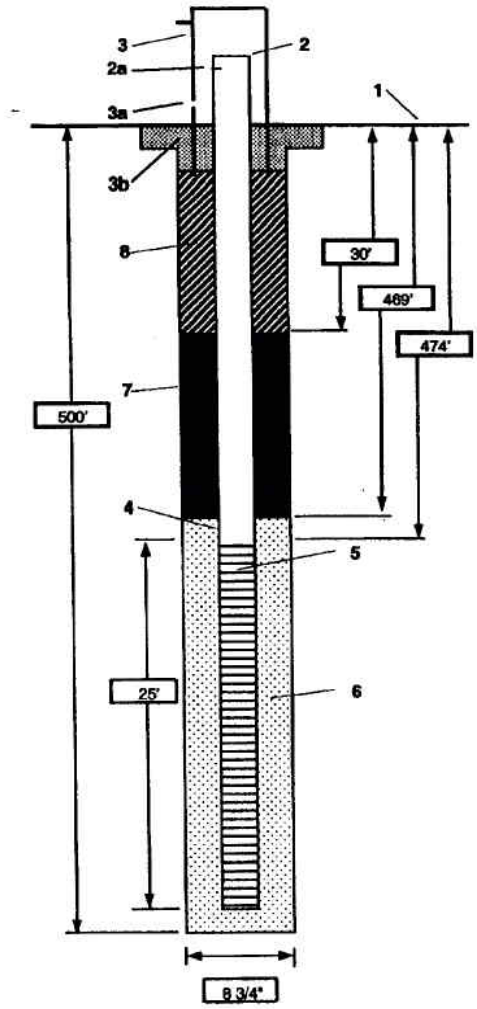
KAFB-8351

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
146631.EM.WI	8-35-1	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : KAFB RCRA
LOCATION : CAU 8-35, Used oil UST (Former ST-214)
DRILLING CONTRACTOR : Water Development Corp. / Chuck
DRILLING METHOD AND EQUIPMENT USED : Stratex-ARCH (0-210' and 400-500' bgs) and HSA-ARCH (210-400' bgs)
WATER LEVEL : START : 11/11/99 End: 11/23/99 LOGGER : B LeFevre



1- Ground elevation at well	5319' msl
2- Top of casing elevation	5322' msl
a) vent hole?	NA
3- Wellhead protection cover type	Steel 8" dia, 3' high, locking cap
a) weep hole?	NA
b) concrete pad dimensions	3' x 3' + 4 concrete filled bumper posts
4- Dia./type of well casing	4.5" Sched 80 threaded PVC
5- Type/slot size of screen	4.5" Sched 80 threaded PVC 0.010" slot
6- Type screen filter	10-20 Colorado silica
7- Type of seal	Quick Grout bentonite slurry
8- Surface Seal	
a) Grout mix used	Portland cement
b) Method of placement	Tremmie pipe
c) Vol. of well casing grout	6 bags/2 tubs
Development method	Bail and surge
Development time	2 days
Estimated purge volume	650
Comments	1' sump below screen.

Figure 5-2 Monitoring Well KAFB 8-35-01 Well Construction Diagram

AR 210

PROJECT NUMBER	BORING NUMBER	
146631.EM.WI	8-35-1	SHEET 1 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT : KAFB RCRA
LOCATION : SWMU 8-35, Used Oil UST (Former ST-214)
ELEVATION :
DRILLING CONTRACTOR : Water Development Corp. / Chuck
DRILLING METHOD AND EQUIPMENT USED : Stratex-ARCH (0-210' and 400-500'bgs) HSA-ARCH (210-400'bgs)
WATER LEVELS :
START : 11/11/99 END : 11/23/99 LOGGER : B LeFevre

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. Sample PID [ppm]
10		Cuttings			Silty and sandy clay (CL) Dark brown Damp	
20		Cuttings			SAA (CL) Damp	
30		Cuttings			Fine-grained sand and silt (SM) Light tan Dry	
40		Cuttings			Fine-grained sand (SP) Light tan Damp	
50		Cuttings			Silty clay (CL) Brown Damp	
60		Cuttings			Fine- to coarse-grained sand (SW) Dark tan Moist	
70		Cuttings			SAA (SW) Moist	
80		Cuttings			Fine- to coarse-grained sand (SW) Light tan Damp	
90		Cuttings			Well graded fine-grained sand to medium subrounded gravel (GW) Light tan Damp	
100		Cuttings			Poorly graded silt (ML) Light brown Damp	
110		Cuttings			Poorly graded, fine-grained sand (SP) Tan Damp	
120		Cuttings			Poorly graded, fine-grained sand w/trace of coarse sand (SP) Tan	
130		Cuttings			Poorly graded, fine-grained sand w/trace of coarse sand and fine gravel (SP) Tan	
140		Cuttings			Poorly graded, fine-grained sand (SP) Tan Damp	
150		Cuttings			Well-graded sand and gravel (GW) Grey	
160		Cuttings			Poorly graded fine-grained sand (SP) Tan Damp	
170		Cuttings			Well-graded fine- to coarse-grained sand (SW) Grey Damp	
180		Cuttings			SAA (SW) Damp	
190		Cuttings			Silty sand (SM) Tan Damp	
200		Cuttings			Poorly graded fine-grained sand (SP)	
210		18"	1-SS		Fine-grained sand and fine gravel (GW) Tan Damp	
215		18"	1-SS		Very firm, sandy clay w/sand stringers (CL) Dark brown Damp	0.0
220		Cuttings			Sandy clay (CL) Light brown Dry	
225		14"	1-SS		Loose, fine-grained, poorly graded sand (SP) Light tan/grey Damp	0.0

