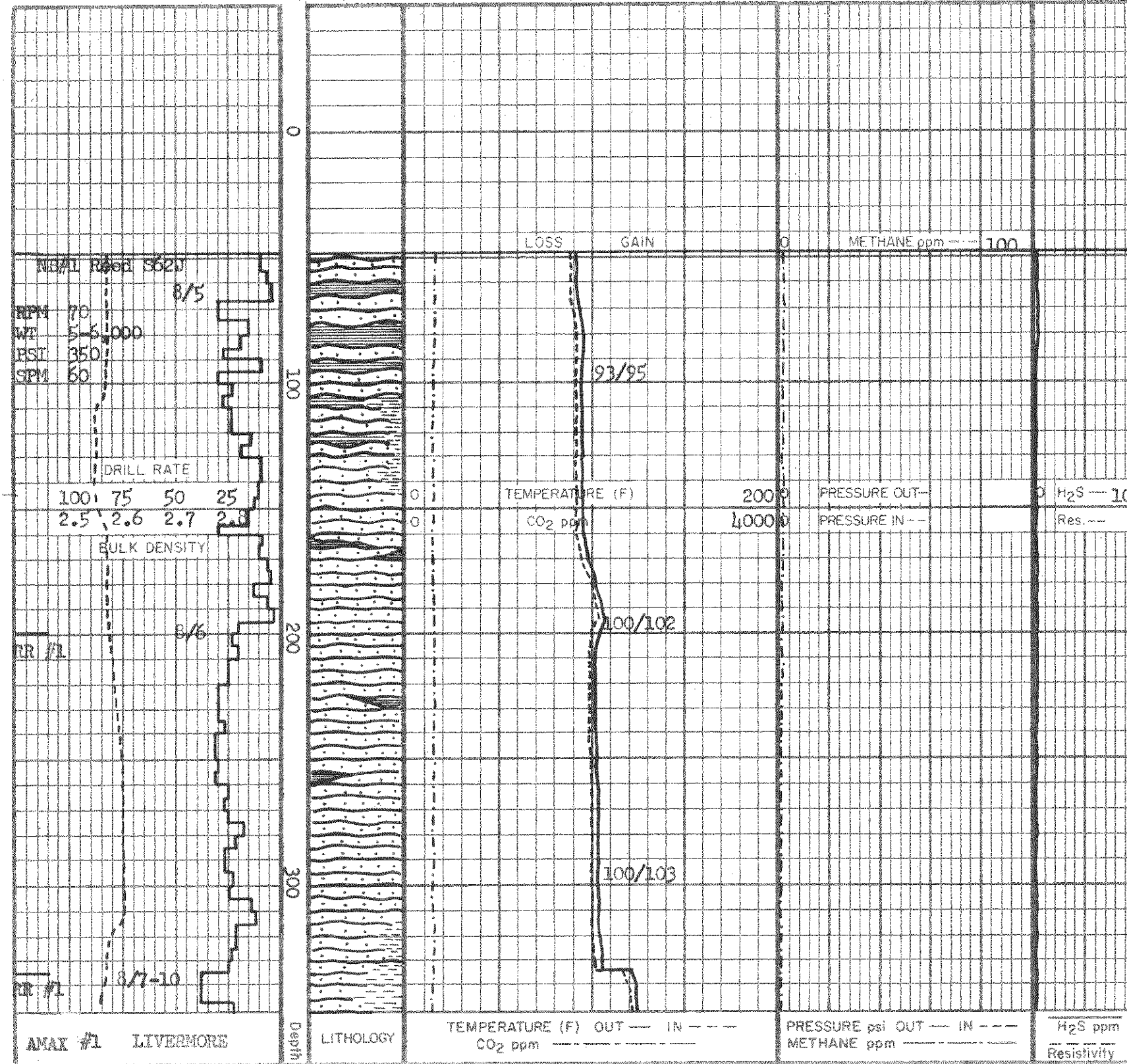


Note: begin logging August 4, 1978, drilling 17 1/2" hole.

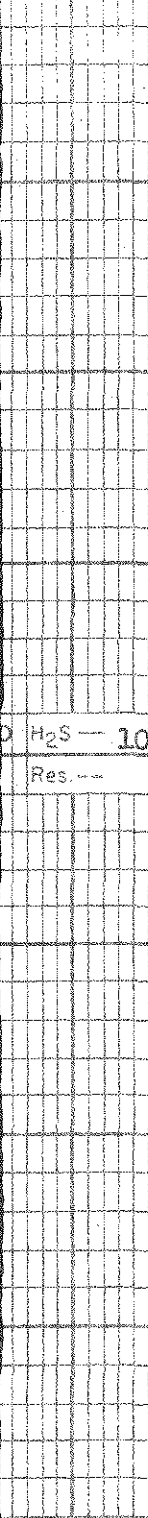
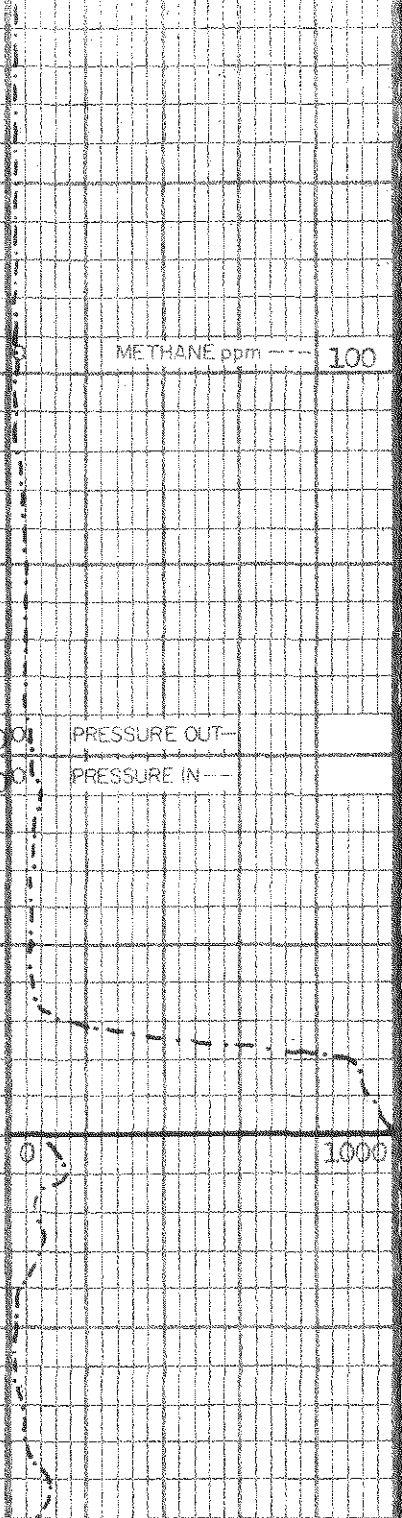
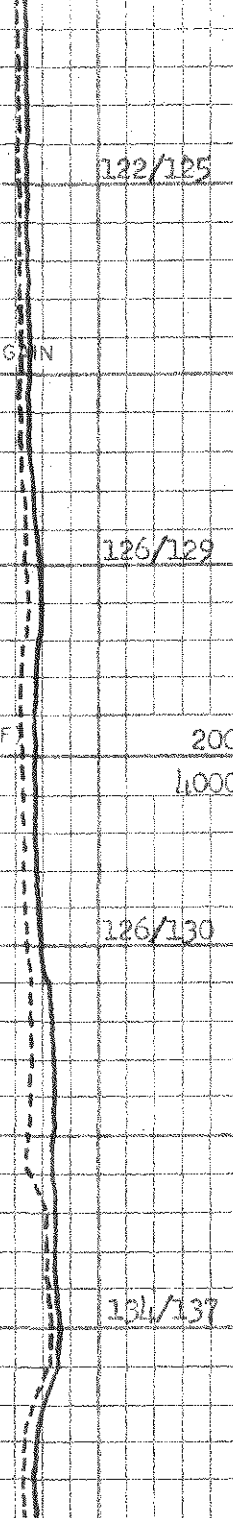
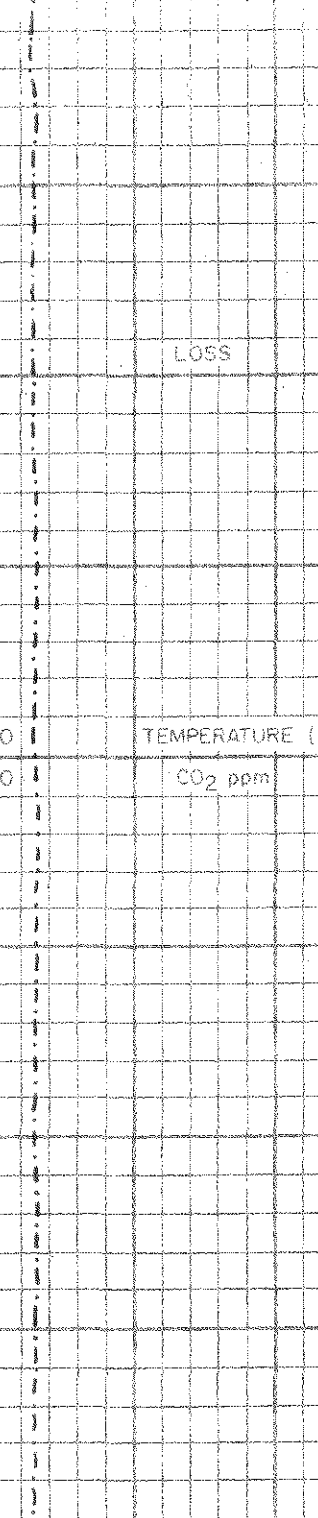
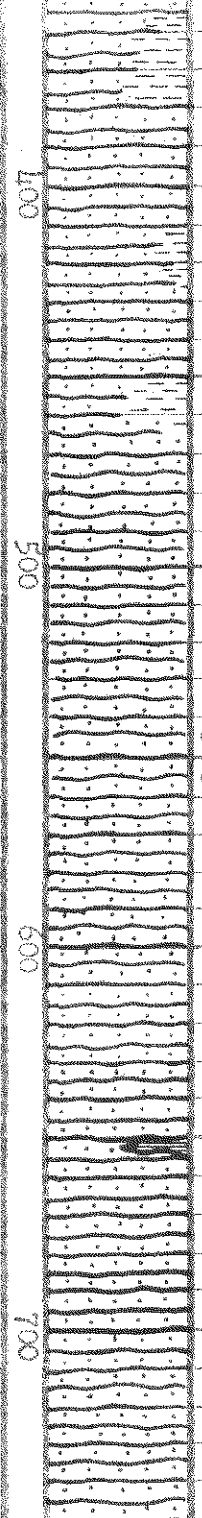
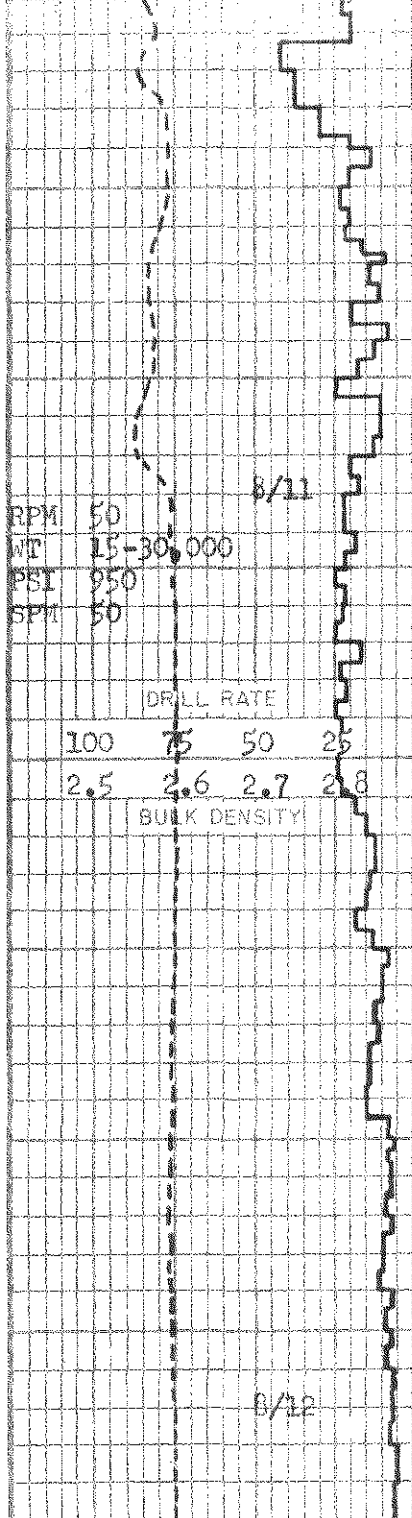
Graywacke: (Type 1) lt-med gry, grn, frm-hd, silic app, sm vis bandg var amt argil mtrx, com app well chloritized frags, sm w/poss trc Serp vn, abndt Argillite frags, com slty, sm sil vn, loc Claystone, gry, sft, sol.

