SCIENTIFIC OBSERVATION HOLE PROJECT

SOH 2 Well

VISUAL CORE DESCRIPTIONS
Volume 3

August 1991

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EXPLANATORY NOTES

The enclosed visual core descriptions were compiled by the core logging staff at the Puna Research Center, Hawaii. Members of the staff who descibed drillcore from the Scientific Observation Hole #2 are Rene Evans and Elizabeth Novak. Comments and suggestions were provided by John Deymonaz and Tonto Drilling Crew. MarthaSykes contributed preliminary XRD mineral identifications.

Volume 3 of the core descriptions contains descriptions for the core obtained from 6001 to 6802 feet of the Scientific Observation Hole #2. Each page of this volume corresponds to a box of core. When possible, boxes were filled with ten feet of drillcore. Each large fragment of core was marked with an up arrow. Wood blocks noted by the drillers mark the footage at the end of each core run.

Visual descriptions of the cores are based on observations of hand specimens. Therefore, for some of the mineral species and the more subtle metamorphic textures, field identifications might not be accurate (e.g. phillipsite versus natrolite, laumonite, etc.). We would appreciate being informed of any errors or inconsistencies in these descriptions.

Rene S. Evans
January 1992

CORE LOG

BOX # 219 HOLE # 2 Sheet A

Depth range 1830.30 to 1833.20 meters Depth range 6001 to 6010.5 feet

Logger's Name KH Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 6 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-6

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓	✓	✓	✓	✓	✓
Vesicles: %	15	→	→	→	→	→
Shape	R	→	→	→	→	→
Size(x)	1mm	→	→	→	→	→

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite	%	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓	✓	✓	✓	✓
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

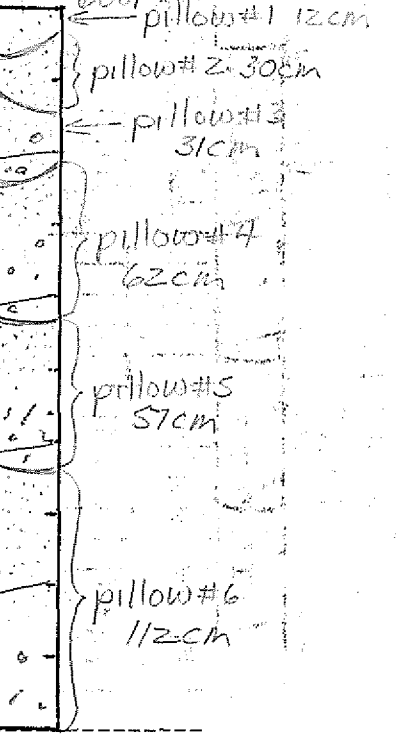
Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		

Other(describe) hand. translucent white minas in bx 218

COMMENTS

RQD = 161/290 = 55%



CRITICAL FEATURES (description of units or features by number)

1-6) pillows, vesicular 15%, 1mm at top of unit, pipe vesicles down in unit; aphyric, aphanitic gray basalt. Contacts are 2cm fine grained hyaloclastite altered to green clay.

CORE LOG

BOX # 220 HOLE # 2 Sheet A

Depth range 1833.29 to 1836.40 meters Depth range 6010.5 to 6021 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 4 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓	✓	✓	✓		
Vesicles: %	15	15	15	15		
Shape	R	R	R	R		
Size(x)/mm	1mm	1mm	1mm	1mm		

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓	✓	✓	✓		

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime	(?)	
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	small	small
Pyrite	sparse	
Epidote	(?)	
Gypsum		
Anhydrite	(?)	
Chalcopyrite		
Limonite		
Hematite		

Other(describe)

dk sulfide as in box 215

white fiber as in box 212, adularia (?)

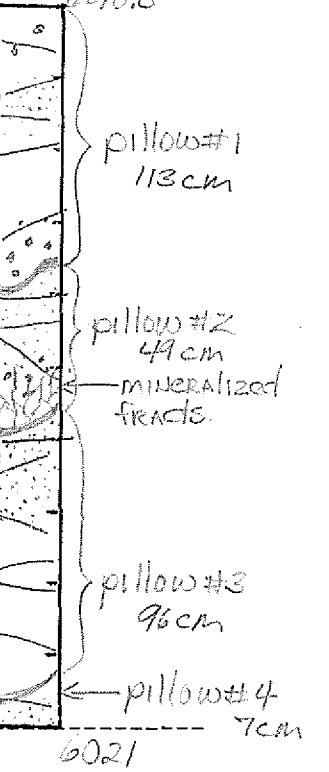
COMMENTS

RQD = 176/290 = 61%

2° mineralization may be changing to lower temp. regime, v. sm. g to v-tube sparse pyrite & white min. (adularia?)

cont from box 219

6010.5



CRITICAL FEATURES (description of units or features by number)

1-4) pillows, vesicular 15%, 1mm at top of unit, pipe vesicles at bottom; aphyric, very slightly dikty gray basalt. Contacts are 2 cm fine grained hyaloclastite altered to green clay.

CORE LOG

BOX # 221 HOLE # 2 Sheet A

Depth range 1836.4 to 1839.2 meters Depth range 6021 to 6030 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 6 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-6

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric						
Vesicles: %	3-5%	→				
Shape	S-R	→				
Size(x)	<1mm	→				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos						
mph	✓					
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony	✓	
Crystals	✓	✓
Pyrite	✓	✓
Epidote	✳	
Gypsum	? ✓	
Anhydrite	? ✓	
Chalcopyrite		
Limonite		
Hematite		
Other(describe)	✓	✓

? Adularia

bipyramid sulfide ✓

COMMENTS

RQD = 177/219 = 81%

XRD at 6029'

Striated double pyramid, metallic rust-golden color

Sulfide in fractures

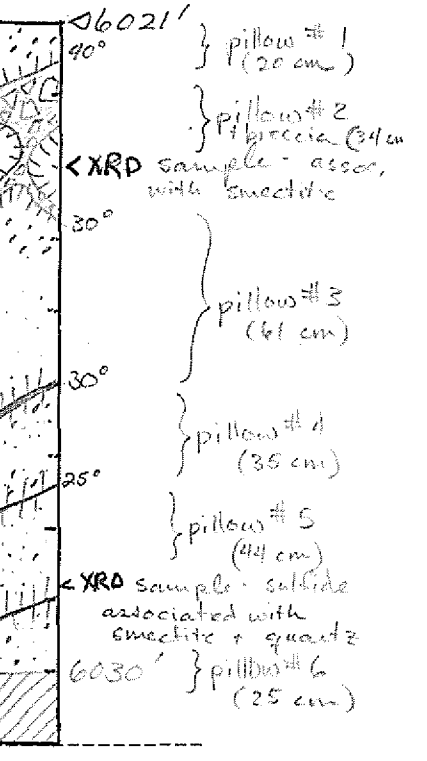
XRD at 6023'

Subhaeroidal to fibrous white opaque, pearly luster min. (H = 3-4)

Gypsum/Anhydrite

From pillow breccia

6023': "gypsum/anh" = anhydrite



CRITICAL FEATURES (description of units or features by number)

1-6) Pillow lavas with 3-5% vesicles and <1% olivine (altered to clay) microphenocrysts in a light grey feldspathic groundmass. Chill rinds altered to smectite. Pillow # 3 is surrounded by mineralized pillow breccia

Vesicles are filled with smectite, quartz crystals, pyrite, and possibly adularia.

Fractures (including fracture-voids in pillow breccia) are lined with smectite, quartz crystals, epidote "asterisks", pyrite, calcite, gypsum, anhydrite, bipyramidal sulfide and possible adularia

CORE LOG

BOX # 222 HOLE # 2 Sheet A

Depth range 1836.40 to 1841.89 meters Depth range 6030 to 6039 feet

Logger's Name EJI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 7 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-7

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6	7
mega (>.5 mm)							
micro(<.5 mm)							
Aphyric	✓	✓	✓	✓	✓	✓	✓
Vesicles: %	15	—	15	15	15	—	15
Shape	R		R	R	R		R
Size(x)	1mm		1mm	1mm	1mm		1mm

PHENOCRYSTS(Original mineralogy)

Olivine >5%_____ 1-5%_____ <1%_____ Phenos_____ mph_____ ol-plag_____

Comments_____

Plagioclase >5%_____ 1-5%_____ <1%_____ Rhombs_____ Blades/laths_____ mph_____

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic							
Feldspathic							
Diktytaxitic	✓	✓	✓	✓	✓	✓	✓

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____ Iddingsite_____ Plag -> Clay_____ Zeolite_____

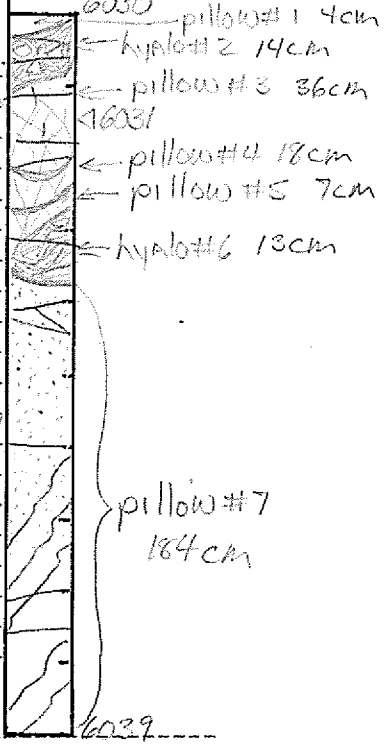
Groundmass Chlorite_____ Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	abund	
Zeolite		
white fiberous		
green		
blue		
Analcime (?)		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		small
Pyrite	sparse	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 180/274 = 66%

cont from box 221



CRITICAL FEATURES (description of units or features by number)

1, 3-5, 7) pillows, vesicular 15%, 1mm at top of unit, aphanitic at bottom; aphyric slightly dikty gray basalt.

2 & 6) hyaloclastite, clasts are pillow frags, supported by fine grained hyaloclastite altered to gray clay & by calcite.

CORE LOG

BOX # 223 HOLE # 2 Sheet A

Depth range 1841.9 to 1844.8 meters Depth range 6039 to 6048.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box_____ Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓		3	→	→	
micro(<.5 mm)	✓		3	→	→	
Aphyric						
Vesicles: %	1%		3%	4%	5%	
Shape	S-R		S-R	S-R	S-R	
Size(x)	<1mm		4mm	4mm	4mm	

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%	✓		✓	→	→	
Phenos	✓		✓	→	→	
mph	✓		✓	→	→	
ol-plag						

Comments_____

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic						
Feldspathic	✓		✓	→		
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

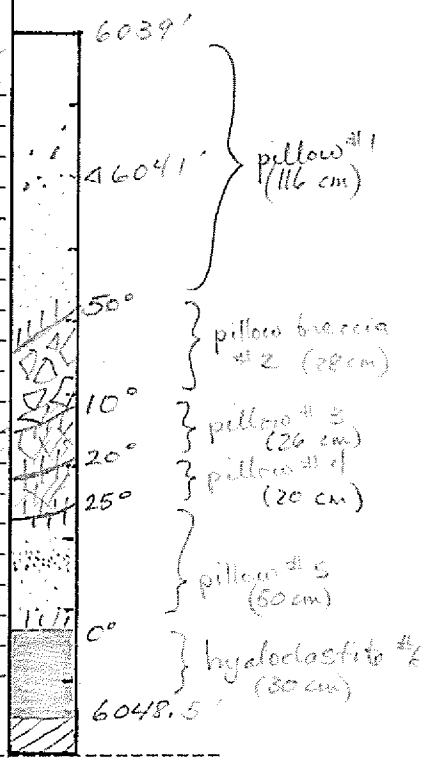
Smectite ✓ #6 Strongly altered

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		✓
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		✓
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		✓

* Albite or Adularia ◇ blades

COMMENTS

RQD = 203/270 = 75%



CRITICAL FEATURES (description of units or features by number)

1,3-5) Pillow lavas with 1% to 5% vesicles and <1% olivine phenocrysts and microphenocrysts (altering to clay) in a light grey feldspathic groundmass. Units 3 and 4 are fractured. Vesicles are lined with smectite, quartz crystals, calcite, rhombs, pyrite cubes, anhydrite and possibly adularia or albite blades. Fractures have pyrite.

2) Pillow breccia with angular clasts of grey pillow basalt supported by smaller clasts which have altered to green clays. The voids formed by fractures are mineralized like the vesicles of the pillows.

6) Altered hyaloclastite, dark grey smectite clays with small angular

glass shards (which are also altering to clays).

CORE LOG

BOX # 224 HOLE # 2 Sheet A

Depth range 1944.79 to 1947.69 meters Depth range 6048.5 to 6058 feet

Logger's Name CAI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box_____ Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	2	2	2			
<1%						
Phenos						
mph	✓	✓	✓			
ol-plag						

Comments alt to blk clay

Plagioclase						
>5%						
1-5%	2	2	2	5		
<1%						
Rhombs						
Blades/laths	✓	✓	✓	✓		
mph	✓	✓	✓	✓		

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

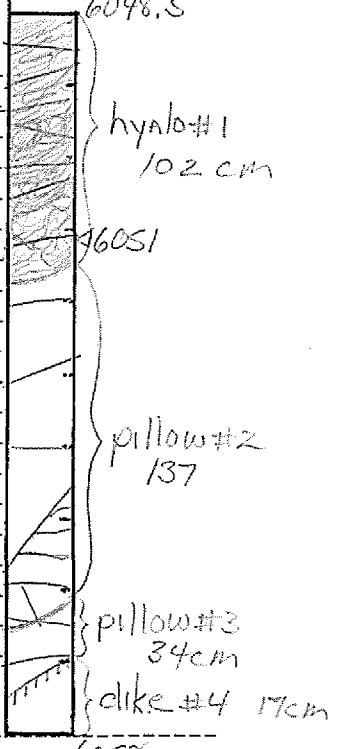
Smectite #1

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 190/290 = 65 %

cont from bx 223



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, unit contains aneuclar pillow clasts with lith. as below. Top 60cm of unit are featureless, completely altered to gray green smectite, next 40cm show 2cm laminae of lg clasts alternating with fine grained hyaloclastite in a swirling pattern in various shades of green & gray. Calcite is cement for some bands of 2mm clasts.

2-3) pillows, aneuclar, 2% olivine mph altered to blk clay, 2% plag blades, laths, and mph in a gray aphan. matrix →

somewhat altered toward amectite.

4) dike, amsicular, 5% plag blades, lathe, ?mph in a dk gray aphan matrix. Top dip = 55°

CORE LOG

BOX # 225 HOLE # 2 Sheet A

Depth range 1847.7 to 1850.7 meters Depth range 6058 to 6068 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1,10 Ash____ Breccia____ Red Bed____

Number of Units in Box 10 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2-9

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	2-9	10	5	6
mega (>.5 mm)		✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %		3-5%	1%	<1%		
Shape		S-R	R-SR	S-R		
Size(x)		<1mm	<1mm	<1mm		

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5% 1-3%						
<1%		✓	✓	✓		
Phenos	✓	✓	✓	✓		
mph	✓	✓	✓	✓		
ol-plag 1-2%						

Comments Two large intergrowths (*)

Plagioclase

>5% 5-7%						
1-5%		1-2%	1-2%			
<1%				✓		
Rhombs	✓					
Blades/laths	✓		✓	✓		
mph	✓	✓	✓	✓		

Comments

Augite %

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓	✓	✓	✓		
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay ✓

Zeolite

Groundmass

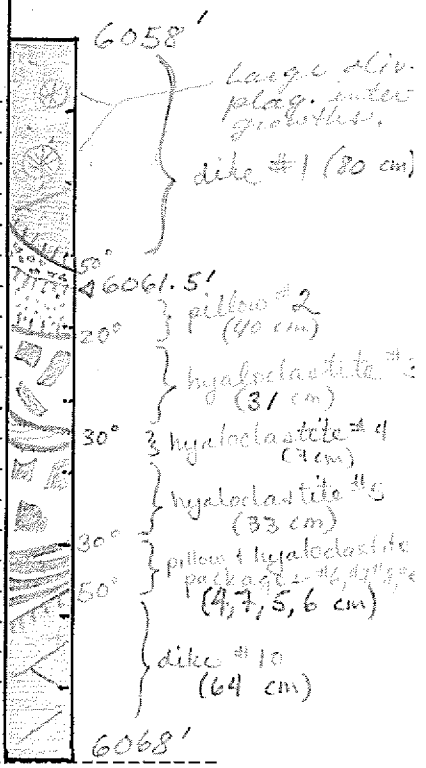
Chlorite

Smectite ✓ Especially mdst #10

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite	* ✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 193/244 = 62%



CRITICAL FEATURES (description of units or features by number)

1) Dike, dense, aucicular, 1-3% olivine phenocrysts and microphenocrysts, 1-2% olivine-plagioclase intergrowths (including two large [1.5 cm and 2.5 cm diameter] clusters), and 5-7% plagioclase rhombs, laths, and microlaths (10-20% of plag. blades have altered to black clay) in a light grey feldspathic groundmass.

2) Pillow lava with 3-5% vesicles, <1% olivine phenocrysts and microphenocrysts and 1-2% plagioclase microphenocrysts in a grey feldspathic groundmass. Pillow breccia along top.

3,5) Altered fine grained green hyaloclastite supporting large angular clasts

of pillow lava (<1% olivine, 1-2% plag). Non-cupkellene carbonate interbedded.

9) Bedded fine-grained altered green hyaloclastite.

5-9) Packages of fine-grained altered green hyaloclastite and thin (1.5-5 cm) pillow lava toes (<1% olivine and 1-2% plagioclase).

10) Dike, dense, <1% vesicles, <1% olivine phenocrysts and microphenocrysts and <1% plagioclase laths and microphenocrysts in a dark grey highly altered to black clays & feldspathic groundmass.

CORE LOG

BOX # 226 HOLE # 2 Sheet A

Depth range 1850.74 to 1853.46 meters Depth range 6068 to 6077 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive 1,2 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric		✓				
Vesicles: %	1					
Shape	R					
Size(x<)	1mm					

PHENOCRYSTS(Original mineralogy)

	>5%	1-5%	<1%	Phenos	mph	ol-plag
Olivine						

Comments_____

Plagioclase	>5%	1-5%	<1%	Rhombs	Blades/laths	mph
			✓		✓	✓

Comments_____

Augite % _____

GROUNDMASS (original)

Aphanitic		✓
Feldspathic	✓	
Diktytaxitic		

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

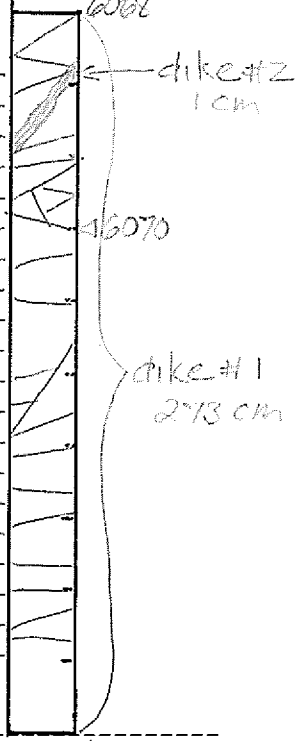
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 155/274 = 56%



CRITICAL FEATURES (description of units or features by number)

1) dike, microvesicular, 1%, <1mm; <1% plag blades, laths, & mph in a dk gray feldspathic matrix.

