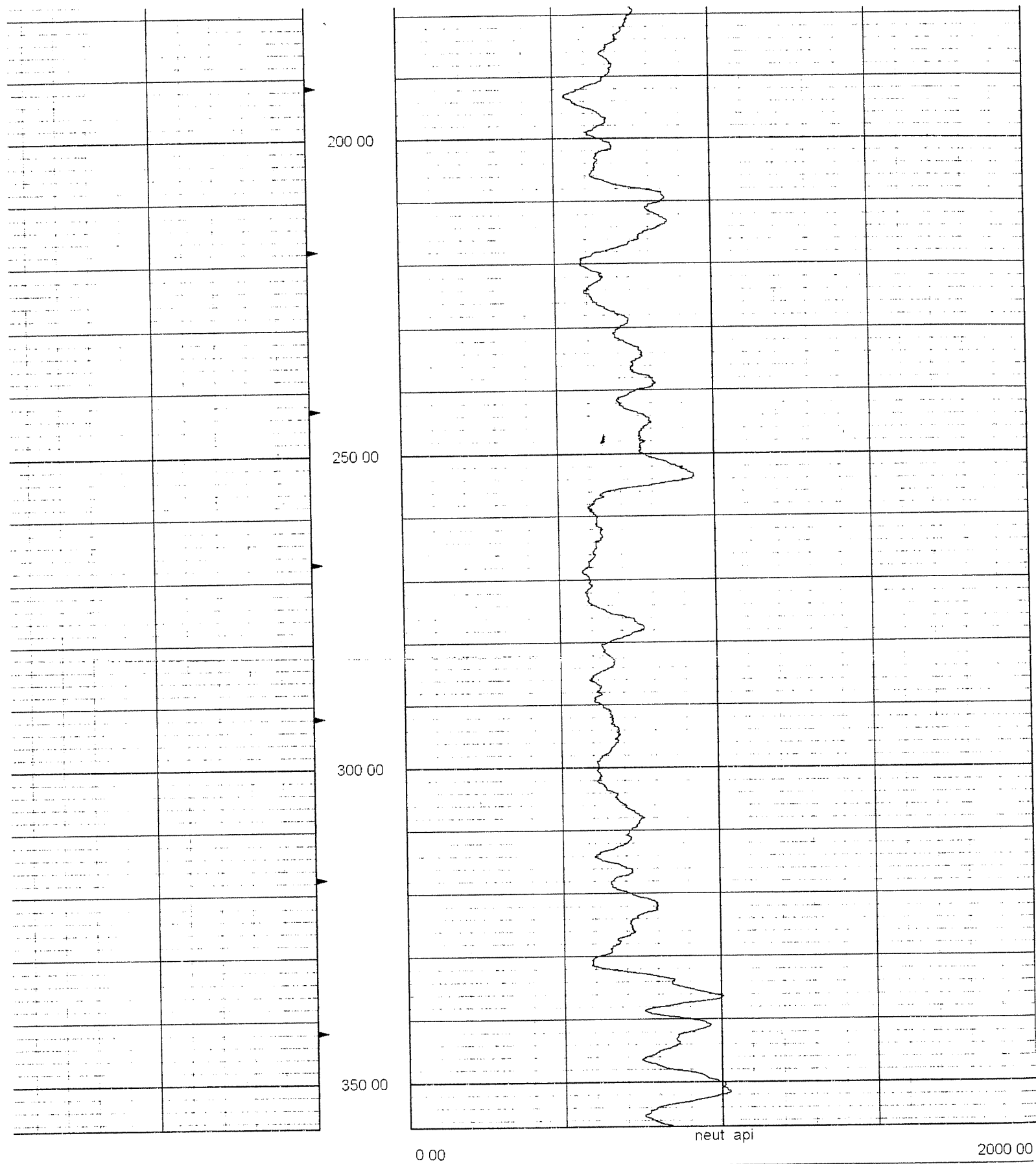
150 00

200 00











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ELECTRIC- GAMMA RAY - TEMPERATURE LOG

AVB 96-02

COMPANY BE&K TERRANEXT
 WELL AVB 96-02
 FIELD PHOENIX
 COUNTRY U.S.
 STATE AZ
 COUNTY MARICOPA
 LAT.: 33 27.87 N
 LONG.: 112 11.63 W

OTHER SERVICES

NEUTRON
 X Y CALIPER

Perm. Da.. G.L. Elev 1077 KB 0.00
 Log. Datum G.L. DF 0.00
 Drill Datum G.L. GL 1077.00

DATE 01/25/2002 0 0
 RUN# 1 1 1
 TYPE OF LOG ELOG
 DEPTH DRILLER 368.00 0.00 0.00
 DEPTH LOGGER 367.00 0.00 0.00
 LOG DEEPEST 366.00 0.00 0.00
 LOG SHALLOW 0.00 0.00 0.00
 FLUID IN HOLE BENTONITE
 SALINITY
 DENSITY
 LEVEL FULL
 MAX TEMP °C 0.00 0.00 0.00
 RIG TIME 1 HR
 RECORDED BY WILLIAM SMITH
 WITNESSED BY J. NAMLICK

RUN#	BIT RECORD			CASING RECORD			
	SIZE	FROM	TO	SIZE	WEIGHT	FROM	TO
1	9.88	0.00	368.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (D:\Video Reports\Bill\logs\35805\35805E2.hed)

JTN: 35805

Sec: Rm: 5.1 @ 75 Deg F
 Twp: Rmf: 5.2 @ 75 Deg F

Rge:
 Elev., Lat. and Lon. determined using recreational GPS unit.
 Location: 63rd Ave. and McKinley, Sunridge Park
 Driller: Stewart Brothers Drilling
 Spontaneous Potential shift due to possible interference from electric utility lines.

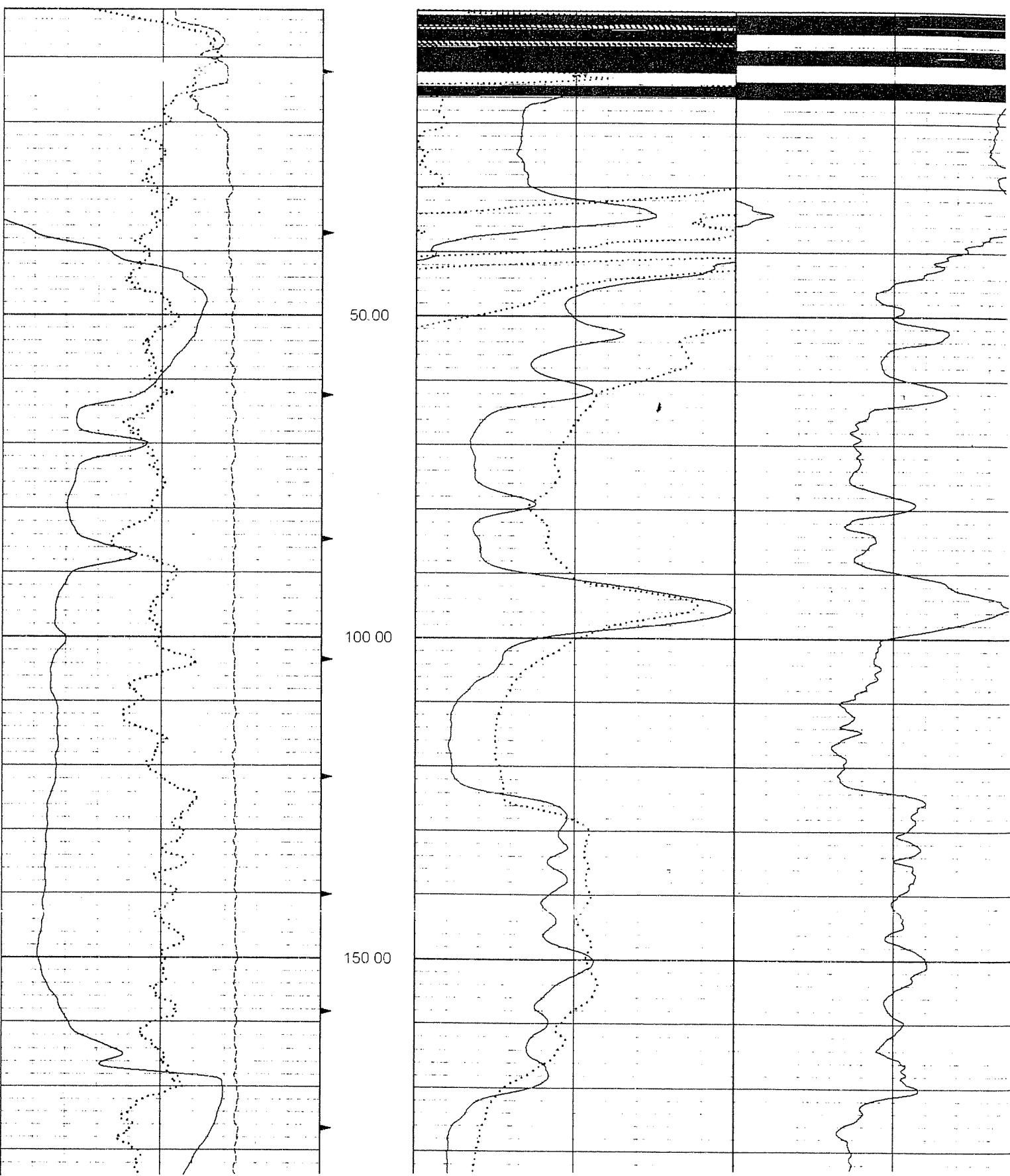
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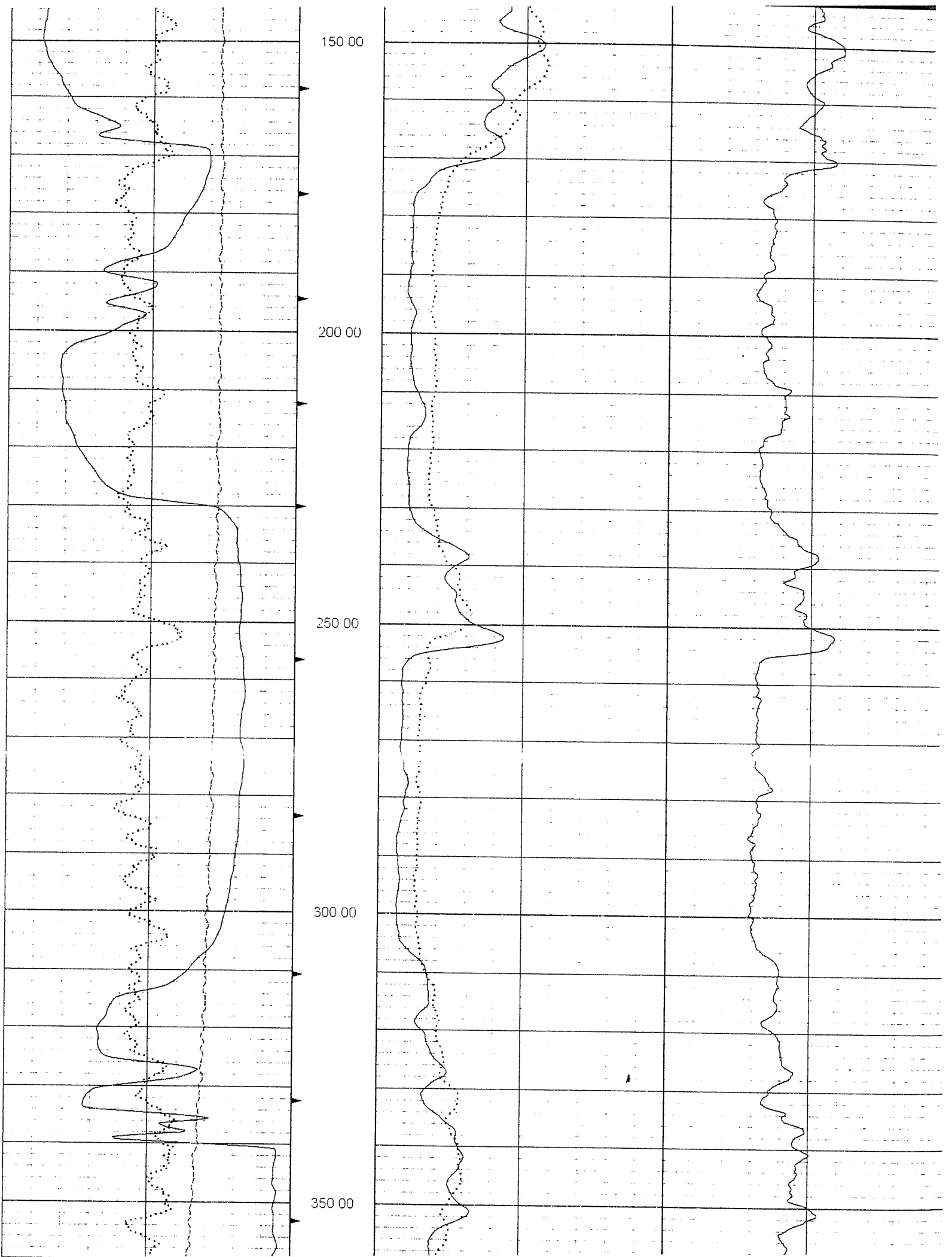
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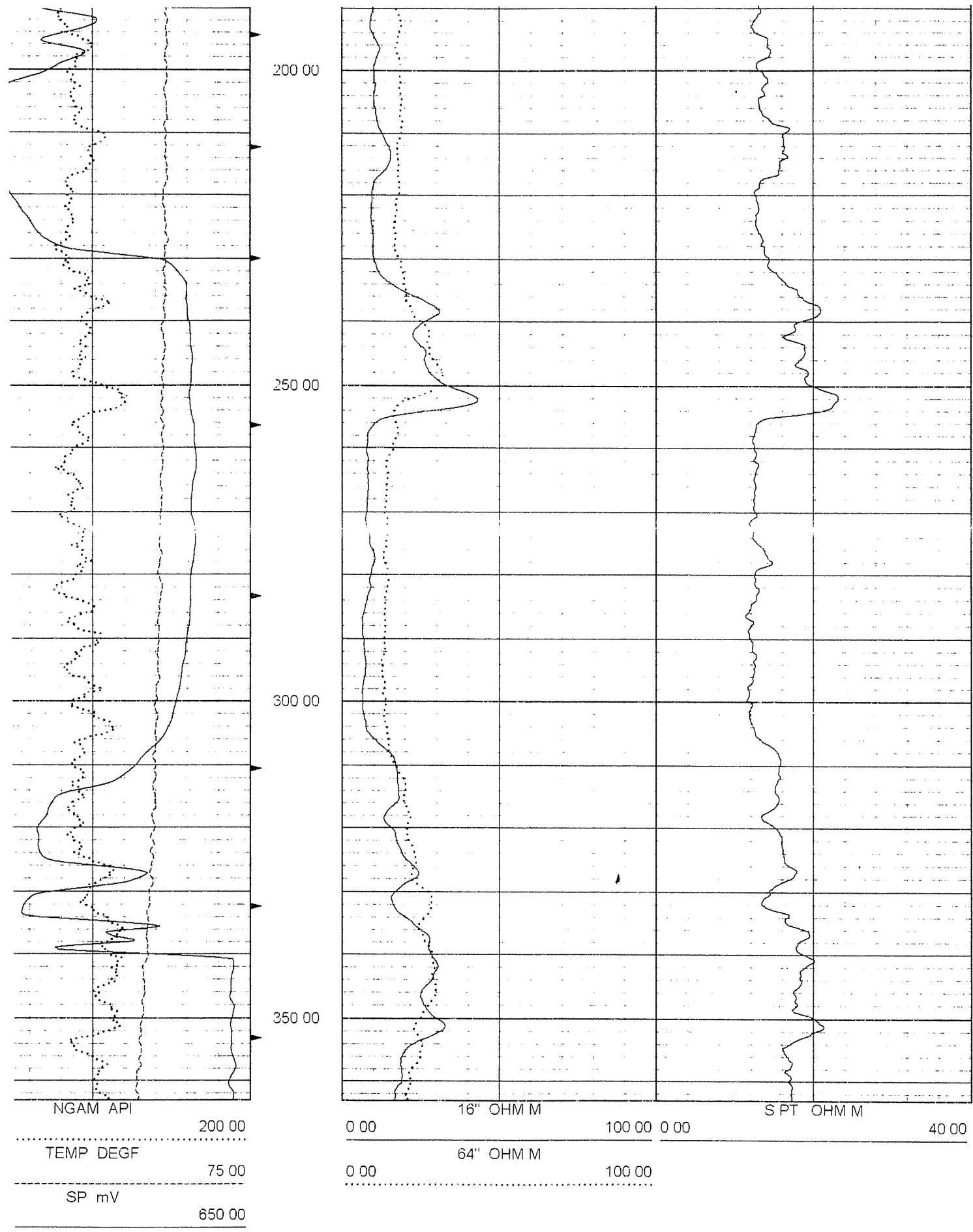
 250 00 SP mV 650 00

0 00 16" OHM M 100 00 0 00

 0 00 64" OHM M 100 00









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X Y CALIPER LOG

AVB 96-02

COMPANY BE&K TERRANEXT
WELL AVB 96-02
FIELD PHOENIX
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT.: 33 27.87 N
LONG.: 112 11.63 W

OTHER SERVICES

NEUTRON
ELOG

Perm. Da.. G.L. Elev 1077 KB 0.00
Log. Datum G.L. DF 0.00
Drill Datum G.L. GL 1077.00

DATE 01/25/2002 0 0
RUN# 1 1 1
TYPE OF LOG CALIPER
DEPTH DRILLER 368.00 0.00 0.00
DEPTH LOGGER 362.00 0.00 0.00
LOG DEEPEST 361.00 0.00 0.00
LOG SHALLOW 0.00 0.00 0.00
FLUID IN HOLE BENTONITE
SALINITY
DENSITY
LEVEL FULL
MAX TEMP °C 0.00 0.00 0.00
RIG TIME 1 HR
RECORDED BY WILLIAM SMITH
WITNESSED BY J. NAMLICK

RUN#	BIT RECORD			CASING RECORD			
	SIZE	FROM	TO	SIZE	WEIGHT	FROM	TO
1	9.88	0.00	368.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

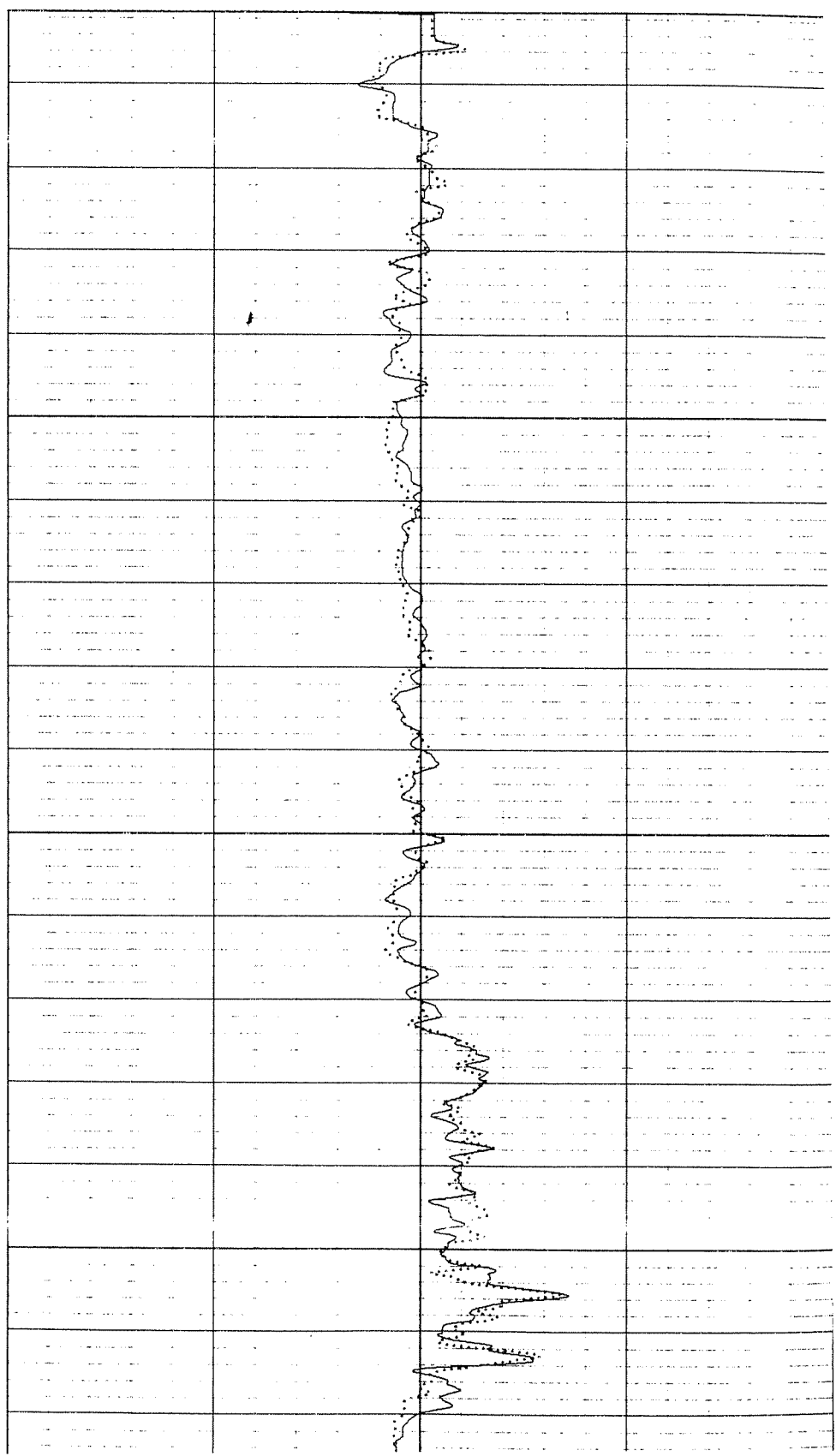
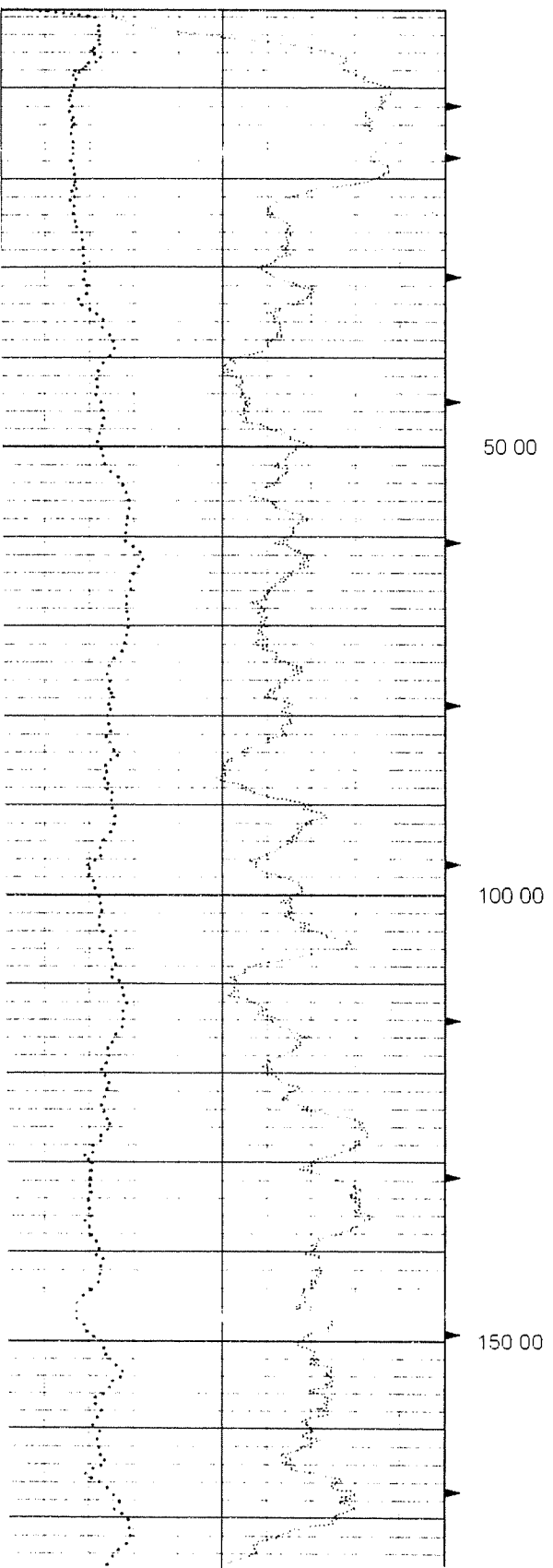
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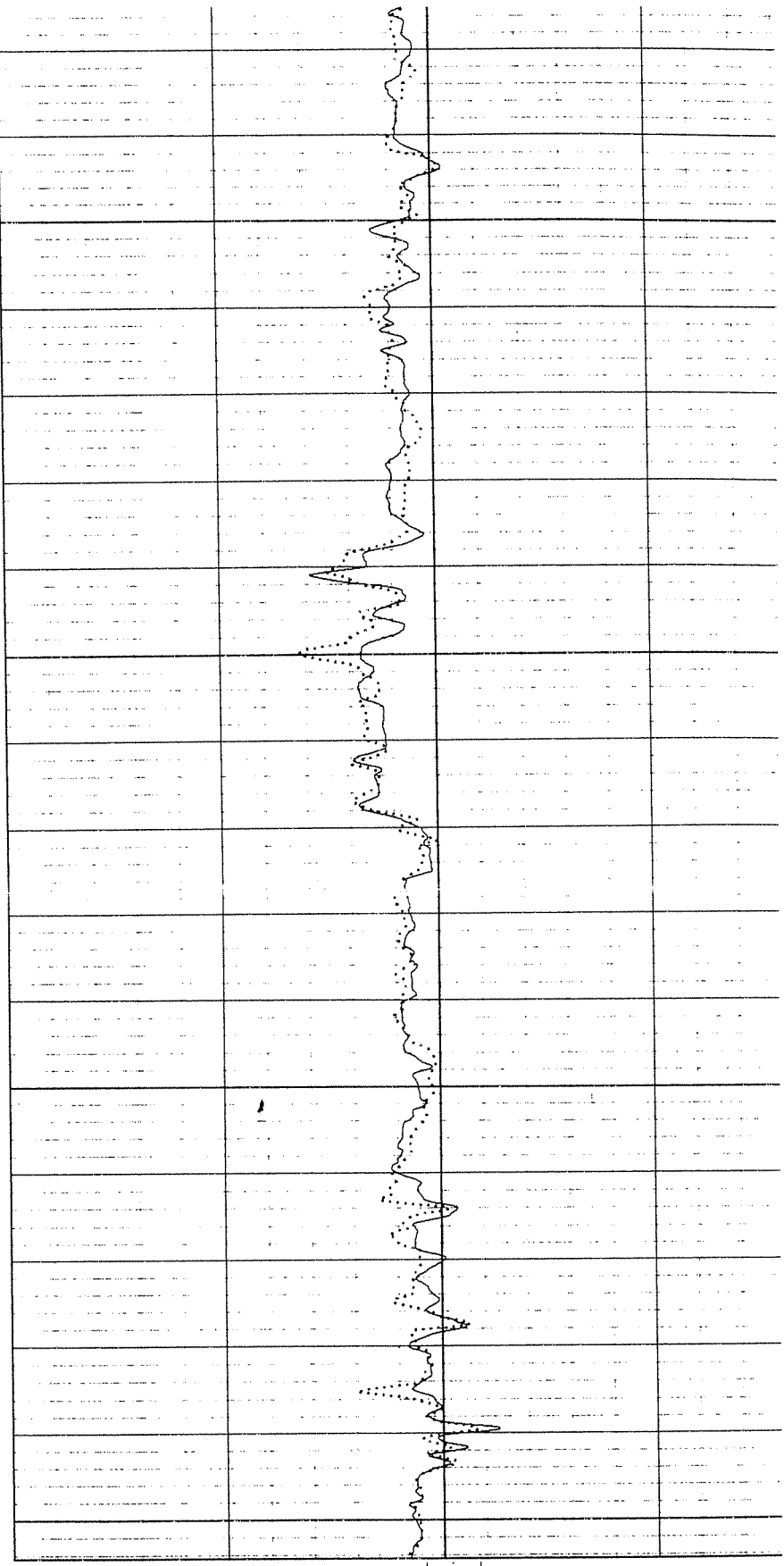
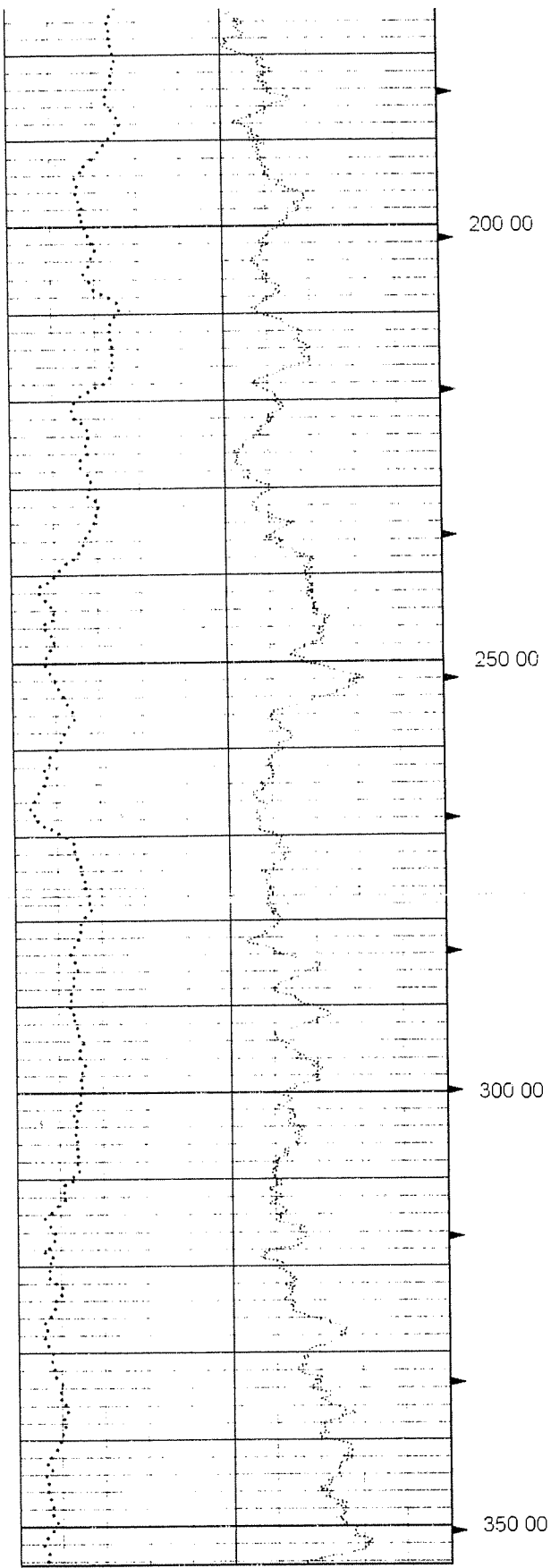
JTN: 35805