Graywacke (Type 1): lt-med gry, gen'ly cont a/a w/ decreasing amts chloritized, vari amts Argillite, occ mnr silic veining.

Graywacke: (Type 1) med gry, frm-hd, s&p tex, var amnts argil mtrx, pred fn-med gr, sm sillic vn, occ vis gr orientation sm Argillite, med gry, frm, phy sheen, loc sm Claystone, gry, sft, sol. Opened hole to 26", set 20" casing at 336', drilling 17 1/2" hole



AMAX #1 LIVERMORE



Graywacke: (Type 1) med-dk gry, pred fn-v fn gr silic app, com dk grs, tr grn incl, gen'ly abndt argil matrix, com vis gr orient, often grading to Argillite: med-dk gry, com slty, phy sheen, loc Claystone: med gry, sft, sol, smr vari amts wht sec qtz veining throughout.

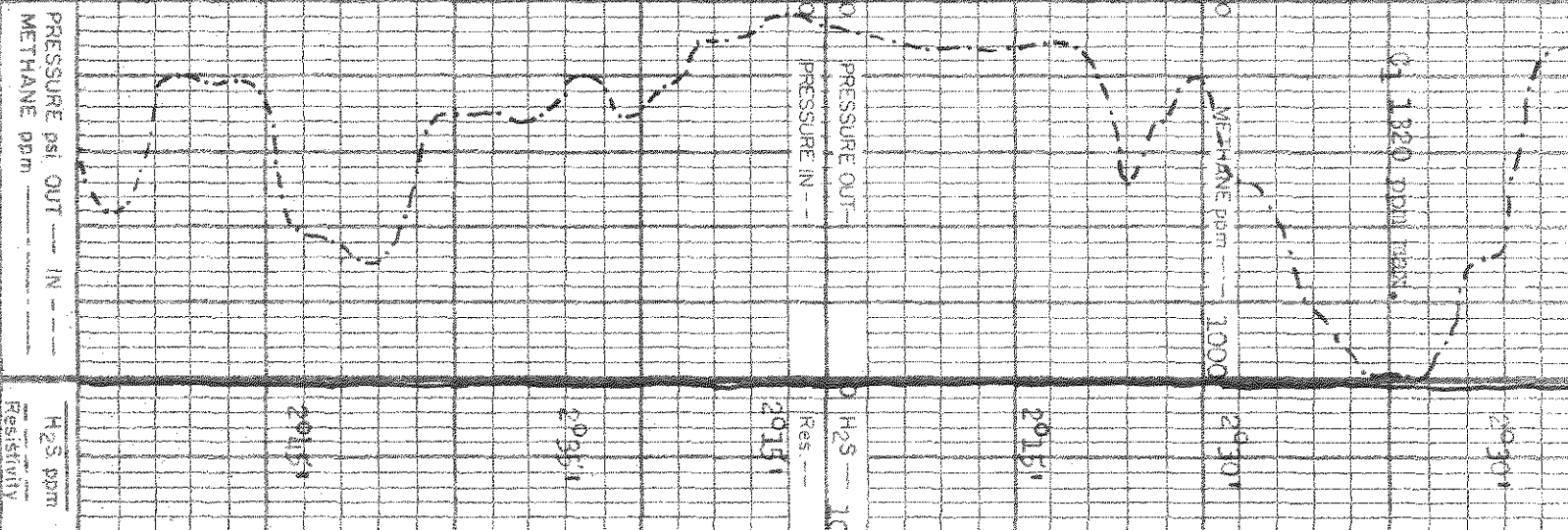
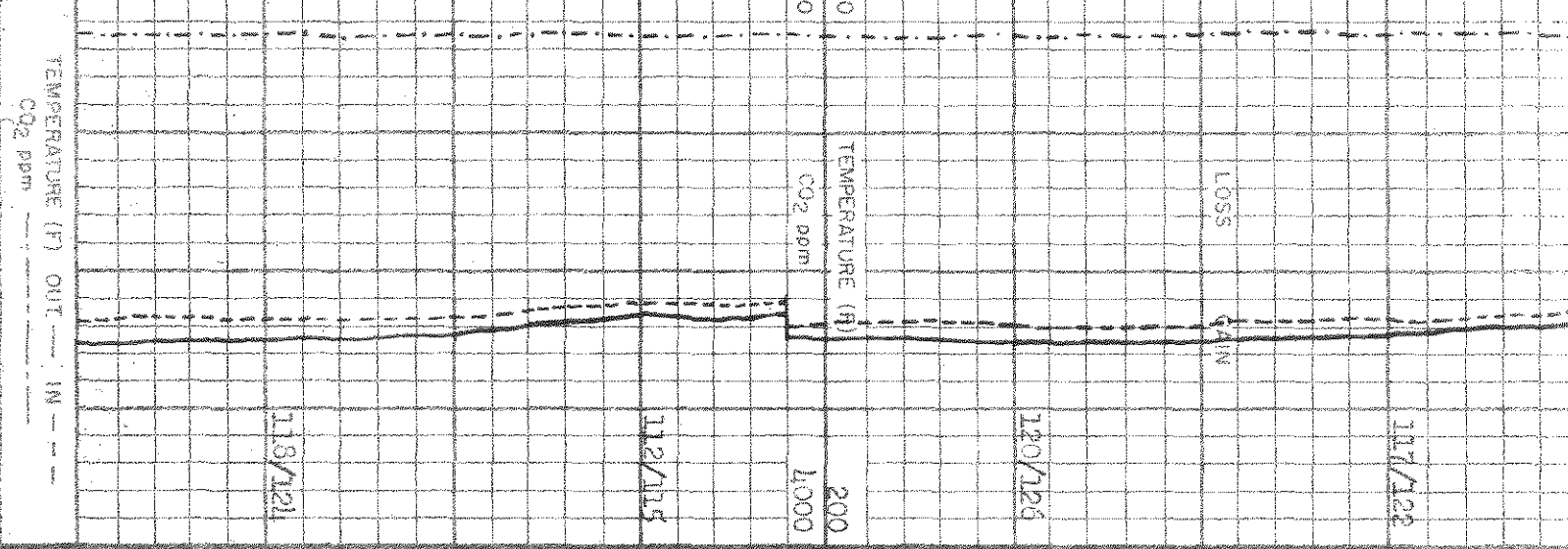
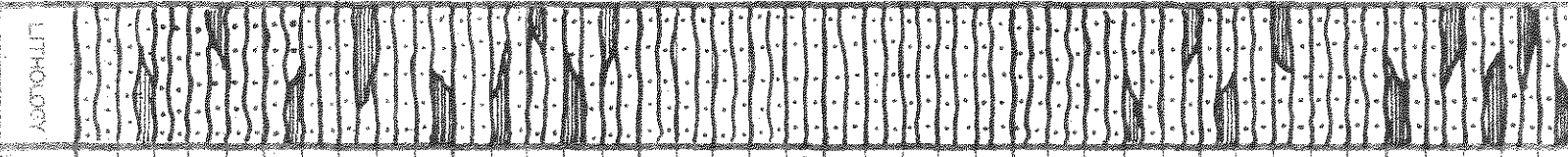
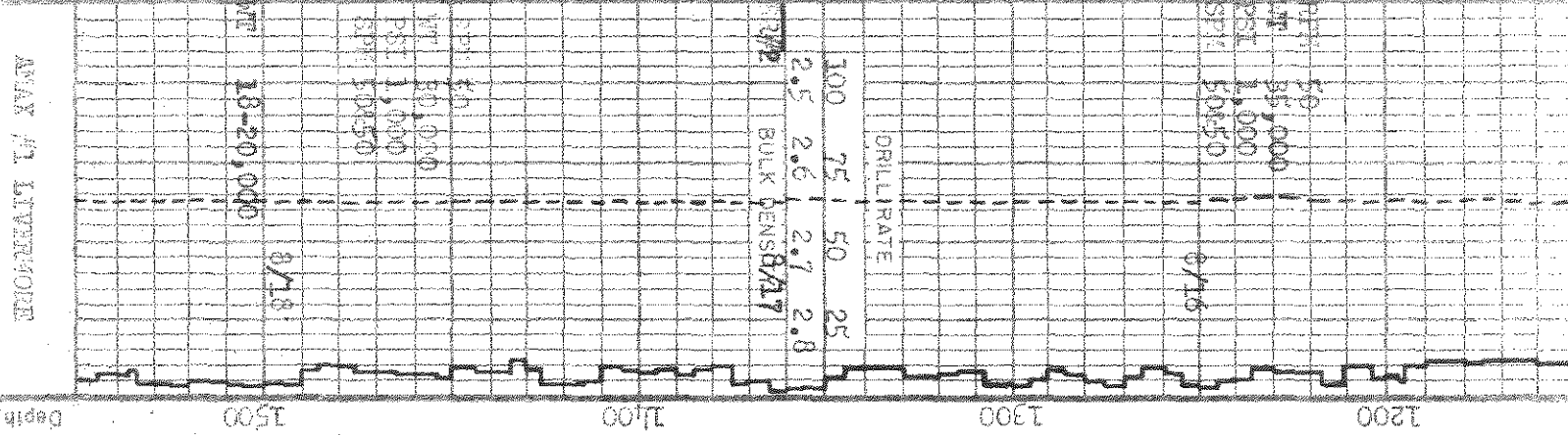
Graywacke (Type 1) med gry, frm-hd, brit, pred v fn- fn gr, silic app pred opaque wht-gry gr com vis gr orientation loc abndt silic vn - decr w/ depth, occ frag Argillite, med-dk gry, frm, silic app, phy shn

Graywacke: (Type #1) med gry, v fn-fn gr, variable amts argil matrix, cont loc abndt opaque wht qtz vn.

Notes: Methane scale change

WT 73 FV 87 PV 40
YP 25 pH 10 F 12.6
GL 300 Slds 10

Graywacke: (Type #1) med gry, hd, brit, pred fn gr silic app, abndt silli vn w/trc Pyr, com vis gr orientation, sm Argi frags, dk gry, frm, phy



Graywacke: (Type#1) pred med gry, hd, pred v fn-fn gr, p svd, subround-sbanglr, silic app, tr poss lpidote, occ whit qtz vn, w/ up to 30% Arcellite: med-dk gry, sft-fm, slty-sndy, sme phy sheen, ofn grde to microwacke.

WT 72 PV 71 PV 140 YP 30 PH 10.5 F 12.5 CI 300 Slids 9%

Graywacke: (Type#1) lt-med gry, hd-v hd, fm-med gr, com vis gr orient, tr lpid, loc com whit qtz vn w/ tr Pyrite assoc w/ it, decr amnts Ansil.

Res: 2015

Graywacke: (Type#1) med gry, fn gr, silic, gen: l a/a w/ inor Arcellite: l dk gry, frm-hd, phy sheen occ vis lam, com slty-sndy in pt grde to microwacke.

Graywacke: (Type#1) pred med gry, hd, pred fn gr, com vis gr orient, varl smts Arcellite: a/a, occ abndt wht-clr qtz vn w/ uncr tr calo.

