



COLUMBIA GAS SYSTEM CORPORATION

DRILLING TIME LOGS
BY
M. W. PATENAUDE
M. A. SHAW

CONFIDENTIAL UNTIL 12/1/86

COMPANY COL. GAS TRANS. CORP.

WELL 21248-P1 DAVID & JEAN BURNOR #1

FIELD WILDCAT

TOWNSHIP VERMONT COUNTY FRANKLIN

LOCATION LAT: 44° 50' 6800 SL

LONG: 72° 55' 5300 WL

TRACTOR DELTA DRILLING RIG #84

COMMENCED 7/19/84 COMPLETED 10/22/84

TOTAL DEPTH 6970 LTD 6968 DTD

AMPLES SAVED FROM 100 FEET TO 6968 FEET TD.

DRILLING TIME KEPT FROM 100 FEET TO 6968 FEET TD.

REMARKS WELL WAS PLUGGED AND ABANDONED.

VT. PERMIT # 44-OIL-20001

ELEVATION

K.B. 501.8

D.F. 500.8

G.L. 480.8

CASING

20" at 75'

13 3/8" at 827'

9 5/8" at 3229'

ELECTRIC LOGS

LDT, GR, DIL, SP,

CNL, HDT, FL, DIP,

BHC, NGT, VSP, DIR,

COMPLETION

I.P.

FORM

PERFS

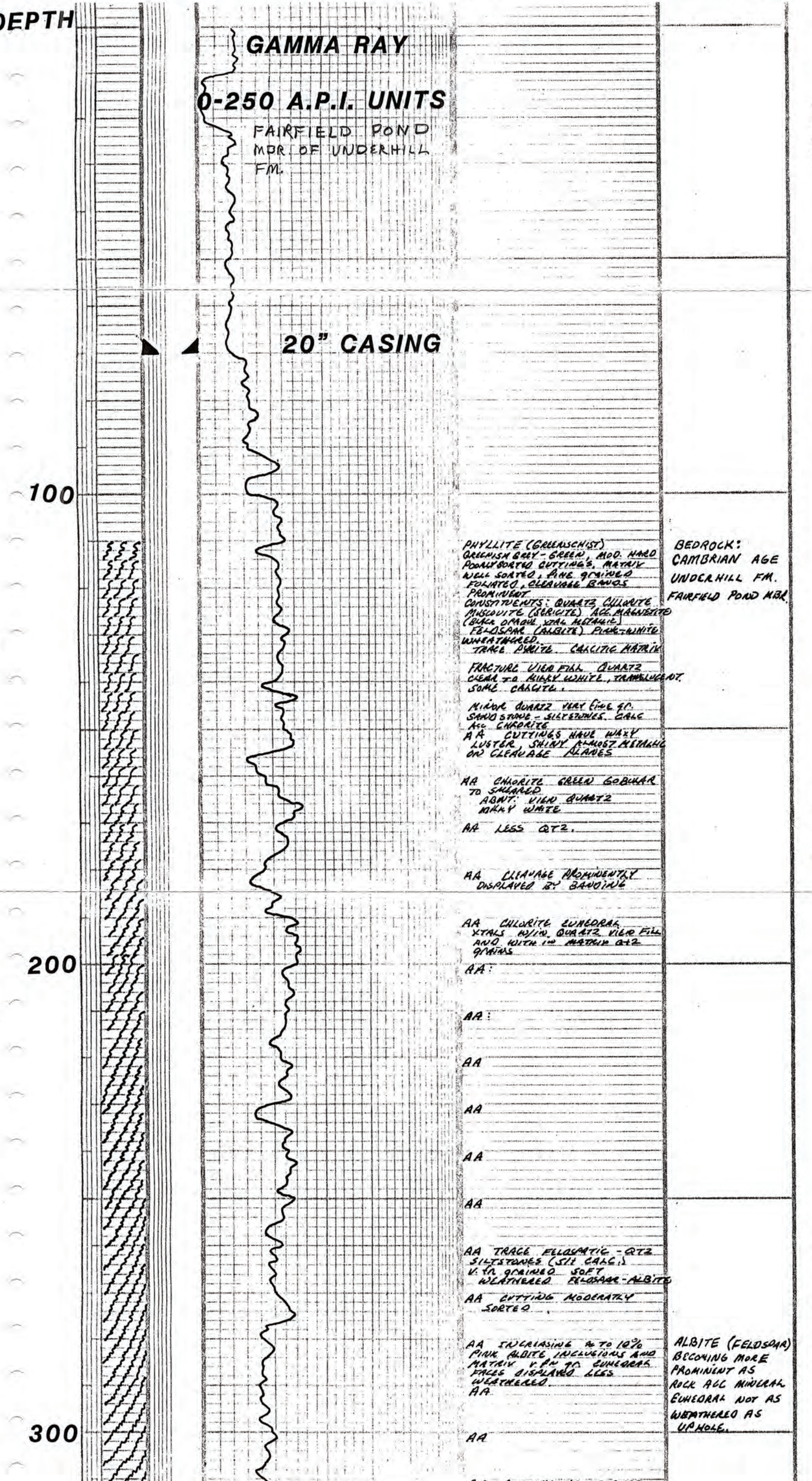
TREAT

LEGEND

SHOWS	DOLOMITE	LIMESTONE	ANHYDRITE	SANDSTONE	SILT	SHALE	SALT	META	ACCESSORIES
POOR FAIR FAIR GOOD									NOTE No. OF SYMBOLS 1 SPARSE, 2 MODERATE, 3 VERY G GOLLITES A CHERT ARGILLACEOUS FRAGMENTAL GLAUCONITE

SCALE: 5" = 100'

DEPTH	LITHOLOGY	GAMMA RAY 0-250 A.P.I. UNITS	SAMPLE DESCRIPTIONS	REMARKS
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RECORDING CHARTS GRAPHIC UNIT: 1/4" = 100' 50-17003 PRINTED IN U.S.A. No. GC-15656

300

WEATHERED AS UP HOLE.

AA

AA CUTTING WELL SORTED

AA MAGNETITE ABNT ACC TRACE PYRITE DAZY SURFACE. FA GRAINED.

AA ABNT EGDULAR AND ~~XTLN~~ CHLORITE DK GREEN

AA CUTTINGS PLATY - PHYLITE ANGULAR QTZ.

AA WATER FLOW INTO HOLE NOT LARGE

FRESH WATER WENT TO DRILLING ON FOAM.

CUTTINGS MUCH LARGER TO COARSE FOLIATION MORE PROMINENT

AA

AA

AA

AA

400

AA PHYLITE ROCK MATRIX WELL SORTED FA GRAINED MINERALS ZONED + Banded.

AA

AA

AA

AA FRAGILE 10% QTZ MAJOR CALCITE MINOR

AA 10-20% V FA GRAINED GREYWACKE QTZ, CHLORITE, MICA (SERICITE SLTST) AND ALBITE.

AA CUTTING POORLY SORTED MORE FINE QTZ QUANT V. FA. CONTRASTED BY ~~GREYWACKE~~ META FELDSPATHIC SS. CONSTITUENT.

AA WELL SORTED TR TO NO GREYWACKE

AA

AA INCREASING QTZ VIEW MATERIAL W/ ABNT CHLORITE EUCHEORAL INCLUSIONS/XTLN

500

AA - 10% GREYWACKE SAME CONSTITUENTS AS PHYLITE BUT ROCK MATRIX GRANULAR FRAMEWORK LESS MICA CUTTINGS ANGULAR AA W/ GREYWACKE

AA

AA INCREASING TO 40% GREYWACKE AND GRAINED QTZ SS-SLTST, CLAY, SATY CALC. ACC CHLORITE MICA MINOR ACC. FELDSPATHIC SS (META ~~GREYWACKE~~ W/ 10% 20% PHYLITE / GREENISH GRAY TO GREEN, MOD MD, FINE GRAINED LESS CLEAVAGE, MAJOR CONSTITUENTS QTZ, CHLORITE, MAGNETITE AND ALBITE / MINOR - CALCITE, PHER (MUSCOVITE SERICITE)

AA INTERBEDDED ~~GREYWACKE~~ - PHYLITE META FELDSPATHIC SS.

AA VERY ABNT QTZ, CHLORITE AND MAGNETITE IN ROCK MATRIX

AA

590

UNDIFFERENTIATED PINNACLE FM.

META-FELDSPATHIC SS ~~GREYWACKE~~ - QTZ - GREY-GREEN IN QTZ, W/ ACC CHLORITE (GOBULAR-XTLN) W/ TR. Biotite, W/ CYLORITE MASS. MAGNETITE, PHER - ALBITE (FINE) / QTZ FRANKLIN MATRIX, ACC MUSCOVITE

600

QTZ VIEW - 40-50% OF SAMPLE - MASSIVE MILKY WHITE QTZ, TRANSLUCENT CONCOIDE FRACTURE

QTZ VIEW DOUBLED DRILLING RATE FROM 20 FTHO MIN/FT.

UNITED STATES GEOLOGICAL SURVEY WASHINGTON, D.C. 20508

590

UNDIFFERENTIATED
PINNACLE FM.

600

META-FELDSPATHIC SS
- QTZ - GREY-GREEN
IN qtz, w/ ACC. CHLORITE
(GOBULAR - XTL) W/ TR. BIOTITE,
W/IN CHLORITE MASS. MAGNETITE,
FELDSPAR - ALBITE (AUG) / QTZ
FRAMWORK MATRIX, ACC. MUSCOVITE

QTZ VIEN - 40-50%
OF SAMPLE - MASSIVE
MILKY WHITE QTZ, TRANSLUCENT
CONCORDANT FRACTURE
AA

QTZ VIEN
DOUBLED DRILLING
RATE FROM
20 FOLLO MIN/FT.

META FELDSPATHIC SS.
AA - ONLY
10-20% VIENED QTZ

WACKSTONE
FELDSPATHIC SS

AA 10-20% VIENED QTZ
META WACKSTONE - STALCH
W/ OF XTL & FRAMWORK AND
RECRYSTALLIZATION.

AA SLICKENSIDES

AA SLICKENSIDES

META FELDSPATHIC SS.
AA - ONLY
WACK. STONE W/ INTERBEDDED
PHYLLITE 10-20%
10% - 20% QTZ W/ MATRIX

Hornblende, Muscovite, Chlorite,
Quartz Schist - apparent alter-
nating layers of phyllite/granule
schistose, granular layers are
generally med. grained - occasionally
fine and coarse. Tourmaline,
calcite, pyrite are accessory minerals.
→ Greenschist ←

A/A

A/A

A/A

A/A slight increase in
phyllite fragments

A/A

A/A

A/A

A/A

A/A

A/A

A/A

A/A

A/A

A/A

SURFACE CASING 827

A/A

13 3/8"

A/A

A/A

A/A

chlorite-muscovite-quartz-schist
- green schist - generally fine
grained, occasional large very
coarse, sharp, angular quartz
fragments, milky translucent,
grades to clear, elongate phylloids
exhibit preferred parallel orientat-
ion, occasional v fine - fine grained
black euhedral mineral possibly
hornblende, cuttings are generally
subangular fragments, occasional
phyllitic muscovite concretions,
occasional v fine grains but to pink
mineral possibly feldspar.

A/A

800

900

900

subangular fragments, occasional
phyllitic muscovite concentrations,
occasional u fine grain buff to pink
mineral possibly feldspar.

