WHITE—DIVISION OF WATER RESOURCES
CANARY—CLIENT'S COPY
PINK—WELL DRILLER'S COPY

STATE OF NEVADA
DIVISION OF WATER RESOURCES

OFFICE USE ONLY
Log No. 22657
Permit No.
Basin

ST-11

WELL DRILLERS REPORT

Please complete this form in its entirety

1. OWNER Gulf Mineral Recources ADDRESS

2. LOCATION SW ¼ SW ¼ Sec. ~~23~~ 13 T. 17 N/S R. 19 E. Washo County
PERMIT NO.

3. TYPE OF WORK
New Well ☑ Recondition ☐
Deepen ☐ Other ☐

4. PROPOSED USE
Domestic ☐ Irrigation ☐ Test ☑
Municipal ☐ Industrial ☐ Stock ☐

5. TYPE WELL
Cable ☐ Rotary ☑
Other ☐

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
Sand + Gravel		0	260	260
Broken Volcanic Rock		260	350	90
Blue Clay		350	375	25
Shale		375	560	185
Volcanic Rock		560	1050	490
Broken Volcanic Rock		1050	1325	275

Date started 8/20, 19 80
Date completed 9/5, 19 80

7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

BAILER TEST
G.P.M. Draw down feet hours
G.P.M. Draw down feet hours
G.P.M. Draw down feet hours

8. WELL CONSTRUCTION
Diameter hole 8 3/4 6 1/2 inches Total depth 1325 feet
Casing record 7" Te
Weight per foot Thickness 1/4

Diameter	From	To
7 inches	0 feet	298 feet
inches	feet	feet
inches	feet	feet
inches	feet	feet
inches	feet	feet
inches	feet	feet

Surface seal: Yes ☑ No ☐ Type Neat Cement
Depth of seal 298 feet
Gravel packed: Yes ☐ No ☑
Gravel packed from feet to feet

Perforations:
Type perforation No
Size perforation
From feet to feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

9. WATER LEVEL
Static water level ? Feet below land surface
Flow G.P.M.
Water temperature ° F. Quality

10. DRILLERS CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Ronald L. Haney
Address 3035 School Rd Reno
Nevada contractor's license number 15348
Nevada driller's license number
Signed Ronald L Haney
Date 1/15/81

USE ADDITIONAL SHEETS IF NECESSARY

O-627

log # 22657

GEOTHERMAL LOG
Baroid Logging Systems

NL Baroid

P. O. BOX 1675 HOUSTON, TEXAS 77001

COMPANY GULF MINERAL RESOURCES COMPANY

API No. –

WELL STEAMBOAT SPRINGS ST-11

FIELD

COUNTY WASHOE COUNTY STATE NEVADA

API No.

Location

API No. –

Sec. SW-SW 13 Twp. 17N Rgs. 19E

Other Services:

Permanent Datum _____ Elev. _____

Log Measured From _____ Ft. Above Perm. Datum

Drilling Measured From _____

Elev. K. B. _____

D. F. _____

G. L. 5520'

Logged SURFACE Ft. 1325 Ft.

Date Logged 8-20-80 To 9-5-80

Depth Measured From G.L. 5520'

Supv. Eng. S. PERSONIUS Unit No. 1551

Type Muds GEL/LCM To 1325 Ft.

