

only Caps



# GEO THERMAL DATA LOG



Company CALIFORNIA ENERGY COMPANY, INC.

Well Name NAVY I 68-6

Well ID COSO

County INYO State CALIFORNIA

Location 4' N & 1567' W from SE corner of

Section 6 T2S R39E M0B&M

Elevation 6L 4170' KB 4199'

Drill Rig TRACTOR/RIG NABORS DRILLING USA, RIG #37

Drill Date 10/31/94 TO Date 3/14/95

True Vertical Depth NA

Bottom Hole Location NA

Well Status SHUT IN

Company Representative R. LEMON, R. BRUNSON, L. STRICKLAND

## LOGGED INTERVAL

Interval Logged 11/08/94 to 3/20/95

Depth Logged 826' to 10060'

Drilling 826' to 9728'

Drilling 9728' to 10060'

Temperature Instrument Type T TYPE THERMOCOUPLE

Scale 1:500 Unit Number DC10

Prepared By E. ZIFCHECK, D. CRAIG

K. KATOLAS

## HOLE SIZE CASING

36" to 80' 30" at 80'  
26" to 826' 20" at 819'  
17.5" to 2603' 13.375 at 2602'  
12.25" to 8553' 9.625" at 6040'  
8.5" to 10060' 7.00" at 10050'

## STEAM ENTRIES

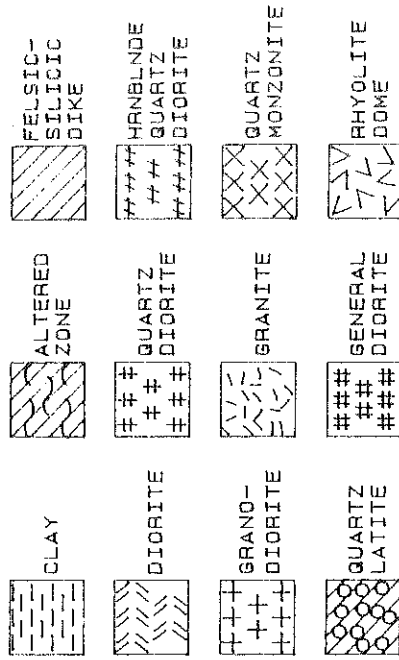
## LOST CIRCULATION ZONES

LOSE 158 BPH @ 1513', LOST CIRC @  
1792', LOSE 130 BPH @ 1850', LOST  
CIRC @ 1968, 2908, 3250, 4044, 5025'  
LOSE 120 BPH @ 6600', 140 BPH @  
7490', LOST CIRC @ 9697'

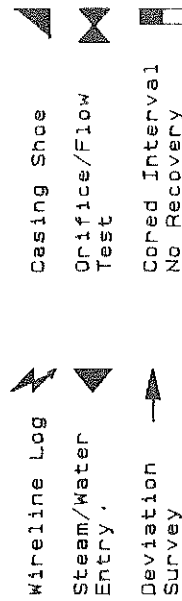
## REMARKS

Hang 9.625' liner 2408-6040'.  
7" slotted liner 5825-10050', top  
perfs @ 6109'.

## LITHOLOGY SYMBOLS



## LOG SYMBOLS



## SECONDARY MINERALS

Quartz  
Calcite  
Pyrite  
Sericite  
Hematite  
Chlorite  
Clay  
Rare < 1%  
trace < 1%  
minor 1% up to 4%  
common 4% up to 7%  
abundant 7% up to 10%  
> 10%

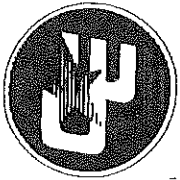
## ABBREVIATIONS

NB New Bit  
RRB Re-run Bit  
CB Core Bit  
WOB Weight On Bit  
SPM Strokes/Minute  
BHT Bottom Hole Temp  
C Carbide Test  
NA No Returns  
LAT Logged after Trip  
CFM Cubic Feet/Minute

NO LOGGING  
LAT Logged after Trip  
CFM Cubic Feet/Minute

WOB Weight On Bit  
SPM Strokes/Minute

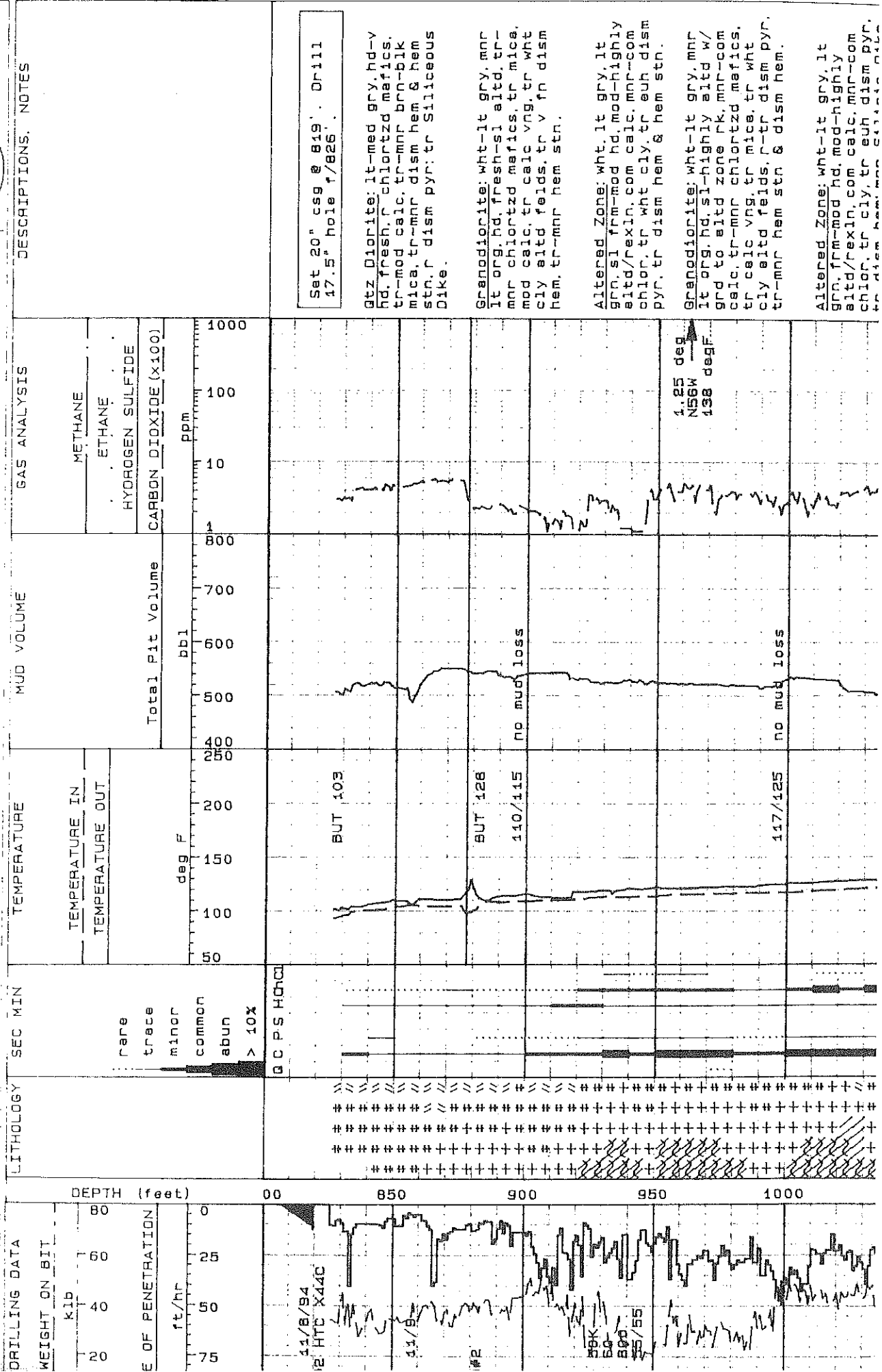
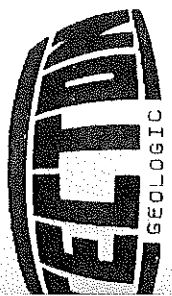
perfs @ 6109'



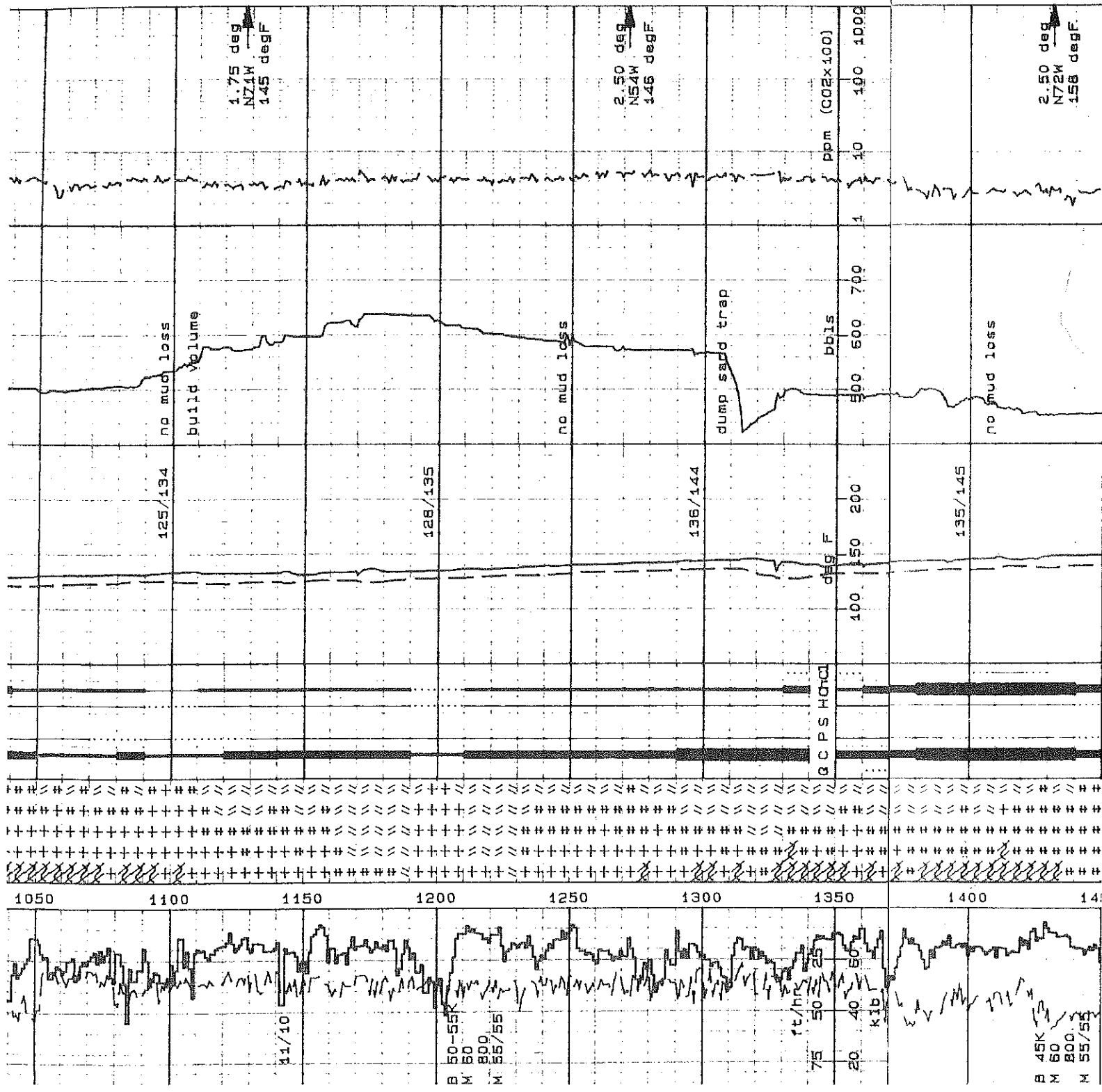
# G E O T H E R M A L   D A T A   L O G

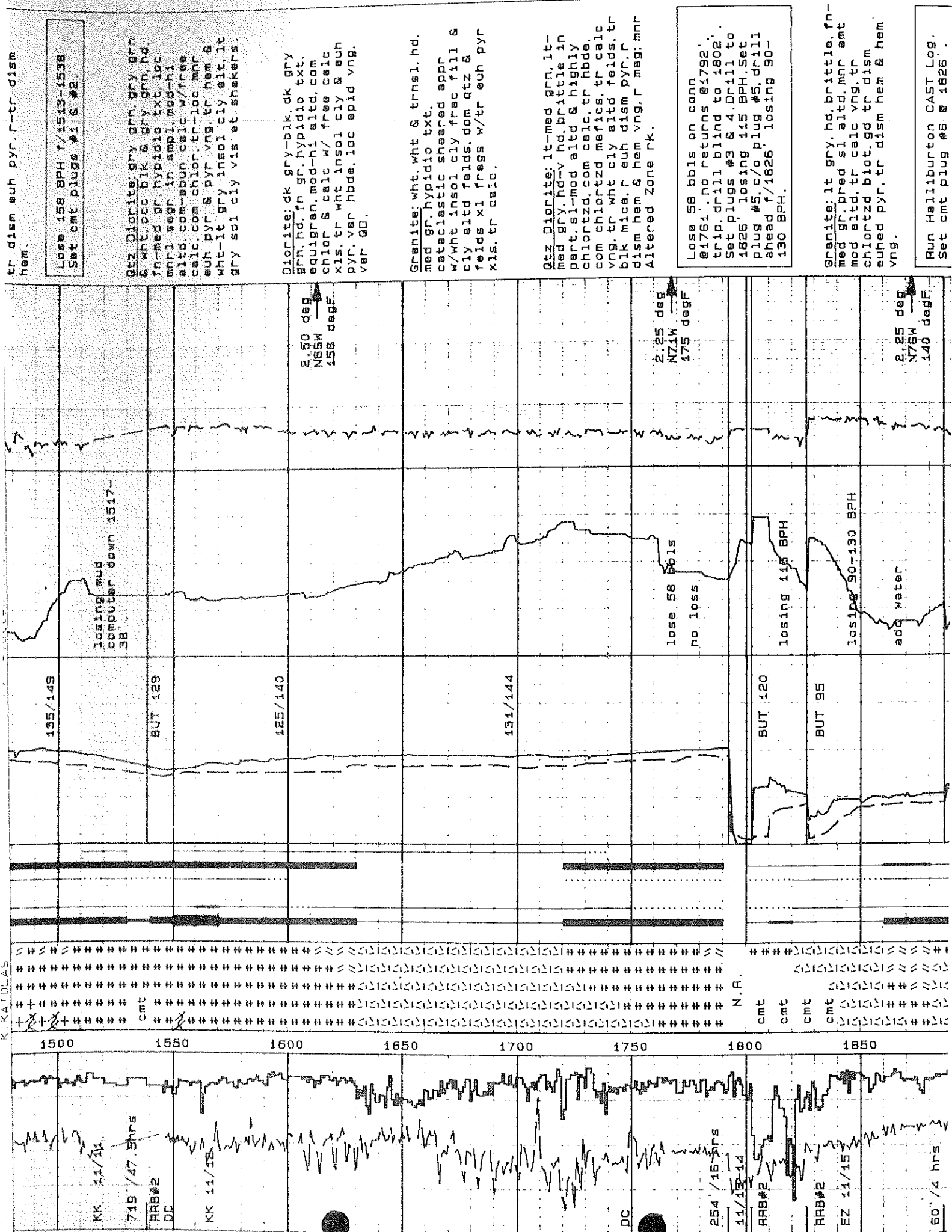
CALIFORNIA ENERGY COMPANY, INC.   NAVY I 68-6