2) dike, amygdular, aphyric dk gray basalt. May be a clay seam but looks too well x-talloyed for clay.

CORE LOG

BOX # 277 HOLE # 2 Sheet A

Depth range 1853.48 to 1856.23 meters Depth range 6077 to 6086 feet

Logger's Name EM Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	1					
Shape	R					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments

Plagioclase	1	2	3	4	5	6
>5%						
1-5%	3	3				
<1%						
Rhombs						
Blades/laths	✓	✓				
mph	✓	✓				

Comments

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite

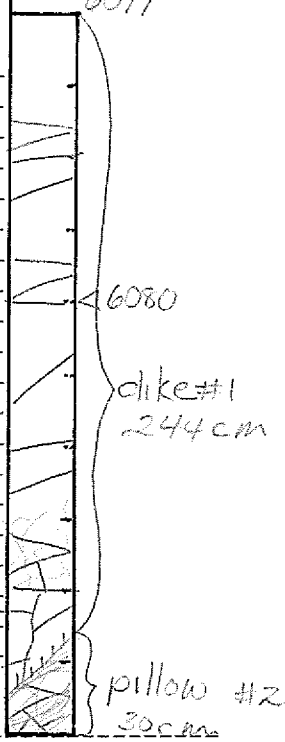
Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite	#2	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	#2	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 158/274 = 58%

cont. from box 226

6077



CRITICAL FEATURES (description of units or features by number)

1) dike, microvesicular 1%, <1mm; aphyric feldspathic regions alternate with aphanitic regions containing 3% plag blades, laths, & mph in a dk gray matrix. Bottom dip = 60°

2) pillow, amygdular, 3% plag blades, laths, & mph in a dk. gray aphan matrix. Contact consists of fine grained hyaloclastite altered to green clay and angular pillow rubble in filled with a calcite cement.

CORE LOG

BOX # 228 HOLE # 2 Sheet A

Depth range 1856.2 to 1859.0 meters Depth range 6086 to 6095 feet

Logger's Name KE Page 1

Type of Sample: Flow____ Intrusive 5? Ash____ Breccia____ Red Bed____

Number of Units in Box 5 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1-4, 5?

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	—	—	—	>	
micro(<.5 mm)	✓	—	—	—		
Aphyric						
Vesicles: %	1-3%	—	—	—	>	
Shape	S-R	—	—	—	>	
Size(x)	<1mm	—	—	—	✓	

PHENOCRYSTS(Original mineralogy)

Olivine						
>5%						
1-5%						
<1%	✓	—	—	>	✓	
Phenos	✓	—	—	>	✓	
mph	✓	—	—	>	✓	
ol-plag						

Comments

Plagioclase						
>5%						
1-5%	1-2%	—	—	→		
<1%					✓	
Rhombs						
Blades/laths	✓	—	—	→	✓	
mph	✓	—	—	→	✓	

Comments

Augite	%					

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓	✓	✓	✓	✓	
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

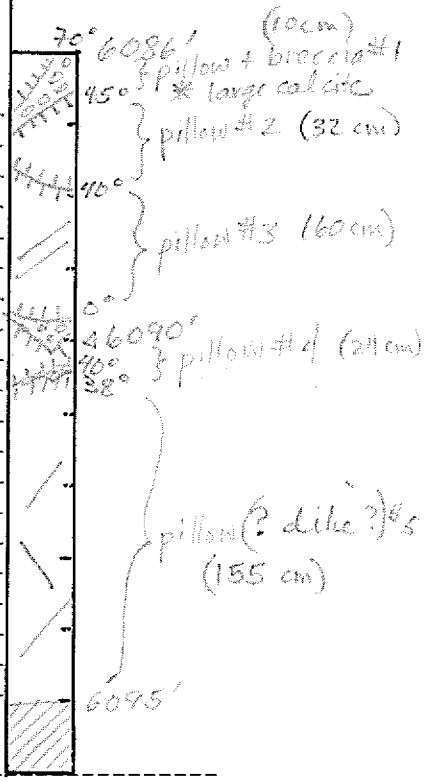
Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite (bladed + rhombs)	* ✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 254/281 = 90%

Largest calcite rhombs and blades in the hole.



CRITICAL FEATURES (description of units or features by number)

1-4) Pillow lavas with 1-3% vesicles, <1% olivine phenocrysts and microphenocrysts, and 1-2% plagioclase laths and microphenocrysts in a medium grey feldspathic groundmass. Fractures are mineralized with calcite, quartz crystals, pyrite and smectite.

5) Pillow? Dike? with 1-3% vesicles, <1% olivine phenocrysts and microphenocrysts and <1% plagioclase laths and mph in a dark grey feldspathic groundmass, highly altered to dark clays.

CORE LOG

BOX # 229 HOLE # 2 Sheet A

Depth range 1859.0 to 1861.7 meters Depth range 6095 to 6104 feet

Logger's Name KE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	1-3%					
Shape	SR					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments_____

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths						
mph	✓					

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

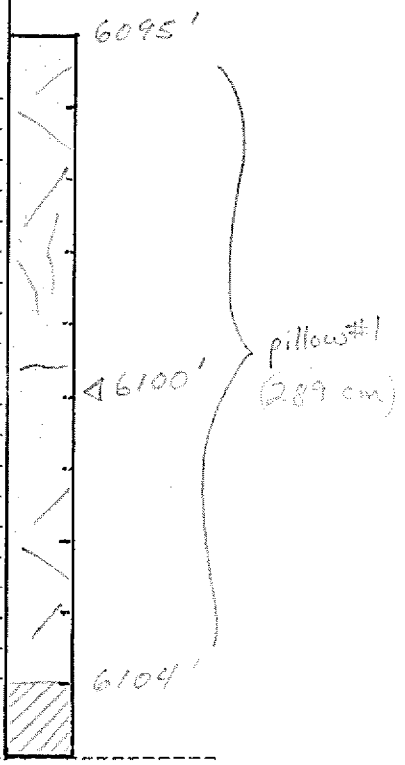
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite		✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 249/289 = 86%



CRITICAL FEATURES (description of units or features by number)

1) Pillow lava with 1-3% vesicles, <1% olivine phenocrysts and microphenocrysts, and <1% plagioclase mph in a medium grey, highly altered to black clay, feldspathic groundmass. Amorphous and crystalline silica in fractures. Pyrite and smectite in vesicles.

CORE LOG

BOX # 230 HOLE # 2 Sheet A

Depth range 1861.72 to 1864.71 meters Depth range 6104 to 6114 feet

Logger's Name CAI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 4 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓				
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	1	→	→	→		
Shape	R	→	→	→		
Size(x)	<1mm	→	→	→		

PHENOCRYSTS(Original mineralogy)

	1	2	3	4	5	6
Olivine >5%						
1-5%						
<1%	✓	→	→	→		
Phenos						
mph	✓	→	→	→		
ol-plag						

Comments alt to blk clay

Plagioclase

	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic		✓	✓	✓		
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

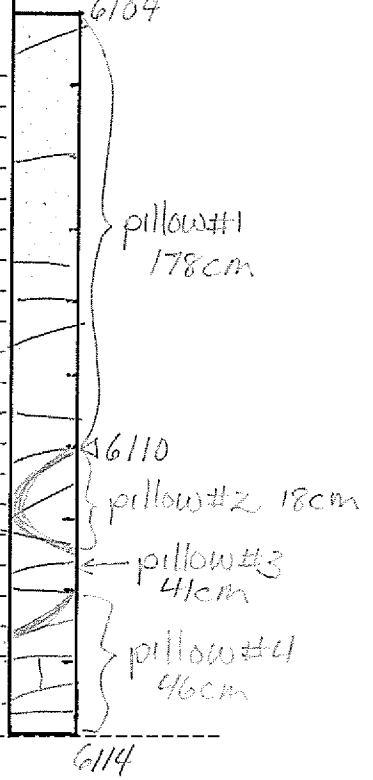
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 158/305 = 52%



CRITICAL FEATURES (description of units or features by number)

1-4) pillows, microvesicular 1%, <1mm; <1% olivine mph altered to blk clay in a dk gray matrix which is somewhat feldspathic in the lg. pillows (#1) but aphanitic in the others. Contacts are ~3cm fine grained hyaloclastite altered to dk green clay and not easily discernable.

CORE LOG

BOX # 231 HOLE # 2 Sheet A

Depth range 1864.77 to 1867.51 meters Depth range 6114 to 6123 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive 3 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 3 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1,2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓	✓				
Aphyric			✓			
Vesicles: %	1	1				
Shape	R	R				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓	✓				
Phenos						
mph	✓	✓				
ol-plag						

Comments alt to blk clay

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic			✓			

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

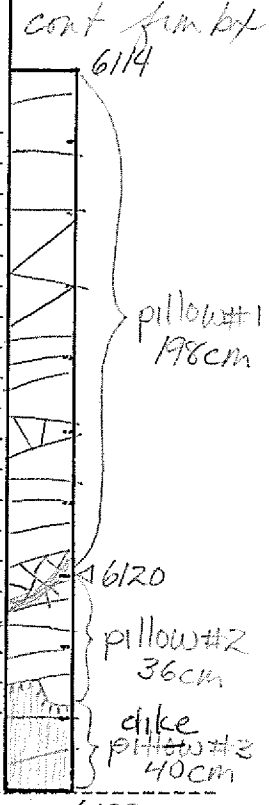
Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	2\3	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		

Other(describe)

COMMENTS

RQD = 159/274 = 58%



CRITICAL FEATURES (description of units or features by number)

1) pillow, microvesicular 1%, <1mm; <1% olivine mph alt to blk clay in a dk gray aphan mtx.

2) pillow, lith as above except 75% of microvesicles are filled with white clay.

3) dike, aphyric v. dk gray diktytaxitic basalt.

Top dip = 40°

CORE LOG

BOX # 232 HOLE # 2 Sheet A

Depth range 1869.5 to 1870.4 meters Depth range 6123 to 6132.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 4 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 2-4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %		1-3%	→	→		
Shape		sm-sh	→	→		
Size(x)		4mm	→	→		

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	<<1%	✓	→	→		
Phenos	✓	✓	→	→		
mph	✓	✓	→	→		
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic		✓	✓	✓		
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

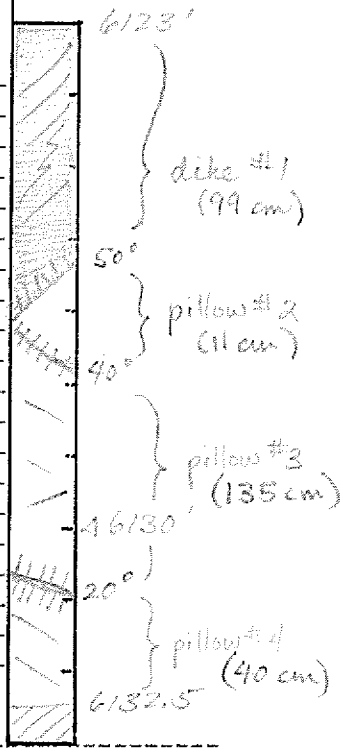
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	✓
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 181/285 = 64%



CRITICAL FEATURES (description of units or features by number)

1) Dike with <<1% olivine phenocrysts and microphenocrysts in a grey aphanitic groundmass. Amorphous to crystalline silica and pyrite along fractures.

2-4) Pillow lavas with 1-3% vesicles and <1% olivine phenocrysts and microphenocrysts in a grey-feldspathic groundmass. Vesicles are filled with smectite and in close proximity to the intruding dike, vesicles are filled with silica (amorphous).

CORE LOG

BOX # 232 HOLE # 2 Sheet A

Depth range 1870.41 to 1873.46 meters Depth range 6132.5 to 6142.5 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	1					
Shape	R					
Size(x)<1mm						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	<<					
Phenos						
mph	✓					
ol-plag						

Comments_____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 137/305 = 45%

cont from box 232

6132.5



CRITICAL FEATURES (description of units or features by number)

1) pillow, microvesicular 1%, <1mm; << 1% olivine mph. alt. to blk. clay in a dk. gray very slightly dikty. matrix.

CORE LOG

BOX # 234 HOLE # R Sheet A

Depth range 1873.3 to 1876.1 meters Depth range 6142 to 6151 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 2 Ash____ Breccia 3 Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1, 3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	<1%					
Shape	S-R					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓		✓			
Phenos	✓		✓			
mph	✓		✓			
ol-plag						

Comments

Plagioclase

>5%						
1-5%		1-3				
<1%	✓		✓			
Rhombs						
Blades/laths	✓		✓			
mph	✓	✓	✓			

Comments

Augite %

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓	✓	✓			
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

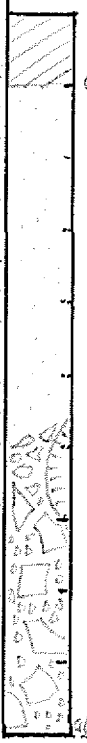
Chlorite

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 191/268 = 71%



CRITICAL FEATURES (description of units or features by number)

1) Pillow lava with <1% vesicles, <1% olivine (altering to clay) phenocrysts and mph and <1% plagioclase laths and mph in a medium grey feldspathic groundmass. A chill rind is lacking between unit 1 + 3.

2) Dike, dense, avesicular with 1-3% plagioclase microlaths in a feldspathic to aphanitic groundmass

3) Hyaloclastite (?) supporting large (4-7 cm) angular pillow breccia clasts (lithology same as unit #1)

CORE LOG

BOX # 235 HOLE # 2 Sheet A

Depth range 1876.05 to 1878.86 meters Depth range 6151 to 6160 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1,2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓	✓				
Vesicles: %	1	1				
Shape	R	R				
Size(x)<	1mm	1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

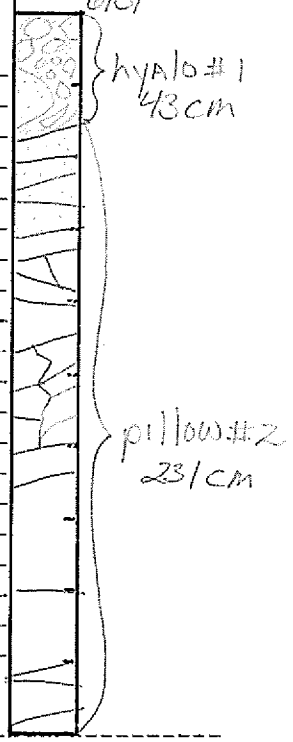
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 189/274 = 69%



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, pillow clasts with lithology as below cemented by fine grained hyaloclastite altered to dk gray clay. Drilling mud has adhered to the fine grained hyalo turning it lt. blue in color and highlighting the hyaloclastic texture.

2) pillow, microvesicular 1%, 1mm; aphyric aphanitic gray basalt. Last 180cm of unit is amygdular.

CORE LOG

BOX # 236 HOLE # 2 Sheet A

Depth range 1878.8 to 1881.5 meters Depth range 6160 to 6169 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1?,2,3 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 3 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1?

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%	<<	<<	<<			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments_____

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic		✓	✓			
Feldspathic	✓		✓			
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

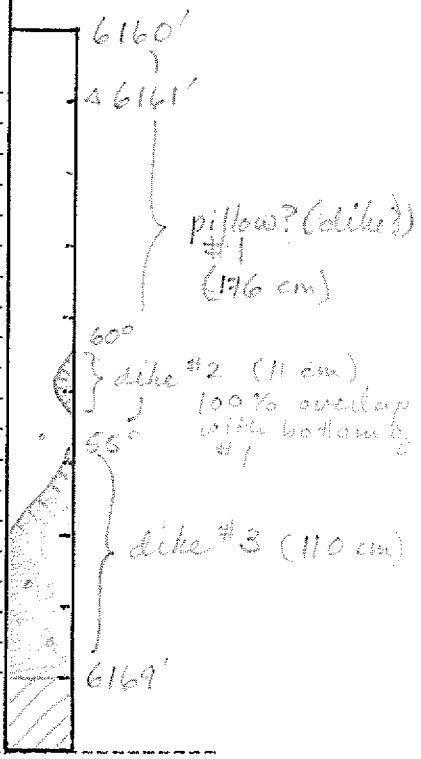
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 183/286 = 64%



CRITICAL FEATURES (description of units or features by number)

1) Pillow? (dike?) dense, vesicular, with <<1% olivine phenocrysts and microphenocrysts in a light gray feldspathic to diktytaxitic groundmass.

2,3) Dikes, dense, vesicular with <<1% olivine phenocrysts and microphenocrysts in a light gray aphanitic to feldspathic groundmass. Both intrude into unit #1.

Fractures throughout 1-3 are lined with smectite, pearly crystals and pyrite. Pearly crystals occupy the vesicles in 1+3.

CORE LOG

BOX # 237 HOLE #_____ Sheet A

Depth range 1881.54 to 1884.59 meters Depth range 6169 to 6179 feet

Logger's Name FN Page 1

Type of Sample: Flow_____ Intrusive 1,2,3 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 3 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric		✓				
Vesicles: %		<<1				
Shape		R				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

	>5%	1-5%	<1%
Olivine			
Phenos			
mph			
ol-plag			

Comments_____

Plagioclase	>5%	1-5%	<1%
Rhombs			
Blades/laths	✓		
mph			

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic		
Feldspathic		
Diktytaxitic	✓	✓

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

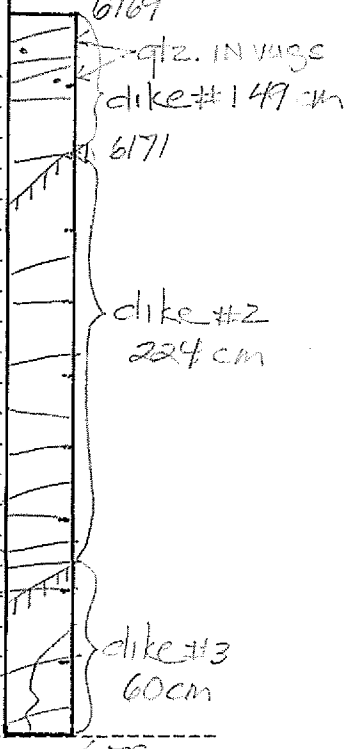
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 204/305 = 67%



CRITICAL FEATURES (description of units or features by number)

1,2) dike, amygdular, <<1% plag blades & laths in a gray slightly diktytaxitic matrix. Dip 1&2 = 50°

3) dike, macroscopic, <<1%, <1mm filled with qtz, aphyric gray slightly diktytaxitic basalt. Top dip = 35°

CORE LOG

BOX # 238 HOLE # 2 Sheet A

Depth range 1884.59 to 1887.49 meters Depth range 6179 to 6188.5 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive / Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %	<<1					
Shape	R					
Size(x)/mm						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 174/290 = 60%

cont. from box 237

6179

6181.5

dike #1 290 cm

6188.5

CRITICAL FEATURES (description of units or features by number)

1) dike, v. sparsely vesicular <<1%, 1mm, vesicles lined with gray x-tals; aphyric, slightly dikty lt. gray basalt.

