CONNECTICUT GEOLOGICAL AND NATURAL HISTORY SURVEY

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Core Description and Cuttings Description of the 1987 Moodus 4,764' Deep Well, Connecticut

by

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1989

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SUMMARY OF LOGGING CONVENTIONS USED IN THE DESCRIPTION OF CORE MATERIALS FROM THE 4764' DEEP WELL AT MOODUS, CONNECTICUT; 1000' WELL AT MOODUS, CONNECTICUT; AND 1500' WELL AT GILLETTE CASTLE, CONNECTICUT

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INTRODUCTION

The early summer 1987 drilling of the Moodus, Connecticut 4764' deep well made apparent the need for updating and coordinating information relating to basement drilling in Connecticut. This document forms the basis for standardizing the existing information on basement drilling in Connecticut, allowing the relationships between the different wells to be recognized.

Reexamination of all basement well materials was beyond the scope of this project so that various use was made of preexisting descriptions of the materials. The new materials from the Moodus 4764' well were completely examined and described. The core from the Moodus 1000' well was reexamined in its entirety and editions to the log prepared earlier by David London were made. The log prepared by Robert Wintsch and John Bernitz for the Gillette Castle 1500' well was spot checked against the core to determine its accuracy. It was determined to be sufficient for this compilation and was redrafted.

The new logs were constructed in a form which was designed to allow rapid appreciation of various details of each core section. In essence, a reproduction on paper of the actual appearance of each core was the goal. This was very well

realized in the Moodus 4764' 1:1 logs and sufficiently realized in the Moodus 1000' and Gillette Castle 1500' 1:12 logs. Notes accompanying each log section relating to lithology, fabrics and mineral segregations add detail to the drafted columns. It is very important to note that the core materials considered in the logs were not oriented when retrieved from their respective wells and therefore the fabrics shown in the logs bear no relation to the actual orientation of the features in the Earth except up and down.

A step-by-step scheme is suggested for examination of the log sheets which should aid in the total appreciation of each section. This SUMMARY OF LOGGING CONVENTIONS should always be available to consult when new symbols or abbreviations are encountered. Check each symbol or abbreviation to become familiar with each and do not assume that the meaning of a symbol or abbreviation is obvious as it may not be even though the attempt was made to make each symbol and abbreviation a reminder of it's meaning. When examining a new section, first note the drafted fabrics and contacts of the section. Then note the overall or host rock lithology for the section offset to the far right column with the key lithologies underlined. Each major break in fabric or lithology has it's host rock lithology described and each of these major subdivisions of the logs is shown by a thick lined break aligned in a centralized column in the right half of each page. Secondly, note details of the lithologies in the section placed a few spaces right of the log column, adjacent to the layer or body in question. Finally,

observe any specific fabric notes in the left half of the page. These fabrics are typically low-grade overprinting fabrics, and the fabrics shown by symbols on the log column usually are higher grade ductile fabrics. This approach to the logs is similar to the manner in which they were constructed and seems most useful.

ABBREVIATIONS USED IN THE LOGS

Abbreviations were found to be a necessary tool in logging to help reduce time in logging and prevent clutter from too many words on a page. In the drafted logs they continue to help reduce clutter. Three groups of abbreviations were used in logging and description: mineral abbreviations, general descriptor abbreviations, and fabric abbreviations. An alphabetized listing of each of these groups is provided here.

Mineral Abbreviations

Mineral abbreviations are most often the first part of a mineral name, but not always. These abbreviations are not all standard but were chosen to most easily remind one of the mineral in question.

act	actinolite
biot	biotite
chl	chlorite
cpx	clinopyroxene
diop	diopside
epid	epidote

Mineral Abbreviations cont.

fspar or F	feldspar
gnt	garnet
hbl	hornblende
Kspar or K	potassium feldspar
mgt	magnetite
musc	muscovite
plag or P	plagioclase
pyr	pyrite
qtz or Q	quartz
sill	sillimanite

General Abbreviations

Abbreviations of repeatedly used words were chosen to resemble the word in question. Again, use of these abbreviations resulted in less written material on each page which increased the clarity of the log.

acc	accessory
@	at
alt	altered, alteration
apprec	appreciable
blast	porphyroblast
blastic	porphyroblastic
dk	dark
diam	diameter
diss	disseminated

General Abbreviations cont.

frag(s)	fragments, fragment
lt	light
med	medium
MFS	mean fragment size (chip descriptions only)
mod	moderate, moderately
seg	segregation
tr	trace
v	very
w/	with

Fabric Abbreviations

Along with the symbols for fabric shown in the log columns, abbreviations were also used for fabrics in written descriptions where these were necessary. These abbreviations are summarized here.

fol	foliated, foliation
gfsc	granofelsic
gns	gneiss, gneissose
lin	lineated, lineation
myl	mylonitic
phyll	phyllitic
s	segregation, always prefixed by one or more mineral abbreviation(s)
sch	schist, schistose
vein or V	vein filled with a given mineral

LITHOLOGIC DESCRIPTIONS

Throughout all of the logs and the chip descriptions from the Moodus 4764' well, abbreviations for lithologies are used to designate the rock type in a certain interval. Accompanying many of the abbreviations in the logs are modifiers which indicate any deviations from the generalized descriptions of the lithologies given here. Familiarization with these definitions is crucial in understanding these logs and chip descriptions.

An important note is that terms traditionally reserved for fault rock fabric have occasionally been used in the descriptions of core and chip lithologies because of the inability to properly describe the mineralogy of the rock in hand specimen. Such "rock types" include microbreccia = microcataclasite, ultramylonite, mylonitic schist, phyllonite, and pseudotachyllite.

<u>alask</u> (alaskite)

subequal qtz, plag, Kspar

accessory biot, mgt, hematite

typically fleshy pink in color

grain size varies from .5 - 1.5 mm.

generally mod-well foliated and gneissose

Amph (amphibolite)

hbl 50 - 100%

plag 0 - 50%

biot 0 - 30 %

accessory apatite, pyrite, mgt, cpx

black, brown-black to dk greenish black in color

grain size varies from 1 - 3 mm.

generally mod-well foliated gneissose to schistose

Ap (aplite)

subequal qtz and plag, sometimes w/ minor Kspar up to 10%

accessory biotite up to a few percent

v. lt. gray to cream to white in color

generally < 1 mm. grain size

usually gneissose w/ recovered sucrosic grains

a common vein material in the Hebron Gneiss

BAS (biotite amphibole schist)

biot 50 - 100%

green amphibole usually act 10 - 50%

plag 0 - 20%

accessory tremolite, scapolite, pyr

dk. greenish brown to black in color

up to 2 mm. grained

schistose to myl schistose fabric

often cuts host rock foliation at a low angle
common in the Hebron Gneiss

BGG (biotite granitic gneiss)

subequal qtz, plag, kspar

biot at least 5% up to 10%

accessory musc, pyr, gnt

lt - med gray to pink in color

usually even grained from 1 - 2 mm.

poorly to well foliated and lineated, gneissose

largely restricted to layered granitic intrusions within the Hebron Gneiss

BHG (biotite hornblende gneiss)

plag	50 - 90%
qtz	0 - 30%
hbl	0 - 50%
biot	0 - 30%

accessory sphene, mgt, epid, Kspar

med - dk gray in color

even to irregular grained .5 - 4 mm.

poorly - well foliated and lineated, gneissose

abundant lithology in the Avalon Terrain

BHS (biotite hornblende schist)

biot	50 - 80%
hbl	20 - 50%

accessory sphene, mgt, plag (sometimes important)

dk. green black to black in color

variably grained .5 - 3 mm.

well foliated myl schistose fabric

BMS (biotite mylonitic schist)

biot	30 - 50%
qtz	30 - 50%
plag	10 - 30%
Kspar	0 - 10%

accessory musc, gnt, sill, apatite, pyr

medium - dk brown in color

highly variable grain size, .5 - 5 mm.

always v. well foliated myl sch fabric

segregations of qtz and qtz-fspar are common
a common rock type in the Honey Hill Fault zone

BPG (biotite plagioclase gneiss)

plag	70 - 90%
qtz	0 - 30%
biot	< 5% but always present
Kspar	0 - 20%

lt - med gray in color

even grained from .5 - 1.5 mm.

mod - well foliated and lineated, gneissose
often laminated

BQP (biotite quartz plagioclase schist)

biot	30 - 70%
qtz	20 - 30%
plag	20 - 30%
Kspar	0 - 15%

accessory hbl, diop, gnt, musc, scap, pyr, calcite

med - dk brown in color

fairly even grained .5 - 2 mm.

schistose fabric

varies from markedly biot-rich to plag-rich
common lithology in the Hebron Gneiss

LGG (leucogranitic gneiss)

a very similar lithology to BGG already described except that this lithology contains <5% biotite and is often musc bearing, is always white or lt. gray, and is sometimes fairly uneven grained

microbreccia

a v. fine rock with characteristics like those described later in the fabric symbols, which is commonly composed of Kspar, chl, qtz, mgt and ground host rock as determined by SEM backscatter imagery

MMS (muscovite mylonitic schist)

musc 20 - 50%

chl or biot 10 - 30%

qtz 20 - 40%

accessory plag, Kspar, pyr, gnt

med green gray to brown gray to silvery white in color

highly variable grain size, .5 - 5 mm.

always well foliated myl sch fabric

commonly w/ QS or QFS

myl sch (mylonitic schist)

a general name for rocks w/ myl sch fabric and having unique mineralogy. myl sch fabric is described later in the fabric symbols

PBS (plagioclase biotite schist)

plag 10 - 30%

biot 50 - 90%

qtz up to 10%

accessory hbl, diop, musc, Kspar, gnt, scap

dk. brown to black in color

highly variable grain size .5 - 5 mm.

well foliated schistose to myl sch fabric

this lithology commonly truncates foliations in the host lithology at a low angle. common in all rock units

pegmatite

a vein-type lithology with extremely variable and uneven grain size from .5 mm. to 3 cm. commonly contains qtz, plag, and Kspar in highly variable proportions with accessory biot, musc, tourmaline, gnt, chl, sulfide

phyllonite

a phyllitic appearing rock of variable mineralogy, but typically chl-musc-rich. this fabric is described later in the symbol description section

QDG (quartz diopside granofels)

qtz	30 - 60%
plag	20 - 30%
diop	10 - 30%

accessory act, scap, calcite, biot, tourmaline, sulfide, gnt

med greenish gray to green in color

even to variably grained .5 - 4 mm.

granofelsic to poorly foliated gneissose fabric

restricted almost entirely to the Hebron Gneiss

QFS (quartz feldspar segregation)

a thin, discontinuous vein material of variable grain size .5 - 10 mm. and composed entirely of quartz and feldspar most often plag. often occurs in highly deformed zones

QS (quartz segregation)

a thin, discontinuous pure quartz veinlette. often occurs in highly deformed zones

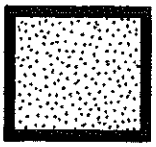
v. Qtz (vein quartz)

a planar, often quite thick, body of pure quartz

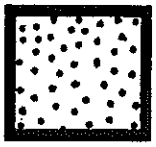
LOG SYMBOLS AND SHEET ORGANIZATION

The following sheets are the guide to all of the symbols, most of them fabric related, used in visually representing the cores considered in this project. Most of the symbols were independent of log scale (1:1 vs. 1:12) and these are given first. Some symbols did vary with log scale or were better represented on the log sheets, and are presented on actual log sheets. The description of the sheet organization is presented on the last 1:12 log sheet in a form similar to the instructions for GSA abstract format.

Micro- to cryptocrystalline black rock sometimes bearing minute mineral fragments. Fluidal characteristics are shown by intrusion of material into dikelettes off thicker dikes. Origin of this material is probably fault related as microbrecciation often accompanies this material. May include ultramylonites, microbreccias and pseudotachyllites.



Microbreccia having rock and mineral fragments visible with a 10X hand lense or greater magnification. Cements are given in the logs where they are discernable, but color is often the only indication of mineral content: green = chl and/or epid, black = mgt, brown = biot.



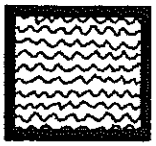
Breccia having rock and mineral fragments visible with the naked eye. Cements are given in the logs where they were discernable.

(a)

Mylonitic Schist (a). Very micaceous (greater than 30%) rock having clearly anastomosing foliation and lensoid fabric. Commonly exhibits "S-C" fabric. Blasts of plag and muscovite are common, but less than 10%. QS and QFS are very common and often abundant in zones with this fabric.

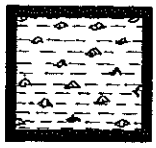
(b)

Blastomylonitic Schist (b). Identical fabric as (a), but bearing greater than 10% porphyroblasts.



Crenulated Schist. Very micaceous rock with well developed crenulation observable in hand sample. Commonly in chl-musc schists.

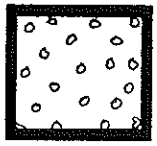
Phyllonite. Mica-rich (commonly chl-musc) rock with individual grains barely visible with a hand lense (that is phyllitic in appearance). In thin section these zones show highly anastomosing fabric indicative of shearing.



Ultramylonite. Ultra-fine grained rock of great variety of color resembling chert or flint. A streaky foliation is visible only as color variation, and thin less than 1 mm. partings are common parallel to the color bands. In thin section, minute feldspar clasts are visible. This fabric is commonly developed in low biotite and qtz rocks.

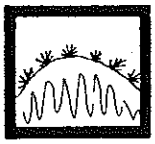
Augen Gneiss. Quartzofeldspathic rock usually metaigneous in origin bearing augen of feldspar in a finer grained groundmass of qtz, fspar, and some mica. The gneissose foliation in the rock is anastomosing and lensoid (myl). Pegmatites, BHG, and BGG commonly have this fabric developed.

Straight gneiss. Gneiss bearing high grade mineralogy and often being migmatitic with extremely planar foliation and quartzofeldspathic and micaceous laminae 1 - 3 mm. thick that extend for several meters when observed in outcrop. Where migmatitic, the leucosomes are in strong parallelism with laminae. Feldspar blasts up to several centimeters in diameter are common but not abundant enough to constitute an augen gneiss.



Spotted Plagioclase Blast Granofels. The recently described "blastocataclasite" of Wintsch (1985), which is described as a high grade brittle fabric overprinted by ductile shear. The rock is of unique character being biotite and sometimes muscovite rich with abundant (10 - 50%) plag blasts, generally not augen in shape. The micas are often very weakly foliated in a mylonitic fabric, but the overall appearance of the rock is granofelsic. This fabric often truncates host rock foliations at low angles.

Quartz Vein Filling. Planar layers filled with v's are interpreted as veins and discontinuous lenses, pods and layers are considered as segregations.



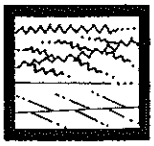
Mineral rosettes on some surface. Commonly exhibited by tourmaline on the walls of a vein.

Quartzofeldspathic Vein Material. X's stand for feldspar the variety of which is usually given, but if not is likely plag. V's stand for quartz. Planar layers are considered veins, and the type is given. Irregular bodies are segregations and often have no descriptors.

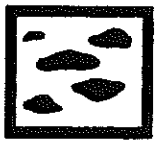
Feldspathic Vein Material. Uncommon feldspar veins were noted as well as segregations. The feldspar type is always given.

Single Plagioclase Grains. Designed to suggest albite twinning, this symbol was entirely restricted to the Moodus 4764' 1:1 logs.

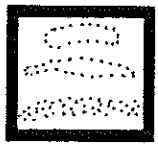
Single Microcline Grains. Designed to suggest tartan twinning in microcline, this symbol was entirely restricted to the Moodus 4764' 1:1 logs.



Fractures And Thin Fabric Elements. Jagged lines indicate rough fractures in the core and straight lines indicate smooth breaks in the core or less than 1 cm. thick fabric layers which are always described (usually in the left half of the log page). Unaltered fractures are not noted except in the MOodus 4764' logs. Alterations along fracture are always listed.



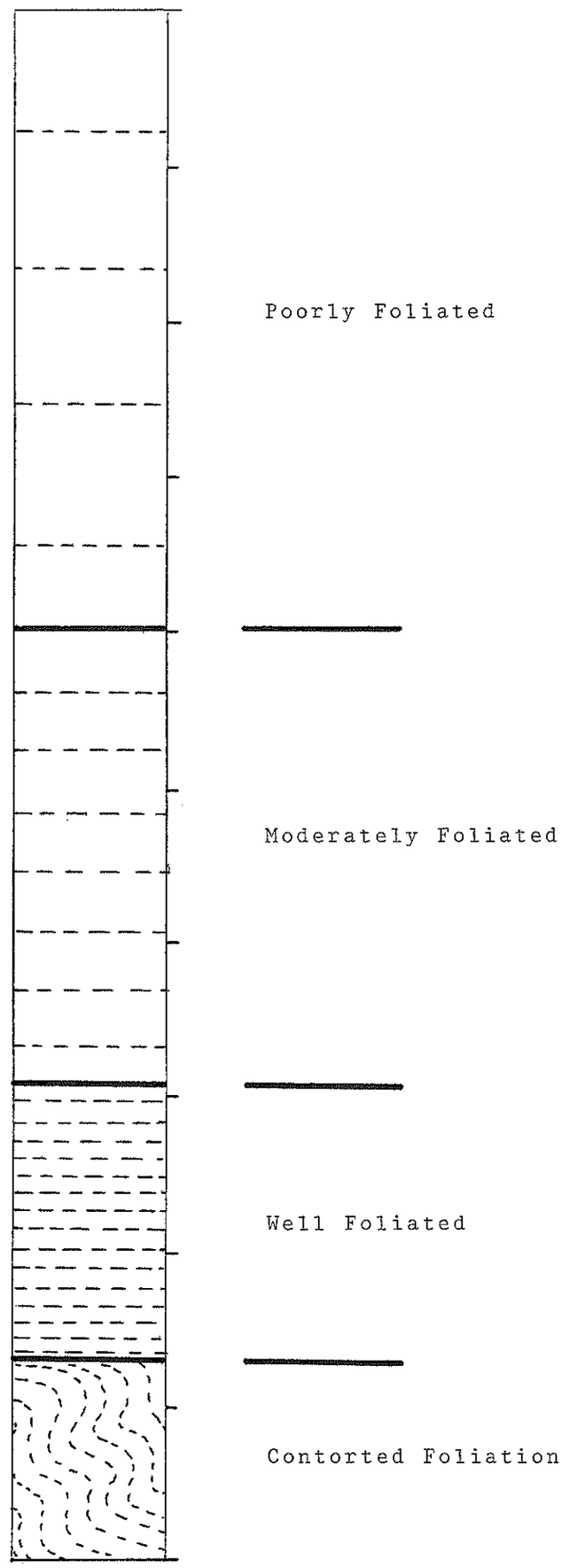
Dark Mineral Segregations. Tourmaline and hornblende were found in a few places in pod-like segregations that required a unique symbol. The mineralogy of the segregations are always given.



Mineral Concentration Zones. Dotted outlines define the perimeter of a diffuse mineral segregation, the mineral always given. A stippled pattern defines the region of a unique disseminated mineral.

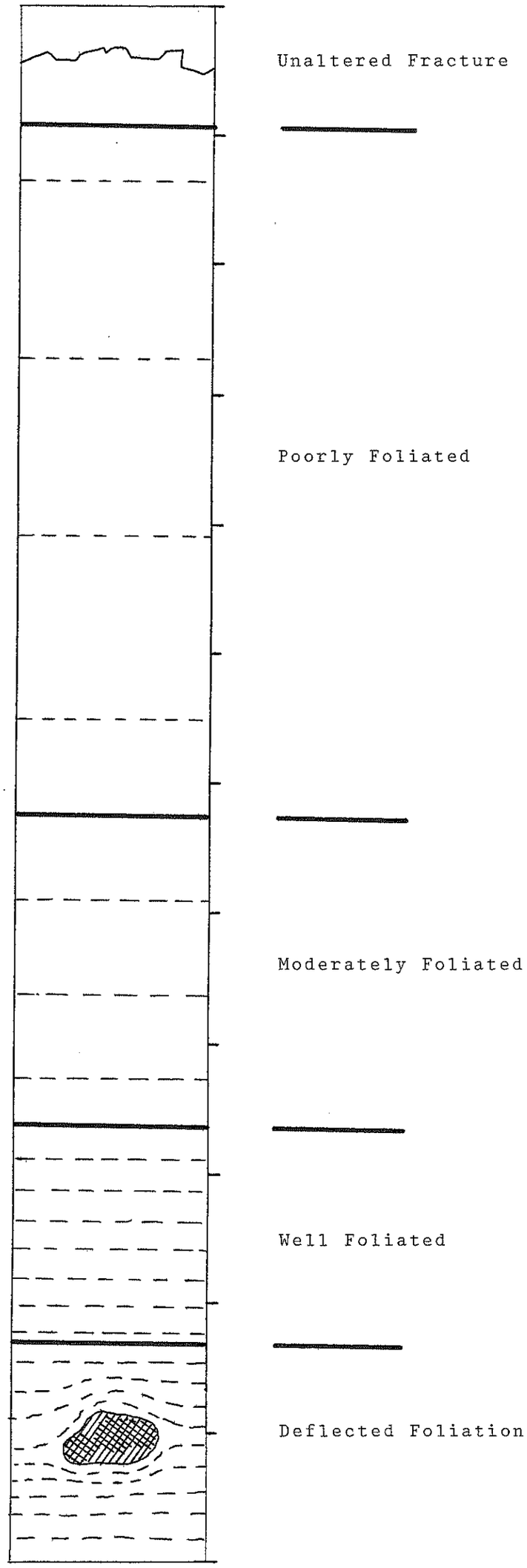
CORE LOG_____ BOX#_____ INTERVAL_____

Foliation Symbols Used In The 1:12 Logs.



CORE LOG_____ BOX#_____ INTERVAL_____

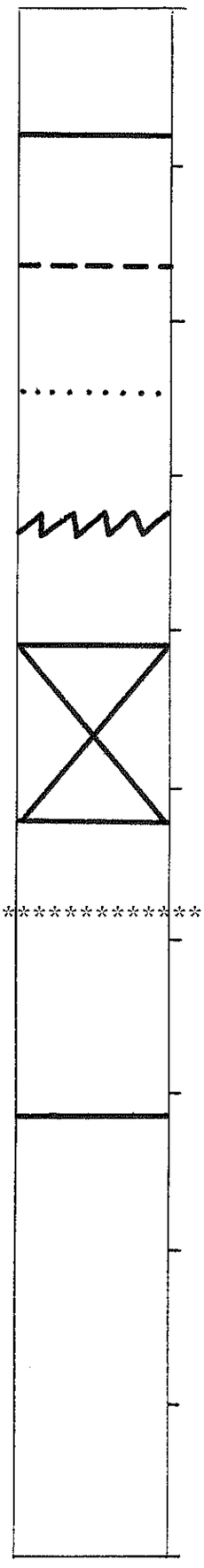
Foliation and Fracture Symbols Used in the 1:1 Logs.



CORE LOG_____ BOX#_____ INTERVAL_____

Contacts and Other Log Symbols

Sheet Organization (below ******)



Sharp Lithologic Contact

Gradational Lithologic Contact over 1 - 2 cm.

Gradational Lithologic Contact over Greater Than 2 cm.

Skip in log over homogeneous section. Footages given above and below skip give amount of compressed log.

Section not recovered or sampled by drilling firm for physical testing. Not used in the Moodus 4764' logs.

****

This line separates major breaks in lithology or fabric in the log.

The overall host rock of the sectio is described in this region with the key terms <u>underlined</u>.

Fabric observations not readily shown by symbols on the log column appear in this portion of the log sheet. As brittle features tend to be thin and ductile features wide, this area is generally restricted to low grade brittle fabrics.

Detailed observations about the core are placed adjacent to the column, next to the item in question.

SUMMARY

The product of this work is an internally consistant set of logs for the three drill holes considered and a description of chips from the Moodus deep well in a similar context. The rules developed, and here presented, under which this "homogenization" of the work to date has been accomplished are hoped to assist in future examination of these materials and notes as well as to guide future description of new materials from the basement rock of Connecticut.

SUMMARY OF DESCRIPTIONS OF CORE MATERIALS FROM THE 1987 MOODUS 4764' DEEP WELL

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OCTOBER, 1987

INTRODUCTION

This document summarizes the detailed logs (1:1) completed for the cored intervals of the 1987 Moodus deep well drilled near Moodus, Connecticut during early summer 1987. Included here are: 1.) descriptions of the major lithologies where they were found to vary markedly from the descriptions given in the SUMMARY OF LOGGING CONVENTIONS; 2.) estimated abundances of major lithologies for each core; 3.) discussions of fabrics and structures in each core where such features were evident; and 4.) summaries of petrographic observations from thin sections of chips collected adjacent to each core that were expected to relate directly to the lithologies in the core intervals.

Nine 3" diameter cores were retrieved from the 4764' deep well varying in length from 5' to 10'. Sampling of the cores began at 500' and a new core was taken every 500' down to 4500' at which depth the last core was sampled. The bore hole was maintained within 4 degrees of vertical for it's entire length according to the drillers. Descriptions of the logs presented here were formulated at the drill site, and photographs were taken of the cores at the site and are available for inspection at the Connecticut Geological Survey. The core was sent for destructive physical testing late in the summer, 1987.

CORE SECTION #1 (501' 5 1/2" - 511' 4 1/2")

The first core interval was composed of BQP (M), transitional BQP-BGG(s), BGG (s), Ap (s), PBS (m), QFS (m), QS (m), and QDG (m < 5%) (See the SUMMARY OF LOGGING CONVENTIONS for descriptions of these lithologies - only variations from those descriptions will be given here. M = major constituent of core, s = subordinate constituent of core, and m = minor constituent of core.) Foliations and layering in the core were generally shallowly dipping 10 to 20 degrees. Some intrafoliar folding of foliations and layering was noted, especially of QS and Ap. A vertical vein filled with plagioclase, diopside and hornblende occurred at 507' 8" to 509' 7". The lithologies and fabrics represented in the core were identical to those found in the Hebron gneiss at the surface and in both the Moodus 1000' and Gillette Castle drill holes. Thin sections were cut from chips collected at 442', 462' and 744'. Modes presented in these and all following petrographic descriptions were by visual estimate.

<u>442'</u>

<u>BQP</u>	< or = 0.5 mm. grained, schistose	
	fox red biot	30%
	plag	60 %
	qtz	10%
	acc.: graphite, tourmaline	

QDG < or = 1 mm. grained, schistose where biot-rich to granofelsic.

fox red biot	20%
zoisite	10%
actinolite	10%
qtz	30%
plag	30%

acc.: calcite, musc, sphene

462'

BGG < or = 1 mm. grained, gneissose.

dk. brown-red biot	5%
qtz	35%
kspar (microcline)	35%
plag	25%

744'

BQP < or = 0.75 mm. grained, schistose.

fox red biot	40%
plag	50%
qtz	10%

acc.: graphite

QDG < or = 1.5 mm. grained, weakly gneissose.

qtz	40%
plag	40%

hbl, diop, sphene, calcite, opaque 20%

CORE SECTION #2 (1001' 0" - 1010' 11")

The second core interval was composed of BQP (M), QDG (M, 20%), QS (m), PBS (m), and QFS (m). The lowest 3 1/2' of core contained BQP of distinctly diopsidic nature with up to 10% disseminated diopside in the lithology. The lowest 6' of core showed a marked increase in QDG abundance. Foliation in the section was subhorizontal to slightly dipping up to 15 degrees. QDG layering exhibited intrafoliar to ptygmatic folding as well as attenuation and boudinage. The 1004' to 1005' interval contained abundant QDG lenses and patches probably from the disaggregation of QDG layers by shearing. Nearly vertical qtz-plag-diop veins occurred in the upper 3' of the core. The lithologies and fabrics found in this core were identical to those found in the Hebron gneiss found at the surface and in the other basement drill holes. Thin sections were cut of chips from 1044'.

<u>1044'</u>

<u>BQP</u>	< or = 0.75 mm. grained, schistose.	
	fox red biot	30%
	plag	60%
	qtz	10%
	acc.: hbl, graphite, opaque	
<u>QDG</u>	< or = 1 mm. grained, granofelsic.	
	qtz	40%
	plag	40%
	diop	15%
	hbl, zoisite, opaque, calcite, chl, sphene	5%

CORE SECTION #3 (1500' 0" - 1509' 9 1/2")

The third core interval was of much different character than the interlayered BQP-QDG of the first two intervals. This interval still contained abundant BQP as the 500' and 1000' intervals did, but no layers or lenses of QDG were found. Instead, the BQP was interlayered with and transitional into gnt-sill-musc-biot-qtz-plag mylonitic schist containing abundant QS and QFS rarely exceeding 1 cm. in thickness. These segregations were always lensoid and often contorted into complex minor intrafoliar folds. Individual augen or blasts were rare. Minor fibrolite mats often interfingered on their ends with biotite. Garnet was most abundant in these sillimanite-bearing schists, but never exceeded 1% mode. Lithologies included in the core were BQP (M), mylonitic schist-BMS and MMS (M), QFS (M), QS (s), and sill-gnt-bearing PBS (m). Felsic BQP was noted at 1509' 1" to 1509' 4 1/2". As noted above, the fabric of this core is generally mylonitic; that is, foliation and layering combine to form a lensoid - anastomosing aggregate at all scales of observation from hand sample to thin section. Complex small scale intrafoliar folding was common as well as attenuation and general smearing of layers. Foliation was subhorizontal to shallowly dipping up to 15 degrees. Layers of QFS were most deformed in the most schistose zones where they were also the most abundant. Gradation of the BQP into the mylonitic schist and the accompanying increase of deformation fabric and segregations made this observer suspicious of deformation as a driving mechanism or energy source in the development of the gnt-

sill-bearing schists from typical BQP starting material. Chip information shows that typical Hebron gneiss above this core interval grades into this schistose unit and back out into normal interlayered BQP-QDG, suggesting this interval is contained within the Hebron gneiss unit. This observer interprets the zone as a major subhorizontal shear zone within the Hebron gneiss. See the summary log of the Moodus deep well for the thickness of the zone. Thin sections were cut of chips from 1524'.

<u>1524'</u>

<u>BQP</u> < or = 1 mm. grained, schistose to mildly anastomosing schistose (mylonitic).

dk. fox red biot	20%
plag	60%
qtz	20%

acc.: musc (only in anastomosing folia)
garnet (only in anastomosing folia)
graphite, tourmaline

<u>MMS</u> < or = 2 mm. grained.

musc	50%
brown biot	20%
qtz	15%
plag	15%

acc.: garnet (2-3 mm.), graphite, apatite

fabric highly anastomosing, micas are highly warped, fish-like and stretched

CORE SECTION #4 (1960' 0" - 1966' 4")

The fourth core interval showed an abrupt change in lithology from the first three cores. The core was composed of BGG(M), LGG(m), QFS(m), and QPK pegmatite(m). The dominant lithology (BGG) contained 5% to 10% biotite, was even grained in any one fabric layer, ranged from <1 mm. to 3 mm. grained overall, varied from medium gray to pink in color, and contained minor <2 mm. red garnets disseminated throughout the core. Commonly, 4" to 6" layers of constant degree of foliation were noted, varying from very poorly foliated to well foliated. Poorly foliated layers had barely discernable gneissosity, and well foliated layers had folia spaced from 1 to 2 mm. Foliation was generally subhorizontal. A few 1 mm. thick biotite laminae were noted that cut the surrounding foliation at a low angle. These may have been displacement surfaces. The position of this unit near the base of the inferred Hebron gneiss section as indicated by chip information, and the similarity of the lithology with surface exposures and similar material in the Gillette Castlecore, support the correlation of this unit with the Canterbury gneiss of Eastern Connecticut. It is important to note that much similarity also exists between this unit and the granitic gneiss much further up section in the Moodus 1000' well. This correlation would require geochemical documentation and would be of great interest in discerning the nature of the Canterbury intrusion as a single layer or multiple layer body. Thin sections were cut of chips from 1904', 2024', and 2044' surrounding the core interval.

1904'

BGG < or = 1 mm. grained, interlocking grains, mildly gneissose, qtz forms mildly elongate aggregates.

olive-brown biot	5%
subequal qtz-plag-microcline	95%

2024'

BGG < or = 1.25 mm. grained, mildly gneissose, interlocking grains.

brown biot	3%
subequal qtz-plag-microcline	97%

acc.: musc

2044'

BGG < or = 2 mm. grained, hypidiomorphic granular texture, interlocking grains, good granite.

brown biot, mildly chloritized	3%
subequal qtz-plag-kspar	95%
musc	2%

CORE SECTION #5 (2460' 0" - 2465' 1 1/2")

The fifth core interval consists of a complexly deformed package of blastomylonitic schists and gneisses (M), BMS and MMS (s), and BHG (M). The hornblende content of the gneiss in the interval was suspect at the drill site. Subsequent petrographic analysis of chips surrounding the interval, however, showed abundant hornblende suggesting that the black biotite noted in the gneisses at the drill site probably also consisted of a sizable hornblende component not clearly discernable with a hand

lense. The biotite-qtz-plag gneisses in this interval probably contained abundant hornblende, and the biotite estimates given on the core log are then actually total mafics estimates. A parenthetical (BHG) is included in the description of these gneiss layers in the log. The blastomylonitic layers in this core commonly contained blasts up to 3 cm. in length composed of plagioclase. Very minor red garnet was found disseminated through the core, and some suspect sillimanite was noted in some of the schist layers. The layers in the core formed open folds 1' to 2' in wavelength with subhorizontal axial planes. The lithologies and fabrics represented in this core interval closely resembled those of the lower member of the Tatnic Hill Formation as found in the Gillette Castle well and in surface exposure. Thin sections were cut of chips from 2484' and 2524'.

<u>2484'</u>

<u>BHS</u> < or = 2 mm. grained, schistose

golden red-brown biot	25%
forest green hbl	25%
plag	50%

acc.: sphene, calcite, opaque

<u>BQP</u> < or = 2 mm. grained, mildly myl. sch., biot anastomoses plag as tangential flakes without bending around grains.

red-brown biot	30%
plag	60%
qtz	10%

acc.: opaque, sphene, hbl

2524'

Vein Filling zeolite, albite

BHG < or = 1 mm. grained, schistose to gneissose.

red-brown biot	10%
lt. forest green hbl	20%
plag	40%
qtz	30%

acc.: sphene

CORE SECTION #6 (2920' 0" - 2927' 1")

The sixth core interval was composed of BHG (M), QFS (m), and PBS (m). Total mafics were generally 15% to 20%. The rock was inequigranular with hbl 1 - 5 mm., biot about 1 mm., plag 1 - 3 mm., and qtz about 1 mm. Subhorizontal layers with constant foliation varying from moderately to well foliated occurred every 6" to 12" in the core. This was the most homogeneous core taken from the well. The lithology and structural position of this core, and all subsequent cores support their correlation with the Avalon Terrain to the southwest and east of the drill site. Thin sections were cut of chips from 2904' and 2964'.

2904'

BHG < or = 1.5 mm. grained, gneissose.

olive brown biot, mildly chloritized	7%	
forest green hbl	3%	
plag	80%	
qtz	10%	acc.: sphene

Altered Fragment Pink and green, probably similar original lithology as that above. Fragment is highly chloritized with abundant musc, sericite, epidote, and carbonate.

2964'

BHG < or = 2 mm. grained, gneissose.

olive brown biot	8%
forest green hbl	2%
plag	70%
qtz	20%

acc.: apatite, sphene, muscovite

plag and qtz grains occasionally up to 5 mm.

CORE SECTION #7 (3494' 8" - 3504' 4")

The seventh core interval consisted of BHG (M), PBS (m), QFS (m), and QPK pegmatite (m). The BHG in this core was even 1 - 2 mm. grained gneiss, well laminated on a 2 - 4 mm. scale with variable amounts of QFS. Total mafics in the gneiss ranged from 10% to 15%. Foliation in the core was subhorizontal and varied from moderate to good in 6" - 12" layers. A few breaks in the core showed chlorite slickensides. Thin sections were cut from chips collected at 3463' and 3523'.

3463'

BPG < or = 1 mm. grained, gneissose.

olive brown biot	10%
plag (sericitized)	80%
qtz (interstitial to plag, undulose)	10%

3523'

BHG	< or = 1.5 mm. grained, gneissose.	
	olive brown biot	9%
	forest green hbl	1%
	plag	80%
	qtz (interstitial to plag)	10%

CORE SECTION #8 (3985' 4" - 3994' 7")

The eighth core consisted of BHG (M), BPG (M), Alask (M), Amph (s), QFS (m), and PBS (m). The BHG in this core was visually indistinguishable from that in the #6 core. The BPG contained about 5% biot, was about 1 mm. grained and appeared qtz-rich. Both plag gneisses varied from moderately to well foliated with 4" - 12" constant fabric layers. All foliation in this core was subhorizontal. A unique feature of this core was that it was broken into about 1 cm. wafers parallel to foliation for it's entire length. This may have been due to relaxation of the rock (assuming it was under high stress) during drilling. Thin sections were cut from chips collected at 3943' and 4043'.

3943'

BHG	coarse grained: mafics < or = 2 mm. felsics < or = 4 mm. gneissose.	
	golden brown, mildly chloritized biot	5%
	forest green hbl	3%
	plag	85%
	qtz, sphene, mgt, epidote	7%

4043'

BPG	< or = 1 mm. grained, gneissose.	
	golden brown biot	5%
	plag	40%
	microcline	30%
	qtz	25%

CORE SECTION #9 (4440' 0" - 4448' 7")

The final (ninth) core consisted of BHG (M), QPG (M), Amph (s), QFS (m) and QPK pegmatite (m). The BHG contained 20% - 25% mafics and was even grained. The QPG was a unique lithology to this core. The similarity of this lithology with hbl and diop-free QFS made this rock a good candidate for a vein material. All rock types had subhorizontal foliation varying from moderate to good. Thin sections were cut of chips collected at 4464'.

