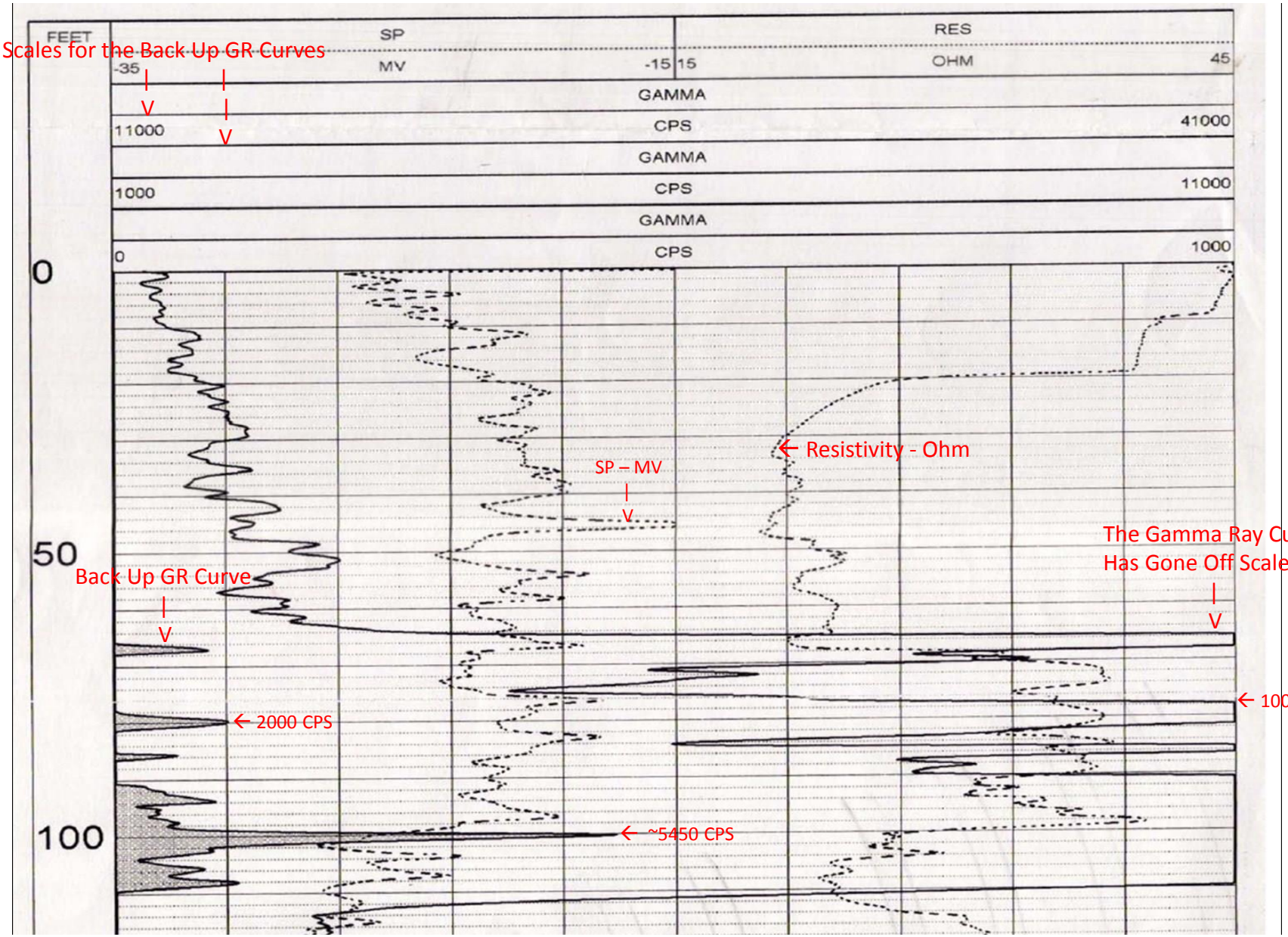
KVD Data Review - A Work in Progress

Questions on Log Scales and Nomenclature

EPA, Region 6
Dallas, Texas

José Eduardo Torres
Petroleum Engineer
Chemical Engineer



Sample Modern Log Showing Back Up Curve Scales for Gamma Ray Curve

URANIUM RESOURCES, INC

HOLE NUMBER GARCIA-1607

KLEBERG COUNTY TEXAS

SEC — TWN — RNG —

KINGSVILLE DOME

TD DRILLED - 750
TD LOGGED -
LOGGING SPEED - 60 FPM
REFERENCE - SURFACE
BIT SIZE - 5 5/8

ELEVATION -
CASING TYPE - NONE
HOLE FLUID - H2O
DRILLER - AWHOOR

REMARKS:

COMPUTER LOGGING, INC.
Pleasanton, Texas
Telephone 512-569-6256

CHARLIE - UNIT: 5
9-12-89 - 1000 HRS.

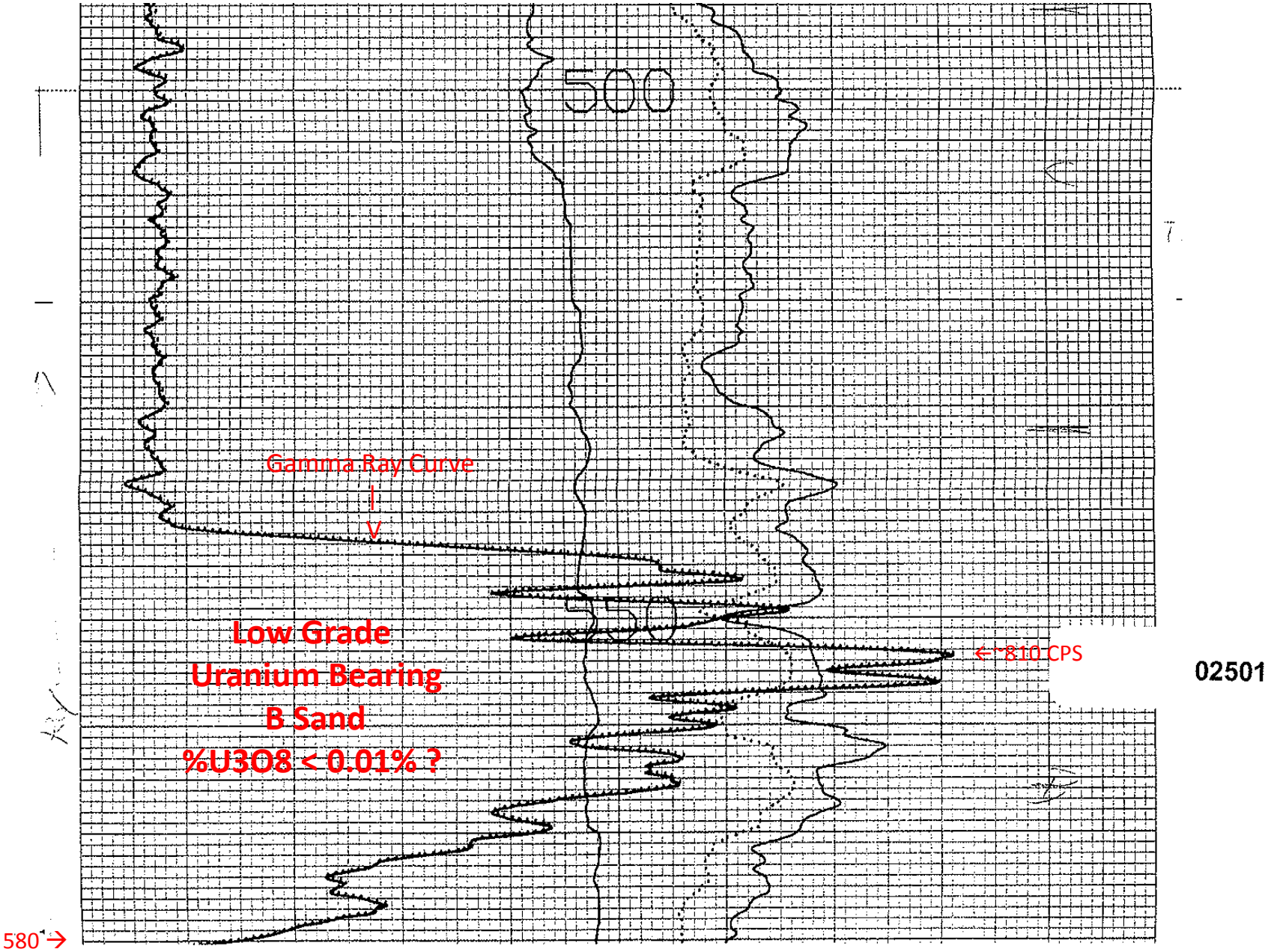
TOOL MODEL/SER.NO.: 20-2

NATURAL GAMMA
DETECTOR - .875 x 4.0 NaI(Tl)
K-FACTOR .00000617
DEADTIME - .00000025
TEST PIT - GEORGE WEST
LAST CAL. - 9-3-89
WATER FACTOR - 1.18
CASING FACTOR-