CORE LOG

BOX # 239 HOLE # 2 Sheet A

Depth range 1887.5 to 1890.4 meters Depth range 6188.5 to 6198 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	S-R					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

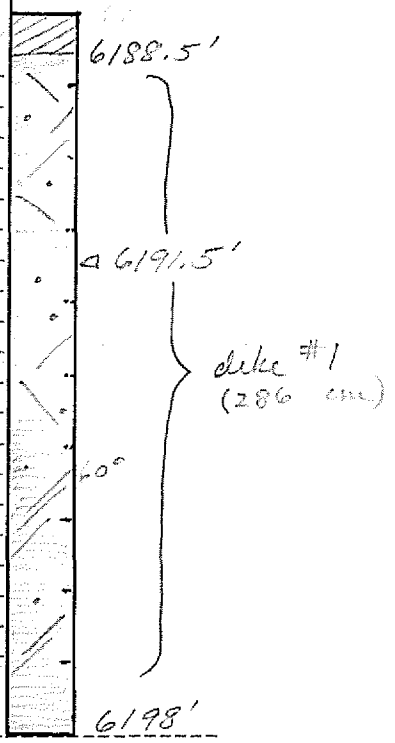
Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		

Other(describe)

COMMENTS

RQD = 244/286 = 85%



CRITICAL FEATURES (description of units or features by number)

1) Dike with <1% vesicles and <1% olivine phenocrysts and micro-phenocrysts in a light gray microcrystalline diktytaxitic groundmass. Fractures and vesicles lined with smectite, quartz crystals, and pyrite.

CORE LOG

BOX # 240 HOLE # 2 Sheet A

Depth range 1890.4 to 1893.1 meters Depth range 6198 to 6207 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	S-R					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	<<1 ✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments_____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

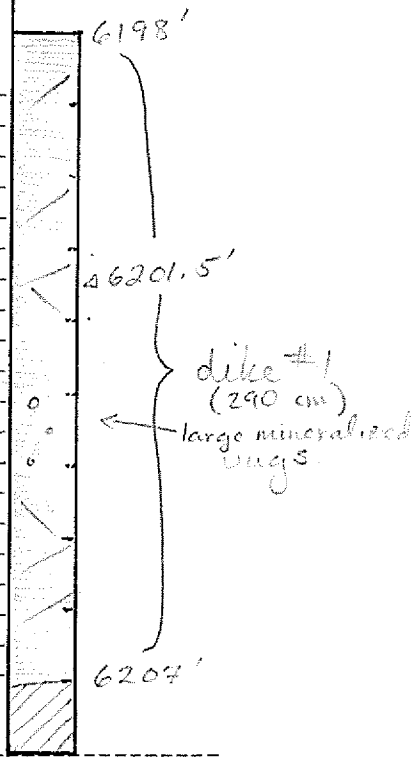
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony	✓	✓
Crystals	✓	✓
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 180/290 = 62%



CRITICAL FEATURES (description of units or features by number)

1) Dike with <1% vesicles and <<1% olivine phenocrysts and microphenocrysts in a light grey microcrystalline diktytaxitic groundmass. The occassional vesicle/vug and the fractures are mineralized with smectite, quartz crystals, and pyrite.

CORE LOG

BOX # 241 HOLE # 2 Sheet A

Depth range 1893.13 to 1896.16 meters Depth range 6207 to 6217 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 148/305 = 48%

cont from bx 240

6207

6212

dike #1 305cm

6217

CRITICAL FEATURES (description of units or features by number)

1) dike, annicular aphyric v. slightly diktytaxitic lt. gray basalt. Sparse fractures filled with qtz & lt. clay.

CORE LOG

BOX # 242 HOLE # 2 Sheet A

Depth range 1896.18 to 1899.23 meters Depth range 6217 to 6227 feet

Logger's Name EN Page 1

Type of Sample: Flow____ Intrusive 1,2,5,6 Ash____ Breccia____ Red Bed____

Number of Units in Box 6 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2,4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓	✓	✓	✓	✓	✓
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓	✓	✓
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

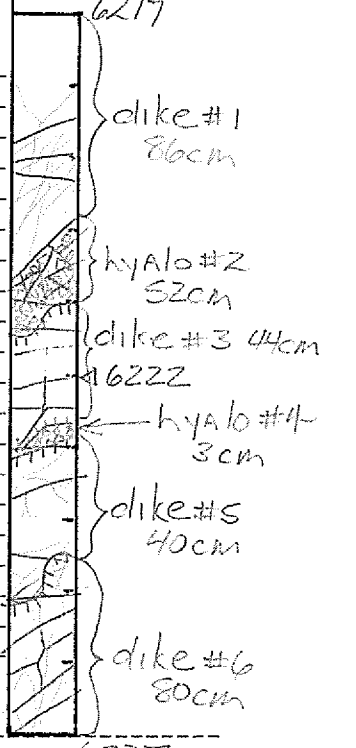
Smectite____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 124/305 = 41%

Dike units are fractured but competent.



CRITICAL FEATURES (description of units or features by number)

1) dike, amsicular aphyric aphanitic lt. gray basalt. Bottom dip = ?

2) hyaloclastite, small clasts (1cm) with lith as in #1 cemented by gray clay.

3) dike, lith as in #1. Top dip = ? Bottom dip = 0°

4) hyalo., lith as in #2

5) dike, lith as in #1 Top dip = 40°

6) dike, lith as in #1 Top dip = 70°

CORE LOG

BOX # 243 HOLE # 2 Sheet A

Depth range 1899.2 to 1902.1 meters Depth range 6227 to 6236.5 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1,3 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	<1%	1-3	<1%			
Shape	S-R	S-R	S-R			
Size(x)	<1mm	<1mm	<1mm			

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%		1				
<1%	<1% ✓		<1% ✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments Olivine in #2 altering to white clay along parallel fractures

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓?	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓2

Iddingsite

Plag -> Clay

Zeolite

Groundmass

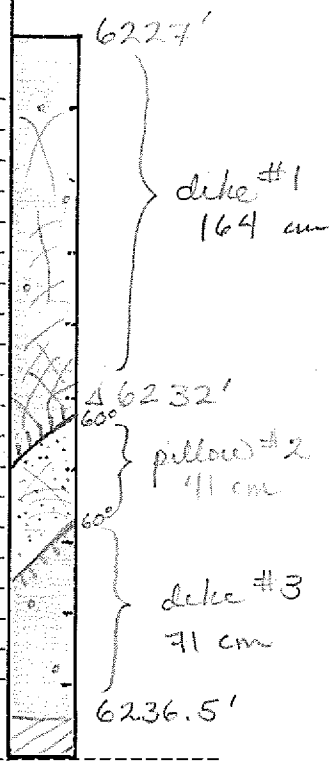
Chlorite

Smectite ✓2

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony	✓	✓
Crystals	✓	✓
Pyrite	✓	✓
Epidote		
Gypsum	✓	
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 122/276 = 44%



CRITICAL FEATURES (description of units or features by number)

3) Dike, dense, with <1% vesicles/vugs and <<1% olivine phenocrysts and microphenocrysts in a light grey feldspathic groundmass. Fractures are lined with smectite, amorphous silica, quartz crystals, pyrite, and gypsum. Vugs are filled with quartz crystals and pyrite.

2) Pillow with 1-3% vesicles and 1% olivine phenocrysts and microphenocrysts in a dark grey highly altered to dark clays feldspathic(?) groundmass. Fractures and vesicles(...)

highly mineralized with smectite and pyrite.

CORE LOG

BOX # 244 HOLE # 2 Sheet A

Depth range 1902.13 to 1905.05 meters Depth range 6236.5 to 6246 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive 1, 2 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box_____ Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast_____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)		✓				
Aphyric	✓					
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase						
>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths		✓				
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

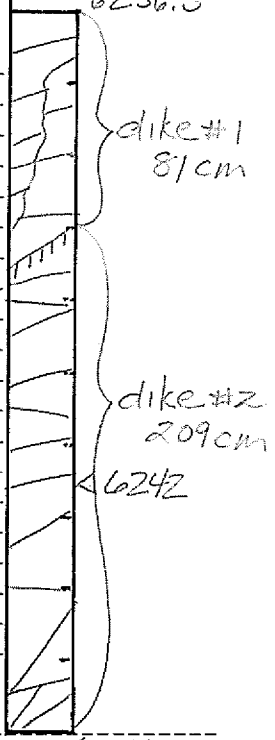
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 153/290 = 52%



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic aphyric aphanitic lt. gray basalt.

2) dike, aphanitic, <<1% plag blades, laths, & mph in a lt. gray aphan. matrix. Top dip = 40°

CORE LOG

BOX # 245 HOLE # 2 Sheet A

Depth range 1905 to 1907.9 meters Depth range 6246 to 6255.5 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 1 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments olivine altering to smectite and pyrite

Plagioclase

>5%						
1-5%						
<1%	«1%					
Rhombs						
Blades/laths	✓					
mph	✓					

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay and pyrite ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

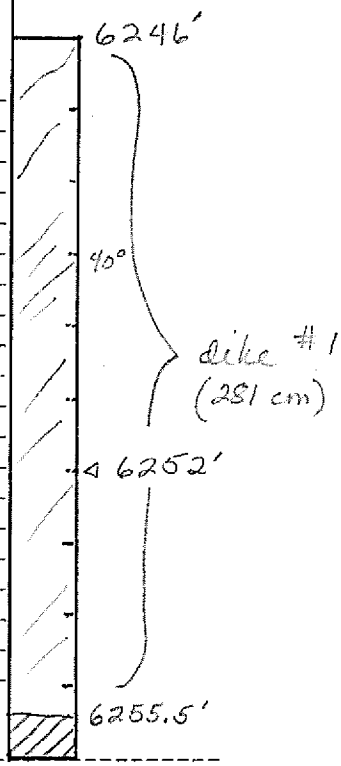
Chlorite

Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 202/251 = 72%



CRITICAL FEATURES (description of units or features by number)

1) Dike, dense, aveicular with <1% olivine phenocrysts and microphenocrysts and «1% plagioclase laths and microphenocrysts in a light grey feldspathic groundmass. The olivine has altered to smectite and pyrite. Fractures are coated with smectite or silica (amorphous to crystalline) and the occassional pyrite rhomb.

CORE LOG

BOX # 246 HOLE # 2 Sheet A

Depth range 1907.9 to 1910.5 meters Depth range 6255.5 to 6264 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric		✓				
Vesicles: %		1-3				
Shape		R-SA				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	<<1					
Phenos	✓					
mph	✓					
ol-plag						

Comments

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓	✓				
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

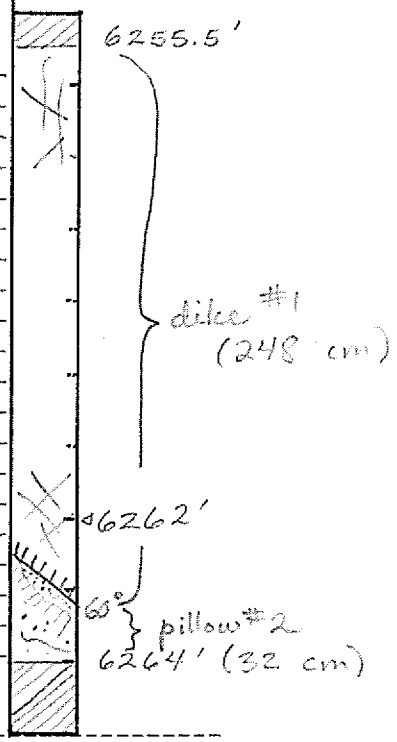
Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓2
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum	✓	
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

H<3 Gypsum? flat white needles along bottom-most fracture in pillow

COMMENTS

RQD = 233/280 = 83%



CRITICAL FEATURES (description of units or features by number)

1) Dike, dense, avesicular with <<1% olivine phenocrysts and microphenocrysts (altered) in a light grey feldspathic groundmass. Fractures lined with smectite or gypsum and pyrite.

2) Pillow, aphyric, with 1-3% vesicles (filled with smectite) in a grey aphanitic to feldspathic groundmass. Flat, white needles in clusters along bottom-most fracture (H<3, gypsum?).

CORE LOG

BOX # 244 HOLE # 2 Sheet A

Depth range 1910.5 to 1913.4 meters Depth range 6264 to 6273.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 7 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-7

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric 1 2 3 4 5 6

mega (>.5 mm)

micro(<.5 mm)

Aphyric ✓ →

Vesicles: % 1-5

Shape R-SA

Size(x) <1mm

PHENOCRYSTS(Original mineralogy)

Olivine >5%

1-5%

<1%

Phenos

mph

ol-plag

Comments

Plagioclase

>5%

1-5%

<1%

Rhombs

Blades/laths

mph

Comments

Augite %

GROUNDMASS (original)

Aphanitic ?✓

Feldspathic ?✓ →

Diktytaxitic

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite All highly altered

Fracture Vesicle

Secondary/Alteration Min.

Smectite

Calcite

Zeolite

white fiberous

green

blue

Analcime

Chabazite

MgOH

Silica

Amorphous

Chalcedony

Crystals

Pyrite

Epidote

Gypsum

Anhydrite

Chalcopyrite

Limonite

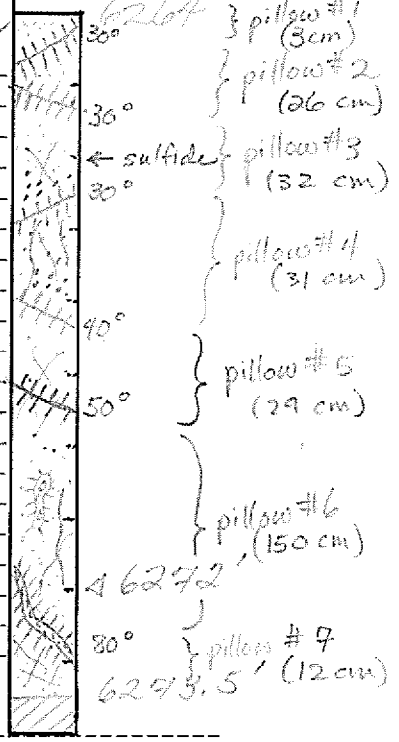
Hematite

Other(describe)

Softish H<5 bright golden to silver sulfide

COMMENTS

RQD = 239/283 = 84%



CRITICAL FEATURES (description of units or features by number)

1-7) Pillow lavas with 1-5% vesicles filled with smectite in a pale grey highly altered aphanitic(?) to feldspathic (?) groundmass. Fractures are lined with smectite, quartz crystals, pyrite and either another sulfide or simply an altered pyrite (softened).

CORE LOG

BOX # 246 HOLE # 2 Sheet A

Depth range 1913.26 to 1916.31 meters Depth range 6273 to 6283 feet

Logger's Name EAI Page 1

Type of Sample: Flow____ Intrusive 3,4 Ash____ Breccia____ Red Bed____

Number of Units in Box 5 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1,2,5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)			✓	✓		
Aphyric	✓	✓			✓	
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

	>5%	1-5%	<1%	Phenos	mph	ol-plag
Olivine						

Comments

Plagioclase	>5%	1-5%	<1%	Rhombs	Blades/laths	mph
			✓		✓	

Comments

Augite %

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓	✓	✓	✓	
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite #2

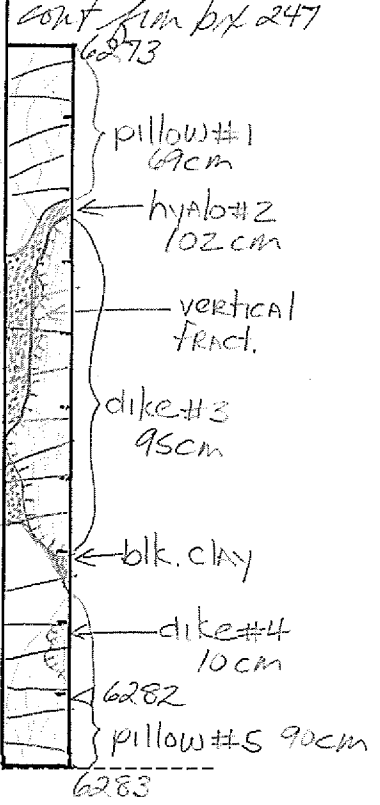
Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony	✓	
Crystals	✓	
Pyrite	✓	
Epidote	✓	
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

double ended →

COMMENTS

RQD = 137/305 = 45%

Vertical fract. may be evidence of fault movement, it predates injection of the dike.



CRITICAL FEATURES (description of units or features by number)

1) pillow, amygdular aphyric aphanitic gray basalt. Faintly mottled texture is alteration. Unit fractured but competent.

2) hyaloclastite, small (1cm) clasts with lithics above supported by a fine grained matrix of green clay.

3) dike, amygdular, <10% plag blades & laths in a dk gray aphan matrix. Contact too sinuous to take dip, runs along vertical fract.

4) dike, lith as in #3.

5) pillow, lith as in #1.

CORE LOG

BOX # 249 HOLE # 2 Sheet A

Depth range 1916.3 to 1919.2 meters Depth range 6283 to 6292.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 7 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-7

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6	7
mega (>.5 mm)							
micro(<.5 mm)							
Aphyric	✓		✓	→	→	→	→
Vesicles: %	1%		1%	→	→	→	→
Shape	S-SR		S-SR	→	→	→	→
Size(x)	<1mm		<1mm	→	→	→	→

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic	✓		✓	→	→	→
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

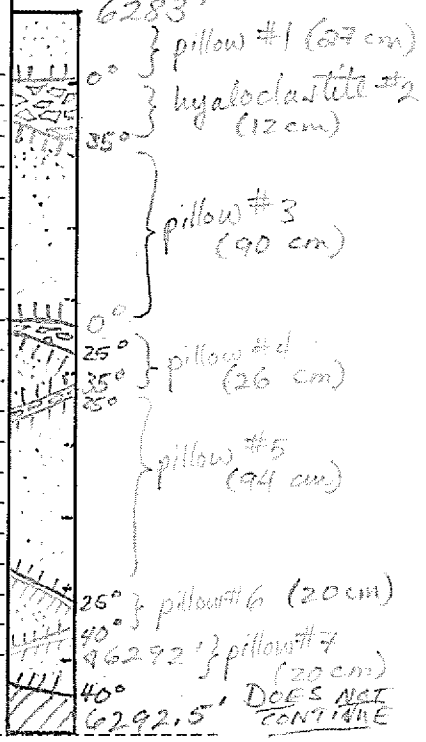
Chlorite_____

Smectite ✓ (especially unit #2)

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 226/289 = 78%



CRITICAL FEATURES (description of units or features by number)

1,3-7) Pillow with 1% vesicles (filled with smectite) in a light grey aphanitic (altered) groundmass. Smectite and pyrite along fractures. Unit #7 ends at bottom of box

2) Angular, altered hyaloclastite and pillow breccia. Replaced by clays. Common between pillows in this box. Unit #2 is noticeably thicker than the "usual" inter-pillow breccia.