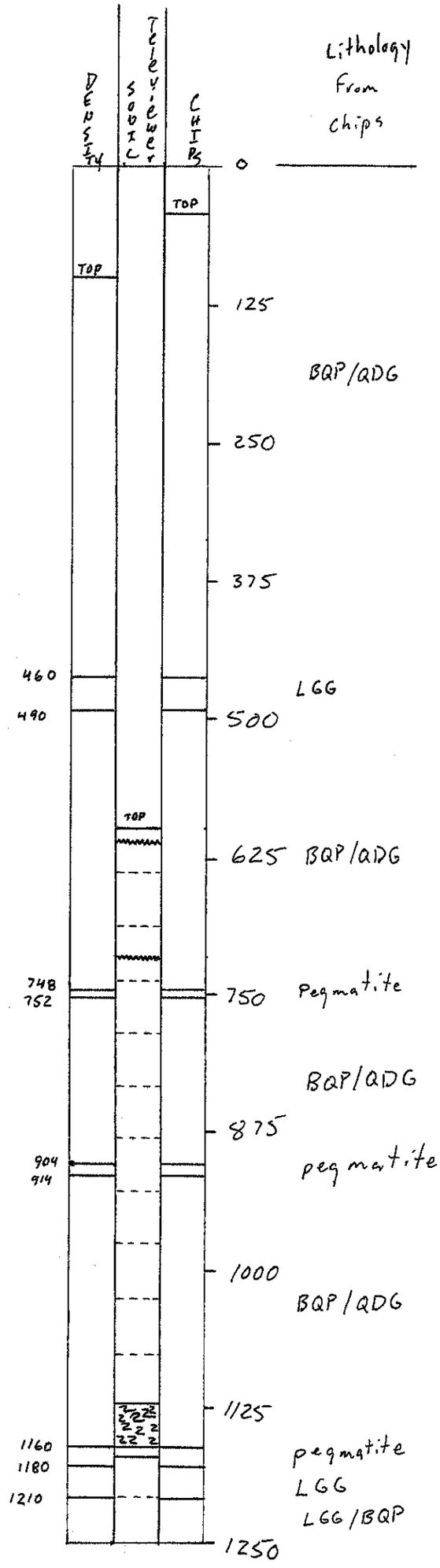
4464'

BHG	grain size: mafics < or = 1.5 mm. felsics < or = 2 mm. gneissose.	
	golden brown biot	10%
	forest green hbl	5%
	qtz (undulose and sutured)	20%
	plag	65%

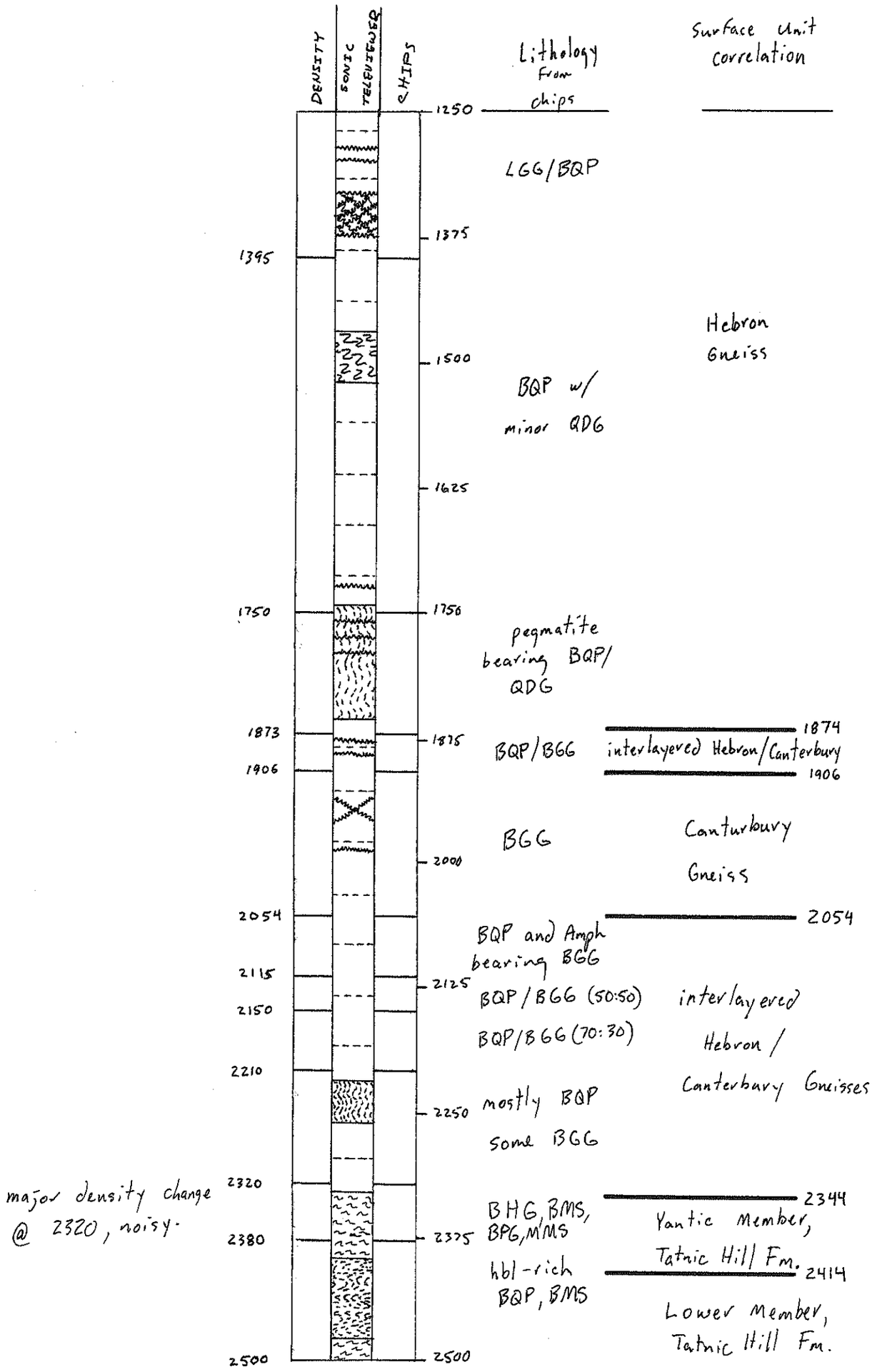
CORE LOG MOODUS DEEP WELL BOX# SUMMARY LOG INTERVAL 0 - 1250'

Density breaks have been imposed on lithology.

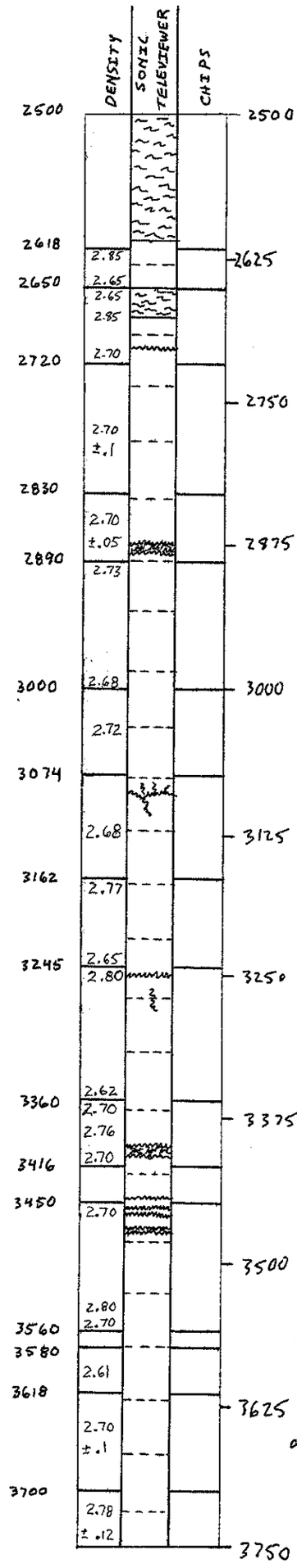
Televiewer notes follow the SUMMARY OF LOGGING CONVENTIONS



CORE LOG Moodus Deep Well BOX# SUMMARY LOG INTERVAL 1250' - 2500'



CORE LOG Moodus Deep Well BOX# Summary Log INTERVAL 2500 -3750



Lithology from chips

Surface Unit Correlation

hbl-rich BQP, BMS

Lower member, Tatnic Hill Fm.

Amph, hbl-BQP, BHG

2674

Amph, BHG (20% mafics)

LGG, Amph, BHG (10% mafics)

Amph, BHG (5% mafics)

BHG (5% mafics)

BHG (10% mafics)

Amph, BHG (5% mafics)

Avalon Gneisses

BHG (5-10% mafics)

BHG (10% mafics)

BHG (10% mafics)

BHG (15% mafics)

BHG (7% mafics)

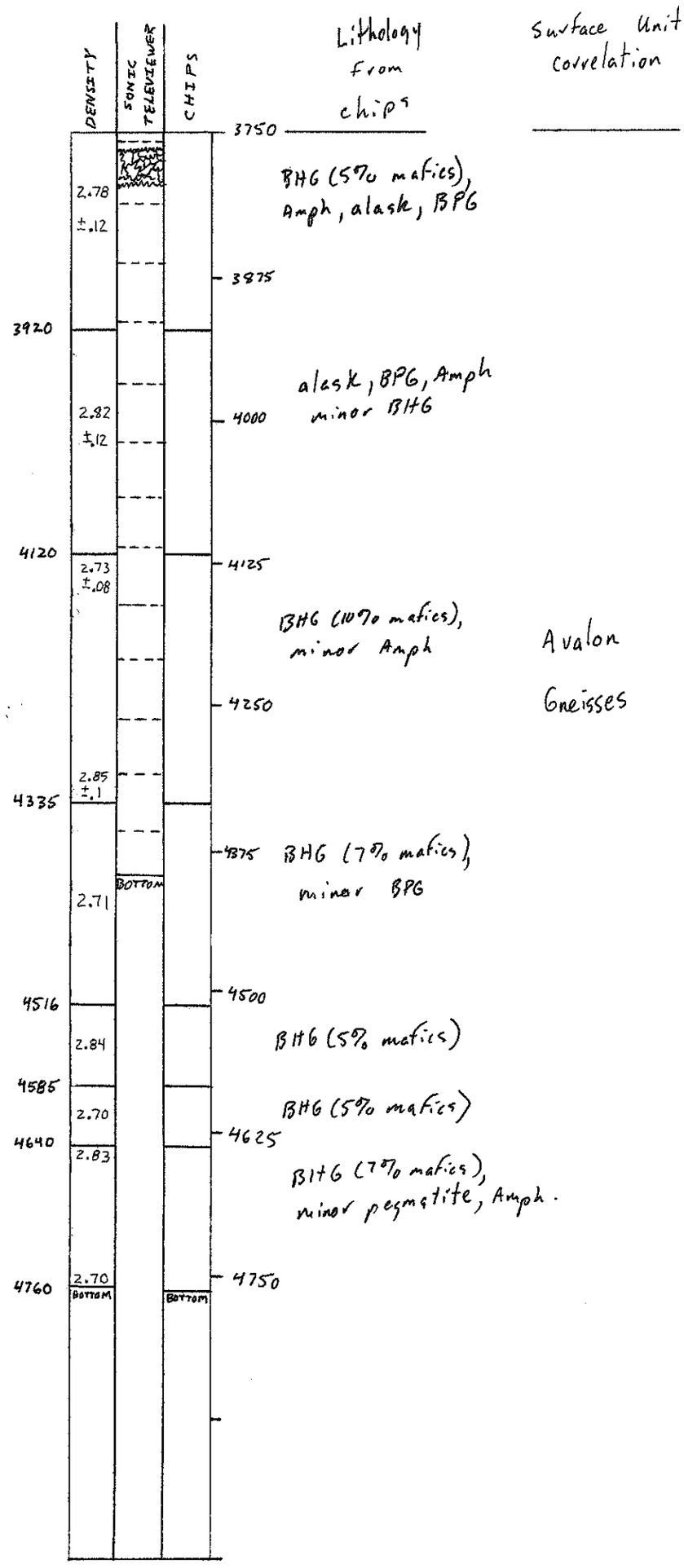
BHG (7% mafics), pegmatite

alask

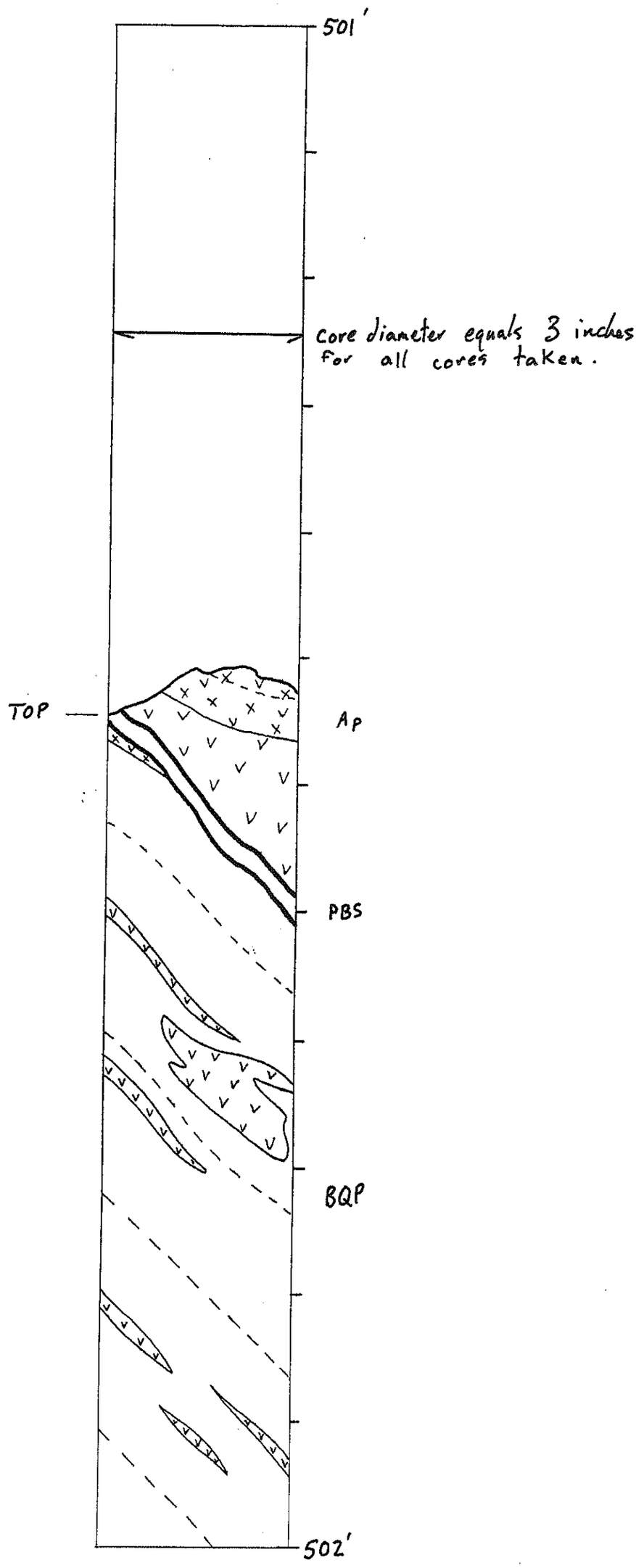
alask, Amph, BHG (mafic-rich)

BHG (5% mafics), Amph, alask, BPG

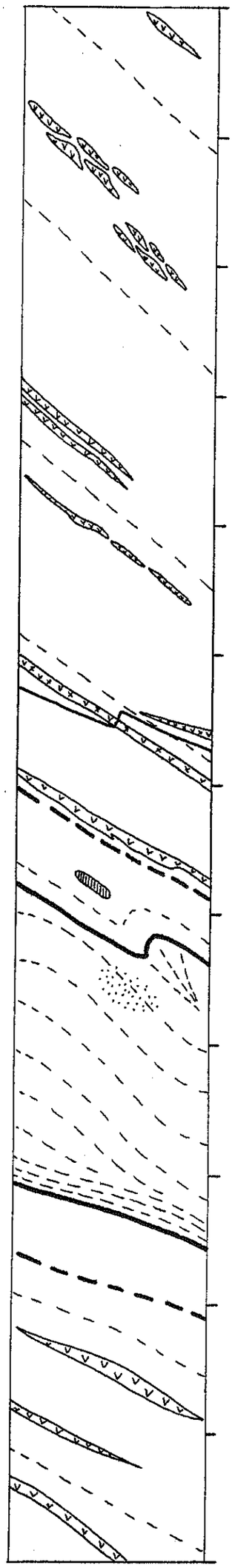
CORE LOG Moodus Deep Well BOX# Summary Log INTERVAL 3750' - 5000'



CORE LOG Meadows Deep BOX# 1 INTERVAL 501'5½" - 502'



CORE LOG Moodus Deep BOX# 1 INTERVAL 502'-503'



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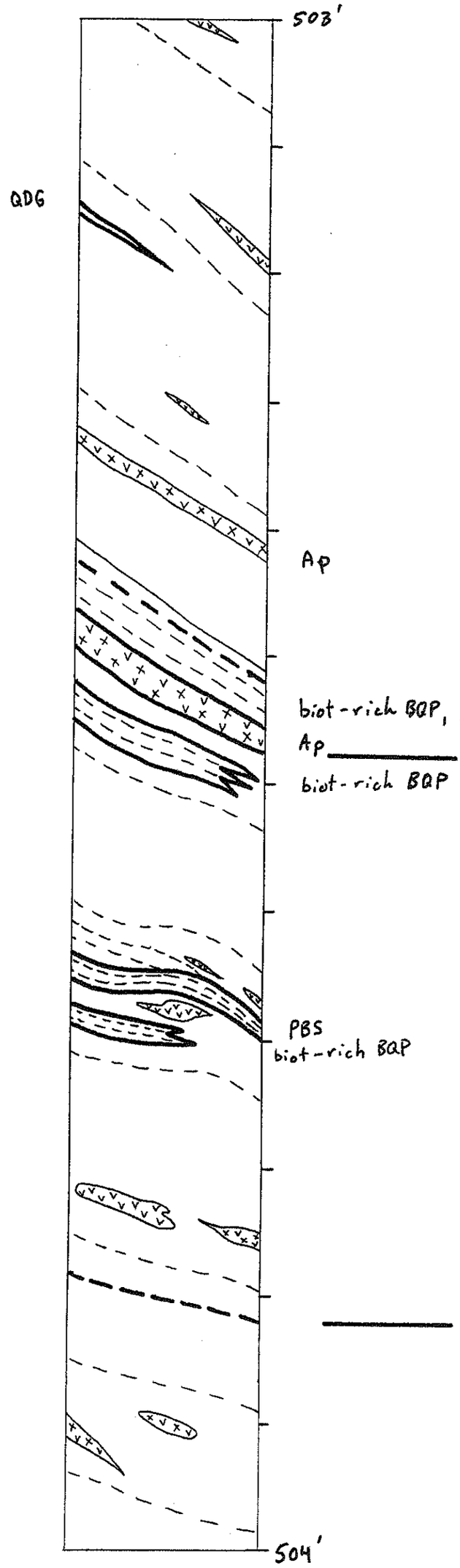

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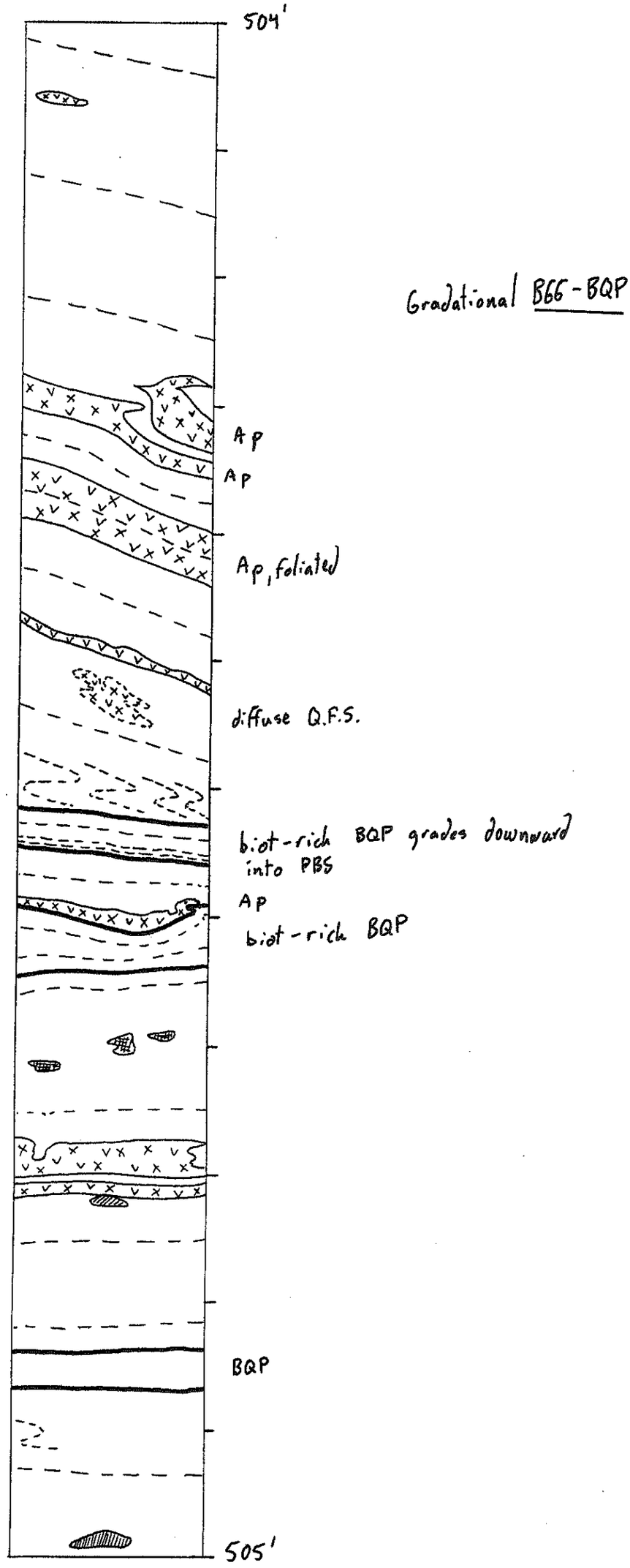

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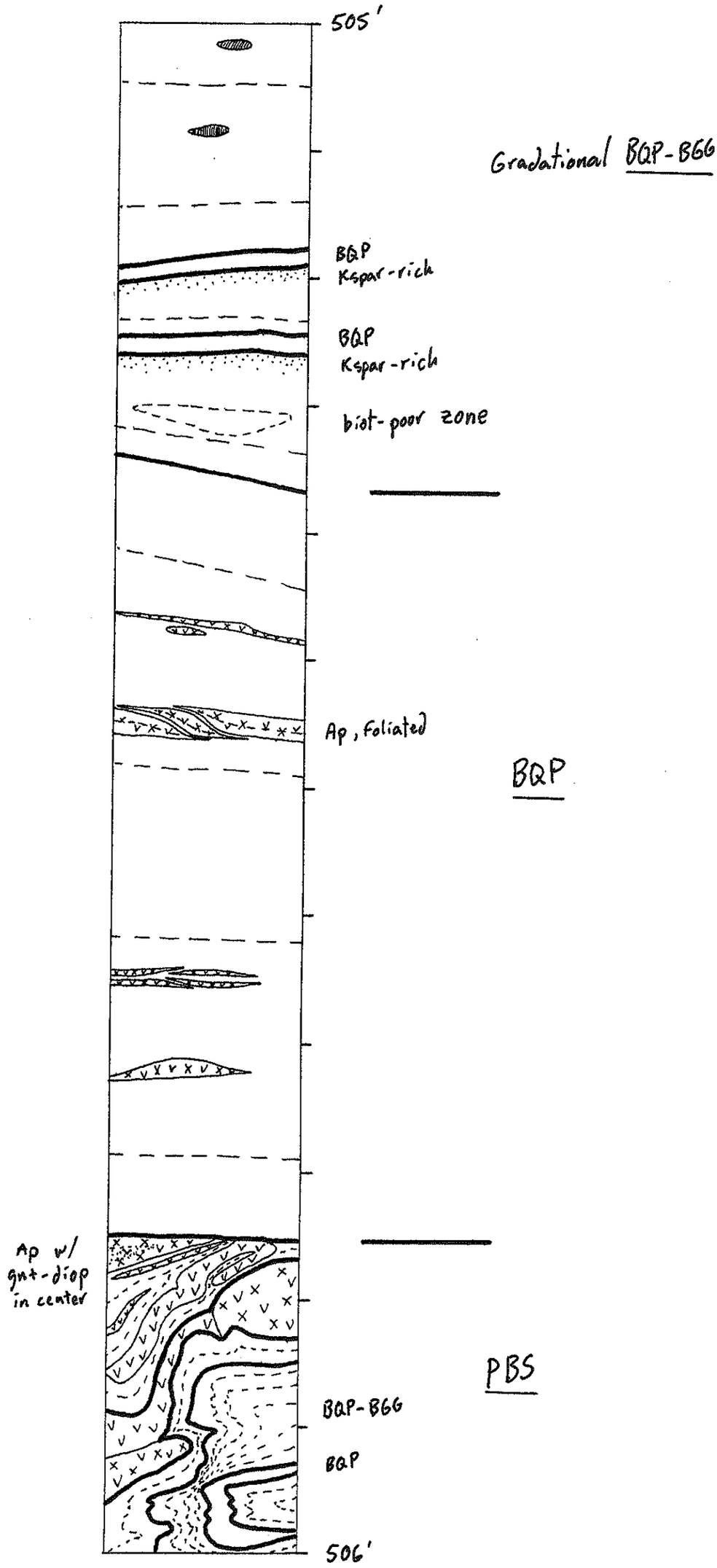

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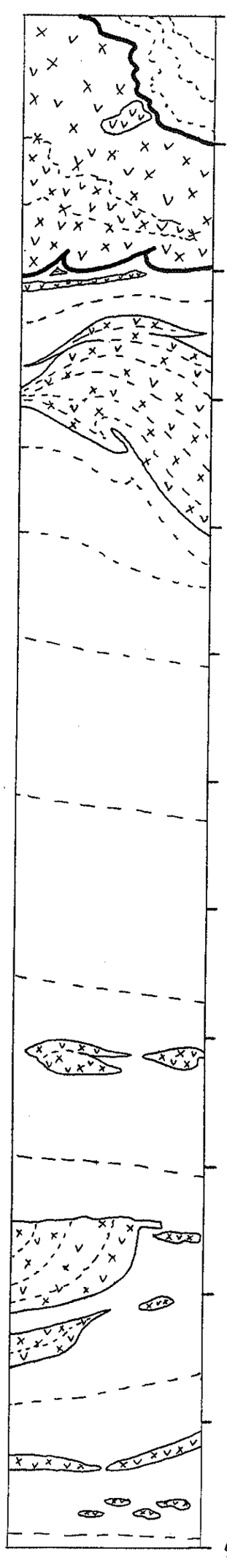


Gradational BQP - BGG

Ap, qtz-rich core

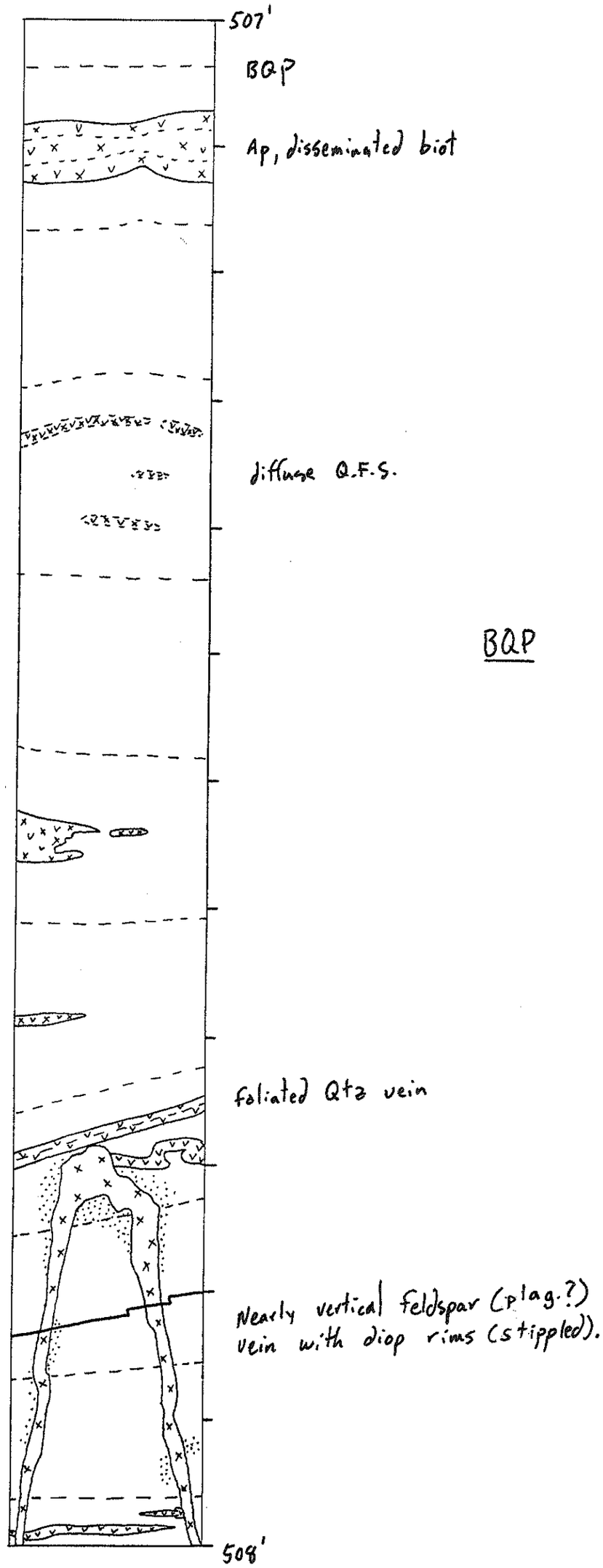
BQP

Ap, disseminated biot and diop in folia.

BQP

Ap, disseminated biot in folia

CORE LOG Moodus Deep BOX# 1 INTERVAL 507'-508'



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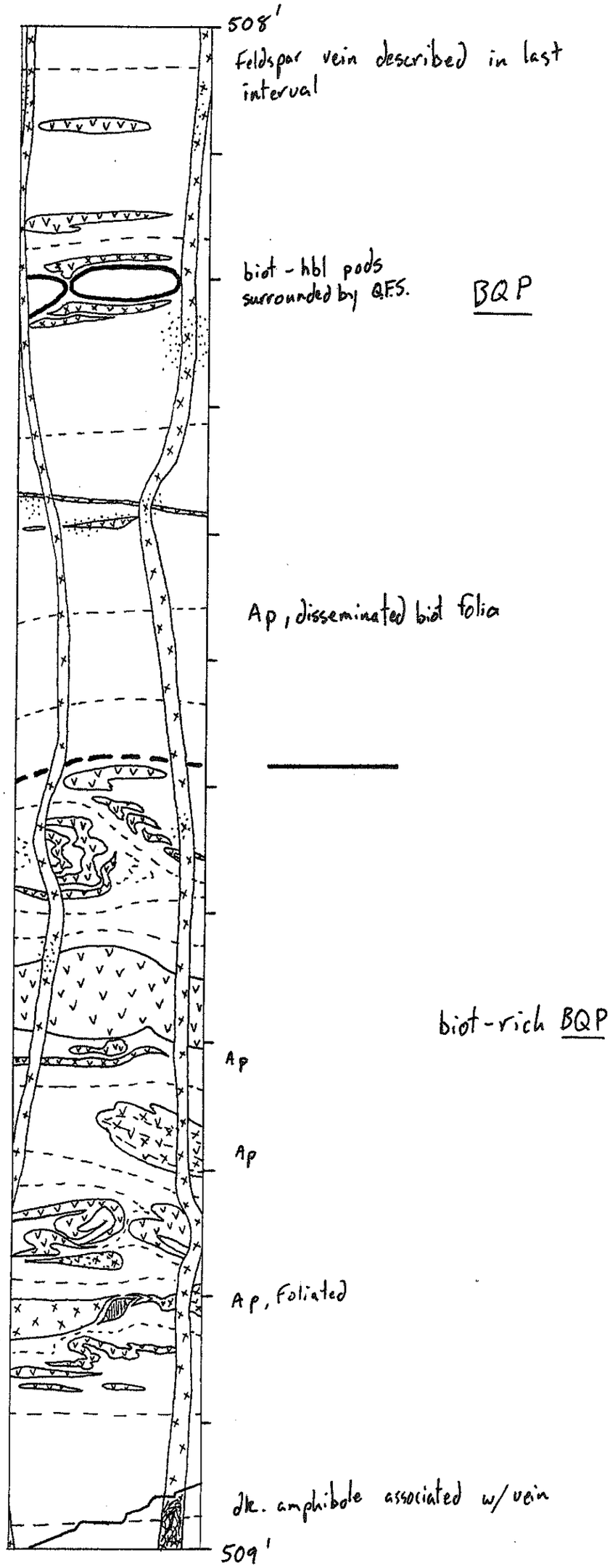

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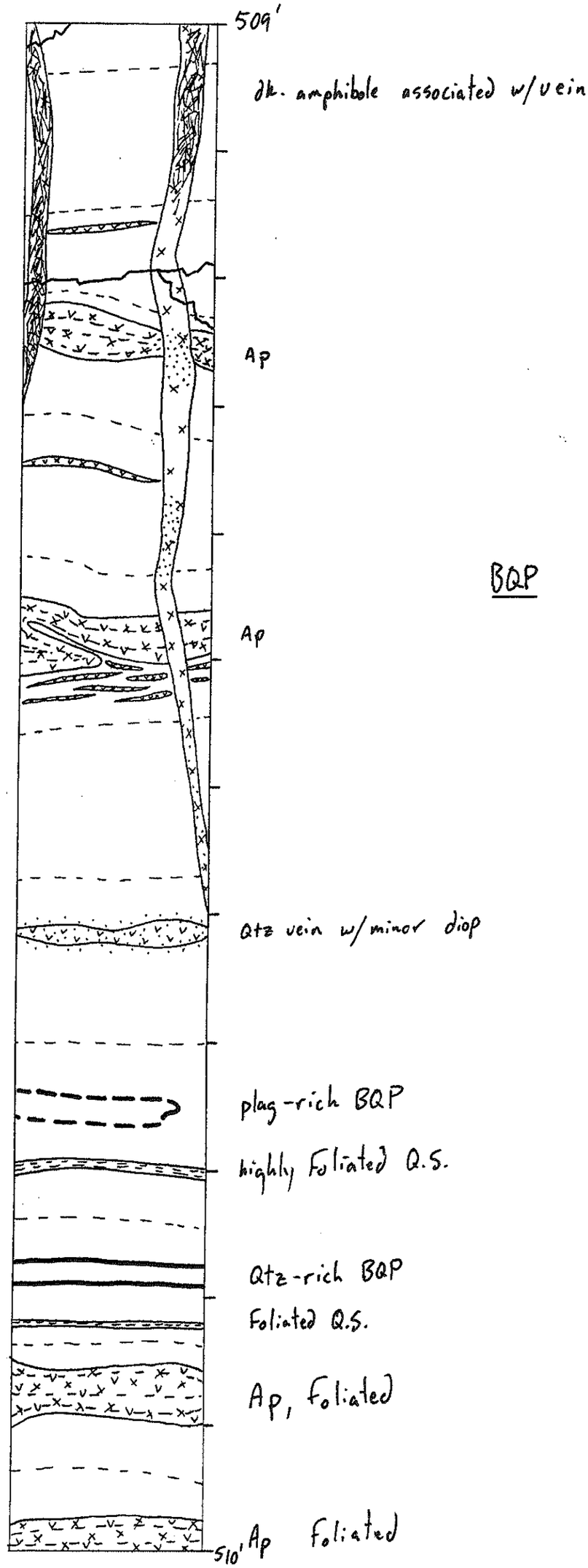

