

GL04750

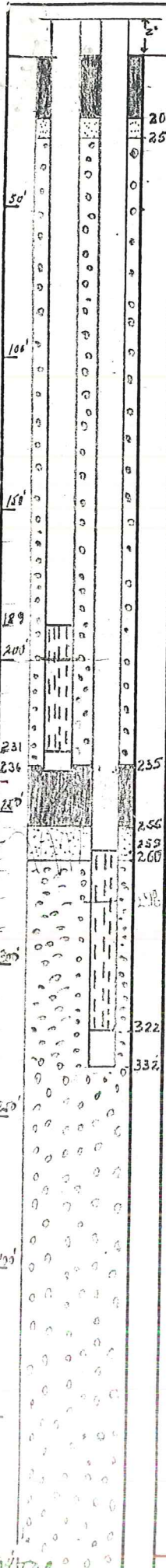
WELL BL. VF. 0-1

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: BERYL-IRON-UTAH
33S-17W-21dd.

ELEVATION: GROUND LEVEL 5310
TOP OF CASING 2 ft Above P-Surface

LOCATION BERYL-IRON-UTAH
PERSONNEL R. LARA D. WILLIAMS
PROJECT 80-300-45. VANEY FILL
MAX. WATER RESOURCES. FY. 81



DRILLING SUMMARY:

TOTAL DEPTH 504 ft.
BOREHOLE DIAMETER 8 3/4"
DRILLER STEPHENSON DRILLING.
RIG RT. CP-1800
BIT(S) TRICONE.
DRILLING FLUID BENTONITE.
SURFACE CASING Ø

WELL DESIGN:

BASIS: GEOLOGIC LOG GEOPHYSICAL LOG
CASING STRING(S): C=CASING S=SCREEN

STRING N° 1		STRING N° 2.	
C1	- 2 ft Above P to 189'	C1	- (4) 2' TO 259'
S1	- 189' TO 231	S1	- 259 TO 322'
C2	- 231 TO 236	C2	- 322 TO 332'
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

CASING: C1 Ø 2 TO 189' C1 Ø 2 TO 259'
C2 231 TO 236 C2 322 TO 332.

SCREEN: S1 189' TO 231' S1 259 TO 322'
S2 _____
S3 _____
S4 _____

CENTRALIZERS _____

FILTER MATERIAL See Comments.

CEMENT 00 ft TO 20 ft.
235 ft TO 255 ft.

OTHER _____

CONSTRUCTION TIME LOG:

TASK	START		FINISH	
	DATE	TIME	DATE	TIME
DRILLING:				
<u>504 ft TD.</u>	<u>12-3-80</u>	<u>0010</u>	<u>12-3-80</u>	<u>1656</u>
GEOPHYS. LOGGING:	<u>12-3-80</u>	<u>1802</u>	<u>12-3-80</u>	<u>2143</u>
CASING:				
<u>1st string</u>	<u>12-4-80</u>	<u>0830</u>	<u>12-4-80</u>	<u>1230</u>
<u>2nd string</u>	<u>12-4-80</u>	<u>1845</u>	<u>12-4-80</u>	<u>1945</u>
FILTER PLACEMENT:	<u>12-4-80</u>	<u>1350</u>	<u>12-4-80</u>	<u>1545</u>
	<u>12-4-80</u>	<u>1945</u>	<u>12-4-80</u>	<u>2210</u>
	<u>12-4-80</u>	<u>1545</u>	<u>12-4-80</u>	<u>1845</u>
CEMENTING:				
DEVELOPMENT:	<u>12-4-80</u>	<u>2240</u>	<u>12-5-80</u>	<u>0400</u>
OTHER:				

WELL DEVELOPMENT

COMMENTS:

SAND : 20 ft TO 25 ft.
255 ft TO 260 ft.

PEA GRAVEL : 25 ft TO 235 ft.
255-260 ft TO 332 TD. 504'

Back filled w/ pea gravel into 332 ft.