_____ To _____ Ft.

_____ To _____ Ft.

_____ To _____ Ft.

LEGEND

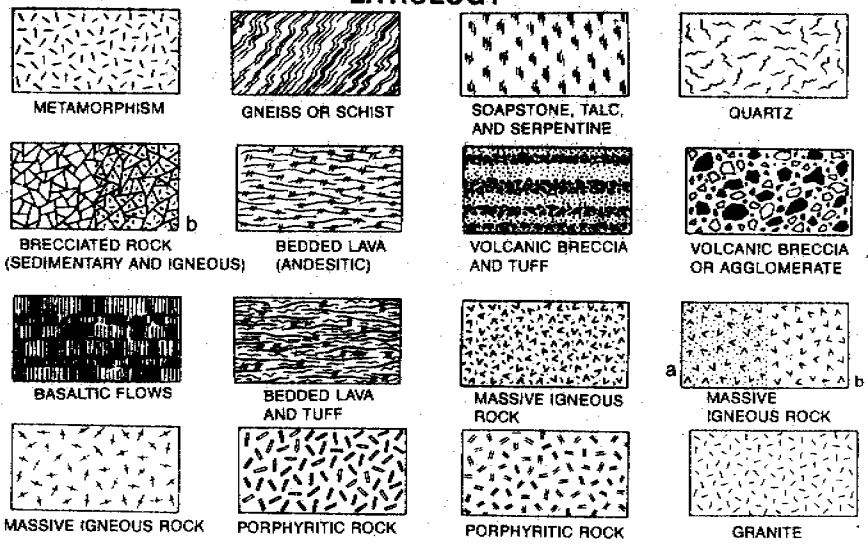
ABBREVIATIONS

NB	NEW BIT
NCB	NEW CORE BIT
CO	CIRCULATED OUT
DST	DRILL STEM TEST
LAT	LOGGED AFTER TRIP
TG	TRIP GAS
NR	NO RETURNS
DS	DIRECTIONAL SURVEY
DC	DEPTH CORRECTION
CKF	CHECK FOR FLOW
TCL	TRIP CHLORIDES

MUD CHARACTERISTICS

W	WEIGHT ____ LBS/GAL ____ LBS/CU. FT.
V	VISCOSITY, API, SECONDS
F	FILTRATE, API, CC'S
CK	FILTER CAKE
S	SALINITY ____ PPM CL ____ GPG CL
Rm	MUD-RESISTIVITY, OHM-METER
Rmf	MUD-FILTRATE RESISTIVITY, OHM-METER