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SborLog8-35.xls

PROJECT NUMBER	BORING NUMBER	
146631.EM.WI	8-35-1	SHEET 2 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT : KAFB RCRA
LOCATION : SWMU 8-35, Used Oil UST (Former ST-214)
ELEVATION :
DRILLING CONTRACTOR : Water Development Corp. / Chuck
DRILLING METHOD AND EQUIPMENT USED : Stratex-ARCH (0-210' and 400-500'bgs) HSA-ARCH (210-400'bgs)
WATER LEVELS :
START : 11/11/99 END : 11/23/99 LOGGER : B LeFevre

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. Sample PID [ppm]
230		18"	1-SS		Silty sand w/ fine gravel and clay stringers (ML) Light tan/grey Dry	0.4
235		30"	1-SS		Well-graded sand (SW) Damp	0.3
240		18"	1-SS		Loose gravelly sand and 2" green soft slimey clay layers (SW) Dry	0.5
245		Cuttings			Fine- to medium-grained sand (SW) Light tan Dry	
250		Cuttings			Fine-grained sand w/ gravel (SP) Dry	
260		4"	1-SS		Sandy gravel (GW) Dry	
265		Cuttings			Poorly graded fine-grained sand (SP) Dry	
270		28"	1-SS		Poorly graded, loose, fine-grained sand (SP) Light tan Dry	
275		20"	1-SS		Fine- to medium-grained sand (SP) Light tan/grey Damp	
280		18"	1-SS		Fine- to medium-grained sand (SP) Damp	3.8
290		Cuttings			Well-graded fine-grained sand (SW) Dry	
295		20"	1-SS		Well-graded sand w/fine gravel (SW) Damp	770.0
300		Cuttings			Poorly graded fine-grained sand (SP) Moist	
305		18"	1-SS		Poorly graded fine-grained sand (SP) Damp	23.0
310		22"	1-SS		Poorly graded fine-grained sand (SP) Damp	560.0
315		16"	1-SS		Coarse gravel (>8 cm) and silty sands (SM) Damp	2.0
320		23"	1-SS		Sandy gravel (GW) Damp	5.2
325		22"	1-SS		Clayey sands and silty sands, more wet over cemented SM layer (SC-SM) Moist	129.0
330		2"	1-SS		Cemented silty sand (SM) Damp	30.0
335		20"	1-SS		Silty sand (SM) Damp	26.0
340		23"	1-SS		Silty sand w/gravel & cemented layers, wetter over cemented layer (SM) Damp	130.0
345		23"	1-SS		Silty sand (SM) Damp	1.0
350		24"	1-SS		Silty sand w/gravel (SM)	1.2
355		39"	1-SS		Silty sand (SM) Light tan Damp	0.2
360		29"	1-SS		25" of wet poorly graded fine-grained sand (SP) over 4" of very hard moist green clay (CL)	
365		14"	1-SS		Fine- to medium-grained sand (SP) Moist	0.2
370		23"	1-SS		Silty sand w/ trace of gravel and clay stringers (SM) Moist	190.0
375		28"	1-SS		Silty sand (SM) Wet	580.0
380		21"	1-SS		Silty sand (SM) Dry	0.2
390		2"	1-SS		Silty sand w/gravel (SM)	0.4
400		Cuttings			Well-graded sand w/fine gravel (SW) Moist	
410		Cuttings			Well graded sand w/ gravel (SW) Moist	
420		Cuttings			SAA (SW) Moist	
430		Cuttings			SAA (SW) Moist	
440		Cuttings			Gravelly silty sand (SW)	
450		Cuttings			Silty sand (SM)	
455		Cuttings			Clay (CL) Redish-brown	