WT 72 PV 80 PV 55 YP 25 PH 11.0 F 12.0 CI 300 Slids 9%

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8/23
 3891/186 1/2 hrs
 NMA3 Smith LOS

8/24
 WT 15,000
 RPM 50
 PSI 1000
 SPM 1241

8/25
 WT 10-12,000 RATE

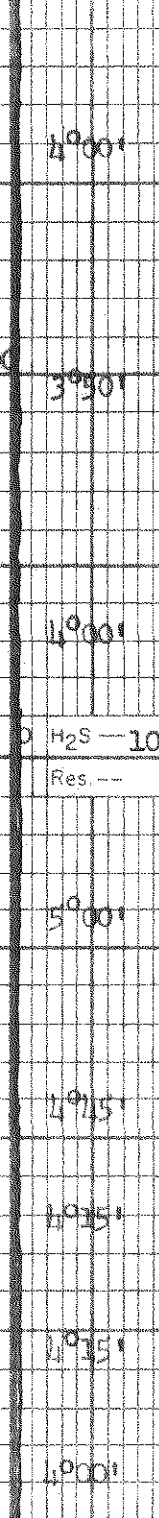
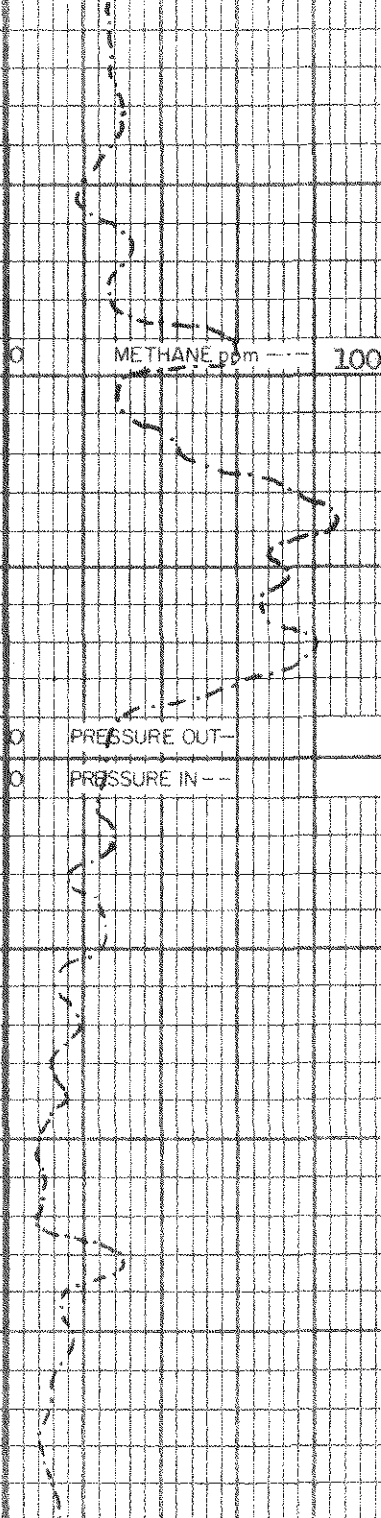
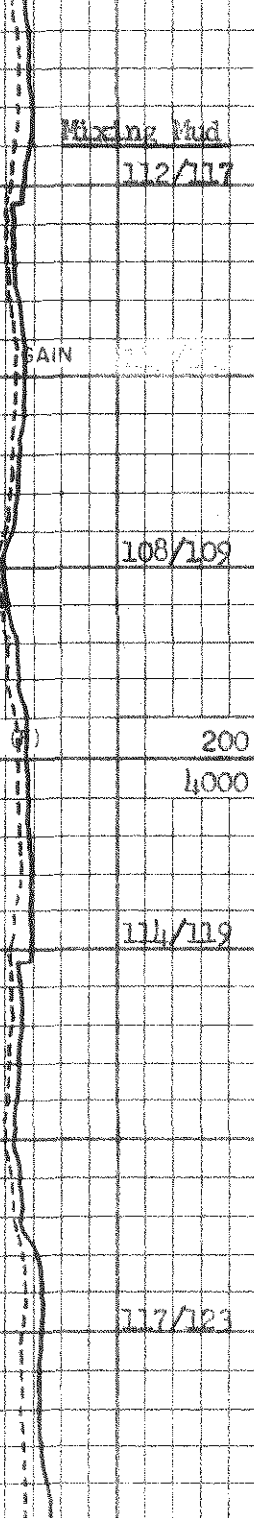
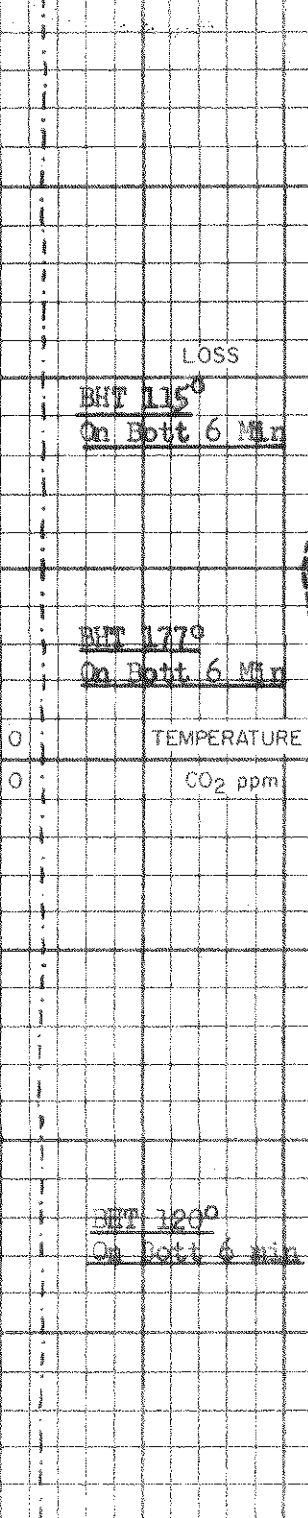
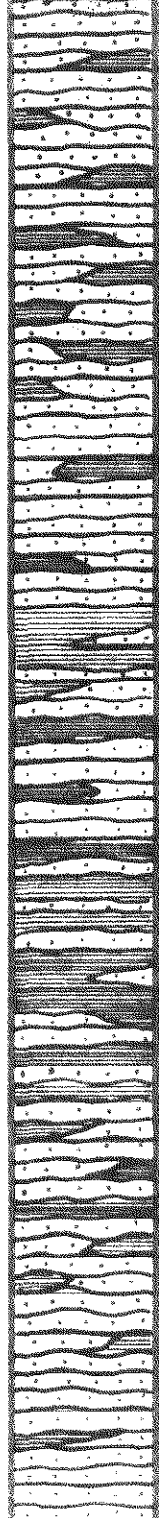
100	75	50	25
2.5	2.6	2.7	2.8

BULK DENSITY

8/26
 2021/61 1/4 hrs
 NMA1 PIC X-10
 WT 6-8,000

8/27
 651/27 1/2 hrs
 NMA3

2000
 2100
 2200
 2300
 Depth



WT 70 FV 58 PV 27 VP 2
 pH 10.5 F 9.8 Cl 300
 Slids 7%

Graywacke: (Type #1) med gry, hd, brit, v fn-fn gr abndt argil mtrx, com vis gr orient, abndt Argillite: med-dk gry, frm-hd, phy sheen, com slty-sndy, in pt grd to Microwacke.

Graywacke: (Type #1) pred med gry, continued gen a/a, w/ decreased amnt Argillite: a/a, occ wht silic vn.

Argillite: med-dk gry, blk, phy sheen, sm vis lam, trc Grnstn frags

Graywacke: (Type #1) med-dk gry, hd, brit, v fn-fn gr, silic-argil app, sme rextlzt, intbdd w/ Argillite: gen'ly a/a, in pt grd to Microwacke

Note: drilling 12 1/4" hole from 2207'.

Graywacke: (Type #1) lt-dk gry, v fn-med gr, v silic-argil app, sme vis gr orient & rextlzt, Argillite: med-dk gry, slty-sndy, grd to Microwacke, tr-occ wht silic vn.

Note: Drilled 12 1/4" hole to 2272', trip for 17 1/2" DA, opened hole & drilling 17 1/2" hole.

8/29
 WT 30-35,000
 RPM 50
 PSI 1000
 SPM 38638

8/30
 121 1/2" / 121 3/4" rfs
 RR 1/4" ITC X-1/4" 8/31 9/2

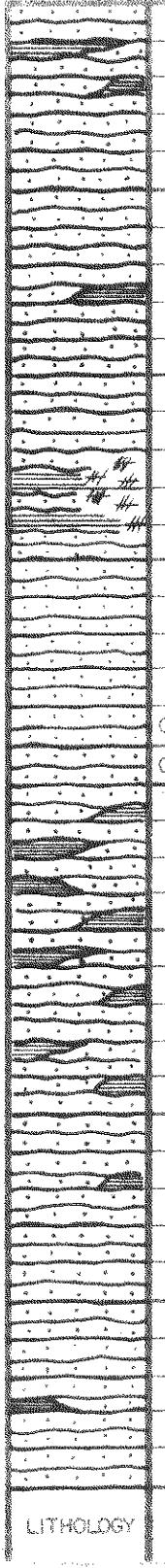
DRILL RATE			
100	75	50	25
2.5	2.6	2.7	2.8

RR 1/4" BULK DENSITY 7/3

WT 25,000
 RPM 50
 PSI 190
 CFM 2100

CFM 3600

Depth 2100 2500 2600 2700



BHT 121°
 On Bott 6 Min
 BHT 175°
 On Bott 6 Min

LOSS GAIN OI METHANE ppm --- 100

TEMPERATURE (F) 2000 PRESSURE OUT-- 50 H2S -- 10
 CO2 ppm 1,0000 PRESSURE IN-- 500

BEGIN AIR DRILLING

2 compressors

3 compressors

4°00'
 1°10'
 3°10'
 1°30'
 5°54'
 3°15'
 3°15'

Graywacke: (Type#1) lt-med gry, hd, brit, silic app, pred fn-med gr, prly srtd, com vis gr orientation, slt rexln.

Graywacke: (Type#1) lt-med gry, hd, brit, pred fr-med gr, silic app, com vis gr orient, sm loc intrbd Argillite, med-dk gry, phy sheen.
 Greenstone: lt-dk grn, silic app, com gran app, sm dism Pyr, slt Calc.

Drilled 17 1/2" hole to 2501', ran E-log, densit log, temp log, set 13 3/4" casing at 2499', drilling 12 1/4" hole,

Air Drilling.
 Very poor sample quality due to unfinished muffler set up.

Graywacke: (Type#1) lt-med gry, hd, brit, micro-med gr, com vis gr orientation, rare trc Epidote com interbd Argillite: dk gry-blk, frm-hd, phy sheen, occ vis lam.

Sample quality improved by 2670'.

Graywacke: (Type#1) lt-med gry, gen'ly a/a, tr Calc vn, tr Pyrite.