LITHOLOGY



This Heading and Log Conform To API RP 31

Fold Here

REMARKS

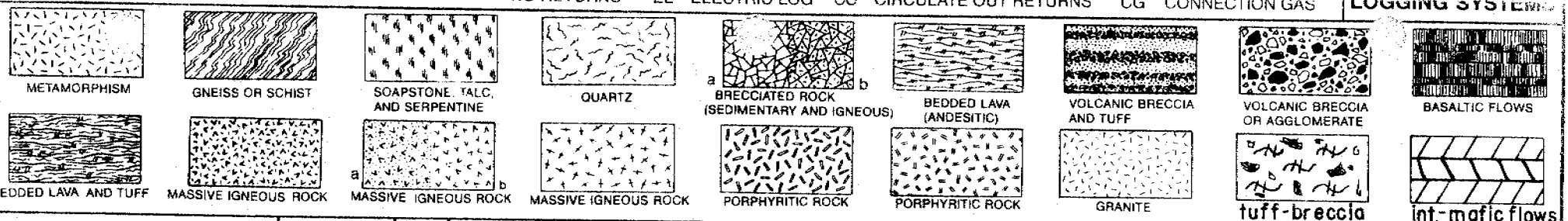
NL BAROID PETROLEUM SERVICES

WELL STEAMBOAT SPRINGS ST-11 COMPANY GULF MINERAL RESOURCES LOCATION WASHOE CO., NEVADA