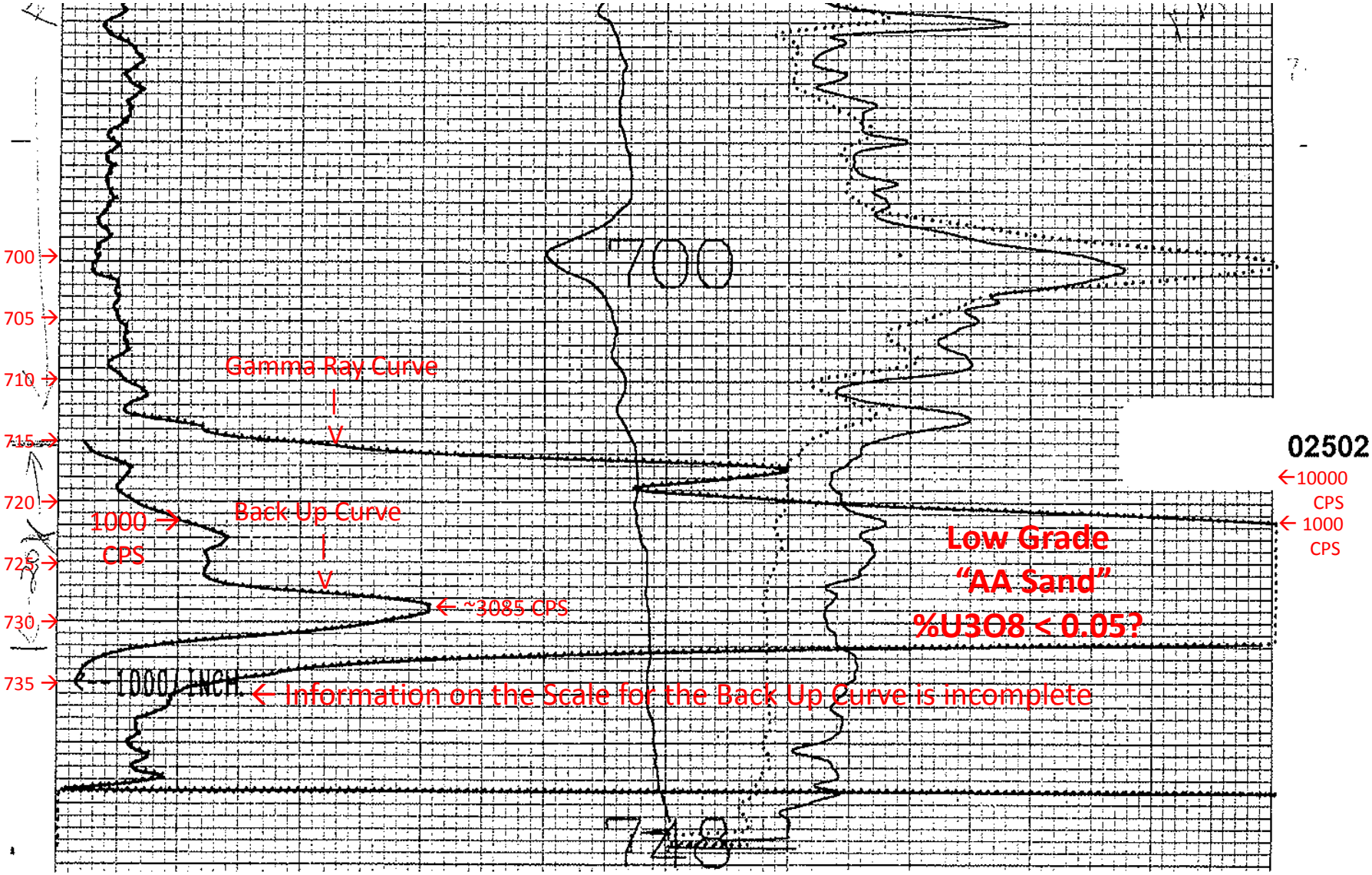
NEUTRON
DETECTOR - 1 X 6 INCH, HE3
SOURCE - 1.5 CI. PuBe
SPACING - 14 INCHES

ELECTRIC LOGS
SINGLE POINT RESISTANCE
SP/16 INCH NORMAL
64 INCH NORMAL

KVD Exploratory Garcia 1607: At approximately 550 Ft North and East from W-20, just off CR 2130, Kleberg Co.



KVD Exploratory Well Garcia 1607: At approximately 550 Ft North and East from W-20, just off CR 2130, Kleberg Co.



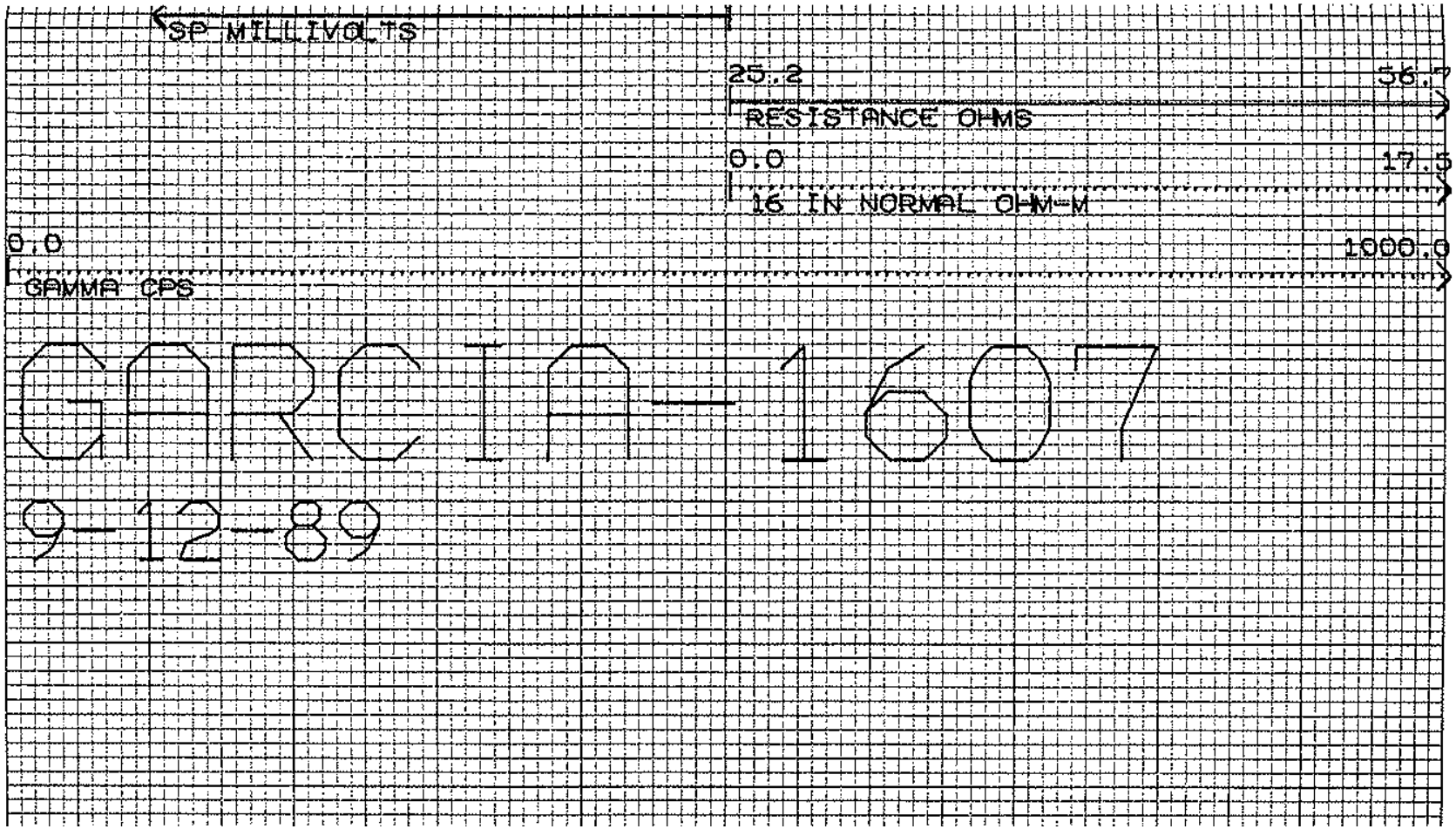
KVD Exploratory Well Garcia 1607: GR-SP-Res. Shown: the Low Grade Uranium Bearing "AA Sand"

(What is the meaning of the annotation "20X" seen posted at the 725 Ft level?, is it related to the GR Scale?)