Scale 1 : 500



Altered Zone: lt-med grn, mnfr  
wht, grn gry, frm-sl hd, mod-  
highly altd, abun calc, com-  
abun chlor, f-tr cly, tr eud  
dism pyr, tr dism hem.





tr dism euh pyr. r-tr dism hem.

Lose 158 BPH r/1513-1538  
Set cmt plugs #1 & #2.

Qtz Diorite: gry grn, gry grn & wht, occ blk & gry grn, hd. in-med gr hypidio txt loc mnr1 seg in ampl. mod-hi altd. com-abun calc w/free calc. com-chlor. tr-loc mnr euh pyr & pyr vng. tr hem & wht-lt gry insol cly alt. lt gry sol cly vis et shakers.

Diorite: dk gry-blk, dk gry grn, hd. in gr hypidio txt. equigran. mod-hi altd. com chlor & calc w/free calc xls. tr wht insol cly & euh pyr. var hbde. loc epid vng. var qd.

Granite: wht, wht & trns1, hd. med gr hypidio txt. cataclastic sheared appr w/wht insol cly frac fill & cly altd felds. dom Qtz & felds x1 frags w/tr euh pyr x1s. tr calc.

Qtz Diorite: lt-med grn, lt-med gry, hd-v hd brittle in part. sl-mod altd & highly chloritid. com calc. tr hbde. com chloritid mafics. tr calc. vng. tr wht cly altd felds. tr blk mica. r euh dism pyr. r dism hem & hem vng. r mag: mnr Altered Zone rk.

Lose 58 bbls on conn @1761. no returns @1792. trip. drill blind to 1802. Set plugs #3 & 4. Drill to 1826. losing 115 BPH. Set plug #5. c/o plug #5. drill ahead r/1826. losing 90-130 BPH.

Granite: lt gry, hd brittle. in-med gr. pred sl altd. mnr amt mod altd. tr calc vng. tr chloritid blot. gd tr dism euhed pyr. tr dism hem & hem vng.

Run Halliburton CAST Log.  
Set cmt plug #6 @ 1826.

Run Halliburton CAST Log.  
Set cmt plug #6 @ 1825'

Granite: wht-lt gry, hd.  
Brittle, fn gr, pred sl altd.  
loc mnr amt mod-highly altd.  
tr-loc com calc, tr chlortzd  
biot, gd tr euhed dsm pyr, r-  
tr dsm hem.

Begin losing mud @ 1960'.  
lost total returns while  
circ @ 1968'. Set cmt plug  
#7 @ 1968'.

Losing 100 BPH drlg 1968'.  
1997'. lost returns @ 1997'.  
set cmt plug #8 @ 1997'.

At 2027': Run Sandia Temp  
Log & Halliburton CAST log.  
Bypass shakers, add LCM.

Granite: wht, mnr lt gry, hd.  
med gr, fresh-sl altd, r-tr  
calc, r-tr chlortzd mafics, tr  
wht cly altd felds, r fn dsm  
pyr, r dsm hem.

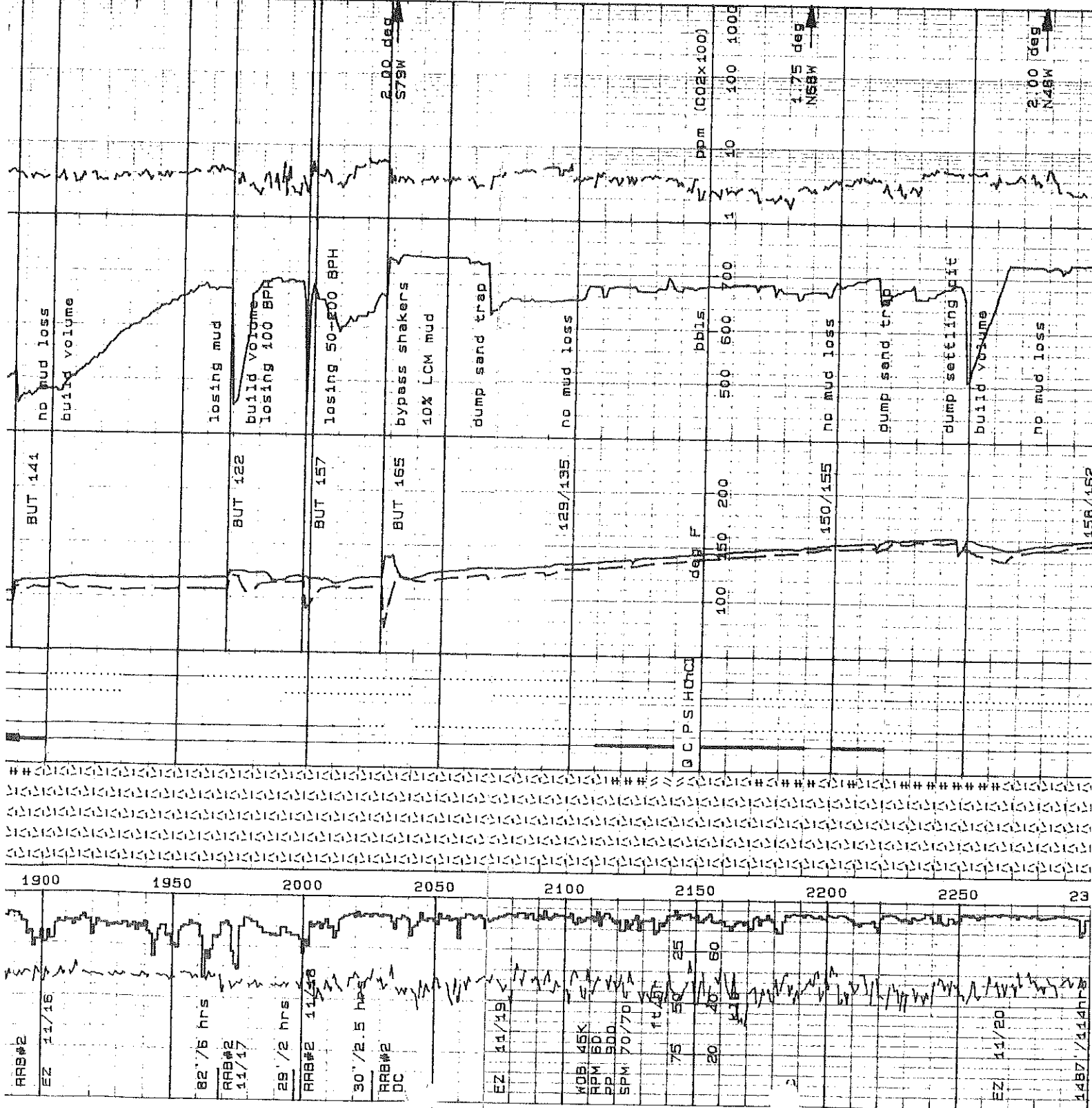
Granite: wht-lt gry, hd, fn-med  
gr, fresh-sl altd, r-tr calc  
vng, r chlortzd biot & loc r  
chlor wash, r dsm euhed pyr,  
r dsm hem.

Granite: wht-lt gry, hd, fn-med  
gr hypidio tex, pred fresh-sl  
altd, mnr amt mod altd, tr-mnr  
amt calc vng, tr chlortzd  
biot, gd tr euhed dsm pyr, r-  
tr dsm hem.

Granite: wht, mnr lt gry, hd.  
occ brittle, med gr, fresh-sl  
altd, occ mod altd, tr-mod  
calc, tr-mnr chlortzd mafics,  
r-tr dsm euh pyr, r dsm hem.

Qtz Diorite: wht, lt gry, hd-v  
hd, fresh-sl altd, loc mod  
altd, r-tr calc, tr chlortzd  
mafics, tr wht cly altd felds,  
tr fn disem euh pyr, r dsm  
hem.

Granite: pred wht-lt gry, mnr  
lt grn & lt pnk cast, hd, fn-  
med gr, pred fresh-sl altd, tr  
amt mod altd, tr calc vng, tr  
chlortzd biot, tr euhed dsm  
pyr, tr dsm hem.



chlortz mica, r-tr euh dism  
pyr.

Granite: lt gry-wht, mnr lt  
org, hd, brittle in part, fresh,  
occ sl-mod altd, tr chlortz  
mica, mod calc, tr calc vng, tr  
grn mica, r-tr dism euh  
pyr: mnr felsic dike.

Granite: wht-lt gry, hd, fn-med  
gr, pred fresh-sl altd, mnr  
amt mod altd, tr-mnr calc vng,  
r-loc tr chlortz biot &  
chlor wash, r dism euhed pyr,  
r dism hem & hem vng.

Diorite: dk gry, mnr med grn-  
gry grn, hd-v hd, fn gr,  
hypidio tex, fresh-sl altd, tr  
chlortz mafics, tr calc, r  
cly, r epid vng, r euh pyr, r  
dism hem & hem vng.

Granite: wht, lt gry, mnr lt  
org, hd-v hd, occ brittle, med  
gr, fresh-sl altd, tr-mnr calc,  
tr chlortz mica, tr wht cly  
altd felds, r dism euh pyr, r  
epid & epid vng, r dism hem.

Granite: wht-lt gry, hd, fn-med  
gr, pred fresh-sl altd, mnr  
amt mod altd, tr calc vng, r  
chlortz biot, r dism euhed  
pyr, r dism hem.

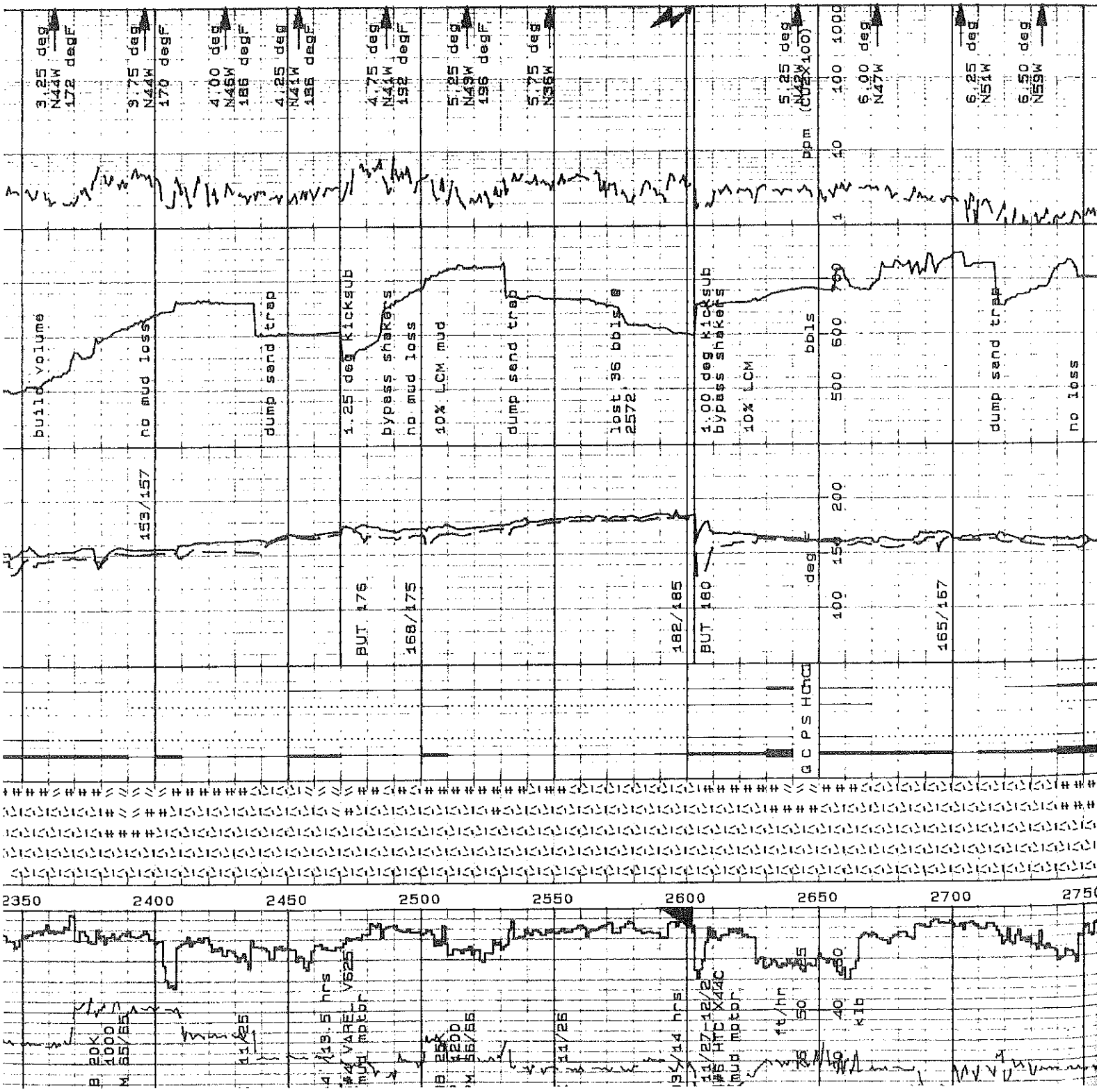
Granite: wht-lt gry, hd, fn-med  
gr, pred fresh-sl altd, mnr  
amt mod altd, tr calc vng, r  
chlortz biot, r dism euhed  
pyr, r dism hem.