WT 34,000
RPM 50
PSI 900
SPM 60

9/7

751/88 & 1/2
NIB/5 HHC X-55-R

9/8

DRILL RATE

100 75 50 25
2.5 2.6 2.7 2.8

WT 35,000 X DENS 9/9
RPM 50
PSI 900
SPM 60

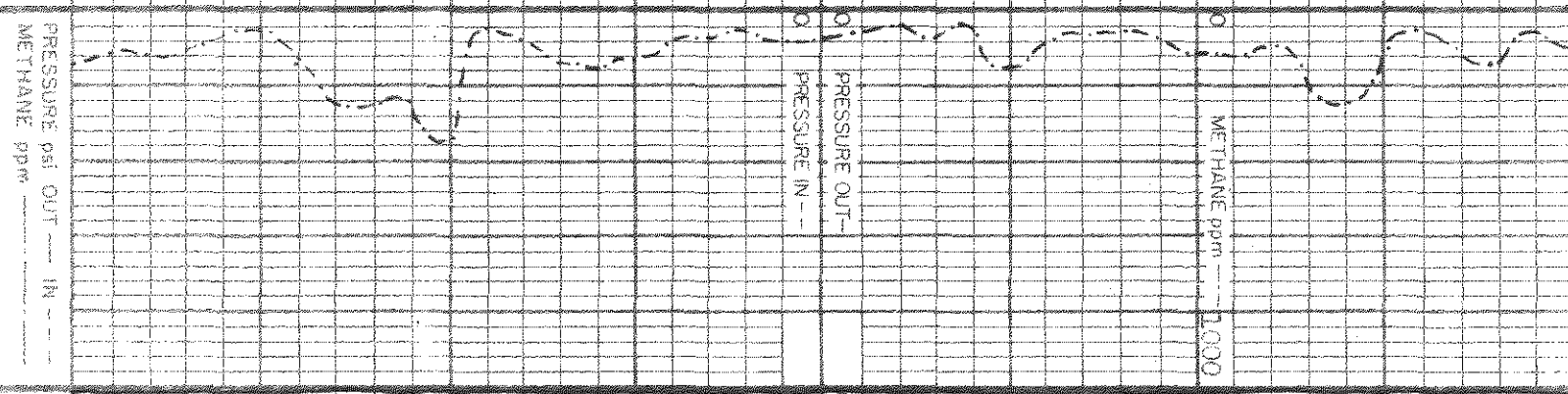
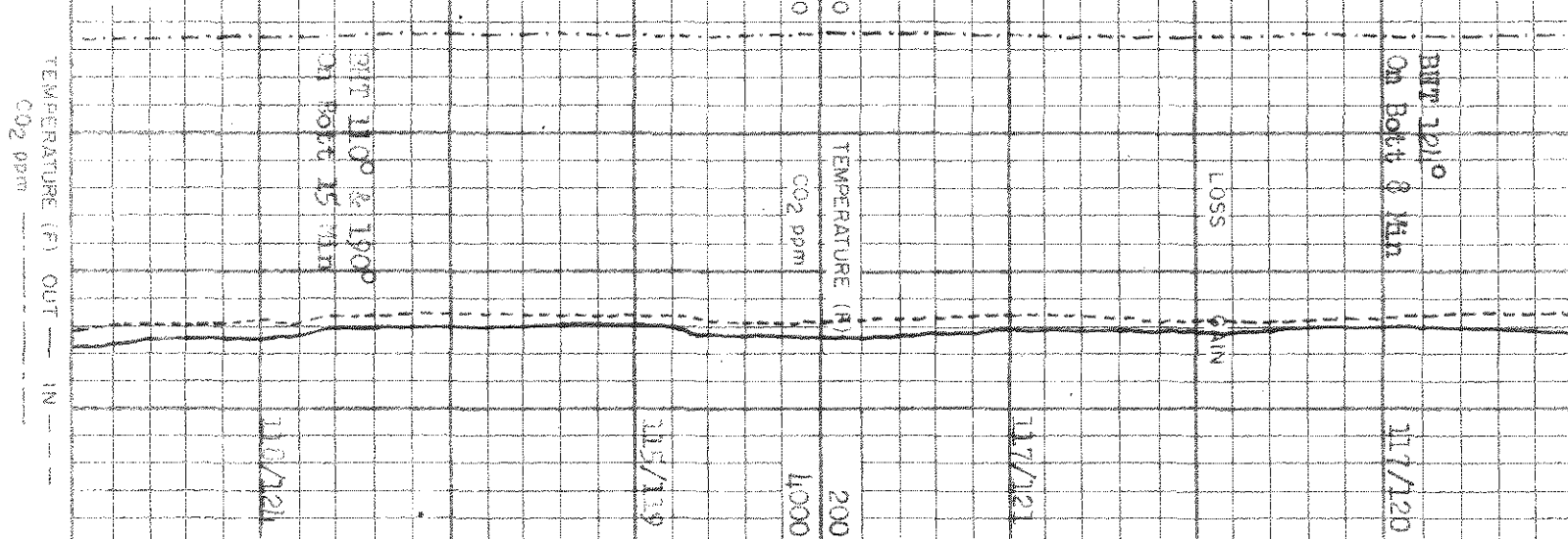
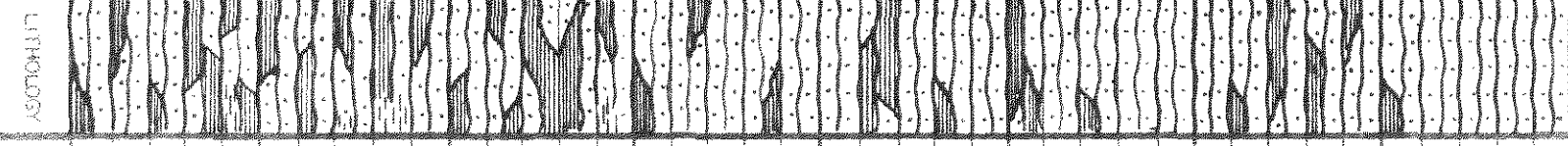
WT 35,000
RPM 50
PSI 1,000
SPM 60

9/10

9/11

ANAL. 23 LITERS/HR

3200 3300 3400 3500



H2S ppm
Resistivity

Graywacke: (Type#1) lt-med gry, arg-sub rinded grains, occ lt grnsh app, grdg in pts to Argillite; dk gry w/ phy sheen.

Graywacke: (Type#1) lt-med gry, med gr, mmr whit qtz vein filling, mmr calc in matrix, mmr amts of Argillite.

WT 67 FV 62 YP 33 PV 2
PH 10.5 F 9.2 CI 250
SIDE 53

Graywacke: (Type#1) lt-med gry, ang-sub rinded grains, occ lt grnsh app, grdg in pts to Argillite; dk gry w/ phy sheen.

Graywacke: (Type#1) lt-med gry, hd, brit, silic-argil app, com-abundt Argillite med gry-slk, phy sheen, sm Claystone; gry, sft, sol

Graywacke: (Type#1) lt-med gry, fm-med gr, com calc vein filling, grdg in pts to dk gry Argillite w/ phyllitic sheen.

Graywacke: (Type#1) lt-med gry, med-dk grm, firm-d, abundt chloritized frags, vis lithic app, sm dish PYT, slt rockm.

307 788 3/4 hrs.
NB#6 Reed Y-62-J

9/12

9/13

9/14

DRILL RATE

100	75	50	25
2.5	2.6	2.7	2.8

WT 35,000
RPM 50
PSI 1050
SPM 60

265 777 3/4 hrs 9/15
NB#7 REED S-52-J

WT 25,000
RPM 50
PSI 1050
SPM 60

9/16

120 787 hrs 9/17
NB#8 Sec N-18

AMEX #1 LIVERMORE

3600
3700
3800
3900
Depth

LITHOLOGY

BHT 132° & 135°
On Bott 9 Min

BHT 147°
On Bott 8 Min

BHT 151°
On Bott 6 Min

BHT 158°
On Bott 7 Min

BHT 162°
On Bott 7 Min

BHT 170°
On Bott 8 Min

TEMPERATURE (F) OUT --- IN ---
CO2 ppm

LOSS

GAIN

121/126

131/134

131/136

137/139

PRESSURE psi OUT --- IN ---
METHANE ppm

METHANE ppm --- 1000

PRESSURE OUT

PRESSURE IN

3° 15'

4° 10'

4° 10'

4° 50'

5° 10'

5° 20'

H2S ppm
Resistivity

Graywacke: (Type #1) lt-med gry, fn-med gr, ang-sub rned grains, sltly calc matrix, mnr wht qtz vein filling, mnr chloritization, com interbd Argillite: dk gry-blk, occ vis lam.

WT 70 FV 65 FV 23 F 9
YP 42 pH 10.5 Cl 250
Slts 5% Snd 2%

Argillite: dk gry-blk, v fn-fn gr, phy sheen, mnr calc vein filling, grding to Graywacke: (Type #1) lt-med gry.

Graywacke: (Type #1) lt-med gry, sm wht, pred fn-med gr, hd, brit, slt rexln, com gr orientation, trc calc, incr Argillite med gry-blk, frm, phy shd, loc abndt silic vn, com slty-sndy, grdg to micro-wacke.

Argillite: med-gry-blk, frm-med hd, com slty-sndy, occ vis lam, com silic vn.

Argillite: dk gry-blk, v fn-fn gr, phy sheen, mnr calc vein filling, tr pyr & chlor, grding in pts to Graywacke: (Type #1) lt-med gry.

Argillite: gen as above but w/mnr amts of Greenstone in pts.

Drilling 8 3/4" Hole

WT 11-16,000

9/18

71 1/39 1/4 hrs

9/19

WT 35-38,000

9/21

WT 35,000

RPM 50

PSI 1500

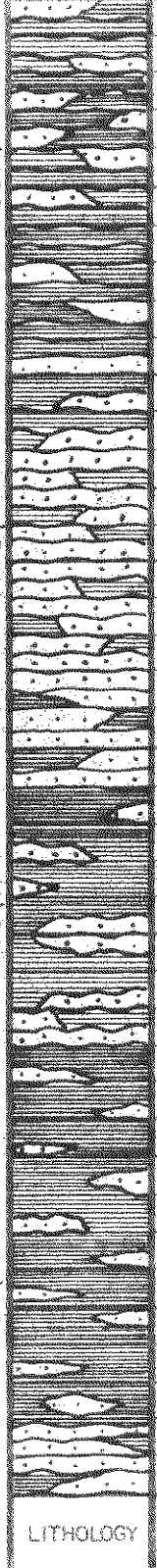
SPM 11441

267 1/95 hrs

NB/9 ETC X-111

9/21

4000
1100
1200
1300
Depth



LITHOLOGY

BHT 100°
On Bott 6 min

129/132

5°05'

BHT 152°
On Bott 6 min

5°19'

BHT 165°
On Bott 7 min
125° Hg Separated
Above Camera

138/145

4°45'

BHT 210°-204° (Ave 222°)
On Bott 6 min
165° Above Camera

200

4°50'

BHT 157° & 183°
On Bott 11 min

137/148

4°30'

BHT 158°, 156°, 116° (Ave 153°)
On Bott 10 min
118° Above Camera

111/117

4°30'

BHT 151° & 152°
On Bott 6 min
134° Above Camera

5°10'

TEMPERATURE (F) OUT --- IN ---
CO2 ppm

PRESSURE psi OUT --- IN ---
METHANE ppm

H2S ppm
Resistivity

WT 72 FV 50 PV 26 F 9.4
YP 24 pH 10 Cl 250
Slas 7/8 Snd Trace

Opened 3 3/4" hole to
12 1/4" @ h013', drilling
ahead 12 1/4" hole.

Argillite: med gry-blk
v fn-fn gr, slty, mnr
amts wht calc & qtz,
grdg to Graywacke:
(Type #1) lt-med gry.

Graywacke: (Type #1) lt-
med gry, med gr, ang-
sub ruded grs, lith
frags, mnr calc in
matrix, mnr calc & qtz
vein filling.