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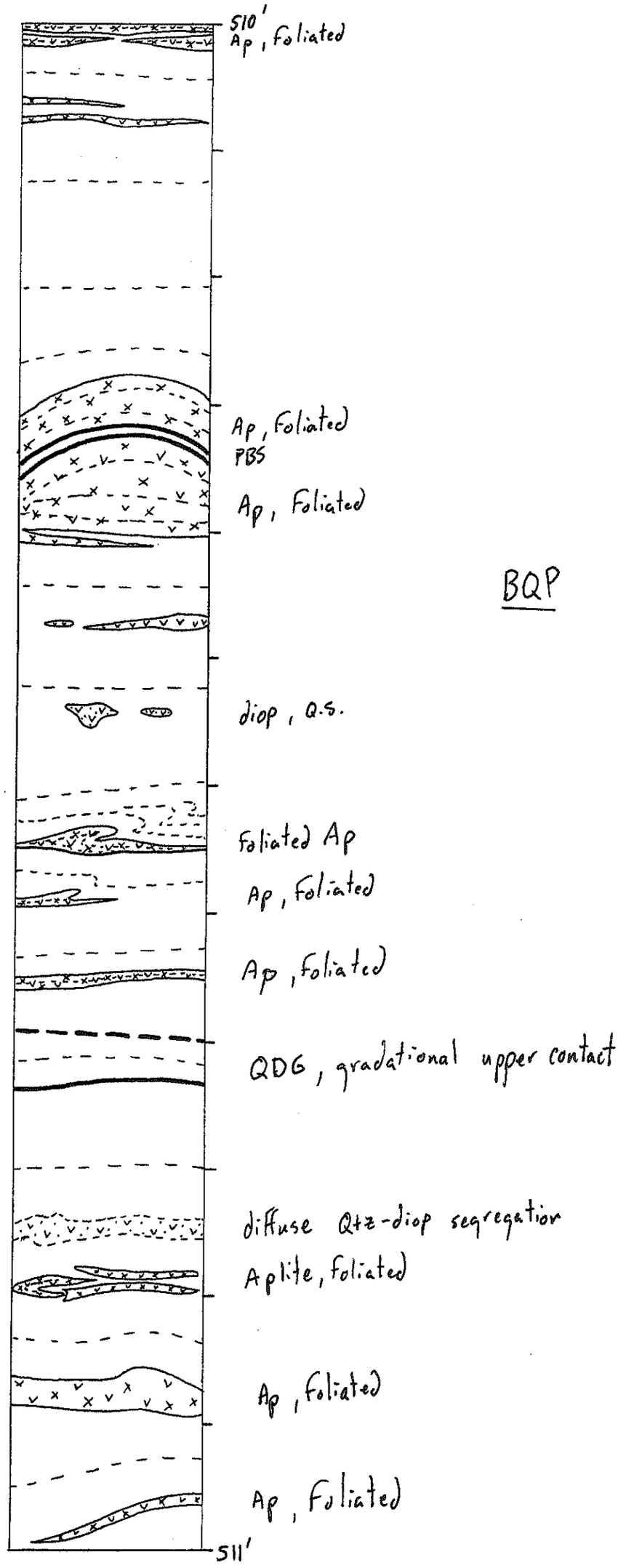
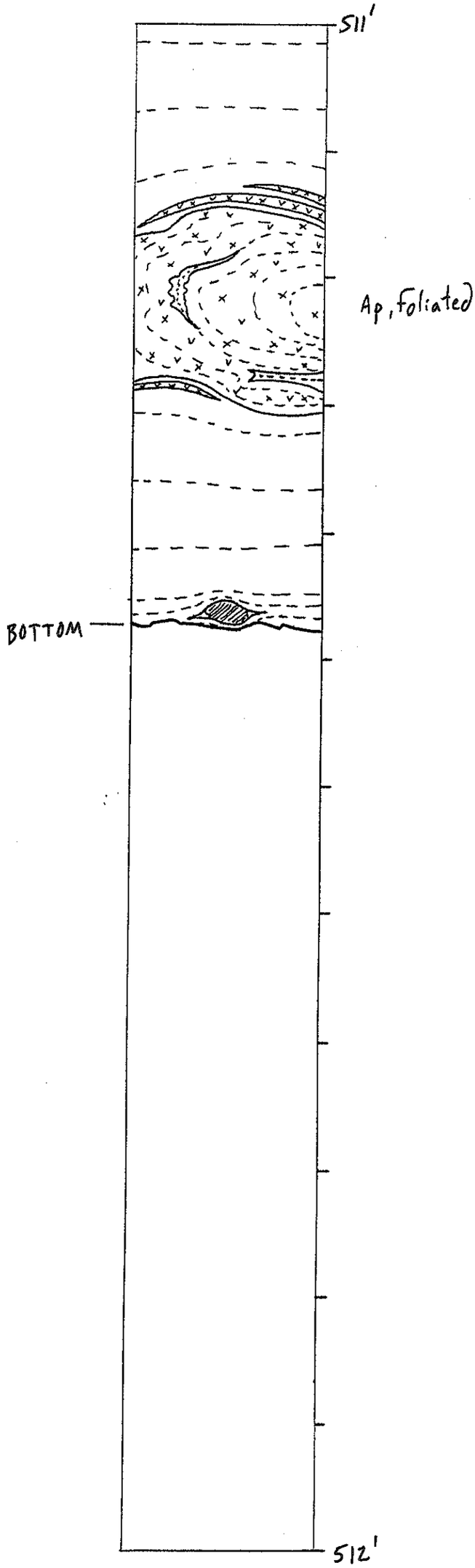
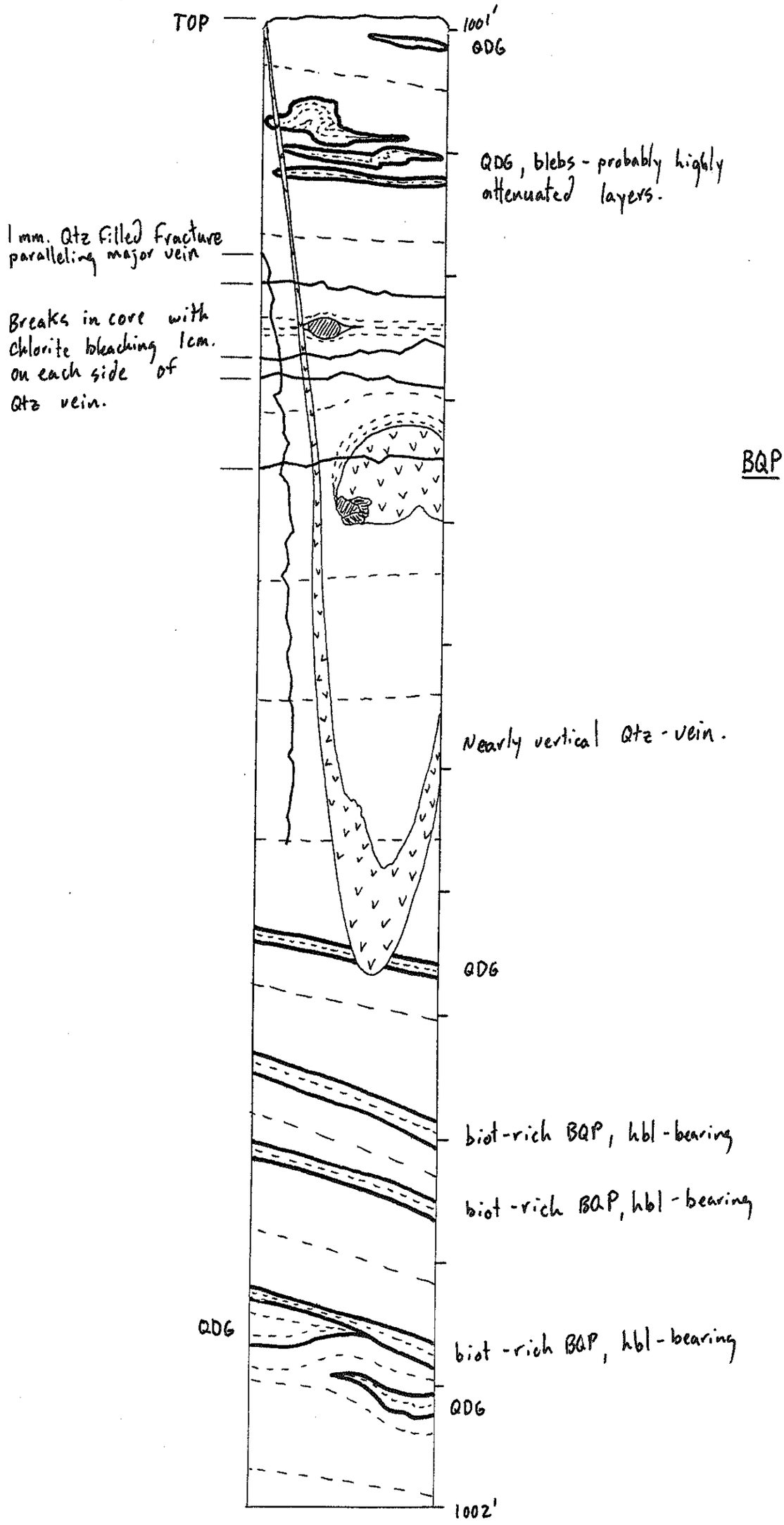


CORE LOG Moodus Deep BOX# 1 INTERVAL 511' - 511'04½"



BQP

CORE LOG Moodus Deep BOX# 2 INTERVAL 1001' - 1002'



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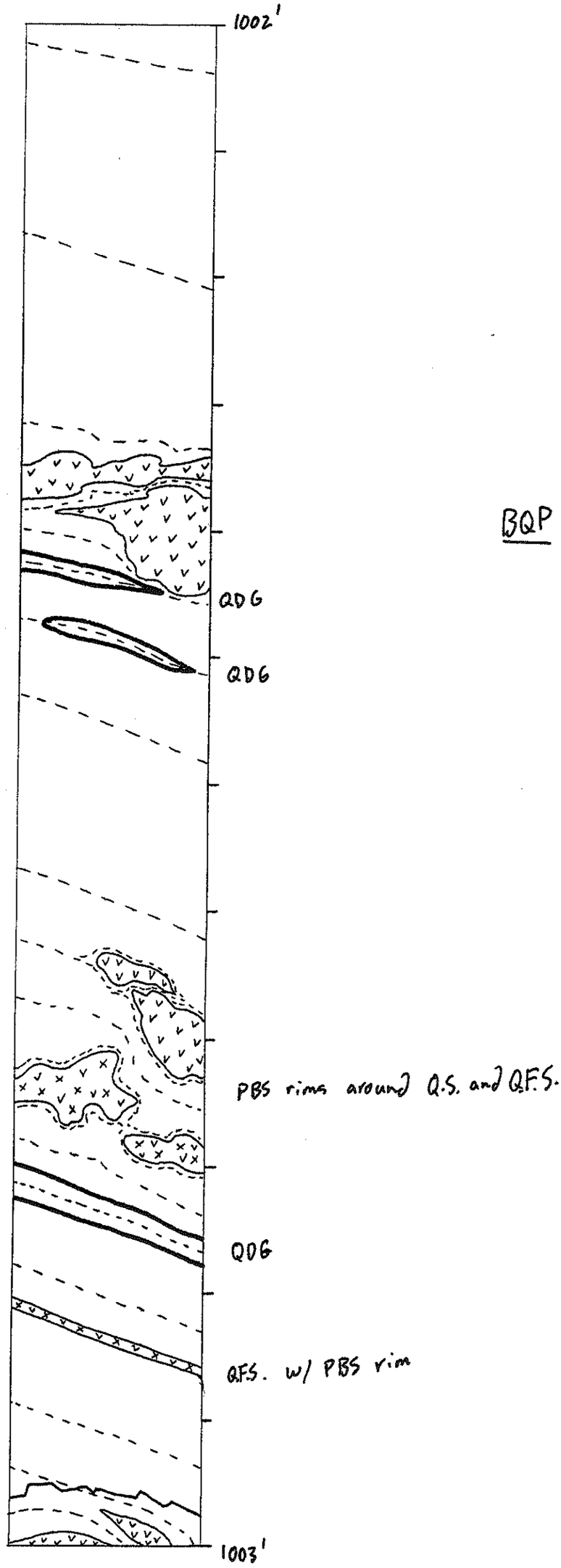
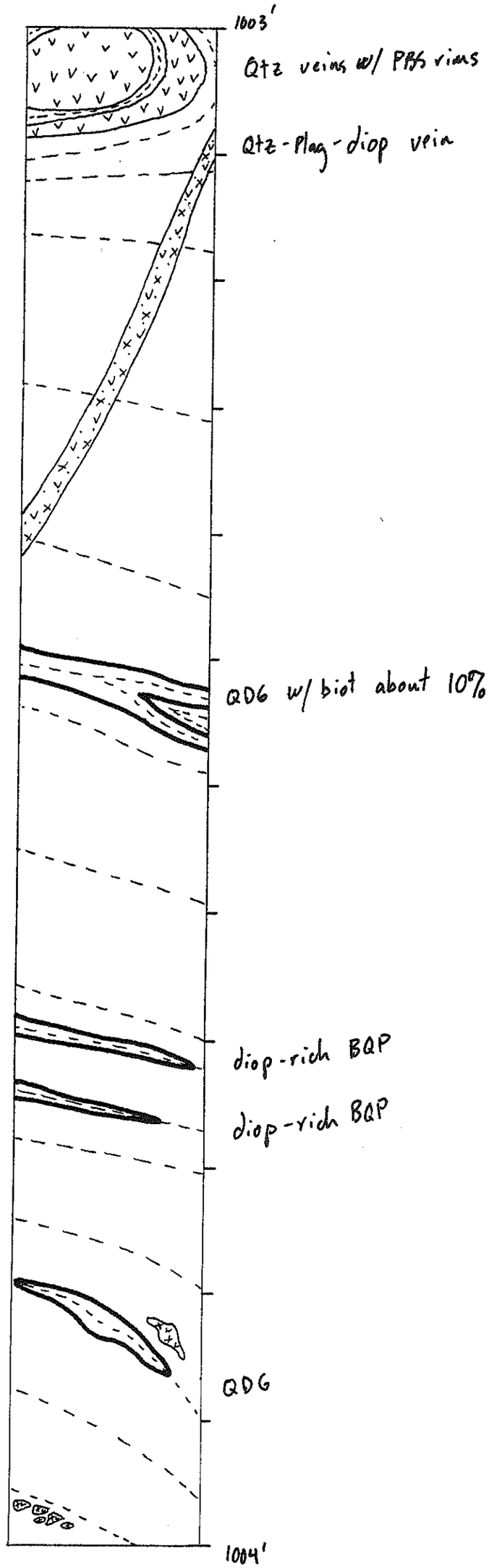


BQP

CORE LOG Moodus Deep BOX# 2 INTERVAL 1003' - 1004'



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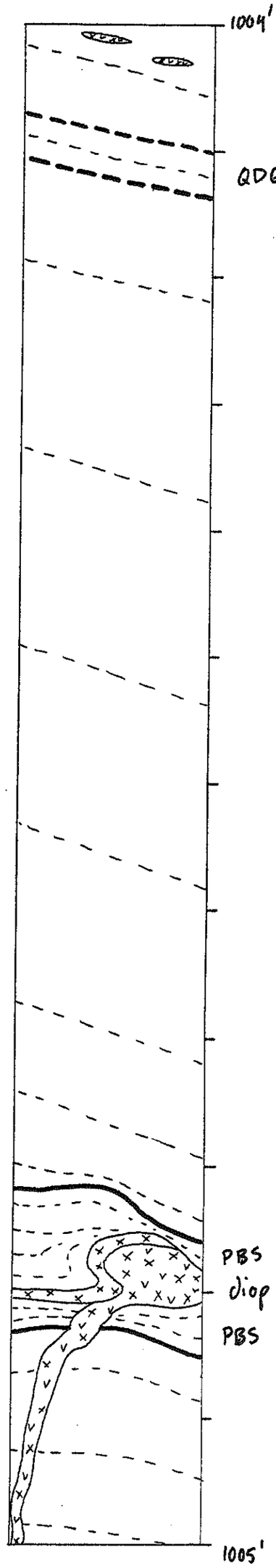


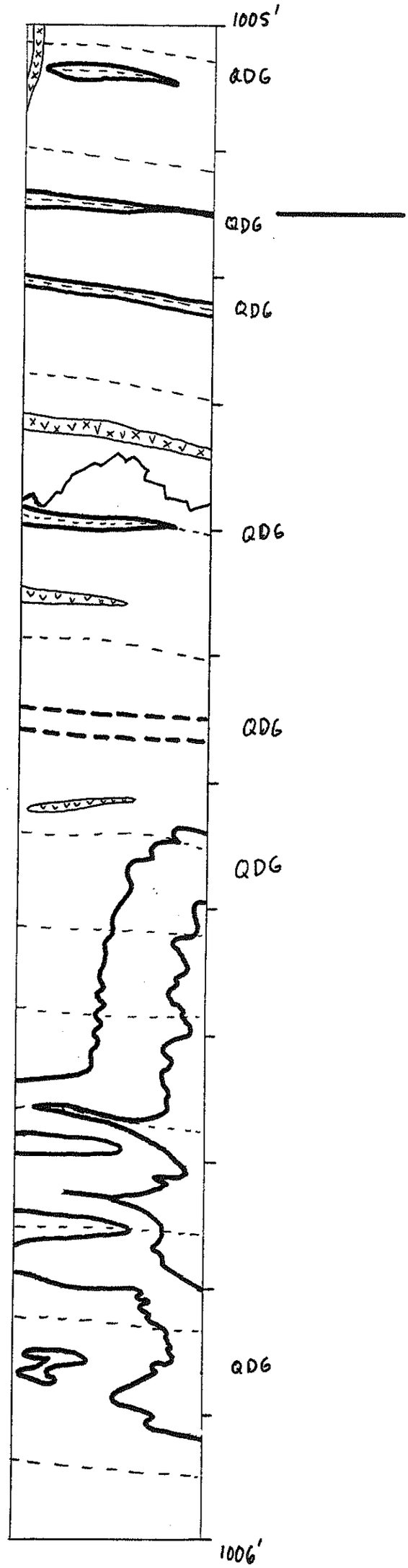
BQP

QDG w/gradational contacts

BQP w/ disseminated QDG patches - probably highly attenuated layers. QDG ~5%.

diop-bearing, Qtz-plag vein

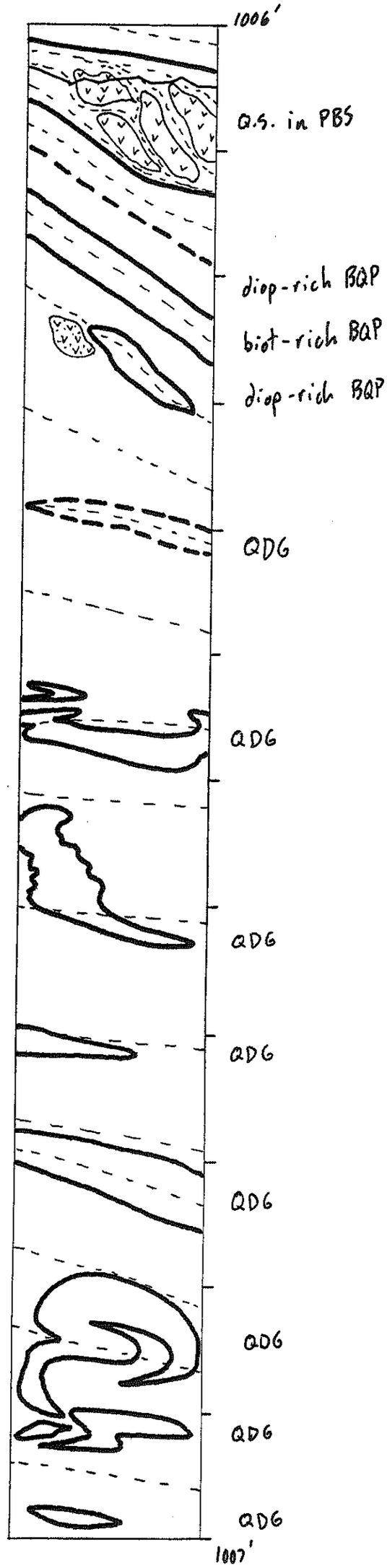
CORE LOG Moodus Deep BOX# 2 INTERVAL 1005' -1006'



mixed BQP - QDG as in last interval.

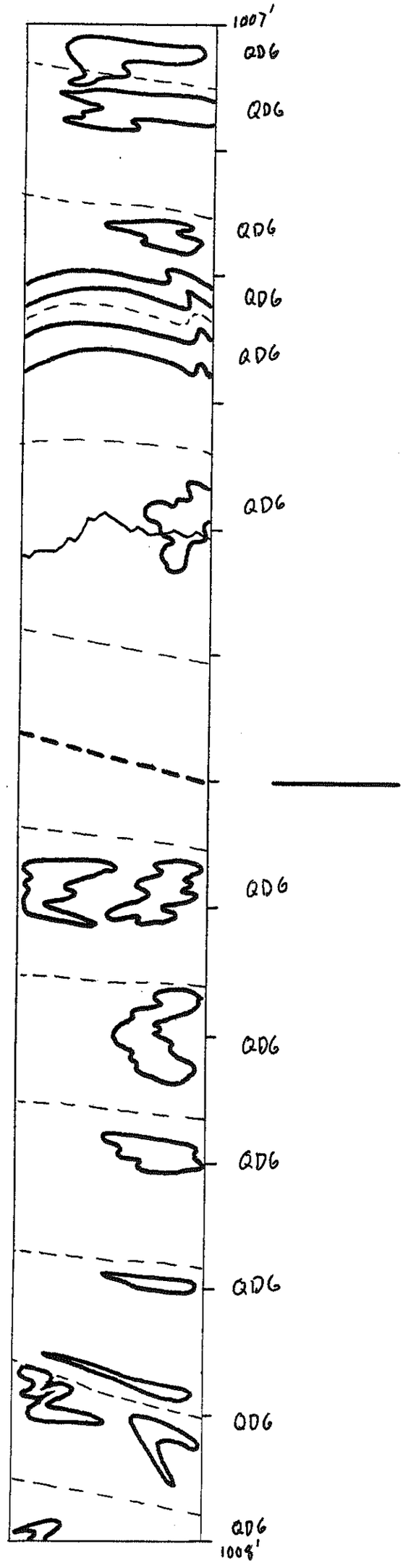
BQP

CORE LOG Moodus Deep BOX# 2 INTERVAL 1006' - 1007'

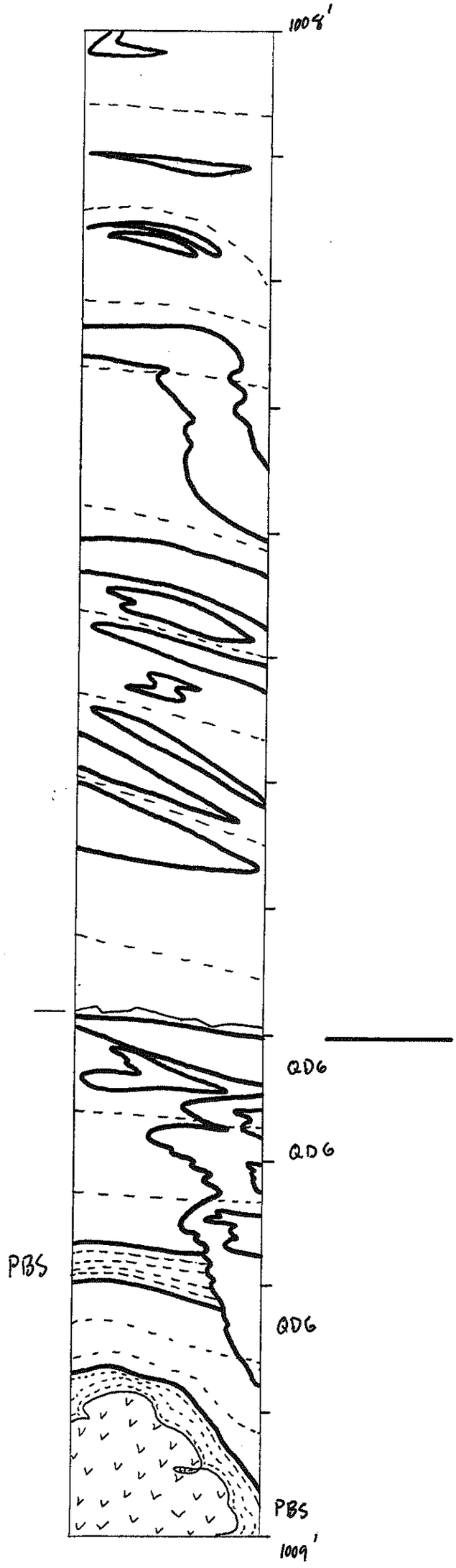


BQP, variably diopsidic up to 35%

CORE LOG Moodus Deep BOX# 2 INTERVAL 1007' - 1008'



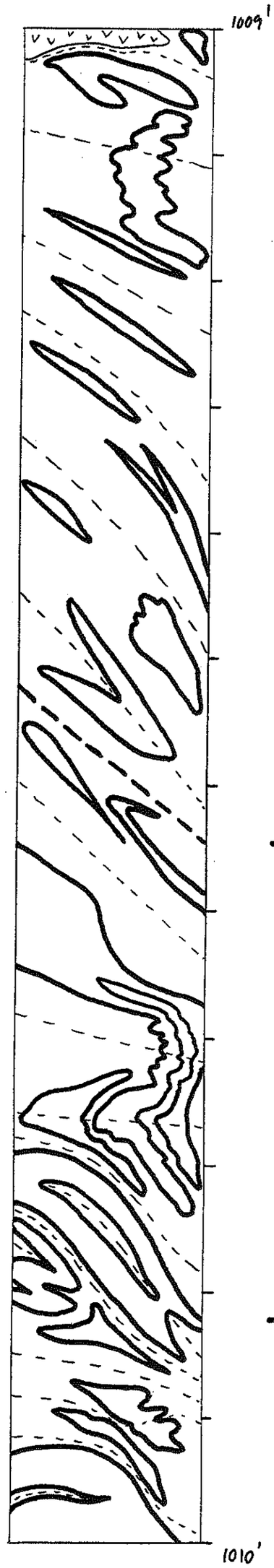
CORE LOG Moodus Deep BOX# 2 INTERVAL 1008' - 1009'



diopsidic BQP
all interlayers
are QDG

BQP

CORE LOG Moodus Deep BOX# 2 INTERVAL 1009' - 1010'



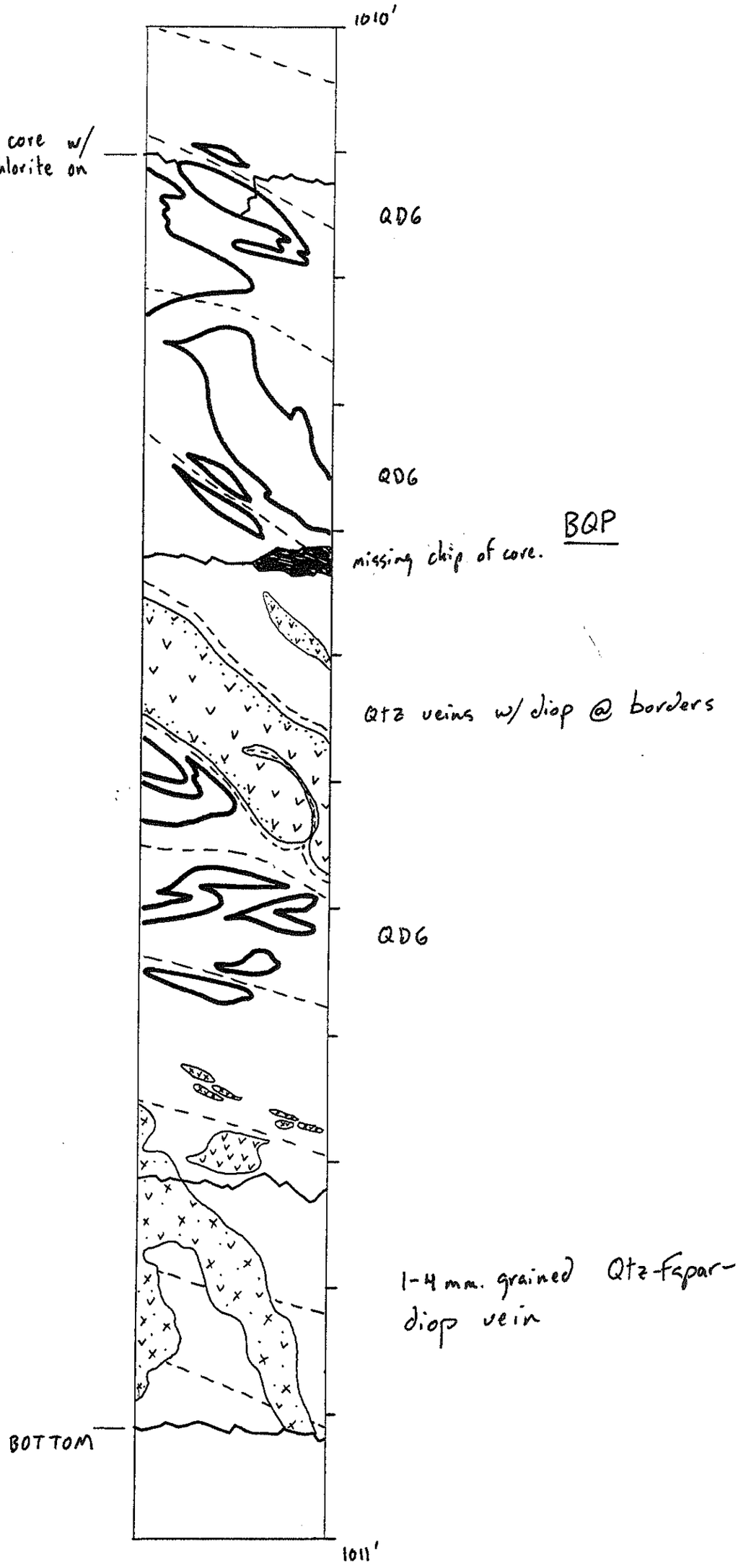
BQP

all segregations are QDG

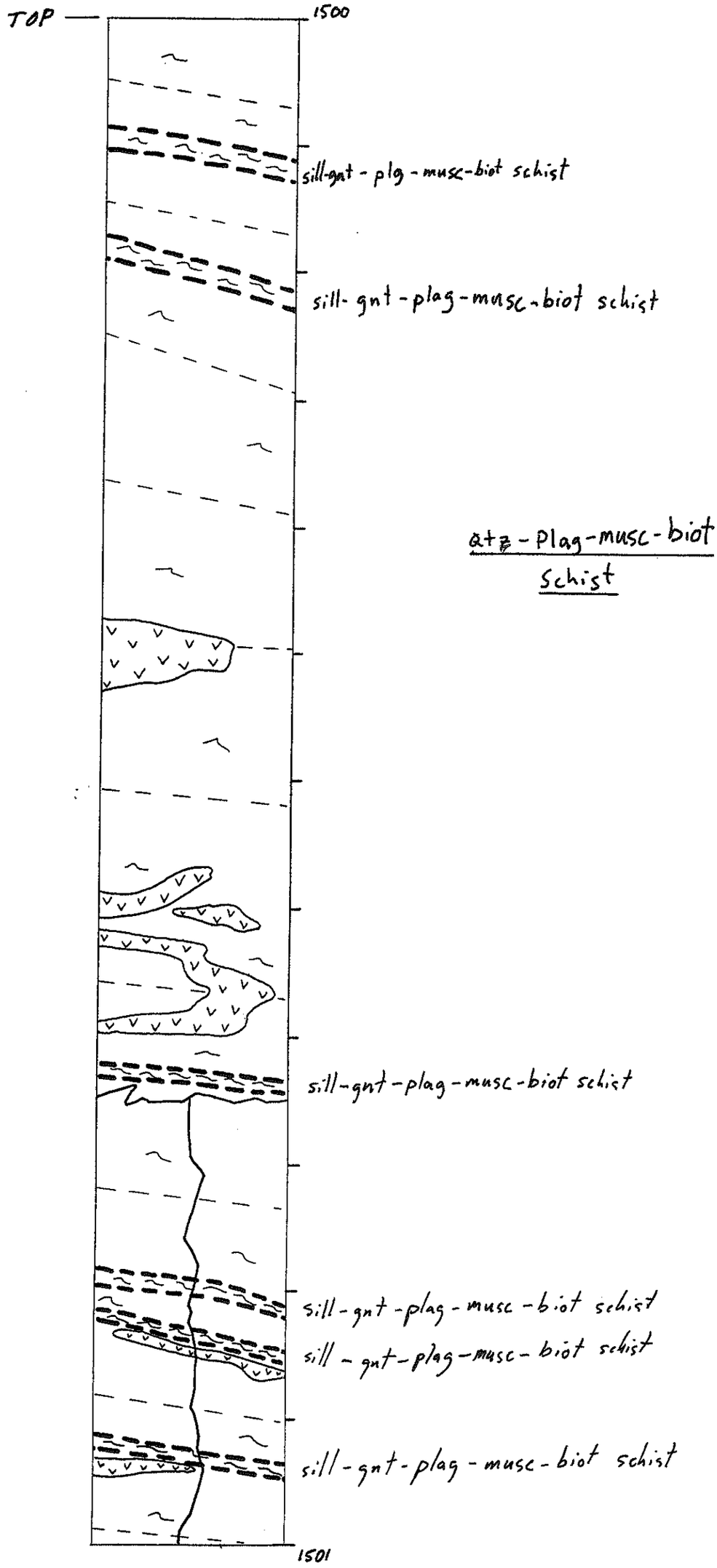
Diopsidic BQP

BQP

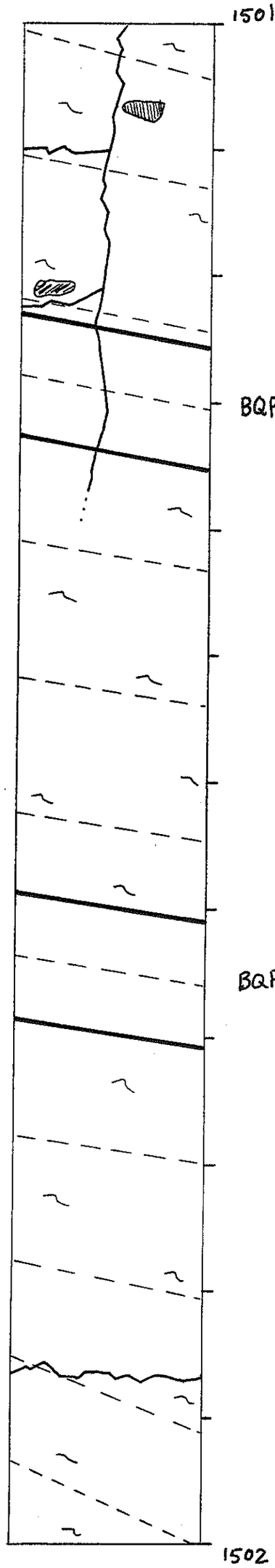
CORE LOG Moodus Deep BOX# 2 INTERVAL 1010' - 1010' 11"



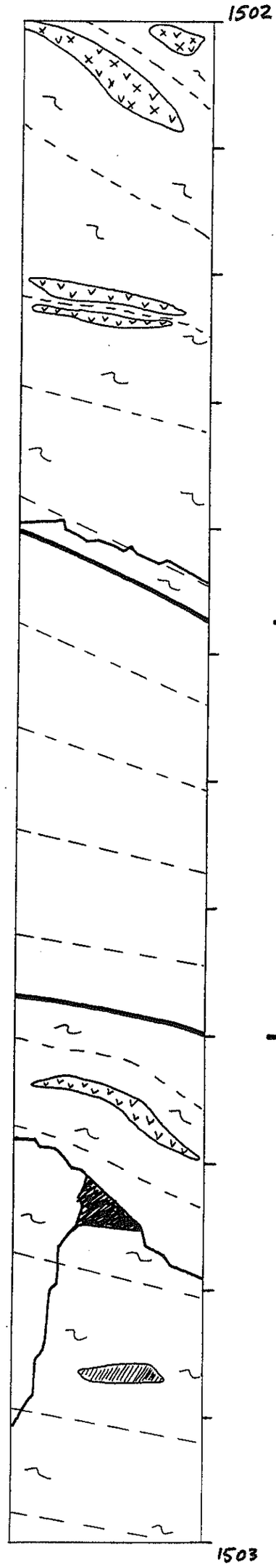
CORE LOG Moodus Deep BOX# 3 INTERVAL 1500' - 1501'



CORE LOG Moodus Deep BOX# 3 INTERVAL 1501'-1502'



CORE LOG Magdus Deep BOX# 3 INTERVAL 1502' – 1503'

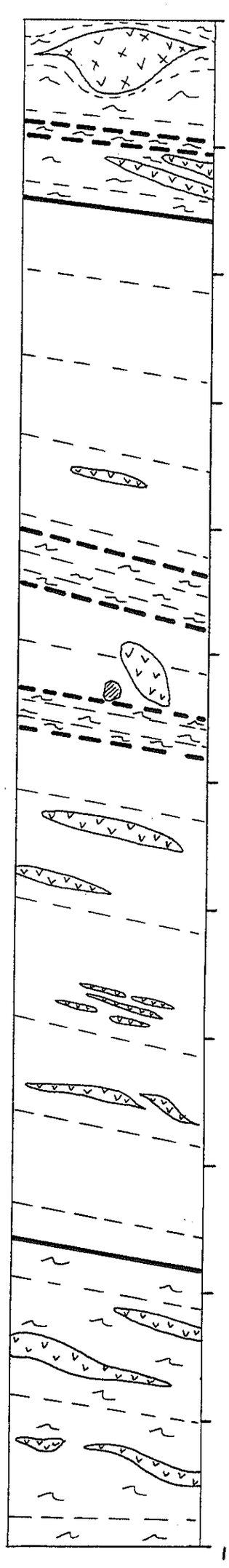


Qtz-plag-musc-biot Schist w/ minor sill and abundant ≤ 2mm thick Q.F.S.

BQP

Qtz-plag-musc-biot schist w/minor sill and abundant ≤ 2 mm thick Q.F.S.

CORE LOG Moodus Deep BOX# 3 INTERVAL 1503' - 1504'



Qtz-plag-musc-biot schist w/ minor sill and abundant ≤ 2 mm thick Q.F.S.

sill-gnt-plag-musc-biot schist.

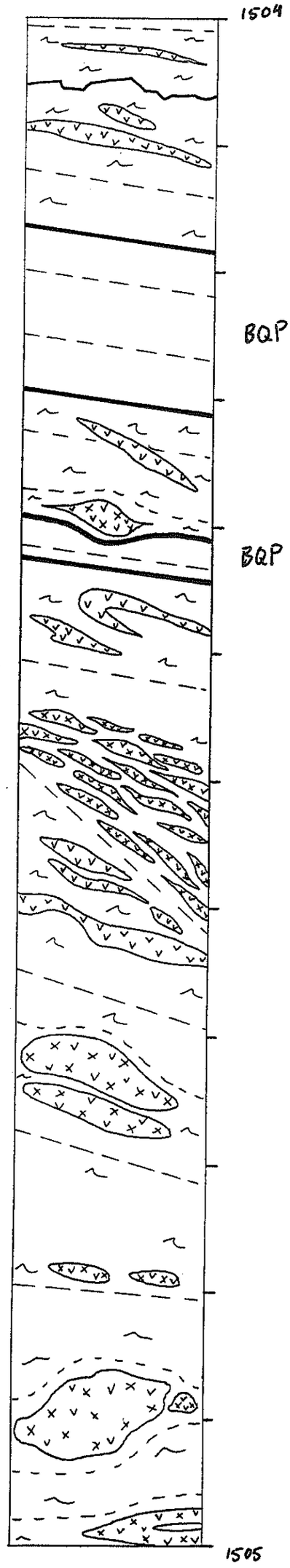
musc-rich-plag-biot schist.

BQP

musc-rich-plag-biot schist

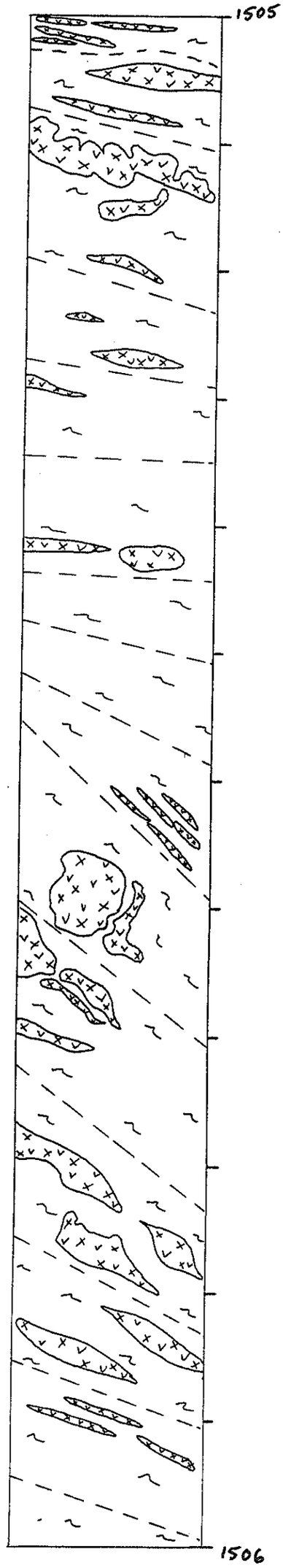
Musc-rich-plag-biot schist w/ minor sill

CORE LOG Moodus Deep BOX# 3 INTERVAL 1504' - 1505'



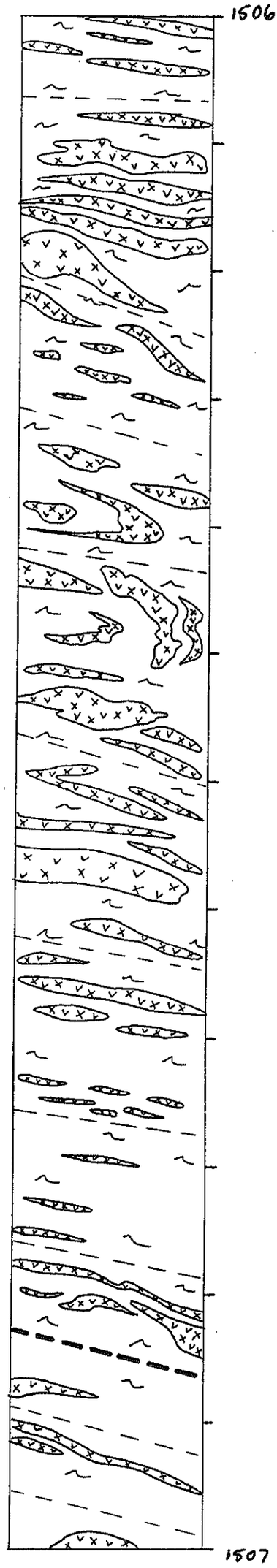
Musc-rich-plag-biot schist w/ minor sill and gnt

CORE LOG Moodus Deep BOX# 3 INTERVAL 1505' - 1506'



Musc-rich-plag-biot schist w/ minor sill and qrt.