Drill 17.5" hole to 2603'.  
Set 13.375" csg @ 2602'.  
Run cement bond log, drill  
ahead w/12.25" bit.

Qtz Diorite: med-dk gry, med  
gr, hd, fn gr, pred fresh-sl  
altd, mod amt mod altd, tr amt  
highly altd, mnr-com calc, tr-  
mnr chlortz biot & chlor  
wash, tr euhed dism pyr, tr  
dism hem & hem vng.

Granite: wht, trns1 wht &  
trns1, sal ip, hd, med-infer  
crs gr, hypidio txt, fresh &  
unaltd, vitr qtz & wht-sal k-  
felds w/mnr intstit calc, r  
euh pyr, loc tr chlor.

Qtz Diorite: med gry grn, med  
gry, blk & trns1, grn & trns1,  
hd-fri in smpl, fn-med gr.



0-1500 feet: Granite, sandstone, shale. Resistivity: 10-20 ohm-ft. Gamma ray: 15-25 API. Time: 12/3 to 12/4.

1500-2000 feet: Granite, sandstone, shale. Resistivity: 10-20 ohm-ft. Gamma ray: 15-25 API. Time: 12/3 to 12/4.

2000-2500 feet: Granite, sandstone, shale. Resistivity: 10-20 ohm-ft. Gamma ray: 15-25 API. Time: 12/3 to 12/4.

2500-3000 feet: Granite, sandstone, shale. Resistivity: 10-20 ohm-ft. Gamma ray: 15-25 API. Time: 12/3 to 12/4.

3000-3150 feet: Granite, sandstone, shale. Resistivity: 10-20 ohm-ft. Gamma ray: 15-25 API. Time: 12/3 to 12/4.



14.00 deg

Diorite: blk-gry grn, hd, fn gr.  
equigran hypidio txt, fresh-  
loc mod chlor, mnr calc, r euh  
pyr & wht insol cly, var qd &  
gd.

Loss circulation at 3250'.  
drill blind to 3273'. Run  
CAST log & SANDIA Temp Log  
@ 3273'. Set plugs #19-#38.  
Drill blind to 3276'. Set  
plugs #39-#43. Drill  
r/3276'.

Granodiorite: wht-lt gry grn.  
trnsi & wht, hd, med gr.  
hypidio equigran txt, fresh-  
mod chlor, mnr intstit calc &  
calc vng, mnr chlor biot, tr  
euh pyr, r wht insol cly alt.  
var mod chlor qd.

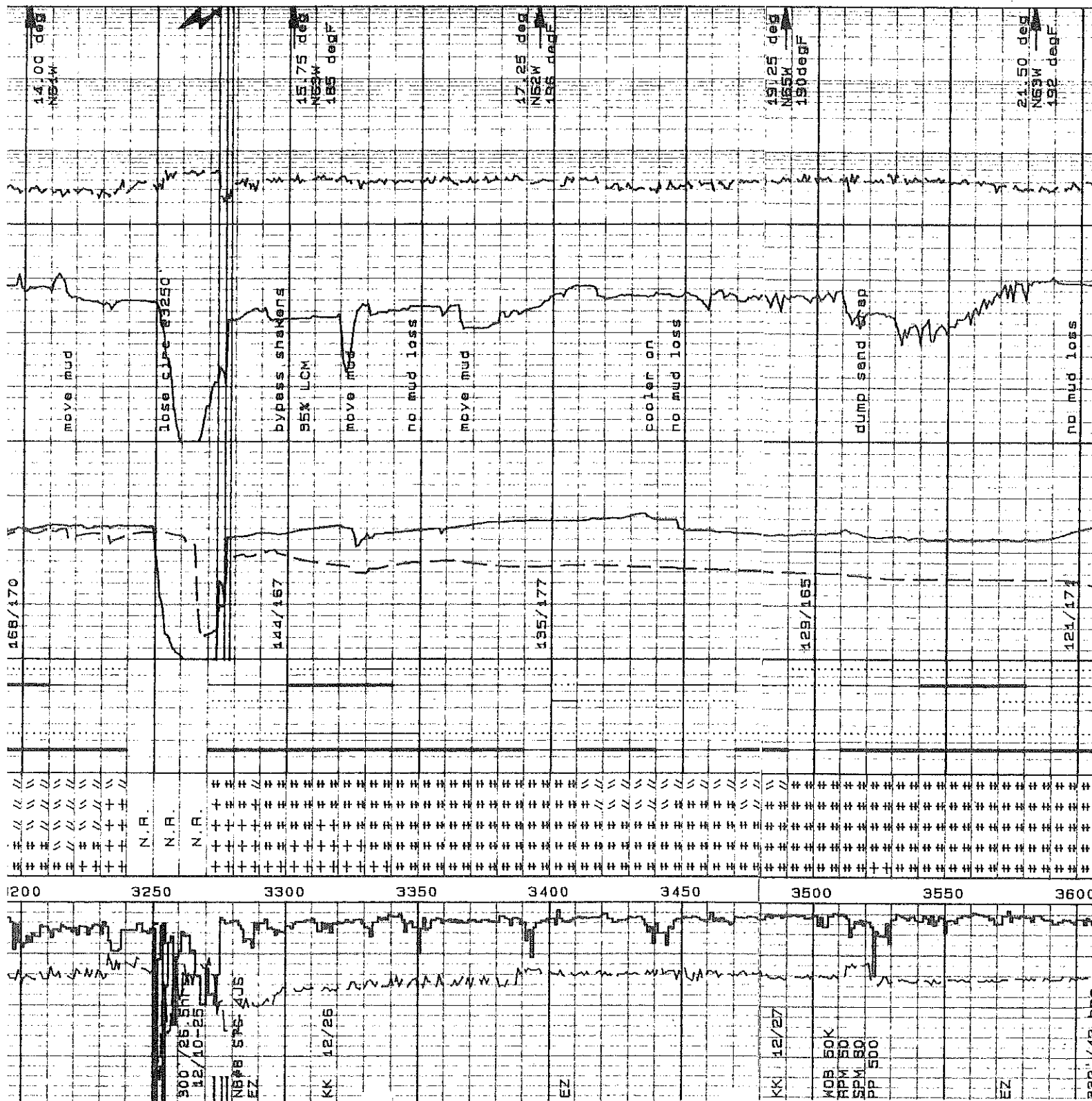
Qtz Diorite: med-occ lt gry.  
blk & trnsi, loc gry grn, hd.  
fn-med gr, hypidio txt, fresh-  
sl altd, tr chlor biot, mnr  
intstit calc & r calc vng, tr-  
r wht insol cly altd mins.  
occ hbde & yel grn epid.

Diorite: dk gry-blk, hd-v hd.  
fn gr, pred fresh-sl altd, mnr  
amt mod altd, tr-mnr calc vng.  
r-tr chlorized mafics, r dism  
pyr, r dism hem & hem vng.

Qtz Diorite: med-dk gry, hd-v  
hd, fn gr, hypidio txt, pred  
fresh-sl altd, tr amt mod-  
highly altd, tr-mnr calc &  
calc vng, r-tr chlorized biot,  
r euhed dism pyr & pyr eggs.  
r dism epid.

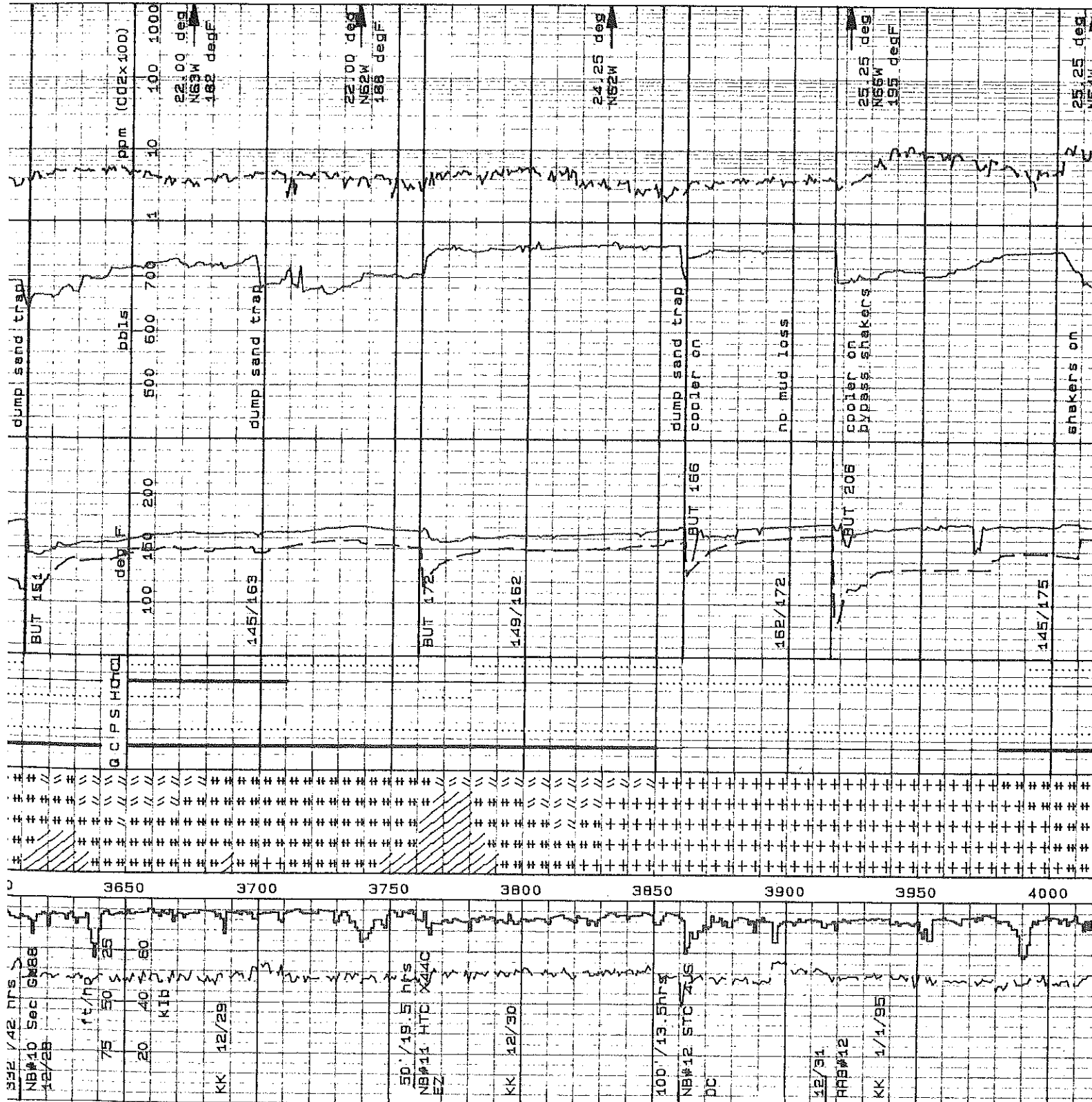
Qtz Diorite: med gry, lt gry  
ip, blk & trnsi, hd-loc fri in  
smpl, fn-med gr, hypidio txt,  
loc equigran, fresh-occ sl  
altd, loc sl chlor biot, tr-  
mnr intstit calc, r euh pyr,  
scat yel grn epid, loc r wht  
insol cly alt.

Qtz Diorite: med gry, loc lt  
gry-gry grn, blk & trnsi, hd-  
loc fri in smpl, fn-med gr.  
hypidio txt, loc equigran,  
fresh-occ mod altd, loc mod  
chlor biot, tr-mnr intstit  
calc & r calc vng, r euh pyr,  
scat epid & epid vng, r wht  
insol cly alt, var disem mag.





Qtz Diorite: med-dk gry. blk & trnsl. blk & wht. hd-fri in smpl. fn-med gr. hypidio txt.



Qtz Diorite: lt-med gry, blk &  
tnsl, gry grn, grn ip, blk, fn-  
med gr, hypidic txt, fresh-  
high alt, mod-high chlor,  
com intstlt & yng calc, r-tr,  
euh pyr, tr wht insol cty alt,  
loc r rd hem stmg, w/var hi  
alt GD/QM, bmg AZ.

qtz Diorite; lt-med gry. lt-med grn. gry grn. mod hd-hd. sl-  
hi alt. loc grn. to alt. zone  
rk, com chlorz mafics. com  
calc. tr wht cly alt fields. r  
epid. r-tr hem vng & dism hem.  
r subhed-euhed pyr.

qtz. Diarctite: lt-dk gry. mnr  
med gr. nd. occ brittle, fresh-  
mod alt. loc hi alt. mod-com  
calc. mod-com chloritz mafics.  
tr. cly alt. felds. r epid  
vng. r subhd pyr. r dism hem  
r. & occ hem yng. tr. Alt. Zone  
rk.