SborLog8-35.xls

PROJECT NUMBER	BORING NUMBER	
146631.EM.WI	8-35-1	SHEET 3 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT : KAFB RCRA
LOCATION : SWMU 8-35, Used Oil UST (Former ST-214)
ELEVATION :
DRILLING CONTRACTOR : Water Development Corp. / Chuck
DRILLING METHOD AND EQUIPMENT USED : Stratex-ARCH (0-210' and 400-500'bgs) HSA-ARCH (210-400'bgs)
WATER LEVELS :
START : 11/11/99
END : 11/23/99
LOGGER : B LeFevre

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Above Hole
470		Cuttings			Gravelly sand (SW) Moist	
475		Cuttings			Well-graded sand w/ fine gravel and sandy clay (SW) Moist	
480		Cuttings			Well-graded sand (SW) Wet	
485		Cuttings			Well-graded sand w/fine gravel (SW) Wet	
490		Cuttings			Well-graded sand (SW) Wet	
500		Cuttings			Well-graded sand w/fine gravel (SW) Wet	
510		Cuttings			Very soft, well-graded sand w/fine gravel (SW) Wet	

SborLog8-35.xls

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
146631.EM.WI	8-35-1	SHEET 1 of 1

Figure 2. SOIL BORING DIAGRAM

PROJECT : Kirtland RCRA — LOCATION : SWMU 8-35, Used Oil UST (Former ST-214

ELEVATION : 5319' msl — DRILLING CONTRACTOR : Water Development Corp./ Chuck

DRILLING METHOD AND EQUIPMENT USED : Stratex-ARCH (0-210 and 400-500 bgs) and HSA-ARCH (210-400' bgs)

WATER LEVELS : ??? ft bgs — START : 11/11/1999 END : 11/23/1999 LOGGER : B. LeFevre

Observed Lithology

Depth [ft bgs]	Soil Description	Soil Symbol			Moisture Content	Headspace PID [ppm]	Well Construction
0-20	Dark brown silty and sandy clay (CL)		Logged w/drill cuttings	Stratex-ARCH	Damp		
					Damp		
20-50	Light tan silty fine-grained sand (SM)				Dry		
					Damp		
50-60	Brown silty clay (CL)				Damp		
60-100	Tan, fine- to coarse-grained sand w/trace of medium sub-rounded gravel (SW)				Moist		
					Damp		
					Damp		
100-110	Light brown silt (ML)				Damp		
110-150	Tan, poorly-graded fine-grained sand (SP)				Damp		
					Damp		
					Damp		
150-160	Grey well-graded sand and gravel (GW)				Damp		
160-170	Tan poorly graded fine-grained sand (SP)				Damp		
170-190	Grey well-graded fine to coarse sand (SW)				Damp		
190-211	Silty sand, fine sand, fine sand & gravel (SM-GW)				Damp		
			Split spoon samples, 5' intervals	HSA-ARCH	Damp		
211-225	Brown hard silt and sandy clay (CL)				Dry	0.0	
230-250	Well-graded sand, some soft green clay (SW)				Dry	0.4	
					Dry	0.5	
250-270	Poorly and well-graded gravels (GW-GP)				Dry		
					Dry		
270-290	Poorly graded fine-grained sand (SP)				Damp	3.8	
290-300	Well-graded sand w/fine gravel (SW)				Dry	1.4	
300-315	Poorly graded fine-grained sand (SP)				Damp	770	
315-360	Silty sands w/gravel (SM)				Damp	560	
					Damp	129	
					Damp	130	
					Damp	1.2	
360-370	Poorly graded fine-grained sand (SP)				Wet	190	
370-400	Silty sand w/gravel and clay stringers (SM)				Wet	580	
					Dry		
400-450	Well-graded sand and fine gravel (SW)				Moist	0.4	
					Moist		
					Moist		
					Moist		
450-470	Silty sand and red-brown clay (SM-CL)		Logged w/drill cuttings	Stratex-ARCH	Moist		
					Moist		
470-520	Well-graded sand w/fine gravel (SW)				Wet		474
					Wet		
					Wet		499
					Wet		500
520	Total Depth						

Ground elevation at well	5319' amsl
Top of casing elevation	
vent hole?	NA
Wellhead protection cover type	Steel 9" dia, 3' high
weep hole?	No
concrete pad dimensions	3' x 3'
Diameter of Bore Hole	8.5"
Diameter/type of well casing	4" PVC Sched 80
Type/slot size of screen	4" PVC 0.010 slot
Type screen filter	#30 & 10-20 Colorado Silica
Type of seal	bentonite Quik Grout
Surface seal	
Grout mix used	Portland Cement
Method of placement	Tremmie pipe
Quantity of grout	6 bags/2 tubs
Development method	Bail and surge
Development time	
Estimated purge volume	

Comments

Key to symbols

Well Casing
- Blank
- Screen

Bore Hole
- Concrete pad
- Concrete/bentonite grout
- Bentonite seal
- Gravel/sand Pack

Soil Description
- Clean Sand (SP, SW)
- Sand/w fines (SM, SC)
- Clean Gravel (GP, GW)
- Gravel w/fines (GM, GC)
- Clay (CI, CH)
- Silt (ML, MH)
- Organic soils (PT, OL, OH)

Sbordiagram 8-35.xls

AR 210

Century GEOPHYSICAL CORP.