LOCATION BERYL-IRON-UTAH
 LOGGED BY Ron Lazo & D. Williams

LOC. or COORDS. BERYL-IRON-UTAH
33S-17W-21ad.
 GROUND ELEV. 5300 ft.
 TOTAL DEPTH 504 ft.
 BOREHOLE DIAM. 8 3/4"

DRILLER STEPHENSON DRILLING.
 Driller: Russ. MANGELSON.
ANDREW MCPHERSON.
 RIG RT-CP-1000
 BIT(S) TRICONE
 FLUID BENTONITE

START	FINISH
DATE <u>12-3-80</u>	<u>12-3-80</u>
TIME <u>0010</u>	<u>16.56</u>
GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
HOW LEFT <u>CASED</u>	

PROJECT 30-300-4T. WATER RESOURCES
 14X-EX-31

DEPTH	PENE RATE	CIRC		AIRLIFT 0 (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
		RET	LOSS				
00ft					00'		SAND (00ft-40ft) (00-10') REDDISH BROWN (w. SYR 4/3) LIGHT REDDISH BROWN (d. SYR 4/3). med to f sd. 99% (VOL 90% R2 5%, Carb 2.5%); sd. sub ang to sub rnd; ps; STRUCTLESS; NP; not STKY; no consol; WK Hcl YXN.; silt 1%.
17min					SAND		
10ft					10'		SAND (10-20') (10-20') SAME AS ABOVE.
13min					SAND		
20ft					20'		SAND (20-30') (w. 30') SAME AS ABOVE.
15min					SAND		
30ft					30'		SAND (30-40') (30-40') SAME AS ABOVE.
22min					SAND		
40ft					40'		SAND (40-70') (40-50') DARK REDDISH GRAY (w. SYR 4/2) REDDISH GRAY (d. SYR 5/2). silt 1%, carb 1%, med to f sd. 99% (VOL 90%, R2 5% Carb. 2.5%); sd. ang to sub rnd; ps; STRUCTLESS; NP; not STKY; no consol; no Hcl YXN (ould. chips. fr.).
11min					SAND		
50ft					50'		SAND (50-60') (50-60') SAME AS ABOVE EXCEPT LESS COARSE.
17min					SAND		
60ft					60'		SAND (60-75') (60-75') SAME AS 40-50' FOOT.
14min					SAND		
70ft					70'		SAND (70-80') (70-80') REDDISH BROWN (w. SYR 4/3) LIGHT REDDISH BROWN (d. SYR 4/3). silt 1%, med to f sd. 99% (VOL 90% R2 5% Carb 2.5%); sd. sub ang to sub rnd. ps. STRUCTLESS; NP; not STKY; no consol; WK Hcl YXN.
22min					SAND		
80ft					80'		

LOC or COORDS. Beryl, Utah
33S, 17W, 21 dd
 GROUND ELEV. 5300 ft.
 TOTAL DEPTH 504 ft.
 BOREHOLE DIAM. 8 3/4"

DRILLER Stephenson Drilling
Drillman: R. MANGELSON
A. MCPHERSON
 RIG RT-CP-1800
 BIT(S) Tricone
 FLUID Bentonite (Baroid Quick-Jel)

	START	FINISH
DATE	<u>12-2-80</u>	<u>12-3-80</u>
TIME	<u>2:10</u>	<u>10:56</u>
GEOPHYS. LOG	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
HOW LEFT	<u>cased</u>	

LOCATION Beryl, Iron County, Utah
 LOGGED BY R. Laza & D. Williams

PROJECT 80-300-45
OX - WATER RESOURCES - VF - FY - 80

DEPTH	PENE RATE	CIRC RET LOSS	AIRLIFT O (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
80	11 min			Sand		Sand (80-90) (80-90) dk reddish brn (w 5% silt) (d 5% silt) 99% fsd - msd (volc 75%, carb 15%, gz 10%) ms; subang; structureless; n.p.; not stky, no consol, wk Hcl rxn.
90	12 min			Sand		Sand (90-100) (90-100) reddish brn (w 5% silt) (d 5% silt) 99% fsd - msd (90% volc, 5% carb, 5% gz) ms; subang to subang; structureless; n.p.; not stky, no consol; no Hcl rxn.
100	16 min			Sand		Sand (100-110) (100-110) same as above
110	17 min			Sand		Sand (110-120) (110-120) same as above exception: sand became finer
120	15 min			Sand		Sand (120-130) (120-130) same as above exception: 99% fsd - msd (80% volc, 10% carb, 10% gz)
130	17 min			Sand		Sand (130-140) (130-140) same as above exception: 99% fsd - msd
140	19 min			Sand		Sand (140-150) (140-150) same as above exception: 99% fsd - msd
150	14 min			Sand		Sand (150-160) (150-160) same as above
160						