Diorite: dk gry-blk, mnr med  
grn & grn gry. mod hd-hd,  
fresh-mod altd, loc hi altd &  
hi chlertzd, mod-com calc, r  
epid vng, f-tr hem vng & alsm  
hem, r subhed pyr.

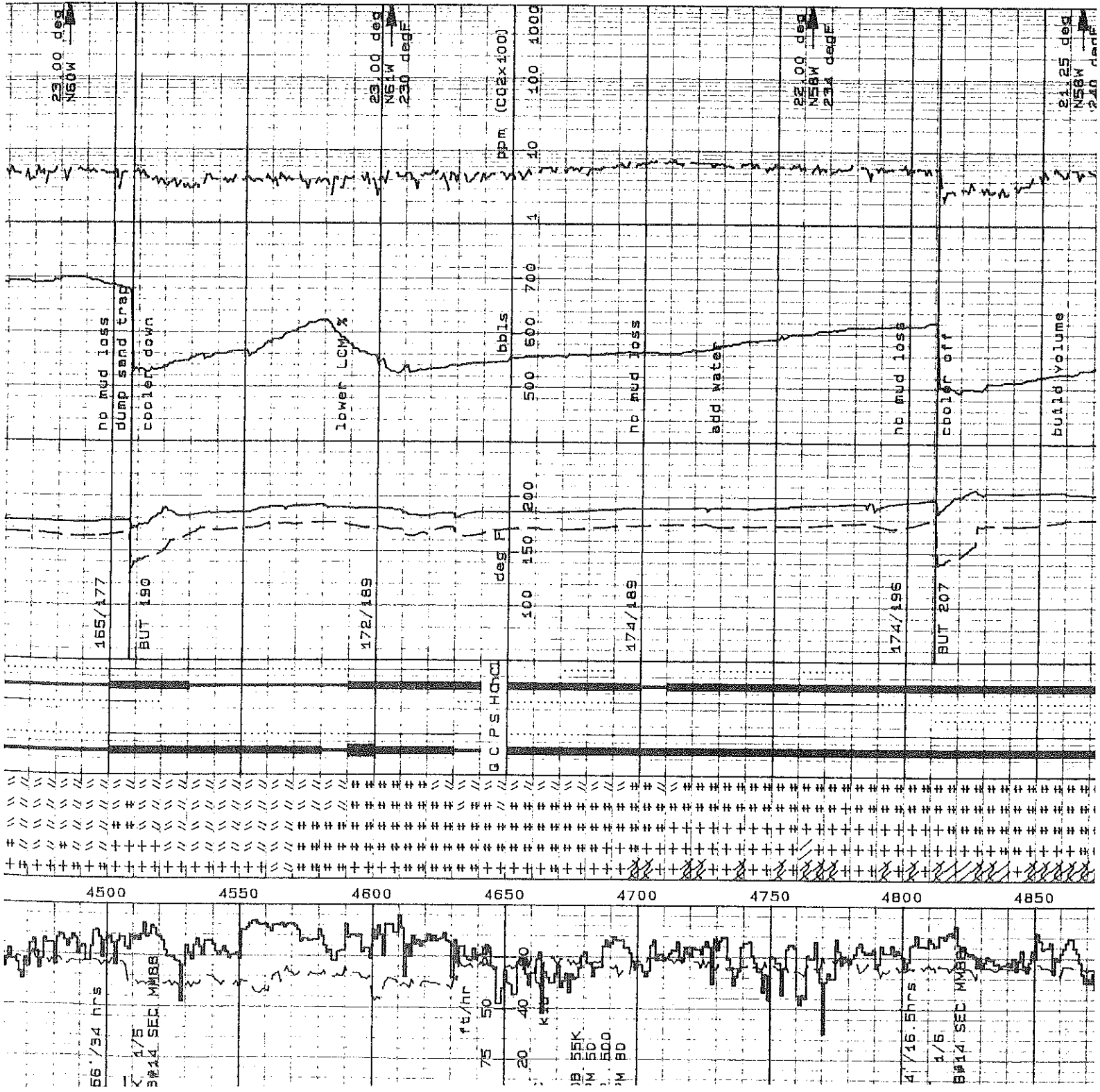
Granodiorite: wht-lt gry, wht  
 & trnsi, occ sal, hd fn-med gr.  
 & hygidio txt, fresh-sl altd,  
 mnr intstt calc, r chlor  
 biot, r euh pyr, loc micxln  
 milky lt gry Felsic Dike w/ fn  
 dissemin biot.

Grandiorite: wht-lt gry, wht  
 & thin, hd-occ fri in smpl.  
 ffn-dom med gr, hyalidio txt.  
 fresh w/occ sl chlor biot, fr  
 intstst calc, r euh pyr, scat  
 lt gry milky mixln felsic  
 like frags, occ gd frags

Diorite: dk gry-blk, loc dk gry grn, blk & trnsf, hd-occ ffr1 in smpl, fn gr, hypidlo equigran txt, fresh-loc mod chlor, mnr intstst calc & calc vng, r euh pyr & wht insol cly alt, var GO.



Altered Zone: lt-med grn. wht.  
sft-mod hd, highly alt'd rexln.  
loc fol. com-abun  
calc/chlor/clay alt/rexln. gd  
tr ehued dism pyr. tr



calc/chlor/clay alt w/loc tr  
sericite, com calc vng, gd tr  
ehed dism pyr, assoc w/mod-  
highly altd Qtz Diorite.

Granodiorite: wht, lt gry, mnr  
lt org, mnr. It-med grn, mod hd-  
hd, mod-hi altd, mod-com calc.  
mnr-com chlortzd mafics, tr  
wht-lt grn cly, r altd sphene,  
tr dism euh pyr.

Qtz Diorite: lt-med grn, med  
gry, mod hd-hd, med grn, si-hi  
altd, com calc, mnr-com  
chlortzd mafics, r altd  
sphene, r wht cly, tr subhed-  
ehed dism pyr; tr Felsic Dk.

Lost circ @ 5025', add LCM,  
regain partial circ @  
5029'.

Qtz Diorite: lt-med gry, lt-  
med grn, mod hd, fn gr, pred  
mod altd, com hi altd, mnr-com  
calc/chlor/clay alt, mnr calc  
vng, gd tr ehed dism pyr, r  
hem vng.

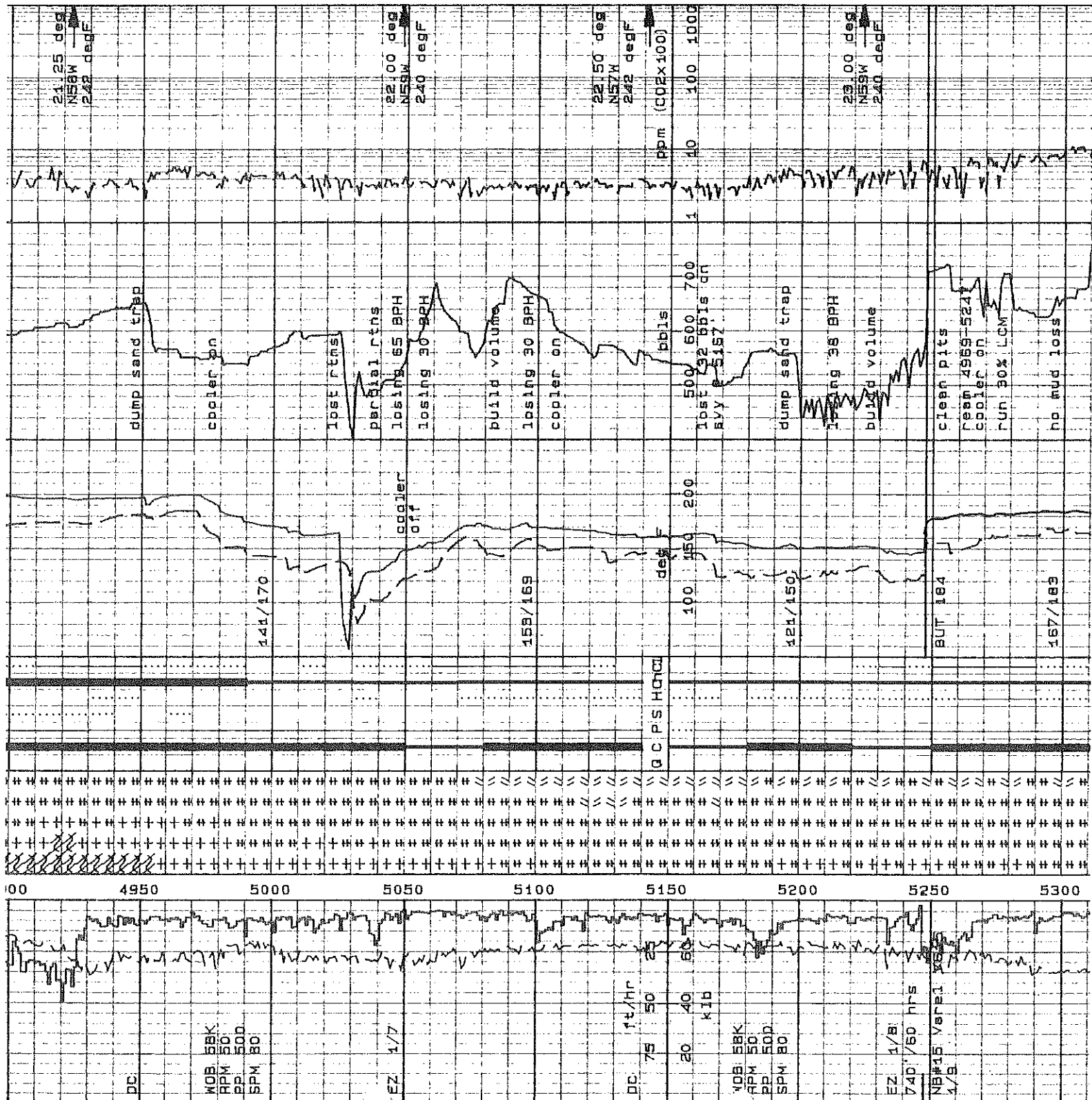
Qtz Diorite: lt-dk gry, lt-med  
grn, si hd-hd, fn gr, pred mod  
altd, mnr amt sl altd, tr amt  
fresh, loc com calc/chlor  
/clay alt, mnr calc vng, gd tr  
ehed dism pyr, r hem vng.

Qtz Diorite: med-dk gry, mod  
hd-hd, fn-med gr, sl-mod altd,  
loc hi altd, becoming fresher  
w/depth, mod-com calc, mnr  
chlortzd mafics, tr altd  
sphene, r wht cly, r dism epid,  
r v fn dism hem, r-tr subhed-  
ehed pyr.

Qtz Diorite: lt-dk gry, mnr  
med grn, fn-med gr, mod hd-hd,  
fresh-sl altd, occ mod-hi  
altd, mnr chlortzd mafics, mod-  
com calc, tr epid vng & dism  
epid, tr altd sphene, com blk  
mica, r fn dism hem & r thin  
hem vng.

Qtz Diorite: lt-med gry, lt-  
med grn, mod hd-hd, fn gr, pred  
mod altd, mnr amt sl altd, mnr-  
loc com amt highly altd, mnr-  
loc com calc vng, mnr  
chlortzd mafics, tr dism  
ehed pyr, r-tr hem vng, loc  
tr Altered Zone.

Qtz Diorite: med-dk gry, mod  
hd-hd, loc brittle, fresh-sl  
altd, pred fresh, mnr mod-hi



mud calc. tr fresh-alt  
sphene, r epid, com blk mica, r-  
tr dism hem & r hem vng, r-tr  
pyr.

Diorite; dk gry-blk, mod hd-hd,  
fn gr, hypidio tex, fresh, occ  
sl-mod altd, tr-mod calc, tr  
chlortzd mafics, r-tr fresh-  
altd sphene, r hem vng & dism  
hem, r pyr.

Qtz Diorite; med-dk gry, mod  
hd-hd, fn-med gr, fresh-sl  
altd, occ hi altd, pred fresh,  
tr-mod calc, r-tr chlortzd  
mafic, r epid, r dism hem, r  
pyr.

Qtz Diorite; pred lt-med gry,  
mnr amt dk gry-blk, tr amt lt  
grn, hd, fn gr, pred sl-mod  
altd, tr amt highly altd, mnr-  
loc com calc & calc vng, r-tr  
chlortzd mafics, r-tr ehed  
dism pyr, r hem vng, loc tr  
wht clay alt of field.