Sec: Rm: 5.1 @ 75 Deg F
Twp: Rmf: 5.2 @ 75 Deg F
Rge:
Elev., Lat. and Lon. determined using recreational GPS unit.
Location: 63 Ave and McKinley
Driller: Stewart Bros. Drilling

incl deg 0 00 10 00
ngam api 0 00 150 00


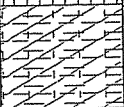
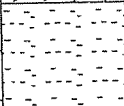
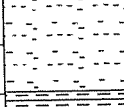


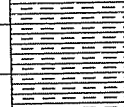

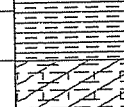
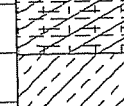




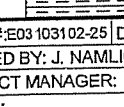
calx inch 0 00 20 00
caly inch 0 00 20 00





0 00 10 00
 incl deg
 0 00 150 00
 ngam api

0 00
 calx inch
 0 00
 caly inch

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5		ML	SILTY SAND		
10		GP	SANDY GRAVEL SUB ANGULAR <1"		
15		SP	GRAVELLY COARSE SAND (GRAVEL <10%)		
20		SP	GRAVELLY COARSE SAND (GRAVEL <10%) <1"		
25		CL	SILTY CLAY, MED. BROWN		
30		CL	SILTY CLAY, MED. BROWN		
35		CL	SILTY CLAY MOD. PLASTICITY		
40		CL	SILTY CLAY		
45		CL	SANDY, SILTY CLAY (SAND <20%)		
50		GP	SANDY GRAVEL (<3/8") SAND <40%	0.0	
55		GC	CLAYEY SANDY GRAVEL (CLAY 30%, SAND 30%, GRAVEL 40%)		
60		CL	COARSE SANDY CLAY (SAND <10%)		
65		SC	CLAYEY, GRAVELLY SAND (C-30%, G-20%) GRAVEL <3/8"		
70		CL	SANDY SILTY CLAY (SAND <20%)		
75		CL	SILTY CLAY MED. BROWN MOD PLASTICITY		

PROJ.#: E03103102-25 | DRILL DATE: 01/15/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 119.9'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY




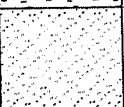








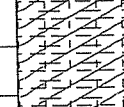

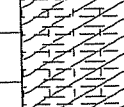
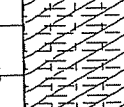
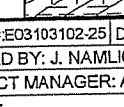
FIELD BOREHOLE LOG
AVB 92-02B
53RD AVENUE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80	[Symbol]	CL	SILTY CLAY MINOR SAND <5% GRAVEL <5%		
85	[Symbol]	CL	SANDY SILTY CLAY (SAND <5%)		
90	[Symbol]	GP	SANDY GRAVEL, SUB ANGULAR <1" (1/2-1" FRACTION <10%, 1/4-1/2" < 40%)		
95	[Symbol]	GP	SANDY GRAVEL, SUB ANGULAR <1" (1/2-1" FRACTION <10%, 1/4-1/2" < 50%)		
100	[Symbol]	SW	COARSE SAND W/MINOR GRAVEL (<10% <3/8")		
105	[Symbol]	SW	GRAVELLY SAND (<3/8" GRAVEL <20%)		
110	[Symbol]	SW	GRAVELLY SAND (<3/8" GRAVEL <20%)		
115	[Symbol]	CL	SANDY SILTY CLAY (SAND <30%) MED. BROWN		
120	[Symbol]	CL	SANDY SILTY CLAY (SAND <30%)		
125	[Symbol]	SC	CLAYEY, GRAVELLY SAND (CLAY <30%)		
130	[Symbol]	CL	SANDY CLAY (SAND <30%)		
135	[Symbol]	GP	SANDY GRAVEL <3/8"		
140	[Symbol]	GP	COARSE SANDY GRAVEL <1/2"		
145	[Symbol]	GP	SANDY GRAVEL <3/4" ANGULAR (S <30%)		
150	[Symbol]	SW	COARSE SAND (MINOR GRAVEL <3/8 <10%)		

PROJ.#:E03103102-25 | DRILL DATE: 01/15/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 119.9'
 RIG TYPE:GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB92-02B
53RD AVE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155		SP	GRAVELLY SAND (<5/8")		
160		SW	COARSE SAND (MINOR GRAVEL <5%)		
165		CL	SANDY CLAY (SAND <40%)		
170		CL	SANDY CLAY (SAND <40%)		
175		CL	SANDY CLAY (SAND <40%)	0.0	
180		CL	SANDY CLAY (SAND <40%)		
185		CL	SANDY CLAY, (SAND<10%) MED. BRN		
190		GP	SANDY GRAVEL <3/4"		
195		GP	SANDY GRAVEL <3/4"		
200		GP	SANDY GRAVEL <3/4"		
205		GP	SANDY GRAVEL <1/2"		
210		GP	SANDY GRAVEL <1/2"		
215		GP	SANDY GRAVEL <1/2"		
220		GP	SANDY GRAVEL <1/2"		
225		GP	SANDY GRAVEL <3/8"		

PROJ.#:E03103102-25 | DRILL DATE: 01/15/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 119.9'
 RIG TYPE:GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 92-02B
53RD AVENUE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230	[Symbol]	GP	SANDY GRAVEL <1/2" ANGULAR	0.0	
235	[Symbol]	GP	SANDY GRAVEL <1/2" ANGULAR		
240	[Symbol]	GP	GRAVELLY SAND <3/8 (GRAVEL <40%)		
245	[Symbol]	GP	SANDY GRAVEL <1/2"		
250	[Symbol]	GP	SANDY GRAVEL <3/4"		
255	[Symbol]	GC	SANDY GRAVEL <3/4. MINOR CLAY <5%		
260	[Symbol]	GC	CLAYEY SANDY GRAVEL <1/2" (CLAY <10%)	0.0	
265	[Symbol]	GP	SANDY GRAVEL <1/2" (MAJOR FRACTION 1/4-3/8" 50%)		
270	[Symbol]	GP	SANDY GRAVEL <3/8"		
275	[Symbol]	GP	SANDY GRAVEL <1/2"		
280	[Symbol]	GP	SANDY GRAVEL <1/2"		
285	[Symbol]	GP	SANDY GRAVEL <3/8"	0.0	
290	[Symbol]	GW	GRAVEL <1/2"		
295	[Symbol]	GC	SANDY, CLAYEY GRAVEL <1" (SAND <10%, CLAY <25%)		
300	[Symbol]	CL	SILTY CLAY (MINOR SAND)		

PROJ.#:E03103102-25 | DRILL DATE: 01/15/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 119.9'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 92-02B
53RD AVENUE /ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
305	[Hatched Pattern]	CL	SANDY SILTY CLAY (SAND <10% - 20%)		
310		CL	SILTY CLAY		
315		CL	SILTY CLAY, MINOR SAND <10%	0.0	
320		CL	SILTY CLAY, MINOR SAND <10%		
325		CL	SILTY CLAY, MED BROWN		
330		CL	SILTY CLAY, MED BROWN	0.0	
335		CL	SILTY CLAY		
340		CL	SILTY CLAY, MINOR SAND <10%		
345		CL	SILTY CLAY (SAND <20%)		
350		CL	SILTY CLAY		
355					
360					
365					
370					
375					

PROJ.#: E03103102-25 | DRILL DATE: 01/15/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 119.9'
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 350'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 92-02B
53RD AVENUE/ROOSEVELT
PHOENIX, ARIZONA



5201 Woodmere Drive
Bakersfield, California 93313
(800) 445-9914
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ROBERTSON GEOLOGGING TECHNOLOGY

NEUTRON LOG

AVB 92-02

OTHER SERVICES
X-Y CALIPER
ELOG

COMPANY B E & K TERRANEXT
WELL AVB 92-02
FIELD PHOENIX
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT. 33 27.53 N
LONG. 112 10.38 W

Perm. Datum	G.L.	Elev	1042	KB	0.00
Log. Datum	G.L.			DF	0.00
Drill Datum	G.L.			GL	1042.00

DATE	1/20/2002	0	0
RUN#	1	1	1
TYPE OF LOG	NEUTRON		
DEPTH DRILLER	350.00	0.00	0.00
DEPTH LOGGER	349.00	0.00	0.00
LOG DEEPEST	349.00	0.00	0.00
LOG SHALLOW	0.00	0.00	0.00
FLUID IN HOLE	BENTONITE		
SALINITY			
DENSITY			
LEVEL	FULL	0.00	0.00
MAX TEMP °C	75.70		
RIG TIME	.75 HR.		
RECORDED BY	DAN IHDE		
WITNESSED BY	JOE NAMLICK		

RUN#	BIT RECORD		CASING RECORD			
	BIT	BIT RECORD FROM	TO	SIZE	FROM	TO
1	9.88	0.00	350.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (C:\Dans\35078\35078n.hed)

JTN 35078

Sec Rm 4 5 @ 75F
Twp Rmf 4 4 @ 75F
Rge:
Source 71-1-119 3 Curie
Location: Roosevelt and 53rd Ave, Phoenix
Lat and Lon and Elev. determined using a recreational GPS
Driller: Stewart Brothers Drilling Inc.

Depth = 0.00 ft Time = 20 January 2002 11 57 32 Filename = "C:\WINLOGGER\DATA\35078n.LOG"

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0020

0040

0060

0080

0100

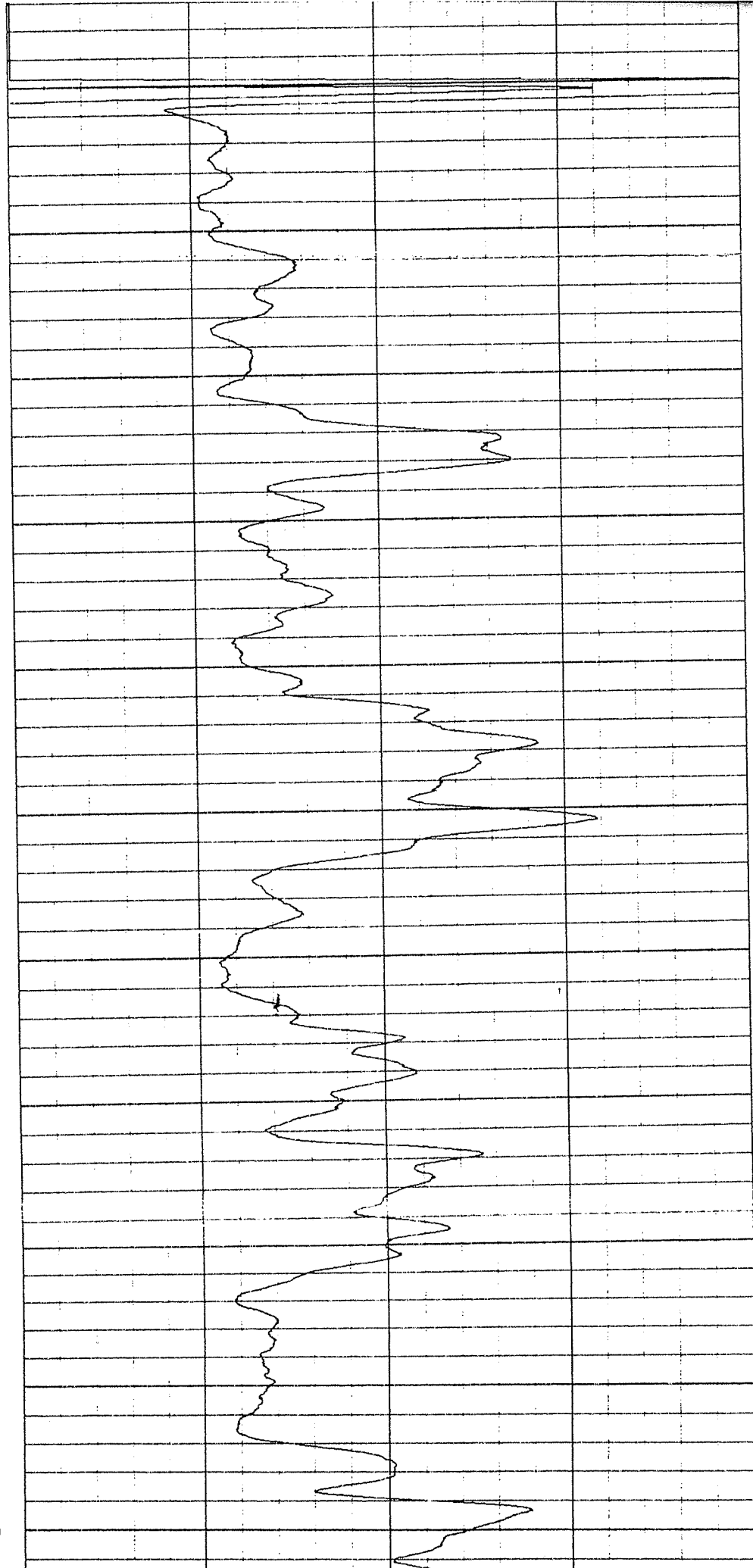
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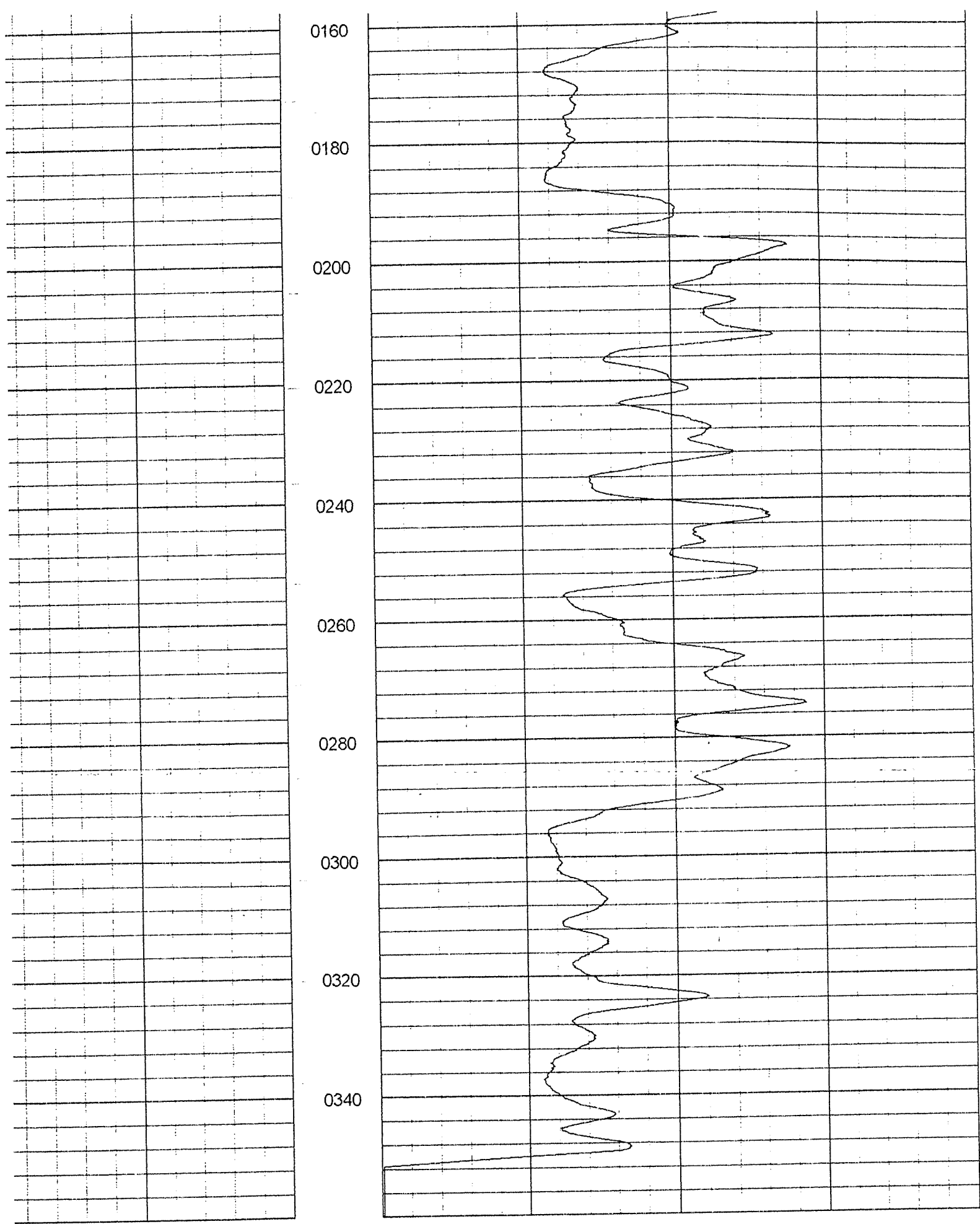
0140

0160

0180

0200





0.00

neut api

2000.00



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ELECTRIC - TEMPERATURE - GAMMA RAY LOG

AVB 92-02

OTHER SERVICES
X-Y CALIPER
NEUTRON

COMPANY B E & K TERRANEXT
WELL AVB 92-02
FIELD PHOENIX
COUNTRY U S
STATE AZ
COUNTY MARICOPA
LAT 333 27.53 N
LONG 112 10.38 W

Perm. Datum	GL	Elev	1042	KB	0.00
Log Datum	GL			DF	0.00
Drill Datum	GL			GL	1042.00

DATE 1/20/2002
RUN# 1
TYPE OF LOG ELOG
DEPTH DRILLER 350.00
DEPTH LOGGER 349.00
LOG DEEPEST 348.00
LOG SHALLOW 0.00
FLUID IN HOLE BENTONITE
SALINITY
DENSITY
LEVEL FULL
MAX TEMP °C 75.70
RIG TIME 75 HR
RECORDED BY DAN IHDE
WITNESSED BY JOE NAMLICK

RUN#	BIT RECORD		SIZE	CASING RECORD	
	BIT FROM	TO		WEIGHT FROM	TO
1	9.88	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00

REMARKS (C \Dans\35078\35078e hed)