CORE LOG

BOX # 250 HOLE # 2 Sheet A

Depth range 1919.2 to 1922.1 meters Depth range 6292.5 to 6302 feet

Logger's Name KE Page 1

Type of Sample: Flow____ Intrusive 2,4 Ash____ Breccia____ Red Bed____

Number of Units in Box 5 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1, 3, 5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓		✓		
micro(<.5 mm)		✓		✓		
Aphyric	✓		✓		✓	
Vesicles: %	3%		3%		3%	
Shape	S-R		S-R		S-R	
Size(x)	<1mm		<1mm		<1mm	

PHENOCRYSTS(Original mineralogy)

	1	2	3	4	5	6
Olivine >5%						
1-5%		✓		✓		
<1%		✓		✓		
Phenos		✓		✓		
mph		✓		✓		
ol-plag						

Comments

Plagioclase

	1	2	3	4	5	6
>5%						
1-5%						
<1%		<✓		<✓		
Rhombs						
Blades/laths		✓		✓		
mph						

Comments

Augite %

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic						
Feldspathic	✓	✓	✓	✓	✓	
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓ pillows 2,4

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite	✓	✓
white fibrous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote	✓	
Gypsum	✓	
Anhydrite		
Chalcopyrite		
Limonite		
Hematite	✓	
Other(describe)		

five single #2 fibers colorless

pale yellow green decreasing crystals

yellow fringe

Sulfur

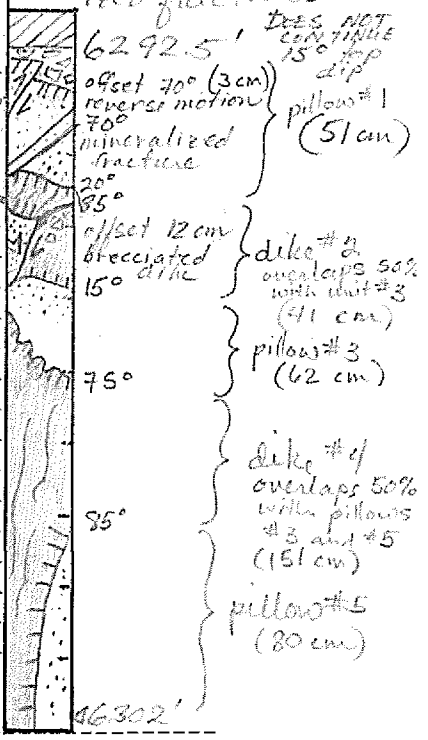
Albite/adularia rhombs? ✓

COMMENTS

RQD = 169/299 = 57%

> Mineral assemblage in fractures of 1 & 3: smectite, zeolite, quartz crystals, pyrite, epidote, gypsum, sulfur rhombs and albite/adularia

> 2 offset fractures parallel with mineralized fractures



CRITICAL FEATURES (description of units or features by number)

1,3,5) Pillow lavas with 3% vesicles, aphyric in a light grey (altering to smectite) feldspathic groundmass. Hyaloclastite along top of unit #1. Unit #1 and #3 are offset along steep 70°-85° fractures (with a sense of reverse motion). Fractures at 70° parallel to both offsets are highly mineralized. The offset in unit #1 is 3 cm and in #3 is 12 cm. Unit #1 begins at top of box.

2,4) Dike, aucsicular with <1% olivine phenocrysts and microphenocrysts (altering to clays) and <1% plagioclase laths (along chill margin) in a medium grey aphanitic to feldspathic groundmass.

CORE LOG

BOX # 251 HOLE # 2 Sheet A

Depth range 1922.11 to 1925.16 meters Depth range 6302 to 6312 feet

Logger's Name EAI Page 1

Type of Sample: Flow____ Intrusive 2,3 Ash____ Breccia____ Red Bed____

Number of Units in Box 4 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1,4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)			✓			
micro(<.5 mm)			✓			
Aphyric	✓	✓		✓		
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments____

Plagioclase	1	2	3	4	5	6
>5%						
1-5%			5			
<1%						
Rhombs			✓			
Blades/laths			✓			
mph			✓			

Comments____

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓		✓	✓		
Feldspathic						
Diktytaxitic		✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite #4

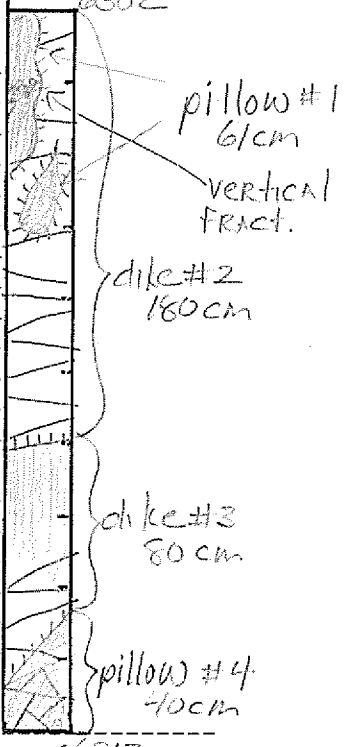
Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony	✓	
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum	✓	
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 87/305 = 29%

Vertical fract. may be evidence of fault movement.

cont from box 250 6302



CRITICAL FEATURES (description of units or features by number)

1) pillow, amygdular, aphyric aphanitic gray basalt. Faintly mottled texture is alteration.

2) dike, amygdular aphyric slightly dk.tn gray basalt. Sinuous contact runs along vertical fract. Bottom dip = 0°

3) dike, amygdular, 5% plag rhombs, blades, laths, aphyric in a dk. gray aphan matrix. Bottom dip = 45°

4) pillow, lith as in #1. Unit is fractured to rubble and altered toward smectite.

CORE LOG

BOX # 252 HOLE # 2 Sheet A

Depth range 1925.16 to 1927.90 meters Depth range 6312 to 6321 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 4 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓	✓				
Vesicles: %	15					
Shape	R					
Size(x)<	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic		✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

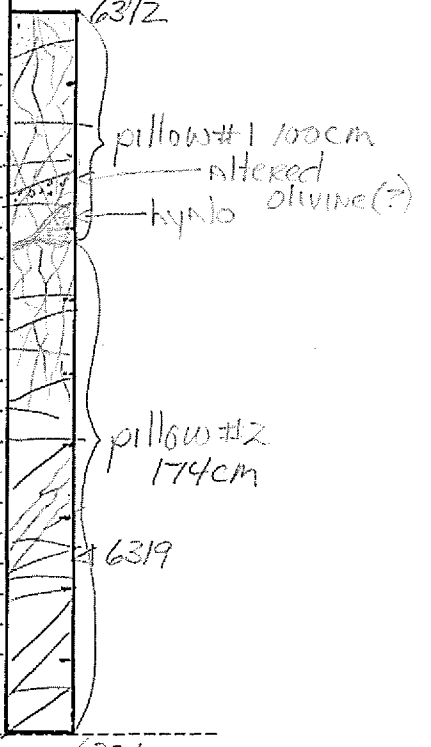
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite		minor
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	v. small	
Pyrite	alt. red	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 100/274 = 66%



CRITICAL FEATURES (description of units or features by number)

1) pillow, vesicular 15%, 1mm, first 10cm of unit gradate to aphanitic lt. gray basalt. Vesicles filled with green clay. Unit is fractured but competent. Hyaloclastite at pillow contact consists of v. small (2mm) blk, angular clasts with white rims cemented by green clay.

2) pillow, aphanitic aphyric lt. gray basalt. First 60cm of unit are slightly mottled & aphanitic, mottling fades and unit becomes slightly dikty.

CORE LOG

BOX # 253 HOLE # 2 Sheet A

Depth range 1127.90 to 1130.95 meters Depth range 6321 to 6331 feet

Logger's Name GM Page 1

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____ Red Bed____

Number of Units in Box 5 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1-5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric		✓	✓	✓	✓	
Vesicles: %		5			15	
Shape		R			R	
Size(x)		1/mm			1mm	

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments____

Plagioclase

>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths	✓					
mph						

Comments____

Augite %

GROUNDMASS (original)

Aphanitic		✓	✓	✓	✓	
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

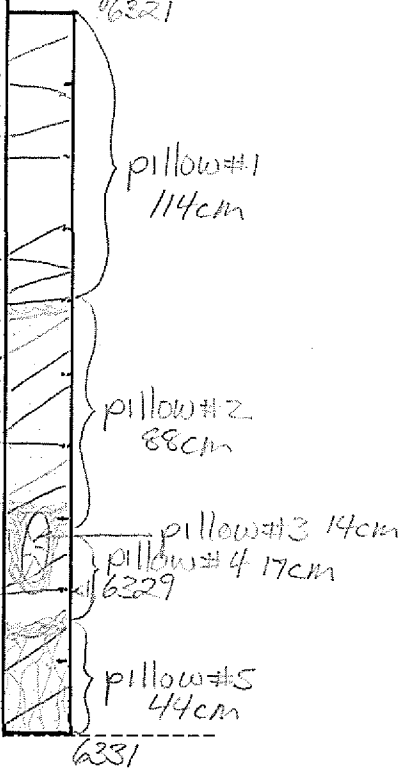
Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite/marine		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite altered		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 177/305 = 58%



CRITICAL FEATURES (description of units or features by number)

1) pillow, amygdular, <1% plag blades & laths in a lt. gray slightly dirty matrix. Hyaloclastite at contacts consists of very small pillow clasts (~2mm) cemented by calcite or green clay

2) pillow, vesicular 5%, <1mm, 100% of vesicles filled with green clay, aphyric aphanitic lt. gray basalt.

3) pillow, amygdular aphyric aphanitic gray basalt.

4) pillow, lith as in #3

5) pillow, vesicular 15%, lith as in #2. Unit is fractured but competent.

CORE LOG

BOX # 254 HOLE # 2 Sheet A

Depth range 930.95 to 933.76 meters Depth range 6331 to 6340 feet

Logger's Name FN/ Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 6 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-6

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓	✓	✓	✓	✓
micro(<.5 mm)		✓	✓	✓	✓	✓
Aphyric	✓					
Vesicles: %	5					
Shape	R					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						7
1-5%		5	1	1	1	
<1%						
Phenos		✓	✓	✓	✓	✓
mph		✓	✓	✓	✓	✓
ol-plag						

Comments alt to blk/wht clay

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic		✓				✓
Feldspathic						
Diktytaxitic	✓		✓	✓	✓	

SECONDARY FEATURES

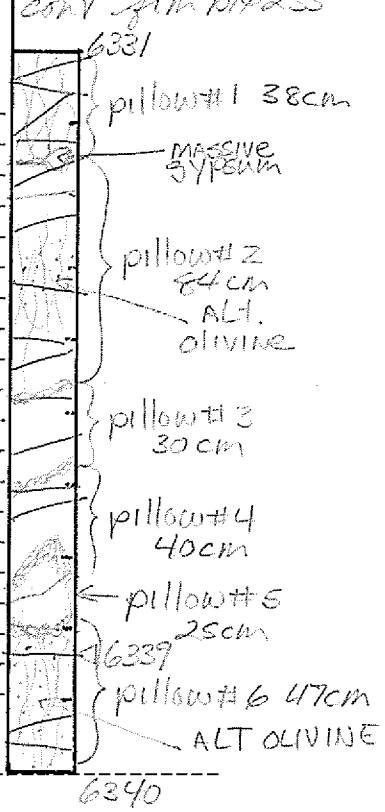
Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum	✓	
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 170/274 = 62%



CRITICAL FEATURES (description of units or features by number)

1) pillow, vesicular 5%, 1mm, 100% filled with gm clay; aphyric, slightly dikty gray basalt. Contacts are fine grained hyalo. altered to gray clay.

2) pillow, amygdular, middle 20 cm of unit has 5% olivine phenos & mph altered to blk clay at the margin and white clay in the middle, however the blk clay turns white when scratched so blk/white may be an artifact of drilling; aphanitic gray basalt.

3-5) pillows, amygdular, 1% olivine phenos & mph altered as in #2, →

in a slightly dirty gray matrix.

6) pillow, aneuicular, 7% olivine phenos ≤ mph. alt. as in #2 in an aphanitic gray matrix. Unit is fractured but competent.

CORE LOG

BOX # 255 HOLE # 2 Sheet A

Depth range 1933.7 to 1936.6 meters Depth range 6340 to 6349.5 feet

Logger's Name KE Page 1

Type of Sample: Flow____ Intrusive 10 Ash____ Breccia____ Red Bed____

Number of Units in Box 11 Clk/Rubble____ Carbonate 7,9 Pillow/Hyaloclast 1-6,8,9,11

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	3/5	6	10	11/4	6
Phyric						
mega (>.5 mm)	✓	✓	✓	✓	✓	
micro(<.5 mm)	✓	✓	✓	✓	✓	
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%		10-15	10-15		10-15
	1-5%	1-3%				
	<1%				✓	
Phenos		✓	✓	✓	✓	✓
mph		✓	✓	✓	✓	✓
ol-plag						

Comments

Plagioclase

	>5%					
	1-5%					
	<1%			<<1%		
Rhombs						
Blades/laths				✓		
mph				✓		

Comments

Augite %

GROUNDMASS (original)

Aphanitic		?✓	?✓	?✓	✓	?✓
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓ 1,5,8,10 variously

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓ highly altered

In unit 1-6,8, 9 + 11 Serpentine?

Secondary/Alteration Min (Fracture / Vesicle)

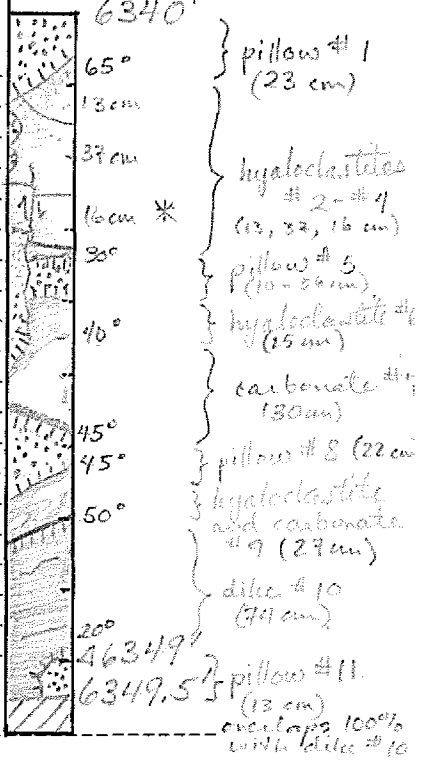
	Fracture	Vesicle
Smectite		✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

carbonate ✓

COMMENTS

RQD = 178/292 = 61%

* offset



CRITICAL FEATURES (description of units or features by number)

1) Pillow lavas, highly altered to dark green & black clays with 1-30% olivine phenocrysts and microphenocrysts (also altered to clays) in a grey aphanitic (?) groundmass. Small pillows intrude unit #3.

1-4,6,9) Green & black hyaloclastite, fine grained (silt to sand) shards (few are remaining, 99% replaced by clays - smectite). Bedded. At least 2 units (#3 and #4) are offset along a vertical fracture. White calcareous fine powder filling bords. Unit #9 is interlayered with fine carbonate mud similar to unit #7.

5,8,11) Pillow lavas, highly altered phenocrysts and groundmass, picrite, with 10-15% olivine phenocrysts and microphenocrysts in a green, blue, black groundmass (smectite clays). Unit #11 overlaps 100% with dike #10. Both continue.

7,9) Carbonate, fine grained mud, recrystalized. Swirling in and out of

hyaloclastite sand. No visible fossils

10) Dike, avesicular, <1% olivine phenocrysts and microphenocrysts and <<1% plagioclase laths and microphenocrysts in a light grey aphanitic groundmass. Intrudes unit #9 and #11. The dike and unit #11 continue parallel below.

CORE LOG

BOX # 256 HOLE # 2 Sheet A

Depth range 1936.60 to 1939.80 meters Depth range 6349.5 to 6360 feet

Logger's Name EM Page 1

Type of Sample: Flow____ Intrusive 1/2 Ash____ Breccia____ Red Bed____

Number of Units in Box 9 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2-7

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6	7
mega (>.5 mm)		✓	✓		✓	✓	
micro(<.5 mm)	✓	✓	✓		✓	✓	
Aphyric				✓			✓

Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine							
>5%		30	30		30	30	
1-5%							
<1%							
Phenos		✓	✓		✓	✓	
mph		✓	✓		✓	✓	
ol-plag							

Comments alt to white clay

Plagioclase							
>5%							
1-5%							
<1%	✓						
Rhombs							
Blades/laths	✓						
mph							

Comments

Augite	%						

GROUNDMASS (original)								
Aphanitic	✓	✓	✓	✓	✓	✓	✓	✓
Feldspathic								
Diktytaxitic								

SECONDARY FEATURES

Phenocryst replacements	Fracture	Vesicle
Olv -> Clay 2-6		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite 2-6		
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals #6		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

8 10%

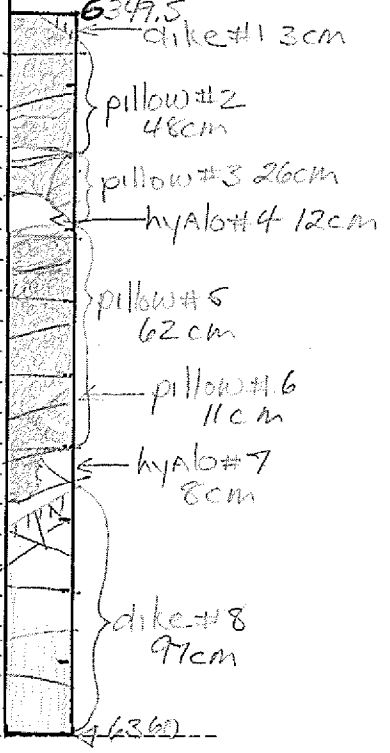
✓ ✓ ✓

COMMENTS

RQD = 227/305 = 74%

6.5' lost core

cont from bx 255



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, <1% plag blades & laths in an aphanitic gray matrix. Bottom dip = 65°

2,3) pillow, aphyric, picritic, 30% olivine phenos & mph alt. to white clay in a dk gray matrix altered to smectite (serpentine?).

4) hyaloclastite, green with small clasts near pillow margins (2cm), changes abruptly to white calcareous material which appears to be an altered fine grained hyaloclastite and/or inorganically precipitated calcite. V. small calcite x-tals visible throughout

5,6) pillows, lith as in #2,3.

→

7.) hyaloclastite, lith as in # 4.

8) dike, aphanitic, 10% plag phenos, blades, laths, ≤ mph in a gray aphan matrix. Top 5 cm of unit are altered nearly white and plag is altered blk. Top dip = ?

CORE LOG

BOX # 257 HOLE # 2 Sheet A

Depth range 1939.8 to 1942.7 meters Depth range 6360 to 6369.5 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 1 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1					
<1%						
Phenos	✓					
mph	✓					
ol-plag	1%					

Comments

Plagioclase >5%						
1-5%	3-5%					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay ✓

Zeolite

Groundmass

Chlorite

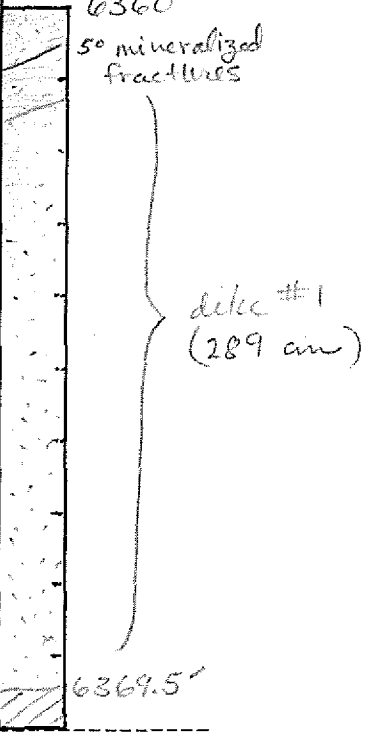
Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime	?	
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 262/289 = 91%

Colorless rhombs = analcime



CRITICAL FEATURES (description of units or features by number)

1) Dike, avesicular, with 1% olivine phenocrysts and microphenocrysts, 1% olivine-plagioclase intergrowths, and 3-5% plagioclase laths and microphenocrysts in a dark grey weakly feldspathic groundmass (olivines and plagioclase altering to clays). Occassional fracture with gravity crystals, smectite, smectite, and analcime(?).