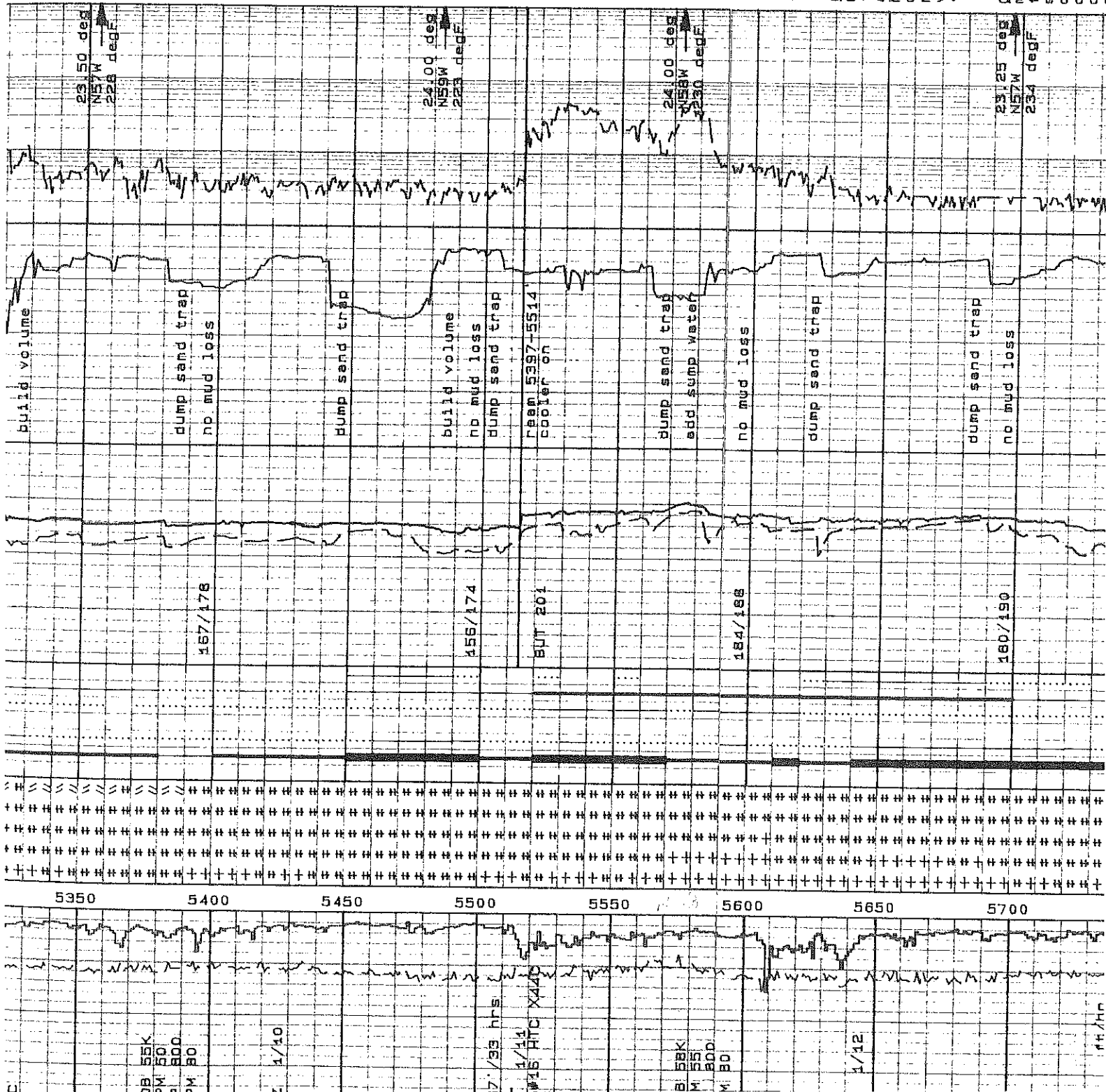
Qtz Diorite; med-dk gry, hd,  
mnr mod hd & brittle, fresh-  
mod altd, pred fresh, loc mod-  
hi altd, mnr chlortzd mafics,  
mod-com calc, r epid, mnr-com  
blk mica, r cly, r hem vng &  
dism hem, r-tr pyr.

Qtz Diorite; lt-dk gry, mod hd-  
hd, fn-med gr, fresh-sl altd,  
mnr mod-highly altd, com calc,  
mnr chlortzd mafics, r fresh-  
altd sphene, r calc vng, tr  
hem vng & dism hem, r subbed  
pyr.

Granodiorite; wht, lt gry, mnr  
lt org, hd med gr, fresh-sl  
altd, occ mod altd, mnr  
chlortzd mafics, mod calc, r-  
tr dism hem, r pyr.

Qtz Diorite; lt-med gry, lt-  
med grnsh gry, lt-med grn, hd,  
fn gr, pred mod altd, loc com  
amt sl altd, loc com amt  
highly altd, mnr-com calc &  
calc vng, mnr chlortzd mafics,  
r-gd tr ehed dism pyr, r hem  
vng, r-tr wht clay alt of  
field.

Qtz Diorite; pred lt-med gry,  
mnr dk gry, mnr lt-med grn, hd,  
fn gr, pred mod altd, mnr amt  
sl altd, mnr amt highly altd,  
com calc & calc vng, tr-mnr  
chlortzd mafics, tr ehed  
dism pyr, r hem vng, r-tr wht



Qtz Diorite: lt-med gry, mnr  
dk gry, pred hd, fn-med gr.  
fresh-mod altd, mnr highly  
altd, tr chlortzd mafics, mod-  
com calc, r fresh-altd schene,  
r wht cly, r epid, tr grn mica,  
r-tr hem vng & dism hem, r-tr  
subhed pyr.

Qtz Diorite: pred lt-med gry,  
mnr grnish gry, hd-v hd, pred  
fresh-sl altd, tr amt mod  
altd, mnr calc, tr chlortzd  
mafic, r-tr ehed dism pyr, r-  
tr hem vng & dism hem, r-tr  
wht clay Min.

Run Heilburton cast &  
gamma logs @ 5861'.

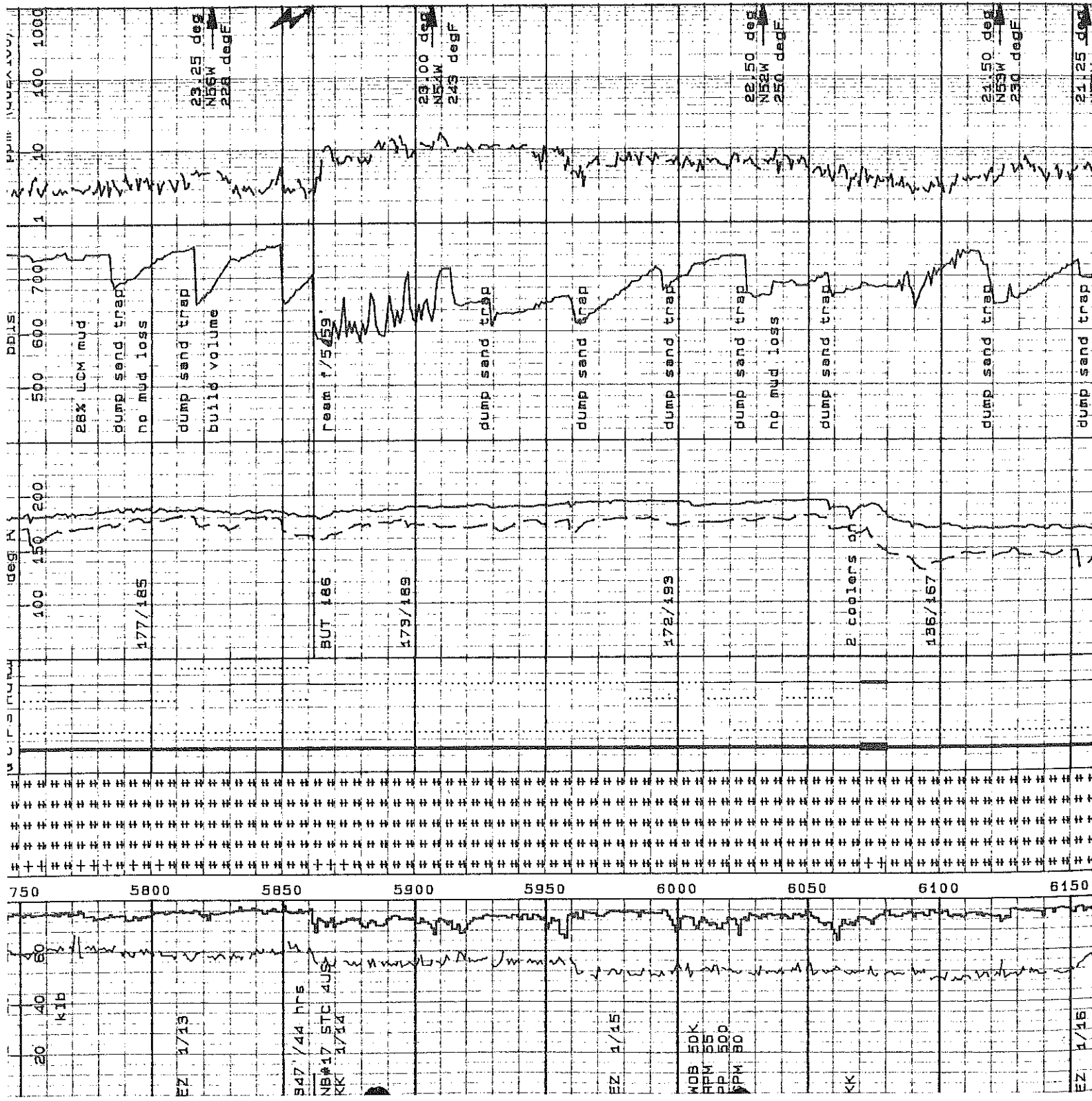
Qtz Diorite: med-dk gry, blk &  
trnsi, blk & wht, loc gry grn,  
hd-occ fri in smpl, fn-med gr,  
equigran-var mnr1 seg in  
smpl, hypidio txt, fresh w/loc  
mod altd frags, mnr intstt  
calc, r pyr & chlor, mnr yel  
grn epid, scat wht GD frags.

Qtz Diorite: med-dk gry, blk &  
trnsi, blk & wht, hd-fri in  
smpl, fn-med gr, com equigran,  
hypidio txt, fresh & unaltd, r  
sl chlor biot, r pyr, mnr  
intstt calc, tr-mnr yel grn  
epid.

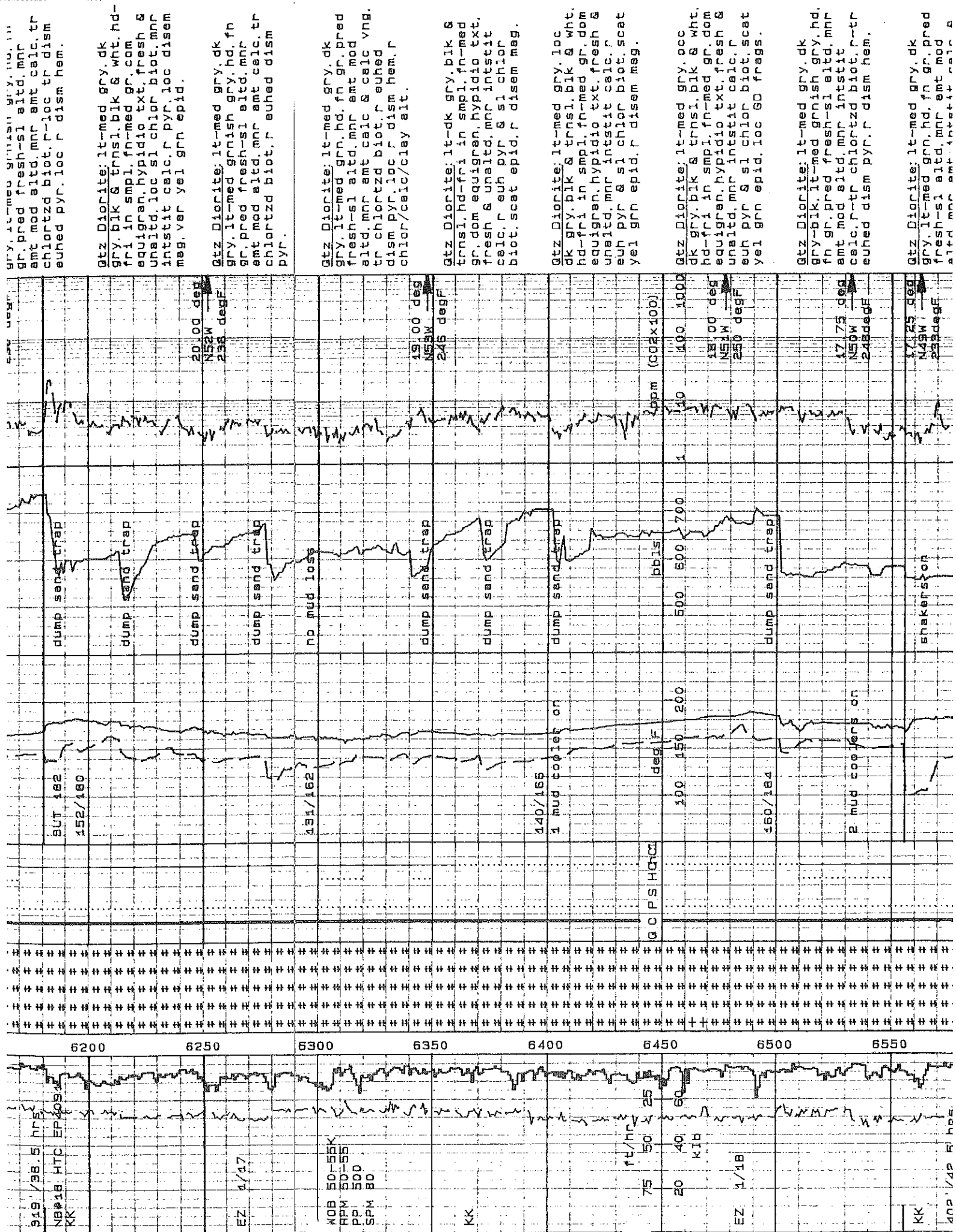
Qtz Diorite: pred lt-med gry,  
mnr amt dk gry-blk, mnr amt  
hypidio tex, fresh-sl altd,  
mnr amt instt calc & calc  
vng, r-tr amt chlortzd biot, r  
ehed dism pyr, loc r hem  
microvng.

Qtz Diorite: pred lt-med gry,  
mnr amt dk gry-blk, mnr amt  
lt-med grn, hd, fn gr, pred  
fresh-sl altd, mnr-loc com  
amt mod altd, mnr-loc com  
calc & calc vng, tr-loc mnr  
chlortzd biot &  
chlor/calc/clay alt, r dism  
ehed pyr, r dism hem.