A/A

A/A

slight increase in general grain size
in fragments fine to medium

A/A

A/A

A/A

A/A

A/A slight increase in amount of
quartz, decrease in degree
of schistosity

A/A

A/A

A/A

1000

A/A

chloritic, muscovite, quartz-schist -
green schist - occasional
red to purple translucent garnet
in sample - anhedral, cuttings are
moderately hard to very hard,
mineral crystals are fine to medium
grained, platy-elongate minerals
exhibit schistose parallel preferred
orientation, quartz is milky to clear,
appears to be decrease in degree
of schistosity toward gneiss

A/A

A/A trace pyrite

A/A

A/A

garnet - chlorite - quartz -
muscovite - schist, abundant
very fine to fine anhedral garnet
crystals, decrease in quartz which
is milky translucent to clear, mineral
grains generally fine to medium
grain size, muscovite + chlorite
mottled coarse, trace of calcite,
pyrite,

1100

A/A

A/A

A/A

A/A

A/A

garnet - quartz - chlorite - muscovite
schist, sample has increase of quartz
to ~60% from ~30%, garnet
reddish purple, mineral crystals
generally fine to medium grained,
quartz is abundant and sharp
fragments of opaque milky to clear,
increase of calcite as accessory

A/A

A/A

A/A

1200

garnet quartz, muscovite, chlorite
schist - mineral crystals generally
fine to medium grained, occasional
coarse cuboidal broken shards
of pink faceted mineral possibly feldspar
cuttings are hard to brittle,
occasional calcite

A/A

1200

garnet, quartz, muscovite, chlorite
schist - mineral crystals generally
fine to medium grained, occasional
v coarse euhedral broken shards
of pink faceted mineral possibly feldspar
cutting are hard to handle,
occasional calcite

A/A

A/A continued decrease in
amount of schistosity

A/A

feldspar, garnet, quartz, chlorite
muscovite gneiss (semi phyllite),
only occasional schistosity, general
very fine grained, coarse to very
coarse Qtz in sample, clear to milky,
opaque to translucent, this
sample approx 60% quartz,
sharp, angular fragments of quartz,
decrease in amount of chlorite 20%

A/A Quartz now ~ 30%

A/A

chlorite, garnet, muscovite, quartz
gneiss (semischist), occasional schistosity,
Qtz is very fine to medium grained,
abundant dark gray, fine grained mineral,
abdt sharp angular shards of Qtz,
milky to milky opaque, garnet in mass
interspersed concentrations,
chlorite 10-15%,
-A/A

A/A abundant quartz, milky opaque
to clear-trans, abundant, vitreous,
metallic, graphitic, soft, dark gray,
carbonaceous mineral, abundant red
earthy, soft mineral, quartz coating
and infilling granular, of B 30%, dark gray
~ 30%, 10% red, 20% semiphyll. A/A
-A/A decramt. semiphyllite

A/A Qtz becoming clear to clear
opaque, incr. amount

Metagranite - very coarse
clear to opaque, angular, interlocking
grains, ~ 60% - mineral?, dark gray,
vitreous, metallic grainy appearance,
graphitic, soft, ~ 20%, red, earthy
mineral ~ 10%, semiphyllite occasional

Quartzite - (meta) - Milky Trans-
lucent to clear, sharp angular
fragments, fine to very coarse,
generally unconsolidated, occasio-
nal interlocked aggregates, occasio-
nal intergranular fractures
graphitic in cl, A/A 70% Qtz
30% mnl, occasional calcite
occ. schistose - semi schist frag-
ments A/A
A/A Decrease in amount
of Qtz to 50-60%

META QUARTZITE HARD COARSE
GRAINED, SUB-ROUNDED - ANGULAR
HIGH CONCENTRATION OF MUSCOVITE
10% STAINING OF QZ AT SURFACES
QZ STDS w/ LITH. INCLUSIONS
OR W/IN MUSCOVITE GIVEN REDDISH
APPEARANCE / GRAPHITE INCLUSIONS
w/ AND WITHIN QZ TO
10-20% PHYLITE CLUSTERS
(MUSCOVITE QZ CLUSTERS)
SOMEWHAT CALCAREOUS MATERIAL
GLOBULAR EPIDOTE
AA TO WHITE GRANULE
AND KIBITE.

AA

AA

AA QZ GRAINS TAKE INCLUSIONS
RUTILE PYRITE MUSCOVITE

AA QZ GRAINS SUB ROUNDED
TO ANGULAR TO SUBANGULAR QZ
KIBITE.

META QUARTZITE AA CUTTINGS
SHOWING CALCAREOUS MATERIAL
CROSSING GRAIN BOUNDARIES
SILICA + CAL. CRT.

AA

AA DOMINANT COLOR OF
CUTTINGS IS GREEN (WED)
GREENISH GRAY (RY)

AA META QUARTZITE 60%
MUSCOVITE (GREEN GRAY)
AND CHLORITE MUSCOVITE
TO GRANULES.

META QUARTZITE AA
20% - 25% FREE OF USG
FILL QZ, MILKY WHITE
MASSIVE - X120

GRAPHITIC META QUARTZITE
10-15% GRANULES

1300

1400

1500

1500

AA METAQUARTZITE 60%
PHYLLITE (GREEN SCHIST)
CHLORITE MUSCOVITE
TR GRANULES

METAQUARTZITE AA
20% - 25% FRAG OF VIEW
FILL QZ - MILKY WHITE
MASSIVE - X20

GRAPHITIC METAQUARTZITE
10-15% GRAPHITE

REDDISH
AA FINE CORDED GRANUL
MIGHT NOT BE GARNET
BUT HQ RICH QUARTZ
(MAGNESIUM)

AA METAQUARTZITE

METAQUARTZITE GNEISS
TEXTURE QZ 25-50%
CUTTINGS WELL SORTED
CALCULATED BY FOLIOLETS
ASSOCIATED W/ CHLORITE &
MUSCOVITE & GRANITE
FR - HQ QZ FORMATION
ACQUITE W/ACTE

METAQUARTZITE 60%
PHYLLITE (GREEN SCHIST) 40%
- MUSCOVITE CHLORITE, QUARTZ
QZ GR. FOLIOLETS MUSCOVITE
W/ HQ ALBITE GRAPHITE AND
GARNET? SHALL LEISTER
PHYLLITE SILTSTONE
(GREEN SCHIST MUSCOVITE
CHLORITE ALBITE MAGNETITE
AND GRAPHITE
GNEISS: HQ QZ SILTSTONE
REFLECTED GRAN ORIENTATION
ELONGATED IN LENGTH - SPLITTED
IN HEIGHT CONSTITUENTS MUSC
CHLORITE MAGNETITE GRAPHITE

FINE GRANULATED AA
INCREASING CHLORITE UP
TO 25%

AA FINE GRANULATED GARNETS
HQA OOLITHA RESEMBLING
- SUB EUMERALS
SLIGHTLY PHYLLITIC

AA

AA

AA

AA TR PHYLLITE

AA

AA GNEISS - QZ SCHIST
INCREASING MUSCOVITE

AA SCHIST - PHYLLITE
INCREASING ALBITE - 50%
ALL W/ ALBITE CHLORITE
DELAZING QZ
FR GRANULATED
AA

1600

1700

AA SCHIST - PHYLLITE
INCREASING ALBITE - 20-25%
OF SAMPLE PHYLITE TAD. HQ
TOWARDS / 100% HQ QZ FILL
MILKY WHITE - MASSIVE
GREEN SCHIST - QZ, ALBITE
CHLORITE, MUSCOVITE, MAGNETITE
SCHISTOSITY DEVELOPED W/
GRAIN ELONGATION ON XZ
AXIS
AA VERY FINE CUTTINGS
CUTTING NO LARGER THAN
QZ HQ - HQ GRANULES

CUTTINGS MAYBE
BEING REWORKED
BY BIT (DR HAMMER)

AA

AA (POSSIBLE ANTIMONITE
IN MILD FRACTURES)

AA 20-25% ALBITE HQ QZ
CUTTING MODERATELY SORTED
LOCK GRAN SIZE WELL
SORTED

AA

AA

AA ALBITE 50% QZ HQ
INCREASING FINE GRANULATED
ANGULAR GRANULES W/ CHLORITE
& RUTILE/TITANITE INCLUSIONS

RUTILE AND/OR
TITANITE
INCLUSIONS

AA

1800

AA W/ 10-20% CLEAR
- MILKY WHITE QUARTZ
FRAG FILL VIEW FILL

AA

AA NO MORE QZ VIEW FILL

1800

1900

2000

2100

2200

AA w/ 10-20% CLEAR
- MULKY WHITE QUARTZ
FRAC FILL VIEW FILL

AA

AA NO MORE QZ VIEW FILL

AA GRAIN SIZE VFA - FINE
AND CUTTINGS ARE GRABED
IN GRAIN SIZE EITHER VERY
FINE OR FINE TO MEDIUM
GRAINED

AA

QUARTZ, CHLORITE, ALBITE, MAGNETITE
GRANITE GREENISCHIST
TR. PYRITE (MARGINAL) QZ GRABED
INTERBEDDED (SLICKENSIDES)
CUTTINGS POORLY QUARTZ
AND ANGULAR / GRAIN SIZE
ARE GRABED, WELL SORTED,
VIEW FILL MULKY WHITE
QUARTZ

SLICKENSIDES
~ 5%

AA

AA QZ ANGULAR XTALS
FINE - FINE GRABED / ALL
CHLORITE MAGNETITE GRABED
INCLUSIONS W/IN QZ
ALBITE UP TO 25%

THRUST
SLICKENSIDES
UP TO 20-25%
SLICKENSIDES W/EL
GRAPHITE, AND
FIBRILE

AA w/ 20-25% CUTTINGS
DISPLAYING SLICKENSIDES /
SLICKENSIDE CUTTINGS VFA
GRABED LOOK LIKE COARSE
VERY FIBRILE / 20-30%
GRAPHITE IN SAMPLE

QUARTZITE IS GREEN-WHITE
XTAL - INTERGRANULAR, MINOR
SCHISTOSITY, SLICKENSIDES
QUARTZITE CLEAR GRAINS
ANGULAR - SUB-ROUNDED AND FRACTURED
CUTTINGS ANGULAR, COMMONLY
FRACTURED SLIGHT CALCAREOUS
MATRIX / ALL MAGNETITE
CHLORITE AS FIBRILES - TR
GRANITE, MINOR ALBITE
STAINING

CHESHIRE
QUARTZITE
FORMATION
(EARLY CAMBRIAN)
BASK SAND

AA GRAINS WELL SORTED
VFA - INTERGRANULAR

AA LARGE COARSE CUTTINGS
PURE FIBRILE CLEAR
PLATES DISPLAYED IN MORE
PHYLLITIC CUTTINGS

SCHIST QUARTZ GRANITE
ALBITE CHLORITE, MAGNETITE
IS GREEN FIBRILE TR
TOURNIAINE FIBRILE INCLUSIONS
W/ QUARTZ (TOURNIAINE MASS)
CONCENTRATED FRAC, (FIBRILE)
STAINING GRABED
10-15% MAGNETITE, 5-10% ALBITE
WHITE QUARTZ VIEW FILL
XTAL MASSIVE

AA - EQUAL CONCENTRATIONS
OF QUARTZ ALBITE MAGNETITE
AND CHLORITE

AA

AA SCHIST-PHYLLITE
OR GREEN HIGH SCHIST
CONCENTRATION W/ QZ VIEW
FILL

AA DK GREEN VERY SCHISTOSE
FIBRILE LITTLE HIGH RESIST

QUARTZITE - SCHIST 50-50
QUARTZITE AS DESCRIBED
AT 1910

QUARTZ IS
PRIMARY QUARTZ
FIBRILE FROM
ANGULARITY,
CLEARITY, AND
(LACK OF FIBRILE
AND MUCH ROUNDER)
ALSO INCLUSIONS
OF RUTILE AND
OR TOURNIAINE

QUARTZITE (ALBITE) SCHIST
AA 1950 75-25% MINOR
CALCITE VIEW FILL TR
GRANITE

QUARTZITE IS GREEN TO WHITE
XTAL - INTERGRANULAR, CUTTINGS
16 GRABED ON COMMONLY FRACTURED
MATRIX GRANULAR QUARTZ
ALL MAGNETITE IS GREEN
OR ALBITE - SUB-ROUNDED
MINOR ROUNDED FIBRILE GR
TR MAGNETITE

FOR MATION
IS CHARACTERISTIC OF
BASK SAND A
DARK TUNDR
QUARTZITE W/
INTERBEDDED PHYLLITE
AND SCHIST

AA

AA MID-LARGE GRAINED
SUB-ROUNDED - ROUNDED QZ
MINOR FIBRILE, 5% MAGNETITE
ALBITE - SUB-ROUNDED BLUE ACTUAL
SHOWN
AA 20-25% WHITE XTAL
QUARTZ VIEW FILL
W/ CHLORITE AND MAGNETITE
AND GRANITE INCLUSIONS
TR ANGUL. QZ (MINOR)
SUB-MED. XTALS

QUARTZITE HARD SILICE
MID GRAINED CLEAR, MINOR
MAGNETITE W/ SILICE GREENISH TINT
OF CHLORITE / GRANITE SUB-RO
ROUNDED MINOR FIBRILE /
MOST CUTTINGS ANGULAR

2050-2100
TRACE OF
COARSE BEDDING

QUARTZITE AA HARD IMPURE
GREENISH GRAY QUARTZ TRANSPARENT
TO YELLOWISH WHITE GRAINS
SUB-ANGULAR - SUB-ROUNDED, FIBRILE
CHLORITE MAGNETITE / GRANITE
~ 3% FIBRILE (ALBITE)
SLIGHTLY CALCAREOUS MATRIX
AN VIEW FILL CALCITE

AA

AA MINOR 10-20% SCHISTOSITY
PHYLLITIC MAGNETITE CHLORITE

QUARTZITE AA VERY HARD
GRAY CUTTINGS, YELLOW CLEAR
QUARTZ, ANGULAR - BLOCKY
CUTTINGS, GRAINS IN - MID
COARSE, 20-25% MAGNETITE
GRANITE, SLIGHTLY ENDRITIC
GRAINED BEDDING IN QZ
SILTSTONES, SLIGHTLY CALCAREOUS
MINOR CALCITE VIEW MATERIAL
APPARENT COARSE BEDDING
MAGNETITE STAINING, 10%
OF CUTTINGS PHYLLITIC, DISPLAYING
SCHISTOSITY

? Possible thrust

AA 20-25% QUARTZ
VIEW FILL, XTAL MASSIVE
QUARTZ TR. ANGUL. QZ
MINOR SLICKENSIDES

SLICKENSIDES

AA MINOR SLICKENSIDES

AA COARSE ANGULAR TO BLOCKY
CUTTINGS, MASSIVE QUARTZ
VIEW MATERIAL - TRANSPARENT
TO MULKY WHITE

QUARTZITE CLEARER 85-90%
QUARTZ, AT ANGULAR GREENISH
TAN FINE ANGULAR TRANS-
LUCENT QUARTZ GRABED TO NEG
SUB-ROUNDED ROUNDED FIBRILE
QUARTZ GRAINS MINOR ALL
CHLORITE ALBITE MAGNETITE

(COLOR CHANGE)
NO SLICKENSIDES

2200

AA MINOR SLICKENSIDES

AA COARSE ANGULAR TO BLOCKY CUTTINGS, MASSIVE QUARTZ VIEW MATERIAL - TRANSLUCENT TO MILKY WHITE.