KVD Exploratory Well Garcia 1607

Uranium Assay for "AA Sand" Segment

DEPTH	GAMMA-HI CPS PROBE COUNTS		GAMMA-HI CPS, CORRECTED	%U3O8 RADIOMETRIC GRADE PER UNIT	DEPTH	GAMMA-HI CPS PROBE COUNTS		GAMMA-HI CPS, CORRECTED	%U3O8 RADIOMETRIC GRADE PER UNIT
715.00	200.00		200.01	0.0028	725.00	1250.00		1250.39	0.0177
715.50	250.00		250.02	0.0035	725.50	1200.00		1200.36	0.0170
716.00	300.00		300.02	0.0043	726.00	1250.00		1250.39	0.0177
716.50	450.00		450.05	0.0064	726.50	1275.00		1275.41	0.0181
717.00	580.00		580.08	0.0082	727.00	1550.00		1550.60	0.0220
717.50	590.00		590.09	0.0084	727.50	2200.00		2201.21	0.0312
718.00	550.00		550.08	0.0078	728.00	2700.00		2701.82	0.0383
718.50	500.00		500.06	0.0071	728.50	3085.00		3087.38	0.0438
719.00	500.00		500.06	0.0071	729.00	3085.00		3087.38	0.0438
719.50	540.00		540.07	0.0077	729.50	2900.00		2902.10	0.0412
720.00	610.00		610.09	0.0087	730.00	2640.00		2641.74	0.0375
720.50	700.00		700.12	0.0099	730.50	2300.00		2301.32	0.0327
721.00	880.00		880.19	0.0125	731.00	1900.00		1900.90	0.0270
721.50	1000.00		1000.25	0.0142	731.50	1200.00		1200.36	0.0170
722.00	1140.00		1140.32	0.0162	732.00	800.00		800.16	0.0114
722.50	1300.00		1300.42	0.0185	732.50	500.00		500.06	0.0071
723.00	1400.00		1400.49	0.0199	733.00	350.00		350.03	0.0050
723.50	1355.00		1355.46	0.0192	733.50	250.00		250.02	0.0035
724.00	1225.00		1225.38	0.0174	734.00	200.00		200.01	0.0028
724.50	1215.00		1215.37	0.0172	734.50	180.00		180.01	0.0026
725.00	1250.00		1250.39	0.0177	735.00	150.00		150.01	0.0021



KVD Exploratory Well Garcia 1607. Well Log's Scales

Unfortunately, this old type of log does not provide an explicit secondary scale for the Back Up portions of the GR curve along with the primary scale.

URANIUM RESOURCES, INC

HOLE NUMBER GARCIA-1619

KLEBERG COUNTY TEXAS

SEC-- TWN-- RNG--

KINGSVILLE DOME

TD DRILLED - 750
TD LOGGED -
LOGGING SPEED - 60 FPM
REFERENCE - SURFACE
BIT SIZE - 3 3/8

ELEVATION -
CASING TYPE - NONE
HOLE FLUID - H2O
DRILLER - AWADOR

REMARKS:

COMPUTER LOGGING, INC.
Pleasanton, Texas
Telephone 512-569-6256

CHARLIE - UNIT: 5
9-21-89 - 1430 HRS.

TOOL MODEL/SER.NO.: 20-2

NATURAL GAMMA

DETECTOR - .875 x 4.0 NaI(T)
K-FACTOR .00000617
DEADTIME - .00000025
TEST PIT - GEORGE WEST
LAST CAL. - 9-3-89
WATER FACTOR - 1.16
CASING FACTOR-