CORE LOG

BOX # 258 HOLE # 2 Sheet A

Depth range 1942.70 to 1945.57 meters Depth range 6369.5 to 6379 feet

Logger's Name EN Page 1

Type of Sample: Flow____ Intrusive 1,5 Ash____ Breccia____ Red Bed____

Number of Units in Box 5 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2-4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓	✓	✓	
micro(<.5 mm)	✓	✓	✓	✓	✓	
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%		10	20	30		
1-5%					5	
<1%						
Phenos		✓	✓	✓	✓	
mph		✓	✓	✓	✓	
ol-plag						

Comments alt to white clay

Plagioclase

>5%	10					
1-5%					✓	
<1%					✓	
Rhombs	✓				✓	
Blades/laths	✓				✓	
mph	✓					

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓		
Feldspathic						
Diktytaxitic					✓	

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 2-4

Iddingsite

Plag -> Clay

Zeolite

Groundmass

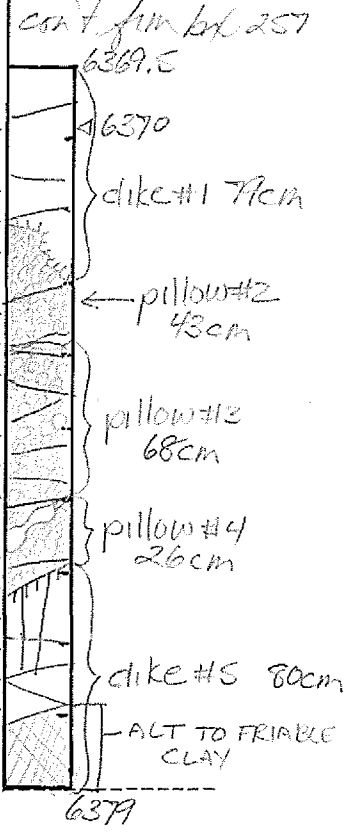
Chlorite

Smectite 2-5

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 130/290 = 45 %



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, 10% plag rhombs, blades, laths & mph in a dk gray aphan matrix somewhat altered toward smectite. Bottom dip uneven @ 80°

2) pillow, picritic, aphanitic, 10% olivine phenos & mph alt. to white clay in a dk gray matrix alt. to smectite. Contacts are 2-4cm of fine grained, white, somewhat calcareous material.

3) pillow, lith as in #3 but 20% olivine

4) pillow, lith as in #3 but 30% olivine.

→

5) dike, arenaceous, <1% plag blades & lathes in a gray aphan matrix at contact, grades to dikty, 50cm thru unit matrix is altered to powdery clay and olivine phenos & mph, 5% malt. or alt. blk. inclusions are visible. Top dip = 50°

CORE LOG

BOX # 259 HOLE # 2 Sheet A

Depth range 1945.6 to 1948.5 meters Depth range 6379 to 6388.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 8 Clk/Rubble_____ Carbonate 3,5 Pillow/Hyaloclast 2,4,6-8

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6-8
mega (>.5 mm)	✓	✓		✓		✓
micro(<.5 mm)	✓	✓		✓		✓
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6-8
>5%		10-15		10-15		10-15
1-5%						
<1%	✓					
Phenos	✓	✓		✓		✓
mph	✓	✓		✓		✓
ol-plag						

Comments_____

Plagioclase	1	2	3	4	5	6-8
>5%						
1-5%						
<1%	<<1%					
Rhombs						
Blades/laths						
mph	✓					

Comments_____

Augite %	1	2	3	4	5	6-8

GROUNDMASS (original)

	1	2	3	4	5	6-8
Aphanitic		✓		✓		✓
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

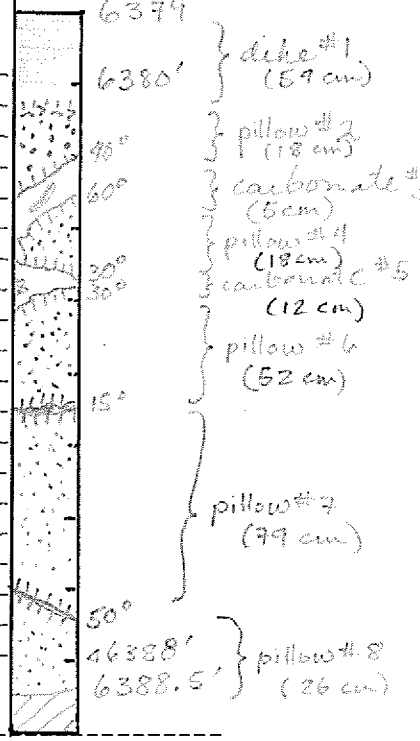
Chlorite_____

Smectite ✓ #1 especially strong

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 189/269 = 68%



CRITICAL FEATURES (description of units or features by number)

1) Dike with aphanitic to vesicular <1% olivine phenocrysts and microphenocrysts and << 1% plagioclase microphenocrysts in a light grey feldspathic groundmass. The upper 30 cm has altered to gauss. Olivines are altering to smectite in the un-gaussified zone and some remain glassy and fresh in the gauss-zone. Contact with unit #2 is not intact

4,6-8) Altered pillow lavas with 10-15% olivine phenocrysts and microphenocrysts (altered to clays on core surface, fresher on broken surfaces. As large as 0.8 cm) in a dark grey (clayey) aphanitic groundmass.

3,5) Carbonate, fine-grained, recrystallized, mixed with hyaloclastite "sand".

CORE LOG

BOX # 260 HOLE # 2 Sheet A

Depth range 1948.5 to 1951.5 meters Depth range 6388.5 to 6398.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 6 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-6

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	—	—	—	—	✓
micro(<.5 mm)	✓	—	—	—	—	✓
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5% 5-15	—	—	✓	—	—	✓
1-5%						
<1%						
Phenos	✓	✓	✓	—	—	✓
mph	✓	✓	✓	—	—	✓
ol-plag						

Comments_____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic	✓	—	—	—	—	✓
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

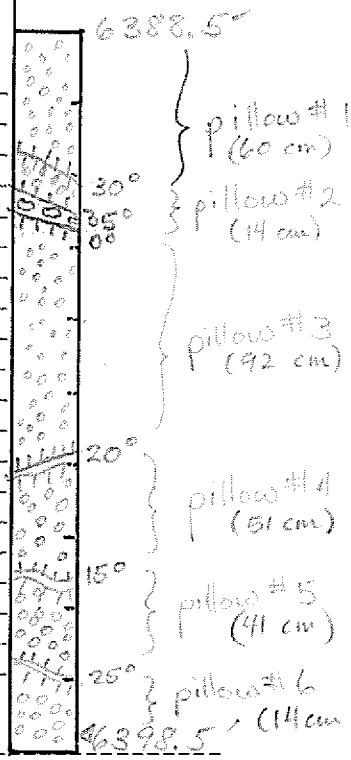
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 165/272 = 61%



CRITICAL FEATURES (description of units or features by number)

1-6) Pillow lavas, picritic with 5-15% olivine phenocrysts and microphenocrysts (altered to whitish clays) in a dark grey aphanitic groundmass (altered to smectite).

CORE LOG

BOX # 261 HOLE # 2 Sheet A

Depth range 1951.54 to 1954.59 meters Depth range 6398.5 to 6408.5 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 9 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1-9

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric 1 2 3 4 5 6

mega (>.5 mm) 9

micro(<.5 mm) 9

Aphyric

Vesicles: %

Shape

Size(x)

PHENOCRYSTS(Original mineralogy)

Olivine >5% 30 9

1-5%

<1%

Phenos 9

mph 9

ol-plag

Comments

Plagioclase

>5%

1-5%

<1%

Rhombs

Blades/laths

mph

Comments

Augite %

GROUNDMASS (original)

Aphanitic ✓ 9

Feldspathic

Diktytaxitic

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite 1-9

Fracture | Vesicle

Secondary/Alteration Min.

Smectite ✓

Calcite

Zeolite

white fiberous

green

blue

Analcime

Chabazite

MgOH

Silica

Amorphous

Chalcedony

Crystals

Pyrite

Epidote

Gypsum

Anhydrite

Chalcopyrite

Limonite

Hematite

Other(describe)

COMMENTS

RQD = 124/305 = 41%

mac v/fract 10' here

cont from box 260

6398.5

pillow#1 10cm

pillow#2 112 cm

pillow#4 28cm

pillow#5 9cm

pillow#6 61cm

pillow#7 11cm

pillow#8 16cm

pillow#9 77cm

6408.5

CRITICAL FEATURES (description of units or features by number)

1-9) pillows, picritic, aphyric, 30% olivine phenos (up to 1cm dia.) and mph altered white, (whiteness on the bases of the core is actually "crazing" of the fairly fresh x-tal, thus a drilling artifact) 20% of olivine have altered green to serpentine in a dk gray matrix altered to smectite. Pillow contacts show small (1mm) green clasts at pillow margins (0.5cm) but change abruptly to fine grained white calcareous material which fills voids between pillows.

CORE LOG

BOX # 262 HOLE # 2 Sheet A

Depth range 1954.6 to 1957.5 meters Depth range 6408.5 to 6418 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 2 Ash____ Breccia____ Red Bed____

Number of Units in Box 6 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1,3-6

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric: mega (>.5 mm) ✓ 1, ✓ 2, 3, 4, 5, 6; micro (<.5 mm) ✓ 1, ✓ 2, 3, 4, 5, 6

Aphyric

Vesicles: %

Shape

Size(x)

PHENOCRYSTS (Original mineralogy)

Olivine: >5% 5-15 1, 5-15 3; 1-5%; <1% ✓ 2; Phenos ✓ 1, ✓ 3; mph ✓ 1, ✓ 2

ol-plag

Comments: Up to 1.3 cm olivine in pillows

Plagioclase: <1% ✓ 2; Blades/laths ✓ 2; mph ✓ 2

Comments

Augite %

GROUNDMASS (original): Aphanitic ✓ 1, ✓ 2

Feldspathic

Diktytaxitic

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓ serpentine

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓ Serpentine?

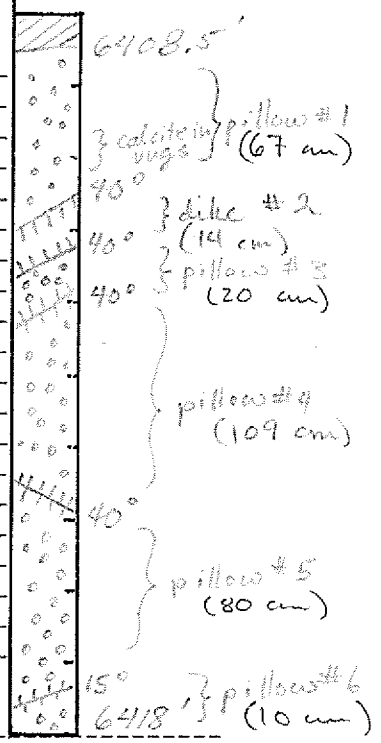
Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum	✓	
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		

Other (describe)

COMMENTS

RQD = 272/300 = 91%

Petrographic thin section the pillow #3.



CRITICAL FEATURES (description of units or features by number)

1,3-6) Pillow lavas, picritic, with 5-15% olivine phenocrysts and microphenocrysts (altered to white and green (serpentine?) clays) in a dark grey aphanitic groundmass (altered to smectite)

2) Dike, dense, with <1% olivine microphenocrysts and <1% plagioclase microlaths in a light grey aphanitic groundmass.

CORE LOG

BOX # 262 HOLE # 2 Sheet A

Depth range 1957.49 to 1960.68 meters Depth range 6418 to 6428.5 feet

Logger's Name EN/ Page 1

Type of Sample: Flow____ Intrusive 4 Ash____ Breccia____ Red Bed____

Number of Units in Box 4 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1-3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20	30	30	10		
1-5%						
<1%						
Phenos	✓	✓	✓	✓		
mph	✓	✓	✓	✓		
ol-plag						

Comments 80% "crayed" 20% alt to serpentine

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite 1-4

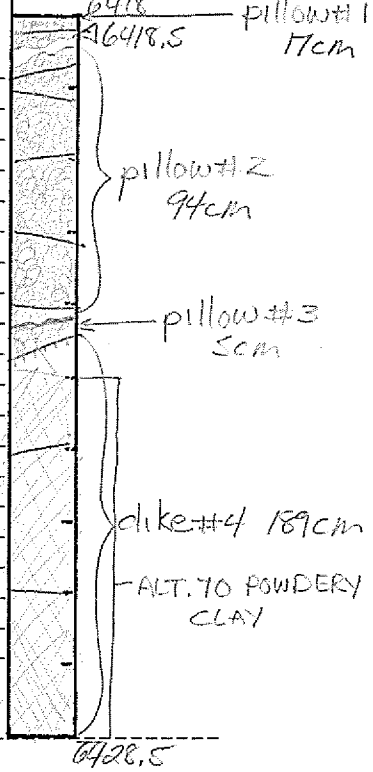
Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 116/305 = 38%

0.5' loot core

cont. from box 262



CRITICAL FEATURES (description of units or features by number)

1-3) pillows, picritic, aphyric 30% olivine phenos & mph 80% of which are fairly fresh but have been "crayed" white by drilling, 20% altered to green serpentine in a dk gray aphan matrix altered to smectite. Contact 1&2 is fine grained blue green material 2&3 is reddish gray.

4) dike, aphyric aphanitic lt gray basalt for 1st 3cm, changes to 10% olivine phenos & mph in a powdery gray matrix completely altered to smectite. Top dip = ? alt. to blk. clay

CORE LOG

BOX # 264 HOLE # 2 Sheet A

Depth range 1960.69 to 1962.98 meters Depth range 6429.5 to 6436 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive 1/2 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric		✓				
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	20					
	1-5%						
	<1%						
Phenos		✓	✓				
mph		✓					
ol-plag							

Comments alt blk

Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							

Comments

Augite	%						

GROUNDMASS (original)

Aphanitic		✓					
Feldspathic							
Diktytaxitic		✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay #1

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite #1

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	#1	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

white min. bottled

COMMENTS

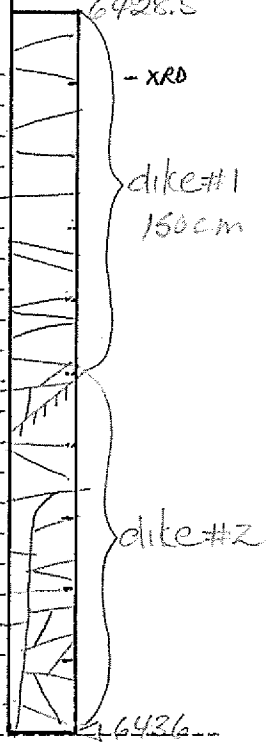
RQD = 25/229 = 11%

white anhydrite fract. in #1, H=5, platy habit, bottled

6429.5': platey white min. lining fracture = anhydrite + tr. gyp

cont. from box 263

6428.5



CRITICAL FEATURES (description of units or features by number)

1) dike, amsicular, 20% olivine phenos & mph alt to blk clay in a powdery gray matrix completely altered to smectite.

2) dike, amsicular, aphyric slightly dikty lt. gray basalt.

Top dip = 55°

CORE LOG

BOX # 265 HOLE # 2 Sheet A

Depth range 1962.99 to 1966.03 meters Depth range 6436 to 6446 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive 1, 2 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓				
micro(<.5 mm)		✓				
Aphyric	✓					
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%		3				
<1%						
Phenos		✓				
mph		✓				
ol-plag						

Comments unalt.

Plagioclase						
>5%						
1-5%		2				
<1%						
Rhombs		✓				
Blades/laths		✓				
mph		✓				

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic		✓				
Diktytaxitic	✓	✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

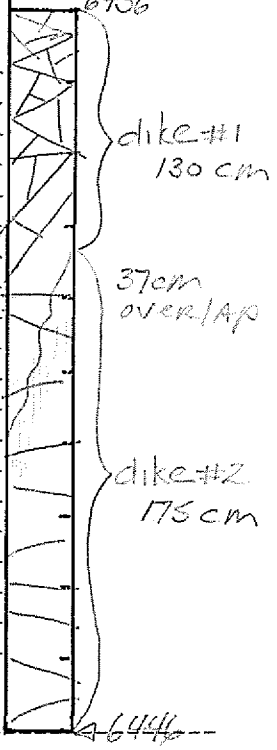
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite v. sparse		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

$RQD = \frac{93}{305} = 30\%$



CRITICAL FEATURES (description of units or features by number)

1) dike, avesicular, aphyric, diktytaxitic lt. gray basalt. No chill mrd at contact. Bottom dip ≃ 85°

2) dike, avesicular, 3% olivine phenos ⅛ mph, unalt., 2% plag blades, laths, ⅛ mph in a matrix which is aphanitic at contact but becomes distinctly diktyt downward thru unit.

CORE LOG

BOX # 266 HOLE # 2 Sheet A

Depth range 1966.02 to 1969.08 meters Depth range 6446 to 6456 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt white

Plagioclase						
>5%						
1-5%	2					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

$RQD = \frac{253}{305} = 83\%$

cont from box 266

6446

dike #1

305 cm

6455

6456

CRITICAL FEATURES (description of units or features by number)

1) dike, amsicular, 3% olivine phenos & mph, alt white on the panel of the core, fresh in fracs.; 2% plag blades, laths, & mph in a distinctly dikty. felds. lt. gray matrix.

CORE LOG

BOX # 267 HOLE # 2 Sheet A

Depth range 1969.06 to 1972.13 meters Depth range 6456 to 6466 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive 1/2 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%		✓				
Phenos		✓				
mph		✓				
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%	3					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓	✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

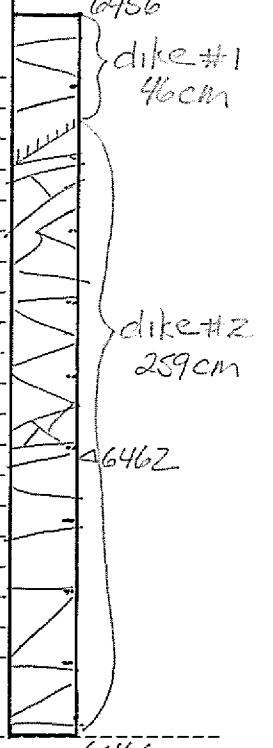
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 100/305 = 33%



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, 3% plag blades, laths, & mph in a lt. gray matrix which is dikty fields but grades to aphanitic at contact. Bottom dip = 60°

2) dike, aphanitic, <1% olivine phenos & mph, dark rinds near contact may be plucked phenos, in a lt. gray dikty matrix.