QUARTZITE CLEANER 85-90% QUARTZ, AT PINKISH GREENISH TAN FINE ANGULAR TRANS-LUCENT QUARTZ GRAINS TO RED SUBANGULAR - ROUNDED FROSTED QUARTZ GRAINS MINOR ALL CRYSTALLINE ALBITE MAGNETITE (COLOR CHANGE) NO SLICKENSIDES

AA MINOR GRAPHITE

AA POORLY SORTED GRAINS QTZ HEMATITE GRAPHITE MINOR CHALCOPRITE ALBITE, SLIGHT SCHISTOSITY, ~~TO~~ TR. CALCAREOUS A-A POORLY SORTED GRAINS

AA DIRTY - PINKISH GREENISH TAN ONLY

COLOR CHANGE DUE TO PRESENCE OF ALBITE AND LACK OF MAGNETITE AND ~~THE~~ PRESENCE OF IRON STAINING

AA 20-25% HEMATITE STAINING

AA

AA 60-65% QUARTZ TRANSLUCENT - YELLOW - MILKY WHITE.

2300

AA

AA

AA CLEANER MIXE QTZ DECREASING GRANITE MAGNETITE

AA SAME AS 2320-30 QUARTZITE

AA

AA QUARTZITE DIRTY INCREASING IRON STAINING INCREASING MAGNETITE GRAPHITE AND ALBITE ACCESSORIES.

THIS QUARTZITE HAS UNDERGONE RECRYSTALLIZATION OF ITS QUARTZ GRAINS WITH

AA QUARTZITE MINERAL COARS. PINK (ALBITE), GREEN (CHALCOPRITE), BLACK (MAGNETITE), SUBANGULAR (TRANSPARENT QTZ), YELLOWISH WHITE (QTZ); RECRYSTALLIZED GRAINS SUB ANGULAR, CONCHOIDAL FRACTURED CUTTINGS, SUB ROUNDED GRAINS TO ROUNDED SIMILAR FROSTED. MOST QTZ IS PRIMARY, 10% SECONDARY. CUTTINGS ANGULAR TO BLOCKY ABLY SORTED. SLIGHT SCHISTOSITY 10% TR SLICKENSIDES QTZ COARSE SLIGHTLY CALCAREOUS NO CHALCITE, UO. ELL. 10% QTZ VIEW FILL MASSIVE QTZ. YELLOWISH WHITE - MILKY WHITE.

OCcurring OVERLAPPS AND ORIGINIC FOLIATION

TRACE SLICKENSIDES WITH GRANITIC QTZ GOUGE.

2400

AA

AA

AA CUTTINGS BEACH STOOD GRAIN 6.20. SUB ANGULAR TO SUB ROUNDED.

AA

AA CUTTING SIZE COARSE BLOCKY - BRIGULAR

AA QTZ

AA QTZ

AA QTZ GLOBULAR MAGNETITE INCREASING METALLIC BLUE LUSTER. MINOR ALBITE; SLIGHTLY SCHISTOSE; FOLIATED. AA QTZ CUTTINGS SUB-ANG TO SUB ROUNDED WELL SORTED PURE COARSE.

ALBITE NOT AS COMMON AS ROCK ACCESSORY.

AA QTZ SLIGHT FOLIATION

2500

AA QTZ 15-15% FOLIATED QTZ DOMINATED ALBITE SCHIST. AT GREEN MICROLIN'S GREEN MINOR ALL OF SCHIST GRAINERS SUB HEAVY DR. RED. AA QTZ

ANALYTIC SCHIST. 10%.

2500

AA QTZT N-15% FOLIATED
QTZ DOMINATED PHYLLITE
SCHIST. AT GREEN MICROLITE
SHEEN MINOR ACC OF SCHIST
GARNETS SUB HEAVY DR. RED
AA QTZT

PHYLLITE SCHIST 10%

AA QTZT

AA QTZT

AA QTZT

AA QTZT CUTTING SIZE
DECREASED TO FINE TO MEDIUM
SIZED CUTTINGS.

AA QTZT. AA CUTTINGS
POORLY SORTED.

AA QTZT CUTTING SIZE
INCREASES TO COARSE
ANGULAR - BLOCKY ROCK
FRAGMENTS.

AA QTZT.

AA QTZT 60%
40% PHYLLITE SCHIST.

PHYLLITE QTZT
PHYLLITE SCHIST - SILVER
LUSTER AT GREEN ACCESSORIES
GARNETS (DARK RED) - GLAUCOPHANE
CARNOTITE (MINOR ACC) 20-30%
MUSCOVITE

CUTTING LARGE
COARSE BUT MORE
PLATY THAN AVG
OR BLOCKY AS ABOVE

AA QTZT LARGE COARSE
CUTTINGS - SUB ROUNDED, 85%
QTZ. : GRANULAR SUB ROUNDED
CALCITE, MAND. STAINING
QTZ. TRACE GARNET, SILICA
CEMENTED; 5-10% HIGH FINE QTZ
MILKY WHITE ANG. CLEAN. TR
CONCENTRAL QTZ.

AA SLIGHT COMPLEXITY 65%

AA QTZT. TR GARNETS: INCREASING
ALBITE, QUARTZ, MUSCOVITE
GARNET (HEAVY MIN)
RESIDUES.

AA QTZT

Quartzite - clear to opaque, hard, ang
to shrp frags, qtz has greenish tint,
coarse anhedral grains, matrix of
subhedral interlocking sugary quartz,
abst mineral inclusions, abdt sft graphitic mnl.
Quartzite - A/A occasional red and
yellow tint to quartz grains

Quartzite - clear to clear opaque, hard,
matrix mineralization A/A, occ. fine
to medium grained semi phyllitic to
gneissose fragments

Quartzite - clear to clear opaque, occasional
translucent milky, hrd, silicious cont when
apparent, shrp ang. fragmnts, frags are
med. to very coarse, mineralization A/A

Quartzite - flt to milky opaque, hrd, very
coarse to fine, angular frags, increase
in green tint prob. chlorite coating, red
tint occ. to mtrix, occ. milky free calcite,
~10% graphitic, sft, mineral
Quartzite - A/A

Quartzite - gen. A/A, incr in chloritic
nature, abdt. fine to med. gen semi schist -
gneissose frags - musc, chlor, qtz, approx
10% graphitic mnl, intergranular, trace
of milky calcite.
Quartzite - gen. A/A increase in gneissic
frags. to approx. 10-20% of sample.

Phyllite - chlorite, quartz, muscovite, phyllite,
quartzite A/A ~30% of sample, quartz incr
milky, occ. red earthy mnl in chloritic mtrix,
abdt milky white coarse calcite in sample

Phyllite - quartz, chlorite, muscovite, phyllite,
~30% milky, ang. to subang. fine-med.
occasional coarse quartz in sample, free and
no random inclusions, abdt graphitic and occ
red earthy mnls. - intergranular.
Phyllite - chlorite, muscovite, quartz, phyllite,
quartz now approx. 60% of sample, milky
ang. frags. w/ abdt. accessory mnls A/A,

Quartzite - clear to milky opaque, sharp ang.
fragmnts, fine to medium grained, occ.
coarse, interlocking aggregates of subhedral
quartz, & accessory mnls A/A w/ chloritic
phyllite.

Quartzite - A/A abdt green tint to qtz.
from chloritic grain coatings

Quartzite - A/A continued irregular
mineralization, chloritic grain coat.

Quartzite - clear to milky opaq, occ. frags. are
coarse cle qtz in groundmass of chlorite,
musc, qtz, phyllite, w/ occ. graphitic acc. mnl,
ang. subang. fine to coarse, subhedral interlock
aggregates, occ free
Quartzite - A/A occasional coarse milky
calcite.

2600

2700

2800

2800

Quartzite - A/A continued in irregular
mineralization, chloritic grain coat.

Quartzite - clear to milky grns, occ. frags. are
coarse cl. qtz in groundmass of chlorite,
musc. qtz phyllite, w/ acc. graphite occ. small
ang-subang, fine to coarse, subhedral interlock
aggregates, acc free
Quartzite - A/A occasional coarse milky
calcite.

Quartzite - A/A gen. increase in
amount of intergranular chlorite

Phyllite and Quartzite - 40% qtzite A/A,
w/ abdt intergranular musc & chlorite, -
60% qtz, musc, chlor, phyllite, quartzite
is coarse to fine grn subhedral interlock qtz in
chlorite, musc. groundmass, acc graphite occasional.
Phyllite and Quartzite - A/A abdt graphitic
accessory mnrl.

Phyllite - chlorite, muscovite, quartz, phyllite,
varying amounts of subhedral quartz as
inclusions, very fine to medium grain size
generally milky, occasionally clear.

Phyllite - chlorite, muscovite, quartz,
phyllite

Phyllite - chlorite, quartz, muscovite, phyllite
gradual decrease in amount of quartz in
sample

Phyllite - quartz, chlorite, muscovite, phyllite,
occasional milky coarse calcite, milky
medium grned subang qtz, acc fine tan
mineral in groundmass.

Phyllite - quartz, chlorite, muscovite, phyllite,
occ milky white coarse calcite

2900

Phyllite - quartz, chlorite, muscovite
phyllite - occ. milky to infrequent clear
quartz in sample.

Phyllite - quartz, chlorite, muscovite
phyllite - acc. med. grned, milky to
white opaque calcite in sample

Phyllite - quartz, chlorite, muscovite,
phyllite - slight increase in amount of
included quartz to ~10%

Phyllite - quartz, chlorite, muscovite,
phyllite, qtz decrease to < 10%, abdt
free milky coarse calcite

Phyllite - quartz, chlorite, muscovite, phyllite -
frags are fine, qtz is subhedral, fine to med.
grained, milky, as incl. in phyllite, tr. tan
included mnrl, as in phyllite vein
mnrl is poss. feldspar.
Phyllite - quartz, chlorite, muscovite,
phyllite, A/A

Phyllite - quartz, chlorite, muscovite
phyllite, occasional milky white opaque
calcite fragments, free and as inclusions.

Phyllite - quartz, chlorite, muscovite
phyllite

Phyllite - quartz, chlorite, muscovite
phyllite

3000

Phyllite - quartz, chlorite, muscovite, phyllite
occasional very fine to fine grained inter
granular aggregates of tan mineral,
possibly feldspar.

Phyllite - quartz, chlorite, muscovite
phyllite

Phyllite - quartz, chlorite, muscovite
phyllite

Phyllite - chlorite, muscovite, phyllite -
tr. amounts of included quartz

Phyllite - chlorite, muscovite, phyllite,
occasional tan very fine to fine grained
mineral as aggregates in various
masses

Phyllite - chlorite, muscovite, phyllite
occasional fine to coarse, free, milky
calcite.

Phyllite - chlorite, muscovite, phyllite

Phyllite - chlorite, muscovite, phyllite
occ. aggregates of tan very fine mineral,
possibly feldspar.

Phyllite - chlorite, muscovite, phyllite

3100

Phyllite - quartz, muscovite, chlorite
phyllite, vitreous green to silver luster,
abundant fine to coarse grnd cl. qtz,
free ang. sharp frags & inclusions,
abdt calcite free coarse milky & fine inclusions
Phyllite - quartz, muscovite, chlorite, phyllite
abdt calcite - free & as inclusions

Phyllite - quartz, chlorite, muscovite
phyllite, continued calcite, increase
in amount of muscovite gives increase
in silver vitreous - metallic lust.

Phyllite - chlorite, musc., qtz, phyllite
abrupt increase in amount of qtz in
sample - 10% - cl. to trans. white,
occ. milky, fine to coarse, ang frags -
~ 80% qtz (free) to quartz phyllite
Phyllite - chlorite, musc., qtz phyllite
slight decrease in amount of qtz to
30-40%, trace fine to med. free calcite

3100

Phyllite-quartz chlorite muscovite
phyllite, continued calcite, increase
in amount of muscovite give increase
in silver lustrous-metallic lust.

Phyllite-chlorite, musc., qtz, phyllite
slight increase in amount of qtz in
sample - 70% - clr to transl white,
occ milky, fine to coarse, ang frags -
~ 80% qtz (free) to quartz phyllite
Phyllite-chlorite, musc., qtz phyllite
slight decrease in amount of qtz to
30-40%, trace fine to med. free calcite

Phyllite-chlorite, muscovite, quartz, phyllite

Phyllite-chlorite, musc., qtz phyllite
increase in ratio of qtz to phyll - 70%

Phyllite-chlor, muscu, qtz phyll, tr of calcite
milky, included and free, qtz ~ 70%
clr qtzs, occasional white cloudy, shrp ang
fragments, fine to coarse size, abdt incld
in phyllite & various
Phyllite-chlor, muscu, qtz phyllite
ratio of qtz/phyll. 60/40

Phyllite-chlor, muscu, qtz phyll

Phyllite-chlor, muscu, qtz phyllite
slight decrease in amount of qtz

Phyllite-chlorite, muscovite, quartz,
phyllite

3200

Phyllite-chlorite, muscu, qtz, phyllite
increase amt of qtz to 70%, clear to
milky transl, fine to coarse shp, ang to
shrp frags, venous & included grades to
phyll, occ. calcite

Phyllite-chlorite, muscu, qtz phyll

Phyllite-chlor, muscu, qtz phyll, qtz
approx 70% of sample, A/T sample full
of cement, cutting arc of med. grain
size.