LOC. or COORDS. 33S, 17W, 21 dd
 GROUND ELEV. 5300 ft
 TOTAL DEPTH 504 ft
 BOREHOLE DIAM. 8 3/4"

DRILLER Stephenson Drilling
Russ Mangelsen
Andrew McPherson
 RIG Rotary - CP - 1800
 BIT(S) Tricone
 FLUID Bentonite

	START	FINISH
DATE	<u>12/2/80</u>	<u>12/3/80</u>
TIME	<u>2110</u>	<u>1650</u>
GEOPHYS. LOG	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
HOW LEFT	<u>CASED</u>	

LOCATION Bend Utah, 33S, 17W, 21 dd
 LOGGED BY D. Williams, R. Lazo (12/3/80)

PROJECT BMD-MN 80-303-46
VALLEY FILL DRILLING - FY-81

DEPTH	PENE. RATE	CIRC RET LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
160	18min			Sand		Sand (160-170) (160'-170') reddish brn (w SYR 4/3) (d SYR 6/3), silt. 99% fsd-msd (90% volc, 5% carb, 5% qz) ws; subnd to subang; structureless; n.p.; not stky, no consol, wk. Hcl rxn.
170	20min			Sand		Sand (170-180) (170'-180') same as above
180	12min			Sand		Sand (180-190) (180'-190') same as above
190	14min			Sand		Sand (190-200) (190'-200') same as above exception 99% fsd-msd (80% volc, 15% carb, 5% qz) MS.
200	13min			Sand		Sand (200-210) (200'-210') same as above
210	12min			Sand		Sand (210-220) (210'-220') same as above exception: 99% fsd-csd
220	17min			Sand		Sand (220-230) (220'-230') same as above exception: 99% fsd-msd W.S.
230	9min			Sand		Sand (230-240) (230'-240') same as above except: sand is finer grained & silt content increases to 10%.
240						

LOC. or COORDS. <u>Beryl, Utah</u> <u>335, 17W, 21 dd</u>	DRILLER <u>Stephenson Drilling</u> Drillers: <u>Russ Mangelson</u> <u>Andrew McPherson</u>	START DATE <u>12/2/80</u>	FINISH DATE <u>12/3/80</u>
GROUND ELEV. <u>5360 ft (above msl)</u>	RIG <u>Rotary CP-1500</u>	TIME <u>2110</u>	GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TOTAL DEPTH <u>504 ft.</u>	BIT(S) <u>Tricone</u>	HOW LEFT <u>CHS66</u>	
BOREHOLE DIAM. <u>8 3/4"</u>	FLUID <u>Bentonite</u>		

LOCATION Beryl, Utah 335, 17W, 21 dd
 LOGGED BY D. Williams, Andrew McPherson

PROJECT BMS-WN - 80-300-46
F1-81 Valley Fill Drilling Program

DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
240	15 min			Sand		Sand (240-250) (240-250) dk reddish brn (w 5YR 7.5/d 5YR 7.5) silt 10%, med fsl 90% (85% volc, 80% qz, 5% carb) w/s; change to subnd. structureless, n.p., not stky, no consol; no Hcl rxn.
250	16 min			Sand		Sand (250-260) (250-260) same as above
260	34 min			Sand		Sand (260-270) (260-270) same as above exception: 5% silt 95% fsl-mscl
270	5 min			Sand		Sand (270-280) (270-280) same as above exception 99% fsl-mscl
280	7 min			Sand		Sand (280-290) (280-290) same as above
290	7 min			Sand		Sand (290-300) (290-300) same as above exception: 5% silt 95% fsl-mscl
300	11 min			Sand		Sand (300-310) (300-310) same as above exception 99% fsl-mscl (60% volc, 30% qz, 10% carb) w/s. Hcl rxn.
310	10 min			Sand		Sand (310-320) (310-320) same as above
320						

LOC. or COORDS. Beryl, Utah
33s, 17w, 21dd
GROUND ELEV. 5300 ft. above msl
TOTAL DEPTH 504 ft.
BOREHOLE DIAM. 8 3/4"