SWMW 8-35

COMPANY	: CH2M HILL				
WELL	: SWMW 8-35				
LOCATION/FIELD	: KAFB				
COUNTY	: BERNALLIO				
STATE	: NEW MEXICO				
SECTION	:	TOWNSHIP	:	RANGE	:
DATE	: 03/15/00	PERMANENT DATUM	: GL		
DEPTH DRILLER	: 501			KB	:
LOG BOTTOM	: 499.00	LOG MEASURED FROM:	TOC	DF	:
LOG TOP	: -0.50	DRL MEASURED FROM:	GL	GL	:
CASING DIAMETER	: 4.5	LOGGING UNIT	: 9706		
CASING TYPE	: PVC	FIELD OFFICE	: CGC-TULSA		
CASING THICKNESS:		RECORDED BY	: M. SUTTON		
BIT SIZE	: 3.75	BOREHOLE FLUID	: WATER	FILE	: PROCESSED
MAGNETIC DECL.	: 10.5	RM	:	TYPE	: 9511A
MATRIX DENSITY	: 2.65	RM TEMPERATURE	:		
NEUTRON MATRIX	: SANDSTONE	MATRIX DELTA T	: 54		
				THRESH:	20000

OTHER SERVICES:
9511
9057

TOC 31.5in BGS

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

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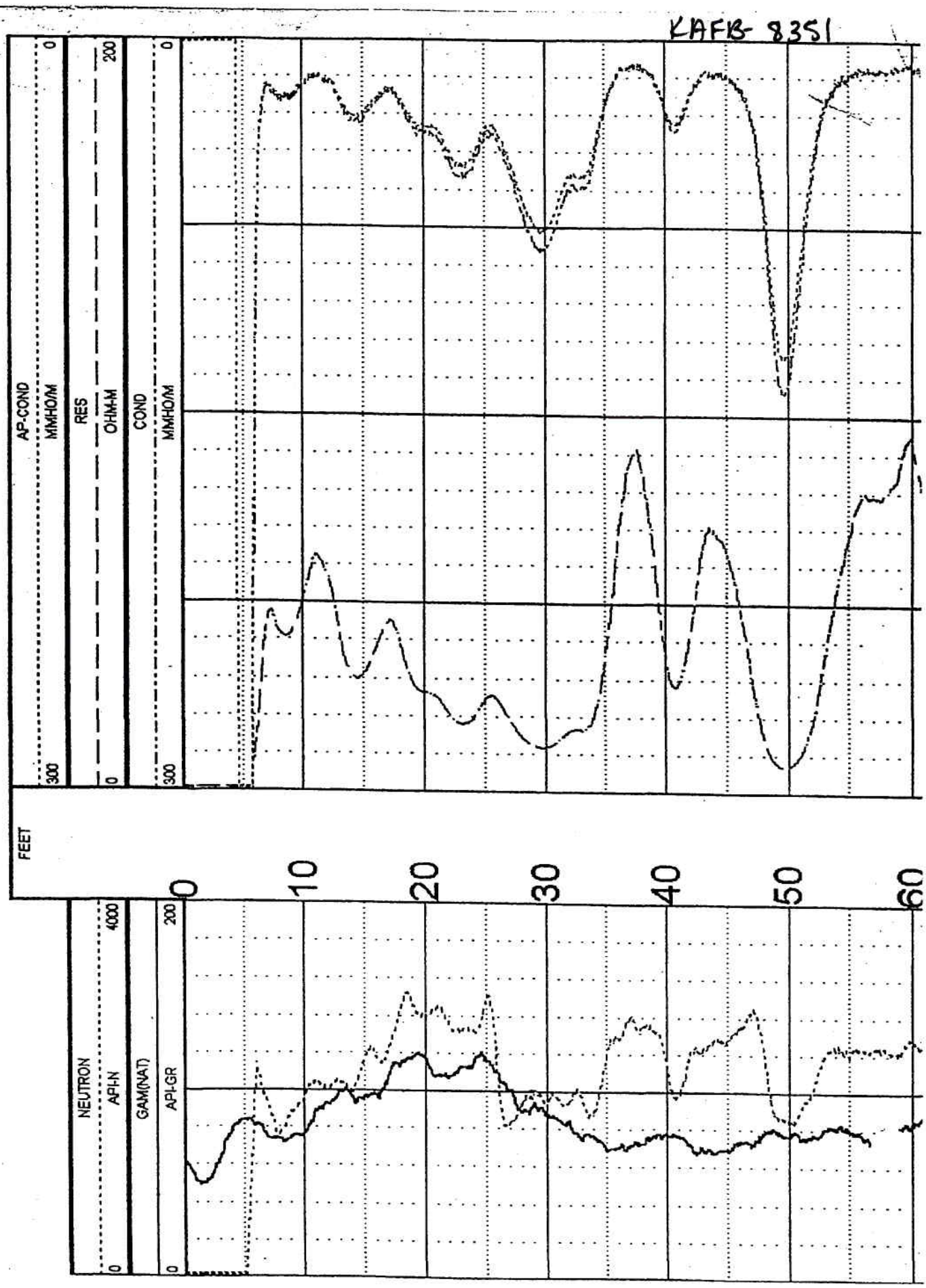
AR 210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COND
MMHO/M
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NEUTRON
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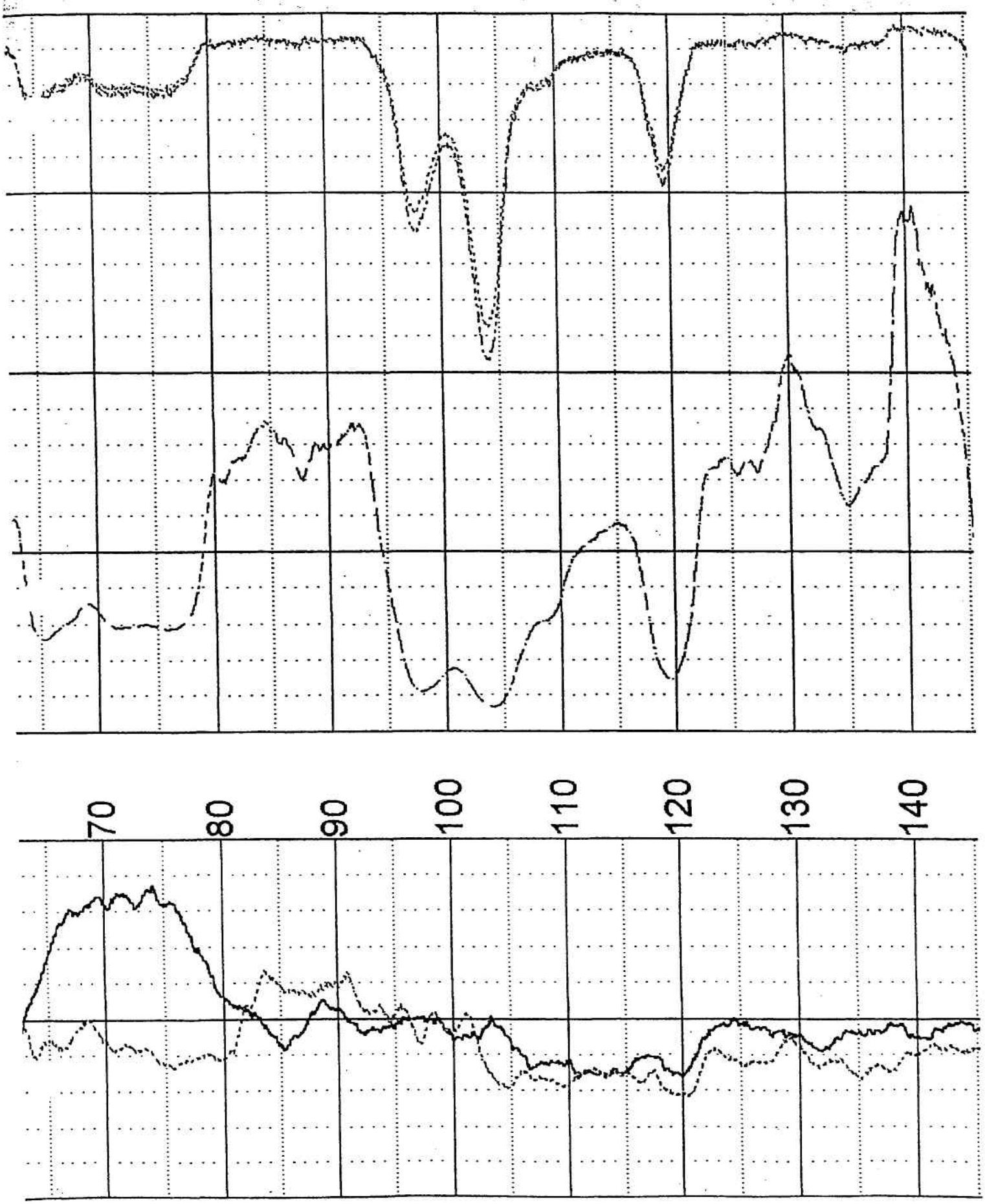