Casing - 9 5/8"
set @ 3225'

3229
9 5/8" CASING

Phyllite-chlor, muscu, qtz phyll,
continued gross cement contamination

Phyllite-chlor, muscu, qtz phyll -
qtz is clr, subang to shrp frags,
occ. very shrp ang coarse frags, qtz in
phyllite groundmass, qtz ~ 60%

Phyllite-chlorite, muscu, qtz phyll,
qtz incr. to 70-80%

Phyllite-chlor, muscu, qtz phyll

Phyllite-chlor, muscu, qtz phyll,
qtz approx 70% of sample, shrp ang
frags, free occ. included in phyllite

Phyllite-chlor, muscu, qtz phyll,
phyll. now 76%, firm green, w/slurry
lust, foliated, abdt incld qtz

Phyllite-chlor, muscu, qtz phyllite -
ratio qtz/phyll - 50/50

3300

Phyllite-chlor, muscu, qtz phyll -
ratio qtz/phyll - 50/50, qtz clr-milky
transl, qtz included in qtz, phyll is foliated
green, slurry lust from muscu

Phyllite-chlor, muscu, qtz phyll -
incrs in amt free to include qtz -
gen. less milky

Phyllite-chlor, muscu, qtz phyllite -
qtz now approx 80%, clr-shrp ang,
fine to coarse frags, occ. phyllite
included in qtz frags.

Phyllite-chlor, muscu, qtz phyll -
free qtz 60 to 70%

Phyllite-chlor, muscu, qtz phyllite
A/T qtz to 80%

Phyllite-chlor, muscu, qtz phyll -
80% qtz, clear, occasionally milky, sharp to
angular frags, occasionally subang nature to
grains; phyll is soft, green, silvery lust, foliated
w/ included qtz
Phyllite-quartz, chlorite, muscu phyll -
decrease in amt of qtz frags to 20% -
approx 10% qtz in inclusions, increasingly
milky, - phyll A/T

Phyllite-qtz, chlor, muscu phyll -

Phyllite-qtz, chlor, muscu phyll -

3400

Phyllite-chlor, muscu, qtz phyll - sample
now 80% qtz, fine to coarse free frags.
subang to subang, milky opaque to translucent
occasionally clear

Phyllite-quartz, chlorite, muscovite phyllite -
now approx. 80% phyll - abdt included
qtz, soft to firm, silvery lust from muscu,
foliated

Phyllite-qtz, chlor, muscu phyll -

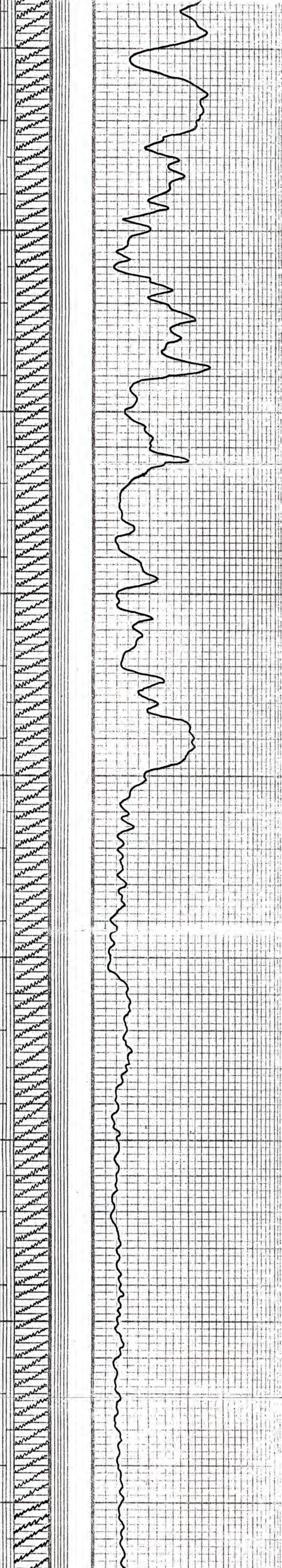
3400

3500

3600

3700

3800



Phyllite - chlor, muscov, qtz. phyll - sample now 80% qtz. fine to coarse free frags. submd to silvery, milky opaque to translucent occasionally clear.

Phyllite - quartz, chlorite, muscovite, phyllite - now approx. 80% phyll. - doct. included qtz, soft to firm, silvery lust from muscov, foliated.

Phyllite - qtz, chlor, muscov. phyll. -

Phyllite - qtz, chlor, muscov. phyll. -

Phyllite - qtz, chlor, muscov. phyll. -

Phyllite - qtz, chlor, muscov. phyll. - increase in amount of free qtz to 30% free qtz appears more angular.

Phyllite - chlorite, quartz, muscovite, phyllite - qtz now 20% of sample

Phyllite - chlor, qtz, muscov. phyll. -

Phyllite - chlor, qtz, muscov. phyll. -

Phyll - chlor, qtz, muscov. phyll. -

Phyllite - chlorite, quartz, muscovite, phyllite

Phyllite - chlor, qtz, muscov. phyll. - slight increase in amount of free qtz to 30%

Phyllite - chlor, muscov, qtz. phyllite - incr. in qtz to 20%, qtz incr. milky, incr. fragmented ang., general coarse to medium grain frag. sizes.

Phyllite - chlor, muscov, qtz. phyll. - approx 50-60% qtz.

Phyllite - chlor, muscov, qtz. phyll. - quartz approx 80%

Phyllite - chlor, muscov, qtz. phyll. - qtz approx 60% of sample

Phyllite - chlor, muscov, qtz. phyll. - ratio of qtz to phyll 50/50, approx 10% of qtz is included

Phyllite - chlor, qtz, muscov. phyll. - qtz now approx. 40%, 10% included in phyll. -

Phyllite - chlor, qtz, muscov. phyll. - qtz approx 30% of sample, as free frags., contained phyll. A/A

Phyllite - quartz, chlor, muscov. phyll. - increase in amt. of muscov. gives silvery slicken texture, firm to soft, foliated, about qtz inclusions, qtz 20-30% of sample.
Phyllite - qtz, chlor, muscov. phyll. - has very green lust from incl. in concentration of muscov.

Phyllite - qtz, chlor, muscov. phyllite - firm to hard, greenish silver lust, foliated - qtz is clear to white cloudy, transl. qtz as inclusions, approx 10% free qtz, gen submd to sharp frags.
Phyllite - qtz, chlor, muscov. phyll. -

Phyllite - qtz, chlor, muscov. phyll. -

Phyllite - qtz, chlor, muscov. phyll. - hard to firm, foliated, green tint, decr. amt. in amt. of muscov. + decr. in silvery lust, tr. of very fine dark min. occasional qtz as very fine to medium, slicken texture, white inclusions.
Phyllite - qtz, muscov, chlor, phyll. - generally A/A, distinct increase in xtl. size.

Gradual change phyllite to schist.

Phyllite - muscov, chlorite, phyllite - decrease to trace amounts of qtz, decrease amt. of apparent foliation, frags are blockier, have grainy appear., very fine dark min. give grayish purple appearance.
Phyllite - quartz, muscov, chlorite, phyllite - increase in amt. free qtz, milky opaque, occ. clear, occ. included, gen. clear to coarse, cont. decrease in foliation, slight increase in xtl. size.
Phyllite - muscov, chlor, phyll. - continued increase in xtl. size

Schist - muscov, chlor, schist - cont. incr. in xtl. size, decrease to trace amounts of quartz, only trace amounts of apparent foliation, dark acc. min. give speckled appearance, occ. yellow tint to frags.

Schist - muscov, chlor, schist - cont. spect. appearance from acc. min., spec. color - 10% yellow, red, very fractured accessory min. to coarse on size.
Schist - muscov, chlor, schist, hrd, very fine xtl. size, has grainy sugary appearance, grains have apparent preferred orientation, grey green appearance from accessory min., continued yellow min., acc. qtz, calcite

Schist - muscov, chlor, schist - about accessory min.

Schist - muscov, chlor, schist - trace in yellow acc. min. to ~10%

Schist - muscov, chlor, schist -

Cuttings are magnetic

Schist - muscov, chlor, schist - gray green, continued yell. min., (possibly garnet) very fine dark purple min. give speckled appear., slightly decr. amt.

epidote

Schist - muscov, chlor, schist - yellow mineral A/A now ~10-20% - apparent parallel, preferred xtl. orientation, sucrosic text, speckled appearance.

Schist - muscovite, chlor, schist - yellow mineral now ~20%

Schist - muscov, chlor, schist -

Schist - muscov, chlor, schist - occasional milky to clear, free and included quartz, included qtz is very fine grained.

Schist - muscov, chlor, schist - decr. in yell. min. to ~10%

Schist - green, greengray, occ. purple tint, generally speckled, fragments blocky, exhibit parallel grain orientation, incr. in muscov. gives increase foliation, green from chlorite - sericite? about yellow - yellow green mineral, very fine green aggregate, to about brook xtl. size, gen. transl. (garnet or olive sp.), occ. qtz frags, clear milky, cloudy, fine to coarse, subangular xtl.

3800

Schist - green, greengray, occ. purple tint, generally speckled, fragments blocky, exhibit parallel grain orientation, then in muscovite increase foliation, (green from chlorite-serpentine?) about yellow-yellow green mineral, very fine green aggregate, to fract. broken xtl's, gen. transl. (garnet or olivine sp.), occ. qtz frags, clc-milky, cloudy, fine to coarse, subangular xtl's.

Schist - A/A - greenschist
Schist - greenschist - simple cts. identifiable nod of green fibrous serpentines, yell. matrix fine to very fine grained aggregate, clean + with green impurities, occ. qtz.

Schist - A/A - greenschist - serpentine apparent

Schist A/A - greenschist

Schist - greenschist - A/A

Schist - various frequent mineral xtl's in random dist. white to green, soft fibrous (serpentine) - yellow, very fine xtl. aggregate, transl. occ. med size broken frags, (garnet-oliv. sp?) - muscovite w/ increase of foliation when concentrated - occ. qtz free + included, white to milky cloudy, coarse-med frags, very fine dark purple xtl's, concentrations give purple tint to fragments, - green tint to cuttings, w/ speckled appearance, xtl's have gen. preferred parallel orientation, about green min'l poss chlor. or similar clay meta.

Cuttings continued magnetic -

Schist - qtz, garnet?, serpentine schist -

3900

Schist - greenschist - A/A
DARK GREEN - GREENISH DARK GRAY.
QUARTZOSE, CUTTINGS COARSE, FOLIATED
CHLORITE-MUSCOVITE - QTZ, TR PYRITE
MAGNETITE - VERY FINE TO - BLENDED
THIN CUT ROCK MINOR YELLOWISH
GREEN MINERAL XTL'S - AGGREGATE
POSSIBLY EPIDOTE, CALCAREOUS -
CALCITE VIBR FILL
AA
AA - MINOR PYRITE (INCREASING) AND
GRAINED MINOR CALCAREOUS (ALBITE)
LE TAN XTL'S - GRANITE 5-7%

A/A SCHIST (UNDESIGNED) QUARTZOSE
QTZ - CALCITE XTL VIBR FILL
TR PYRITE, MINOR GRANITE, MASH
TR SERPENTINE (UNDESIGNED FIBROUS
GREEN GARNET), TR EPIDOTE
AA - TR SICKENSIDES

AA 20% XTL'S GRAY - CLOUDY QTZ
VIBR FILL, MINOR EPIDOTE - QTZ
AGGREGATES

AA TR SERPENTINE - EPIDOTE -
FOLIATED - CUTTINGS

AA

GREENSCHIST - MED-DK GREEN, GET
TO HARD DEPENDENT ON QTZ %
QTZ, MUSCOVITE (SERICITE), CHLORITE
MAGNETITE, MINOR GRANITE,
+ PYRITE / 10% QTZ VIBR FILL
GRAY - CLOUDY (LIGHT) QUARTZOSE
REMARKED. CUTTINGS FOLIATED
FINE TO COARSE GRAINED.

CUTTINGS MAGNETIC

AA - SCHIST MORE ANHYLITIC IN
GRAINED CHLORITE QTZ INCREASING
MUSCOVITE HIGH TR PYRITE
MAGNETITE, GRANITE, EPIDOTE
MINOR VIBR GRANITE QTZ SILTS
W/ CALCAREOUS MAT. TR TAN
WHITE GRAY, FIBROUS, SOFT
TR EPIDOTE
AA ANHYLITIC SCHIST, SOFT
BRITTLE, SLIGHTLY - MODERATELY
CALCAREOUS, TR SERPENTINE
VERY MAGNETIC FINE QTZ MAGNETITE

CHANGED WHITE
RESEMBLANCE OF QTZ SILTS

AA TR PYRITE - EPIDOTE
ADJACENT CHLORITE
TR BLACK TOURMALINE 3-5.000
W/ STRATIFIED SLIGHTLY - MED
CALCAREOUS BLACK SILTS.