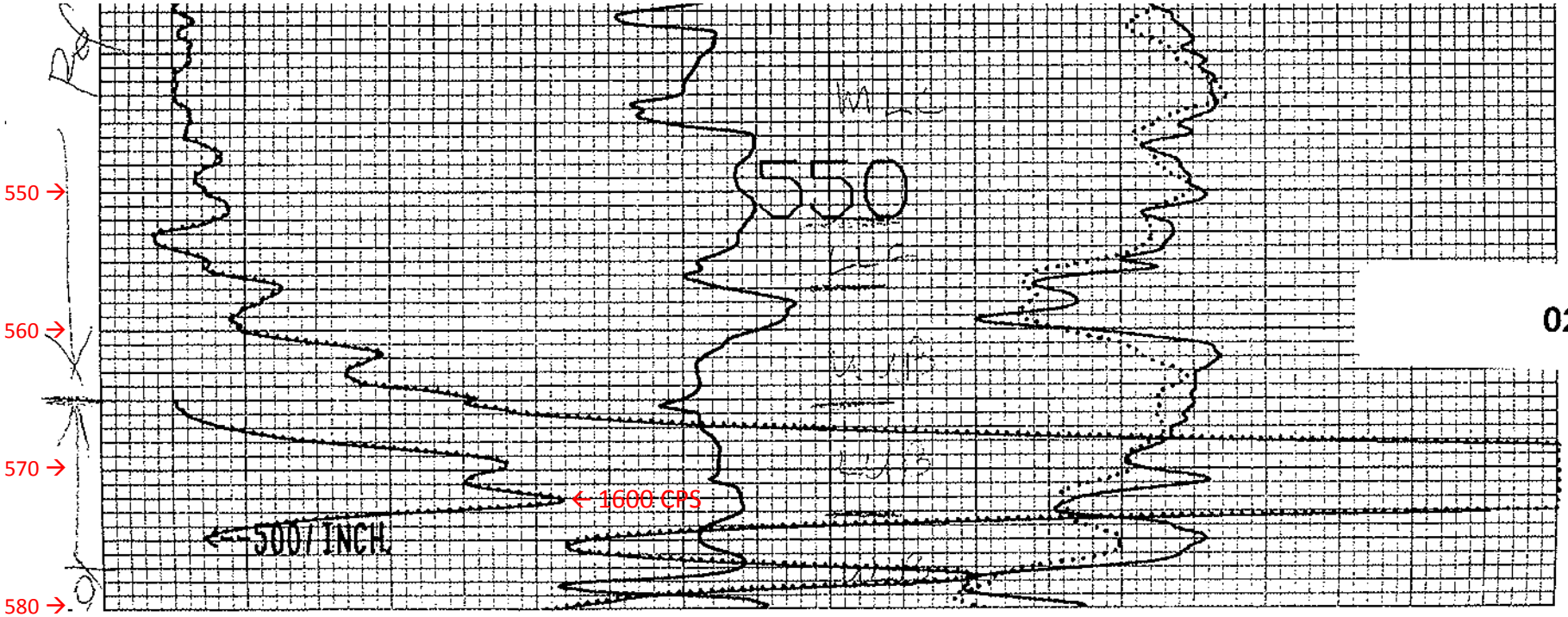
NEUTRON

DETECTOR - 1 X 6 INCH. HE3
SOURCE - 1.5 CI. AmBe
SPACING - 14 INCHES

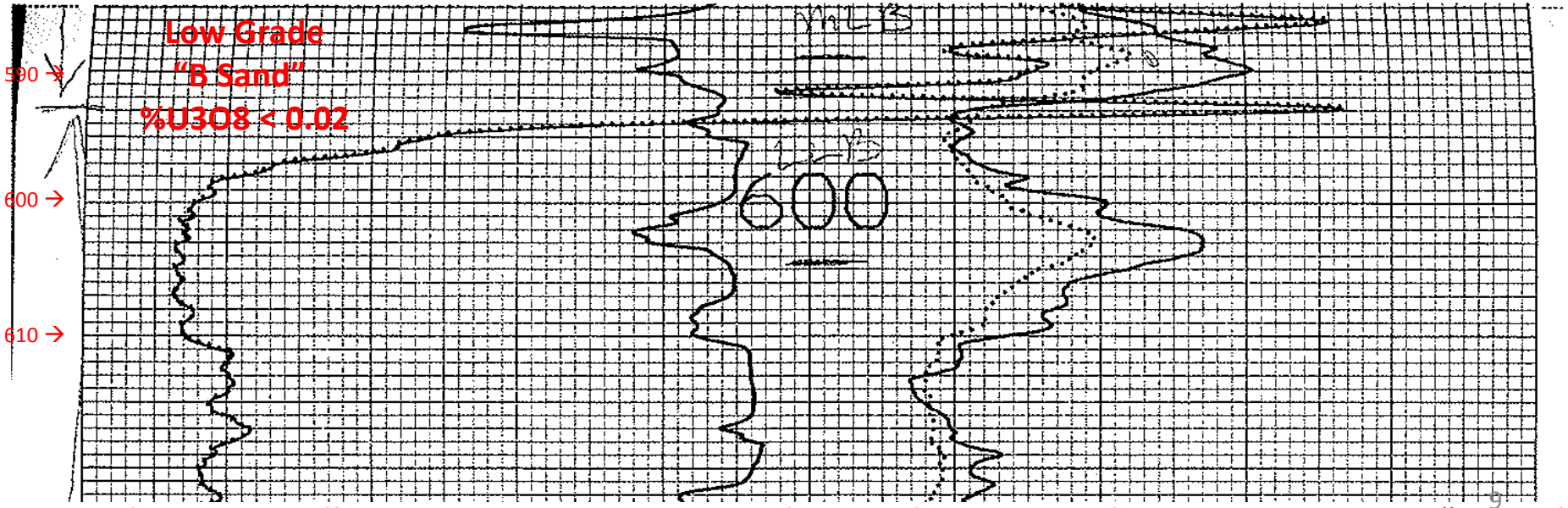
ELECTRIC LOGS

SINGLE POINT RESISTANCE
SP/16 INCH NORMAL
64 INCH NORMAL

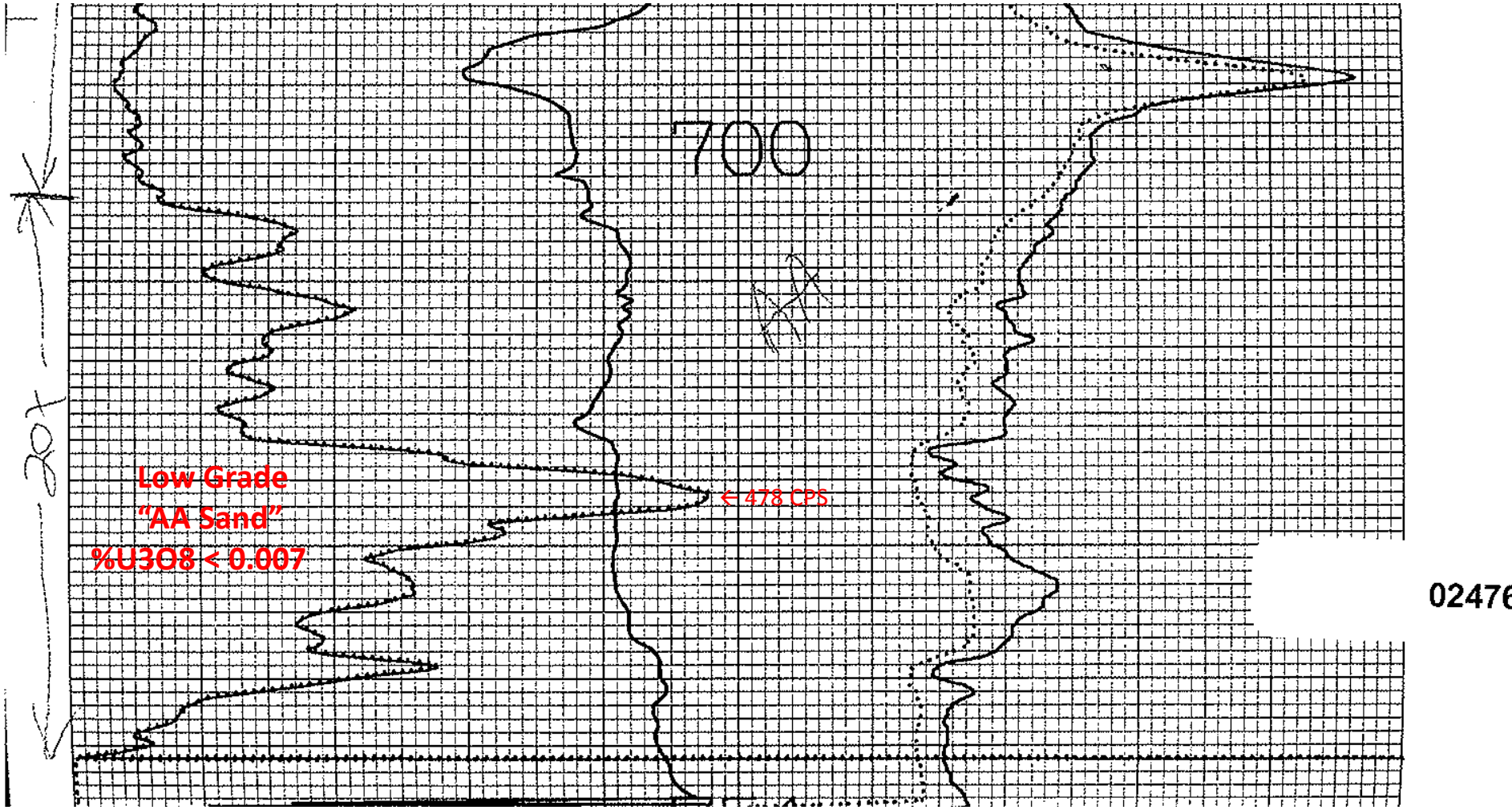
KVD Exploratory Well 1619 Located 325 Ft North and East of Garcia Hill W-20



Missing About 5 Ft of Log Info



KVD Exploratory Well Garcia 1619: GR-SP-Res. Shown: the Low Grade Uranium Bearing "B Sand"



KVD Exploratory Well Garcia 1619: GR-SP-Res. Shown: the Low Grade Uranium Bearing "AA Sand"

URANIUM RESOURCES INC.

HOLE NUMBER GARCIA #1

KLEBERG COUNTY TEXAS

SEC— TWN— RNG—

KINGSVILLE DOME

TD DRILLED	= 900	ELEVATION	=
TD LOGGED	= 902	CASING TYPE	= NONE
LOGGING SPEED	= 60 FPM	HOLE FLUID	= H2O
REFERENCE	= SURFACE	FLUID TEMP.	=
BIT SIZE	= 5 1/2		

REMARKS:

DRILLER MARK

COMPUTER LOGGING INC.
Pleasanton, Texas
Phone 512-569-6256

JIM CANNON - UNIT: 3
11-23-87 - 1200
PROBE MODEL: 20-1

NATURAL GAMMA

DETECTOR	= .875 x 4.0 NaI(T)
K-FACTOR	= 6.68 E-6
DEADTIME	= 3.25 MICRO SECONDS
TEST PIT	= 9-13-87
LAST CAL	= GEORGE WEST
WATER FACTOR	=
CASING FACTOR	=

NEUTRON

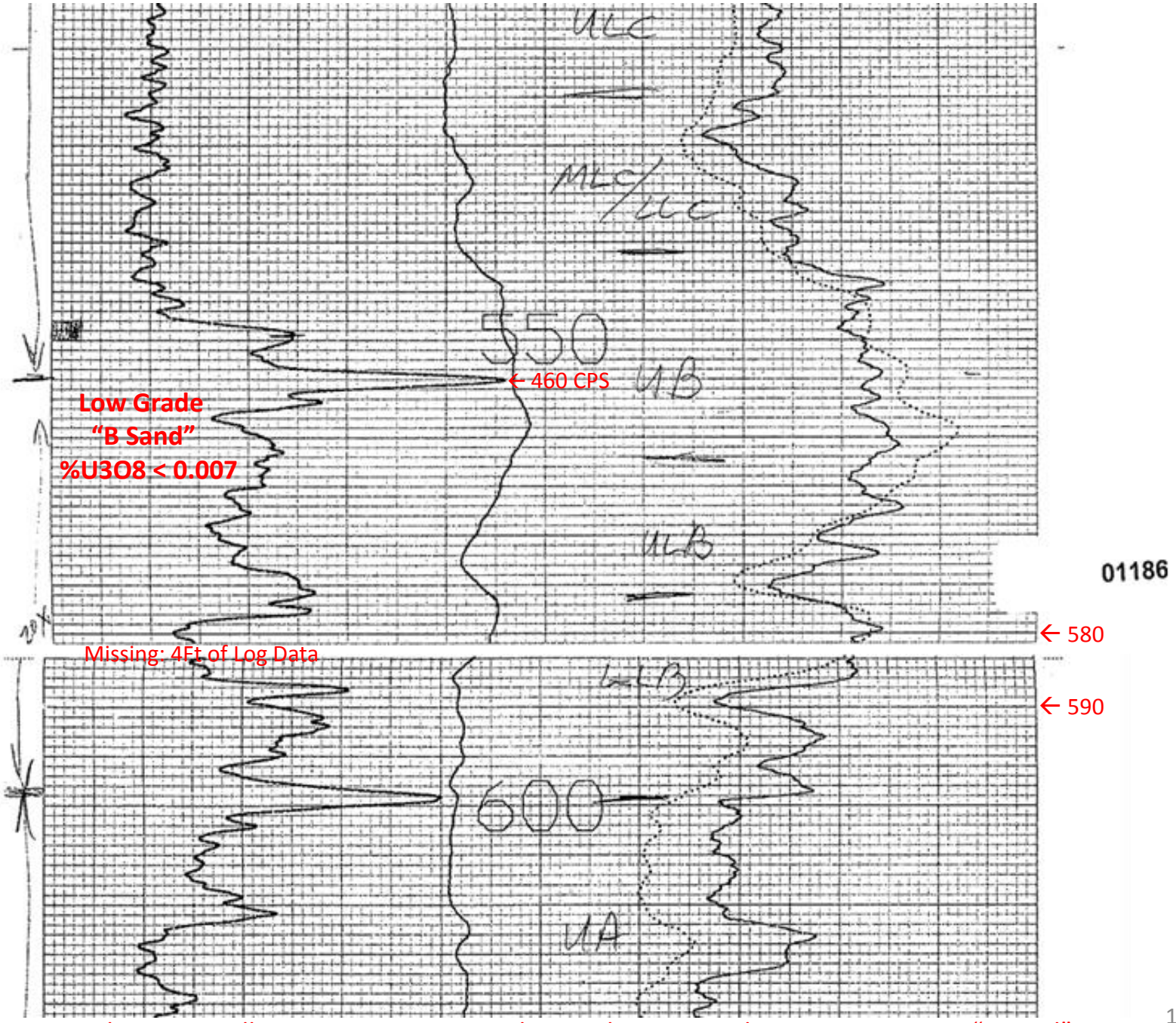
DETECTOR	= 1 X 6 INCH HE3
SOURCE	= 1.5 CI. AmBe
SPACING	= 14 INCHES