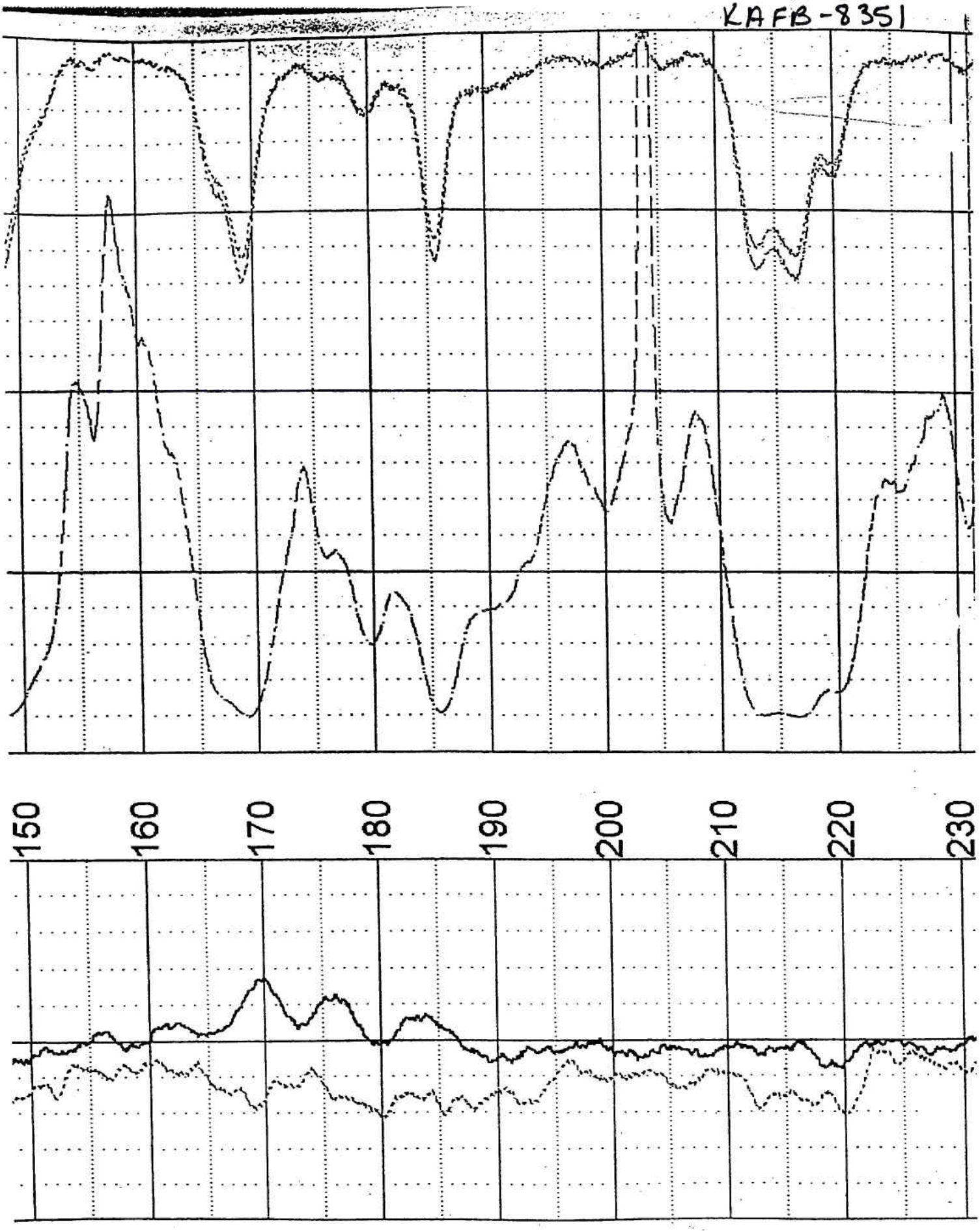
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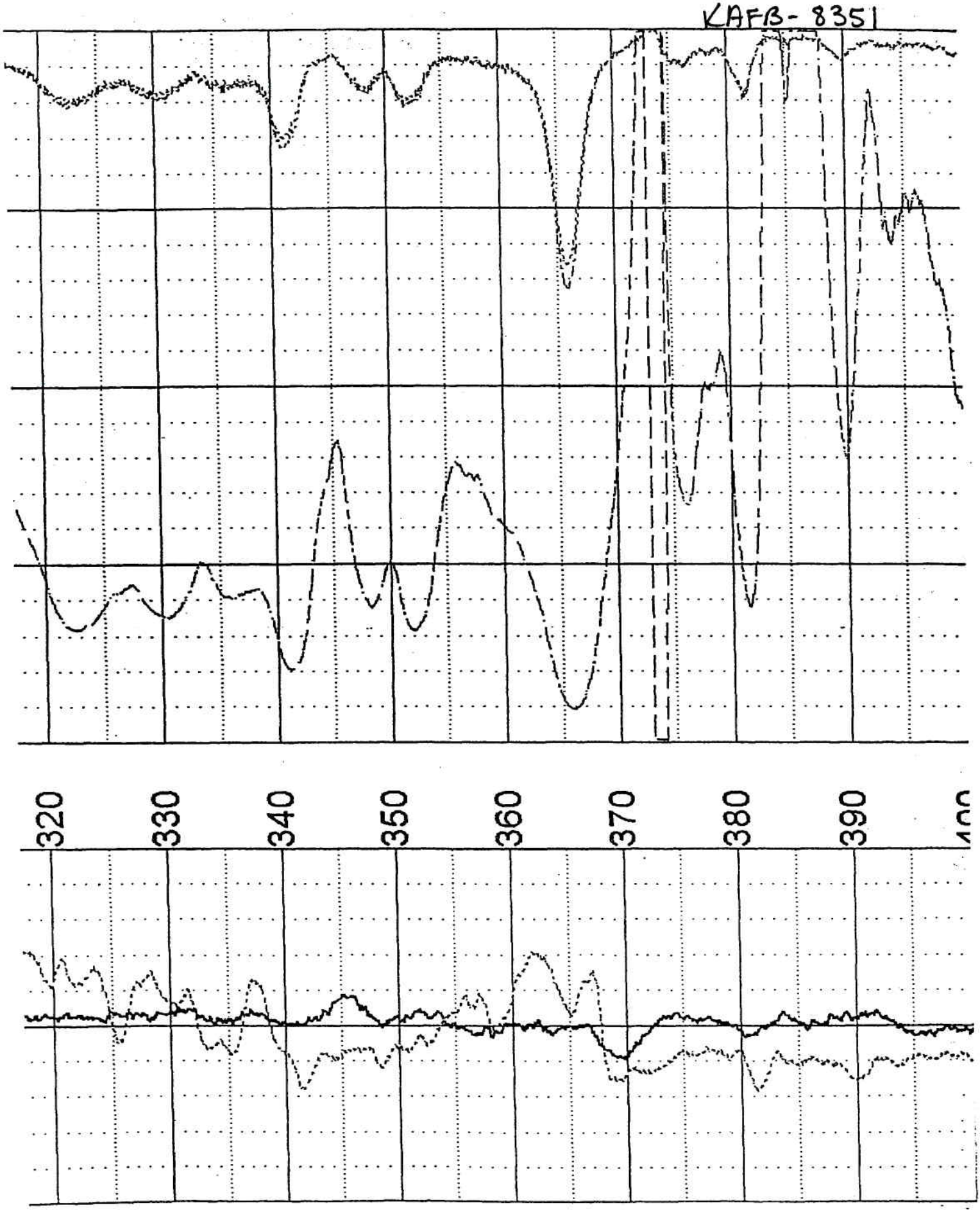