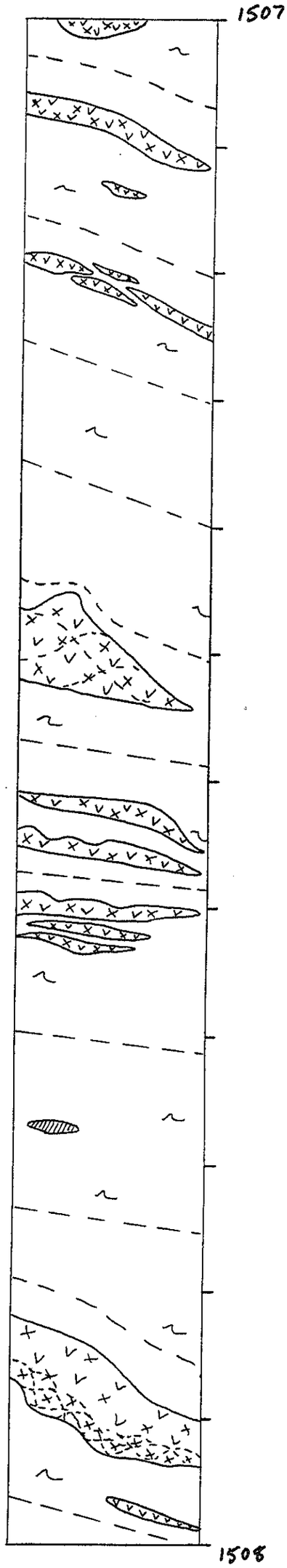
CORE LOG Moodus Deep BOX# 3 INTERVAL 1506' - 1507'



Musc-rich-plag-biot schist w/ minor sill and gnt (1%). Abundant Q.F.S. are 1-4 mm. grained.

See next interval

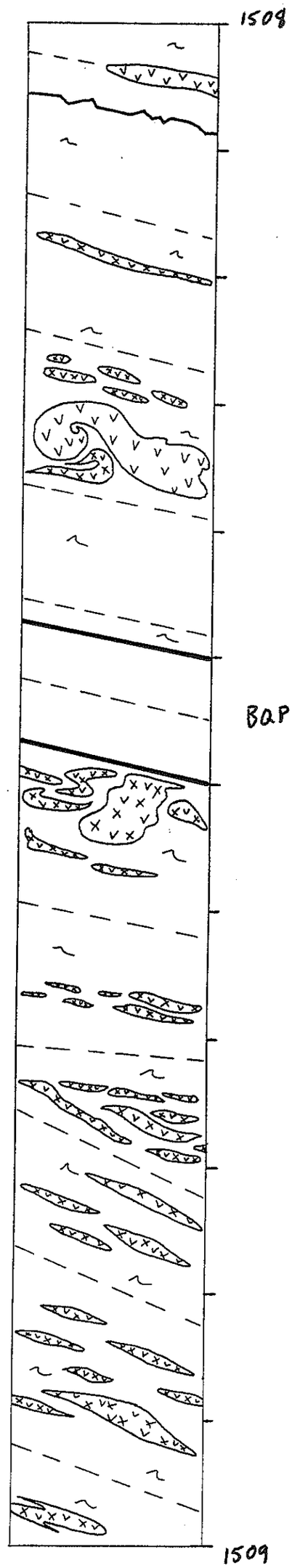
CORE LOG Moodus Deep BOX# 3 INTERVAL 1507' - 1508'



coarse musc-bearing

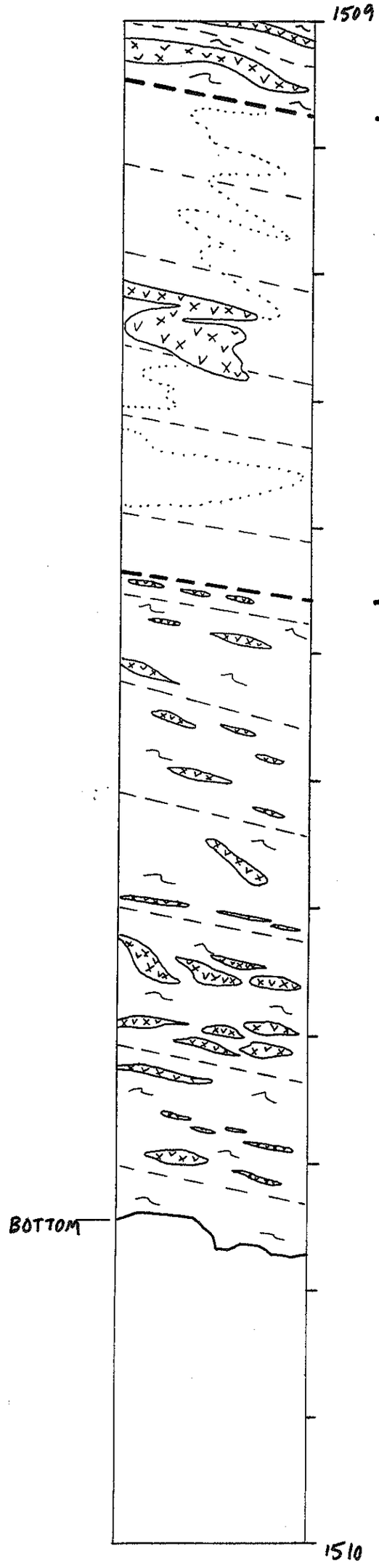
BQP w/ musc-rich plag-biot schist (minor sill and gnt) surrounding Q.F.S.

CORE LOG Moodus Deep BOX# 3 INTERVAL 1508'-1509'



Coarse musc-bearing BQP w/ musc-rich plag-biot schist (minor sill and gnt) surrounding Q.F.S.

CORE LOG Moodus Deep BOX# 3 INTERVAL 1509' - 1509'9.5"

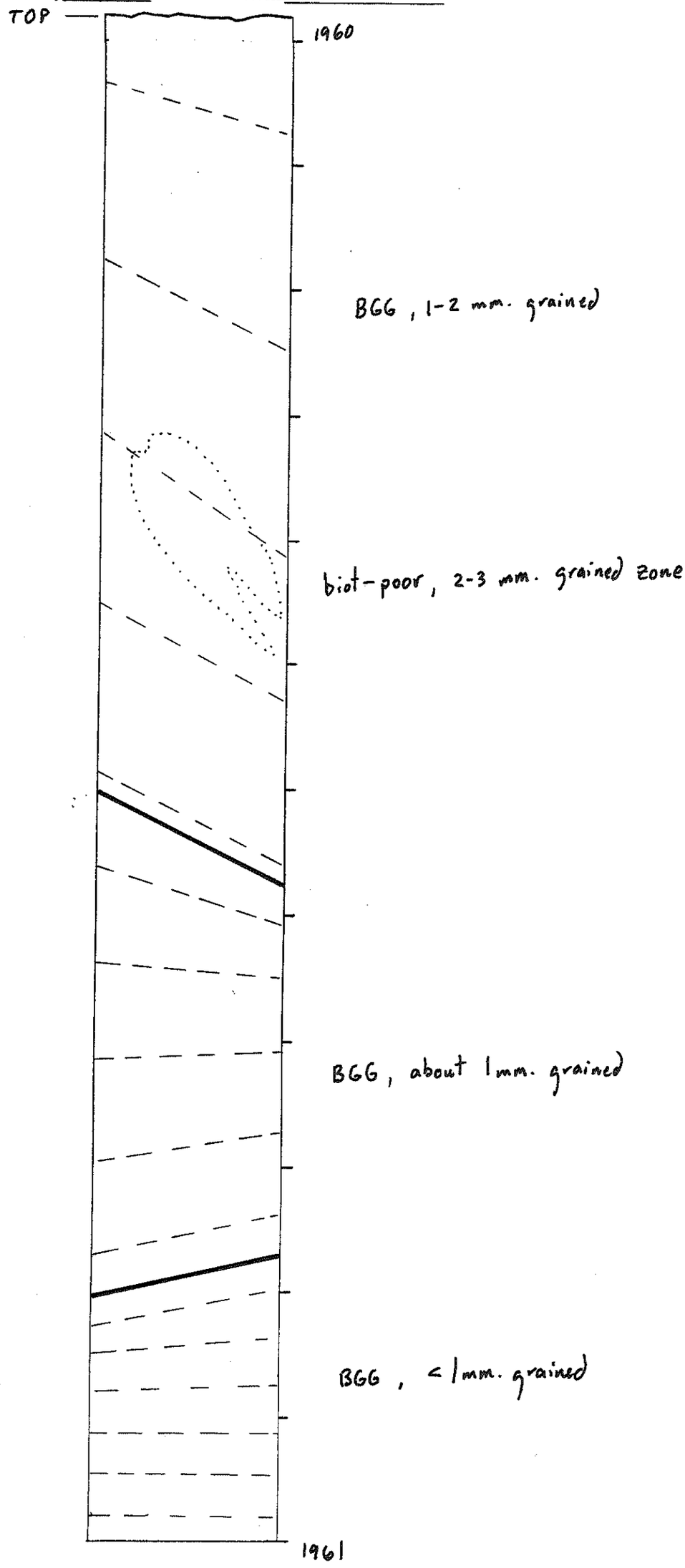


See preceding interval

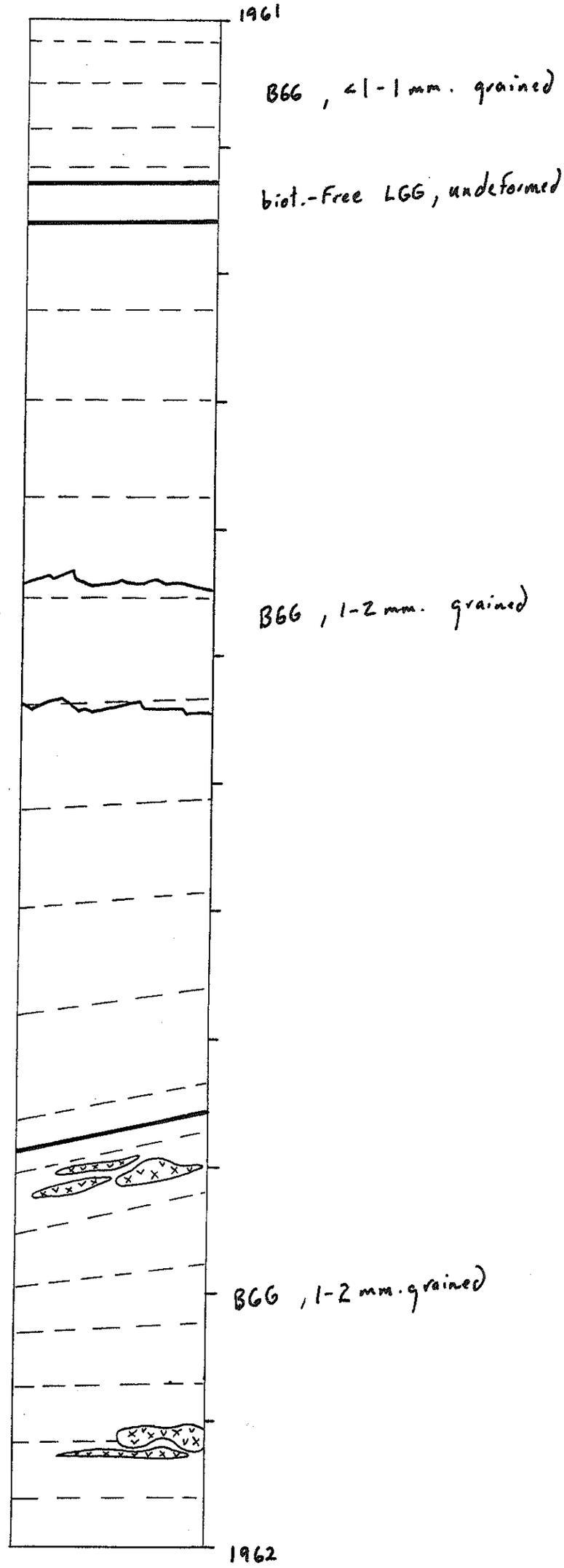
Left of dotted boundary is normal BQP, right is plag-rich BQP.

Coarse musc-bearing BQP w/ musc-rich plag-biot schist (minor sill and gnt) surrounding Q.F.S.

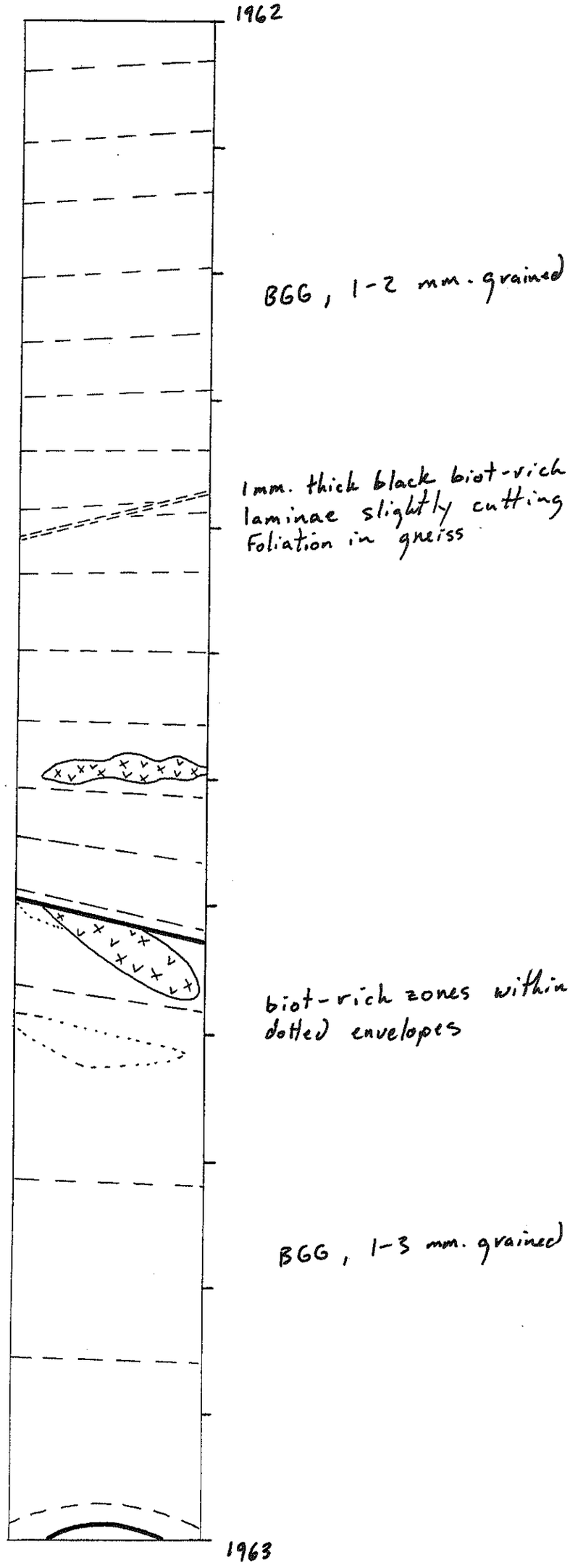
CORE LOG Moodus Deep BOX# 4 INTERVAL 1960' - 1961'



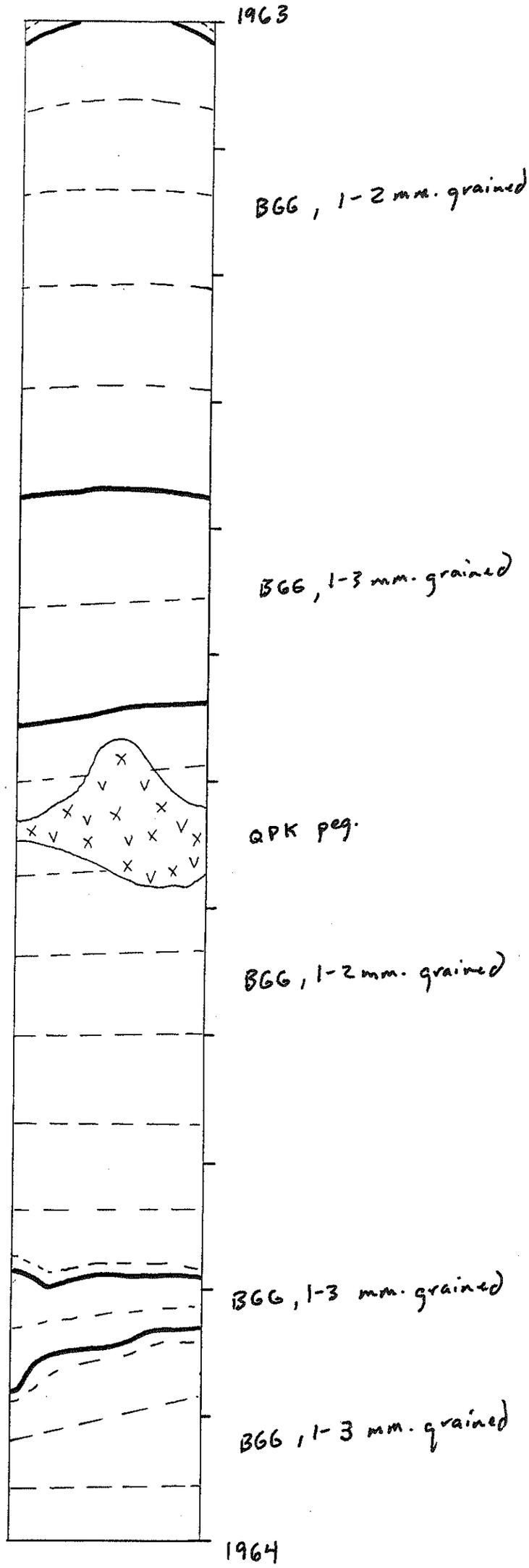
CORE LOG Moodus Deep BOX# 4 INTERVAL 1961' - 1962'



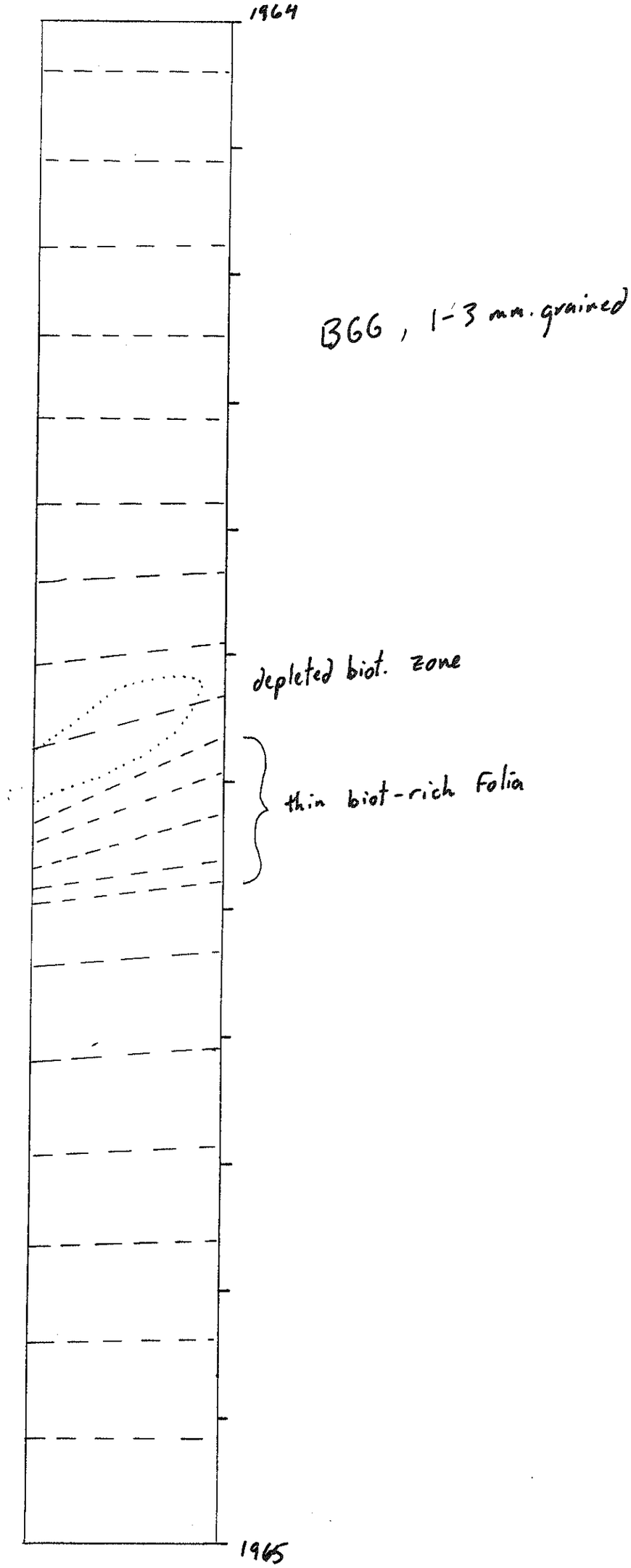
CORE LOG Moodus Deep BOX# 4 INTERVAL 1962' - 1963'



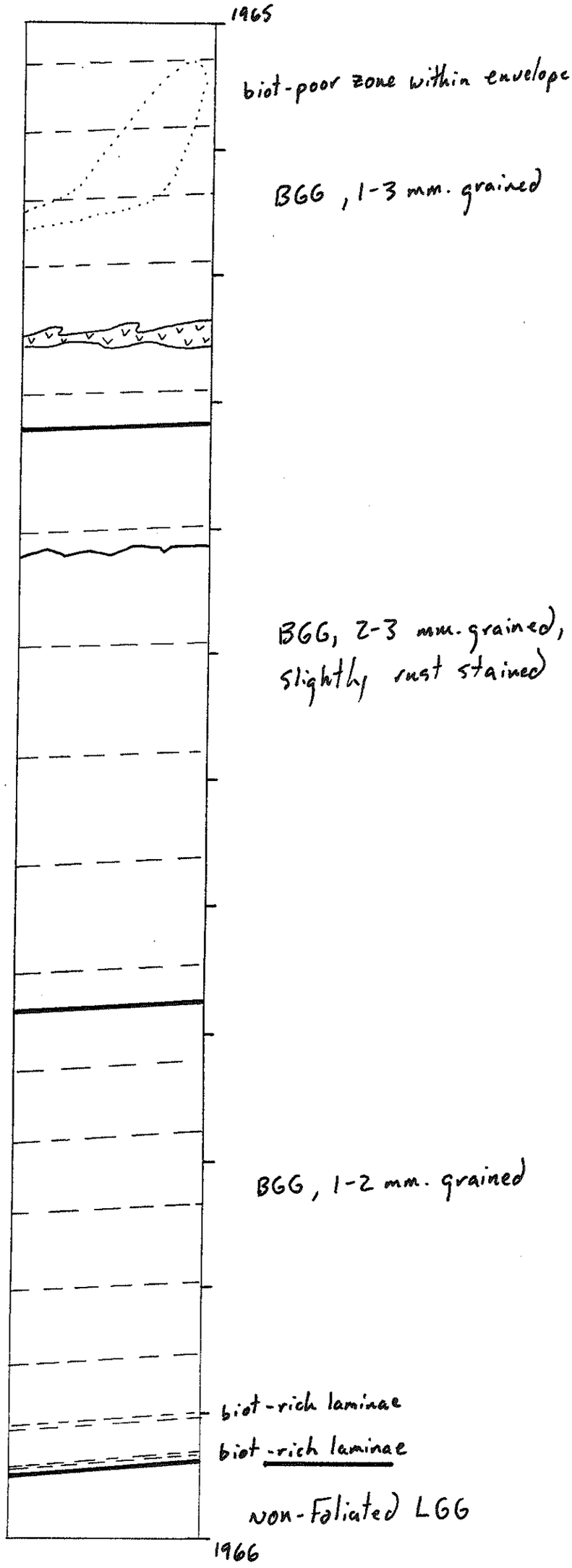
CORE LOG Moodus Deep BOX# 4 INTERVAL 1963' - 1964'



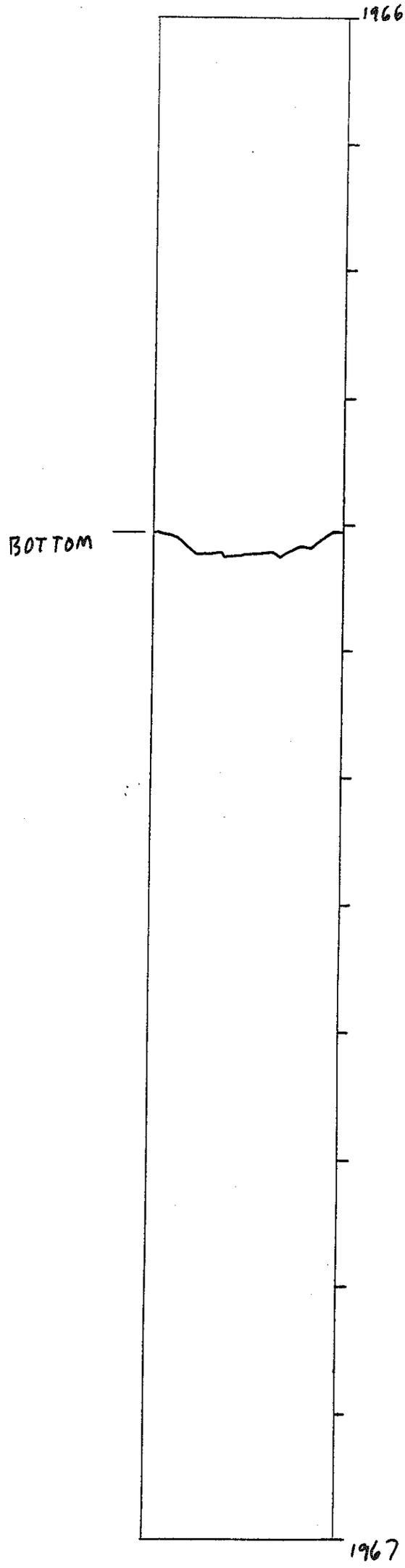
CORE LOG Moodus Deep BOX# 4 INTERVAL 1964'-1965'



CORE LOG Moodus Deep BOX# 4 INTERVAL 1965′-1966′



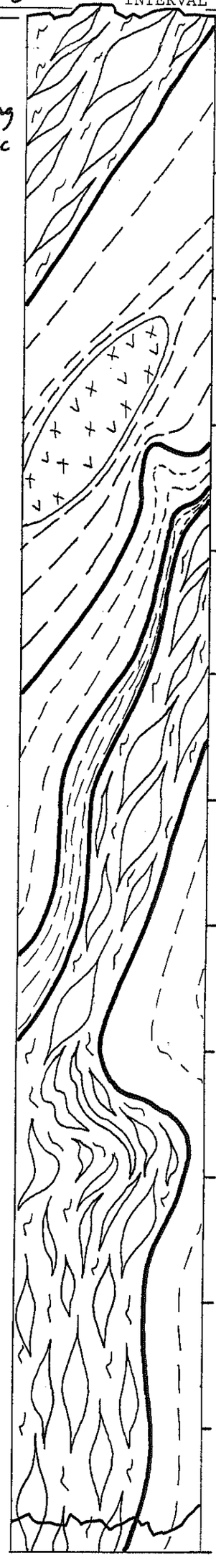
CORE LOG Moodus Deep BOX# 4 INTERVAL 1966'-1966'4"



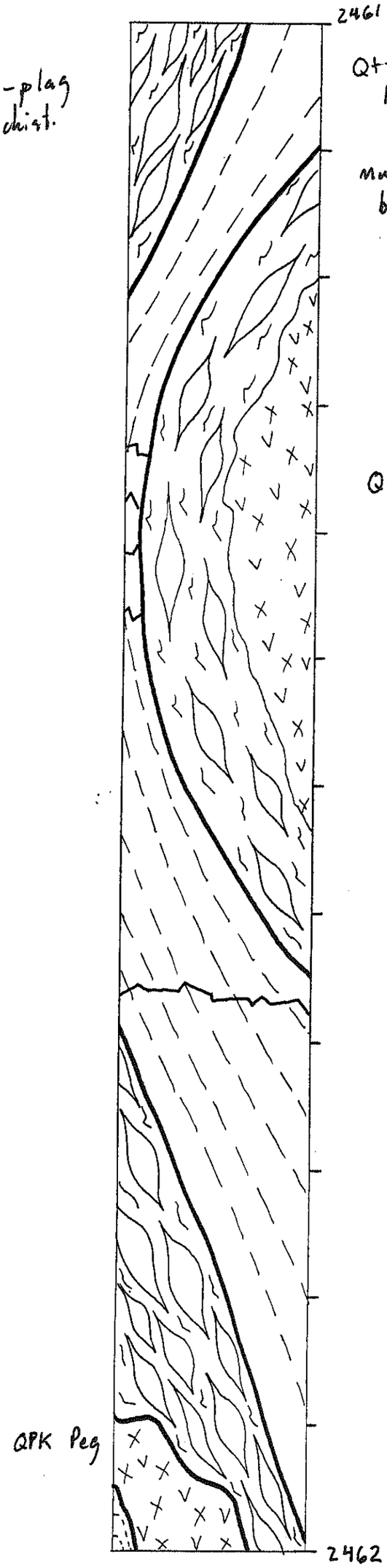
Non-Foliated, Mildly rust-stained LGG, 2-3 mm. grained.

CORE LOG Moodus Deep BOX# 5 INTERVAL 2460'-2461'

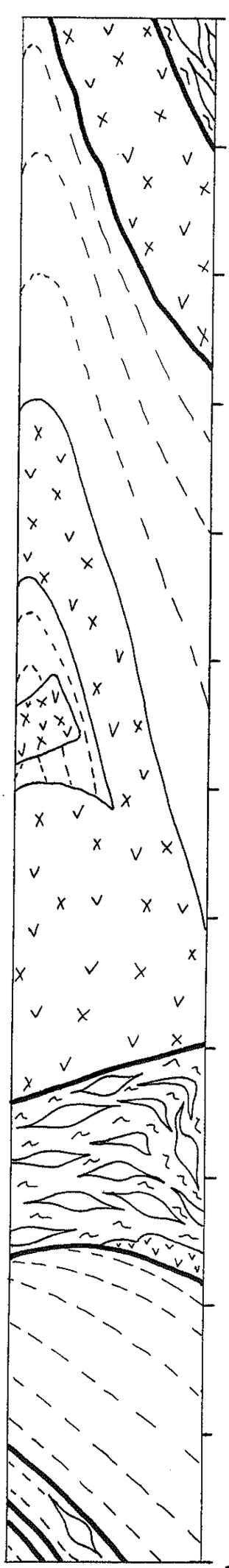
TOP



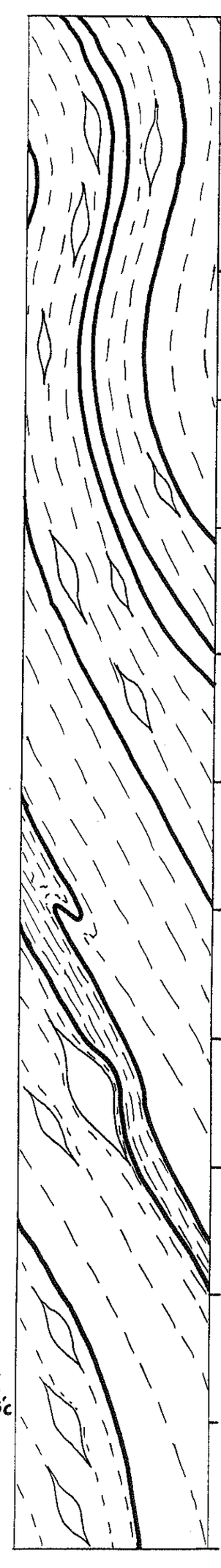
CORE LOG Moodus Deep BOX# 5 INTERVAL 2461' - 2462'



CORE LOG Moodus Deep BOX# 5 INTERVAL 2462' - 2463'



CORE LOG Moodus Deep BOX# 5 INTERVAL 2463'-2464'



Qtz-plag-biot (25%) gneiss
1-2 mm. grained. (BHG)

biot (5%)-Qtz-Plag gneiss. (BHG)

Qtz-plag-biot (25%) gneiss. (BHG)

biot (5%)-Qtz-Plag gneiss. (BHG)

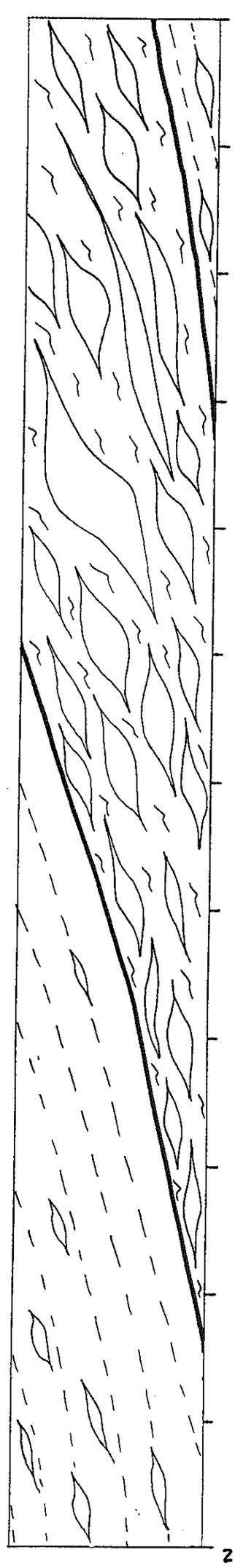
Qtz-plag-biot (25%) gneiss. (BHG)

Plag-biot (80%) schist (PBS)

biot (15%)-Qtz
-plag blastomylonitic
gneiss

biot (5%)-Qtz-plag gneiss. (BHG)

CORE LOG Moodus Deep BOX# 5 INTERVAL 2464'-2465'

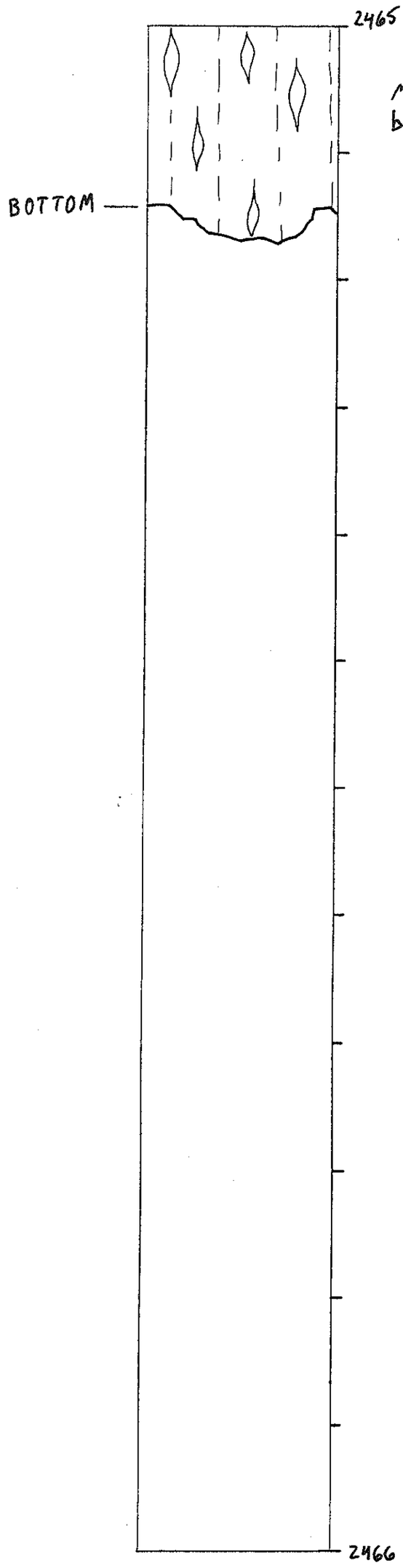


biot (5%) - Qtz - plag gneiss. (BHG)

biot (15%) - Qtz - plag blastomylonitic gneiss

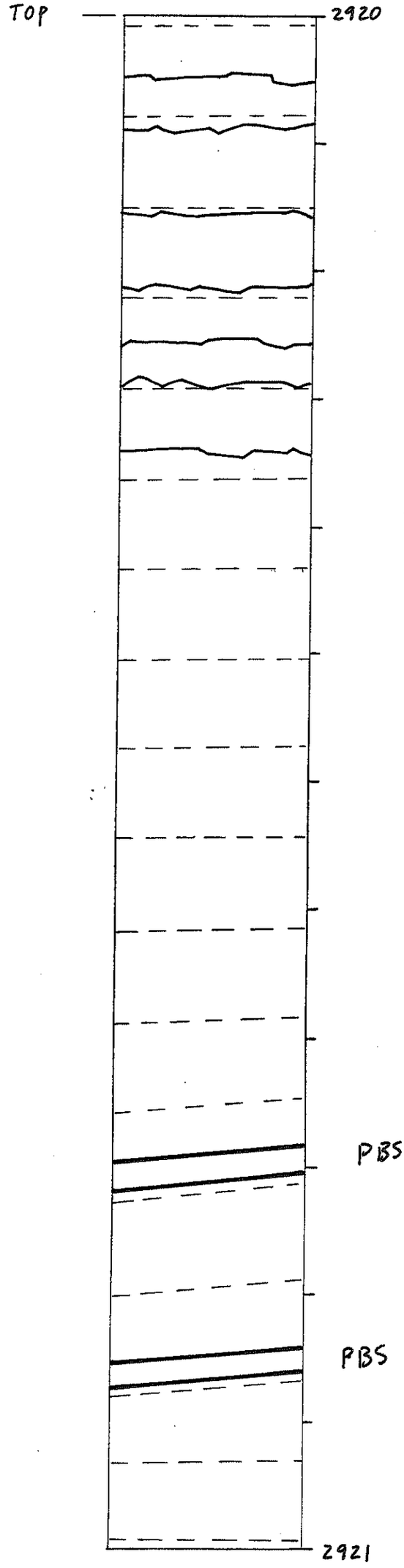
Musc - biot - Qtz - Plag blastomylonitic schist. (BHS)

CORE LOG Moodus Deep BOX# 5 INTERVAL 2465'-2465'1½"



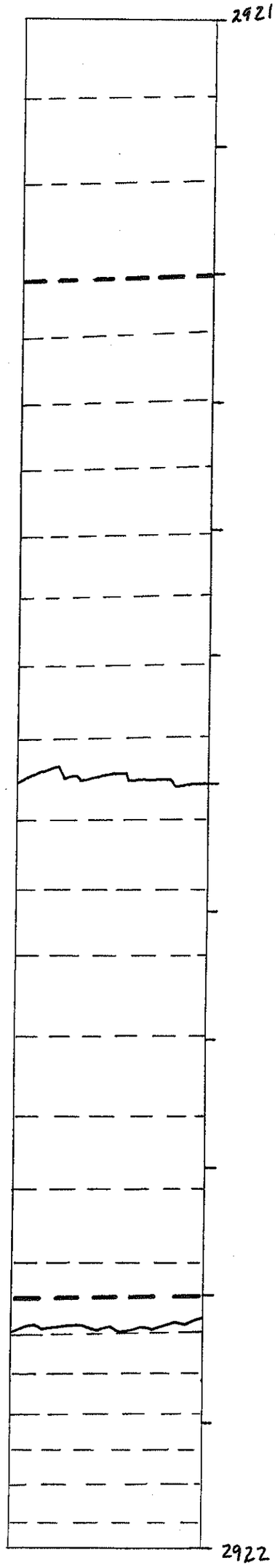
Musc-biot-qtz-plag
blastomylonitic schist (BHS)