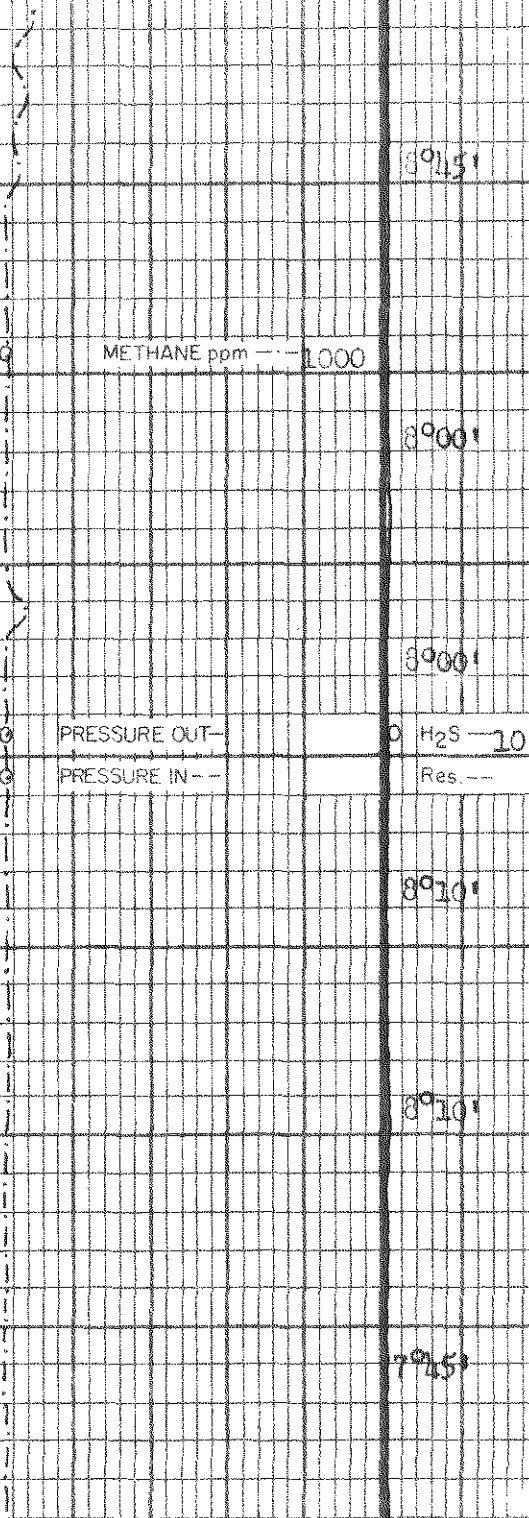
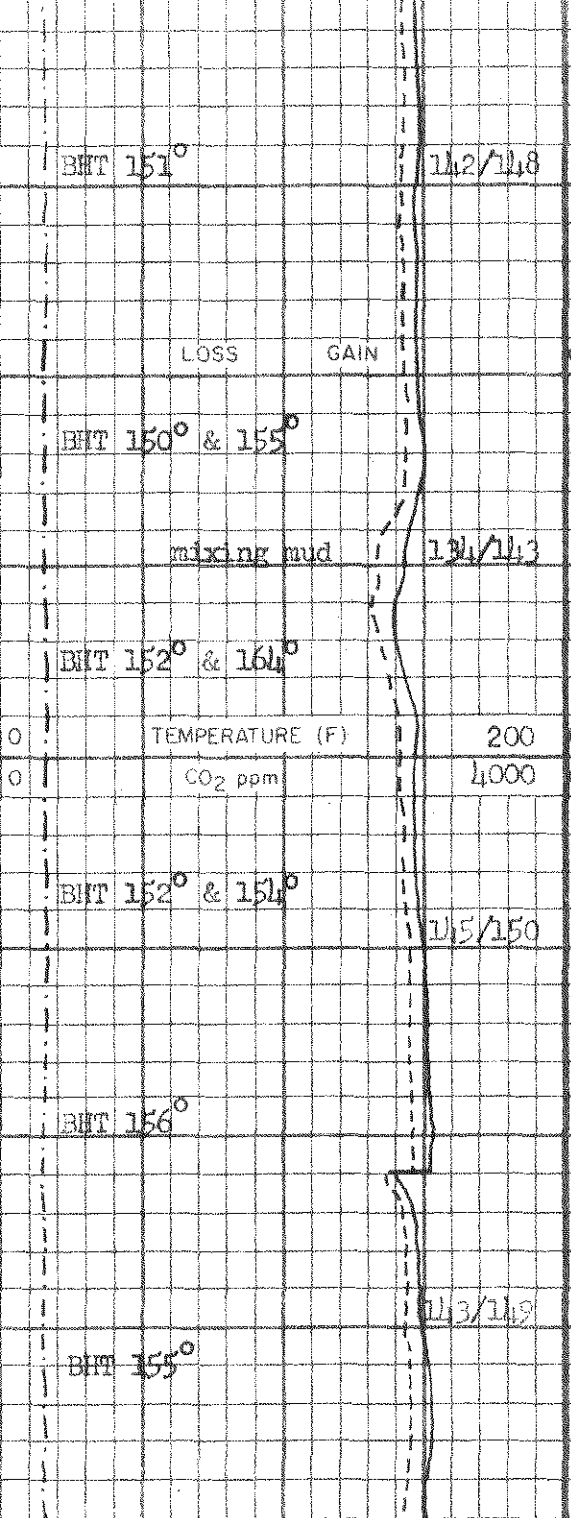
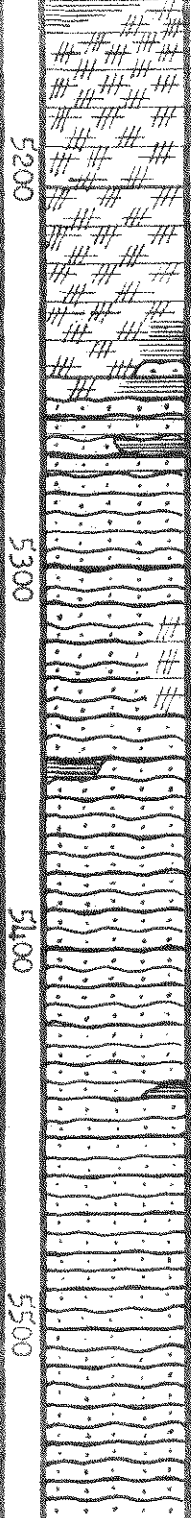
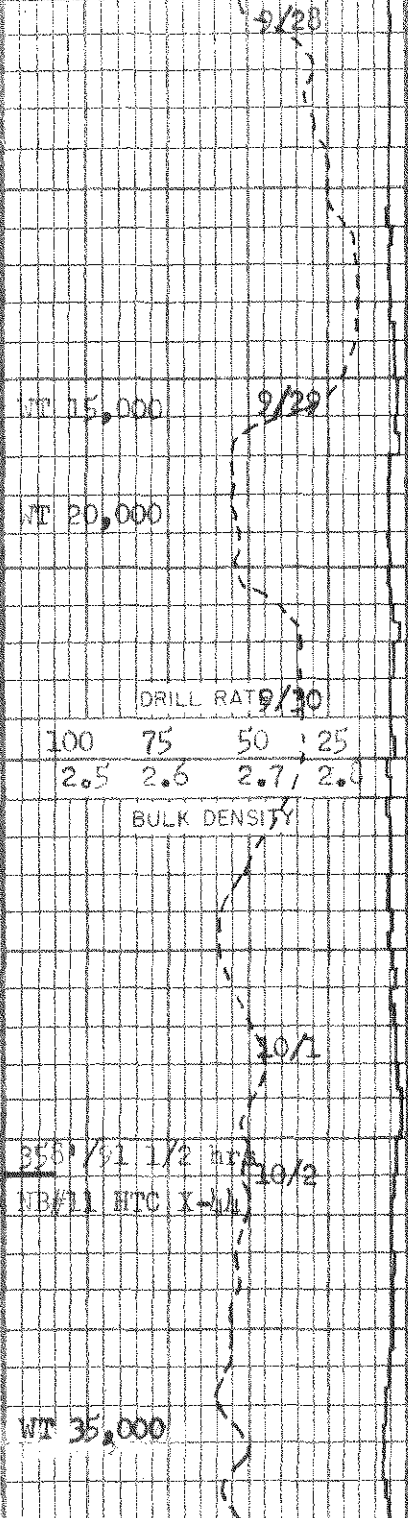
Argillite: med gry-blk
v fn-fn gr, well indur-
ated, com wht calc &
qtz vein filling, grdg
in pts to Graywacke:
(Type #1) lt-med gry.

Argillite: med gry-blk,
pred v fn gr, slty, phyl
sheen, occ-com calc &
silic vein fill, occ
grdg/intbdd w/ Graywac
ke: (Type 1) lt-dk gry.

Argillite: pred dk gry,
fn-v fn gr, firm, well
indurated, com wht calc
& silic, occ chlorite,
grdg in pts to Graywac
ke: (Type 1) pred med gry

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1977



Greenstone: lt-med grn, mottled-granular, occ olv-wht inclusions, tr amygdaloidal, tr pyr, tr-occ wht-pink qtz & calc frac fill.

Greenstone: lt-dk grn, v fn-fn gr, wht qtz vein filling, mnr chlor xtals, tr pyr.

Graywacke: (Type #1 w/ com Type #2) lt-dk gry, pred fn gr, com rextln, com banding, scat com diam pyr assoc w/ Argillite: dk gry, phyl.

L.C. 95285' -150 bbls

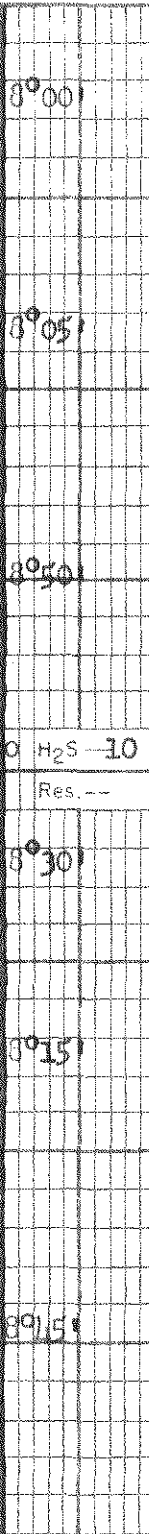
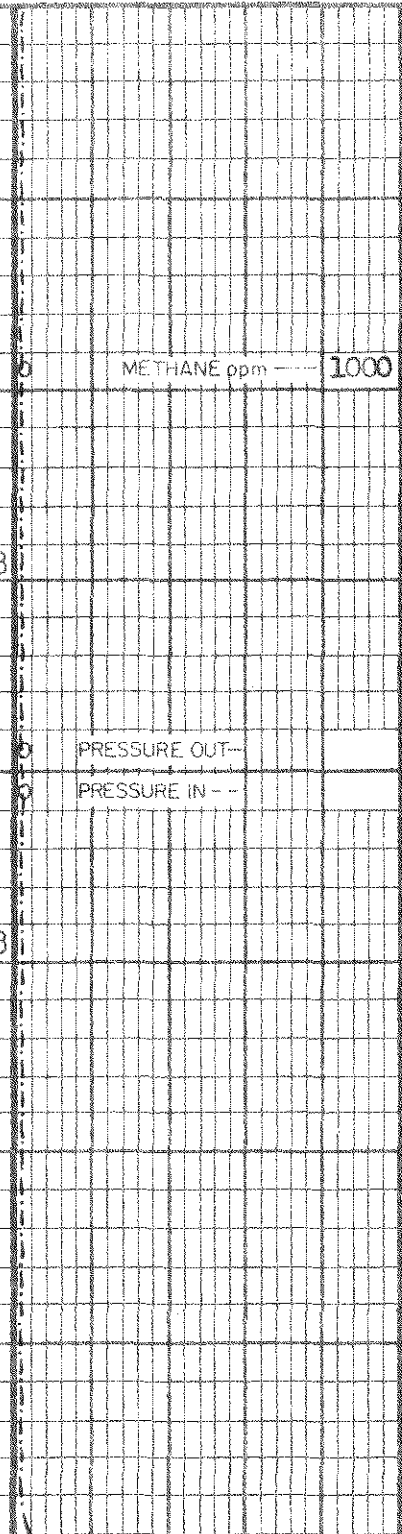
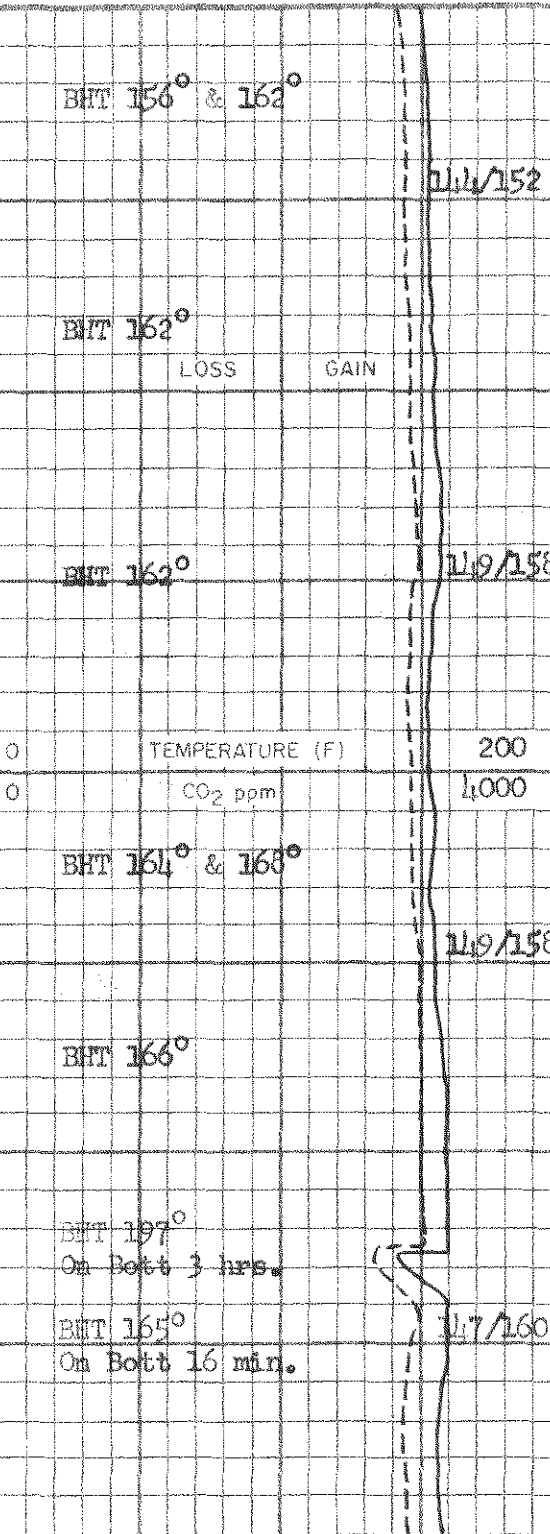
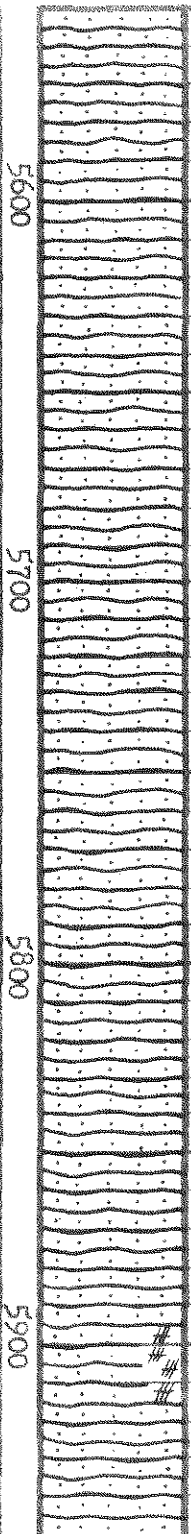
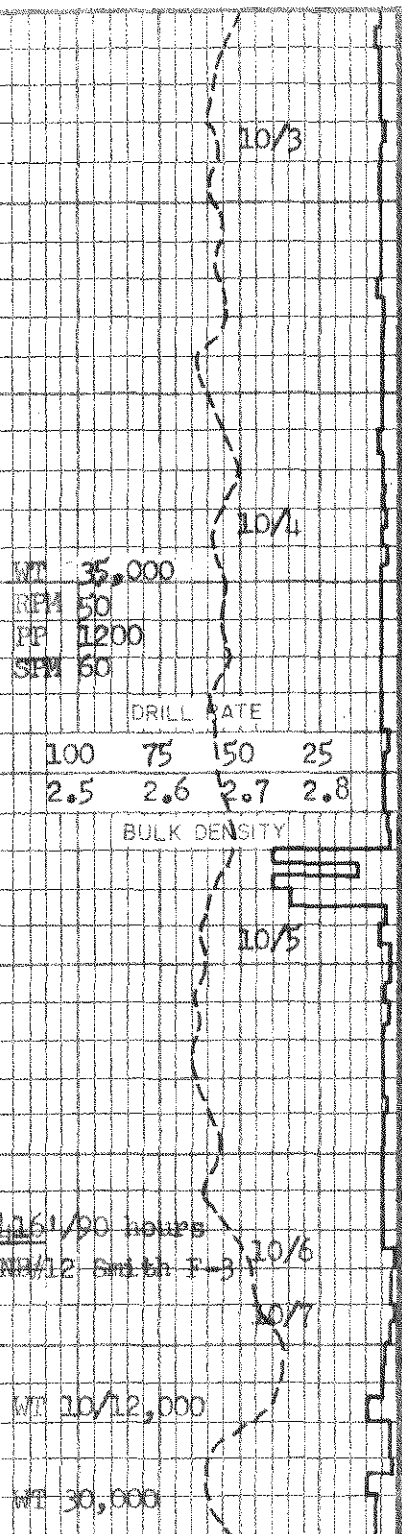
Graywacke: (Type #1) med gry-lt grn in pts, com wht qtz vn fill, tr lt brn Chert, mnr-mod Greenstone: w/ chlor xtals, mnr intbdd Argillite: dk gry.