CORE LOG

BOX # 268 HOLE # 2 Sheet A

Depth range 1972.1 to 1975.0 meters Depth range 6466 to 6475.5 feet

Logger's Name RF Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

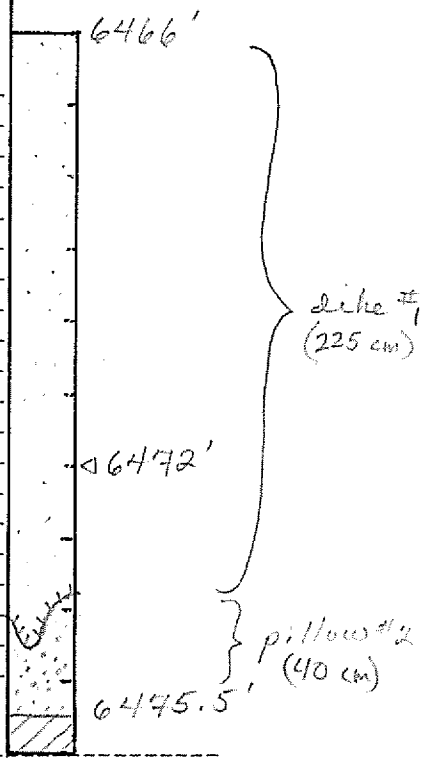
Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %						
Shape						
Size(x)						
PHENOCRYSTS(Original mineralogy)						
Olivine >5%		5-10%				
1-5%	1 ✓					
<1%						
Phenos	✓	? ✓				
mph	✓	? ✓				
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						
GROUNDMASS (original)						
Aphanitic		✓?				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	Fracture	Vesicle
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓2	
Secondary/Alteration Min.		
Smectite	✓2	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	2 ✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 128/265 = 48 %



CRITICAL FEATURES (description of units or features by number)

1) Dike, vesicular, with 1% olivine phenocrysts and microphenocrysts (altered to white and green clays, and plucked) in a light grey microcrystalline feldspathic to diktytaxitic groundmass.

2) Pillow lava (?), highly altered to clays (smectite). Splotchy, dappled appearance due to 5-10% olivine phenocrysts and microphenocrysts altering to clays combined with the breakdown of the aphanitic (?) groundmass to clays.

CORE LOG

BOX # 269 HOLE # 2 Sheet A

Depth range 1976.03 to 1977.92 meters Depth range 6476.5 to 6485 feet

Logger's Name EH Page 1

Type of Sample: Flow____ Intrusive 2/4/6 Ash____ Breccia____ Red Bed____

Number of Units in Box 6 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1,3,5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓		✓		✓	
micro(<.5 mm)	✓		✓		✓	
Aphyric		✓		✓		✓
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%	20		20		20	
1-5%						
<1%						
Phenos	✓		✓		✓	
mph	✓		✓		✓	
ol-plag						

Comments

Plagioclase

	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓	✓	✓	✓	
Feldspathic						
Diktytaxitic						✓

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 4,3,5

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	sl vug	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

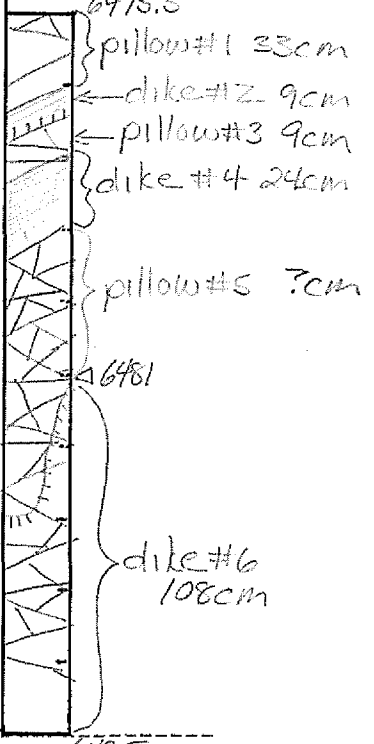
Pyrite (?) = a sulfide, bottled

COMMENTS

RQD = 41/290 = 14%

Box is badly fractured, first 4 units are incoherent. Not 9.5' here.

con't from box 268



CRITICAL FEATURES (description of units or features by number)

1) pillow, anaphyric, amygdaloidal, 20% olivine phenos & mph, altered to lt. grn. clay give unit a spotty splotchy texture, in a lt. gray aphan. matrix.

2) dike, amygdaloidal aphyric aphanitic gray basalt. Bottom dip = 45°

3) pillow, lith as in #1

4) dike, lith as in #2, Top & bottom dip = ?

5) pillow, lith as in #1.

6) dike, amygdaloidal, aphyric slightly dikty gray basalt. Top dip ≈ 80°

CORE LOG

BOX # 270 HOLE # 2 Sheet A

Depth range 1977.9 to 1981.0 meters Depth range 6485 to 6495 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1-3 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓		✓			
Aphyric						
Vesicles: %		1%				
Shape		SR-SP				
Size(x)		4mm				

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%						
1-5%						
<1%	<1 ✓	<1 ✓	<1 ✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite	%					

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic		✓				
Feldspathic	✓		✓			
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

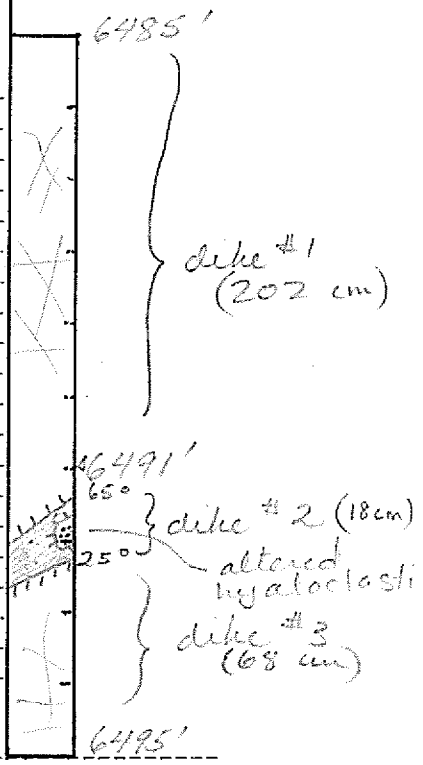
pyrrhotite ✓

COMMENTS

$RQD = \frac{172}{288} = 60\%$

Sampled phyrrhotite for XRD with box 269.

Mineralized fractures



CRITICAL FEATURES (description of units or features by number)

1,3) Dike, avesicular, with <1% olivine phenocrysts and microphenocrysts in a grey feldspathic groundmass. (Olivine is altering to clays). Intrudes dike #2

2) Dike with 1% vesicles (filled with smectite) and <1% olivine microphenocrysts in a grey aphanitic groundmass. One large inclusion of highly smectized hyaloclastite.

Secondary minerals: (except for smectite filling #2 vesicles) fracture fill. smectite, amorphous silica, quartz crystals, pyrite and phyrrhotite.

CORE LOG

BOX # 211 HOLE # 2 Sheet A

Depth range 1980.97 to 1983.72 meters Depth range 6495 to 6504 feet

Logger's Name EM Page 1

Type of Sample: Flow____ Intrusive 1,3 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓				
micro(<.5 mm)		✓				
Aphyric	✓		✓			
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%		20				
1-5%						
<1%						
Phenos		✓				
mph		✓				
ol-plag						

Comments "crayed" white, fresh on fracts.

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic						
Diktytaxitic	✓		✓			

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

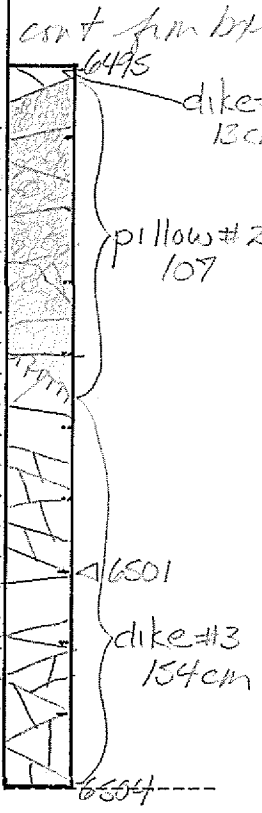
Chlorite

Smectite #2

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals #3		
Pyrite sparse		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 164/274 = 58%



CRITICAL FEATURES (description of units or features by number)

1) dike, aphyric slightly dikty gray basalt. Bott. dip = 45°

2) pillow, picritic, aphyric, 20% olivine phenos & mph "crayed" white by drilling on barrel of core but fresh on fracts, in a dk reddish gray matrix altered to smectite.

3) dike, aphyric dikty lt. gray basalt. Top dip ≈ 60°

CORE LOG

BOX # 272 HOLE # 2 Sheet A

Depth range 1983.7 to 1986.5 meters Depth range 6504 to 6513 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1, 2 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)			✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%			5-7%			
1-5%						
<1%	<<1	<<1				
Phenos			✓			
mph	✓	✓	✓			
ol-plag						

Comments____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic		✓	✓			
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1-3

Iddingsite ✓ + pyrite #3

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite ✓

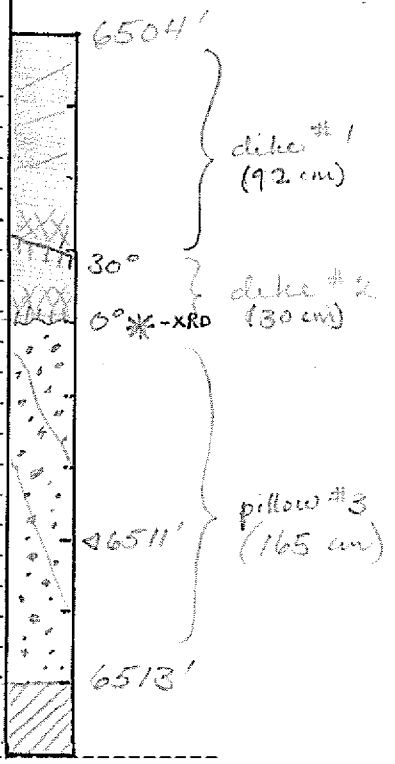
Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

pyrrhotite ✓

COMMENTS

RQD = 207/287 = 42%

* 6508' XRD sample of "white smectite" fracture fill = randomly interstrat. tri-oct chl/smect. 30% chlorite. RE



CRITICAL FEATURES (description of units or features by number)

1) Dike, avesicular with <<1% olivine microphenocrysts (altering to clays) in a grey diktytaxitic groundmass.

2) Dike, avesicular with <<1% olivine microphenocrysts (altering to clays) in a grey aphanitic groundmass. Intrudes #1 & #3

3) Pillow lava, highly altered, with 5-7% olivine phenocrysts and microphenocrysts (altering to iddingsite, pyrite and clay) in a grey aphanitic (?) groundmass. white smectite

Sm[illegible] pyrite and pyrrhotite along fracture

CORE LOG

BOX # 273 HOLE # 2 Sheet A

Depth range 1986.46 to 1989.06 meters Depth range 6513 to 6521.5 feet

Logger's Name EM Page 1

Type of Sample: Flow____ Intrusive 2-4 Ash____ Breccia____ Red Bed____

Number of Units in Box____ Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓		✓	✓		
micro(<.5 mm)	✓		✓	✓		
Aphyric		✓				
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20		20			
1-5%						
<1%						
Phenos	✓		✓			
mph	✓		✓			
ol-plag						

Comments alt to gm. clay

Plagioclase						
>5%				15		
1-5%						
<1%						
Rhombs				✓		
Blades/laths				✓		
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓		✓	✓		
Feldspathic						
Diktytaxitic		✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1,3

Iddingsite

Plag -> Clay

Zeolite

Groundmass

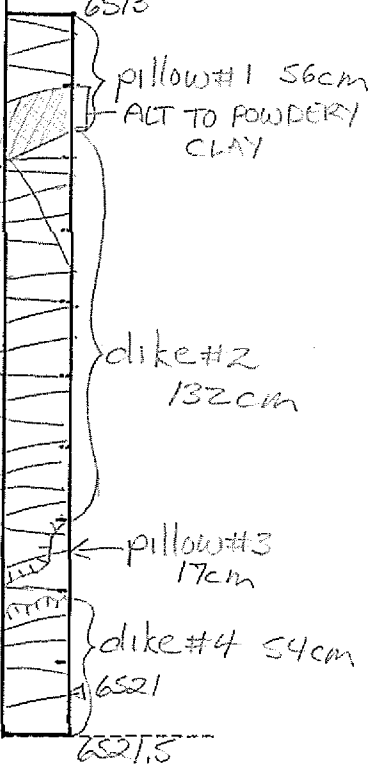
Chlorite

Smectite #1

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals #4		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe) pyrrhotite		

COMMENTS

RQD = 42/259 = 16%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, aphyric, 20% olivine phenos & mph alt to dk gray green clay in a matrix which degenerates to powdery smectite at lnz contact.

2) dike, aphyric, slightly diktytaxitic lt. gray basalt. Top dip ≅ 50° Bottom dip = 70°

3) pillow, lith as in #1.

4) dike, aphyric, 15% plag blades & laths in a dk gray aphan. matrix. Bottom dip = 60°

CORE LOG

BOX # 274 HOLE # 2 Sheet A

Depth range 1989.1 to 1992.3 meters Depth range 6521.5 to 6532 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1,3 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1	6%				
<1%			✓			
Phenos	✓	✓				
mph	✓	✓	✓			
ol-plag	<1 ✓					

Comments

Plagioclase

>5%						
1-5%	3-5%					
<1%			✓			
Rhombs	✓					
Blades/laths	✓		✓			
mph	✓		✓			

Comments

Augite %						

GROUNDMASS (original)

Aphanitic			✓			
Feldspathic	✓	✓				
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay ✓

Zeolite

Groundmass

Chlorite

Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	1 ✓	
Calcite		
Zeolite		
white fibrous	1 ✓	
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓1	
1% 1-2% Pyrite	✓2	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)	✓1	

1% pyrrhotite

COMMENTS

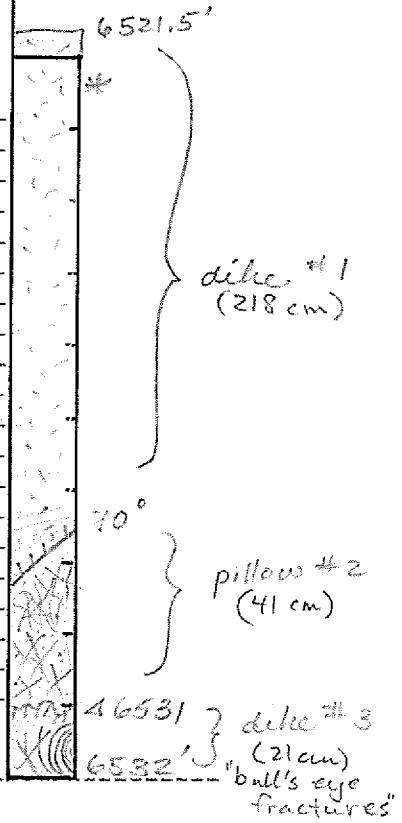
RQD = 239/280 = 85%

Excellent mineral assemblages in fractures & dike #1

XRD sampled @ 6522'

6522: "qz, pyrrh, sm, zeol"

= qz, alb, pyr. RE 2/18/92



CRITICAL FEATURES (description of units or features by number)

1) Dike, aveicular with 1% olivine phenocrysts and microphenocrysts (altering to dark clays), <1% olivine-plagioclase intergrowths and 3-5% plagioclase rhombs, laths and mph (altering to clays) in a medium grey feldspathic groundmass. Highly mineralized fractures; smectite, pale green fibrous zeolite, quartz crystals, flat striated pyrrhotite plates, and sulfur rhombs.

2) Pillow lava, highly fractured, with 5% olivine phenos and mph (replaced by smectite) in a pale grey aphanitic to feldspathic groundmass. 1-2% of pyrite along fractures. →

3) Dike with <1% olivine microphenocrysts and <1% plagioclase laths and microphenocrysts in a grey aphanitic groundmass.

CORE LOG

BOX # 275 HOLE # 2 Sheet A

Depth range 1992.26 to 1995.31 meters Depth range 6532 to 6542 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive / Ash_____ Breccia_____ Red Bed_____

Number of Units in Box / Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric 1 2 3 4 5 6

mega (>.5 mm)

micro(<.5 mm)

Aphyric ✓

Vesicles: %

Shape

Size(x)

PHENOCRYSTS(Original mineralogy)

Olivine >5%

1-5%

<1%

Phenos

mph

ol-plag

Comments

Plagioclase

>5%

1-5%

<1%

Rhombs

Blades/laths

mph

Comments

Augite %

GROUNDMASS (original)

Aphanitic ✓

Feldspathic

Diktytaxitic

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite

Fracture Vesicle

Secondary/Alteration Min.

Smectite ✓

Calcite ✓

Zeolite

white fiberous

green

blue

Analcime

Chabazite

MgOH

Silica

Amorphous

Chalcedony

Crystals

Pyrite v. abund

Epidote

Gypsum

Anhydrite

Chalcopyrite

Limonite

Hematite

Other(describe)

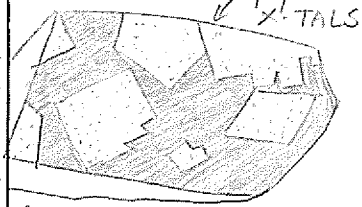
occas. pyrrhotite

alteration to red clay

COMMENTS

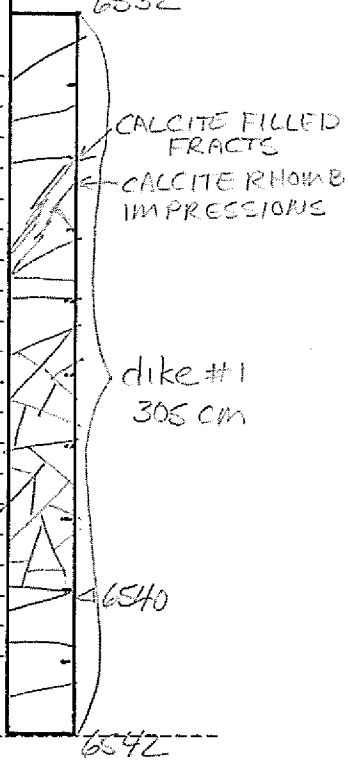
RQD = 161/305 = 53%

PYRITE X'TALS



(Ca. lx) CALCITE RHOMB IMPRESSIONS ON FRACT. FACE cont. from box 274

6532



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic except last 60cm of unit shows small (1mm) voids which may be evidence of plucked mph, aphanitic lt. gray basalt.

CORE LOG

BOX # 376 HOLE # 2 Sheet A

Depth range 1995.31 to 1996.21 meters Depth range 6542 to 6551.5 feet

Logger's Name EN Page 1

Type of Sample: Flow____ Intrusive 1,3 Ash____ Breccia____ Red Bed____

Number of Units in Box 4 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2,4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%		20				
1-5%	5					
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments #2 stained white on base of incident on fracts

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite

Plag -> Clay

Zeolite

Groundmass

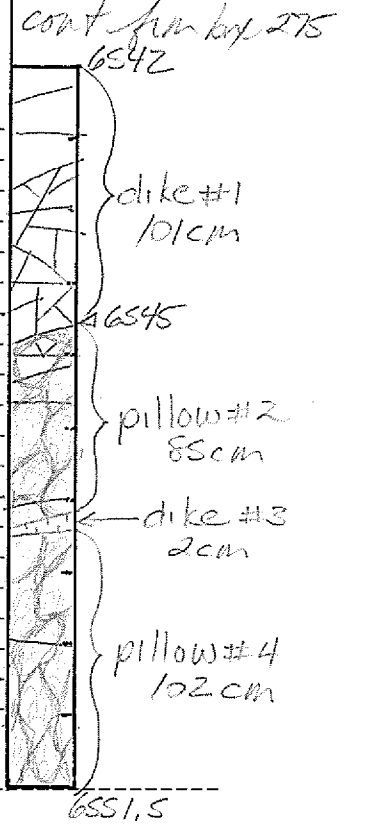
Chlorite

Smectite #2

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite sparse		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

$RQD = \frac{169}{290} = 58\%$



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, 5% olivine phenos & mph alt to grn clay in a gray dkty matrix. Bottom dip = ?