ELECTRIC LOGS

SINGLE POINT RESISTANCE
SP/16 INCH NORMAL
64 INCH NORMAL

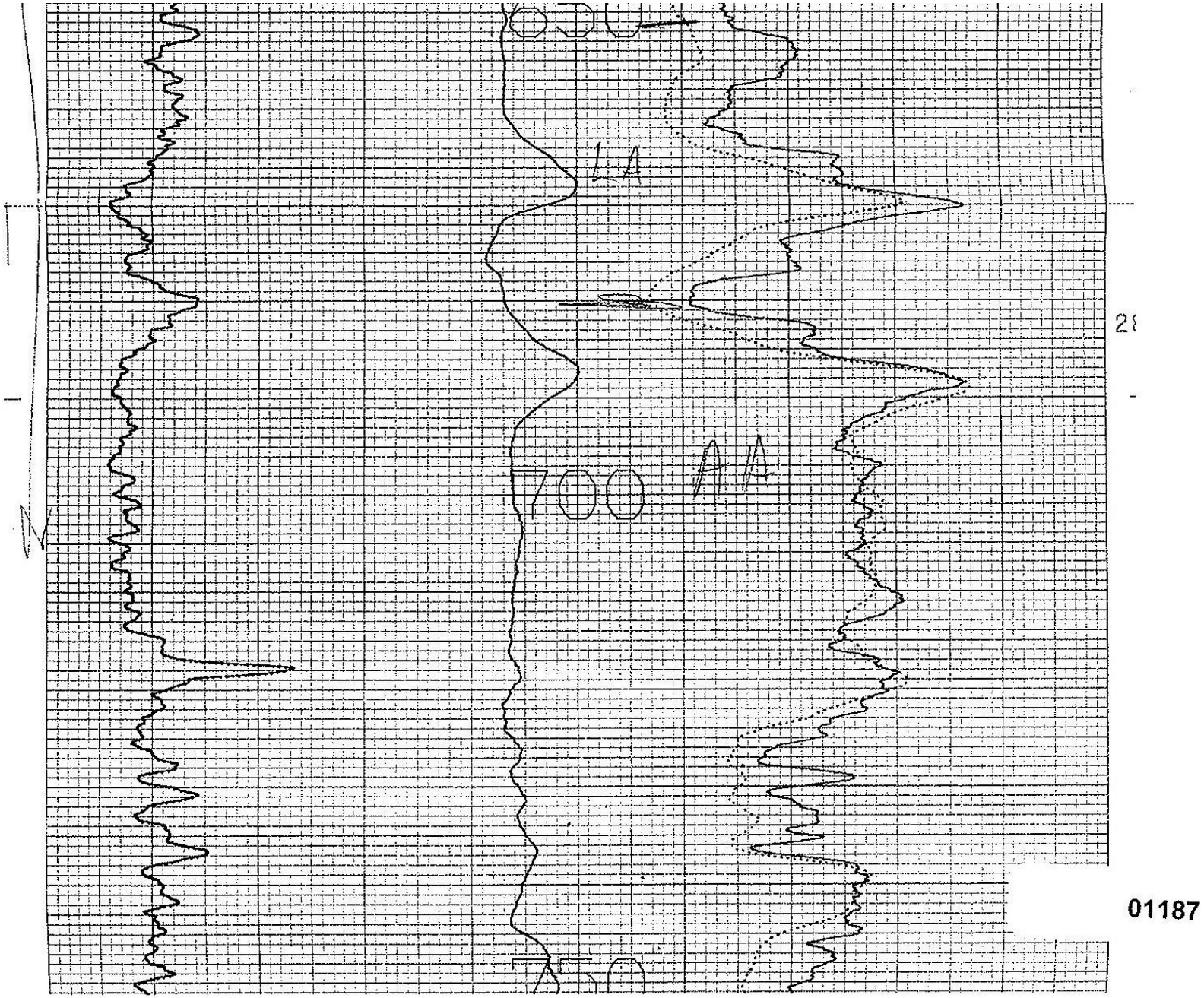
KVD Exploratory Well Garcia 1 Located 810 Ft South and East of Garcia Hill W-20

Garcia 1



KVD Exploratory Well Garcia 1: GR-SP-Res. Shown: the Low Grade Uranium Bearing "B Sand"

Garcia 1



KVD Exploratory Well Garcia 1. About 800 Ft South and East of Garcia Hill W-20.
"AA Sand" (nearly Uranium free?... no GR curve scales provided).

URANIUM RESOURCES, INC

HOLE NUMBER GARCIA-1622

KLEBERG COUNTY TEXAS

SEC-- TWN-- RNG--

KINGSVILLE DOME

TD DRILLED - 650
TD LOGGED -
LOGGING SPEED - 60 FPM
REFERENCE - SURFACE
BIT SIZE - 5 5/8

ELEVATION -
CASING TYPE - NONE
HOLE FLUID - H2O
DRILLER - PETE

REMARKS:

COMPUTER LOGGING, INC.
Pleasanton, Texas
Telephone 512-569-6256

CHARLIE - UNIT 5
10-4-89 - 1700 HRS.