CUTTINGS VERY
MAGNETIC, CUTTING
DRILL STRING CAUSING
STRING TO TORQUE UP

AA TR SERPENTINE
20% SICKENSIDES

POSSIBLE FAULT DUE
TO INCREASING
SICKENSIDES

AA ANHYLITIC GREENSCHIST

SCHIST: QUARTZOSE DECREASING
CHLORITE

AA SCHIST SLIGHTLY
GREENISH DARK GRAY

AA SCHIST GRANITIC + QUARTZOSE
10% SICKENSIDES, TR EDWARD
PYRITE (VERY CALCAREOUS)
LIGHT MATRIX AND CALCITE VIBR FILL
FOLIATED MINOR CHLORITE MUSCOVITE
PHYLLITE
GRANITIC CALCIC QUARTZITE
HARD, MED DR GRIT CUTTINGS
TR CHLORITE, PYRITE, CUTTINGS
FINE GRAINED SIZE, VERY CALCAREOUS
TO HCL. CALCITE GRANULAR MATRIX
AND VIBR FILL.

CHANGE
CHLORITE DECREASES
SHARPLY.

AA GRAPHITIC QUARTZITE

GRAPHITIC PHYLLITIC QUARTZITE
HARD - MOD HARD, PHYLLITE BRITTLE
GRANITE - DR GRIT, GRAYED XTL'S
PHYLLITE - GRAY - SLIGHTLY GREENISH
GRAY MUSCOVITE, FOLIATED TR SICKENSIDES
QUARTZITE - GRAY - CLOUDY, HARD
MASHING STYL - GRAY FIBROUS W/
OVER GRANITE, GRANULE VIBR FILL
W/ EDWARD GREEN CHLORITE XTL'S
INCLUSIONS, CHLORITE TR MINOR
ROCK CONSTITUENT
TR SICKENSIDES - WELL FOLIATED
MINERAL SEPARATION
60% QTZ 10% GRANITE - MAGNETIC
IN 2% W/ CALCITE VIBR FILL.
AA QUARTZITE

GREY ANHYLITE

4000

1100

1100

+200

+300

4400



AA GRAPHITIC QUARTZITE

GRAPHITIC PHYLLITIC QUARTZITE
 HARD - MOD HARD, PHYLLITE BRITTLE
 GRAPHITE - GREY, GRANO XTEN
 PHYLLITE - GRAY - SLIGHTLY GREENISH
 EASY MUSCOWITE, FOLATED TO SLICKENSIDES
 QUARTZITE - CLEAR - CLOUDY, HARD
 MASSIVE XTEN - GRANO FRAMEWORK W/
 OVER GROWTH, CARBON. VIBRAL FILL
 W/ CARBON. GREEN. CHLORITE XTEN
 INCLUSIONS, CHLORITE, TR - MINOR
 ROCK CONSTITUENT
 TR SLICKENSIDES - WELL FOLATED
 MINERAL SECREATION
 60% QTZ 140% GRAPHITE - ARSENITE
 IN 1% W/ CALCITE VIBRAL FILL
 AA QUARTZITE

GREY PHYLLITE

AA QUARTZITE

AA QUARTZITE - INCREASING
CHLORITE.

LIMY QUARTZITIC SCHIST. GREENISH
 GREY OR GREY, POSSIBLE PSEUDOMORPHS
 OF CALCITE OR DOLOMITE XTEN,
 CUTTINGS VERY CALCAREOUS,
 INTER GRANULAR CALCITE WHITE TO
 LT GREY AND WHITE CALCITE
 VIBRAL FILL, CUTTINGS GRAINED.

POSSIBLE THIN BEDS
OF LIMESTONE ARE
LIKE DOLOMITE.
XTEN. PSEUDOMORPHS.

AA - QTZ + CALCITE VIBRAL FILL

AA - LIMY SCHIST. (GREENISH)
 INCLUSIONS, CALCITE
 VIBRAL FILL GRANULAR CHLORITE, QUARTZ
 MICA, CALCITE

AA LIMY SCHIST
 VERY CALCAREOUS MATRIX
 MINOR PSEUDOMORPHS

QUARTZITE - SCHISTOSE
 HARD - CLEAR - CLOUDY YELLOWISH
 QTZ, MASSIVE XTEN (RECRYSTALLIZED) TO
 GRANO FRAMEWORK, SUB ROUNDED W/
 SILICA CRT. MINOR CALCITE TR
 PYRITE, MAGNETITE, HARD
 OXIDATION FRAC., CALCITE VIBRAL
 25% SCHIST QUARTZ, SERICITE
 CHLORITE, MICA, MAGNETITE,
 FOLATED BRITTLE IN GRAINED,
 SLICKENSIDES W/ GRAPHITIC FRAC.

(COMASS - MOD GRAINED)

SCHIST W/ MINOR QUARTZITE.
 AA 60% GREENSCHIST
 20% QUARTZITE, W/ SLICKENSIDES
 AA PHYLLITIC SCHIST
 15% CALCITE VIBRAL FILL
 5% QTZ VIBRAL FILL

AA SCHIST 60% / QUARTZITE 20%

AA SCHIST 60% / QUARTZITE 20%

AA QUARTZITE 60% / SCHIST 40%

QUARTZITE 100% - XEN MASSIVE
 MINOR GRANO FRAMEWORK, MAGNETITE
 XTEN TO GROUND, MOD GRAINED.
 MINOR CHLORITE AS INCLUSIONS
 TR CALCITE VIBRAL FILL
 AA QUARTZITE

CUTTINGS STILL
MAGNETIC BUT NOT
AS MUCH AS BETWEEN
3650 - 3960.

AA QUARTZITE - MAJORITY OF
VIBRAL FILL XTEN QTZ.

AA QUARTZITE.

AA QUARTZITE
 SLIGHTLY PHYLLITIC GREENSCHIST
 5% POSSIBLY GRAINED.

AA QUARTZITE

AA QUARTZITE
20-30% GREENSCHIST.

GREENSCHIST - DK GREEN -
 DARK GREENISH GREY,
 PHYLLITIC WELL FOLATED
 HARD TO BRITTLE. IN GRAINED
 SEGREGATED QTZ, CHLORITE, MAGNETITE
 ARSENITE W/ IN 1% BANDED TRAIL
 CUTTINGS.

CRANSE.
WATER INCREASE
IN FLOWING
WATER IN BOTTOM OF
HOLE AFTER TRIP

AA QTZ + CALCITE VIBRAL
MATRIX. TR PYRITE.

AA TR. MARBON V. IN 1%.
 QTZ SILT.
 10-20% SLICKENSIDES

TR MOUNTAIN QTZ.
?

AA GREENSCHIST. PHYLLITIC
 20-25% SLICKENSIDES,
 QTZ (CHERT) + CALCITE VIBRAL
 MINOR Talc LIGHT GREENISH, WHITE
 SOFT - BRITTLE

POSSIBLE FAULT
OR THRUST.
POSSIBLE FAULT
GULCH.

AA GREENSCHIST. - MATRIX
MIDDLE QUARTZOSE AND HARD.
MATRIX CALCAREOUS

QUARTZITE 50% GREENISH
GREENSCHIST 50%

CHARGE.

ALTAIRITE 75% HARD, CALC.
 AND SILICA MATRIX
 PREMETAMORPHIC GRANO FRAMEWORK
 SUB ROUNDED GRAINS FINE TO
 COARSE.

QUARTZITE. GRAPHITIC + MAGNETIC
COARSE ANULAR CUTTINGS

4400

QUARTZITE, 50% GREENISH GREENSCHIST 50% CHANGE.

AND SILICA MATRIX PRECIPITATED GRAIN FRAGMENT SURROUNDED GRAINS FINE TO COARSE.

QUARTZITE, GRAPHITIC/MAGNETIC COARSE ANNUAL CUTTINGS

AA QUARTZITE. MAJORITY GLOBULAR TO SUB-ANGULAR XLS. TR. PYRIT, CHLORIT, PHYLITE SLICKENSIDES, AA QUARTZITE.

SCHIST (GREENSCHIST) 70% QUARTZITE (QA) 30% CHANGE.

AA SCHIST + QUARTZITE. CALCAREOUS MATRIX AND CALCITE VIBR. FILL.

AA QUARTZOSE GREENSCHIST. TR. EPIDOTE - AGGREGATED

AA SCHIST (GREENSCHIST) QUARTZ, SERICITE (MICA), CHLORITE, MUSCOVITE TR. ALBITE TRACE EPIDOTE.

AA QUARTZOSE SCHIST QUARTZ VIEWING MASSIVE WITH CHEAT-BEDDING? BANDS W/ GRAPHITE + MAGNETITE.

AA QUARTZOSE SCHIST (GREENSCHIST) TR. DK GRAY CARBONACEOUS DOLOMITE

AA QUARTZOSE SCHIST. FINE-GR. DK GREEN-GREENISH GRAY, QTZ, CHLORITE, MUSCOVITE, ALBITE, MAGNETITE, GRAPHITE, VERY EDUATED KAN BANDS, QTZ VIEW MISAPPEARING TR. EPIDOTE SLIGHTLY CALCAREOUS.

AA QUARTZOSE SCHIST. INCREASING EPIDOTE TO 2%

AA QUARTZOSE SCHIST. TRACE GRAPHITE. RUBY COLORED EARTH.

AA QUARTZOSE SCHIST. MAJOR PYRITE UG. IN SPIDER.

AA QUARTZOSE SCHIST.

AA QUARTZOSE SCHIST - DK GREEN DECREASING QUARTZ, VERY FINE GRAINED, FOLIATED, SOFT (QUARTZ) - FIRM, TR. SERICITE, ALBITE, EPIDOTE 2%, WITH YELLOWISH GREEN CALCAREOUS. (EPD) DECREASING QTZ IN MATRIX.

AA (CHANGE)

SCHIST - VERY DARK GREENISH GREY FIRM, HARD, CHLORITE, MUSCOVITE, MAGNETITE, V. FINE GRAINED FOLIATED, EARTH READING STAND ON CLEAVAGE PLANES (FE SYMMETRY) MINOR ALBITE, MINOR CLEAVAGE AND/OR BEDDING PLANES PROMINENT IN SOME CUTTINGS. MAGNETIC

AA INCREASING VIEW QTZ - 5-10%

AA SCHIST GREENISH DARK GREY. MAJOR QUARTZOSE WITH LOCAL MATRIX TR. EPIDOTE 0% QTZ VIEW FILL.

AA SCHIST - TR. EPIDOTE, TR. CALCITE VIEW WHITE XTRN.

SCHIST AA / 50% QUARTZ OTHER 50% QUARTZ VIEW FILL BY 20% EPIDOTE AS SINGLE GRAINS (ANG) OR AGGREGATED BY QUARTZ VIEW FILL. LARGE INCREASE IN EPIDOTE WHICH UP TO THIS POINT HAS BEEN A TRACE TO MINOR ROCK CONSTITUENT. CHANGE

AA SCHIST

AA SCHIST - QTZ EPIDOTE VIEW FILL W/ CHLORITE MIX.

AA SCHIST

AA SCHIST

PHYLITIC SCHIST: SLIGHTLY GREENISH DARK GREY, LARGE COARSE CUTTINGS FISSILE, PARTY INTERSECTION OF CLEAVAGE BEDDING 25-30° TR. EPIDOTE, NO OR CALCAREOUS PHYLITE (SLIGHTLY SCHISTOSE) DARK GREENISH GREY, PHYLITE, (SERICITE, MAGNETITE, GRAPHITE, CHLORITE) - MAJOR QTZ. CHANGE CLEAVAGE/BEDDING INTERSECTION ANGLE 25-30° CHANGE

DECREASING QTZ RARE, SMALL ABOVE, FOLIATED, VERY FINE IN DOMINANT ROCK CONSTITUENT MUSCOVITE (SERICITE), CUTTINGS FISSILE TO BUTTLE, 10-20% CUTTINGS PRODUCT (POSSIBLY GOOSE), TR. EPIDOTE FIBROUS.

AA PHYLITE

AA PHYLITIC SCHIST: DK GREYISH GREEN - INCREASING CHLORITE + QUARTZ VIBR. 9% CUTTINGS GOING FROM FOLY TO ANGULAR BLOCKY, TR. ONE X-100 VIEW FILL.

AA PHYLITIC SCHIST. QTZ AND CALCITE VIEW FILL LESS THAN 5%.

AA PHYLITIC SCHIST. CHLORITE QUARTZ, MAGNETITE, MUSCOVITE.

AA PHYLITIC SCHIST.

AA PHYLITIC SCHIST. DARK GREENISH GREY

AA PHYLITIC SCHIST - TR. EPIDOTE EDUATED

PHYLITE, DK GREENISH GREY, COARSE - FIRM, HARDNESS DEPENDENT IN MUSCOVITE 9% MUSCOVITE IN 9% (SERICITE) FIRM. SOME LINK BANDS, CHLORITE + QTZ VIEW MATERIAL, SLIGHTLY WHITE TO CLOUDY, MAGNETITE + CHLORITE VIBR 9% + GRAINED.