DRILLER Stephenson Drilling
R. MANN GIBSON
A. MCPHEARSON
RIG Rotary - CP 1800
BIT(S) Tricone
FLUID Bentonite

	START	FINISH
DATE	<u>12/2/80</u>	<u>12/3/80</u>
TIME	<u>2110</u>	<u>1650</u>
GEOPHYS. LOG	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
HOW LEFT	<u>casual</u>	

LOCATION Beryl Utah, 33s, 17w 21dd
LOGGED BY D. Williams, R. Lozo

PROJECT BMO-MX-80-500-46
FY 81 - Valley Field Operations Program

DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT LOSS (gpm)	MATERIAL	BYM-BOL	DESCRIPTION and COMMENTS
320				Sand		Sand (320-330) (320-330) dk reddish brn (w 51 3/8) (d 51R 5/8) silt 12.99% fsd-msd (60% volc, 30% qz, 10% carb) ms; ang to subnd; structureless; n.p.; not stky; no consol; wt. Hcl rxn Note: angular chips indicate possible boulders or larger rocks encountered
330				Sand		Sand (330-340) (330-340) same as above exception 5% silt 95% fsd-msd
340				Sand		Sand (340-350) (340-350) same as above exception: 99% fsd-msd
350				Sand		Sand (350-360) (350-360) same as above
360				Sand		Sand (360-370) (360-370) same as above
370				Sand		Sand (370-380) (370-380) same as above exception: 5% silt 95% fsd-msd (70% volc, 25% qz, 5% carb) ms
380				Sand		Sand (380-390) (380-390) dk brn (w 101R 3/8) (d 101R 5/8) 10% silt, 90 fsd (70% volc, 25% qz, 5% carb) ws; subnd; structureless; n.p.; not stky; no consol; no Hcl rxn
390				Silty Sand		Silty Sand (390-400) (390-400) dk brn (w 101R 3/8) (d 101R 5/8) 20% silt, 80% fsd (65% volc, 30% qz, 5% carb) ws; subnd; n.p.; not stky; no consol; structureless; no Hcl rxn.
400						

LOC. or COORDS. 33S, 17W, 21dd
 GROUND ELEV. 5300 ft.
 TOTAL DEPTH 504 ft.
 BOREHOLE DIAM. 9 3/4"

DRILLER Stephenson Drilling
 Drillers: Russ Mangelson
A. MCPHEARSON
 RIG RT-CP-1800
 BIT(S) Tricone
 FLUID Bentonite

START FINISH
 DATE 12/3/80 12/3/80
 TIME 0710 1650
 GEOPHYS. LOG YES NO
 HOW LEFT circled

LOCATION Beryl, Utah 33S 17W, 21dd
 LOGGED BY D. Williams, R. Lazo

PROJECT B.M.O.-MX - 80-208 - UZ
FY-81 VALLEY FILL Drilling Program

DEPTH	PENE RATE	CIRC RET LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
400	15 min			Sand		Sand (400-410) (400-410) dk grayish brn (w/10YR 4 1/2) (d.10YR 6 1/2) 15% silt, 85% fsd - msd (80% volc, 15% qtz, 5% carb) ws; subind to subang; structureless; n.p.; not sticky, no consol; wk Hel rxn.
410	14 min			Sand		Sand (410-420) (410-420) same as above exception: color - dk brn (w/10YR 3 1/2) (d.10YR 5 1/2) 10% silt 90% fsd - msd (10% volc, 25% qtz, 5% carb)
420	20 min			Sand		Sand (420-430) (420-430) same as above
430	16 min			Sand		Sand (430-440) (430-440) same as above
440	21 min			Sand		Sand (440-450) (440-450) same as above exception: 15% silt 85% fsd
450	20 min			Sand		Sand (450-460) (450-460) same as above
460	22 min			Sand		Sand (460-470) (460-470) same as above
470	17 min			Silty Sand		Silty Sand (470-480) (470-480) dk grayish brn (w/10YR 4 1/2) (d.10YR 6 1/2) 20% silty, 80% fsd (60% volc, 35% qtz, 5% carb) ws; subind to subang; structureless; n.p.; not sticky, no consol; no Hel rxn.
480						

LOC. or COORDS. Beryl, Utah
33S, 17W, 21dd
 GROUND ELEV. 5300 ft
 TOTAL DEPTH 504 ft
 BOREHOLE DIAM. 8 3/4"