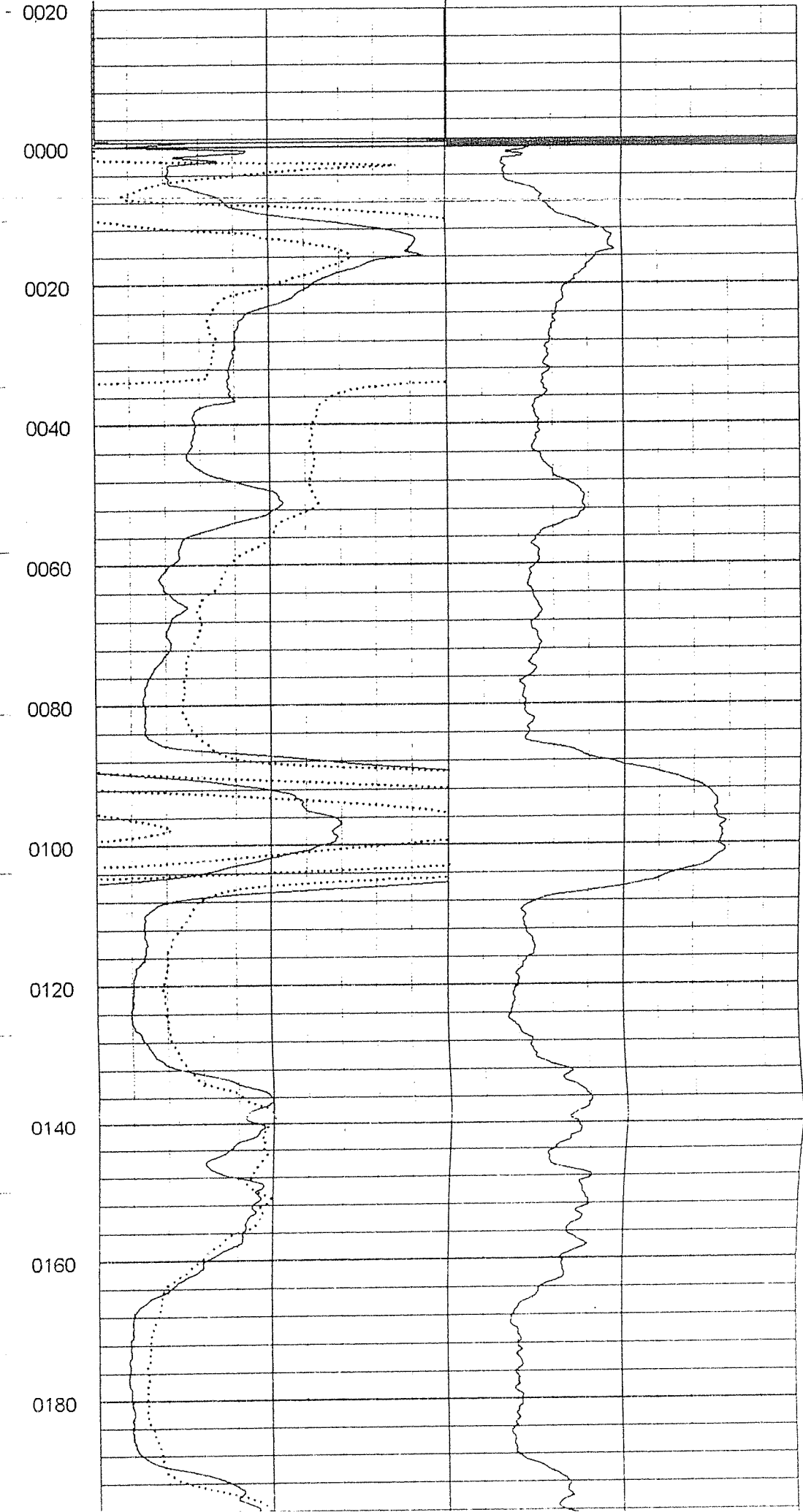
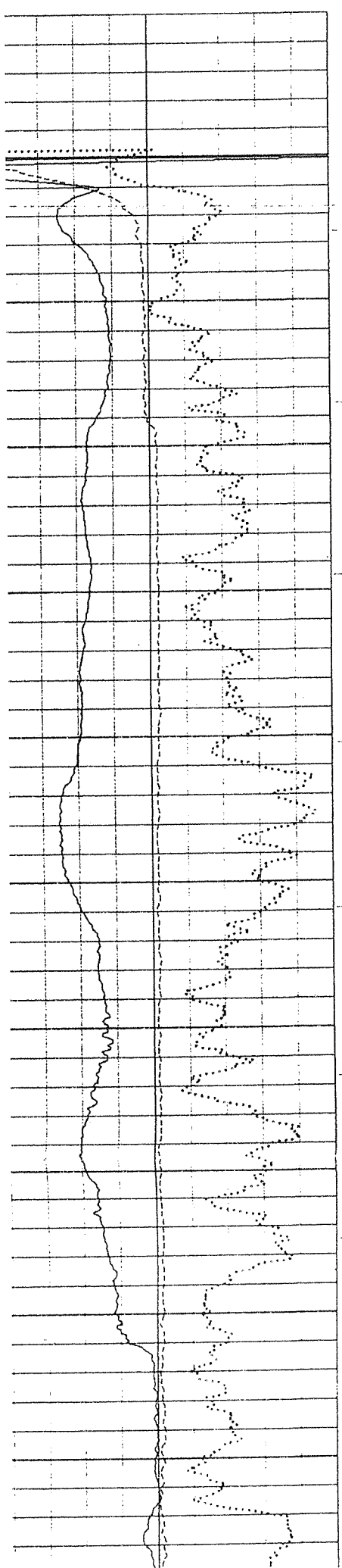
JTN:35078

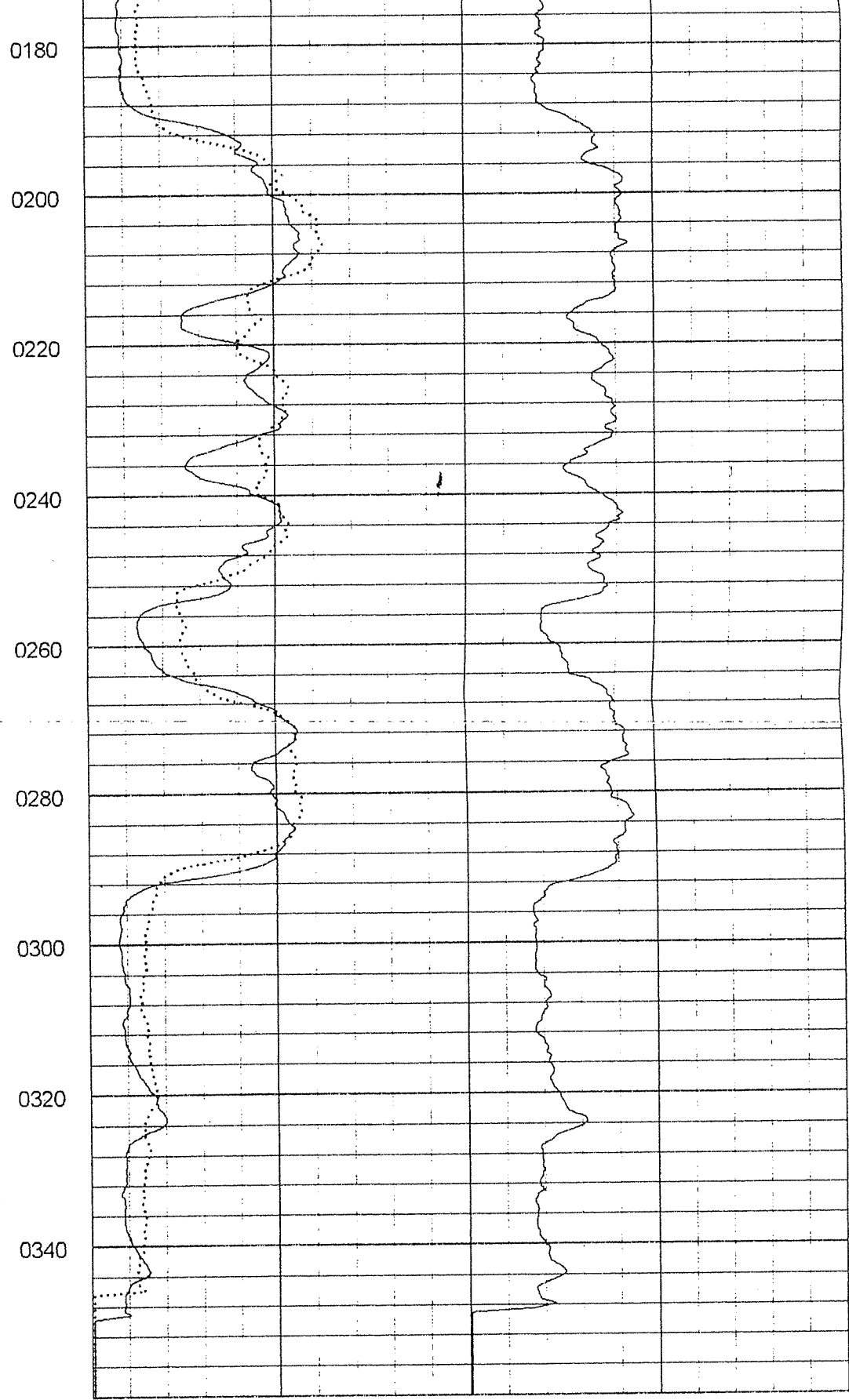
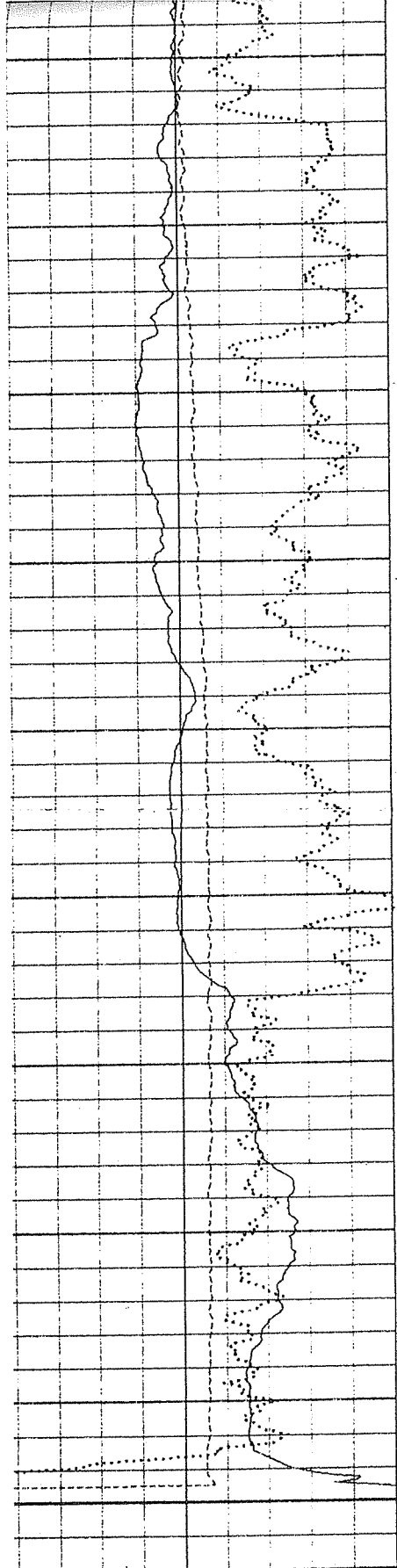
Sec: Rm 4.5 @ 75F
Twp: Rmf 4.4 @ 75F
Rge:

Location: Roosevelt and 53rd Ave, Phoenix
Lat and Lon. and Elev determined using a recreational GPS.
Driller: Stewart Brothers Drilling Inc.

Depth = 0.00 ft Time = 20 January 2002 10:58:55 Filename = "C:\WINLOGGER\DATA\35078e LOG"

100.00	SP mV	0.00		
70.00	TEMP DEGF	80.00	0.00	100.00
0.00	NGAM API	150.00	0.00	100.00 0.00
				S.P.T. OHM.M 50.00
				64" OHM.M
				16" OHM.M





00.00 SP mV 0.00
 0.00 TEMP DEGF 80.00
 00 NGAM API 150.00

0.00 64" OHM.M 100.00
 0.00 16" OHM.M 100.00 0.00 S.P.T. OHM.M 50.00



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ROBERTSON GEOLOGGING TECHNOLOGY

X Y CALIPER LOG

AVB 92-02

OTHER SERVICES
 NEUTRON
 ELOG

COMPANY B E & K TERRANEXT
 WELL AVB 92-02
 FIELD PHOENIX
 COUNTRY U S
 STATE AZ
 COUNTY MARICOPA
 LAT 33 27 53 N
 LONG 112 10.38 W

Perm. Datum	GL	Elev	1042	KB	0.00
Log. Datum	GL			DF	0.00
Drill Datum	GL			GL	1042.00

DATE 1/20/2002
 RUN# 1
 TYPE OF LOG X Y CALIPER
 DEPTH DRILLER 350.00
 DEPTH LOGGER 350.00
 LOG DEEPEST 349.00
 LOG SHALLOW 0.00
 FLUID IN HOLE BENTONITE
 SALINITY
 DENSITY
 LEVEL FULL
 MAX TEMP C 75.70
 RIG TIME 75 HR
 RECORDED BY DAN IHDE
 WITNESSED BY JOE NAMLIK

BIT RECORD	CASING RECORD
RUN# BIT FROM TO SIZE WEIGHT	FROM TO
1 9.88 0.00 350.00 0.00	0.00 0.00
1 0.00 0.00 0.00 0.00	0.00 0.00

MARKS (C \Dansi35078\35078c hed)

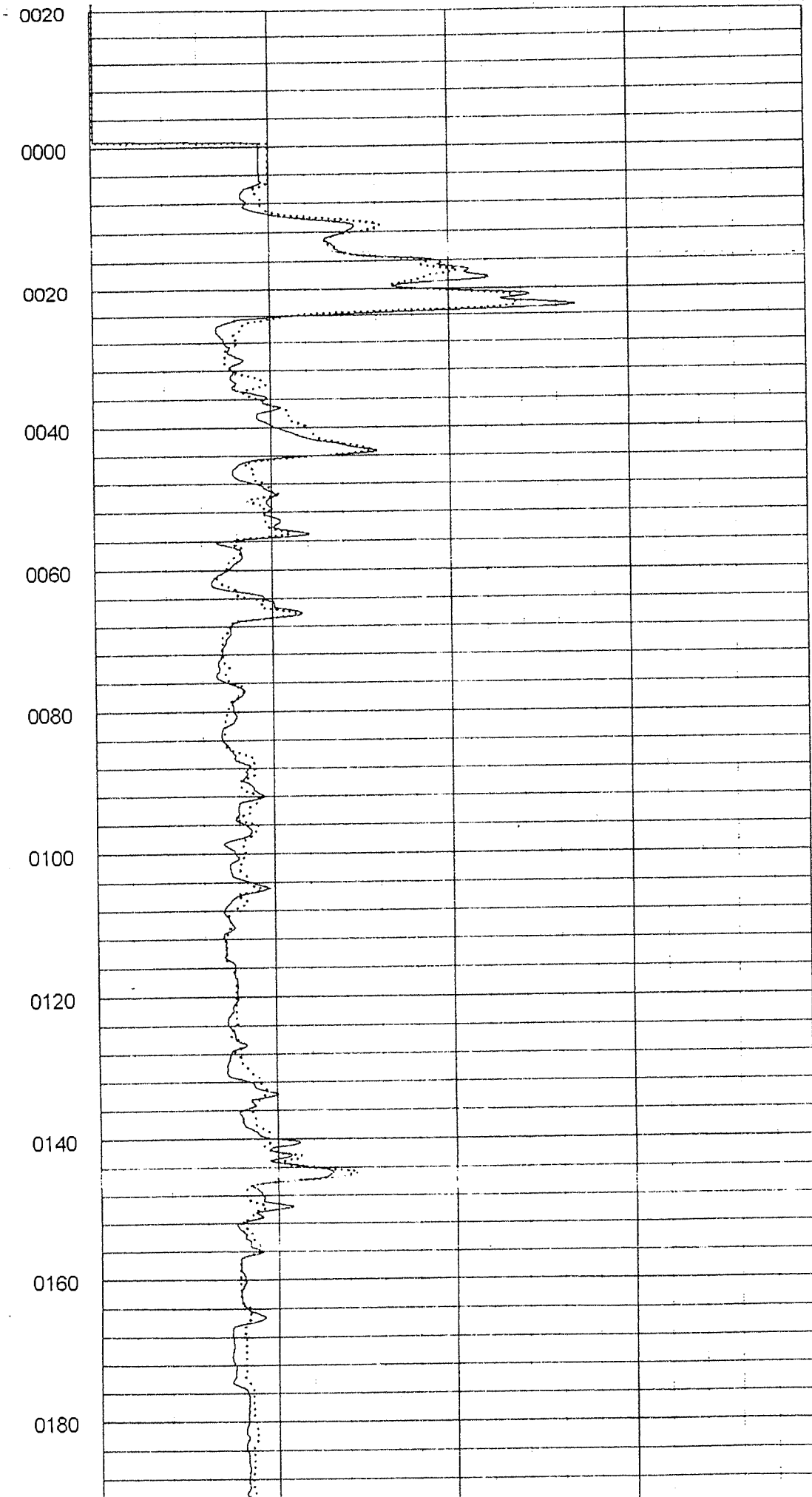
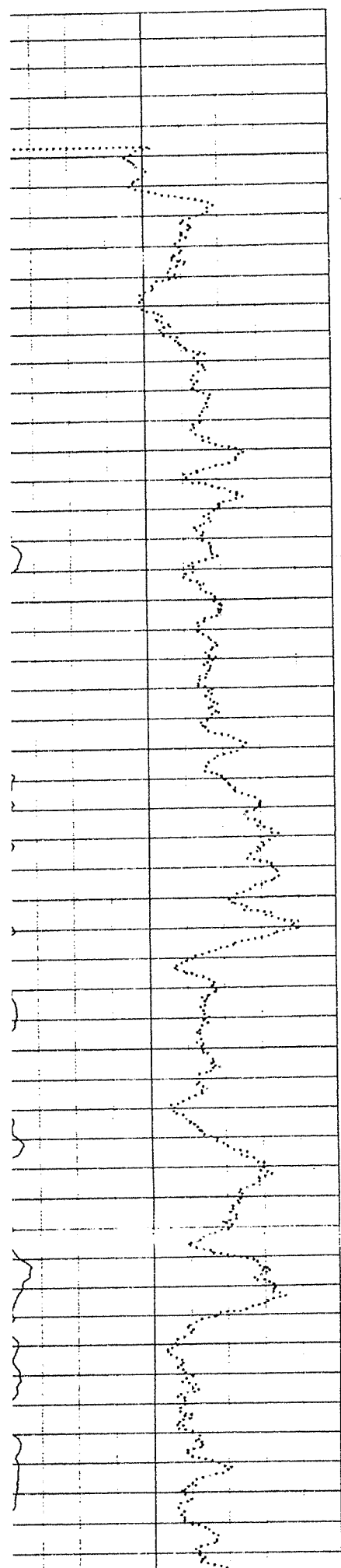
35078

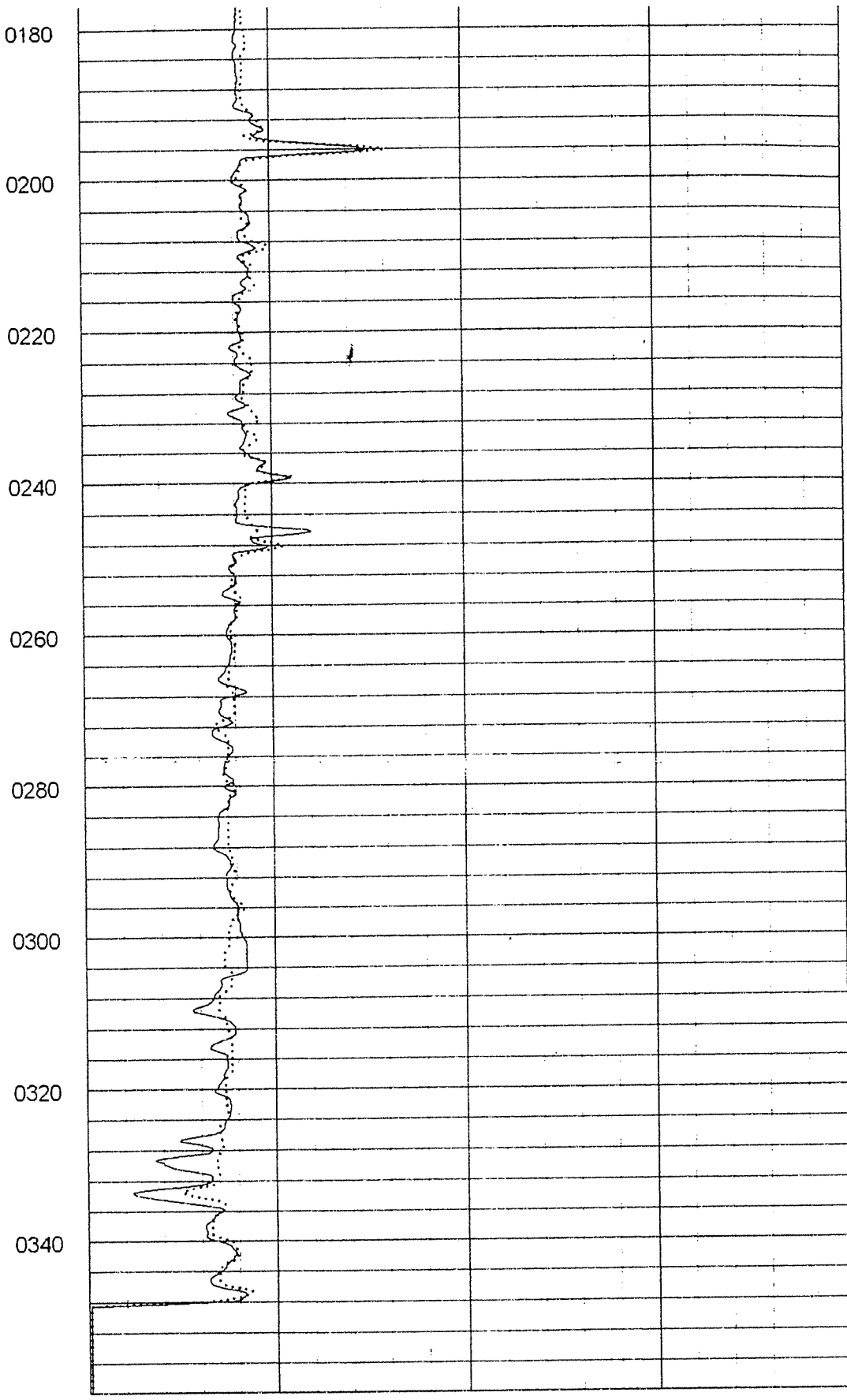
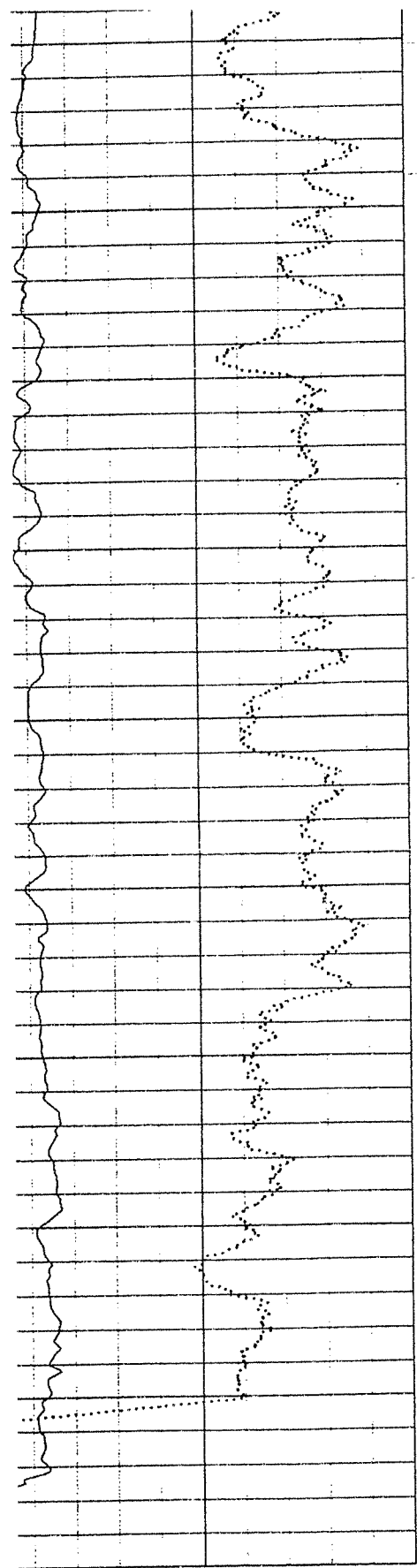
Rm 4.5 @ 75F
 Rmf 4.4 @ 75F

Location: Roosevelt and 53rd Ave. Phoenix
 and Lon and Elev determined using a recreational GPS
 by Stewart Brothers Drilling Inc

Depth = 0.00 ft Time = 20 January 2002 12:46:00 Filename = "C:\WINLOGGER\DATA\35078c LOG"

ngam api	150.00	6.00	caly Inch	26.00
incl deg	10.00	6.00	calx Inch	26.00






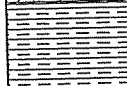
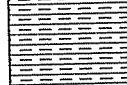












.00 ngam api 150.00

 .00 incl deg 10.00

6.00 caly Inch 26.00


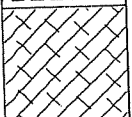













 6.00 calx Inch 26.00

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
5		SC	SANDY GRAVEL		
10		GW	SANDY GRAVEL <0.25"	0.0	
15		GW	SANDY GRAVEL <0.5" (MINOR SILTY CLAY <10%)		
20		CL	SANDY, SILTY CLAY MED. BROWN (SAND <10%)		
25		CL	SILTY CLAY, MED. BROWN MOD. PLASTICITY		
30		CL	SILTY CLAY, MED. BROWN MOD. PLASTICITY		
35		GC	SILTY, CLAYEY SANDY GRAVEL		
40		CL	SILTY SANDY CLAY (MINOR GRAVEL <15%)		
45		SC	SILTY, CLAYEY COARSE SAND		
50		SC	SILTY, CLAYEY COARSE SAND		
55		SW	COARSE SAND		
60		CL	FINE SANDY SILTY CLAY		
65		CL	SANDY SILTY CLAY		
70		SC	SILTY CLAYEY SAND		
75		CL	SANDY, SILTY CLAY, MED. BROWN		