2) pillow, picritic, 20% olivine phenos & mph stained white on base of core, iridescent on fracts, in a dk gray matrix altered to smectite. Dark veins of matrix outlining olivine aggregates give the unit a "fishnet" appearance.

3) sill, litho as in #1

4) pillow, litho as in #2.

CORE LOG

BOX # 271 HOLE # 2 Sheet A

Depth range 1998.21 to 2001.10 meters Depth range 6551.5 to 6561 feet

Logger's Name EN Page 1

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1,2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	20	20				
	1-5%						
	<1%						
Phenos		✓	✓				
mph		✓	✓				
ol-plag							

Comments: aligned white mm laths, iridescent on fracts.

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						

Augite	%					

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

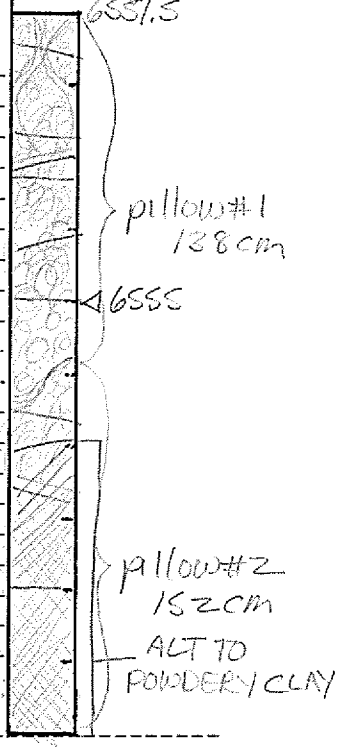
Smectite 1,2

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		

Other(describe)

COMMENTS

RQD = 158/290 = 54%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 20% olivine phenos (with aligned white mm laths on the basal of core, iridiscent on fracts in a dk gray matrix altered to smectite. Contact is 1cm green hyaloclastite.

2) pillow, lith as above. Unit turns to gray powdery clay 40cm below contact. Does not appear to be a different unit but a change in alteration.

CORE LOG

BOX # 27K HOLE # 2 Sheet A

Depth range 2001.10 to 2003.85 meters Depth range 6561 to 6570 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10					
Shape	R					
Size(x)	<2mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt to grn clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay #1

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite #1

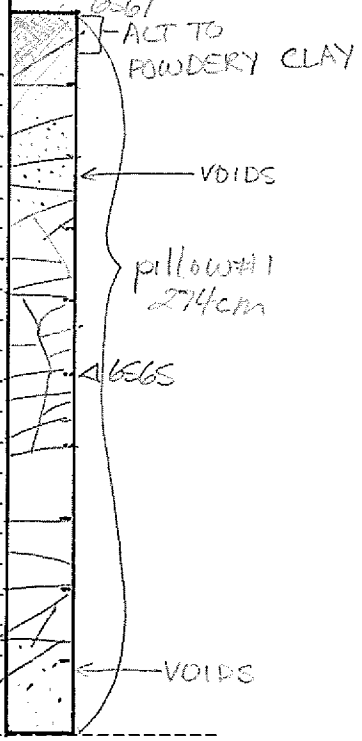
Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 104/274 = 38%

(large pieces of core are barely competent)

cont. from box 277



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 20% olivine phenos & mph alt. to grn clay in a dk gray matrix altered to smectite. Box may contain more than one pillow unit but is so altered contacts can't be seen. Voids present appear to be vesicles, not plucked phenos.

CORE LOG

BOX # 279 HOLE # 2 Sheet A

Depth range 2003.85 to 2008.12 meters Depth range 6570 to 6584 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	30					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							

Comments alt to blk clay

Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							
Comments							
Augite	%						

GROUNDMASS (original)

Aphanitic		✓					
Feldspathic							
Diktytaxitic							

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite ✓

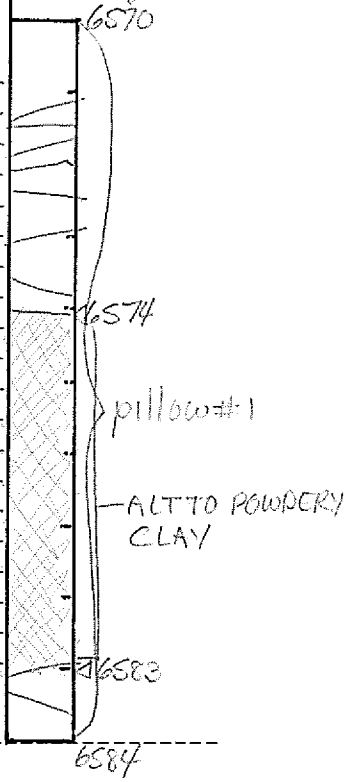
Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 75/305 = 24%

4' lost core (large pieces of core are pretty competent)

cont from box 278



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 30% olivine phenos & mph alt to blk. clay in a dk gray matrix altered to smectite. Box may contain more than one pillow unit but is too altered to see contacts.

CORE LOG

BOX # 280 HOLE # 2 Sheet A

Depth range 2008.12 to 2010.86 meters Depth range 6584 to 6593 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box_____ Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	30					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments crayd white with blk aureola on core band

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite ✓

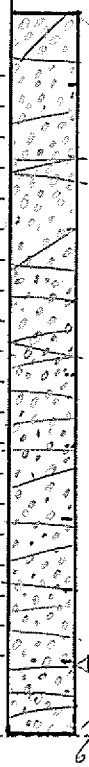
Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 218/274 = 79%

large pieces of core are barely competent

cont from box 279



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 30% olivine phenos <1mph crayd white with blk aureolas on band of core, up to 1.6cm dia, in a gray green matrix altered to smectite.

CORE LOG

BOX # 281 HOLE # 2 Sheet A

Depth range 2010.9 to 2013.9 meters Depth range 6593 to 6603 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5% 10-20%						
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olivine replaced by black and white clay's

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	?✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

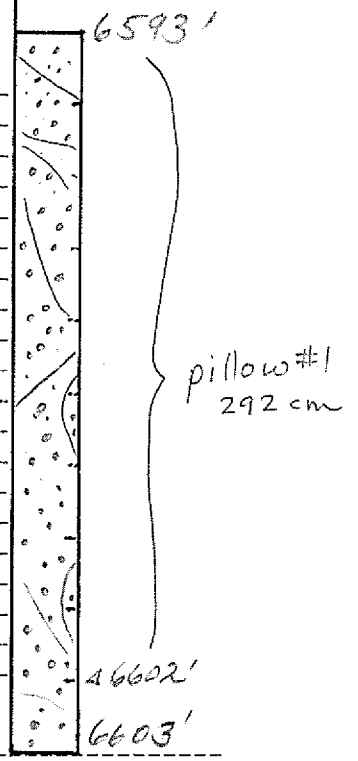
Chlorite

Smectite ✓ Is it saponite yet?

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 245/292 = 84%



CRITICAL FEATURES (description of units or features by number)

1) Altered pillow lava, pilotaxitic, with 10-20% olivine phenocrysts & microphenocrysts (replaced by clays) in an altered gray green groundmass (aphanitic ?).

CORE LOG

BOX # 282 HOLE # 2 Sheet A

Depth range 2013.9 to 2016.7 meters Depth range 6603 to 6612 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 2 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10-20					
	1-5%						
	<1%	~1%					
Phenos		✓					
mph	✓	✓					
ol-plag							

Comments

Plagioclase							
>5%							
1-5%							
<1%							
Rhombs							
Blades/laths							
mph							

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓	✓					
Feldspathic							
Diktytaxitic							

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

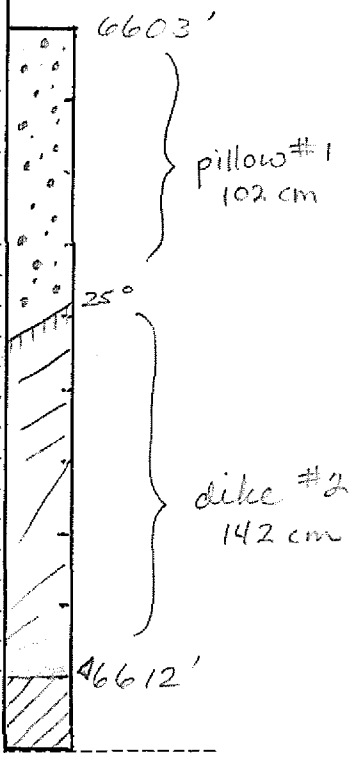
Chlorite

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite	✓	
white fibrous		
green (mesolite?)	✓	
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	✓
Epidote	✓	
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 99/244 = 41%



CRITICAL FEATURES (description of units or features by number)

1) Pillow lava with 10-20% olivine phenocrysts and micro-phenocrysts (altered to clays) in a gray green altered aphanitic groundmass. Pyrite in altered phenocrysts, Smectite along fracture.

2) Dike, avesicular, with ~1% olivine microphenocrysts (altering to clays) in a grey aphanitic groundmass. Fractures coated with smectite, pyrite, epidote and zeolite (? - smectite coating fibers - mesolite).

CORE LOG

BOX # 283 HOLE # 2 Sheet A

Depth range 2016.7 to 2019.7 meters Depth range 6612 to 6622 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric 1 2 3 4 5 6

mega (>.5 mm)

micro(<.5 mm) ✓

Aphyric

Vesicles: % <1%

Shape S-R

Size(x) 3mm

PHENOCRYSTS(Original mineralogy)

Olivine >5%

1-5%

<1% ✓

Phenos

mph ✓

ol-plag

Comments

Plagioclase

>5%

1-5%

<1%

Rhombs

Blades/laths

mph

Comments

Augite %

GROUNDMASS (original)

Aphanitic

Feldspathic ✓

Diktytaxitic

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	✓
Calcite		
Zeolite		
white fibrous	✓	
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	?	
Chalcedony		
Crystals	✓	✓
Pyrite	✓	✓
Epidote	✓	
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite	✓	
Other(describe)		

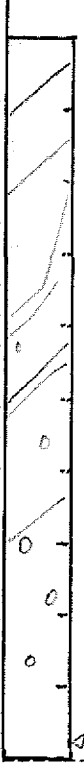
white, saccharoidal substance along fracture 11-4-5 amorphous quartz

COMMENTS

RQD = 261/291 = 90%

Pyrite breaking down to iron oxides (hematite) along fractures.

Vugs mineralized with white crystals, pyrite rhombs + smectite



CRITICAL FEATURES (description of units or features by number)

1) Dike with <1% vesicles and <1% olivine (micro) phenocrysts in a grey feldspathic groundmass.

Fracture-fill: smectite, green fibrous zeolite (mesolite), amorphous quartz (?), pyrite (breaking down to hematite), and epidote.

Vugs: smectite, quartz crystals, pyrite.

CORE LOG

BOX # 264 HOLE # 2 Sheet A

Depth range 2019.71 to 2022.76 meters Depth range 6622 to 6632 feet

Logger's Name EN Page 1

Type of Sample: Flow_____ Intrusive / Ash_____ Breccia_____ Red Bed_____

Number of Units in Box / Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %	<1%					
Shape	R					
Size(x)	5mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		✓
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite abund		✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

(alteration to rust ↓ notable (?) bottled)

platy white mineral fract bottled

COMMENTS

RQD = 156/305 = 51%

2 min. samples bottled

cont from box 283

6622



dike #1 305cm

6632

CRITICAL FEATURES (description of units or features by number)

1) dike, sparsely vesicular, 1%, 5mm, vesicles filled or lined with gray X-talc, aphyric diktytaxitic gray basalt.

CORE LOG

BOX # 285 HOLE # 2 Sheet A

Depth range 2022.74 to 2025.66 meters Depth range 6632 to 6641.5 feet

Logger's Name EM/ Page 1

Type of Sample: Flow_____ Intrusive / Ash_____ Breccia_____ Red Bed_____

Number of Units in Box /____ Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %	<1%					
Shape	R					
Size(x)	3mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		✓
Crystals	✓	✓
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

alteration to mud

COMMENTS

RQD = 72/290 = 25%

cont from bx 284

6632

dike #1

290 cm

6641.5

CRITICAL FEATURES (description of units or features by number)

1) dike, very sparsely vesicular <1%, 3mm first 120cm of unit grades to avesicular aphyric diktyt. felds basalt. Vesicles filled with grn. x-tals.

CORE LOG

BOX # 286 HOLE # 2 Sheet A

Depth range 2025.7 to 2028.6 meters Depth range 6641.5 to 6651 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos						
mph	✓					
ol-plag						

Comments_____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

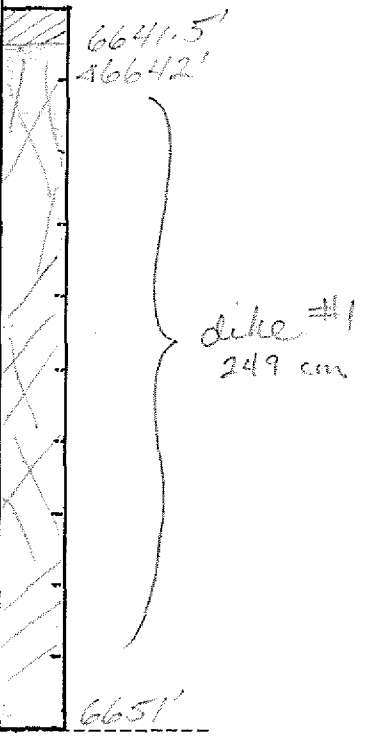
Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	* ✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	* ✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 40/249 = 16 %



CRITICAL FEATURES (description of units or features by number)

1) Dike with <1% olivine microphenocrysts (altered to clay) in a grey diktytaxitic groundmass.
Fractures lined with smectite, calcite rhombs, and pyrite rhombs.

CORE LOG

BOX # 287 HOLE # 2 Sheet A

Depth range 2028.55 to 2031.30 meters Depth range 6651 to 6660 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments_____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay_____

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite_____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite abund		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

alteration to most

COMMENTS

RQD = 51/290 = 17%

cont from box 286

6651

6652

dike #1 290cm

6660

CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic aphyric dkty lt. gray basalt. Unit becomes aphanitic last 30 cm, probably getting close to a contact.

CORE LOG

BOX # 288 HOLE # 2 Sheet A

Depth range 2031.3 to 2033.7 meters Depth range 6660 to 6668 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %		3%				
Shape		S-R				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%		7-15%				
1-5%						
<1%	<<1%					
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments

Plagioclase

>5%						
1-5%						
<1%	<<1%					
Rhombs						
Blades/laths						
mph	✓					

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

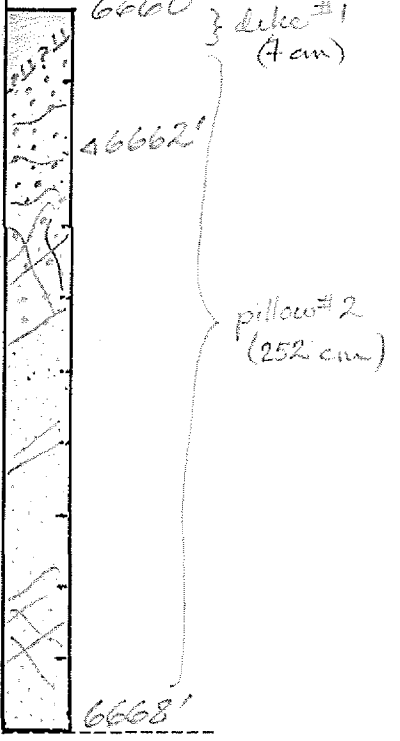
Chlorite

Smectite ✓2

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓1	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 119/259 = 46%



CRITICAL FEATURES (description of units or features by number)

1) Dike with << 1% olivine microphenocrysts and < 1% plagioclase microphenocrysts in a light gray aphanitic groundmass. Pyrite and smectite along fractures. Bottom dip too fractured to find.

2) Pillow lava with 3% vesicles (filled with smectite), 7-15% olivine phenocrysts and microphenocrysts (altered to smectite and serpentine(?)) in an altered to clay, dark gray aphanitic groundmass.

Smectite and calcite along fractures

CORE LOG

BOX # 289 HOLE # 2 Sheet A

Depth range 2033.74 to 2036.58 meters Depth range 6668 to 6677 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive 2 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %		<1%				
Shape		R				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	30					
1-5%						
<1%		✓				
Phenos	✓					
mph	✓	✓				
ol-plag						

Comments alt to blk clay

Plagioclase

>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths		✓				
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic		✓				
Diktytaxitic		✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay #1, 2

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

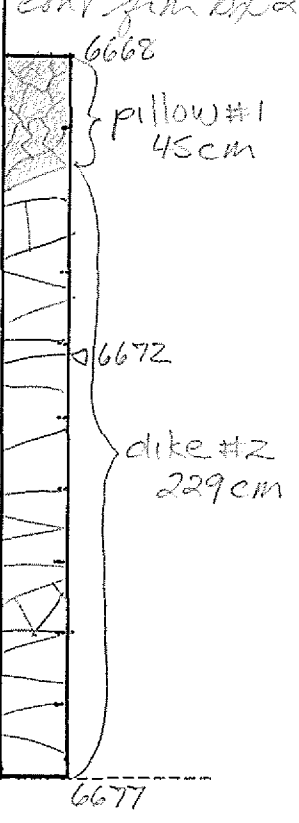
Chlorite_____

Smectite #1

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 108/274 = 39%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 30% olivine phenos ± mph alt blk in a clk. gray matrix altered to smectite and fractured to rubble.

2) dike, microvesicular <1%, <1mm; <1% olivine mph alt blk and <1% plag blades ± laths in a lt gray dikty matrix. Top dip = ? (too fractured to find)

CORE LOG

BOX # 290 HOLE # 2 Sheet A

Depth range 2036.48 to 2039.84 meters Depth range 6677 to 6688 feet

Logger's Name EN/ Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	<1%					
Shape	R					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%	1					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt blk

Plagioclase						
>5%						
1-5%	3					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					

Comments

Augite %						

GROUNDMASS (original)						
Aphanitic		✓				
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1/2

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

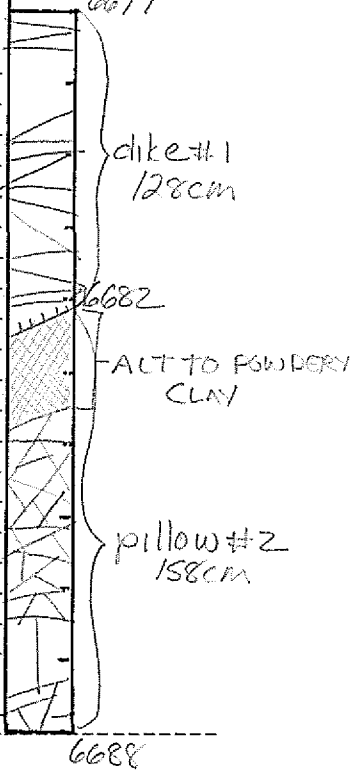
Smectite 1/2

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 20/266 = 7%

1' loot core (probably more)



CRITICAL FEATURES (description of units or features by number)

1) dike, microvesicular <1%, <1mm; 1% olivine mph, alt blk, 3% plag blades & laths, most phenos are in the bottom 10 cm of unit (?-tal settling), all in a dkbly dk gray matrix. Bottom dip ≅ 40°

2) pillow, picritic, 20% olivine phenos & mph, alt blk, in a dk gray aphan. matrix completely altered to smectite

CORE LOG

BOX # 291 HOLE # 2 Sheet A

Depth range 2039.8 to 2042.6 meters Depth range 6688 to 6697 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast ✓

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%						
<1%						
Phenos	✓					
mph						
ol-plag	✓					

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		

Other(describe) white waxy clay ✓

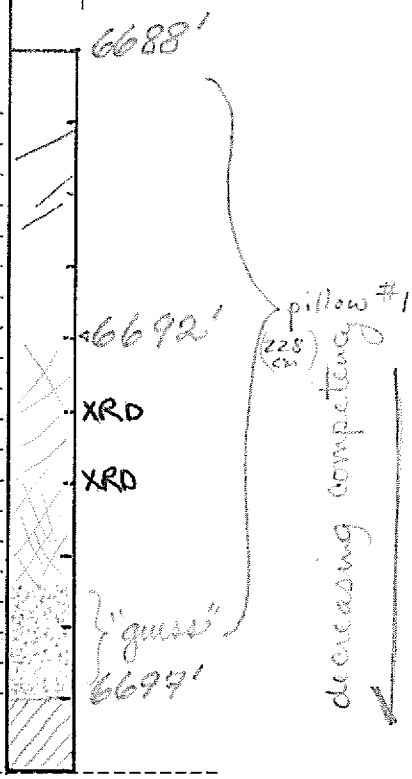
COMMENTS

RQD = 112/228 = 49%

2 XRD samples from pillow lava:

1) green soapy clay from pillow gr.mass.