WT 69 FV 50 PV 28 YP20
pH 10.2 F 18 Cl 400
Slts 7%

Graywacke: (Type #1) lt-dk gry, com grn cast, p sorted, v silic, com Argil & Grnstn lith frags, scat pyr, com qtz veing

Tripped @ 5459', RIH
open ended, Temp Surveyed @ 5001'

Graywacke: (Type #1) lt-dk gry, mnr Grnst & Argil, mnr lt brn & lt grn Chert, tr Pyr & Graywacke: (Type #2).



Graywacke: (Type #1) lt-med gry, mnr lt grn, fn-med gr, p srt'd, hd, wl indurated, v silic, mnr rextln, Argil & Grnst lith frags, mnr lt brn-lt grn Chert, tr pyr, mod wht-clr qtz veing.

Graywacke: (Type #1) lt-med gry, clr & wht qtz & flds also Argillite & Greenstone frags in sl calc matrix, tr pyr.

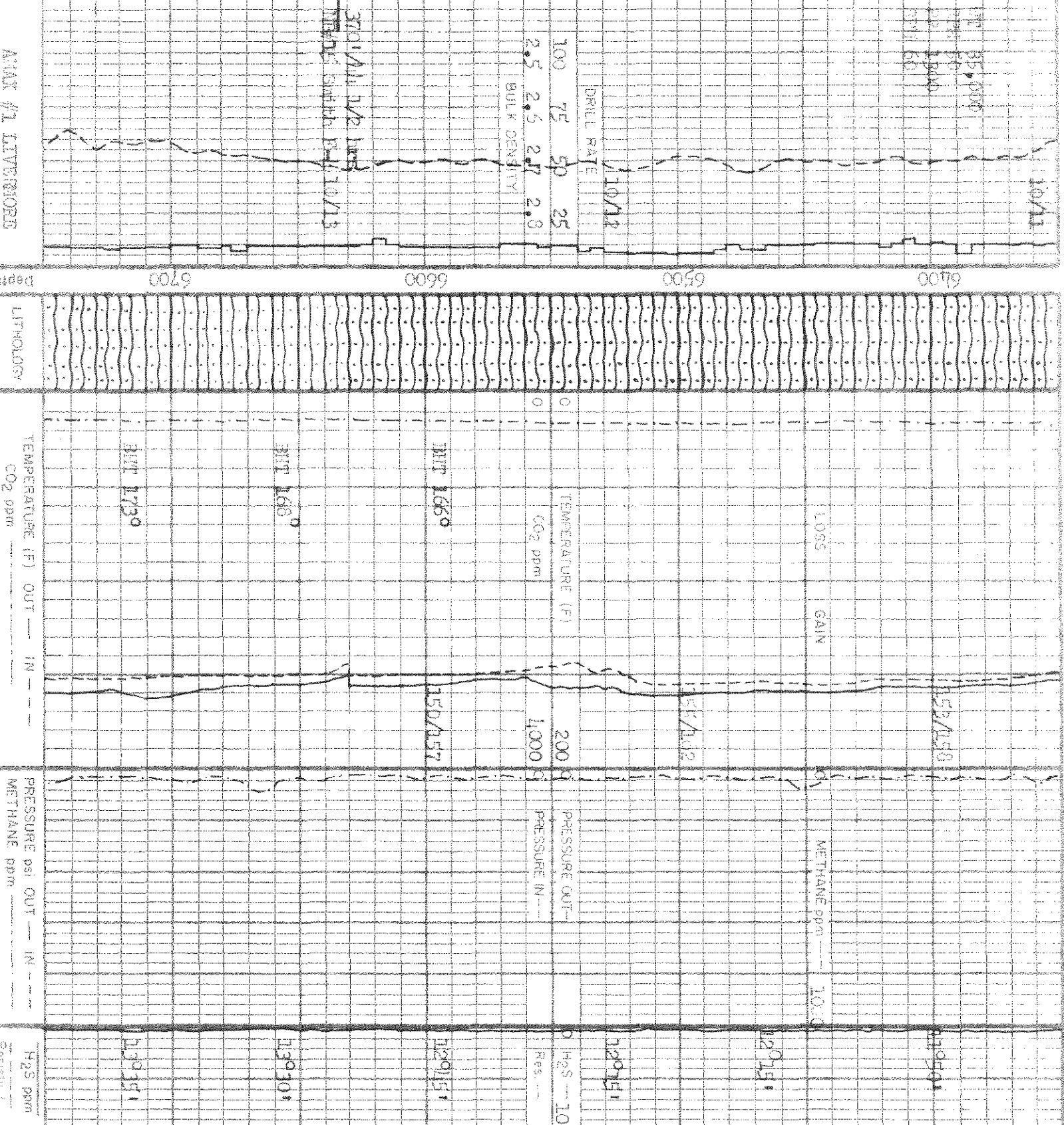
Graywacke: (Type #1) lt grn, occ lt-med gry, med gr, pred qtz & flds, com Argill lith frags, abndt chloritization, mnr vein fill, tr pyr.

Encountered Fractures @ 5770', Ran Survey.

Graywacke: (Type #1) lt-dk gry, lt grn, abndt fractures, wht-lt grn-clr frac fill, ang-sub rndd clasts, mnr Argillite & Greenstone, tr lt gry Chert, tr pyr.

Drilled 12 1/4" hole to 5874'. Reduced hole to 8 3/4".

Graywacke: (Type #1) lt-med gry, lt grn, pred fn gr, fractured w/wht-pnk vng, scat Grnst, tr pyr. Largely replaced by wht-clr silica @ 5930'.



Graywacke: (Type 1) lit-med gr, lit grn gr, v-crs gr, ooc veslin, v-abndt whit-clr-lt grn s-ls c vein fill, grn argillite, scat pyr, br -mud slite scist, br -mud greenstone, br calc br -grn-grn-brn chert.

Graywacke: (Type 1) med lit-med grn-gr, v-crs gr, mtr-rod argillite, com qtz, chl, oxidized in pbs, ang-sub redd crs, lith frags, mtr pyr & Blue Schist, br Crnst.

Lost approx 150-200 bbl s mud @ approx 65201-65701, added 1.0 cu.