PROJ.#:E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 117'-8"
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 378'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 94-02
43RD AVENUE/ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
80		SC	SILTY, CLAYEY SAND MED BROWN		
85		GW	SILTY, SANDY GRAVEL <1/4"		
90		GW	SILTY SANDY GRAVEL <1/2"		
95		CL	SILTY, COARSE SANDY CLAY		
100		SW	GRAVELLY COARSE ANGULAR SAND <1/2"	0.0	
105		SW	GRAVELLY COARSE ANGULAR SAND <1/4"		
110		CL	SILTY CLAY, MINOR SAND		
115		CL	SILTY CLAY MED. BROWN		
120		CL	SILTY CLAY, MINOR SAND, MED. BROWN MOD. PLASTICITY	0.0	
125		CL	SILTY CLAY, MINOR SAND, MED. BROWN MOD. PLASTICITY		
130		CL	SILTY SANDY CLAY	0.0	
135		GW	COARSE SANDY GRAVEL ANGULAR		
140		GW	COARSE SANDY GRAVEL ANGULAR		
145		GW	COARSE SANDY GRAVEL ANGULAR		
150		GW	COARSE SANDY GRAVEL		

PROJ.#: E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
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 NOTES:
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 DRILLER: STEWART | TOTAL DEPTH: 378"
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 94-02
43RD AVENUE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
155	[Cross-hatched pattern]	GW	COARSE SANDY GRAVEL		
160		GW	COARSE SANDY GRAVEL		
165		GW	COARSE SANDY GRAVEL		
170		GW	COARSE SANDY GRAVEL <1"		ADDING WATER
175		GW	COARSE SANDY GRAVEL <1"		
180		GW	COARSE SANDY GRAVEL <0.5"		
185		GW	COARSE ANGULAR SANDY GRAVEL <0.5"	0.0	
190		GW	COARSE SANDY GRAVEL <0.5"		
195		GC	CLAYEY, ANGULAR SANDY GRAVEL		
200		CL	SILTY SANDY GRAVELLY CLAY MOD PLASTIC		
205	CL	GRAVELLY, SANDY CLAY			
210	CL	SILTY SANDY, GRAVELLY CLAY			
215	CL	SILTY SANDY, GRAVELLY CLAY			
220	GW	COARSE SANDY GRAVEL <0.5"			
225	GW	COARSE, ANGULAR SANDY GRAVEL <0.5"			

PROJ.#: E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 117'-8"
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 378'
 DRILLING METHOD: MUD ROTARY




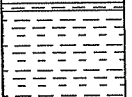

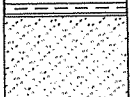
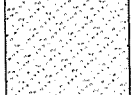
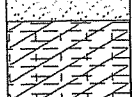









FIELD BOREHOLE LOG
AVB 94-02
43RD AVENUE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
230		SW	COARSE SAND <1/4" ANGULAR		
235		GW	COARSE SANDY GRAVEL <0.5" ANGULAR		
240		SW	COARSE SAND, MINOR GRAVEL <15% ANGULAR		
245		GW	COARSE SANDY GRAVEL <0.5"	0.0	
250		GW	COARSE SANDY GRAVEL		
255		GW	COARSE SANDY GRAVEL ANGULAR		
260		SW	COARSE SAND, (MINOR GRAVEL <10%)		
265		SW	COARSE SAND, (MINOR GRAVEL <10%)		
270		GW	COARSE SANDY GRAVEL		
275		GW	COARSE SANDY GRAVEL	0.0	
280		SW	GRAVELLY COARSE SAND		
285		SW	GRAVELLY COARSE SAND		
290		SC	CLAYEY GRAVELLY SAND MOD. PLASTICITY		
295		SC	CLAYEY COARSE SAND		
300		CL	SANDY CLAY MED. BROWN		

PROJ.#:E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 117'-8"
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 378'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
AVB 94-02
43RD AVENUE / ROOSEVELT
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	PID ppm	COMMENTS
305		CL	SANDY CLAY, MED. BRN. MOD. PLASTICITY	0.0	
310		SC	CLAYEY COARSE SAND		
315		CL	COARSE SANDY CLAY		
320		SW	COARSE SAND, ANGULAR		
325		SW	COARSE SAND, ANGULAR		
330		GP	COARSE GRAVEL, ANGULAR		
335		GP	COARSE GRAVEL, ANGULAR		
340		GW	COARSE SANDY GRAVEL <1" (MINOR CLAY)		
345		GW	COARSE SANDY GRAVEL <1" (MINOR CLAY)		
350		GW	COARSE SANDY GRAVEL <1" (MINOR CLAY)		
355		GW	COARSE SANDY GRAVEL <1" ANGULAR		
360		GC	CLAYEY, SANDY GRAVEL <0.5" (MINOR CLAY <10%)	0.0	
365		GC	CLAYEY SANDY GRAVEL <0.5"		
370		GC	CLAYEY SANDY GRAVEL <30% CLAY		
375		SC	CLAYEY COARSE SAND (CLAY <30%)		

PROJ.#:E03103102-25 | DRILL DATE: 01/03/02
 LOGGED BY: J. NAMLICK
 PROJECT MANAGER: A. GORDON
 NOTES:
 DEPTH TO WATER: 117'-8"
 RIG TYPE: GD15W | DIAMETER: 10"
 DRILLER: STEWART | TOTAL DEPTH: 378'
 DRILLING METHOD: MUD ROTARY



FIELD BOREHOLE LOG
 AVB 94-02
 43RD AVE / ROOSEVELT
 PHOENIX, ARIZONA



5201 Woodmere Drive
Bakersfield, California 93313
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ROBERTSON GEOLOGGING TECHNOLOGY

NEUTRON LOG

AVB 94-02

OTHER SERVICES
X Y CALIPER
ELOG

COMPANY BE&K TERRANEXT
WELL AVB 94-02
FIELD PHOENIX
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT 33 27.57 N
LONG 112 09.28 W

Perm. Datum	G.L.	Elev	1111	KB	0.00
Log. Datum	G.L.			DF	0.00
Drill Datum	G.L.			GL	1111.00

DATE	1/5/2002		0		0
RUN#	1	X Y CALIPER	1		1
DEPTH DRILLER	380.00		0.00		0.00
DEPTH LOGGER	374.00		0.00		0.00
LOG DEEPEST	373.00		0.00		0.00
LOG SHALLOW	0.00		0.00		0.00
FLUID IN HOLE	BENTONITE				
SALINITY					
DENSITY					
LEVEL	64				
MAX TEMP °C	68.30		0.00		0.00
RIG TIME	.5 HR				
RECORDED BY	WILLIAM SMITH				
WITNESSED BY	J. NAMLICK				

RUN#	BIT RECORD		TO	SIZE	CASING RECORD		
	BIT	FROM			WEIGHT	FROM	TO
1	9.88	0.00	380.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (D:\Video Reports\Dan\RobertsonLogs\35019\35019N hed)

JTN: 35019

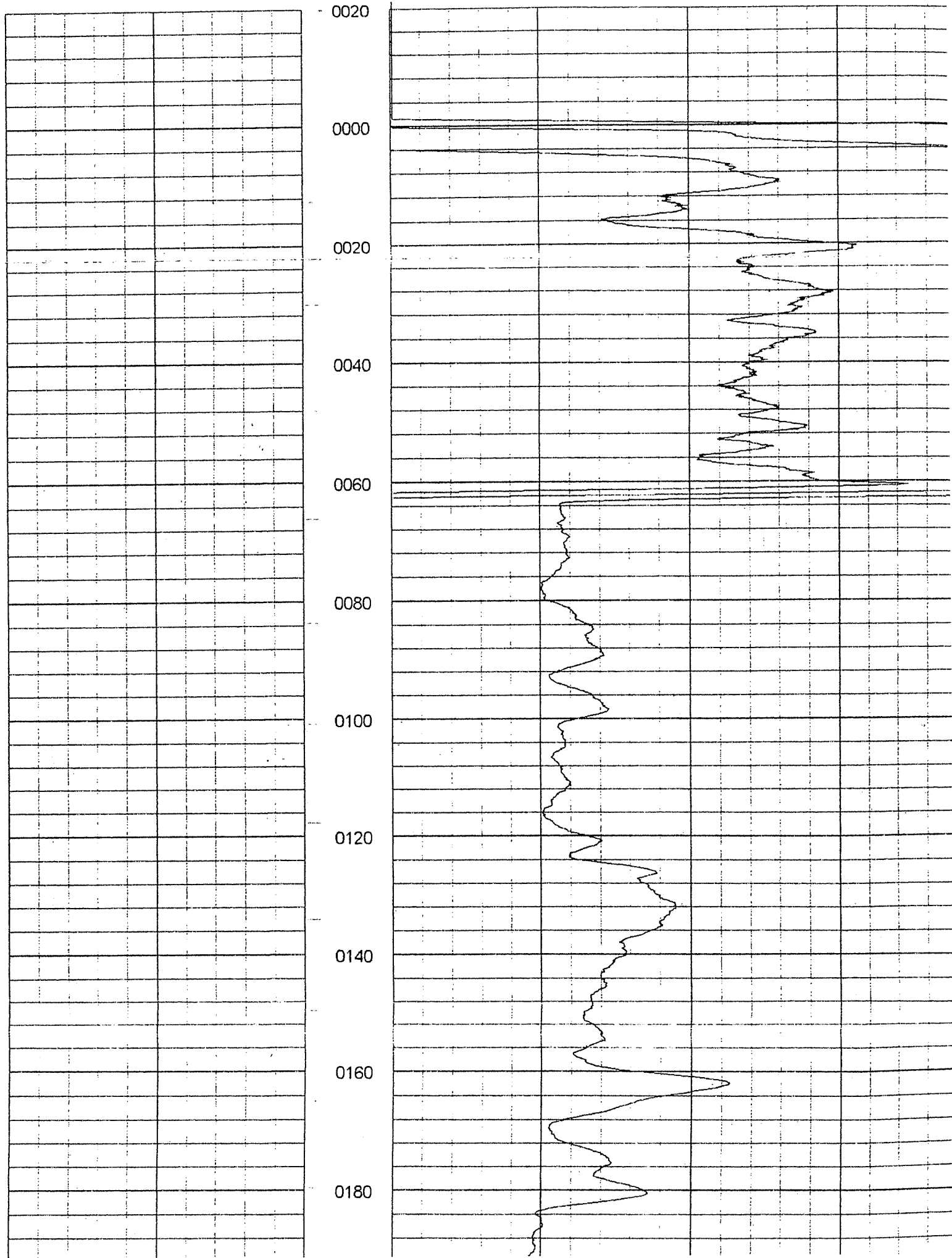
Sec. Rm. 7.4 @ 75 Deg F
Twp. Rmf. 7.5 @ 75 Deg F
Rge.
Elev., Lat. and Lon. determined using recreational GPS unit
Location Roosevelt west of 43rd, Phoenix.
Driller Stewart Bros. Drilling

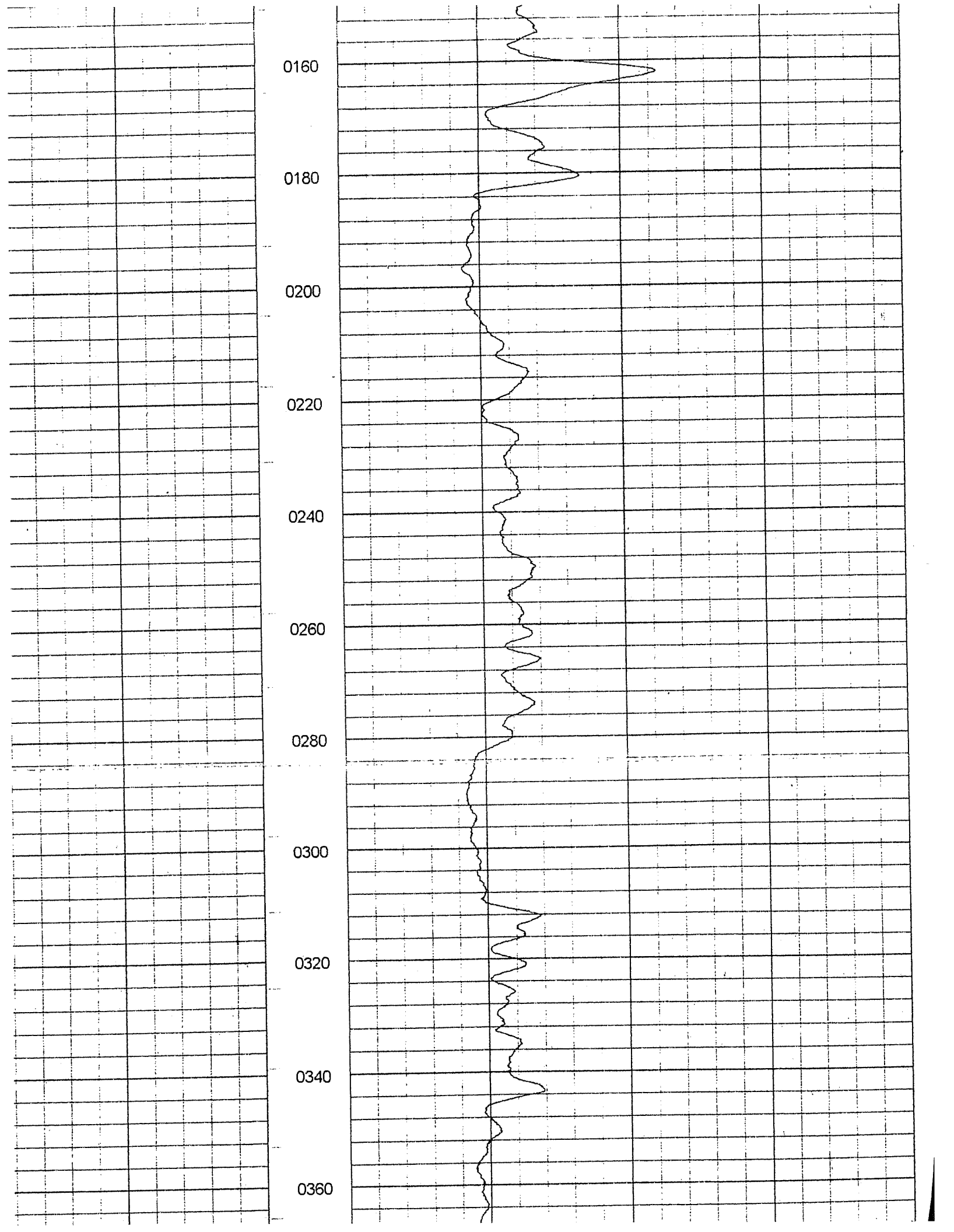
Depth = -0.050 ft Time = 05 January 2002 13 41 26 Filename = "C:\WINLOGGER\DATA\35019N.LOG"

0.00

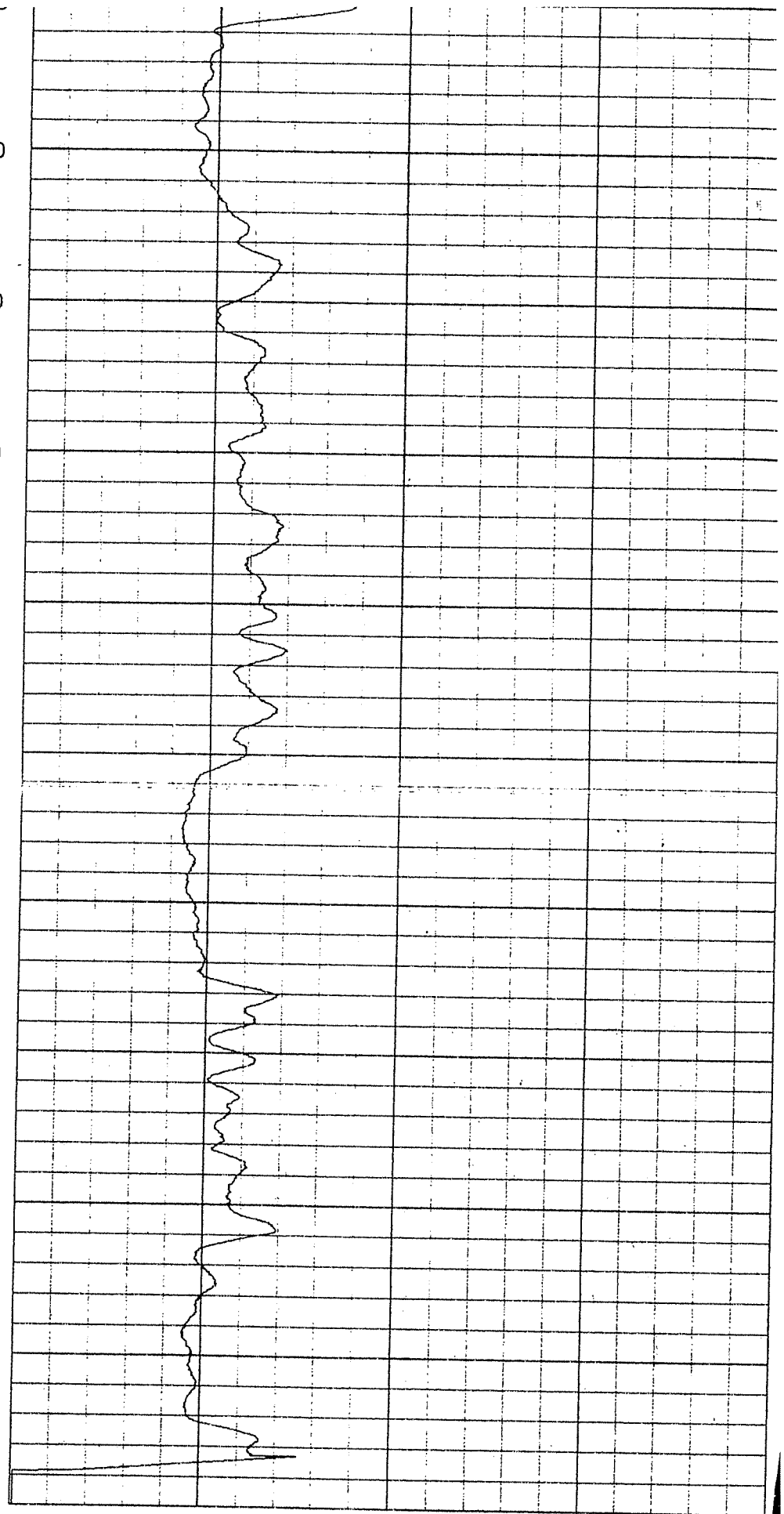
neut api

2000.00





0200
0220
0240
0260
0280
0300
0320
0340
0360



0.00

neut api

2000.00



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ELECTRIC - GAMMA RAY - TEMPERATURE LOG

AVB 94.02

OTHER SERVICES
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NEUTRON

COMPANY BE&K TERRANEXT
WELL AVB 94.02
FIELD PHOENIX
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT 33 27 57 N
LONG. 112 09.28 W

Perm. Datum	G.L.	Elev	KB	0.00
Log Datum	G.L.		DF	0.00
Drill Datum	G.L.		GL	1111.00

DATE	1/5/2002	0	0
TYPE OF LOG	1	1	1
DEPTH DRILLER	ELOG	0.00	0.00
DEPTH LOGGER	380.00	0.00	0.00
LOG DEEPEST	377.00	0.00	0.00
LOG SHALLOW	376.00	0.00	0.00
FLUID IN HOLE	0.00	0.00	0.00
SALINITY	BENTONITE		
DENSITY			
LEVEL	64		
MAX TEMP °C	68.30	0.00	0.00
RIG TIME	5 HR		
RECORDED BY	WILLIAM SMITH		
WITNESSED BY	J NAMLIICK		

RUN#	BIT	BIT RECORD FROM	TO	SIZE	CASING RECORD WEIGHT	FROM	TO
1	9.88	0.00	380.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REMARKS (D:\Video Reports\Dan\RobertsonLogs\35019\35019E hed)

TN. 35019

ec: Rm 7.4 @ 75 Deg F
wp: Rmf: 7.5 @ 75 Deg F
ge:
lev, Lat and Lon determined using recreational GPS unit
location Roosevelt west of 43rd. Phoenix.
driller Stewart Bros Drilling

Depth = - 1.00 ft Time = 05 January 2002 12:58:02 Filename = "C:\WINLOGGER\DATA\35019.LOG"

SP mV	500.00
TEMP DEGF	75.00
NGAM API	0.00
64" OHM.M	100.00

SP mV
 400.00 500.00

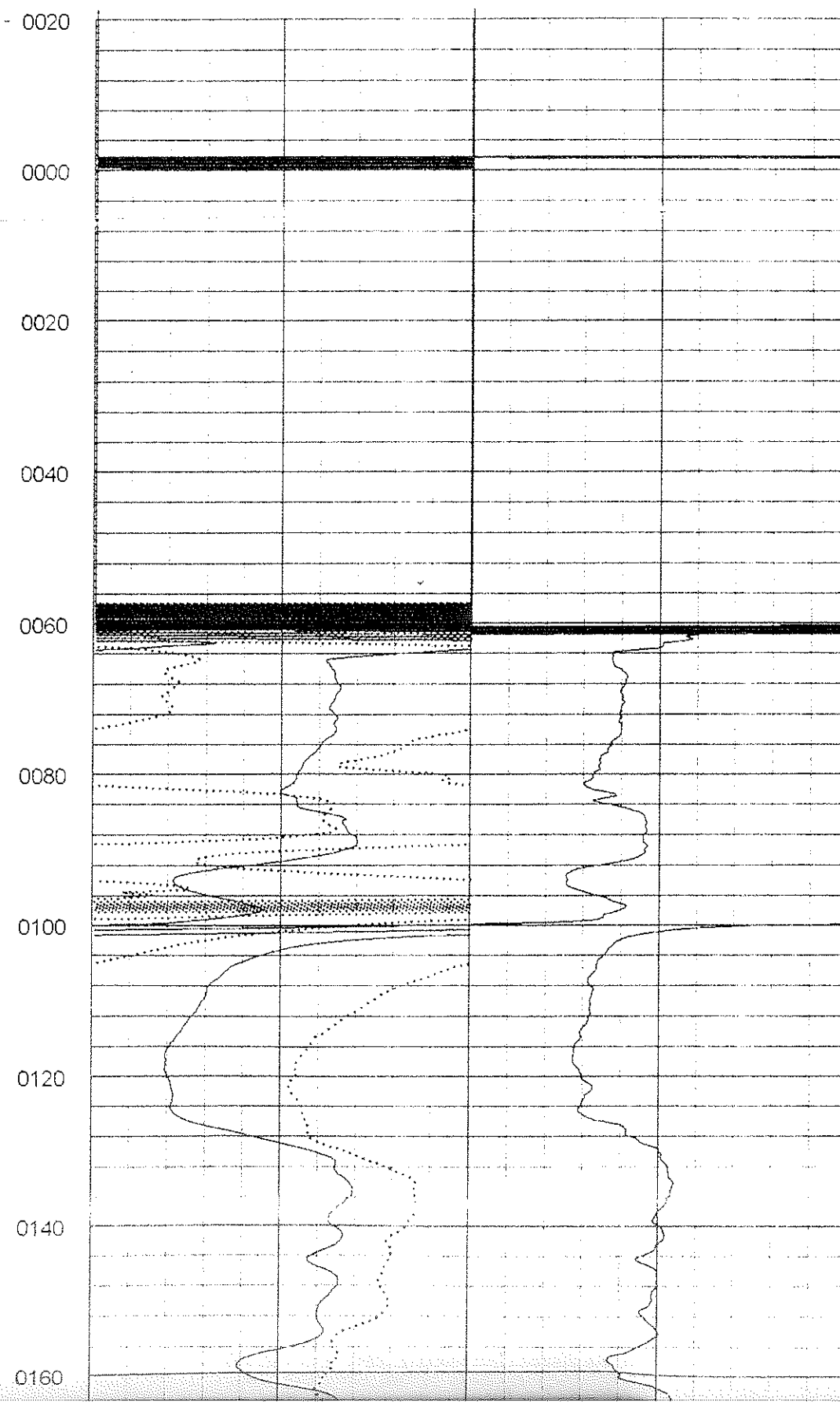
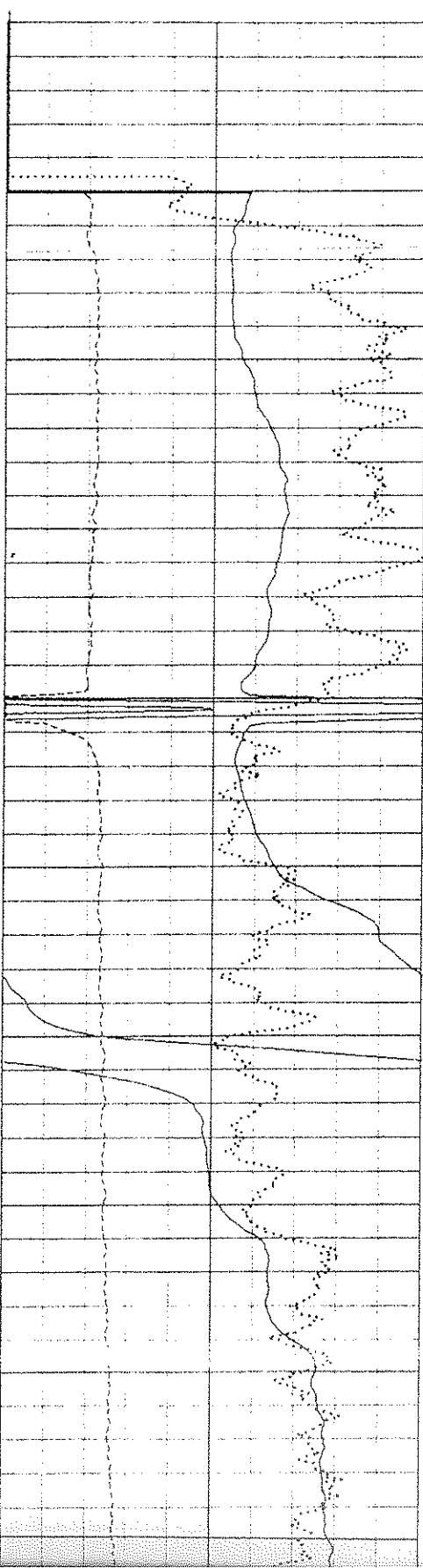
 TEMP DEGF
 65.00 75.00