AA PHYLITE SLIGHTLY SCHISTOSE

4500

4600

4700

4800

4800

900

3000

5100

PHYLLITE OR GREENISH GREY
CRITTE - FIRM, HARDNESS
DEPENDENT ON QUANTITIES OF
MUSCOVITE IN GR. (SANDSTONE) FOLIATED
SOME KINDS OF QUARTZ, CHLORITE & ORZ
VERY MATERIAL IN WIDTH
TO CLUST. MUSCOVITE + CHLORITE
VIA GR. + GRADED.

AA PHYLLITE SLIGHTLY
SCHISTOSE

Schist - calcite, quartz, chlorite, epidote, muscov.
schist - green to gray green, hard, brittle, soft w/
occasional con concentrations of muscov. foliation
abdt. w/ pret. parallel orientation, 60% green,
trans. omph. (epidote) loc. green yell tint, abdt
qtz as 1/4 in. loc. qtz frags., - quartz
gray, soft, metallic lust. m. (graphitic), c/s are
sandy from euhedral lts., gen. t. u. l. gran.
random, homogen. dist., occ. veinous conc-
entrations, slightly magnetic
Schist - calcite, quartz, chlorite, epidote, muscov.
Schist - slight increase in amount of
calcite, quartz

Schist - calcite, quartz, chlorite, epidote,
muscovite schist

Schist - ca, qtz, epi, chlor, muscov. schist -
green to gray green, moderately hard, brittle,
incr. in muscov. = overall metallic luster, green,
continuous foliation, qtz as inclusion + free cl. to
mky trans. epidote A/A, abdt coarse free ca,
occ soft gray graphitic m. l. A/A, cutting
slightly magnetic.

Schist - A/A qtz occasionally as free
conch. frag. wh. trans. clay frags

Schist - calcite, quartz, chlorite, epidote,
muscovite schist

Schist - calcite, quartz, chlorite, muscov.,
epidote schist - sl. incr. in epidote.

Schist - ca, qtz, epi, chlorite, muscov. schist
green, incr. gray green, hard, brittle, foliated,
decr. amt. epidote, sl. incr. amt. muscov.,
occ. identifiable slick'n side, abdt free
coarse, milky, occ fibrous calcite, sl. incr
amt magnetic nature of cuttings

Schist - ca, qtz, chlor, epi, muscov. schist
continued calcite, slight incr. in amt. of
epidote

Schist - ca, qtz, chlor, epi, muscov. schist

Schist - ca, qtz, chlor, epi, muscov. schist

Schist - calcite, qtz, chlor, epi, muscov. schist
green to gray green, hard, brittle, decr. muscov.,
decr. amt. chlorite, decr. amt. of fol.,
sub schistose in part, occ. phyllitic frags,
occ. slick'n side, abdt C. calcite free A/A

cuttings continue
magnetic

Schist - ca, qtz, chlor, epi, muscov. schist

Schist - ca., qtz, chlor, epi, muscov. schist,
green to gray green to gray, incr. in silky
lust., in part from incr. in muscov.

Schist - calcite, quartz, epidote, chlorite,
muscovite schist - incr. in size epidote it is in
part, gen. fractured appear. aggregate lts. of
yell. - yell green trans. lts. ~ 20%

Schist - ca., qtz, epi, chlor, muscov. schist -
cont. muscov. concentrations give silky metallic
gray lustr. in pt., general incr. in grain size

Schist - calcite, quartz, epidote, chlorite,
muscovite schist

Schist - ca, qtz, epi, chlor, muscov. schist
green, gray green, gen. speckled, appr. mod.
hard, brittle, tendency toward greasiness
grains, gen. fine gr. lts., decr. in parallel
orientation, occ. folia lts., occ. incr. in muscov.
gives phyll. appr., incr. epidote lts. to 30%

Schist - ca, qtz, epi, chlor, muscov. schist
w/ abdt. muscov.

Schist - ca, qtz, epi, chlor, schist
w/ abdt. muscov.

Schist - ca, qtz, epi, chlor, schist -
w/ abdt. muscov.

Schist - ca, qtz, muscov, epi, chlor -
schist - green to gray green, gen. speckled
appr. mod. hard, brittle, cutting range suggests to
phyllitic, f. gen. size in pt, occ. fol., incr. metall.
sl. lustr. from muscov.

Schist - calcite, quartz, epidote, chlor, muscov.,
schist

Schist - calcite, quartz, epidote, chlor,
muscov. schist

Schist - calcite, quartz, epidote, chlorite,
muscovite schist

Schist - calcite, quartz, epidote, chlorite, muscov.
ite schist

Schist - ca, qtz, epi, chlor, muscov. schist - gray
green, green, silvery green, abdt speckled appr. e.
white-grn, gen. l. by fine grn. size, abdt folia,
w/ increase in concentration of muscov. = phyllitic, abdt
epidote lts. to coarse, abdt qtz as free. C. s.
gens, cl. to white trans., hard to trans. foliated
ion is brittle, trace of calcite

cuttings continue to
be slightly magnetic

Schist - A/A increase in amt. of included qtz
to ~ 20% occasionally free to clear mky qtz

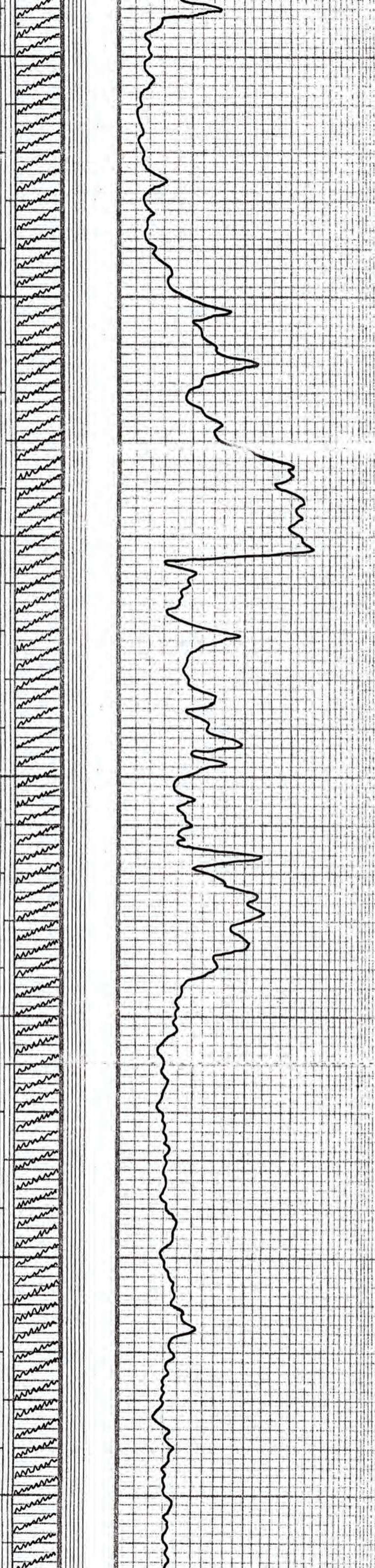
Schist - calcite, epidote, quartz, chlorite, muscovite
schist -

5100

5200

5300

5400



Schist - ca, qtz, epid, chlor, muscu. schist - gray green, green, silvery green, abundant speckled app. & white-grn, genl. v. f. gen. size, abundant phyllite, w/ increase in concentration of muscu = phyllite, about epidote etc. to coarse, about qtz in free calc. gns, cl. to white trans, hrd to firm, foliated texture is brittle, trace of calcite
Schist - A/A increase in amt of included qtz to ~20% occasionally free to calc milky qtz

Cuttings continue to be slightly magnetic

Schist - calcite, epidote, quartz, chlorite, muscovite, schist -

Schist - calcite, epidote, chlorite, muscovite, quartz schist - qtz increase to 25% - 30% of sample, cl. to milky trans, shp to ang. frags, conc. & trac., trace included in schist

Schist - calcite, epidote, chlorite, qtz, muscu, schist - slight decrease in amt of schist

Schist - ca, epid, chlor, qtz, muscu, schist - qtz now 30% of sample, calcite to trace included in quartz

Schist - epidote, chlorite, quartz, muscovite schist - gray green, gray green, black, abundant brittle foliated fragments, v. fine to fine, grain size qtz is 30% of sample, occ. free qtz, A/A, about free white calcite

Schist - epidote, chlorite, muscovite, quartz schist - increase in free qtz to 50%, schist - green, muscu, pass chlor included in qtz, schist

Schist - epidote, chlorite, muscovite, qtz, schist - quartz now 20%, clef. qtz to milky trans, conc. fractured frags.

opaque, shp to ang. frags, conc. frags, non-sorted, very fine to coarse green fragments, occ. aggregates of v. f. gen. size, abundant in place, green muscu, + trace chlor, about euhed. xth. magnetite, no incl. & trace, tr. euhedral pyrr, muscu as foliated chlorite inclusions.

Metaquartzite - A/A, tr. amt of calcite, free, milky, to white translucent

Metaquartzite - A/A

Metaquartzite - A/A incr. in amt. of free magnetite, qtz ~ 80%, about trace inclusions, intergranular chlorite

Metaquartzite - A/A

Metaquartzite - A/A

Metaquartzite - A/A

Metaquartzite - A/A

Metaquartzite - clean to milky to milky translucent, qtz, occ. yell. qtz, about green chlorite, green muscu, chlor, schist in sample, occ. euhed. mag. qtz frags. are shp to ang., conc. & trac. v. to coarse, occ. milky calcite

Metaquartzite - qtz A/A slight decr in qtz to 20%

Schist - Metaquartzite - quartz decr to 50% decr. amt. magnetite, qtz. A/A w/ incr. in incl. chlor, sample is 30% green to gray green, folia w/ muscu, gen. v. f. gen. occ. phyllite, w/ silv. slaty app., occ. calcite. Schist - chlor, qtz, muscu, schist - decr. free qtz to 20%, sl. incr. amt. gen. size to f. gen. vary. conc. fine qtz, about milky trans. free calcite, decr. amt magnetite, tr. epidote.

Schist - epid, chlor, qtz, muscu, schist - green, gray green, w/ local incr. muscu, to silv. green, gen. euhed. app., hrd. to hrd. occ. euhed. f. gen. size, schist to phyllite, v. f. conc. gen. incr. green to phyllite. Schist - epid, qtz, chlor, muscu, schist - A/A occ. v. f. aggregates of grading yell. to green epidote.

Schist - epid, qtz, chlor, muscu, schist - sl. decr. in gen. size to very fine -

Schist - qtz, epid, chlor, muscu, schist - green, gray green, decr. speck app., incr. in green muscu, hrd. to hrd., occ. agg. of qtz & chls, incr. in schistosity, occ. milky to wh. trans. calcite.

Schist - quartz, epid, chlor, muscu, schist

Schist - qtz, epid, chlor, muscu, schist

Schist - epid, chlor, qtz, muscu, schist - about cl. to milky trans, shp to ang., conc. & trac., qtz gns - schist - green, gray green, spid. app., hrd. occ. britt. w/ incr. foliation, v. f. evenly

Schist - epid, qtz, chlor, muscu, schist

Schist - epid, qtz, chlor, muscu, schist - general grain size incr. to fine

Schist - epid, qtz, chlor, muscu, schist - green, gray green, silv. vit. lust. from abrupt incr. in muscu, firm, brittle, slight incr. in amt. of foliation

Schist - epid, qtz, chlor, muscu, schist -

Schist - epid, qtz, chlor, muscu, schist - incr. in muscu, incr. in foliation, decr. in gen. size to very fine.

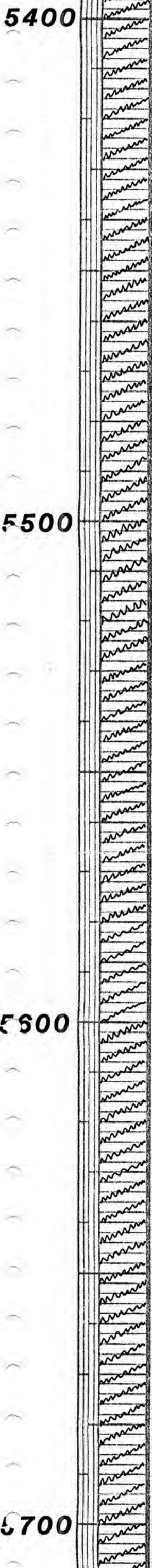
Schist - epid, qtz, chlor, muscu, schist -

5400

5500

5600

5700



Schist - epid, qtz, chlor, muscu. schist -
incr. in muscu, incr. in foliation, decr. in
grn size to very fine.

Schist - epid, qtz, chlor, muscu schist -

Schist - epid, qtz, chlor, muscu schist -
abdt calcite

Schist - epid, chlor, qtz, muscu, schist -
green, gry green, hrd, brtt. w/ foliation, vary
shades green w/ qtz. Hfl. concn., abdt. aggregate

orig. red tint, very gen size, schist to phyll.
v. fine to med.
Schist - epid, chlor, qtz, muscu schist - abdt
v. v. fine agg of chl to rsy qtz, abdt incld
mag, callgs v. hrd in pt.