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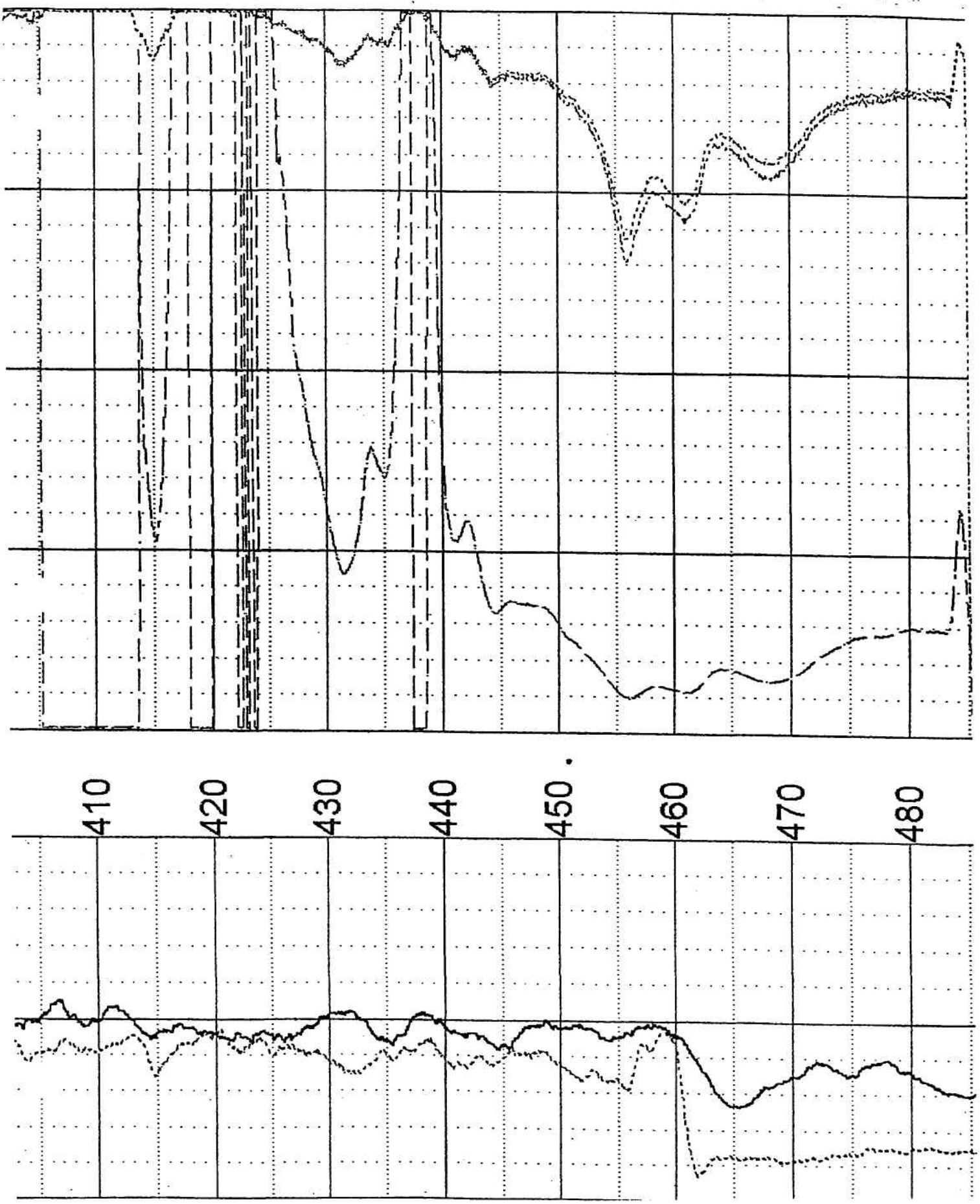