CORE LOG Moodus Deep BOX# 6 INTERVAL 2920'-2921'



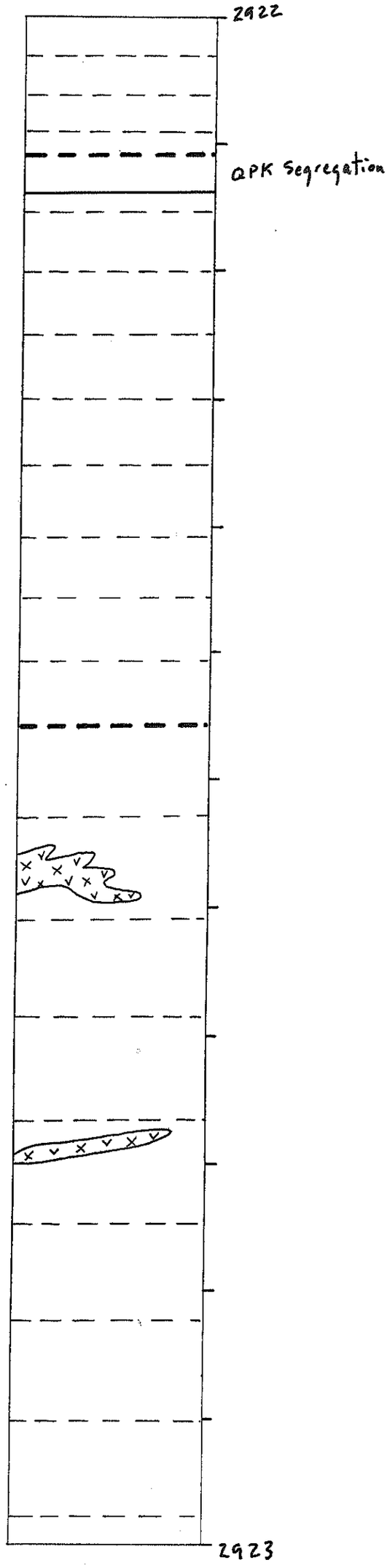
BHG

CORE LOG MOODUS Deep BOX# 6 INTERVAL 2921' - 2922'



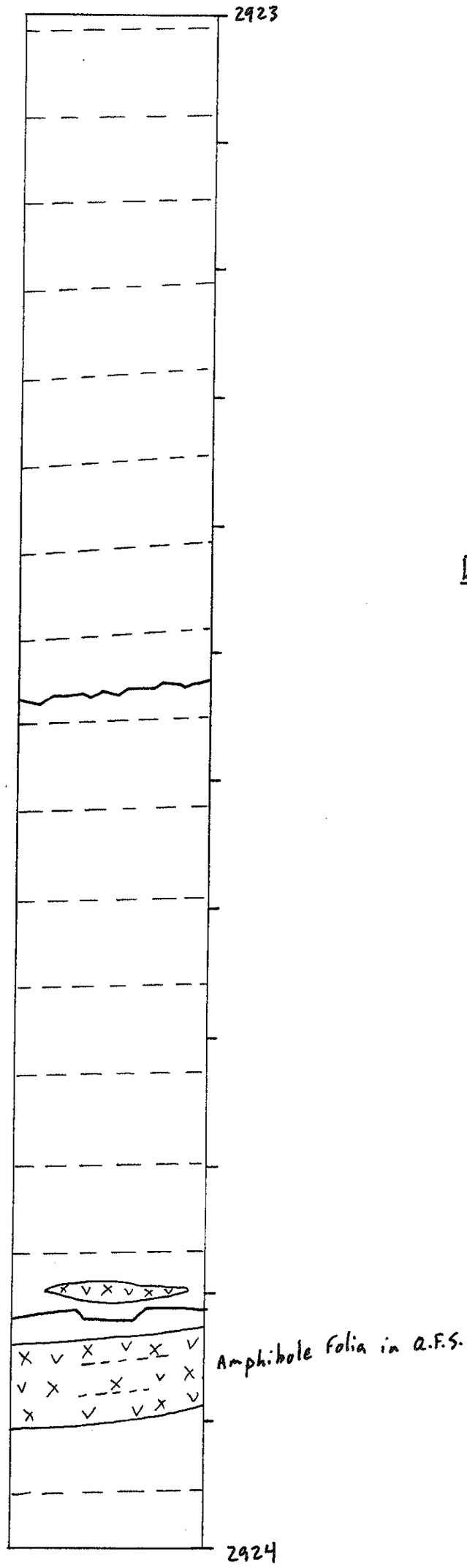
BHG

CORE LOG Moodus Deep BOX# 6 INTERVAL 2922' - 2923'



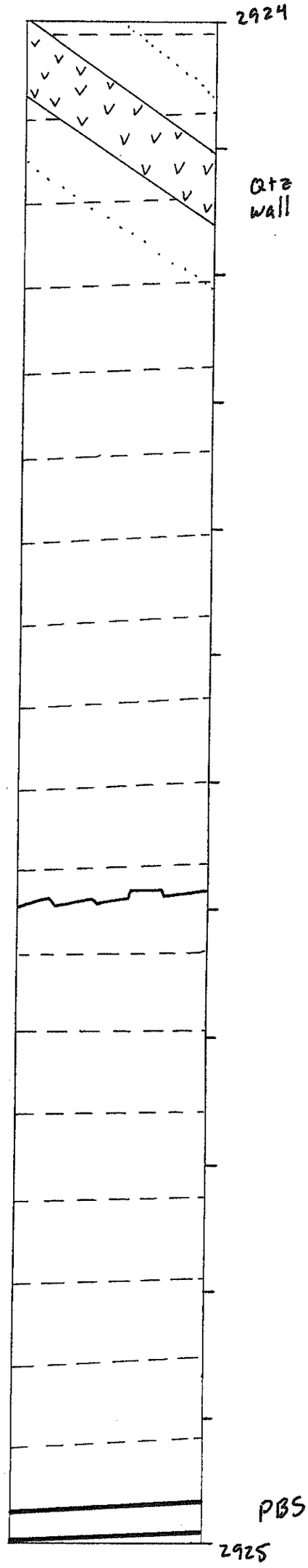
BHG

CORE LOG Moodus Deep BOX# 6 INTERVAL 2923'-2924'

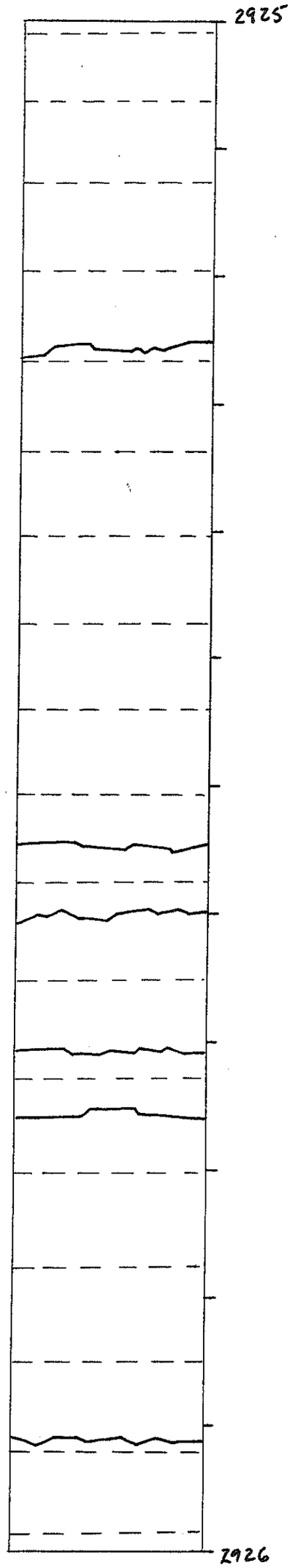


BHG

CORE LOG Moodus Deep BOX# 6 INTERVAL 2924' - 2925'

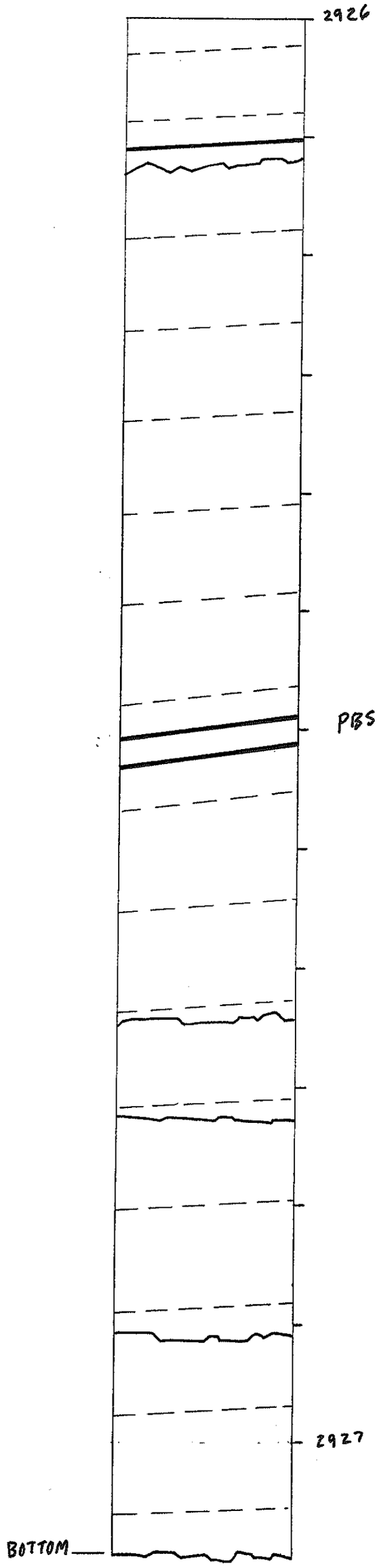


CORE LOG Meadows Deep BOX# 6 INTERVAL 2925'-2926'



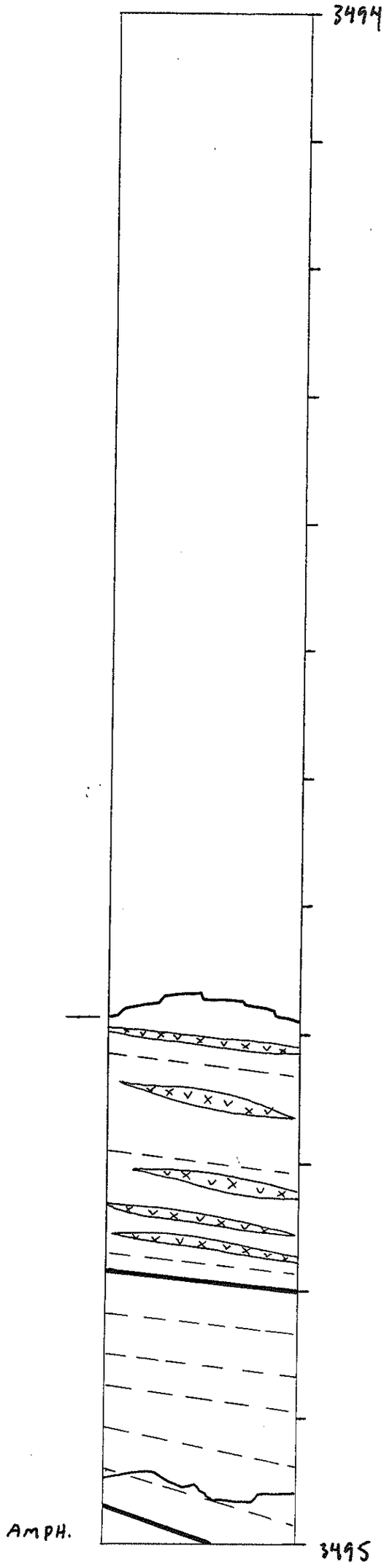
BHG

CORE LOG Moodus Deep BOX# 6 INTERVAL 2926'- 2927' 1"



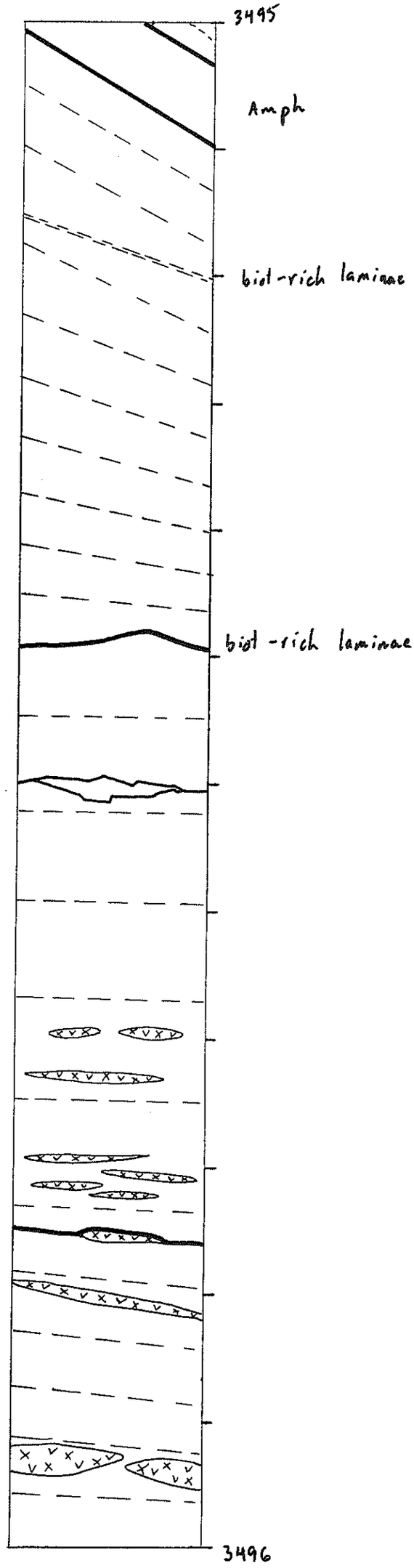
BHG

CORE LOG Moodus Deep BOX# 7 INTERVAL 3494'8" - 3495'



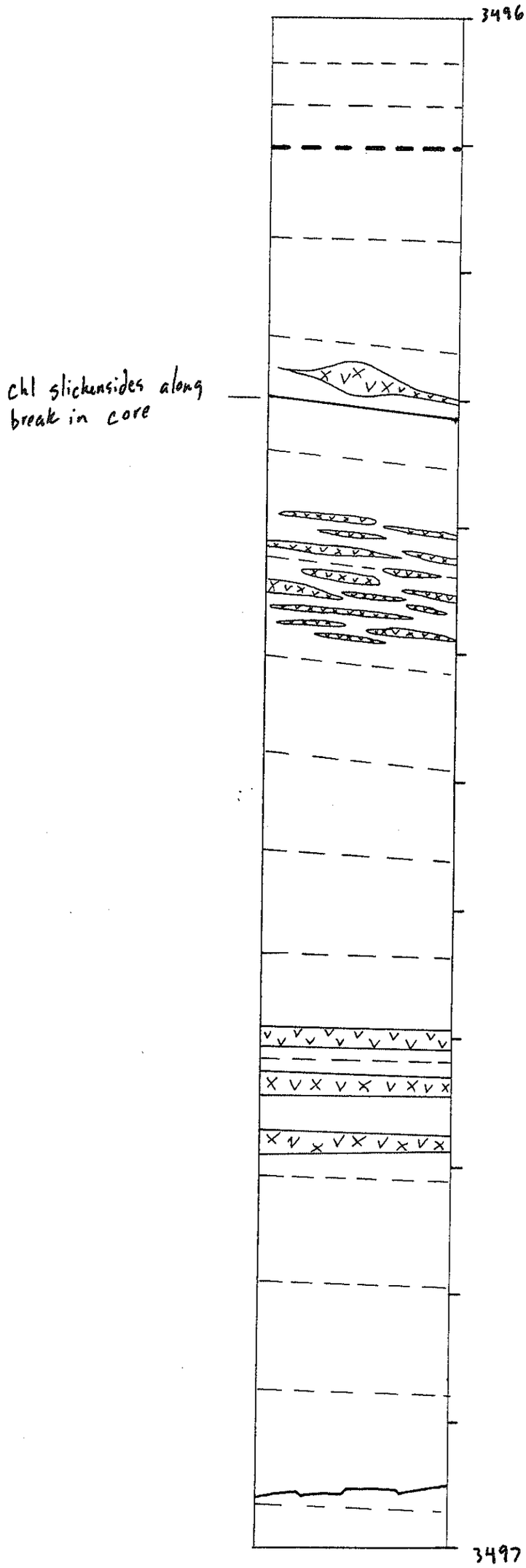
BHG

CORE LOG Moodus Deep BOX# 7 INTERVAL 3495' - 3496'



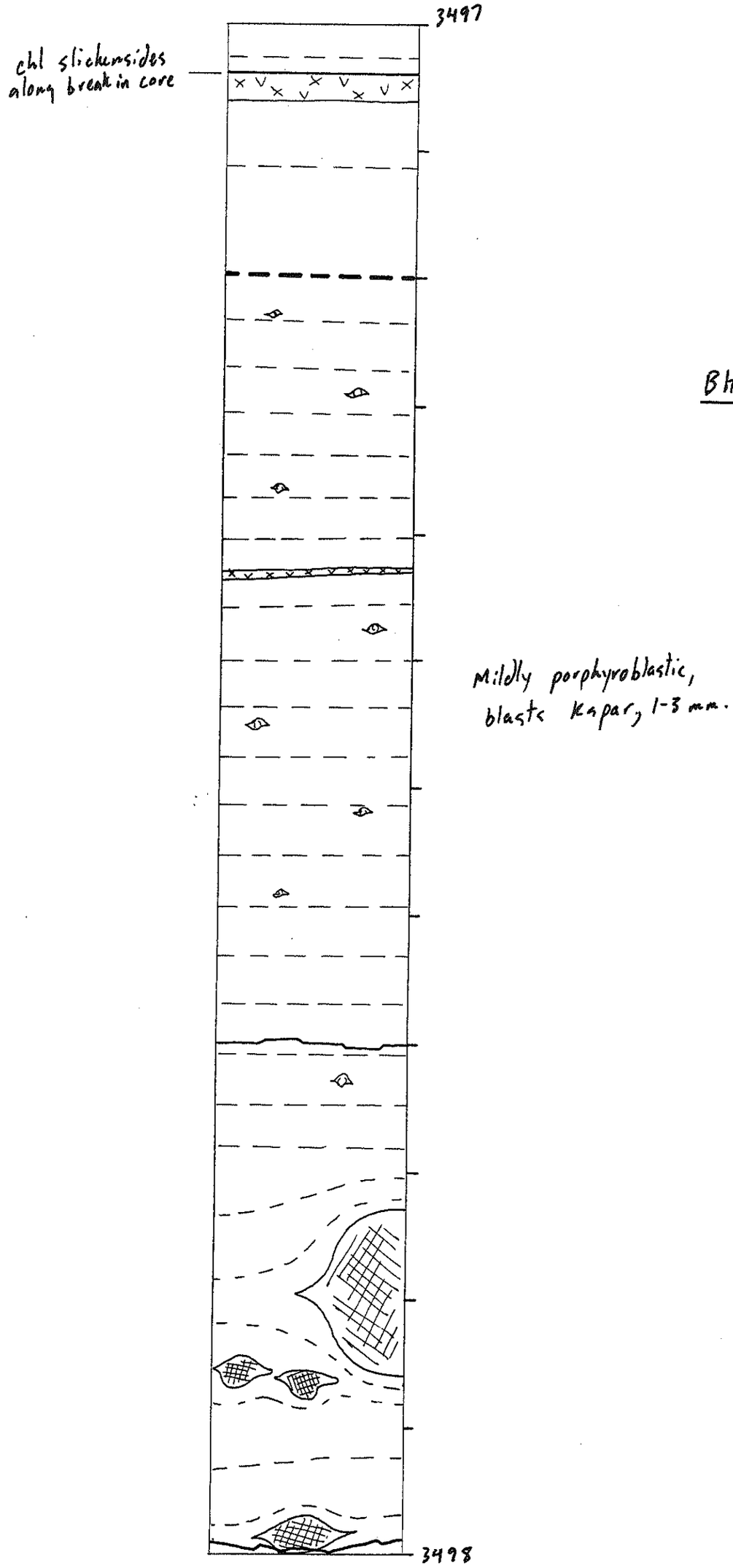
BHG

CORE LOG Moodus Deep BOX# 7 INTERVAL 3496' - 3497'

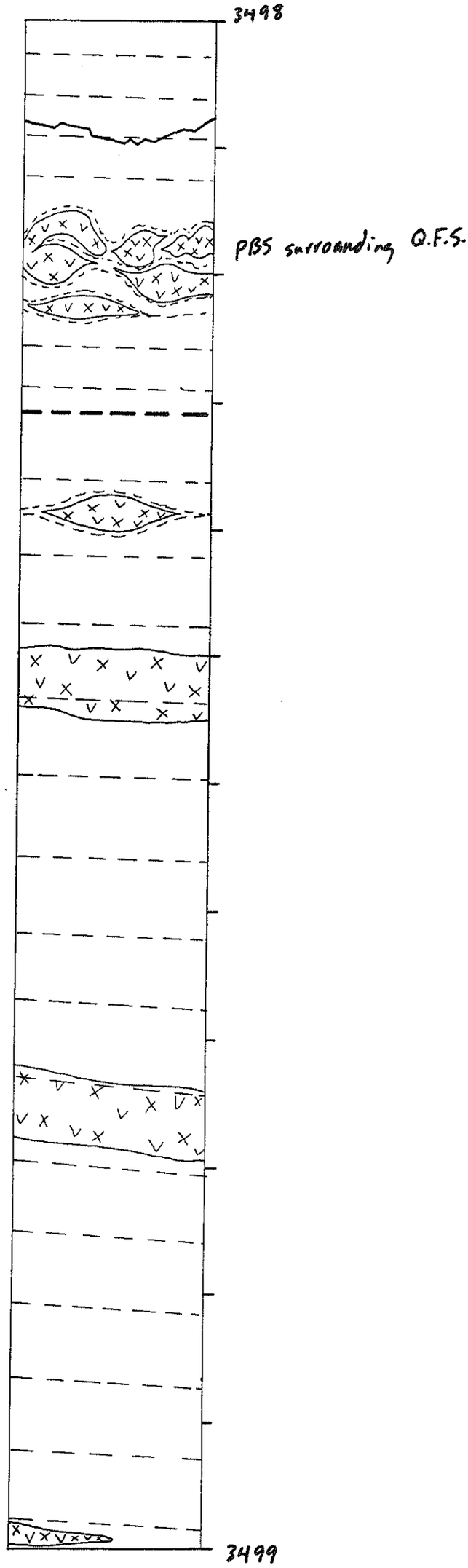


BHG

CORE LOG Moodus Deep BOX# 7 INTERVAL 3497'-3498'

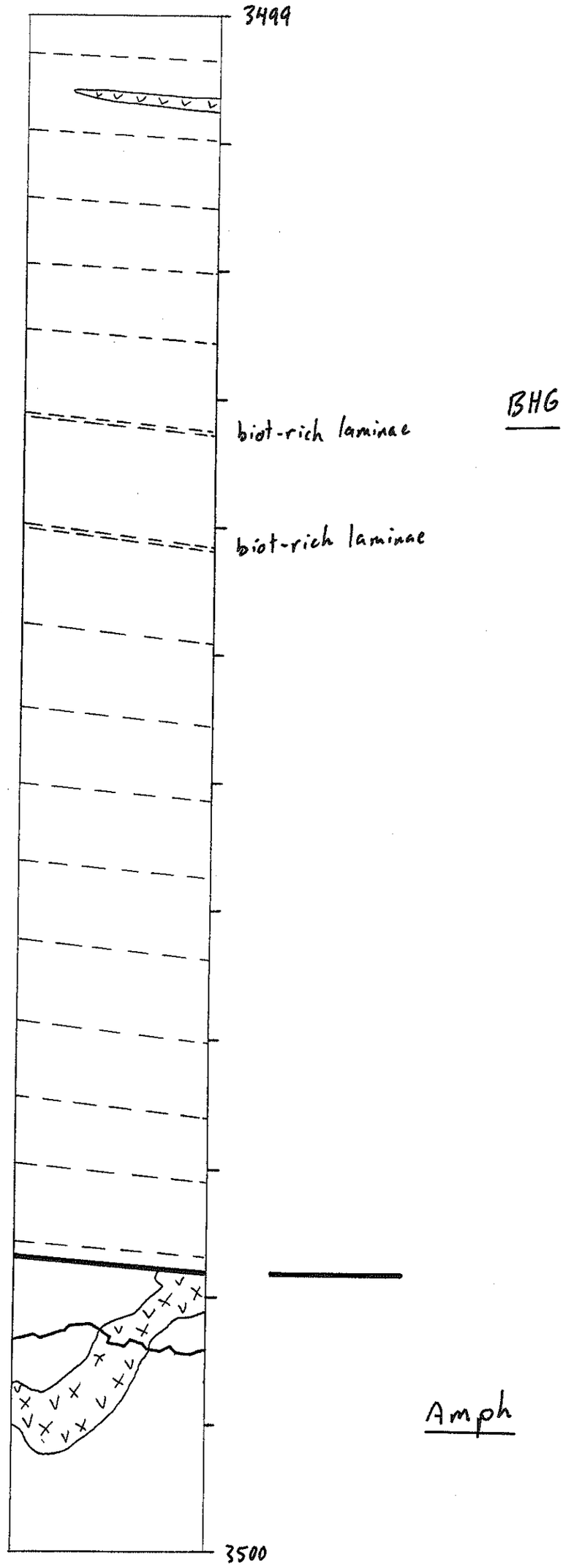


CORE LOG Moodus Deep BOX# 7 INTERVAL 3498'- 3499'

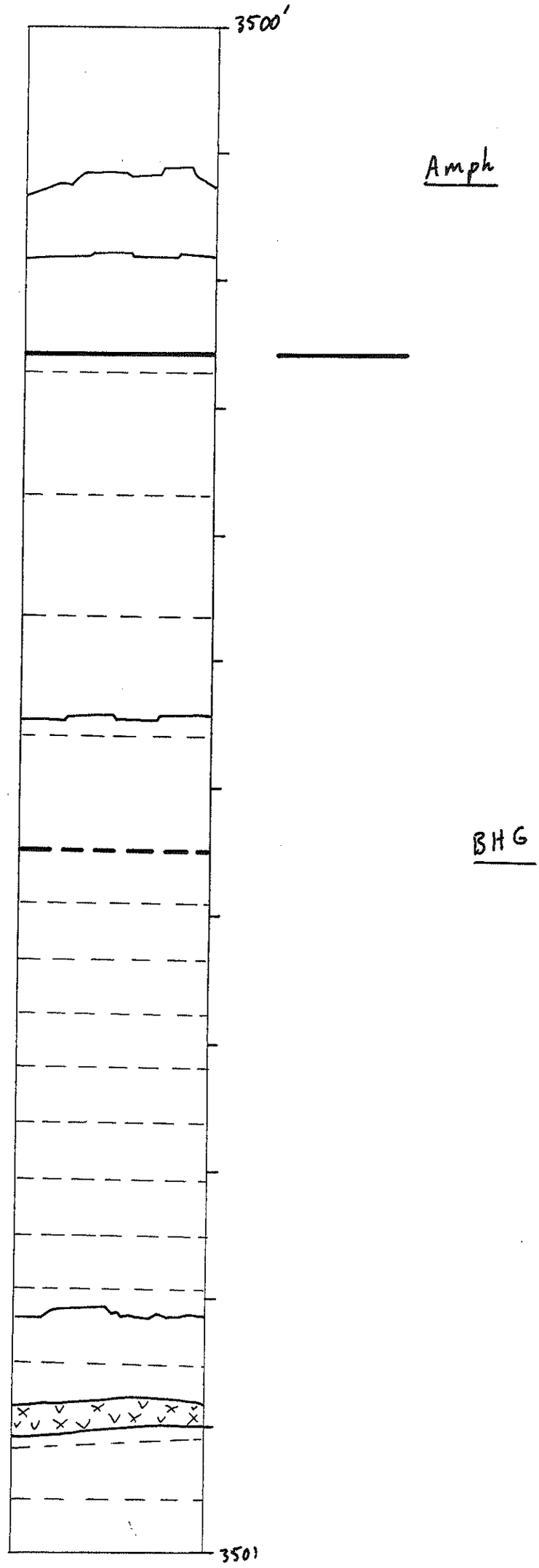


BHG

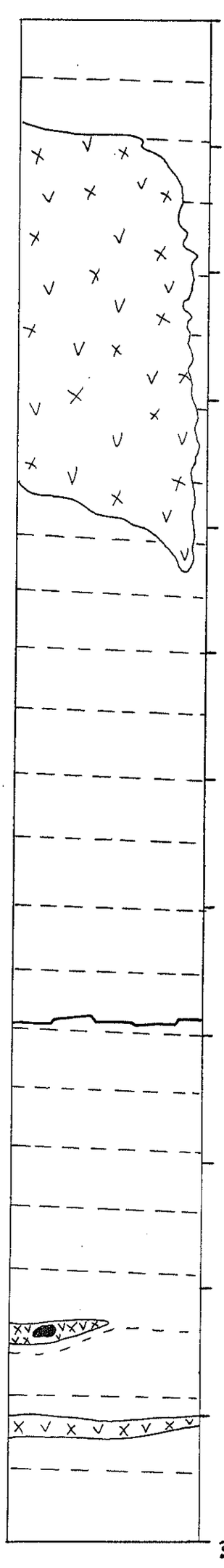
CORE LOG Moodus Deep BOX# 7 INTERVAL 3499' - 3500'



CORE LOG Moodus Deep BOX# 7 INTERVAL 3500' - 3501'



CORE LOG Moodus Deep BOX# 7 INTERVAL 3501'-3502'

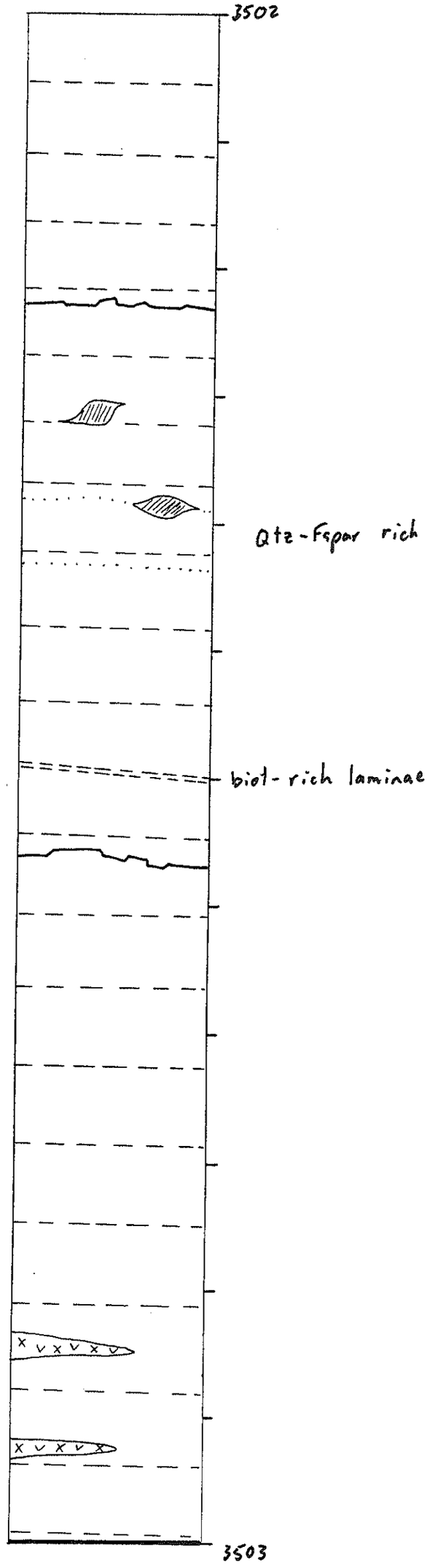


QPK pegmatite Pod

BHG

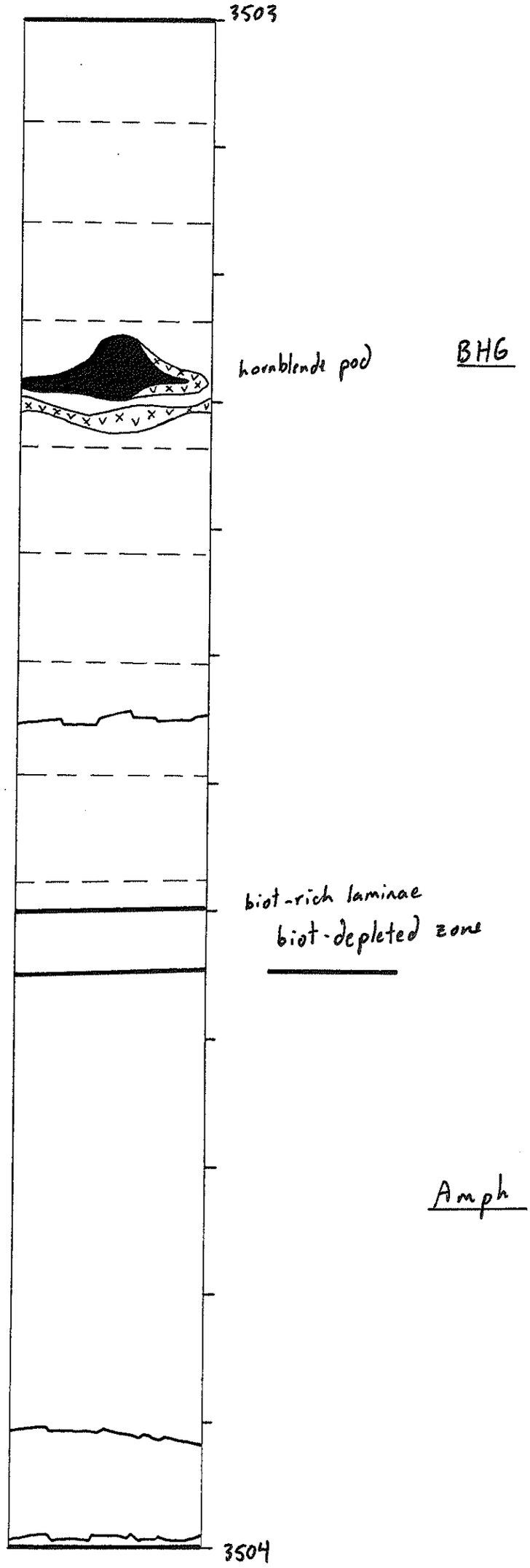
hornblende grain (1cm) in O.F.S.