Schist - epid, chlor, qtz, muscu, schist - green
gry green, hrd, epid appr, v. fine grn grad to
med. grades foliated to massive, abdt free frag
calcite, gen. silky slury appr. from muscu, glact.
dk grey-blue gry. massive, non foliated, v. v. fine gen
agg. qtz + chlor + iron mins.

Schist - epid, chlor, qtz, muscu schist -
calcite 20% A/A milky, osc. fibrous,
sl. incr amt chlor.

Schist - epid, chlor, qtz, muscu schist -
calcite 20% A/A

Schist - epid, chlor, qtz, muscu schist -
free calcite to 10%

Schist - epid, chlor, qtz, muscu schist -
decr calcite to < 5%

Schist - epid, chlor, qtz, muscu schist -

Schist - epid, chlor, qtz, muscu schist

Schist - chlor, qtz, epid, muscu schist -
grn, slury grn, firm, brtt, w/ foliation, vary
amts of muscu, gius, slury appr, silky lust,
abdt calcite, milky tremol, intense fol to
phyllitic

appr. = appearance
amts. = amounts

Schist - chlor, qtz, epid, muscu schist -
epid. is clay to chr green, f. to med. grn size,
kts occasionally in aggregate, to yell appr.

Schist - chlor, qtz, epid, muscu schist

Schist - chlor, qtz, epid, muscu schist

Schist - chlor, qtz, epid, muscu schist -

Schist - epid, qtz, chlor, muscu schist -
gry, gry green, greenish speckl, hrd to occ soft,
brtt in part, w/ foliatn, abdt v. fine grn, abdt
conc. of muscu, to streme foliation as phyllitic
(~ 20%), abdt epid, abdt. agg. of chl, fine
qtz, abdt preferred parallel orientn., to foliated
to phyllitic.

agg. = aggregate

Schist - epid, qtz, chlor, muscu schist -
sl. decr. in phyllitic nature

Schist - chlor, qtz, epid, muscu schist -
gry to gry green, hrd, v. fine grn, homogen,
distribution, major to folia, occ agg of yell
green epid, grad to green to chr, abdt
trawl to chr free calcite frags.

occ = occasionally

Schist - epid, chlor, qtz, muscu schist -
hard, brtt, gry green, dk epid appr, pret.
parallel orientn. to occ fol, abdt incld. fine qtz,
gen v. fine grn, occ. to med grn, occ free milky
calcite, epid. xtl agg. v. gen. grades yell to green

Schist - chlor, epid, qtz, muscu schist - incr.
free calcite, occ. chr. qtz frags, sharp ang.

Schist - chlor, epid, qtz, muscu schist - hard,
brtt, green, gry green, gen. lght, spdky appr, incr.
incld qtz kts, sl. incr. foliat, incr. muscu =
incr. folia, gen vit. lust, from muscu-epid, occ.
calcite, free milky

Schist - chlor, epid, qtz, muscu schist -
abdt. calc. free, milky calcite ~ 20%,
incr. in epid. = yell-yellow green xtl agg.

Schist - chlor, epid, qtz, muscu schist -

Schist - chlor, epid, qtz, muscu schist -

Schist - chlor, epid, qtz, muscu schist -

Schist - chlor, epid, qtz, muscu schist -
incr in free chl qtz, med. to cse frags,
ang to sharp, conc. grades to epid. in pt.

Schist - chlor, epid, qtz, muscu schist
amt of free calcite abn. to ~ 5%, epidote
to ~ 20%, grades in xtl agg. green to yell green

Schist - chlorite, epid, qtz, muscu schist

Schist - chlor, epid, qtz, muscu schist -
slight apparent increase in grain
size, & decrease in foliation.

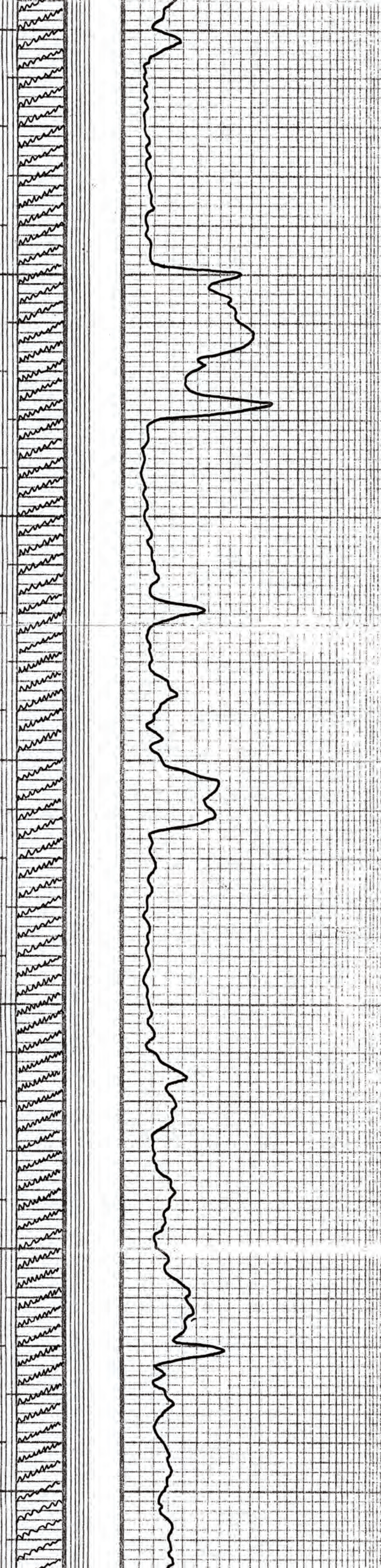
Schist - chlor, epid, qtz, muscu schist -

5700

5800

5900

6000



Schist-chlor, epid, qtz, muscu, schist - slight apparent increase in grain sizes, & decrease in foliation.

Schist-chlor, epid, qtz, muscu schist -

Schist-chlor, qtz, epid, muscu, schist - slight incr in amt. of epid, slight incr. in grain size, green transl. xtz grade to yellow green, acc. to med gen size

Schist-chlor, qtz, epid, muscu, schist - green, speckled green, hard to firm, brit w/ fol, abundant preferred parallel orient, acc. foliation w/ muscu, cults gen speckled app, abundant epid xtz, w/ muscu, gives speckly app, vitreous, abundant yell green, grading to green, epid, xtz, gen. normal to sch. xtz.

Schist-chlor, epid, qtz, muscu, schist - gen incr in gen size to fine, occasionally med

Schist-chlor, epid, qtz, muscu schist - green, speckled app, hrd, brit w/ foliation, abundant to milky, fine to med gen qtz xtz; gen. fine to med gen size in cuttings, sparsely w/ last from enh. xtz, muscu, abundant qtz agg, qtz xtz w/ chlorite, incl, slight incr. in foliation, tra. of phyllitic frags.

Schist - A/A - slight decr in amt of muscu.

Schist-chlor, epid, muscu, qtz, schist - green, dk grn, to gray grn, sparkly, speckly app, preferred parallel orient of xtz, qtz to talc, abundant qtz, is clr to milky, fine stly agg. to csa, brkn, qtz, and frags, cults are gen. hard, brit w/ talc, qtz is ~60%

Schist A/A free csc qtz to 70%, milky to clay, transl, abundant calcite

Schist-chlorite, epid, muscu, qtz schist - qtz approx 60%

Schist-chlor, qtz, epid, muscu, schist - green, yell. green, speckled app. from epid & qtz, gen. very fine even grn size, abundant pref. parallel gen. orient, acc. foliat, abnt incld qtz, acc. agg. f. qtz, gen. milky to clay blue; abnt cal in sample; epid is green grn, yellow gen, acc. cl. qtz. frags, qtz ~10%

Schist-chlor, qtz, epid, muscu, schist -

Schist-chlor, qtz, epid, muscu, schist -

Schist-chlor, qtz, epid, muscu, schist - gen. A/A, slight increase in muscu.

Schist-chlor, qtz, epid, muscu schist -

Schist-chlor, qtz, epid, muscu schist - acc. free, csc to med. frags of milky calcite ~10%

Schist-chlor, qtz, epid, muscu schist - green, dk green, gray grn; hrd, gen. speckled app, f. grn size, abundant pref. parallel orient, grade to acc. fol, abnt qtz, clr to milky transl, incld. f. gen. to trace csc size frags, epid A/A, acc. calcite A/A.

Schist-chlor, qtz, epid, muscu schist - incr in amt of free qtz to ~10%, acc. rosy transl, fine to scattered incld, fine as incld, csc to med grn size as free

Schist-chlor, qtz, epid, muscu schist - slight incr. in foliation, incr in muscu, incr in amt of rosy qtz in quartz traction

Schist-chlorite, quartz, epidote, muscu, schist

Schist-chlor, qtz, epid, muscu schist - green, gray grn, speckled app, with speckly last med muscu, acc. foliat, gen. pref. parallel orient, abnt fine qtz xtz as incl, acc. med size frags, qtz frags, sh. p. to ang, acc. slight rosy tint, acc. trace calcite, milky to transl.

Schist-chlor, epid, qtz, muscu schist - incr in free qtz to 10%, clr to clay transl, sh. p. ang. gen. frags., continued abnt. very fine to fine xtz inclusions

Schist-chlor, qtz, epid, muscu schist - dk grn, gray grn, hrd, u.f. grn size, acc. folia, acc. sh. p. app, acc. free qtz, med. gen. size, acc. cal.

Schist-chlor, qtz, muscu epid schist - increase amt. epid, muscu.

Schist-chlor, epid, qtz, muscu schist - dk grn, gray grn, dk gray grn, hrd, sl. lach. grn size, acc. yell. gen. epid in agg, abnt calcite, incld. milky acc. free, acc. free qtz

Schist-chlor, epid, qtz, muscu schist -

Schist-chlor, epid, qtz, muscu schist - incr in slury app, acc. free calcite, no incl., milky to yell white

Schist-chlor, epid, qtz, muscu schist - green slury green, gen. stz, med. hrd in pt, brit w/ foliat, to phyll. simple has, u. t. to med. grn size, abnt qtz incld. u. t. to med gen size, subang, acc. free milky

Schist-chlor, epid, qtz, muscu schist - grad. decr. in grn. size, incr. in folia, incr. in slury app

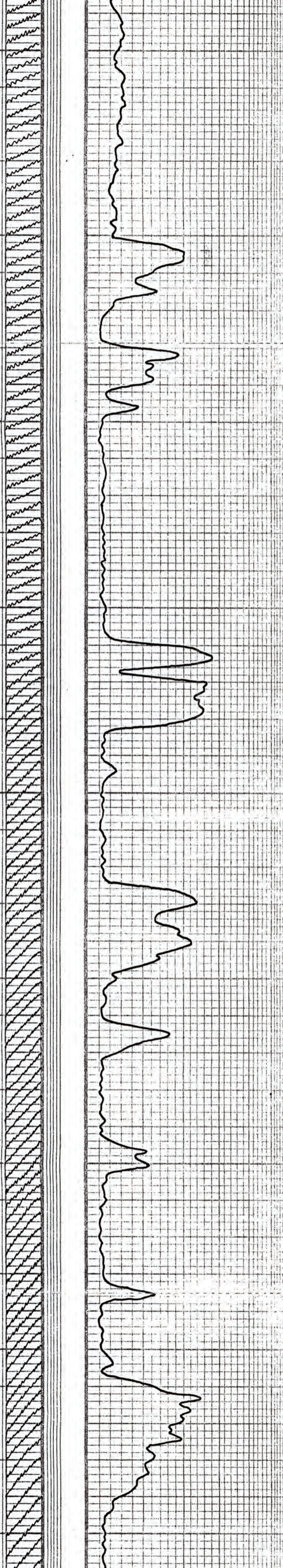
Schist-chlor, epid, qtz, muscu schist - u. dk. green, slury grn, hrd. decr in epid, chlor, in a. muscu, incr. fol, abnt phyll. frags, cont. decr. gen. size, to u. t. fine grn, tr. stz, graphite in u. t. stz or. small hrd

Phyllite-chlor, qtz, muscu, phyllite - green gray, slury, gray, slury, silky, last, hrd, bog. slickenside, abnt. in app, color, intense. qtz is milky, abnt. dk. gray qtz frags, cont. qtz, hrd. small hrd acc. in folia epid.

decrease in magnetic Reaction to slight -

gradual formation change to phyllite

6000
6100
6200
6300
6400



Schist-chlor, epid, qtz, muscov schist - gradual formation change to phyllite
 v. dk. green, silvery grey, bro. decr. in epid, chlor, in. muscov, in. fd, about phyll. frags, cont. decr. gen. qtz, to v. u. fine gran. tr. st. graphite in. tr. st. m. m. m.

Phyllite-chlor, qtz, muscov, phyllite - green grey, silvery grey, silvery grey lust, hard, dec. slickenside, about in. fd, mica, mica, mica, mica. qtz is milky, about dk. grey qtz frags, cont. graph., Radmanel (Cham) dec. in. folia epid.

Phyllite-chlor, qtz, muscov, phyllite - about dk. grey qtz frags, about horn & graph.