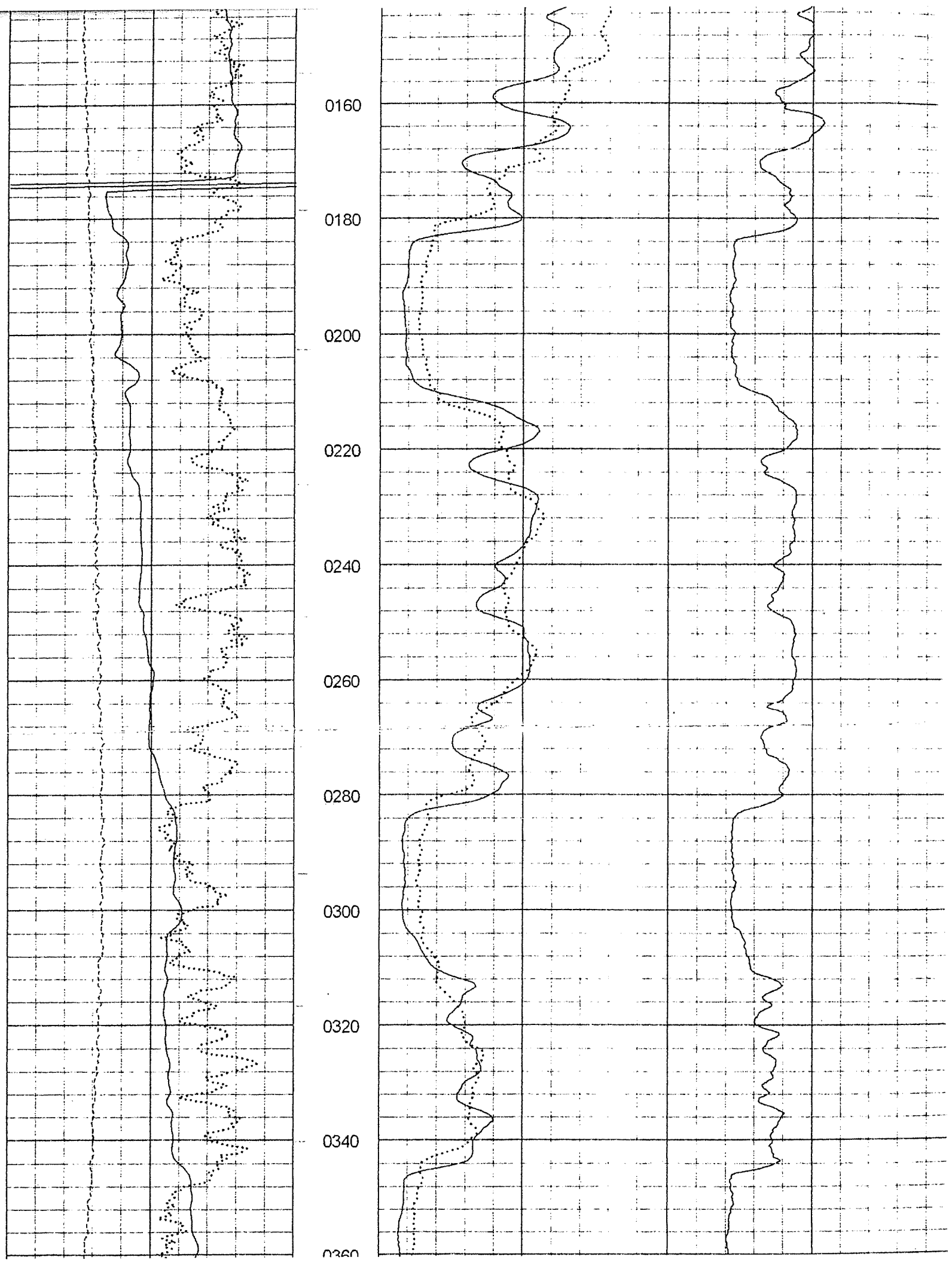
 NGAM API
 0.00 150.00

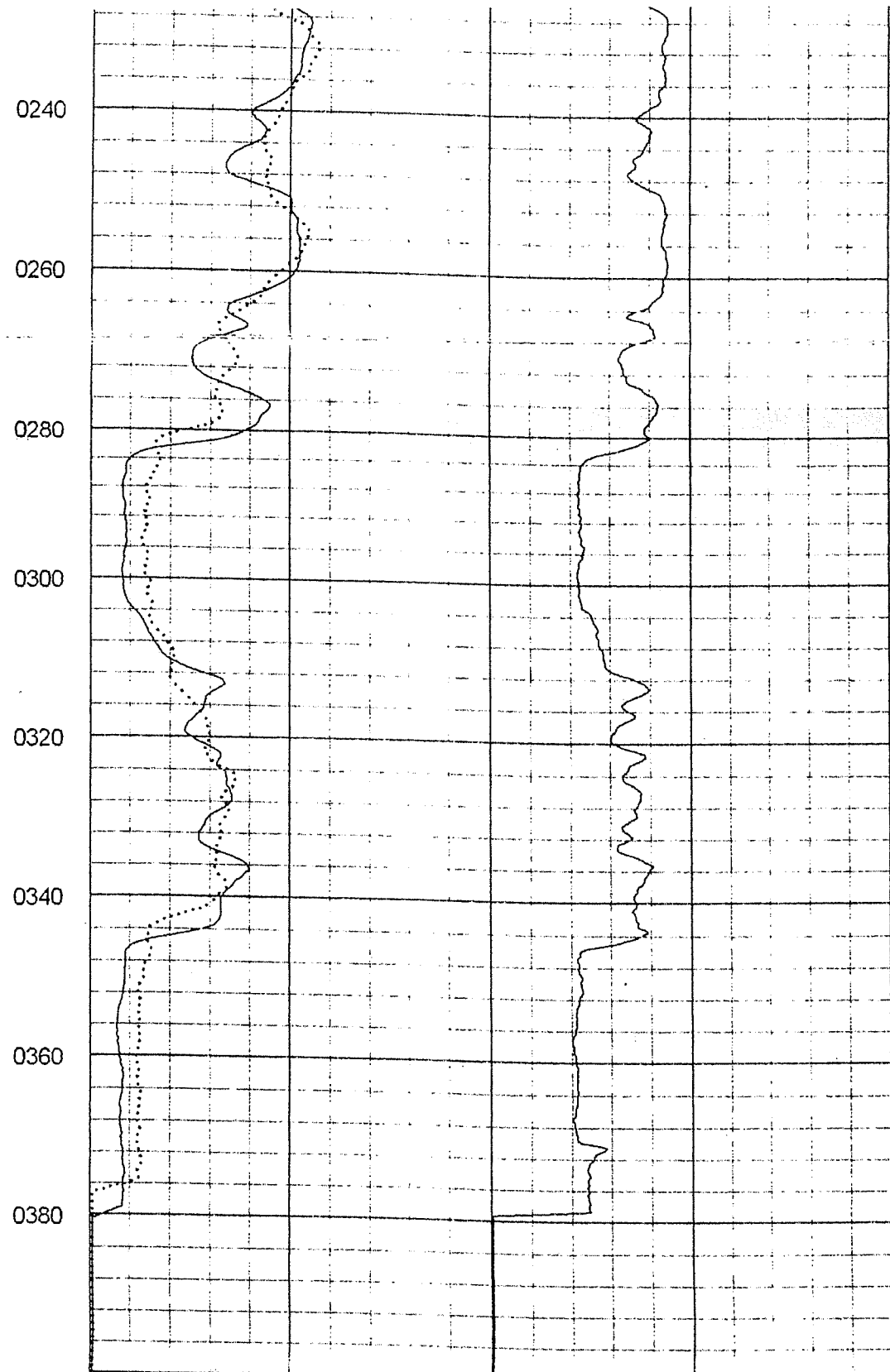
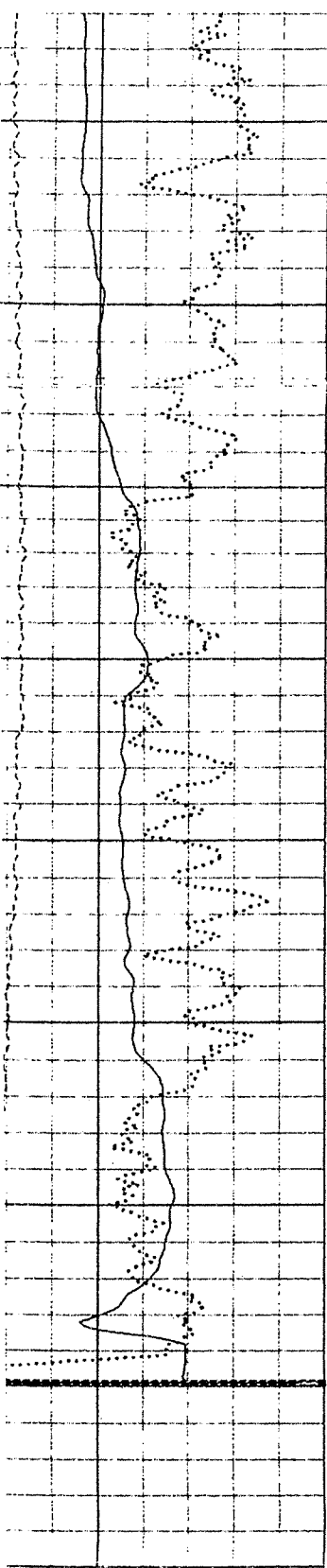
64" OHM.M
 0.00 100.00

 16" OHM.M
 0.00 100.00

 S.P.T. OHM.M
 0.00 50.00







SP mV
 500.00

 TEMP DEGF
 75.00

 NGAM API
 150.00

0.00 64" OHM.M 100.00

 0.00 16" OHM.M 100.00 0.00 S.P.T. OHM.M 50.00



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X Y - CALIPER

AVB 94-02

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COMPANY BE&K TERRANEXT
WELL AVB 94-02
FIELD PHOENIX
COUNTRY U.S.
STATE AZ
COUNTY MARICOPA
LAT 33 27.57 N
LONG 112 09 28 W

Perm Datum	GL	Elev	1111	KB	0.00
Log Datum	GL			DF	0.00
Drill Datum	GL			GL	1111.00

DATE	1/5/2002		0		0
RUN#	1		1		1
TYPE OF LOG	X Y CALIPER				
DEPTH DRILLER	380.00		0.00		0.00
DEPTH LOGGER	371.00		0.00		0.00
LOG DEEPEST	370.00		0.00		0.00
LOG SHALLOW	0.00		0.00		0.00
FLUID IN HOLE	BENTONITE				
SALINITY					
DENSITY					
LEVEL	64				
MAX TEMP °C	68.30		0.00		0.00
RIG TIME	5 HR				
RECORDED BY	WILLIAM SMITH				
WITNESSED BY	J. NAMLUCK				

RUN#	BIT RECORD		SIZE	CASING RECORD	
	BIT	FROM		WEIGHT	FROM
1	9.88	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00

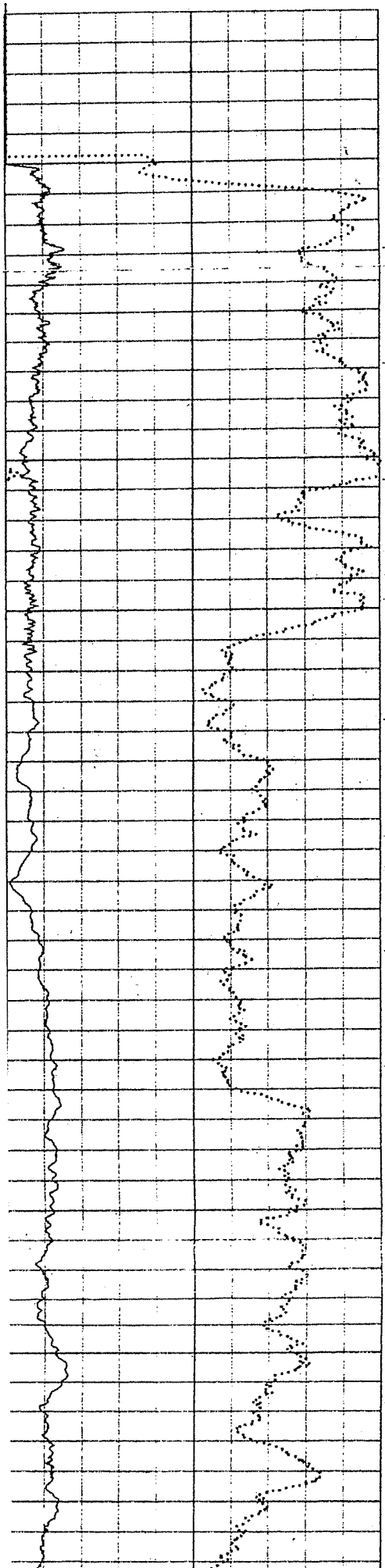
REMARKS (D:\Video Reports\Dan\RobertsonLogs\35019\35019C hed)

JTN: 35019

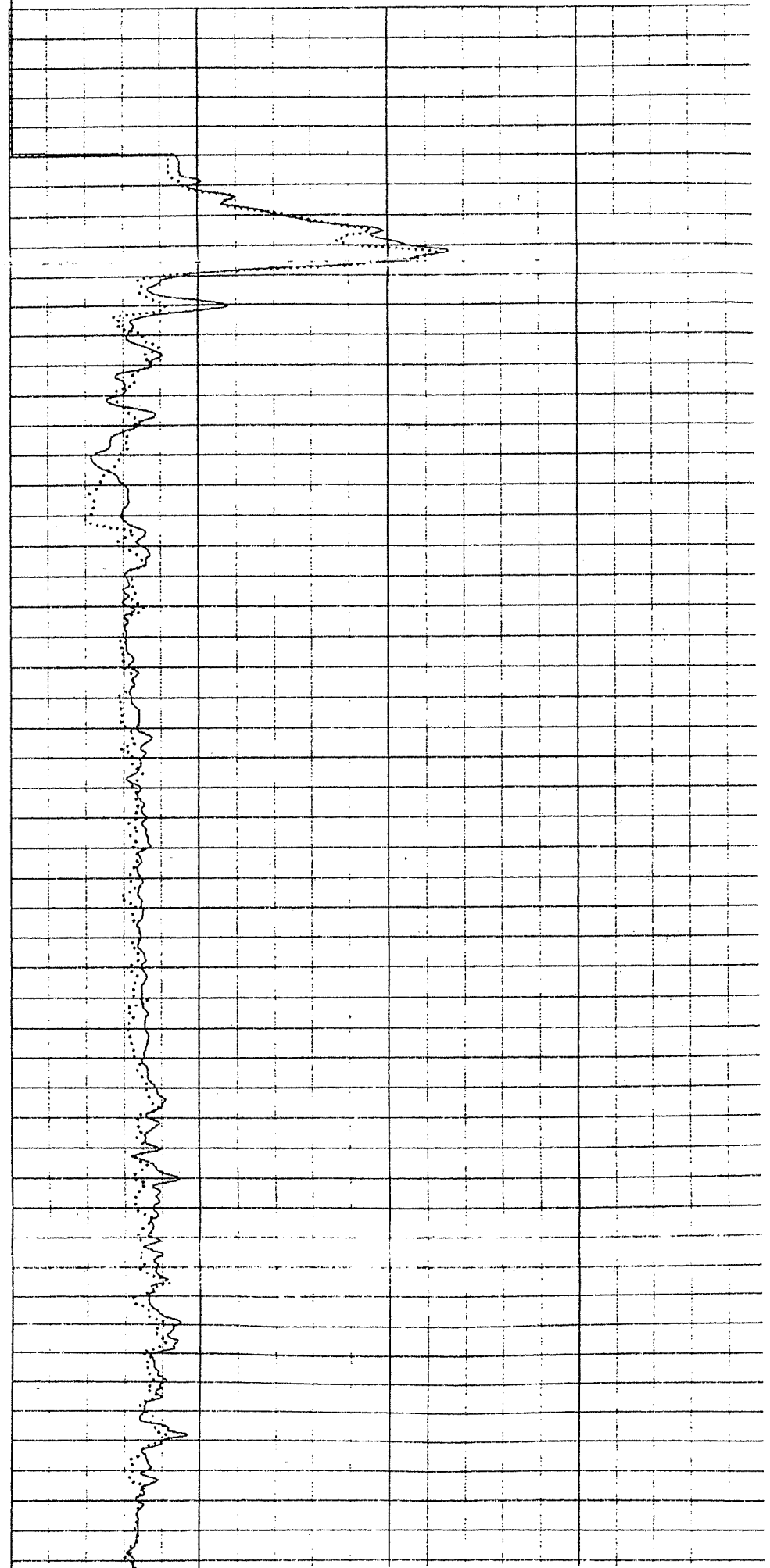
Sec: Rm 7.4 @ 75 Deg F
Twp: Rmf 7.5 @ 75 Deg F
Rge:
Elev., Lat. and Lon. determined using recreational GPS unit
Location: Roosevelt west of 43rd, Phoenix.
Driller: Stewart Bros. Drilling

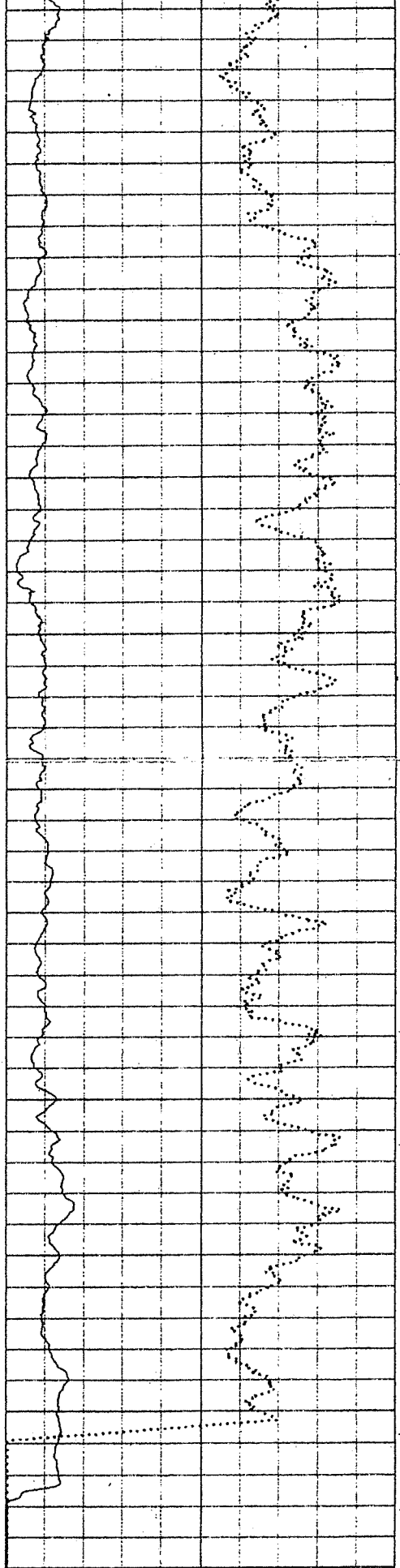
Depth = 0 3500 ft Time = 05 January 2002 14 26 29 Filename = "C:\WINLOGGER\DATA\35019C.LOG"

0.00	ngam api	150.00	6.00	calx inch	26.0
0.00	incl deg	10.00	6.00	caly inch	26.0

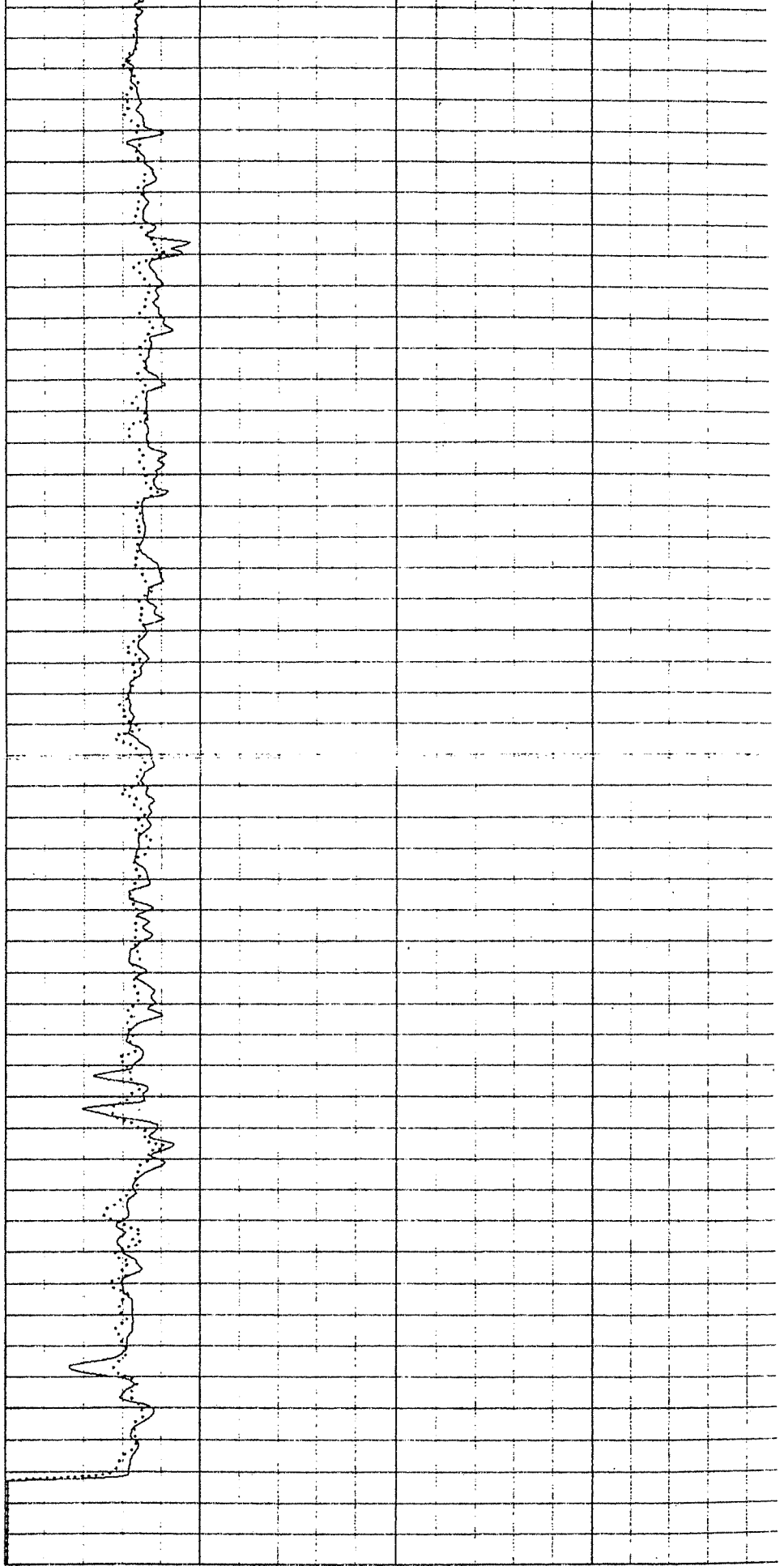


0020
0000
0020
0040
0060
0080
0100
0120
0140
0160
0180





0180
0200
0220
0240
0260
0280
0300
0320
0340
0360



6.00 calx inch 26.00

0.00 ngam api 150.00

BORING LOG

Project: WQARF Central Phoenix Plume		Boring No: P-1
Date Started: 08-28-98	Drilled by: THF Drilling	Ground El: --
Date Completed: 09-22-98	Logged by: S. Kaminski	Total Depth: 703 feet

depth (ft)	Drill Method*	Remarks		Soil and Rock Description
	Type (No.)			
0	Borehole advanced using auger drilling method	Conductor casing installed to 20'		Asphalt and Gravel Base 6"
10				Silty Sand (SM): Brown with some clay; fine-to medium-grained; damp.
20				Clayey Silt (ML): Brown; with little sand; damp.
30				Sandy Silt (ML): Reddish brown; with little clay; fine to medium sand increase in clay with depth; damp.
40				Sandy Clay (CL): Brown; with some silt; damp.
50				Gravel (GW): Fine-grained rounded to subrounded gravels of various colors.
60			Borehole advanced using mud rotary drilling method	Conversion to conventional mud rotary drilling method with a 10" bit at 38'. Classification of soils based on chip samples retained on strainer roughly equivalent to a #20 or #30 sieve.
70		Gravel (GW): Various colors; rough drilling; subrounded to rounded gravels and cobble fragments.		
80		Sand/Silt/Clay: Interbedded in varying degree; coarse subrounded sand appears constantly in cuttings.		
80		Gravel (GW): Various colors; rough drilling; subrounded to rounded.		