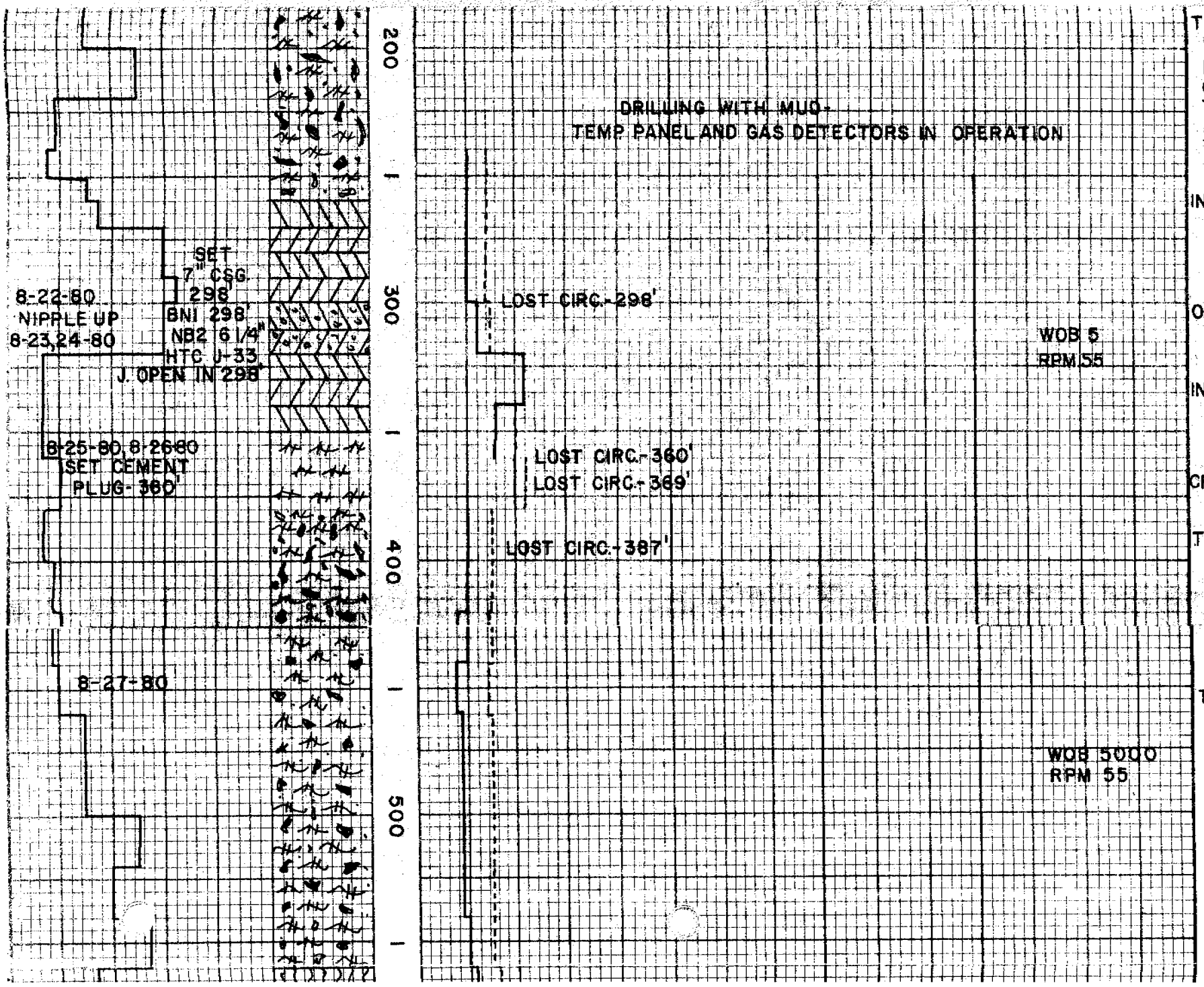
LEGEND

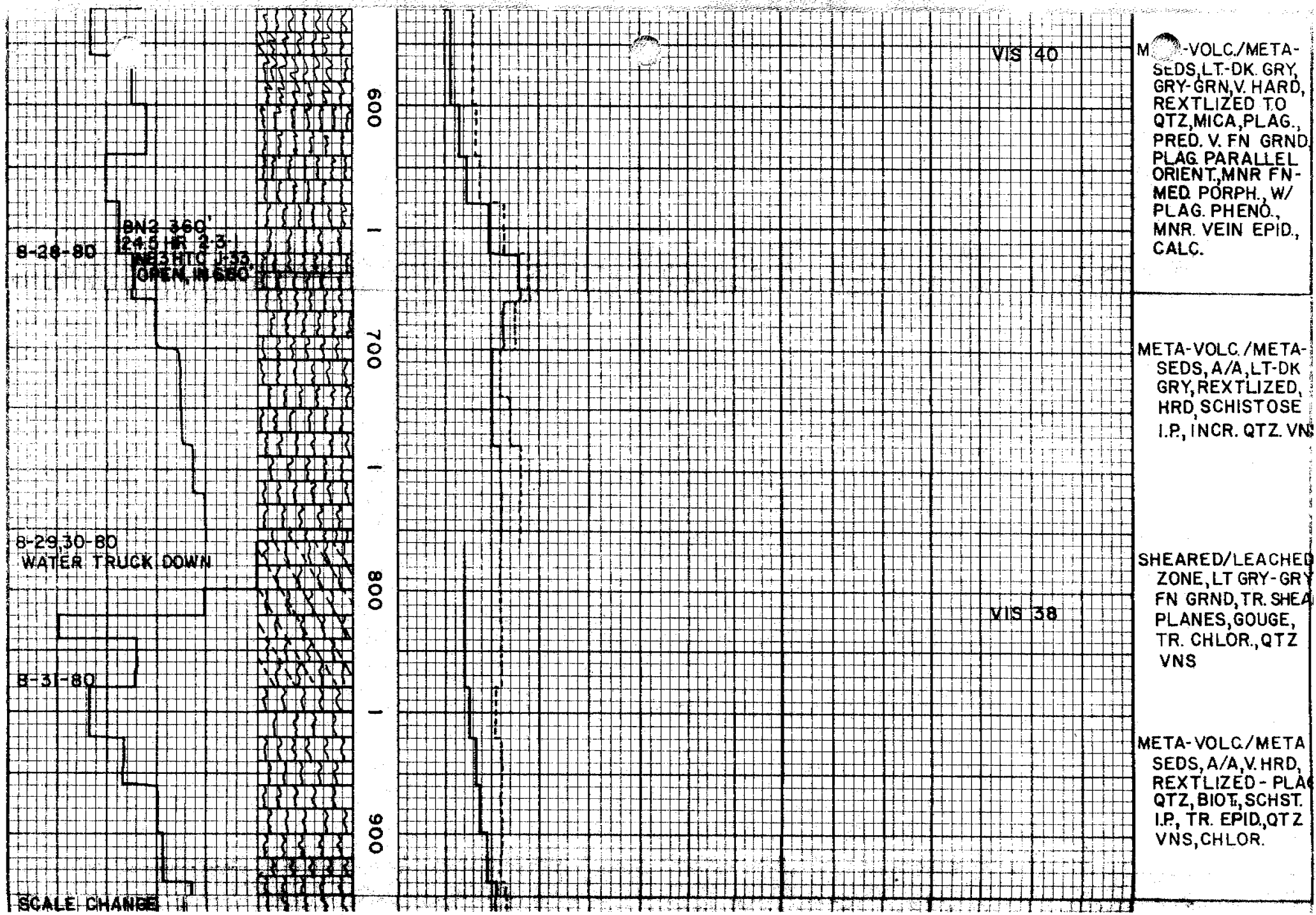
GEOTHERMAL LOG BAROID

NB NEW BIT NCB NEW CORE BIT TG TRIP GAS NR NO RETURNS EL ELECTRIC LOG CO CIRCULATE OUT RETURNS CG CONNECTION GAS LOGGING SYSTEM