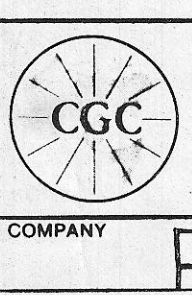
DRILLER Stephenson Drilling
Drillers: Russ Mangelsen
Andrew McPherson
 RIG RT-CP 1800
 BIT(S) Tricone
 FLUID Bentonite

	START	FINISH
DATE	<u>12/23/80</u>	<u>12/23/80</u>
TIME	<u>0010</u>	<u>1650</u>
GEOPHYS. LOG	<u>YES</u>	<u>NO</u>
HOW LEFT	<u>CHSER</u>	

LOCATION Beryl, Utah
 LOGGED BY D. Williams, R. Lazo

PROJECT BMO-MX 80-300-46
81 FY - VALLEY FILL DRILLING PROGRAM

DEPTH	PENE RATE	CIRC RET/LOSS	AIRLIFT 0 (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
480	17 min			Silty Sand		Silty Sand (486-490) (480-490') of greyish brown (w/ 10% $\frac{1}{2}$ (d 10% $\frac{1}{2}$) 20% silt, 80% fsd (55% calc, 40% qtz, 5% carb) ws; subind to subang, structureless, n.p., not stky, no causal, no H ₂ O cm
490	22 min			Silty Sand		Silty Sand (496-500) (490'-500') same as above
500				<u>TD-504</u>		



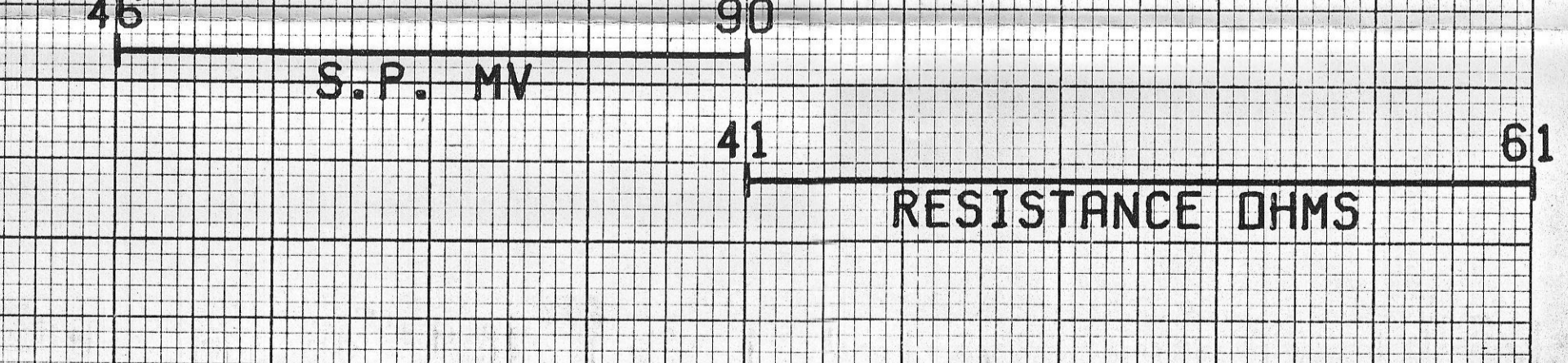
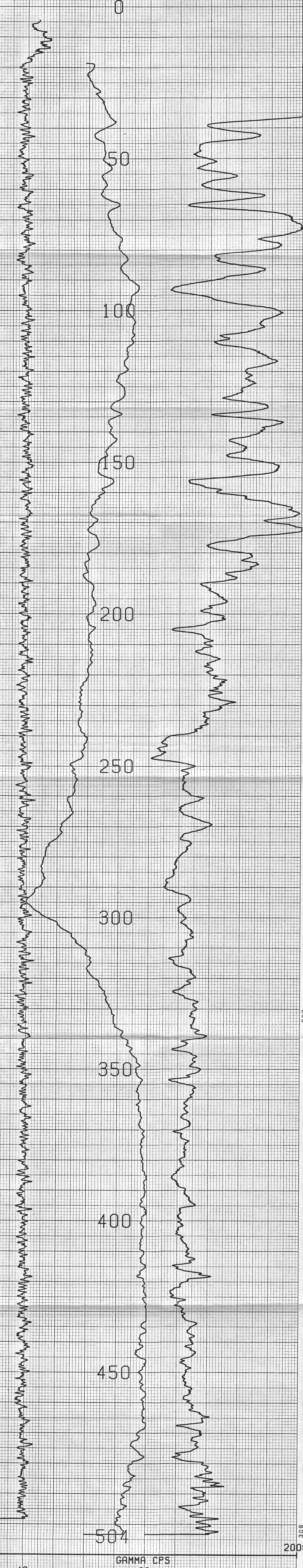
COMPANY: FUGRO NATIONAL
BOREHOLE: BR-VF-0-31
AREA: BERYL ELEVATION: 5300'
COUNTY: IRON STATE: UTAH
SECTION: 21dd TOWNSHIP: 33S RANGE: 17W