Phyllite-chlor, qtz, muscov, phyllite - jacq. amt. of graphitic inclusions, decr. chlorite, epid.

Phyllite-chlor, qtz, muscov, phyllite - in. in. included qtz to ~20%, v. u. to milky to dk, occ free qtz, occ. calcite.

Phyllite-chlor, qtz, muscov, phyllite - in. in. amt. of qtz 1/4 to 3/4 %

Phyllite-chlor, graphite, muscov, qtz, phyllite - green, grey green, silvery grey, hard to firm, occ. crumbly, intensely folia. in. fd, v. about graph. as interfolia inclusions, x/y qtz, occ. schistose grains, occ. green fibrous serpentine, imp. ls. x 40% qtz as incl. f. tr. st., subang. cl. thru. trans. milky to dk.

Schist-graphite, chlorite, epid, muscov, qtz, schist - green, grey green, about silvery lust, graphite frags, about graph. incl. about qtz as incl. to c. se. gen. v. fine to fine gran. about v. st. dy. m. m., occ. free and included calcite.

Schist-graph, chlor, epid, muscov, qtz, schist

Schist-graph, chlor, epid, muscov, qtz, schist - in. in. in. silvery lust.

Schist-chlor, epid, muscov, qtz, schist - sh. decr. in foliation, cont. preferred parallel gen. orientation, increase in silvery silky luster.

Schist-chlor, epid, muscov, qtz, schist - sh. decr. in folia.

Schist-chlor, epid, qtz, muscov, schist - green, grey green, h. r. about prev. parallel gen. orient. in. folia, about qtz as incl. occ. free conch. frac. qtz frags, milky to dk. trans. gen. v. f. gran. decr. gen. si. pe. occ. fib. serp. about graph.

Schist-graph, chlor, epid, qtz, muscov, schist - decr. in gen. si. pe. v. very fine, in. in. graph. decr. in parallel orient.

Schist-graph, chlor, epid, qtz, muscov, schist - cont. decr. in gen. si. pe. occ. gen. cont. decr. in parallel orientation.

SCHIST (GREEN SCHIST) (GRAPHITIC)
 MOD - DK GREEN, HARD, FINE GRAINED
 CHLORITE, QTZ, GRANITE, MUSCOVITE,
 TR. EPIDOTE, PHYLITE, 5% GRAPHITE
 MASSIVE MOD - DK GREEN, GRAPHITIC
 GOOD MASSIVE, MINOR SUCROSIDES
 CALCITE & QTZ V. U. FINE (CALC. -
 CREAM - CLOUDY, MASSIVE X-TEN, X-TEN
 QTZ - 10-15% - FE OXIDE PRESENT
 ON SURFACE V. U. BOUNDARIES
 AA GREENSCHIST - HARD
 SUCROSIDES W/ GRANITE
 FACES.

AA GREENSCHIST - INCREASING
 QTZ & W/IN SCHIST V. U. GRANITE
 BOUNDARIES. TR. PINK GRANITE.

AA GREENSCHIST + GRAPHITE
 PHYLITE - 5-10%
 SILVER GREY - SHINY (MICA) LUSTER
 FINE. PLATY. TR. EPIDOTE.

AA GREENSCHIST AND GRAPHITE
 PHYLITE.

AA GREENSCHIST + PHYLITE TR.
 PINK GRANITE WITHIN MASSIVE
 BOUNDARY SURFACE: 5-10% QTZ
 SUCROSIDES FINE GRAINED W/ IN
 7% GRANITE & 10% CALCITE TR. EPIDOTE
 AA GREEN SCHIST - GRAPHITE QTZ
 CHLORITE MUSCOVITE, DOMINATED BY
 VERY FINE GRAINED QTZ, CHL. & GRAPHITE
 TR. BLACK - DK GRAY SHADE (SCALE)
 PLATY W/IN MICRO TAN QTZ FINE
 CLEARABLE AND/OR BEDDING GOOD.
 QTZ & CALCITE V. U. FINE W/ IN
 GRAINED CONJUGAL CHLORITE.

TR. EPIDOTE - 100% ARE CHLORITE
 AA GREEN SCHIST. PREPARED II
 OR NEAR PARALLEL BOUNDARY
 ORIENTATION.

AA GREENSCHIST - INCREASING
 PHYLITE TO 30% FROM 5%
 TAN STAINING (HEMATITE) 5-10%
 QTZ & QTZ V. U. FINE.

AA GREENSCHIST. MORE GRAPHITIC
 20-25% CALCITE W/ CHEAT & QUARTZ
 V. U. FINE: 20-30% QUARTZ SUCROSIDES
 IN GRAINED - CHANGING TO HEMATITE.

AA GREENSCHIST - DECREASING
 PHYLITE < 5%.

AA GREENSCHIST.

AA GREENSCHIST - VERY FINE GRAINED
 QUARTZITE SUCROSIDES. GRAPHITIC
 GRAPHITIC - FINE FINEWORK.

AA GREENSCHIST - BACK TO
 MORE SCHISTOSE FABRIC W/ IN
 PREFERRED GEN. ORIENTATION
 AND FINE GRAIN FRAMEWORK.
 GRAPHITIC - 15-20% QTZ V. U. FINE
 AA GREENSCHIST - GRAPHITIC
 VERY FINE GRAINED QTZ SUCROSIDES
 W/ CHLORITE / GRAPHITE MATRIX
 BOUNDARY FRAMEWORK 20% CALCITE
 V. U. FINE. CLEAR. CLOUDY MASSIVE
 X-TEN.

AA GREENSCHIST - W/ GRAPHITIC
 QTZ SUCROSIDES V. U. FINE.
 5-10% HEMATITE STAINING.

AA GREENSCHIST - TR. GRAPHITIC
 QTZ SUCROSIDES - CLEARABLE OF
 SCHIST PROPORTION.

AA GREENSCHIST - TR. EPIDOTE
 GRAPHITIC SCHIST. MOD. MOD - DK
 GREENISH GREY.
 CHL & QTZ V. U. FINE 10%.

AA GREENSCHIST TR. PINK
 GRANITE - FINE GRAINED
 SUCROSIDES 10-20%
 FE STAINING.

AA GREENSCHIST QUARTZOSE
 GRAPHITE: 5-10% PHYLITE
 MUSCOVITE CHLORITE.

AA GREENSCHIST - INCREASING
 PURE CHLORITE.

AA GREENSCHIST - 20-25%
 CALCITE V. U. FINE. CLEAR -
 CLOUDY - MASSIVE X-TEN CONJUGAL
 FRAMEWORK.

AA GREENSCHIST 20-25%
 CALCITE AND CALCITE IMBEDDED
 QTZ (CHLORITE) V. U. FINE.

AA GREENSCHIST. QUARTZOSE
 GRAPHITIC - HARD - MOD. MOD
 (BRITTLE).

- gradual formation change to phyllite

SPLIT CHANGE

TR. PINK GRANITE.

CHANGE.

TR. PINK GRANITE.

C400

6500

6600

6700



CALCITE AND CALCITE IMPREGNATED QZ (CHERT). VIGN FILL

AA GREENSCHIST QUARTZOSE GRAPHIC - HARD - MOD HARD (BRITTLE)

AA GREENSCHIST CALCITE/QZ (CHERT VIGN MATERIAL) QZ ATLD GROWTH OUTWARD INDICATES POSSIBLE OPEN FRACTURES

QZ ATLD GROWTH INDICATIVE OF OPEN FRACTURES.

AA GREENSCHIST QUARTZOSE ABUNDANT CHAZRITE INCLUSIONS CHAZRITE DOMINANT MATRIX 5-10% PHYLLITE QZ IN GRAINED FRAMEWORK W/ GRAPHIC INCLUSIONS TR ANIDIZED HEMATITE

AA GREENSCHIST - 5% SLICKEN SIDES 6430-6450 W/ GRAPHIC OR FE ANIDIZED FACES

AA GREENSCHIST

AA GREENSCHIST

AA GREENSCHIST

AA GREENSCHIST

AA GREENSCHIST TR EPIDOTE INCREASED CHAZRITE CONTENT 10-15% CALCITE QUANT. MICROFRACTURES ALL CALCITE FILLED

MICRO FRACTURES IN QUARTZ/CHERT VIGN FILL ARE CALCITE FILLED.

AA GREENSCHIST

AA GREENSCHIST

5-10% PHYLLITE SILVER-GRAY MUSS. GRANITE, HARD CRYSTALLINE MINOR FE OXIDE MINERALIZATION

AA GREENSCHIST

AA GREENSCHIST

AA GREENSCHIST TR EPIDOTE W/ GREEN XEN. MINERAL ASSC. W/ VIGN OR FRACTURE FILL USUALLY AGGREGATED W/QZ AND/OR CALCITE

AA GREENSCHIST, PHYLLITES SILVER-GRAY TO BLACK, DEPENDENT ON GRAPHITE CONTENT, HIGHLY GRAPHIC PHYLLITE INTERLAYERED W/ QUARTZ OR CHERT GOOD CLEAVAGE AND/OR BEDDING PROMINENT W/ PHYLLITE.

AA GREENSCHIST

AA GREENSCHIST - TR SLICKEN SIDES, CUTTINGS POORLY SORTED, MOST VERY FINE NO COMPARISON TO PREVIOUS COARSE BLOCKY CUTTINGS

AA GREENSCHIST

AA GREENSCHIST

AA GREENSCHIST

GREENSCHIST DECREASING 40% PHYLLITE - GRAPHIC ABUNDANT CHAZRITE, PLATY, WELL CLEAVED FOSILO

PHYLLITE BEDS.

AA GREENSCHIST 40% PHYLLITE TR EPIDOTE

AA GREENSCHIST - GRAPHIC CHAZRITE, QUARTZOSE, VERY FINE CUTTINGS, TRACE EPIDOTE W/ GRANITE VIEW

GREENSCHIST AA W/ 30% VERY FINE GRAINED QZ SILTSTONE, VERY GRAPHIC, QUANT FARMWORK, LESS SCHISTOSE FABRIC 20-25% CALCITE/QZ VIGN FILL

FINE QA QZ SILTSTONES.

AA GREENSCHIST W/ SILTSTONE

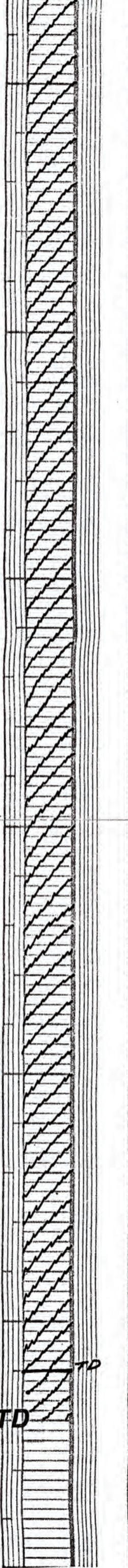
AA GREENSCHIST W/ SILTSTONE

6700

6800

6900

970 TD



VIEW FILL

AA GREENSCHIST w/ SILTSTONE

AA GREENSCHIST w/ SILTSTONE

GREENSCHIST, GREENISH-GREY
 ABUNDANT CHLORITE, QUARTZ,
 MUSCOVITE, GRANITE, 10-20%
 GREENISH GREY ANHYLITE,
 TR. EPIDOTE, TR. FE STAINING

SILTSTONES REDUCED TO TRACE.

AA GREENSCHIST.

AA GREENSCHIST

GREENSCHIST w/ 20-30%
 V. FINE GRAINED QTZ SILTSTONES,
 GRANITE, TR. MAGNETITE.

INCREASING FINE GRAINED QTZ SILT STONES.

AA GREENSCHIST & SILTSTONES

VIEW MATERIAL, CHLORITE AND QUARTZ.

AA GREENSCHIST w/ SILTSTONES

AA GREENSCHIST w/ SILTSTONES

AA GREENSCHIST w/ SILTSTONES

GREENSCHIST, GREENISH-GREY,
 ABUNDANT CHLORITE, QUARTZ,
 MUSCOVITE, GRANITE, TR.
 EPIDOTE, TR. MAGNETITE.

INCREASING SILTSTONES

AA GREENSCHIST
 20-25% FINE GRAINED QTZ
 SILTSTONES

AA GREENSCHIST w/ SILTSTONES

AA GREENSCHIST w/ SILTSTONES

AA GREENSCHIST -
 10-15% EPIDOTE, VIEW
 MATERIAL, 10-20% CHLORITE/QTZ
 VIEW MATERIAL

DECREASING SILTSTONES

AA GREENSCHIST w/ EPIDOTE, 5-10%

AA GREENSCHIST

AA GREENSCHIST,

AA GREENSCHIST.

AA GREENSCHIST.

AA GREENSCHIST.

AA GREENSCHIST.

TO 6968 GREENSCHIST
 GREENISH-GREY, ABUNDANT
 CHLORITE, QUARTZ, MUSCOVITE,
 TR. GRANITE, TR. EPIDOTE ASSC.,
 w/ QTZ AND CHLORITE VIEW FILL,
 TRANSLUCENT QTZ TERACED,
 10-15% SILVER-GREY PHENOL,
 SLIGHTLY GRAPHIC DOMINANT,
 MUSCOVITE w/ TR. CHLORITE

TO 6968 LTD TO 6970 LTD