TOOL MODEL/SER.NO.: 20-4

NATURAL GAMMA

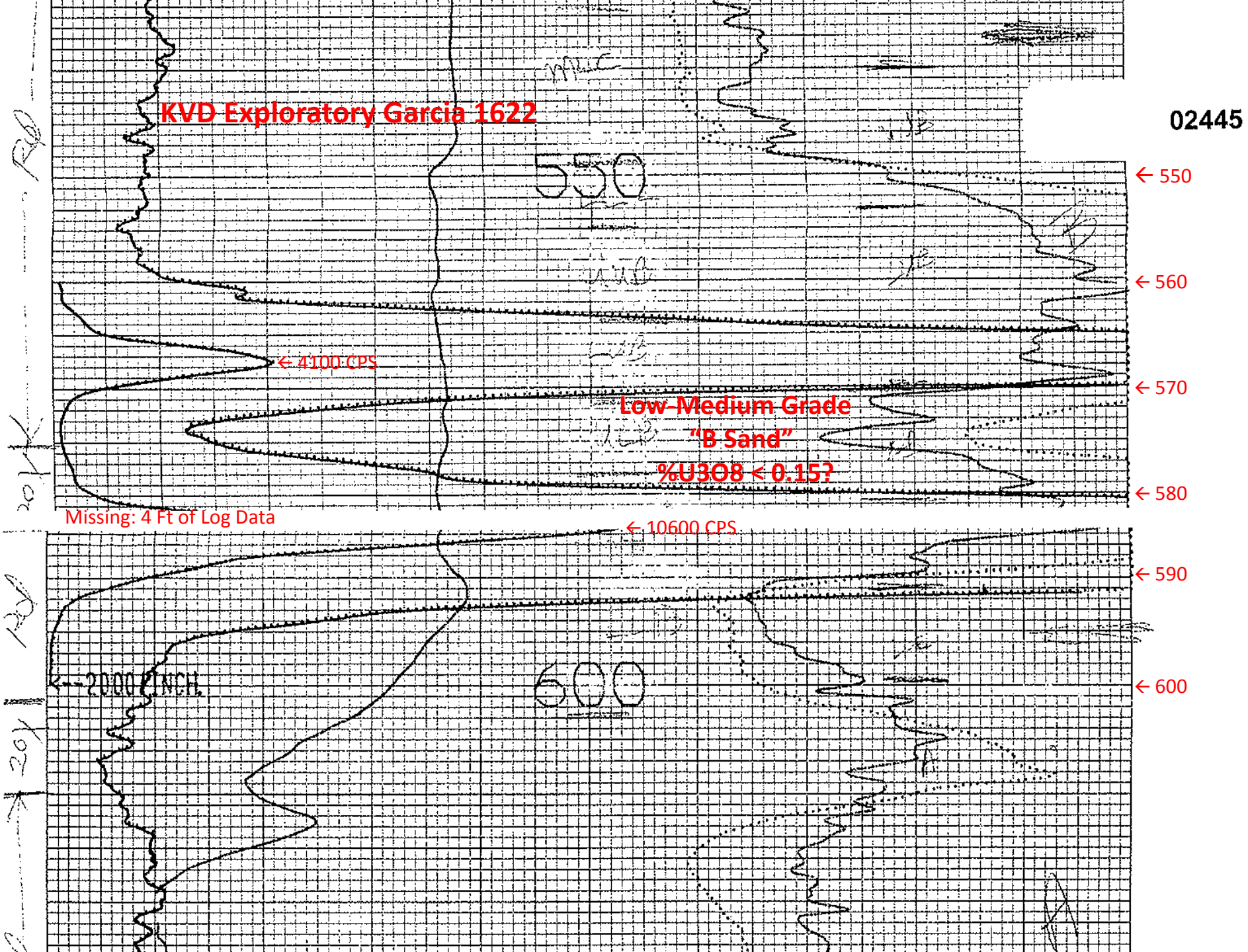
DETECTOR - .675 x 4.0 NaI(T)
K-FACTOR .00000644
DEADTIME - .00000025
TEST PIT - GEORGE WEST
LAST CAL. - 9-3-89
WATER FACTOR - 1.16
CASING FACTOR-

NEUTRON

DETECTOR - 1 X 6 INCH, HE3
SOURCE - 1.5 CI. PuBe
SPACING - 14 INCHES

ELECTRIC LOGS

SINGLE POINT RESISTANCE
SP/16 INCH NORMAL
64 INCH NORMAL


KVD Exploratory Garcia 1622
02445
550
← 550
← 560
← 4100 CPS
← 570
Low-Medium Grade
"B Sand"
%U3O8 < 0.15?
← 580
Missing: 4 Ft of Log Data
← 10600 CPS
← 590
600
← 600
20 K

KVD Exploratory Well Garcia 1622

Uranium Assay for "B Sand" Segment

DEPTH	GAMMA-HI CPS PROBE COUNTS		GAMMA-HI CPS, CORRECTED	%U3O8 RADIOMETRIC GRADE PER UNIT	HOLE SIZE AND WATER CORR. GRADE	STEEL CASING CORRECTED GRADE
565.00	1000.00		1000.25	0.0129	0.0148	0.0148
565.50	1600.00		1600.64	0.0206	0.0237	0.0237
566.00	2400.00		2401.44	0.0309	0.0355	0.0355
566.50	3400.00		3402.89	0.0438	0.0503	0.0503
567.00	3700.00		3703.43	0.0477	0.0548	0.0548
567.50	4100.00		4104.21	0.0529	0.0607	0.0607
568.00	3800.00		3803.61	0.0490	0.0563	0.0563
568.50	3100.00		3102.40	0.0400	0.0459	0.0459
569.00	2300.00		2301.32	0.0296	0.0340	0.0340
569.50	1500.00		1500.56	0.0193	0.0222	0.0222
570.00	1000.00		1000.25	0.0129	0.0148	0.0148
580.00	800.00		800.16	0.0103	0.0118	0.0118
580.50	1000.00		1000.25	0.0129	0.0148	0.0148
585.50	10600.00		10628.16	0.1369	0.1572	0.1572
586.00	10000.00		10025.06	0.1291	0.1483	0.1483
586.50	8500.00		8518.10	0.1097	0.1260	0.1260
587.00	7200.00		7212.98	0.0929	0.1067	0.1067
587.50	5400.00		5407.30	0.0696	0.0800	0.0800
588.00	4100.00		4104.21	0.0529	0.0607	0.0607
588.50	3300.00		3302.72	0.0425	0.0489	0.0489
589.00	2900.00		2902.10	0.0374	0.0429	0.0429
589.50	2400.00		2401.44	0.0309	0.0355	0.0355
590.00	1900.00		1900.90	0.0245	0.0281	0.0281
590.50	1500.00		1500.56	0.0193	0.0222	0.0222
591.00	1100.00		1100.30	0.0142	0.0163	0.0163

W-25 (5/5/67)

Owner: Heberto Garcia

CLAY/CALICHE	0	19	19
SAND	19	35	16
CLAY	35	91	56
SAND	91	108	17
CLAY	108	171	63
SAND	171	186	15
CLAY	186	233	47
SAND	233	241	8
Clay	241	439	198
Sand	439	451	12
Clay	451	506	55
Sand	506	517	11
Clay+Red Shale	517	575	58
Red Snd+Strks Sh	575	601	26
Red Shale	601	609	8
Red Sand	609	631	22

TD

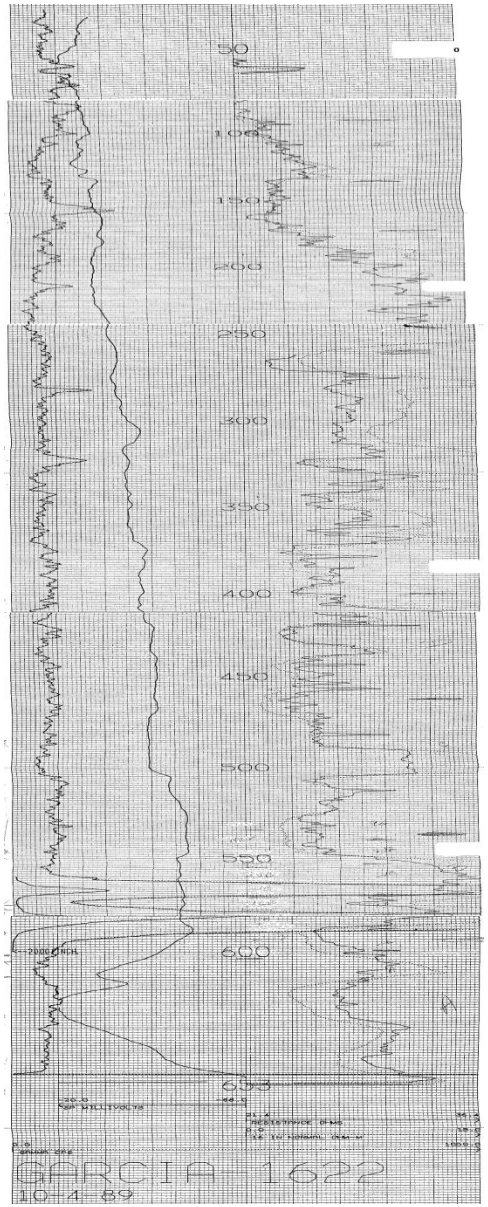
Garcia 1622 (10/04/89)

?

Sand?

	80	90	10	
SAND	90	134	44	E
SHALE	134	171	37	
	171	258		D
	258	272	14	
	272	301	29	D
	301	314	13	
	314	323	9	D
	323	329	6	
	329	373	44	D
	373	405	32	
	405	423	18	D
	423	431	8	
	431	441	10	D
	441	468	27	
SAND	468	507	39	C
SAND	510	528	18	C
SHALE	528	547	19	
SAND	547	570	23	B
SHALE	570	577	7	
SAND	577	591	14	
SHALE	591	600	9	
SAND	600	653	53	A

TD



The Garcia Hill W-25 is completed in the “B Sand”

There is a 25 to 30 Ft difference in elevation between W-25 and Garcia 1622.

URANIUM RESOURCES INC.

HOLE NUMBER GARCIA #5

KLEBERG COUNTY TEXAS

SEC -- TWN -- RNG --

KINGSVILLE DOME

TD DRILLED	= 750	ELEVATION	=
TD LOGGED	= 754	CASING TYPE	= NONE
LOGGING SPEED	= 60 FPM	HOLE FLUID	= H2O
REFERENCE	= SURFACE	FLUID TEMP.	=
BIT SIZE	= 5 1/8		

REMARKS:

DRILLER AMADOR

COMPUTER LOGGING INC.