EQUIPMENT DATA

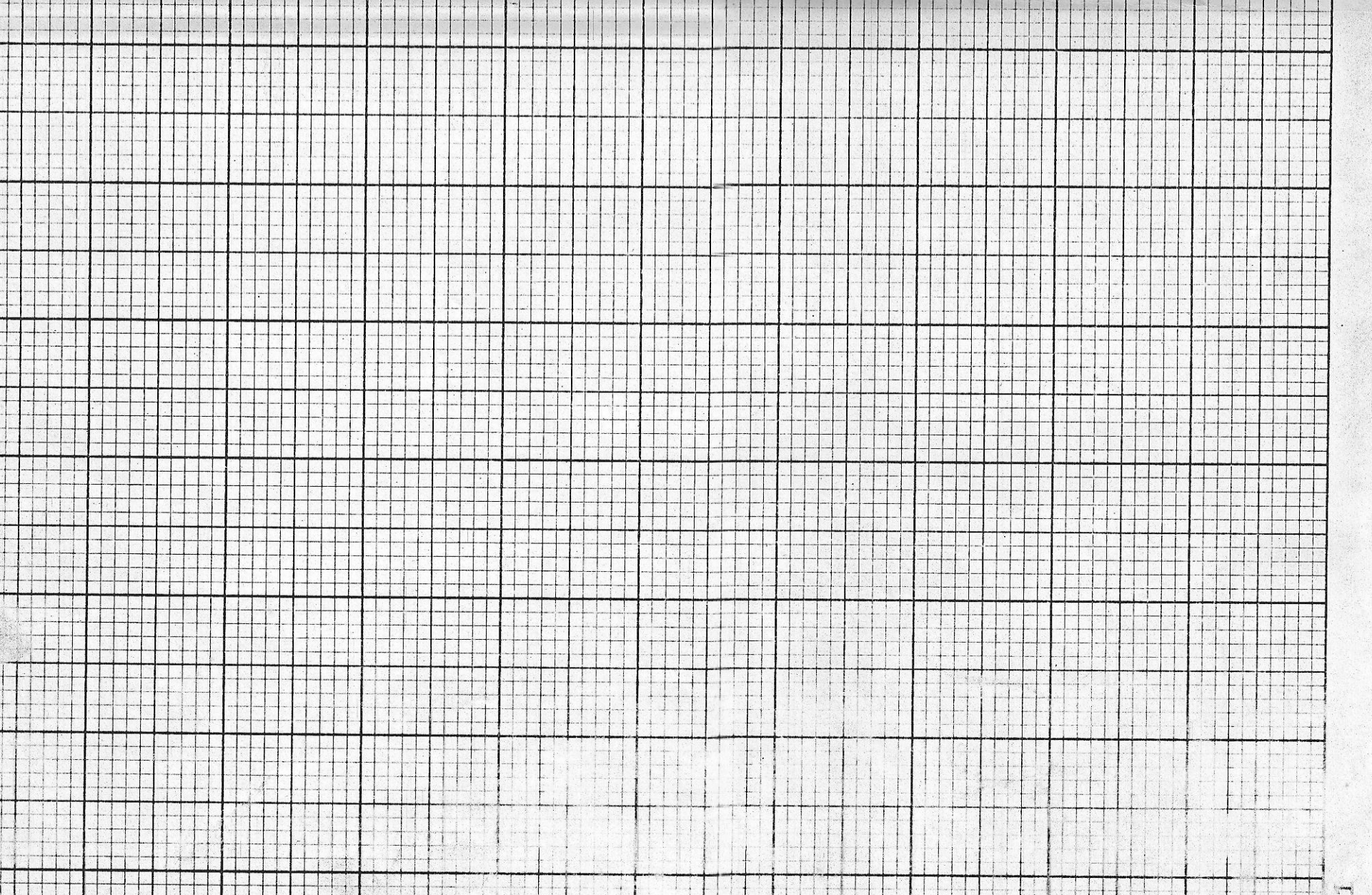
PROBE MODEL	9010	9020	9005E	9000
PROBE DIAMETER	1.87"	2.25"	1.87"	1.4"
DETECTOR SIZE	Nu	Nu	Nu	Nu
STD. FACTOR	875 ± 1.2%	125 ± 1.5%	875 ± 1.0%	5 ± 3.0%
STD. DEACTIME	1.88 ± 10 ⁻³	---	568 ± 10 ⁻³	1.82 ± 10 ⁻³
CALIB. MODE	---	---	---	---
CALIB. MODE LOC.	---	---	---	---
CALIB. DATE	---	---	---	---
K FACTOR × 10 ⁻³	---	---	---	---
DEACTIME μSEC	---	---	---	---
TEST READING	---	---	---	---
WATER FACTOR	---	---	---	---
CASING FACTOR	---	---	---	---
DETECTOR TYPE	---	---	---	---
DETECTOR SIZE	---	---	---	---
SOURCE TYPE	---	---	---	---
SOURCE NO.	---	---	---	---
SOURCE STRENGTH	---	---	---	---
SOURCE SPACING	---	---	---	---
DETECTOR TYPE	---	---	---	---
DETECTOR SIZE	---	---	---	---
SOURCE TYPE	---	---	---	---
SOURCE NO.	---	---	---	---
SOURCE STRENGTH	---	---	---	---
SOURCE SPACING	---	---	---	---
SINGL. PT RESISTANCE	140 ± 2.5%	---	140 ± 2.5%	110 ± 2.5%
RESISTIVITY	---	---	---	---
SELF POTENTIAL	YES	---	YES	YES
TEMPERATURE	---	---	---	---
SWATHING	---	---	---	---
CALIB.	---	---	---	---