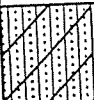

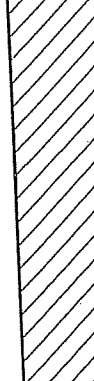

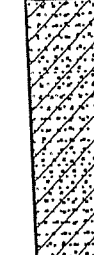
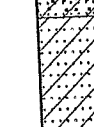
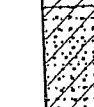




* SEE NOTES AND LEGEND

The information presented on the boring log represents subsurface soil and rock conditions at the specific location and the designated. Changes between soil types may be transitional and approximate. This information was developed to aid in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

BORING LOG

Project: WQARF Central Phoenix Plume	Boring No: P-1
Date Started: 08-28-98	Drilled by: THF Drilling
Date Completed: 09-22-98	Logged by: S. Kaminski
Ground El: --	
Total Depth: 703 feet	

depth (ft)	Drill Method*		Remarks	Soil and Rock Description
	Type (No.)			
80				 Sand/Silt/Clay interbedded in varying degrees; coarse; subrounded sand present in cuttings.
90				 Gravel (GW): Rough drilling with strong calcification.
100			End of Day (08-31-98) End of day (09-01-98)	 Silty Clay (CL): Reddish brown; with some fine to coarse sand.
110				 Sandy Gravel (GW): Rough drilling.
120				 Sandy Clay (CL): Reddish brown with some silt.
130				 Clayey Sand (SC): Tan to light brown; with caliche fragments; caliche is moderately to lightly indurated.
140				 Sandy Clay (CL): Light brown.
150				 Clayey Silt (ML): Reddish brown; with sand.
160				 Gravel (GW): Various colors.
160				 Clayey Sand (SC): Various colors.
160				 Gravel (GW): Light brown; with caliche.

* SEE NOTES AND LEGEND

The information presented on the boring log represents subsurface soil and rock conditions at the specific location and time designated. Changes between soil types may be transitional and approximate. This information was developed to aid in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

BORING LOG

Project: WQARF Central Phoenix Plume	Boring No: P-1
Date Started: 08-28-98	Drilled by: THF Drilling
Date Completed: 09-22-98	Logged by: S. Kaminski
Ground El: --	
Total Depth: 703 feet	

depth (ft)	Drill Method* Type (No.)	Remarks	Soil and Rock Description
240		End of Day (09-03-98)	Silty Sand (SM): Gray; fine to coarse; very little material retained on sieve suggesting high silt content.
250			Clayey Silt (ML): Brown; 1/4" clay fragments.
260			Clayey Sand (SC): Light brown; with gravel; rough drilling; fine to coarse subrounded sand with few gravel fragments. Increased gravels from 257' to 260'.
270			Silty Clay (CL): Reddish brown; with some fine sand; 1/4" clay fragments.
280			Clayey Silt (ML): Brown; with some calcification and very fine to fine sand.
290			Silty Clay (CL): Brown; some calification.
300			
310			Clayey Sand (SC): Brown; fine to coarse subrounded sand; with some gravel; increased drilling resistance.
320			

* SEE NOTES AND LEGEND

The information presented on the boring log represents subsurface soil and rock conditions at the specific location and time designated. Changes between soil types may be transitional and approximate. This information was developed to aid in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

BORING LOG

Subject: WQARF Central Phoenix Plume	Boring No: P-1
Date Started: 08-28-98	Drilled by: THF Drilling
Date Completed: 09-22-98	Logged by: S. Kaminski
Ground El: --	
Total Depth: 703 feet	

depth (ft)	Drill Method*		Remarks	Soil and Rock Description
	Type (No.)			
320				<u>Sandy Silt (ML)</u> : Reddish brown; with clay.
				<u>Clayey Silt (ML)</u> : With fine sand; brown; small 1/4" soft, clay fragments.
330				<u>Sandy Silt (ML)</u> : Very little sample retained; minor amounts of clay fragments.
				<u>Clayey Silt (ML)</u> :
340				<u>Sandy Clay (CL)</u> : Light brown; subrounded to angular fragments; fine to coarse sand.
50				<u>Sand (SW)</u> : Light brown; fine-to coarse-grained.
50				<u>Sand, Gravel, and Cobbles (GW)</u> : Various colors; very dense; slow drilling; subangular to angular fragments; large mica flakes.
370				<u>Clayey Silt (ML)</u> : Light brown; some sand.
380				Increased sand content at 375'.
				<u>Silty Clay (CL)</u> : Light brown.
390				<u>Sand (SW)</u> : Various colors; fine to coarse subrounded sand with abundant mica flakes.
400			390' to 410' poor cuttings recovery-slow hard drilling.	

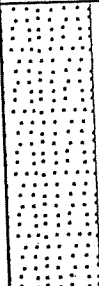

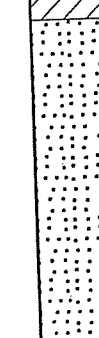

* SEE NOTES AND LEGEND

Information presented on the boring log represents actual soil and rock conditions at the specific location and is not to be used for design purposes. Changes between soil types may be indicated and approximate. This information was developed and used in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

BORING LOG

Project: WQARF Central Phoenix Plume		Boring No: P-1
Date Started: 08-28-98	Drilled by: THF Drilling	Ground El: --
Date Completed: 09-22-98	Logged by: S. Kaminski	Total Depth: 703 feet

depth (ft)	Drill Method*	Remarks	Soil and Rock Description
	Type (No.)		
400			
410			
420			 <p><u>Silty Clay (CL)</u>: Light brown; with fine sand; some fine to coarse sand in cuttings.</p>
430			
440			
450			 <p><u>Sand (SW)</u>: Light reddish brown; fine to coarse; subangular to subrounded.</p> <p>At 455 sand becomes very fine-to medium-grained; subrounded.</p>
460			
470			 <p><u>Sand, Gravel and Cobbles (GW)</u>: Various colors.</p>
480			 <p><u>Gravelly Sand (SW)</u>: Various colors.</p>

The information presented on the boring log represents subsurface soil and rock conditions at the specific location and time designated. Changes between soil types may be transitional and approximate. This information was developed to aid in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

* SEE NOTES AND LEGEND

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

BORING LOG

Project: - WQARF Central Phoenix Plume		Boring No: P-1
Date Started: 08-28-98	Drilled by: THF Drilling	Ground El: --
Date Completed: 09-22-98	Logged by: S. Kaminski	Total Depth: 703 feet

depth (ft)	Drill Method*	Remarks	Soil and Rock Description
	Type (No.)		
480			
- 490			<p><u>Sand, Gravel and Cobbles (GW)</u>: Various colors.</p>
- 500			<p><u>Clayey Sand (SC)</u>: Tan to brown; very fine to coarse; subrounded to angular sand; minor amounts of very soft 1/8" clay fragments.</p>
- 510			
- 520			
- 530			<p>Abundant coarse sand between 535' and 542'.</p>
- 540			<p>Increased clay content 542' to 545'.</p>
- 550			
- 560			<p>At 555' very fine-to fine grained-sand.</p>

* SEE NOTES AND LEGEND

The information presented on the boring log represents surface soil and rock conditions at the specific location and is designated. Changes between soil types may be transitional and approximate. This information was developed to aid in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

BORING LOG

Project: WQARF Central Phoenix Plume	Boring No: P-1
Started: 08-28-98	Drilled by: THF Drilling
Completed: 09-22-98	Logged by: S. Kaminski
	Ground El: --
	Total Depth: 703 feet

Depth (ft)	Drill Method*		Soil and Rock Description
	Type (No.)	Remarks	
40		Low retention and mixed cuttings.	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Sand (SW): Brown.</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Sandy Clay (CL): Brown.</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Silty Clay (CL): Brown.</div>
50		Rough drilling 657' to 659'.	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Clayey Sand (SC): Light brown.</div>
60		660 to 678 drill rate \pm 10 min/ft extremely smooth drilling.	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Silty Clay/Clayey Silt (CL/ML): Light brown; with trace fine sand.</div>
		Fast rough drilling between 678' and 685'. Drill rate approximately 4 min/ft.	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Clayey Sand (SC): Reddish brown; with gravel lens; mixed clay/sand cuttings with sand angular to subrounded; fine to coarse sand.</div>
		End of Day (09-15-98)	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Sandy Clay/Clayey Sand (CL/SC): Reddish brown.</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Clayey Sand (SC): Light brown.</div>
90			
00			
10			Drilling Completed to 703 feet. Three screened intervals installed: Shallow: 345' to 365' Middle: 561' to 581' Deep: 681' to 701' For details see well construction diagram.

Information presented on the boring log represents soil and rock conditions at the specific location and designated. Changes between soil types may be minimal and approximate. This information was developed in preparing this report. Other parties are fully responsible for their interpretations and conclusions.

* SEE NOTES AND LEGEND

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

Project No.: 98-0079 Page 9 of 9

TIN, RIE, cell

AB61-01
A(1,1) II CAD

GEOLOGIC LOG		ADEQ	West Van Buren Area
Well ID:	TOL-01	Location:	79th Avenue north of West Buckeye Road at end of road
Northing (ft):	_____	Drilling Co:	Layne Environmental Services
Easting (ft):	_____	Drilling Method:	Air percussion
Total Depth (ft):	500	Drilling Fluid:	Air
Top of Casing Elev (ft):	1024.15	Date Started:	30 Jun 94
Ground Surface Elev (ft):	1024.47	Date Finished:	05 Jul 94
		Logged by:	Jan Curtis and Dirk Tromp
Comments: East of Sysco Trucking in middle of street.			
INTERVAL (FT)	USCS	VISUAL DESCRIPTION	
0-10	-	No Recovery	
10-20	SP	Dark brown fine sand, soft, dry to damp.	
20-30	SP	Sand (80%), gravels (20%), trace clay balls and caliche, dry to damp.	
30-40	SW SP	Dark brown fine sand (90%), clay and gravel (10%) dry to damp, cemented.	
40-50	SW	Dark brown medium grained sand, damp.	
50-60	CL	Dark brown clay (80%) some silt/sand (20%) damp.	
60-70	SM	Coarse sand, wet at 65 feet, silt and clay increase with depth.	
70-80	CL	Brown silty clay, some caliche, wet.	
80-90	CL	Brown silty clay, wet, trace caliche, gravel, and very coarse sand.	
90-100	CL	Brown silty clay, wet, trace caliche and gravel, last 0.5 foot sandy.	
100-110	SP	Sand, very coarse, trace gravel, cemented, water at 100 feet.	
110-120	SC	Sand, very coarse, cemented, gravels and cobbles, clayey in last foot.	
120-130	CL	Silty clay, damp to wet, no water.	
130-140	CL	Brown silty clay with caliche, last foot contains sand, gravels and cobbles.	
140-150	GP	Poorly sorted cobbles, gravels and sand, cobbles to 6 inches in diameter, water.	

150-160		GP	As above, but more cobbles
160-162	2	SP	Coarse sand, wet.
162-170	3	CL	Brown silty clay, wet.
170-176	5	CL	Clay, wet.
176-180	4	SP	Very coarse sand, producing water.
180-190		CL	Very sticky clay.
190-200		SP	Coarse cemented sand, producing water.
200-210		SP	Coarse sand and gravel, loose, producing water.
210-220		CL	Brown silty clay, very dense, no water.
220-230		SC CL	Brown sandy clay, cemented sand in trace amounts.
230-240		SC CL	As above, no cemented sand.
240-250		SC CL	As above, with more sticky clay.
250-254	4	CL	Sticky clay.
254-270	6	SP	Cemented sand, producing water.
270-280		CL-SC	Sticky clay and cemented sand.
280-290		SP	Difficult drilling, running sands, lots of water.
290-360		SP	Running sands, lots of water.
360-370		SP	Interbedded cemented and running sands, hard drilling, clay at base.
370-380		CL	Reddish brown clay.
380-390		CL/SC	Reddish brown with 20% cemented sand.
390-400		CL	Brown clay, with some cemented sand, running sands at base.
400-410		SW	Coarse sand (60%) and gravel (40%) lots of water.
410-415	5	SP	Coarse sand (80%) and gravel (20%).
415-420	5	SC CL	Reddish brown clay with cemented sandstone.
420-430		SC CL	Reddish brown clay with cemented sand in lower foot.
430-450		SP	Sandstone, coarse grained, cemented.
450-470		SP	Sandstone, coarse grained, some gravel clasts.
470-480		CH	Fat clay.
480-490		CH/SP	Fat clay with medium to coarse grained friable sandstone, poorly sorted. Some gravel up to 3.0cm in diameter
490-500		ML	Clayey silt, slightly plastic TOTAL DEPTH = 500 ft.



GAMMA NEUTRON LOG

FILING NO.	COMPANY	ROY F. WESTON, INC.		
	WELL	TOL #1		
	FIELD	TOLLESON		
	COUNTY	MARICOPA	STATE	ARIZONA
	LOCATION:	SYSCO SITE		OTHER SERV:
				NONE
JOB NO.	SEC	TWP	RGE	
20095				

PERMANENT DATUM:	G.L.	ELEV:		ELEVATION:
				KB.
LOG MEASURED FROM	G.L., 0 FT ABOVE PERM DATUM			DF.
DRILLING MEASURED FROM	G.L.			GL.

DATE	7/5/94		
TYPE OF LOG	GAMMA NEUTRON		
RUN NO.	ONE		
DEPTH - DRILLER	500'		
DEPTH - LOGGER	499'		
BOTTOM LOGGED INT	499'		
TOP LOGGED INT	0'		
TYPE FLUID IN HOLE	WATER		
FLUID LEVEL	10'		
MAX TEMP DEG F	N/A		
OPERATING RIG TIME	N/A		
EQUIP.	LOCATION	L05	AZ
OPERATOR	D. JACOVITCH		
WITNESSED BY	R. PETRUS		

RUN NO.	BORE HOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	TYPE	FROM	TO
1				9.75"	STEEL	0'	T.D.
				6"	STEEL	0'	T.D.

EQUIPMENT DATA

LOG TYPE	GAMMA-RAY	NEUTRON	
RUN NO.	ONE	ONE	
TOOL MODEL NO.	GCN27XL5A	GCN27XL5A	
TOOL SERIAL NO.	274	274	
DIAMETER	1 11/16"	1 11/16"	
DETECTOR TYPE	SCINT.	He3	
DETECTOR LENGTH	4"	6"	
UNITS/DIV.	30	40	
SENSITIVITY	100/494	500/692	
TIME CONSTANT	3	4	
ZERO DIV L OR R	3L	0L, 20L	
SPEED-FPM	20	20	
DATA SAMPLES/FT	2	2	
FORMATION FACTOR	N/A	N/A	
PUMP RATE-GPM	STATIC	STATIC	
PUMP RATE-GPM			
PUMP RATE-GPM			

SOURCE TYPE	STRENGTH	SPACING	MODEL NO	SERIAL NO.
AmBe 241	3 Ci	13"	71-1	119

PERFORATIONS:

REMARKS:

NOTICE:

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by one of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.

WELENCO, INC.