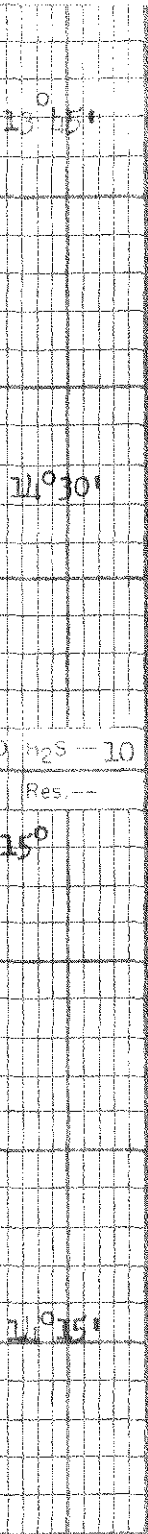
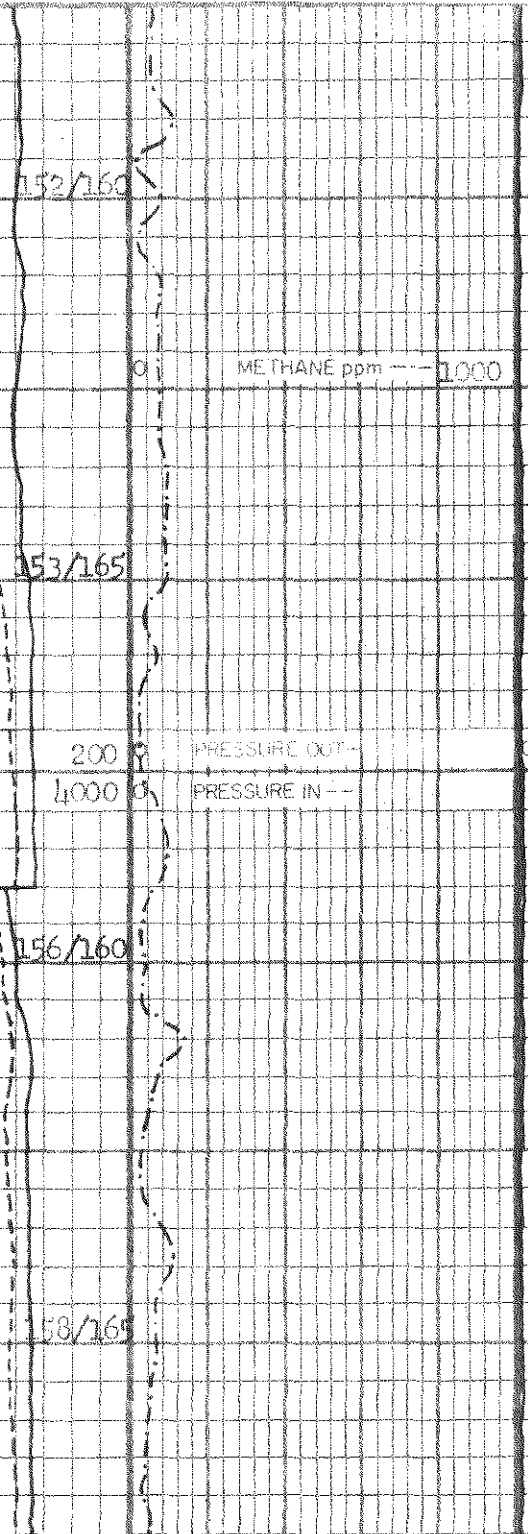
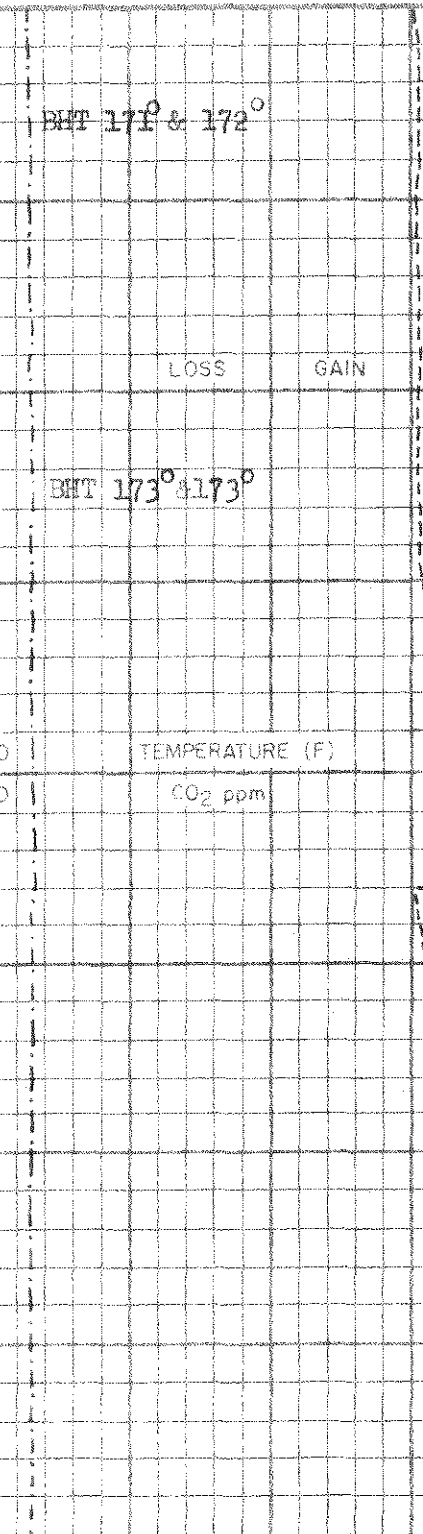
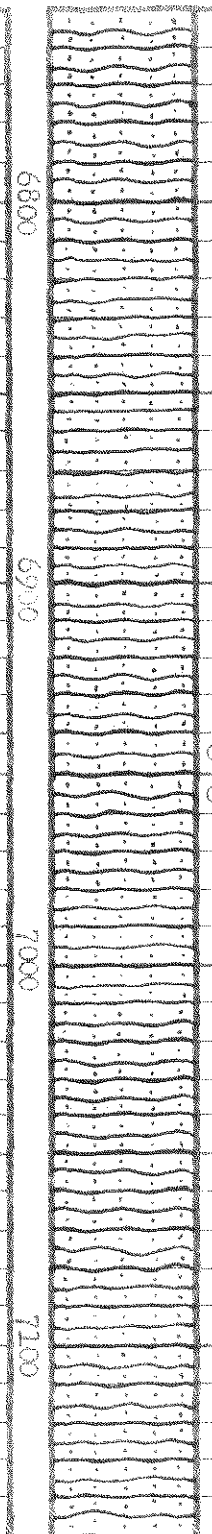
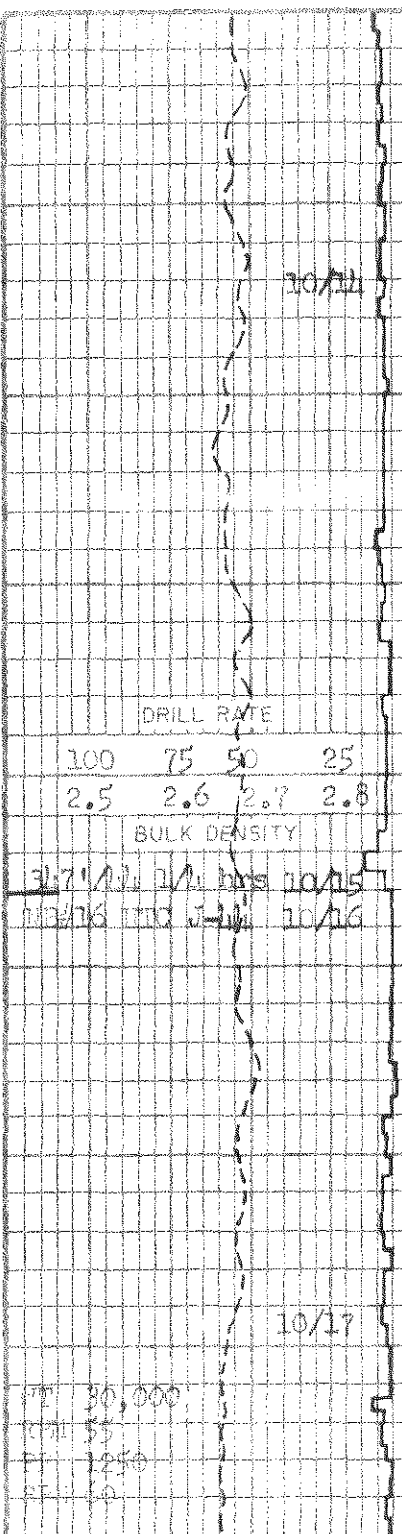
Graywacke: (Type 1) lit-med gr, com lit grn w/ clr-whit grs & Argillite frags, v-crs gr, rd, com whit-lt grn fine fill, mtr Blue Schist & argst, scat pyr, tr calc

WT 68 FW 51 PV 18 WP 8
DH 10 F 11 G 750
STG 5%

Ran M.R.T. to 66021 before trip, temp 160°.

Graywacke: (Type 1) cont generally a/a w/ decr amt chloritization, mtr clr-gry-brn Chert.

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Graywacke: (Type#1) pred
lt-med gry, dk gry in
pts, pred whit & clr qtz
& felds & dk gry-blk
silty lith frags in sil-
tily calc matrix, tr Pyr
& Blue Schist.

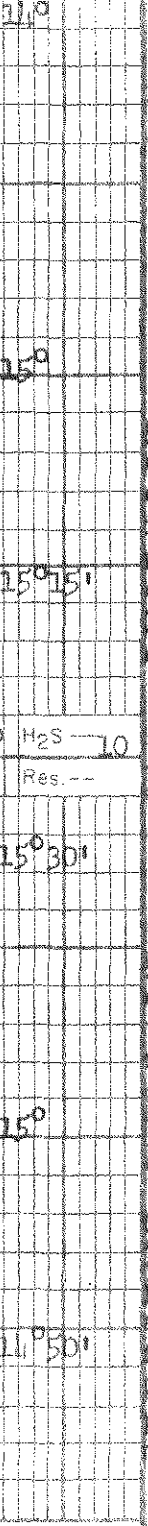
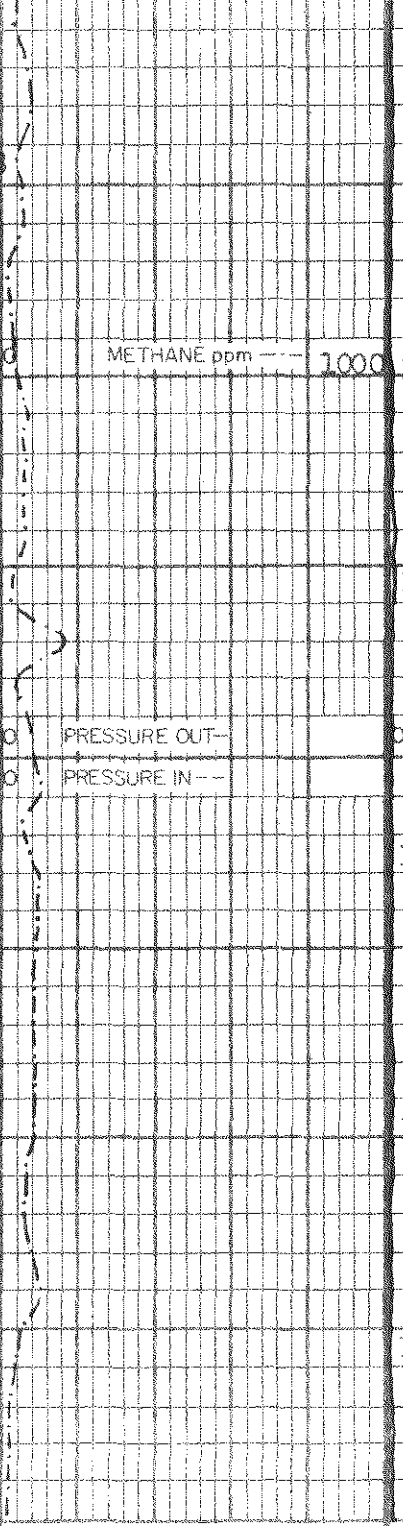
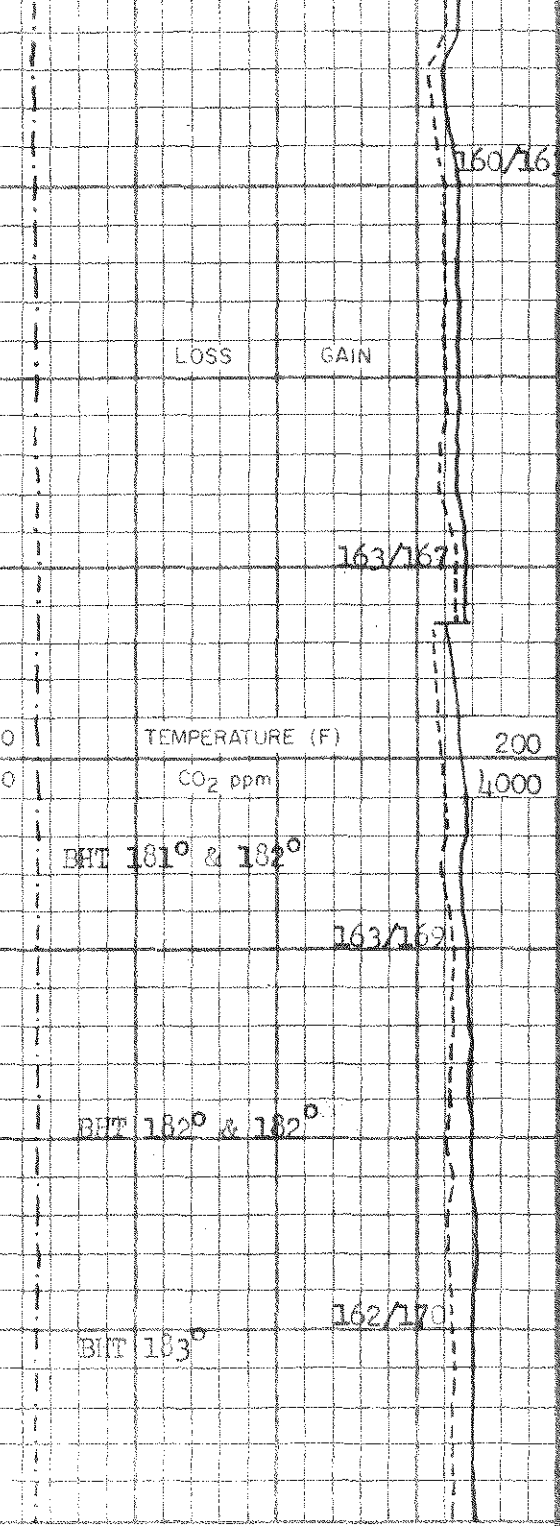
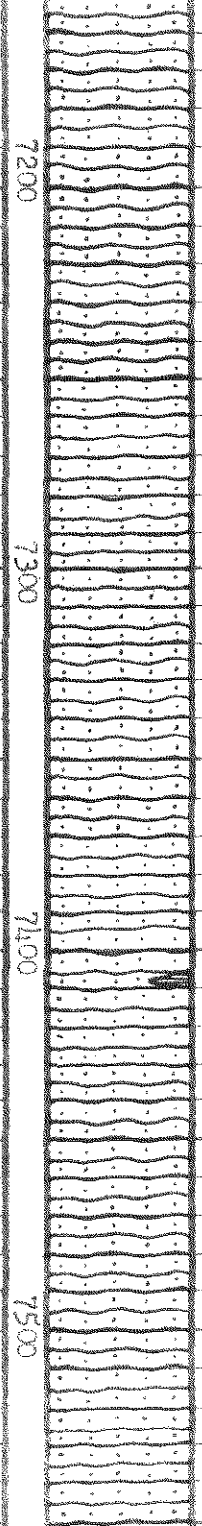
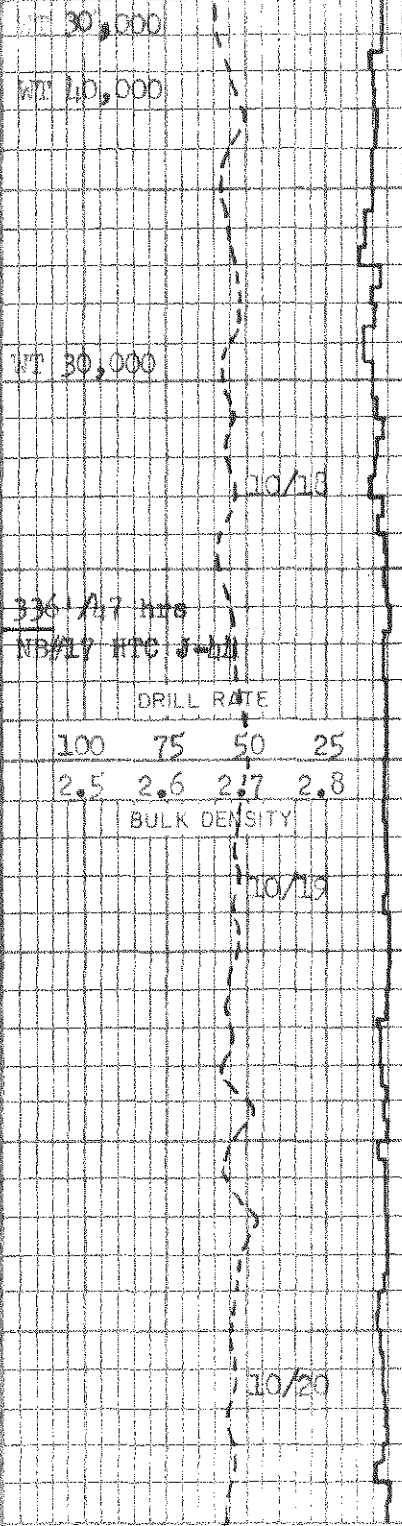
Graywacke: (Type#1) lt-
dk gry, vf-crs gr, silic
app, mnr chloritization
com dk lith frags, tr
chlorite, tr epid, tr py-
rite, abndt wht-clr-lt
grn vein fill & Chert