Qtz Diorite: med-dk gry, blk &  
trnsi, blk & wht, hd-occ fri  
in smpl, fn-med gr, hypidio  
txt, com equigran, fresh &  
unaltd, loc tr chlor biot, r  
pyr, mnr intstt calc, var yel  
grn epid, occ GD frags.









Granodiorite frags.

Install Derrick shakers  
#6555' drop LCM to 15%  
10se 70 BPH #6582'. lose  
120 BPH #6600

Qtz Diorite: med-dk gry, occ  
lt gry, blk & trns1, blk & wht,  
hd-fri in smpl, fn-med gr, dom  
equigran, hypidio txt, fresh &  
unaltd, com intsttit calc, mnr  
free calc vng frags, r euh  
pyr & tr chlor biot, scat yel  
grn epid, loc Dio frags.

Qtz Diorite: med-dk gry, blk &  
trns1, blk & wht, hd, fn-med gr,  
dom equigran, abun mnr1 seg  
in smpl, hypidio txt, fresh &  
unaltd, com intsttit calc &  
calc vng frags, r euh pyr & r  
chlor biot, var hbde, scat yel  
grn epid, occ disem mag, loc  
Dio frags.

Qtz Diorite: med-dk gry, blk &  
trns1, hd-occ fri in smpl, fn-  
med gr, dom equigran, hypidio  
txt, fresh & unaltd, mnr,  
intsttit calc, r euh pyr & r  
chlor biot, occ hbde, scat yel  
grn epid, r-tr mag.

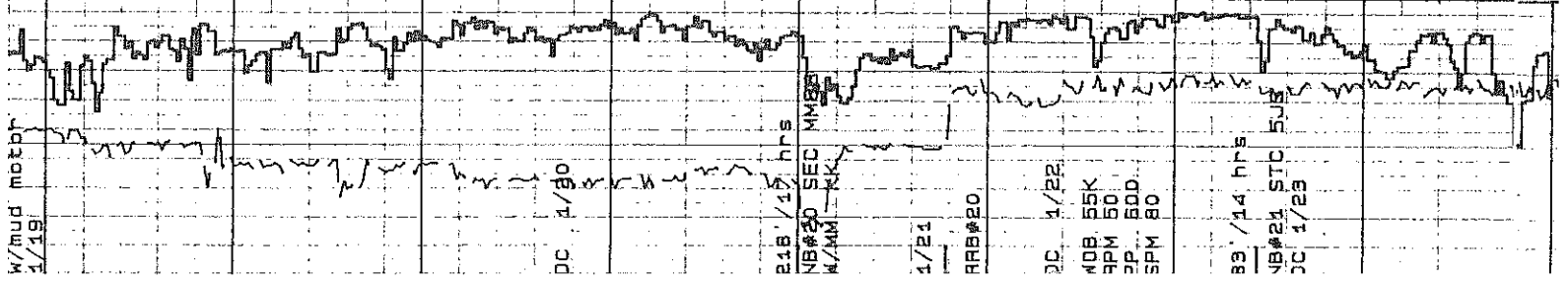
Felsic Dike: wht, mod hd-sft  
in smpl, brit ip, mic-crpxln,  
micusc txt dom wht aphan  
grndmass w/scat euh pyr xls,  
r druse qtz, appr silic ip,  
bcmg GD on contact W/GD.

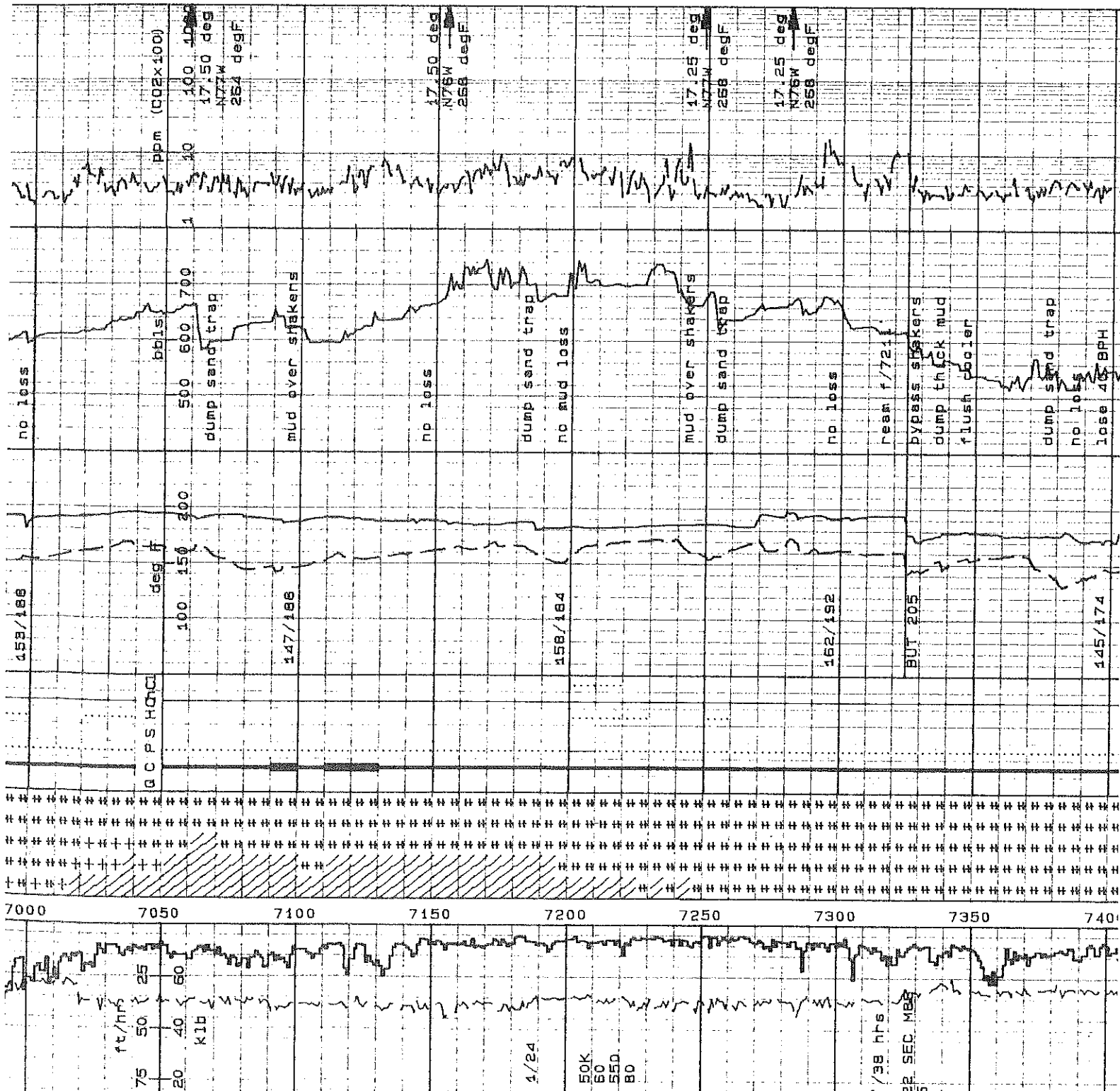
Granodiorite: wht, lt gry, mod  
hd-hd, brittle in part, fresh,  
tr chlorized mafics, tr-mod  
calc, tr epid, r subhed-euhed  
pyr, r cinn; mnr Felsic Dike.

Granodiorite: wht, lt gry, mnr  
clr, tr pale org, hd, loc  
brittle, fresh, loc si-mod  
altd, tr chlorized mafics, tr  
lt grn epid, r fresh sphene, r  
subhed-euhed pyr.

Qtz Diorite: lt-med gry, mnr  
dk gry, mod hd-hd, fn-med gr,  
fresh-s1 altd, tr chlorized  
mafics, r grn epid, r cly, r  
cinn, r-tr subhed pyr.

Qtz Diorite: lt-dk gry, mnr





Qtz Diorite: lt-dk gry, mnr  
grn, mod hd-hd, pred fresh, mnr  
mod altd, tr-mnr chlortzd  
mafic, r wht cly altd felds,  
r epid, r dism hem, r subhed  
pyr.

Felsic Dike: lt gry-wht sal  
ip, hd-brit, crp-micxin, loc fn  
gr, micsuc ip, dom mky wht  
aphan mtz w/fn disem biot,  
fresh & unaltd, loc pyr, mnr  
calc, tr chlor in QD frags,  
var GD frags.

Qtz Diorite: med-dk gry, blk &  
trns1, hd-fri in smpl, fn-med  
gr, dom mnr1 seg in smpl,  
hypidiotxt, equigran ip,  
fresh-occ sl altd, mnr-com  
intstt calc, scat calc vng  
frags, r pyr, tr chlor biot,  
var Felsic Dike frags.

Felsic Dike: lt gry, wht-mky  
wht, trns1, sal ip, hd-brit, crp-  
micxin, loc fn gr, micsuc ip,  
dom trns1 mky wht aphan mtz  
w/fn disem biot, fresh &  
unaltd, loc euh pyr, mnr calc,  
tr chlor in QD frags, var GD.

Qtz Diorite: lt-med gry, mnr  
lt grn, mod hd-hd, loc brittle,  
fresh-sl altd, tr-mnr  
chlortzd mafic, mod calc, r-  
tr grn epid, r wht cly, r hem  
vng, r subhed-euh pyr, r mag,

Qtz Diorite: med-dk gry, blk &  
trns1, occ gry grn, hd-fri in  
smpl, fn-med gr, abun mnr1 seg  
in smpl, com equigran, hypidiotxt,  
fresh-r sl altd, mnr  
intstt calc w/scat calc vng  
frags, loc tr chlor biot, r  
euh pyr, scat yel grn epid,  
loc r wht insol cly alt, var  
hbde, scat Felsic Dike frags.

Qtz Diorite: med-dk gry, blk &  
trns1, hd-fri in smpl, fn-med  
gr, abun mnr1 seg in smpl,  
abun equigran, hypidiotxt,  
fresh-r sl altd, mnr intstt  
calc & calc vng frags, loc tr  
chlor biot, r pyr, scat yel  
grn epid, var hbde, loc grndg  
to Dio, scat Felsic Dike  
frags.

pyr. r mag. r cinn. loc gras to  
Diorite.

Qtz Diorite; med gry. blk &  
trns. blk & wht hd-var fri  
in smpl. fn-med gr. hypidic  
txt. fresh-loc sl altd. mnr  
intstit calc & calc vng  
frags. r pyr. loc tr chlor  
biot. var hbde. scat yel grn  
epid. var wht-occ sal GD  
frags.

Set cement plugs #48-52.  
Trip in w/bit. pipe stuck @  
7013. pump 13 bbls mineral  
oil & pipe lax. free pipe.

Qtz Diorite; lt-med-dk gry. hd.  
pred fn gr. mnr amt med gr.  
pred sl altd. mnr amt fresh.  
mnr amt mod altd. mnr-loc com  
calc. r-tr trism euhed pyr &  
pyr aggs. tr chlorized  
biot. w/tr amt Feisic Dike.

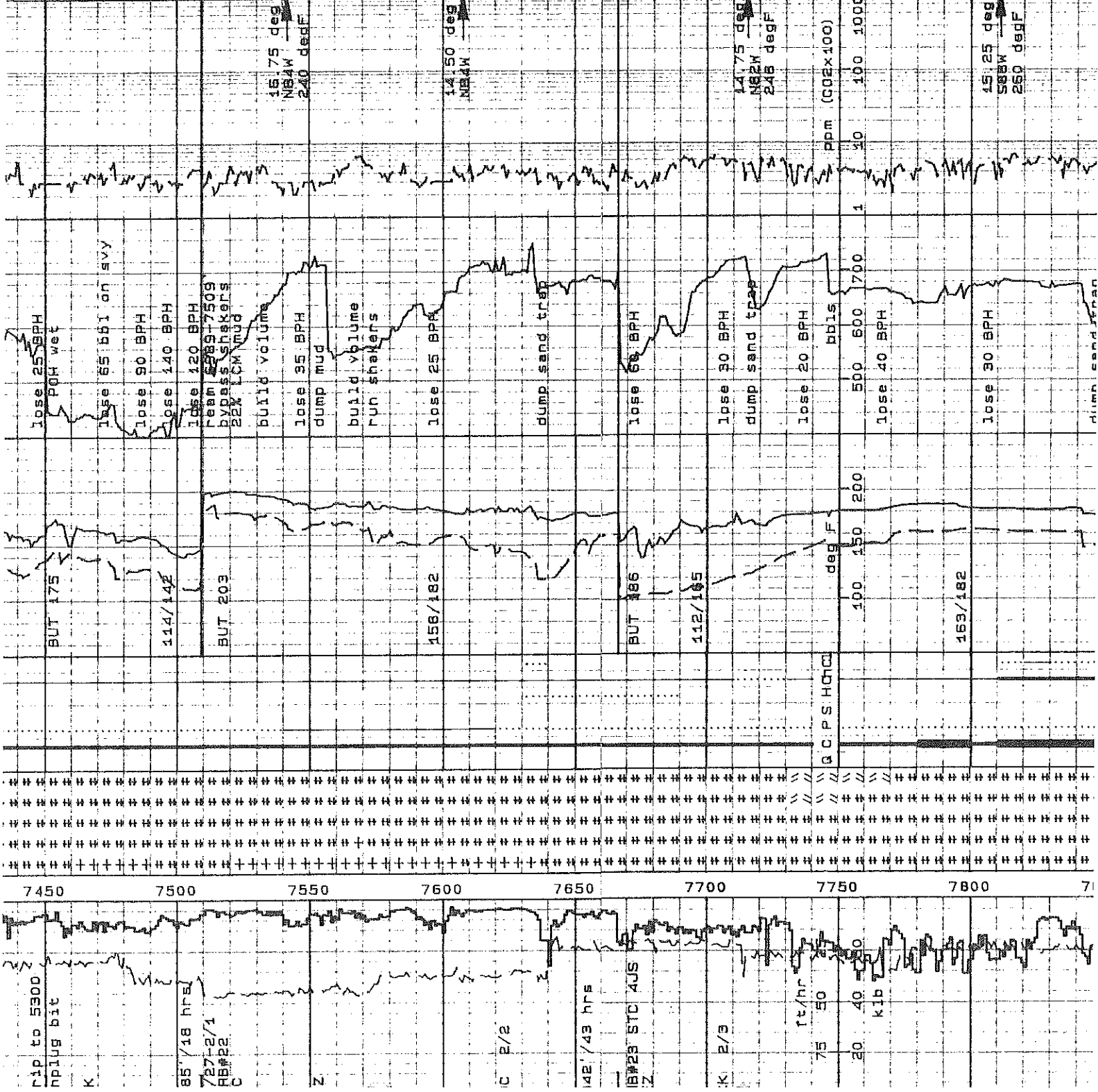
Qtz Diorite; lt-dk gry. mod hd-  
hd. fn-med gr. fresh-sl altd.  
loc mod altd. tr-mod calc. tr  
chlorized mafics. r wht cly. r-  
tr yel grn epid. r-tr trism  
subhed pyr. r hem vng.