GAMMA-RAY LOG

DEPTHS

NEUTRON LOG

1600

800

API UNITS

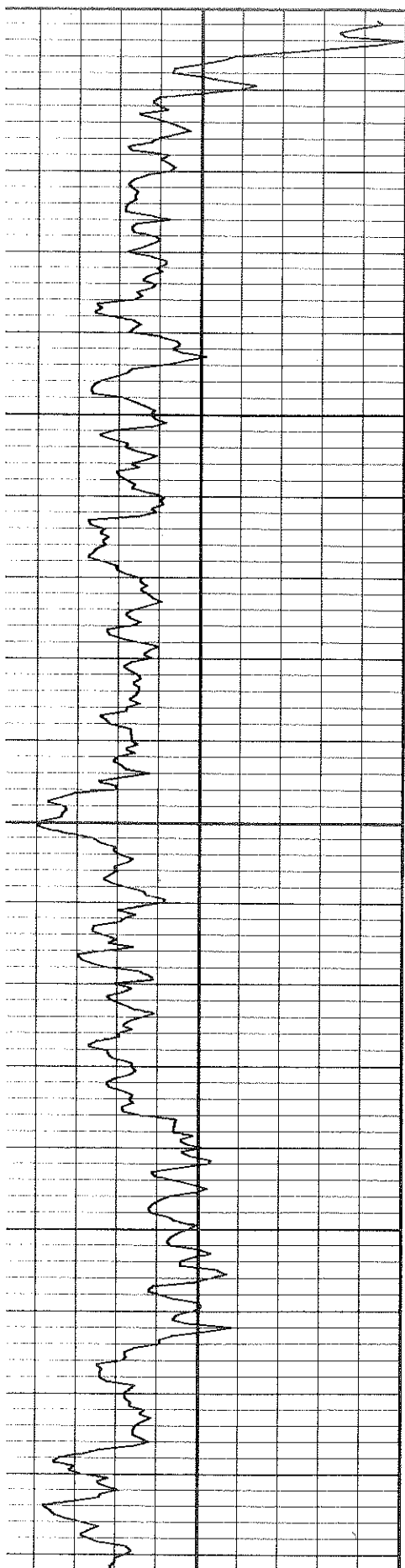
390

API UNITS

800

90

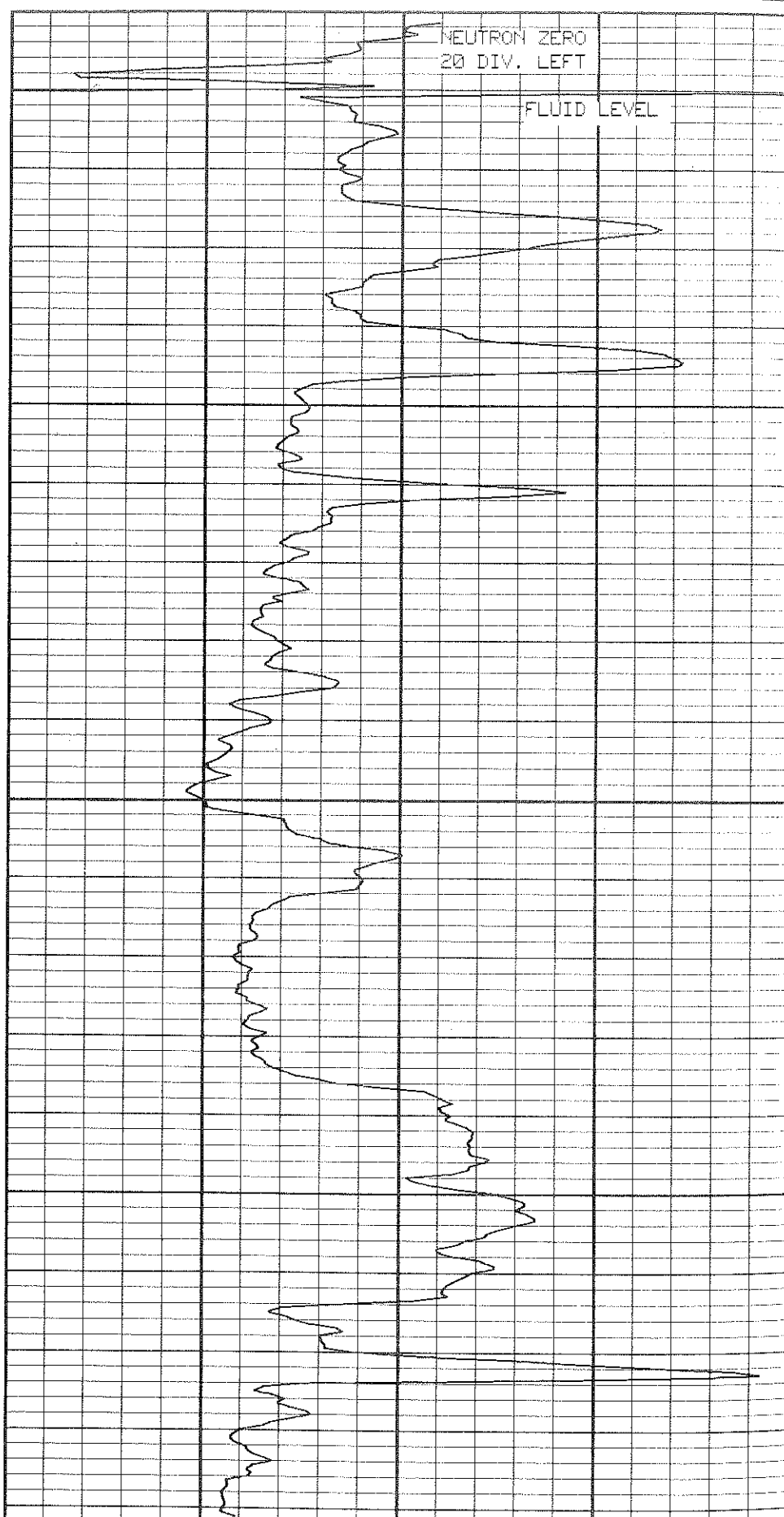
0



50

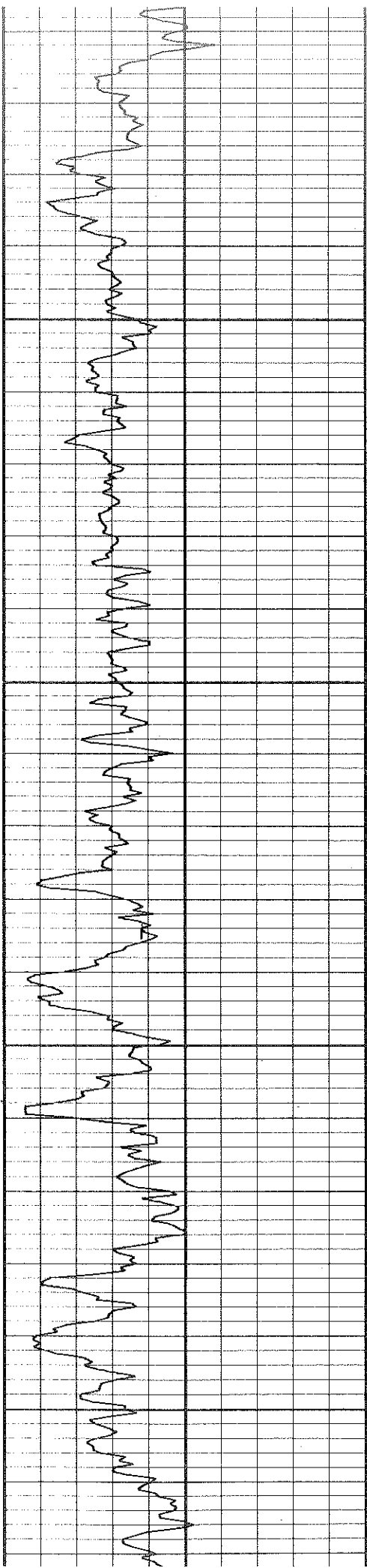
100

150



NEUTRON ZERO
20 DIV. LEFT

FLUID LEVEL

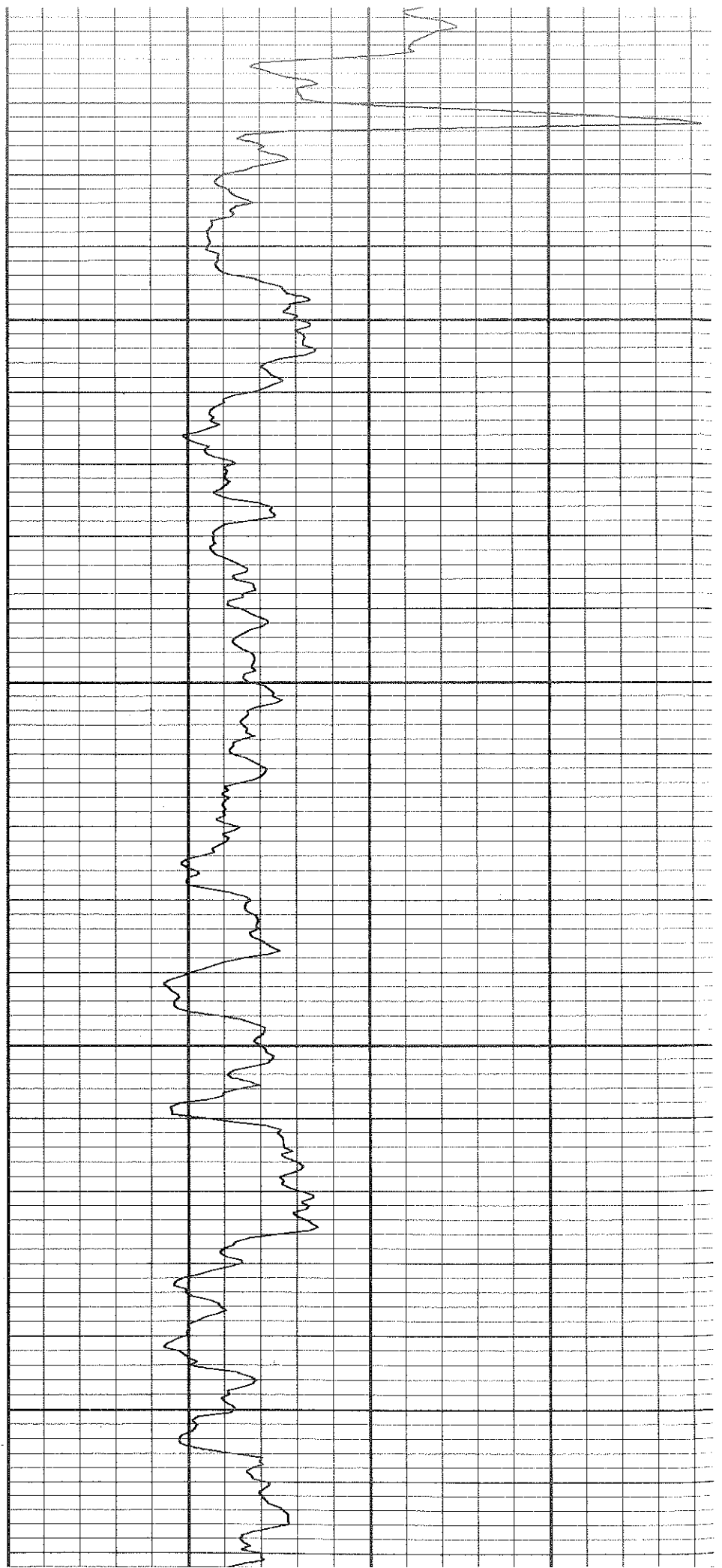


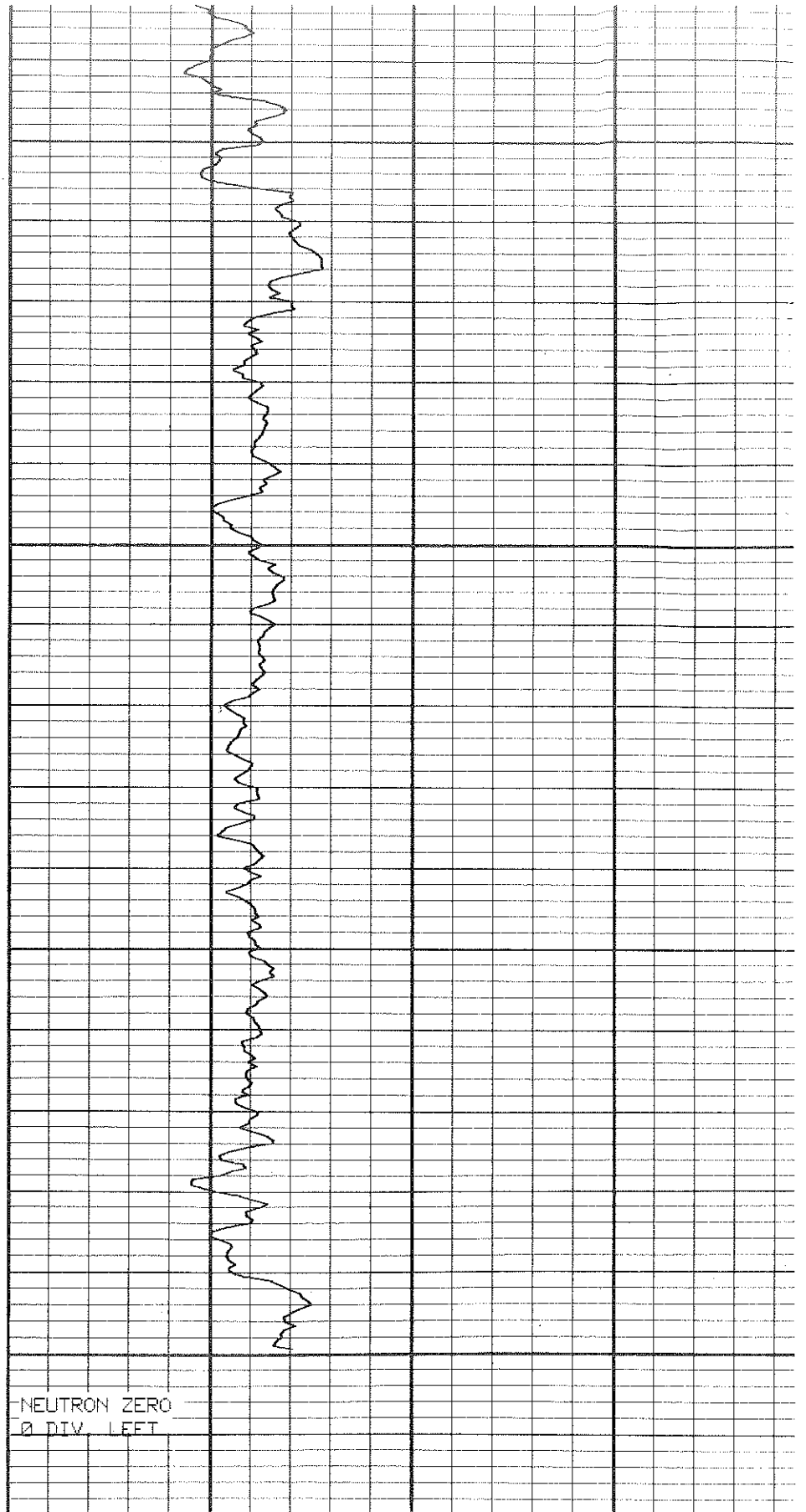
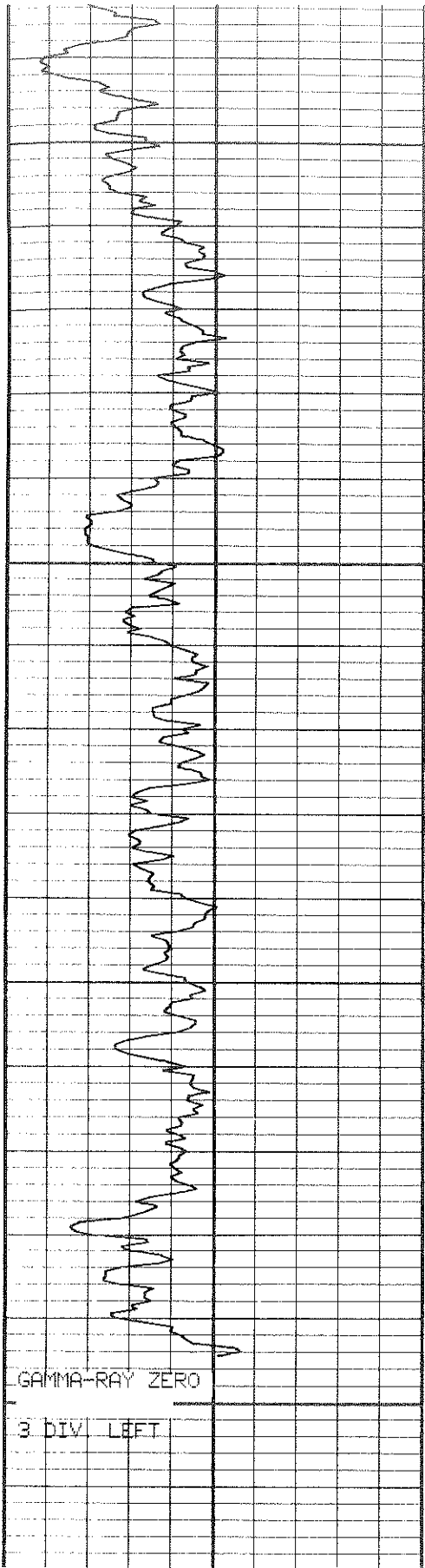
200

250

300

350

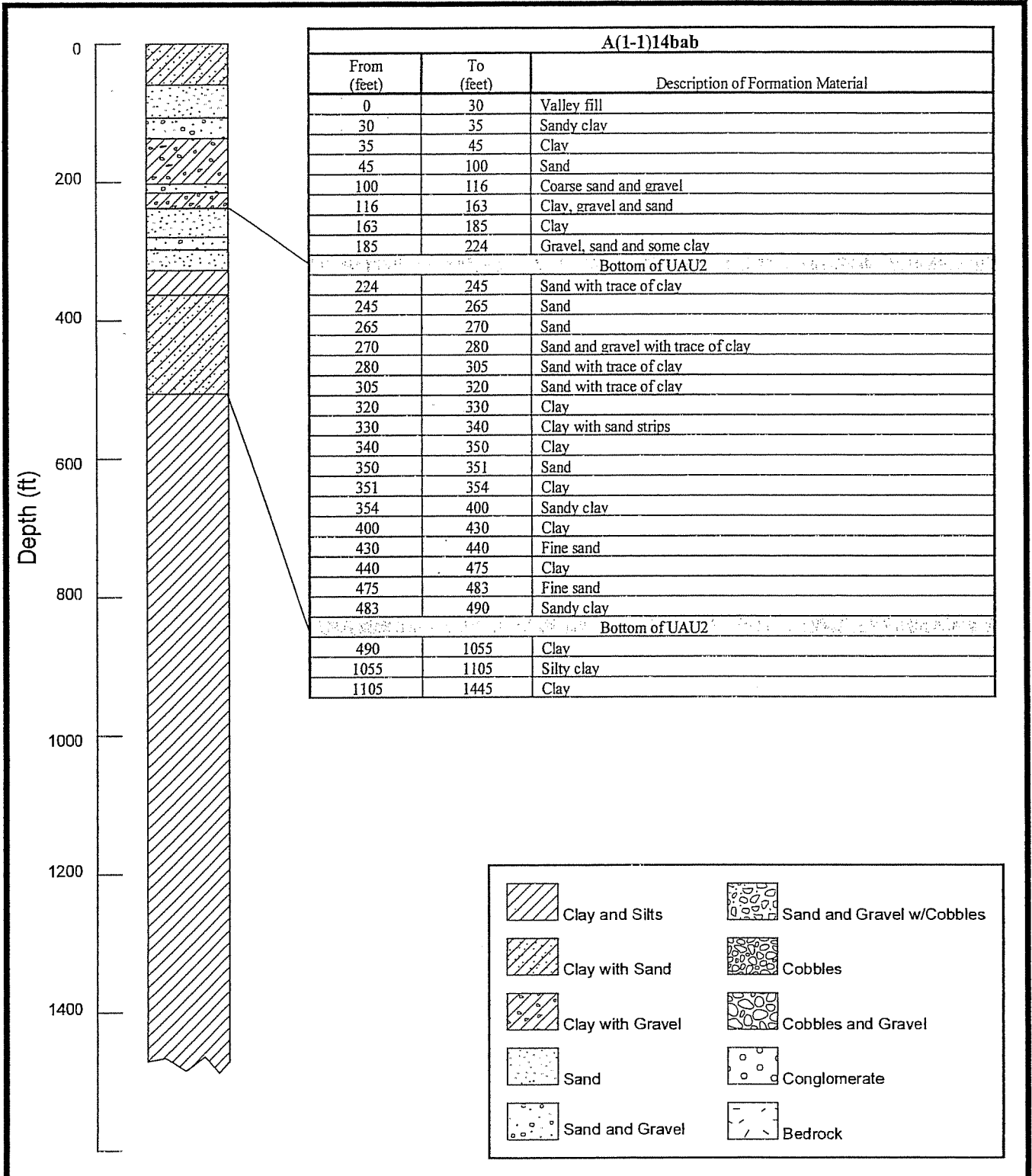




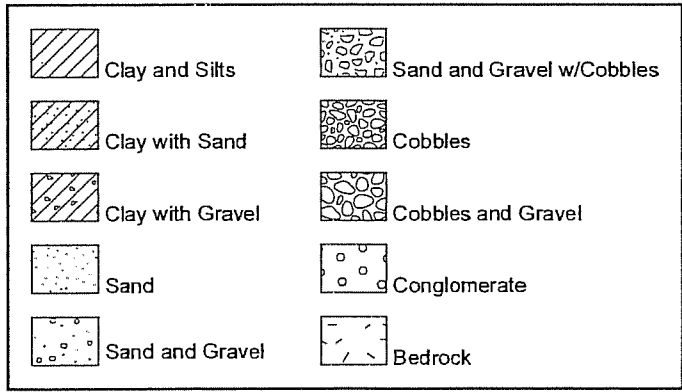
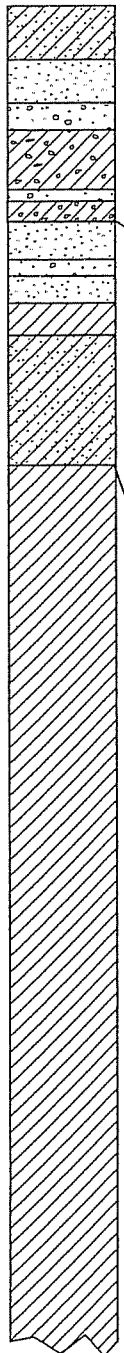
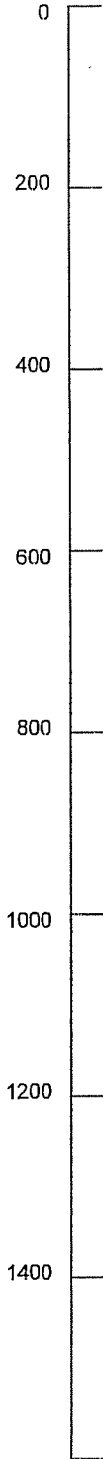
90	390	DEPTHS	0	800
API UNITS			API UNITS	
GAMMA-RAY LOG			800	1600
			NEUTRON LOG	

BTE-2

TIN, BIE Sec 14



Depth (ft)



Reference: ADWR Files	ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY CENTRAL PHOENIX GROUNDWATER MODEL	Figure 7 Driller's Log and Stratigraphic Column for Well A(1,1)14 bab		
		DATE 26 MAY 00	REV. NO. 0	SCALE N.O. NO.

55-618655

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

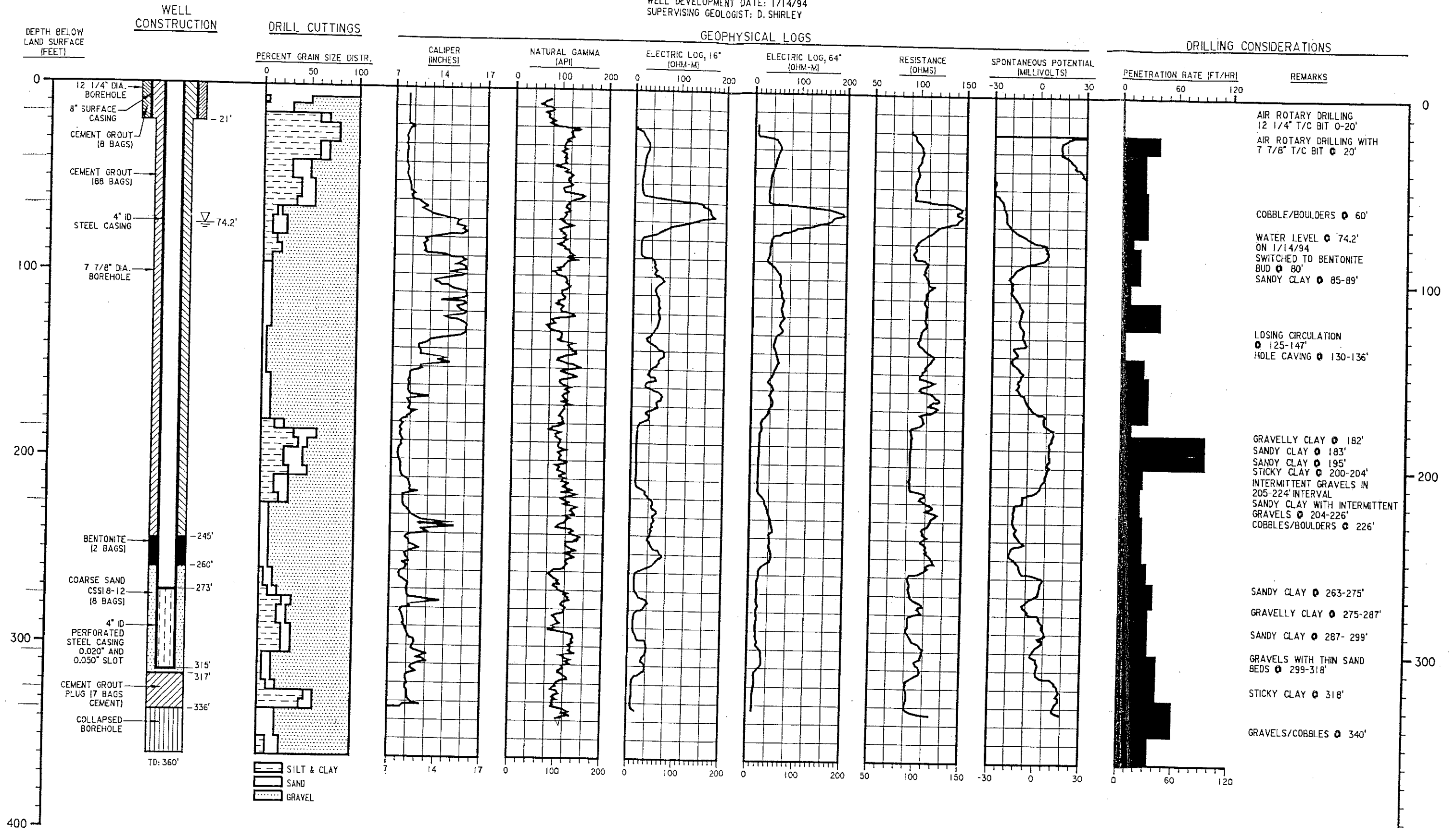
From (feet)	To (feet)	Description of formation material
0	2	Filled dirt
2	12	Top soil
12	14	Boulders
14	30	Caliche
30	87	Loose boulders, sand & gravel
87	89	Caliche
89	125	Caliche & boulders
125	130	Sand
130	132	Sand & boulders
132	142	Sand & gravel
142	146	Boulders & gravel
146	163	Sand & gravel
163	170	Sand w/little amount of silt
170	207	Sand & silty clay
207	214	Conglomerate
214	215	Pink clay
215	225	Conglomerate
225	235	Tan clay
235	255	Running sand
255	280	Sandy clay
280	344	Clay
344	351	Sandy clay (57 drops)
351	366	Clay
366	370	Sand & clay strips (12 drops)
370	398	Clay
398	425	Sandy clay AND 425 - 445 SAND & CLAY STRIPS(4dro

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

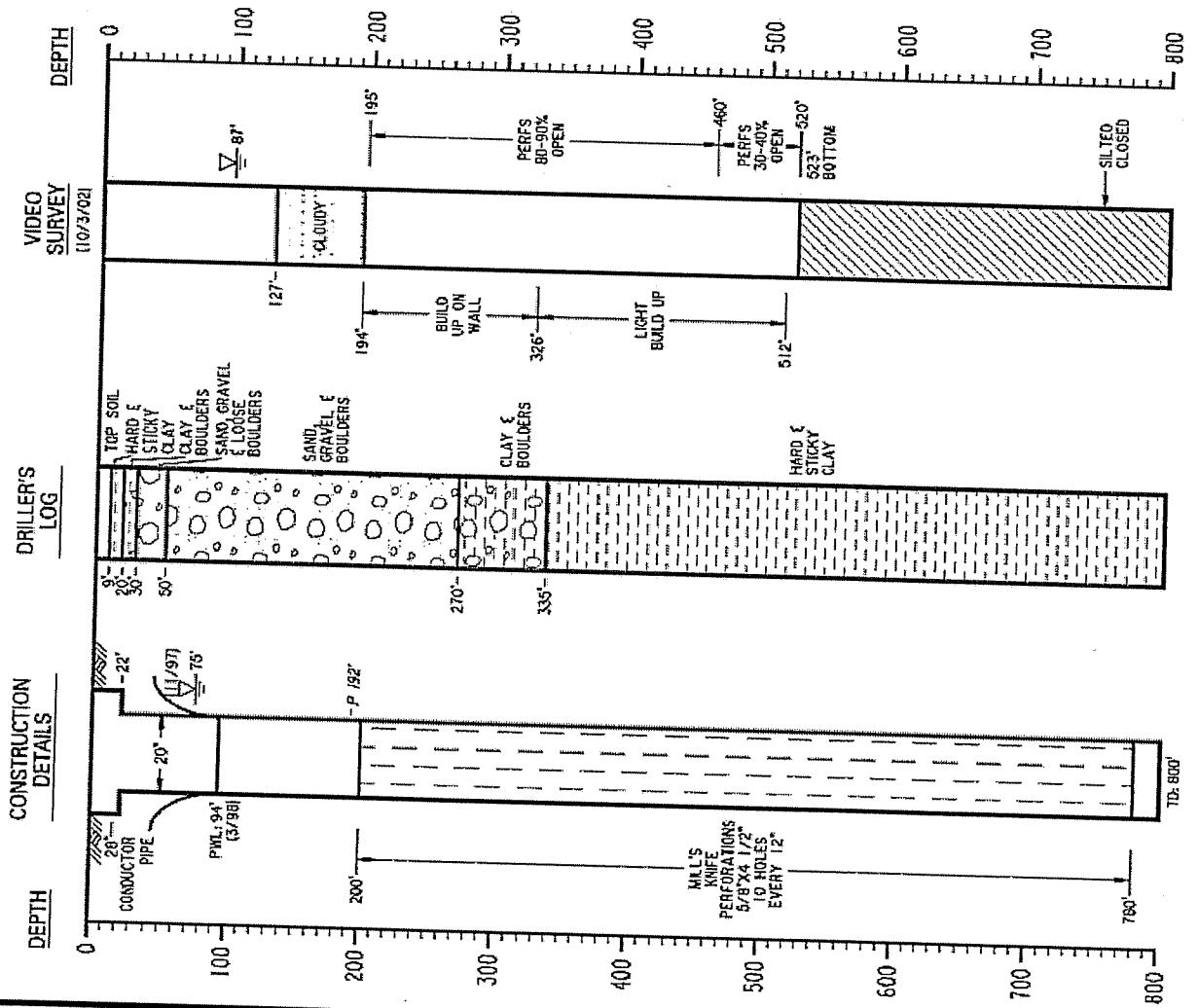
Driller Ernest R. Parker
ODOM'S INC
 ERNEST R. PARKER
 327 N. 1st Street
 Address
 Buckeye, Arizona 85326
 City State Z.
 Date February 20, 1986

FIGURE 10: WELL DATA PROFILE WELL PTG-3B
ADWR REGISTRATION NO. 55-540983

DRILLING METHOD: AIR/MUD ROTARY
DRILLING CONTRACTOR: B.J. DRILLING CO.
START DRILLING DATE: 1/4/94
WELL COMPLETION DATE: 1/14/94
WELL DEVELOPMENT DATE: 1/14/94
SUPERVISING GEOLOGIST: D. SHIRLEY



PHYSICAL WELL DATA



Approx 59th Ave &
Lower Buckeye

ROOSEVELT IRRIGATION DISTRICT (Redrill)

REPORT ON WELL 9E-4 $\frac{1}{2}$ N (#92)

Work started-----December 19, 1958
Work completed-----February 9, 1959
Total depth-----500'
500' of 20" - 8 Ga. casing used
and left in the well.