HOLE DATA

TOTAL DEPTH - DRILLER: 500' BIT SIZE: 8.8"
TOTAL DEPTH - LOGGER: 504' CASING - TYPE & SIZE: NONE
TOTAL FOOTAGE LOGGED: 504' CASING DEPTH: NONE
LOGGING SPEED: 60/MIN BOREHOLE FLUID: MUD
REFERENCE LEVEL: G.L. FLUID RESISTIVITY: 15.0 @ 1°F
PROBE NO.: 9055A-238 SOFTWARE LEVEL: V3L10
SCALE SELECTION: OPERATOR CLIENT



COMPU-LOG V3L9 PLOT 12-03-80
BR-VF-0-3
FUGRO NATIONAL
BERYL
HOLE DIAMETER: 08.8
CAL STD CPS = 0000 CAL RUN CPS = 0000
PROBE # 9055A-238 PROBE CAL BIAS = +00000
TRUCK # 7740 DATA: V3L10
APPL. #3 D
JONES, F.



CENTURY GEOPHYSICAL CORP. PART NO. 786-0022

305
307
309
311

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma

COMPANY FUGRO NATIONAL

BOREHOLE BR-VF-0-81

AREA BERYL **ELEVATION** 5300'

COUNTY IRON **STATE** UTAH

SECTION 21dd **TOWNSHIP** 33S **RANGE** 17W

HOLE DATA

TOTAL DEPTH - DRILLER : 500' BIT SIZE : 8.8"
 TOTAL DEPTH - LOGGER : 504' CASING - TYPE & SIZE : NONE
 TOTAL FOOTAGE LOGGED : 504' BOREHOLE DEPTH : NONE
 LOGGING SPEED : 60/MIN BOREHOLE FLUID : MUD
 REFERENCE LEVEL : G.L. FLUID RESISTIVITY : 15.0 @ °F
 PROBE NO. : 9055A-238 SOFTWARE LEVEL : V3L10
 SCALE SELECTION : OPERATOR CLIENT