Qtz Diorite; pred lt-dk gry.  
mnr amt med grn. hd. fn-med gr.  
pred sl altd. mnr amt mod-  
highly altd. mnr-loc com calc.  
tr chlorized biot. r trism  
euhed pyr. r trism hem & hem  
vng.

Diorite; dk gry-blk. blk &  
trns. loc dk gry grn. hd. fn  
gr. hypidic equigran txt.  
fresh-loc mod altd. mnr  
intstit calc w/loc calc vng  
frags. loc mod chlor biot. r-  
tr euh pyr. scat yel grn epid.

Qtz Diorite; lt-med gry. dk  
gry. loc gry grn. blk & wht. hd.  
fn-med gr. com mnr1 seg in  
smpl. hypidic txt. equigran ip.  
fresh-loc high altd. mnr-com  
intstit calc & calc vng  
frags. tr-loc mnr chlor biot.  
r-tr wht insol cly alt. r euh  
pyr. var hbde. occ GD frags.

Qtz Diorite; lt-dk gry. loc  
mnr amt med grn. hd. fn-med gr.



Qtz. Diorite; pred lt-dk gry.  
mnr amt lt-med grn,hd, fn-med  
fresh-sl alt.d. mnr-  
gr. pred amt mod-highly alt.d.  
com intstid calc & calc yng.  
mnr chloritid biot mnr  
calc/chlor/clay alt.r-tr  
euhed dism pyr.loc dism  
hem & hem microvng.

Pipe stuck @ 7916' while  
RIH, spot mineral oil &  
pipe lax, free pipe.

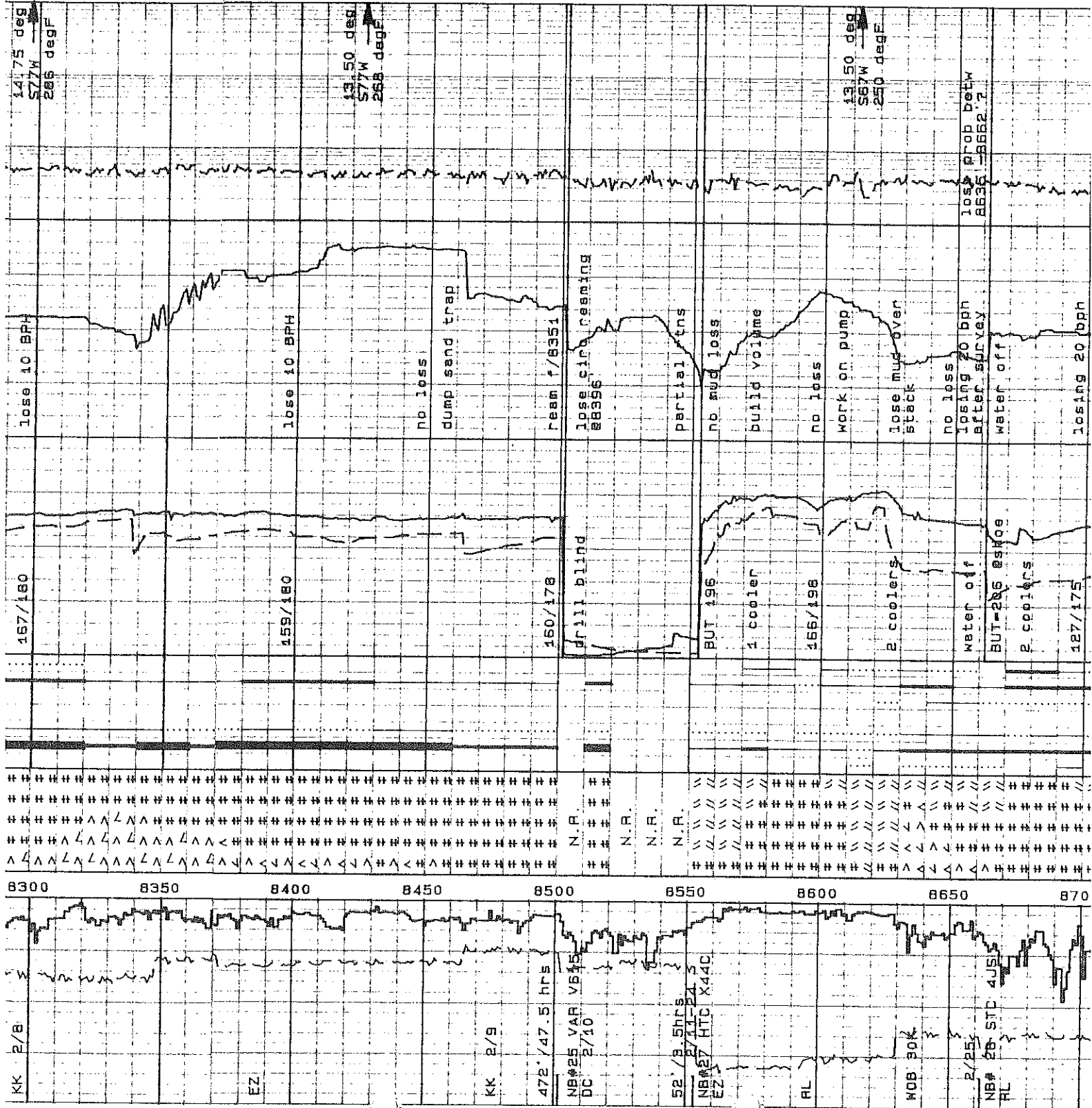
Qtz Diorite; med-dk gry, blk &  
trans, blk & wht loc gry grn.  
frs, fr-med g.hypidiotxt.com  
equigran, fresh-loc mod alb,  
com intstit calc w/var calc  
vng frags, tr-loc mnr chlor, r  
euh pyr & wht insol cly alt,  
mnr yel grn epi, var hblcr, r  
dissem mag.

Granodiorite: lt gry-lt gry  
grn. wht & trnsl. wht & grn.  
loc saltd; fr-med gr. hypidic  
txt. fresh-mod alt.d. tr-mnr  
schlor biot & chlor vng. com-  
abun intstt calc & calc vng.  
pyr. wht insol epid alt.r euh.  
pyr. wht epid & epid vngw/qd.

Qtz Diorite; pred lt-med grs,  
mmr-loc com amt lt-med grs &  
grnsh grs, hd, fn, pred sl-  
med altd, tr-mm, amt highly  
seltd, com-loc abun intstc  
calc & calc vng, mmr chlorz  
biot, tr dism euhed pyr, tr  
dism hem & hem micovng.

qtz Diorite: lt-dk gry. lt-med  
grnsh gry. hd. fn gr. pred sl-  
mod altd. tr. amt highly altd.  
com-lpc sbun. instlt calc. &  
ccic vng. mnr chortzd biot.  
tr. calc/chlor/clay alt. tr.  
euhed dism pyr & pyr eggs. tr  
nem vng: w/tr-mnr amt  
Grenodiorite.





insol clay alt. var epid. loc  
gd frags. scat wht Rhy Dike  
frags.

Rhyolite: wht-off wht. loc  
blchd appr. hd-bit, spltry.  
wht aphan grndmass w/fn gr  
clr-trns1 sb-euhed sanidine  
phenos occ repl w/euh pyr. no  
vis alt. mnr-com calc & tr  
chlor in gd.

Qtz Diorite: lt-dk gry. lt-med  
grnsh gry. hd. fn gr. pred sl  
altd. mnr-loc com amt mod  
altd. mnr-com calc. tr-mnr  
chlortzd biot. r-tr dism  
euhed pyr.

Qtz Diorite: pred med-dk gry.  
mnr amt lt-med grnsh gry. hd.  
fn gr. pred sl altd. mnr amt  
mod altd. com intstt calc &  
calc vng. tr-loc mnr chlortzd  
biot. r-tr epid vng. r-tr  
euhed dism pyr & pyr aggs.

Qtz Diorite: med-dk gry. blk &  
trns1. occ gry grn. hd. fn-med  
gr. com equigran. hypidio txt.  
dom mnr1 seg in smpl. fresh-  
loc mod altd. mnr-com intstt  
calc & calc vng frags. tr  
chlor biot. r euh pyr. loc mag.  
scat Rhy frags.

Drill blind 8501-43'.  
partial rthns 8543-53'. pump  
30% LCM pills. Run Temp  
Survey. Set cmt plug #53-54  
@ 2715'. Stuck pipe @ 7779'.  
pump air & free pipe. Hang  
9-5/8" liner @ 2408'. shoe  
@ 6030'. Squeeze cmt @  
2408'. Drill 8.50" hole  
f/8553.

Qtz Diorite: med-pred dk gry.  
occ med-dk grnsh gry-grn. hd-  
v hd. v fn-fn gr hypidio pred  
fresh-loc tr sl altd/chlzd.  
loc r-tr kaolinzd/chlzd. tr-  
loc com hbd. r-tr acc epid.  
loc r sec epid. r-tr sec/acc  
pyr. r calc/chl/epid microvng.  
ecic epid frac fill assoc  
w/altd gd.

Rhyolite: wht-chalky wht. off  
wht. pred microxln w/subhd  
clr sanid phenos. sl hd-hd.  
assoc w/r felsic dk. fresh-  
pred sl-mod altd. loc sl  
chlzd. loc vis banded  
fresh/altd. com flow bndng. r-  
tr euh pyr. loc chlzd slicks

424/153

losing 10 bph

losing 20 bph

losing 10 bph

losing 15 bph

adding water

losing 15 bph

water off

losing 15 bph

dump sand trap

lost 160 bbls/trip

build volume

deg F

G C P S H Q N C I

124/153

118/153

118/153

BUT-160

0 8750 8800 8850 8900 8950 9000 9050 9100

MOB 50K  
RPM 55  
PP 500  
SPM 500

EZ 2/25

ft/hr

75 50 25

20 40 60

K1b

RL

MOB 50K  
RPM 55  
PP 500  
SPM 500

EZ 2/25

424/153 hrs

NB#29 HTC X42C

2/28

13.00 deg  
S83W  
270 degF

13.75 deg  
N89W  
270 degF

14.00 deg  
N89W  
260 degF

bbls

bpm (CO2x100)

qtz Diopside: med-dk gry. lt-dk  
gryish grn. fm-pred hd, fresh-  
loc com alt'd/chizd. fn gr  
hypidic, mfr-com hbde, tr mag.  
loc r-tr alt zone w/insttit  
calc/diasem. pyr. loc druse  
qtz @ 8700, loc tr epid/chl  
vng. r. diasem hem.

Qtz Diorite: pred med-dk gry.  
mnr grayish grn, hd. in gr. pred  
fresh-sl altd, loc tr-mnr amt  
mod altd, tr-mnr intst calc.  
tr chlorizd biot, loc r disem  
pyr, loc rwht clay min.

Felsic Dike: wht. v hd, brittle,  
aphanitic grdmass, vis y fn  
phenos--prob biot, tr  
phlortz phenos, loc suc tex,  
loc flow bndd.

242z Dlorite: pred med-dk gry.  
 mnr-loc com amt greenish gry.  
 med. fr gr. pred fresh-slatd.  
 mnr-loc com amt mod alt. mnr-  
 com intstst calc & calc yng.  
 mnr amt chlorotz bloc. fr  
 amt clay min. r euhed dism  
 243r. loc r epid yng.