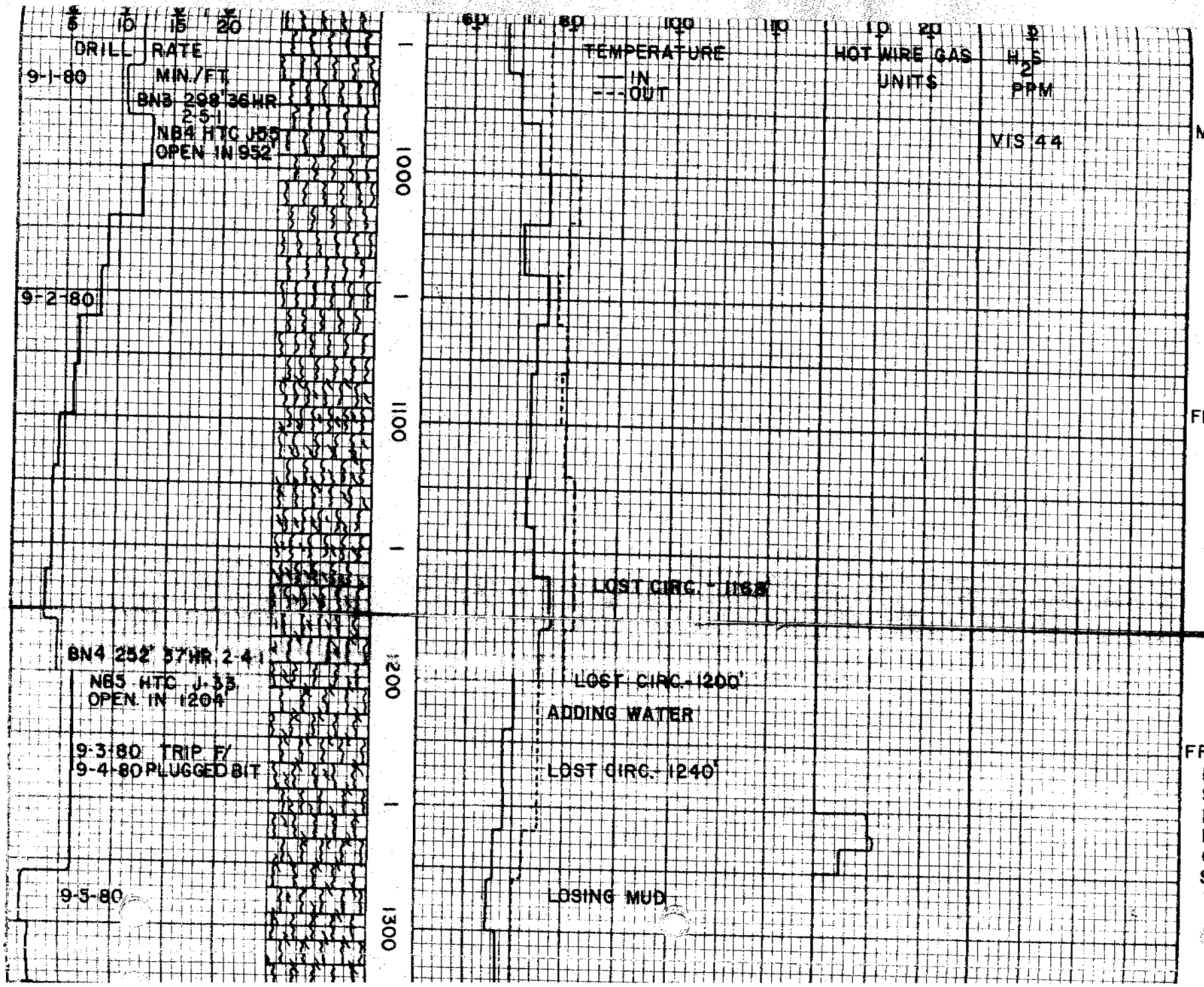


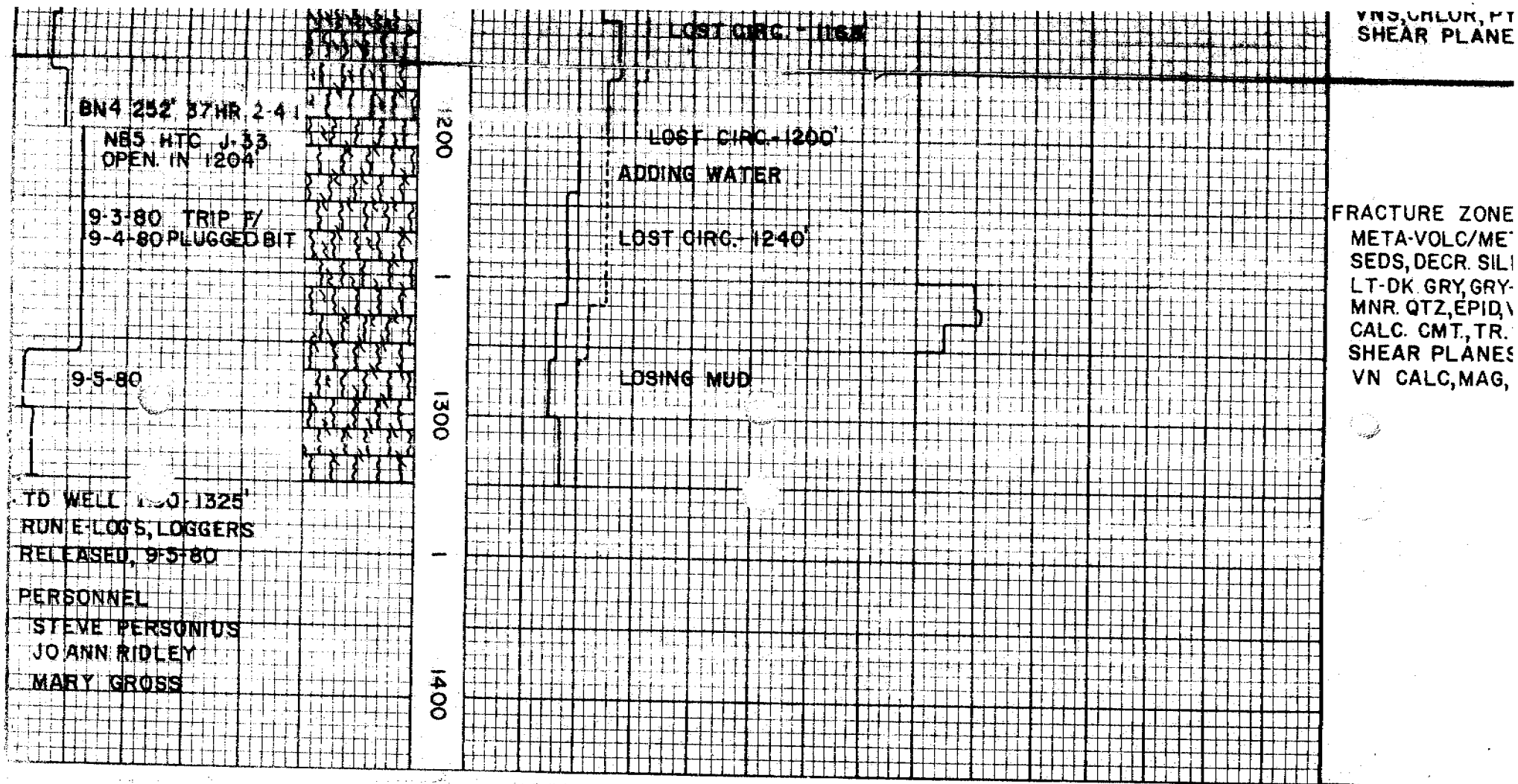
DRILLING RATE ☐ FT PER HR ☒ MIN PER FT (2 4 6 8)	LITHOLOGY	DEPTH	TEMPERATURE °F IN ___ OUT ___ (60 80)	CONDUCTIVITY MUD IN ___ OUT ___ (100 110)	BACKGROUND GAS HOT WIRE UNITS (10 20)	H_2S PPM (5)	CO_2 PPM	REMARKS
SPUD WELL, BEGIN LOGGING- 3:00 PM, 8-20-80			DRILLING CONTRACTOR- AQUA DRILLING CO.					
BN 1 8 3/4" HTC OWV J. OPEN		0						ALLUVIUM- VARI. COL. VOLC. SAND AND GRAVELS
		1	NO TEMPERATURES- DRILL WITH AIR TO 240'					TUFF-BRECCIA, WHT, LT.-DRK GRY, POORLY CONSOL. PRED. MFC. LAVAS, CRYSTAL-LITHIC TUFF CLASTS, W/ MNR GRANITE FRAG., FE STN I.P.
8-21-80		100				RPM 60		
		1						TUFF-BRECCIA, A/A


200
300
400
500
SET 7" CSG 298'
8-22-80
NIPPLE UP
8-23,24-80
BNI 298'
NB2 6 1/4"
HTC J-33
J. OPEN IN 298'