LOG OF WELL

0' - 4'-----Brown Clay
4' - 9'-----Brown Clay and gravel
9' - 29'-----Sandy Clay
29' - 107'-----Gravel and boulders
107' - 218'-----Sand, Gravel and boulders
218' - 222'-----Caliche
222' - 238'-----Sandy clay, gravel and boulders
238' - 253'-----Soft brown clay
253' - 293'-----Sand and gravel $\frac{1}{2}$ "
293' - 319'-----Soft brown clay
319' - 343'-----Sandy clay and gravel
343' - 346'-----Coarse sand
346' - 500'-----Sandy clay and gravel

PERFORATIONS

Moss Hydraulic perforator used
180' to 488' - 16 holes per 10 inches
Diameter - 3/16" - Length - 2 $\frac{1}{2}$ "
Depth at which water was first found - 113'
Standing level before perforating - 175'
Standing level after perforating - 112'

Well is straight from top to bottom

REMARKS

Drilled by Roscoe Moss Company-Cable Tool #39
Bill Hulsey, Driller

COST

For Drilling - Casing - Perforation
to a depth of 500'-----\$ 12,765.00
Cost per foot-----\$ 25.53

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
			ASPHALT OVER ROAD BASE	07:45A	17TH MAY 2005 START DRILLING
		CL	SANDY CLAY, REDDISH BROWN, SLIGHTLY MOIST, FIRM		
		CL	CLAY, BROWN, SLIGHTY MOIST, VERY FIRM, CALICHE CEMENTATION		
10					
		SM	SILTY SAND, LT. BROWN, SLIGHTLY MOIST, CALICHE, POORLY CEMENTED,		
20			INCREASING CEMENTATION		
		ML	SANDY SILT, LT. BROWN, DRY, DENSE-CARBONATE CEMENTATION		
		GP	GRAVEL W/ SAND, ROUNDED, LT. BROWN, DRY, MINOR CARBONATE CEMENTATION		
30					
			LARGE COBBLES		
40					
				09:15A	
50					

PROJECT #: 0310-3154 DRILL DATE: 5/17-19/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: AJG
 NOTES:
 DEPTH TO WATER: 100.8 FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 230'
 DRILLING METHOD: ROTASONIC



FIELD BOREHOLE LOG
AVB 131-01
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
130	[Symbol: Poorly sorted gravel with silt, sand, clay]	GW	POORLY SORTED GRAVEL WITH SILT, SAND, CLAY, SUBANGULAR, BROWN, WET	03:00P	
		SC	POORLY SORTED CLAYEY SAND, BROWN, WET		
140	[Symbol: Poorly sorted gravel w/ sand, sub rounded, brown, wet]	GW	POORLY SORTED GRAVEL W/ SAND, SUB ROUNDED, BROWN, WET,	03:30P	BROKEN HOSE END OF DAY
					18TH MAY 2005
150	[Symbol: Poorly sorted gravel w/ sand, sub rounded, brown, wet]			07: 45A	
				08:20A	
160	[Symbol: Fine to coarse sand w/ some fine gravel]	SP	FINE TO COARSE SAND W/ SOME FINE GRAVEL		NO RECOVERY
	[Symbol: Sandy gravel w/ some clay & silt, red-grey]	GW	SANDY GRAVEL W/ SOME CLAY & SILT, RED-GREY	10:05A	
170	[Symbol: Clay w/ sand, silt & caliche nodules, brown, hard, wet]	CL	CLAY W/ SAND, SILT & CALICHE NODULES, BROWN, HARD, WET		
	[Symbol: Sand w/ TR gravel, very dense, red-grey, wet]	SP	SAND W/ TR GRAVEL, VERY DENSE, RED-GREY, WET		
170	[Symbol: Sandy gravel w/ TR silt & clay, very dense, red-grey, wet]	GW	SANDY GRAVEL W/ TR SILT & CLAY, VERY DENSE, RED-GREY, WET	10:35A	
	[Symbol: Sand w/ gravel, clay & silt, red-grey, very dense, wet]	SW	SAND W/ GRAVEL, CLAY & SILT, RED-GREY, VERY DENSE, WET		
	[Symbol: Gravel w/ sand & clay, very dense, dk. red-grey, wet]	GW	GRAVEL W/ SAND & CLAY, VERY DENSE, DK. RED-GREY, WET		NO RECOVERY
	[Symbol: Sand w/ gravel, clay, some silt, very dense, dk. red-grey, wet]	SW	SAND W/ GRAVEL, CLAY, SOME SILT, VERY DENSE, DK. RED-GREY, WET		

PROJECT #: 0310-3154 DRILL DATE: 5/17-19/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: CHUCK GORDON
 NOTES:
 DEPTH TO WATER: 100.8 FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 230
 DRILLING METHOD: ROTOSONIC



FIELD BOREHOLE LOG
AVB 131-01
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		SW	AS ABOVE	01:55P	
		CL	CLAY W/ SILT & TR SAND, BROWN, VERY STIFF		
190			W/ SOME 2-12" THICK STRINGERS OF SANDY CLAYEY SILT W/ SOME CALICHE NODULES, BROWN, MEDIUM STIFF, WET	08:40A	19TH MAY, 2005 NO RECOVERY
200		SP	SAND W/ TR-SOME SILT, DK RED-GREY, DENSE, WET	09: 05A	
		GW	SANDY GRAVEL W/ SOME CLAY & SILT, RED-GREY, VERY DENSE, WET		
210		SW	GRAVELY SAND W/ CLAY & SOME SILT, GREY-BROWN, VERY DENSE, WET		
		GW	GRAVEL W/ COBBLES, SAND, SOME SILT & CLAY, GREY-BROWN, VERY DENSE, WET		
		SM	SAND W/ SILT & SOME TR CLAY, RED-GREY, VERY DENSE, WET		
		SW	SAND W/ SOME GRAVEL, TR SILT & CLAY, RED-GREY, VERY DENSE, WET		
220		GW	SANDY GRAVEL W/ TR SILT & CLAY, RED-GREY, VERY DENSE, WET		
		GC	CLAYEY SANDY GRAVEL, GREY-BROWN, VERY DENSE, WET		
230		CL	CLAY W/ TR SILT, BROWN, HARD, WET		TOTAL DEPTH = 230 FT

PROJECT # : 0310-3154 DRILL DATE: 5/17-9/05
 LOGGED BY: AJG/BS
 PROJECT MANAGER: AJG
 NOTES:
 DEPTH TO WATER: 100.8 FT
 RIG TYPE: SR102 DIAMETER: 9"
 DRILLER: PROSONIC TOTAL DEPTH: 230'
 DRILLING METHOD: ROTOSONIC



FIELD BOREHOLE LOG
AVB 131-01
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
			4" ASPHALT / ROADBASE	11:00A	24TH MAY, 2005 START DRILLING
		ML	REDDISH SANDY SILT W/ TRACE CLAY, DRY, SOFT		
10		ML	BROWN SANDY SILT, DRY, SOFT		
		SM	BROWN SILTY SAND, DRY, LOOSE		
20					HOLE CAVING - PERMISSION GIVEN TO ADD WATER
		GW	SUB-ROUNDED GRAVEL W/ SAND, SILT, GREY-BROWN, DRY, LOOSE		
		SM	SILTY SAND W/ GRAVEL, BROWN, DRY, LOOSE	01:15P	RIG OVERHEATING
30		GW	SILTY SANDY GRAVEL, SUB-ROUNDED TO ROUNDED, BROWN, DRY, LOOSE	01:45P	INNER CASING STUCK
				03:30P	STOP FOR DAY
				08:15A	25TH MAY, 2005 START DRILLING
40				08:30A	HOLE CAVING
			COBBLES	10:00A	START DRILLING AGAIN
		GP	GRAVEL W/ COBBLES, ROUNDED, BROWN, DRY, LOOSE		
50		GW	SANDY GRAVEL, SUB-ROUNDED, BROWN, SLIGHTLY MOIST, LOOSE		

PROJECT #: 0310-3154	DRILL DATE: 5/24-27/05
LOGGED BY: AJG/BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 97FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 30Z
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 124-02
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
70		GW	SANDY GRAVEL, SUB-ROUNDED, BROWN, SLIGHTLY MOIST, LOOSE		
		ML	CLAYEY SILT, MOIST, BROWN TO REDDISH-BROWN		
80		GP	ROUNDED GRAVEL W/ SAND, BROWN, SLIGHTLY MOIST, LOOSE		
			COBBLES		
90		GW	GRAVEL W/ CLAY, ROUNDED, BROWN, VERY MOIST, FIRM	11:30A	BREAK FOR LUNCH
			GW	SANDY GRAVEL, WET	
100		GW	COBBLES		
			INCREASING SAND		
110					

PROJECT # : 0310-3154	DRILL DATE: 5/24-27/05
LOGGED BY: AJG/BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 97FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 302'
DRILLING METHOD: ROTASONIC	



**FIELD BOREHOLE LOG
AVB 124-02
PHOENIX, ARIZONA**

SOIL		USCS	SOIL DESCRIPTION	TIME	COMMENTS
DEPTH	SYMBOL				
130	GW		SANDY GRAVEL, ROUND, BROWN, WET		
			ROUNDED COBBLES		
140	GC		INCREASING CLAY		
	GW		DECREASING CLAY, INCREASING SAND		
150			COBBLES		
	SW		SAND W/ SOME GRAVEL, RED-GREY, VERY DENSE, WET	04:30P	STOP AT 157'
160	GW		SANDY GRAVEL, SOME SILT & CLAY, VERY DENSE, WET	06:35A	26TH MAY, 2005 START DRILLING
	SP		FINE TO MEDIUM SAND		
170	GW		GRAVEL W/ SAND, SOME SILT, TR CLAY & COBBLES, GREY-BROWN, VERY DENSE, WET	07:40A	
	SW		SAND W/ TR SILT & GRAVEL, RED-GREY, DENSE, WET		
	GW		GRAVEL W/ SAND, SOME SILT & TR CLAY		
	GC		CLAYEY GRAVEL, GREY-BROWN, VERY DENSE, WET		
	GW				
	SP		SAND W/ SILT & TR CLAY, LT RED-GREY, DENSE, WET		

PROJECT #: 0310-3154	DRILL DATE: 5/24-27/05
LOGGED BY: AJG/BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 97FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 302'
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 124-02
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		SP		08:45A	
		SW	SAND W/ TR SILT, CLAY & FINE GRAVEL, RED-GREY, DENSE, WET		
			AS ABOVE W/ SOME FINE TO COARSE GRAVEL		
190		CL	CLAY W/ TR SILT & SAND, HARD, BROWN, WET		
		SW	SAND W/ SOME GRAVEL & SILT, LT RED-GREY, VERY DENSE, WET	09:45A	
200			AS ABOVE W/ GRAVEL	10:55A	
210		GW	SANDY GRAVEL W/ SILT & CLAY, BROWN, VERY DENSE, WET	01:25P	
		SP	SAND W/ TRACE OF SILT, RED-GREY, VERY DENSE, WET		
220		SW	SAND W/ GRAVEL & TRACE SILT, RED-GREY, VERY DENSE, WET	04:25P	
			AS ABOVE W/ SOME CLAY, VERY DENSE		
230				07:10A	27TH MAY, 2005
		CL	SILTY CLAY W/ TR SAND, LT RED-GREY, BROWN, HARD, MOIST		

PROJECT # : 0310-3154	DRILL DATE: 5/24-27/05
LOGGED BY: AJG/BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 97FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 302'
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 124-02
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
250		CL	INTER BEDDED W/ SOME LAYERS OF CLAYEY SILT, VERY STIFF, BROWN, MOIST	08:25A	
		ML	SILT W/ SAND, SOME CLAY & CALICHE NODULES, BROWN, MOIST, VERY STIFF	10:30A	
260		CL	CLAY W/ SOME SILT & SAND, HARD, BROWN, MOIST	11:15A	NO RECOVERY
		ML	SANDY SILT W/ CLAY, BROWN, WET		
		SW	SAND W/ TR GRAVEL, CLAY & SILT, RED-GREY, WET, VERY DENSE		
		CL	SILTY CLAY W/ SOME SAND, BROWN, VERY STIFF		
270		SW	SAND W/ TR GRAVEL, CLAY & SILT, RED-GREY, WET, VERY DENSE		NO RECOVERY
		CL	SANDY CLAY W/ SOME GRAVEL	12:05P	
		SW			
		CL	SANDY CLAY W/ SOME GRAVEL		
		CL	CLAY W/ SILT & TR SAND, VERY STIFF, BROWN, MOIST		
280		SW	SAND W/ TR GRAVEL & CLAY, RED-GREY, VERY DENSE, WET	12:50P	
		ML	SILT W/ SOME SAND & TR CLAY, VERY STIFF, BROWN, WET		
290		CL	CLAY W/ SOME SILT & TR SAND, HARD, BROWN, MOIST, SILTY INTER BEDS		
		ML	SANDY SILT W/ CLAY, BROWN, VERY STIFF	01:50P	
		CL			
		ML	SILT W/ SOME CLAY & TR SAND, BROWN, HARD		
		CL	ML		
		CL			

TOTAL DEPTH = 302'

PROJECT # : 0310-3154	DRILL DATE: 5/24-27/05
LOGGED BY: AJG/BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 97FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 302'
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 124-02
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
					11TH MAY, 2005
10		CL	CLAY W/ SOME SILT & TR SAND, RED-GREY, MOIST, M. STIFF		
		SW	SAND W/ GRAVEL, RED-GREY, SLIGHTLY MOIST, DENSE		
20		GC	CLAYEY GRAVEL W/ SOME SAND, BROWN, VERY DENSE, SLIGHTLY MOIST		
30		GW	GRAVEL W/ SAND, SOME COBBLES, RED-GREY, SLIGHTLY MOIST, VERY DENSE		
40					
50		SW	SAND W/ SOME SILT & CLAY & TR FINE GRAVEL, RED-BROWN, VERY DENSE, MOIST		
		GW	AS ABOVE		
		SP	FINE-MEDIUM SAND, LIGHT RED-GREY, VERY DENSE, SLIGHTLY MOIST		
		GW	AS ABOVE		

PROJECT #: 0310-3154	DRILL DATE: 5/11-13/05
LOGGED BY: BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 94FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 231.5'
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 133-01
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
	o o o o o o	GW	AS ABOVE		
	o o o o o o				
	o o o o o o				
130	o o o o o o	GC	CLAYEY GRAVEL W/ SAND, DK GREY/BROWN, MOTTLED, NO ODOR, VERY DENSE, WET		12TH MAY, 2005
	o o o o o o	GW	AS ABOVE		
	o o o o o o	SW	GRAVELY SAND W/ SOME CLAY & SILT, RED-GREY, VERY DENSE		
	o o o o o o				
	o o o o o o	GW	AS ABOVE EXCEPT INCREASING CLAY & SILT		
140	o o o o o o	SP/SM	SAND W/ SOME SILT & TR CLAY, VERY DENSE, RED-GREY, WET		
	o o o o o o				
	o o o o o o	GW	FINE - COARSE GRAVEL, SAND & CLAY, DK RED-GREY, VERY DENSE, WET		
	o o o o o o				
150	o o o o o o	SP/SM	AS ABOVE		
	o o o o o o				
	o o o o o o	GW	AS ABOVE		
	o o o o o o				
	o o o o o o	SW	FINE - COARSE SAND W/ SOME GRAVEL, SILT, TR CLAY, LT RED-GREY, VERY DENSE, WET		
160	o o o o o o	GW	SANDY GRAVEL W/ SOME SILT & TR CLAY, RED-GREY, DENSE, WET		
	o o o o o o	SW	AS ABOVE EXCEPT W/ SOME CLAY		
	o o o o o o	GW	SANDY GRAVEL W/ CLAY, VERY DENSE, RED-GREY/BROWN, WET		
	o o o o o o				
	o o o o o o	GP	FINE GRAVEL, VERY DENSE, DK RED-GREY, WET		
170	o o o o o o	GW	AS ABOVE		
	o o o o o o	SP	SAND W/ SILT, RED-GREY, VERY DENSE, WET		
	o o o o o o	GW	FINE - COARSE GRAVEL W/ SOME SILT, SAND & CLAY, DK RED-GREY, VERY DENSE, WET		
	o o o o o o				
	o o o o o o				
	o o o o o o				

PROJECT # : 0310-3154	DRILL DATE: 5/11-13/05
LOGGED BY: BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 94FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 231.5'
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 133-01
PHOENIX, ARIZONA

DEPTH	SOIL SYMBOL	USCS	SOIL DESCRIPTION	TIME	COMMENTS
		GW	AS ABOVE		
		CL			
		GW	CL		
		GW	AS ABOVE		
190		SW	SAND W/ TR GRAVEL & SILT, LT RED-GREY, VERY DENSE		
		GW	SANDY GRAVEL, WET		
		SP			
		GW	SANDY GRAVEL W/ SILT & CLAY, RED-GREY, VERY DENSE, WET		
200		GC	CLAYEY GRAVEL W/ SAND, RED-GREY, VERY DENSE, WET		
		GW	SANDY GRAVEL W/ SILT & CLAY, BROWN, VERY DENSE, WET		
		GC	AS ABOVE EXCEPT WITH CLAY, RED-GREY		
210		ML	SILT W/ SAND & TR CLAY, BROWN, SOFT, WET		
		CL	CLAY, BROWN, MEDIUM STIFF W/ TR SILT & SAND		13TH MAY, 2005
		SW	SAND W/ TR SILT & GRAVEL, RED-GREY, VERY DENSE, WET		
220		ML/CL	SILT W/ SOME CLAY & SAND, BROWN, MEDIUM STIFF, LAYERS INTER BEDDED W/ CLAY		
230					TOTAL DEPTH = 231.5'

PROJECT # : 0310-3154	DRILL DATE: 5/11-13/05
LOGGED BY: BS	
PROJECT MANAGER: CHUCK GORDON	
NOTES:	
DEPTH TO WATER: 94FT	
RIG TYPE: SR102	DIAMETER: 9"
DRILLER: PROSONIC	TOTAL DEPTH: 231.5'
DRILLING METHOD: ROTOSONIC	



FIELD BOREHOLE LOG
AVB 133-01
PHOENIX, ARIZONA

AVB-69-01

11N, K3E Sec. 8

Drilling Log



Monitoring Well MAU

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586
 Surface Elev. _____ Total Hole Depth 305 ft. Diameter 9 3/4 in.
 Top of Casing _____ Water Level Initial 93 ft. Static _____
 Screen: Dia 4 in. Length 50 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 253/2 ft. Type Low Carbon Steel
 Fill Material Colorado Sand 10/20 Rig/Core AP-1000
 Drill Co. Layne Christensen Method AP-1000 Dual-wall percussion drill
 Driller B. Morris Log By T. Busby Date 5/12-17/97 Permit # 55-562052
 Checked By [Signature] License No. AZ 21616

See Site Map
For Boring Location

COMMENTS:

All USCS soil type boundaries are gradational. All percentages are approximate.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2							
4							
6		0	grab			SM	0 - 12 Feet: Clayey Silty Sand Brown, dry to damp, very poorly sorted, soft. Sand is fine to coarse grained, subrounded to subangular. Trace gravel. Sand 60%, silt 30%, clay 10%.
8							
10		0	grab				
12							
14		0	grab			SW	12 - 22 Feet: Sand Brown, damp, very poorly sorted, soft. Sand is fine to coarse grained, subrounded. Sand 90%, silt 10%.
16							
18							
20		0	grab				
22							
24						SM	22 - 27 Feet: Gravelly Silty Sand Brown, dry, poorly to very poorly sorted. Sand is fine to coarse grained, subrounded. Gravel is fine to coarse, subrounded. Sand 60%, silt 20%, gravel 20%.



Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24							Gravelly Silty Sand (continued)
26		0	grab				
28							27 - 37 Feet: Silty Sand Dark brown, dry to damp, very poorly sorted. Sand is fine to coarse grained, subrounded. Sand 70%, silt 30%.
30		0	grab			SM	
32							32 - 37 Feet: Some gravel present.
34							
36		0	grab				
38							37 - 42 Feet: Sandy Gravel Brown, dry, very poorly sorted, semi-hard. Gravel is fine to coarse, subrounded to subangular. Sand is fine to coarse grained, subrounded to subangular. Gravel 60%, sand 30%, silt 10%.
40		0	grab			GW	
42							42 - 47 Feet: Sand Dark brown, damp, poorly sorted, semi-hard. Sand is fine to coarse grained, subrounded to subangular. Gravel is fine to coarse, subrounded. Sand 80%, clay 10%, gravel 10%.
44		0	grab			SW	
46							
48							47 - 87 Feet: Gravelly Silty Sand Dark brown, damp, very poorly sorted. Sand is fine to coarse grained, subrounded. Gravel is fine to coarse, rounded to subrounded. Sand 70%, silt 20%, gravel 10%.
50		0	grab				
52						SM	
54							
56		0	grab				



Drilling Log

Monitoring Well MAU

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
							(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56							Gravelly Silty Sand (continued)
58							
60		0	grab				
62							
64							
66		0	grab				Sand is fine to medium grained.
68							
70		0	grab				
72						SM	
74							
76		0	grab				
78							77 - 87 Feet: Cuttings are moist.
80		0	grab				
82							
84							
86		0	grab				Sand is fine to medium grained. Color changes to light brown.
88						SP	87 - 92 Feet: Sand

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
88							Sand (continued) Brown, moist, very well sorted. Sand is medium grained. Sand 100%.
90		0	grab			SP	
92							92 - 103 Feet: Silty Clay Brown, moist to wet, moderate to poorly sorted. Sand is fine grained. Clay 70%, silt 25%, sand 5%.
94		0	grab				Initial water level. Very moist to wet.
96							
98							
100		0	grab			CH	Fine to coarse gravel.
102							
104		0	grab				103 - 107 Feet: Gravelly Sandy Clay Brown, saturated, very poorly sorted. Sand is fine to coarse grained, subrounded to subangular. Gravel is fine, subrounded to subangular. Clay 70%, sand 20%, gravel 10%.
106							
108							107 - 127 Feet: Gravelly Silty Sand Brown, saturated, very poorly sorted. Sand is fine to coarse grained, subrounded to subangular. Gravel is fine to coarse, rounded to subrounded. Sand 50%, silt 30%, gravel 20%.
110		0	grab				
112							
114						SM	
116		0	grab				
118							
120							



Drilling Log

Monitoring Well MAU

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Tracé < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
120		0	grab				Gravelly Silty Sand (continued)
122							
124						SM	
126		0	grab				
128							127 - 157 Feet: Gravelly Sand Sand is fine to coarse grained, subrounded to subangular. Gravel is fine to coarse, well rounded to subrounded. Sand 80%, gravel 15%, silt 5%.
130		0	grab				
132							
134							
136		0	grab				
138							
140		0	grab			SW	
142							
144							
146			grab				
148							
150		0	grab				
152							

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
152							Gravelly Sand (continued)
154						SW	
156		0	grab				
158							157 - 163 Feet: Silty Gravelly Clay Brown, saturated, poorly sorted. Gravel is fine to coarse, rounded to subrounded. Clay 60%, gravel 25%, silt 15%.
160		0	grab			CH	
162							
164		0	grab				163 - 178 Feet: Gravelly Sand Brown, saturated, very poorly sorted. Sand is fine to coarse grained, subrounded to subangular. Gravel is fine to coarse, rounded to subrounded. Sand 80%, gravel 20%.
166							
168							
170		0	grab			SW	
172							
174		0	grab				
176							
178							
180		0	grab			CH	178 - 188 Feet: Silty Clay Brown, damp to wet, moderate to poorly sorted. Trace of gravel. Clay 60%, silt 40%.
182							
184							

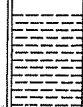
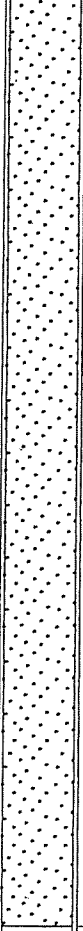
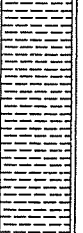
Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
184							
186		0	grab			CH	No gravel.
188							
190		0	grab				188 - 202 Feet: Sandy Gravel Brown, saturated, very poorly sorted. Gravel is fine to coarse, well rounded to subangular. Sand is fine to coarse grained, subrounded to subangular. Gravel 50%, sand 40%, silt 10%.
192							
194							
196		0	grab			GW	
198							
200		0	grab				
202							
204		0	grab				202 - 218 Feet: Silty Sand Brown, saturated, very poorly sorted. Sand is fine to coarse grained, subrounded to subangular. Sand 80%, silt 20%.
206							Some gravel at 205 feet.
208							
210		0	grab			SM	No gravel.
212							
214							
216		0	grab				No gravel.







Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
216							Silty Sand (continued)
218						SM	Middle Aquifer Unit (MAU) encountered at 218 feet.
220		0	grab				218 - 252 Feet: Silty Clay Brown, moist, hard to very hard. Sand is fine grained. Clay 75%, silt 20%, sand 5%.
222							
224		0	grab				More clay content.
226							
228							
230		0	grab				
232							
234		0	grab			CH	
236							
238							
240		0	grab				
242							
244		0	grab				
246							
248							

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
248							
250		0	grab			CH	Producing a lot of water.
252							252 - 277 Feet: Gravelly Coarse Sand Brown, saturated, poorly sorted. Sand is fine to coarse grained. Gravel is fine, subrounded. Sand 80%, silt 10%, gravel 10%.
254		0	grab				Producing lots of water.
256							
258							
260		0	grab				
262						SW	
264							
266		0	grab				
268							
270		0	grab				
272							272 - 277 Feet: Sandy Clay Brown, saturated, well to very well sorted. Sand is fine grained. Clay 60%, sand 35%, gravel 5%.
274							
276						CH	
278							277 - 293 Feet: Silty Clay Brown, damp to moist, well sorted. Clay 80%, silt 20%.
280		0	grab				Dried out between 280-285 feet.

Project Central Phx Groundwater Plume Area Owner ADEQ
 Location 19th Avenue and Pima St., Phoenix, Arizona Proj. No. 023300586

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ & Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
280		0	grab			Silty Clay (continued)
282						
284						
286		0	grab		CH	Wet.
288						
290		0	grab			Indurated.
292						
294		0	grab			293 - 303 Feet: Sand Brown, saturated, very poorly sorted. Sand is fine to coarse grained. Gravel is fine, subrounded. Sand 80%, silt 10%, gravel 10%.
296						Increase in water.
298					SW	
300		0	grab			
302						
304					CH	303 - 305 Feet: Silty Clay Brown, damp to moist, well sorted. Clay 80%, silt 20%. Begins to dry out and loses gravel.
306						305 Feet: Total Depth of Monitoring Well MAU
308						
310						
312						

SURFACE ELEV. 1055.34 FEET IN MSL
 LOCATION T. 1N R. 2E S. 13
 SE 1/4 NW 1/4 SE 1/4

DEPTH BELOW SURFACE (FEET)	GEOLOGIC SUBUNIT	COMPLETION INTERVAL (FEET)	WELL SCHEMATIC	SCREEN INTERVAL (FEET)	CASING SIZE/TYPE (INCHES)	BOREHOLE DIAMETER (INCHES) METHOD	GEOLOGY	
0 - 40	S					13.75 MUD ROTARY	SILTY SAND, SM, BROWN, FINE TO MEDIUM SAND WITH SILT, MINOR FINE GRAVEL, MINOR CALCICHE.	
40 - 120	A1						10.75 STEEL	GRAVEL AND SANDY GRAVEL, GP, POORLY SORTED, CLAST SIZE RANGES FROM MEDIUM AND TO COBBLES AND BOULDERS.
120 - 160	A2						5.0 SCH. 80 PVC BLANK	SANDY GRAVEL AND GRAVELLY SAND, GP-SP, POORLY SORTED, SOME SAND LENSES INCREASING FINES PERCENTAGE WITH DEPTH.
160 - 200	B							SILTY SAND WITH GRAVEL, SM-GM, REDDISH BROWN, POORLY SORTED, FINE TO COARSE SAND WITH SILT AND CALY, MINOR FINE GRAVEL.
200 - 240								SANDY GRAVEL WITH SILT AND CLAY, GM, BROWN, POORLY SORTED, INTERBEDDED SAND (SP) AND GRAVEL (GP) LENSES, DECREASING FINES PERCENTAGE WITH DEPTH.
240 - 280	C						9.88 MUD ROTARY	SILTY SAND WITH GRAVEL, SM-GM, INTERBEDDED SANDY SILT, CLAYEY SILT, AND SILTY SAND WITH MINOR FINE TO MEDIUM GRAVEL.
280 - 320						6.0 SCH. 80 PVC SCREEN 0.040 SLOT		
320 - 360								
360 - 400	MFU	TD=370						

DM-3D
 MONITOR WELL
 COMPLETION LOG