CORE LOG Moodus Deep BOX# 7 INTERVAL 3502'-3503'

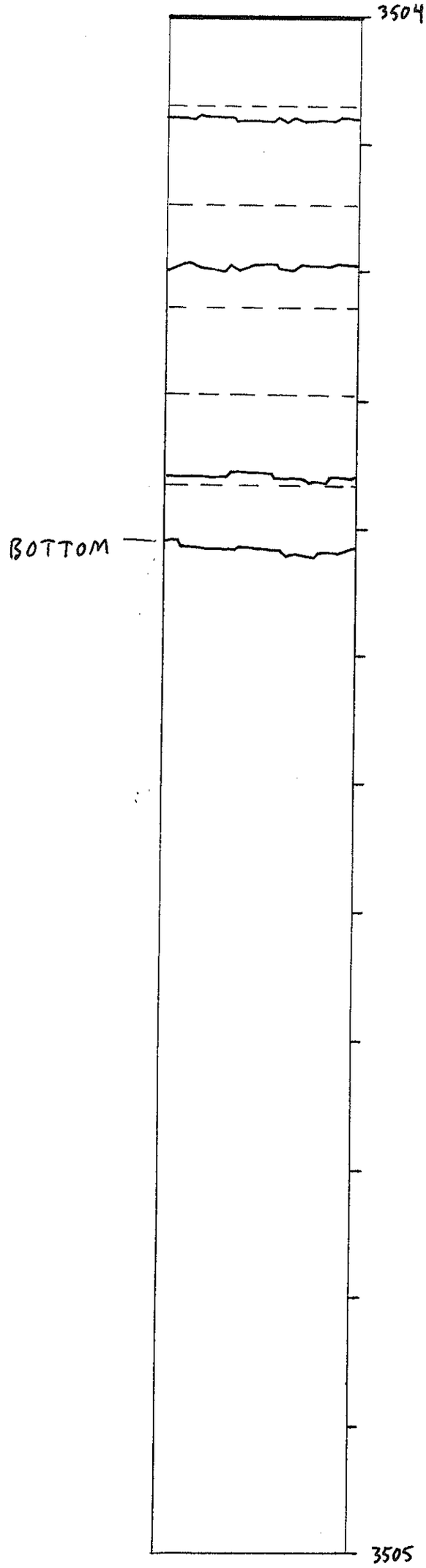


BHG

CORE LOG Moodus Deep BOX# 7 INTERVAL 3503'-3504'

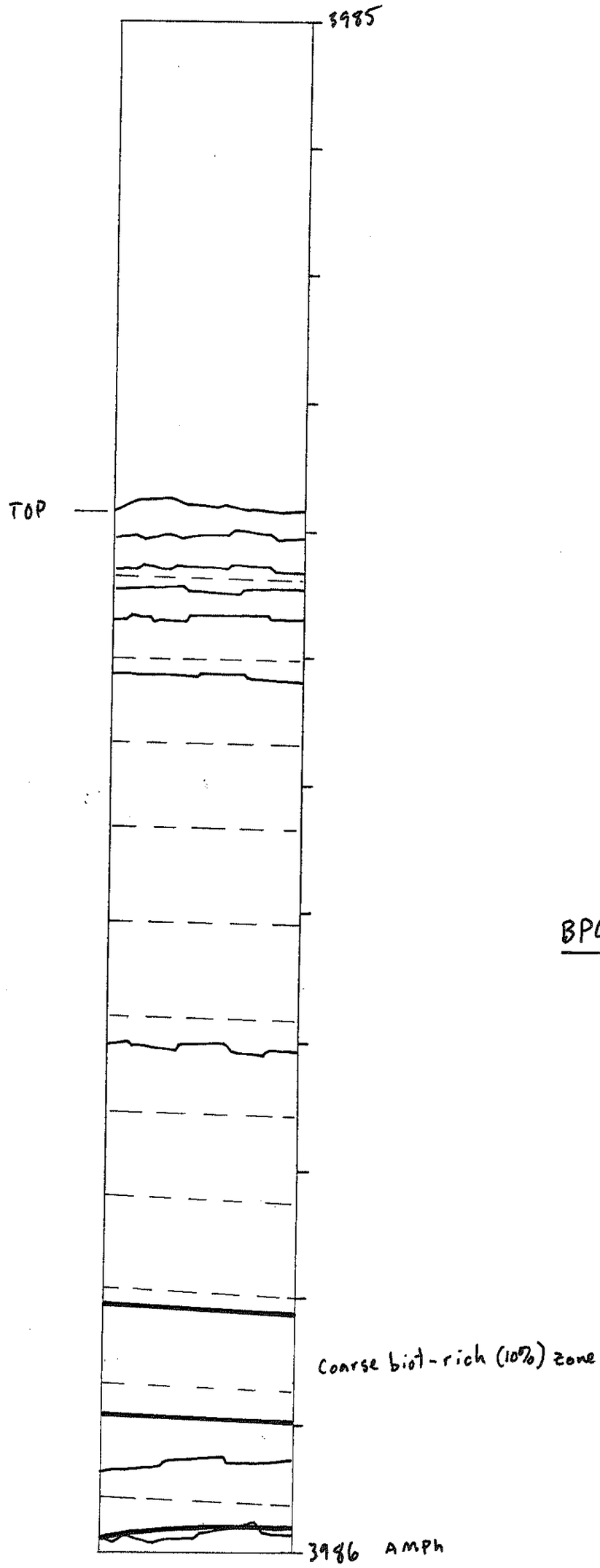


CORE LOG Moodus Deep BOX# 7 INTERVAL 3504' - 3504'4"



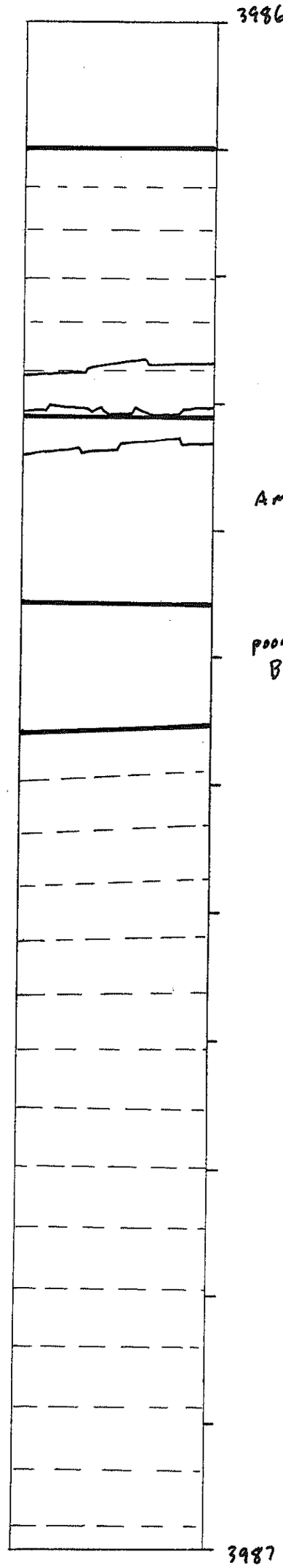
BHG
about 7% mafics

CORE LOG Moodus Deep BOX# 8 INTERVAL 3985'4" – 3986'



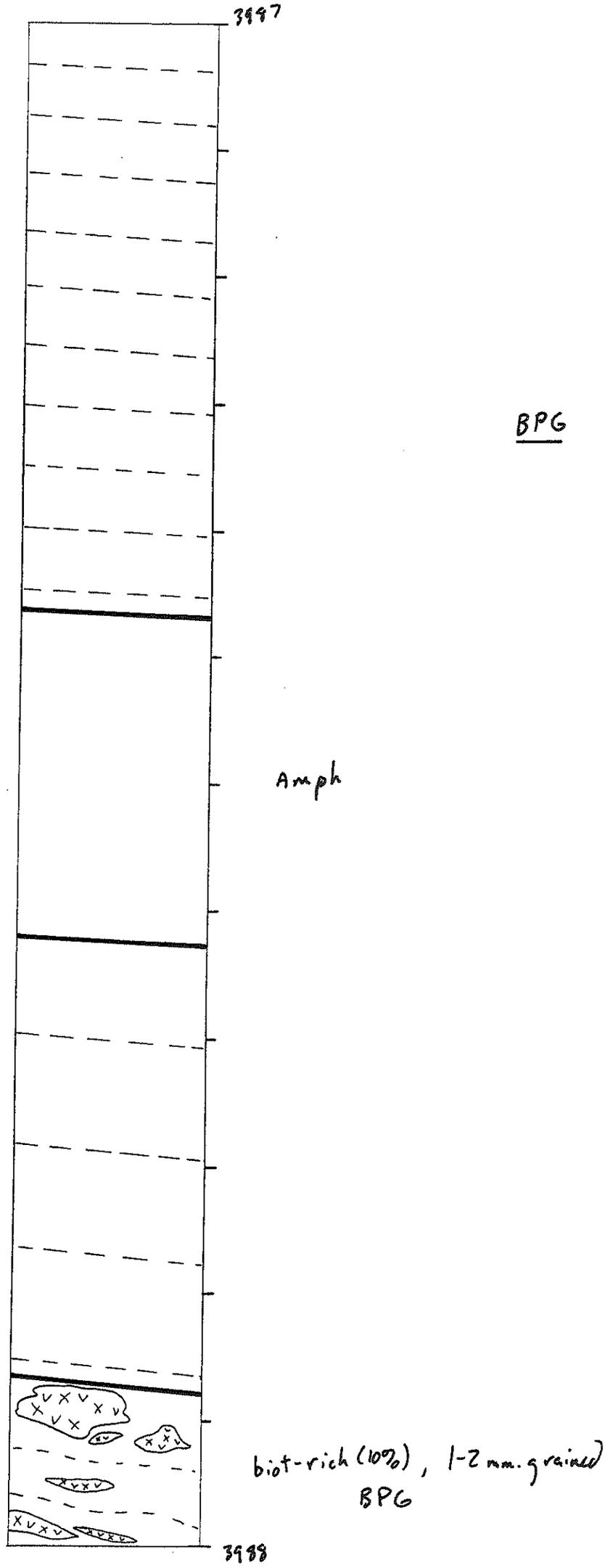
BPG

CORE LOG Moodus Deep BOX# 8 INTERVAL 3986' - 3987'

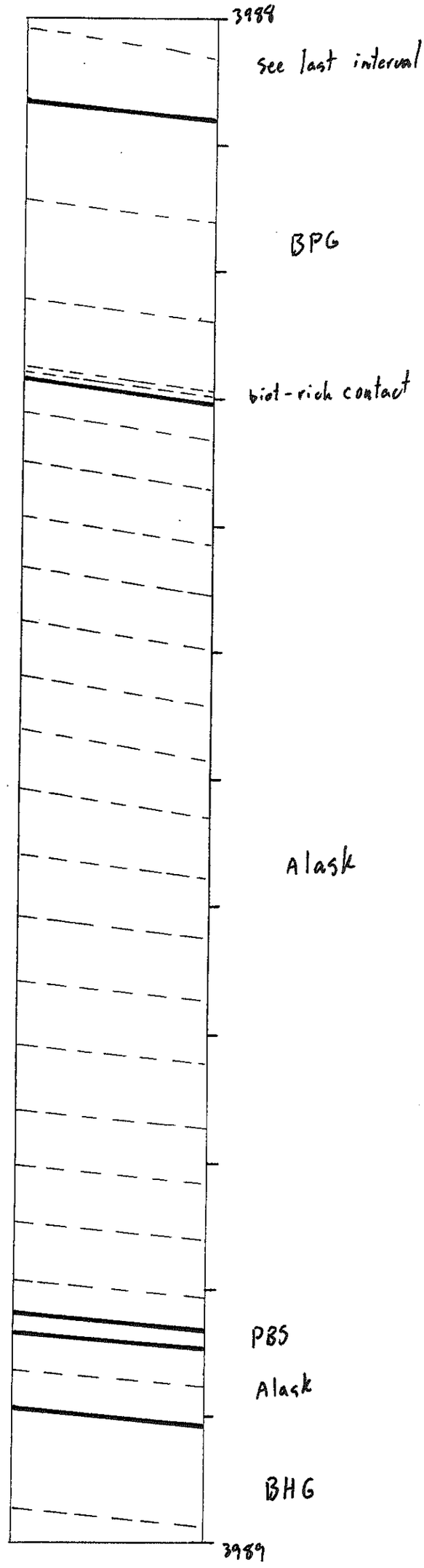


No breaks in the core are shown to the bottom of this core as they occur nearly perfectly every 1cm. All show no alteration.

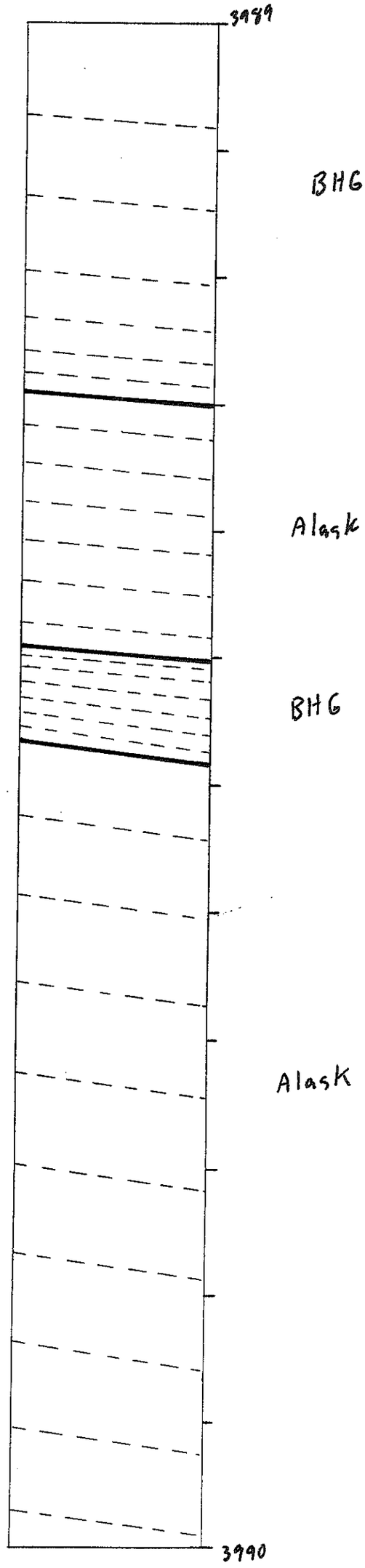
CORE LOG Meadus Deep BOX# 8 INTERVAL 3987' - 3988'



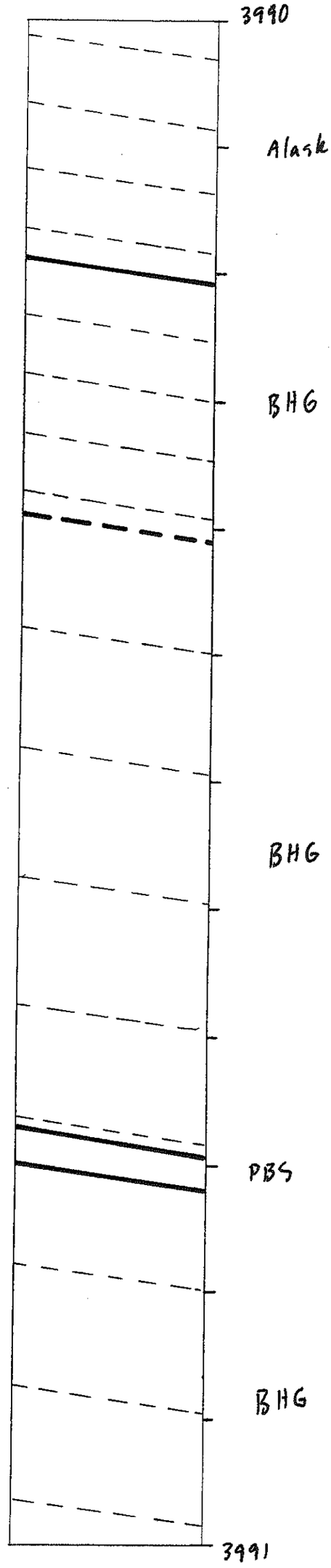
CORE LOG Moodus Deep BOX# 8 INTERVAL 3988' - 3989'



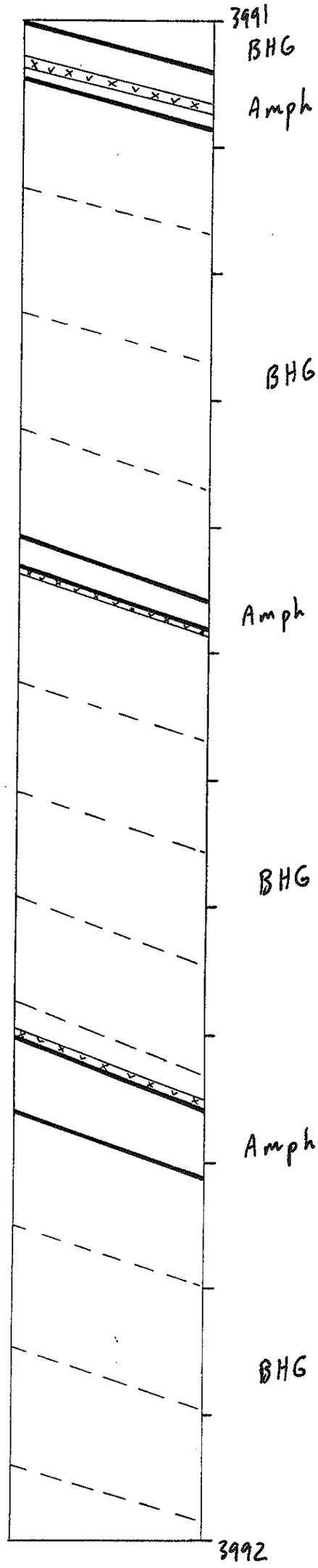
CORE LOG Moodus Deep BOX# 8 INTERVAL 3989' - 3990'



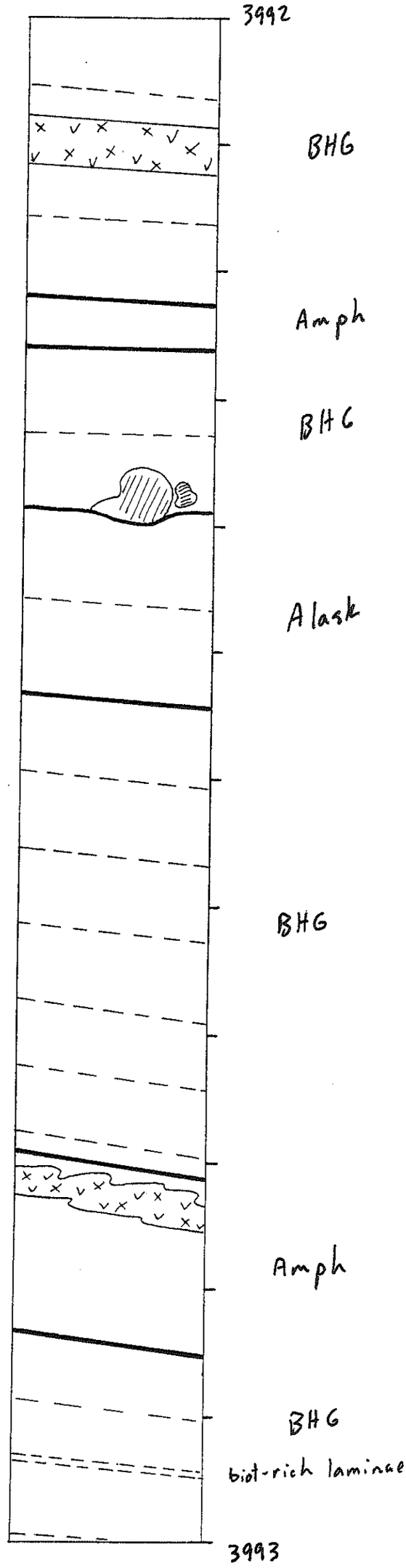
CORE LOG Moodus Deep BOX# 8 INTERVAL 3990' - 3991'



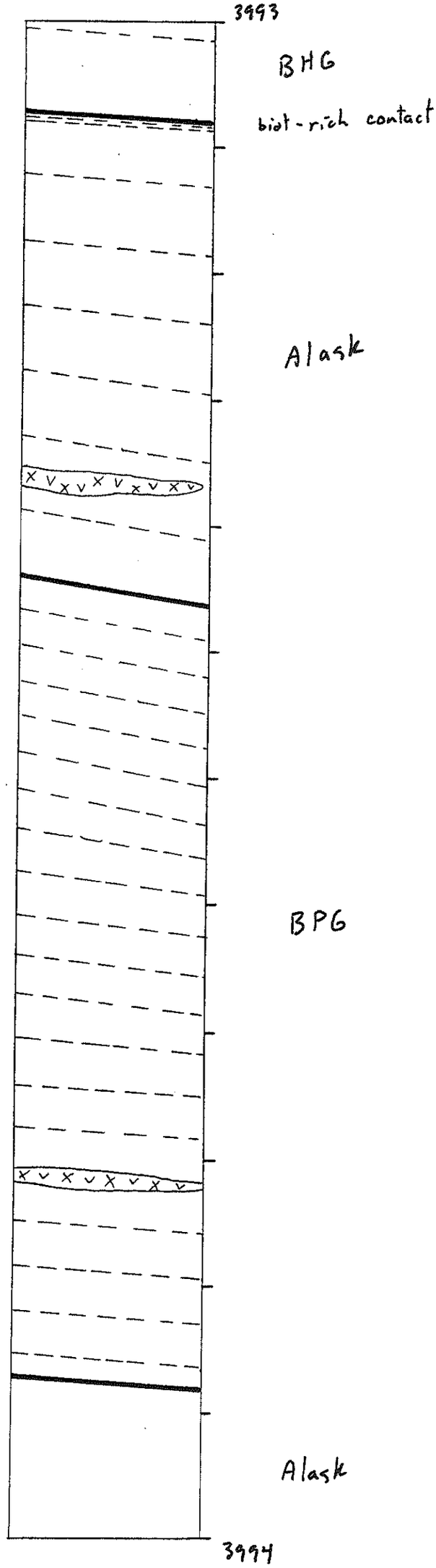
CORE LOG Moodus Deep BOX# 8 INTERVAL 3991' - 3992'



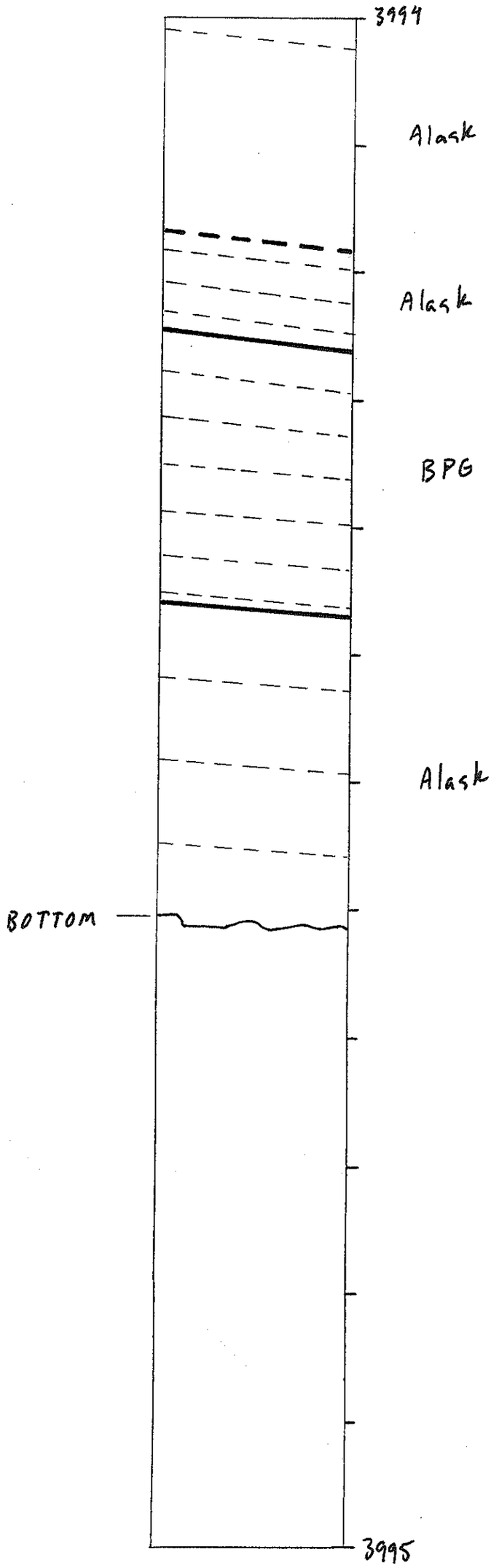
CORE LOG Moodus Deep BOX# 8 INTERVAL 3992'-3993'



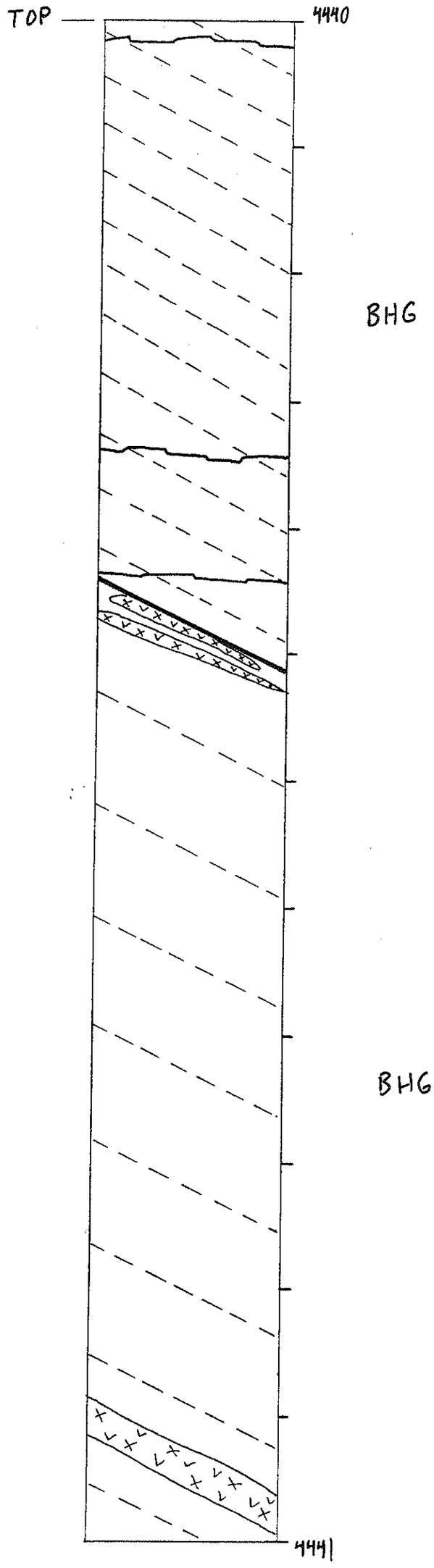
CORE LOG Moodus Deep BOX# 8 INTERVAL 3993' - 3994'



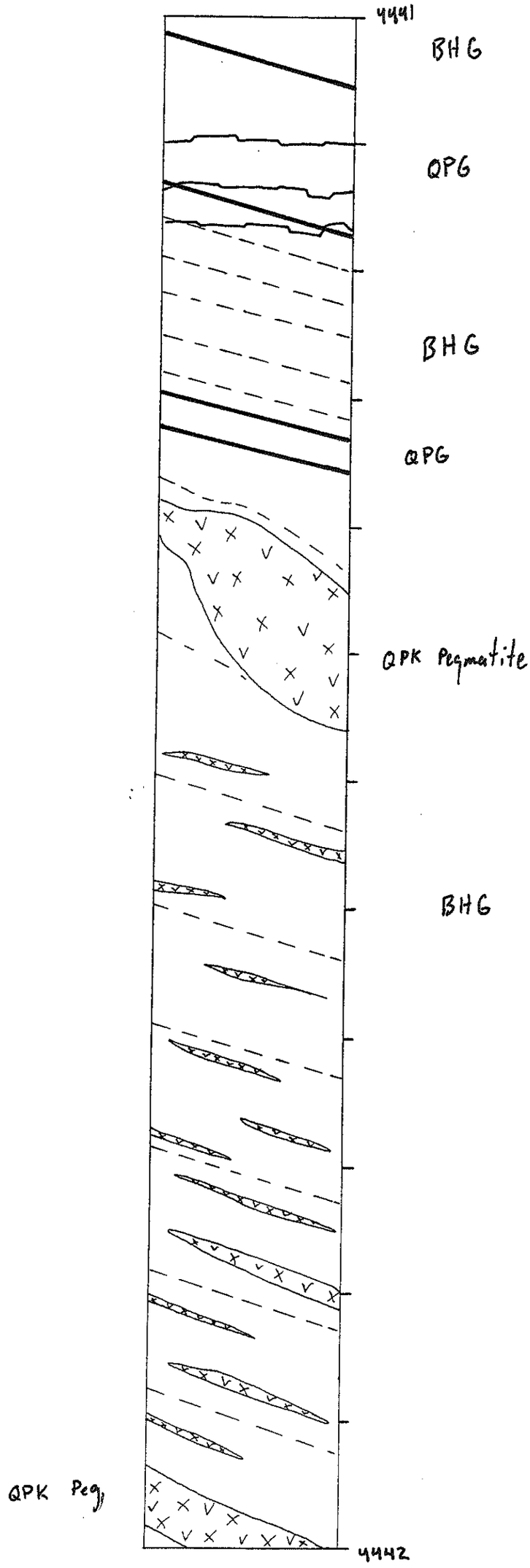
CORE LOG Moodus Deep BOX# 8 INTERVAL 3994' - 3994'7"



CORE LOG Moodus Deep BOX# 9 INTERVAL 4440' - 4441'



CORE LOG Moodus Deep BOX# 9 INTERVAL 4441 - 4442



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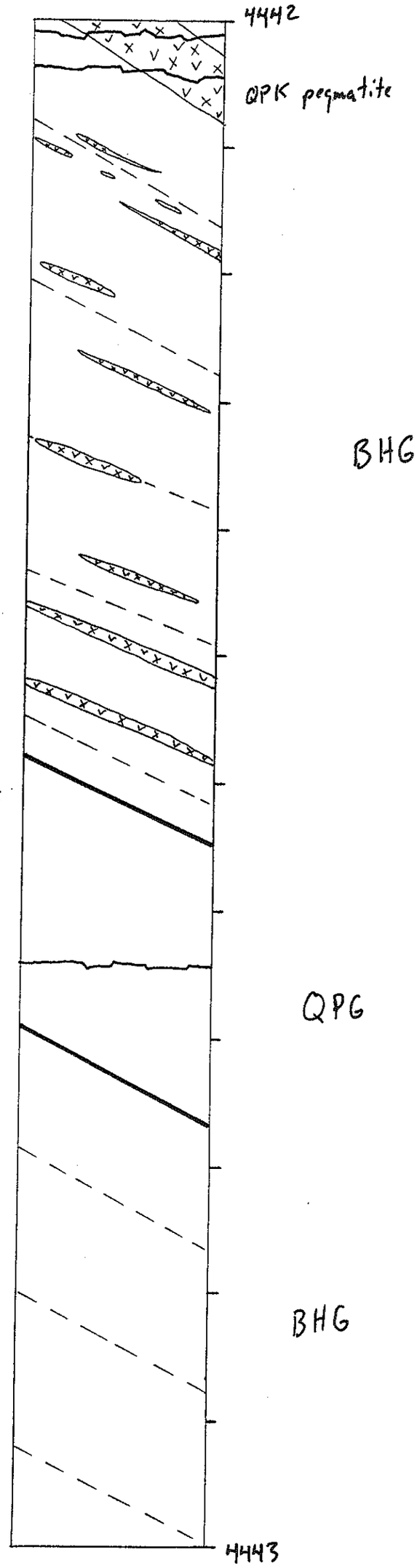

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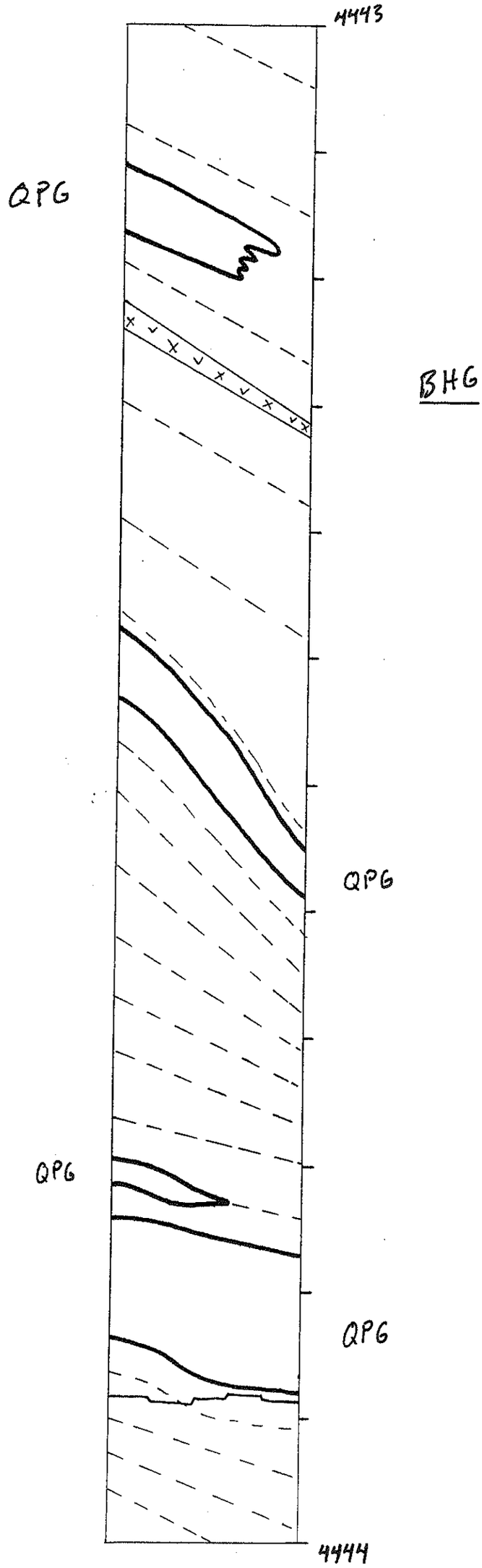

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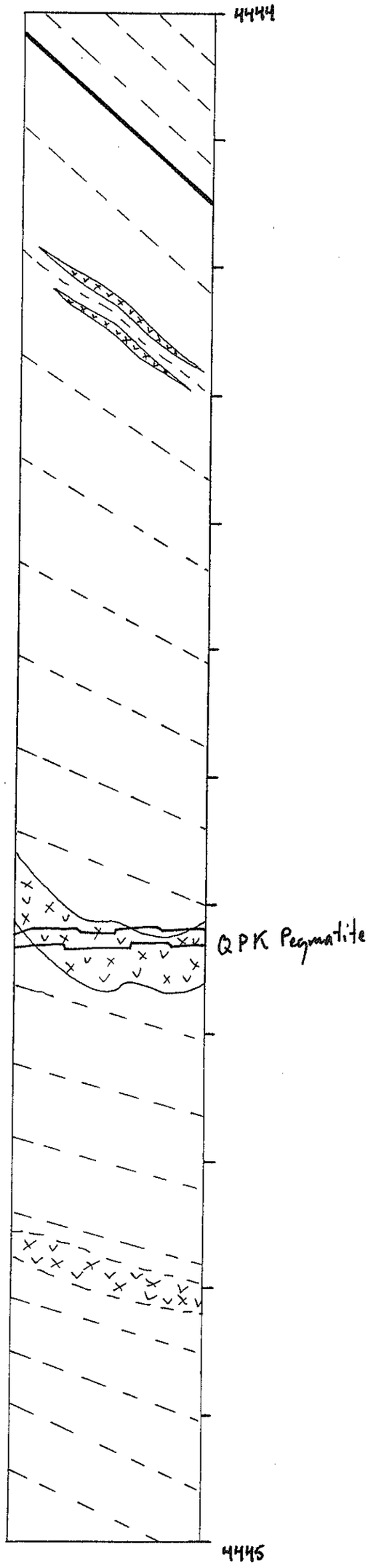

BHG

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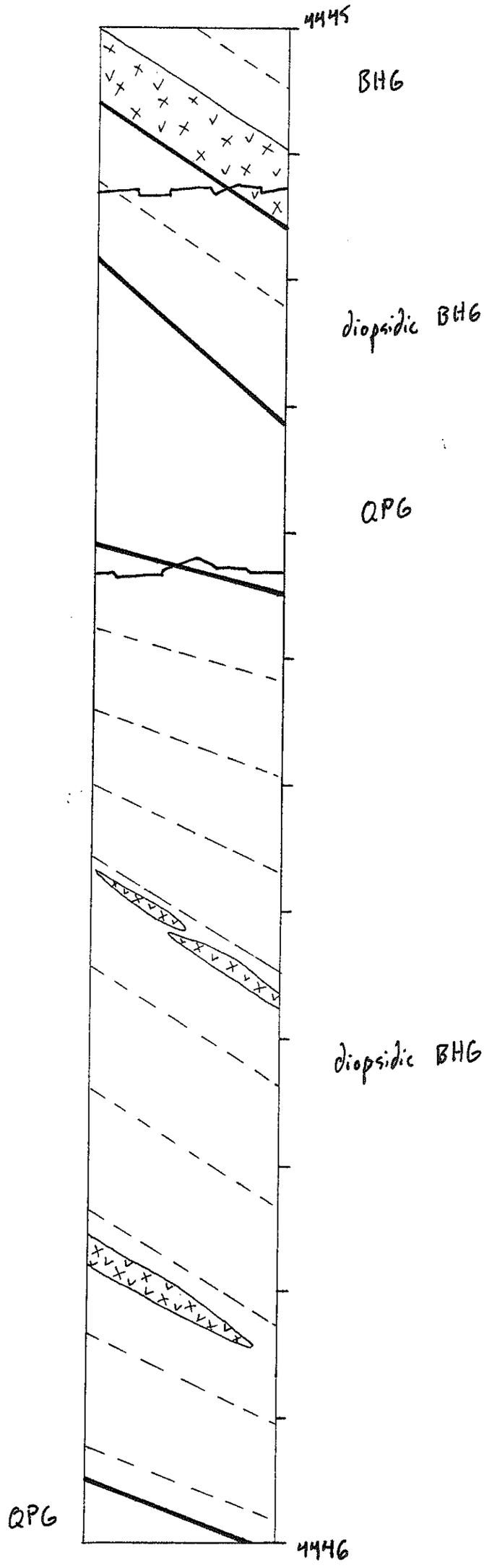

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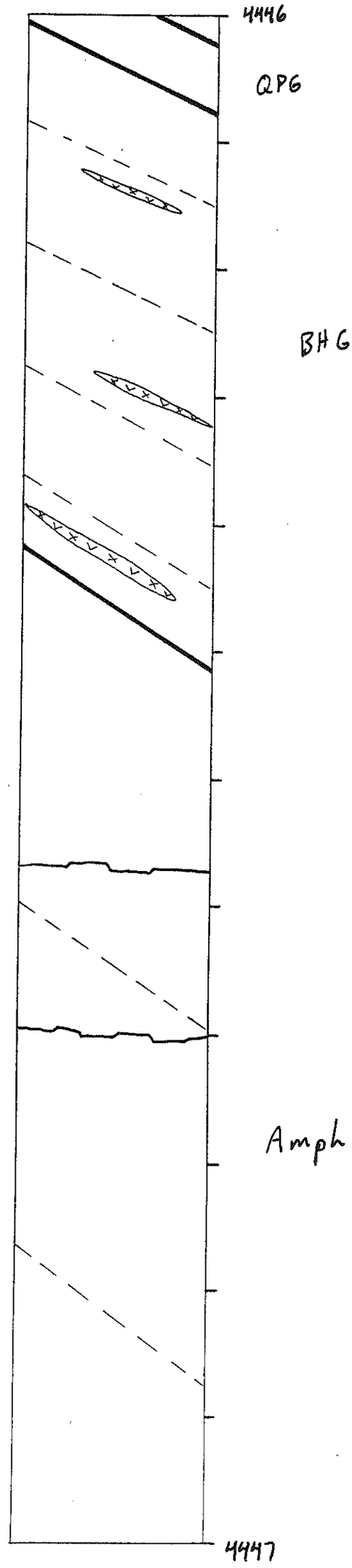

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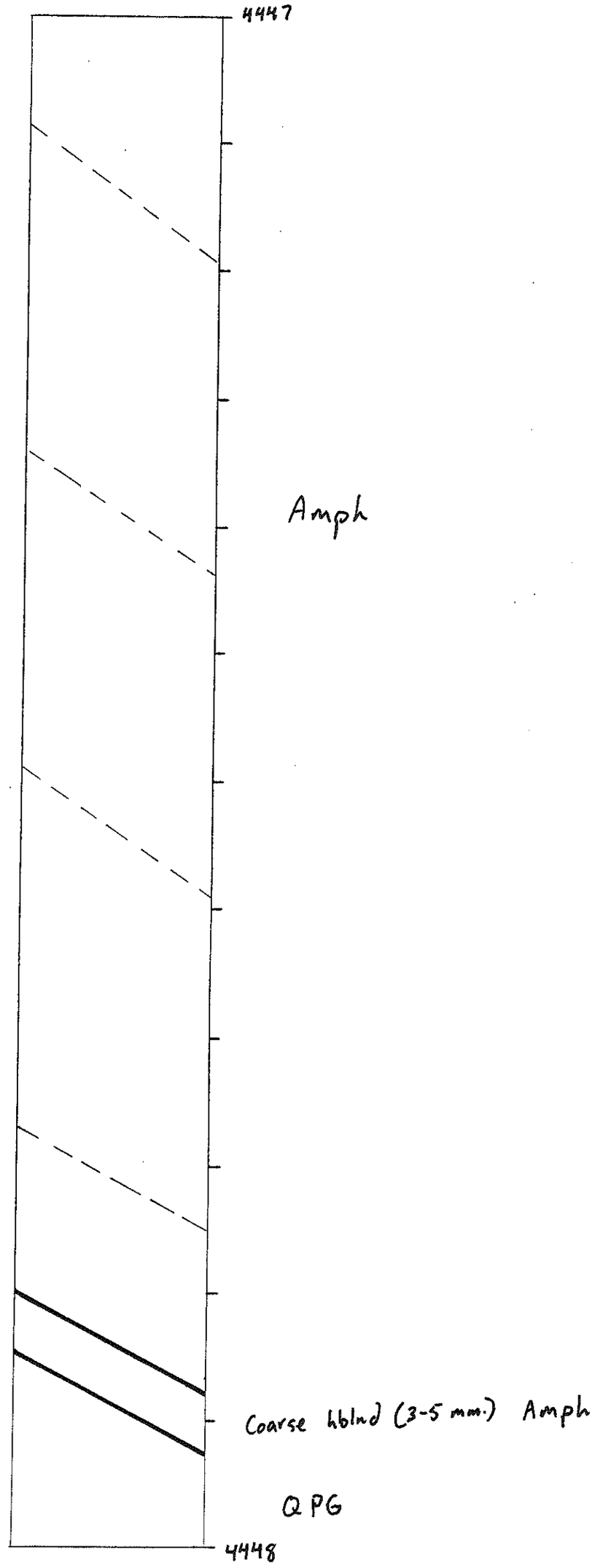

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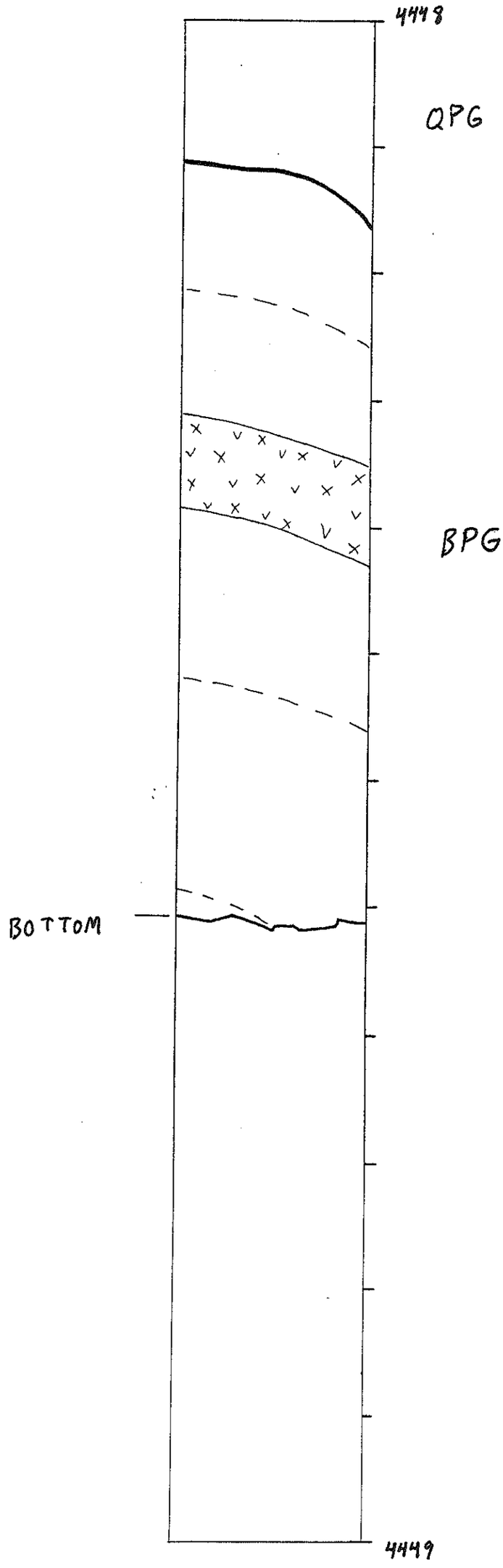

SUMMARY OF ABBREVIATIONS USED IN THE DESCRIPTION OF CUTTINGS FROM THE 1987 MOODUS 4764' WELL

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INTRODUCTION

Following is a glossary of abbreviations used in describing cuttings collected at 20' intervals from the deep well (4764') drilled near Moodus Connecticut during early summer 1987. Abbreviations were found necessary due to the large number of samples from the well (231) and relatively short time available to complete description of materials from the well. The glossary begins with general abbreviations used mostly in the "notes" portion of each description. Mineralogic and lithologic abbreviations are then listed. The lithologies included here are completely described in the SUMMARY OF LOGGING CONVENTIONS accompanying each of the Moodus Deep, Gillette's Castle and Moodus #1 well logs. The interested investigator is referred to that document for full description of mineralogic and fabric variations found in each lithology. Finally, fabric abbreviations are given followed by a short explanation of common combinations of abbreviations and miscellaneous shorthand notations.