8-25-80, 8-26-80
SET CEMENT PLUG-360'
8-27-80
DRILLING WITH MUD-
TEMP PANEL AND GAS DETECTORS IN OPERATION
LOST CIRC.-298'
WOB 5
RPM 55
LOST CIRC.-360'
LOST CIRC.-369'
LOST CIRC.-387'
WOB 5000
RPM 55
TUFF-BRECCIA, A/A WHT, LT-DRK GRY, PRED. MFC LAVAS, CRYSTAL-LITHIC TUFF CLASTS, W/ MNR GRY VITRIC TUFF. FE STN I.P.
INT.-MFC. VOLC FLOW DRK GRY, FN GRND, MNR PLAG, HNBLD. PHENO.
OXIDIZED ZONE, INT.-MFC. VOLC, A/A, W/ HVY, DRK BRN FE STN, MNR. VESIC.
INT-MFC. VOLC., DRK GRY TO BLK, FN GRND, ABND. VESIC. W/ LT BLUE CLY FILL I.P.
CRYSTAL-LITHIC TUFF WHT, LT. GRN, LT. RED DEVIT., FE STN I.P.
TUFF-BRECCIA, VARI. COL., PRED. WHT. TUFF, W/ MNR GRY CRYSTAL-VITRIC TUFF, TR. MFC LAVA
TUFF-BRECCIA, TAN, LT. GRY, LT. GRN, LT. RED., CRYSTAL-VITRIC, CRYSTAL-LITHIC TUFF CLASTS, TR. MFC LAVAS, FE STN I.P.