Pleasanton, Texas

Phone 512-569-6256

JIM CANNON - UNIT: 3

02-25-88 - 1500

PROBE MODEL: 20-1

NATURAL GAMMA

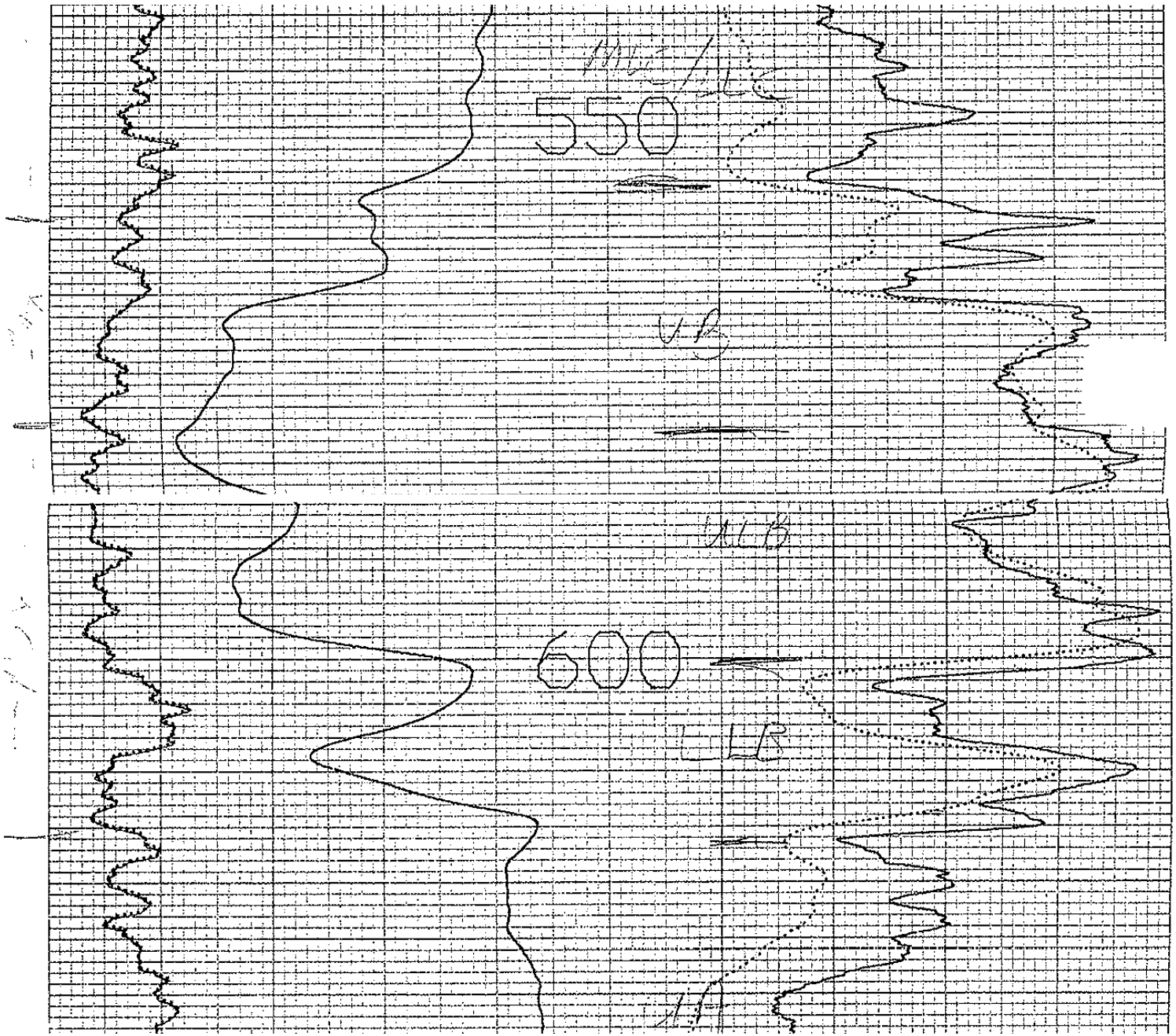
DETECTOR - .875 x 4.0 NaI(Tl)
K-FACTOR - 5.20
DEADTIME - 3.25 MICRO SECONDS
TEST PIT - GEORGE WEST
LAST CAL. - 01-04-88
WATER FACTOR - 1.15
CASING FACTOR -

NEUTRON

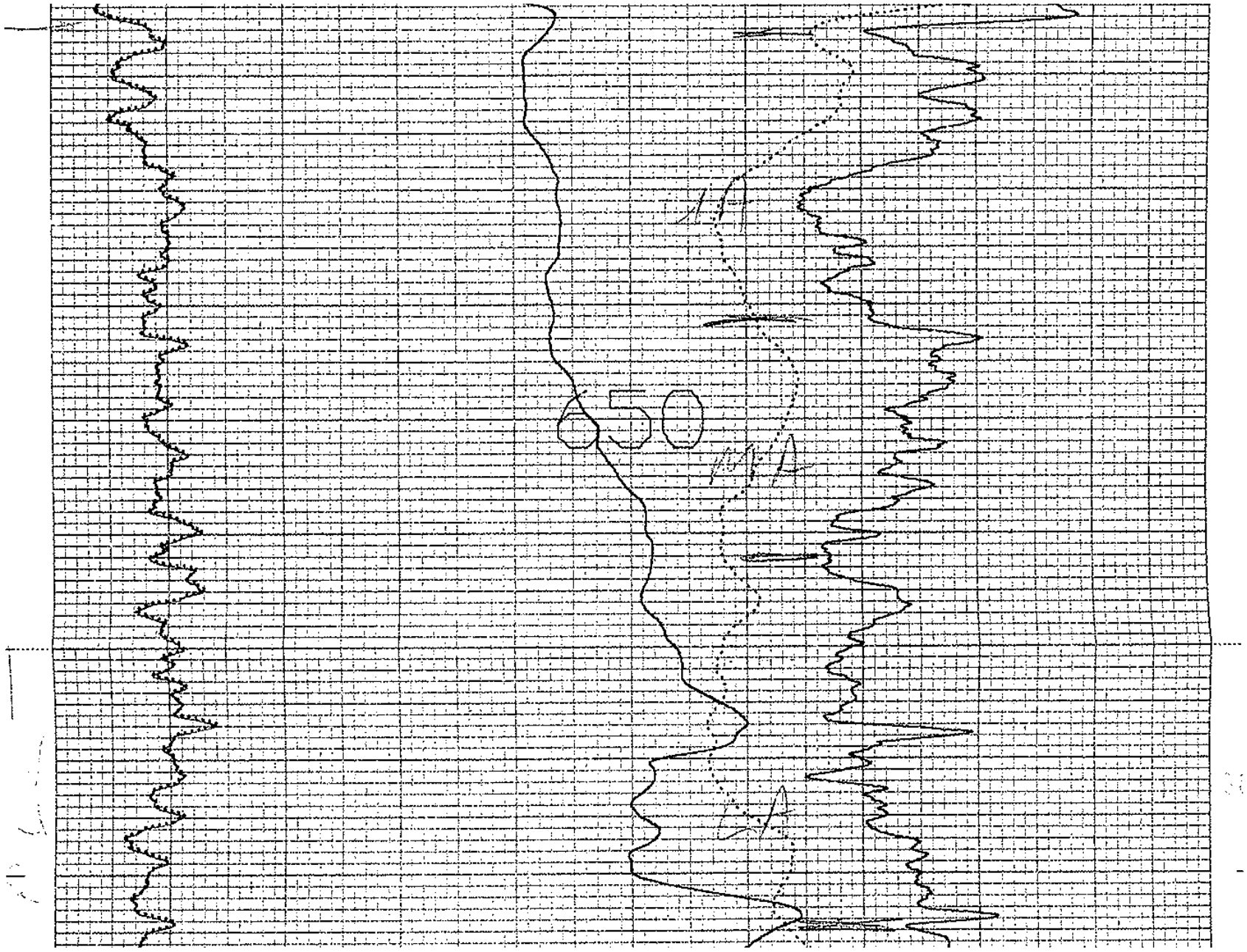
DETECTOR - 1 X 6 INCH, HE3
SOURCE - 1.5 CI. AmBe
SPACING - 14 INCHES