GENERAL ABBREVIATIONS

acc	accessory
alt	altered, alteration
apprec	appreciable
dk	dark
frag(s)	fragment, fragments
lt	light
med	medium
MFS	mean fragment size
mod	moderate
seg	segregation
v	very

MINERALOGIC

act	actinolite
biot	biotite
chl	chlorite
diop	diopside
fspar	feldspar
gnt	garnet
hbl	hornblende
mgt	magnetite
musc	muscovite
plag	plagioclase
qtz	quartz

LITHOLOGIC

alask	alaskite
amph	amphibolite
ap	aplite
BAS	biotite amphibole (most commonly actinolite) schist
BGG	biotite granitic gneiss
BHG	biotite hornblende gneiss
BHS	biotite hornblende schist
BMS	biotite mylonitic schist
BPG	biotite plagioclase gneiss
BQP	biotite quartz plagioclase schist, commonly approaches a gneissic fabric
microbreccia	very fine grained rock with evident minute clasts of host rock minerals

MMS	muscovite mylonitic schist
myl sch	mylonitic schist
PBS	plagioclase biotite schist, commonly granofelsic
peg	pegmatite
phyllonite	phyllitic appearing rock with anastomosing folia indicative of a fault origin
QDG	quartz diopside granofels
QFS	quartz feldspar segregation
QPK peg	quartz plagioclase kspar pegmatite, subequal amounts
v. qtz	vein quartz

FABRIC

fol	foliated, foliation
gfsc	granofelsic
gns	gneissic
lin	lineated, lineation
myl	mylonitic
phyll	phyllitic
sch	schistose
vein	vein filling

MISCELLANEOUS

H:B = n:n	hornblende to biotite ratio equals approximately n to n. used to describe mafic constituents of BHG.
mod well fol & lin	moderately well foliated and lineated
BQP - BMS	gradational between BQP and BMS. used with other rock types as well. usually refers to fabric or some mineral content.

SAMPLE DEPTH: 42' (abandoned hole)

Lithology	Notes	Abundance	Grain Size	Fabric
QDG	minor med. green act.	50	≤ 1 mm.	gfsc - gns
BQP	biot. med. brown	50	1-2 mm.	sch
V. Qtz.	lt. smokey color. Often coated	acc.	2-3 mm.	vein
	with biot. on two sides 3-4 mm. apart.			
	BQP and QDG Frags. commonly are 3-4 cm. across			
	and are limonite stained. Fspars slightly altered to clay. Regolithic.			

SAMPLE DEPTH: 42'

Lithology	Notes	Abundance	Grain Size	Fabric
QDG	Apparently 1-2 cm. thick layers	60	≤ 1 mm.	gfsc.-gns.
BQP	Quartzose. Med. brown biot.	40	1-2 mm.	sch
V. Qtz	similar to abandoned hole.	acc.	≤ 2 mm.	vein
	BQP and QDG chips are typically the same size			
	as in the abandoned hole. One chip is 6 cm.			
	across and shows two 0.5 cm. QDG layers in			
	fine grained BQP.			

SAMPLE DEPTH: 62'

Lithology	Notes	Abundance	Grain Size	Fabric
QDG	Plag. rich	5	≤ 1.5 mm.	gFsc.
BAS	Med. Forest green act.	10	≤ 3 mm.	myl. sch.
BQP	lt.-med. brown biot.	85	≤ 1.5 mm.	sch.
QFS	attached to BAS	Acc.	1-2 mm.	vein
V. Qtz.		Acc.	1-3 mm.	vein
	One BQP chip is 6 cm. across			

SAMPLE DEPTH: 82'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	biot. med. brown - dk. brown	90	≤ 1.5 mm	sch.
QDG	minor act.	10	≤ 1.5 mm	gfsc
V. Qtz.	up to 1cm. thick	acc.	1-3 mm.	vein
	One V. Qtz rich BQP chip is 5 cm. across.			
	Mean chip size is .75 cm.			
	Very minor rounded .5 - 1 cm. Fspar. grains (pegmatitic)			

SAMPLE DEPTH: 105'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot.	85	≤ 1.5 mm	sch
QDG	minor dk. green act. and	15	≤ 1.5 mm	gfsc-gns
	satiny luster scapolite			
QFS	enclosed in BQP	acc.	≤ 3 mm	vein
	One small chip of musc-chl myl. schist.			
	MFS 1cm.			

SAMPLE DEPTH: 122'

Lithology	Notes	Abundance	Grain Size	Fabric
Peg.	minor gnt-musc-chl-lt. smoky	75	≤ 1cm.	vein
	Qtz - white Fspar (plag.). Mildly foliated			
	in some chips.			
BQP	lt.-med. brown biot	20	≤ 1.5 mm	sch
QDG	Some chips are very rich	5	≤ 1.5 mm	gfsc
	in blonde diop.			
	MFS 1cm.			

SAMPLE DEPTH: 142'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	V. diop. rich, med. brown biot.	95	≤ 1.5 mm	sch
QDG	biot. rich, some scap.	5	≤ 1.5 mm	gns
Ap	white, biot. poor - Free	acc.	≤ 1 mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 162'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	V. diop. rich, med. brown biot.	95	≤ 1.5 mm	sch
BAS	lineated act.	acc.	≤ 2 mm.	my/. sch.
QDG	biot. bearing	5	≤ 1.5 mm	gns.
Ap		acc.	≤ 1 mm	vein
	MFS. .75 cm			

SAMPLE DEPTH: 182'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	diop. and act. bearing,	70	≤ 1.5 mm.	sch.
	med. brown biot			
QDG	≥ 1 cm. thick layers	30	≤ 1.5 mm.	gFsc
QFS	coated w/ BAS. Veins	acc	≤ 2 mm	vein
	are about 5 mm. thick			

SAMPLE DEPTH: 202'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	Frags. commonly w/ biot-chl	90	≤ 1.5 mm	sch
	streaks on surfaces. med. brown biot.			
QDG	dense, biot. bearing	10	≤ 1 mm	gfsc
Ap		acc	≤ 2 mm	vein
QFS	about 10% dk. brown biot.	acc	≤ 2 mm	vein
V. Qtz.	.5 cm vein in BQP	acc	≤ 3 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 222'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	85	≤ 1.5 mm	sch
QDG	some quartz segregation	15	≤ 2 mm	gns.
Ap		acc	≤ 2 mm	vein
V. Qtz	lt. smokey color	acc	≤ 3 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 242'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot. Somewhat	85	≤ 1.5 mm	sch
	biot. rich.			
QDG	minor gnt. and act.	15	≤ 2 mm	gfsc
QFS	some PBS coatings on	acc	≤ 2 mm	vein
	surfaces			
	MFS .75 cm.			

SAMPLE DEPTH: 262'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. - dk. brown biot.	85	≤ 1.5 mm	sch
QDG	Some Scap.	15	≤ 2 mm.	gns.
PBS		acc	≤ 1.5 mm	myl. sch.
Ap		acc	≤ 1 mm.	vein
V. Qtz	Segregations enclosed in PBS	acc	≤ 3 mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 282'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	mildly diopsidic, med. brown biot.	90	≤ 1.5 mm	sch.
QDG	Some Frags. fairly biot. rich	10	≤ 2 mm.	gfsc
V. Qtz		acc	≤ 3 mm	vein
QFS		acc	≤ 3 mm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 302'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med - dk. brown biot	70	≤ 1.5 mm	sch
QDG	moderately biot. rich.	25	≤ 1.5 mm	gns
Ap		5	≤ 1.5 mm	vein
PBS		acc	≤ 1.5 mm	myl. sch.
	MFS 1 cm.			

SAMPLE DEPTH: 322'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot	75	≤ 1.5mm	sch
QDG	hbl. bearing, moderately	25	≤ 2mm	gns
	biot. rich			
QFS		acc	≤ 3mm	
BAS	forest green fibrous act. well	acc	≤ .75mm	myl. sch
	lineated.			
Some biot-chl streaks on a few frags.		MFS	1cm.	

SAMPLE DEPTH: 342'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	80	≤ 1mm	sch
QDG	moderately biot. rich	20	≤ 1.5mm	gns
PBS	dk. brown biot.	acc	≤ 1.5mm	sch
	MFS 1.25	cm		

SAMPLE DEPTH: 362'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	lt.-med. brown biot.	50	≤ 1.5mm	sch
QDG	few brown-red grts.	50	≤ 1.5mm	gfsc
	minor biot			
	MFS .75	cm		

SAMPLE DEPTH: 382'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	Diop. bearing, med. brown biot	70	≤ 1.5mm	sch
QDG	moderately biot. rich. Some	30	≤ 2mm	gns
	3-4 mm. layers in BQP.	Hbl present.		
QFS		acc	≤ 3mm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 402'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. A few	60	≤ 1.5mm	sch
	biot-chl streaks			
QDG	moderately biot. rich	40	≤ 1.5mm	gns
	Both BQP and QDG are	cut by	a Few	zeolite
	Filled, 1-2 mm. thick	Fractures.		
	MFS 1 cm.			

SAMPLE DEPTH: 422'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	75	≤ 1.5mm	sch.
QDG	Some dk. green amphibole	20	≤ 1.5mm	gns
	(hbl.), moderately biot. rich			
Ap	no biot.	5	≤ 1.5mm	vein
	MFS 1cm.			

SAMPLE DEPTH: 442'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Moderately	40	≤ 1.5 mm	sch
	diopsidic			
QDG	biot. bearing	60	≤ 1.5 mm	gns
PBS	some hbl.	acc	≤ 2mm	sch
	MFS 1 cm.			

SAMPLE DEPTH: 462'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	v. lt. gray, about 3% dk.	80	≤ 2mm	gns
	brown biot., moderate			
	biot. lin. and fol.			
BQP	dk. brown biot	20	≤ 2mm	sch
PBS	black biot	acc	≤ 2mm	sch
LGG in this sample is similar to the BGG in the 500'				
cored interval but with somewhat less biotite.			MFS .75 cm.	

SAMPLE DEPTH: 482'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown to black biot	50	≤ 1.5 mm	sch
BGG	about 5% biot, mod. fol.	20	≤ 1 mm	gns
	and lin.			
Ap	no biot. Sucrosic	25	≤ 1.5 mm	vein
PBS	dk. brown - black biot	5	≤ 2mm	sch
	MFS .75 cm.			

SAMPLE DEPTH: 524'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot.	80	≤ 1 mm	sch
QDG	low to mod. biot content	20	≤ 1 mm	sns
Ap		acc	≤ 1.5 mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 544'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot.	50	≤ 1.5 mm	sch
QDG	low biot.	25	≤ 1 mm	gfsc
Ap	some layers in BQP are 5 mm thick	25	≤ 2 mm	vein

SAMPLE DEPTH: 564'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. Some frags. are diop. bearing	95	≤ 1.5 mm	sch
Ap	very minor pyrite	5	≤ 2 mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 584'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot., some diop.	75	≤ 1mm	sch
Ap	leucocratic, mod. foliated	10	≤ 1mm	vein
QDG	lt. brown biot. rich	15	≤ 1mm	gns
	MFS 1cm.			

SAMPLE DEPTH: 604'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	biot. med.-dk. brown. Lithology	90	≤ 1.5mm	sch.
	ranges from felsic to diopsidic			
Ap	mod. fol.	10	≤ 1mm	vein
	Some BQP frags. approach PBS.			
	MFS .75 cm.			

SAMPLE DEPTH: 624'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot., diopsidic	60	≤ 1.5mm	sch
QDG	some biot., minor pyrrhotite,	40	≤ 1mm	gfsc-gns
	diop rich.			
Ap		acc	≤ 1.5mm	vein
PBS	Minor hbl. Some frags. have	acc	≤ 1.5mm	mfl. sch.
	attached Q.S.			
	MFS 1cm.			

SAMPLE DEPTH: 644'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot.	70	≤ 1mm	sch
QDG		30	≤ 1mm	gFsc
Ap	mod. Fol.	acc	≤ 1mm	vein
QFS	veins in PBS about 4mm. thick	acc	≤ 1.5mm	vein
PBS	minor hbl.	acc	≤ 1.5mm	my/. sch
	MFS. .75 cm			

SAMPLE DEPTH: 664'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med-dk. brown biot,	80	≤ 1mm	sch
	mod. diopsidic			
QDG		15	≤ 1mm	gFsc
Ap		5	≤ 1mm	vein
PBS		acc	≤ 1.5mm	my/. sch.
	MFS .75 cm			

SAMPLE DEPTH: 684'.

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	Somewhat Felsic, med. brown	85	≤ 1.5mm	sch.
	biot.			
QDG		15	≤ 1mm	gFsc
Ap	Sucrosic	acc	≤ 1mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 704'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	50	≤1.5mm	sch
QPk Peg.	Minor coarse biot, low Qtz, subgrains in fspar.	50	≤1.0 cm	vein
	MFS .75 cm			

SAMPLE DEPTH: 724'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	85	≤1mm.	sch.
QDG		10	≤1mm	gfsc
Ap		5	≤1mm	vein
PBS		acc	≤1.5mm	myl. sch.
	MFS .5 cm.			

SAMPLE DEPTH: 744'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	50	≤1mm.	sch.
Ap		20	≤1mm	gvein
chl-musc phyllonite	Thin frags. up to 2cm long	20	≤1mm	phyll.
QDG		10	≤1mm	gfsc
PBS	chloritic	acc	≤1.5mm	myl. sch.
	MFS .75 cm.			

SAMPLE DEPTH: 764'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot.	85	≤ 1mm.	sch.
QDG	coarse grained w/abundant black tourmaline and some pyrrhotite	15	≤ 3mm	gFsc
chl-musc phyllonite		acc	≤ 1mm	phyll.
	MFS 1 cm.			

SAMPLE DEPTH: 784'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot	60	≤ 1mm	sch
BGG	dk. brown biot., Poor to mod. Fol.	30	≤ 2mm	gns
QDG	minor bbl.	10	≤ 1mm	gFsc
	MFS 1cm.			

SAMPLE DEPTH: 804'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot	60	≤ 1mm	sch.
QDG		40	≤ 1mm	gFsc
Pegmatitic feldspar	Occasional translucent white frags.	acc	≤ 5mm	vein
Both (Filled)	BQP & QDG are cut by a few 1-2mm. fractures.		zeolite	
	MFS .75cm.			

SAMPLE DEPTH: 824'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	80	≤ 1mm	sch
	v. minor alteration of			
	biot → chl.			
Ap		10	≤ 1mm	vein
QDG	some Qtz segregation	10	≤ 2mm	gFsc
v. Qtz.		acc	≤ 4mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 844'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	60	≤ 1mm	sch
QPK peg	musc - reddish brown grt	30	≤ 1cm	vein
	bearing			
QDG	minor hbl.	10	≤ 1.5mm	gFsc
	kspar in peg. grayish blue and perthitic.			
	MFS .75 cm.			

SAMPLE DEPTH: 864'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown. biot.	60	≤ 1mm	sch
QDG		40	≤ 2mm	gFsc
V. Qtz		acc	≤ 4mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 884'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	80	≤ 1mm	sch.
QDG		20	≤ 1mm	gfsc
	Both lithologies are cut by a few 1mm. zeolite filled fractures.			
	MFS .75 cm.			

SAMPLE DEPTH: 904'

Lithology	Notes	Abundance	Grain Size	Fabric
QPK Peg.	Musc about 10%. Lt. blue gray kspar rich. Disseminated ruby red grnt. and phlogopite. Musc and kspar up to 1.5 cm. Fspars are warped and subgrained. Kspar slightly perthitic. Plag. well striated.	100	≤ 1.5 cm	vein
	MFS .5 cm.			

SAMPLE DEPTH: 924'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	Abundant alteration of med. brown biot. to chl.	70	≤ 1mm	sch.
QDG	green act. bearing	30	≤ 1.5mm	gfsc
	Occasional veins in each lithology are filled with feldspar. Veins are about 2mm thick			
	MFS .75 cm.			

SAMPLE DEPTH: 944'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	80	≤ 1mm.	sch
QDG	some green act.	20	≤ 1mm	sfsc
QFS	minor disseminated pyrrhotite	acc	≤ 3mm.	vein
PBS	anastomosing QFS	acc	≤ 2mm	myl. sch.
	MFS .75 cm			

SAMPLE DEPTH: 964'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. -dk. brown biot	85	≤ 1mm	sch
QDG	some green act.	15	≤ 1.5mm	sfsc
Q vein.	often w/attached PBS	acc	≤ 3mm	vein
PBS		acc	≤ 2mm	myl. sch

SAMPLE DEPTH: 984'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot.	80	≤ 1mm	sch
QDG	minor green act.	20	≤ 1.5mm	sfsc
QFS		acc	≤ 3mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 1024'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	90	≤ 1mm	sch
QDG		10	≤ 1.5mm	gfsc
PBS	anastomosing QFS	acc	≤ 1.5mm	myl. sch.
QFS		acc	≤ 4mm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 1044'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. -dk. brown biot	60	≤ 1.5mm	sch
QDG		40	≤ 1.5mm	gFsc
	MFS 1 cm.			

SAMPLE DEPTH: 1064'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	85	≤ 1mm	sch
Ap	biot. bearing	10	≤ 2mm	vein
QDG	med. green diop.	5	≤ 1mm	gfsc
V. Qtz		acc	≤ 3mm	vein
PBS	anastomosing V. Qtz	acc	≤ 1.5mm	myl. sch.
	MFS 1 cm.			

SAMPLE DEPTH: 1084'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	60	≤ 1 mm	sch
Ap	mod. fol.	30	≤ 1 mm	vein
QDG		10	≤ 1 mm	gfsc
BAS	minor hbl.	acc	≤ 2 mm	myl. sch.
	MFS .75 cm.			

SAMPLE DEPTH: 1104'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	80	≤ 1 mm	sch
QDG		10	≤ 1 mm	gfsc
QFS		10	≤ 7 mm	vein
Ap.	mod. fol.	acc	≤ 1 mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 1124'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	75	≤ 1 mm	sch
	Some surfaces have fine biot. streaks			
QDG		20	≤ 1 mm	gfsc
Ap	good biot. streak lineation	5	≤ 1 mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 1144'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	75	≤ 1mm	sch
Ap	elongate qtz and biot streak lin.	20	≤ 1mm	vein
QDG	coarse grained	5	≤ 3mm	gfsc
V. Qtz	lt. smokey color	acc	≤ 4mm	vein
	MFS. 1 cm.			

SAMPLE DEPTH: 1164'

Lithology	Notes	Abundance	Grain Size	Fabric
QPK Peg	Lt. blue gray kspar, white	100	≤ 2 cm.	vein
	plag., colorless qtz, musc,	minor		
	dk. brown biot and minor	red gnts	(1mm.),	
	kspar is perthitic. Musc	is about	3%.	
BQP	dk. brown biot.	acc	≤ 1mm	sch
	MFS .5 cm			

SAMPLE DEPTH: 1184'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot	95	≤ 1mm	sch
Ap	elongate qtz and biot. streaks	5	≤ 1mm	vein
QDG	minor hbl.	acc	≤ 1.5mm	gfsc
	MFS 1 cm.			

SAMPLE DEPTH: 1204'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot. Some biot-chl	85	≤ 1 mm	sch
	streaks on surfaces			
Ap		10	≤ 1 mm	vein
QDG		5	≤ 2 mm	gfsc
	MFS .75 cm			

SAMPLE DEPTH: 1215'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	v. fine disseminated biot. as	90	≤ 1 mm	gns
	streaks.			
BQP	dk. brown biot. rich. Some	10	≤ 1 mm	sch
	chl streaks on surfaces			
	MFS .5 cm.			

SAMPLE DEPTH: 1224'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	Minor musc. Qtz is	85	≤ 2 mm.	gns
	elongate. Disseminated pyrrhotite.			
	poor - mod. fol.			
BQP	dk. brown biot. rich	15	≤ 1 mm	sch
	MFS 1 cm.			

SAMPLE DEPTH: 1244'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	Some musc. Pegmatitic QFS.	50	≤ 4 mm	gns.
	Variably fol. and lin. Disseminated			
	pyrrhotite.			
BQP	med.-dk. brown biot.	50	≤ 1 mm	sch
	Some surfaces w/biot. streaks			
	MFS 1 cm.			

SAMPLE DEPTH: 1264'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	Lt. bluish gray with	100	≤1.5 mm	gns
	minor musc and reddish gnt.			
	Biot. streaks and elongate Qtz			
	Form a mod. lin.			
BQP	dk. brown biot.	acc	≤1 mm	sch
	MFS .75 cm			

SAMPLE DEPTH: 1284'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot.	70	≤1 mm	sch
LGG	V. deformed to granular	30	≤1 mm	gns
	aplite type material with			
	QFS			
QDG	V. minor garnet, and hbl.	acc	≤1 mm	gns
	bearing.			
	MFS .5 cm.			

SAMPLE DEPTH: 1304'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot. Minor (very) gnt.	85	≤ 1 mm	sch
LGG	w/ minor musc and QFS.	15	≤ 2 mm	gns
	musc. in foliation planes.			
	MFS .5 cm.			

SAMPLE DEPTH: 1324'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	Musc and gnt bearing	100	≤ 5 mm	gns
	(minor). Subpegmatitic.			
	Elongate Qtz.			
	MFS .5 cm.			

SAMPLE DEPTH: 1344'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot. Alteration	90	≤ 1 mm	sch.
	of biot. to chl on fracture surfaces.			
	Some fractures 1-2 mm. filled w/ Qtz.			
LGG	Strongly deformed and	10	≤ 1.5 mm	gns
	aplitic. Musc. bearing. Biot - Qtz streaks.			
QDG		acc	≤ 1.5 mm	gns
	MFS 1 cm.			

SAMPLE DEPTH: 1364'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. Fragment	90	≤ 1mm	Sch
	surfaces often coated with chlorite,			
	Chlorite streaks or chl-zeolite slickensides.			
	Some minor 1mm. zeolite filled fractures.			
Ap	Often coated w/ chl on	10	≤ 1mm	vein
	Fractures			
	MFS .75 cm.			

SAMPLE DEPTH: 1384

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. Some	80	≤ 1mm	Sch
	chl. streaked surfaces			
Ap	May be related to LGG	20	≤ 2mm	vein
	mod. fol.			
	MFS .75 cm			

SAMPLE DEPTH: 1404'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot	100	≤ 1mm	Sch
QDG	Segregated Qtz.	acc	≤ 2mm	gfsc
QFS	Streaked PBS on surfaces	acc	≤ 3mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 1424'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Some	100	≤1.5 mm	Sch
	pure biot. Fol. planes.			
	Diopsidic patches up to 4 mm. may			
	be disaggregated QDG			
	MFS 1 cm.			

SAMPLE DEPTH: 1444'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Some	100	≤1.5 mm	Sch
	pure biot. folia w/ streaked			
	biot. Diopsidic in patches up			
	to 5 mm. - may be disaggregated			
	(sheared up) QDG.			
	MFS 1 cm.			

SAMPLE DEPTH: 1464'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot., black	90	≤1.5 mm	Sch
	near qtz segregations.			
V. Qtz	Often attached to	10	≤3 mm	vein
	thin PBS			
	MFS .75 cm.			

SAMPLE DEPTH: 1484'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP - BMS	Gradational from typical BQP to musc - trace grt - black biot - Qtz - Feldspar schist with anastomosing, wavy, mylonitic fabric. Seems to be coarsened, segregated BQP. Minor PBS near occasional QFS. MFS .75 cm.	100	≤ 3 mm	Sch. to myl. sch

SAMPLE DEPTH: 1524'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP-BMS	Gradational from typical BQP to coarse, nearly pure mica, musc - tr. garnet, biot., qtz schist with minor sillimanite (fibrolite) intergrown w/ biot. Biot-musc streaks are common in the coarse schist. Biot is med. brown in BQP and black in the coarse schist.	95	≤ 3 mm	sch to myl. sch.
QFS	Always in the myl. sch. MFS 1 cm.	5	≤ 2 mm	vein

SAMPLE DEPTH: 1544'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP-BMS	med. - dk. brown biot. Abundant surfaces with chl - streaks on them. Minor mylonitic fragments of coarsened schist. MFS 1 cm.	100	≤ 2 mm	sch to myl. sch in a few chips.

SAMPLE DEPTH: 1564'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. Some	100	≤ 2 mm	sch.
	surfaces with biot. streaks.			
	coarsens near QFS.			
QFS	quartzose	acc	≤ 3 mm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 1584'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	100	≤ 1.5 mm	sch.
	Diopsidic in some frags. and			
	felsic in others.			
	MFS 1.5 cm.			

SAMPLE DEPTH: 1604'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot. About 50%	100	≤ 1.5 mm	sch
	of chips are felsic BQP.			
QFS	coated by coarse biot.	acc	≤ 3 mm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 1624'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. About	100	≤ 1.5 mm	sch-gns
	50% of chips are felsic			
	BQP. Several surfaces have			
	biot. streaks.			
QFS		acc	≤ 3 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 1644'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP - BMS	med. - dk. brown biot. in	95	≤ 3 mm	sch to
	somewhat felsic BQP gradational			myl. sch.
	into coarse musc-biot-qtz-fspar			
	mylonitic schist. Biot streaks common			
	in myl. sch.			
QFS	Always in mylonitic schist	5	≤ 3 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 1664'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. bearing	100	≤ 2 mm	sch
	BQP with a few musc-biot			
	mylonitic laminae showing increased			
	grain size and biot. streaks.			
QFS	Next to mica rich zones	acc	≤ 3 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 1684'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP-BMS	med.-dk. brown biot. Regular	95	≤ 2mm	sch to
	BQP grades into musc-biot.-qtz-			myl. sch.
	fspar myl. schist with some chl			
	streaks on surfaces. Biot-musc			
	streaks are common. BMS about 25% of chips			
QFS	In myl. schist	5	≤ 3 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 1704'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot.	95	≤ 2.5 mm	sch
	Small portion of chips approach			
	a myl. schist. Many chips have			
	chl streaks/slickensides on surfaces.			
	Schistose fragments have biot-musc streaks.			
QFS	subpegmatitic. Musc-bearing	5	≤ 4mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 1724'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP-BMS	BQP about 35% of chips	85	≤ 2.5mm	sch to
	with med. brown biot. grades into			myl. sch.
	musc-biot myl. schist about 50% of chips.			
	Strong musc-biot streaks. Fibrolite common			
	in nearly phyllonitic biot. rich zones.			
QFS	musc. folia common	15	≤ 3mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 1744'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Most frags. have fine biot. streaks on their surfaces and some have chl streaks and slickensides. These features are never more than .5 mm thick.	100	≤ 1.5 mm	sch
V. Qtz	colorless	acc	≤ 2 mm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 1764'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot. A few mylonitic frags. and some phyllonitic - fibrolite rich small chips. Some chips are diopsidic	55	≤ 1 mm	sch
QPK Peg	Black biot-bearing. Some frags. are well foliated.	45	≤ 7 mm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 1784'

Lithology	Notes	Abundance	Grain Size	Fabric
QPK Peg	coarse	50	≤ 2 cm.	vein
BQP	dk. brown biot. w/ penetrative biot. lin.	40	≤ 1 mm	sch
QDG	hbl. bearing. Hbl. forms a penetrative lin.	10	≤ 2 mm.	gns
	MFS .75 cm.			

SAMPLE DEPTH: 1804'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Hbl. bearing.	60	≤ 1 mm	sch
	Penetrative biot - hbl lin.			
QDG	penetrative hbl lin.	30	≤ 1.5 mm	gns
QPk peg		10	≤ 1 cm	vein
	MFS 1.25 cm.			

SAMPLE DEPTH: 1824'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Penetrative	60	≤ 1 mm	sch
	biot. lin.			
QDG	penetrative hbl. lin.	35	≤ 1 mm	gns
QPk Peg	minor black tourmaline	5	≤ 5 mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 1844'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. Penetrative	75	≤ 1.5 mm	sch
	biot. lin.			
QDG	penetrative hbl. lin.	25	≤ 1.5 mm	gns
QFS		acc	≤ 3 mm	vein
One	Frag. bears a 1 mm. thick microbreccia.			
	MFS 1 cm.			

SAMPLE DEPTH: 1864'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med.-dk. brown biot. Penetrative	50	≤1.5mm	sch
	biot. lin. Coarsens near QFS.			
QDG	Penetrative lin. of biot. and hbl.	25	≤1.5 mm	gns
QFS	Some chips w/disseminated	25	≤ 4 mm	vein
	biot. about 5%. Other chips	coated		
	w/ pure biot. laminations (PBS).			
	MFS .75 cm.			

SAMPLE DEPTH: 1884'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	disseminated black biot.	50	1-2 mm.	gFsc
	about 5%. No preferred		peg. segs. ≤1cm.	
	mineral orientations. Minor pegmatitic		segregations.	
	Qtz and Fspars are white.			
BQP	med. brown biot. w/	40	≤ 1mm.	sch
	penetrative biot. lin. Some surfaces with Fine		biot.-chl streaks	
QDG	biot rich	10	≤1.5 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 1904'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	Mod. Fol. and lin. (biot and	100	≤1.5 mm.	gns
	elongate qtz.) faintly pink in color.			
	Minor red. gnts. Black biot.	≤.25 mm		
BQP	med. brown biot.	acc	≤ 1mm	sch
	MFS 1.25 cm.			

SAMPLE DEPTH: 1924'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	med. Fol., poorly lin. Even grained except for about 5% ≤1cm. pink -deformed kspar enclosed in the gneiss (probably augen). Overall rock is lt. gray. Minor red gnt.	100	.5 -1.5 mm	gns
	MFS .75 cm.			

SAMPLE DEPTH: 1944'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	lt. -med. gray with some pink QFS housing most of the minor red gnt. in the sample. Some Frags. have fracture (planar) surfaces cutting perpendicular to the mod. fol. with some fspar alteration to clay.	100	.5 -1.5mm	gns
	MFS .75 cm.			

SAMPLE DEPTH: 1984'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	lt. pinkish gray w/ some very pink QFS. Poorly developed fol. Minor gnt.	100	.5-2 mm	gns
	MFS 1 cm.			

SAMPLE DEPTH: 2004'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	lt. pinkish gray w/ poorly developed Fol. Minor pink QFS. Minor red gnt.	100	.5-1.5mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 2024'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	lt. gray, mod. Fol. and lin. Minor red gnt.	90	.5-1.5mm	gns
QPK peg	large qtz and Fspar grains	10	≤ 2cm.	vein
	MFS 1 cm.			

SAMPLE DEPTH: 2044'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	lt. pinkish gray. Poorly Fol. and lin. Minor red gnt.	100	.5-2mm	gns
	MFS 1 cm.			

SAMPLE DEPTH: 2064'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	Black biot. in penetrative lin.	50	≤ 1.5 mm	sch
BGG	lt. pinkish gray w/ some QFS, poor - mod. fol. and lin.	50	≤ 3 mm	gns
	Both lithologies altered variably w/ chl disseminated and along shear planes. About 25% of chips altered. MFS .75 cm			

SAMPLE DEPTH: 2084'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	med. gray, moderately fol. and lin.	85	.5-1.5 mm.	gns
Amph	penetrative hbl. lin.	10	≤ 2 mm	sch
QFS	pink feldspar	5	≤ 1 cm.	vein
	About 10% of all Frags. show some alteration of mafics and fspar to chl and musc. A few chips of chl-musc phyllonite in sample. MFS 1 cm.			

SAMPLE DEPTH: 2104'

Lithology	Notes	Abundance	Grain Size	Fabric
Amph	Grades from amphibolite with >50% hbl. to a hbl gneiss with as low as 25% hbl. Penetrative hbl. lin.	80	≤ 2 mm	gns-sch
BGG	Poorly - mod. fol. and lin. lt. pinkish gray	20	.5-1.5 mm	gns
	A few musc-chl phyllonite chips MFS .75 cm.			

SAMPLE DEPTH: 2124'

Lithology	Notes	Abundance	Grain Size	Fabric
B66-BQP	Poorly lin. and fol. lt. gray	100	1-2 mm	gns-sch
	B66 becomes more biot. rich until			
	resembling coarse BQP. Minor gnt.			
	Some h'bl. in mafic schist chips.			
	Dk. Frags. about 60% : lt. Frags about 40%.			
	MFS .5 cm.			

SAMPLE DEPTH: 2144'

Lithology	Notes	Abundance	Grain Size	Fabric
B66-BQP	Same as for 2124' sample.	100	1-2 mm.	gns-sch
	B66 contains a few 1.5 cm long			
	kspar augen and Minor gnt.			
	Dk. Frags. about 50% : lt. Frags. about 50%			
	MFS 1.25 cm.			

SAMPLE DEPTH: 2164'

Lithology	Notes	Abundance	Grain Size	Fabric
B66	Pinkish gray, mod. fol. and lin.	100	1-2 mm	gns
	Minor gnt. and QFS			
	Somewhat biot. rich			
	MFS 1 cm.			

SAMPLE DEPTH: 2184'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG - BQP	mod. lin. and fol. BGG	100	1-2 mm	gns-sch
	becomes more biot. rich until			
	resembling coarse BQP.			
	Dk. frags. about 30% : lt. frags. about 70%.			
	MFS 1. cm.			

SAMPLE DEPTH: 2204'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP (Felsic)	dk. brown biot. w/penetrative	70	≤ 1.5 mm	sch
	lin. Some alteration of biot to chl.			
Microbreccia	V. dk. gray aphanitic chips	10	≤ .25 mm	microbreccia
and phyllonite.	of microbreccia and green	chl-musc	phyllonite.	to phyll.
	equal amounts of each.			
BGG	Strongly altered biot. to	20	.5-1 mm	gns
	chl. mod. fol.			
	MFS 1 cm.			

SAMPLE DEPTH: 2224'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG - BMS	LGG (white) w/good musc. fol.	100	≤ 1.5 mm	gns-sch
	is increasingly biot. rich until			to myl.sch.
	resembling BGG and finally a			
	biot - musc mylonitic schist probably			
	deformed BQP. BMS has fine musc-biot streaks.			
	Minor red gnt. in LGG. Biot. med. brown in BMS.			
	Lt vs. dk. frags. about 50:50			
	MFS 1 cm.			

SAMPLE DEPTH: 2244'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. w/ a fine	85	≤ 1 mm	sch to
	penetrative biot. lin. (some musc)			myl. sch.
	S-C fabric evident in some chips.			
BGG	biot. poor to rich. Folia	15	≤ 2 mm	gns
	anastomose grains			
QDG	5 mm. thick layers. Hbl. rich	acc	≤ 1 mm	gns
	MFS .75 cm.			

SAMPLE DEPTH: 2264'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	med. brown biot. v. hbl. rich.	75	≤ 1 mm	sch
	Some frags. have hbl. as the only			
	mafic and may be altered QDG.			
	Biot-chl streaks on some surfaces.			
BGG	Well fol. w/ minor QFS	25	≤ 2 mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 2284'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	musc-bearing. Myl. fabric	85	≤ 1 mm	sch to
	in some chips. Biot.			myl. sch.
	med. brown. Some fibrolite.			
Ap	Leucocratic with musc.	15	≤ 1 mm	vein
	folia and some red gnts. (variably foliated)			
QDG	Few small chips and thin	acc	≤ 1 mm	gns
	layers in BQP. Hbl. rich.			
	MFS 1.25 cm.			

SAMPLE DEPTH: 2304'

Lithology	Notes	Abundance	Grain Size	Fabric
BGG	med. gray, well Fol., biot. rich.	70	.5-1.5mm	gns
	Some QFS			
BQP	med. brown biot. w/some musc.	30	≤ 1.5mm	sch to
	Penetrative lin. of biot. and musc.			myl. sch.
	No apparent Hbl.			
	MFS 1.5 cm.			