Graywacke: (Type#1) pred
med gry, pred med-crs
gr, vf gr & dk gry in
pts, com clr & wht qtz
& felds, mnr chloritiz-
ation, mnr lt pnk calc,
tr pyr & chert, tr grnst.

RIH open ended, ran
Temp Survey, BHT after
3 hrs on Bot: 257°

Graywacke: (Type#1) lt-
dk gry, v f-crs gr, abdt
wht & clr qtz, mnr chlo-
ritization, silty in pts,
tr Greenstone & Blue
Schist, tr pyr.

Graywacke: (Type#1) lt-
dk gry, v f-med gr, com
wht-clr silic frag fill
tr euh qtz, nod calc,
occ grn/yel epid, tr pyr
, approx 2-3% zirconite,
dk gry, phyl cten.



Graywacke: (Type #1) lt-dk gry, pred med-crs gr, but intbdd in pts w/dk gry slty Microwacke; mnr pnk calc, tr grnst & epid, tr pyr, mnr Argill.

WT 67 FV 45 PV 22 YP 10
pH 10.2 F 12 Cl 600
Ca 40 Snd 1/4% Slids 5%

Graywacke: (Type #1) lt-dk gry, scat sl lt grn cast, pred med gr gradng in pts to slty dk Microwacke, com stretched gr, occ textln, v com wht-lt grn qtz vng, tr-loc com epid&pyr, tr Grnsta.

Graywacke: (Type #1) cont as above but w/Grnsta incrg to mnr, mnr-mod chloritization in pts, tr Blue Schist.

Graywacke: (Type #1) lt-dk gry, fn-med gr gradng to Microwacke & occ Argill mnr Grnsta, mod wht-lt salmon calc & silic vng, tr chlor, epid, pyr, Bl Schist, mnr tr red minsh.

Graywacke: (Type #1) pred lt-med gry, f-crs gr, in pts dk gry Microwacke, abund clr & wht qtz & felds, mod amts clr-gry Chert, mnr kaol, com tr pyr, tr Blue Schist, tr-Grnsta.

WT 30,000

BPT 1/52 hrs 10/21
NB#18 Smith R-1

DRILL RATE

100 75 50 25
2.5 2.6 2.7 2.8

BULK DENSITY 10/22

WT 50,000
BPT 1/50
PL 1200
EFF 60

10/23

7600
7700
7800
7900
Depth

LITHOLOGY

TEMPERATURE (F) OUT --- IN ---
CO2 ppm

PRESSURE psi OUT --- IN ---
METHANE ppm

H2S ppm
Resistivity

REMARKS
R F SMITH CORP

BHT 182° 163/170
Add H₂O

LOSS GAIN

METHANE ppm --- 1000

BHT 182° & 183° 161/168

BHT 182°

TEMPERATURE (F) 200
CO2 ppm 1000

PRESSURE OUT --- H2S --- 10
PRESSURE IN --- Res ---

BHT 186° & 188° 165/173

170/175

BHT 188° & 188°

WT 69 FV 56 PV 30 YP20
pH 10.2 F 13 Cl 700
Ca 80 Slts 6%

Lost apx 75bbls mud @
apx 7575' added L.C.M.

Graywacke:(Type#1)lt-
med grn-gry,pred med-
crs gr,abund chlorit-
ization,mnr Grnst & dk
gry Microwacke,tr Blue
Schist & Argill,tr pnk
vn fill,tr pyr.

Lost apx 50 bbls mud @
apx 7680' added L.C.M.

Graywacke:(Type#1)lt-
med grn-gry,pred med-
crs gr,abund chlorit-
ization,mnr Grnst & dk
gry Microwacke,tr Blue
Schist,tr pyr & epidot.

Graywacke(Type#1)pred
lt grn,com grn gry,
highly altered & chlo-
ritized,occ dk gry M-
wacke Lith frags,com
wht & clr gr,mod wht-
clr-lt pnk calc-silic
vein fill,tr epid,pyr
chlor,brn clay,& Blue
Schist.

Graywacke:(Type#1) gr-
ading to MELANGE % ap-
prox 7900'; pred med-
dk gry,fn-med gr,com
vis gr boundaries,occ
highly chloritized w/
lt grn cast,Blue Schist
increasing to aprox 5%
Grnstn to 2%,com wht-
pnk calc-silic vng.

2 1/4 1/2 hrs 10/24
 DR19 Smith F-3

10/25

PL 000

DRILL RATE

100	75	50	25
2.5	2.6	2.7	2.8

BULK DENSITY

54,000
 60
 1300
 50

10/26

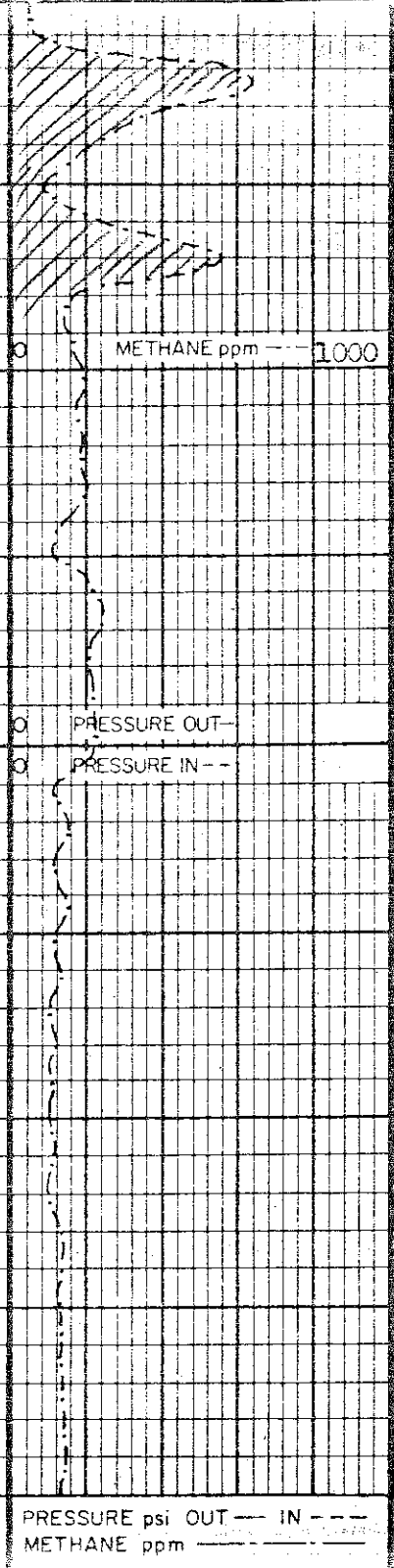
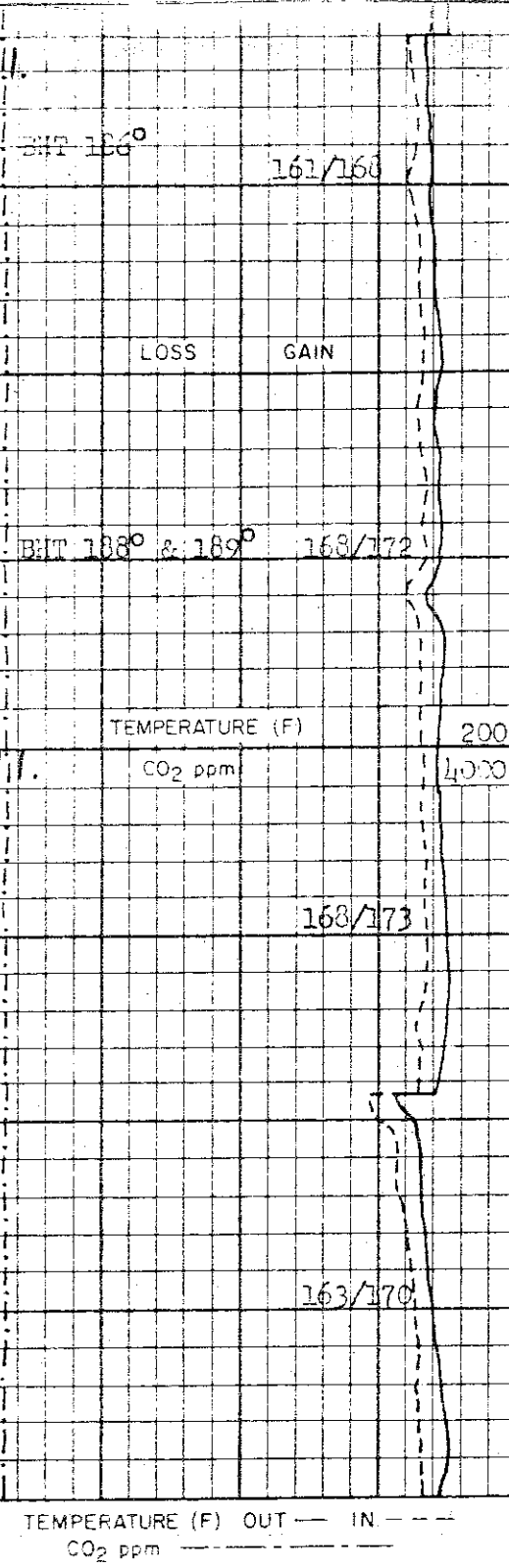
1 1/2 hrs 10/27-28
 420 sec 3367

MAX #1 LIVERMORE

8000
8100
8200
8300
Depth



dll.
dll.
dll.



11°30'
11°0'
H2S 10
Res --

Graywacke: (Type #1) lt-med grn-m, gradin from PLANK 796', fr-crs gr, poorly sorted, chaotic, mnr-sed intbdd dk grv microwacke & Argillite, mnr wht-pnk & lt orng calc vn fill, tr-mnr Blue Schist & Greenstone, tr lt yel epidote, tr clr-gry Chert, tr pyr & in pts pyr vn fill.

Graywacke: (Type #1) lt-med gry grn grading to pred med gry, v fr-crs gr, com chloritization, intbdd w/ mnr dk gry Argillite.

Graywacke: (Type #1) lt-med gry, lt grn in pts, pred mei-crs gr, intbdd w/ Argillite: dk gry, v fr-aphanitic, tr Grnstr & Blue Schist, tr epid & pyr.

RAW @ 8243': Heat Probe, Dual Induction Log, Neutron Log, Temp Survey, Multi Shot Survey.

Graywacke: (Type #1) pred med gry w/ mnr lt gry-grn, generally cont a/a, but w/epidote incrg to mnr.

TEMPERATURE (F) OUT --- IN ---
 CO2 ppm

PRESSURE psi OUT --- IN ---
 METHANE ppm

H2S ppm
 Resistivity

REMARKS
 R.F. SMITH CORP