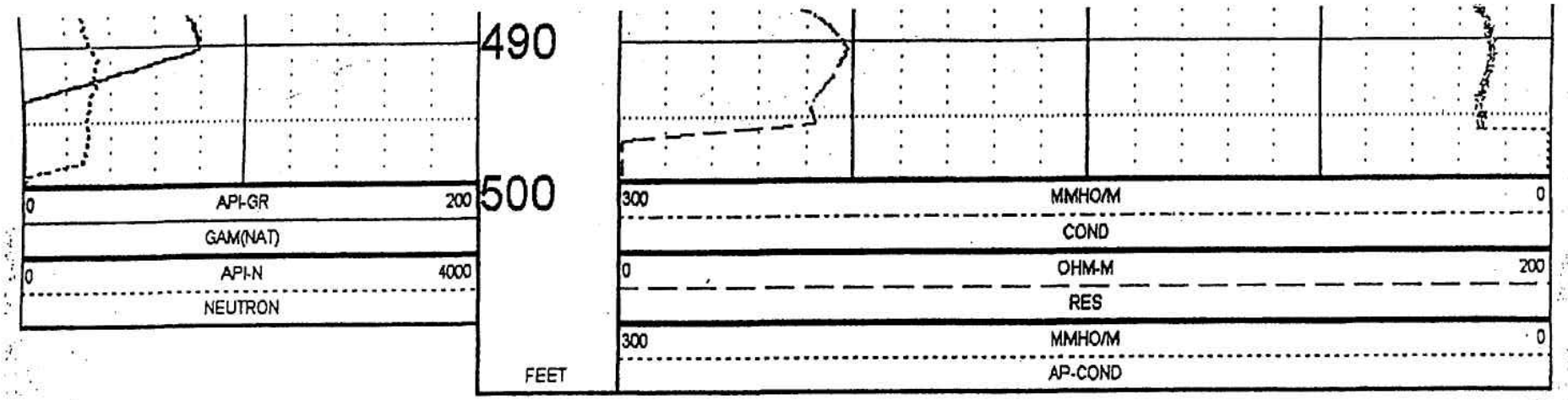

TOOL CALIBRATION SWMW 8-35 03/15/00 14:25
TOOL 9511A
SERIAL NUMBER 752

	DATE	TIME	SENSOR	STANDARD	RESPONSE
1	Jun01,99	13:03:20	GAM(NAT)	Default [API-GR]	Default [CPS]
	Jun01,99	13:03:20	GAM(NAT)	Default [API-GR]	Default [CPS]
2	Jun01,99	13:07:20	AP-COND	0.000 [MMHO/M]	67411 [CPS]
	Jun01,99	13:07:20	AP-COND	705.000 [MMHO/M]	149900 [CPS]
3	Jun01,99	13:07:48	TEMP	36.000 [DEG F]	26600 [CPS]
	Jun01,99	13:07:48	TEMP	135.000 [DEG F]	31888 [CPS]
4	Jun01,99	13:03:20	A	0.630 [ ]	
5	Jun01,99	13:03:20	B	Default [ ]	

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