8-28-80
BN2 360'
24.5 HR 2-3-1
IN 3 HTC J-33
OPEN, IN 680'
8-29,30-80
WATER TRUCK DOWN
8-31-80
SCALE CHANGE
600
700
800
900
VIS 40
VIS 38
M -VOLC./META-SEDS, LT.-DK. GRY, GRY-GRN, V. HARD, REXTLIZED TO QTZ, MICA, PLAG., PRED. V. FN GRND, PLAG. PARALLEL ORIENT., MNR FN-MED. PORPH., W/ PLAG. PHENO., MNR. VEIN EPID., CALC.
META-VOLC./META-SEDS, A/A, LT-DK GRY, REXTLIZED, HRD, SCHISTOSE I.P., INCR. QTZ. VN
SHEARED/LEACHED ZONE, LT GRY-GRY FN GRND, TR. SHEA PLANES, GOUGE, TR. CHLOR., QTZ VNS
META-VOLC./META SEDS, A/A, V. HRD, REXTLIZED - PLA QTZ, BIOT., SCHST. I.P., TR. EPID., QTZ VNS, CHLOR.


5 10 15 20
DRILL RATE
MIN./FT.
9-1-80
BN3 298' 36 HR. 2-5-1
NB4 HTC J55
OPEN IN 952'
9-2-80
BN4 252' 37 HR. 2-4-1
NB5 HTC J33
OPEN IN 1204'
9-3-80 TRIP F/
9-4-80 PLUGGED BIT
9-5-80
1000
1100
1200
1300
60 80 100 110
TEMPERATURE
— IN
--- OUT
10 20
HOT WIRE GAS
UNITS
H_2S
PPM
VIS 44
LOST CIRC. - 1168'
LOST CIRC.- 1200'
ADDING WATER
LOST CIRC.- 1240'
LOSING MUD
META-VOLC/META-
SEDS, LT-DK GRY,
FN GRND, REXTLZ
PLAG-BIOT-QTZ,
TR. QTZ, EPID. VNS
CHLOR, SEC. CALC
FRACTURE ZONE,
META-VOLC/META
SEDS, W/ ABND.
AMORPH. SILICA,
LT GRY, GRY-GRN
ABND. SEC. CALC
MNR QTZ VNS,
GOUGE, TR. EPID.
VNS, CHLOR, PYR
SHEAR PLANES
FRACTURE ZONE,
META-VOLC/META
SEDS, DECR. SILICA
LT-DK. GRY, GRY-GR
MNR. QTZ, EPID, VNS
CALC. CMT., TR.
SHEAR PLANES,
VN CALC, MAG,



LOST CIRC. - 1168'
VNS, CHLOR, PY
SHEAR PLANE
BN4 252' 37HR 2-4-1
NB5 HTC J-33
OPEN IN 1204'
9-3-80 TRIP F/
9-4-80 PLUGGED BIT
9-5-80
1200
1300
1400
LOST CIRC. - 1200'
ADDING WATER
LOST CIRC. - 1240'
LOSING MUD
FRACTURE ZONE
META-VOLC/ME
SEDS, DECR. SIL
LT-DK GRY, GRY-
MNR. QTZ, EPID,
CALC. CMT., TR.
SHEAR PLANES
VN CALC, MAG,
TD WELL 1325'
RUN E-LOGS, LOGGERS
RELEASED, 9-5-80
PERSONNEL
STEVE PERSONIUS
JO ANN RIDLEY
MARY GROSS