2) white waxy clay from fracture in pillow lava.



CRITICAL FEATURES (description of units or features by number)

1) Pillow lava with 5-7% olivine phenocrysts and microphenocrysts (>50% ~10-20% as plucked altered to pale green clays) in a grey green altered to clay aphanitic groundmass. Highly altered. No visible contacts.

Smectite (serpentine?) found along fractures replacing groundmass and phenocrysts.

6693': "smectite or serpentine from groundmass" = illite-smectite, 70% illite. RE 12/30/91

CORE LOG

BOX # 292 HOLE # 2 Sheet A

Depth range 2042.56 to 2045.33 meters Depth range 6697 to 6706 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt. blk.

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

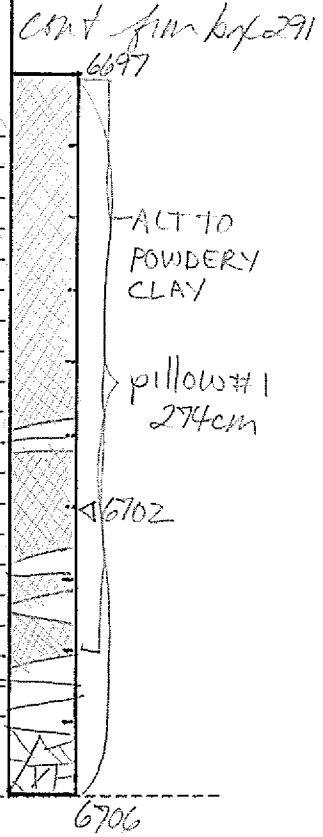
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 0%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 20% olivine phenos c mph, alt blk, in a aphan. dk gray blue matrix completely altered to smectite. Box may contain more than one pillow unit but is too altered to see contacts.

CORE LOG

BOX # 293 HOLE # 2 Sheet A

Depth range 2045.33 to 2046.38 meters Depth range 6706 to 6716 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt blk

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

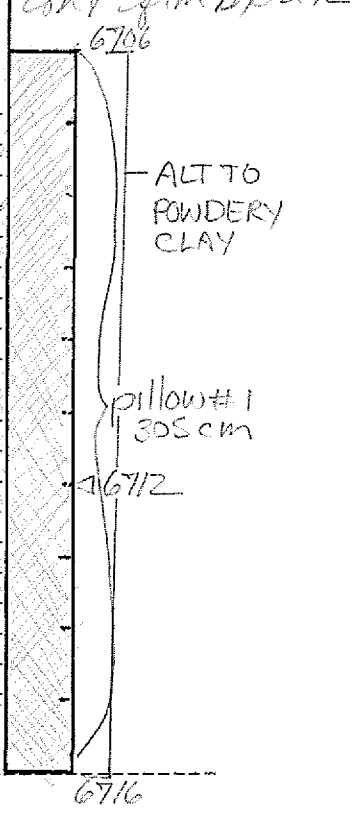
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite sparse		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 0%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 20% olivine phenos & mph, alt blk, in a dk gray green matrix completely altered to smectite. Box may contain more than one pillow unit but is too altered to see contacts.

CORE LOG

BOX # 294 HOLE # 2 Sheet A

Depth range 2048.4 to 2051.4 meters Depth range 6716 to 6726 feet

Logger's Name RE Page 1

Type of Sample: Flow____ Intrusive 2 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1, 3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%	10%		10%			
1-5%						
<1%		✓				
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓		✓			
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

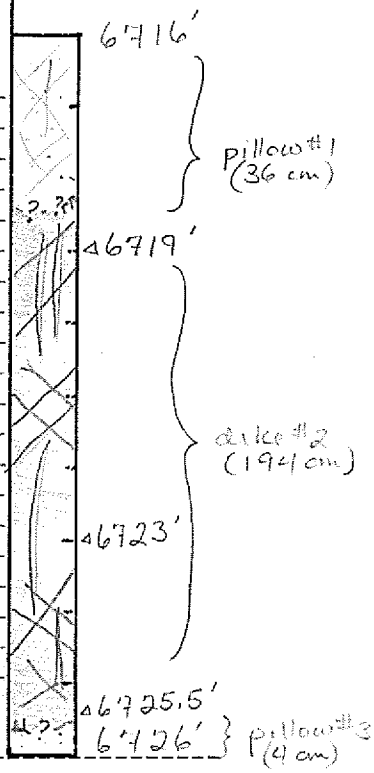
Chlorite

Smectite ✓1

Secondary/Alteration	Min.	Fracture	Vesicle
Smectite	✓		
Calcite			
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous			
Chalcedony			
Crystals			
Pyrite	√2		
Epidote			
Gypsum			
Anhydrite			
Chalcopyrite			
Limonite			
Hematite			
Other(describe)			

COMMENTS

RQD = 41/234 = 18%



CRITICAL FEATURES (description of units or features by number)

1, 3) Highly altered pillow lavas, picritic, with 10% olivine phenocrysts and microphenocrysts (>70% altered to clay and some plucked) in a grey-green altered aphanitic groundmass.

2) Highly fractured and broken up dike with <1% olivine phenocrysts and microcrysts (altered to clay and plucked) in a grey slightly diktytaxitic groundmass. Smectite and pyrite

CORE LOG

BOX # 295 HOLE # 2 Sheet A

Depth range 2051.42 to 2053.87 meters Depth range 6726 to 6734 feet

Logger's Name EAI Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 34/244 = 14%

cont from box 294

6726



6734

CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 20% olivine phenos & mph, alt blk, in a dk gray green aphanitic matrix completely altered to smectite. Box may contain more than one pillow unit but is too altered to see contacts. Voids on basal of core appear to be plucked phenos.

CORE LOG

BOX # 296 HOLE # 2 Sheet A

Depth range 2053.87 to 2056.61 meters Depth range 6734 to 6743 feet

Logger's Name EM Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	20					
Shape	R					
Size(x)/mm						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt blk / crazed white

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

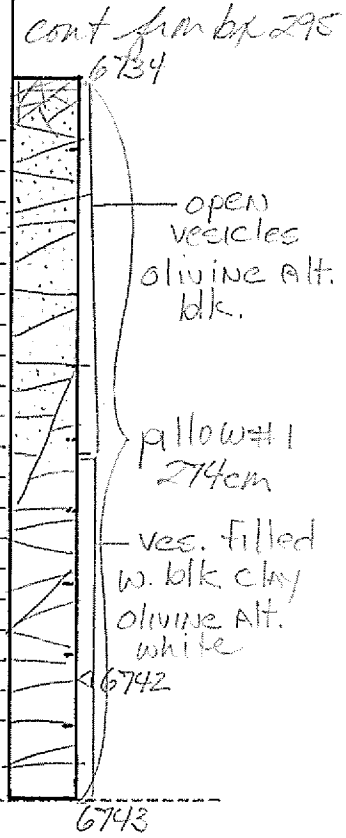
Chlorite

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 76/274 = 27%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, vesicular 20%, 1mm; vesicles are open in top 160cm of unit, filled w. blk clay below this. 20% olivine phenos & mph are alt blk in open vesicle portion, crazed white where vesicles are filled w. blk clay; all in a gray aphan. matrix altered to smectite. Unit is w.o. visible contacts

CORE LOG

BOX # 297 HOLE # 2 Sheet A

Depth range 2056.61 to 2059.51 meters Depth range 6743 to 6752.5 feet

Logger's Name GN/ Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt to blk. iddsct

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

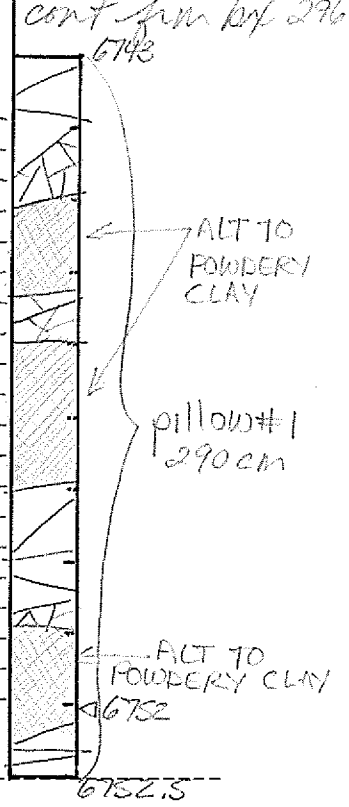
Chlorite

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 29/290 = 10%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picrite, 20% olivine phenos & mph alt. to blk iddsence in a gray to gray green matrix altered to smectite. No visible pillow contacts.

CORE LOG

BOX # 298 HOLE # 2 Sheet A

Depth range 2059.5 to 2062.6 meters Depth range 6752.5 to 6762.5 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast /

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	?					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic	?✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓ pyrite

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

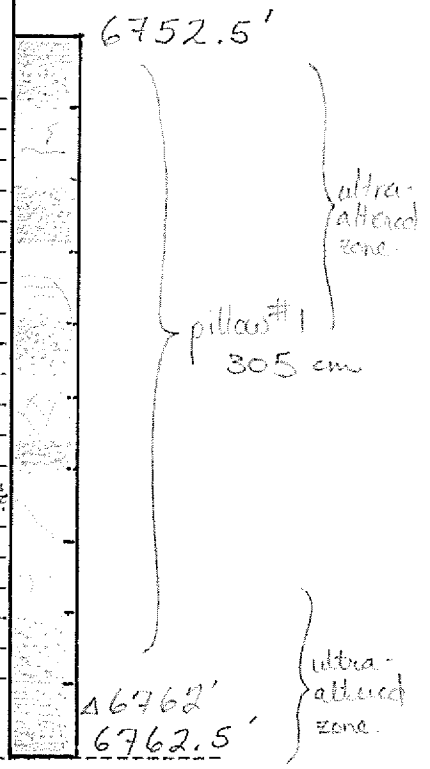
Chlorite_____

Smectite ✓ green groundmass

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	✓ plag
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 32/305 = 10%



CRITICAL FEATURES (description of units or features by number)

1) Pillow lava, picritic, with 10% olivine phenocrysts and microphenocrysts (all altered to clays) and many pitted in a green clay matrix (replaced aphanitic groundmass). Vesicles ?? Grading to less altered pillow lava with a black clay matrix and some unaltered phenocrysts breaking down to grust. Strongly metamorphosed. Pyrite replaces phenos and occurs along fractures. Calcite blebs in fractures

CORE LOG

BOX # 299 HOLE # 2 Sheet A

Depth range 2069.51 to 2065.46 meters Depth range 6762.5 to 6772 feet

Logger's Name CH Page 1

Type of Sample: Flow____ Intrusive 2 Ash____ Breccia____ Red Bed____

Number of Units in Box 2 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric		✓				
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt blk.

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic		✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

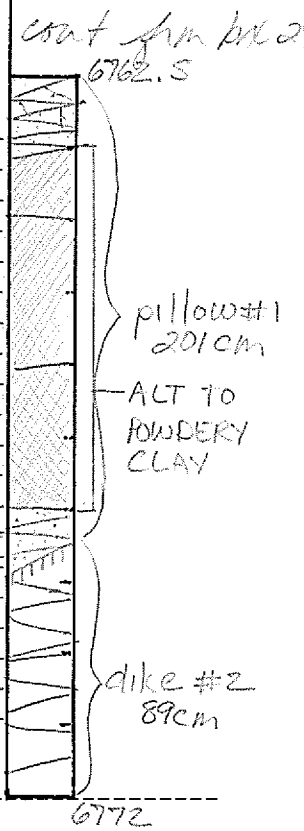
Chlorite

Smectite #1

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 12/270 = 4%



CRITICAL FEATURES (description of units or features by number)

1) pillow, picritic, 20% olivine phenos & mph alt. blk in a gray green matrix completely altered to smectite. No pillow contacts visible. Voids on base of core appear to be plucked phenos but <<1mm aphyric in gd mass suggest filled microvesicles.

2) dike, amygdular, aphyric dk gy-lt. gray basalt. Top dip = 65°

CORE LOG

BOX # 300 HOLE # 2 Sheet A

Depth range 2065.5 to 2068.5 meters Depth range 6992 to 6782 feet

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive 1 Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 1 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	S-SR					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	<<1%					
Phenos	✓					
mph	✓					
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%	<<1%					
Rhombs						
Blades/laths	✓					
mph	✓					

Comments_____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite_____

Plag -> Clay ✓

Zeolite_____

Groundmass

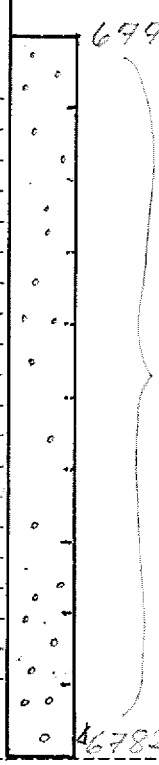
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite		
Zeolite	✓	
green fibrous white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 217/293 = 74%



CRITICAL FEATURES (description of units or features by number)

1) Dike with <1% vesicles (1mm), <<1% bright green - army green olivine phenocrysts and microphenocrysts, and <<1% plagioclase laths and microphenocrysts in a light grey microcrystalline feldspathic groundmass (interlocking plag and olivine with smectite replacing base matrix). Vesicles filled with smectite, quartz crystals and pyrite rhombs.
Green fibrous zeolite along fracture faces and pyrite veins.

CORE LOG

BOX # 301 HOLE # 2 Sheet A

Depth range 2068.51 to 2071.86 meters Depth range 6782 to 6793 feet

Logger's Name EAI Page 1

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____ Red Bed____

Number of Units in Box 3 Clk/Rubble____ Carbonate____ Pillow/Hyaloclast 2,3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)		✓	✓			
micro(<.5 mm)		✓	✓			
Aphyric	✓					
Vesicles: %	1					
Shape	R					
Size(x)	/mm					

PHENOCRYSTS(Original mineralogy)

		1	2	3	4	5	6
Olivine	>5%		15	15			
	1-5%						
	<1%						
Phenos			✓	✓			
mph			✓	✓			
ol-plag							

Comments alt dk gray

Plagioclase		1	2	3	4	5	6
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							

Comments

Augite	%	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic		✓	✓			
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

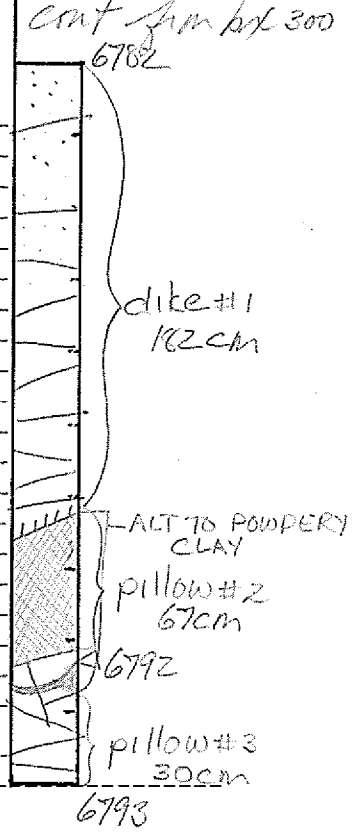
Smectite____

Secondary/Alteration Min.	Fracture	Vesicle
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		#1
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 106/305 = 35%

1' lost core



CRITICAL FEATURES (description of units or features by number)

1) dike, microvesicular 1%, 1mm vesicles filled with gry. X-tals aphyric diktytaxitic gray basalt grading to aphanitic at contact. Bottom dip = ?

2) pillow, picritic, 15% olivine phenos 3 mph alt. blk in a lt. purplish gray matrix altered to smectite. Contact is 3cm fine grained lt. green hyaloclastite.

3) pillow, brk as in #2

CORE LOG

BOX # 302 HOLE # 2 Sheet A

Depth range 2071.9 to 2074.6 meters Depth range 6793 to 6802 feet E.O.H.

Logger's Name RE Page 1

Type of Sample: Flow_____ Intrusive_____ Ash_____ Breccia_____ Red Bed_____

Number of Units in Box 2 Clk/Rubble_____ Carbonate_____ Pillow/Hyaloclast 1, 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	3-5%	3-5%				
Shape	S-R	S-R				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10%	10%				
1-5%						
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments_____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments_____

Augite %_____

GROUNDMASS (original)

Aphanitic	?✓	?✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay and pyrite

Iddingsite_____

Plag -> Clay_____

Zeolite_____

Groundmass

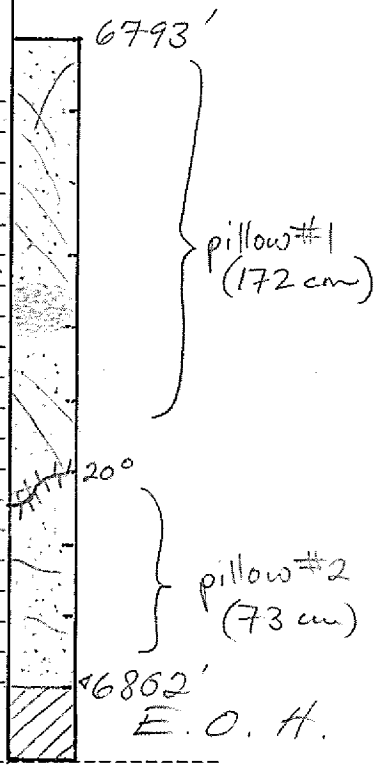
Chlorite_____

Smectite ✓

Secondary/Alteration Min.	Fracture	Vesicle
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other(describe)		

COMMENTS

RQD = 153/245 = 62%



CRITICAL FEATURES (description of units or features by number)

1, 2) Pillow lavas, picritic, with 3-5% clay-filled vesicles and 10% olivine phenocrysts and microphenocrysts (altered to green clay, pyrite and some are plucked) in a grey-green altered aphanitic groundmass.

Smectite and powdery calcite along fractures.