ELECTRIC LOGS

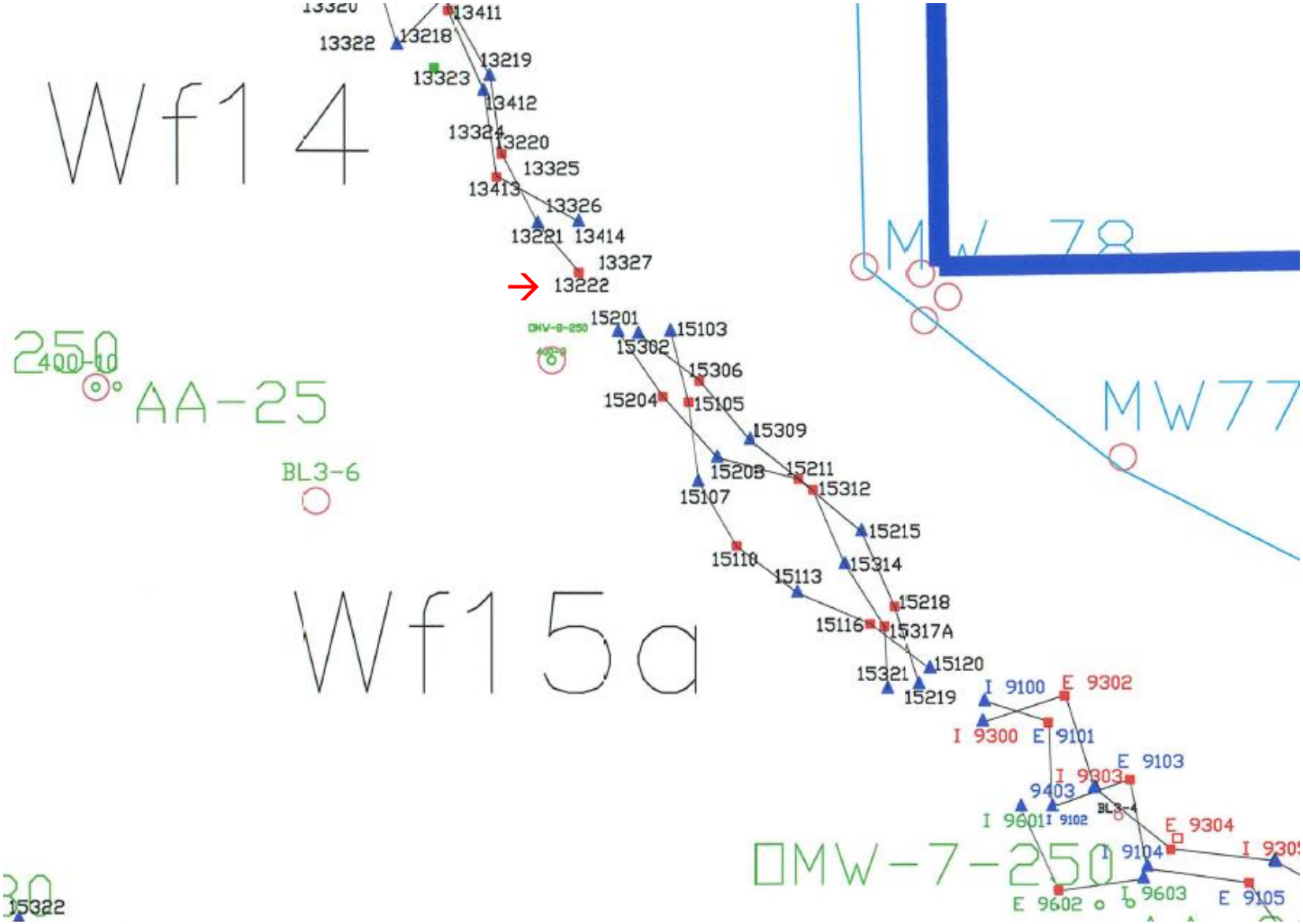
SINGLE POINT RESISTANCE
SP/16 INCH NORMAL
64 INCH NORMAL



011


650

700
01136



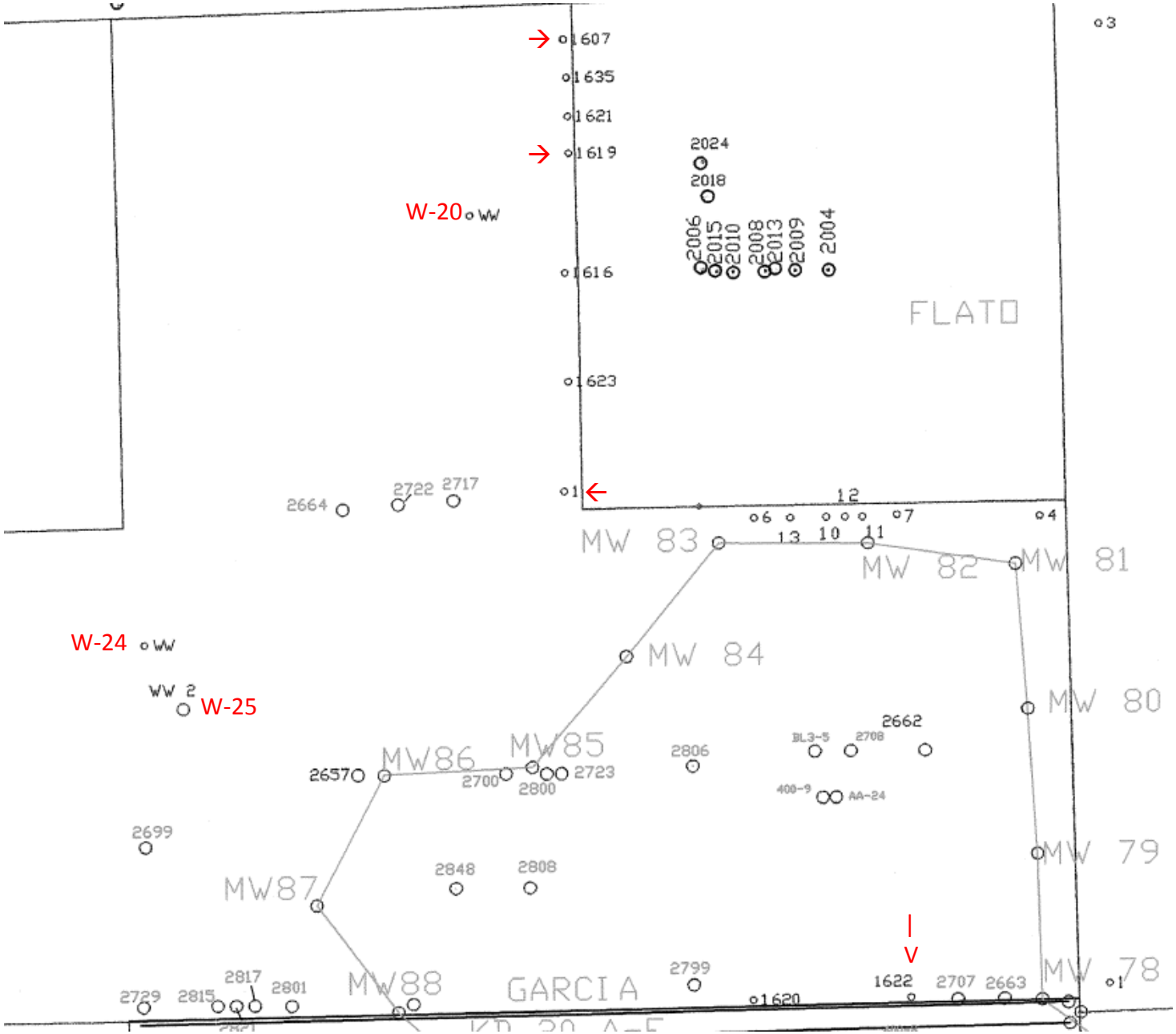
KVD PA-3 Segment. Was Exploratory Well Garcia 1622 Completed as a “B Sand” (?) Producer 13222?.
Note that Injector 13326 is not connected to 13222 suggesting completion in different zones.
Is there information documenting Which Sands were produced at PA-3?

1 **SOAH Docket No. 582-05-1552**
2 **TCEQ Docket Nos. 1997-1063-UIC and 2004-0746-UIC**
3
4
5 **Application of URI, Inc.** § **Before the State Office**
6 **to TCEQ for Issuance of a Production** §
7 **Area Authorization for Production** § **of Administrative Hearings**
8 **Area 3 Under Permit URO 2827** §
9 §
10 **and** §
11 §
12 **Renewal of TCEQ Waste Disposal Well** §
13 **Permit Nos. WDW-247 and WDW-248** §
14
15
16 **PREFILED TESTIMONY**
17
18 **OF**
19
20 **ROBERT S. KIER, Ph.D.**
21
22
23 **Filed on Behalf of South Texas Opposes Pollution (STOP)**
24 **and Hermila Garcia**

On Page 9:

15 section. The top and bottom of the 400-foot overlying fresh water aquifer sand do
16 not match on the two cross-sections. Neither the top nor bottom of the A & B
17 Sand, which comprise the production zone, match on the two cross-sections. The

46 Only the A and B sands are to be mined in PAA 3; thus, as indicated by TCEQ



Shown KVD Exploratory Wells' Locations Relative to Garcia Hill W-20's Location