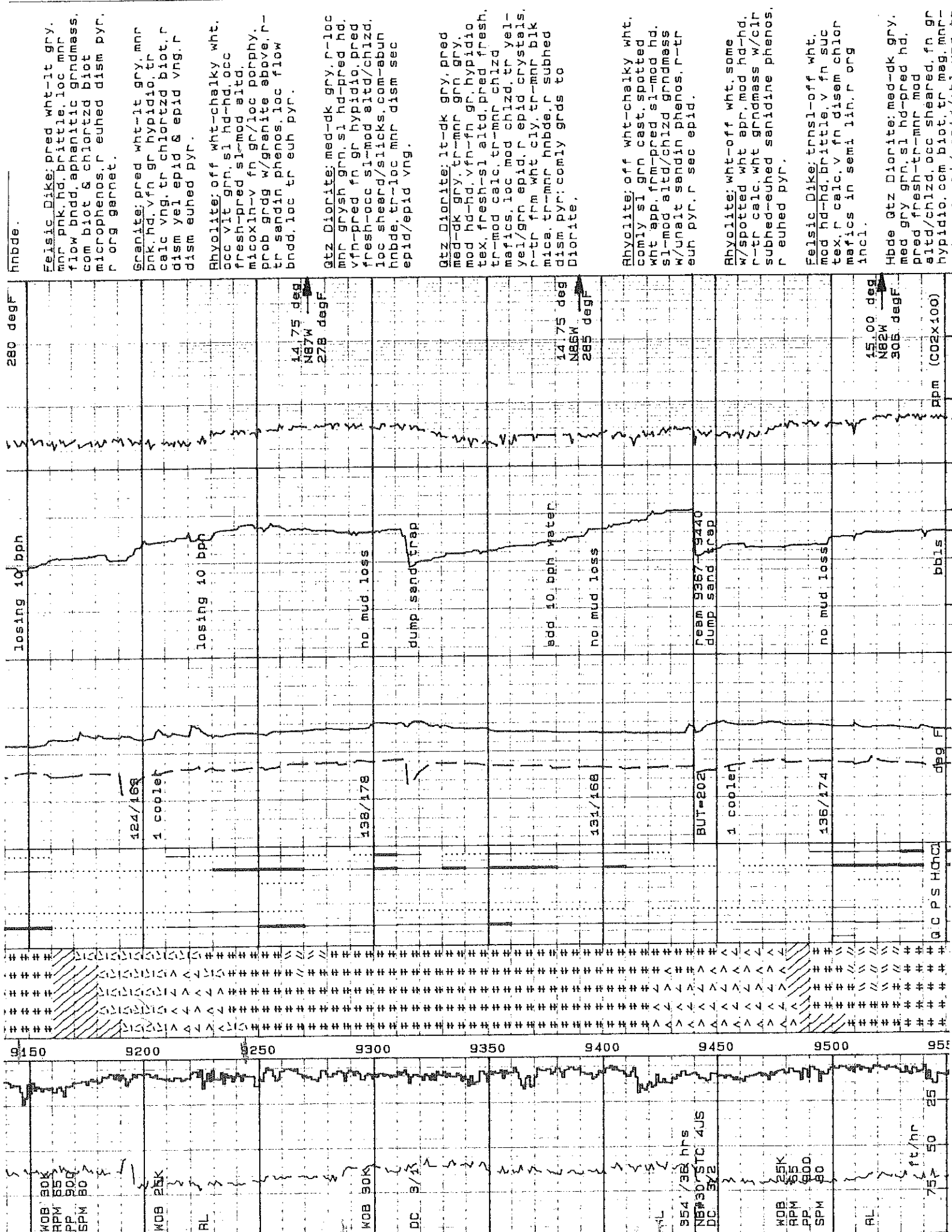
chlorite; med-v dk gry.com med  
grayish grn.loc frm-pred sl  
hd-hd.vfn gr hypidio.fresh-  
pred mod-hi altd/chld.  
loc.com altd t/clay.loc  
licks.grdg t/QD.mnr-com  
bde.r-tr mag.mnr-abun  
ntstt calc.r-tr  
calc/chl/hem/epid vng.r-tr  
ubhd-euh epid/epid vng.

tz.Diorite; med-dk gry-  
rnish gry, mod hd-pred hd,  
in-fn gr hypidic, pred fresh-  
con tr mod altd/chizd, cont  
om hbde, tr mag, decr intsttit  
alc, cont r sec epid/epid  
ng, occ grdg t/diorite.

tz Diorite; pred med-dk gry.  
nr-com grnsh gry, hd, fn gr,  
com fresh-sl alt. mnr--loc  
com amt mod alt. tr--loc mnr  
mt intstt calc & calc yng.  
r-loc mnr amt chlorized blbt.  
--tr amt wht clay alt of  
eld, loc r y fn gr dism  
uhed bvr.

tz Diorite; pred med-dk gry.  
mnr-com grnsh gry, hd, fn gr  
ypidio tex, pred fresh-sl  
ltd, mnr-loc com amt mod  
ltd, mnr-loc com amt intstlt  
elic, tr-loc mnr amt chlorozd





hnbde.

Felsic Diorite: pred wht-lt gry, mnr pnk, hd, brittle, loc mnr flow bnnd, aphanitic grndmass, com biot & chlortz biot microphenos, r euhed dism pyr, r org garnet.

Granite: pred wht-lt gry, mnr pnk, hd, vfn gr hypidid, tr calc vng, tr chlortz biot, r dism yel epid & epid vng, r dism euhed pyr.

Rhyolite: off wht-chalky wht, occ vit grn, sl hd-hd, occ fresh-pred sl-mod altd, microxln-v fn gr/loc porphy, prob grdg w/granite above, r-tr sandin phenos, loc flow bnnd, loc tr euh pyr.

Qtz Diorite: med-dk gry, r-loc mnr grysh grn, sl hd-pred hd, vfn-pred fn gr hypidid, pred fresh-occ sl-mod altd/chlzd, loc sheard/slicks, com-abun hnbde, tr-loc mnr dism sec epid/epid vng.

Qtz Diorite: lt-dk gry, pred med-dk gry, tr-mnr grn gry, mod hd-hd, vfn-fn gr, hypidid tex, fresh-sl altd, pred fresh tr-mod calc, tr-mnr chlzd mafics, loc mod chlzd, tr yel-vel/grn epid, r epid crystals, r-tr frm wht clay, tr-mnr blk mica, tr-mnr hnbde, r subhed dism pyr; comly grds to Diorite.

Rhyolite: off wht-chalky wht, comly sl grn cast, spotted wht app, frm-pred sl-mod hd, sl-mod altd/chlzd grndmass w/unalt sandin phenos, r-tr euh pyr, r sec epid.

Rhyolite: wht-off wht, some w/spotted wht apr, mod hd-hd, r-tr calc, wht grndmass w/clr subhed-euhed sandine phenos, r euhed pyr.

Felsic Diorite: trns1-off wht, mod hd-hd, brittle, v fn suc tex, r calc, v fn disem chlor mafics in semi lin, r org tnc1.

Hbde Qtz Diorite: med-dk gry, med gry grn, sl hd-pred hd, pred fresh-tr-mnr mod altd/chlzd, occ sheard, fn gr hypidid, com biot, tr mag, mnr-

280 degF

losing 10 bph

losing 10 bph

14.75 deg N87W 278 degF

no mud loss

dump sand trap

add 10 bph water

14.75 deg N86W 285 degF

no mud loss

ream 9367-9440 dump sand trap

15.00 deg N82W 305 degF

124/168

1 cooler

138/178

131/168

BUT=202

1 cooler

136/174

ppm (002x100)

deg F

WOB 30K RPM 55 PP 900 SPM 80

WOB 25K

RL

WOB 30K DC 3/1

954/38 hrs NB#30 STC 4JS DC 3/2

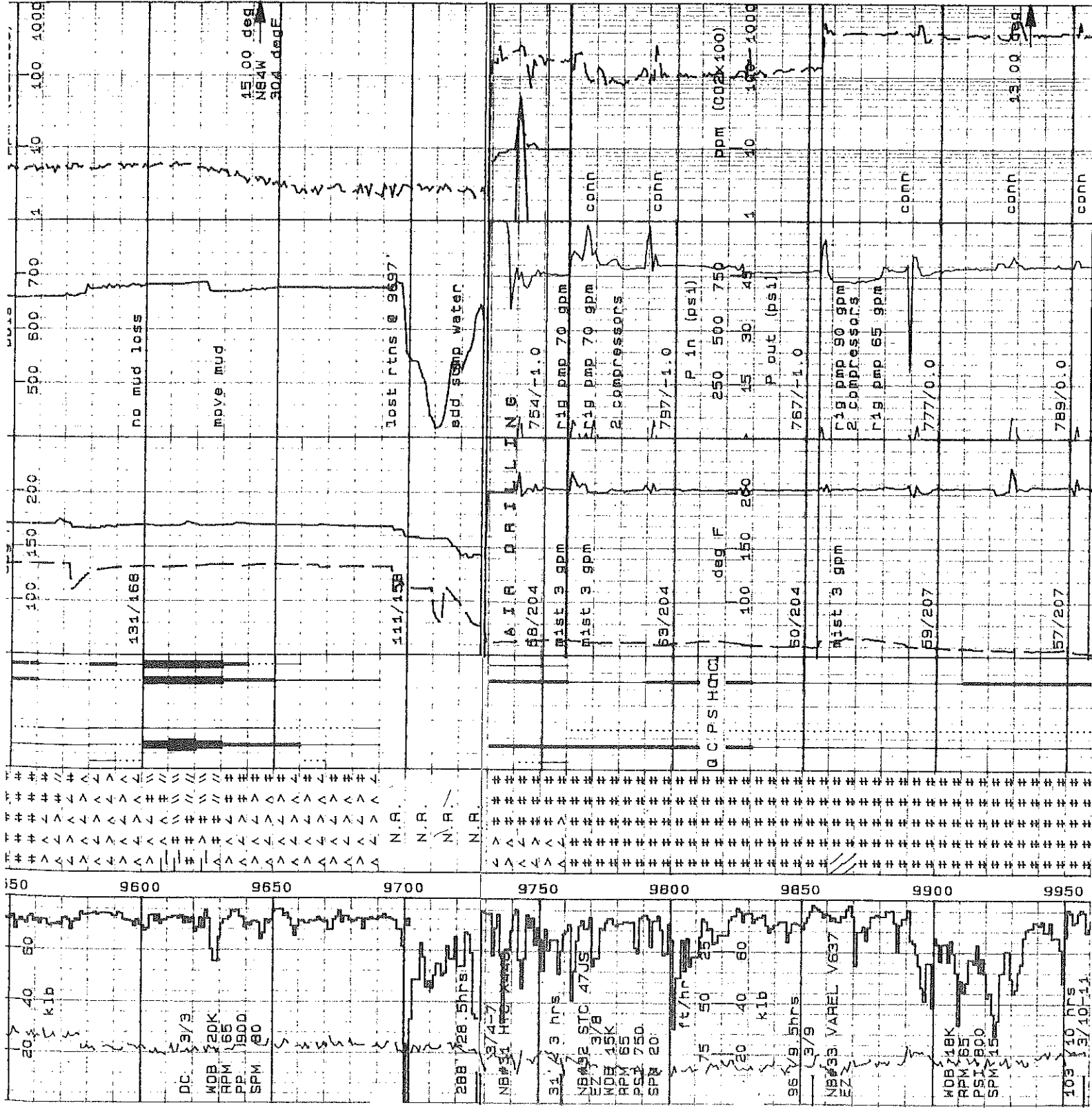
WOB 25K RPM 55 PP 900 SPM 80

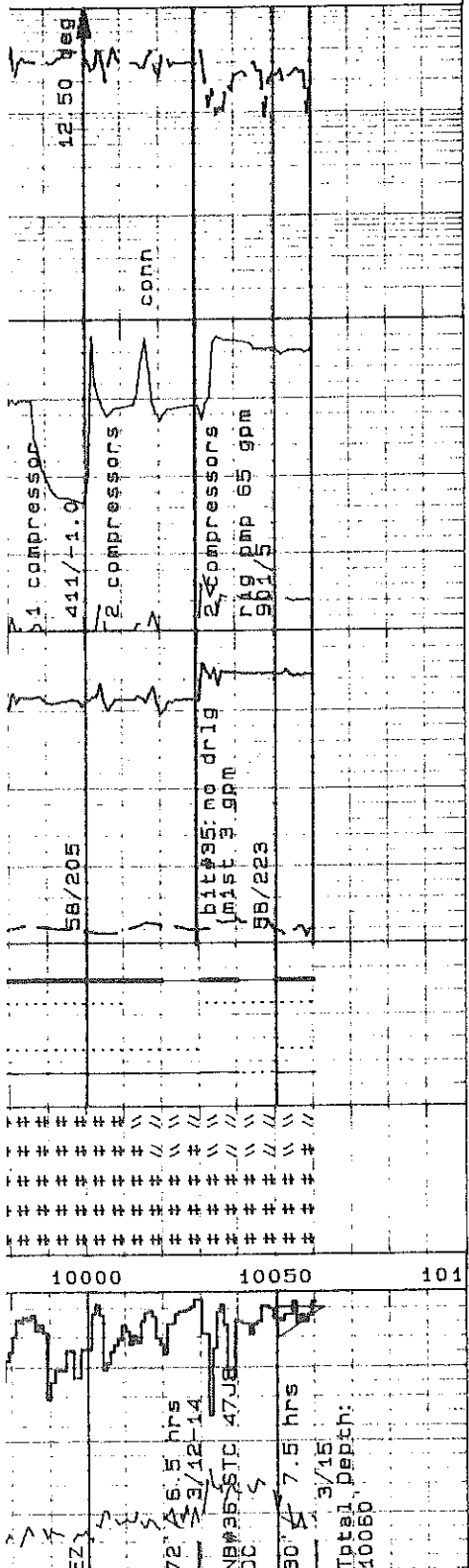
RL

ft/hr



Qtz Diorite: pred med-dk gry.  
mnc amt grnish gry, hd. in qtz





calc. r v fn gr dism euhed pyr.

qtz Diorite: pred med-dk gry.  
tr amt grnish gry. hd. fn gr  
hypidic tex. mnr amt disagg  
xls. pred fresh-si altd. tr-  
mnr amt mod altd. tr- mnr  
chlortzd mafics. tr calc. tr  
yel grn epid. r dism euhed  
pyr.

Left cones in hole f/bit  
#36. Run junk basket. Run  
mill 9845-10060. Set 7"  
slotted liner @ 10050. w/  
hanger @ 5825. top of  
perfs @ 6109. Blow well @  
10050. Set Air Cap.

10000 10050 101

72 6.5 hrs  
3/12-14  
NB#35 STC 47J8  
DC 5

30 7.5 hrs  
3/15

Total depth:  
10060