SAMPLE DEPTH: 2324'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	dk. Forest green hbl. and	40	≤ 1.5mm	gns
	dk. brown biot. have penetrative			
	lin. and form good Fol. Qtz and Fspar			
	comprise about 50-70% of rock.			
BQP	med. brown biot. w/penetrative	30	≤ 1.5mm	sch
	lin. along w/some hbl.			
LGG	med. Fol. and lin. Minor gnt.	30	≤ 2mm	gn
	MFS 1.25 cm.			

SAMPLE DEPTH: 2344'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	As above. Abundant chl	85	≤ 1.5mm	gns.
	streaks and phyllonitic surfaces.			
	v. dk. brown biot.			
BGG	mod. Fol. Biot rich	10	≤ 2mm	gns
BQP	lt.-med. brown biot. Chl	5	≤ 1mm	sch
	streaks on surfaces			
	MFS 1.25 cm.			

SAMPLE DEPTH: 2364'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown to black biot. and occasional forest green hbl. Most frags. with biot. and or chl fine streaks on surfaces. Minor red gnt. Minor Aplite. Some frags. v. hbl. rich and are nearly amph.	90	≤ 1.5 mm	gns-sch
Qtz-Kspar	Vein material, may be peg. but mineral fragments not texturally related.	10	≤ 1 cm MFS 1.25 cm	vein

SAMPLE DEPTH: 2384'

Lithology	Notes	Abundance	Grain Size	Fabric
BMS	musc-hbl.-biot-Qtz-plag. myl. schist. Some Frags. nearly phyllonitic.	90	≤ 1.5 mm	myl. sch.
QFS	Cut by numerous musc. Folia. Minor v. qtz. MFS .75 cm.	10	≤ 2 mm	myl. sch.

SAMPLE DEPTH: 2404'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	Felsic, musc. bearing, gnt. bearing, dk. brown to black biot., Nearly myl. schist from musc. abundance in some chips.	95	≤ 1.5 mm	sch
QDG	No apparent diop. but hbl. rich w/minor cinnamon colored gnt.	5	≤ 1.5 mm	gFsc
QFS	musc. rich MFS 1.25 cm.	acc	≤ 2 mm	vein

SAMPLE DEPTH: 2424'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown to black biot. rich.	75	≤ 2mm	sch
	Little or no musc. Some disseminated hbl.			
	Some chips approach PBS. Minor			
	chl streaks			
Amph	hbl. dk. forest green to black	5	≤ 2mm	gns
QPk Peg	fine even grained chips to single grains	20	≤ 2cm	vein
	as chips. MFS 1 cm.			

SAMPLE DEPTH: 2444'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	dk. brown biot., minor	75	≤ 1.5mm	sch to
	musc. folia, minor dk. hbl.,			myl. sch.
	minor red gnt.			
Amph.	black hbl. Some biot.	20	≤ 2mm	gns
	A few Frags. relatively felsic			
QFS	Qtz and plag.	5	≤ 4mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 2484'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP	subequal black hbl. and	85	≤ 2mm	sch-gns
	black biot. in a mafic rich			
	BQP. Some biot streaks on surfaces.			
	Fairly coarse and even grained.			
QFS	even grained, leucocratic	15	1-2.5 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 2504'

Lithology	Notes	Abundance	Grain Size	Fabric
myl. sch. (BMS)	minor musc, minor red gnt,	80	≤ 2 mm	myl. sch.
	dk. brown biot, penetrative			
	biot. lin.			
QFS	v. musc rich in some chips.	20	1-2 mm	vein
	even grained musc rich	chips		
	are myl. sch.			
	MFS .75 cm			

SAMPLE DEPTH: 2524'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	dk. brown biot. about 10%,	100	≤ 1.5 mm	gns –
	black hbl. about 20-40%,			gfsc
	Some zeolite filled 2-4 mm			
	fractures			
	MFS 1 cm.			

SAMPLE DEPTH: 2544'

Lithology	Notes	Abundance	Grain Size	Fabric
BMS	musc. up to 10%. Dk.	90	≤ 2 mm	myl. sch.
	brown biot, 1-3 mm pink			
	gnt (0-3%). Penetrative biot. streaks.			
	No apparent alumino silicate.			
QFS		10	≤ 3 mm	vein
BHG	Hbl. about 20%. Occasional	acc	≤ 1.5 mm	gfsc to
	pyrite filled fractures. V. minor biot.			gns.
	MFS 1 cm.			

SAMPLE DEPTH: 2564'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG - BMS	Transitional frags. from same	95	≤ 2mm	gfsc to
	gneiss as @ 2524' to dk. brown			sch to
	biot - hbl - almost phyllonitic myl. schist.			myl. sch
	Minor musc, chl and gnt. gns : sch = 50:50.			
QFS		5	≤ 2mm	vein
	MFS .5 cm.			

SAMPLE DEPTH: 2584'

Lithology	Notes	Abundance	Grain Size	Fabric
MMS - BQP	Musc - chl myl. schist	95	≤ 2mm	myl. sch.
	over hbl. bearing, black biot			
	BQP. Penetrative biot. streaks in			
	BQP and musc - chl streaks in myl. schist.			
	BQP anastomosed by myl. schist. Some minor			
	pyrite filled fractures in BQP. BQP has minor gnt. MMS:BQP=80:			
QFS	cut by many musc. folia	5	≤ 3mm	myl. sch. to
	MFS .75 cm.			vein

SAMPLE DEPTH: 2604'

Lithology	Notes	Abundance	Grain Size	Fabric
BMS - BQP	black hbl. bearing - black biot -	90	≤ 1.5mm	sch to
	BQP w/ minor red gnt is anastomosed and			myl. sch.
	overprinted by myl. chl - musc - biot BMS. Some			
	dull biot. rich myl. schist approaches phyllonitic (about 5%).			
	about 15% of BQP is felsic. BQP : BMS = 50:50.			
QFS		10	≤ 3mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 2624'

Lithology	Notes	Abundance	Grain Size	Fabric
BQP-BMS	med.-dk. brown biot. Occasional hbl.	40	≤ 1.5mm	sch to
	Sometimes altered to biot. musc myl. schist.		BQP	myl. sch.
	sometimes has 2-3 mm. pink gnts. and sillimanite. BQP:BMS=80:20			
Amph.-BMS	Black biot and hbl. rich gneiss	35	≤ 1.5mm	gns to
	altered to strongly lin. BMS. Amph:BMS = 60:40.			myl. sch.
BHG	Black biot and hbl (5%) in	25	≤ 1.5mm	gns
	kspar bearing gneiss. biot-hbl. streaks.		MFS 1 cm.	

SAMPLE DEPTH: 2634'

Lithology	Notes	Abundance	Grain Size	Fabric
QPK Peg	Subpegmatitic. Pink kspar, poor fol.,	25	≤ 7mm	gns to
	biot. poor, uneven grained. Some biot. altered to chl.			vein
BHG	black biot and hbl. gneiss.	50	≤ 1.5mm	gns
	Mod.-well fol. and lin.			
Amph	black hbl. Commonly altered	20	≤ 1.5mm	gns to sch
	to a biot. schist.			
BQP	med. brown biot. A few chips	5	≤ 1.5mm	sch.
	are BMS. which is sillimanitic.	MFS	.5 cm.	

SAMPLE DEPTH: 2644'

Lithology	Notes	Abundance	Grain Size	Fabric
QPK peg.	Subpegmatitic, leucbiot., poorly fol.	40	≤ 1 cm	vein
BHG	Mafics about 10%. Mod. fol. and lin.	40	≤ 2mm	gns
Amph.	black hbl. rich	10	≤ 2mm	gns
BQP	dk. biot - sill and gnt	10	≤ 2mm	sch.
	bearing often w/ abundant musc.			
	Somewhat myl. sch.			
Some	chips (few) w/ chl-musc phyll. surfaces			
	MFS .75 cm.			

SAMPLE DEPTH: 2664'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 20% mafics mostly black biot	50	≤ 1 mm	gns
	and some black hbl. finely gneissic.	Note: A Few chips of		fact.
	Mafics disseminated.	tremolite grano		fels.
BHG	about 5% mafics (subequal biot./hbl.)	20	≤ 1.5 mm	gns
	Several 1cm. kspar augen. Well Fol.			
Amph.	black hbl. rich. Altered to PBS.	20	≤ 2mm	gns-myl.sc
BQP	med.-dk. brown biot-musc schist	10	≤ 1.5 mm	myl. sch

MFS .75 cm.

SAMPLE DEPTH: 2684'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics, lt. gray,	90	≤ 1.5mm	gn
	about 5% kspar augen. Mafic mostly black biot.,			
	mod.-well fol. and lin. Some chips (about 15%) have			
	about 50% hbl and are occasionally altered to biot. schist.			
QPK Peg	pink kspar. No mafics	10	≤ 7mm	vein
BQP	med. brown biot-musc	acc	≤ 2mm	sch
	somewhat myl. schist.			
	MFS .75 cm			

SAMPLE DEPTH: 2704'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	Varies smoothly from about	95	≤ 1.5mm	gns
	5% black biot and minor kspar, mod. fol. gneiss			
	to about 50% black hbl. gneiss.			
	felsic chips : Mafic chips = 70:30.	Med. gray overall		
QPK Peg	non-mod. fol.	5	≤ 1 cm.	vein
	MFS 1 cm.			

SAMPLE DEPTH: 2724'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	≤3% black biot., Pink kspar, poorly-mod. foliated, uneven grained. Gradational w/ about 20% of chips which are even grained, lt. pink, well fol. LGG with ≤1.5mm grain size.	75	≤7mm	gns
BHG	about 40% mafics, mostly hbl., mod. fol.	25	≤1.5mm	gns
	MFS 1.25 cm.			

SAMPLE DEPTH: 2744'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics, subequal hbl. and biot. Minor kspar, fairly uneven grained, mod. fol., poor lin., v. minor mgt.	100	.5-3 mm	gns
QFS	pink, leucocratic, poor fol.	acc	≤2mm	vein
Amph	biot. rich, well fol.	acc	≤2mm	sch
	MFS 1 cm			

SAMPLE DEPTH: 2764'

Lithology	Notes	Abundance	Grain Size	Fabric
LGG	about 2% black biot., med. pink, mod. fol. and lin., minor peg. segs.	60	.5-2.5mm	gns
BHG	about 10% mafics of subequal black biot. and hbl., mod. fol. and lin., lt.-med. gray., minor mgt.	40	.5-2mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 2784'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	minor kspar, lt.-med. pinkish gray, about 10% subequal black biot and hbl., mod. fol. and lin., minor mgt.	90	.5-2mm	gns
V. Qtz	Fractured and bearing chl and pyrrhotite	10	≤ 1.5 cm	vein
Amph	about 80% black hbl.	acc	≤ 1.5 mm	sch
	MFS 1.5 cm.			

SAMPLE DEPTH: 2804'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% subequal biot. and hbl., mod. fol., poor lin., lt.-med gray, probably minor kspar. Apprec. mgt. but <<1%.	85	.5-1.5 mm	gns
BHS	about 75% mafics. Subequal black biot and hbl.	15	≤ 2 mm	sch
V. Qtz	v. lt. smokey color, pyrrhotite inclusions.	acc	≤ 1.5 cm	vein
	MFS 1.25 cm			

SAMPLE DEPTH: 2824'

Lithology	Notes	Abundance	Grain Size	Fabric
QPK Peg	Mostly coarse grained, Fleshy-perthitic kspar about 70%, lt. smokey Qtz 15%, white plag. 15%, acc biot and mgt.	100	≤ 2 cm	vein
BHG	as @ 2804', Probably contamination	acc	≤ 1.5 mm	gns
BHS	as @ 2804', Probably contamination	acc	≤ 2 mm	sch
	MFS 1 cm.			

SAMPLE DEPTH: 2844'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	mod. fol. and lin., lt. pinkish gray,	80	.5-1.5mm	gns
	about 3% subequal biot. and hbl.,			
	Some kspar (pink cast of chips), apprec. mgt.			
Amph.	penetrative hbl. lin. about	10	≤ 2mm	sch-gns
	60% mafics, mostly hbl.			
QPK peg	Fspar and Qtz frags.	10	≤ 1cm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 2864'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 3% black biot and hbl,	75	.5-1.5mm	gns
	poor fol. and lin. in some chips to			
	well fol. and lin. in others. kspar bearing, apprec. mgt.			
Amph	Penetrative hbl. lin.	15	≤ 2mm	gns
v. Qtz.	chl-act.-pistachite	10	≤ 1cm.	vein
	bearing. One frag. w/chl streak on surface.			
	MFS 1.25 cm			

SAMPLE DEPTH: 2884'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% subequal biot.	100	.5-1.5mm	gns
	and hbl., mod. fol. and lin., lt.-med. gray			
	apprec. mgt.			
QFS	kspar rich	acc	≤ 3mm	vein
Amph		acc	≤ 1.5mm	sch
	MFS 1.25 cm.			

SAMPLE DEPTH: 2904'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% subequal black hbl. and biot., poor - mod. fol. and lin., about 10% of these frags. have orange stained fspar and mafics altered to chl.	95	.5-2mm	gns
BMS	Nearly pure - black biot. schist w/penetrative med.-fine biot. streaks	5	≤1.5mm	myl. sch.
	MFS 1 cm.			

SAMPLE DEPTH: 2944'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% biot and hbl, mod. fol. and lin., apprec. mgt., med. gray	95	.5-1.5mm	gns
Amph		5	≤2mm	sch
	MFS 1 cm.			

SAMPLE DEPTH: 2964'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics, B:H=25:75 dk. gray, poor fol. and lin., apprec. mgt.	90	.5-3mm	gns
QPK peg	orange stained fspar	10	≤1cm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 2984'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics mostly	100	.5-2 mm	gns
	black hbl., lt.-med. pinkish gray,			
	mod. fol. and lin., minor intrafolia			
	QFS. Probably minor kspar, apprec. mgt.			
	MFS .75 cm			

SAMPLE DEPTH: 3004'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics, H:B = 75:25,	95	.5-2 mm	gns
	med. gray, mod.-well fol. and lin,			
	minor mgt.			
QFS	white, mod. fol.	5	≤ 1 cm	vein
	MFS 1.25 cm			

SAMPLE DEPTH: 3024'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% mafics mostly	100	.5-2mm	gns
	black hbl., med-dk gray,			
	mod. fol. and lin., apprec. mgt.			
	MFS 1 cm.			

SAMPLE DEPTH: 3044'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% mafics mostly hbl., med.-dk. gray, mod. fol. and lin.	85	.5-2 mm	gns
QFS	5-7 mm thick, even grained, veins in BHG, leucocratic mod. fol	15	≤ 1.5 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 3064'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics mostly hbl., med.-dk. gray, poor-mod. fol. and lin., appreo. mgt., a few frags. have about 50% mafic with H:B = 50:50.	100	.5-2mm	gns
	MFS 1 cm.			

SAMPLE DEPTH: 3084'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafic, B:H = 50:50, med. gray, mod. fol. and lin., about 10% of chips have pink stained fspar. and mafics altered to chl.	85	.5-2 mm	gns
Phyllonite	dull green, homogeneous, biot-chl phyllonite w/minor pyrite.	10	≤ .5 mm	phyll.
V. Qtz	lt. smokey color	5	≤ 5 mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 3104'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics of subequal biot. and hbl., med. gray, mod. fol. and lin., minor kspar, a few frags. of pyrrhotite and chalcopyrite bearing microbreccia, about 10% of chips are pink stained. apprec. mgt.	100	.5-2mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 3124'

Lithology	Notes	Abundance	Grain Size	Fabric
Amph	about 70% mafics of B:H = 30:70, Penetrative hbl. lin., v. dk. gray, abundant mgt., minor disseminated pyrrhotite.	80	≤1.25mm	sch
BHG	about 5% mafics, H:B = 50:50, lt.-med. gray, mod. fol. and lin., apprec. mgt.			
	MFS .75 cm			

SAMPLE DEPTH: 3144'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of H:B = 50:50, H.-med. gray, mod.-well fol. and lin., apprec. mgt.	100	.5-2mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 3164'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics mostly hbl., lt.-med. gray, poor fol. and lin., minor mgt.	50	.5-3 mm	gns
BHG	about 40% mafics mostly hbl., dk. gray, mod. fol. and lin., minor mgt.	50	.5-2mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 3184'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of B:H = 50:50, minor kspar, lt. pinkish gray, mod.-well fol. and lin., Minor QFS, apprec. mgt.	100	.5-1.5mm	gns
V. Qtz	a few frags.	acc	≤ 3mm	vein
Amph	well fol. and lin.	acc	≤ 2mm	sch
	MFS 1.25 cm.			

SAMPLE DEPTH: 3204'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 75:25, med. gray, mod. fol. and lin., minor mgt.	100	.5-1.5mm	gns
V. Qtz	w/chl, biot and pyrrhotite	acc	≤ 4mm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 3224'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	lt. gray, about 5% mafics of H:B = 75:25, well fol. and lin., apprec. mgt., two large (3 cm.) chips have yellow limonite staining on edges	85	.5-1.5 mm	gns
QFS	white w/ lt. smokey qtz	15	≤ 1 cm	vein
	MFS .75 cm.			

SAMPLE DEPTH: 3244'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% mafics of B:H = 80:20, med.-dk. gray, mod.-well fol. and lin., minor mgt., about .1% 1mm well formed sphene.	100	.5-3 mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 3264'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% mafics of B:H = 80:20, dk. gray, well fol., poor lin., pervasive alteration of mafics to chl, a few 1mm. thick fractures filled w/ calcite.	100	.5-1.5 mm	gns
	MFS 1 cm.			

SAMPLE DEPTH: 3284'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% mafics of H:B=	100	.5-2 mm	gns
	80:20, mod. fol. and lin., dk. greenish gray,			
	pervasively altered mafics to chl, minute pyrite			
	cubes disseminated about, frequent 1-3 mm			
	fractures filled w/ calcite, few phyl. surfaces.			
	MFS 1 cm			

SAMPLE DEPTH: 3304'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of	100	.5-2 mm	gns
	H:B = 60:40, med.-dk gray,			
	mod. fol. and lin., minor chl alteration on			
	some fragment surfaces.			
QPK. Peg	a few mineral frags.	acc	≤ 1 cm	vein
	MFS 1 cm			

SAMPLE DEPTH: 3324'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafic of	95	.5-1.5 mm	gns
	H:B = 50:50, med. gray, mod. fol. and lin.,			
	minor mgt., about 20% of chips pervasively			
	altered to chl and have orange stained fspars.			
phyllonite	chl. rich, drab green,	5	≤ .25 mm	phyll
	pyrite bearing			
	MFS .75 cm			

SAMPLE DEPTH: 3344'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% ≤.5mm biot, lt. gray (slightly pinkish), well fol. and lin., fspar bearing, no mgt., about 15% of Frags. bleached orange and have biot. altered to chl., a few chips of chl cemented microbreccia which have pink fspar clasts floating in chl	100	≤ 1mm	gns
	MFS 1 cm			

SAMPLE DEPTH: 3363'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 50:50, med. gray, mod. fol. and lin., minor QFS, about 5% of chips have orange stained fspar and chl surface smudge, a few percent of ≤ 5mm long-thin chips are aphanitic dk. green black microbreccia.	100	.5-2mm	gns
	MFS 1 cm			

SAMPLE DEPTH: 3383'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 50:50, med. greenish gray, mod. fol. and lin., about 50% of chips have orange stained fspar and chl alteration of mafics, Many of these have chl phyllonite surfaces and there are a few aphanitic black microbreccia chips. Minor QFS. and apprec. mgt. in BHG.	100	≤ 1.5mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 3403'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of	20	.5-1.5 mm	gns
	B:H = 50:50, mod. fol. and lin.			
altered BHG	Orange fspar and altered	75	≤ 1 mm	gns w/
	mafics to chl smudge. Some maroon			cataclastic
	and black microbreccia			overprint
QFS	Orange fspar, minor gnt.	5	≤ 1 mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 3423'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% mafics of	100	.5-1.5 mm	gns
	H:B = 80:20, dk. gray, mod.-well fol. and lin.,			
	very minor mgt., about 20% of chips			
	have orange stained fspars and chl alteration			
	of mafics, some (few) chips of chl			
	phyllonite and dk. microbreccia.			
	MFS .75 cm			

SAMPLE DEPTH: 3443'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of	90	.5-2 mm	gns
	B:H = 60:40, med. gray,			
	mod. fol. and lin., minor mgt.			
QPK Peg	pink stained fspar, mod.	10	≤ 1 cm	vein
	fol.			
	MFS 1.25 cm			

SAMPLE DEPTH: 3463'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 70% mafics of H:B = 80:20, med. gray, even grained, mod.-well fol., poor lin., minor mgt., some QFS, a few chips stained orange w/ chl smudge on surfaces.	100	.5-1mm	gns
	MFS 1 cm			

SAMPLE DEPTH: 3483'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 70% mafics of B:H = 60:40, med. gray, mod.-well fol. and lin., minor mgt., about 1/3 of chips are orange stained and have mafics altered to chl.	60	.5-1.5mm	gns
phyllonite	biot-rich myl. schist grades into pyrrhotite rich chl phyllonite.	35	≤.5mm	myl. sch. to phyll.
V. Qtz	with pyrrhotite, mgt, and epidote	5	≤1cm	vein
	MFS 1 cm.			

SAMPLE DEPTH: 3523'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 70% mafics of H:B = 60:40, med. gray, mod.-well fol. and lin., apprec. mgt, minor QFS and a few chips of Amph. A few 5mm. hbl. blasts in the BHG.	100	.5-2mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 3543'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of	100	.5-2 mm	gns
	H:B = 80:20, poor-mod. fol. and lin.,			
	med.-dk. gray, apprec. mgt., about			
	10% of chips have orange stained			
	fspar and mafics altered to chl.			
	MFS 1 cm.			

SAMPLE DEPTH: 3563'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics of	90	.5-1.5 mm	gns
	H:B = 90:10, med. gray, mod. fol. and lin.,			
	apprec. mgt., about 10% of these chips have			
	orange stained fspars and mafics altered to chl,			
	some chips w/ chl smudge on surfaces. A few			
	4mm hbl. blasts in BHG.			
QPK Peg	orange kspar	10	≤ 1cm	vein
	MFS .75 cm			

SAMPLE DEPTH: 3583'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	1-2% mgt. the only mafic,	100	≤ 1mm	gns
	well fol. and lin., med. pinkish orange,			
	even grained			
	MFS .75 cm.			

SAMPLE DEPTH: 3603'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	med. pink, mod.-well fol. and lin., even grained.	90	≤ 1mm	gns
amph	80% hbl.	10	≤ 2mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 3623'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	med. pink, about 1% mgt, mod.-well fol. and lin., some minor up to 5 mm grained QFS - otherwise even grained.	80	≤ 1.5mm	gns
Amph	80% hbl., apprec. biot	20	≤ 1.5mm	gns to sch
	MFS .75 cm			

SAMPLE DEPTH: 3640'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	lt.-med. pink, about 1% mgt., even grained, mod.-well fol. and lin.	100	≤ 1.5mm	gns
Amph	small chips	acc	≤ 1.5mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 3663'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 50% mafics of	50	≤1.5mm	gns
	H:B = 90:10, mod. fol. and lin., mgt rich,			
	abundant kspar – probably related to alaskite.			
alask	lt. pink, mgt. bearing,	50	≤1.5mm	gns
	mod. fol. and lin., grades into			
	BHG above.			
	MFS .75 cm			

SAMPLE DEPTH: 3683'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot, mod.-well	95	≤1mm	gns
	fol. and lin., lt. pinkish gray,			
	apprec. mgt., kspar bearing			
QFS	white	5	≤3mm	vein
	MFS, .75 cm			

SAMPLE DEPTH: 3703'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	95	≤1.5mm	gns
	B:H = 50:50 lt.-med. gray,			
	mod. fol. and lin., kspar bearing,			
	apprec. mgt.			
QFS	lt. pink	5	≤2.5mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 3723'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	100	≤ 1.5 mm	gns
	H:B = 80:20, lt. pinkish gray,			
	mod. fol. and lin., apprec. mgt.,			
	some kspar			
QFS	lt. pink	acc	≤ 1.5 mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 3743'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics mostly	50	≤ 1.5 mm	gns
	hbl., med. gray, mod. fol. and lin.,			
	several frags. w/ orange stained			
	kspar and chl. alteration of mafics			
alask	mod. fol. and lin.	30	≤ 1.5 mm	gns
Amph	about 50% hbl.	20	≤ 1.5 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 3763'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	70	≤ 1.5 mm	gns
	H:B = 50:50, mod.-well fol. and lin.,			
	mgt. rich, med. gray, minor chl alteration			
	of mafics.			
alask	mod.-well fol. and lin.	20	≤ 1.5 mm	gns
Amph	about 80% hbl.	10	≤ 2 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 3783'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	mod. fol. and lin., pervasively altered biot (about 3%) to chl., lt. pinkish gray, few chips w/ phyllonite surfaces	60	≤ 1mm	gns
alask	chl smudge (phyllonitic) on most surfaces, mod. fol., orange stained Fspar	30	≤ 1.5mm	gns
Amph	70% hbl., orange stained Fspar	10	≤ 1.5mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 3803'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot, mod.-well fol. and lin., lt. gray, minor mgt.,	30	≤ 1mm	gns
alask	some QFS attached, mod.-well fol. and lin., about 1-2% mgt.	60	≤ 2mm	gns
Amph	50-70% hbl.	10	≤ 1.5mm	gns
	MFS 1.25 cm			

SAMPLE DEPTH: 3823'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	mod. fol. and lin., med. pink, about 1-2% mgt.	100	≤ 1.5mm	gns
BHG	about 7% subequal hbl. and biot.	acc	≤ 1.5mm	gns
	MFS 1 cm.			

SAMPLE DEPTH: 3843'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	med. pinkish orange, mod.	85	≤ 1.5 mm	gns
	fol. and lin., about 1% mgt.			
BHG	about 5% mafic mostly	15	≤ 1.5 mm	gns
	hbl., lt. gray, minor mgt.,			
	mod-well fol. and lin.			
	MFS .75 cm			

SAMPLE DEPTH: 3863'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics of	70	≤ 2 mm	gns
	H:B = 80:20, mod. fol.	and lin.,		
	med. gray, minor mgt.			
Amph	about 70% hbl.	20	≤ 1.5 mm	gns
alask	lt.-med. pink	10	≤ 1.5 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 3883'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot, lt. pinkish	95	≤ 1 mm	gns
	gray, mod.-well fol. and lin.			
V. Qtz	milky to translucent	5	≤ 4 mm	vein
	MFS 1.25 cm			

SAMPLE DEPTH: 3903'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of	50	≤ 2mm	gns
	H:B = 80:20, poor-mod. fol. and lin.,			
	apprec. mgt., one chip w/chl phyll. surfaces.			
alask	mod.-well fol. & lin.	50	≤ 1.5mm	gns
	white to med. pink			
V. Qtz	lt. smoky color	acc	≤ 3mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 3923'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	about 2% mgt., med.	100	≤ 2mm	gns
	pink, some white chips,			
	mod.-well fol. and lin.			
	MFS .5 cm			

SAMPLE DEPTH: 3943'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics of	80	≤ 4mm	gns
	H:B = 80:20, poor fol. and lin,			
	med. gray, minor mgt.			
Amph	about 50% hbl., apprec. biot	10	≤ 1.5mm	gns
alask	lt. pinkish gray, mod.-well	10	≤ 1.5mm	gns
	fol. and lin.			
	MFS 1 cm.			

SAMPLE DEPTH: 3963'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot w/ minor hbl., lt. gray, minor mgt., mod. fol. and lin.	85	≤1mm	gns
alask	mod. fol. and lin., med. pinkish orange	15	≤1.5mm	gns
	MFS -75 cm			

SAMPLE DEPTH: 4003'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	about 2% mgt., mod.-well fol. and lin., med. pinkish orange	90	≤2mm	gns
Amph	about 60% hbl.	5	≤1.5mm	gns
BPG	about 3% biot	5	≤1mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 4023'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot, mod fol. and lin., v. minor mgt., of chips have chl phyllonite surfaces.	75 about 5%	≤1.5mm	gns
alask	med. pink orange, mod. fol. and lin.	15	≤1.5mm	gns
Amph	about 70% hbl., many chips w/chl phyllonite surfaces	10	≤2mm	gns
	MFS. 75 cm.			

SAMPLE DEPTH: 4043'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot, mod. fol.	80	≤1mm	gns
	and lin., v. minor mgt.			
Amph	about 70% hbl., several	20	≤1.5mm	gns
	chips w/ chl phyllonite surfaces			
	MFS .5 cm			

SAMPLE DEPTH: 4063'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 2% biot, lt. gray,	70	≤1.5mm	gns
	minor kspar, minor mgt., mod. fol. and lin.,			
	some alaskite chips of similar character			
	w/ minor mgt.			
Amph	about 50% mafic of	30	≤1.5mm	gns
	H:B = 80:20			
	MFS .5 cm			

SAMPLE DEPTH: 4083'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 3% biot, mod. fol. and	50	≤1mm	gns
	lin., minor kspar and mgt.			
alask	about 2% mgt., minor	30	≤1.5mm	gns
	gnt., mod. fol. and lin.			
Amph	about 50% hbl.	20	≤2mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4103'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	med. pinkish orange, about 1% mgt, mod. fol. and lin.	80	≤1.5 mm	gns
BPG	about 3% biot, mod. fol. and lin.	10	≤1 mm	gns
Microbreccia	both of above lithologies have attached dk. green black chl microbreccia and phyll.	10	≤.25 mm	microbrecc.
	MFS .5 cm			

SAMPLE DEPTH: 4123'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	mod. fol. and lin., about 2% biot and mgt, minor v. Qtz., med. pinkish orange	100	≤ 2mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 4143'

Lithology	Notes	Abundance	Grain Size	Fabric
alask	about 2% mgt., poor fol. and lin., med. pinkish orange, a few chips of white QPK peg.	100	≤ 2mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 4163'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 60:40, mod. fol. and lin., minor mgt., about ½ to ⅓ of chips have dk. orange stained fspar and mafics altered to chl., abundant chl streaks on surfaces.	85	≤1.5mm	gns
Microbreccia	dk. gray-black, w/fspar clasts, phyllonitic in some chips	10	≤.25mm	microbrecc.
Amph	about 70% hbl., apprec. chl. alt.	5	≤1.5mm	gns

SAMPLE DEPTH: 4183' MFS .5 cm.

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 15% hbl., dk. gray, poor-mod. fol. and lin., pervasive chl alteration of mafics, apprec. mgt., v. minor black aphanitic microbreccia, pink alaskite, and QPk peg frags.	100	≤1.5mm	gns
	MFS .5 cm.			

SAMPLE DEPTH: 4203'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 50:50, med. dk. gray, poor-med. fol. and lin., some mgt., about 30% of chips have orange stained fspar, mafics pervasively altered to chl.	100	≤2mm	gns
	MFS .75 cm.			

SAMPLE DEPTH: 4223'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics mostly hbl.,	80	≤1.5 mm	gns
	poor-mod. fol. and lin., some mgt.,			
	minor QFS, two alaskite chips.			
BHG	about 40% hbl., mod. fol. and lin	20	≤1.5 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4243'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	90	≤1.5 mm	gns
	H:B = 50:50, poor-mod. fol. and lin.,			
	minor mgt.			
V. Qtz	w/pyrrhotite and chl inclusions	5	≤ 3mm	vein
Amph.	about 20% biot, 60% hbl.	5	≤ 2mm	sch
	MFS .75 cm			

SAMPLE DEPTH: 4263'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of	70	≤1mm	gns
	H:B = 80:20, med. gray,			
	mod.-well fol. and lin., abundant mgt.,			
	few chips of biot phyllonite.			
BPG	Minor hbl., about 5%	30	≤1.5mm	gns
	mafics, lt. gray, mod-well fol. and lin.			
	A few chips of pink alaskite.			
	MFS .75 cm			

SAMPLE DEPTH: 4283'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics mostly	85	≤1.5 mm	gns
	hbl., med. gray, mod. fol. and lin.,			
	apprec. mgt., minor QFS			
Amph.	about 80% hbl., some biot,	15	≤1.5 mm	gns
	mod.-well fol. and. lin.			
	MFS .75 cm			

SAMPLE DEPTH: 4303'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7-15% mafics of	95	≤1.5 mm	gns
	H:B = 70:30, mostly lt.-med. gray,			
	minor mgt., mod. fol. and lin.			
QFS		5	≤2 mm	vein
	minor pink alaskite chips			
	minor amphibolite chips			
	MFS .75 cm			

SAMPLE DEPTH: 4323'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics, mostly	100	≤1.5 mm	gns
	hbl., med. gray, mod. fol. and lin.,			
	minor mgt., minor QFS			
	MFS .75 cm.			

SAMPLE DEPTH: 4343'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 5% mafics, lt.-med. gray, mod.-well fol. and lin., minor mgt., about 20% of chips have about 7% mafics with minor hbl., Minor gnt-bearing QFS.	100	≤ 1 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4363'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics of H:B= 40:60, med.-dk. gray, mod.-well fol. and lin., v. minor mgt., minor QFS, about 5% of chips have attached or are dk. gray black microbreccia.	100	≤ 1.5 mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 4383'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 50:50, med. dk. gray, poor-mod. fol. and lin., minor mgt., a very few small chips of black aphanitic microbreccia	100	≤ 1.5 mm	gns
	MFS .5 cm			

SAMPLE DEPTH: 4403'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	med. greenish gray, about 7% mafics of nearly completely altered biot. and hbl. to chl., mod. fol. and lin., many surfaces coated w/ chlorite and some show streaking, minor QFS, Fspars show v. faint pink staining but are generally white, a few chips w/ black 1-2mm thick aphanitic and magnetic veinlets (microbreccia). MFS .75 cm.	100	≤ 1 mm	gns

SAMPLE DEPTH: 4423'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 30% mafics of B:H = 50:50, well fol. and lin., dk. gray, apprec. mgt.	60	≤ 1.5 mm	gns
BPG	about 3% biot, lt. gray (faintly pinkish), well fol. and lin.	35	≤ 1 mm	gns
V. Qtz	milky	5	≤ 2 mm	vein
	MFS .5 cm			

SAMPLE DEPTH: 4464'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% mafics of H:B = 50:50, mod.-well fol. and lin., med. greenish gray, mgt. rich, about ⅓ of chips have mafics pervasively altered to chl, minor QFS.	100	≤ 1.5 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4484'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5-7% mafics of	90	≤1.5mm	gns
	H:B = 50:50, med. gray, mod. fol. and lin.			
	apprec. mgt.			
Amph	about 90% mafics mostly hbl.,	10	≤2mm	gns
	well fol. and lin., minor hbl.	alt. to chl.	and epidote	
	MFS .75 cm.			

SAMPLE DEPTH: 4504'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	70	≤1.25mm	gns
	H:B = 40:60, mod. fol. and lin.,	minor mgt.		
BPG	about 2-3% biot, lt.	20	≤1mm	gns
	pinkish gray, well fol. and lin.,	some chips		
	appear to be alaskite - kspar rich.			
Amph	mod. fol., 80% hbl.	10	≤1.5mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4524'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5-7% mafics of	60	≤1.5mm	gns
	H:B = 50:50, apprec. mgt.,	poor-mod. fol. and lin.,		
	med. gray, about 5% of chips have mafics pervasively			
	altered to chl.			
BPG	about 2% biot and mgt.,	40	≤1mm	gns
	v. lt. pinkish gray, poor-mod. fol. and lin.			
	MFS .75 cm			

SAMPLE DEPTH: 4544'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	100	.5-1.5 mm	gns
	H:B = 80:20, poor - mod. fol. and lin.,			
	med. gray, even grained, minor mgt.,			
	A few chips of amphib., minor QFS			
	MFS .75 cm.			

SAMPLE DEPTH: 4564'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics of	100	≤ 1.5 mm	gns
	H:B = 80:20, med. gray, mod.			
	fol. and lin., some mgt.,			
	minor (about 5%) interlayered QFS.			
	MFS .75 cm.			

SAMPLE DEPTH: 4584'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	80	≤ 1.5 mm	gns
	H:B = 80:20, med. gray,			
	poor - mod. fol. and lin., some mgt.,			
	v. minor interlayered QFS			
Amph	about 5% hbl., mod. fol. and lin.	20	≤ 1.5 mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4604'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	100	≤ 1mm	gns
	H:B = 60:40, mafics disseminated,			
	lt.-med. gray, abundant mgt.,	mod.-well fol. and lin.,		
	even grained			
	MFS .75 cm			

SAMPLE DEPTH: 4624'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of	95	≤ 1mm	gns
	H:B = 70:30, mafics disseminated,			
	lt.-med. gray, abundant mgt.,			
	mod.-well fol. and lin., minor QFS and			
	felsic frags.			
V. Qtz	milky	5	≤ 4mm	vein
	MFS .75 cm			

SAMPLE DEPTH: 4644'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics mostly	70	.5-1.5mm	gns
	hbl., med. gray, mod. fol. and lin.,			
	apprec. mgt., v. minor biot-phyllosilicate			
	surfaces on a few chips, v. minor QFS.			
Amph	about 60-80% mafics	30	≤ 1.5mm	gns
	mostly hbl., mod. fol. and lin.			
	MFS .75 cm			

SAMPLE DEPTH: 4664'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7-10% mafics mostly hbl., hbl. disseminated, mod.-well fol. and lin., med.-dk. gray, apprec. mgt.	60	.5-1.5mm	gns
QPR Peg	unaltered	40	5/cm	vein
	MFS .75 cm			

SAMPLE DEPTH: 4684'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 10% hbl., med.-dk gray, mod. fol. and lin., minor mgt., mostly disseminated hbl., one chip is an epidote vein 3mm. thick.	100	.5-1.5mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4704'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% hbl., mod. fol. and lin., med.-dk. gray, apprec. mgt., about 20% of chips have hbl. pervasively altered to chl, minor QFS.	100	.5-1.5mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4724'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 7% mafics mostly hbl., med.-dk. gray, apprec. mgt., minor interlayered QFS, about 10% of chips have hbl. pervasively altered to chl.	100	≤1.5mm	gns
	MFS .75 cm			

SAMPLE DEPTH: 4744'

Lithology	Notes	Abundance	Grain Size	Fabric
BHG	about 5% mafics of H:B = 50:50, med. greenish gray, med. fol. and lin., minor mgt., about 15% of chips have attached or are biot-chl coarse phyllonite. Many chips have mafics pervasively altered to chl. Minor amphibolite.	80	≤1.5mm	gns
QPK Peg	orange stained fspar	20	≤1.5cm	vein
	MFS .75cm			

SAMPLE DEPTH: 4764'

Lithology	Notes	Abundance	Grain Size	Fabric
BPG	about 5% biot, med.-well fol. and lin., med. gray, minor mgt., v. minor pink fspar staining, minor QFS.	40	≤1mm	gns
alask	med. pinkish gray, v. even grained, massive, mgt. rich, fine grained, fol. and lin. difficult to assess, different than alaskites up section., Some chl rich chips	60	≤.5mm	gns-gfsc
	MFS .75 cm.			