REMARKS:

BOREHOLE BR-VF-0-3 **DATE** 12-03-80

UNIT OPERATOR 7740 / JONES, CARSON CITY **FIELD OFFICE**

EQUIPMENT DATA

PROBE MODEL	910	920	9225	928
PROBE DIAMETER	1.0"	2.0"	1.0"	1.4"
DETECTOR TYPE	Nd	Nd	Nd	Nd
DETECTOR SIZE	3.75" x 1.50"	1.25" x 4.5"	3.75" x 4.0"	5" x 3.0"
STD. FACTOR	1.50 x 10 ⁻¹¹	---	5.00 x 10 ⁻¹¹	1.02 x 10 ⁻¹¹
STD. DEATH TIME	1.00 μsec	---	1.10 μsec	1.00 μsec
CALIB. MODEL LOC.	---	---	G.J.	---
FACTORY DATE	---	---	6-9-80	---
DEATH TIME	1.00 μsec	---	1.1	---
TEST READING	---	---	---	---
WATER FACTOR	---	---	---	---
CASING FACTOR	---	---	---	---

NATURAL GAMMA

DETECTOR TYPE	---	Nd	---	Nd
DETECTOR SIZE	---	5" x 1.5"	---	5" x 1.5"
SOURCE TYPE	---	Co	---	Co
SOURCE NO.	---	---	---	---
SOURCE STRENGTH	---	---	---	---
SOURCE SPACING	---	---	---	---

DENSITY

DETECTOR TYPE	---	---	---	---
DETECTOR SIZE	---	---	1.0" x 6.0"	---
SOURCE TYPE	---	---	AmBe	---
SOURCE NO.	---	---	71-1-438	---
SOURCE STRENGTH	---	---	1.6	---
SOURCE SPACING	---	---	14"	---

SOL. PT. RESISTANCE 1.00 x 2.0% 1.00 x 2.0% 1.00 x 2.0% 1.00 x 2.0%

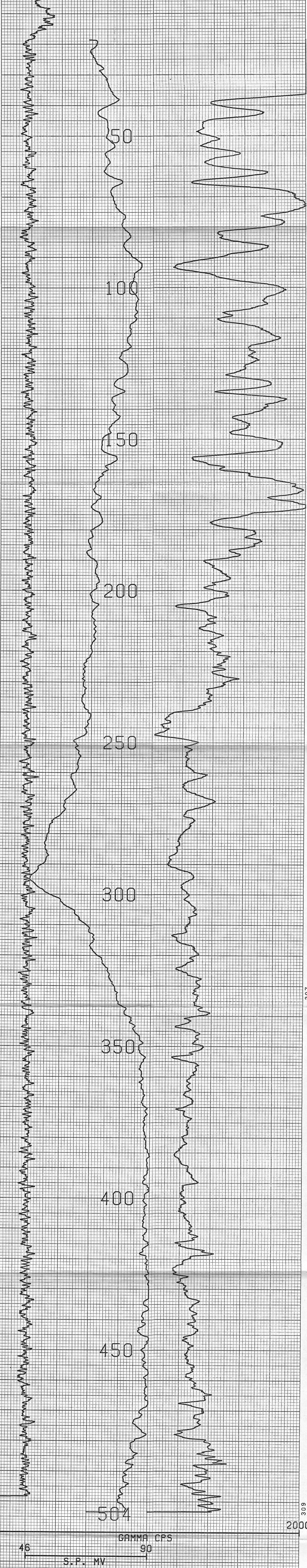
RESISTIVITY F POCUSED YES YES

SELF POTENTIAL YES YES YES YES

TEMPERATURE YES YES YES YES

BEHAVIOR YES YES YES YES

CALIBR. YES YES YES YES



COMPU-LOG V3L9 PLOT 12-03-80

BR-VF-0-3
 FUGRO NATIONAL
 BERYL

HOLE DIAMETER : 08.8

CAL STD CPS = 0000 CAL RUN CPS = 0000
 PROBE # 9055A -238 PROBE CAL BIAS = +00000
 TRUCK # 7740 DATA: V3L10
 APPL. #3 D
 JONES, F.

CENTURY GEOPHYSICAL CORP. PART NO. 786-0022

305
307
309
311